

Canada's implementation of the Polar Code

Aldo Chircop JSD

Professor of Law, Canada Research Chair in Maritime Law and Policy, Schulich School of Law, Dalhousie University, Halifax, NS, Canada

Peter G Pamel

*Partner, Borden Ladner Gervais, Montréal, Canada**

Miriam Czarski

Master of Law programme, University of Cambridge

Introduction

Canada's approach to the development and implementation of the International Code for Ships Operating in Polar Waters (Polar Code)¹ has been guided by a unique combination of concerns. Canada has long claimed that, while the United Nations Convention on the Law of the Sea 1982 (UNCLOS)² governs the Arctic Ocean region, the waters enclosed by the Canadian archipelago are internal, subject to its sovereignty and within which it has special responsibilities.³ The Arctic Waters Pollution Prevention Act 1970,⁴ the principal instrument for the regulation of shipping in the region, expresses Canada's responsibilities for the welfare of its indigenous peoples and other inhabitants, and the preservation of the ecological balance in the marine, ice and land areas of the unique environment.⁵

Canadian Arctic policy is in transition, in great part because of the need to ensure that the interests of indigenous peoples play a central role. Policy development in the North is driven in part by the implementation of the recommendations of the Truth and Reconciliation Commission,⁶ which received innumerable testimonies of past injustices towards indigenous peoples across Canada and

* The authors are grateful to Drummond Fraser, Marine Safety Policy Advisor, Transport Canada, for reading the draft and providing helpful feedback. Aldo Chircop also acknowledges research funding through Module N: Safe Navigation and Environment Protection, supported by the Ocean Frontier Institute, Halifax, Canada.

¹ Resolution MSC.385(94) (21 November 2014, effective 1 January 2017); Amendments to the International Convention for the Safety of Life at Sea 1974, Resolution MSC.386(94) (21 November 2014, effective 1 January 2017); International Code for Ships Operating in Polar Waters (Polar Code) Resolution MEPC.265(68) (15 May 2015, effective 1 January 2017); Amendments to MARPOL Annexes I, II, IV and V, Resolution MEPC.266(68) (15 May 2015, effective 1 January 2017); as consolidated at <http://www.imo.org/en/MediaCentre/HotTopics/polar/Documents/POLAR%20CODE%20TEXT%20AS%20ADOPTED.pdf> (Polar Code).

² United Nations Convention on the Law of the Sea, adopted 10 December 1982 (in force 16 November 1994) 1833 UNTS 3 (UNCLOS).

³ House of Commons Debates, 33rd Parl, 1st Sess (Vol 5) (10 September 1985) 6462–64 (Secretary of State for External Affairs, the Right Honourable Joe Clark).

⁴ Arctic Waters Pollution Prevention Act, RSC 1985, c A-12.

⁵ *ibid* preamble.

⁶ Truth and Reconciliation Commission of Canada, Final Report (2015) <http://www.trc.ca/websites/trcinstitution/index.php?p=890>.

recommended reconciliation on the basis of the United Nations Declaration on the Rights of Indigenous Peoples.⁷ The report was embraced by the Government of Canada.⁸ The conclusion of land claims settlement agreements with indigenous peoples in the North potentially impact on navigation and shipping in Arctic waters. Consistently, recent federal government initiatives, such as the Oceans Protection Plan (OPP),⁹ are giving a high profile and role to the interests of indigenous peoples.

The fundamental physical change taking place in the Arctic appears to promise greater accessibility to resources and navigation in the Northwest Passage, consisting of a series of routes mostly through Canadian waters. The Arctic is warming at twice the global rate.¹⁰ The regional annual average sea ice in the summer is decreasing, leading to reduced ice thickness and a projection of progressive sea ice loss of possibly up to 80 per cent by 2100. Increased navigation presents risks and challenges for the region's ecosystems, species and indigenous peoples, who rely on the recurrence of sea ice formations.¹¹ Navigation continues to be hazardous. There is a real risk of increased multi-year ice in the archipelago's choke points, making summer navigation unpredictable and dangerous.¹² The region is poorly charted and there have already been groundings of three passenger vessels in the archipelago's waters.¹³ Nonetheless, there is growing interest in the Northwest Passage as a destination for cruise ships, recreational vessels and a potential new maritime trade route. Safety concerns will remain, as will the impacts of shipping on the region's sensitive ecosystems and species, and indigenous mobilities and livelihoods.¹⁴

The advent of the Polar Code, a new standard for polar shipping regulated by the International Maritime Organization (IMO), has challenged Canada to perform an interesting political and legal balancing act, an experience perhaps shared only by the Russian Federation. Unlike most jurisdictions which will be expected to implement the Polar Code on a clean slate, Canada has had to revisit its long-standing polar shipping regulation. Well before an international polar shipping standard was established, Canada was the first jurisdiction to regulate Arctic shipping. The Polar Code has now internationalised the regulation of shipping in the region and has been implemented by Canada through the new Arctic Shipping Safety and Pollution Prevention Regulations¹⁵ under both the Arctic Waters Pollution Prevention Act and the Canada Shipping Act 2001,¹⁶ with effect from 19 December 2017.

This article discusses Canada's approach to the regulation of polar shipping. It starts by setting out the domestic Arctic policy context and the legal status of Arctic waters, followed by discussion of Canada's role in the development of the Polar Code. The article then moves to Canada's maritime administration and legal framework for shipping in Arctic waters, followed by discussion of the legislative steps taken for the implementation of the Polar Code. This is further followed by analysis and assessment of the extent to which the Polar Code has met Canada's expectations and its approach to implementation, before moving to concluding observations.

⁷ United Nations Declaration on the Rights of Indigenous Peoples, UN Doc A/RES/61/295 (13 September 2007) http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf (UNDRIP).

⁸ Statement by Prime Minister on Release of the Final Report of the Truth and Reconciliation Commission (15 December 2015) <http://www.pm.gc.ca/eng/news/2015/12/15/statement-prime-minister-release-final-report-truth-and-reconciliation-commission>.

⁹ Justin Trudeau, Prime Minister of Canada 'The Prime Minister of Canada announces the National Oceans Protection Plan' <https://pm.gc.ca/eng/news/2016/11/07/prime-minister-canada-announces-national-oceans-protection-plan>.

¹⁰ Arctic Climate Impact Assessment *Impacts of a Warming Arctic* (Cambridge University Press 2004) 2 <https://www.amap.no/documents/doc/impacts-of-a-warming-arctic-2004/786>.

¹¹ Claudio Aporta, Stefanie C Kane and Aldo Chircop 'Shipping corridors through the Inuit homeland' (2018) 10 *Limn* 1 <https://limn.it/articles/shipping-corridors-through-the-inuit-homeland/>.

¹² Safe Northern Passage, National Research Council Study (7 January 2007) https://www.nrc-cnrc.gc.ca/eng/achievements/highlights/2007/northern_passage.html.

¹³ These were the *Hanseatic* in 1996, the *Clipper Adventurer* in 2010 and, most recently, the *Akademik Ioffe* in 2018.

¹⁴ WWF 'Arctic shipping: avoiding catastrophe' http://awsassets.wwf.ca/downloads/wwf_arctic_shipping_summary_report_1.pdf.

¹⁵ SOR/2017-286.

¹⁶ SC 2001 c 26 (CSA 2001).

Canadian context

Arctic policy

An in-depth understanding of Canadian regulation of Arctic shipping requires an appreciation of the policy context. Canadian Arctic policy is in transition. On 20 December 2016, Canada and the United States issued the Joint Arctic Leaders' Statement in which Prime Minister Trudeau set out new Arctic policy initiatives and actions.¹⁷ He committed to a 'new process to build an Arctic Policy Framework co-developed with indigenous, territorial and provincial partners, that will replace Canada's Northern Strategy and Arctic Foreign Policy'.¹⁸ With respect to shipping, this commitment included engaging with indigenous and northern communities to develop 'a governance model for the Northern Marine Transportation Corridors and Arctic marine shipping, in a way that is environmentally and socially responsible, including respecting modern northern treaties', improving 'coverage of modern hydrography, charting and navigational information in the Arctic', and launching a process with northern and indigenous partners 'to explore options to protect the "last ice area" within Canadian waters, in a way that benefits communities and ecosystems'.¹⁹ At the time of writing, the development of the new Arctic policy is under way and it is not yet clear how it will relate to existing policies that also concern the Arctic, such as Canada's Oceans Strategy²⁰ adopted under the Oceans Act.²¹

Canada's national marine transportation policy is also in transition after the recent review of the Canada Transportation Act.²² The review produced recommendations for future transportation policy direction, including 'a new federal policy vision and regulatory regime to strengthen the safety and reliability of marine transport in the Arctic'.²³ In response to concerns expressed by the Auditor General of Canada in reports submitted in 2010 and 2014,²⁴ the Department of Transport undertook to develop a long-term approach for marine transportation in Canada's Arctic waters to support marine navigation in cooperation with other departments and agencies.²⁵ It also launched an independent tanker safety expert panel to review Canadian capacity to respond to incidents and produced two important reports, the second of which underscored the lack of preparedness and

¹⁷ Prime Minister Trudeau of Canada (20 December 2016) <http://pm.gc.ca/eng/news/2016/12/20/united-states-canada-joint-arctic-leaders-statement>.

¹⁸ *ibid.* The policy of the Trudeau Government on its relationship with indigenous peoples is based on recognition of rights, respect, cooperation and partnership, and the mobilisation of a 'whole-of-government approach to Nation-to-Nation and Inuit-to-Crown relationships'. See Minister of Indigenous and Northern Affairs Mandate Letter from the Prime Minister of Canada <http://pm.gc.ca/eng/minister-indigenous-and-northern-affairs-mandate-letter>. The Arctic policy adopted under former Prime Minister Harper was 'Canada's northern strategy: our north, our heritage, our future: Canada's northern strategy' <http://www.northernstrategy.gc.ca/index-eng.asp>. See also 'Statement on Canada's Arctic foreign policy' (Global Affairs Canada 2013) 2 http://www.international.gc.ca/arctic-arctique/assets/pdfs/canada_arctic_foreign_policy-eng.pdf. Under Harper, Canada's Arctic foreign policy was based on a 'vision for the Arctic as a stable, rules-based region with clearly defined boundaries, dynamic economic growth and trade, vibrant Northern communities, and healthy and productive ecosystems'. *ibid.*

¹⁹ Prime Minister Trudeau (n 17).

²⁰ 'Canada's oceans strategy' <http://www.dfo-mpo.gc.ca/oceans/publications/cos-soc/index-eng.html>. The strategy sets out a framework for the management and protection of estuarine, coastal and marine ecosystems, sustainable economic opportunities and international leadership.

²¹ SC 1996 c 31.

²² SC 1996 c 10. Canada Transportation Act Review: Report 2 vols (2016) <http://www.tc.gc.ca/eng/ctareview2014/canada-transportation-act-review.html>.

²³ This would include: 'a. stricter regulations requiring vessel operators in the Canadian Arctic to have more experience than is currently required; b. consultations on whether and how a coastal pilot requirement should be established in the North; c. compulsory reporting to NORDREG for all vessels and small crafts, regardless of size or purpose; d. establishment of an Arctic-wide governance model for port development, including an appropriate timetable for a Port authority to be established, and in consideration of the marine recommendation on port governance; e. support for the Canadian Hydrographic Service, in consultation with government and Indigenous partners, to develop a program to engage, educate, and enable Northerners to undertake hydrographic surveying work in northern waters'. *ibid.* vol 1 266 at 267.

²⁴ Auditor General of Canada *2010 Fall Report of the Commissioner of the Environment and Sustainable Development* ch 1 http://www.oag-bvg.gc.ca/internet/English/parl_cesd_201012_01_e_34424.html; *2014 Fall Report of the Commissioner of the Environment and Sustainable Development*, ch 3 http://www.oag-bvg.gc.ca/internet/English/parl_cesd_201410_03_e_39850.html.

