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Arctic shipping guidelines: towards a legal regime for navigation safety and environmental protection?

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ABSTRACT. With the International Polar Year (IPY) having commenced in March 2007, key issues relating to the polar regions are again in focus. This article reviews one central legal issue re-emerging in the Arctic: global regulation of safety standards for international shipping. The 'Guidelines for ships operating in Arctic ice-covered waters' are examined, with a view to the probable expansion of shipping in the Arctic in near future. Following an introduction to navigational issues within the Arctic context, the article describes how the guidelines came into being, and then analyses key elements and structure of the regulations and shortfalls of today's arrangements. The possible relevance of the guidelines to the Antarctic is also discussed briefly. Finally, the article inquires into the key repercussions of introducing binding regulations.

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Introduction

A frozen region once of interest only to a small number of indigenous populations, scientists and explorers, the contemporary Arctic has emerged as a region of considerable economic and military importance, and also of environmental concern. Several emerging law of the sea issues concern this peculiar part of the world ocean. Some of these appear quite imminent. Others belong to the more distant future. Some are spread over the entire Arctic Ocean: others are more limited in scope. They all have one characteristic in common however, the strains of applying global law of the sea solutions in the specific context of the Arctic region (Vidas 2000: 198). This article focuses on one issue that, in the near future, may threaten to alter the face of the Arctic. This is increased pressure resulting from the growth of commercial shipping. A single major oil tanker accident in the Arctic Ocean may have serious environmental consequences. In addition to accidents, the operational impacts of shipping should be kept in mind, such as the impact on biodiversity when vessels de-ballast species alien to the Arctic environment. Furthermore, local fisheries and the marine environment in general are affected by operational discharges (such as oil spillage), hull fouling and similar threats.

In 2002, the International Maritime Organization (IMO) adopted the 'Guidelines for ships operating in Arctic ice-covered waters' (IMO 2002). These guidelines have become a key recent international instrument responding to such concerns. This article reviews how the guidelines came into being. It analyses key elements and structure of the regulations, and the potential repercussions of a binding regime, as well as the relevance and likelihood of implementing the guidelines in the Antarctic as well as in the north.

Extent and prospective developments for Arctic navigation

Navigation in Arctic waters is unique compared to all other ship operations. In 1820, the Arctic explorer and scientist William Scoresby wrote:

> The navigation of the Polar seas, which is peculiar, requires in a particular manner, an extensive knowledge of the nature, properties and usual motions of the ice, and it can only be performed to the best advantage by those who have long experience with working a ship in icy conditions (Scoresby 1969: 28).

Due to the remoteness of the region, errors in navigation can be fatal, for both operators and the environment. The biggest challenge is ice. From October to June the Arctic Ocean remains largely ice-locked, making surface navigation impossible for all vessels except icebreakers. Ice in all its forms represents a significant obstacle to ships operating anywhere in polar waters (Brigham 2000: 245). Large tabular sections of ice-islands break away from ice shelves to join the moving icepack. Icebergs break off glaciers in northeastern Canada and in Greenland. Many of these navigational hazards move southward into the shipping lanes of the Atlantic.

Historically, Arctic shipping was largely confined to the supply of communities during the summer season.

Today, Arctic navigation is split into many categories: commercial vessels, including tankers and fishing vessels; vessels for recreation and tourism; scientific research vessels; icebreakers for re-supply; and vessels engaged in offshore exploration. Traffic density is concentrated on several specific areas, including the waters adjacent to the Spitsbergen archipelago and the Russian terminals in Archangelsk, Murmansk, Vitino and Varandey.

Additionally, there is continuing naval navigation and covert submarine operations in the Arctic Ocean, which offers the shortest route between Russia and North America. Most of the navigation is carried by a sparse network of water routes, especially the northwest passage, connecting the Atlantic and Pacific Oceans through the archipelago of Canada; and the northern sea route, which stretches some 2800 km along the Russian Arctic coast from Novaya Zemlya to the Bering Strait.

