Climate Obligations for International Shipping

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PhD dissertation

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Climate Obligations for International Shipping

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ABBREVIATIONS

AG	Advocate General
CBDR	Common-but-differentiated Responsibilities
CBDR-RC	Common-but-differentiated Responsibilities and Respective Capabilities
CDEM	Construction, Design, Equipment, and Manning
EU	European Union
GAIRS	Generally Accepted International Rules and Standards
GHG	Greenhouse Gases
ICJ	International Court of Justice
ILC	International Law Commission
IMRB	International Maritime Research Board
IMO	International Maritime Organization
IPCC	Intergovernmental Panel on Climate Change
LDCs	Least Developed Countries
LOSC	United Nations Convention on the Law of the Sea
MARPOL	International Convention for the Prevention of Pollution from Ships
MEPC	Marine Environment Protection Committee
MSEN	Multi-Sourced Equivalent Norms
NDC	Nationally Determined Contribution
SDG	Sustainable Development Goals
SIDS	Small Island Developing States
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
VCLT	Vienna Convention on the Law of Treaties
VCLT-IO	Vienna Convention on the Law of Treaties Between States and International Organizations or between International Organizations

Chapter 1

Introduction

1. Problem and Overview

The problem this dissertation addresses can be traced to 1838. That year, a fire broke out aboard the *Great Western* just as it began its first voyage from Bristol to New York.[1] It was the largest ship in the world and the only purpose-built steamship for trans-Atlantic crossings.[2] The *Great Western* was racing a much smaller steamship, the *Sirius*, which had departed days earlier. Newspapers dramatically speculated on which ship would arrive first and whether coal-powered shipping could succeed.[3] Most *Great Western* passengers cancelled their bookings after the fire, but the ship recovered and arrived shortly after the *Sirius*. It completed the journey in a record 14 days, demonstrating that steamships could economically compete on international voyages.[4] As dozens more were built in the following years, the shipping sector's transition to fossil fuels began.[5]

Over the next century, that transition proceeded in fits and starts driven by market forces and government subsidies. Ships sailing on routes with strong and constant winds carrying bulk goods remained profitable, while faster but heavier steam ships could guarantee regular departure and arrival times for wealthy passengers.[6] Mail subsidies and technical improvements for both wind and steam drove relative market share.[7] Eventually wind propulsion gave way almost entirely to fossil fuels. Today, heavy fuel oil, marine diesel oil, and natural gas supply 98.8 percent of power for international cargo and passenger shipping.[8]

Because of that fuel mix, the sector accounts for around 700 million metric tons of greenhouse gas (GHG) emissions annually; if it were a country, international shipping would be the eighth largest source of climate pollution.[9] Shipping's future emissions will be driven

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1 Douglas R. Burgess, *Engines of Empire* (Stanford 2016), 7, 37.

2 Ibid., 34.

3 Ibid., 37-38.

4 Ibid., 39.

5 Frank W. Geels, 'Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case-study' (2002) 31 *Research Policy* 1257, 1265, 1270.

6 Ibid., 1268-70.

7 Ibid.

8 International Maritime Organization (IMO), Reduction of GHG Emissions From Ships, Fourth IMO GHG Study 2020, Final Report, IMO Doc. MEPC 75/7/15 (29 July 2020), Annex 1, 1, 7. A small percentage of vessels use methanol, 99.8 percent of which is produced using fossil fuels. Stefano Sollai et al., 'Renewable methanol production from green hydrogen and captured CO2: A techno-economic assessment' (2023) 68 *Journal of CO2 Utilization* 102345. See United Nations Conference on Trade and Development, Review of Maritime Transport 2023, UN Doc. UNCTAD/RMT/2023 (2023), 71.

9 United Nations Conference on Trade and Development, Review of Maritime Transport 2022, U.N. Doc. UNCTAD/RMT/2022 and Corr.1 (2022), 33, 107; Eur. Comm., JRC *Science for Policy Report: CO2 Emissions of all World Countries*, EUR 311812, 4, 33, 110 (2022). This dissertation occasionally refers to GHG emissions as climate pollution. As will be shown, they are classified

by global economic growth, patterns in international trade, and technological innovations.[10] Business-as-usual trajectories indicate that they will remain constant or rise to between 1,000 and 1,500 million metric tons of CO_2 annually by 2050. Thus, regulatory interventions are required if the sector is going to transition again, this time away from fossil fuels.[11]

That transition needs to be much faster than the last one: to prevent catastrophic global warming, scientists believe the sector must virtually decarbonize within the next 15 years.[12] Adding complexity to urgency, shipping is a vital part of a globally connected and interdependent economy that relies on it for its growth. The sector carries over 80 percent of goods in global trade, including energy, consumer, and agricultural products.[13] It is vast, comprised of over 100,000 merchant vessels that sail to thousands of ports.[14] Ships are often flagged to one state and owned, operated and crewed by numerous business entities located in different countries.[15] Whether and how shipping decarbonizes will have dramatic environmental, social, and economic consequences.

This dissertation is about the law that applies to this transition. Specifically, it analyzes how international law's doctrines and rules can be used to identify legal obligations to mitigate climate pollution from shipping.[16] Legal controls on GHGs have centered on traditional hierarchical forms of governance, with states committing to reduce emissions through the United Framework Convention on Climate Change (UNFCCC) process, and national and

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as environmental pollutants by a variety of legal instruments. It also concerns international as opposed to domestic shipping; unless otherwise indicated, the terms international shipping and shipping are used interchangeably.

10 IMO Fourth GHG Study, *supra* n. 8, 24-27.

11 Ibid., 26

12 Simon Bullock et al., 'The Urgent Case for Stronger Climate Targets for International Shipping,' (2022) 22(3) *Climate Policy* 301, 301 (Paris-compliant targets for international shipping 'require a 34% reduction in emissions by 2030, with zero emissions before 2050'); Jean-Marc Bonello et al., *Science Based Target Setting for the Maritime Sector* Version 11, 9 (2023), https://sciencebasedtargets.org/resources/files/SBTi-Maritime-Guidance.pdf ('For maritime transport emissions, a long-term science-based target means reducing emissions to a 96% residual level in line with 1.5°C scenarios by no later than 2040'); UNEP & UNEP Copenhagen Climate Center (UNEP-CCC), *Emissions Gap Report 2020*, xiii (2020), https://www.unep.org/emissions-gap-report-2020 (describing how shipping and aviation together will consume between 60 and 220 percent of carbon budget for 1.5 degrees by 2050).

13 UNCTAD, *supra* n. 8, xiii.

14 Ibid., 29.

15 Ibid., 32, 34-35.

16 For reasons of space, the important questions of what national laws require or whether ship owners or operators bear climate obligations are outside this dissertation's scope. It also does not address what if any environmental laws apply to naval vessels or other ships not used for commercial purposes.

local governments implementing policies.[17] But vessels in international shipping depart from and arrive at different states and pollute over the high seas, with the sector serving countries at all levels of development and with varied domestic legal frameworks. Thus, responsibility for ships' GHG emissions is not easily assigned, and these emissions are not included in national totals under the UNFCCC or Paris Agreement reporting schemes.[18]

Shipping's climate impacts are instead governed on a global level by the International Maritime Organization (IMO), a law-making agency of the United Nations with nearly universal membership among states.[19] In 2011, the IMO enacted energy efficiency regulations designed to reduce GHG emissions; several other maritime climate measures followed.[20] In July 2023, it resolved that the sector's emissions would be net zero by or around 2050, but the IMO's own studies show its measures will not meet that goal.[21] States are acting unilaterally, with the European Union requiring that shipping companies reduce emissions or purchase credits through its European Trading System and use renewable and low carbon fuels, while other states are funding technology research and implementing voluntary programs.[22]

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17 United Nations Framework Convention on Climate Change, art. 3, 9 May, 1992, 1771 U.N.T.S. 107, S. Treaty Doc No. 102-38 (1992); see, e.g., Australia's Nationally Determined Contribution 2022, available at https://unfccc.int/NDCREG, 4 ('As a federation, Australian States, Territories and local government also implement significant policies and programs to reduce greenhouse gas emissions and support clean energy technologies.'); Indonesia's Updated Nationally Determined Contribution 2022, 2, 8-9 (discussing strengthening of local capacity).

18 See UNFCCC, Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on the third part of its first session, held in Katowice from 2 to 15 December 2018, UN Doc. FCCC/PA/CMA/2018/3/Add.2, 23, 27. See generally Ellen Hey, 'Regime Interaction and Common Interests in Regulating Human Activities in Areas Beyond National Jurisdiction,' in S Trevisanut, et al. (eds) *Regime Interaction in Ocean Governance: Problems, Theories and Methods* (Brill 2020), 93-98.

19 See IMO, 'Introduction to IMO,' available at: https://www.imo.org/en/About/Pages/Default.aspx; Chapter 2, section 1.

20 IMO, Amendments to the Annex to the Protocol of 1997 to Amend the International Convention for the Prevention of Pollution From Ships, 1973, As Modified by the Protocol of 1978 Relating Thereto, IMO Doc. MEPC 203(62) (15 July 2011); IMO, Promotion of Technical Cooperation and Transfer of Technology Relating to the Improvement of Energy Efficiency in Ships, IMO Doc. MEPC 229(65) (17 May 2013); IMO, Amendments to the Annex to the Protocol of 1997 to Amend the International Convention for the Prevention of Pollution From Ships, 1973, As Modified by the Protocol of 1978 Relating Thereto, IMO Doc. MEPC 278(70) (28 October 2016); IMO, Amendments to the Annex to the Protocol of 1997 to Amend the International Convention on the for the Prevention of Pollution From Ships, 1973, As Modified by the Protocol of 1978 Relating Thereto, MEPC 328(76) (7 Jul. 2021).

21 IMO 2020 GHG Study, *supra* n. 8, Fig. 26.

22 See Directive (EU) 2023/959 of the European Parliament and of the Council amending Directive

Despite shipping's economic importance and significant environmental impacts, there has been relatively little scholarship on the law that applies to the sector's decarbonization. The IMO is an independent subject of international law that asserts that it is the sole competent global regulator of shipping's climate impacts.[23] It is also a forum for cooperation among its member states, who collectively and individually influence law-making within the organization, can govern various aspects of the sector unilaterally, and themselves bear climate obligations. This dissertation scrutinizes the legal relationship between the IMO and its member states to illuminate the law that applies to the reduction of GHG emissions from the international shipping sector. It answers the research question: what are the obligations of the IMO and its member states to reduce climate pollution from international shipping, and how can the scope and content of these obligations be determined through international institutional law?

This articles-based dissertation is structured as a series of four substantive chapters that each address an aspect of the overall research question; the chapters were published as independent articles.[24] The rest of this introduction sets out the context for the research question and how it is answered in order to establish a common framework for the articles that follow. I first provide a background on how the international shipping sector's GHG emissions are regulated under international law and by the IMO, and in so doing survey scholarship on the topic thus far. In section 3, I explain and justify the dissertation's methodology of using the IMO's practice and international institutional law as a theoretical perspective for understanding climate obligations for shipping. I then describe how the research question was developed, the sub-questions that are addressed, and the dissertation's structure. The introduction finishes by discussing the dissertation's social and academic relevance (section 5).

2. The Regulation of Shipping's Climate Pollution Under International Law

The *Great Western* operated in a very different regulatory environment from the one that exists today, and of course, the climate crisis and the factors driving it were unknown at

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2003/87/EC Establishing a System for Greenhouse Gas Emission Allowance Trading Within the Union and Decision (EU) 2015/1814 Concerning the Establishment and Operation of a Market Stability Reserve for the Union Greenhouse Gas Emission Trading System, 2023 J.L. (L 130/134), ¶ 19; Regulation 2023/1805 of the European Parliament and of the Council On the Use of Renewable and Low Carbon Fuels in Maritime Transport, and amending Directive 2009/16/EC, 2023 O.J. (L 234/48); Chapter 5, section 3.2 (discussing states' voluntary measures).

23 IMO, Position Paper to UNFCCC Ad-Hoc Working Group, IMO Doc. AWG-LCA 8) (Dec. 17-18, 2009), 6.

24 Due to that fact, this introduction and the following chapters necessarily repeat some information.

the time. This section offers a guide on the international law that applies to shipping's climate pollution. It first addresses the law of the sea and the IMO's mandate, then discusses climate law and how the maritime and climate regimes interact.[25]

The Law of the Sea and the International Maritime Organization

In the 19th century, there was customary freedom of the seas, meaning that ships were only subject to the laws of their flag state while on the high seas, but coastal states could exercise limited jurisdiction over ships in port or sailing within a narrow band of territorial sea.[26] As the international shipping sector grew sixty-fold from 1850 to 2000,[27] there was also a massive evolution in the regulatory regime governing it.[28]

The most significant aspect of that change—for the purposes of this dissertation—was the 1948 founding of the Inter-governmental Maritime Consultative Organization (IMCO).[29] Under its constitution, the IMCO was to facilitate the sector's orderly growth through the development of uniform regulations for ships. The organization was designed to serve as a forum for cooperation among its member states, and it was required to abstain from matters 'which appear to the Organization capable of settlement through the normal processes of international shipping business.'[30] The UN General Assembly brought IMCO into association with the United Nations as a specialized agency and recognized it as 'responsible for taking such action as may be appropriate under its basic instrument for the accomplishment of the purposes therein.'[31]

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25 Scholars who have studied shipping and climate change refer to legal 'regimes' and a 'regime complex.' See Beatriz Martinez Romera, *Regime Interaction and Climate Change: The Case of International Aviation and Maritime Transport* (Routledge, 2018); Daniel Bodansky, 'Regulating Greenhouse Gas Emissions from Ships: The Role of the International Maritime Organization', in H Scheiber et al. (eds), *Ocean Law Debates: The 50-Year Legacy and Emerging Issues for the Years Ahead*, (Brill Nijhoff, 2016), 481. The same terminology is employed here. Maritime law can refer to both private law and public law; this dissertation concerns the sub-discipline of the international law of the sea concerned with navigational rights and jurisdiction over ships.

26 Tullio Treves, 'Historical Development of the Law of the Sea,' in D Rothwell et al. (eds), *Handbook on the Law of the Sea* (Oxford 2016), 5-7.

27 Yrjö Kaukiainen, 'Growth, Diversification and Globalization: Main Trends in International Shipping since 1850,' in LR Fisher and E Lange, (eds) *International Merchant Shipping in the Nineteenth and Twentieth Centuries: A Comparative Dimension* (Liverpool, 2008), 6-7.

28 Alex G. Oude Elferink, 'De Groot – A Founding Father of the Law of the Sea, Not the Law of the Sea Convention,' (2009) 30 *Grotiana* 152, 160-162 (discussing modern limitations on the freedom of the high seas culminating in the LOSC).