²⁵ See response to recommendation 3.73 of the *2014 Fall Report* (n 24) ch 3.

response capacity for spills in Arctic waters.²⁶ In concluding on the need to enhance capacity, the report observed that: '[S]hip-source spill preparedness and response in the Arctic should involve northern communities, for example, through sharing of traditional knowledge, building of awareness and other opportunities for partnership'.²⁷ A separate initiative led by the Canadian Coast Guard (CCG), operating under the Department of Fisheries and Oceans (DFO) and in collaboration with the Canadian Hydrographic Service (CHS) and Transport Canada, commenced consultations on the development of a strategy to establish voluntary navigational corridors in Arctic waters where infrastructure and services would be focused.²⁸

In 2016, the newly elected government of Prime Minister Trudeau announced an Oceans Protection Plan to enhance maritime safety and oil spill response in partnership with indigenous peoples and coastal communities.²⁹ A range of actions are anticipated for Arctic waters, including assessment of potential cumulative effects of shipping in the eastern Arctic, modern hydrographic surveys to address gaps in Arctic data and charts, increasing the number of marine safety inspectors, extension of the CCG's operational season and creation of CCG auxiliary chapters, enhancing inshore rescue capacity, expansion of the National Aerial Surveillance Program for observing and reporting of marine pollution, a system for real-time marine traffic information accessible by local communities and a framework for local traffic management.³⁰ At the time of writing, the OPP's application to Arctic waters is in the process of operationalisation.

In brief, these policy developments have significant implications for Arctic shipping policy and regulation. Canadian Arctic policy is in the process of being reset, with equitable concerns playing a central role. Transportation policy aims at strengthening the infrastructure for shipping with emphasis on prevention for safety and environmental purposes and reorganisation of services. The CCG's work on transportation corridors and OPP enhancement of the knowledge base, infrastructure and service capacity for Arctic shipping promise vital complementary actions to the Polar Code's philosophy of prevention.

Legal status of Arctic waters

An obvious starting point for a discussion of Canada's exercise of legislative jurisdiction in Arctic waters is the juridical-geographical scope. The Arctic Waters Pollution Prevention Act defines 'Arctic waters' as:

The internal waters of Canada and the waters of the territorial sea of Canada and the exclusive economic zone of Canada, within the area enclosed by the 60th parallel of north latitude, the 141st meridian of west longitude and the outer limit of the exclusive economic zone; however, where the international boundary between Canada and Greenland is less than 200 nautical miles from the baselines of the territorial sea of Canada, the international boundary shall be substituted for that outer limit.³¹

The regulation of shipping in Canadian Arctic waters is subject to Canada's claim that the Arctic waters, as enclosed by straight baselines connecting the outermost points of the archipelago, are subject to a historic legal title and are, therefore, internal waters and subject to its exclusive

²⁶ 'Phase I: A review of Canada's ship-source oil spill preparedness and response regime: setting the course for the future' (2013) www.tc.gc.ca/eng/tankersafetyexpertpanel/menu.html; 'Phase II: A review of Canada's ship-source spill preparedness and response: setting the course for the future'; 'Phase II: Requirements for the Arctic and for hazardous and noxious substances nationally' (2014) www.tc.gc.ca/eng/tankersafetyexpertpanel/menu.html.

²⁷ *ibid* 1.

²⁸ Daniel Breton, 'Canadian Coast Guard services in the Arctic' presentation at the Centre for Foreign Policy Studies, Canadian Coast Guard (5 June 2015) <https://cdn.dal.ca/content/dam/dalhousie/pdf/sites/cssd/nsps/Arctic%20presentations/CCG%20Presentation%20-%20Daniel%20Breton.pdf>.

²⁹ Oceans Protection Plan (OPP) (n 9). The OPP was allocated C\$1.5 billion over five years.

³⁰ 'Improving marine safety through the Oceans Protection Plan' (2 August 2018) http://www.tc.gc.ca/eng/improving-marine-safety-through-the-oceans-protection-plan.html#toc_1.

³¹ Arctic Waters Pollution Prevention Act (n 4) s 2. Arctic waters also include the seabed and subsoil adjacent to the body of water. See also ss 3(2) and 6(1)(a). Until 2009, Arctic waters extended to 100 nautical miles. The extension to the full exclusive economic zone (EEZ) occurred in 2009. See Act to amend the Arctic Waters Pollution Prevention Act, SC 2009, c 11, in force 1 August 2009.

sovereignty.³² Thus, in regulating shipping in the waters of the Northwest Passage, Canada has not sought endorsement through IMO structures and processes. The United States, the principal objector to this claim, while conceding Canada's right to regulate passage, considers the waterway is subject to an international right of navigation in international law.³³ The difference in legal positions is significant. There is no international navigation right through internal waters,³⁴ whereas there are rights of innocent and transit passage, respectively, in the territorial sea and straits used for international navigation.³⁵ Innocent passage can be regulated in accordance with international standards³⁶ and may even be suspended,³⁷ but transit passage enjoys less coastal state control and cannot be suspended.³⁸ Sea lanes and traffic separation schemes for transit passage must conform to generally accepted international regulations adopted by the IMO, as may be agreed with strait-bordering states.³⁹ The United States view is that Canadian measures affecting the international navigation right, such as reporting and routing measures, should be adopted through the IMO. IMO consideration of such proposals would entail international community scrutiny and approval of measures, which in Canada's view is inconsistent with its view on the legal status of its Arctic waters.

The Canadian exclusive economic zone (EEZ) in the Arctic is further subject to a special power under UNCLOS not available to other marine regions. Developed with major Canadian input at the Third United Nations Conference on the Law of the Sea in 1973–82,⁴⁰ Article 234 of UNCLOS provides the coastal state bordering ice-covered areas with a special legislative and enforcement jurisdiction over international shipping in the EEZ for pollution prevention purposes.⁴¹ The text of the provision is not without ambiguity, thus enabling substantial discretion in measures that may be taken.⁴² This power is particularly relevant for the Polar Code because it is premised upon the expectation that coastal state regulation will, at a minimum, be based on IMO regulation, be non-discriminatory and that standards could be elevated to prevent irreversible harm from shipping based on scientific justification. As will be seen below, Canada has utilised this power with its justification for elevated protective measures through the Arctic Waters Pollution Prevention Act and Canada Shipping Act 2001 and related regulations. Canada has been particularly protective of these measures and demonstrated this when it acceded to the International Convention for the Prevention of Pollution from Ships 1973–78 (MARPOL),⁴³ provoking responses from a number of states.⁴⁴ Canada takes the

³² Clarke (n 3).

³³ See J Ashley Roach, Robert W Smith *Excessive Maritime Claims* (3rd edn Martinus Nijhoff 2012) 111–12.

³⁴ UNCLOS (n 2) arts 2(1), 8(1). The only exception is: '[W]here the establishment of a straight baseline ... has the effect of enclosing as internal waters areas which had not previously been considered as such, a right of innocent passage as provided in this Convention shall exist in those waters'. *ibid* art 8(2).

³⁵ *ibid* arts 17, 38 and 45.

³⁶ *ibid* art 25(3).

³⁷ *ibid* art 44.

³⁸ *ibid* art 45(2).

³⁹ *ibid* art 41(3)–(5).

⁴⁰ Myron Nordquist and others (eds) *United Nations Convention on the Law of the Sea 1982: A Commentary Vol 4* (Martinus Nijhoff 1991) 392–98.

⁴¹ UNCLOS (n 2) art 234, which provides that: 'Coastal States have the right to adopt and enforce non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered areas within the limits of the exclusive economic zone, where particularly severe climatic conditions and the presence of ice covering such areas for most of the year create obstructions or exceptional hazards to navigation, and pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance. Such laws and regulations shall have due regard to navigation and the protection and preservation of the marine environment based on the best available scientific evidence'. For an analysis of application in a Canadian context see D M McRae, D J Goundrey, 'Environmental jurisdiction in Arctic Waters: the extent of Article 234' (1982) 16 *University of British Columbia Law Review* 197.

⁴² *ibid* 209.

⁴³ Adopted 2 November 1973, 1340 UNTS 184 as amended by Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships of 1973, 17 February 1978 (both in force 2 October 1983) 1340 UNTS 61 (MARPOL). Canada declared that its accession was '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 IMO treaties: comprehensive information on the status of multilateral conventions and instruments in respect of which the IMO or its Secretary-General performs depositary or other functions (16 August 2018) 128 <http://www.imo.org/en/About/Conventions/StatusOfConventions/Documents/Status%20-%202018.pdf>.

⁴⁴ See responses by the United States and European states at *ibid* in 1.

view that its measures are justified under international law and reasserted its views on its legal position on amending the Northern Canada Vessel Traffic Services Zone Regulations (NORDREG)⁴⁵ to convert the voluntary ship reporting system in Canadian waters into a mandatory requirement.⁴⁶ Using Article 234 of UNCLOS, Canada did not feel obliged to seek prior IMO adoption of a reporting requirement, but nonetheless requested the IMO, pursuant to a rule in the International Convention for the Protection of Life at Sea 1974 (SOLAS),⁴⁷ to recognise the mandatory ship reporting system.⁴⁸ The United States disagreed with Canada's procedure for the adoption of mandatory reporting.⁴⁹ The Maritime Safety Committee (MSC) refrained from further consideration, possibly because the matter entailed an interpretation of an UNCLOS provision, a task outside the competence of the IMO.⁵⁰ As will be seen below, Canada argued for savings clauses in SOLAS and MARPOL in the final deliberations of the Polar Code in order to preserve aspects of its domestic regulation that may depart from the Code.

Accordingly, it should be anticipated that the combination of the claim concerning the sovereign legal status of the waters of the Canadian archipelago and the unique regulatory rights for the prevention of pollution under Article 234 of UNCLOS will significantly influence Canada's implementation of the Polar Code.

Canada's role in the development of the Polar Code

The Canadian interest in raising safety and environmental standards for polar shipping has been pursued not only at the level of unilateral regulation, but also through the multilateral processes of the IMO. Canada played a key role in the development of the original 2002 voluntary Guidelines for Ships Operating in Arctic Ice-Covered Waters, eventually amended in 2009 as Guidelines for Ships Operating in Polar Waters (Polar Guidelines) to include Antarctic waters.⁵¹ Throughout the development of the Polar Code from 2009 to 2015, Canada was an active participant in all of the IMO structures that deliberated on the future Code and submitted or co-sponsored over 30 proposal, commentary, discussion and information documents in the Maritime Safety Committee (MSC) and Marine Environment Protection Committee (MEPC) and their sub-committees, namely the Sub-Committee on Design and Equipment (DE) and its successor Sub-Committee on Ship Design and Construction (SDC), the Sub-Committee on Human Element, Training and Watch-keeping (HTW), and the various working groups and intersessional meetings.

At an early stage and in association with other IMO members and industry organisations, Canada proposed principles that would guide deliberations on the Code.⁵² Following the initial MSC 86

⁴⁵ SOR/2010-127 (NORDREG).

⁴⁶ The report is to be addressed to NORDREG Canada and submitted to Marine Communications and Traffic Services Centres designated by the Canadian Coast Guard. *ibid* s10. The information to be included in the report is described in the Schedule.

⁴⁷ Adopted 1 November 1974 (in force 25 May 1980) 1184 UNTS 2 (SOLAS) ch V reg 11.4.

⁴⁸ 'Information on the Mandatory Canadian Ship Reporting System in Canada's Northern Waters (NORDREG)', IMO Doc SN.1/Circ.291 (5 October 2010). According to SOLAS (n 47) ch V reg 11.4, IMO members are not required to comply with that regulation and have the discretion to request the IMO for recognition of ship reporting systems not submitted to it for its prior approval.

⁴⁹ 'Northern Canada Vessel Traffic Services Zone Regulations', submitted by the United States and INTERTANKO, IMO Docs MSC 88/11/2 (22 September 2010). See the Canadian response in Comments on Document MSC 88/11/2 submitted by Canada, IMO Doc MSC 88/11/3 (5 October 2010).