Estimates foresee considerable increases in Arctic shipping, due not least to the opening of new oil and gas fields (Svenning 2005: 31–32). Recent years have also witnessed considerable population growth in Arctic settlements. For instance, the native communities of northern Canada are among those with the fastest rates of population growth in the world (Gorman 2004).

There are also possible implications of climate changes for Arctic navigation. There is increasing documentation of accelerated melting and retreat of ice in the Arctic due to global warming. The resultant improvement in accessibility may lead to greater use of the Arctic sea areas. Over time, that might contribute to the opening of the Arctic Ocean as a major trade route. The military importance may also expand, as may other marine uses, such as fisheries. Policies and regulations need to be designed, both to limit the impacts on the Arctic environment and with the aim of improving the safety of navigation.

A new tool for navigation safety in the Arctic: the IMO 'Guidelines for ships operating in Arctic ice-covered waters'

In addition to extensive national enactments, a new legal regime for ice-navigation began to emerge on the international agenda in the 1990s. Mindful of the disaster of the oil tanker *Exxon Valdez* off the coast of Alaska in 1989, Germany proposed the inclusion of the following rule in Chapter II-1of the SOLAS Convention (International Convention for the Safety of Life at Sea (SOLAS 1974)):

> Ships intended for service in polar waters should have suitable ice strengthening for polar conditions in accordance with the rules of a recognized classification society (IMO 1991).

Member states largely supported Germany's recognition that vessels operating in polar waters needed adequate ice strengthening. The matter was referred to the IMO subcommittee on ship design and equipment (DE), which appointed Canada to lead an outside working group (OWG) of technical experts to develop special rules for ships operating in polar waters. Between 1993 and 1997 the OWG met annually, seeking to harmonise technical rules for polar shipping and to create recommendatory provisions (IMO 1997). Included in the process were members of national and regional maritime authorities, academics, commercial shipping companies and classification societies.

The result was the draft 'International code of safety for ships in polar waters', submitted by Canada, on behalf of the OWG, to the DE's 41st session in London in 1998. It set out rules for construction, navigation and equipment, with the aim 'to provide that all ship operations in Polar Waters meet internationally acceptable standards' (IMO 1998). The DE decided that the draft polar code should be forwarded to IMO's technical committees for further review. In 1999, the 71st session of the Marine Safety Committee (MSC) reviewed the draft polar code. By that time, the 1998 Antarctic Treaty Consultative Meeting had already expressed its concern, maintaining that the draft failed to account adequately for the special conditions of the Antarctic, and adding that a code, if in a proper form, would be highly relevant for the Antarctic region. It was noted that the OWG involved in preparing the draft polar code had been drawn from northern hemisphere maritime countries and, as a consequence, had not fully taken cognizance of the environmental, operational, legal and political differences between the Arctic and Antarctic. Specifically, the meeting considered that information on current best practices of Antarctic shipping would be useful in further developing the Antarctic elements of the code. The meeting also discussed the inclusion of special training and qualification requirements for ship's officers and crews operating in the Antarctic and that special navigation/communications equipment standards for Antarctica should be examined (ATCM 1998). In other words, the Antarctic Treaty parties were not completely satisfied with the draft polar code and wanted separate discussion, not least regulation, to that effect.

The proposed code had perhaps gone beyond the technical issues previously considered by the MSC and the DE. The area of application was one point of criticism. The polar code had been expanded to apply to the Antarctic region, yet, it was argued, without sufficient consideration of the implications for that region. The draft code also aimed at designating the Arctic and Antarctic as 'Special Areas' for the purposes provided for in the 1973 International Convention for the Prevention of Pollution from Ships, as modified by the Protocol of 1978 (MARPOL 1978). However, the draft code was not considered to be the appropriate mechanism in this respect. Moreover, it was inconsistent with the international law of the sea in some important aspects. It required prior notification from ships entering the exclusive economic zones of a coastal state, an obligation not contained in the United Nations Convention on the Law of the Sea (UNCLOS 1982). It also provided for separate requirements to, among others Regulation 12–1,

Chapter II-1 of the SOLAS Convention, by declaring a limit on the application of double bottoms higher than the one stipulated there.

