Emerging Issues on Arctic Environmental and Climate Change Governance: Introduction

Abstract

This Special Issue, based on the Third International Conference of the Transatlantic Maritime Emissions Research Network (TRAMEREN), Copenhagen, June 2019, examines emerging issues in Arctic environmental and climate change governance. The law of the sea performs a paramount role in stabilising a legal order in the ocean, including the marine Arctic. However, physical and ecological conditions surrounding the ocean may change over time, particularly in the era of climate change. Thus the antithesis between change and stability in the law of the sea is key when considering effects of climate change on the law of the sea. The six articles in this Special Issue provide insights into the development of the legal framework for governing the marine Arctic addressing, respectively, changing paradigms in the law of the sea, retreating coasts in the Arctic, environmental assessment, the Polar Code, fuel use regulation of Arctic shipping, and Arctic climate interventions.

Keywords

marine Arctic – climate change – sea level rise – baselines – marine environmental protection – navigational rights and freedom

In recent years the Arctic has attracted significant political and academic attention as the next climate, environmental and development frontier. This is largely due to global warming that causes shrinking of the Arctic sea ice extent and thickness and has adverse impacts on ocean ecosystems.¹ Increasing threats to the Arctic environment posed by growing industrial activities are also

1 Intergovernmental Panel on Climate Change (IPCC), 'Summary for policymakers' in H-O Pörtner, DC Roberts, V Masson-Delmotte *et al.* (eds), *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate* (IPCC, 2019) 6–16, available at <https://www.ipcc.ch/srocc/>. All websites were accessed on 27 June 2020, unless otherwise mentioned.

a matter of concern.² In 2019, the Intergovernmental Panel on Climate Change (IPCC) acknowledged that surface air temperature in the Arctic has likely increased by more than double the global average over the last two decades,³ and that climate-induced changes in seasonal sea ice and ocean stratification are altering marine primary production, having impacts on marine ecosystems.⁴ Furthermore, the IPCC forecasts that projected changes will continue over the next decades with the concomitant risks for ecosystems and people.⁵

Addressing these escalating threats to the Arctic environment is an urgent matter not only for the Arctic States but also for the international community as a whole. Indeed, various actors and legal regimes are involved the governance of the Arctic region, with the law of the sea playing a fundamental role. Against that background, this Special Issue discusses emerging issues of Arctic environmental and climate change governance. In this connection, a particular attention must be paid to the antithesis between stability and change in the law of the sea.

The law of the sea performs a paramount role in stabilising a legal order in the ocean. Thus, as with all types of law, the law of the sea must have a certain degree of stability. As the ocean is a dynamic natural system, however, physical and ecological conditions surrounding the ocean may change over time. This is particularly true in the era of climate change. Accordingly, there is a need to adapt the existing rules of the international law governing the ocean to a new situation arising from climate change. There, a sharp tension arises between stability and change in the international law of the sea. Whilst the antithesis between change and stability constitutes a fundamental issue of law,⁶ this holds particularly true when considering effects of climate change on the law of the sea. While climate change influences various aspects of the law of the sea, in particular, five issues merit highlighting in the context of the marine Arctic.

First, sea level rise and coastal erosion directly affect baselines. As the spatial ambit of coastal State jurisdiction is defined in principle on the basis of distance from the baselines, climate-induced changes of baselines affect the spatial extent of marine spaces under national jurisdiction. Thus implications

2 B Hofmann, 'Policy responses to new ocean threats: Arctic warming, maritime industries, and international environmental regulation' in PG Harris (ed.), *Climate Change and Ocean Governance: Politics and Policy for Threatened Seas* (Cambridge University Press, Cambridge, 2019) 215–235.

3 IPCC (n 1), at p. 205.

4 *Ibid.*, 17–28.

5 *Ibid.*

6 M Virally, *La pensée juridique* (Panthéon-Assas, Paris, 2010) 188.

of climate change for rules governing baselines constitute a crucial issue that deserves serious consideration.⁷ An essential issue that arises in this regard is whether the normal baseline is ambulatory reflecting changes to the coast caused by sea level rise and erosion or whether the baseline should be fixed, regardless of changes in coasts over time.⁸ Thus a tension between change and stability is key when considering effects of climate change on baselines in the law of the sea.