⁵⁰ Report of the Maritime Safety Committee on its 88th Session, IMO Doc MSC 88/26 (15 December 2010) 55.

⁵¹ 'Guidelines for ships operating in Arctic ice-covered waters', IMO Doc MSC/Circ.1056 and MEPC/Circ. 399 (23 December 2002) as amended and revised as 'Guidelines for ships operating in polar waters', Resolution A.1024(26) (2 December 2009) IMO Doc A 26/Res.1024 (18 January 2010).

⁵² These included aspects not covered by existing conventions, a mandatory code for SOLAS vessels with possible extension to other vessels, a stand-alone instrument, having a holistic approach, promoting harmonisation of national regulations, containing construction requirements, having safety of life as a priority, considering best practices, containing measures to protect the environment when not covered by other instruments, considering search and rescue (SAR) availability and capabilities, consistency with structure of other codes, compliance certification, standards for determining risk in polar navigation, flag state monitoring and port state enforcement. See 'Principles for proposed mandatory code for ships operating in polar waters', submitted by Canada, Denmark, Germany, Norway, Sweden, the United States, BIMCO and the Community of European Shipyards, Associations (CESA) and the Royal Institution of Naval Architects (RINA), IMO Doc DE 53/18/9 (18 December 2009).

decision in 2009 to include 'Development of a mandatory Code for ships operating in polar waters' as a work item for DE commencing with the latter's 53rd session, Canada soon proposed a comprehensive framework for the structure and contents of the future Code.⁵³ At the time, Canada was one of the IMO members that had the most experience on polar shipping regulation. It played a key role with respect to the Polar Guidelines and, together with the Russian Federation, had adopted and operationalised standards and rules for polar shipping and related maritime administrative requirements. It is, therefore, not surprising that Canada was expected to provide knowledge, experience and leadership in the development of the Code and its inaugural effort consisted of a comprehensive proposal.

The early approach taken by Canada was to explore how the Polar Guidelines, which were couched in voluntary language, could be converted into a structure with mandatory and voluntary parts consistent with other IMO codes. Canada proposed a mandatory Part A, including both safety and pollution prevention provisions, and a Part B containing recommended measures on both themes. The actual structure adopted for the Polar Code was guided by a similar idea, but with structural differences. A new Chapter XIV was added to SOLAS. Part I-A contains mandatory provisions for safety and Part I-B contains additional guidance for the introduction of mandatory provisions. Unlike Part I, instead of setting out rules, Part II-A on mandatory measures for pollution prevention provides cross-references to MARPOL Annexes I, II, IV and V, as amended for polar standards. Part II-B provides additional guidance for Part II-A. Canada had proposed a stand-alone code with an integrated approach building upon requirements of existing conventions concerning the design, outfitting, crewing and operation of ships by adding provisions to establish polar standards, such as for adequate, qualified and trained crews and adequate liability provisions. The Polar Code adopted the idea of adding to existing requirements and scaling up as necessary, but in the pollution prevention section, rather than setting out regulatory provisions, the Code cross-refers to the MARPOL Annexes amended specifically for polar shipping.

Following introductory provisions on purpose, principles and definitions, the Canadian proposal set out a structure for safety requirements with mandatory construction, equipment and operational standards, many of which anticipated what was adopted in the Polar Code. A major Canadian goal was to ensure that the future Code would have pollution prevention standards that would be as high as, or at least comparable with, its own national legislation, such as zero discharge under the Arctic Waters Pollution Prevention Act. Those provisions were guided by a combination of the need of high protective standards for a very sensitive marine environment, remoteness, lack of emergency response capacity and lack of repair facilities in the Arctic.⁵⁴

The Canadian proposal included specific pollution prevention measures that were not included in the mandatory provisions of the adopted Polar Code. Canada aimed to reinforce the application of the International Convention for the Control and Management of Ships' Ballast Water and Sediments 2004⁵⁵ by requiring that measures under that instrument be carried out by a ship before and after entering polar waters.⁵⁶ It proposed that mandatory measures should include deep ocean exchange, treatment with a system approved and tested for effectiveness at the lowest temperature in which the vessel is expected to operate, and retention and discharging to shore facilities where available. Canada also proposed a provision on hull fouling for vessels and offshore installations which required the *in situ* cleaning of the hull and sea chests, where they remained stationary for a month and before moving them to different locations.⁵⁷

An overriding concern was that ships in the Arctic might be on their own and without access to ports for lengthy periods, possibly with little prospect of outside assistance in the event of an incident at

⁵³ 'Proposed framework for the Code for ships operating in polar waters', submitted by Canada, IMO Doc DE 53/18/2 (20 November 2009) (Canadian proposal).

⁵⁴ *ibid* ch 16.

⁵⁵ Adopted 13 February 2004 (in force 8 September 2017) IMO Doc BWM/CONF/36 (16 February 2004).

⁵⁶ Canadian proposal (n 53) ch 16 para 16.5.

⁵⁷ *ibid* ch 16 para 16.6.

sea, thus underscoring the importance of self-reliance to the extent feasible. Hence, Canada placed significant emphasis on construction and equipment requirements, as well as human factors, including training drills for normal and emergency operations for pollution prevention in the ship's operating manual and shipboard oil pollution emergency plan (SOPEP) under MARPOL.⁵⁸ Ships would need to be equipped for and crews trained to undertake minor hull repairs and clean minor deck and over side spills, and essentially to take precautionary measures until the ship reached a port having the necessary facilities. Ships should have sufficient capacity to process and retain wastes on board until these can be discharged in a port.

At DE 54, there were several proposals for rules and standards for a Polar Code and Canada agreed to take the lead in pulling these together and populating the initial framework of the future draft Code. At DE 55, Canada tabled a document that aggregated and consolidated in one table the ideas discussed in the sub-committee and working group, documents submitted by members (Canada, Finland and Germany), and elements of the Polar Guidelines and Intact Stability Code.⁵⁹ This was quickly followed by an expanded version that included more provisions from the Polar Guidelines to serve as negotiating text, with the proviso that Canada prepare the document for discussion and without necessarily reflecting its position on the issues outlined.⁶⁰

At DE 55, Canada made further proposals concerning how the Polar Code could be made to apply to all vessels operating in polar waters.⁶¹ It reiterated its position that the Code should apply to all ships operating in polar waters, that construction requirements should apply to all new ships and existing ships should be subject to a risk assessment, that all ships should carry supplementary equipment and crewing qualifications, regular reports should be submitted to flag states and, as appropriate, also to coastal states, and that the pollution standards should exceed MARPOL requirements at that time. At the same DE session, Canada expressed concerns with respect to a proposal of the International Association of Classification Societies (IACS) regarding polar class, ice certification and engine power issues.⁶² It did not support the IACS approach to retaining existing systems of national ice classification, while developing methods to define equivalencies between these and the polar classes, except with respect to ships in the higher Baltic classes and as a transitional measure, preferring instead a single standard for all future polar class ships. Canada also wanted an ice certificate system based on the idea that ships may be operating independently and not simply in escort. It preferred recommendations rather than mandatory requirements for engine power designed to avoid ships becoming beset in ice. Further, on propulsive power, Canada would later also advance concerns with the application of the Energy Efficiency Design Index (EEDI) for ships that had independent ice-breaking capability, and that until a dedicated index could be developed for such vessels, the MARPOL Annex VI (Chapter 4) rule requiring installation of the power necessary for vessels to maintain manoeuvrability under adverse conditions could be applied.⁶³ Vessels operating in such conditions might not be able to meet the efficiency design requirements of the EEDI to reduce emissions.

As the negotiating text of the Polar Code evolved, at DE 56 Canada made further submissions concerning escort operations and on understanding sea ice conditions.⁶⁴ Canada proposed how escort operations could be addressed in the Code as a whole and on the Polar Waters Operational

⁵⁸ *ibid* ch 16.

⁵⁹ 'Discussion document for progressing development of mandatory code for ships operating in polar waters', submitted by Canada, IMO Doc DE 55/INF.3 (17 December 2010).

⁶⁰ 'Discussion document for progressing development of a mandatory code for ships operating in polar waters', submitted by Canada, IMO Doc DE 55/INF.4 (17 December 2010).

⁶¹ 'Application of requirements in the mandatory Polar Code', submitted by Canada, IMO Doc DE 55/12/7 (14 January 2011).

⁶² 'Polar classes, ice certification and engine power', submitted by Canada, IMO Doc DE 55/12/14 (28 January 2011).

⁶³ This was in response to a proposal by Finland and Sweden, which appeared to be based on ice-class correction factors in the EEDI developed on the Baltic experience, where ice navigation frequently involves escort operations. In Arctic and Antarctic waters, operations are frequently independent, potentially requiring different energy use. See 'Propulsion power for ice-strengthened and ice-going ships', submitted by Canada, IMO Doc DE 57/11/16 (25 January 2013).

⁶⁴ 'Escort operations', submitted by Canada, IMO Doc DE 56/10/16 (24 December 2011).

Manual (PWOM), a document to be kept on board to guide the master and crew on the safe operation of ships in polar waters and in responding to incidents.⁶⁵ Canada proposed that the PWOM address escort operations in the context of the service and that procedures needed to reflect the requirements of port and coastal state administrations.⁶⁶ This is important because ice and escort conditions differ in various operating environments, for example between Baltic and Canadian Arctic waters. Further, escorting operations should be an essential part of the training and certification of ice navigators. The need for this training and certification is underscored by the experience that ice conditions could be such that even experienced navigators could be challenged in distinguishing between first, second and multi-year ice, even in the summer, and hence the necessity of reflecting this in the Code's requirements.⁶⁷

At DE 57 Canada injected a study exploring the range of risks in polar navigation and to which the risk-based approach of the Polar Code was expected to respond, finding that these were considerably more extensive than the understanding on which negotiations were taking place.⁶⁸ During discussions of the environmental chapter of the Code at DE 57, Canada jointly submitted with Denmark and Norway a proposal to significantly scale up the standard for oil discharges.⁶⁹ They proposed the prohibition of discharge of oily mixtures from tanker cargo holds because MARPOL Annex I (regulation 34) still permitted an unacceptable amount of oil to be released. Concerned about other potential oil leakage, they further proposed oil filtering equipment on all new category A and B ships to comply with MARPOL Annex I regulation 14.7 and that such new ships should use biodegradable lubricants or water-based systems for stern tube bearings, seals and other underwater hull components.⁷⁰

In 2010 at an IMO conference in Manila, the International Convention on Standards of Certification and Watchkeeping for Seafarers 1978 (STCW)⁷¹ and the Seafarers' Training, Certification and Watchkeeping Code (STCW Code) were amended initially to address polar seafaring needs.⁷² The conference called for mandatory training requirements when the Polar Code would be adopted. In 2013, discussions were launched in the STCW sub-committee to address this call concurrently with DE deliberations on the safety and pollution-prevention provisions and future amendments to SOLAS and MARPOL, entailing amendments to both the STCW Convention and STCW Code. Together with Iceland, Norway and the United States, Canada proposed that training provisions were best placed in the STCW Convention and STCW Code and not in the Polar Code, and that provisions should cover polar waters generally and not only ice-covered waters.⁷³ As observed above, the human factor in polar shipping was a major concern for Canada and it would quickly propose training requirements for STCW 44's consideration.⁷⁴ It submitted that all masters and officers on the navigation watch must have mandatory basic training on board ships actually operating in polar waters and to hold certificates of competency. It proposed new training regulations in the STCW Convention and STCW Code for this purpose.

⁶⁵ *ibid.*

⁶⁶ *ibid.*

⁶⁷ 'Importance to safe operation of understanding sea ice conditions', submitted by Canada, IMO Doc DE 56/10/17 (24 December 2011).

⁶⁸ 'Establishment of a risk basis for Polar Code requirements', submitted by Canada, IMO Doc DE 57/11/3 (6 December 2012).