In view of the dissatisfaction of some IMO member states as to various solutions set forth in the draft code, the MSC decided that the polar code should be further developed as recommendatory guidelines. However, it was to be confined to the Arctic, thus excluding the Antarctic from the area of application. Furthermore, inconsistencies with international treaties would have to be removed, and the future code should include only aspects not already covered by other instruments.

The Marine Environment Protection Committee (MEPC), at its 48th session in October 2002, and the MSC, at its 76th session in December 2002, approved the recommendatory 'Guidelines for ships operating in Arctic ice-covered waters'(IMO 2002). Member states were invited to bring the guidelines to the attention of shipowners and other parties concerned with the operation of ships in Arctic ice-covered waters.

Scope and elements of the guidelines

The guidelines include general, construction, equipment and operational parts, subdivided into chapters. Recognition of the Arctic as a significant area for international shipping is underlined. It is emphasised that the Arctic environment imposes additional demands on ship systems, and that safe operation in such conditions requires special attention (See preamble paragraphs 1.1, 1.2, 2.3, 2.5 and 2.6). With regard to Part D, 'Environmental protection and damage control' provisions are specifically made 'with due regard to the lack of waste reception and repair facilities, communications limitations, unique navigational and environmental hazards and limited response capabilities of available assistance. . .'(paragraph 16.1.1).

The guidelines aim to address the *additional* provisions deemed necessary for consideration beyond the existing requirements of any other applicable convention or code. They have not been developed as a stand-alone document, but as a supplement to other instruments. The SOLAS Convention is especially mentioned in paragraph 1.2 of the preamble. The provisions of the guidelines are *recommendatory* (preamble paragraph 1.3). Just what was originally intended, however, can be deduced from several indicators. The title suggests a binding nature, a 'code' (Referring to the 'International code of safety for ships in polar waters', as submitted to the DE's 41st session). The first proposal to include an amendment to the SOLAS Convention also indicates that the regulations were meant to be compulsory. However, this issue was not decided at the MSC in 1997(IMO 1997). The status of the regulations was to be determined later.

Area of application

The guidelines relate to ships operating in Arctic ice-covered waters as defined in paragraph G-3.2. 'Ship' is defined in paragraph 3.22 as 'any vessel covered by the SOLAS Convention'. This excludes from the area of application fishing vessels, pleasure yachts, wooden ships of primitive build, cargo ships of less than 500 gross tonnage and naval vessels, whereas passenger ships and cargo ships of 500 gross tonnage or more engaged on international voyages are subject to the regulations (Regulation 3, Chapter I of the SOLAS Convention).

As regards geographical application, 'Arctic ice-covered waters' is defined in paragraph G-3.2. The guidelines are applicable to all parts of the Arctic Ocean. Certain areas are, however, excluded, for example, all the mainland coast of Norway, and the waters adjacent to the Kola Peninsula in Russia. Sea-ice concentrations of 1/10 coverage or greater which pose a structural risk to ships are also an unconditional requirement in the definition of 'ice-covered waters'. Determining the exact level of ice coverage is always difficult, but the guidelines provide for no objective method in this respect. Nor is there any time criterion, in contrast to Article 234 of the LOS Convention, which stipulates that ice must be present 'most of the year' (UNCLOS 1982: Article 234).

Equipment

Part B of the guidelines is concerned with equipment for fire safety, lifesaving and navigation. In view of the extreme Arctic climate, specific guidance is provided for the operation of each category. For example, for fire safety it is specified that re-fuelling of ships should be carried out taking into account the special conditions imposed by low temperatures, and that fire-extinguishing systems should be designed or located so that they are not made inaccessible by ice or snow accumulation (paragraphs 10.1 and 10.3).