Second, navigational rights and freedoms are a traditional issue of the law of the sea. In this regard, the United Nations Convention on the Law of the Sea (LOSC)⁹ includes multiple navigational rights and freedoms.¹⁰ However, climate change influences existing rules of international law on this subject. In fact, opening of transpolar navigational routes across the marine Arctic increases the risks associated with maritime safety and vessel-source marine pollution. The prevention of the risks has prompted the development of new rules and regulations with regard to transpolar navigation. An illustrative example is provided by the adoption of the Polar Code.¹¹ In addition, the regulation of greenhouse gas emissions from international shipping is becoming a matter of serious concern.¹² In response, new mandatory measures, that is, the Energy Efficiency Design Index (EEDI) and the Ship Energy Efficiency Management Plan (SEEMP), were introduced by amending Annex VI to MARPOL.¹³ Annexes

7 This issue is currently being discussed in the International Law Association's Committee on International Law and Sea Level Rise. See, in particular, Conference Report Sydney 2018, available at <https://www.ila-hq.org/index.php/committees>.

8 This issue is discussed by C Schofield and S Lalonde, 'Rising Seas and Retreating Coasts: Implications for the Arctic' (2020) 35(3) *IJMC*, this issue.

9 Montego Bay, 10 December 1982, in force 16 November 1994, 1833 *UNTS* 3.

10 Y Tanaka, 'Navigational rights and freedoms' in D Rothwell, A Oude Elferink, K Scott and T Stephens (eds), *Oxford Handbook on the Law of the Sea* (Oxford University Press, Oxford 2015) 536–558.

11 International Code of Safety for Ships Operating in Polar Waters, IMO Resolution MSC.385(94), adopted on 21 November 2014, Report of the Marine Safety Commission on Its Ninety Fourth Session, IMO Doc MSC 94/21/Add. 1, Annex 6. The Polar Code entered into force on 1 January 2017 upon the entry into force of the new chapter XIV of SOLAS. *Ibid.*, para 3. The Polar Code and related instruments is discussed in A Chircop, 'The Polar Code and the Arctic Marine Environment: Assessing the Regulation of the Environmental Risks of Shipping' (2020) 35(3) *IJMC*, this issue.

12 For a recent monograph on this subject, see B Shi, *Climate Change and International Shipping: The Regulatory Framework for the Reduction of Greenhouse Gas Emissions* (Brill, Leiden, 2016).

13 Amendments to the Annex of the Protocol of the 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, IMO Resolution MEPC.203(62) (15 July 2011). The amendments entered into force on 1 January 2013.

to MARPOL have been regularly modified with a view to responding to new challenges. In so doing, MARPOL has evolved over time, while maintaining its framework. MARPOL offers insights into the evolution of multilateral environmental agreements.¹⁴

Third, the increasing accessibility to the Arctic owing to climate change may open the way for exploration and exploitation of natural resources, both living and non-living resources, in the marine Arctic. The exploration and exploitation of these resources in the marine Arctic will require the adoption of new regulatory measures. For instance, climate change may alter the distribution and productivity of fish stocks, leading to challenges for conservation of marine living resources in the future.¹⁵ In this regard, it is remarkable that the Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean (CAOFA) was concluded in 2017.¹⁶ The CAOFA aims to 'prevent unregulated fishing in the high seas portion of the central Arctic Ocean through the application of precautionary conservation and management measures'.¹⁷ The CAOFA is interim by nature and the Parties to the Agreement are to determine 'whether to commence negotiations to establish one or more additional regional or subregional fisheries management organisations or arrangements for managing fishing in the Agreement Area'.¹⁸ This approach, which can be called the 'stepwise' approach,¹⁹ is an alternative well worth considering when taking precautionary measures in conservation of marine living resources.

Fourth, climate change has adverse impacts on marine ecosystems. For instance, science suggests that the fastest rate of ocean acidification is observed

14 An essential feature of multilateral environmental agreements is that these instruments may evolve with the passage of time. It may be said that multilateral environmental agreements are evolutionary by nature. In this connection, see D Bodansky, J Brunnée, and L Rajamani, *International Climate Change Law* (Oxford University Press, Oxford, 2017) 85–94.

15 WWL Cheung, VWY Lam, Y Ota and W Swartz, 'Modelling future oceans: The present and emerging future of fish stocks and fisheries' in R Caddell and EJ Molenaar (eds), *Strengthening International Fisheries Law in an Era of Changing Oceans* (Hart Publishing, Oxford, 2019) 13–23, at p. 14.

16 Ilulissiat, Greenland, 3 October 2018, not yet in force, OJ L 73/3 (15 March 2019), available at <https://www.mofa.go.jp/mofaj/files/000449233.pdf>.

