

CENTER FOR ENVIRONMENTAL LAW PRIZE WINNING COMMENT

Protecting the Arctic Environment from Northwest Passage Shipping in the Era of Climate Change*

Daniel Stein[†]

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I. INTRODUCTION

Off the northern coast of mainland Canada is a network of islands and waterways that freezes into one mass in the winter and in the summer reveals a series of routes for connecting the east and west by ship, collectively known as the Northwest Passage (NWP). As the impacts of climate change are felt disproportionately in Arctic regions,¹ these waterways are ice-free for longer in the year and are becoming seasonal routes for international shipping.² Threats of sea level rise to low-lying and coastal areas become more acute when that water is no longer freezing

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[†] © 2019 Daniel Stein. J.D. candidate 2020, Tulane University Law School; B.S. 2004, Communication & English, SUNY Buffalo. The author would like to thank his family, the *TELJ* staff, Prof. Günther Handl, and the faculty at the Arctic Centre for their advice and support.

1. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, GLOBAL WARMING OF 1.5°, SUMMARY FOR POLICYMAKERS 6 (2018) [hereinafter: IPCC SR15]; see also *Arctic Sea Ice Has Been in Decline for Decades, According to a New Scientific Paper*, NAT'L SNOW & ICE DATA CTR. (Feb. 12, 2019), <https://nsidc.org/news/newsroom/arctic-sea-ice-has-been-decline-decades-according-new-scientific-paper>.

2. ARCTIC COUNCIL, ARCTIC MARINE SHIPPING ASSESSMENT 2009 REPORT 25 (2009), http://pame.is/images/03_Projects/AMSA/AMSA_2009_report/AMSA_2009_Report_2nd_print.pdf.

into ice at the poles.³ While situated in Canadian territory, the NWP is also governed by the Law of the Sea Convention (UNCLOS), which places requirements for environmental protection in Part XII as well as obligations to respect the freedom of navigation for commercial vessels passing through certain straits as reflected in Part III.⁴

This Comment analyzes the conflict between these regimes as played out in the Canadian Arctic in this era of changing climate and extreme weather. Part II provides background about the emerging scientific consensus and the evolution of the global regime for protecting marine environments. Part III discusses Canadian and Russian domestic legislation and the American responses regarding implications for freedom of navigation. Part IV examines the applicable legal framework and Part V explores how that has been applied to similarly situated sea lanes. Part VI concludes by suggesting contours of a solution for protecting the Arctic environment without unjustifiably interfering with freedom of navigation.

II. THE WARMING ARCTIC & GLOBAL OCEANS POLICY

Since the start of satellite tracking in 1979, the amount of sea ice declined by 75% and is on a continued downward trend.⁵ January 2018 was the lowest acreage of sea ice on record.⁶ Accordingly, Russian and Canadian vessel tracking services report an increase in traffic of cruise ships, research vessels, pleasure craft, and cargo containers.⁷

Thicker, multiyear ice now only covers 5% of its 1980 extent, replaced by younger thin ice, which is easier for ships to break.⁸ Less heat-reflecting ice means more heat-absorbing liquid during summer months of permanent sunshine. Less arctic ice also means more sub-arctic water:

3. IPCC SR15, *supra* note 1, at 9.

4. U.N. Convention on the Law of the Sea, *opened for signature* Dec. 10, 1982, 1833 U.N.T.S. 397 (entered into force Nov. 16, 1994) [hereinafter UNCLOS].

5. James Overland et al., *The Urgency of Arctic Change*, POLAR SCI. (2018), <https://doi.org/10.1016/j.polar.2018.11.008>.

6. *New Year Lows Once Again*, NAT'L SNOW & ICE DATA CTR. (Jan. 7, 2019), <http://nsidc.org/arcticseaicenews/2019/01/new-year-lows-once-again/>.

7. *State of the Environment: Trends in Shipping in the Northwest Passage and the Beaufort Sea*, GOV'T NORTHWEST TERRITORIES, <https://www.enr.gov.nt.ca/en/state-environment/73-trends-shipping-northwest-passage-and-beaufort-sea> (last updated May 29, 2015); *see also* Knut Einar Skodvin, *Arctic Shipping—Still Icy*, in CHALLENGES OF THE CHANGING ARCTIC 143, 150 (Myron H. Nordquist et al. eds., 2016).

8. *New Year Lows Once Again*, *supra* note 6.

glacier loss is responsible for 75% of sea level rise since 1971.⁹ While satellite tracking is relatively new, receding ice has uncovered lands that have not been ice-free in more than 40,000 years.¹⁰ Carbon dating and ice core samples in Canada and Greenland indicate this is the warmest century in the last 115,000 years.¹¹ Ironically, making the NWP more passable also increases the danger of the route as calving glaciers float south under the surface and pose a significant risk to vessels before melting into extreme flood events.¹²

Since the *Corfu Channel Case*¹³ of 1949 and the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone,¹⁴ sovereign vessels have enjoyed the right of non-suspendable innocent passage through sea lanes through territorial seas connecting two high-seas zones. U.S. Coast Guard Cutters voyaged the NWP during the Cold War in 1952 and 1957.¹⁵ These freedoms were codified in UNCLOS, which entered into force in 1994.¹⁶ In exchange for coastal states claiming longer distance off their coasts and enclosing many passages as territorial seas, Part III of UNCLOS provides an international regime governing “straits which are used for international navigation” that includes “the right of transit passage, which shall not be impeded” between two other zones of high seas freedoms.¹⁷

In addition to this rights of navigation, UNCLOS Part XII provides the “first comprehensive regime for the protection and preservation of the marine environment under international law.”¹⁸ The “obligation to protect and preserve the marine environment” in Article 192 and the measures that

9. John A. Church et al., 2013: *Sea Level Change*, in CLIMATE CHANGE 2013: THE PHYSICAL SCIENCE BASIS 1139 (2013), https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter13_FINAL.pdf.

