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Chapter 8

The Polar Code’s Suitability as Legal Protection Against Negative Externalities in the Arctic as Part of the Polar Silk Road?

Christian Frier and Kim Østergaard

1. Introduction

The effects of global warming have already given rise to significant climate changes in the Arctic region, as the sea ice in the Arctic Ocean is constantly diminishing. Once considered a remote area and hostile environment with limited commercial interest, increased access and navigability promote new business opportunities. This includes, \textit{inter alia}, the utilisation of previously inaccessible living and non-living resources as well as access to two international shipping routes, respectively termed the Northwest Passage across North America and the Northeast Passage across Russia. The Arctic routes result in a reduction in time, fuel consumption and CO$_2$-emission compared to the existing shipping routes, thus reducing the negative externalities associated with international shipping. The Northeast Passage is also connected to the ‘Maritime Silk

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5 The concept of negative externalities does not have a clear and unambiguous meaning. It can be broadly understood as the damage caused by an act or by omission. In the eyes of the economist, R. H. Coase, who is discussed in more detail below under Section 4, the principle, in its broadest sense, relates to how the contractual function can be used as a means to minimize the negative externalities and maximize the economic output, since the courts often do not come to an economically efficient result in cases of tort. The negative externalities in the context of this article are directly linked to the environmental damage in case of operational and accidental pollution cause to the Arctic. See further in R.H. Coase, ‘The Problem of Social Cost’, The Journal of Law & Economics, Vol. III (1960), pp. 1-44.

Road’ establishing what is commonly dubbed the ‘Polar Silk Road’. The possibility of navigating directly between the Polar Silk Road and the Maritime Silk Road has prompted new strategic opportunities for maritime industries. Also, Arctic shipping is not affected by political instability as it is in the Middle East or the risk of piracy in the waters off the coast of Africa. Through that prism, the incentives for private actors to explore and utilise the Arctic as a viable alternative are evident. However, the positive externalities associated with commercial activities in the Arctic, shall at the same time be evaluated against the threats related to the increased accessibility, thus emphasising the need to safeguard the marine environment.

Vessel source pollution constitutes a potential negative externality, which in this context, refers to the environmental damage caused by either operational or accidental pollution. Another concern is the maritime infrastructure or rather, the lack thereof, should an environmental damage occur. Even smaller spills might have a detrimental effect on the Arctic region’s wildlife, while large scale pollution can have completely disastrous consequences for the unique and pristine habitat. In addition to potential negative externalities following from the risk of environmental pollution in general, there is an increased demand within sea cruising to explore the Arctic, which further reinforces the need for Search & Rescue (SAR) emergency preparedness bestowed

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8 Piracy is considered among the greatest maritime security threats and remains on the agenda of the MSC, see e.g. MSC meeting summary of the 99th session (16-25 May 2018).


10 Other sources of environmental pollution, including land-based marine pollution, and pollution from seabed activities or fishing will not be examined in this article.


12 The Exxon Valdez oil spill disaster which occurred off the coast of Alaska in 1989, triggered discussions on additional demands regarding ice strengthened ship hulls, cf. IMO Doc. MSC 59/30/32.

13 Passenger ships with a capacity of over 1,000 passengers are navigating the Northwest Passage. The Cruise Lines International Association (CLIA) was particularly active during the development of the Polar Code, e.g. IMO, DE 57/11/21 ‘Development of a mandatory code for ships operating in polar waters – administrative procedures for application of the Polar code’, submitted by CLIA.
upon the Arctic states.\textsuperscript{14} Taking those pointers, maritime safety and marine protection, into consideration, the International Maritime Organization’s (IMO) “International Code for Ships Operating in Polar Water” – Polar Code, has been adopted to protect the polar waters and enhance the safety of humans at sea.