⁶⁹ 'Comments to proposals related to an environmental chapter of a mandatory code for ships operating in polar waters (Polar Code)', submitted by Canada, Denmark and Norway, IMO Doc DE 57/11/18 (25 January 2013).

⁷⁰ *ibid.*

⁷¹ International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, adopted 7 July 1978 (in force 28 April 1984) 1361 UNTS 2 (STCW Convention).

⁷² Amendments to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) 1978, as amended, Resolution MSC.416(97) (25 November 2016, effective 1 July 2018); Amendments to Part A of the Seafarers' Training, Certification and Watchkeeping (STCW) Code, Resolution MSC.417(97) (25 November 2016, effective 1 July 2018) (STCW Code). See STCW Code s B-V/g: 'Guidance regarding training of masters and officers for ships operating in polar waters'.

⁷³ 'Amendments to the STCW Convention and Code – Training requirements for officers and crew on board ships operating in polar waters', submitted by Canada, Iceland, Norway and the United States, IMO Doc STCW 44/13/1 (12 February 2013).

⁷⁴ 'Training requirements for officers and crew on board ships operating in polar waters', submitted by Canada, IMO Doc STCW 44/13 (25 January 2013).

Work on the Polar Code continued with DE's successor, the SDC, at its first session. At SDC 1, Canada made several submissions, the first being the report of the correspondence group tasked with reviewing a chapter on fire safety protection for which a new version was produced.⁷⁵ Canada made a joint submission with Norway on determining ice class equivalence to IACS polar class for the purpose of polar ship certification for new and existing ships by flag state administrations or recognised organisations. This joint proposal was not discussed owing to lack of time but would be addressed later in the MSC.⁷⁶ The submission underscored that compliance with a ship category (A, B or C in the Polar Code) and ice class requirements per se does not ensure safe polar operations and that pertinent operational procedures need to be included in the PWOM. Canada submitted helpful clarifications on the use of service temperature for polar operations (later the polar service temperature, PST).⁷⁷ The submission clarified the term 'low air temperature' in the Code to be defined as below -10°C , calculated as the mean daily low temperature (MDLT) for the intended area and season of operation. This was useful as existing IMO instruments had few temperature requirements and mostly concerning life-saving appliances. The PST is important because it has construction and operations implications. In recognition of the need identified by the Intersessional Working Group on the Polar Code, at SDC 1 Canada also provided detailed guidance on temperature considerations for polar shipping.⁷⁸

The growing importance of the PWOM, as a manual for the safe operation of a vessel according to its class, was evident at SDC 1 and triggered the need for detailed content for the development of manuals. Canada conducted a workshop to help develop a common structure for the PWOM while recognising that not all elements are necessarily relevant for all ships. This was guided by the underlying idea that ships should not be subjected to ice and temperature conditions beyond their capabilities.⁷⁹ Canada and the Russian Federation, the submission noted, had regulated systems of area access limitation based on ship capabilities and operations in ice conditions in their waters.

The Polar Code was adopted in separate sessions of the MSC in 2014 and MEPC in 2015. In 2014, several member states made submissions on various aspects of the draft Code, including Canada in MSC 93 and 94. In addition to further contributing to the content of the PWOM,⁸⁰ and together with Norway, an updated approach to ice equivalence⁸¹ at MSC 93, Canada proposed that the polar ship certificate should contain information on ship capabilities and limitations, including whether it is or is not intended to operate in ice and low air temperature, permissible ice-going drafts, polar service temperature, life-saving appliances, navigation and communication equipment.⁸² The technical details would be set out in the PWOM for the ship concerned.

The range of new requirements additional to those of other maritime conventions was an issue for both maritime administrators and industry operators, especially where a vessel makes infrequent voyages to polar waters. In response to this concern, Canada proposed that the administrative burden to be discharged by ships operating in polar waters could be alleviated by incorporating the required information in the PWOM,⁸³ elaborating this idea further at MSC 94.⁸⁴ The issue was addressed with

⁷⁵ 'Report of the Correspondence Group', submitted by Canada, IMO Doc SDC 1/3/5 (15 November 2013).

⁷⁶ 'Guidance for the determination of equivalent ice class', submitted by Canada and Norway, IMO Doc SDC 1/3/8 (15 November 2013).

⁷⁷ 'Information and guidance regarding the use of temperature', submitted by Canada, IMO Doc SDC 1/3/9 (15 November 2013).

⁷⁸ 'Statistical data on temperature in polar and sub-polar regions', submitted by Canada, IMO Doc SDC 1/INF.12 (15 November 2013).

⁷⁹ 'Polar waters operational manual', submitted by Canada, IMO Doc SDC 1/3/10 (15 November 2013). This document was updated and resubmitted at the MSC as 'Polar waters operational manual', submitted by Canada, IMO Doc MSC 93/10/1 (12 February 2014).

⁸⁰ *ibid.*

⁸¹ 'Guidance for the determination of equivalent ice class', submitted by Canada and Norway, IMO Doc MSC 93/10/15 (12 March 2014).

⁸² 'Polar ship certificate', submitted by Canada, IMO Doc MSC 93/10/6 (11 March 2014).

⁸³ 'Reduction of the administrative burden associated with the application of the mandatory Polar Code', submitted by Canada, IMO Doc MSC/93/10/7 (11 March 2014).

⁸⁴ 'Draft International Code for Ships Operating in Polar Waters (Polar Code): Clarification of certification and consideration of administrative burden', submitted by Canada, IMO Doc MSC 94/3/11 (12 September 2014).

respect to MARPOL requirements, under which a vessel requires various certificates.⁸⁵ A ship that visited polar waters infrequently could find it onerous to have all certificates reviewed prior to every entry. At MEPC 67, Canada, Liberia and the Marshall Islands proposed a single voyage certificate that would be issued to the ship after the maritime administration confirmed that the documents necessary for operation in polar waters were amended as required.⁸⁶

At MSC 93, an interesting issue arose with respect to the extent to which the proposed new SOLAS Chapter XIV would in fact apply to Antarctic waters, given that SOLAS generally and the proposed text of Chapter XIV applied to international voyages. Owing to the absence or paucity of ports in that region, ships operating in the area (such as supply ships to scientific research bases and potentially also cruise ships) might embark on voyages where the ports of origin and ultimate return are the same, potentially excluding them from consideration as international voyages. Canada and the United States made a joint submission expressing concern that the proposed amendment could potentially minimise the application of the safety provisions of the Polar Code to Antarctic waters.⁸⁷ It was successfully argued that the application of the new chapter be extended to ships operating in the Antarctic area and ships engaged in international voyages in Arctic waters.

As noted above, Canada considered the human factor in safe polar operations as a key issue for the Polar Code. In addition to certification and training requirements for the master, chief mates and officers in the STCW Convention and STCW Code, the Polar Code was to contain a goal concerning manning and training to ensure competence in discharging responsibilities. Based on its own experience, Canada argued that in addition to this competence, it would be useful to have the possibility of employing experienced ice navigators as supplements to the crew complement. Ice navigators are trained and experienced for the demands of navigation in ice environments and advise the master on route selection, safe speed and other operating decisions. Canada argued that including ice navigators for this purpose would provide vessel operators with a greater level of training and experience.⁸⁸ Canada was joined by the Marshall Islands in reiterating the concern by demonstrating that commercial shipping in Canadian Arctic waters (and off Alaska and on the Northern Sea Route (NSR)) did not necessarily always use the same vessels and that different ships carried on trades under different flags.⁸⁹ There could be a shortage of experienced polar seafarers and this militated in favour of an ice navigator joining the ship while in transit through polar waters. Not all delegations agreed, and some opposed it because they viewed it as an imposition of compulsory pilotage.

On the eve of adoption of the Polar Code's safety provisions, at MSC 94 Canada worked with other IMO members, industry associations and individually to strengthen various aspects of the Code. Jointly with Finland, Sweden and IACS, Canada submitted a proposal to assist a vessel navigating in ice within its limitations as set out in the Polar Ship Certificate.⁹⁰ The proposal introduced the Polar Operational Limit Assessment Risk Indexing System (POLARIS) developed by IACS and with technical contributions from Canada, Denmark, Finland, Russia and Sweden, essentially all jurisdictions with extensive experience in regulating navigation in ice covered areas using zones and

⁸⁵ IOPP certificate forms A and B (Annex I); Shipboard Oil Pollution Emergency Plan (SOPEP) (Annex I); Shipboard Marine Pollution Emergency Plan (SMPEP) (Annex I); Noxious Liquid Substances (Annex II); International Sewage Pollution Prevention Certificate (ISPP) (Annex IV); and Garbage Management Plan and Placards, and, possibly, the Garbage Record Book (Annex V).

⁸⁶ 'Reduction of administrative burden', submitted by Canada, Liberia and the Marshall Islands, IMO Doc MEPC 67/9/11 (22 August 2014).

⁸⁷ 'Applicability of Part I-A of the Polar Code in the Antarctic area', submitted by Canada and the United States, IMO DOC MSC 93/10/17 (25 March 2014).

⁸⁸ 'Specialist ice advisor', submitted by Canada, IMO Doc MSC 93/11/12 (25 March 2014). Canada proposed that: 'The requirements of paragraphs 13.2.1 and 13.3.1 may be satisfied when a person other than a member of the crew who is qualified in accordance with regs II/1, II/2 or II/3 of ch 2 of the STCW Convention, as appropriate, is on the bridge to provide advice. Such person shall have completed training for ships operating in polar waters at the appropriate level'.

⁸⁹ 'Compliance with requirements for trained and certificated personnel', submitted by Canada and the Marshall Islands, IMO Doc MSC 94/3/10 (12 September 2014).

⁹⁰ 'Technical background to POLARIS', submitted by Canada, Finland, Sweden and the International Association of Classification Societies (IACS), IMO Doc MSC 94/INF.13 (12 September 2014).

dates.⁹¹ Rather than using a theoretical approach, the POLARIS system considers limitations related to actual ice, risk profiles of ships, risks associated when using an ice-breaker or navigating independently, and effects of ice decay in seasonal operations. Canada was particularly supportive of such a system, given its experience with its own and similar Arctic Ice Regime Shipping System (AIRSS) in operation since 1996, monitored by Transport Canada and the CCG, and with users relying on ice information from the Canadian Ice Service.⁹² Canada viewed its AIRSS system, used in Canadian waters and also in other areas, as assisting the introduction of POLARIS. It observed that 'the use of POLARIS is intended to apply on voyages outside any form of coastal state jurisdiction, and many flag states will have limited resources or desire to monitor ships in polar waters' while also encouraging 'flag States to require after action voyage reports, which can then be used for future enhancements of the POLARIS system'.⁹³ The POLARIS proposal was adopted within the framework of Part I-B of the Code, that is as a recommendation. Towards the final stage of consideration of the draft Code's safety provisions, Canadian interjections tended to be technical and aimed at clarifying text. Thus, with Norway, the United States and Vanuatu, Canada proposed technical revisions to the stability and subdivision requirements in Chapter 4 of the draft Code to enhance clarity for final submission at MSC 94.⁹⁴

Whilst the safety provisions were readied for adoption at MSC 94, deliberations on vessel source pollution at MEPC continued. Canada was consistently emphatic regarding the pollution prevention provisions, reiterating its support for the ban on oil and oily mixture discharges.⁹⁵ Whilst its initial efforts for developing ballast water and hull fouling requirements in the Code were discontinued, its position on ship discharges was maintained until the end. Its aim was to ensure that there would be absolute prohibition of oil and oily mixture discharges as well as minimising of other discharges, while promoting good waste management practices on board ships. A concern was that there were minimal reception facilities in the region and that establishing these would not be practical, given that the received wastes would have to be transported out of Arctic waters for proper disposal. The Canadian view was that the experience in its Arctic waters showed that waste discharge planning and onboard management was possible to minimise the need for waste reception facilities in the region itself. For example, destination shipping in Canada typically discharged waste in the last port of call before entering Arctic waters and wastes generated during the voyage were discharged at the next port of call outside the region.