10. Simon Pendleton, *Rapidly Receding Arctic Canada Glaciers Revealing Landscapes Continuously Ice-Covered for More than 40,000 Years*, NATURE COMM. (2019), <https://www.nature.com/articles/s41467-019-08307-w.pdf>.

11. *Id.* at 2.

12. See *Quick Facts on Icebergs*, NAT'L SNOW & ICE DATA CTR., <https://nsidc.org/cryosphere/quickfacts/icebergs.html> (last visited May 2, 2019).

13. *Corfu Channel Case: Assessment of Compensation (United Kingdom v. Albania)*, 1949 I.C.J. 15, 244 (Dec. 15).

14. *Convention on the Territorial Sea and the Contiguous Zone*, Apr. 29, 1958, 15 U.S.T. 1606, T.I.A.S. No. 5639, 516 U.N.T.S. 205.

15. U.S. DEP'T OF STATE, LIMITS IN THE SEAS, NO. 112, UNITED STATES RESPONSE TO EXCESSIVE NATIONAL MARITIME CLAIMS 73 (1992).

16. UNCLOS, *supra* note 4. Canada ratified UNCLOS on Nov. 13, 2003.

17. *Id.* arts. 37-38.

18. Nilüfer Oral, *Governance and Environmental Protection of Straits Used for International Navigation Under UNCLOS*, in LAW OF THE SEA: UNCLOS AS A LIVING TREATY 267, 271 (Jill Barrett & Richard Barnes eds., 2016).

States must take in Article 194 must be respectful of the new rights of transit passage, as States agree to “refrain from unjustifiable interference” against vessels in transit passage.¹⁹ Included as Section 8 of Part XII is Article 234, “Ice-Covered Areas:”

Coastal States have the right to adopt and enforce non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered areas within the limits of the exclusive economic zone, where particularly severe climatic conditions and the presence of ice covering such areas for most of the year create obstructions or exceptional hazards to navigation, and pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance. Such laws and regulations shall have due regard to navigation and the protection and preservation of the marine environment based on the best available scientific evidence.²⁰

This provision was negotiated subsequent to Canada enacting the Arctic Waters Pollution Prevention Act in 1970, the year after the U.S.-flagged Humble Oil tanker *SS Manhattan* attempted the voyage between the high seas zones.²¹ Given the lack of interest by tropical nations, Article 234 granted Coastal States additional powers to manage such treacherous waters.

While UNCLOS was being negotiated in the 1970s, several other global measures to protect the marine environment were also implemented. In 1972, the “Convention Concerning the Protection of the World Cultural and Natural Heritage” was adopted through the United Nations Educational, Scientific and Cultural Organization (UNESCO), recognizing that the “duty of ensuring the . . . protection [and] conservation . . . of natural heritage . . . situated on its territory belongs primarily to that State.”²² In 1973, the original International Convention for the Prevention of Pollution from Ships was signed, then updated in 1978 before entering into force in 1983.²³ The Annexes to this convention

19. UNCLOS, *supra* note 4, arts. 192, 194(4).

20. *Id.* art. 234.

21. *Voyage of the Manhattan*, ALASKA SCI. F. (Dec. 19, 1983), <https://www.gi.alaska.edu/ScienceForum/ASF6/639> [<https://web.archive.org/web/20110128092409/https://www.gi.alaska.edu/ScienceForum/ASF6/639>]. The route through the high seas was modified when the *Manhattan* became stuck in the ice at the M’Clure Strait, requiring the assistance of a Canadian ice-breaker and rerouting through Canadian waters in the Peel Strait.

22. Convention Concerning the Protection of the World Cultural and Natural Heritage, Nov. 16, 1972, 27 U.S.T. 37, 1037 U.N.T.S. 151.

23. International Convention for the Prevention of Pollution from Ships, Nov. 2, 1973, 1340 U.N.T.S. 184; Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973, Feb. 17, 1978, 1340 U.N.T.S. 61 (entered into force Oct. 2, 1983)

describe preventative measures for oil and oily water (Annex I), noxious liquids (Annex II), other harmful substances (Annex III), sewage (Annex IV), and garbage (Annex V).²⁴

After negotiating UNCLOS, efforts to protect certain exceptional sea areas resulted in the International Maritime Organization (IMO) adopting Guidelines for the Identification of Particularly Sensitive Sea Areas in 1991 and beginning the coordinating process for special rules for ships operating in polar waters.²⁵ This progress was reflected in the 1992 “Earth Summit” Rio Declaration, proclaiming in Principle 4 that “environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.”²⁶ The United Nations Conference on the Environment and Development (UNCED) also produced Agenda 21, recognizing the need for “better protected and managed ecosystems,” tasking all states and the IMO with “assess[ing] the need for additional measures to address degradation of the marine environment.”²⁷ Polar-specific rules were released by the IMO in 2002 as *Guidelines for Ships Operating in Arctic Ice-Covered Waters*.²⁸ This document was continually revised to become the Polar Code, ratified in 2014 and implemented in 2017, formally appending safety and pollution standards to International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 (MARPOL 73/78) and the Safety of Life at Sea (SOLAS) convention.²⁹

[hereinafter MARPOL 73/78]. Annex II did not come into force until 1987, Annex V in 1988, Annex III in 1992, Annex IV in 2003, and Annex VI in 2005.

24. *Id.*

25. Int’l Maritime Org. [IMO] Res. A.720(17), Nov. 6, 1991; Leilei Zou, *Comparison of Arctic Navigation Administration Between Russia and Canada*, in CHALLENGES OF THE CHANGING ARCTIC, *supra* note 7, at 299.

26. U.N. Conference on Environment and Development, *Rio Declaration on Environment and Development*, U.N. Doc. A/CONF.151/5/Rev. 1 (Vol. I), annex I, principle 4 (Aug. 12, 1992).