29 See Michael McGonigle and Mark Zacher, *Pollution, Politics, and International Law: Tankers at Sea* (University of California, 1979), 40–1.

30 Convention of the Intergovernmental Maritime Consultative Organization (adopted 6 March 1948) 289 UNTS 3, Art. 4. See McGonigle and Zacher, *supra* n. 29, 40.

31 G.A. Res. 204 (iii), un Doc A/res/204(iii) (18 Nov. 1948), 61 (adopting the Economic and Social

In the 1970s, amendments to IMCO's constitution gave the organization a new name—the International Maritime Organization—that reflected an enhanced legislative mandate over shipping safety, navigation, and other matters.[32] With the adoption of the International Convention on the Prevention of Pollution from Ships (MARPOL), the IMO gained a law-making function for vessel-source pollution.[33] MARPOL annexes each cover a different type of pollution, including trash, noise, and hazardous waste.[34] They are adopted and amended through the IMO's Marine Environment Protection Committee and are made effective when ratified by a certain threshold of maritime states.[35] The IMO retains its original purpose, but it is now complemented with a mandate 'to encourage the general adoption of the highest practicable standards in matters concerning . . . the prevention of marine pollution from ships.'[36]

As MARPOL was being negotiated and adopted, so was the United Nations Convention on the Law of the Sea (the LOSC).[37] Among other things, that treaty establishes a legal framework for state rights and obligations related to international shipping and the environment.[38] Under the LOSC, states have primary prescriptive jurisdiction over vessel-source pollution for ships that fly their flag, in other words *flag states* establish substantive rules on the quantity and manner of permissible pollution.[39] States also have an increasingly important role under international law in prescribing and enforcing environmental rules for ships that voluntarily enter their ports; when acting in this capacity they are referred to as *port states*.[40]

Council Resolution 165(vii), 27 August 1948).

32 McGonigle and Zacher, *supra* n. 29, 40–1.

33 International Convention for the Prevention of Pollution from Ships (adopted 11 February 1973, as modified by the Protocol of 17 February 1978, entered into force 2 October 1983) 1340 UNTS 61. The registered version of the 1978 MARPOL Protocol incorporates the 1973 Convention as an annex; the Convention begins at 1340 UNTS 184. I refer to the 1973 Convention as 'MARPOL.'

34 See Saiful Karim, 'Implementation of the MARPOL Convention in Developing Countries', (2010) 79 *Nordic Journal International Law* 303, 312–13.

35 MARPOL, *supra* n. 33, Art. 16. This section refers to IMO adoption or amendments to MARPOL annexes as 'IMO rules.'

36 Convention on the Intergovernmental Maritime Consultative Organization, 6 March 1948, 289 UNTS 3, as amended, Art. 38. A consolidated version is contained in *IMO, Basic Documents, Volume I* (IMO, 2023 ed.).

37 United Nations Convention on the Law of the Sea, Dec. 10 1982, 1833 U.N.T.S. 396 [LOSC], Art. 192, 194, 210-12.

38 See generally Erik Molenaar, *Coastal State Jurisdiction over Vessel Source Pollution* (Kluwer Law International, 1998).

39 See generally Aaron Honniball, 'The Exclusive Jurisdiction of Flag States: a Limitation on Pro-active Port States?,' (2016) 31 *International Journal of Marine and Coastal Law* 499.

40 Ibid. Coastal states have a more limited role in enforcing environmental laws for ships sailing through their territorial seas or exclusive economic zones. See LOSC, *supra* n. 37, Art. 211(5);

Against this backdrop of overlapping state jurisdiction, the LOSC implicitly designates the IMO as the 'competent international organization' for establishing global environmental rules for shipping.[41] The LOSC makes IMO rules binding by requiring that flag states adopt national laws for vessel-source pollution that either have 'at least the same effect' as IMO rules, or take them 'into account.'[42] IMO rules are universally operationalized by MARPOL, which requires that they be enforced on all ships regardless of their nationalities under the 'no more favorable treatment' principle.[43] Thus, even if a state does not ratify a particular MARPOL annex or amendment, vessels flying its flag will still be subject to inspection and enforcement of IMO environmental rules when in port.[44] The IMO's rule-making function and majoritarian rules thus endow it with a quasi-legislative character.[45] They also give the organization an important role of bringing order to an otherwise fragmented regulatory system.

The IMO has adopted a series of mandatory rules and voluntary measures related to shipping's GHG emissions. These include energy efficiency measures in 2011 that prescribe ship speed and routing and engine rules for new ships, voluntary technical assistance and technology transfer measures in 2015, and mandatory GHG emission reporting rules for ships in 2016.[46] In 2018, it enacted its first GHG Strategy, which set overall levels of ambition for GHG reductions, identified measures to achieve reductions, and the principles that would guide the IMO's actions.[47] It strengthened and broadened the efficiency measures

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211(6); 220(2)(3).

41 LOSC, *supra* n. 37, Art. 211(1); Art. 212(3). See Molenaar, *supra* n. 38, 136-137 (the IMO is the competent international organization' for vessel-source pollution, although it shares competences on limited matters with the International Labor Organization and the International Atomic Energy Agency).

42 LOSC, *supra* n. 37, Art. 211(2), 212(1). That distinction is not directly relevant to the questions addressed here, although it is important for the scope of flag state prescriptive jurisdiction and the determines whether coastal states may enforce IMO climate rules for vessels sailing through their exclusive economic zones. See Ibid., Art. 211(5); Bodansky, *supra* n. 25, 490-91.

43 MARPOL, *supra* n. 33, Articles 5(4), 16(4)(a).

44 See IMO Assembly, 'Procedures for Port State Control, 2021,' IMO Doc. A 32/Res.1155 (15 Dec. 2021), Annex 5 (no more favorable treatment principle ensures an equivalent level of protection of the marine environment regardless of ships' nationalities).

45 The IMO's mandate and legal character is explored in discussed in each of the substantive chapters that follow. See Chapters 2.1, 3.1, 4.2, and 5.1.

46 See sources cited at n. 20, *supra*.
See Chapter 2, section 1 for a more comprehensive account of the IMO's history of regulating GHG emissions from shipping.

47 IMO, 'Adoption of the Initial IMO Strategy on the Reduction of Greenhouse Gases From Ships and Existing IMO Activity Related to Reducing GHG Emissions in the Shipping Sector', IMO Doc. MEPC 304(72) (13 April 2018); see Chapter 2.

in 2021.[48] In 2023, the organization adopted a revised GHG Strategy, stating that 'the IMO remains committed to reducing GHG emissions from international shipping.'[49] The Strategy calls for reducing shipping's emissions to net zero 'by or around, i.e., close to 2050. . .'[50] The IMO plans to adopt a maritime GHG pricing mechanism in 2025 that will enter into force in 2027.[51]

In addition to allocating jurisdiction for vessel-source pollution to the IMO and states, the law of the sea imposes environmental obligations. MARPOL's preamble provides that its parties are 'desiring to achieve the complete elimination of intentional pollution of the marine environment by oil and other harmful substances,' but the treaty itself only establishes implementation and procedural obligations that are effected by its substantive annexes.[52] The LOSC imposes a range of environmental obligations on states, and some scholars have examined whether those encompass climate change.[53] That question is currently pending before the International Court of Justice and the International Tribunal for the Law of the Sea.[54]

Climate Law and Regime Interaction

Notwithstanding the IMO's actions over the last decade, the control of GHG emissions from shipping has been politically and legally fraught.[55] Climate change is addressed by its own treaty regime that developed long after the IMO was created. Adopted in 1992, the UNFCCC states that climate policies should 'comprise all economic sectors,' which could encompass international shipping.[56] Yet, there has been and continues to be a lack of certainty about whether shipping's climate impacts should be handled through the IMO or the climate regime for two fundamental reasons.[57]

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48 MEPC 328(76), *supra* n. 20.

49 IMO, Resolution MEPC.377(80), IMO Doc. MEPC 80/WP.12, Annex 1 (Jul 7, 2023), 5; see Chapter 4.

50 Ibid., 6.

51 Ibid., 8, 11.

52 See MARPOL, *supra* n. 33.

53 See Alan Boyle, 'Law of the Sea Perspectives on Climate Change,' (2012) 27 *International Journal of Marine and Coastal Law* 831; Catherine Redgwell, 'Treaty Evolution, Adaptation and Change: Is the LOSC 'Enough' to Address Climate Change Impacts on the Marine Environment,' (2019) 34 *International Journal of Marine and Coastal Law* 440; Rozemarijn J. Roland Holst, 'Taking the Current When it Serves: Prospects and Challenges for an ITLOS Advisory Opinion on Oceans and Climate Change' (2022) 32 *RECIEL* 7; Manolis Kotzampasakis, 'Intercontinental Shipping in the European Union Emissions Trading System: A 'fifty–fifty' Alignment with the Law of the Sea and International Climate Law?,' (2022) 32 *RECIEL* 29, 33.

54 See Chapter 5, section 2.4.

55 Bodansky, *supra* n. 25.

56 UNFCCC, *supra* n. 17, Art. 3(3).

57 Chapter 2.

First, emissions from mobile sources sailing between two different countries are not easily assigned to a particular state, and the logic and structure of the UNFCCC is built on national reporting.[58] In addition, the climate and maritime regimes approach pollution control in distinct ways. The non-discrimination principle—set forth in Article 1 of the IMO Convention—holds that there should be globally uniform regulations applicable to all ships 'so as to promote the availability of shipping services to the commerce of the world without discrimination.'[59] The common-but-differentiated-responsibilities principle in the climate regime assigns varying degrees of responsibility for addressing climate change to states based on their development, historical responsibility for climate change, and capacity to take action.[60]

That divergence has been the basis for sharp diplomatic and scholarly disagreements about how shipping's climate pollution should be regulated.[61] Article 2(2) of the Kyoto Protocol split the difference by requiring developed countries to 'work through' the organization to achieve emission reductions, but only some developed countries ratified the protocol, and it classifies many major maritime states as developing.[62] The IMO Assembly decided to study GHG emissions from shipping in 2003, but no concrete measures were adopted even as shipping's emissions continued to rise.[63] At the UNFCCC and Kyoto Protocol

58 Martinez Romera, *supra* n. 24, 10 (discussing allocation problems for international aviation and shipping emissions); Hey, *supra* n. 18, 93-94 (explaining contending narratives on regulating of GHG emissions from ships between climate change regime and maritime regime).

59 IMO Convention, *supra* n. 36, Art. 1(b).

60 Martinez Romera, *supra* n. 25., 188-189, 192-194. See also Saiful Karim, *Prevention of Pollution of the Marine Environment from Vessels* (Springer, 2015), 119–20; Sophia Kopela, 'Climate Change, Regime Interaction, and the Principle of Common but Differentiated Responsibility: The Experience of the International Maritime Organization,' (2014) 42(1) *Yearbook International Environmental Law* 70, 76–7.

61 See Saiful Karim, *Prevention of Pollution o the Marine Environment from Vessels* (Springer, 2015), 119-120; Chapter 2, section 1.

62 Kyoto Protocol to the United Nations Framework Convention on Climate Change, art. 2(2) (10 Dec. 1997) 2303 U.N.T.S. 148, Art. 2(2). See Henrik Ringbom, 'Regulating Greenhouse Gas Emissions from Ships,' in E Johansen et al. (eds) *The Law of the Sea and Climate Change* (2021), 134 (discussing Kyoto Protocol, Art. 2(2) as a political compromise); Hey, *supra* n. 18, 95 (Kyoto Protocol's Art. 2(2) 'planted the seed for disagreement in negotiations in the IMO').

63 IMO Assembly, Policies and Practices Related to the Reduction of Greenhouse Gas Emissions From Ships,' IMO Assem. Res. A.963(23) (5 Dec., 2003); Sebastian Oberthür, 'Institutional interaction to address greenhouse gas emissions from international transport: ICAO, IMO and the Kyoto Protocol,' (2003) 3(3) *Climate Policy* 191, 191-192 (arguing that argued that in light of the IMO's slow progress, unilateral maritime climate measures by states and action through the UNFCCC framework could spur the IMO to do more).

conferences of parties, states agreed to keep emissions from shipping under consideration, but thus far have not regulated them.[64]

Like the UNFCCC, the Paris Agreement does not directly or clearly encompass emissions from shipping. Its draft text had a provision requiring that states pursue limitations from shipping through the IMO, but it was deleted from the final version without explanation.[65] Some of the Paris Agreement's provisions are arguably broad enough to encompass shipping, leaving open the possibility that the climate treaties impose some obligation on states to control emissions from the sector, or the Agreement's parties will decide they do down the road.[66]

Certain states believe that the Paris Agreement requires them to reduce emissions from international shipping, and they are taking a variety of measures to do so. These include voluntary incentives and investment in research and development.[67] Most significantly, the EU is using its maritime climate policy as an 'ultimatum strategy' intended to force the IMO's hand.[68] In 2023, the EU found that the IMO had not yet made progress 'sufficient to achieve the objectives of the Paris Agreement' when it mandated that shipping emissions be included in the European Trading System.[69] Shipping companies must report and mitigate emissions representing 50 percent of each voyage to and from European ports; that will expand to in 2028 absent IMO action.[70] The EU also adopted a maritime low and zero carbon fuel standard that applies to one half of the energy used on voyages between EU member states and third countries.[71]

In addition to researching whether climate law requires that states reduce shipping's GHG emissions,[72] scholars have studied how climate law and governance for shipping has

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64 See Martinez Romera, *supra* n. 25, 75-79.

65 Radoslav S. Dimitrov, 'The Paris Agreement on Climate Change: Behind Closed Doors,' (2016) 16 *Global Environmental Politics* 1.

66 See Beatriz Martinez Romera, 'The Paris Agreement and the Regulation of International Bunker Fuels,' (2016) (2)25 *RECIEL* 215. That question is explored in detail in Chapter 5, section 2.1 *infra*.

67 See Chapter 5, section 3.

68 Natalie Dobson, 'Competing Climate Change Responses: Reflections on EU Unilateral Regulation of International Transport Emissions in Light of Multilateral Developments,' (2020) 67 *Netherlands International Law Review* 189. See Chapter 4 for further information on the EU's maritime climate measures.

