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The Polar Code Process and Sovereignty Bargains: Comparing the Approaches of Canada and Russia to POLARIS

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ABSTRACT

Owing to a shift from the culture of compliance to the culture of benchmarking, the Polar Code process of ensuring safe operation and environmental protection in Polar waters is still ongoing. The risk and goal-based approaches embedded in significant parts of the Polar Code invite different stakeholders to participate in the development of Arctic shipping governance. The methodology used in the process, such as POLARIS, may serve as a common baseline, but its utility relies on further updates and validation. The reliability of decision-support systems depends largely on whether different stakeholders embrace the system and share their experiences to facilitate systematic updates. This article compares the approaches of the two major coastal states, Canada and Russia, to POLARIS as reflected in their coastal state systems of shipping control in the Canadian Arctic Waters and the Russian Northern Sea Route (NSR). Considering that much Arctic shipping occurs within the Canadian Arctic and the NSR, their regulatory approaches may affect POLARIS's popularity, acceptance, and, eventually, success in providing a common regulatory baseline.

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Introduction

The marine Arctic is a region of unique environmental and navigational conditions. While the gradual and continuous reduction of sea ice offers new commercial opportunities for human activities, the inevitable flip side is its impact on coastal communities and ecosystems. Owing to the additional demands on a ship's operation in the remote, vulnerable, and harsh Polar waters, the International Maritime Organization (IMO) adopted the International Code for Ships Operating in Polar Waters Polar Code in 2015.¹

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¹ IMO, International Code for Ships Operating in Polar Waters (Polar Code); the text of the Polar Code is available in IMO Doc. MEPC 68/21/Add.1, 5 June 2015, Annex 10, in force 1 January 2017.

This event, while no doubt a significant achievement, marks merely a step toward ensuring safe ship operation and environmental protection in Polar waters. The nature of the problem and the choice of methods to address it suggest that the adoption of the Polar Code is one element in a larger process of environmental problem solving.² The roots of the Polar Code (PC) process can be traced back to the 1991 German proposals to the IMO Marine Safety Committee in the wake of the 1989 *Exxon Valdez* disaster.³ The process subsequently reached a few different milestones, such as the adoption of the 2002 Guidelines for Ships Operating in Arctic Ice-covered Waters⁴ and the 2009 Guidelines for ships operating in Polar waters,⁵ and the adoption of a binding Polar Code in 2015 with the general awareness of the need for its further revision and amendment, as well as the adoption of instruments related to the Polar Code, consequential to it, or that complement it.⁶

The PC's innovative architecture creates a particularly dynamic environment for the further specification and development of international rules and regulations *after* the formal adoption of the instrument. The PC has been made effective through its incorporation via amendments to other dynamic and frequently updated IMO instruments: the International Convention for the Safety of Life at Sea (SOLAS),⁷ the International Convention for the Prevention of Pollution from Ships (MARPOL),⁸ and the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW).⁹ Moreover, it is one of the first instruments developed by the IMO that largely relies on the new regulatory paradigm, which frames selected requirements as goal-based standards (GBS). The risk and goal-based approaches represent a shift from the "culture of compliance" with prescriptive rules to the "culture of benchmarking."¹⁰ As a result, the GBS approach invites different stakeholders (states, classification societies, the maritime industry) to further co-create the law. These stakeholders or competent bodies consequently need to develop the means to meet the high-level goals

² Although the instrument itself is clearly divided into the "maritime safety" and "environmental" parts, the Polar Code's Preamble paragraph 5 recognizes the "relationship between the additional safety measures and the protection of the environment" as "any safety measure taken to reduce the probability of an accident, will largely benefit the environment."

³ For the legislative history, see Øystein Jensen, "The International Code for Ships Operating in Polar Waters: Finalization, Adoption and Law of the Sea Implications" (2016) 7 *Arctic Review on Law and Politics* 60.

⁴ IMO Doc. MSC/Circ.1056_MEPC/Circ.399, Guidelines for Ships Operating in Arctic Ice-Covered Waters, 23 December 2002.

⁵ IMO Doc. Res. A.1024(26) Guidelines for Ships Operating in Polar Waters, 18 January 2010.

⁶ R. C. Beckman, T. Henriksen, K. D. Kraabel et al., "Conclusions on Challenges and Prospects for Enhanced Cooperation on the Governance of Arctic Shipping" in R. C. Beckman, T. Henriksen, K. D. Kraabel et al. (eds), *Governance of Arctic Shipping: Balancing Rights and Interests of Arctic States and User States* (Brill Nijhoff, 2017), 433.

⁷ International Convention for the Safety of Life at Sea, adopted 1 November 1974, entered into force 25 May 1980, 1184 UNTS 277, as amended.

⁸ International Convention for the Prevention of Pollution from Ships, as Modified by the Protocol of 1978, 2 November 1973 and 17 February 1978, entered into force 2 October 1983, 1340 UNTS 61, as amended.

⁹ International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, adopted 7 July 1978, entered into force 28 April 1984, as amended and modified by the 1995 Protocol, 1361 UNTS 190, as amended.

¹⁰ A. A. Hebbbar, J. U. Schröder-Hinrichs, M.Q. Mejia et al., "The IMO Regulatory Framework for Arctic Shipping: Risk Perspectives and Goal-Based Pathways" in A. Chircop, F. Goerlandt, C. Aporta et al. (eds), *Governance of Arctic Shipping* (Springer Polar Sciences, 2020), 233.

and functional requirements through complimentary prescriptive rules or other risk-based means.¹¹

This perspective prompts attention to be paid to the methodologies used in the PC process. The Polar Operational Limit Assessment Risk Indexing System (POLARIS) is such a methodology and is an attempt to introduce a common baseline for evaluating risk to a ship and assessing operational limitations in ice.¹² It is a system developed by the International Association of Classification Societies (IACS) with technical contributions from Canada, Denmark, Finland, Russia and Sweden.¹³ The IMO has promoted it as an “acceptable methodology” that complements the requirement to carry out an operational assessment for the Polar Water Operational Manual (PWOM) and the Polar Ship Certificate (PSC).¹⁴ Recognizing the need for further revision, the IMO annexed POLARIS to the nonbinding interim Guidance, which is expected to be reviewed four years after the entry into force of the Polar Code.¹⁵ With these four years having passed on 1 January 2021 and no sign that the review process has been initiated,¹⁶ the prospects of POLARIS are uncertain.

This article compares the approaches of Russia and Canada to POLARIS, as reflected in their coastal state systems of shipping control in Canadian Arctic Waters and in the Russian Northern Sea Route (NSR). The future refinement of the tool depends on the users. One may assume that any future validation and update of POLARIS will ultimately depend on the extent to which different stakeholders consider it practicable to genuinely embrace the system and to systematically share their experiences to facilitate further validation.¹⁷ After all, the more attractive POLARIS becomes, the more accurate it may be.¹⁸ POLARIS can enhance real-time decision-making capacity for ships navigating outside the coastal state control systems, such as Canadian “Arctic Waters” or Russian “Water Area of the Northern Sea Route (NSR).” However, considering that much Arctic shipping occurs within the Canadian Arctic and the NSR, the regulatory approaches of both states may affect its popularity, acceptance, and, eventually, success in providing a common regulatory baseline.

In addition, this article aims to elucidate at a more general level the extent to which the two prominent champions of Arctic unilateralism welcome incursions of the multilateral process into their regulatory frameworks, and what might be the reasons for and consequences of their different approaches. The PC process is a prime example

¹¹ R. Hindley, “The Role of the Polar Code in Arctic Maritime Governance” in R.W. Corell, Y. Kim, A. Moe et al. (eds), *The Arctic in World Affairs: A North Pacific Dialogue on Global Arctic Interactions: The Arctic Moves from Periphery to Center* (North Pacific Arctic Conference Proceedings, Busan: Korea Maritime Institute; Honolulu: East-West Center, 2019), 182.

¹² IMO Doc. MSC 94/3/7, POLARIS—Proposed System for Determining Operational Limitations in Ice Submitted by the International Association of Classification Societies (IACS), 12 September 2014.

¹³ IMO Doc. MSC 94/INF.13, Technical Background to POLARIS, 12 September 2014.

¹⁴ IMO Doc. MSC.1/Circ.1519, Guidance on Methodologies for Assessing Operational Capabilities and Limitations in Ice, 6 June 2016.

¹⁵ *Ibid.*

¹⁶ J. Bond and R. Hindley, “Polaris: What’s Next. Industry Perspective,” presented at the 4th PAME Shipping Best Practices Information Forum, November 2020.

¹⁷ J. Bond, R. Hindley, A. Kendrick et al., “Evaluating Risk and Determining Operational Limitations for Ships in Ice,” *Offshore Technology Conference 2018 MS*, 1, 16.