27. U.N. Conference on Environment and Development, *Agenda 21* (1992), <https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf>; *see also* Suzanne Lalonde, *The IMO’s PSSA Mechanism and the Northwest Passage Debate*, in POLAR OCEANS GOVERNANCE IN AN ERA OF ENVIRONMENTAL CHANGE 169-71 (T. Stephens & D. VanderZwaag eds., 2014).

28. IMO, *Guidelines for Ships Operating in Arctic Ice-Covered Waters* (Dec. 23, 2002), https://www.gc.noaa.gov/documents/gcil_1056-MEPC-Circ399.pdf.

29. International Convention for the Safety of Life at Sea ch. V/11, V/12, XIV, art. 16(2)(f)(i), Nov. 1, 1974, 1184 U.N.T.S. 278 (entered into force May 25, 1980) [hereinafter SOLAS]; IMO, *International Code for Ships Operating in Polar Waters (Polar Code)*, MSC.385(94) (Nov. 21, 2014).

III. 20TH CENTURY ARCTIC MANAGEMENT

After the Canada Constitution Act of 1867, an 1880 Order in Council declared that everything north of the 49th parallel was domestic territory.³⁰ The subsequent Canada Act and Constitution Act of 1982³¹ and 1993 Nunavut Land Claims Agreement³² consolidated the British and Inuit claims to the Government of Canada.³³ In 1970, the Arctic Waters Pollution Prevention Act created waste restrictions and insurance requirements for all vessels passing through safety control zones that extended 100 nautical miles from the coast.³⁴ In 1973, Canada officially asserted that all of their territorial seas were historic internal waters,³⁵ and in 1985, it drew straight baselines around the entire Arctic Archipelago.³⁶ To avoid litigating the situation while facilitating vessel traffic and security obligations, Canada and the United States adopted the 1988 Agreement on Arctic Cooperation.³⁷

This agreement allows U.S. Coast Guard passage while “pledg[ing] that all navigation by U.S. icebreakers within waters claimed by Canada to be internal will be undertaken with the consent of the Government of Canada” and without “affect[ing] the respective positions of the Governments of the United States and of Canada on the Law of the Sea in this or other maritime areas or their respective positions regarding third parties.”³⁸ The year after this agreement was signed, the Exxon Valdez

30. Adjacent Territories Order, 1880 (U.K.) (formerly Order of Her Majesty in Council Admitting All British Possessions and Territories in North America and Islands Adjacent Thereto into the Union, July 31, 1880), <https://www.justice.gc.ca/eng/rp-pr/csj-sjc/constitution/lawreg-loireg/p1t81.html>; see also SARAH BONESTEEL, INDIAN & N. AFFAIRS CAN., CANADA'S RELATIONSHIP WITH INUIT: A HISTORY OF POLICY AND PROGRAM DEVELOPMENT (2006), https://www.aadnc-aandc.gc.ca/DAM/DAM-INTER-HQ/STAGING/texte-text/inuit-book_1100100016901_eng.pdf.

31. Canada Act, 1982, c 11 (U.K.), part II, art. 35, reprinted in R.S.C. 1985, app. II, no. 44 (Can.); Constitution Act, 1982, being Schedule B to the Canada Act, 1982, c 11 (U.K.).

32. Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada (May 25, 1993), http://www.collectionscanada.gc.ca/webarchives/20071124140800/http://www.ainc-inac.gc.ca/pr/agr/pdf/nunav_e.pdf.

33. See Tony Penikett & Adam Goldenberg, *Closing the Citizenship Gap in Canada's North: Indigenous Rights, Arctic Sovereignty, and Devolution in Nunavut*, 22 MICH. ST. INT'L L. REV. 23 (2013).

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

35. ROBERT DUFRESNE, LIBRARY OF PARLIAMENT, CAN., PRB 07-47E, CONTROVERSIAL CANADIAN CLAIMS OVER ARCTIC WATERS AND MARITIME ZONES 2 (2008), http://publications.gc.ca/collections/collection_2008/lop-bdp/prb/prb0747-e.pdf.

36. Territorial Sea Geographical Coordinates (Area 7) Order, SOR/1985-872 (Can.).

37. Agreement Between the Government of Canada and the Government of the United States of America on Arctic Cooperation, Can.-U.S., Jan. 11, 1988, T.I.A.S. 11565, <https://treaties.un.org/doc/publication/unts/volume%201852/volume-1852-i-31529-english.pdf>.

38. *Id.*

ran aground in the Prince William Sound, spilling 10.8 million gallons of crude oil.³⁹ Shortly after the spill, Finland invited the other seven Arctic nations to start forming what would become the Arctic Council with the 1996 Ottawa Declaration.⁴⁰ In May of 2008, the five Arctic Ocean littoral states met in Ilulissat to agree that UNCLOS “provides for important rights and obligations concerning . . . the protection of the marine environment, including ice-covered areas [and] freedom of navigation.”⁴¹ Later that year, Canada announced they would extend their pollution control zone system (NORDREG) to 200 nautical miles and require mandatory reporting.⁴² This claim received immediate protests from the international community, including the United States.⁴³ Canada has also not issued Traffic Separation Schemes for the Arctic.⁴⁴

In 2009 the Canadian Government signed a memorandum of understanding with the Qikiqtani Inuit Association (QIA) to develop the eastern entrance of the NWP into the Tallurutiup Imanga National Marine Conservation Area.⁴⁵ Since then, funding was allocated, boundaries were negotiated, and the final management plan and Inuit Impact and Benefit Agreement are expected to be complete by April 2019. This will formalize the creation of Canada’s newest National Marine Conservation Area⁴⁶ in recognition of the area as home to most of the world’s narwhals and significant populations of bowhead and beluga whales, walrus, seals, polar

39. *Details About the Accident*, EXXON VALDEZ OIL SPILL TR. COUNCIL (Feb. 1990), <http://www.evostc.state.ak.us/index.cfm?FA=facts.details>.