As deliberations in the MSC and MEPC were coming to an end, Canada had to consider what the impact of the Polar Code on its existing national regulations might be. By the end of SDC 1 and during consideration of amendments in MARPOL to support the Polar Code, it appeared that Canada was considering retaining aspects of its existing polar shipping regulations, which it justified under other agreements, in particular Article 234 of UNCLOS. When amendments to MARPOL (and SOLAS) are adopted using the tacit acceptance procedure, the amendments become binding on state parties as of the effective date, unless one-third of state parties object to the amendments.⁹⁶ This procedure could produce conflict for Canada between the new international rules and the existing national rules applicable in parallel. Moreover, as noted above, on acceding to MARPOL Canada made a declaration saving the application of its legislation pursuant to Article 234. Thus, in the Canadian view, the relationship of the proposed amendments to such other agreements required clarification through a savings clause in each of Annexes I, II, IV and V of MARPOL that: '[N]othing in the Polar Code shall prejudice the rights or obligations of states under international law as

⁹¹ Finally adopted as set out in 'Guidance on methodologies for assessing operational capabilities and limitations in ice', IMO Circular MSC.1/Circ.1519 (6 June 2016) (POLARIS).

⁹² 'Comments on IACS proposed system for determining operational limitations in ice (POLARIS)', submitted by Canada, IMO Doc MSC 94/3/19 (26 September 2014).

⁹³ *ibid.*

⁹⁴ 'Comments and proposed revisions to the stability and subdivision requirements in Chapter 4 of the Draft Polar Code', submitted by Canada, Norway, the United States and Vanuatu, IMO Doc MSC 94/3/14 (26 September 2014).

⁹⁵ 'Development of a mandatory Code for ships operating in polar waters: reception facilities for oil and oily mixtures', submitted by Canada, IMO Doc MEPC 66/11/8 (21 February 2014).

⁹⁶ MARPOL (n 43) art 16.

reflected in the 1982 United Nations Convention on the Law of Sea'.⁹⁷ It also proposed the inclusion of a similar clause in the draft amendments for SOLAS.⁹⁸ Canada argued that such clauses had been adopted in other recent maritime conventions.⁹⁹ The outcome was that the savings clause was included in Chapter XIV, but that it was not necessary to have a similar clause included in the various MARPOL Annexes to be amended, as the parent convention already included such a provision.¹⁰⁰

The implementation of the Polar Code

A discussion of how Canada has embarked on the implementation of the Polar Code benefits from a preliminary explanation of the framework and practice of maritime administration and polar shipping regulation in Canadian Arctic waters.

Maritime administration

In Canada, the legislative power over navigation and shipping is a power of Parliament and the federal government, and not a provincial or territorial responsibility.¹⁰¹ Within the federal government there is no single organisation responsible for the Northwest Passage, as in the case of the NSR in Russian Federation waters. Rather, the governance of shipping in Canadian Arctic waters involves a variety of federal, provincial and territorial departments and agencies, along with indigenous communities and regulatory bodies, each having specific roles and responsibilities.

Transport Canada is the national maritime administration and oversees marine safety, environmental impacts of shipping and maritime security matters.¹⁰² It administers the Arctic Waters Pollution Prevention Act and is the lead agency for the administration of the Canada Shipping Act 2001, which regulates vessel construction, inspection and reporting. The CCG manages navigation systems and services, marine communications and traffic management services, channel maintenance, marine search and rescue, ice-breaking and marine pollution response.¹⁰³ It is responsible for providing ice-breaking services and aids to navigation. The ice-breaking services provided by CCG during the winter months include route assistance, ice routing and related information services, and harbour breakouts. Fees are not levied on ships navigating between remote areas and/or ports situated 60° North latitude, nor for marine navigation services in these waters which facilitate and support logistics in the Arctic.¹⁰⁴ Operating under the DFO, the CHS is responsible for providing hydrographic surveys in support of the development of nautical charts, in addition to issuing notices to mariners and notices to shipping.¹⁰⁵ As of 2015, only 1 per cent of Canadian Arctic waters was surveyed in accordance with modern standards; however, that number rises to 3 per cent for Canada's low-impact shipping corridors proposed by the CCG, with about 32 per cent of such corridors being surveyed to adequate standards.¹⁰⁶ The OPP includes funding for updating of nautical

⁹⁷ 'Comments on the outcome of SDC 1, amendments to the Convention for the Prevention of Pollution from Ships 1973, as modified by the Protocol of 1978 relating to thereto (MARPOL)', submitted by Canada, IMO Doc MEPC 66/11/7 (21 February 2014).

⁹⁸ 'Amendments to the International Convention for the Safety of Life at Sea', submitted by Canada, IMO Doc MSC 93/10/12 (25 March 2014).

⁹⁹ Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, adopted 15 May 2009 (not in force) IMO Doc SR/CONF/45 (19 May 2009) art 15; Nairobi International Convention on the Removal of Wrecks, adopted 18 May 2007 (in force 14 April 2015) 46 ILM 694, art 16; SOLAS (n 47) ch XI reg 2 para 4.

¹⁰⁰ MARPOL (n 43) art 9(2): 'Nothing in the present Convention shall prejudice the codification and development of the law of the sea by the United Nations Conference on the Law of the Sea convened pursuant to Resolution 2750C(XXV) of the General Assembly of the United Nations nor the present or future claims and legal views of any State concerning the law of the sea and the nature and extent of coastal and flag State jurisdiction'.

¹⁰¹ Constitution Act 1867 (UK) 30 & 31 Vict, c 3, reprinted in RSC 1985, App II, No 5, s 91(10).

¹⁰² Department of Transport Act, RSC 1985 c T-18, ss 3, 7. See Transport Canada <https://www.tc.gc.ca/eng/menu.htm>.

¹⁰³ See Canadian Coast Guard <http://www.ccg-gcc.gc.ca/eng/CCG/Home>.

¹⁰⁴ Aldo Chircop, William Moreira, Hugh Kindred and Edgar Gold (eds) *Canadian Maritime Law* (2nd edn Irwin Law 2016) 1009.

¹⁰⁵ 'About the Canadian hydrographic service' <http://www.charts.gc.ca/help-aide/about-apropos/index-eng.asp>.

¹⁰⁶ Chenier and others 'Northern marine transportation corridors: Creation and analysis of northern marine traffic routes in Canadian waters' (2017) 21 *Transactions in GIS* 1085, 1094 <https://onlinelibrary.wiley.com/doi/epdf/10.1111/tgis.12295>.

charts.¹⁰⁷ Environment and Climate Change Canada¹⁰⁸ provides weather and ice information and forecasts in support of the safe navigation through Arctic waters via the Canadian Ice Service, a division of the Meteorological Service of Canada.¹⁰⁹

Legislative framework

The stalwart Arctic Waters Pollution Prevention Act is the principal statutory instrument for the regulation of shipping in Canadian Arctic waters and it is accompanied by other instruments, including the Canada Shipping Act 2001,¹¹⁰ Marine Liability Act,¹¹¹ Navigation Protection Act,¹¹² Marine Transportation Security Act,¹¹³ Coasting Trade Act¹¹⁴ and Canada Labour Code.¹¹⁵ Canada is a party to the three key conventions underlying the Polar Code (SOLAS, MARPOL and STCW), among others,¹¹⁶ and has implemented them through the Canada Shipping Act 2001.¹¹⁷ Canada is also party to the international civil liability conventions¹¹⁸ and has implemented them through the Marine Liability Act.¹¹⁹

The Arctic Waters Pollution Prevention Act establishes the framework for the regulation of shipping on technical and operational matters for the prevention of pollution and provides parameters for Polar Code implementation.¹²⁰ Under the Act, Arctic waters are divided into 16 shipping safety

¹⁰⁷ OPP (n 9).

¹⁰⁸ Environment and Climate Change Canada <https://www.canada.ca/en/environment-climate-change.html>.

¹⁰⁹ Environment Canada's Meteorological Service <http://www.ec.gc.ca/default.asp?lang=En&n=D04DC0DA-1>.

¹¹⁰ CSA 2001 (n 16).

¹¹¹ SC 2001 c 6 (MLA).

¹¹² RSC 1985 c N-22. The Act is in the process of being amended and renamed as the Canadian Navigable Waters Act by Bill C-69: An Act to enact the Impact Assessment Act and the Canadian Energy Regulator Act, to amend the Navigation Protection Act and to make consequential amendments to other Acts, s 45, First Session, Forty-second Parliament, 64-65-66-67 Elizabeth II, 2015-2016-2017-2018. At the time of writing, the bill had been passed by the House of Commons and was under consideration in the Senate.

¹¹³ SC 1994 c 40.

¹¹⁴ SC 1992 c 31.

¹¹⁵ RSC 1985 c L-2.

¹¹⁶ For example, other conventions relevant for Arctic shipping: Oil Pollution Preparedness, Response and Cooperation Convention, adopted 30 November 1990 (in force 13 May 1995) 1891 UNTS 51; International Convention on the Control of Harmful Anti-fouling Systems, adopted 5 October 2001 (in force 17 September 2008) Can TS 2010 No 15; International Convention for the Control and Management of Ships' Ballast Water and Sediments, adopted 13 February 2004 (in force 8 September 2017) IMO Doc BWMC/CONF/36 (16 February 2004).

¹¹⁷ See CSA 2001 (n 16) sch 1 for a list of conventions for which the Minister of Transport is responsible.

¹¹⁸ International Convention on Civil Liability for Oil Pollution Damage, adopted 29 November 1969 (in force 19 June 1975) 973 UNTS 3, as amended by the Protocol of 1992, adopted 27 November 1992 (in force 30 May 1996) 1956 UNTS 255; International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, adopted 18 December 1971 (in force 16 October 1978) 1110 UNTS 57, as amended by the Protocol of 1992, adopted 27 November 1992 (in force 30 May 1996) 1953 UNTS 330, as further amended by the Supplementary Fund Protocol 2003, adopted 16 May 2003 (in force 3 March 2005) Can TS 2010 No 4; Convention Relating to the Carriage of Passengers and Their Luggage by Sea, adopted 13 December 1974 (in force 28 April 1987) 1463 UNTS 19, with the Protocol of 1990, adopted 29 March 1990 (not in force) IMO Doc LEG/CONF 8/10 (29 March 1990); Protocol of 1996 to Amend the Convention on Limitation of Liability for Maritime Claims, adopted 2 May 1996 (in force 13 May 2004) Can TS 2008 No 18; International Convention on Civil Liability for Bunker Oil Pollution Damage, adopted 23 March 2001 (in force 21 November 2008) Can TS 2010 No 3; International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea, adopted 2 May 1996 (not in force) 35 ILM 1406, as amended by Protocol of 2010 to Amend the International Convention on Liability and Compensation for Damage in connection with the Carriage of Hazardous and Noxious Substances by Sea, adopted 4 May 2010 (not in force) IMO Doc LEG/CONF.17/10 (4 May 2010).

¹¹⁹ Marine Liability Act (n 111) schs 1–2, 6–8. At the time of writing, Canada is in the process of becoming a party to the Nairobi International Convention on the Removal of Wrecks, adopted 18 May 2007 (in force 14 April 2015) 46 ILM 694. Bill C-64: An Act respecting wrecks, abandoned, dilapidated or hazardous vessels and salvage operations passed the third reading on 30 June 2018 <http://www.parl.ca/DocumentViewer/en/42-1/bill/C-64/third-reading>.

