

The Growth of International Shipping in the Arctic: Is a Regulatory Review Timely?

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Abstract

This article is set against the backdrop of the fundamental physical change in the Arctic and the prospect of increased international shipping, including prospects for new international maritime routes through that region. The multiple levels of governance bearing on Arctic shipping and the need for a review of international maritime rules and standards to facilitate their application to future Arctic navigation are discussed. It is concluded that regional cooperation, inclusion of non-Arctic States in shipping governance, and a uniform set of rules and standards for ship safety and marine environmental protection are needed.*

Keywords

Arctic, marine environmental protection, international maritime law, International Maritime Organization, law of the sea, maritime safety, Northwest Passage, Northern Sea Route

Introduction

The fundamental environmental change occurring in the Arctic has raised the plausible question as to how soon might we see the establishment of new international maritime trade routes. Shipping already exists to supply populations of the North and support hydrocarbon and mineral resource production in the Canadian, Norwegian and Russian Arctic areas. Fishing activity is rising. Cruise shipping is growing off the coast of Greenland and elsewhere. The Arctic has become a region of serious economic opportunity. As oil and gas reserves from traditional producing regions dwindle and the need for secure and politically reliable supplies becomes more urgent, the Arctic will continue to grow in appeal. In recent times, and especially during the summer of 2007, it became possible for small vessels to traverse parts of the Northwest Passage in the summer.

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Amidst this change, the prospect of new maritime trade routes stands out. Three potential Arctic routes could potentially transform international shipping between major markets. Likely the first to become commercial, and possibly for year-round navigation, the Northern Sea Route through Russian waters will link northern Europe and Asia.¹ The Hamburg-Yokohama voyage will be just under 5,000 miles shorter than the Suez Canal route. The Northern Sea Route has been open to international shipping since 1991, but is little used at present. The Northwest Passage consists of seven principal routes through Canadian Arctic waters that link North America, Europe and Asia. Just over 6,500 miles shorter than the Panama Canal route and close to 9,000 miles shorter than the Cape Horn route, it is probably navigable in summer.² Views differ on the extent of international shipping that will likely ensue in the foreseeable future.³ A possible third option is the transpolar route from the Bering Strait, through the Arctic Ocean, across the North Pole, past Greenland and towards Iceland. This route is almost 5,000 miles shorter than the Hamburg-Yokohama route through the Suez Canal and over 6,000 miles shorter than the Panama Canal course for the same route.⁴ The shipping industry is already reacting to these prospects. Polar class vessels are on order

¹ W. Østreng, 'The International Northern Sea Route Programme (INSROP): Applicable Lessons Learned,' 42 *Polar Record* (2006) 71–88 at 80. This conclusion was reached by the earlier multi-national research project known as International Northern Sea Route Programme (INSROP) 1993–1999. See: C.L. Ragner (ed.), *The 21st Century: Turning Point for the Northern Sea Route?* (Proceedings of the Northern Sea Route User Conference, Kluwer, Dordrecht, 2000).

² K.J. Wilson, J. Falkingham, H. Melling and R. De Abreu, 'Shipping in the Canadian Arctic: Other Possible Climate Change Scenarios,' in *International Geoscience and Remote Sensing Symposium (IGARSS '04)*, 20–24 September 2004, Anchorage, Alaska, Proceedings, vol. 3 (IEEE International, New York, 2004) pp. 1853–1856; L. Brigham and B. Ellis (eds.), *Arctic Marine Transport Workshop*, Proceedings, Cambridge University, 28–30 September 2004, Appendix F, available online at: < http://www.arctic.gov/files/AMTW_book.pdf>, accessed 1 February 2009.

³ Pharand states that climate change has reduced Arctic ice cover to the extent of making international shipping in the Northwest Passage "a virtual certainty in the foreseeable future." D. Pharand, 'The Arctic Waters and the Northwest Passage: A Final Revisit,' 38 *ODIL* (2007) 3–69 at 3. Griffiths states there is less likelihood that the Northwest Passage will develop into a full international commercial shipping route (perhaps unlike the Northern Sea Route) and the growth in Arctic shipping will more likely be of regional destination, e.g., to support the transportation needs of resource development. Franklyn Griffiths, 'New Illusions for a Northwest Passage,' in M.H. Nordquist, J. Norton Moore and A.S. Skaridov (eds.), *International Energy Policy, the Arctic and the Law of the Sea* (Nijhoff, Leiden, 2005) pp. 303–319.

⁴ 'Race for the Arctic,' (2008) 2 *Global Researcher* 213–242 at 223. Iceland appears to be sensing a future opportunity for entrepôt trade. See T.E. Jakobsson, 'Climate Change and the Northern Sea Route: An Icelandic Perspective,' in Nordquist *et al.*, *op. cit.*, *supra* note 3, pp. 285–301 at 295–297.

or being built.⁵ Leading classification societies are increasing ice-classification activities.⁶ Already there is a shortage of skilled crews for existing ships.⁷ The cumulative impact on the Arctic and its peoples as a result of new uses and related infrastructure development has yet to be fathomed.

Shipping is central to much of the foreseeable development in the Arctic. To facilitate international shipping, major changes are needed in physical and service infrastructure, appropriate for the particular navigation challenges in the region. The three potential routes are mostly located in remote areas. The environmental fragility and challenging navigation conditions require safety and environmental standards for marine transportation like no other. Rules and standards of ship construction, crewing and operation must be higher than for navigation elsewhere, and polar class vessels will be costlier. These standards must be reasonable and widely supported, because shipping is an international business with multifarious players. Marine insurance must be more widely available at reasonable rates. Arctic coastal States must provide support services at reasonable cost and on a non-discriminatory basis.

Political factors will play a major role. Arctic coastal States will play a lead role, but their interests in the region converge on some issues, and diverge on others. Extra-regional States are not uninterested in the Arctic; their claim for meaningful participation is becoming more vocal. The indigenous and other peoples of the Arctic are concerned about the changing quality of their living environment, while concurrently they sense an opportunity for improved quality of life accompanying economic activity. From the beginning they actively sought to have their voice heard in the region's political arenas. Environmentalists have fundamental concerns for the conservation of this unique environment,

⁵ For example by members of the International Association of Independent Tanker Owners (INTERTANKO); information provided by T. Wilkins, 'Effects of Climate Change on Shipping,' Presentation at ICCMI 2008—Preparatory Workshop, World Maritime University, Malmö, 7–8 June 2007 (unpublished). Increased polar class shipbuilding is also reported by the American Bureau of Shipping (ABS): 'New Tanker Designs for Arctic Whitefield Developments,' *ABS Activities*, May 2008, 22.

⁶ Det Norske Veritas (DNV) is reportedly increasing its activities in ice classification, contingency planning and standards, vessel routing measures, reporting systems and traffic services. It has also launched a new ice-navigation standard for crew training. 'DNV ready for challenges brought on by Arctic thaw,' *Lloyd's List*, 30 September 2008. The ABS is similarly increasing its ice-classification activities and has recently cooperated with the Russian Maritime Register of Shipping (RS) 'Class Societies ABS and RS Jointly Develop Rules for Arctic Gas Carriers,' *ABS Activities*, May 2008, 24.

⁷ A shortage is estimated of 2,000–4,000 seafarers to crew all the ice-class ships currently on order. Communication by M. Meilaender-Larsen (DNV senior principal surveyor) at the Fourth Annual Arctic Shipping Conference, 2008, St. Petersburg, Russia, as reported in *From the Bridge: Newsletter of the Company of Master Mariners of Canada*, May 2008, 6.

which is already under significant stress. The orderly development of new opportunities in the Arctic depends on serious planning and mandatory high standards for shipping. Unlike the historical development of other trade routes, frequently punctuated by opportunism, conflict and depredation, the development of Arctic trade routes presents a rare opportunity for planning based on knowledge and foresight, and for orderly, equitable and peaceful cooperation.