The scope of this article is to undertake an examination of the Polar Code’s impact on Arctic shipping with a special focus on safeguarding the marine environment. This article first briefly examines the legal framework governing the Arctic Ocean. This overview paves the way for a more detailed introduction to the Polar Code as a legally binding instrument, with reference to the two guidelines on which the Polar Code is formulated. This section also covers the procedural perspective, before the relevant substantive rules of the Polar Code are discussed with the purpose of evaluating its function as a stewardship tool. Understanding that compliance is not merely a question of adopting rules, but also a question of effective control and enforcement, a section of this article is devoted to this focus. The analysis places the Polar Code in the broader content of international law. Finally, an alternate view is presented in the context of private actor’s as regulators in Arctic. The relevant question to ask in that context is whether industry self-regulation and co-regulation constitute appropriate measures to mend the gaps in the Polar Code.

2. The legal framework and governance of the Arctic

Despite uncertainties surround the future and the consequences of Arctic Shipping, the legal framework pertaining to the Arctic Ocean is less ambiguous at a first glance.\textsuperscript{15} The overarching regime governing the Arctic Ocean is the UN Convention of the Law of the Sea.\textsuperscript{16} The Arctic cannot be considered an enclosed or semi-enclosed sea, by the


\textsuperscript{15} The governance of shipping activities in the Arctic has been described as a complicated mosaic, cf. Arctic Marine Shipping Assessment 2009 Report (AMSA), p. 54.

very reason of the definition set out in art. 122.\textsuperscript{17} Except from one single article\textsuperscript{18}, ice-covered areas are not treated any differently in the LOS Convention. Similarly, most marine and maritime treaties do not exclude particular regions or ocean spaces and can thereby be considered geographically universal in scope of application.\textsuperscript{19} Of particular importance to the marine environment is the 1973 International Convention for the Prevention of Pollution from Ships, as modified by the Protocol of 1978 (MARPOL 73/78) and the International Convention for the Safety of Life at Sea with amendments (SOLAS). MARPOL is the foremost international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes.\textsuperscript{20} According to its preamble the convention seeks to achieve the complete elimination of international pollution of the marine environment.\textsuperscript{21} Another international convention of great importance is SOLAS, which defines standards pertaining to the construction, design, equipment and manning of ships (CDEM standards).\textsuperscript{22} In addition to the international law framework, at least two other governance initiatives with influence on commercial activities in the Arctic are worth mentioning.

\textbf{2.1. The 2008 Ilulissat Declaration}

In 2008, the Arctic coastal states signed the Ilulissat Declaration.\textsuperscript{23} The declaration specifies that it is the view of the signatory states that the law of the sea adequately serves as a basis to solve disputes, following from overlapping claims over the Arctic,


\textsuperscript{18} The LOS Convention contains only one article referring expressively to the polar regions, art. 234 which places special prescriptive right to coastal States in ice-covered areas.

\textsuperscript{19} The number of subject specific conventions with relevance to Arctic Shipping is comprehensive. A list can be found in the ASMA 2009 Report, pp. 59-70.


\textsuperscript{21} MARPOL, Preamble, 4th Recital.

\textsuperscript{22} E.J. Molenaar, ‘Status and Reform of International Arctic Shipping Law’, Arctic Marine Governance – opportunities for Transatlantic Cooperation (2013), p. 142.

\textsuperscript{23} The Ilulissat Declaration, Arctic Ocean Conference Ilulissat, Greenland, 27 – 29 May 2008, pp. 1-2. The Arctic coastal states include the United States, Canada, Russia, Norway and Denmark, as Greenland forms part of the Kingdom of Denmark.
thus declining the need for an ‘Arctic Convention’. This soft power approach is pursued by the adoption of appropriate measures,\textsuperscript{24} including bi- and multilateral agreements on extraction of natural resources to avoid tensions to escalate.\textsuperscript{25} However, because of the melting ice cap, the coastal states must also take the unprecedented focus of Central Arctic Ocean (CAO) fishing into consideration.\textsuperscript{26} Foreign-flagged fishing vessel’s growing attention to accessible and cost-efficient CAO fishing presents yet another governance issue, which according to the freedom of the high seas cannot be dictated by the Arctic states.\textsuperscript{27} The Arctic has a wide range of attractive fishing areas, including but not limited to North East Atlantic (Norwegian and Barents Seas), the Central North Atlantic (Iceland and Greenland), North East Canada (Newfoundland and Labrador Sea) and the North Pacific (Bering Sea). Some of which are home to commercially attractive species such as cod, capelin, halibut, pollock, shrimp, crab, and herring.\textsuperscript{28} In order to secure a sustainable harvesting of fish stocks in the CAO area, a regional cooperation between the Arctic five which also includes important non-Arctic states like China and Japan, has agreed to “The 2018 Agreement to prevent unregulated high seas Fisheries in the Central Arctic Ocean.”\textsuperscript{29} In spirit, the multilateral agreement supports a precautionary approach to the conservation and management of living resources. However, the ambit of the agreement is limited to fishing activities and does not set additional standards for trans-Arctic shipping.