¹²⁰ For example: hull and fuel tank construction, including the strength of materials used therein; the use of double hulls and the subdivision thereof into watertight compartments; the construction of machinery and equipment, the electronic and other navigational aids and equipment and telecommunications equipment to be carried and the manner and frequency of maintenance thereof; the nature and construction of propelling power and appliances and fittings for steering and stabilising; the manning of the ship, including the number of navigating and look-out personnel to be carried who are qualified in a manner

control zones (SSCZs).¹²¹ In the Arctic Waters Pollution Prevention Act, the minister has authority to regulate SSCZs to determine the requisite class and construction of vessels, manning requirements, nautical aids and nature of cargo that may enter or remain within any given zone at any particular time of year, although the Arctic Shipping Safety and Pollution Prevention Regulations do not expressly address nautical aids and carriage of cargo. A ship may be prohibited from entering a SSCZ if it does not comply with the applicable standards.¹²² The ice conditions in each SSCZ vary, with the most severe in zone 1 and the least severe in zone 16.¹²³ Navigation in the zones is subject to specific dates (zone/date system) to determine permissible navigation areas for vessels with different technical capabilities.¹²⁴ In addition to complying with the zone/date requirements, a vessel may operate outside those parameters by utilising AIRSS. As mentioned above, AIRSS has been in use in Canada since 1996, and is a framework which assists decision-making on navigation in the SSCZs based on real time characterisation of risks in various ice conditions for different classes of vessels.¹²⁵ The zone/date system and AIRSS are meant to work alongside and, in most cases, to be used when an ice navigator is on board the vessel. For example, when a ship is using the zone/date system, an ice navigator is required only when it is operating outside the allowable operating dates for that vessel type. At this time there is no compulsory pilotage in the Canadian Arctic, but the regime for pilotage in Canada is under review.¹²⁶ Ships must also follow the Collision Regulations.¹²⁷ Where a ship requires the assistance of an ice-breaker, communications and procedures are discussed in advance between the ship and master ice-breaker.

Passenger vessels have additional safety requirements and guidelines.¹²⁸ Ships have to be cleared for zone and Arctic type by the Transport Canada's Marine Safety office.¹²⁹ Foreign government-owned vessels may be exempt from the regulations relating to navigation in the SSCZs where the vessel complies with the Arctic Waters Pollution Prevention Act requirements and takes measures to reduce the danger of waste discharges resulting from navigation.¹³⁰ Ships must comply with certification and compliance standards under international instruments implemented through various regulations¹³¹ and radio equipment and documentation requirements.¹³² The documentary requirements include appropriate and updated charts, tide tables and other nautical documents relevant to each area that will be navigated.¹³³ The master must obtain updated information based on Notices to Mariners (NOTMARs), Notices to Shipping (NOTSHIPS) and radio navigational warnings (NAVTEX) and

prescribed by the regulations; with respect to any type of cargo to be carried, the maximum quantity thereof that may be carried, the method of stowage thereof and the nature or type and quantity of supplies and equipment to be carried for use in repairing or remedying any condition that may result from the deposit of any such cargo in the Arctic waters; the free-board to be allowed and the marking of load lines; quantities of fuel, water and other supplies to be carried; and the maps, charts, tide tables and any other documents or publications relating to navigation in the Arctic waters to be carried on board. Arctic Waters Pollution Prevention Act (n 4) s 12(1)(a).

¹²¹ Shipping Safety Control Zones Order, CRC c 356, sch 1.

¹²² Arctic Waters Pollution Prevention Act (n 4) s 12(1)(a).

¹²³ Chircop and others (n 104) 1011.

¹²⁴ *ibid* 1011.

¹²⁵ *ibid* 1014.

¹²⁶ Pilotage Act Review (Transport Canada 2018) http://www.tc.gc.ca/documents/17308_TC_Pilotage_Act_Review_v8_final.pdf. The report observed that '[I]mprovements under the Polar Code and formalizing the requirements to become an ice navigator will mitigate the need for Arctic pilotage in the short term. For the longer term, there is potential for pilotage in the north to be developed in conjunction with the Low Impact Shipping Corridors initiatives within the Oceans Protection Plan'. *ibid* viii. Non-Arctic waters are assigned to four pilotage authorities under the Pilotage Act, RSC 1985 c P-14, but Arctic waters are not included at this time.

¹²⁷ CRC c 1416 s 2.

¹²⁸ Transport Canada, Guidelines for the Operation of Passenger Vessels in Canadian Arctic Waters (T13670E) <https://www.tc.gc.ca/eng/marinesafety/tp-tp13670-menu-2315.htm>.

¹²⁹ Chircop and others (n 104) 1015.

¹³⁰ Arctic Waters Pollution Prevention Act (n 4) s 12(2).

¹³¹ See eg Navigation Safety Regulations (SOR/2005-134) implementing SOLAS (n 47) ch V; Steering Appliances and Equipment Regulations (SOR/83-810).

¹³² Ship Station (Radio) Regulations (SOR/2000-260) ss 15, 17, 18. They must rely on the most recent edition of the Canadian Coast Guard's 'Radio aids to marine navigation'. Chircop and others (n 104) 1013.

¹³³ Charts and Nautical Publications Regulations (SOR/95-149) s 4.

should obtain ice charts from the Canadian Ice Service prior to sailing. The regulations contain voyage planning requirements and shield the master's exercise of professional judgement in the interests of safety and environmental protection by prohibiting interference by the owner, charterer or operator.¹³⁴ A copy of 'Ice navigation in Canadian Arctic waters' must be kept on board where the vessel is 100 gross tonnage (GTs) or more and will navigate icy waters.¹³⁵

The Arctic Waters Pollution Prevention Act has a general zero or near-zero waste discharge rule.¹³⁶ Vessels must report all deposits of waste to a pollution prevention officer. Vessels in distress, stranded, wrecked, sunk or abandoned which are releasing or are likely to release wastes in Arctic waters may be removed or destroyed.¹³⁷

The mandatory reporting requirement for ships in Canadian Arctic waters applies to vessels of 300 GTs or more, vessels engaged in towing or pushing another vessel (where the aggregate tonnage is 500 GTs or more), and vessels transporting pollutants or dangerous goods as cargo or towing or are towing or pushing such vessels.¹³⁸ The report must be made prior to entering the NORDREG zone and must include information regarding the vessel, its cargo and individuals on board, volume of water, fuel, sailing plan, destination, ports of call and weather reports.¹³⁹ The vessel must also provide daily position¹⁴⁰ and deviation reports,¹⁴¹ and must further provide position reports where there are other vessels experiencing difficulty, obstructions to navigation, aids to navigation that are not functioning properly or are damaged or out of position or missing, presence of hazardous ice and weather conditions, and pollutants in the water.¹⁴²

Polar Code implementation

General

As mentioned above, Canada implemented the Polar Code through the enactment of the Arctic Shipping Safety and Pollution Prevention Regulations under the Arctic Waters Pollution Prevention Act and the Canada Shipping Act 2001, replacing the previous Arctic Shipping Pollution Prevention Regulations.¹⁴³ The rationale mirrors the Polar Code's purposes, namely the need to address the unique hazards of polar operations and the additional demands (over and above SOLAS and MARPOL requirements for other regions) that polar operations place on ships, crew, systems and operations. The rationale also includes consideration of the vulnerability of Arctic coastal communities and polar ecosystems to ship operations.¹⁴⁴

At first blush the regulations appear to make all parts of the Polar Code mandatory, including the recommendations in Parts I-B and II-B, although the actual intent was to make mandatory only recommendations incorporated by reference, such as for POLARIS.¹⁴⁵ The safety provisions are

¹³⁴ *ibid* ss 14–15.

¹³⁵ Canadian Coast Guard 'Ice navigation in Canadian Arctic waters' (August 2012) <http://www.ccg-gcc.gc.ca/folios/00913/docs/ice-navigation-dans-les-galces-eng.pdf>. At the time of writing, this document is under revision.

¹³⁶ Arctic Waters Pollution Prevention Act (n 4) s 4(1). Waste is defined as 'any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water to an extent that is detrimental to their use by man or by any animal, fish or plant that is useful to man' and 'any water that contains a substance in such a quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water...'. The definition also 'includes anything that, for the purposes of the Canada Water Act, is deemed to be waste'. *ibid* s 2.

¹³⁷ *ibid* s 13.

¹³⁸ NORDREG (n 45) ss 2–3, 10. The reporting is to Marine Communications and Traffic Services center of the CCG (NORDREG Canada).

¹³⁹ *ibid* ss 5–9.

¹⁴⁰ *ibid* s 7.

¹⁴¹ *ibid* s 9.

¹⁴² *ibid* s 7(2).

¹⁴³ CRC c 353.

¹⁴⁴ 'Objectives: Regulatory impact analysis statement', *Canada Gazette* pt I vol 151 (2017) no 26 <http://www.gazette.gc.ca/rp-pr/p1/2017/2017-07-01/html/reg1-eng.html> (RIAS).

¹⁴⁵ Arctic Shipping Safety and Pollution Prevention Regulations (n 15) s 2(2). POLARIS (n 91).

largely implemented *in toto*, whereas the pollution prevention provisions are implemented selectively to maintain consistency with Arctic Waters Pollution Prevention Act standards. This is interesting because the Polar Code is essentially goal-based, whereas Canadian polar shipping regulation has tended to be prescriptive. Code provisions which pose no issue are incorporated referentially. As is the practice with the implementation of other SOLAS provisions in Canada, the regulations referentially incorporate the safety requirements of Chapter XIV of SOLAS and directly incorporate the pollution prevention amendments in MARPOL Annexes I, II, IV and V.¹⁴⁶ Transitional provisions are used to phase out specific practices. Unique modifications are also utilised to maintain as closely as possible the existing levels of safety and environmental protection currently applicable to vessels in Canadian Arctic waters.

The regulations apply to Canadian-flagged vessels operating in polar waters (inclusive of the SSCZs), and foreign vessels operating in the SSCZs in the Canadian Arctic, but they do not apply to government vessels or to foreign state vessels used for government non-commercial purposes.¹⁴⁷ The responsibility to ensure that a vessel meets regulatory requirements rests with the ship's authorised representative and the responsibility to comply with operational requirements with the master.¹⁴⁸

Safety measures

The first part of the Arctic Shipping Safety and Pollution Prevention Regulations deals with safety-related technical measures for the construction, equipment, operation and aspects of crewing of ships. The rules distinguish between 'Arctic class', 'Canadian Arctic class' and 'polar class' to reflect transitional arrangements for vessels that enjoyed class attributions under the repealed regulations. Arctic class refers to vessels that met the now repealed regulations.¹⁴⁹ Canadian Arctic class refers to vessels which met equivalent standards to Arctic class in the old and repealed Canada Shipping Act and regulations. Polar class refers to the attribution by the IACS Unified Requirements referentially incorporated in the Polar Code.¹⁵⁰

The safety requirements apply to Canadian and foreign cargo vessels of at least 500 GTs certified under SOLAS Chapter 1, passenger vessels similarly certified and all other vessels of at least 500 GTs.¹⁵¹ Fishing vessels, pleasure craft and vessels without mechanical means of propulsion are generally excluded as they are not SOLAS vessels, even if some Canadian requirements apply to them.¹⁵² Smaller vessels (300 GTs and over), vessels carrying pollutants, vessels towing other vessels carrying pollutants or dangerous goods, vessels in a towage operation with aggregate tonnage of at least 500 GTs and passenger vessels certified under SOLAS Chapter I are captured by regulations concerning navigation periods, responding to emergencies, ice-strengthening, messaging and use of ice navigators.¹⁵³

Whilst implementing POLARIS, the Arctic Shipping Safety and Pollution Prevention Regulations maintain the zone/date system and AIRSS for the benefit of vessels covered by the repealed regulations. It is interesting to observe that in the PWOM model table of contents in the Polar Code, AIRSS is given as an example of an appropriate decision-making system.¹⁵⁴ Transport Canada has recognised that the use of either AIRSS or POLARIS by identical vessels in identical ice regimes could produce minor differences in operating outcomes depending upon which system is used.¹⁵⁵ To

¹⁴⁶ 'Coming into force: new Arctic Shipping Safety and Pollution Prevention Regulations', Safety Bulletin (05/2018) <https://www.tc.gc.ca/media/documents/marinesafety/SSB-05-2018E.pdf>. See also 'Consultation' RIAS (n 144).