69 Directive (EU) 2023/959, *supra* n. 22, ¶ 19.

70 Ibid.

71 Regulation 2023/1805, *supra* n. 22, Art. 2(1)(d).

72 See Yubing Shi, *Climate Change and International Shipping* (2017); Yubing Shi, 'The Implications of the Paris Agreement for the Regulation of Greenhouse Gas Emissions from International Shipping,' (2018) 32 *Ocean Yearbook* 528, 532; Ringbom, *supra* n. 62; Jae-Gon Lee, 'International Regulations of Greenhouse Gas Emissions from International Shipping,' (2019) 4 *Asia-Pacific Journal of Ocean Law and Policy* 53.

developed in terms of regime interaction.[73] Regime interaction refers to 'the connections between overlapping regimes where one regime may influence another.'[74] These interactions can include law-making, administrative, or operational processes.[75] Regime interaction in this context can be both problematic and positive: the threat of regulation through the UNFCCC framework spurs the IMO's member states to action, although law-making at the UNFCCC could potentially fragment international law and thereby threaten its coherence.[76]

Research on regime interaction between the IMO and the UNFCCC has studied the IMO as a forum for law-making by its member states.[77] Under international law, the IMO can likewise be an autonomous entity that is capable of bearing legal obligations and being held responsible for them.[78] As described next, this dissertation takes a novel approach of using the IMO's practice and the law of international organizations as a lens to illuminate the organization's climate obligations and those of its member states.

3. Methodology and Theoretical Framework

This dissertation uses a common methodology and theoretical framework to answer the research question in the following chapters. In particular, it relies on four concepts that work in tandem: formalism, constitutionalism, pragmatism, and transparency. This section explains that methodology and framework and why it is well-suited to the project at hand.

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73 Martinez Romera, *supra* n. 25; Oberthür, *supra* note 63. See also Harro van Asselt, *The Fragmentation of Global Climate Governance: Consequences and Management of Regime Interactions* (Edward Elgar, 2014) 23-24 ('certain climate policies may fall within the remit of existing institutional regimes'); Seline Trevisanut, Nikolaos Giannopoulos and Rozemarijn Roland Holst, 'Introduction: Regime Interaction in Ocean Governance,' in S Trevisanut, et al. (eds) *Regime Interactions in Ocean Governance: Problems, Theories and Methods* (Brill 2020) (discussing normative and institutional interactions in the context of the law of the sea), 4-5.

74 Martinez Romera, *supra* n. 25, 38.

75 Ibid. at 66, 152-160; See van Asselt, *supra* n. 73, 44-58.

76 Oberthür, *supra* n. 63; see Harro van Asselt, 'Managing the Fragmentation of International Climate Law' in EJ Hollo et al. (eds), *Climate Change and the Law* (2012) 336-337 (discussing potential downsides of climate law's fragmentation).

77 See Bodansky, *supra* n. 25; Martinez-Romera, *supra* n. 25, 101-103; Kati Kulovesi, 'Addressing Sectoral Emissions outside the United Nations Framework Convention on Climate Change: What Roles for Multilateralism, Minilateralism and Unilateralism?' (2012) 21(3) *RECIEL* 193.

78 See *Constitution of the Inter-governmental Maritime Safety Committee*, Advisory Opinion, 1960 ICJ Rep. 150 (8 June), 159, 164 (interpreting Article 28 of the Convention as imposing mandatory obligations on the IMCO Assembly); *Reparation for Injuries Suffered in the Service of the United Nations*, Advisory Opinion, 1949 ICJ Rep 174 (11 April). See generally International Law Commission, 'Draft Articles on the Responsibility of International Organizations,' *Yearbook of the International Law Commission*, 2011, Vol. ii, Part Two, UN Doc. A/66/10/.

Formalism

A formalist doctrinal source-based method is used here to identify the international climate obligations of the IMO and its member states.[79] Legal texts and the processes that created them are analyzed to distinguish law from non-law. This methodology reflects the mainstream positivist view of international law as 'voluntarist and based on state sovereignty.'[80]

Formalism is limited by the fact that language is open-textured and cannot be mechanically applied in every situation.[81] Yet, law-identification can be anchored in judicial decisions, authoritative texts, or scholarly writings that constitute a discourse of linguistic indicators of what is, or is not, law.[82] In addition, procedural tests, such as publicity, non-retroactivity, clarity, consistency, and constancy enhance the validity of textual claims about the existence of law.[83] Law also 'speaks through institutional agencies, and these agencies speak with authority' that is 'established within a systemic hierarchy.'[84]

Identifying an international organization's obligations using this method is different than law ascertainment for states.[85] As provided in the Statute of the International Court of Justice, states can be bound by treaties to which they are a party, customary international law, and general principles of law.[86] Organizations can be bound by treaties to which they are a party, and a limited number of organizations have ratified treaties.[87] Organizations are also required to follow their constituent instruments, which are a special type of treaty that can bind the states that created them and at the same time operate as 'rules' for organizations.[88] In addition, there is support for binding organizations to the obligations of

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79 See generally Jean d'Aspremont, *Formalism and the Sources of International Law: a Theory of the Ascertainment of Legal Rules* (2013).

80 Catherine Brölmann, *The Institutional Veil in Public International Law* (Bloomsbury 2007), 5. See also H.L.A. Hart, *The Concept of Law* (3rd ed., 2012), 225-226; d'Aspremont, *supra* n. 79, 48-50 (discussing Hart and Kelsen); 186-192 (advocating the use of written linguistic indicators as evidence of law).

81 Hart, *supra* n. 80, 129-130.

82 d'Aspremont, *supra* n. 79, 201; see also Bernard Fletcher, 'Law as Discourse,' (1991) 13 *Cardozo Law Review* 1631.

83 See Jan Klabbers, 'Constitutionalism and the Making of International Law,' (2008) 5 *NoFo* 84, 108 (discussing Fuller's procedural criteria); Hart, *supra* n.80, 202-207 (same).

84 Neil MacCormick, '*The Concept of Law* and The Concept of Law,' in R George (ed), *The Autonomy of Law: Essays of Legal Positivism* (Oxford, 1996), 170.

85 Kristina Daugirdas, 'How and Why International Law Binds International Organizations,' (2016) 57(2) *Harvard Journal of International Law* 325, 327.

86 Statute of the International Court of Justice, Art. 38.

87 For example, the EU is a party to the LOSC and numerous regional marine environmental treaties. Robin Churchill, 'The European Union as an Actor in the Law of the Sea, with Particular Reference to the Arctic,' (2018) 33 *International Journal of Marine and Coastal Law* 290, 295-296.

88 Niels Blokker, 'Constituent Instruments', in JC Cogan, et al. (eds), *The Oxford Handbook of International Organizations* (Oxford University Press, 2016), 955–957.

their member states in limited circumstances.[89] There is no clear standard about whether or when organizations can be bound by customary international law.[90] General principles of law apply to international organizations, which have referred to them when making internal administrative decisions.[91]

This dissertation engages in a textual analysis of each of these sources of law to identify the climate obligations of the IMO and its member states. It thus provides a normative framework to assess the legality of IMO and national maritime climate measures, or the lack thereof. It also refers to the IMO's organizational 'practice,' focusing on the resolutions of its plenary organs and proceedings before the Marine Environment Protection Committee.[92] This research involved reviewing hundreds of documents housed in the IMO's archives—most of which are publicly available through the organization's website—as well as UNFCCC documents. The IMO's resolutions are analyzed for their legal effects on the IMO and its member states, and comments and actions by the IMO's member states within the organization are viewed as legally relevant evidence of the IMO's obligations, the principles that apply to them, and as state conduct.[93]

A source-based approach was deliberately chosen for this project. It is relatively easy to identify when an international organization acts in a legally meaningful manner because plenary bodies' resolutions are clearly labelled as such and adopted after discussion and under formal procedures.[94] That is particularly the case with an organization such as the IMO, which has express law-making powers. Accordingly, when the IMO invokes its authority under its constitution and other instruments of international law and acts pursuant to an established process, that act is an expression of the collective will of the organization's members and of the organization itself. And when the IMO's member states submit written comments to the organization in connection with its decision-making, those also meet certain formal criteria that distinguish them from other state acts. A source-based method is therefore well suited to studying international organizations' legal obligations and analyzing the related obligations of its member states.

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89 See Dobson, *supra* n. 68, 17; Daugirdas, *supra* n. 85, 350-357.

90 Compare Jan Klabbers, 'Sources of International Organizations' Law: Reflections on Accountability,' in J d'Aspremont and S Besson (eds), *The Oxford Handbook on the Sources of International Law* (2017), 987 with August Reinisch, Sources of International Organizations' Law: Why Custom and General Principles are Crucial,' in J d'Aspremont and S Besson (eds), *The Oxford Handbook on the Sources of International Law* (2017), 1007.

91 Reinisch, *supra* n. 90, 1022.

92 This introduction refers to 'practice' in a colloquial sense as the IMO's body of decisions and proceedings, not as 'substantive practice' or 'organizational practice' which have particular legal tests and effects. See Christopher Peters, 'Subsequent Practice and Established Practice,' (2011) 2(3) *Goettingen Journal of International Law* 617, 619.

93 See section 4 summarizing the chapters that follow.

94 See d'Aspremont, *supra* n. 79, 191 ('simple linguistic indicators can determine the nature of the rules adopted by international organizations with reasonable certainty').

Formalism is not the only way to understand the IMO's practice. Other perspectives on the legal output of international organizations include effects or impacts-based approaches that identify law based on whether a norm is accepted or followed.[95] Norms can be categorized as 'hard' or 'soft.'[96] International organizations can be part of 'global administrative law,'[97] or platforms for establishing informal networks among national authorities.[98] Their activities can be scrutinized for whether they represent legitimate public authority.[99] Thus there are many ways of looking at the IMO's climate resolutions that do not involve legal formalism or the identification of binding obligations.

In my view, the methodology applied here yields particularly valuable insights, at least in this context. A traditional formalist approach has not yet been used to determine the IMO's climate obligations. This dissertation is therefore painting on a blank canvas. In addition, climate law generally suffers from a lack of formality, even though there are clear benefits to distinguishing hard law from voluntary commitments.[100] These benefits include dispute settlement procedures, and there are increasingly frequent court judgments that interpret and apply legal obligations to assess governments' climate policies.[101] Thus climate obligations—applied through litigation—can 'have pro-regulatory effects.'[102] As discussed below, international institutional law offers a path to identify climate obligations for shipping in a way that can also enhance accountability.

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95 See d'Aspremont, 126.

96 Nigel White, 'Separate but Connected: Inter-Governmental Organizations and International Law,' (2008) 5 *International Organizations Law Review* 175, 186; Kenneth W. Abbott and Duncan Snidal, 'Hard and Soft Law in International Governance,' (2000) 54(3) *International Organization* 421.

97 Benedict Kingsbury, et al., 'The Emergence of Global Administrative Law,' (2005) 68 *Law & Contemporary Problems* 15.

98 Kal Raustiala, 'The Architecture of International Cooperation: Transgovernmental Networks and the Future of International Law,' (2002) 43(1) *Virginia Journal of International Law* 1, 71-72.

99 Armin von Bogdandy, Matthias Goldmann, and Ingo Venzke, 'From Public International to International Public Law,' (2017) 28 *European Journal of International Law* 115, 117.

100 Harro van Asselt, et al., 'The Changing Architecture of International Climate Law' in G van Calster et al. (eds), *Research Handbook on Climate Change Mitigation Law* (2015), 8-9 (regarding climate change, 'it is … advisable to bear in mind the benefits afforded by law as a form of social order distinct from other norms'.) See also Kal Raustiala, 'Form and Substance in International Agreements,' (2005) 99 *American Journal of International Law* 581, 582 ('the notion of "soft law" agreements is incoherent').

101 Van Asselt, et. al., *supra* n. 100; see Joanna Setzer and Catherine Higham, 'Global Trends in Climate Litigation: 2022 Snapshot,' (Grantham Research Institute on Climate Change and the Environment 2022).

102 Jaqueline Peel and Hari M. Osofsky, *Climate Change Litigation: Regulatory Pathways to Cleaner Energy* (Cambridge 2015), 311-312.

Constitutionalism

A formal method of law ascertainment dovetails with a constitutionalist theory of international law. Constitutionalism can refer to 'a general construction of international law' as showing 'traits of a public order of the international community,' and to 'a legal frame to tame governance activities of international institutions.'[103] I use it here in the latter sense: constitutionalism has to do with 'placing limits on the activities of international organizations, subjecting those organizations to standards of proper behaviour.'[104]

Each of the chapters that follow elaborate the international legal standards that I argue should apply to the reduction of shipping's climate pollution. As described above, states and the IMO share legal and political responsibility for that problem, which thus far has not been addressed in a way that is consistent with limiting global warming as called for by the Paris Agreement. This dissertation embraces constitutionalism as a way of making sense of that complex governance system and establishing accountability for it. It thus encompasses the 'exercise of authority in accordance with some version of the rule of law.'[105] Moreover, this perspective is consistent with a formalist methodology. As d'Aspremont explains, 'by trying to tame the perception of State-centrism in mainstream legal scholarship, the constitutionalist school of international law indirectly contributes to the reinforcement of the source thesis.'[106]

Pragmatically Analyzing the IMO's Identity and Transparency

Answering this dissertation's research question involves unpacking complex and fundamental questions about the IMO's identity and its legal relationship with its member states. The dissertation's methodology is therefore situated within the institutional law of international organizations, which 'comprises those rules of law which govern [organizations'] legal status, structure and functioning.'[107] A common thread in international institutional law is the tension between the conception of organizations as fora for state action or autonomous entities; they are 'either *agora* or actor.'[108] Scholars have remarked that oscillation between this binary conception is inherent and unescapable.[109] This has implications for delineating legal obligations of organizations and their member states, in

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103 Armin von Bogdandy, et al., 'Developing the Publicness of Public International Law: Towards a Legal Framework for Global Governance Activities,' (2008) 9(1) *German Law Journal* 1375, 1391.

104 Jan Klabbers, 'Constitutionalism Lite,' (2004) 1 *International Organizations Law Review* 32.

105 Ibid., 33. See Klabbers, *supra* n. 83, 88 (under a constitutional theory, international law is 'with greater or smaller degrees of explicitness, thought to rest upon common values and, as a result, also thought to stem from these values').

106 d'Aspremont, *supra* n. 79, 81.

107 Henry G. Schermers and Niels Blokker, *International Institutional Law* (Brill, 4th Ed., 2003), 4.

108 Jan Klabbers, *Introduction to International Institutional Law* (Cambridge 2012), 4.

109 Jean d'Aspremont, 'The Law of International Organizations and the Art of Reconciliation: From Dichotomies to Dialectics,' (2014) 11(2) *International Organizations Law Review* 428–453.

that the decisions or rules of international organizations have a dual character as internal or international law.[110] Thus, depending on the legal context, organizations can be closed or open, their decisions are internal or international, they can act independently or as agents for their members.[111]

This dissertation resorts to a pragmatic perspective on the IMO's legal identity to understand and overcome these binaries.[112] A functional or pragmatic perspective has deep roots in the post-war internationalist agenda.[113] As Collins writes, it looks at what the constituent instruments of organizations '*did*, not what they were in legal form'.[114] The legal form of an organization, in this context, thus 'becomes less relevant than institutional intent and purpose.'[115] Here, the IMO's role and purpose of mitigating shipping's climate impacts is defined using its constitution, organizational practice, and the maritime legal regime that implicitly empowers and obliges the IMO to perform particular functions.