17 *Ibid.*, Art. 2.

18 *Ibid.*, Art. 5(1)(c). Under Article 1(a), 'Agreement Area' means 'the single high seas portion of the central Arctic Ocean that is surrounded by waters within which Canada, the Kingdom of Denmark in respect of Greenland, the Kingdom of Norway, the Russian Federation and the United States of America exercise fisheries jurisdiction'.

19 EJ Molenaar, 'Participation in the Central Arctic Ocean Fisheries Agreement' in A Shibata, L Zou, N Sellheim and M Scopelliti (eds), *Emerging Legal Orders in the Arctic: The Role of Non-Arctic Actors* (Routledge, London, 2019) 132–170, at p. 157.

in the marine Arctic.²⁰ Furthermore, environmental change in the marine Arctic because of climate change attracts large-scale infrastructure and natural resource development projects.²¹ Environmental impact assessment (EIA) performs a crucial role with a view to striking a sound balance between the need for protection of marine biological diversity and the economic development in the context of changing Arctic.²² An EIA provides a framework for identifying potential environmental risks before authorising or funding the project and integrates environmental concerns into the decision-making process for future projects.²³ In this sense, an EIA can be considered as a legal device to address inter-temporality in the protection of the environment.²⁴ As the International Court of Justice (ICJ) stated, a State whose activities create serious environmental harm would not be able to deny breach of the obligation of due diligence if it had not conducted an EIA.²⁵ Therefore, an EIA provides a procedural means to effectuate a due diligence obligation in the protection of the environment.

Finally, but not the least, climate change highlights the interaction between law and science. A sound scientific understanding of the marine environment is a prerequisite to promoting sustainable use of marine natural resources and protecting the marine environment, including the marine Arctic. Given that impacts of climate change on the ocean needs further investigation, it is necessary to establish a legal framework for promoting international science cooperation. In this connection, it is noteworthy that the Agreement on Enhancing

20 Arctic Council, Arctic Monitoring and Assessment Programme (AMAP), *Arctic Ocean Acidification Assessment: 2018 Summary for Policymakers*, (AMAP, Tromsø, 2018) 3, available at <https://oaarchive.arctic-council.org/handle/11374/2319>; AMAP, *AMAP Assessment 2018: Arctic Ocean Acidification* (AMAP, Tromsø, 2018) 1, available at <https://www.amap.no/documents/doc/amap-assessment-2018-arctic-ocean-acidification/1659>.

21 Sustainable Development Working Group, *Good Practices for Environmental Impact Assessment and Meaningful Engagement in the Arctic* (Arctic Council, Tromsø, 2019) 8, available at <https://oaarchive.arctic-council.org/handle/11374/2377>. EIA is discussed by M Doelle and G Sander, 'Next Generation Environmental Assessment in the Emerging High Seas Regime? An Evaluation of the State of the Negotiations' (2020) 35(3) *IJMC*, this issue.

22 Sustainable Development Working Group (n 21), at p. 8.

23 P Birnie, A Boyle and C Redgwell, *International Law and the Environment* (3rd ed., Oxford University Press, Oxford, 2009) 165.

24 Y Tanaka, 'Reflections on time elements in the international law of the environment' (2013) 73 *ZaöRV/Heidelberg Journal of International Law* 140–175, at p. 168.

25 *Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, Judgment, 20 April 2010, *ICJ Reports* 2010, p. 14, at p. 83, para 204. See also *Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v. Nicaragua/Nicaragua v. Costa Rica)*, Judgment, *ICJ Reports* 2015, p. 665, at p. 706, para 104.

International Arctic Scientific Cooperation was adopted under the auspices of the Arctic Council in May 2017.²⁶

Although no comprehensive examination of the above issues can be made here, this Special Issue of the *International Journal of Marine and Coastal Law* has the modest aim of examining some of the issues concerning the effects of climate change on the law of the sea related to the marine Arctic. The Special Issue is based on the Third International Conference of the Transatlantic Maritime Emissions Research Network (TRAMEREN), which convened in Copenhagen on 11 and 12 June 2019.²⁷ TRAMEREN is an international research network established by the Centre for International Law and Governance, Faculty of Law, University of Copenhagen and the Frank J. Guarini Centre on Environmental, Energy and Land Use Law, New York University School of Law, to provide a framework for collaboration between the partner institutions in the areas of climate change and maritime transport. It also seeks to foster exchanges and dialogues concerning maritime transport in the broader contexts of sustainability, energy and environment.²⁸ Since 2016, three international conferences have been held by TRAMEREN,²⁹ and a number of research outputs have been put forward as a result of Network activities.³⁰ At the Third TRAMEREN Conference on Arctic Environmental and Climate Change Governance,³¹ emerging issues concerning the Arctic environment, such as management of living and non-living resources in the Arctic, maritime transport and the rights of indigenous people, were discussed by more than thirty panellists. Among the submissions for presentations at the Third TRAMEREN Conference, six articles reflecting key and timely matters on marine Arctic governance were selected for this Special Issue.