There are also specific rules for personal and group survival kits. One important requirement is that all lifeboats carried by polar class ships should be of the fully enclosed type. Other ships should carry tarpaulins to provide complete coverage of their lifeboats (paragraph 11.5.1). Concerning navigational equipment, it is noted that the performance standards and other applicable guidance for equipment of chapter 12 of the guidelines should be applied '*mutatis mutandis* as per SOLAS Chapter V'. The provisions of chapter 12 are thus not to be considered as additional to the requirements stipulated under the SOLAS convention. Rather, equipment fitted or carried in compliance with chapter V of the SOLAS convention should be considered as part of the recommended equipment complemented by relevant provisions of the guidelines.

Operational procedures

Part C of the guidelines pays special attention to operational procedures, crewing and emergency equipment. All ships operating in Arctic ice-covered waters are to carry an operating manual and a training manual for all ice navigators on board (paragraph 13.1). With regard to crewing, the most important provisions concern the ice navigator, defined in paragraph G-3.10 as:

> any individual who, in addition to being qualified under the STCW Convention (STCW 1978), is specially

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trained and otherwise qualified to direct the movement of a ship in ice-covered waters.

These requirements are further qualified in paragraph 14.2, which stipulates that an ice navigator should have 'documentary evidence of having satisfactorily completed an approved training program in ice navigation'. The training programme should provide knowledge required for navigating a vessel in ice-covered waters, including ice indications, ice manoeuvering, the use of ice forecasts, atlases and codes, icebreaking operations and effect of ice accretion on vessel stability. The rules in chapter 14 complement paragraph 1.2, which specifies that all ships operating in Arctic ice-covered waters should carry at least one certified ice navigator (paragraph 1.2.1).

Finally, Part D of the guidelines contains rules on environmental protection and damage control. According to paragraph 16.1.2, there should be procedures for the protection of the environment both in the ship's operating manual (for normal operations) and in the shipboard oil pollution emergency plan (SOPEP) (MARPOL 1978).

Harmonisation of technical standards: the development of polar classes of ships and their relation to IACS rules

The guidelines introduce a system for designating different levels of capability for vessels navigating in Arctic waters. The regulations differentiate between polar class ships and non-polar class ships; to the latter only Part B and C of the guidelines are to apply (paragraphs 1.1.2 and 1.1.3). Part A of the guidelines, concerning construction provisions, is to apply to polar class ships only (paragraph 1.1.2). A polar class ship is defined in paragraph G-3.18 as 'a ship for which a Polar Class has been assigned'. It is recognised that not all ships will be able to navigate safely in all areas of the Arctic at all times of the year. In the guidelines, seven polar classes are listed, based on environmental conditions. Polar class 7 is the least capable, limited to vessels operating in summer/autumn in thin, 'first-year' ice, whereas ships of polar class 1 are to be capable of operating year-round in all Arctic ice-covered waters.

The guidelines make reference to the parallel effort undertaken by the International Association of Classification Societies (IACS). According to paragraph 1.1.4 of the guidelines, all polar class ships and their equipment should be:

> designated, constructed and maintained in compliance with applicable national standards of the Administration or the appropriate requirements of a recognized organization which provide an equivalent level of safety for its intended service.

On 1 July 2006, the IACS adopted 'Unified requirements for polar ships'. They will enter into force in March 2008, which means that all IACS members will incorporate these into their rules in the near future. Similar to the guidelines, the IACS unified requirements also work with a polar class notion. In order to be considered for polar class notation as listed in the IACS unified requirements, a ship must comply with certain technical requirements. Throughout the IACS unified requirements, the polar class notation is used in order to indicate the differences between classes with respect to operational capability and strength (IACS 2006).

The IACS unified requirements do not at any point directly conflict with the IMO guidelines and should thus be considered as complementary in technical matters with regard to important aspects not specifically dealt with in the guidelines, such as hull and machinery. There are, however, formal differences of which to be aware. IMO member governments are subject to the guidelines, while the IACS unified requirements apply solely to the members of the association. In this context it must be noted that more than 90% of the world's cargo carrying tonnage is covered by the classification design and construction rules and standards set by the ten member societies and one associate of IACS.