40. Arctic Council, Declaration on the Establishment of the Arctic Council (Sept. 19, 1996), https://oaarchive.arctic-council.org/bitstream/handle/11374/85/EDOCS-1752-v2-ACMM CA00_Ottawa_1996_Founding_Declaration.PDF?sequence=5&isAllowed=y.

41. Arctic Ocean Conference, The Ilulissat Declaration (May 28, 2008), https://www.regjeringen.no/globalassets/upload/ud/080525_arctic_ocean_conference-_outcome.pdf.

42. Press Release, Stephen Harper, Prime Minister of Can., PM Announces Government of Canada Will Extend Jurisdiction over Arctic Waters (Aug. 27, 2008), <https://pm.gc.ca/eng/media.asp?id=2248> [<https://web.archive.org/web/20080906065156/https://pm.gc.ca/eng/media.asp?id=2248>].

43. J. ASHLEY ROACH & ROBERT W. SMITH, *EXCESSIVE MARITIME CLAIMS* 189-90 (3d ed. 2012); *see also* U.S. DEP’T OF STATE, *LIMITS IN THE SEAS*, No. 112, UNITED STATES RESPONSE TO EXCESSIVE NATIONAL MARITIME CLAIMS 73 (1992).

44. MICHAEL BYERS, *ARCTIC OIL: CANADA’S CHANCE TO GET IT RIGHT* 38 (2016), https://byers.typepad.com/files/michaelbyers_knowledgesynthesisreport_arcticoil_18may2016.pdf.

45. *National Marine Conservation Areas, Timeline and Next Steps*, PARKS CAN., <https://www.pc.gc.ca/en/amnc-nmca/cnamnc-cnmca/tallurutiup-imanga/chronologie-timeline> (last updated May 24, 2018).

46. Beth Brown, *QIA, Feds Lay Groundwork for Inuit Benefits Deal on Marine Area*, NUNATSIAQ NEWS (Dec. 6, 2018), <https://nunatsiaq.com/stories/article/qia-feds-lay-groundwork-for-inuit-benefits-deal-on-marine-area/>.

bears, seabirds, and fish. Canada's most recent tentative list of World Heritage Sites includes Tallurutiup Imanga.⁴⁷

In contrast to Canada's efforts to close the NWP is Russia's desire to economically develop their northern coast. Prior to negotiating Article 234, the Soviet Union declared their Arctic coast as internal waters in 1960 with national jurisdiction to the limits of their Exclusive Economic Zone (EEZ).⁴⁸ Their modern Arctic expansion began with the 2008 "Basics of the State Policy of the Russian Federation in the Arctic for the Period up to 2020 and Beyond."⁴⁹ This law implemented mandatory reporting for foreign vessels with compulsory icebreaking and pilotage, including a Chinese government research vessel *Xuelong*.⁵⁰ In 2013, the Russian government issued new "Rules of Navigation in the Water Area of the Northern Sea Route," in hopes of rivaling the Panama Canal with a shorter and slightly cheaper route.⁵¹ In 2016, the Northern Sea Route Administration (NSRA) issued 718 permits for the Northern Sea Route, including 20% to foreign commercial vessels.⁵² Compliance with NSRA's fees and lack of sovereign vessel transit can act as an emerging acquiescence to this domestic legal regime.⁵³ The navigation period is currently five months, but warming trends and stronger vessels could add up to one more month, leading to questions about application of Article 234's requirement that areas be ice-covered for "most of the year."⁵⁴

IV. APPLICABLE LEGAL OBLIGATIONS

As affirmed in *Ilulisat*, UNCLOS creates the regime for straits used for international navigation and limits the sovereignty and jurisdiction of coastal states bordering such straits when that water would otherwise be part of their territorial sea.⁵⁵ Whereas innocent passage through territorial seas allows coastal states to use domestic legislation to require tankers, nuclear-powered ships, and other dangerous vessels to confine their

47. *World Heritage Sites in Canada, Canada's Tentative List, Sirmilik National Park and the Proposed Tallurutiup Imanga National Marine Conservation Area, Nunavut*, PARKS CAN., <https://www.pc.gc.ca/en/culture/spm-whs/indicative-tentative/sirmilik> (last updated Dec. 20, 2017).

48. Zou, *supra* note 25, at 290.

49. Russian Federation Policy for the Arctic to 2020 (Mar. 30, 2009), *translation at* <http://www.arctis-search.com/Russian+Federation+Policy+for+the+Arctic+to+2020>.

50. Zou, *supra* note 25, at 291.

51. Sean Fahey, *Access Control: Freedom of the Seas in the Arctic and the Russian Northern Sea Route Regime*, 51 HARV. NAT'L SEC. J. 154, 168 (2018).

52. *Id.* at 154, 196.

53. *Id.* at 170.

54. Zou, *supra* note 25, at 289.

55. UNCLOS, *supra* note 4, art. 34.

passage through specific sea lanes, coastal states must seek approval from the International Maritime Organization for such lanes in straits used for international navigation.⁵⁶ These limited competencies are supplemented somewhat by the powers provided in Article 42, including the adoption of laws and regulations respecting “the prevention, reduction and control of pollution, by giving effect to applicable international regulations regarding the discharge of oil, oily wastes and other noxious substances in the strait.”⁵⁷ This difference is also reflected in the duties of ships in transit passage in Article 39, requiring compliance “with generally accepted international regulations, procedures and practices for the prevention, reduction and control of pollution from ships.”⁵⁸ As such, vessels using straits for international navigation must only comply with traffic separation schemes, fishing and research prohibitions, and international regulations for the prevention, reduction, and control of vessel-source pollution.