\textsuperscript{24} Ilulissat Declaration (2008), p. 1.
\textsuperscript{29} EU COM (2018) 454 final.
2.2. Guidelines

Because of the navigational freedom and the rights assigned to all flag states under the LOS Convention\textsuperscript{30}, additional legal instruments appropriate to govern Arctic shipping was required. A pivotal contributor to behaviour-related norms of formal and informal nature is the IMO.\textsuperscript{31} As the UN’s organization with jurisdictional competence in marine and maritime affairs,\textsuperscript{32} IMO promotes various types of legal instruments. IMO has for instance issued two guidelines, entitled ‘Guidelines for ships operating in arctic ice-covered waters’\textsuperscript{33} and ‘Guidelines for ships operating in polar waters’\textsuperscript{34} respectively. Common to both set of guidelines is the fact that none of them are mandatory, and thus characterised as ‘soft law’.\textsuperscript{35} A common feature of such instruments is that they do not have binding effect \textit{per se} and cannot serve as a basis of enforcement or sanction within the public sphere in case of non-compliance. This is not necessarily negative, as this type of behavioural approach may be appropriate in cases, where mandatory legislation cannot be achieved.\textsuperscript{36} This interplay between formal and informal rules is a discipline that IMO is accustomed to, as noted by F. L. Kirgis, who emphasises the organization’s ability to find ways to channel members’ conduct.\textsuperscript{37} This happens through codes and guidelines which, while not always mandatory, may have a similar effect as formal rules on the addressees.\textsuperscript{38} Likewise, soft law are often well suited to become hard law.

\textsuperscript{30} LOS Convention art. 87 entitled ‘Freedom of the high sea’ and to a lesser degree the regime of innocent passage (Part I, section 3) as well as regional MoU’s on calling for port.


\textsuperscript{32} The 1948 Convention on the International Maritime Organization (IMO Convention), art. 1 concerning the purposes of the organization.


\textsuperscript{34} IMO, A 26/Res.1024 (2010).


The adoption of the Polar Code serves as a prime example with the initial guidelines that paved the way for the Polar Code. In summary, the regulation of Arctic Shipping is by no means a legal vacuum, but rather a complex legal setting.

3. The Polar Code

In recognition of the increasing need for binding and enforceable rules pertaining to Arctic shipping, Denmark, Norway, and the United States pointed to the need for a mandatory code for ships which operate in polar waters.\(^\text{39}\) According to the proposal, such an instrument should enter into force by 2012. The ambitious timeframe was not meet, however, IMO adopted the Polar Code in the following years,\(^\text{40}\) with subsequent dates for the Code to entering into force. In terms of source of law, the Code can be considered *lex specialis*, since the Code's geographical scope of application is limited to the two Polar regions. It is thus an addition to, rather than a replacement of, existing rules. As to the scope of the Code, it should be mentioned that it is far more exhaustive than what was applicable under the two existing guidelines from 2002 and 2010. The main difference between the guidelines and the Code is hence not just a question of the mandatory nature. The recommendations in the guideline from 2002 addresses issues including but not limited to waste facilities, communication and environmental risks.\(^\text{41}\) The guideline from 2010 is essentially a reproduction of the recommendations in the guideline from 2002, however as it can be deduced from the title that it also covers Antarctica.

3.1. Purpose and procedural rules

The overall purpose of the Polar Code is ‘to provide for safe ship operation and the protection of the polar environment by addressing risks present in polar waters and not


\(^{40}\) The SOLAS amendments were adopted during the 94th session of MSC, in November 2014 and the environmental provisions in MARPOL were adopted during the 68th session of MEPC the following year in May 2015.