Furthermore, in contrast to the current guidelines, the unified requirements are based on both Arctic and Antarctic conditions. According to paragraph I 1.1 of the IACS unified requirements they apply to ships intended for navigation in ice-infested 'polar waters...' without any further geographical specification. Hence, when it comes to classification of ships for polar navigation, practical needs seem to have prevailed over political perspectives.

The quest for safer Arctic navigation

The guidelines reflect some of the narrowness of the standards-setting approach of maritime safety regulation. Although they will most likely prove to offer important guidance for all actors involved in navigation in the high north, several questions remain. Are there any deficiencies in the current arrangements? Should the guidelines be made mandatory? If so, what legal and practical repercussions are likely? And finally, should they be made applicable to the Antarctic as well?

Substantial shortcomings

The current guidelines do have certain substantial shortcomings. There exists no recognised internationally approved training course for ice navigators or qualification scheme for individuals who are to operate vessels in ice-covered waters. However a number of training schemes do exist. According to paragraph 1.2.1, all ships operating in Arctic ice- covered waters are to carry at least one ice navigator. Paragraph 14.2 of the guidelines stipulates further that an ice navigator should have documentary evidence of having satisfactorily completed an approved training programme in ice navigation. However, that paragraph is phrased in rather broad terms, stipulating merely that a training programme should provide 'knowledge, understanding and proficiency required for operating a ship in Arctic ice-covered waters . . .'. While the provision does take note of the severe and special circumstances faced by ship operators in ice-covered waters, provision

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could easily have been made for a more detailed training programme.

Moreover, there is no requirement as to documented navigation service in Arctic ice conditions. Relevant experience, similar to paragraph 26 (3)(b) of the Canadian Arctic shipping pollution prevention regulations (Canada 1978), should perhaps also be a basic requirement within the guidelines.

The guidelines also fail to provide sufficient regulations concerning icing. This is a typical phenomenon in the Arctic Ocean, when cold temperatures result in spray blown off the sea freezing immediately on contact with a vessel. If the ice is not regularly removed, it will build up on the ship's structure and may cause the vessel destabilise or capsize. Paragraph 10.4 of the guidelines determines that '[c]omponents of the fire-fighting system which may be exposed to icing which could interfere with the proper functioning of that component should be *adequately protected*' (emphasis added). Moreover, paragraph 11.5.3 reads that '[i]ce accretion should be regularly removed from the lifeboats and launching equipment to ensure ease of launching when required [and that an] icing removal mallet should be available in the vicinity of the lifeboats'. This serious hazard of ice-infested navigation should nevertheless have been regulated more extensively within the guidelines. The guidelines should have been more explicit on how best to prevent, mitigate and avoid sea-spray icing of vessels, for instance by referring to the environmental and vessel characteristics that determine the potential for such icing, like wind speed, air temperature and ship speed. Also, provision could have been made for alternative ice-removal equipment and how to better protect vital components on deck.

In this regard, it may also be queried why only polar class ships are subject to the important provisions of structures, subdivision and stability in Part A, Chapter 2 and 3. Surely, also for vessels without any polar class notation, account should be taken of the effect that, for instance, icing may have on stability calculations (paragraph 3.1.1 of the guidelines).

The harmonisation process: still a two-tier safety regime?

As noted, the guidelines must be considered in relation to the IACS unified requirements for polar ships. A substantial analysis of the IACS requirements nevertheless illustrates that the process of harmonisation is not fully accomplished. For instance, according to paragraph I 2.14 of the IACS unified requirements '[t]he stem and stern frame are to be designed *according to the requirements of each member society*' (emphasis added). Furthermore, paragraph I 2.15.2 of the requirements provides that the '[l]oad definition and response criteria are to be *determined by each member society*' (emphasis added). Not least, the examples above show that a certain margin of leeway is still accorded to each member society. By referring to the rules of individual classification societies, polar class ships navigating in Arctic waters may still be certified under differing standards.