At the time UNCLOS was signed, these “international regulations” referenced the MARPOL 73/78 restrictions on regulation, the prevention of pollution by oil (Annex I) and “noxious liquid substances in bulk” (Annex II).⁵⁹ However, the additional MARPOL 73/78 Annexes regulating ship sewage, ship garbage, and ship source pollution appear outside of the competences allowable under the language of Article 42(1)(b).⁶⁰ Article 237(2) also states explicitly that the “obligations assumed by States under special conventions, with respect to the protection and preservation of the marine environment, shall be carried out in a manner consistent with the general principles and objectives of [UNCLOS].”⁶¹ For User states, this language reserves passage rights from additional obligations presented in MARPOL 73/78 and the United Nations Framework Convention on Climate Change instruments. For Canada and Russia, savings clauses in MARPOL 73/78 (Article 9(2)) and SOLAS (Chapter XIV, Regulation 2.5), were intended to preserve Article 234 powers against the requirements for international consultation.⁶²

56. Compare *id.* art. 22(2), with *id.* art. 41(2).

57. UNCLOS, *supra* note 4, art. 42(b).

58. *Id.* art. 39(2)(b).

59. See MARPOL 73/78, *supra* note 23, annexes I, II.

60. See *id.* annexes III-VI.

61. UNCLOS, *supra* note 4, art. 237(2).

62. MARPOL 73/78, *supra* note 23, art. 9(2); SOLAS, *supra* note 29, ch. XIV; see also J. Ashley Roach, *Arctic Navigation: Recent Developments*, in CHALLENGES OF THE CHANGING ARCTIC, *supra* note 7, at 231-41.

While coastal states shall not impede the right of transit passage provided in Part III under Article 38(1), Part XII creates an obligation to protect and preserve the marine environment while only refraining from “unjustifiable interference” with rights and duties of transit passage under Article 194(4). While domestic legislation is disfavored, States bordering straits are empowered to cooperate with User States “for the prevention, reduction and control of pollution from ships” under Article 43.⁶³ This approach is enhanced by Article 197, which directs states to “cooperate . . . on a regional basis, directly or through competent international organizations, in formulating and elaborating international rules, standards and recommended practices . . . for the protection and preservation of the marine environment.”⁶⁴ Additional coastal state measures to combat pollution from vessels contained in Article 211 regarding “special circumstances” are specifically disclaimed in Article 233 from applying to transit passage.⁶⁵

While international action is clearly preferred through UNCLOS Part XII, Article 234 does provide coastal states with the “right to adopt and enforce non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered areas.” This right is qualified to only exist

within the limits of the exclusive economic zone[,] where particularly severe climatic conditions and the presence of ice covering such areas for most of the year create obstructions or exceptional hazards to navigation, and pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance.⁶⁶

In addition, “[s]uch laws and regulations shall have due regard to navigation and the protection and preservation of the marine environment based on the best available scientific evidence.”⁶⁷ Due regard for navigation appears to recognize actions that do not hamper or impede passage but, like the prohibition against ‘unjustifiable interference’ in Article 194(4), does not contain a functional definition of acceptable unilateral state action. In addition, the reservations afforded straits for international navigation in Article 233 do not reference Article 234.⁶⁸ The application of Article 234 requires three conditions: severe climatic

63. UNCLOS, *supra* note 4, art. 43(b).

64. *Id.* art. 197.

65. *Id.* arts. 211(6), 233.

66. *Id.* art. 234.

67. *Id.*

68. Donald M. McRae, *The Negotiation of Article 234*, in *POLITICS OF THE NORTHWEST PASSAGE* 104, 110 (Franklyn Griffiths ed., 1987).

conditions, the potential to cause irreversible disturbances to ecological balance, and the presence of ice-covered areas.⁶⁹ While the first two conditions still exist, the reduction of ice cover due to global warming has led to a reconsideration of the applicability of this provision.⁷⁰ Though ice-tracking satellites has made it easier to quantify the total cover, yearly fluctuations and the potential of the provision coming into and out of applicability would create a confusing regime.⁷¹ At one end, Canada argues that 10% ice coverage for at least six months and a day every year is necessary, while the United States argues that Article 234 may no longer be applicable to all of Canada's arctic waters due to "a lack of persistent ice cover."⁷² Fundamental changes in conditions that acted as a basis of signing a treaty are interpreted through article 62(1) of the 1969 Vienna Convention of the Law of Treaties (VCLT), which suggests that such unforeseen circumstances may have implications for nullifying all national laws adopted under Article 234.⁷³

The last clause of Article 234 also requires all national regulations be based on the "best available scientific evidence."⁷⁴ A recent study by the Canadian Hydraulics Center concluded that NORDREG zones did not have a solid foundation in available science, thus questioning Canada's reliance on Article 234 to require compliance from foreign vessels.⁷⁵ Canada's recent increases in funding for Arctic science, as well as recent scientific studies under the Arctic Council, may fill in many of the gaps left by the NORDREG regime. Hydrographic surveys in the NWP may also be carried out by non-Canadian nations after passage of the Agreement on Enhancing International Arctic Scientific Cooperation.⁷⁶ However, Article 6.2 of this agreement states that marine research shall be carried out consistent with UNCLOS, which does not allow for scientific activity in straits used for international navigation, although these straits have the greatest need for modern hydrographic surveying that would

69. UNCLOS, *supra* note 4, art. 234.

70. See Fahey, *supra* note 51, at 177.

71. P.E. Steinberg, *Steering Between Scylla and Charybdis: The Northwest Passage as Territorial Sea*, 45 OCEAN DEV. & INT'L L. 84, 90-92 (2014).

72. *Id.* at 99.

73. Vienna Convention on the Law of Treaties (1969), 1155 U.N.T.S. 331 art. 61(1).

74. UNCLOS, *supra* note 4, art. 234.

75. Peter Luttmann, *Ice-Covered Areas Under the Law of the Sea Convention: How Extensive Are Canada's Coastal State Powers in the Arctic?*, in 29 OCEAN YEARBOOK 85, 119 (A. Chircop et al. eds., 2015).