¹⁸ Among the areas for the future revising, Bond et al. in *ibid.*, 15–16, refer to the refinement of Risk Index Values, speed limits, treatment of glacial ice, ice decay, and evaluating risk in icebreaker escort operations. All these issues need dedicated commitment from POLARIS users.

of international and multilateral environmental problem solving in a space historically dominated by national and unilateral approaches.¹⁹

The relationship between Article 234 of the 1982 United Nations Convention on the Law of the Sea (UNCLOS)²⁰ and the PC process is complex from both legal and axiological perspectives. From a legal perspective, potential conflicts between the instruments can be addressed through “conflict clauses” within UNCLOS, and it seems widely accepted that the adoption of the PC does not strip coastal states of their powers enshrined in UNCLOS, such as the right to adopt and enforce laws and regulations pursuant to Article 234 of the Convention.²¹ However, although Article 234 is enshrined in a multilateral and globally accepted international treaty, it represents different axiology than the PC process in that the locus of decision making under Article 234 resides with the coastal state—it is unilateral. The decision making within the international PC process is multilateral, located predominantly, but not exclusively, at the IMO. The unilateral approach can effectively complement the multilateral one in solving environmental problems, but the two pull in opposite directions.

POLARIS, which comprises a single component of the shipping regulatory framework, is selected as a “canary in the coal mine” for the purpose of comparing the approaches of Canada and Russia to the international process. POLARIS is relatively neutral, not affecting the economic or strategic interest of one state disproportionately, and is nonbinding, thus offering leeway for the coastal state to endorse or not. Following the maxim that action speaks louder than words, this article compares Canadian and Russian legislation in order to understand the extent to which their domestic legal regimes are open to a methodology that is optional and an outcome of a multilateral process.

The remainder of the article consists of three parts. The next part locates methodologies, such as POLARIS, in the landscape of Arctic shipping governance. The following part compares Canada’s and Russia’s regimes that impose limitations on ships’ access and operation in ice-infested waters within their maritime zones. The final part is devoted to a discussion teasing out the potential reasons for the different policy and practice of the two states.

POLARIS in the Landscape of Arctic Shipping Governance

Polar Code and UNCLOS

The framework for the governance of maritime shipping, which is applicable in the Arctic as elsewhere, is complex. UNCLOS sets out the jurisdictional framework, striking

¹⁹ Canada and Russia share long history of controversial policy and practice in the Arctic, including an affection for a sector theory, controversial internal waters claims, and the successful campaign on inserting Article 234 into the UNCLOS, on which both have relied to justify support for their national systems of navigation control in the Canadian “Arctic Waters” and the NSR, respectively. See J. Solski, “The Genesis of Article 234 of the UNCLOS” (2021) 52 *Ocean Development and International Law* 1.

²⁰ United Nations Convention on the Law of the Sea, adopted 10 December 1982, entered into force 16 November 1994, 1833 UNTS 3.

²¹ For discussion on the relationship between the Polar Code and Article 234, see A. Chircop, “Jurisdiction Over Ice-Covered Areas and the Polar Code: An Emerging Symbiotic Relationship?” (2016) 22 *Journal of International Maritime Law* 275, and K. Bartenstein, “Between the Polar Code and Article 234: The Balance in Canada’s Arctic Shipping Safety and Pollution Prevention Regulations” (2019) 50 *Ocean Development and International Law* 335.

a careful balance between competing interests, recognizing that the regulation of international shipping requires specific and technical rules and standards. The IMO, a specialized agency of the United Nations “in the field of shipping and the effect of shipping on the marine environment,”²² and the “competent international organization” for specific purposes,²³ safeguards the balance enshrined in UNCLOS by specifying the regulatory baseline for, among others, maritime safety and environmental protection. In most instances where UNCLOS balances coastal state jurisdiction against the navigational rights and freedoms of other states, it relies on a rule of reference to “generally accepted international rules and standards” (GAIRAS).²⁴ The adoption of the Polar Code is considered to “have raised the bar for international safety and environmental standards, i.e., redefined the international regulatory baseline.”²⁵

An important aspect of the Polar Code is that the mandatory Polar Code requirements are binding upon parties to SOLAS and MARPOL, and they can arguably serve as GAIRAS,²⁶ as referred to in selected provisions of the UNCLOS. However, the application of the international Polar Code will likely be concurrent with the application of national legal regimes for shipping in ice-covered waters, based on Article 234 of UNCLOS. During the negotiation of the Polar Code, Canada and Russia were determined to ensure that it would not impair their unilateral powers to regulate shipping.²⁷ Their practice, after the Polar Code’s entry into force, shows confidence that their strategy was successful.²⁸

Goal-Based Standards in the Polar Code

Goal-based regulation represents a new standard-setting philosophy that allows for alternative means of achieving compliance with a standard instead of prescribing a specific requirement that might become irrelevant over time.²⁹ As such, an important rationale for GBS is to tap into the potential of innovation and new technology

²² Article 59 of the Convention on the International Maritime Organization (adopted 6 March 1948, in force 17 March 1958) ATS 1958 No 5.

²³ E. Røsæg, “The Role of the International Maritime Organization in Defining and Altering the Jurisdiction of Flag, Coastal, and Port States” in H. Ringbom (ed), *Jurisdiction over Ships: Post-UNCLOS Developments in the Law of the Sea* (Brill, 2015) 369.

²⁴ The UNCLOS refers to GAIRAS, or alternatively regulations in Articles 21(2), 41(3), 53(8), 60(3) and (5), and 211(5) and (6) for coastal states, and in Articles 21(4), 39(2), 60(b), 94(5), and 211(2) for flag states. UNCLOS makes also use of a term “applicable” international rules and standards, for instance, in Articles 41(1)(b), 219, 220, 226, and 228 for coastal states, Articles 94(3)(b) and 217 for flag states, and Articles 218, 220, 226, and 228 for port states.

²⁵ A. Chircop, “Jurisdiction over Ice-Covered Areas and the Polar Code: An Emerging Symbiotic Relationship?” (2016) 22 *Journal of International Maritime Law* 275, 283.

²⁶ See the discussion in Jensen, note 3, 71–75, and T. Henriksen, “Protecting Polar Environments: Coherency in Regulating Arctic Shipping” in R. Rayfuse (ed), *Research Handbook on International Marine Environmental Law* (Edward Elgar Publishing, 2015), 378.

²⁷ D. Bogner-Lahr, “In the Same Boat? A Comparative Analysis of the Approaches of Russia and Canada in the Negotiation of the IMO’s Mandatory Polar Code” (2020) 51 *Ocean Development and International Law* 143, 147.

²⁸ The relationship between the Polar Code and Article 234 was resolved by incorporating a conflict clause in SOLAS Regulation XIV/2.5 and retaining Article 9(2) of MARPOL. After the entry into force of the Polar Code, Canada adopted legislation that includes some more stringent regulations than the Polar Code. The adoption of the Polar Code had limited explicit effect on the Russia’s NSR regime. See J. Solski, “The Northern Sea Route in the 2010s: Development and Implementation of Relevant Law” (2020) 11 *Arctic Review on Law and Politics* 383, 390.

²⁹ H. Hoppe, “Goal-Based Standards—A New Approach to the International Regulation of Ship Construction” (2005) 4(2) *WMU Journal of Maritime Affairs* 169.

development, represented by the direct engagement of national administrations and/or classification societies, as well as the industry in the GBS framework.

The Polar Code is one of the first instruments developed by the IMO that largely relies on this new regulatory paradigm, utilizing risk-based and goal-based approaches. These approaches have resulted in framing some of the Polar Code requirements as GBS. Of the two main components forming the Polar Code, the safety Part I embraces a risk-based and goal-based approach to a large extent, while the environmental Part II relies predominantly on prescriptive rules and recommendations.

According to the IMO, GBS are “high-level standards and procedures to be met through regulations, rules and standards for ships.”³⁰ The development process of GBS is distributed across five tiers of the GBS framework: Tier I Goals, Tier II Functional Requirements, Tier III Verification of Conformity, Tier IV Rules and Regulations for Ships, and Tier V Industry Practices and Standards.³¹ The GBS framework, mainly through Tier IV, opens the door for rules and regulations developed by national administrations and/or classification societies, which, upon verification of conformity to the GBS, may become part of the GBS framework. Tier V opens the door further down the line to include industry practices and standards, which may be referenced in the rules/regulations upon verification of conformity with the framework.³²

This innovative approach is reflected in the requirement to have a valid Polar Ship Certificate (PSC) on board.³³ The PSC is granted by the flag state administration or by any person or organization recognized by the administration to certify that the structure, equipment, fittings, radio station arrangements, and materials of the ship and the condition thereof are in all respects satisfactory and that the ship complies with the relevant provisions of the Code. The more substantive regulation on ship structure is framed as GBS, with the goal to provide that the material and scantlings of the structure retain their structural integrity based on global and local response according to environmental loads and conditions.³⁴ In practice, flag state administrations delegate the certification of their ships to recognized organizations, normally classification societies. These, in turn, have the discretion to take into account either standards acceptable by the IMO (IACS URI Requirements concerning Polar Class) or other standards offering an equivalent level of safety.³⁵ A vital element of the PSC is the requirement that it references a methodology to assess operational capabilities and limitations in ice,³⁶ and that the certification is based on operational assessment.³⁷

Furthermore, Chapter 2 of Part I-A of the Polar Code includes a classically framed GBS related to the Polar Water Operational Manual (PWOM), which is required on board every ship.³⁸ The goal of the PWOM chapter is “to provide the owner, operator, master and the crew with sufficient information regarding the ship’s operational

³⁰ IMO Doc. MSC.1/Circ.1394/Rev.2, Generic Guidelines for Developing IMO Goal-Based Standards, 8 July 2019.