Inherent in this analysis is an evaluation of the IMO's transparency. Brölmann explains that transparency is a 'contested fundamental' of international organizations.[116] The degree to which an organization stands as an independent entity or its member states are legally 'visible' through its institutional veil can be analyzed to bring 'to light the power relations between member states and organizations behind a one-dimensional image and explain the international law that applies in a given context.'[117] Transparency is a therefore dynamic condition that illuminates the multi-dimensional nature of international organizations.[118]

This dissertation engages with the IMO's legal identity to identify climate obligations and assess their scope and content. Rather than definitively viewing the IMO as a forum or actor, it accepts and uses the very indeterminacy of its binary form. Because the organization's

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110 Lorenzo Gasbarri, 'The Dual Legality of the Rules of International Organizations,' (2014) 14(1) *International Organizations Law Review* 87, 97 (citing Joost Pauwelyn, *Conflict of Norms in Public International Law: How WTO Law Relates to Other Rules of International Law* (Cambridge University Press, 2003)). But see Christiane Ahlborn, 'The Rules of International Organizations and the Law of International Responsibility,' (2011) 8 *International Organizations Law Review* 403, 423-424.

111 Brölmann, *supra* n. 80, 113-114.

112 See Richard Collins, 'Beyond Binary Oppositions? The Elusive Identity of the International Organization in Contemporary International Law,' (2023) 20 *International Organizations Law Review* 29; Ingo Venzke, 'Between Power and Persuasion: On International Institutions' Authority in Making Law,' (2013) 4(3) *Transantional Legal Theory* 354, 371 (discussing connection between pragmatism and semantic indicators of public authority).

113 Collins, *supra* n. 112, 49.

114 Ibid., 41 (emphasis in original).

115 Ibid., 45.

116 Catherine Brölmann, 'Transparency as a Contested Fundamental in the Law of International Organizations,' (2023) 20 *International Organizations Law Review* 11.

117 Brölmann, *supra* n. 80, 33; Ibid., 24.

118 Brölmann, *supra* n. 116, 24.

character is qualified and transparent, state obligations and actions can influence the IMO's legal obligations to a greater or lesser extent depending on the context. Thus, the chapters below view the IMO as an autonomous actor when it behaves as such, but also critically analyze and apply international law to look through its institutional veil and scrutinize the close legal connections the IMO has with its member states.

Pragmatically analyzing the IMO's purpose and transparency is consistent with political reality. For decades, states refrained from acting unilaterally or addressing the problem of shipping's climate impacts through the UNFCCC process by hiding behind the IMO's institutional veil. In other words, they insisted that the IMO was the only legitimate forum through which they could regulate the sector, and the IMO itself has vigorously defended its role even as it delayed taking meaningful action. In articulating climate law from within the relationship between the IMO and its members, this dissertation uses international institutional law as a lens to understand why the sector's GHG emissions have not been regulated more stringently, and define what international law requires going forward.

4. The Dissertation's Research Question and Structure

The dissertation's research question and structure were developed in the context of the problem it addresses, which is the identification of climate mitigation law for shipping. Climate mitigation broadly described is a collective action problem: public and private actors are called on to reduce GHG emissions so as to jointly contribute to a solution that will not be realized for years.[119] A sub-set of that problem, the control of international shipping's climate pollution, presents another shared dilemma—the IMO's institutional veil and how states evade accountability by hiding behind it. Identifying the law that applies to shipping's climate impacts thus requires unpacking nesting dolls of collective action problems.

Adding to the complexity, climate mitigation obligations are notably broad. Scholars argue they include the duty to cooperate, conduct environmental assessments, provide funding and support for others' measures, and more.[120] And they are dynamic, with new duties constantly being applied by courts and identified by scholars.[121] Each could poten-

119 See Angela Kalhoof, 'Climate Change as Collective Action,' in G Pelligrino and M Di Paola, (eds), *Handbook of the Philosophy of Climate Change* (Springer 2023), 1179.

120 See, e.g., Benoit Mayer, 'Climate Change Mitigation as an Obligation Under Human Rights Treaties,' (2021) 115(3) *American Journal of International Law* 59 (human rights treaties imply an obligation to cooperate on reducing GHG emissions); Benoit Mayer, 'Climate Assessment as an Emerging Obligation Under Customary International Law,' (2019) 68 *International & Comparative Law Quarterly* 271; Nicolás M. Perrone & Nicole Selamé Glena, 'Technology Transfer and Climate Change: a Transnational Law Analysis,' (2022) 13(2-3) *Transnational Legal Theory*, 261.

121 See ibid; United Nations Environment Program, *Global Climate Litigation Report: 2023 Status Review* (2023), x (discussing widening legal grounds for climate litigation and judgments).

tially apply to shipping's climate impacts, which themselves are overlayed with obligations that might arise under the law of the sea.[122]

In light of that challenge, I delimited my research in a way that cabined it within the formalist methodology and international institutional framework described above. As I began researching from that perspective, I discovered a number of interrelated issues that in my view had not been adequately addressed. These included what the IMO had to do, if anything, to address the climate crisis, and how the IMO must implement any obligation it had. As mentioned above, there is a long running debate about what principles apply to the control of shipping's climate pollution, yet no legal definition of shipping's fair share of the overall climate mitigation burden had been developed. There has been some research on state obligations to mitigate shipping's climate pollution, but it does not reflect new developments on the increasing scope of climate obligations. Nor have state obligations been connected to the role of the IMO as a legal actor. Cutting across each of those issues were numerous problems relating to how international obligations should be identified.

The research question that encapsulates that sequence of connected issues is:

What are the obligations of the IMO and its member states to reduce climate pollution from international shipping, and how can the scope and content of these obligations be determined through international institutional law?

After conducting preliminary research, I developed the following sub-questions that are addressed by each of the four articles:

1. Is the IMO legally required to reduce GHG emissions from shipping?
2. Must the IMO give preferences or transfer technology to developing states when implementing its climate policies?
3. What is shipping's fair share of the climate mitigation burden as defined by the equitable principles of international environmental law?
4. Does international law require that states mitigate shipping's climate pollution, and how can their compliance with any obligation be assessed?

Chapters 2 through 5 address each of these questions using the methodology and theoretical framework described above. Chapter 6 explains how the chapters, when read together, illuminate the most salient aspects of climate obligations for international shipping and how international institutional law can be used to identify them. The chapters each reproduce the articles as they were or will be published, except that formatting and citation

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122 See Seline Trevisanut, 'The Principle of *Non-Refoulement* and the De-Territorialization of Borden Control at Sea,' (2014) 27 *Leiden Journal of International Law* 661 (discussing intersection of principle established by refugee convention and the law of the sea).

styles were conformed. They address the sub-questions and answer the overall research question as follows.

Chapter 2:

Bridging the Climate and Maritime Legal Regimes: The IMO's 2018 Climate Strategy as an Erga Omnes Obligation

Chapter Two is this dissertation's cornerstone. It explains the IMO's history, legal mandate to regulate GHG emissions, and its character as a law-making organization under its constitution, MARPOL, and the LOSC. It maps out what, if any, obligations it has to address the climate crisis by surveying relevant treaties that bind the IMO, including the IMO Convention and MARPOL. It also analyzes whether the IMO's member states' climate obligations bind the organization. The IMO's practice is scrutinized for its law-making effects, with a focus on the IMO's 2018 Climate Strategy and the proceedings leading up to it. Engaging with the undecided question of whether international organizations can unilaterally bind themselves under international law, the chapter finds that even though the IMO is not a party to the Paris Agreement, it legally committed itself to reducing shipping's climate pollution in order to limit global warming consistent with the Agreement's goals.

Chapter 3:

Binding the International Maritime Organization to the United Nations Convention on the Law of the Sea

This chapter seeks to understand how the IMO must implement its climate measures. It explores an issue that has bedeviled the regulation of shipping's climate emissions, which is whether the maritime regime's non-discrimination principle and the common-but-differentiated responsibilities principle can be reconciled. The chapter evaluates a proposed fuel oil levy that would fund a technology research and development program. It uses the proposal as a case study to understand whether the IMO's climate measures must adhere to technology transfer and technical assistance obligations that Articles 203 and 278 of the LOSC impose on international organizations. In so doing, it critically analyzes the *pacta tertiis* principle and treaty rules on binding non-party organizations by probing the relationship between the IMO and its member states. The chapter argues that the IMO must account for its member states' differential capacities when implementing maritime climate programs by giving particular preferences and assistance given to small island developing states and least developed countries, and explains what that means for the technology proposal or other market-based mechanisms the organization might adopt.

Chapter 4

Shipping's Fair Share

This chapter differs from the rest because it does not focus on legal obligations per se, but instead identifies the principles that indicate how quickly and deeply shipping's GHG emissions should be reduced. In particular, it refers to IMO practice to identify the equitable principles of international environmental law that should guide the levels of ambition it adopted for the sector. It then uses those principles to normatively define the sector's fair share of the climate mitigation burden. The chapter finds that the international shipping's fair share should reflect the sector's highest possible ambition in light of its unique technological capacity to mitigate, and its GHG reduction goals should be frequently revisited in light of new scientific developments. Its prescriptions thus cut across and normatively unify the other chapters' findings.

Chapter 5

All Necessary Measures: Climate Law for International Shipping

If Chapter Two is the cornerstone of the dissertation, then this chapter is its keystone. It identifies state obligations to reduce and control GHG emissions from shipping. The chapter evaluates state jurisdiction over vessel-source pollution and the role of IMO rules, and examines whether and how the climate treaties, customary international law, human rights treaties, or the LOSC require that states address shipping's climate impacts. It discusses state conduct relevant to the fulfillment of maritime climate obligations, focusing on state decision-making within the IMO and unilateral measures. This chapter also maps how states can be held legally accountable for shipping's climate emissions. Because states ultimately govern the IMO—albeit collectively—this chapter complements and rounds out the preceding chapters' arguments on the IMO's obligations and shipping's fair share.

Chapter 6

Conclusion

The dissertation finishes by discussing the main conclusions of each of the chapters and what can be drawn from reading them together. It reflects on the project's limitations and avenues for future research, and offers closing remarks on climate obligations for international shipping.

Article Publication Information

One of the reasons I chose an articles-based structure was to contribute to the development of the law in real time and disseminate my research as it was carried out. Each of the articles was published open-access. The articles' publication information is as follows:

Sub-question	Article Title	Journal	Type of Review	Revisions	Published
1	*Bridging the Climate and Maritime Legal Regimes: The IMO's 2018 Climate Strategy as an Erga Omnes Obligation*	Climate Law	Editorial board review and double blind peer review	Four reviewers, average revisions	July 2021
2	*Binding the International Maritime Organization to the United Nations Convention on the Law of the Sea*	International Organizations Law Review	Double blind peer review	Two reviewers, minor revisions	November 2022
3	*Shipping's Fair Share*	Environmental Law Reporter	Editorial board review	Two rounds of minor revisions	May 2024
4	*All Necessary Measures: Climate Law for International Shipping*	Virginia Journal of International Law	Editorial board review	Three rounds of minor revisions	May 2024

5. Relevance

According to the United Nations, 'climate change is the defining issue of our time, and we are at a defining moment.'[123] China, the European Union, India, and the United States agree.[124] So do academics: Google Scholar indicates that as of the writing of this introduction, over 2.3 million studies have been published on climate change and law.[125] This introduction finishes by explaining why this project is socially relevant, and how it adds to the voluminous research that has already been conducted.

123 United Nations 'Global Issues,' available at: https://www.un.org/en/global-issues/climate-change

124 See European Environment Agency, available at: https://www.un.org/en/global-issues/climate-change; Sunnylands Statement on Enhancing Cooperation to Address the Climate Crisis, available at: https://www.state.gov/sunnylands-statement-on-enhancing-cooperation-to-address-the-climate-crisis/; https://timesofindia.indiatimes.com/india/need-to-increase-scope-of-discussion-pm-modi-on-climate-change/articleshow/100383477.cms?from=mdr

125 https://scholar.google.com/scholar?hl=en&as_sdt=0%2C6&inst=7240083048524121927&q=%22Climate+change%22+and+%22law%22+&btnG= (last visited 11 Feb. 2024)

Social Relevance

The analysis conducted here contributes to society in two different but interrelated ways. First, awareness of what the IMO and its members are required to do will help shape policy responses. Presumably, all actors want to follow the law, and if the law is known it will help drive their conduct.[126] By providing a legal roadmap for what the IMO and its member states must do to mitigate climate change from shipping, this dissertation aims to encourage a 'constitutional mindset' within the organization and its members.[127] This framework may also assist the shipping industry and ports as they plan capital investments.[128]

If obligations are not observed the IMO and its members can be held accountable. Accountability includes legal enforcement and less formal methods of control.[129] International organizations, including the IMO, generally enjoy immunity in domestic courts and are not subject to the jurisdiction of international courts.[130] But arguments about the legality of organizations' conduct grounded in the law of international responsibility can influence their reputation and behavior.[131] Those arguments may be particularly salient in this context because the IMO's status as the global regulator of shipping's climate impacts is contested by its member states and at the UNFCCC.

For their part, the IMO's member states are subject to reputational accountability as well as a broad spectrum of legal accountability. Climate lawsuits have indirect and direct regulatory potential, with many international and domestic cases currently pending.[132] I am not aware of any litigation directly related to shipping's climate impacts apart from

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126 See Harold Hongju Koh, 'Why Do Nations Obey International Law?,' (1996) 106 *The Yale Law Journal* 2599.

127 Martti Koskenniemi, 'Constitutionalism as a Mindset: Reflections on Kantian Themes about International Law and Globalization,' (2007) 8 *Theoretical Inquiries in Law* 9.

128 See Seline Trevisanut, 'The Role of Private Actors in Offshore Energy,' in N Bankes & S Trevisanut (eds), *Energy from the Sea: An International Law Perspective on Ocean Energy* (Brill 2014), 102-103 (discussing industry's role and interest in international environmental standards).

129 André Nollkaemper and Deirdre Curtin, 'Conceptualizing Accountability in International and European Law,' (2007) 36 *Netherlands Yearbook of International Law* 12.

130 See Cedric Ryngaert, et al., 'Immunities, Preliminary Material,' in C Ryngaert et al., (eds) in *Judicial Decisions on the Law of International Organizations* (Oxford 2016), 362-364; August Reinisch, *International Organizations Before National Courts* (2nd edn, Cambridge 2009); IMO Assem. Res. A.908(22), Agreement With the Host State Regarding Extension of Privileges and Immunities to Permanent Representatives and Divisional Directors, (25 January 2002) (amending and approving headquarters agreement); Statute of the International Court of Justice, 24 October 1945 (available at: treaties.un.org), Art. 34.