\(^{41}\) IMO, MSC/Circ. 1056, MEPC/Circ. 399 (2002), section 16.1.
adequately mitigated by other instruments of the Organization.’\textsuperscript{42} Given the dualistic focus on maritime safety and marine protection, the Polar Code was drafted by IMO’s specialized agencies, Maritime Safety Committee (MSC)\textsuperscript{43} and Marine Environment Protection Committee (MEPC) respectively.\textsuperscript{44} The internal structure of the Polar Code consists of two separate parts, A and B, dealing with maritime safety and pollution prevention respectively. In addition, each part is divided into two separate sub-parts. The first contains mandatory rules (A-I and B-I), and the latter part is recommendations (A-II and B-II). It is especially the Polar Code’s mandatory parts, that differentiate it from the previous guidelines. To ensure its binding effect,\textsuperscript{45} the Code is implemented in SOLAS, for the part on maritime safety, and in MARPOL, for the part relating to pollution prevention.\textsuperscript{46} The Code was adopted in accordance with IMO’s tacit adoption procedure,\textsuperscript{47} and entered into force in 2018 for ships built after the cut-off date, while ships already in service are obliged to comply with the Code upon first inspection, but no later than 2020.\textsuperscript{48}

\subsection*{3.2. Safety measures}

New concepts and definitions are developed within the Polar Code framework. For instance, ships are classified in one of the three nominated polar classes A, B, or C, which refers to the ice class assigned. The concept of ice classes is derived from the International Association of Classification Societies’ (IACS) “Unified Requirements for Polar Ships”.\textsuperscript{49} Two parameters come into play when the ice class is determined. The extent of the expected activity in conjunction with risk factors. A distinction is thus

\begin{footnotesize}
\begin{enumerate}
  \item IMO, Resolution MEPC.264(68), p. 8.
  \item Maritime Safety Committee (MSC), cf. the IMO Convention Part VII.
  \item Marine Environment Protection Committee, cf. the IMO Convention Part IX.
  \item IMO, MEPC 68/21/Add.1.
  \item Chapter XIV, regulation 2 (2).
  \item The IACS standard are also incorporated by reference into the IMO Guidelines for Ships Operating in Arctic Ice-covered Waters.
\end{enumerate}
\end{footnotesize}
made between different categories of ships. Category A is the most restrictive ice class and includes ships designed for passage in difficult ice conditions. Category B includes ships not covered by category A, but capable of navigating in ice-filled waters. Ships in category C make up the most lenient ice class and are reserved for ships operating in open water.\(^{50}\) Not all ship types are included in the Polar Code. According to SOLAS chapter 1, regulation 1 and 2 the convention applies to all ships engaged in international voyages, unless stated otherwise.\(^{51}\) The exceptions with most relevance to commercial activities, are cargo ships of less than 500 gross tons and fishing vessel.

Every ship to which this Polar Code applies shall have aboard a valid Polar Ship Certificate (PSC), which is reviewed in inspection, except for category C cargo ships where verification takes place by handing in documentation to the relevant flag state. Further rules pertaining to safety measures are contained in chapters 2 to 12. Some of which relates to ship structure and stability,\(^{52}\) while other concerns planning and the performance of the actual voyage.\(^{53}\) Not surprisingly, higher standards are expected for passenger ships and tankers. The recommendatory part on safety measures is found in I-B, which supplements the different chapters in I-A. This includes, *inter alia*, methods for determining equivalent ice class with reference to the IACS Polar Classes. Other chapters are left open. That is the case with manning and training, stating ‘no additional guidance’, however, part I-A contains a reference to both the STCW Convention\(^{54}\) and the STCW Code.\(^{55}\)

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\(^{50}\) For a technical clarification of terms and ice conditions, see the Polar Code (Note 10), Introduction, Section 2 Definitions.

\(^{51}\) General exceptions are found I chapter 1, regulation 3 and specific exceptions are found in each of the convention’s chapters.