Against this backdrop, this paper explores the governance challenges to be expected from the growth of international shipping in the Arctic, and in particular the demand for appropriate maritime safety and environmental rules and standards, especially for vessel-source pollution. The contemporary shipping governance system and ensuing instruments that were developed with different environments from the Arctic in mind may not satisfy the unique demands of navigation and environmental impact in this region. This article explores two aspects of the growing discourse on Arctic shipping, namely the relationship between the different levels of governance for the purposes of rule- and standard-setting, and potential issues concerning existing international maritime rules and standards with reference to the particular needs of Arctic navigation. The key question is whether changes to international shipping regulation are needed to accommodate the particular demands of Arctic shipping, and at what level of governance.

A Remote, Harsh and Yet Sensitive Environment

The starting point is the operating environment itself. The media headline that particularly captured public attention is the prospect of an ice-free Arctic summer, a season covering the period between July and October. Over the last few years, various predictions for an ice-free summer were made. In December 2008 scientists further revised these predictions to project that an ice-free summer, at least from multi-year ice, is likely in six years.⁸ Obviously the ship-

⁸ 'Scientists predict seasonal ice-free Arctic by 2015,' *Globe and Mail*, 12 December 2008, available online at: http://www.theglobeandmail.com/servlet/Page/document/v5/content/subscribe?user_URL=http://www.theglobeandmail.com%2F servlet%2Fstory%2FLAC.20081212.ARCTIC12%2FTPStory%2FEnvironment&ord=45218906&brand=theglobeandmail&force_login=true; Senate (Canada), Standing Senate Committee on Fisheries and Oceans, 'The Coast Guard in Canada's Arctic: Interim Report, Fourth Report,' June 2008, 5, available online at: <http://www.parl.gc.ca/39/2/parlbus/commbus/senate/com-e/fish-e/rep-e/rep04jun08-e.pdf>. Earlier, the Inter-governmental Panel on Climate Change (IPCC) has indicated that "In some projections, arctic late-summer sea ice disappears almost entirely by the latter part of the 21st century." The decline for ice extent is larger for summer than for winter. 'Summary

ping forecasts must be revised. Commercial navigation is expected to occur during the summer, although some Arctic States have a year-round navigation capability, in particular for higher class ice-breakers.

However, the image conveyed by the media of ice-free water masks the reality of navigation in the Arctic environment. An ice-free summer will not make Arctic navigation comparable to that in non-polar regions.⁹ Navigation can be expected to remain hazardous over the few relevant months, with the rest of the year remaining non-navigable except for higher polar class vessels. 'Ice-free' is misleading, and a better term is 'open water' (emphasizing navigable space), as there is still likely to be ice, albeit in limited amounts, but whose movement may be unpredictable and could still raise safety concerns.¹⁰ More realistic is the expectation that a ship navigating in the Arctic can encounter a mixture of open water and different ice regimes. The ice trials of the US Coast Guard ice-breaker '*Healy*' provide some insights. Sailing in April, the ship encountered 118 different ice regimes between East Newfoundland and the Davis Strait alone.¹¹ Ships will need to navigate pursuant to an Ice Regime System that defines the requirements for operating vessels in an environment where ice conditions can change very significantly within a short period of time.¹²

for Policy-Makers' (IPCC Fourth Assessment Report), 15, available online at: <http://www.ipcc.ch/ipccreports/ar4-wg1.htm>, accessed 1 February 2009.

⁹ However, one view is that "... conditions will become similar to those in the St. Lawrence Seaway in winter." Comment ascribed to L. Fortier, Scientific Director, ArcticNet, in Senate (Canada); *op. cit.*, *supra* note 8 at 6.

¹⁰ Office of Naval Research, Naval Ice Center, Oceanographer of the Navy and the Arctic Research Commission, 'Naval Operations in an Ice-Free Arctic,' Symposium, 17–18 April 2001, Final Report (US Office for Naval Research, Arlington, VA, 2001). In Canada 'Open Water' is defined as: "A large area of freely navigable water in which ice is present in concentrations of less than 1/10. No ice of land origin is present." Transport Canada, Arctic Ice Regime System (AIRSS) Standards (Transport Canada, Ottawa, 1998).

¹¹ The '*Healy*' was intentionally navigated into different ice conditions. In some areas it encountered hard and thick ice (including multi-year ice) where considerable backing and ramming was needed, considerably slowing down navigation speed. M. Johnston, R. Gorman and G. Timco, 'Ice Regimes Encountered during the USCGC Healy Ice Trials,' Paper presented at Port and Ocean Engineering under Arctic Conditions (POAC '01), Ottawa, 12–17 August 2001, available online at: ftp://ftp2.chc.nrc.ca/CRTreports/TC/POAC_01_Healy_Regimes.pdf.

¹² G.W. Timco, R.M.W. Frederking and V.M. Santos-Pedro, 'A Methodology for Developing a Scientific Basis for the Ice Regime System,' Proceedings of the 7th International Offshore and Polar Engineering Conference (ISOPE '07), Honolulu, Vol. 2, available online at: ftp://ftp2.chc.nrc.ca/CRTreports/ISOPE_97_IRS_Tasks.pdf.

Ships will operate in extreme cold. Many areas are uncharted or the charts are not up-to-date.¹³ There are difficult choke-points to manoeuvre and some narrow channels are draught restricted. Along the likely new navigation routes fog, variable light and other conditions will reduce visibility.¹⁴ The reality is that the "... challenges faced by navigators while transiting arctic ice regimes" can be expected to be "beyond the scope of present or even future expectations of average mariner training and experience."¹⁵

Important shortcomings must be addressed and remoteness is a major challenge to overcome. The routes through the region do not enjoy the services normally available to shipping on major trade routes. Although shipping-safety control zones are designated (e.g., in the Canadian Arctic), the likely routes are mostly located in remote areas where relatively few navigation aids occur.¹⁶ Navigation areas within the World-Wide Navigational Service in the Arctic were recently proposed for revision (see *infra*) and initiatives to strengthen ice and meteorological forecasting already exist. But more costly shortcomings must be addressed. At present very few ports and harbours exist where ships might re-supply and undertake repairs for ice damage. There is very little salvage and pollution response capacity. The remoteness of the region also poses special challenges for search and rescue. For example, in 2007, bad weather delayed the rescue of a hunter stranded on an ice floe off Cape Perry in the Canadian Arctic.¹⁷ Navigation incidents resulting in dam-

¹³ For example, the Canadian Hydrographic Service estimates that only about 10% of their Arctic charts meet modern standards. Apparently many passage charts were prepared on a large grid that may omit shallow-draft features such as seamounts. The updating of Arctic charts is recognized as a priority. See C. Wright, 'Arctic Navigation: The Canadian Experience,' report prepared on behalf of the Mariport Group, available online at: <http://www.mariport.com/pdf/Arctic%20Navigation%20-%20the%20Canadian%20Experience.pdf>; accessed 1 February 2009.

¹⁴ D.L. VanderZwaag, A. Chircop *et al.*, 'Governance of Arctic Marine Shipping,' a report to the Arctic Marine Shipping Assessment (AMSA), 11 October 2008, available online at: <http://arcticportal.org/uploads/vZ/6u/vZ6uVo9aTTQv45iwl93oFw/AMSA-Shipping-Governance-Final-Report—Revised-November-2008.pdf>, accessed on 1 February 2009 [hereafter Arctic Shipping Governance].

¹⁵ D. Snider, 'Ice Navigation in the Northwest Passage,' paper presented at Ocean Innovation 2005, Rimouski, Quebec, 23 October 2005, available online at: <http://www.martechpolar.com/Publications/Ice%20Nav%20in%20the%20NWP.pdf>, accessed 1 February 2009.

¹⁶ At present the Canadian Coast Guard places and maintains over 1,500 visual and aural aids in the Mackenzie River from Great Slave Lake to Tuktoyaktuk. However, there are only 300 aids across the Arctic Ocean. There are also 30 aids in Hudson Bay and James Bay. Senate (Canada) *op. cit.*, *supra* note 8 at 3. Aids in the Passage are insufficient for safe navigation.