³¹ *Ibid.*

³² *Ibid.*

³³ Polar Code, note 1, Part I-A, 1.3.1.

³⁴ Polar Code, note 1, Part I-A, 3.3.

³⁵ Polar Code, note 1, Part I-A, 3.3. 2.

³⁶ Polar Code, note 1, Part I-A, 1.3.7

³⁷ Polar Code, note 1, Part I-A, 1.5.

³⁸ Polar Code, note 1, Part I-A, 2.3.1.

capabilities and limitations in order to support their decision-making process.” As a matter of functional requirements, the PWOM needs to include ship-specific capabilities and limitations based on the operational assessment and specific procedures to be followed in normal operation, in the event of incidents, and when using icebreaker assistance.³⁹ Notably, the PWOM also needs to refer to the methodology used to determine capabilities and limitations in ice.⁴⁰ The mandatory Chapter 2 of Part I-A of the Polar Code is further supplemented by additional recommendatory guidance in Part I-B, 3 and a model table of contents is found in Appendix 2, which serves as a starting point for the ship owner, rather than offering a single way of achieving compliance. In an effort to implement the Polar Code, the shipping industry (oil companies, International Marine Forum (OCIMF), and the International Chamber of Shipping (ICS)) issued guidelines for the development of PWOM.⁴¹ Classification societies followed suit by issuing their own guidance and requiring PWOMs to be submitted for review.⁴²

Given the role of the methodologies for assessing operational capabilities and limitations in ice in the governance landscape, it may be helpful to think in terms of a Chinese box or a Russian matryoshka. UNCLOS relies on the IMO and its instruments to provide specific baselines as a point of reference for the jurisdictional balance, for instance, by providing specific construction, design, equipment, and manning standards (CDEM). The Polar Code passes the baton further down by recognizing that the specific baseline for the different standards of ships’ construction and operation, as reflected in the PSC and PWOM, may be located at the level of the methodology for the Operational Assessment.

Polar Operational Limit Assessment Risk Indexing System (POLARIS)

POLARIS’s principal utility lies in its ability to translate operational challenges posed by ice conditions to facilitate safe decision making. It operationalizes partial concentrations (combination of various ice types and open water), summer/winter conditions, and icebreaker escort.⁴³ POLARIS uses different risk index values (RIVs) assigned to a ship based on the ice-class (IACS Polar Class and Finnish–Swedish Ice Class) and the ice type. The Risk Index Outcome (RIO), which is determined by a summation of the relevant RIVs, is the main value to assess limitations for operation in a given ice regime (an area with a relatively consistent distribution of any mix of ice types, including open water). In essence, POLARIS offers a tool for calculating the function of the different ice types in the ice regime and the ice class to determine a RIO. A positive RIO means an acceptable risk level for “normal operation,” and a negative RIO means either “elevated operational risk” or “operation subject to special consideration.”⁴⁴ As such, the RIO works similarly to a system of traffic lights, although the

³⁹ Polar Code, note 1, Part I-A, 2.2.

⁴⁰ Polar Code, note 1, Part I-A, 2.3.2.

⁴¹ International Chamber of Shipping and Oil Companies International Marine Forum, *Guidelines for the Development of a Polar Water Operational Manual*, 2019.

⁴² See Submissions concerning the PWOM at: <https://pame.is/chapter-2> (accessed 2 March 2023).

⁴³ IMO Doc. MSC 94/INF.13, note 13.

⁴⁴ IMO Doc. MSC.1/Circ.1519, note 14.

IMO Guidance warns that no system or methodology should be interpreted as a “go/no go” tool, but rather, they should be used as decision-supporting tools. An RIO may be used at the stage of planning and construction of a ship, certification by the flag state or a classification society, by underwriters to assess risk, by ship owners for voyage planning, and by shipmasters for the real-time decision making for the ice regime directly ahead.⁴⁵

The IMO adopted nonbinding Guidance in 2016⁴⁶ to complement the requirement to carry out the operational assessment for the PWOM and the PSC. The Guidance recognizes that there may be different methodologies for the practical assessment of operational limitations in ice. It specifically provides details of the application of POLARIS as an example of an “acceptable methodology,” but does not preclude the use of alternative methodologies, such as the Canadian Arctic Ice Regime Shipping System (AIRSS) and the Russian Ice Certificate/Passport.

Comparison of Canada’s and Russia’s Coastal State Regulations

This section focuses on the specific utility of POLARIS, which is its ability to assist real-time decision making by ship owners for voyage planning and to assist ship masters for decision making for the ice regime directly ahead. As such, the central objective of this section is to investigate to what extent the national coastal state systems of control welcome decentralized real-time decision making. A second related question is, what classification standards do Russia and Canada rely on in their coastal regimes, and how do they provide for ice-class equivalency? POLARIS was primarily developed by reference to IACS Polar Classes and Finish–Swedish Ice Class rules, supported by experience from Canada’s and Russia’s systems. An important issue is the lack of full compatibility between the systems. In developing POLARIS, estimates were made of approximate equivalence between IACS rules and the rules developed by the Russian Register of Maritime Shipping (RMRS), but the latter standards were used instrumentally to validate the level ice limitations curve for ships with IACS Polar Classes.⁴⁷

Canada’s Arctic Waters

Canada’s regime for operational limitation in the “Arctic waters” relies on several legal instruments: the Arctic Waters Pollution Prevention Act 1985 (AWPPA),⁴⁸ the Shipping Safety Control Zones Order made under the AWPPA,⁴⁹ and the Northern Canada Vessel Traffic Services Zone Regulations 2010.⁵⁰ Canada implemented the PC primarily

⁴⁵ L. Fedi, L. Etienne, O. Faury et al., “Arctic Navigation: Stakes, Benefits and Limits of the POLARIS System” (2018) 13 *Journal of Ocean Technology* 54, 64–65.

⁴⁶ IMO Doc. MSC.1/Circ.1519, note 14.

⁴⁷ IMO Doc. MSC 94/INF.13, note 13.

⁴⁸ Arctic Waters Pollution Prevention Act (R.S.C., 1985, c. A-12).

⁴⁹ Shipping Safety Control Zones Order (C.R.C., c. 356).

⁵⁰ Northern Canada Vessel Traffic Services Zone Regulations (SOR/2010-127).

through the Arctic Shipping Safety and Pollution Prevention Regulations (ASSPPR) adopted in 2017.⁵¹

Canada has subdivided its Arctic waters into 16 shipping safety control zones.⁵² Access to each zone is determined through the Zone/Date Shipping Safety Control Scheme (ZDS) under the ASSPPR. The ZDS is simple, predictable, and essentially very prescriptive, as it relies on historical data to predict the probable ice conditions in each zone at different times of the year and, based on that, allows or prohibits the operation of ships with different ice-class notations.

Concerning the ice-class notations, Canadian legislation relies on the Canadian Arctic Class, Canadian Arctic Category (CAC), and Types (A, B, C, D and E), based on the Finnish–Swedish (Baltic) Rules, as the point of reference for the construction standard used in the Zone/Date scheme.⁵³ Schedule 2 of the ASSPPR includes a table of ice-class equivalence, but this is not applied automatically. The Minister of Transport has the power to issue an equivalency for vessels built to the polar standards of other classification societies.⁵⁴ Transport Canada has clearly supported full implementation of the IACS UR.⁵⁵ As an interim measure, the establishment of equivalency for some Polar Classes (PC 6 and 7 and PC 1 and 2) is more streamlined.⁵⁶ For other Polar Classes (PC 3, 4, and 5), it will be necessary to assign ice multipliers based on submissions from vessel owners on a case-by-case basis, subject to verification by Transport Canada.⁵⁷

In 1996, Canada introduced the Arctic Ice Regime Shipping System (AIRSS) with the intention that it would supplement and eventually lead to the phasing out of the rigid ZDS.⁵⁸ The AIRSS constitutes a regulatory standard, originally under the ASSPPR and now under the ASSPPR, to enhance the safety and efficiency of shipping operations in the Canadian Arctic.⁵⁹ It characterizes the relative risk posed by different ice conditions to the structure of different ships. The AIRSS is premised on the arithmetical calculation of the strength of the ship relative to the danger posed by different ice regimes (conditions). The result of the calculation gives an ice numeral. Zero or a positive ice numeral means that ice regimes are not likely to be hazardous. A negative ice numeral means that ice regimes can be dangerous. Intentional entry into a negative ice regime outside the Zone/Date limits is prohibited.⁶⁰ As such, the AIRSS introduced flexibility to better reflect the changing patterns of sea-ice distribution in real time. It can either extend the operation period beyond the rigid Zone/Date prescription if the calculation of the encountered ice regimes are positive, or it can restrict the operation period if the calculation gives a negative result. Under the AIRSS, icebreaker

⁵¹ Arctic Shipping Safety and Pollution Prevention Regulations (SOR/2017-286).

⁵² Shipping Safety Control Zones Order (C.R.C., c. 356), Schedule 2.

⁵³ Section 8(1) and Schedule 1 of the ASSPPR.

⁵⁴ Section 8(4) of the ASSPPR.