\(^{52}\) Chapter 3 on “ship structure” and chapter 4 on “subdivision and stability”. Chapter 5 regarding watertight and watertight integrity is also worth mentioning.

\(^{53}\) E.g. chapter 11 on ‘voyage planning’ and chapter 12 on manning and training.

\(^{54}\) 1978 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW).

\(^{55}\) Chapter 12 ‘Manning and Training (12.3), cf. (12.2).
3.3. Pollution prevention measures

The specific provision regarding pollution prevention measures are found in part II-A that contains the mandatory rules and part II-B on additional recommendations. The purpose of MARPOL is to prevent pollution from ship traffic irrespective of whether the pollution occurs in connection with ship operations or as the result of an accident. MARPOL is considered among the most successful treaties in terms of international support, and some of MARPOL’s annexes are ratified by 150 states representing 99 per cent of the total registered world tonnage. The material regulations are divided into six detailed annexes and associated appendices. Oppose to the safety measures consolidated in the SOLAS convention, the MARPOL convention is amended on a thematical level for each of the relevant annexes. The Code follows the same structure of MARPOL with categorization of the various sources of pollution, but also contains more strict requirements for sailing in the Arctic.

The Code is relevant in relation to MARPOL’s Annex I on prevention of pollution by oil, Annex II on control of pollution by noxious liquid substances in bulk, Annex IV on prevention of pollution by sewage from ships, and Annex V on prevention of pollution by garbage from ships. The two annexes pertaining to Prevention of pollution by harmful substances carried by sea in packaged form or in freight containers, portable tanks, or road or rail tank wagons, annex III, and Prevention of air pollution from ships, annex VI, are not amended. Despite the fact that the Polar Code, with its new binding standards, contributes to protect the marine environment, the Polar Code is not exhaustive in the sense that not all sources of pollution are covered. This applies to, for example, crude oil and heavy fuel oil in addition to air pollution. These sources

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56 http://www.imo.org/en/About/Conventions/StatusOfConventions/Pages/Default.aspx (Status of Conventions). See list for ratification of the individual annexes.


58 Regulations for the Prevention of Pollution by Oil (Annex I); Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk (Annex II); Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form (Annex III); Prevention of Pollution by Sewage from Ships (Annex IV); Prevention of Pollution by Garbage from Ships (Annex V); Prevention of Air Pollution from Ships (Annex VI).

of pollution are instead addressed in the non-binding section, which naturally is a weakness from an environmental protection perspective.

4. Certification and enforcement

In continuation of the adoption of mandatory rules, the issue of oversight mechanism in the form of certification and enforcement measures are of paramount importance to ensure maritime safety and the marine environment against the many perils at sea. Compliance control and law enforcement at sea are unilateral activities performed by States, as there is no supranational agency that undertakes or coordinates the task.60 Consequently, a structural enforcement deficit cannot be denied.61 It is no different with the Polar Code, as the Codes itself does not allocate any oversight mechanism.62 In sum, enforcement powers rely on the equilibrium established in the LOS Convention as well as in SOLAS and MARPOL.

4.1. Flag States

As a starting point, the flag State, being the State that grant ships their nationality in accordance with the LOS Convention art. 91, “shall effectively exercise its jurisdiction and control in administrative, technical and social matters over ships flying its flag.”63 Accordingly, flag State jurisdiction provides the principal way of maintaining legal order over shipping activities at sea. This means that each flag State can promote its own rules, within the boundaries of the law of the sea. It can be argued with some caution, however, that the significance of nationality has lessened, in tandem with the codification of international maritime and marine law.64 Despite rule harmonisation

60 In relation to Greenlandic waters, it is the Danish state that is responsible for this.


63 LOS Convention art. 94 (1).

due to the extent of international and regional regulation, the integrity of the current system relies heavily on flag State jurisdiction. It is a common perception that one of the fundamental concerns related to safe shipping is the ability and willingness of flag States to exercise effective control. The obligations imposed on flag States are many-folded. Thus, it must be ensured that each ship is seaworthy and satisfies the CDEM standards and other requirements associated with the specific trading area. In case of prevention of vessel sources pollution, the flag state is further obliged to adopt laws which at "least have the same effect as that of generally accepted international rules and standards". The rule of reference to international law and standards indicate the minimum threshold which national legislation must respect. Any flag State is free to set higher standards, but States will usually refrain from doing so given the impact on competitiveness of their fleet.