¹⁷ Two of the rescuers were compelled to spend the night on the ice floe in a temperature of -30° C. 'Hunter rescued from Arctic ice floe,' CBC News, 18 February 2007, available online at: <http://www.cbc.ca/canada/story/2007/02/18/arctic-rescue.html>, accessed 1 February 2009.

age to navigating ships are likely.¹⁸ Because of its low temperature and circulation patterns, in the Arctic a low dissipation rate prevails for a pollutant such as oil. Theoretically, even a few ships could threaten the fragile Arctic environment, because even a small discharge of a pollutant such as fuel oil can cause significant damage.¹⁹

Safe and environmentally acceptable commercial navigation in the Arctic requires rules, standards and ‘best practices’ more demanding than for marine regions considered less hazardous to navigate and possessing the appropriate infrastructure. Clearly a high navigation standard is appropriate for Arctic navigation. The next question is: at what level should it be formulated and adopted?

Multiple Levels of Arctic Shipping Governance

Global Level

Shipping in the Arctic is subject to multiple levels of governance. Like global shipping, Arctic shipping is subject to the International Maritime Organization (IMO)’s governance structures, processes, rules and standards. A special agency of the United Nations, IMO provides machinery for intergovernmental cooperation in the technical regulation of shipping engaged in international maritime trade.²⁰ It promotes the highest practicable standards for maritime safety, navigation efficiency and vessel-source pollution, encourages the removal of discriminatory practices by States and supports the availability of shipping services to world commerce. Furthermore, it provides for the exchange of information among member States on matters under consideration. IMO pursues these purposes irrespective of marine region, hence the significance of this level of governance for Arctic shipping.

IMO’s maritime safety tools can assist to promote appropriate construction, equipment and seafaring standards for the Arctic. Adopted within the framework of the International Convention on Safety of Life at Sea (SOLAS), 1974, these tools consist of a comprehensive range of rules and standards for virtually every aspect of ship construction, equipping, operation

¹⁸ For instance see Wright, *op. cit.*, *supra* note 13 at 4.

¹⁹ Arctic Council, ‘Arctic Oil and Gas Assessment’ (Arctic Monitoring and Assessment Programme, Oslo, 2007).

²⁰ Convention on the International Maritime Organization (adopted 6 March 1948, entered into force 17 March 1958) 289 *UNTS* 48; as amended, see Institute of Maritime Law, *The Ratification of Maritime Conventions* 4 Vols. Up-dated, Loose-leaf Service (Lloyd’s Press, London, 1991–2003), Vol. I.1.10.

and crewing.²¹ However, at present no mandatory rules and standards specifically address the particular challenges of Arctic navigation, and only rules of general application apply. Voluntary guidelines exist instead (see *infra*). Equally, the environmental protection tools can potentially be brought to bear on the protection of the Arctic environment. The United Nations Convention on the Law of the Sea, 1982 (LOS Convention or LOSC) allocates to the competent international organization (generally understood as referring to IMO) the role of forum for the adoption by States of international rules and standards for vessel-source pollution and routing schemes.²² Under the International Convention on the Prevention of Pollution from Ships, 1973/78 (MARPOL), IMO is empowered to designate and has designated special areas where vessel discharges are further restricted in several sensitive marine regions around the world, including Antarctic Waters, the Baltic, Caribbean, Mediterranean, and North Sea.²³ On the request of a member State, the IMO addresses the protection needs of particular areas in that State's maritime zone by adopting special mandatory measures and/or through the establishment of a Particularly Sensitive Sea Area (PSSA) and associated protective measures (APMs).²⁴ The northernmost PSSA nearest to Arctic waters at present is in Western European waters. Irrespective of special area and PSSA designation, IMO has also approved routing measures to achieve particular environmental protection and conservation goals.²⁵ At present IMO has not designated

²¹ International Convention for the Safety of Life at Sea (adopted 1 November 1974, entered into force 25 May 1980) 1334 *UNTS* 2; Protocol of 1978 (adopted 17 February 1978, entered into force 1 May 1981) 1276 *UNTS* 237; Protocol of 1988 (adopted 11 November 1988, entered into force 3 February 2000) U.S. Treaty Doc. 102–2.

²² United Nations Convention on the Law of the Sea (adopted 10 December 1982, entered into force 16 November 1994) UN Doc. A/CONF.62/122, 7 October 1982; 1833 *UNTS* 396 [hereafter LOSC], Art. 211(1).

²³ International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (adopted 17 February 1978, entered into force 2 October 1983), as amended, in *MARPOL*, Consolidated Edition (IMO, London, 2007). The IMO Assembly adopted guidelines for special area designation: Guidelines for the Designation of Special Areas under MARPOL 73/78, IMO Doc. A.22/Res 927, 15 January 2002; available online at: http://www.imo.org/includes/blastDataOnly.asp/data_id%3D10469/927.pdf.

²⁴ Under LOSC Art. 211(6), the IMO may, on the request of a State Party, adopt special mandatory measures to address the needs of PSSAs within the EEZ. The IMO has not yet used this power. However, it has designated PSSAs under its own environmental mandate set out in its constitutive convention (note 20, *supra*). The PSSA Guidelines were adopted under this mandate. Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas, IMO Doc. A.982(24), 1 December 2005, available online at: http://www.imo.org/includes/blastDataOnly.asp/data_id%3D14373/982.pdf.

²⁵ These are published in International Maritime Organization, *Ships' Routing* (9th ed.) (IMO, London, 2008).

special areas, PSSAs, special mandatory measures or routeing measures in the Arctic Ocean. However, the northernmost section of the Western European PSSA at 62°N (UK, off the Shetland Islands) and some routeing schemes also located, at least in part, north of that latitude, spill into the Arctic Circle.²⁶

IMO has considered Arctic-specific safety issues in its various committees. In 2002 the Assembly adopted the Guidelines for Ships Operating in Arctic Ice-covered Waters (Arctic Guidelines), following consideration by the Sub-Committee on Ship Design and Equipment (DE) and approval by the Maritime Safety Committee (MSC) and the Marine Environment Protection Committee (MEPC); these are being considered for amendment.²⁷ IMO has also responded to the proposal for additions to regional navigation areas (NAVAREAs). Following consideration by the Sub-Committee on Search and Rescue (COMSAR), it proposed the revision and creation of new Arctic NAVAREAs and the allocation of responsibilities to coastal States in new areas.²⁸

Accredited delegations from member States are the principal participants in IMO structures and processes. Global and regional intergovernmental organizations (IGOs) can enter into cooperation agreements and participate in meetings. Industry groups and non-governmental organizations (NGOs) can be granted consultative status that also enables their participation in meetings.²⁹ To date the Arctic Council has not been accredited as an observer (nor is IMO an observer on the Arctic Council),³⁰ nor has it entered into a

²⁶ Off the coast of Norway from Vardø to Røst (traffic separation scheme; recommended routes joining traffic separation schemes); partially (to a limited extent in the northernmost region) in Prince William Sound (traffic separation scheme); partially in the northernmost region of the Shetland Islands (precautionary area in the approaches to Lerwick); off the southwest coast of Iceland (two-way routes; mandatory reporting). Several measures have also been adopted for the Baltic Sea. *Ships' Routeing* (note 25, *supra*).

²⁷ Guidelines for Ships Operating in Arctic Ice-covered Waters, IMO Doc. SC/Circ.1056 MEPC/Circ.399, 23 December 2002 [hereafter Arctic Guidelines]. The DE Sub-Committee is considering amendments to the Arctic Guidelines. Report to the Maritime Safety Committee, IMO Doc. DE 51/28, 12 March 2008, available online at: http://www.imo.org/includes/blastDataOnly.asp/data_id%3D6629/1056-MEPC-Circ399.pdf.

²⁸ The MSC approved the Sub-Committee on Communications and Search and Rescue (COMSAR) proposal for the creation of Arctic NAVAREAs up to 90° North. The following countries were designated coordinators for the new NAVAREAs: Canada for NAVAREAs XVII and XVIII, Norway for NAVAREA XIX, and the Russian Federation for NAVAREAs XX and XXI. The new NAVAREAs were originally proposed in a joint IMO/IHO/WMO Correspondence Group. Report of the Maritime Safety Committee at its Eighty-Third Session, IMO Doc. MSC 83/28, 26 October 2007, available online at: <http://www.imo.org>.

²⁹ For a list of organizations with consultative or observer status at the IMO see: http://www.imo.org/home.asp?topic_id=315&doc_id=851, accessed on 1 February 2009.