76. Agreement on Enhancing International Arctic Scientific Cooperation (May 11, 2017), <https://oaarchive.arctic-council.org/handle/11374/1916>.

advance the safety of international vessels exercising their passage rights.⁷⁷

Since the passage of UNCLOS, several additional multilateral environmental agreements covering the marine environment have come into force. In 1993, the Convention on Biological Diversity (CBD) came into force following the 1992 UNCED.⁷⁸ While this treaty enshrines principles of marine conservation and sustainability, Article 22 requires application consistent with rights under UNCLOS.⁷⁹ In addition to the CBD, the 1992 UNCED Summit resulted in the adoption of Agenda 21, which includes Article 17 relating to “protection of the oceans [and] all kinds of seas.”⁸⁰ While this agreement also reflects the rights and obligations of UNCLOS, it is also designed to reflect “new approaches to marine and coastal area management and development, at the national, subregional, regional and global levels.”⁸¹ The enumerated “[m]anagement-related activities” are certainly more detailed than the environmental protection regime for coastal States than UNCLOS, but there is still a push for action at “appropriate levels,” which, for regulations of straits used for international navigation, remains at the international, rather than domestic, level.⁸²

V. PASSAGES FOR DISPUTE RESOLUTION

While clearly favoring international cooperation, UNCLOS Part XV is dedicated to the “Settlement of Disputes” through “peaceful means,” providing state parties with a choice of forums, including the International Tribunal for the Law of the Sea (ITLOS), the International Court of Justice, or arbitration tribunals constituted in accordance with Annexes VII or VIII.⁸³ Since neither Russia or Canada chose one of these methods on ratification, any dispute involving different interpretations of UNCLOS would be heard by a binding Annex VII Arbitral Tribunal.⁸⁴ These two nations also cited the exceptions in Article 298 upon ratification, removing

77. *Id.* art. 6.2.

78. Convention on Biological Diversity 1992, June 5, 1992, 31 I.L.M. 818.

79. *Id.* art. 22.

80. U.N. Conference on Environment and Development, *Report of the United Nations Conference on Environment and Development*, U.N. Doc. A/CONF.151/26 (vol II) (Aug. 13, 1992), <https://www.un.org/documents/ga/conf151/aconf15126-2.htm>.

81. *Id.* art. 17.1.

82. *Id.* art. 17.6(b).

83. UNCLOS, *supra* note 4, arts. 280, 287.

84. Robert Beckman, *UNCLOS Dispute Settlement Regime and Arctic Legal Issues*, in CHALLENGES OF THE CHANGING ARCTIC, *supra* note 7, at 575.

disputes regarding sea boundary disputes, certain government vessels, with Russia going further, refusing to appear in the ITLOS action under Annex VII regarding the law enforcement dispute in the *Arctic Sunrise*.⁸⁵ The disclaimer against adjudicating disputes regarding historic title claimed by Canada over the Arctic Archipelago and the fact that these claims are outside the scope of UNCLOS and governed by customary international law means the full contours of the Arctic dispute are outside the scope of UNCLOS.⁸⁶ Passage rights and whether coastal state protections for the marine environment exceed their powers would be subject to compulsory procedures under Section 2 of Part XV if the issue cannot be resolved through negotiation.⁸⁷ Similarly, a dispute regarding the interpretation of Article 234 would be resolved by a binding decision and cannot be excluded from consideration by an Article 298 reservation.⁸⁸

Despite the Article 234 grant of some exceptional authority to coastal States, UNCLOS clearly prefers regional measures and cooperative management, as evidenced by Part IX regarding semi-enclosed seas, Part XII, Section 2, regarding pollution control, and Part XIV, regarding marine scientific research.⁸⁹ Article 43, in the transit passage section, also encourages cooperation.⁹⁰ These cooperative measures have only been used to regulate traffic in the Straits of Malacca and Singapore Straits, resulting in a “Co-operative Mechanism” between Malaysia, Singapore, and Japan, established in 2006.⁹¹ This mechanism followed ten years of negotiations at the IMO that included adopting a mandatory ship reporting system known as STRAITREP under SOLAS Regulation V/8-1 (Regulation V/11-1 as of July 1, 2002).⁹² In contrast to strictly domestic measures, the three States negotiated together then sought international approval.

In addition to recognizing specialized regional instruments negotiated between coastal and user states, the IMO has facilitated this process since 1991 through a process for designating particularly sensitive

85. UNCLOS, *supra* note 4, art. 298; *The Arctic Sunrise (Kingdom of the Netherlands v. the Russian Federation)*, Provisional Measures (Order of Nov. 22, 2013), ITLOS Reports 2013, 230.

86. Beckman, *supra* note 84, at 578-79.

87. *Id.* at 579, 581.

88. UNCLOS, *supra* note 4, art. 298.

89. *Id.*

90. *Id.* art. 43.

91. Robert Beckman, *Singapore Strives to Enhance Safety, Security, and Environmental Protection in Its Port and in the Straits of Malacca and Singapore*, 14 OCEAN & COASTAL L.J. 167, 192 (2009).

92. IMO Res. MSC.73(69) (May 19, 1988).

sea areas (PSSAs).⁹³ This designation, updated in 2005, provides a standard set of criteria and mechanisms to balance the interests of coastal states and the shipping community.⁹⁴ Section 6 of the 2005 Guidelines allows for the “[d]evelopment and adoption of other measures aimed at protecting specific sea areas against environmental damage from ships, provided that they have an identified legal basis,” such as the mandatory ship reporting measures covered in SOLAS Chapter V.⁹⁵ The update recognized that “a strong current seemed to be emerging among international PSSA experts that the concept could be used to justify exceptional measures adopted by a coastal state . . . and that IMO processes might provide the necessary legal foundation for those extraordinary measures.”⁹⁶