Furthermore, the IACS unified requirements are very much still under development. Many items are not included. For instance, there are no specific hull requirements for icebreakers, no strength requirements for stem and stern frame, no ice compression loads in the midship region and no specific welding requirements. With regard to machinery, the current IACS unified requirements fail to provide sufficiently for propulsion power, steering gear and, not least, arrangements for icing control. Further improvement is thus necessary, as well as the development of rules to cover other aspects of navigation operations in cold climates (Magelssen 2007).

Deficits of a non-binding regime?

According to paragraph 1.3 of the guidelines, 'their wording should be interpreted as providing recommendations rather than [in] a mandatory direction'. Moreover, the guidelines merely invite the member governments to bring the regulations to the attention of shipowners, ship designers, shipbuilders, ship repairers, equipment manufactures and installers and all other parties concerned with the operation of ships in Arctic ice-covered waters.

By definition, such recommendations are not legally binding. However, the guidelines aim at enhancing effectiveness through national and international implementation mechanisms. Since no follow-up procedures are provided for, actual application becomes evident only through state practice and the extent to which international shipping complies. Have the member states in fact brought the guidelines to the attention of the relevant actors? And do the regulations have any legal impact on national legislation?

As of today, no state has implemented the regulations through binding legislation. They remain international *recommendatory* provisions only. In that respect, their real effect stands untested. On the other hand, this is not surprising, domestic codification involves great strains and expenses. Without a legal obligation to do so, codes of conduct are rarely given compulsory status.

In a non-binding form, the guidelines' contribution to maritime safety in ice-covered waters seems rather limited. However, the ultimate practical impact of the regulations depends on actual application, and not merely on which legal status they acquire upon adoption in global and national forums. Even express disclaimers, like that contained in paragraph 2.8 of the guidelines that they 'are not intended to infringe on national systems of shipping control', cannot preclude the possibility of practical implementation. This is for instance observed in Norway, where navigation instructors use the guidelines for training purposes.

Another example that illustrates the impact of such non-binding regulations is the IMO 'Guidelines for vessels with dynamic positioning systems' (IMO 1994). Dynamic positioning is a system for automatically maintaining a ship's position and heading by using her own

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propellers and thrusters. The system is much used in the offshore oil industry. Based on the IMO Guidelines, classification societies such as Det Norske Veritas, Germanischer Lloyd, Lloyd's Register and American Bureau of Shipping have issued their own rules for dynamic positioned ships by corresponding class notations. If such guidelines are adopted in a timely fashion and are substantially relevant, as in that case, other regulations of a non-binding nature may have important practical effects.

Repercussions of a binding regime

Even though the guidelines may have positive practical effects, it may still be questioned whether they represent a satisfactory substitute for treaty law. What might be some possible repercussions of introducing mandatory regulations?

One important aspect should be noted at the outset: there already exists a framework for a binding legal regime for Arctic navigation. The Arctic is an ocean, and is thus under the regime of the law of the sea, which comprises the principles and rules of treaty and customary law between states relating to the uses of all sea areas. The guidelines could thus be incorporated in one or more conventions by means of amendments, upon which they would become binding on signatory states. From a legal technical perspective, the introduction of mandatory Arctic regulations could be easily achieved, with the SOLAS convention as probably the most appropriate avenue.

It is nevertheless important to emphasise that on a global scale, Arctic shipping is at present still a marginal activity. Moreover, any ratification process would have to involve many non-regional states. Among IMO members it may be difficult to mobilise the necessary interest from flag states that are not much involved in Arctic shipping. Also, the world merchant fleet has many vessels sailing under flags of convenience. This arrangement may hamper the effectiveness of important conventions such as a binding regime for Arctic shipping.