⁵⁵ Transport Canada, Ship Safety Bulletin No 04/2009, IACS Unified Requirements for Polar Class Ships, Application in Canadian Arctic Waters, 18 August 2009.

⁵⁶ *Ibid.*

⁵⁷ *Ibid.*

⁵⁸ Transport Canada, User Assistance Package for the Implementation of Canada's Arctic Ice Regime Shipping System (AIRSS), TP 12819, May 1998 (repealed), Item 2.2.

⁵⁹ See Transport Canada, Arctic Ice Regime Shipping System (AIRSS) Standard, TP 12259E, January 2018.

⁶⁰ See the information about the AIRSS on the website of Transport Canada, at: <https://www.tc.gc.ca/eng/marinesafety/debs-arctic-acts-regulations-airss-291.htm> (accessed 2 March 2023).

assistance is an option to alleviate negative ice regime numerals for specific ships.⁶¹ The methodology provides some specific guidance on the calculation of Ice Numerals for the icebreaker track, depending on the relative sizes of the beam of the icebreaker and the escorted ship.

After the adoption of the Polar Code, the decision was made to implement it by adopting a new regulation, the Arctic Shipping Safety and Pollution Prevention Regulations (ASSPPR). One of the consequences of adopting this instrument was repealing the ASPPR. The ASSPPR retained the long-standing regime based on ZDS and AIRSS, but also introduced POLARIS as a preferred option, especially in the long term. The ASSPPR stipulates that all Polar Class vessels, and vessels built after 1 January 2017, are required to use POLARIS to navigate the shipping safety zone outside the operational window determined by the Zone/Date Scheme (ZDS).⁶² Although it allows for the use of AIRSS for older ships, Canadian legislation will eventually lead to a phase-out of AIRSS.⁶³ To the extent that POLARIS is essentially an updated version of the Canadian AIRSS, it is not particularly surprising that Canada decided to embrace POLARIS, while the differences between the two explain why AIRSS is being phased out.⁶⁴

However, the flexibility of decision making based on AIRSS and POLARIS is subject to specific limitations under Canadian legislation. First, there is a requirement to have an ice navigator on board vessels when they navigate outside the Zone/Date windows.⁶⁵ Second, no vessel may enter a shipping safety control zone based on AIRSS or POLARIS unless the master of the vessel sends a message to the Minister and receives an acknowledgment of the message.⁶⁶ Third, Section 126(3)(a) of the 2001 Canada Shipping Act⁶⁷ includes a requirement to obtain clearance before a vessel can enter, leave, or proceed within a Vessel Traffic Services (VTS) Zone, such as NORDREG. The requirement applies to the entire VTS Zone, extending to the waters of the Canadian Arctic Archipelago and the Canadian exclusive economic zone (EEZ). A contravention of the clearance obligation is an offense punishable by Canadian law with a fine of not more than 100,000 CAD and imprisonment of not more than one year.⁶⁸ In addition, a vessel may be subject to detention.⁶⁹ The powers of Canada's marine communications and traffic services officers are broadly defined to include the grant of clearance to a vessel to enter, leave or proceed within the VTS Zone,⁷⁰ direct the vessel to leave the VTS Zone,⁷¹ or direct the vessel to leave or refrain from entering any specified area.⁷²

⁶¹ Transport Canada, Arctic Ice Regime Shipping System (AIRSS) Standard, note 59.

⁶² Section 8(2) of the ASSPPR.

⁶³ A. Chircop, P. G. Pamel and M. Czarski, "Canada's Implementation of the Polar Code" (2018) 24 *Journal of International Maritime Law* 428, 445.

⁶⁴ Transport Canada, Regulatory Impact Analysis Statement, *Canada Gazette* 151 (26), 1 July 2017, recognized that the AIRSS and POLARIS, although similar, constitute unique methodologies that may provide different results for identical vessels. Therefore, the decision has been made to phase out AIRSS and require that vessels built after 1 January 2017 that do not use Zone/Date System (ZDS), use POLARIS.

⁶⁵ Section 10 (1) of the ASSPPR.

⁶⁶ Section 9 (1) of the ASSPPR.

⁶⁷ Canada Shipping Act, 2001 (S.C. 2001, c. 26).

⁶⁸ Section 138 (1) and (2) of the Canada Shipping Act.

⁶⁹ Section 138 (4) of the Canada Shipping Act.

⁷⁰ Section 126 (3) (a) of the Canada Shipping Act.

⁷¹ Section 126(3) (d) (i) of the Canada Shipping Act.

⁷² Section 126(3) (d) (ii) of the Canada Shipping Act.

It appears then that the officers' discretion is unconstrained by any other specific regulations.

Based on the above, it is clear that one of the underlying themes that informed Canada's management of ship operation in its ice-infested Arctic Waters has been to move from the rigidity of prescription based on the historical data to the flexibility offered by risk-based approaches. In essence, POLARIS relies on the same philosophy and, as such, is compatible with Canadian policy.

Russia's Northern Sea Route

The formation of the contemporary legal regime of the NSR goes back to the adoption of the 2012 Federal Law,⁷³ which overhauled the outdated legal framework to provide a basis for more specific regulations.⁷⁴ Russia's regime for operational limitations in the Northern Sea Route relies primarily on the Rules of Navigation in the Water Area of the Northern Sea Route (2020 NSR Rules),⁷⁵ but incidentally, also on the rules developed by the Russian Register of Maritime Shipping (RMRS). This subsection focuses on the two aspects of the Russian regime. First are the conditions of access to the NSR and the methodology used in the Criteria for Admission to the NSR (the Criteria), an integral component of the 2020 NSR Rules.⁷⁶ Second is the real-time decision-making capacity residing with individual ship masters navigating the NSR.

Conditions of Access to the NSR

One of the most relevant elements of the coastal regime is the requirement to obtain permission to enter and navigate within the "water area of the NSR."⁷⁷ The applicant is required to submit to the Administration of the NSR (ANSR) information about the ship and its voyage, and to submit copies of classification and insurance certificates, including the Polar Ship Certificate. Compared with the previously applicable 1990 Rules,⁷⁸ there is no mandatory inspection in a Russian port, and the entire application process can be conducted via digital means. As such, the reform of 2012/2013 liberalized access to the NSR.

The ANSR decides whether to grant or withhold a permission based on the Criteria.⁷⁹ These provide a matrix for the admissibility of ships to 28 zones, depending on the ice class, icebreaker assistance, and current ice conditions. A recently introduced change requires the ANSR to consult on decisions concerning permissions with the Russian State Energy Corporation (Rosatom), which, according to the recent amendment of

⁷³ Federal Law on Amendments to Specific Legislative Acts of the Russian Federation Concerning the State Regulation of Merchant Shipping in the Water Area of the NSR, 28 July 2012, No. 132 FZ.

⁷⁴ Primarily by adding Article 5.1 "Navigation in the water area of the Northern Sea Route" to the Merchant Shipping Code of the Russian Federation, 30 April 1999, No. 81 FZ, SZRF, 3 May 1999 No. 18 p. 2207 (as amended).

⁷⁵ Decree of the Government of the Russian Federation on Approval of the Rules of Navigation in the Water Area of the NSR, 18 September 2020, No. 1487 (2020 NSR Rules). This Decree superseded the previously applicable Rules of Navigation in the Water Area of the Northern Sea Route, as approved by the order of the Ministry of Transport of Russia, 17 January 2013 № 7, registered by the Ministry of Justice 2 April 2013 No. 28120 (2013 NSR Rules).

⁷⁶ Appendix 2 to the 2020 NSR Rules.

⁷⁷ 2020 NSR Rules, Item 3.

⁷⁸ The 1990 Regulations for Navigation on the Seaways of the Northern Sea Route, approved 14 September 1990, published 18 June 1991 in 29 Izveshcheniya Moreplavatelyam.

⁷⁹ Appendix 2 to the 2020 NSR Rules.

the Merchant Shipping Code, takes over the responsibility for granting and withholding permissions and obtains a mandate to suspend, resume, or cancel permissions.⁸⁰

The specific methodology behind the permission scheme is developed in the Criteria. First, they distinguish among “heavy,” “medium,” and “light” ice conditions and “clean water,” determined in accordance with the official information of the Russian Federal Hydrometeorological Service (Roshydromet). The information about the current ice conditions is distributed by the ANSR, which posts hydrometeorological and ice forecasts 72 hours in advance for the different zones of the NSR,⁸¹ as well as long-term ice forecasts and updates to them.⁸²

The Criteria are organized into three sections, divided with different class notations in mind. The first section applies to vessels with no ice strengthening and vessels with low ice classes, Ice1–Ice3.⁸³ Such vessels are generally only allowed to navigate in the “summer” period, and then the specific regime of access is determined by additional factors, such as the actual ice conditions and availability of icebreaker assistance.

The second section applies to vessels deemed to have a sufficient ice class for the Arctic, namely, Arc4–Arc9. This section is the most nuanced as it provides a large variation of admissibility, largely dependent on the type of ice conditions. Arc4–Arc9 ships are always allowed to navigate independently as long as the ice conditions are “clear water” or “light.” When the type of ice conditions is deemed “medium” or “heavy,” the admissibility will depend on the zone, icebreaker assistance, and ice class.