26 11 May 2017, in force 23 May 2018. The text of the Agreement is available at <https://oaarchive.arctic-council.org/handle/11374/1916>.

27 See University of Copenhagen, 'TRAMEREN – Transatlantic Maritime Emissions Research Network' available at <http://www.trameren.dk>.

28 See the 'Research' section of the TRAMEREN website at <https://jura.ku.dk/cilg/research/trameren/>.

29 First International Conference of TRAMEREN on Maritime Actors and Climate Change: Incentives and Strategies for Voluntary Action (2016); Second International Conference of TRAMEREN on Frontiers in Ocean Environmental Governance: Private Actors, Public Goods (2018).

30 Most recently, B Martinez Romera and KM Wyman (eds.), 'Special Issue: New Frontiers in Ocean Environmental Governance' (2019) 28(3) *Review of European, Comparative and International Environmental Law* 231–327.

31 Centre for International Law and Governance, 'III TRAMEREN International Conference' available at <https://jura.ku.dk/cilg/calendar/2019/iii-trameren-conference-june-2019/>.

The first article is by Yoshifumi Tanaka, entitled 'Changing Paradigms in the Law of the Sea and the Marine Arctic'.³² In this article, Tanaka presents two paradigms governing the law of the sea: the law of divided oceans (paradigm I) and the law of our common ocean (paradigm II). Paradigm I, that is, the law of divided ocean, aims to reconcile competing interests of individual States by dividing the ocean into multiple jurisdictional zones. By contrast, paradigm II, that is, the law of our common ocean, seeks to safeguard community interests by providing a legal framework for ensuring international cooperation in marine affairs. The two paradigms present a framework for analysis of the international law governing the marine Arctic. In the context of the marine Arctic, the main issues that arise under paradigm I include baselines, identification of the outer limits of the continental shelf beyond 200 nautical miles, maritime delimitation, in particular, the delimitation of the continental shelf beyond 200 nautical miles, and the material scope of State jurisdiction in multiple jurisdictional zones, such as the coastal State jurisdiction under Article 234 of the LOSC. Under paradigm II, the following issues may arise in the marine Arctic, *inter alia*, conservation of marine living resources, marine environmental protection, conservation of marine biological diversity, promotion of marine scientific research, and maintenance of international peace and security at sea. As will be discussed, some of these issues are examined in other articles of this Special Issue. In conclusion, Tanaka suggests that there is a need to consider the question of how it is possible to promote community interests under paradigm II, while safeguarding interests of individual States under paradigm I.

Clive Schofield and Suzanne Lalonde's article, entitled 'Rising Seas and Retreating Coasts: Implications for the Arctic', addresses implications of physical changes of Arctic coastlines arising from sea level rise and coastal erosion for the rules of the law of the sea regarding baselines and limits of jurisdictional zones under national jurisdiction.³³ This issue is crucial in theory and practice. According to the authors, the Arctic region is undergoing significant environmental changes and these changes have had major impacts on Arctic coastlines. This raises the question of how to address the challenges posed by the physical changes. In this regard, the authors explore multiple potential options, such as accommodation, planned retreat, coastal defence or protection, efforts to advance the location of the coast through reclamation activities, and ecosystem-based adaption. Further, as regards international legal responses, Schofield and Lalonde examine the impacts of sea level rise and

32 Y Tanaka, 'Changing Paradigms in the Law of the Sea and the Marine Arctic' (2020) 35(3) *IJMCL*, this issue.

33 Schofield and Lalonde (n 8).

coastal erosion on rules governing baselines. After examination of the merits and challenges of two options, that is, fixing baselines and fixing limits, the authors take the view that fixed baselines and maritime limits in response to the global climate crisis should be envisaged in line with the doctrine on the stability of boundaries.