³⁰ A major UN body has observer status on the Council: the United Nations Development Programme (UNDP). A United Nations Environment Programme (UNEP) centre based in

cooperation agreement with IMO as have other global and regional IGOs.³¹ A possible explanation is that Arctic Council member States project and protect their Arctic interests at IMO as member States of the latter, and cooperate on an occasional basis when they deem it necessary. Although this may be satisfactory from a national interest standpoint, it does not project a systematic regional approach to Arctic issues at IMO, even though there may be prior delegation to a member State to submit a regional communication or point of view on particular issues.³² In contrast, industry and NGOs with an interest in the Arctic are able to participate in IMO meetings and influence the adoption of rules and standards. Perhaps it might also be appropriate for IMO to attain an observer status in the Arctic Council.

Regional Level

The LOS Convention provides a role for ocean governance at the regional level. It is arguable that the Arctic Ocean should be treated as a semi-enclosed sea, so that its coastal States are under an obligation to "...endeavour, directly or through an appropriate international organization..." to coordinate marine living resource "...management, conservation, exploration and exploitation...", "...the implementation of their rights and duties..." for the protection and preservation of the marine environment and their scientific research policies, including undertaking joint research.³³ The LOS Convention further provides for States, as appropriate, to cooperate:

Norway also has observer status, see online at: http://arctic-council.org/section/observers_intergovernmental_and_inter_parliamentary_organization, accessed on 1 February 2009.

³¹ For a list of IGOs having cooperation agreements with the IMO, see http://www.imo.org/home.asp?topic_id=315&doc_id=846, accessed 1 February 2009.

³² On some issues the Arctic Council has participated indirectly at the IMO, e.g., when the Arctic Guidelines (note 26, *supra*) were under consideration in MSC and DE. Although the Council does not have observer status, it has submitted documents on the Guidelines directly or through a member State.

³³ LOSC Arts. 122–123. Art. 122 defines 'semi-enclosed sea' as "a gulf, basin or sea surrounded by two or more States and connected to another sea or the ocean by a narrow outlet or consisting entirely or primarily of the territorial seas and exclusive economic zones of two or more coastal States." Although it is called 'ocean', it is the smallest of the world's oceans and is effectively covered for the most part by the EEZs of five coastal States. Its hydrology is comparable to that of the Mediterranean Sea. The purpose of Arts. 122–123 is to encourage cooperation in marine areas within such a constraining geography. Further, like the Mediterranean, the Arctic Ocean has several sub-regional seas, several of which can also be described as semi-enclosed, include the Barents, Bering, Beaufort, Greenland, Kara, Labrador, Laptev, Norwegian and Siberian Sea.

...on a regional basis, directly or through competent international organizations, in formulating and elaborating international rules, standards and recommended practices and procedures consistent with this Convention, for the protection and preservation of the marine environment, taking into account characteristic regional features.³⁴

As noted earlier, with respect to the adoption of standards and rules for vessel-source pollution, the LOS Convention speaks of ‘competent international organization’ in the singular, and this is generally understood to refer to IMO.³⁵

The Arctic States chose to cooperate on a political and regional basis, with the involvement of the region’s indigenous communities and other Arctic inhabitants, through the Arctic Council. The Council was established in 1996 by a political Declaration of the Arctic States following the earlier adoption of the Arctic Environmental Protection Strategy, rather than by a treaty like many other regional marine environmental protection regimes.³⁶ In addition to a forum for political cooperation, the Council promotes scientific exchange. Although based on consensus, its decisions are not mandatory.

The governmental members of the Council are States whose territory is at least partially located north of 60° latitude, namely: Canada, Denmark, Finland, Iceland, Norway, Russian Federation, Sweden and United States.³⁷ Not all of these States necessarily have coastal frontage on the Arctic Ocean. Finland and Sweden are Baltic coastal States and Iceland is an island State in the Norwegian Sea, i.e., sub-Arctic waters.³⁸ The States with coastal frontage on the Arctic Ocean proper are only Canada, Denmark (Greenland only, which enjoys home rule), Norway, the Russian Federation and the United States.

³⁴ LOSC Art. 197.

³⁵ LOSC Art. 211.

³⁶ Declaration on the Establishment of the Arctic Council, Ottawa, 19 September 1996, available online at: <http://arctic-council.org/article/about>, accessed 1 February 2009 [hereafter Ottawa Declaration]. In addition to regional cooperation, Arctic States cooperate on marine and environmental issues on a bilateral basis. For examples, see Arctic Shipping Governance, *op. cit.*, *supra* note 14.

³⁷ The following organizations are Permanent Participants in the Arctic Council: the Inuit Circumpolar Conference; the Saami Council with member organizations in Finland, Russia, Norway and Sweden; Association of Indigenous Minorities in the Far North, Siberia, the Far East of the Russian Federation (RAIPON); Aleut International Association, representing the Aleut on the Russian and American Aleutian, Pribilof and Commander Islands; Arctic Athabaskan Council, representing the interests of United States and Canadian Athabaskan member First Nation governments; and Gwich’in Council International (GCI), representing the Gwich’in in Canada and US.

³⁸ Nonetheless, Finland has an interest in Arctic shipping and is one of three co-chairs of AMSA. The other co-chairs are Canada and the United States.

This has significant implications for their power to regulate shipping in the Arctic (see *infra*). The Council's interest in shipping is expressed through the Protection of the Arctic Marine Environment (PAME) programme, which is a mechanism for cooperation in the environmental field. The most noteworthy inroad into shipping matters to date is the Arctic Marine Shipping Assessment (AMSA), which is expected to produce a substantial report in 2009. Cooperation on shipping matters at present is political and primarily focused on developing a knowledge base for shipping issues generally and cooperation in contingency planning and response.

Arctic Ocean coastal States are apparently prepared to split ranks with other Arctic States and act outside the framework of the Arctic Council when they perceive this to be in their interest. This should not be surprising because arguably their interests as coastal States outweigh those of other Arctic and non-Arctic States. Accordingly, the coastal States set out their vision for the Arctic when their ministers met in 2008 in Ilulissat (Greenland)—to the disappointment of other actors. They adopted a Declaration touching on three key points.³⁹ First, in response to proposals for a new comprehensive international legal regime for the Arctic Ocean, they stated that such a comprehensive legal instrument was unnecessary. Second, presumably as an assertion of their rights as coastal States, they espoused their readiness to undertake responsible management by using the existing framework for the international law of the sea. Third, and most significantly for shipping governance, they expressed the common intention to continue working together directly and through IMO to strengthen existing and develop new safety measures to prevent and reduce vessel-source pollution.

Despite the foregoing, Arctic States are not the only entities with a significant and legitimate interest in that region and in the prospect of new maritime trade routes. Non-Arctic States, especially some Asian and European States, may have an interest in the known hydrocarbon and mineral resource potential of the region and the prospect of new trade routes that could significantly reduce transit time and freight rates. The analogy to the Antarctic is valid: non-Arctic States may have a non-territorial interest in its proper governance. The LOS Convention recognizes extra-regional interests in a regional sea and, applied to the Arctic, this obliges Arctic State Parties to the LOS Convention to endeavour to invite other States or international organizations to cooperate with them in furthering cooperation in the region.⁴⁰ The Agreement establishing the Arctic Council provides a mechanism for non-Arctic

³⁹ Ilulissat Declaration, Arctic Ocean Conference, Ilulissat, Greenland, 27–28 May 2008, http://www.oceanlaw.org/downloads/arctic/Ilulissat_Declaration.pdf, accessed 1 February 2009.

⁴⁰ LOSC Art. 123(d).

States to participate as observers, and many have.⁴¹ Some non-Arctic States have openly expressed their interest in the future governance of Arctic shipping⁴² or have invested in Arctic oceanic, atmospheric and related research.⁴³ The European Commission, conscious that the European Union (EU) does not have coastal frontage in the Arctic, defined the EU's interests in Arctic policy on behalf of the 27 EU Member States.⁴⁴ The EU's shipping and other interests in the region and its governance institutions were underscored.