The third section deals with the admission criteria for vessels with Icebreaker 6–7 notation. They can generally navigate independently during the navigation period between 1 July and 30 November, but outside that period, they may require icebreaker assistance depending on the ice conditions.

As noted above, for the notion of “ice class,”⁸⁴ the Criteria rely on ice-class notations developed by the Russian Maritime Register of Shipping (RMRS).⁸⁵ As part of the implementation of the Polar Code, there was an unsuccessful attempt to introduce an annex to the 2013 NSR Rules with a chart of equivalence between class notations of the Russian registry and other foreign notations (including those used in the Polar Code).⁸⁶ The proposal was dropped at the stage of the registration of the amendment

⁸⁰ Federal Law on Amendments to Article 5.1 of the Merchant Shipping Code of the Russian Federation and the Federal Law on the State Atomic Energy Corporation Rosatom, 28 June 2022, No. 184 FZ, available at: <http://actual.pravo.gov.ru/text.html#num=0001202206280001> (accessed 2 March 2023).

⁸¹ 2020 NSR Rules, Item 42 (i).

⁸² 2020 NSR Rules, Item 42 (k).

⁸³ It is worth noting that under the 1990 NSR Regulations the entire category of ships dealt with under the first section of Annex 2 was not allowed to navigate on the NSR at all. Item 2.2 of the 1996 Requirements for the Design, Equipment, and Supplies of Vessels Navigating the NSR imposed a minimum ice class requirement of Arc4 for ships to navigate on the NSR.

⁸⁴ With the amendment adopted by the Order of the Ministry of Transport on the Introduction of Amendments to the Rules of Navigation in the water area of the Northern Sea Route, adopted by the Order of the Ministry of Transport of 17 January 2013, No. 7, 9 January 2017, No. 5, registered by the Ministry of Justice 7 March 2017 No. 45866., the term “ice class” was substituted for the previously used notion of “ice strengthening.”

⁸⁵ The notations used in the 2013 NSR Rules refer to the Rules for the Classification and Construction of Sea-Going Ships, developed by the Russian Maritime Register of Shipping.

⁸⁶ The revised text of the draft Order of the Ministry of Transport of the Russian Federation “On Amendments to the Rules of Navigation in the Water Area of the Northern Sea Route, Approved by Order No. 7 of the Ministry of Transport of the Russian Federation of January 17, 2013” (prepared by the Ministry of Transport of Russia on 05.10.2016) included Annex 3 with a Chart of Equivalence.

by the Ministry of Justice,⁸⁷ and there is no record of any discussions pointing to the reasons for this decision. Neither of the more recent amendments of the NSR Rules of Navigation includes any specific mechanism for granting equivalence to ships certified with Polar Class by other classification societies. The application of the Criteria for ships not certified by the RMRS is made on a case-by-case basis by the ANSR when it processes the application for permission.

After the entry into force of the Polar Code, the RMRS amended its Rules for the Classification and Construction of Sea-Going Ships. The 2019 RMRS Rules provide the framework for the classification of ships intended for operation in Russian Arctic waters in accordance with the RMRS ice classification (Ice1, Ice2, Ice3, Arc4, Arc5, Arc6, Arc7, Arc8, Arc9) and Icebreaker6–9.⁸⁸ The 2019 RMRS Rules allow shipowners to obtain a double or triple class, with the IACS Polar Class and/or the Baltic ice-class notations to be added simultaneously with the RMRS notations.⁸⁹ Moreover, the 2019 RMRS Rules do not reference the Russian Ice Passport/Certificate, unlike the pre-Polar Code editions. The 2017 RMRS Rules quite firmly recommended using the Ice Passport/Certificate in the following language:

It is assumed that during service the shipowner will follow the recommendations of the Ice Navigation Ship Certificate issued by the Register upon shipowner's request and specifying the conditions of safe operation of the ship in ice depending on the ice class mark, the ship's specific features, ice conditions and icebreaker support.⁹⁰

To the extent that the Russian Ice Certificate has been recognized as an alternative methodology to POLARIS,⁹¹ the ambivalence of the 2019 RMRS Rules, which mentions neither of the two, has been criticized for contradicting Russia's policy in international negotiations.⁹² As such, the lack of a clear recommendation to use a Russian Ice Passport/Certificate can be perceived as a welcoming attitude by the RMRS toward the international standard. On the other hand, the compatibility among different standards and methodologies may matter more than a recommendation. To the extent that the 2020 NSR Rules use the RMRS notations as a reference point, it may be more practical for shipowners to certify the ships intended for the NSR with RMRS notations, adding the optional Polar Class to the Polar Class Certificate, which is also required for the NSR permission. POLARIS, which has not been developed with RMRS notations in mind, may not always be fully compatible with the RMRS notations in the same way as the Russian Ice Certificate.

Real-Time Decision Making

Given that the Russian 2020 NSR Rules provide for a system similar to the Canadian ZDS, a pertinent question is whether they leave any room for real-time decision making, akin to AIRSS or POLARIS. The main element that ensures real-time

⁸⁷ The 2017 Order of the Ministry of Transport, note 84, does not include Annex 3 with a Chart of Equivalence.

⁸⁸ Sections 2.2.3.2–3 of the 2019 RMRS Rules for the Classification and Construction of Sea-Going Ships.

⁸⁹ Section 2.2.3 of the 2019 RMRS Rules for the Classification and Construction of Sea-Going Ships.

⁹⁰ Section 2.2.3.4 of the 2017 RMRS Rules for the Classification and Construction of Sea-Going Ships.

⁹¹ IMO Doc. MSC.1/Circ.1519, note 14.

⁹² L. G. Tsoy, "O Ledovoi Klassifikatsii Pravil morskogo Registra" Proatom, 26 November 2011, at: <http://www.proatom.ru/modules.php?name=News&file=article&sid=9450> (accessed 2 March 2023).

flexibility is the reference to the type of ice conditions in the Criteria. However, the 2020 NSR Rules do not explicitly allow a ship master to rely on a methodology, such as POLARIS, to enter a zone outside the window prescribed to it by the Criteria.

Moreover, a recent significant development—the resurrection of the Marine Operation Headquarters (MOHs)—is a step toward more top-down and active control over ship operations in the NSR. The body, previously performing an executive function in the organization of navigation on the NSR,⁹³ had been abolished with the adoption of the 2013 NSR Rules.⁹⁴ This left the ANSR responsible for ensuring the safety of navigation and environmental protection from vessel-source pollution in the water area of the NSR. However, the tasks of the ANSR were generally limited to administering the permit scheme and sharing information.⁹⁵ The 2013 NSR Rules allowed independent (without icebreaker assistance) navigation and left a measure of flexibility and responsibility for maritime safety to individual vessels.

The 2020 NSR Rules,⁹⁶ based on the 2018 amendments to the 1999 Merchant Shipping Code of the Russian Federation,⁹⁷ reintroduced the operation of the MOHs, this time established by Rosatom. The MOHs are the recipients of the detailed reports (upon entry, leaving, and daily reports).⁹⁸ A ship master is required to notify the MOHs about the planned arrival time at the relevant boundary 48 hours in advance.⁹⁹ The notification must include detailed information regarding, inter alia, the ship, the crew, type and amount of cargo, fuel capacity and destination. Further reports are required upon entering and leaving the area of the NSR.¹⁰⁰ In addition, after crossing the Eastern or the Western boundary, a daily report with information about the ship and the observed navigational conditions is required.¹⁰¹ Moreover, the MOHs provide shipmasters with detailed information on the ice situation, recommended routes, warnings about especially dangerous ice phenomena, and, if necessary, instructions for ships to ensure the safety of navigation.¹⁰² The new Order of the Ministry of Transport on the Rules for Guiding of Ships in the sea lanes in the water area of the NSR provides more detail on the interaction of ships navigating independently with the MOHs.¹⁰³ The MOHs will guide ships on the recommended itinerary, provide

⁹³ Item 1.7 of the 1990 Regulations defined MOHs as special navigational services of the Murmansk and Far East Shipping Companies, directly performing ice operations on the NSR, under the general coordination by the Administration of the NSR. They were responsible to organize shipping in the NSR and were entitled to prescribe one of five types of "guiding" (shore-based, aircraft, conventional or icebreaker guiding, or icebreaker assisted pilotage) in order to ensure maritime safety and provide favorable conditions for navigation. Ships navigating the NSR were effectively under constant and active control of the MOHs, which, under Item 7.2–3 of the 1990 Regulations, had full discretion to assign the course of navigation to individual ships.

⁹⁴ See further J. Solski, "Russia" in R. C. Beckman, T. Henriksen, K. D. Kraabel et al. (eds), *Governance of Arctic Shipping: Balancing Rights and Interests of Arctic States and User States* (Brill Nijhoff, 2017), 182.

⁹⁵ Article 5.1(3) of the 1999 Merchant Shipping Code as amended by the 2012 federal law.

⁹⁶ The 2020 NSR Rules, note 75.

⁹⁷ Federal Law on Amendments to specific legislative acts of the Russian Federation, 27 December 2018, No. 525 FZ, SZRF 31 December 2018 No. 53 at 8451.

⁹⁸ Items 18–24 of the 2020 NSR Rules.

⁹⁹ Item 18 of the 2020 NSR Rules.