The first PSSA, in the Great Barrier Reef (GBR) in Australia’s EEZ, included recommended compliance with Australia’s system of compulsory pilotage.⁹⁷ While the PSSA was effective at reducing ship damage to the GBR, ships continued to collide in the nearby Torres Strait between Australia and Papua New Guinea, leading the two nations to ask the IMO to extend the PSSA (and compulsory pilotage regime).⁹⁸ The IMO expanded the PSSA and voluntary pilotage regime to the Torres Strait in 2005 but referred the issue of compulsory pilotage to the IMO Legal Committee, who were unable to reach a conclusion about the legality of those measures in light of the UNCLOS restrictions against hindering transit passage in international straits.⁹⁹ In 2006, Australia adopted compulsory pilotage as an additional protective measure under the PSSA against the protests of the United States, Singapore, and others.¹⁰⁰ In light of the protests, the Australian regime is only compulsory for vessels over seventy meters and all oil, chemical, and liquefied natural gas (LNG) carriers, it does not apply to sovereign vessels, and the penalties

93. IMO Res. A.720(17) (Nov. 6, 1991), <http://www.imo.org/en/KnowledgeCentre/IndexofIMOResolutions/Assembly/Documents/A.720%2817%29.pdf>.

94. Lalonde, *supra* note 27, at 166, 170-71.

95. IMO Res. A.928(24), Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas (Dec. 1, 2005), <http://www.imo.org/en/OurWork/Environment/PSSAs/Documents/A24-Res.982.pdf>.

96. Lalonde, *supra* note 27, at 175.

97. IMO Draft Res. MEPC.45(30), Protection of the Great Barrier Reef Region, IMO Doc. MEPC 30/24, annex 18 (Nov. 16, 2990), [http://www.imo.org/en/KnowledgeCentre/IndexofIMOResolutions/Marine-Environment-Protection-Committee-\(MEPC\)/Documents/MEPC.45\(30\).pdf](http://www.imo.org/en/KnowledgeCentre/IndexofIMOResolutions/Marine-Environment-Protection-Committee-(MEPC)/Documents/MEPC.45(30).pdf).

98. Jeanne Amy, *Historically Iced Out: Calling on the United States to Resolve Its International Law Disputes in the Arctic Ocean*, 40 TUL. MAR. L.J. 137, 151 (2015).

99. Lalonde, *supra* note 27, at 177; *see also* UNCLOS, *supra* note 4, arts. 42, 44.

100. Robert C. Beckman, *PSSAs and Transit Passage—Australia’s Pilotage System in the Torres Strait Challenges the IMO and UNCLOS*, 38 OCEAN DEV. & INT’L L. 325, 326 (2007).

for noncompliance are only assessed upon entry to an Australian port, leaving internationally transiting vessels outside their reach.¹⁰¹ Australia's efforts to enact mandatory pilotage through the IMO was rejected despite the acknowledgement of the ecological value, documented vulnerabilities, and the restrained efforts to reach those goals.¹⁰²

The other strait used for international navigation to receive PSSA status is the Straits of Bonifacio situated between Corsica and Sardinia.¹⁰³ Throughout the 1990s and 2000s, the site received recognition under the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean,¹⁰⁴ as the Pelagos Sanctuary under the Specially Protected Marine Area of Mediterranean Importance,¹⁰⁵ as a Natura 2000 site of European Importance,¹⁰⁶ and through domestic legislation in Italy and France banning the passage of nationally flagged tankers carrying petroleum or other toxic substances.¹⁰⁷ Despite these efforts, the IMO listened to the concerns from user states about freedom of navigation, and the final PSSA only includes a provision for recommended pilotage.¹⁰⁸

In between the poles of the IMO and purely domestic legislation are regional organizations, specifically the Arctic Council, consisting of the eight Arctic states, six regional indigenous groups, and several non-Arctic observer states, including the European Union and China.¹⁰⁹ The Arctic Council coordinates several working groups contributing scientific assessments and providing a soft law forum for Arctic cooperation and best practices conventions.¹¹⁰ As the Arctic Council becomes more global

101. Lalonde, *supra* note 27, at 183 (quoting Sam Bateman & Michael White, *Compulsory Pilotage in the Torres Strait: Overcoming Unacceptable Risks to a Sensitive Marine Environment* 40 OCEAN DEV. & INT'L L. 184, 187-88).

102. Lalonde, *supra* note 27, at 183.

103. IMO MEPC, Designation of the Strait of Bonifacio as a Particularly Sensitive Sea Area, June 25, 2010, MEPC 61/9 (adopted by IMO Res. MEPC.204(62), July 15, 2011) [hereinafter MEPC 61/9], [http://www.imo.org/en/KnowledgeCentre/IndexofIMOResolutions/Marine-Environment-Protection-Committee-\(MEPC\)/Documents/MEPC.204\(62\).pdf](http://www.imo.org/en/KnowledgeCentre/IndexofIMOResolutions/Marine-Environment-Protection-Committee-(MEPC)/Documents/MEPC.204(62).pdf).

104. Convention for the Protection of the Mediterranean Sea Against Pollution, Feb. 16, 1976 (amended and renamed Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean, June 10, 1995).

105. International Agreement for the Creation of a Mediterranean Sanctuary for Marine Mammals, Fr.-It.-Monaco, Nov. 25, 1999.

106. See MEPC 61/9, *supra* note 103, at 4.

107. *Id.* at 16-17.

108. *Id.* at 15-16.

109. *The Arctic Council: A Background*, ARCTIC COUNCIL, <https://arctic-council.org/index.php/en/about-us> (last visited May 2, 2019).

110. See Timo Koivurova & Malgorzata Smieszek, *The Arctic Council at 20: The Value of Flexibility*, WORLD POL'Y (Dec. 7, 2016), <https://worldpolicy.org/2016/12/07/the-arctic-council->

by admitting Asian observer states and successfully negotiating a Central Arctic Fisheries Agreement (CAFA), it becomes another international step that Canada and Russia will not agree to.¹¹¹ While CAFA “acknowledge[s] that . . . ecosystems are changing due to climate change and other phenomena,” it suggests that the Arctic is “relatively unexposed to human activities” and “the effects of these changes are not well understood.” It is important that Arctic nations coordinate ecosystem management, but many of those States do not currently prioritize protecting nature when there is commercial potential.