In shipping, it is common practice for national authorities to delegate administrative competence to private classification societies. These ‘recognized organizations’ are entrusted to undertake ship surveys and procedure reviews. The application of ROs to indirectly safeguard Arctic shipping, is not uncontroversial. Especially, in situations where rules give leeway for interpretation. As noted by Øystein Jensen, the goal-based approach in drafting the Polar Code has left the Code with a mixture of vague and

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65 Kristina Maria Siig, ‘Private classification organisations acting on behalf of the regulatory authorities within the shipping industry’, SIMPLY vol. 482 (2016), p. 220.

66 Flag state compliance is generally considered among the main issues in shipping, often referring to the so-called ‘open registers’ or ‘flags of convenience’, that refer to flag States with much more laxed, sometimes non-existent, determination to ensure compliance. A booklet is issued each year by the International Chamber of Shipping concerning flag State performance. The assessment is available on www.ics-shipping.org.


68 LOC Convention art. 211 (2).


71 The Code for Recognized Organizations (RO Code) by resolutions MEPC.237(65) and MSC.349(92) For specific Polar Code reference to RO’s cf., Part I-a, chapter 1, 1.2. ‘definitions’ (1.2.6).
substantive rules.\textsuperscript{72} For ship owners to abide to the Code is costly, because of the specific measures and need of skilled seafarers. This could potentially lead to ship owners to shop between different ROs, preferring those with less stricter requirements.\textsuperscript{73} On that background it can be argued that the application of private actors as ‘state agents’ in relation to securing safe shipping is commercially convenient – but doctrinally dubious.

The flag State enforcement powers over its own fleet can broadly be described as extensive. The counterpart of art. 211 (2) follows from art. 217 entitled enforcement by flag States. The article details the flag State’s enforcement obligations with respect to the protection of the marine environment. The provision deals, among other things, with certification. Thus, it must be ensured that ships flying its flag carry mandatory certificates on board. This include, \textit{inter alia}, a Polar Ship Certificate. Furthermore, such compliance shall be reviewed under periodical inspections.\textsuperscript{74} In case a ship fails the inspection, the flag State is obliged to ensure the ship is prohibited from sailing, irrelevant of the ship’s \textit{locus}. Measures against ships can also be initiated by requests from other States in accordance with art. 217(6).

\textbf{4.2. Coastal and port States}

In case flag State enforcement fails, the question of the Arctic coastal states has the right to monitor and take enforcement actions against foreign ships arise. The LOS Convention grants separate enforcement powers over ships of other nationalities. Powers of this nature are granted to coastal and port states, depending on the \textit{locus} of the ship.\textsuperscript{75} Ships navigating in coastal State water or berthed in port are thus subject to a sophisticated allocation of flag State and foreign State jurisdiction.

\begin{itemize}
\item \textsuperscript{73} Regarding the possibility of ‘class hopping’ and the prominent example of the \textit{Erika} case see in Elizabeth R. DeSombre, Flagging Standards – Globalization and environmental, safety and labor regulations at sea (2006), p. 183.
\item \textsuperscript{74} LOS Convention, art. 217 (3).
\end{itemize}
A coastal State is a State which has a coastline and the right to enforce international and national rules in this function. A port State is basically a coastal state which is granted additional powers in cases where foreign ships enter port facilities or offshore terminals. This implies that enforcement powers are granted to the Arctic coastal States of Russia, United States of America, Canada, Norway, and Denmark, which due to Greenland being part of the Kingdom of Denmark, is responsible for patrolling Greenlandic waters. This is a complex issue as it depends on several factors. The answer must therefore be answered by observing, which state – flag, costal, or port state, that wishes to take such step, and on what grounds. Finally, the ship’s locus at the time of incident shall be taken into consideration.