¹⁰⁰ Items 19–22 of the 2020 NSR Rules.

¹⁰¹ Item 24 of the 2020 NSR Rules.

¹⁰² Item 30 of the 2020 Rules.

¹⁰³ Order of the Ministry of Transport on the Rules for Guiding of Ships on the Sea-lanes in the Water Area of the NSR, No 18, 24 January 2022, registered in the Ministry of Justice 1 June 2022 with No 68658, in force 1 September 2022.

information and warnings concerning the ice conditions, and determine the procedures to be followed in the event of encountering ice regimes exceeding the ship's capabilities. The MOHs will also be entitled to give specific instructions concerning the safety of navigation.

The competence to give instruction to ships is remarkable in the context of real-time decision making. Notably, the ANSR's mandate between 2013 and 2020 did not include active interference with ships' operations. During that time, only ships operating under icebreaker assistance were required to follow the instructions. Ships that navigated independently were only required to stick to their navigational plan. The 2020 NSR Rules tighten the coastal state's control of ships' operation, regardless of whether they are navigating independently or with icebreaker assistance, also concerning real-time decision making. The new set of rules adopted in 2022 follows the same philosophy.¹⁰⁴

Finally, the way Russian legislation approaches icebreaker assistance may also impact real-time decision making by shipmasters. The amendments introduced in recent years stimulate users to book icebreaker assistance services in advance and reinforce the centralized oversight system over the operating ships subject to icebreaker assistance. The 2020 NSR Rules consider the availability of icebreaker assistance as a criterion for the Zone/Date scheme of admissibility. Since 2020, there has been a new requirement to submit a copy of the contract for icebreaker assistance for ships for which such escort is mandatory, attached to the application for permission. This change is procedural rather than substantive, but it may push the shipowners to consider more seriously, and plan for, icebreaker assistance when planning operations.

Another more recent addition to the regime is the adoption of the Rules of the icebreaker assistance of ships in the water area of the Northern Sea Route.¹⁰⁵ It imposes a tiered order of responsibility. Shipmasters of vessels subject to convoy operations or individual assistance are required to obey instructions from the icebreakers, which is not a novelty. However, the organizations rendering icebreaker assistance are also subject to oversight by the MOHs, which gains a new competence to give instructions to the captains of the operating icebreakers and to determine the location of icebreakers in the NSR.

As noted above, Canada's legislation requires the use of an ice navigator as an important offset for the uncertainty of real-time decision making based on POLARIS. In this context, it is remarkable that the 2020 NSR Rules provide specific rules for ice pilotage, but they fail to clarify under which conditions, if ever, ice pilotage is mandatory.¹⁰⁶ The confusion has led to some speculation in literature,¹⁰⁷ but the recent statement by Vasilyi Ilyin¹⁰⁸ has clarified that ice pilotage is not compulsory under the 2020 NSR Rules.¹⁰⁹ The recently adopted set of Rules for ice pilotage addresses

¹⁰⁴ Ibid.

¹⁰⁵ Order of the Ministry of Transport, On the Rules for Icebreaker Assistance in the Water Area of the NSR, No 17, 12 January 2022, registered in the Ministry of Justice 1 June 2022, No 68662, in force 1 September 2022.

¹⁰⁶ Item 36 of the 2020 NSR Rules.

¹⁰⁷ See J. Solski, "The Northern Sea Route in the 2010s: Development and Implementation of Relevant Law" (2020) 11 *Arctic Review on Law and Politics* 383, for a discussion on this point.

¹⁰⁸ Deputy Director for Navigation Safety and Operations of the FSUE "Rosmorport," Arkhangelsk Branch.

¹⁰⁹ Vasilyi Ilyin, Ice Pilotage in Russian Arctic, presented at the 5th meeting of the PAME Arctic Shipping Best Practice Information Forum, 16–18 November 2021, at: https://www.pame.is/images/03_Projects/Forum/5th_meeting/

the questions of certification of pilots and the exercise of pilotage assistance, not the fundamental question of the mandatory nature of the requirement.¹¹⁰

Summing up, the regime of the Russian NSR resembles the Canadian ZDS and does not allow a shipmaster to rely on a methodology, such as POLARIS, to enter a zone outside the window prescribed to it by the Criteria. Moreover, the reintroduction of the MOHs facilitates more top-down and active control over ships. The MOHs are the recipients of the detailed reports, provide shipmasters with information and recommendation on the ice situation, and, if necessary, can give instructions to ensure the safety of navigation. The reintroduction of the last element is notable in the context of real-time decision making. Between 2013 and 2020, only ships that were operating under icebreaker assistance were required to follow the icebreaker's instructions. As such, Russia first liberalized the legal regime of passage in the NSR by requiring the ships to report to the ANSR by means of largely one-way communication, akin to a ship reporting system (SRS). The 2013 NSR Rules did not provide the ANSR with the capacity to affect ships' conduct in a meaningful way. This policy has recently been counterbalanced by giving more powers to Rosatom and creating a regime more akin to Vessel Traffic Service (VTS). Moreover, Rosatom, a parent organization to Atomflot, the major operator of Russian icebreakers, is expected to gain a more comprehensive mandate to regulate navigation on the NSR.

Summary

Both Canada and Russia have regularly updated their systems of coastal control before and after the entry into force of the Polar Code. Both introduced elements of flexibility for real-time decision making, presumably reflecting the understanding of the dynamic nature of ice conditions. At the same time, their approaches demonstrate some clear differences. The rigidity of Canada's prescriptive date/zone scheme can be overcome by using more flexible Canadian AIRSS or international POLARIS. There is also a clear preference for the international system as the default one in the longer term. The risks of the adverse effects of the flexibility offered by these systems are counterbalanced with other requirements, such as ice navigator, clearance, and reporting. Canadian legislation does not assign automatic equivalence of ice notations, but there seems to be a clear policy to adopt them in the long run. The direction of Canada's thinking is very much in line with the philosophy behind POLARIS, and the Polar Code itself. Canada's implementation of the Polar Code is very supportive of the harmonization of safety standards (Polar Classes, POLARIS), while retaining some unilaterally established offsets and adopting more stringent environmental regulations.

In Russia, the introduction of a date/zone system with the 2013 NSR Rules can be perceived as introducing flexibility, with the main modality linked with the types of ice conditions and icebreaker assistance. The regulations have never explicitly provided any room for an individual shipmaster to operate in a zone outside the prescribed

[Presentations/Session_4_-_Ilyin_.pdf](#) (accessed 2 March 2023).

¹¹⁰ Order of the Ministry of Transport, On the Rules for Ice Pilotage of Ships in the Water Area of the NSR, No 17, 24 January 2022, registered in the Ministry of Justice 1 June 2022, No 68662, in force 1 September 2022.

window based on a methodology for risk assessment. The Russian Ice Certificate is not mandatory, and the most recent RMRS Rules do not strongly recommend its use anymore. The Ice Certificate helps determine the safe speed in different ice conditions, rather than facilitating real-time decision making regarding whether to enter a specific zone. The latter is fully prescribed in the Criteria. In addition, the shipmasters can be required to obey instructions from the icebreakers or pilots if the ships are eligible for assistance, and from the MOHs if they are navigating independently. The coastal state regulations adopted after the entry into force of the Polar Code implemented the Code to a limited degree, embracing the mandatory part of the Code, such as adding the requirement to carry the PSC. There was little effort to embrace other nonbinding components in support of the broader idea of the Polar Code, such as POLARIS. The main focus of the new amendments was to reflect the domestic power redistribution and reorganization of the NSR. As a result, the reintroduction of MOHs essentially strengthened coastal control over real-time decision making by ships, regardless of whether they use icebreaker assistance. As such, the NSR legal regime has not become particularly conducive to the use of POLARIS. While this factor should not be considered decisive for future refinement prospects, it is not surprising that POLARIS is not the methodology of choice for ships classed by the RMRS engaged on voyages via the NSR.¹¹¹

What Explains the Different Policy Choices of Canada and Russia Concerning POLARIS?

The previous section demonstrates that the two legal regimes differ in terms of their conduciveness toward POLARIS. What is particularly interesting is that Canada has adopted legislation gradually phasing in POLARIS, while Russia's most recent legal developments take the opposite direction by granting more real-time control over ships to the reestablished MOHs. The discussion in this section aims to speculate about the reasons for the different policy choices of Canada and Russia concerning POLARIS. Inspired by Litfin's problematization of the multidimensional institution of sovereignty, subject to reconfiguration in the process of environmental problem solving,¹¹² the discussion is organized by the central themes of control, legitimacy, and autonomy to discuss the possible reasons why the two coastal states have taken different paths.

The legal principle of sovereignty is the cornerstone of international law, well reflected at the different levels of governance of Arctic shipping. The global rules, principles, and standards, such as those included in the Polar Code, become effective once states express their consent at the IMO.¹¹³ The work of the relevant regional bodies, such as the Arctic Council and the Protection of the Marine Environment working group (PAME), relies on political will and mandate from the sovereign states. Finally, the domestic comprehensive regulatory regimes adopted by Canada and Russia rely on coastal state jurisdiction, agreed upon in a multilateral instrument, to which

¹¹¹ J. Bond, IMO POLARIS IACS Overview, presentation at the 4th PAME Shipping Best Practices Information Forum, November 2020.