¹⁴⁷ Arctic Shipping Safety and Pollution Prevention Regulations (n 15) s 3.

¹⁴⁸ *ibid* s 4.

¹⁴⁹ *ibid* s 5.

¹⁵⁰ Polar Code (n 1) ch 1 reg 1.2.10; Requirements Concerning Polar Class (IACS 2016) file:///C:/Users/chirc/Downloads/ur_i_pdf410.pdf.

¹⁵¹ Arctic Shipping Safety and Pollution Prevention Regulations (n 15) s 6(1).

¹⁵² *ibid* s 6(2).

¹⁵³ *ibid* ss 7–10.

¹⁵⁴ Report of the MSC on its 94th Session, IMO Doc MSC 94/21/Add.1 (27 November 2014) Annex VI app 2.

¹⁵⁵ RIAS (n 144) 'Part 1 (Safety Measures)'.

address this issue, the regulations require that all polar class vessels and all vessels built after 1 January 2017 that do not use the zone/date system must use POLARIS.¹⁵⁶ All other vessels built before this date have the option to use either AIRSS or POLARIS when operating outside of the zone/date system.¹⁵⁷ This approach effectively phases out the use of AIRSS over time. In the meantime, all vessels may continue to navigate the SSCZs subject to the zone/date system. Vessels are permitted to navigate outside the period of a zone provided AIRSS produces a positive ice numeral or an acceptable POLARIS risk index outcome, including with appropriate measures contained in the PWOM, so designed to mitigate the risk.¹⁵⁸ The Minister of Transport retains the power to issue an equivalency to ice-strengthened vessels that do not comply with these classes or regulated type.¹⁵⁹ Consistently with the NORDREG, masters of all vessels are required to report to the Minister prior to entering a SSCZ and including when there is a route change.¹⁶⁰

The Polar Code requires that masters, chief mates and officers in charge of a navigational watch complete training, taking into account the provisions of the STCW convention and Code as amended for polar seafarers.¹⁶¹ Under the Arctic Shipping Safety and Pollution Prevention Regulations, Canada has a general requirement for an onboard ice navigator for vessels between 300–500 GTs and operating outside the allowable dates set out for Type E vessels under the zone/date system.¹⁶² The ice navigator must be qualified as a master or person in charge of the deck watch and have either served in those capacities for a specified period (including in ice conditions and ice-breaker assistance) or hold an STCW Chapter V/4 certificate of training in polar waters.¹⁶³ The Marine Personnel Regulations are expected to be reviewed in due course and, in the meantime, interim arrangements to introduce these new STCW requirements have been made.¹⁶⁴

Finally, the Arctic Shipping Safety and Pollution Prevention Regulations include PST requirements for Canadian-flagged vessels built after 1 January 2017 and intended to operate in low air temperature.¹⁶⁵ These include inflatable life rafts on board, marine evacuation systems and life or rescue boats compatible with the PST or that are protected from cold weather.

Pollution prevention measures

Under the Arctic Waters Pollution Prevention Act, there previously existed a complete prohibition on the deposit of waste from ships in the Canadian Arctic except where authorised by the regulations. As mentioned, the Arctic Shipping Safety and Pollution Prevention Regulations seek to maintain this existing regime as closely as possible. Accordingly, only those provisions within Part II of the Polar Code that strengthen Canada's existing Arctic shipping pollution prevention regime are directly incorporated into the Arctic Shipping Safety and Pollution Prevention Regulations. In addition, the new regulations require minor changes to certain other operational requirements for vessels to reflect the carriage of waste in the various record books, management plans and emergency plans required under the Vessel Pollution and Dangerous Chemicals Regulations under the Canada Shipping Act 2001.¹⁶⁶

Except where otherwise indicated, the pollution prevention sections of the Arctic Shipping Safety and Pollution Prevention Regulations apply to Canadian vessels navigating in polar waters and foreign vessels navigating in a SSCZ. The Arctic Shipping Safety and Pollution Prevention

¹⁵⁶ Arctic Shipping Safety and Pollution Prevention Regulations (n 15) s 8(2).

¹⁵⁷ *ibid.*

¹⁵⁸ *ibid* s 8(3).

¹⁵⁹ *ibid* s 8(4).

¹⁶⁰ *ibid* s 9.

¹⁶¹ Polar Code (n 1) pt I-A ch 12; STCW Convention (n 71) Annex reg V/4; STCW Code (n 72) Annex reg V/4.

¹⁶² *ibid* s 10(1).

¹⁶³ *ibid* s 10(2).

¹⁶⁴ SOR/2007-115. Interim guidelines on STCW requirements have been issued. See Transport Canada <http://www.tc.gc.ca/eng/marinesafety/bulletins-2018-01-eng.htm>.

¹⁶⁵ *ibid* s 11.

¹⁶⁶ Vessel Pollution and Dangerous Chemicals Regulations (SOR/2012-69).

Regulations incorporate specific and limited exemptions for prohibitions established by the Arctic Waters Pollution Prevention Act. These exemptions include that waste may be deposited in *ius necessitatis* situations.¹⁶⁷ The regulations implement the Polar Code requirement to take into account all waste management in onboard documentation and record-keeping required under MARPOL.¹⁶⁸

To maintain the zero-oil discharge prohibition, the Arctic Shipping Safety and Pollution Prevention Regulations specifically exclude certain Polar Code allowances for the discharge of clean ballast and the discharge of oily water from machinery spaces of certain vessels operating for more than 30 days in the Arctic.¹⁶⁹ The regulations also incorporate certain structural (eg location of fuel tanks, double bottoms, wing tanks and spaces)¹⁷⁰ and operational requirements that strengthen the oil pollution regime already established under the Vessel Pollution and Dangerous Chemicals Regulations. It must be noted that the structural requirements established by the Arctic Shipping Safety and Pollution Prevention Regulations differentiate between Category A and B vessels,¹⁷¹ as well as between oil tankers and other vessels.¹⁷² Some of the requirements do not apply to tankers that do not have mechanical means of propulsion.¹⁷³

The deposit of noxious liquid substances from all vessels operating in Arctic waters was and remains prohibited under the Arctic Waters Pollution Prevention Act. The Arctic Shipping Safety and Pollution Prevention Regulations incorporate further operational and structural requirements to ensure the containment of such substances. These include prohibiting the carriage of certain noxious liquid substances identified within the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk¹⁷⁴ on board certain vessels built after 1 January 2017, unless they are separated from the outer shell.

Previously, it was permissible to release untreated sewage into Canadian Arctic waters from on board any ship, perhaps the only domestic standard that was lower than a MARPOL standard. The Arctic Shipping Safety and Pollution Prevention Regulations replace this blanket allowance with the Polar Code's operational discharge requirements for vessels of 400 GTs or more or certified to carry more than 15 persons.¹⁷⁵ A vessel that meets these criteria would be allowed to discharge or deposit sewage in accordance with provisions established under the amended MARPOL Annex IV.¹⁷⁶ Vessels built after 1 January 2017 will only be able to discharge sewage which has been treated by a treatment plant.¹⁷⁷ Smaller vessels between 15 and 400 GTs are also captured by the discharge rules,¹⁷⁸ but smaller vessels (eg under 15 GTs and not carrying more than 15 persons) are still permitted to discharge sewage.¹⁷⁹

¹⁶⁷ Arctic Shipping Safety and Pollution Prevention Regulations (n 15) s 14. This provision permits deposits necessary to save human life and the vessel, in the case of accidents of navigation, minimal oil resulting unavoidable leakage from underwater machinery, accidental loss of fishing gear or deposit, deposit of fishing gear to protect the crew, vessel and the environment, and garbage resulting from damage to ship or equipment.

¹⁶⁸ *ibid* ss 15 (oil), 17 (noxious liquid substances) and 23 (garbage).

¹⁶⁹ RIAS (n 144) 'Part 2 (Pollution Prevention Measures)'.

¹⁷⁰ Arctic Shipping Safety and Pollution Prevention Regulations (n 15) s 10.

¹⁷¹ Under the Polar Code and Arctic Shipping Safety and Pollution Prevention Regulations 'Category A vessel means a vessel designed for operation in polar waters in at least medium first-year ice, that may include old ice inclusions' and 'Category B vessel means a vessel not included in Category A that is designed for operation in polar waters in at least thin first-year ice, which may include old ice inclusions'. *ibid* s 12.

¹⁷² *ibid*.

¹⁷³ *ibid* s 16(6). These vessels must meet the criteria set out in the Vessel Pollution and Dangerous Chemicals Regulations (n 166) s 46(2)(b).

¹⁷⁴ International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk (IBC Code); Amendments to the IBC Code, Resolution MEPC.19(22) (December 1985, effective 1 July 1986); Amendments to SOLAS ch VII; Amendments to MARPOL Annex II (October 2004, effective 1 January 2007).

¹⁷⁵ Arctic Shipping Safety and Pollution Prevention Regulations (n 15) s 19.

¹⁷⁶ *ibid* s 20.

¹⁷⁷ *ibid* s 20(2).

¹⁷⁸ *ibid* s 21.

¹⁷⁹ *ibid* s 22.

The Arctic Shipping Safety and Pollution Prevention Regulations implement the MARPOL Annex V garbage rules for Canadian ships in polar waters that are not Canadian Arctic waters. As for discharges by any ship in Canadian Arctic waters, the regulations maintain the Arctic Waters Pollution Prevention Act prohibition of discharge of other waste deposits, such as garbage, by not introducing the Polar Code's allowance for the discharge of cargo residues under certain conditions.¹⁸⁰ Only food waste subject to certain criteria would be permitted to be discharged subject to minimum distances from ice, but never on ice.¹⁸¹ These requirements do not apply if the retention of waste would present an imminent health risk to the people on the vessel.¹⁸² Finally, cargo residues may not be discharged in polar waters by Canadian ships except in accordance with Polar Code rules.¹⁸³

Harmonisation with the Polar Code

Convergence and divergence?

Canada advocated for a code which contained standards that were at a minimum equivalent to the Arctic Waters Pollution Prevention Act and the now repealed Arctic Shipping Pollution Prevention Regulations. Generally, the Polar Code was well received and most of its mandatory provisions and recommendations have been implemented by Canada. But to what extent did the Polar Code meet Canada's expectations? Canadian implementation of the Code can be described as largely convergent on most issues, divergent on some specific issues (in the sense of retaining uniquely Canadian rules that are viewed as scaling up Code expectations) and as extending the application of particular Code rules to a wider range of vessels.

Canadian expectations on the approach to Code development appear to have been largely met, such as the use of the Polar Guidelines as a starting point and couching these into mandatory standards, adoption of a stand-alone Code with an integrated approach building on existing instruments, but with certification and training, although briefly referred to in the Polar Code, best left to the STCW Convention and STCW Code. In its initial proposal, Canada proposed that the Polar Code 'should not infringe on national systems of shipping until a harmonised system is in place' and that in addition 'States may retain local navigation rules and regulations for certain routes and waterways under their jurisdiction taking into account local conditions, infrastructure and procedures'.¹⁸⁴ Uniformity of high standards for all flags was largely achieved by the Polar Code and Canada still retained its local navigation rules and procedures, mostly modified to comply with the Code, but also with some differences. Canada wanted flag states to be responsible for their ships outside the jurisdiction of any coastal state or port state¹⁸⁵ and this was effectively achieved by the amendments to SOLAS and MARPOL.

The Code fell short of addressing all ships as first proposed by Canada. It had proposed a scope of application that would have included all ships operating in polar waters, new or existing, and including barges, fishing and recreational vessels (ie non-SOLAS vessels). This was rectified by extending aspects of the Code to other classes but, to date, work on extending the application of the Polar Code to non-SOLAS vessels continues in the IMO and in which Canada participates actively. Canada also desired a harmonised approach to the issuance of a proposed 'permit to operate' certificate, a separate requirement from the safety certificate issued to a polar class ship to operate in port, coastal and international waters. The compromise was a single Polar Ship Certificate and related survey requirements.¹⁸⁶ The new Polar Ship Certificate with appropriate annotations,

¹⁸⁰ *ibid* s 24(1).