Clearly the regional governance level has an important role to play in the governance of Arctic shipping, but most likely as a political rather than a standard-setting forum. It has the potential to enable Arctic States to better coordinate their national and IMO efforts to regulate shipping. It is probably in the collective interest of Arctic States to have the Arctic Council assume a more visible institutional presence at IMO, thus alerting the rest of the maritime community that a viable regional cooperative arrangement exists which is beneficial to international shipping. The Arctic Council also has the potential of further engaging important and interested non-Arctic States or organizations, such as the EU.

National Level

The national level of governance in Arctic shipping plays a more significant role than in non-polar regions. The reason for this is LOSC Article 234, which provides coastal States in ice-covered regions with additional powers of regulation over international shipping. Article 234 provides:

⁴¹ Ottawa Declaration (*supra*, note 36) Art. 3. At present, observer States include: China, France, Germany, Poland, Spain, The Netherlands and United Kingdom. See Arctic Council, online at: <http://arctic-council.org/section/observers_non_arctic_states>, accessed 1 February 2009.

⁴² For example, Germany recently convened a meeting to explore what form cooperation between Arctic and non-Arctic States could take. 'New Chances and New Responsibilities': International Conference of the German Federal Foreign Office in cooperation with the Ministries of Foreign Affairs of Denmark and Norway and the Max Planck Institute for Comparative Public Law and International Law, Berlin, 11–13 March 2009, information available online at: <http://www.arctic-governance.org/index.htm>.

⁴³ China has a 21,000-ton ice-breaker converted for polar research; Senate (Canada) *op. cit.*, *supra* note 8 at 9–10. The EU, Japan and Sweden have also funded Arctic research. The three-year Arctic Operational Platform (ARCOP) project was funded by the EU's DG Transport and Energy, see online at: <http://www.arcop.fi/index.htm>, 1 February 2009.

⁴⁴ Communication from the Commission to the European Parliament and the Council, the European Union and the Arctic Region, COM(2008) 763 final, 20 November 2008, available online at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0763:FIN:EN:PDF>. The Communication specifies that the Commission will apply for permanent observer status in the Arctic Council.

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.⁴⁵

Negotiated as a *lex specialis*, i.e., as an exception to the general rules on the protection and preservation of the marine environment set out in LOSC Part XII and conferred as an additional power within the Exclusive Economic Zone (EEZ) as set out in LOSC Part V, it was a provision directly negotiated between relatively few States at the Third UN Conference on the Law of the Sea (UNCLOS III).⁴⁶ Article 234 enables Arctic coastal States to establish higher standards for vessel-source pollution than the international norm established through IMO. Therefore national regulation pursuant to these powers applies to international shipping in addition to any applicable IMO rules and standards.

Canada and the Russian Federation are two Arctic States that have adopted national rules and standards for international shipping in the Arctic. Canada's principal legislation in this regard, namely the Arctic Waters Pollution Prevention Act, 1970 (AWPPA),⁴⁷ was adopted not without protest from some States, but in view of the eventual adoption of the LOS Convention and Canada's ratification, the AWPPA is clearly in compliance with Article 234. Since its adoption, the AWPPA applied to waters north of 60° and only up to 100 nautical miles (nm) from its territorial sea baselines in the Arctic Ocean. Curiously, it was only in December 2008 that Canada took the step to amend the AWPPA to encompass its entire EEZ in the definition of 'Arctic waters'.⁴⁸ The

⁴⁵ LOSC Art. 234.

⁴⁶ Mainly between Canada, the USSR (at the time) and the United States. M.H. Nordquist, A. Yankov, N.R. Grandy and S. Rosenne, *United Nations Convention on the Law of the Sea 1982: A Commentary*, vol. IV (Nijhoff, Dordrecht, 1991) 392–398.

⁴⁷ Arctic Waters Pollution Prevention Act, R.S.C. 1985, c. A-12 [hereafter AWPPA]. Key regulations under the AWPPA are: Arctic Shipping Pollution Prevention Regulations, C.R.C., c. 353; Arctic Waters Pollution Prevention Regulations, C.R.C., c. 354. Other statutes relevant for safety and vessel-source pollution in the Arctic include: Canada Shipping Act, 2001, S.C. 2001, c. 26; Canadian Environment Protection Act, R.S.C., 1985, c. F-14; Migratory Birds Conventions Act, 1994, S.C. 1994, c. 22; Navigable Waters Protection Act, R.S.C., 1985, c. N-22; Marine Liability Act, S.C. 2001, c. 6; Oceans Act, S.C. 1996, c. 31.

⁴⁸ An Act to Amend the Arctic Waters Pollution Prevention Act, Bill C-3, 1st Session, 40th Parliament, 57 Elizabeth II, 2008, introduced in December 2008 and which received its First

AWPPA and regulations under it provide a regime that includes: designation of shipping-safety control zones, 16 of which have been designated; polar standards for ships; zero discharges from ships; requirement for an ice navigator on board; and voluntary reporting to the Arctic Canada Traffic System (NORDREG) for ships above 300 tons entering Canadian Arctic waters.⁴⁹ In August 2008 Prime Minister Stephen Harper announced that NORDREG will be made mandatory.⁵⁰ AWPPA regulations set a higher standard for ship discharges than MARPOL. For this reason Canada made a declaration on acceding to MARPOL to ensure that the higher national standard for Arctic waters permissible under LOSC Article 234 would thus continue to apply.⁵¹

In the wake of recent Arctic policy communications from the EU and the US, the Russian Federation is expected to issue an Arctic policy statement soon. However, the Russian Federation has already legislated safety and pollution-prevention requirements for shipping using the Northern Sea

Reading on 28 January 2009, available online at: <http://www2.parl.gc.ca/HousePublications/Publication.aspx?Docid=3625929&file=4>.

⁴⁹ Arctic Shipping Governance, *op. cit.*, *supra* note 14. The objectives of NORDREG are to: "...enhance the safe and expeditious movement of maritime transportation in Arctic waters; safeguard the Arctic environment; and contribute to the administration of Canadian Arctic waters and territories." It also issues acknowledgements to ships entering Arctic waters, distributes ice information and ice routings for individual ships and coordinates ice-breaker assistance. AIRSS, *op. cit.*, *supra* note 10 at 16. A concern is vessels smaller than 300 tons, especially yachts, which are increasingly being reported in Canadian Arctic waters. Brigham and Ellis, *op. cit.*, *supra* note 2.

⁵⁰ Prime Minister Harper unveiled the plan in Tuktoyaktuk. A. Dowd, 'Canada to toughen requirements for ships in Arctic,' Reuters (Tuktoyaktuk, 27 August 2008), available online at: http://www.immigrationwatchcanada.org/index.php?module=pagemaster&PAGE_user_op=view_page&PAGE_id=3613&MMN_position=92:90, accessed 1 February 2009.

⁵¹ The declaration was as follows:

- (a) The Government of Canada considers that it has the right in accordance with international law to adopt and enforce special non-discrimination laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered waters where particularly severe climatic conditions and the presence of ice covering such waters 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.
- (b) Consequently, Canada considers that its accession to the Protocol of 1978, as amended, relating to the International Convention for the Prevention of Pollution from Ships, 1973 (MARPOL 73/78) is without prejudice to such Canadian laws and regulations as are now or may in the future be established in respect of arctic waters within or adjacent to Canada.

IMO, *Status of Multilateral Conventions and Instruments in respect of which the International Maritime Organization or its Secretary-General Performs Depositary Functions* (IMO, London, 2005), 96.

Route.⁵² This legislation draws on statutes and regulations adopted since 1990 and sets out standards for polar classes, ship inspection, emergency and repair supplies, ice-navigation qualifications of the master, pilotage requirements (compulsory in some straits), ice-breaking, civil liability for pollution damage, a compulsory notification system including advance permission to use the route, and fees for services. Ship transits are monitored by the authorities. Like Canada, the Russian Federation is a party to MARPOL (except Annex VI), but its standards for vessel-source pollution are higher than the basic MARPOL norm. An issue with fees for services is the higher charges imposed on foreign ships. The Russian Federation has the world's largest fleet of ice-breakers; several are nuclear-powered and able to provide year-round services on the route.