Not surprisingly, port State jurisdiction is less complicated because foreign ships call for port or offshore terminals. In that case mandatory certificates shall be presented upon inspection. A certificate issued under the rules of MARPOL has the same status as if the certificate had been issued by the port state itself. Accordingly, the inspection shall be confined to an examination of whether there is a valid certificate, unless there are compelling reasons that speak against the seaworthiness of the ship.76 If the ship fails to comply with the requirements, the port state shall make sure that the ship does not leave the port facility. The effect of this provision is obviously limited in cases where the port State does not exercise any form of control. Ships not complying with the Convention would presumably seek to enter ports with no, or limited, control measures. To address the problem several MoUs related to port state control have been adopted.77 A similar agreement may beneficially be concluded among the Arctic port States for ensuring effective regional control and enforcement of the Polar Code. This plays into the lex specialis rule in art. 218 (1). Pursuant to the provision any port State may undertake investigations and institute proceedings if necessary for any discharge that occurred on the high seas.78

76 MARPOL art. 5 (1) and 5 (2).
For merchant ships transiting the exclusive economic zone (EEZ)\textsuperscript{79} or navigation in accordance with the doctrine of innocent passage, the question of coastal State jurisdiction is relevant. The legislative jurisdiction mentioned in art. 211 (4) empowers coastal States to adopt laws to regulate vessel-source pollution in their own territorial waters. Such laws, however, must not hamper the right to innocent passage. It usually precludes rules on CDEM standards, unless they are giving effect to generally accepted international rules and standards pursuant to art. 21(2). From the Polar Code’s ‘margin of appreciation’ it can potentially lead to additional requirements. Furthermore, article 234 details special powers on enforcement of non-discriminatory laws for the prevention, limitation, and control of marine pollution from vessels in ice-covered areas within the borders of the exclusive economic zone in accordance with.\textsuperscript{80} Despite the provision does not provide a definition of ‘ice-covered water’, it is broadly accepted that the Arctic can be regarded as so.\textsuperscript{81}

5. Public legal obligations or use of the contractual function as protection

Following the review of the Polar Code and its effective nature as a means of legal protection, a general comment must be addressed in relation to the distinction between public law and the contractual function (private co-regulation through contracting), as well as the applicability of the two disciplines as maritime regulatory mechanisms to prevent negative externalities in the shape of environmental damage\textsuperscript{82} in the Arctic. In Denmark, the contractual function is already being used in a slightly broader sense than the traditional contract law-based approach, since the special marine environmental

\textsuperscript{79} The EEZ is considered part of the high seas, when it comes to navigational rights, cf. art. 58 (1) of the LOS Convention.

\textsuperscript{80} In the case of Greenland, this involves Executive Order No. 588 of 2 June 2017 on the discharge of waste from ships in the exclusive economic zone beside Greenland and Executive Order No. 589 of 22 May 2017 on the discharge of oil in the exclusive economic zone beside Greenland.


\textsuperscript{82} Cf. §§ 7 - 11 of the Environmental Damage Act. Implementing Order no. 916 of 3 July 2015. See especially § 7, subparagraph 1, item 1, where the term "negative effect" is used directly in accordance with the somewhat vague conceptual apparatus of Coase.
protection scheme has been in force since 2006.\textsuperscript{83} Here, there is the possibility that people may act as guardians on a voluntary basis in return for a modest honorarium to ensure that no oil spill occurs in Danish waters. Since 2006, the number of oil spills has been reduced with more than 50\% in Danish waters, so the scheme that has been established between Danish public authorities, interest groups, foundations, etc., has had a fairly significant preventive effect. Thus, one could argue that the Danish scheme has been quite successful. Similar schemes may be established by the coastal States, but due to the harsher climate in the Arctic, such measures must be assumed to have a much lesser effect. The regulation of a ‘new’ area of law in which commercial interests are involved can be implemented through both the implementation of public law, as well as the use of the contractual function, or in a broad sense, private law. Often there is a certain interplay between the two disciplines, so there is no dichotomous approach.