¹¹² Karen T. Litfin, "Sovereignty in World Ecopolitics" (1997) 41 *Mershon International Studies Review* 167, 169.

¹¹³ Note that the IMO's tacit acceptance procedure does not change the fundamental principle of state consent. One can view this as a technique to speed up decision making.

all state parties have given their consent. As such, the development of shipping standards in the Arctic, regardless of the governance level, does not undermine sovereignty in its formal, legal sense.

Litfin problematizes the nexus between sovereignty and environmental problem solving through conceptualizing its different operational dimensions subject to bargains in environmental problem solving, such as the negotiation or further strengthening of the Polar Code. The first dimension is *control*, understood as the ability to produce an effect on the objects of control, which, in the context of the environment–sovereignty nexus, include the people and natural resources within the territory, as well as externally generated processes that might affect them.¹¹⁴ The second dimension, *autonomy*, refers to independence, closely related to the principle of nonintervention, here understood as the autonomy relative to the external actors, such as other states or external interest groups. An inherent feature of international cooperation is that full autonomy is inevitably sacrificed. In the context of the governance of shipping and its overarching ambition for harmonization and uniformity of shipping standards, as reflected in many provisions of the UNCLOS and the role of the IMO, regulatory autonomy of individual states is generally discouraged, if not unwanted. The third dimension is *legitimacy*, understood as the recognized right to make rules.¹¹⁵

Control

Both Canada and Russia attach great importance to control over the negative effects of shipping on the marine environment, exemplified by their domestic regulatory regimes and active participation in negotiating the Polar Code. For Canada, the possible negative consequences of shipping in the Arctic have been described as the *raison d'être* for the development of the domestic regulatory regime,¹¹⁶ and a clear policy objective, with respect to which Canada takes a rather uncompromising position. This is also visible after the entry into force of the Polar Code, as Canada relies on Article 234 of UNCLOS to adopt more stringent standards than the Polar Code discharge standards.¹¹⁷ Russia's concern over the Arctic environment often requires balancing with the pronounced drive toward economic development.¹¹⁸ Full commitment to both may sometimes be difficult, as was made visible during the negotiation of the Polar Code, where much of Russia's efforts was focused on combating stringent and presumably unrealistic measures.¹¹⁹ Another example illustrating that the goals of economic development of the NSR and the protection and preservation of the marine environment may be difficult to reconcile was the *Boris Vilkitsky* incident.¹²⁰ The conduct of

¹¹⁴ Ibid, 184.

¹¹⁵ Ibid, 169.

¹¹⁶ Bognar-Lahr, note 27, 148.

¹¹⁷ A. Chircop et al., note 63, 446.

¹¹⁸ The 2018 Decree of the President of the Russian Federation, on National Goals and Strategic Challenges of the Development of the Russian Federation for the Period to 2024, No. 204, 7 May 2018, at: <http://kremlin.ru/acts/bank/43027> (accessed 2 March 2023), requiring the government to adopt a comprehensive plan of modernization and development of the NSR infrastructure, including development of the NSR aiming at an increase of cargo turnover to 80 million tons. This would entail roughly an eightfold increase of traffic compared with 2017.

¹¹⁹ D. Bognar, "Russia and the Polar Marine Environment: The Negotiation of the Environmental Protection Measures of the Mandatory Polar Code" (2018) 27 *RECIEL* 35, 42.

¹²⁰ Solski, note 107, 394.

Boris Vilkitsky, a tanker serving Russia's flagship Yamal LNG project in April 2018, was deemed by the ANSR a "gross violation" of the 2013 Rules. The ship was detained and later released to complete its voyage. The incident triggered President Putin to publicly criticize the relevant authorities for restraining development under false pretenses.¹²¹ The incident illuminated a problem for the Russian authorities, and arguably catalyzed a change in practice. First, the ANSR stopped publishing any information about committed violations of the NSR Rules on its website, leaving the description of the *Boris Vilkitsky* the last one in the archive. In 2022, however, the archive with the record of all the past violations observed between 2013 and 2018 was removed from the ANSR website.

Finally, the utility of POLARIS in the context of "control" has limitations, as it has been criticized for not taking account of the most important issue, which is the human factor.¹²² This explains why both Canada and Russia exercise a level of precaution in its implementation. The Canadian system of safeguards serves the purpose of retaining control over shipping operating in its Arctic waters. Russia's approach is generally guided by hesitance in implementing any system where decisions can be made on the spot in an unsupervised manner.

Legitimacy

With respect to legitimacy, Russia is comfortable with the state as a source of rules. Russia has shown a very clear approach to international law, one characterized by a strong emphasis on the principle of sovereignty and nonintervention, at least with respect to Russia itself and in relation to states outside the area of the former Soviet Union.¹²³ Russia's recent foreign policy has been characterized by a particularly strong commitment to the so-called Westphalian model of sovereignty, characterized by some commentators as an existential question.¹²⁴ Consequently, Russia prioritizes the international institutional arrangements that fall squarely within, or at least do not contribute to the erosion of, the Westphalian model of sovereignty. Its status as a Permanent Member of the UN Security Council allows Russia to maintain its position as a superpower, while the development of new institutions addressing environmental challenges is often predicated on new alternative models of sovereignty.

The dynamics of the environmental problem solving in the Arctic, including the governance of shipping, seem to be particularly encouraging toward transnational knowledge networks and epistemic communities. The problems of the Arctic environment attract environmental nongovernmental organizations (NGOs), acting within, outside, and trans-states, whose protective agendas may be problematic for Russia, which, in turn, may feel isolated in its perception of the Arctic as an ample pool for hydrocarbons necessary for the economic development of the state and its entire

¹²¹ For discussion, see *ibid.*

¹²² T. Browne, T. T. Tran, B. Veitch et al., "A Method for Evaluating Operational Implications of Regulatory Constraints on Arctic Shipping" (2022) 135 *Marine Policy* 3.

¹²³ R. Deyermond, "The Uses of Sovereignty in Twenty-first Century Russian Foreign Policy" (2016) 68 *Europe-Asia Studies* 957, 962.

¹²⁴ *Ibid.*, 973, in reference to I. Krastev, "Reading Russia: The Rules of Survival" (2009) 20 *Journal of Democracy* 73, 75–76.

population. An excellent example of the clash between Russia pursuing its interest in the Arctic and the transnational NGO Greenpeace was when the latter attempted to propagate its campaign Save the Arctic. The decided and assertive response of the Russian authorities to the incidents in the Kara and Pechora seas left no doubt about the divergence of views.¹²⁵

Although the official documents speak of involving civil society in addressing international challenges,¹²⁶ there is much evidence of an accumulating tension between the state and civil society organizations in the past years.¹²⁷ One important legal development that demonstrates this trend was the enactment of the “Foreign Agent Law.”¹²⁸ As such, while the Russian authorities do not exhibit any inherent aversion to civil society, the current model of Russia’s “sovereign democracy” supports the development of civil society that is “legitimate”—one that collaborates with the state and fits its definition of democracy.¹²⁹ As it turns out, many environmental NGOs have been designated “foreign agents” under this law.¹³⁰

This more general stance on Westphalian sovereignty does not have to directly translate into a propensity for or lack of participation in international environmental problem solving. Yet an argument can be made that because of a certain approach and understanding of the legal principle of sovereignty, Russia is more resilient to the pressures related to the different standards for legitimacy, such as the voices of the transnational civil society. This is perhaps even more pertinent in the context of the Arctic and the different visions for its future.

Although both Canada and Russia have had a history of controversial Arctic claims, Canada has shown more interest in garnering international legitimacy. This was evident in the 1970s when Canada’s efforts to gain international recognition for its AWPPA regulations were supported by the USSR only when the latter realized it had become untenable to deflect any international attention from the Arctic.¹³¹ Similarly, Canada showed more interest in the development of the Polar Code and shaping it in a way that would reflect Canadian approaches. Russia, on the other hand, behaved in a more reactive manner, protecting its vital interests rather than constructing the Polar Code around its own practice.¹³²

The development of POLARIS is not a direct product of the transnational civil society, but its nonbinding nature makes it fit squarely as an element in the notion of rules-based order (RBO), where “the rules need not even be legal rules.”¹³³ In essence, the rhetoric shift toward the RBO signifies attention to informal lawmaking, and embracing soft law, institutional arrangements, and norms that do not obtain the

¹²⁵ S. Villo, M. Halme and T. Ritvala, “Theorizing MNE-NGO Conflicts in State-Capitalist Contexts: Insights From the Greenpeace, Gazprom and the Russian State Dispute in the Arctic” (2020) 55 *Journal of World Business* 1, 8.

¹²⁶ The Foreign Policy Concept of the Russian Federation, 30 November 2016, Art. 45 (j).

¹²⁷ K. Stuvøy, “The Foreign Within’: State-Civil Society Relations in Russia” (2020) 72 *Europe-Asia Studies* 1103.

¹²⁸ *Ibid.*

¹²⁹ *Ibid.*, 1104.