VI. FROM COLD WAR TO ICY PEACE TREATY

Whether international interests in navigational freedoms are represented at the Arctic Council or the IMO, it is clear that the potential harm to the marine environment from increased shipping and industry could compound the harms of global warming in a location where few coastal states are operationally capable of carrying out safety measures. Canada, Russia, and the United States have interests—but their obligations must be fulfilled as a treaty instrument or PSSA. The opening commercial potential of the Russian Arctic stands in contrast to the protective environmental closing of the Canadian Arctic. The global interests in international shipping are slowly being bound by more restrictive environmental concerns about sea-level rise. Increasing usable commercial sea lanes while protecting the environment is still the goal of UNCLOS, even when its provisions conflict. Without clarification, these two conflicting regimes have negative impacts on other freedom of navigation disputes.

If environmental protection is at the forefront of the treaty regime, there must be limited ability to exploit land-based resources in low-lying areas and enforceable restrictions on oil and other noxious substances, as any efforts that would hinder the return of ice must be considered in the context of the precautionary principle. Restrictions on land-based resource extraction can be accomplished domestically through a variety of measures, including increased Environmental Impact Assessment standards. Some restrictions on oil and other noxious substances were

at-20-the-value-of-flexibility/; ARTIC COUNCIL, ARTIC OFFSHORE OIL AND GAS GUIDELINES (2009), <https://oarchive.arctic-council.org/bitstream/handle/11374/63/Arctic-Guidelines-2009-13th-Mar-2009.pdf?sequence=1&isAllowed=y>.

111. Annex to the Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean, art. 3(3) (2018), https://eur-lex.europa.eu/resource.html?uri=cellar:2554f475-6e25-11e8-9483-01aa75ed71a1.0001.02/DOC_2&format=PDF.

adopted through the Polar Code, but it does not prohibit carrying heavy fuel oil in the Arctic, although pressure is mounting on the IMO to ban the practice as soon as possible.¹¹² Reducing the presence of oil can also be done internationally by raising the liability caps under the 1996 International Convention on Civil Liability for Oil Pollution Damage (CLC Convention) and the 1971 International Convention on the Establishment of the International Fund for Compensation for Oil Pollution Damage (Fund Convention).¹¹³ While the damage to any spill would be mostly environmental, the CLC Convention currently compensates minimally for environmental damage, requiring a much larger amendment that would have to outline how damage would be calculated, a quite controversial issue.¹¹⁴ Aside from politics, there is nothing in Article 15 preventing regional application, especially if done in a comprehensive manner that is responsive to the plight of island nations and low-lying nations.¹¹⁵

Mirroring the mechanism for the Straits of Malacca rather than the Torres Strait would also mean establishing an “Aids to Navigation Fund” to improve navigational safety and environmental protection.¹¹⁶ While collection of compulsory fees under Russian domestic law hampers transit passage, an internationally constituted fund could direct resources to sparse areas across the Arctic. With “only 1 percent of Canadian Arctic waters are adequately surveyed [and] 10 percent of nautical charts meet[ing] modern standards,” Canada is unable to meet the standard for relying on Article 234.¹¹⁷ The Arctic Council’s Arctic Marine Shipping Assessment (AMSA) report notes deficiencies in “hydrographic data and modern charting; navigational aids; icebreaker capacity; on-shore infrastructure, such as ports, roads, and beacons; and oil spill response capacity, including equipment and trained personnel.”¹¹⁸ While costs of these have not been totaled by the Canadian government, their investment

112. *IMO Progress on Arctic Heavy Fuel Oil Ban Welcomed by Environmental and Indigenous Groups*, HFO-FREE ARTIC (Oct. 10, 2018), <https://www.hfofreearctic.org/en/2018/10/26/imo-progress-on-arctic-heavy-fuel-oil-ban-welcomed-by-environmental-and-indigenous-groups/>.

113. See INT’L OIL POLLUTION COMP. FUNDS, LIABILITY AND COMPENSATION FOR OIL POLLUTION DAMAGE (2018) [hereinafter CLC CONVENTION], https://www.iopcfunds.org/uploads/tx_iopcpublications/Text_of_Conventions_e_01.pdf; BYERS, *supra* note 44, at 44.

114. CLC CONVENTION, *supra* note 113, at 7.

115. *Id.* at 15-16.

116. Beckman, *supra* note 91, at 192.

117. PEW, THE INTEGRATED ARCTIC CORRIDORS FRAMEWORK 24 (2016), <https://www.pewtrusts.org/-/media/assets/2016/04/the-integrated-arctic-corridors-framework.pdf>.

118. *Id.*

in Nunavut is only \$556 million over the next decade.¹¹⁹ Perhaps international investment will encourage Canada to move away from their expansive view of coastal State authority and allow for the issuance of Traffic Separation Schemes.

Protecting the Arctic from the extreme effects of global climate change by limiting commercial ice breaking are crucial for allowing ice to return. As low-lying and island states consider legal action for warming's impact on their disappearing coasts, "interference" against vessels in transit passage becomes less and less "unjustifiable."¹²⁰ Canada, Russia, and commercial shipping interests can no longer ignore that the disappearance of glaciers is a global issue requiring collective action. The recent history of Arctic cooperation provides numerous forums to peacefully resolve these disputes as the atmosphere gets hotter and ice melts into more extreme floods.

119. *Investing in Canada Plan, Infrastructure Canada Bilateral Agreements—Nunavut*, INFRASTRUCTURE CAN., <https://www.infrastructure.gc.ca/pt-sp/nu-eng.html> (last visited May 2, 2019).

120. UNCLOS, *supra* note 4, arts. 192, 194(4).