131 See Kristina Daugirdas, 'Reputation and Responsibility of International Organizations,' (2014) 25(4) *European Journal of International Law* 991, 992.

132 Peel and Osofsky, *supra* n. 102, 311-312; Benoit Mayer and Harro van Asselt, 'The Rise of International Climate Litigation,' (2023) 32(2) *RECIEL* 175; Jessica Wentz et al., 'Research Priorities for Climate Litigation,' (2023) Earth's Future, 11, e2022EF002928.

submissions by the non-governmental organization Opportunity Green in advisory proceedings before the International Tribunal for the Law of the Sea and the International Court of Justice.[133] This dissertation aims to be relevant for civil society going forward as it seeks to hold states accountable for their decisions at the IMO and their national maritime climate policies.

Academic Relevance

In using international institutional law as a lens to identify legal obligations, this dissertation contributes to the scholarship in each of the three branches of international law surveyed thus far.

There is a rich and growing body of work on state jurisdiction over ships under the law of the sea and general jurisdictional rules. A particular point of interest is port states' prescriptive jurisdiction for vessels' pollution within and beyond national territories, including climate pollution.[134] This dissertation builds on that line of research to show not only what states may do but what they must do. Likewise, there is increasing academic (and judicial) focus on whether the LOSC's environmental provisions encompass climate change.[135] This dissertation adds to that discourse by addressing whether shipping's emissions should be included, and how state jurisdiction over ships might implicate human rights obligations to prevent and reduce the risk of climate harm.

As discussed above, there has been significant research on shipping and climate change from the perspective of regime interaction. This scholarship has investigated why law-making for shipping's climate pollution has occurred at the IMO rather than through the climate regime.[136] Other studies look at the IMO as an administrative agency that engages in governance through less formal means, including through communications and information sharing with the conferences of parties or subsidiary bodies of the UNFCCC, Kyoto Protocol,

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133 See Amicus Curiae Brief of Opportunity Green, Request for An Advisory Opinion Submitted by the Commission of Small Island States on Climate Change and International Law (Case No. 31) (15 June, 2023); Opportunity Green, 'Watershed moment for world's highest court to confirm that States must tackle climate impacts from international aviation and shipping beyond the ICAO & IMO', (21 March 2024) available at: https://www.opportunitygreen.org/press-release-submission-to-the-international-court-of-justice.

134 Honniball, *supra* n. 39; Natalie L. Dobson, *Extraterritoriality and Climate Change Jurisdiction: Exploring EU Climate Protection Under International Law* (Hart 2021) 179, 240-241; Jesper Jarl Fanø, *Enforcing International Maritime Legislation on Air Pollution Through UNCLOS* (Bloomsbury, 2019); Natalie L. Dobson and Cedric Ryngaert, 'Provocative Climate Protection: EU Extraterritorial Regulation of Maritime Climate Emissions,' (2017) 66 *International and Comparative Law Quarterly* 265; Molenaar, *supra* n. 38. See generally Cedric Ryngaert, *Jurisdiction in International Law* (Oxford 2015), 35-37 (discussing international law's jurisdictional restraints on extraterritorial regulations).

135 See sources cited *supra* at n. 53.

136 See sources cited *supra* at n. 25, 73, 76, 77.

and Paris Agreement.[137] There has also been research on whether the climate treaties impose obligations on states related to shipping's GHG emissions.[138] This dissertation aims to contribute to these existing academic discussions by investigating whether the IMO itself might be legally bound by the climate treaties, and how its member states' climate obligations for shipping relate to the organization's duties.

It contributes to international institutional law by illustrating how theoretical insights from that field can be applied to a legal relationship between a specific institution and its member states. There has been research on the obligations held by international organizations and those of their member states, with studies focusing on United Nations peacekeeping and humanitarian organizations and the World Bank institutions.[139] I am not aware of scholarship that has looked at the climate obligations of an international institution or its members apart from my own work and others' research on the EU, which is a party to the climate treaties.[140] As discussed in Chapter 6, this dissertation's method of interpreting sources of international law and institutional practice to understand climate obligations offers a frame that can be used for further research.

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137 Ibid.

138 See sources *supra* at n. 72, 73.

139 See, e.g.,; Frédéric Mégret and Florian Hoffman, 'The United Nations as a Human Rights Violator? Some Reflections on the United Nations Changing Human Rights Responsibilities,' (2003) 25 *Human Rights Quarterly* 314; Alexander Orakhelashvili, 'The World Bank Inspection Panel in Context: Institutional Aspects of the Accountability of International Organizations,' (2005) 2 *International Organizations Law Review* 57, 71; Anthony Miller, 'The Privileges and Immunities of the United Nations,' (2009) 6 *International Organizations Law Review* 115; Ciprian N. Radavoi, 'Indirect Responsibility in Development Lending: Do Multilateral Banks have an Obligation to Monitor Project Loans?,' (2018) 53 *Texas International Law Journal* 1. See also Kristina Daugirdas, 'Member States Due Diligence Obligation to Supervise International Organizations,' in H Krieger et al. (eds) *Due Diligence in the International Legal Order* (Oxford 2021), 64-66.

140 See, e.g. Dobson and Ryngaert, *supra* n. 134; Kotzampasakis, *supra* n. 53.

Chapter 2

Bridging the Climate and Maritime Legal Regimes: The IMO's 2018 Climate Strategy as an Erga Omnes Obligation

Baine P. Kerr, 'Bridging the Climate and Maritime Legal Regimes: The IMO's 2018 Climate Strategy as an Erga Omnes Obligation' (2021) 11 *Climate Law* 119
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Abstract

Scholarship and practice before the European Court of Justice indicate that international organizations can unilaterally bind themselves under international law. This article evaluates whether the International Maritime Organization did so with its 2018 'Strategy' to reduce greenhouse gas emissions from shipping. After first identifying the source of the IMO's mandate to regulate greenhouse gas emissions from shipping and its treaty obligations to do so, it finds that the IMO has the institutional competence to unilaterally bind itself with respect to its function and purpose of regulating vessel-source pollution. It further finds that the IMO imposed on itself an erga omnes obligation to mitigate climate change in order to meet the Paris Agreement's global warming limitation goals. The article reflects on the implications of these findings for climate law and international law generally.

Introduction

International shipping represents a significant share of global greenhouse gas emissions.[1] The International Maritime Organization, a specialized agency of the United Nations, is charged with developing uniform regulations for pollution from that sector and the thousands of vessels that comprise it.[2] The IMO began considering whether and how to reduce greenhouse gas emissions in the late 1990s.[3] It first mandated technical and operational energy-efficiency measures in 2011; these were followed in later years by technology-transfer and data-collection measures.[4] In 2018, the IMO, in a 'Strategy' document, resolved that it would contribute to the Paris Agreement's global warming limitation goals by reducing emissions from international shipping by 50 per cent below 2008 levels by 2050, with a 'vision' of 'phasing them out as soon as possible this century'.[5] The IMO Strategy is due to be

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1 International Maritime Organization, Reduction of GHG Emissions From Ships, Fourth IMO GHG Study 2020, Final Report, IMO Doc. MEPC 75/7/15 (29 July 2020), Annex 1, 1: International shipping accounted for 1,076 Mt co2 eq. in 2018.

2 Convention on the Intergovernmental Maritime Consultative Organization, 6 March 1948, 289 UNTS 3, as amended. A consolidated version is contained in IMO, Basic Documents, Volume I (IMO, 2010 ed.), 8–32 (hereinafter IMO Convention), Articles 1, 2, 38

3 IMO, Report of the Marine Environmental Protection Committee on its Forty-Second Session, IMO Doc. MEPC 42/22 (16 November 1998) (hereinafter MEPC 42/22), 32–33. In the early 1990s, the IMO began considering the regulation of vessel-source emissions of ozone-depleting air pollutants: IMO, 'Prevention of Pollution By Air From Ships', IMO Ass. Res. A.719(17), IMO Doc. A 17/Res. 719 (4 December 1991) (hereinafter A 17/Res. 719). As discussed in Section 2.2, below, its deliberations on the reduction of other greenhouse gases and of shipping's impact on the climate system was initiated later that decade.

4 IMO, Amendments to the Annex to the Protocol of 1997 to Amend the International Convention for the Prevention of Pollution From Ships, 1973, As Modified by the Protocol of 1978 Relating Thereto, IMO Doc. MEPC 203(62) (15 July 2011) (hereinafter MEPC 203(62)); IMO, Promotion of Technical Cooperation and Transfer of Technology Relating to the Improvement of Energy Efficiency in Ships, IMO Doc. MEPC 229(65) (17 May 2013) (hereinafter MEPC 229(65)); IMO, Amendments to the Annex to the Protocol of 1997 to Amend the International Convention for the Prevention of Pollution From Ships, 1973, As Modified by the Protocol of 1978 Relating Thereto, IMO Doc. MEPC 278(70) (28 October 2016) (hereinafter MEPC 278(70)).

5 IMO, 'Adoption of the Initial IMO Strategy on the Reduction of Greenhouse Gases From Ships and Existing IMO Activity Related to Reducing GHG Emissions in the Shipping Sector', IMO Doc. MEPC 304(72) (13 April 2018) (hereinafter IMO 2018 Strategy or Strategy). See Tae-Hwan Joung et al., 'The IMO Strategy for Reducing Greenhouse Gas Emissions, and its Follow-up Actions Towards 2050,' (2020) (4)(1) *Journal of International Maritime Safety, Environmental Affairs, and Shipping* 1; Yubing Shi and Warwick Gullett, 'International Regulation Low-Carbon Shipping for Climate Change Mitigation: Development, Challenges, and Prospects,' (2018) 49(2) *Ocean Development and International Law* 134; Beatriz Foster, Anita Foerster, and Jolene Lin, 'Net Zero for the In-

updated in 2023.[6] The shipping industry has characterized the Strategy as a 'Paris Agreement for shipping' and expressed hope that the IMO's action would deter more stringent regulation, in particular by the European Union.[7]

This article evaluates whether the IMO's 2018 Strategy imposed a legal obligation on the IMO to mitigate climate change from international shipping, and the scope and nature of any such obligation. Accepting that the IMO has international legal personality, can bear obligations, and incur responsibility for breaching them under international law, the article's methodology is grounded in treaty interpretation and international law's traditional source based approach.[8] It first discusses the IMO's mandate to reduce emissions from shipping, the treaties that together form a 'regime complex' giving rise to that mandate, and the IMO's character as a quasi-legislative organization that exercises prescriptive jurisdiction related to the effect of shipping on the marine environment (section 1). It then briefly analyses whether that regime complex imposes a legal obligation on the IMO to reduce greenhouse gas emissions, and concludes that while the IMO bears procedural obligations to reduce marine pollution from shipping—including greenhouse gas emissions—the maritime and climate treaties do not require it to do so to a particular level (section 2).[9] In Section 3, the 2018 Strategy is scrutinized. After first summarizing the Strategy's text, I discuss the 'hitherto underexplored' legal character of unilateral declarations made by international organizations.[10] Despite the relative lack of attention to declarations of organizations, scholarship and practice indicate that they can create erga omnes legal obligations if made clearly and publicly by an organization with sufficient legal capacity and institutional competence and where there is a textual expression of an intent to assume obligations.[11]

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ternational Shipping Sector? An Analysis of the Implementation and Regulatory Challenges of the IMO Strategy on Reduction of GHG Emissions,' (2021) 33(1) *Journal of Environmental Law* 85.

6 IMO, 'Strategic Plan for the Organization for the Six Year Period 2018–2023', IMO Assem. Res. A.1110(30), IMO Doc. A 30/Res.1110 (8 December 2017) (hereinafter A30/Res. 1110)

7 'IMO Agrees to Emissions Target', Maritime Executive (13 April 2018); see Natalie Dobson, 'Competing Climate Change Responses: Reflections on EU Unilateral Regulation of International Transport Emissions in Light of Multilateral Developments,' (2020) 67 *Netherlands International Law Review* 183 (discussing the European Union's unilateral regulation of greenhouse gas emissions from shipping).

8 See Jean d'Aspremont, *Formalism and the Sources of International Law: A Theory of the Ascertainment of Legal Rules* (Oxford University Press, 2011).

9 In this article, I do not consider whether customary international law obliges the IMO to reduce emissions from shipping or whether the IMO's member states have an obligation to mitigate climate change caused by international shipping.

10 Eva Kassoti and Mihail Vatsov, 'A Missed Opportunity? Unilateral Declarations by the European Union and the European Court of Justice's Venezuelan Fisheries Judgment,' (2020) 35 *International Journal of Marine and Coastal Law* 55, 57

11 Manuel Virally, 'Unilateral Acts of International Organizations,' in M Bedjaoui (ed.), *International Law: Achievements and Prospects*, edited by (Martinus Nijhoff, 1991), 256–57; see Jan

That analysis is applied to the 2018 Strategy. The IMO has a legal capacity to conclude treaties on matters related to its functions and purposes, and therefore also has a capacity to unilaterally bind itself. The Strategy's text and circumstances show that the IMO intended to bind itself, and thus assumed a legal obligation to fulfill the Paris Agreement's purpose of limiting global warming.[12] Because the Strategy is not addressed to any particular state but to the world at large, the IMO's obligation under it is owed erga omnes.[13] It thus functions differently from an organizational 'rule' that would impose an obligation on the IMO towards its member states;[14] and the Strategy's quality as a unilateral declaration means that it cannot be arbitrarily withdrawn.[15]

Klabbers, *An Introduction to International Institutional Law* (Cambridge University Press, 2009), 283 (an international organization is responsible under international law 'if it does not live up to the promises it has made'); Alexander Orakhelashvili, 'The World Bank Inspection Panel in Context: Institutional Aspects of the Accountability of International Organizations,' (2005) 2 *International Organizations Law Review* 57, 71; Ciprian N. Radavoi, 'Indirect Responsibility in Development Lending: Do Multilateral Banks have an Obligation to Monitor Project Loans?,' (2018) 53 *Texas International Law Journal* 1; Opinion of Judge Advocate General Sharpston, Parliament and Commission v. Council, ECJ Joined Cases C-103/12 and C-165/12 (15 May 2014) (hereinafter AG Sharpston Opinion), paras. 64–79.

12 As discussed in Section 2.4, there is disagreement about whether and how the Paris Agreement's global warming limitation goals function as legal obligations. See generally, Alexander Zahar 'Collective Obligation and Individual Ambition in the Paris Agreement,' (2020) 9(1) *Transnational Environmental Law* 165.