The exercise of LOSC Article 234 powers has certain constraints. Severe climatic conditions and ice cover must exist for most of the year, creating obstructions or hazards to navigation.⁵³ Although there will be significantly less ice in the summer, for the rest of the year the ice cover will be significant. Irreversible damage could be caused to the environment by international shipping. This requirement can be interpreted qualitatively. It is not necessarily a high volume of shipping which will adversely affect the marine environment. As noted earlier, even one serious casualty could result in substantial and irreversible pollution of sensitive Arctic ecosystems.⁵⁴ The regulatory authority

⁵² In particular the following: Instruction of the Government of the Russian Federation, on the authorization for cargo ships and tankers flying a foreign flag during 2007–2008 to call at Arctic ports and points, located on the Territory of the Russian Federation, 29 December 2006, No. 1855-p, available online at: <http://www.morflot.ru/html/sevmorput/Document/Rasp_Pravit_1855_r.doc>, accessed 1 February 2009; Regulations for ice-breaker and pilot guiding of vessels through the Northern Sea Route, Guide to Navigation (1996), 84–89, available online at: <http://www.morflot.ru/html/sevmorput/Document/RULES%20OF%20NAVIGATION.doc>>, accessed 1 February 2009; Regulations for navigation on the seaways of the Northern Sea Route, 14 September 1990, Notice to Mariners No. 29 of 18 June 1991, in N. Koroleva, V. Markov and A. Ushakov, *Legal Regime of Navigation in the Russian Arctic* (Association of International Maritime Law, Soyuzmorniiproekt, Moscow, 1995), 133–139. See also A. G. Gorshkovsky, 'Rules to be followed on the Northern Sea Route,' in A. Backlund, L. Laiho, and B. Jourio (eds.), *ARCOP (Arctic Operational Platform) Legal and Administrative Issues*, Workshop Report 1 (Workshop Proceedings, Helsinki, 25 March 2003), 67–70, ARCOP Deliverable 6.1, available online at: http://www.arcop.fi/reports/workshop_report1.pdf, accessed 1 February 2009; Gorshovsky also mentions Requirements Relating to the Design, Equipment, and Supply of Ships, *ibid.* See also Arctic Shipping Governance (*op. cit.*, *supra* note 14) at 62 et seq.

⁵³ A possible interpretation of ice cover is in the Arctic Guidelines which require at least 9/10ths ice cover for their application. Arctic Guidelines, *op. cit.*, *supra* note 26.

⁵⁴ In 2006 there were still reports that resources affected by the *Exxon Valdez* oil spill in Prince William Sound, Alaska, in 1989, had not yet recovered. *Exxon Valdez* Oil Spill Trustee Council,

must be exercised within the limits of the EEZ. The text ‘within the EEZ’, as defined in LOSC Part V, was intentionally negotiated. Pharand, a leading expert on the Arctic, considers that the terminology ‘within the EEZ’ should be interpreted to comprise the territorial sea.⁵⁵ However, the LOS Convention is unambiguous in its intention to restrict its application to the EEZ. The laws and regulations enacted pursuant to this provision must be non-discriminatory.⁵⁶ There must be due regard to navigation. The purpose of such regulations is for the prevention, reduction and control of pollution, but this raises a question as to whether such regulations must necessarily be limited to pollution-related purposes, or whether they could also be for safety purposes. For example, rules and standards concerning crew and passenger safety (such as lifeboat and survival suit requirements) are not necessarily related to pollution prevention, so that arguably Article 234 powers cannot be used for such purposes. Instead, mandatory rules adopted under SOLAS and the voluntary Arctic Guidelines would apply. In practice, situations will occur in a polar context where it will likely be difficult to distinguish between pollution and safety regulation. A large measure of safety regulation is essential to prevent incidents or casualties which could have a detrimental impact on the marine environment. Thus regulations concerning appropriate hull classes for different ice conditions, ensuring no fuel or oil cargo tank is located against the hull, requirement of an ice navigator on board, among many other examples, are necessarily related to both pollution prevention and safety.

‘Status of Injured Resources,’ available online at: <http://www.evostc.state.ak.us/Recovery/status.cfm>, accessed 1 February 2009.

⁵⁵ Pharand, *op. cit.*, *supra* note 3 at 47. Professor Pharand refers to the literature on both sides of the argument. Despite the more flexible interpretation that Professor Pharand advances and the literature he invokes in support, the fact is that the text of LOSC Arts. 55 and 234 is sufficiently clear in intent. Art. 55 defines the EEZ as: “...an area beyond and adjacent to the territorial sea...”. Art. 57 provides a methodology to measure the outer limit. See also Nordquist et al., *op. cit.*, *supra* note 46. Canada’s declaration on accession to MARPOL (*supra* note 51) was followed by reactions from the US and several European States. In particular, Belgium, Denmark, France, Germany, Greece, Italy, the Netherlands, Portugal, Spain and the United Kingdom stated that while taking note of Canada’s declaration relating to Article 234, “...it should be read in conformity with Articles 57, 234 and 236 of the United Nations Convention on the Law of the Sea. In particular, the... Government recalls that Article 234 of that Convention applies *within the limits of the exclusive economic zone or of a similar zone delimited in conformity with Article 57 of the Convention and that the laws and regulations contemplated in Article 234 shall have due regard to navigation and the protection and preservation of the marine environment based on the best available scientific evidence.*” (Emphasis added.) IMO Status of Multilateral Treaties, *op. cit.*, *supra* note 51 at 96.

⁵⁶ A potential concern is Russian regulatory requirements for ice-breaker service, but with fees which discriminate between Russian and international shipping. Arctic Shipping Governance, *op. cit.*, *supra* note 14 at 67.

The requirement that Article 234 regulations be based on the best scientific evidence available was specifically negotiated to ensure that coastal State requirements that impose higher standards than those adopted through IMO are justified. This is a reasonable imposition on Arctic coastal States, considering that Article 234 does not require these States to request and receive IMO approval for their regulations. Elsewhere in the LOS Convention, there is a requirement to proceed through IMO.⁵⁷ In practice, and as shipping in the Arctic increases, purely unilateral approaches to standard-setting for shipping in the region are not advisable or even sufficient to protect the marine environment. High seas areas remain where shipping is guided by IMO, not coastal State standards. This is conceivable for the transpolar route. Furthermore, international shipping navigating through the territorial seas of Arctic coastal States may not be subject to Article 234 standards which are inconsistent with IMO standards, because the regime of innocent passage will still apply. Ditto for straits used for international navigation and the right of transit passage. Cooperation of flag States is essential to ensure proper control of their ships. Most seafarers will continue to be trained in maritime academies not necessarily located in Arctic States. Accordingly, a better approach to the use of Article 234 is to use the powers conferred as part of a broad cooperative approach to the setting of polar shipping rules and standards. Certain safety issues, for which the Arctic States would want to see the highest standards possible, are not necessarily Article 234 subject-matter. These higher safety standards can only be obtained through IMO.

Arctic coastal States (in consultation with the other Arctic and interested States, possibly using the Arctic Council as a vehicle) should take the lead in IMO to establish appropriate safety and environmental rules and standards, and then use their Article 234 powers to effectively enforce them. It is reasonable to interpret Article 234 as providing a basis for them to exercise a leadership mandate for this purpose.

Applying International Rules and Standards to Arctic Shipping

Maritime Safety

As noted earlier, IMO has developed an extensive system of mandatory and voluntary rules and standards for ship construction, equipment, operations (including handling and carriage of cargo and passengers) and crewing which applies to shipping in the Arctic as anywhere else. An important question is

⁵⁷ LOSC Art. 211(6).

the extent to which, if at all, these rules and standards are practically applicable to Arctic navigation. The global maritime safety regime developed incrementally and primarily with reference to fundamentally different navigational environments. Two examples illustrate this point. Where a ship is surrounded by ice and requires evacuation, its crew may have to abandon the ship on ice rather than in lifeboats. Crew members may not have the appropriate safety equipment for this purpose and may not have received training to survive on ice for a sufficiently long period before being rescued. The collision avoidance rules for steering and sailing are premised on the ability of a ship to move freely in open water.⁵⁸ A ship breaking ice, or following the path of an icebreaker or navigating in an area with icebergs and growlers, does not navigate in open water, and may be looking for open water for easier and safer navigation. Course changes to avoid close-quarters situations may be significantly constrained.