Binding rules must also take cognisance of the legal issues yet to be resolved in the Arctic Ocean. The jurisdictional map of the Arctic Ocean is still a work in progress. Several issues remain to be addressed by the Arctic coastal states in order to achieve equitable projections of national sovereignty and jurisdiction. The Arctic Ocean is not unusual in this respect; all over the globe there are numerous unresolved maritime limits and boundaries. On the other hand, the remaining issue of defining coastal state jurisdiction in the Arctic Ocean is not by itself in contradiction with a binding regime for polar shipping. All Arctic states are already obliged by international rules that, to a great extent and if implemented, impose obligations also within their territorial waters and exclusive economic zones.

Of course, it is difficult to predict the exact conduct of Arctic coastal states regarding the introduction of binding regulations. There is, however, a legal incentive for Arctic coastal states to implement a regional framework of cooperation that would enable them to devise effective solutions to shared problems, such as shipping. Part IX of the LOS Convention advocates cooperation among coastal states that border enclosed or semi-enclosed seas. Specifically, Article 123 encourages states to work together, through the involvement of other interested states or organisations, in the protection and preservation of the marine environment (UNCLOS 1982). The Arctic states would probably benefit by maintaining a wide-ranging dialogue with a view to harmonising rules and standards.

Emerging port state jurisdiction

Introducing a compulsory regime will have to rely to a considerable extent on port state control, as an important supplementary mechanism for enhancing implementation and facilitating enforcement of agreed rules (although certain limitations of port state control will of course persist due to the nature of Arctic shipping, of which one part is in transit only). By creating a type of universal jurisdiction, Article 218 of the LOS Convention represented a novel development (Valenzuela 1999: 496). According to this provision, a port state has the power to undertake investigations and prosecute discharge violations *wherever* they have taken place beyond national jurisdiction. Extension of port state jurisdiction is also provided for in Article 211(3) of the LOS Convention, whereby states are authorised to 'establish[ed] particular requirements for the prevention, reduction and control of pollution of the marine environment' as a condition for entry into their ports or internal waters (UNCLOS 1982).

Note should be taken of the 1982 Paris memorandum of understanding on port state control in implementing agreements on maritime safety and protection of the marine environment (Memorandum of Understanding 1982). The Paris memorandum applies between the maritime authorities of 25 countries, including all Arctic coastal states. The authorities commit themselves to maintaining an effective system of port state control to ensure that foreign merchant ships calling at a port of any of the states concerned comply with the standards stipulated in such relevant instruments as MARPOL 73/78 or the SOLAS Convention.

Underlying this trend is the determination of coastal and port states to be actively involved in improving safety at sea and the protection of the marine environment. In Arctic waters, port state control will be highly practical. Long-distance voyages in foreign maritime zones will give Arctic port states both the incitement and the opportunity to monitor compliance with international regulations. Even though primary responsibility for the effective application of legal standards still rests with the authorities of the flag state, port state control has been proved to support a regional approach in preventing substandard vessels from operating (Molenaar 2007: 226).

New challenges for monitoring Arctic navigation

One important impediment to binding Arctic regulations lies in the difficulties for maritime monitoring activities.

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Maritime traffic has long been managed by means of Vessel Traffic Services (VTS). However, traditional instruments, for instance, automatic identification system (AIS) (See Regulation 19, chapter V of the SOLAS Convention – Carriage requirements for ship borne navigational systems and equipment) will not be sufficient with regard to all potential vessel movements within the Arctic. The development of Long Range Identification and Tracking (LRIT) is more relevant. At its 81st Session in 2006, the MSC adopted new regulations for LRIT under Chapter V of the SOLAS Convention. LRIT will be introduced as a mandatory requirement for all passenger ships and cargo ships of 300 gross tonnage and more engaged in international voyages. The regulations maintain the right of the flag state to protect appropriate information about its own ships, while giving coastal states access to information about ships sailing off their coasts. The main difference between LRIT and AIS is the range. Under the SOLAS regulations, coastal states are entitled to receive information about ships navigating within a distance of 1000 nautical miles off their coasts! This measure clearly enables states to better identify and enhance compliance by vessels far from land.