¹⁸¹ *ibid* ss 24(3), 25(1), 25(3).

¹⁸² *ibid* ss 24(2), 25(2).

¹⁸³ *ibid* s 26.

¹⁸⁴ Canadian proposal (n 53) para 2.11 at 7.

¹⁸⁵ *ibid* para 2.12 at 8.

¹⁸⁶ Polar Code (n 1) pt I-A ch 1 reg 1.3.

including the PST, must be retained onboard and be made available for inspection, together with the ship's PWOM. At the time of writing, the precise content of the PWOM is under development.

For the most part, Canada was satisfied with the SOLAS safety provisions, which it implemented. By embracing POLARIS, it has been able to maintain the functional requirements of its zone/date system in its SSCZs and accompanied by AIRSS, while at the same time providing a transitional period for the continued use of AIRSS. Canada's insistence on emphasising the human factor was achieved to an extent in the Polar Code, in the guidance for vessel operations in the PWOM and through STCW amendments. Canada had originally proposed a requirement for an ice navigator on board, which neither the Code nor the STCW amendments expressly require. The Polar Code provides general requirements for manning and knowledge in ice navigation, but the content of the training was developed separately in the STCW Convention and STCW Code. In implementing manning requirements, Canada maintained its position and requirement of an ice navigator on board commercial vessels, who would be obliged to undergo STCW training and certification, thus achieving a compromise. Canada is now in the process of implementing the new STCW rules applicable to masters and officers, including a requirement of sea ice time, with transitional measures in place until 2020.

Canada saw the Polar Code as an opportunity to reconcile overlapping and conflicting protective measures for marine environment protection in the region. Its initial approach to Part II was more broadly 'environment protection' rather than 'pollution prevention', which was the compromise approach adopted in the Code. Canada did not insist on its initial proposal to include ballast water measures and hull fouling as mandatory provisions in the Polar Code, although its proposals were in fact included in Part II-B as additional guidance in the implementation of Part II-A (ie as recommendations).

For the most part, Canada appeared satisfied with the majority of the new standards embedded in the amended MARPOL Annexes I, II, IV and V. Canada did not propose MARPOL special area or particularly sensitive sea area designations (although these were contemplated in the Arctic Council's *Arctic Marine Shipping Assessment 2009 Report's* recommendations, which Canada co-led)¹⁸⁷ not out of disinterest, but rather because the pertinent framework for the designation of such areas was provided elsewhere in the IMO system. The fact that waste discharge and management standards were raised addressed Canadian concerns. What remained unaddressed was the issue of reception facilities set out in MARPOL, and this would be an issue to be pursued in the aftermath of the Polar Code adoption. Not fully addressing Canadian expectations was a full zero discharge prohibition of oil wastes and mixtures under Annex I, but again this would be addressed in Canadian implementation by retaining a zero discharge consistent with the Arctic Waters Pollution Prevention Act.

The Canadian proposal contained elements that did not make it into the Polar Code. Canada proposed a mandatory insurance requirement to cover potential liability under the liability conventions, and that government ships to which the Code applied should also have insurance or an insurance certificate issued by that government stating government ownership.¹⁸⁸ The Polar Code does not contain provisions on insurance and liability and, indeed, Canada refrained from extending the application of the new regulations to foreign government owned ships (provision for which was made in the Arctic Waters Pollution Prevention Act), and thereby addressed a long-standing inconsistency with the UNCLOS.

Finally, any late hour concerns that Canada had in relation to preserving aspects of its domestic regulation (which continued to provide a higher standard than the common denominator in the Polar Code) were allayed through the saving clauses in SOLAS Chapter XIV and MARPOL. Naturally, these clauses do not necessarily reassure other states that some Canadian domestic rules might not be

¹⁸⁷ Arctic Marine Shipping Assessment 2009 Report (Arctic Council 2009) <https://www.pame.is/index.php/projects/arctic-marine-shipping/amsa> (AMSA).

¹⁸⁸ Canadian proposal (n 53) ch 1.6.

consistent with rules of international law but, from a Canadian perspective, they suffice because Canada will continue to argue that its regulations are in fact legitimate under both conventional and general international law.

Post-Polar Code

It was generally understood when the Polar Code was adopted that, like all other IMO codes, it would need to be kept under review and updated as needed. At the same time as the Polar Code was being developed, there were other related issues under consideration. For example, Canada continued to work with other Arctic Council and IMO members on the issue of black carbon in polar shipping, an issue under MEPC consideration since MEPC 62.¹⁸⁹ As mentioned in the discussion on the development of the Polar Code, not all issues considered during negotiations were brought to fruition. For example, the criteria for providing a habitable environment in life rafts and life boats in polar conditions were not developed and so, in 2017, Canada submitted a proposal for consideration of this matter to the MSC's Sub-Committee on Ship Systems and Equipment.¹⁹⁰ Rescue in the remote polar regions could take as long as five days (an assumption made in the Polar Code) and it was necessary to ensure survivability for at least that period. Another outstanding issue concerns polar standards for non-SOLAS vessels, such as fishing vessels and the growing number of recreational vessels in polar waters. As observed above, Canada has extended the application of aspects of the Polar Code to such vessels, but more work needs to be done at the IMO to extend international standards for the safety of such vessels.

The use and carriage of heavy fuel oils (HFOs) was discussed during Polar Code deliberations amidst insufficient information and consequent support. Unlike Antarctic waters, there is no ban of HFO use and carriage as fuel in Arctic waters. Indeed, in Antarctic waters the carriage of HFOs as cargo is also banned, but such a measure is not being contemplated by the IMO for surely it would face major opposition from Arctic coastal states as well as the shipping industry. Part II-B of the Polar Code encourages states to apply a MARPOL rule which prohibits the carriage for use and use of HFOs except for vessels assisting others.¹⁹¹ This issue is under consideration both at the IMO and the Arctic Council's Protection of the Arctic Marine Environment (PAME) working group and, recently, Finland and other states proposed an outright ban to the IMO.¹⁹² Canada has appeared as stalling the initiative, but in reality the regulatory impact of such a ban in Canadian waters is not fully understood.¹⁹³ Canada has indigenous peoples that use HFOs and, for this reason, a study is underway under PAME auspices to better understand the potential impact of a prospective ban.¹⁹⁴

More recently at MEPC 72 in 2018, and following deliberations in PAME in February 2018, Canada was party to a joint submission of all Arctic states proposing an amendment to MARPOL Annex I to enable the adoption of a regional approach to the establishment of reception facilities for waste generated in Arctic waters.¹⁹⁵ Although the Polar Code and related amendments to MARPOL Annexes I, II, IV and V significantly enhance management of onboard waste and discharges into Arctic waters, there are very few port reception facilities and these are insufficient. The proposal is for a regional approach that also contemplates possible discharges in ports outside the region. There

¹⁸⁹ 'Measuring and controlling black carbon from marine engines – Summary of an International Technical Workshop', submitted by Canada and the Netherlands, IMO Doc PPR 4/INF.8 (11 November 2016).

¹⁹⁰ 'Thermal protection and ventilation in enclosed lifeboats and life-rafts', submitted by Canada, IMO Doc SSE 4/15/2 (13 January 2017).

¹⁹¹ MARPOL (n 43) Annex I art 43.

¹⁹² 'Proposal to ban heavy fuel oil use and carriage as fuel by ships in Arctic waters', submitted by Finland, Germany, Iceland, the Netherlands, New Zealand, Norway, Sweden and the United States, IMO Doc MEPC 72/11/1 (2 February 2018).

¹⁹³ 'Canada moves to dilute Finnish bid to ban dirty fuels from the Arctic' *CBC News* (20 March 2018) <https://www.cbc.ca/news/politics/finland-canada-fuel-arctic-1.4585050>.

¹⁹⁴ Record of Decisions and Follow-up Actions, PAME I-2018 (12–14 February) Québec City, Canada.

¹⁹⁵ 'Regional Reception Facilities Plan (RRFP) – outline and planning guide for the Arctic', submitted by Canada, Denmark, Finland, Iceland, Norway, the Russian Federation, Sweden and the United States, IMO Doc MEPC 72/16 (29 December 2017).

remain other environmental issues to be addressed pending future consideration at the IMO, such as the discharge of grey water¹⁹⁶ and ship-generated noise.¹⁹⁷

Conclusion

As an Arctic coastal state, Canada has far-reaching responsibilities for the protection of its unique polar environment and indigenous peoples. It is to be expected that Canada would actively promote the development of international law that recognises and empowers its efforts in protecting the region and its peoples. Canada was the first jurisdiction to address the impacts of shipping in the Arctic. It has consistently stood for the proposition that shipping in Arctic waters must be subject to the highest possible standards. Since the Arctic Waters Pollution Prevention Act enactment in 1970 and until the IMO adoption of the Arctic Guidelines in 2002, Canada has pursued this proposition through unilateral measures. On the emergence of international interest in enhancing safety and environment protection of this region, Canada readily modified its approach in favour of a blend of unilateral prescriptive regulation and multilateral voluntary guidelines in 2009. At that time, Canada further modified its approach, expressing readiness to reconsider its unilateral approach should a global mandatory regime be developed, and it buttressed this thinking with action at the regional level. It embraced the AMSA 2009 recommendations that included commitments to support the development of the Polar Code¹⁹⁸ and eventual harmonisation of national shipping regulation.¹⁹⁹

To a large extent, the Polar Code has delivered much of what Canada has laboured for since 1970. The Polar Code has been implemented and is a law of Canada. Implementation required new rules to substitute the pioneering unilateral regulations in the interest of harmonisation with new international rules and standards. At the same time, the new Canadian regulations have specific standards that are higher than those in the Polar Code, which Canada continues to justify by virtue of the sovereignty it claims over the waters of the archipelago, Article 234 of UNCLOS with respect to the waters within its EEZ and the saving clauses in the international maritime conventions protecting its rights at international law. It remains to be seen whether other interested states will consider the Canadian approach as reasonable, balanced and correct.

¹⁹⁶ 'World Wildlife Fund raises alarm about harmful "grey water" in Canada's Arctic' *CBC News* (17 August 2018) <https://www.cbc.ca/news/canada/north/grey-water-wwf-arctic-1.4788426>.

¹⁹⁷ Miriam Czarski 'Legal developments surrounding anthropogenic noise in the Arctic Ocean' (2017) 5 *Current Developments in Arctic Law* 8, 11–12, <http://lauda.ulapland.fi/bitstream/handle/10024/63182/Current%20developments%20in%20arctic%20law.%20Vol.%205.%202017-rev.pdf?sequence=4&isAllowed=y>.

¹⁹⁸ AMSA (n 187) 6: 'A. Linking with International Organizations: That the Arctic states, in recognition of the unique environmental and navigational conditions in the Arctic, decide to cooperatively support efforts at the International Maritime Organization to strengthen, harmonize and regularly update international standards for vessels operating in the Arctic. These efforts include:

- Support the updating and the mandatory application of relevant parts of the Guidelines for Ships Operating in Arctic Ice-covered Waters (Arctic Guidelines); and,
- Drawing from IMO instruments, in particular the Arctic Guidelines, augment global IMO ship safety and pollution prevention conventions with specific mandatory requirements or other provisions for ship construction, design, equipment, crewing, training and operations, aimed at safety and protection of the Arctic environment'.

¹⁹⁹ *ibid*: 'C. Uniformity of Arctic Shipping Governance: That the Arctic states should explore the possible harmonization of Arctic marine shipping regulatory regimes within their own jurisdiction and uniform Arctic safety and environmental protection regulatory regimes, consistent with UNCLOS, that could provide a basis for protection measures in regions of the central Arctic Ocean beyond coastal state jurisdiction for consideration by the IMO'.