From a private law perspective, any pollution in the Arctic can be characterized as being covered by tort law. The argument for using the contractual function is the existence of well-defined rights as pointed out by Coase. For example, in relation to emission of CO\textsubscript{2}, which until recently was considered a public asset, an opportunity has been established to use the market and thus the contractual function to buy and sell access to the emission of CO\textsubscript{2} between private operators. In view of the sensitivity of the Arctic region, for that reason, the use of the contractual function upon discharge of substances covered by the Polar Code already seems ruled out. Although one could argue that the ban on discharge of substances could be defined as a well-defined right in the Coase sense - or rather, a duty - there will be some very special challenges in terms of whom to contract with.

The access to free passage in international waters in the Arctic and, with certain restrictions in relation to the coastal states' territory in the Arctic can be seen as a public asset or access to universally available value\textsuperscript{84} which, among others on the basis of the Marine Environment Act and consequently, the ratification of MARPOL in Danish law, as mentioned above, implies liability on the part of the tortfeasor. This, however,

\textsuperscript{83} See havmiljøvogter.dk.

\textsuperscript{84} Cf. Peter Pagh, U.1991B.121.
presupposes that there is a legitimate tort-protected interest that impacts asset interests. Thus, based on general tort law, it is assumed that it is possible to identify whose interest is violated in connection with environmental damage. In other words, prior to, or after, the occurrence of the environmental damage, it should be possible to identify who the tortfeasor should enter into a contract with in order for there to be an opportunity to use the contractual function as an alternative to the current public law regulation.

The risk associated with discharges of banned substances from shipping, and which constitutes environmental damage, does not appear to be directly applicable to the contractual function, which the economist, Coase, identifies as a tool for resolving tortious issues - and often with a larger economic output than what a court decision would have involved. In relation to the coastal states, it will theoretically be an option, but will, in all probability, imply very high transaction costs and, in practice, would be impossible. Since the international waters of the Arctic are generally accessible, no possible co-contractor can be identified. In addition, there would be no political willingness to limit the sanction to consist solely of what in practice would be possible in private law, namely damages and perhaps remediation. Accordingly, the relevant regulation must continue to be governed by public law in the individual legal system.

The interaction between public and private law is for instance reflected in the fact that under Greenlandic law there is an obligation to use a person with local knowledge and actual mandatory pilotage in the case of passenger ships with at least 250 passengers. In practice, for ships flying a foreign flag, this implies that, as a result of public law regulation, there is a requirement to enter into a contract with a company that has local knowledge or a pilotage company when sailing with passenger ships in Greenlandic waters with a minimum of 250 passengers.

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85 Cf. Executive Order no. 1697 of 11 December 2015 for Greenland on safe shipping.

86 It may be surprising that the requirement for mandatory pilotage only arises when there are at least 250 passengers on board.
6. Conclusion

The regulation of Arctic shipping takes place within the framework of general maritime and marine law. Within this framework, there is a need for legal instruments, which take into account the particularly sensitive, but also harsh, nature of the Arctic. The Polar Code is the latest example of a source of law of this type that relates to the commercial activities in the Arctic. In other sensitive marine areas, the challenges of the marine environment consist of repairing damaged ecosystems. In the Arctic, it is still possible to protect the region. Prevention of environmental damage is crucial in this regard. The Polar Code is an ambitious instrument aimed at raising the standard of maritime activities in the Arctic by introducing mandatory minimum requirements for the industry. The suitability of the Polar Code as legal protection, however, depends largely on the states' ability to ensure compliance and enforcement, whether it be the flag State itself or the Arctic States which have a keen interest in this matter. This will probably be a task that is imposed on the coastal States to the extent allowed by in the law of the sea. In order to address a fragmented enforcement effort, the Arctic coastal states can adopt a holistic and common approach to control in the form of MoUs.

Ships entering Artic waters from the Maritime Silk Road through the Northeast Passage must comply with the Polar Code and must even comply with national law in one or more of the coastal states depending on shipping route.

The Polar Code's suitability as protection against negative externalities in the Arctic must be analysed in connection with the enforcement effort and opportunity. The contractual function is predominantly not a relevant alternative to the public law regulation in this context as it implies both exorbitant transaction costs and insufficient legal protection to address negative externalities. If so, it must be, as discussed, that the public law regulation implies an agreement in order to do so in the territorial waters of the Arctic.