13 International Law Commission, 'Guiding Principles Applicable to Unilateral Declarations of States Capable of Creating Legal Obligations, With Commentaries Thereto', *Yearbook of the International Law Commission*, 2006, Vol. ii, Part Two, UN Doc. A/61/10 (hereinafter ILC Guiding Principles), Commentary to Principle 6. I use this procedural conception of erga omnes obligations rather than the one based on the importance of the rights involved, which the ILC adopted in connection with its articles on state responsibility. (Compare Ibid. and *Nuclear Tests (Austr. v. Fr.)*, Judgment 1974 ICJ rep. 253 (20 December), 269 (hereinafter *Nuclear Tests*), para. 50, with International Law Commission, 'Draft Articles on Responsibility of States for Internationally Wrongful Acts, With Commentaries,' *Yearbook of the International Law Commission*, 2001, Vol. ii, Part Two, un Doc. A/56/10 (hereinafter Articles on State Responsibility), Commentary to Art. 1, para. 4 (citing *Case Concerning the Barcelona Traction, Light and Power Company (Bel. v. Sp.)*, Judgment 1970 ICJ rep. 1970 3 (5 February), 32, para. 33).

14 Cf. International Law Commission, 'Draft Articles on the Responsibility of International Organizations', Yearbook of the International Law Commission, 2011, Vol. ii, Part Two, un Doc. A/66/10 (hereinafter DARIO), 46, 63 (Art. 10(2), providing that organizations can incur responsibility for breaching an obligation arising for it towards its members under its rules) with ILC Guiding Principles, *supra* n. 13, Principle 6 (states may address binding unilateral declarations to the international community as a whole).

15 ILC Guiding Principles, *supra* n. 13, Principle 10 (criteria used to assess whether withdrawal of

Treating the 2018 Strategy as a unilateral declaration creates a 'regime bridge' between the IMO and the climate treaties that would give parameters and certainty to Paris Agreement parties as they revise their NDCs (section 4). It would thus further the Agreement's objectives.[16] It would also be consistent with Mayer's argument that NDCs are unilateral declarations.[17] Significant attention has been given to the fragmentation of international law, and international climate law in particular.[18] Evaluating international organizations' climate policies as unilateral declarations, as is done here, could clarify and unify climate law and have broader positivist and constitutional consequences for international law.[19]

1. IMO Mandate to Regulate Emissions from Shipping

The IMO states that it 'is regarded as the sole competent international organization with a global mandate to regulate all non-commercial aspects of international shipping, including reduction or limitation of GHG emissions'[20] That mandate might appear uncontroversial given the climate measures that the IMO has enacted since 2011.[21] Yet states and scholars disagree about whether the IMO's mandate arises from its constituent instrument—the IMO Convention—and the maritime legal regime, consisting of the 1982 UN Law of the Sea Convention (LOSC) and the 1973 International Convention on the Prevention of Pollution from Ships as modified by that treaty's 1978 Protocol (MARPOL),[22] or whether it derives

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a declaration is arbitrary).

16 See Beatriz Martinez Romera, 'The Paris Agreement and the Regulation of International Bunker Fuels,' (2016) 25(2) *RECIEL* 215, 222 (finding that the Paris Agreement left bunker fuels 'disconnected' from its goals).

17 See Benoit Mayer, 'International Law Obligations Arising in Relation to Nationally Determined Contributions,' (2018) 7(2) *Transnational Environmental Law* 251.

18 See, generally, Harro van Asselt et al., 'Global Climate Change and the Fragmentation of International Law,' (2008) 30(4) *Law and Policy* 423.

19 See Orakhelashvili, *supra* n. 11; Radavoi, *supra* n. 11 (examining whether an international lending organization's environmental policies are unilateral declarations); Jaye Ellis, 'Shades of Grey: Soft Law and the Validity of Public International Law,' (2012) 25(2) *Leiden Journal of International Law* 313, 317 (discussing the rule-creation process as a factor in the designation of international norms as law).

20 IMO, Position Paper to UNFCCC Ad-Hoc Working Group (IMO Doc. AWG-LCA 8) (17–18 December 2009), 6. Although the IMO theoretically has competence to regulate commercial aspects of shipping, the long-standing practice of its members has limited its mandate to technical rather than economic aspects of the industry, which are regulated pursuant to international trade law. (See Yubing Shi, *Climate Change and International Shipping: The Regulatory Framework for the Reduction of Greenhouse Gas Emissions* (Brill Nijhoff, 2017) 179–80 (discussing the IMO's mandate to regulate greenhouse gas emissions using technical means).

21 See Section 2.2's discussion of the IMO's climate measures.

22 United Nations Law of the Sea Convention (adopted 10 December 1982, entered into force 11

from the climate treaties, in particular Article 2(2) of the Kyoto Protocol.[23] The gravamen of this dispute is the sharp distinction between the 'non-discrimination' principle in the maritime regime and the CBDR principle in the climate regime,[24] as well as the argument that if a particular legal regime gives the IMO its mandate, that regime's principles should determine what measures the IMO may adopt.[25] Some scholars have suggested a 'compro-

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November 1994) 1833 UNTS 3 (hereinafter LOSC); International Convention for the Prevention of Pollution from Ships (adopted 11 February 1973, as modified by the Protocol of 17 February 1978, entered into force 2 October 1983) 1340 UNTS 61. The registered version of the 1978 MARPOL Protocol incorporates the 1973 Convention as an annex; the Convention begins at 1340 UNTS 184. I refer to the 1973 Convention as 'MARPOL, and to the 1978 Protocol as 'MARPOL 78.' As discussed below, the LOSC is as a framework convention that delegates the setting of specific standards to the IMO, which in turn has regulatory functions under MARPOL.

23 See Saiful Karim, *Prevention of Pollution of the Marine Environment from Vessels* (Springer, 2015), 119–20 (discussing conflict between the CBDR principle and the non-discrimination principle in the IMO's regulation of greenhouse gas emissions from shipping); Sophia Kopela, 'Climate Change, Regime Interaction, and the Principle of Common but Differentiated Responsibility: The Experience of the International Maritime Organization,' (2014) 42(1) *Yearbook International Environmental Law* 70, 76–77; cf. Beatriz Martinez Romera, *Regime Interaction and Climate Change: The Case of International Aviation and Maritime Transport* (Routledge, 2018) (the IMO's mandate to regulate greenhouse gas emissions comes from IMO Assembly Resolution A63.23(2003)), 149, with Shi, *supra* n. 20, 179–82 (the IMO Convention and the LOSC give the IMO 'general competence' to regulate greenhouse gas emissions from shipping, and the Kyoto Protocol gave the IMO its specific mandate to do so). Scholars speak of the international law governing the regulation of emissions from shipping in terms of legal 'regimes,' including the climate regime, the regime applicable to the IMO, the Law of the Sea regime as set forth in UNCLOS, and international trade law. See Martinez Romera, *supra* n. 23 at 37–8, 100–101 (discussing 'regime interaction' where processes and actors in the climate regime and the IMO influence the regulation of emissions from shipping); Daniel Bodansky, 'Regulating Greenhouse Gas Emissions from Ships: The Role of the International Maritime Organization,' in H Scheiber et al. (eds) *Ocean Law Debates: The 50-Year Legacy and Emerging Issues for the Years Ahead* (Brill Nijhoff, 2016), 3 (regime 'complex' applies to regulation of emissions from shipping). This article uses the same terminology.

24 The non-discrimination principle in the IMO Convention provides that global shipping requires universal regulations equally applicable to all ships. IMO Convention, *supra* n. 2, Art. 1(b). The CBDR principle holds that all states should protect the climate system 'on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities', and that developed countries should therefore 'take the lead in combating climate change and the adverse effects thereof' (UNFCCC, Art. 3(1))

25 Yubing Shi, 'Gigantic Shipbuilders under the IMO Mandate of GHG Emissions: With Special References to China, Japan and Korea', (2014) 7(2) *Journal East Asia and International Law* 493, 499–501 (discussing the context and importance of the debate on the IMO's mandate to regulate emissions from shipping); Kopela, *supra* n. 23, 76–7 (same).

mise' position, which is that the IMO's mandate comes from both regimes, and that the gulf between the applicable principles is not as wide as might appear.[26]

According to the International Court of Justice, 'the very nature of the organization created, the objectives which have been assigned to it by its founders, the imperatives associated with the effective performance of its functions, as well as its own practice' are elements that deserve attention when interpreting an organization's mandate.[27] This section provides an overview of the IMO's history and institutional structure concerning vessel-source pollution, and the resolutions and instruments that together form the legal basis for the IMO's regulation of greenhouse gas emissions. It thereby sets the legal context of the 2018 Strategy and its function of bridging the maritime and climate legal regimes.

1.1 IMO Regulation of Vessel-Source Pollution

The IMO, founded in 1948, was originally called the Inter-Governmental Maritime Consultative Organization (IMCO).[28] The IMCO had a broad purpose of serving as a forum for cooperation among its member states for almost everything related to international shipping.[29] As reflected in its name, the IMCO's original conception was as a consultative rather than a regulatory organization, and was required to abstain from 'matters which appear to the Organization capable of settlement through the normal processes of international shipping business'.[30] It did not have an express environmental purpose, although its jurisdiction over technical matters extended to pollution by virtue of its sponsorship of conferences on the 1954 Oil Pollution Convention and its consideration of oil-pollution prevention as part of maritime safety.[31] In its specialized-agency agreement with the IMCO under Article 57 of the UN Charter, the UN General Assembly endorsed the IMCO's broad purpose of regulating international shipping, recognizing it as 'responsible for taking such action as may be appropriate under its basic instrument for the accomplishment of the purposes therein'.[32]

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26 Shi, *supra* n. 25, 8; Christian Pisani, 'Fair at Sea: The Design of a Future Legal Instrument on Marine Bunker Fuels Emissions Within the Climate Change Regime,' (2002) 33(1) *Ocean Development and International Law* 57.

27 *Legality of the Use by a State of Nuclear Weapons in Armed Conflict*, ICJ rep. 1996 66, Advisory Opinion (hereinafter Nuclear Weapons), 75; see also Niels Blokker, 'Constituent Instruments', in JC Cogan, et al. (eds), *The Oxford Handbook of International Organizations* (Oxford University Press, 2016), 955–57.

28 Craig Allen, 'Revisiting the Thames Formula: The Evolving Role of the International Maritime Organization and Its Member States in Implementing the 1982 Law of the Sea Convention,' (2009) 10 *San Diego International Law Journal* 265.

29 Michael McGonigle and Mark Zacher, *Pollution, Politics, and International Law: Tankers at Sea* (University of California Press, 1979), 40–41; IMO Convention, *supra* n. 2, Art. 1.

30 McGonigle and Zacher, *supra* n. 29, 40

31 Ibid., 41.

32 G.A. Res. 204 (iii), un Doc A/res/204(iii) (18 Nov. 1948), 61 (adopting the Economic and Social Council Resolution 165(vii), 27 August 1948 (collectively, hereinafter, IMO Specialized Agency

In the 1970s, concurrent with the drafting and adoption of MARPOL, the IMO Assembly enacted a series of amendments to the IMCO Convention. Those amendments gave the organization its current name and created the Marine Environment Protection Committee (MEPC). They also provided that the IMO 'is to encourage and facilitate the general adoption of the highest practicable standards in matters concerning … the prevention and control of marine pollution from ships'.[33] In order to achieve this aim, the IMO considers and makes recommendations on matters concerning the IMO remitted to it by its members; provides for the drafting and recommendation of conventions and other instruments; and provides machinery for consultation among its members, in particular on matters assigned to it 'under international instruments relating to maritime matters and the effect of shipping on the marine environment'.[34] Thus the IMO Convention does not limit the type of marine pollution that can be controlled by IMO regulations, nor the method by which regulation can be achieved.[35]

The MEPC is composed of all IMO members, and has specific functions under the IMO Convention that are expressly tied to other international conventions.[36] Pursuant to IMO Convention Article 38, the MEPC may consider any matter within the scope of the organization related to the prevention and control of marine pollution from shipping. Under clause (a) of that article, it performs 'such functions as are or may be conferred upon the Organization by or under international conventions for the prevention and control of marine pollution from ships';[37] and under clause (e), it may consider and take 'appropriate action with respect to any other matters falling within the scope of the Organization which would contribute to the prevention and control of marine pollution from ships'.[38]

MARPOL establishes discharge and emission standards for ships.[39] It requires its state parties to 'give effect' to it and to 'those Annexes thereto by which they are bound, in order to prevent the pollution of the marine environment by the discharge of harmful substances'.[40] MARPOL's annexes cover categories of 'harmful substances', including noxious liquid

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Agreement), Art. ii. The ICJ refers to specialized agency agreements to interpret international organizations' purposes and functions: Nuclear Weapons, *supra* n. 27, para. 26.

33 IMO Convention, *supra* n. 2, Art. 1.

34 Ibid., Art. 2.

35 Aoife O'Leary and Jennifer Brown, The Legal Basis for IMO Climate Measures (Environmental Defense Fund and Sabin Center for Climate Change Law, Columbia Law School, 2018), 2.

36 IMO Convention, *supra* n. 2, Art. 11 (designating the MEPC as an IMO organ); and Art. 37 (all members of the IMO are members of the MEPC).

37 Ibid., Art. 38(a)

38 Ibid., Art. 38(a)

39 As discussed by Bodansky, the IMO regulates greenhouse gas emissions and other pollutants with technical vessel-based standards rather than through national discharge totals: Bodansky, *supra* n. 23, 8.

40 MARPOL, *supra* n. 22, Art. 1(1)

substances, garbage, and air pollution.[41] Annexes I and II are mandatory, in that any party that wishes to join MARPOL must adopt them; Annexes III, IV, V, and VI are 'optional' and must be separately ratified.[42] MARPOL designates the IMO as the 'appropriate body' for the drafting and adoption of MARPOL annexes and amendments to annexes.[43] The MEPC performs that function, and when adopting or amending MARPOL annexes, it has consistently cited IMO Convention Article 38(a), which refers to the conferral of functions on it by other conventions.[44]

MARPOL annexes can be amended in two ways. An amendment can be adopted by MARPOL parties acting within the MEPC with a two-thirds majority vote. It will be deemed accepted if two-thirds of parties to the Annex representing at least 50 per cent of the gross tonnage of the world's merchant fleet affirmatively accept it.[45] Alternatively, under a 'tacit-amendment' procedure, a two-thirds majority within the MEPC can amend a MARPOL annex by deeming an amendment 'to have been accepted at the end of a period … not less than ten months, unless within that period an objection' is lodged by one-third of MARPOL's parties representing at least 50 per cent of gross tonnage.[46] There is no legal distinction between these types of amendment, although in practice the tacit-amendment procedure is used for 'technical provisions whose details are less controversial'.[47] Scholars have concluded that MARPOL's tacit-amendment procedure—and similar procedures in other IMO treaties dealing with shipping safety and navigation—imbue the IMO with a 'quasi-legislative' rather than a merely consultative institutional character.[48]

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41 Saiful Karim, 'Implementation of the MARPOL Convention in Developing Countries', 79 *Nordic Journal International Law* 303 (2010), 312–13. MARPOL imposes other obligations on its signatories related to its effective implementation, such as requirements that port and coastal states prosecute violations; see MARPOL, *supra* n. 22, Art. 4.