The Arctic Guidelines at least partially recognized that SOLAS and related safety instruments do not fully address the safety needs of Arctic shipping. But these Guidelines have a relatively narrower scope than the full gamut of international safety rules and standards. They provide for a system of polar classes with related construction requirements and recommendations concerning ship and crewing operations on board. They are currently being considered for amendment. Usefully, the International Association of Classification Societies' (IACS) Unified Requirements in large measure reflect the Guidelines. A major weakness of these Guidelines is that their construction and operational stipulations are not mandatory, when they should be.⁵⁹

Other safety concerns exist. Certainly mandatory training standards for Arctic seafaring (including survival skills) are urgently needed. IMO, the International Labour Organization (ILO) and the World Health Organization (WHO) do not have polar-specific binding instruments for training crews. The Arctic Guidelines briefly refer to this need. They have thin provisions for training ice navigators. For example, no prior ice-navigation experience is required to certify ice navigators and there is limited advice on how to

⁵⁸ Convention on the International Regulations for Preventing Collisions at Sea (adopted 20 October 1972, entered into force 15 July 1977, 1050 *UNTS* 16), as amended, Institute of Maritime Law, *The Ratification of Maritime Conventions* (Lloyd's Press, London, 1991–2003), Vol. I.1.10.

⁵⁹ For instance, Ø. Jensen, 'The IMO Guidelines for Ships Operating in Arctic Ice-Covered Waters: From Voluntary to Mandatory Tool for Navigation Safety and Environmental protection?' FNI Report 2/2007 (Fridtjof Nansen Institut, Oslo, 2007). With little legal incentive to implement the Arctic Guidelines, Jensen states that no State has as yet legislated them. For a similar view see also Arctic Shipping Governance, *op. cit.*, *supra* note 14.

avoid ice build-up.⁶⁰ This issue should be regulated under the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW).⁶¹ An IMO sub-committee is working on amendments to STCW and consideration of the training needs of Arctic seafarers is now timely.

In addition to seafaring matters, the Arctic Guidelines fall short of providing more specific requirements for certain classes of vessels operating in the Arctic. Cruise ships and liquefied natural gas carriers are cases in point. The potential problem posed by cruise ships in polar waters was well illustrated by the casualty of the *MV Explorer* in the Southern Ocean. That ship, an ice-strengthened vessel, had inadequate life-saving equipment on board. Lifeboats were open-top (the Arctic Guidelines recommend closed lifeboats, but at the time of writing do not apply to Antarctic waters) and some crew members evacuated the ship on life rafts. Fortunately, there were ships in the vicinity able to respond to the distress call within a few hours.

Space constraints do not permit consideration of related matters. For example, Arctic waters are not included in any of the zones, areas and seasonal periods in Annex II of the International Convention on Load Lines, 1966, in which draught limitations are imposed and on a seasonal basis in the interests of safety.⁶² Because of their particular characteristics, many other marine regions have zones and seasonal periods with related requirements. Also, it remains to be seen if it is safe to transport virtually any cargo in the Arctic and whether there should be particular requirements for the carriage of certain cargoes.⁶³

The above brief overview of some maritime safety issues suggests that a systematic review of international maritime safety instruments with reference to increased international shipping in the Arctic as a result of new routes is timely. This review should identify gaps and any global safety rules and standards that might need to be made higher or adapted to respond to the unique demands of navigation in this region. It is likely that many issues have already been anticipated in the national regulations of Arctic States. However, it is appropriate to consider whether international shipping is sufficiently served by domestic rules and standards, no matter what their scope and quality are, or whether international rules and standards are equally necessary, especially

⁶⁰ Ø. Jensen, 'Arctic Shipping Guidelines: Towards a Legal Regime for Navigational Safety and Environmental Protection?' 44 *Polar Record* (2008) 107–114.

⁶¹ International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (adopted 7 July 1978, entered into force 28 April 1984), 1361 *UNTS* 2.

⁶² International Convention on Load Lines (adopted 5 April 1966, entered into force 21 July 1968), *ATS* 1968 no. 23.

⁶³ Arctic Shipping Governance, *op. cit.*, *supra* note 14.

considering that shipping in the Arctic will traverse different national maritime zones and high sea areas.

Marine Environmental Protection

The particular sensitivity of the Arctic marine environment makes the region a prime candidate for an elevated level of protection under MARPOL. At present the basic general MARPOL rules and standards on ship discharges apply in much of the Arctic, except in the EEZs of coastal States that are not parties to a particular annex (e.g., Canada and the US are not parties to MARPOL Annex IV), or have legislated higher discharge standards as a result of LOSC Article 234. No MARPOL “special areas” with discharge restrictions are designated in the region; consequently MARPOL permits certain discharges of various wastes, normally in very small quantities and at a certain distance from the nearest land. MARPOL Annex 1 permits oily water discharges not to exceed 1/15k (for old tankers, based on cargo-carrying capacity) and 1/30k (for new tankers, based on the total cargo carried), and a maximum discharge rate of 30 litres per nm, and at a distance of 50 nm from the nearest land. Garbage is important in this environment, but although MARPOL prohibits the discharge of plastics, it permits discharge of packing materials (25 nm from the nearest land) and other materials, including paper, glass, rags and metal (12 nm from the nearest land). Controls are needed on sewage discharge, because MARPOL does permit its discharge—if comminuted or disinfected—at four knots at a distance of 12 nm from the nearest land (Annex IV). Perhaps the use of heavy-grade oils (HGOs) as fuel will also need to be banned. The critical question is whether the basic MARPOL rules are sufficient in this environment. In comparison to MARPOL, Canada and the Russian Federation have a zero-discharge rule for oil. Canada does not permit the discharge of garbage either. However, Canada permits sewage discharge without regard to distance from land, suggesting its standard for sewage discharge is lower than MARPOL.

There is no doubt that the Arctic is particularly susceptible to harm from vessel discharges and consequently waste use on board must be maximized.⁶⁴ It is likely that a strong case for special area designation under MARPOL Annexes I (oil), II (noxious substances), V (garbage) and an emission control area under Annex VI can be made, as with other sensitive cold regions that have some seasonal ice cover, such as Antarctic Waters and the Baltic. The challenge for special areas in the Arctic will be the relatively few ports in the

⁶⁴ W. Østreng, ed., *The Natural and Societal Challenges of the Northern Sea Route: A Reference Work* (Kluwer, Dordrecht, 1999).

region for the reception facilities that must accompany special area designation. Such facilities at present are not only variable, but also unlikely to meet existing MARPOL requirements. Even if there were facilities, the ultimate disposal of received wastes is open to question. Moreover, port services and practices in this regard must be harmonized.⁶⁵ In considering the possibility of designating special areas or emission control areas, Arctic coastal States would need to review their adhesion to relevant MARPOL annexes. At the time of writing, Canada and the US are not parties to Annex IV, Canada is not a party to Annex V, and Canada and Russian Federation are not parties to Annex VI.

One possibility is to designate a large PSSA for much of the Arctic Ocean, or alternatively a series of PSSAs in critical areas, and use MARPOL special area designations and higher discharge standards as appropriate APMs. Other measures are also conceivable, such as mandatory routing and reporting schemes, so that Arctic coastal States can focus logistical support on designated navigation routes. PSSA designation is premised on demonstrating that the threat from international shipping to the marine environment is such that additional protection is needed, and that the proposed measures are appropriate to counter the threat and are within the IMO's mandate to provide. A low volume of shipping that qualitatively has the potential of greater impact could provide sufficient justification for PSSA designation, as long as the threat is demonstrated. As in the case of the Baltic Sea and Western European Waters, Arctic Ocean coastal States could collectively submit a joint proposal for the region to the IMO or, alternatively, individual or groups of Arctic States can submit separate proposals for different areas of the Arctic Ocean. The politics of PSSA designation should not be underestimated. As the Baltic PSSA demonstrated, lack of consensus behind a regional PSSA could result in non-participation by dissenting neighbours and exclusion of their waters (in that case, the Russian Federation).