Bi-polar relevance?

The Antarctic Treaty System aims at covering all activities in the south polar region. It has demonstrated that co-operation among states may be achieved and maintained despite the existing legal controversies. However, the Antarctic model is of less importance than that of the Arctic, for many reasons. Firstly, the involvement of non-regional states is negligible in the Arctic, but is of high importance in the Antarctic. Secondly, the strategic importance of the Arctic is today greater than that of the Antarctic. And finally, the Arctic area is inhabited, while in Antarctica there are scientific bases, but no permanent human settlement (Kunig 1992: 247).

Nevertheless, the question can be raised whether the guidelines are relevant to Antarctic shipping as well as to that in the Arctic, mandatory or not. In the original proposal, the guidelines were intended to cover both polar regions, but the IMO then decided to exclude the Antarctic from the area of application. The Antarctic Treaty Consultative Meeting (ATCM) held in Lima in 1999 nevertheless decided to give priority to the issue of shipping and to convene a meeting of experts to develop draft guidelines specific for Antarctic navigation. At the 27th ATCM in Cape Town in 2004 it was decided to transmit revised guidelines to the IMO with a request that they be considered at the earliest opportunity (ATCM 2004). Only minor revisions to the Arctic guidelines were made in the proposal forwarded to the IMO. For instance, throughout the guidelines, the term 'Arctic' is replaced with 'Arctic and Antarctic'. Moreover, an adapted introduction is added to the introductory paragraph P-1.1 that discusses the differences between the two polar regions.

As of July 2007, the proposed revision of the guidelines is pending consideration by the IMO. The 50th session of the DE committee, however, noted that there was full support for revising the guidelines to make them applicable to the Antarctic region. In order to progress in this matter, member governments and international organisations were invited to submit specific proposals for amendments to the guidelines at the 51st session of the DE (IMO 2007).

There are differences between the two polar regions, with regard to shipping. Vessel operations in the southern ocean are basically passenger liners (tourist cruisers), scientific research vessels, and re-supply ships. Commercial transport and transit are far less important. Navigational conditions also differ significantly. Nevertheless, the process within the ATCMs now shows the change of attitude concerning the application of the guidelines to Antarctic waters, albeit in somewhat modified form. It is the opinion here that the IMO should give serious consideration to this development and the proposed amended draft of the guidelines. Although patterns and types of transportation differ between the Arctic and the Antarctic, the substantial, safety-inducing elements of the guidelines will be important also for Antarctic shipping. The purely formal changes suggested by the ATCM in Cape Town prove that the guidelines today are generally acceptable to the Antarctic Treaty Parties. As long as they do not challenge the delicate sovereignty balance in the Antarctic, the *technical* requirements for the ships involved in Antarctic navigation, with due regard for the practicalities of such navigation (base supply etc.), may serve as an important regulatory supplement.

Moreover, the IACS unified requirements apply to *all* 'polar' ships: they are not restricted to Arctic vessels. The process within the maritime industry has thus continued regardless of the earlier wish of the Antarctic Treaty Parties for postponement and the IMO decision to regulate Arctic navigation only. Despite the differences in shipping activity in the Arctic and the Antarctic, navigation in both polar regions exposes crew, vessel and the environment to many of the same ice-related risks and challenges.

Final remarks

The Arctic guidelines contain several significant provisions and represent an important step towards an improved regulatory framework for an emerging segment of global shipping, that which takes place in ice-infested waters. Summarising the discussion above, the conclusion is that the guidelines in their non-binding form provide only a limited contribution to maritime safety in the Arctic and should only be considered as a first step. However, it is stressed that adopting the guidelines as a *binding* instrument will have foreseeable repercussions under international law. Given the likely future development of Arctic shipping, it is thus of utmost importance that the present guidelines are generally updated in order to take into account technical developments since their approval

in 2002, and also that any shortfalls in today's arrangement be addressed in the near future.

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