42 See MARPOL 78, *supra* n. 22, Art. 2

43 MARPOL, *supra* n. 22, Art. 16(2). Amendments to MARPOL or its Annexes can also be made by a COP. Ibid., Art. 16(3). See Martinez Romera, *supra* n. 23, 101, fn. 477 (the IMO power to regulate greenhouse gas emissions under the IMO Convention comes from Article 38).

44 See, e.g., MEPC 203(62), *supra* n. 4; MEPC 278(70), *supra* n. 4.

45 MARPOL, *supra* n. 22, Art. 16(2)(d) and (f)(i).

46 Ibid., Art. 16(2)(f)(ii) and (iii)); see Karim, *supra* n. 23, 36–37 (discussing the tacit-amendment procedure); O'Leary and Brown, *supra* n. 35, 18 (same)

47 Rüdiger Wolfrum, 'IMO Interface with the Law of the Sea Convention,' in MH Nordquist and JN Moore (eds), *Current Maritime Issues and the International Maritime Organization* (Martinus Nijhoff, 1999), 227.

48 Frederic L. Kirgis, Jr., 'Shipping', in O Schacter and Joyner (eds) *United Nations Legal Order, Volume II* (The American Society of International Law/Cambridge University Press, 1995), 718–23 (evaluating the IMO's 'meaningful quasi-legislative authority' under its tacit-amendment procedure and the LOSC); Wolfrum, *supra* n. 47, 232 ('only due to [the tacit acceptance] procedure, one may argue, does the IMO exercise prescriptive jurisdiction over vessel-source pollution'); Allen, *supra* n. 28.

Under the LOSC, flag states retain primary prescriptive jurisdiction over ship design, construction, and operation, but they must adopt rules that have 'at least the same effect' as generally recognized international standards for the control of marine pollution from vessels, and must take internationally agreed standards 'into account' when regulating 'pollution of the marine environment from or through the atmosphere' from vessels, aircraft, and airspace under their sovereignty.[49] The IMO is a recognized source of these standards under the LOSC,[50] and as the IMO Secretary-General explained, 'while [the LOSC] defines the features and extent of the concepts of flag, coastal, and port State jurisdiction, IMO instruments specify how State jurisdiction should be exercised to ensure compliance with safety and antipollution shipping regulations'.[51]

The allocation of enforcement jurisdiction in the LOSC broadens the reach of IMO standards beyond the parties that adopt them: even if a state does not ratify a MARPOL annex or amendment, ships flying its flag have a strong incentive to comply with the standards in force because port states have universal enforcement jurisdiction over violations of 'applicable international rules and standards established through' the IMO; and coast-

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49 LOSC, *supra* n. 22, Articles 94, 211, 212, 218, 222. Under the LOSC, coastal and port states can also enact and implement vessel-source pollution rules beyond international standards in certain circumstances depending on the type of pollution and on the maritime zone: Ibid., Articles 211(3) and (6), 212; see generally, Erik Molenaar, *Coastal State Jurisdiction over Vessel Source Pollution* (Kluwer Law International, 1998).

50 See Molenaar, *supra* n. 49, 136–137 (the IMO is the 'competent international organization' on vessel-source pollution, although it shares competence with regard to monitoring standards with the International Labor Organization and radioactive substances with the International Atomic Energy Agency). Whether the IMO's greenhouse gas regulations operate as a floor or as standards that states merely need to 'take into account' depends in part on whether the regulations concern 'pollution of the marine environment from vessels' within the meaning of LOSC Art. 211, or 'atmospheric pollution' under Art. 212. (Bodansky, *supra* n. 23, 9–10.) For its part, the MEPC has referred to greenhouse gas emissions as both 'air pollution' and 'marine pollution from ships.' See 2018 Strategy, *supra* n. 5, 1 (in enacting the Strategy, the MEPC referenced its functions concerning 'international conventions for the prevention and control of marine pollution from ships'); Annex 2, 1 (describing the regulation of greenhouse gas emissions as part of reduction of 'air pollution from ships'). The answer to that question is beyond the scope of this article.

51 IMO, Executive Summary, Relations with the United Nations and the Specialized Agencies, Note by the Secretary General, IMO Doc. C/es.19/19(b)/1, with attached Study on the Implications of the Entry into Force of the United Nations Law of the Sea Convention, IMO Doc. LEG/MISC/2, 6 October 1997; reproduced in Netherlands Institute for the Law of the Sea, 13 *International Organizations and the Law of the Sea: Documentary Yearbook* 767 (1997), 804. See Molenaar, *supra* n. 49, 113–114 (the LOSC and MARPOL impose a maximum level of prescriptive jurisdiction on a coastal state; port states retain 'residual' jurisdiction under general international law to go beyond regulatory conventions).

al states may enforce those rules and standards for violations that occur within their exclusive economic zones and territorial seas.[52] Moreover, pursuant to the principle of no-more-favorable treatment, MARPOL obliges its parties to apply the Convention and its annexes to non-parties.[53] Thus, under MARPOL and the LOSC, a vessel engaged in international shipping may very well find itself subject to an IMO pollution-control standard at various points in its journey, regardless of its nationality.[54] Scholars have concluded that the breadth, depth, and wide reach of the IMO's environmental standards, MARPOL's tacit-amendment procedure, and the references in the LOSC to the IMO, give the IMO a law-making character markedly different from the IMCO's limited consultative mandate.[55]

1.2 IMO Regulation of Greenhouse Gas Emissions

Starting in the 1990s, the IMO began considering action on greenhouse gas emissions from shipping, and called on states to take voluntary measures as it weighed the possibility of mandatory regulations.[56] When the MARPOL cop adopted an annex for air pollution in

52 LOSC, *supra* n. 22, Articles 218, 220; see generally, Jesper Jarl Fanø, *Enforcing International Maritime Legislation on Air Pollution Through UNCLOS* (Bloomsbury, 2019), 135–137, 188–198 ('discharges' under LOSC Art. 218(1) include air pollution emitted from ships).

53 MARPOL, *supra* n. 22, Articles 5(4), 16(4)(a); see IMO, IMO Assembly Resolution 'Procedures for Port State Control, 2017', IMO Doc. A 30/Res.1119 (6 December 2017), Annex, 4–5 (discussing MARPOL Annexes' provisions for port-state control over ships of non-parties); Molenaar, *supra* n. 49, 114 (discussing the impact for flag states of opting out of MARPOL amendments).

54 Wolfrum, *supra* n. 47, 231 (under the LOSC 'the power to invoke rules and standards [by port and coastal states] does not depend on whether the flag State of that particular ship is a party to the relevant Convention'); 232 (the LOSC delegates prescriptive jurisdiction to the IMO; its 'rules, regulations and standards again become part of the legal regime established by and on the basis of' the LOSC). Kirgis argues that the LOSC establishes a legal obligation to implement IMO norms regarding environmental protection, and that the good-faith principle extends that obligation to LOSC non-parties: Kirgis, *supra* n. 48, 739–40; see also Augustín Blanco-Balzán, 'IMO Interface with the Law of the Sea Convention', in MH Nordquist and JN Moore (eds) *Current Maritime Issues and the International Maritime Organization*, (Martinus Nijhoff, 1999), 282 ('even on the high seas, a ship party to UNCLOS violates the Convention if it does not comply with discharge requirements under MARPOL').

55 See the sources cited at notes 49 and 54; Alfred Popp, 'The Treaty-Making Work of the Legal Committee of the International Maritime Organization,' in A Chircop et al. (eds) *The Regulation of International Shipping: International and Comparative Perspectives: Essays in Honor of Edgar Gold* (Martinus Nijhoff, 2012), 210 (the IMO initially functioned as a consultative body without binding standard-setting powers, but 'over the years the Organization has evolved').

56 See Kopela, *supra* n. 23, 75-7; Martinez Romera, *supra* n. 23, 101-2; A 17/Res. 719, *supra* n. 3; IMO, Report to the Marine Environmental Protection Committee On Its Thirty-Ninth Session, IMO Doc. MEPC 39/13 (25 April 1997), para. 6.30; MEPC 42/22, *supra* n. 3, para. 9.18; IMO, Report to the Marine Environmental Protection Committee On Its forty-Fifth Session, IMO Doc. MEPC

1997, it called on the MEPC to develop a greenhouse-gas-reduction strategy for shipping, and referred to Article 2(2) of the Kyoto Protocol, which obliges Annex i parties to 'work through' the IMO to reduce or limit emissions from international shipping.[57] A 1998 MEPC report affirms the IMO's 'clear mandate to deal with emissions from shipping', 'in response to the Kyoto Conference'.[58]

Within the MEPC, there was lengthy debate about the legal basis for the IMO's mitigation of shipping emissions, particularly in the lead-up to the UNFCCC's 2009 Copenhagen COP. The dispute was between developed and developing countries, with the former arguing that the IMO has an independent mandate to regulate pollution from shipping, including greenhouse gas emissions, while developing countries maintained that the IMO's mandate is based on the climate regime.[59] This debate was linked to a disagreement about the principles that should apply to the IMO's regulation of emissions and the differential climate obligations among IMO members.[60] Despite the disagreement, the IMO Convention's dispute-resolution procedures on the interpretation of its provisions were never triggered.[61]

In 2008, the IMO's Secretary-General noted that, under Article 59 of the IMO Convention, the IMO was 'the specialized agency of the United Nations in the field of shipping and the effect of shipping on the marine environment', and 'thus, had a global mandate and global competence on matters related to the protection of the environment from emissions caused

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45/20 (15 October 2000) (hereinafter MEPC 45/20), para 8.17–8.19; IMO, Report to the Marine Environmental Protection Committee On Its forty-Eighty Session, IMO Doc. MEPC 48/21 (24 October 2002), para. 4.12; IMO, Report to the Marine Environmental Protection Committee On Its Forty-Ninth Session, Addendum 1, IMO Doc. MEPC 49/22/Add.1 (13 August 2003), Annex 7, 1; IMO, 'IMO Policies and Practices Related to the Reduction of Greenhouse Gas Emissions From Ships', IMO Ass. Res. A.963(20) (4 March 2004) (hereinafter A.963(20)), preamble, paras 1, 2; IMO, Report to the Marine Environmental Protection Committee On Its Fifty-Fourth Session, IMO Doc. MEPC 54/21 (27 March 2006) (hereinafter MEPC 54/21), para. 4.32

57 Kopela, *supra* n. 23, 75-76; see MEPC 45/20, para. 8.14.

58 MEPC 42/22, *supra* n. 3, para. 9.18

59 See IMO, Report to the Marine Environmental Protection Committee On Its Fifty-Eighth Session, IMO Doc. MEPC 58/23 (16 October 2008) (hereinafter MEPC 58/23), Annex 9, 1, 11 (China argued that the UNFCCC and Kyoto Protocol 'should be the legal basis for IMO to address the issue of GHG emission reduction from international shipping', while the United States asserted that 'IMO's mandate to regulate GHG emissions from shipping predates, and does not derive from, the Kyoto Protocol').

60 See, e.g., IMO, Report to the Marine Environmental Protection Committee On Its Forty Eighth Session, IMO Doc. MEPC 48/21, 2003 (24 October 2002), para. 4.18 (China and other developing states arguing that CBDR should apply, and obligation to mitigate shipping's climate impact was borne only by UNFCCC Annex I countries).

61 IMO Convention, *supra* n. 2, Art. 74 and 75 (disputes among IMO member states about the interpretation of the convention may be submitted to the Assembly for resolution, and then to the ICJ for an advisory opinion).

by shipping and was not subordinated to any other UN body in that respect'.[62] The IMO's official position at the Copenhagen COP was that it wanted to ensure that the international community entrusted it with responsibility to 'develop and enact global regulations for GHG emissions from shipping' in light of its 'specific mandate of effectively protecting and preserving the global environment, both marine and atmospheric'.[63] The IMO was motivated by its desire to maintain its 'leading position to avoid unilateral action' by states or regional organizations.[64]

The IMO's first mandatory greenhouse-gas-reduction measures were the 2011 Energy Efficiency Design Index and Ship Energy Efficiency Management Plan—technical and operational measures aimed at reducing emissions from shipping by increasing energy efficiency.[65] In 2013, the MEPC adopted technical-assistance measures related to the 2011 regulations.[66] In 2016, it created a mandatory data-collection system for fuel-oil consumption.[67] In June 2021, the MEPC amended the Energy Efficiency Design Index to require, among other things, that large ships calculate their annual operational carbon intensity.[68]

The instruments effecting these actions reference the IMO Convention and MARPOL for their legal basis, with limited and sporadic reference to the climate regime. This legal framing is consistent with the views of the IMO's legal office that MARPOL's Article 2 is the source of the IMO's mandate to regulate emissions from shipping, as well as with the fact that those regulations could be characterized as both climate measures and part of an effort to 'modernize the shipping industry by making it more energy and cost efficient'.[69]

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62 MEPC 58/23, *supra* n. 59, para. 4.30. The IMO Convention was re-numbered in 2010, and Article 56 is now Article 64.

63 IMO, Submission by the International Maritime Commission, United Nations Climate Change Conference, Eighth Session of the Ad-Hoc Working Group On Long Term Cooperative Action (AWG-LCA 8) (7–18 December 2009), 2.

64 IMO, Report to the Marine Environmental Protection Committee On Its Fifty-Fifth Session, IMO Doc. MEPC 55/23 (15 October 2006), para. 4.25. Natalie Dobson shows how the IMO's climate policy was developed in response to the threat of unilateral action from the European Union: Dobson, *supra* n. 7.

65 MEPC 203(62), *supra* n. 4; Karim, *supra* n. 20, 109–10; Fano, *supra* n. 52, 264–65.

66 MEPC 229(65), *supra* n. 4; see Karim, *supra* n. 20, 120–23 (discussing the adoption and implementation of the measure in light of the CBDR and no-more-favorable treatment principles).

67 MEPC 278(70), *supra* n. 4; Dobson, *supra* n. 6, 193–95 (comparing the IMO's global data collection scheme for greenhouse gas emissions to European Union's monitoring, reporting, and verification scheme).

68 IMO, 'Meeting Summary Marine Environment Protection Committee (MEPC 76) 10-17 June 2021 (remote session)',; IMO, N. by the Secretariat, 'Consideration and Adoption of Amendments to Mandatory Instruments, Draft Amendments to MARPOL Annex VI', IMO Doc. MEPC 75/3 (26 July 2019).