Environmental concerns also include the current legal framework for salvage and pollution response in the Arctic. The International Convention on Salvage (Salvage Convention) provides a useful regime for this purpose, but the difficulty in the Arctic will be identifying a place of safety where the salvaged vessel may be taken by the salvor.⁶⁶ At present there is little experience in Arctic salvage, with the possible exception of the Russian Federation, which employs a large fleet of ice-breakers, several of which are modern nuclear vessels, and which have multiple tasks that include salvage provision. Coastal

⁶⁵ Det Norske Veritas, 'Port Reception Facilities in the PAME Region,' Technical Report No. 2006–1517 Rev. No. 01 (Norwegian Maritime Directorate, Høvik, 2006).

⁶⁶ International Convention on Salvage (adopted on 28 April 1989, entered into force 14 July 1996), *UKTS* 1996 No. 93.

state regulation in the Arctic could pose a problem for salvors, as there might be additional impositions further constraining what can be expected to be a difficult operation. On the one hand, “The salvor should ensure that the salvage plan and actions represent the best environmental option for the Company and the coastal State(s) concerned.”⁶⁷ On the other, the Arctic Ocean coastal State may use regulatory authority under LOSC Article 234 to impose other requirements. The salvor is expected to take the salvaged vessel to a safe place, which can be challenging in areas with significant ice. In addition, places of refuge for ships in need of assistance must be designated, and normally in locations where some infrastructure and the likelihood of timely assistance to the ship and response to the threat of a casualty exist, presumably following the guidance offered by the 2003 IMO Guidelines on Places of Refuge for Ships in Need of Assistance.⁶⁸ The remoteness of navigation routes in the Arctic and the harsh environment may necessitate the development of ‘good practices’ that are practical for this region. In particular, regional cooperation can be expected to play an important role, possibly within the framework of the Convention on Oil Pollution Preparedness and Response, 1990 (OPRC).⁶⁹ OPRC requires stockpiling of equipment, holding exercises and detailed planning.⁷⁰

The marine environmental concerns considered in this section suggest that Arctic Ocean States would be well served to cooperatively approach IMO to designate MARPOL special areas and PSSAs in the Arctic. Incipient regional and substantial bilateral cooperation on contingency planning and response already exists. However, they should also consider cooperating on salvage and places of refuge in the region.

⁶⁷ Guidelines on the Control of Ships in an Emergency, IMO Doc. MSC.1/Circ.1251, 19 October 2007, available online at: http://www.imo.org/includes/blastDataOnly.asp/data_id%3D20243/1251.pdf.

⁶⁸ Guidelines on Places of Refuge for Ships in Need of Assistance, IMO Doc. A.949(23), 5 December 2003, available online at: http://www.imo.org/includes/blastDataOnly.asp/data_id%3D9042/949.pdf.

⁶⁹ International Convention on Oil Pollution Preparedness, Response and Cooperation (adopted 30 November 1990, entered into force 13 May 1995) 30 ILM 733; Protocol on Preparedness, Response and Co-operation to Pollution Incidents by Hazardous and Noxious Substances (adopted 15 March 2000, entered into force 14 June 2007), IMO Doc. HNSO-PRC/CONF/11/Rev 1, 15 March 2000, available online at: <http://www.imo.org>.

⁷⁰ Arctic States cooperate in information exchange through the Arctic Council’s Emergency Prevention, Preparedness and Response (EPPR) Working Group, available online at: <http://eppr.arctic-council.org/>, accessed 1 February 2009. Bilateral cooperation between Canada and the US and between Canada and Denmark also exists. Arctic Shipping Governance, *op. cit.*, *supra* note 14).

Conclusion

Arctic States and the maritime community interested in shipping in the region face several challenges. The first is a *regulatory challenge*. At present there is significant regulatory inconsistency and insufficiency on safety and pollution. Ideally, international shipping in the Arctic should occur within a harmonized framework of predictable and uniform international and national rules and standards appropriate for safe and environmentally responsible navigation in the Arctic. To achieve this, a consistent approach is needed to what should be mandatory (in comparison to the currently voluntary Arctic Guidelines) international and national rules for polar class ship construction, vessel operations and reporting requirements. Acting through IMO, Arctic States are in a position to make a substantial leap forward in protecting the marine environment through the establishment of MARPOL special areas and PSSAs in the region. However, Arctic coastal States which stand to gain most from these environmental protection tools must send a clear message of common commitment to the rest of the maritime world by becoming parties to all relevant maritime conventions and their annexes. Adoption of a new regional port state control regime to promote compliance and enforce common shipping standards would greatly assist efforts to meet this regulatory challenge.

The Arctic coastal States are in a position to influence the economics of Arctic shipping if they take on the *infrastructure challenge*. An appropriate infrastructure consists of ports and related facilities and services, navigation aids, timely meteorological and ice forecasts, standing services (e.g., salvage, places of refuge, pollution response, search and rescue) for ships and crews needing assistance and to prevent and avoid pollution damage. These are costly and it is important that cost-recovery through fees levied on shipping must be for services actually provided and on a non-discriminatory basis. A sensible approach is for Arctic coastal States to consider cooperating on a regional basis in the provision of services to shipping. Rather than tackling each need on an issue-by-issue basis, it makes economic sense to take an integrated approach and share proportionate responsibilities within or in the vicinity of their respective jurisdictions. International shipping can then expect consistent rules and standards and provision of services throughout the route(s), and freight and insurance rates will benefit.

Third is the *seafarer challenge*. A significant shortage of seafarers already exists, and seafaring knowledge and skills for safe work in this environment must be reviewed. A better understanding of qualifications and training requirements and health issues is required. Appropriate global standards for training and certification are needed and maritime academies (most of which

are located in non-Arctic States) must be capable and equipped to train crews for the demands of seafaring in this region.

No one level of governance is equipped to address all these challenges at its level alone. The global, regional and national levels of governance in the Arctic considered in this article must plan for international shipping in the region in a concerted and systematic manner. This could be in the form of a combination of IMO rules and standards, coordinated national rules and implementation (ideally through the IMO) pursuant to LOSC Article 234. The use of Article 234 regulatory authority should be coordinated to achieve consistent and higher standards for international shipping through Arctic waters. Shipping is an international activity involving many flag States, ship owners, carriers, shippers and cargo owners in different countries, global financiers and suppliers, and crews of diverse nationalities. It is in the interest of Arctic States, as well as the international community, that standards for Arctic shipping do not remain purely national or regional, or perhaps even simply industry and class practices, but are indeed an integral part of the global regulatory regime. In this regard, regulators should recognize that the development of technologies to support high safety and environmental standards are frequently industry-driven, if not also -funded, and that industry and class can play an important role in defining and implementing those standards. Experience shows that shipping standards may have evolved from industry practice in the first place (e.g., the International Maritime Dangerous Goods Code).⁷¹

The scope of these tasks necessitates large-scale and long-term anticipatory and cooperative planning. Given the significance of likely new maritime trade routes in the future and the lasting impact on international shipping, Arctic States and IMO, with the participation of industry and NGOs, should consider undertaking a comprehensive assessment of the international maritime rules, regulations and standards to determine their near- and long-term practical application in the Arctic environment. A legislative programme may well turn out to be necessary. The expressed intention of the Arctic Ocean coastal States to cooperate, including through IMO, is vital for the future of international shipping through the Arctic.

Although only a consultative political body, the Arctic Council has an important role to play in building the knowledge base in the region, advancing regional positions in IMO and facilitating the conclusion of bilateral and

⁷¹ International Maritime Organization, *International Maritime Dangerous Goods Code* (London, IMO, 2008). Background information on the IMDG Code is available online at: http://www.imo.org/TCD/mainframe.asp?topic_id=158.

multilateral arrangements as needed. In particular, the Arctic Council should have a more visible presence in IMO meetings and processes.

Finally, in the unfolding regulatory drama, the interests of the peoples of the North must be profiled more than ever before as the large governmental and industry players jostle for positions of influence on the future of the region. There is a real danger that their vital interests will retract into the background as Arctic shipping regulation moves onto the global stage. Arctic States should consider including representatives of their Arctic communities on their IMO delegations, and Permanent Participants at the Arctic Council should consider obtaining NGO consultative status at the IMO.