¹³⁰ Human Rights Watch, “Russia: ‘Year of Ecology’ a Sham, 5 Years of ‘Foreign Agents’ Law Devastates Environmental Groups,” available at: <https://www.hrw.org/news/2017/11/21/russia-year-ecology-sham> (accessed 2 March 2023).

¹³¹ J. Solski, “The Genesis of Article 234 of the UNCLOS” (2021) 52 *Ocean Development and International Law* 1.

¹³² D. Bogнар, “Russian Proposals on the Polar Code: Contributing to Common Rules or Furthering State Interests?” (2016) 7 *Arctic Review on Law and Politics* 111, 114.

¹³³ S. V. Scott, “The Decline of International Law as a Normative Ideal” (2018) 49 *Victoria University of Wellington Law Review* 627, 641.

status of law through the expression of state consent. Canada, like many other Western states, embraces the narrative of RBO in its official documents.¹³⁴ Russia distances itself from the narrative of RBO, instead arguing for international law-based world order.¹³⁵ Canada and Russia officially promote different visions of international relations and international law. This may have an impact on how much value they grant to an international process that yields no binding obligations for the state.

Autonomy

The third dimension of sovereignty, autonomy, is of essential value to both Canada and Russia, with the latter being less keen on compromise. Both Canada and Russia gave much priority to ensuring that the adoption of the Polar Code would not infringe on their right to exercise Article 234 powers. The inclusion of a “saving clause” in SOLAS and the retainment of the saving clause in MARPOL can be seen as a successful method of securing “autonomy” in the future development of the domestic regimes. Canada’s approach to the negotiation of the Polar Code shows relatively clearly its interest in retaining the possibility to adopt more stringent environmental obligations than those of the Polar Code. However, despite a number of departures from the Polar Code in its ASSPPR, it mainly aligned its domestic regime to the international regime. For Russia, autonomy allows it to devise a comprehensive legal regime to support the complex set of interests in the Arctic.

It is important to distinguish between two concerns captured by the notion of autonomy. First, the potential effect of the legal regime for control over the two trans-Arctic passages: the Northeast Passage (NEP) and the Northwest Passage (NWP). It is possible to circumnavigate Russian Arctic NSR straits and use the NSR, but it is not possible to circumnavigate the Canadian straits and use the NWP. In this sense, Russia may be more dependent on the comprehensive domestic NSR regime, including the requirement of the permit, to keep the use of the NSR under strategic control. The use of straight baselines and claim to internal waters in the NSR straits have played a relatively minor role recently. For Canada, the claim to internal waters within the NWP is more instrumental in order to maintain strategic control over the NWP. Jurisdiction in “Arctic waters” outside of internal waters plays a relatively minor role in that respect as there is less risk in its erosion through internationalization, and it can be perceived as a pure technical issue of environmental protection.

Second, there is autonomy to devise and adjust regulations as part of a business model. Russia’s grand development plans depend on autonomy to adjust the regulations. Relaxation of regulations, such as the admissibility criteria or rules on the exercise of icebreaker

¹³⁴ Global Affairs Canada, Departmental Results Report, 2019–2020, 6: “Canada has a great interest in ensuring an international order based on rules.”

¹³⁵ Joint Statement of the Russian Federation and the People’s Republic of China on the International Relations Entering a New Era and the Global Sustainable Development, 4 February 2022, Chapter IV: “The sides underline that Russia and China, as world powers and permanent members of the United Nations Security Council, intend to firmly adhere to moral principles and accept their responsibility, strongly advocate the international system with the central coordinating role of the United Nations in international affairs, defend the world order based on international law, including the purposes and principles of the Charter of the United Nations, advance multipolarity and promote the democratization of international relations, together create an even more prospering, stable, and just world, jointly build international relations of a new type.”

assistance or pilotage, may give an incentive for development. The autonomy to adjust these may be critical for the functionality of the NSR. In that sense, retaining the prescriptive regime that can be autonomously adjusted by political criteria may be an important element of a business model. Full embrace of a risk-based approach, with risk determined by outsiders, may lead to gradual erosion of the prescriptive regime and associated powers.

In this context, it is important to highlight the role of quasi nonstate actors, such as the RMRS and Rosatom, as potential vessels of sovereignty. Transport Canada is more comfortable with full, although gradually incorporated, harmonization of construction standards, while Russia has shown preference for the standards developed by the RMRS, despite the latter being a member of IACS. In this context, it is notable that the RMRS does not fit the classification society stereotype of an independent, usually privately owned, organization. Pursuant to Russian legislation, the RMRS is subordinate to the Ministry of Transport.¹³⁶ There is no evidence that the RSMS's objectives align with the objectives of the state, but the fact that there is a formal link of subordination with a state organ should not be ignored. Canada, conversely, does not have a similarly influential national system of classification and standard setting. Canada's domestic "classification" market is not dominated by a domestic Canadian society.¹³⁷ Transport Canada has approved seven classification societies to conduct delegated statutory work.¹³⁸ Based on this, in the scheme of incentives, Canada does not have a stake in the classification market in the same way as Russia does. Canada's sovereignty does not radiate through a classification society, but Russia's may. For Canada, the challenge of integrating Polar Classes into AIRSS is of almost purely technical nature. For Russia, on the other hand, such integration may affect one aspect of sovereignty: autonomy. To be sure, IACS members strive for providing equivalence among standards, and the RMRS is no exception.¹³⁹ However, the reality is that they also compete among each other.

Also, with respect to icebreaking, the role of Rosatom¹⁴⁰ is unprecedented. Rosatom, together with its daughter company Atomflot, plays a major role in the development plans of the NSR as a significant service provider, as a regulator, and as a shipping company. The existence of icebreaking as an industry may also explain a different focus on icebreaking in coastal state regulations in Russia in contrast to Canada. A potential utility of POLARIS is to enhance the decision-making capacity of shipmasters under icebreaker assistance.¹⁴¹ In this context, it is remarkable that for the modification of the risk assessment for operation under icebreaker escort, only two approaches were taken into account: the approach taken in AIRSS (icebreaker track as a separate ice regime) and the approach proposed by Finland (adjusting Risk Index Outcome (RIO)

¹³⁶ Order of the Government of the Russian Federation No 1080-r, 30 June 2010, attributes the administration over the RMRS and the Russian River Register (RRR) to the Ministry of Transport of the Russian Federation.

¹³⁷ J. J. Smith, "On a Flood Tide: Classification Societies and Canada's Marine Industry in 2020" (2011) Martin's Marine Engineering Page, available at: <https://www.dieselduck.info/library/01%20articles/2011-Class%20Society%20-%20JJ%20Smith.pdf> (accessed 2 March 2023); also transport Canada for Recognized Organizations.

¹³⁸ According to the information available via IMO's platform for member state audit, Canada authorizes seven classification societies to perform different functions. None of them is a Canadian organization. Russia, in turn, authorizes four classification societies, of which two are registered in Russia and subordinate to the Ministry of Transport: RMRS and RRR.

¹³⁹ The RMRS Guidelines on the Application of the International Code for Ships Operating in Polar Waters (Polar Code), Saint Petersburg 2017.

¹⁴⁰ The federal entity Rosatom State Nuclear Corporation operates on the basis of a separate Federal Law No. 317 on Rosatom State Nuclear Energy Corporation, 1 December 2007, as amended.

¹⁴¹ Bond et al., note 17, 12.

by a certain value).¹⁴² No Russian input has been recorded. This is notable, given Russia's experience in operating icebreakers and icebreaker escorts, as well as the more detailed rules on icebreaker assistance in the regulations.

Concluding Remarks

The comparison of Russian and Canadian approaches to POLARIS—representing a multilateral effort toward a common baseline for assessing operational limitations in ice—shows clear differences. Both states exhibit some caution when participating in multilateral environmental problem solving, but they seem preoccupied with different dimensions of sovereignty. Canada's behavior might be explained by its concern over control over the potential negative impacts of shipping on its environment if all the decision making migrated toward shipmasters. Russia's main concern seems to reside in the interest of autonomy—the ability to devise a comprehensive regime intended to balance the interests of economic development with interests of environmental protection. Moreover, the two states' behavior reveals differences in the general approach to an international, multilateral process. Canada seems more willing to engage with it and shape it to reflect its national interests, while Russia remains a little bit reactive, treating it as a necessary evil.

The phase-in policy toward POLARIS in the Canadian Arctic might provide an impulse for more intensive use of the system, eventually leading to its revisions and improvement. However, the developments in the Russian regime appear to create a situation where the use of POLARIS becomes obsolete, at least for ships operating in the Russian Arctic. Without experience and input from navigating a major part of the Arctic, the potential for POLARIS to become a common baseline for assessing the risk of ship operation in ice will be much diminished.

The development of Arctic shipping governance will continue along different lines, with some forces pushing toward convergence, but also good reasons for believing that divergent approaches will still be appreciated. A wide constellation of actors, interests, and stakes at play may pull against full uniformity, and the gradual shift toward risk and goal-based approaches in the regulation of shipping may elevate the normative effect of these forces.

Finally, sovereignty, emanating via organizations other than state organs, can be expected to obstruct full harmonization and homogenization of the Arctic shipping governance landscape, which is the rationale of the international process. This, in turn, will inevitably affect the quality of the outcomes of that process. Notes

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¹⁴² See the Technical background to POLARIS, note 13.

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