Meinhard Doelle and Gunnar Sander's article, 'Next Generation Environmental Assessment in the Emerging High Seas Regime? An Evaluation of the State of the Negotiations', addresses environmental assessment with specific reference to negotiations on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (BBNJ).³⁴ The authors identify twelve elements of 'next generation environmental assessment', namely, integrated, tiered assessments; cooperative assessments; appropriate assessment streams; co-governance with indigenous peoples; transparency and accountability; sustainability-based assessments; comparative evaluation of alternatives; a cumulative effects mindset; meaningful public participation; learning facilitated throughout, implementation, monitoring and follow-up; and independent and impartial administration; and assessment review. Doelle and Sander offer these elements as a standard against which to measure the environmental assessment process being developed in the BBNJ negotiations. On this basis of consideration, the authors assess the current status of environmental assessment provided for in the draft text of an agreement presented at the negotiating session in August 2019. The authors' view provides a useful insight into ongoing negotiations on a legally binding instrument on marine biodiversity of areas beyond national jurisdiction.

Aldo Chircop's article, 'The Polar Code and the Arctic Marine Environment: Assessing the Regulation of the Environmental Risks of Shipping', thoroughly examines the Polar Code and its interface with other International Maritime Organization (IMO) environmental instruments regarding maritime safety.³⁵ Although the Polar Code notes in its preamble that it supplements other IMO instruments, Chircop considers that it is possible to observe an inverse relationship in that other IMO instruments interact with the Polar Code with a view to contributing to the protection of polar environments. In this regard, he analyses three categories of provisions set out in various IMO instruments: 'nourishing provisions', which include rules, procedures and guidelines providing detailed content to a provision of the Polar Code; 'supplementing provisions', which provide additional substantive rules, procedures and guidelines on issues that are not addressed by the Polar Code; and 'facilitating provisions',

34 Doelle and Sander (n 21).

35 Chircop (n 11).

which prescribe or recommend systems and measures to be used for implementation and enforcement of the Polar Code. A visual 'landscape' of shipping environmental risks in Arctic waters is offered in Table 1 of the article. Chircop concludes that to respond to the growth of shipping and its accompanying risks, there might be a need for Arctic coastal States to reconsider the efficiency and effectiveness of environmental standards in the Polar Code and other IMO instruments.

Zhen Sun's article, 'Closing Gaps of Fuel Use Regulation of Arctic Shipping', deals with an interesting issue with regard to the regulation of the use of fossil fuel in Arctic shipping.³⁶ As shipping increases, the use of fossil fuels gives rise to environmental concerns in the Arctic. According to Sun, however, there are several gaps that need to be overcome in the framework, including the regulation of black carbon emissions. In response, Sun considers that the design of a regulatory regime on this subject needs to be guided by well-established principles of international environmental law and law of the sea, such as the principle of prevention, the precautionary approach, the duty to cooperate, and the duty to not transfer one form of pollution into another. Whilst there has been ongoing discussion regarding fuel options at the IMO, she expresses her misgivings that the development of regulations within the IMO is often influenced by the views of particular States and interest groups. Thus, in conclusion, Sun stresses the need to apply legal principles and approaches to designing a regulatory framework on the basis of scientific evidence and technological innovations.

Daniel Bodansky and Hugh Hunt, in their article entitled, 'Arctic Climate Interventions',³⁷ explore possible Arctic climate interventions (sometimes referred to as 'climate engineering' or 'geoengineering') and undertake a policy and legal assessment of them. The authors highlight the warming of the Arctic as a matter of world concern owing to the Arctic's role in the global climate system. Specifically they consider local effects on the Arctic (risks to human communities, loss of habitat and marine ecosystem) and global effects (albedo modification, melting of permafrost, sea level rise, and effects on ocean and atmospheric circulation). In response, two types of Arctic interventions, that is, Arctic ice management and glacial interventions, are examined, including an assessment of relevant legal issues arising from these interventions. According to the authors, land-based interventions are governed primarily by international environmental law, and ocean-based interventions are governed

36 Zhen Sun, 'Closing Gaps of Fuel Use Regulation of Arctic Shipping' (2020) 35(3) *IJML*, this issue.

37 D Bodansky and H Hunt, 'Arctic Climate Interventions' (2020) 35(3) *IJML*, this issue.

by international law of the sea. Bodansky and Hunt conclude that since Arctic interventions are closer in kind to conventional mitigation and adaption, these interventions should be evaluated in similar terms.

Overall the articles shaping this Special Issue address some cutting-edge questions concerning the implications of climate change for the law of the sea relating to the marine Arctic. They provide an insight into the future development of the legal framework for governing the marine Arctic.

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