69 Kopela, *supra* n. 23, 77 (discussing the IMO's position on its mandate and finding that the IMO has independent competence to regulate greenhouse gas emissions from shipping).

Accordingly, the 2011 energy-efficiency measures 'recognized' that the measures did not 'prejudge' the ongoing UNFCCC negotiations.[70] The resolution adopting the 2013 technical-assistance measures was 'cognizant' of both the no-more favorable treatment principle under the IMO Convention and the CBDR principle under the UNFCCC and Kyoto Protocol; as for the mandatory data-collection system for fuel-oil consumption, it did not mention the climate treaties.[71]

In 2017, the IMO Assembly noted the importance of the Paris Agreement and the challenge of climate change, and resolved that the IMO would respond to climate change as one of its 'strategic directions'.[72] In adopting its 2018 greenhouse gas Strategy, the MEPC invoked IMO Convention Article 38(e), which, as noted earlier, provides that the MEPC is to 'consider and take appropriate action' on any matters 'related' to the prevention and control of vessel-source marine pollution. The MEPC also acknowledged the 'continuous' work that the IMO had done on climate change since 1997.[73] Thus, the IMO has long interpreted its mandate to control greenhouse gas emissions from shipping as arising from its constituent instrument, which, together with the IMO's specialized-agency agreement with the United Nations, grants it primacy as the international organization responsible for regulating shipping's environmental impacts. As scholars have argued, the objectives of MARPOL and the climate regime with regard to international shipping are the same: the reduction and limitation of vessel-source pollution, including greenhouse gas emissions.[74] In Section 4, I will discuss how the 2018 Strategy incorporates the Paris Agreement's goals and thus links the two regimes in a legally meaningful way.

2. IMO Obligations to Mitigate Climate Change Under the IMO Convention, MARPOL, and Climate Treaties

The fact that an international organization has a right to act in a certain way does not mean that it has an obligation to do so.[75] International organizations are bound by 'obligations incumbent upon them under general rules of international law, under their constitutions

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70 The 2011 measure is frequently referred to by the IMO and others as its flagship response to climate change. See e.g., Martinez Romera, *supra* n. 23, 103. The measure did not specifically state that it was designed to reduce greenhouse gas emissions, but instead recognized that the measures would result in a reduction of 'any substances that originate from fuel oil or its combustion processes.' MEPC 203(62), *supra* n. 4.

71 MEPC 229(65), *supra* n. 4; MEPC 278(70), *supra* n. 4.

72 A 30/Res.1110, *supra* n. 6, 6.

73 IMO 2018 GHG Strategy, *supra* n. 5, Annex 1, 1.

74 Kopela, *supra* n. 23, 76–77; Pisani, *supra* n. 26, 60; Sebastian Oberthür, 'Institutional Interaction to Address Greenhouse Gas Emissions from International Transport: ICAO, IMO and the Kyoto Protocol', (2003) 3(3) *Climate Policy* 191, 200.

75 Vienna Convention on the Law of Treaties, 1155 UNTS 331, 23 May 1969 (hereinafter VCLT (1969)), Articles 34–37 (discussing the difference between rights and obligations).

or under international agreements to which they are parties'.[76] They can also be bound to treaty obligations as non-signatory third parties pursuant to Article 35 of the Vienna Convention on the Law of Treaties Between States and International Organizations or Between International Organizations (VCLT-IO).[77] This section first examines whether the IMO has procedural and substantive climate obligations under its constitution and MARPOL, and then evaluates whether it has obligations under the climate treaties.[78]

2.1 IMO Obligations under Its Constitution and MARPOL

Article 2 of the IMO Convention states that the IMO 'shall' consider and make recommendations related to the IMO's purpose of preventing and controlling marine pollution; provide for the drafting of conventions and recommend them to governments 'as may be necessary'; provide machinery for consultation; and perform functions that other international agreements impose on the IMO, in particular related to shipping's environmental effects. Article 38 imposes procedural obligations on the MEPC:

> [The MEPC] shall consider any matter within the scope of the Organization concerned with the prevention and control of marine pollution from ships and in particular shall … [p]erform such functions as are or may be conferred upon the Organization by or under international conventions for the prevention and control of marine pollution from ships [and] [c]onsider and take appropriate action with respect to any other matters falling within the scope of the Organization which would contribute to the prevention and control of marine pollution from ships.

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76 *Interpretation of the Agreement of 25 March 1951 between the WHO and Egypt*, Advisory Opinion, ICJ rep. 73 (December 1980), para. 37.

77 Vienna Convention on the Law of Treaties between States and International Organizations or Between International Organizations, 25 ILM 543, 21 March 1986 (hereinafter VCLT-IO), Art. 35; Kristina Daugirdas, 'How and Why International Law Binds International Organizations', (2016) 57(2) *Harvard International Law Journal* 325, 326, 335 (noting that the VCLT-IO has not yet entered into force, and scholars dispute aspects of its applicability, including whether treaties can bind organizations without their consent).

78 See *Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, Judgment, 2011 ICJ Rep. 14 (20 April), 47 (hereinafter Pulp Mills), paras. 67–158 (discussing the distinction between substantive and procedural obligations); Stefan Talmon, 'Jus Cogens after Germany v. Italy: Substantive and Procedural Rules Distinguished', (2012) 25(4) *Leiden Journal of International Law* 979, 982 (obligations bear on whether conduct is lawful or not, while 'procedural rules are rules governing the judicial and non-judicial interpretation, implementation, and enforcement of substantive rules'). As discussed in the following section, there has been significant research on whether the climate change treaties themselves impose procedural or substantive obligations: see Zahar, *supra* n. 12, 170–71 (collecting scholarship).

The word 'shall' in the IMO Convention, as in treaties generally, indicates the imposition of a mandatory duty on the IMO and its organs.[79] Thus, pursuant to Articles 2 and 28 of the IMO Convention, the IMO is obliged to act as a forum for its member states to prevent and control pollution from shipping, and take 'appropriate action' with respect to other matters that would contribute to pollution prevention and control.[80]

The IMO's obligation to perform these functions should be interpreted consistently with its purposes.[81] IMO Convention Article 1(a) defines one of the organization's purposes as encouraging and facilitating 'the general adoption of the highest practicable standards in matters concerning … prevention and control of marine pollution from ships'.[82] Accordingly, the IMO, when making recommendations to its members, providing machinery for consultation, or considering and taking appropriate action to control vessel-source pollution, must aim to encourage its member states to adopt the highest practicable standards.

MARPOL also imposes procedural obligations on the IMO, stating that the IMO 'shall' notify MARPOL's member states of certain types of information and convene conferences in defined circumstances.[83] It also provides that the IMO is to act as the forum for MARPOL's member states to consider any amendment to MARPOL's annexes.[84] MARPOL is not, of course, the IMO's constituent instrument, nor is the IMO a party to MARPOL, yet it appears that the IMO is nevertheless bound by these provisions as a 'third organization' within the meaning of Article 35 of the VCLT-IO, which states that the parties to a treaty may impose an obligation on a third organization, which it may accept if 'the obligation arises in an area of activity of the organization' and if consent is 'given expressly and in writing'.[85] Here,

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79 *Constitution of the Inter-governmental Maritime Safety Committee*, Advisory Opinion, 1960 ICJ Rep. 150 (8 June), 159, 164 (interpreting Article 28 of the Convention as imposing mandatory obligations on the IMCO Assembly).

80 Although Article 38 by its terms imposes obligations only on the MEPC, the MEPC's conduct in the performance of its functions 'shall be considered an act of [the IMO] under international law': DARIO, *supra* n. 14, Art. 6(1). Article 38 can therefore be read to impose obligations on both the IMO and the MEPC.

81 *Pulp Mills*, *supra* n. 78, para. 173 (a treaty's purpose informs the interpretation of obligations).

82 IMO Convention, *supra* n. 2, Art. 1(a). Article 1(a) itself does not impose an obligation on IMO: the text of the Convention captions Article 1 as 'purposes', and Article 2 as 'obligations'; and the ICJ has distinguished between treaty purposes and obligations where the text supports a distinction: *Pulp Mills*, *supra* n. 78, para. 173 (the treaty's purpose 'does not by itself lay down specific rights and obligations').

83 See MARPOL, *supra* n. 22, Articles 2(7) (defining the IMO as an 'organization' under MARPOL), 11(2), 14(4); 15 (the IMO 'shall notify' parties of various communications, declarations, and acts of member states); 16 (MARPOL and its annexes may be amended, and new annexes to MARPOL may be adopted, after consideration by the IMO).

84 Ibid., Art. 16(2).

85 Caroline Laly-Chevalier, '1986 Vienna Convention, Observance, Application and Interpretation of Treaties: Treaties and Third States', in in O Corten and P Klein (eds) *The Vienna Conventions*

the procedural obligations that MARPOL's parties imposed on the IMO arise in its area of activity as a regulatory forum for international shipping. The IMO, when adopting a new MARPOL annex, as well as when amending an annex, invokes IMO Convention Article 38(a)—which allows the IMO to perform functions assigned to it by other international instruments.[86] Through these resolutions, the IMO has accepted MARPOL obligations expressly and in written form.

Yet MARPOL does not oblige the IMO to reduce pollution from shipping in any particular way. The only obligation in MARPOL related to the quantum of the pollution that must be reduced is its requirement that its parties 'give effect' to it and to 'those Annexes thereto by which they are bound, in order to prevent the pollution of the marine environment by the discharge of harmful substances'.[87] Thus MARPOL's member states are only obliged to implement the convention and its annexes, which restrict the means of discharge but generally allow for margins of vessel-source pollution.[88] The treaty isolated from its annexes does not impose a substantive obligation to mitigate climate change, whether on its member states or on the IMO.

2.2 IMO Obligations under the Climate Treaties

The climate treaties on their face do not appear to bind the IMO. The IMO is not a party to the UNFCCC and therefore cannot join the Kyoto Protocol or the Paris Agreement.[89] Of the three treaties, only the Kyoto Protocol, in Article 2(2), refers to the IMO, where it requires Annex I parties to 'work through' the IMO to achieve emission reductions from bunker fuels.[90] As I noted in Section 1, the MEPC referred to that provision in its early deliberations

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on the Law of Treaties (Oxford University Press, 2011), 1; VCLT-IO, Art. 35, *supra* n. 77. As noted above, scholars disagree about aspects of the VCLT-IO including about its provisions on the acceptance of obligations by non-party international organizations: see Daugirdas, *supra* n. 77, 335; Christian Tomuschat, 'International Organizations as Third Parties Under the Law of International Treaties,' in E Cannizzaro (ed.) *The Law of Treaties Beyond the Vienna Convention* (Oxford, 2011), 206, 211-12.

86 See, e.g., MEPC 203(62), *supra* n. 4 (amending MARPOL Annex VI to add EEDI requirements and referring to IMO Convention Article 38(a)).

87 MARPOL, *supra* n. 22, Art. 1(1); see resolutions discussed in Section 1, above. MARPOL's Annexes i and ii are mandatory, in that any party that wishes to join MARPOL must adopt them; Annexes iii, iv, v, and vi are 'optional' and therefore must be separately ratified. See MARPOL 78, *supra* n. 22, Art. 2; Karim, *supra* n. 41, 312–13. MARPOL imposes other obligations on its signatories related to its effective implementation, such as requirements that port and coastal states prosecute violations. See MARPOL, *supra* n. 22, Art. 4.

88 See Karim, *supra* n. 41, 315–16 (MARPOL only completely bans the discharge of plastic pollution into the sea; dangerous chemicals and oils may still be discharged in specified locations if certain methods are followed).

89 UNFCCC, Art. 20; Kyoto Protocol, Art. 24(1); Paris Agreement, Art. 20. 90.

90 Kyoto Protocol, Art. 2(2)

on greenhouse gas emissions from shipping. Yet, Article 2(2) does not bind the IMO as a 'third organization' under VCLT-IO Article 35, because its phrasing does not show that the Protocol's signatories intended such an obligation to arise.[91] Moreover, as already noted, the MEPC did not formally invoke the Kyoto Protocol in its climate resolutions, and therefore did not 'expressly accept' any obligation from that treaty in writing.[92]

Even in the absence of a textual indication that the IMO is bound by the climate treaties' obligations, the IMO might be indirectly bound through its member states based on the concept of functional succession. This doctrine holds that international organizations, as 'peers' of states within the international legal order, can succeed to their members' powers as well as obligations linked to those powers. The concept's underlying 'rationale relies on the obligations existing prior to conferral of power'.[93]

In the present case, in 1982, the IMO's member states—as well as the parties to MARPOL and the LOSC—gave the IMO authority to act as the exclusive forum for the setting of global standards for the control of vessel-source pollution.[94] Because the UNFCCC was concluded some ten years after the prevention and control of vessel-source pollution was expressly added to the IMO's purposes and functions, it appears that the IMO could not have succeeded to its member states' climate obligations. One might even argue that the IMO did not have competence to regulate atmospheric pollution until 1997, when MARPOL's Air Pollution Protocol (Annex VI) and Resolution 8 were adopted by MARPOL's COP. Nevertheless, the IMO Convention and LOSC give the IMO its charge of regulating 'vessel-source pollution' without restricting the type of pollution within the IMO's prescriptive jurisdiction.[95] In addition, the IMO was first created some fifty years before the UNFCCC was adopted. Therefore, this situation differs sharply from the cases of *International Fruit* and *South-West Africa*, where an international organization succeeded to rights and obligations held at the time when the organization was created.[96]

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91 See VCLT-IO, *supra* n. 77, Art. 35 (obligation arises for third organization 'from the provision of a treaty if the parties to the treaty intend the provision to be the means of establishing the obligation'); VCLT (1969), *supra* n. 75, Art. 31(1) ('A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty').

92 VCLT-IO, *supra* n. 77, Art. 35.

93 Dobson, *supra* n. 7, 17; see Daugirdas, *supra* n. 77, 350–57, 369; *International Status of South-West Africa, Advisory Opinion* 1950 ICJ rep. 128, 132–8; Joined Cases 21 to 24/72, *International Fruit Company NV v. Produktschap voor Groenten en Fruit*, 1972 ECR 1219 (hereinafter International Fruit), para. 18. The European Court of Justice decided International Fruit—a court that was itself part of the European Community: see Treaty Establishing the European Community, Rome, 25 March 1957, Official Journal C325, Art. 4.

94 See Section 2, above.

95 IMO Convention, *supra* n. 2, Art. 2 and 38.

96 See cases cited *supra* at n. 93.

Ultimately, the binding of international organizations to their members' substantive treaty obligations is only required when necessary to avoid or resolve treaty conflicts.[97] There does not appear to be any conflict between the IMO's obligation to act as a forum for the reduction of emissions from shipping, on the one hand, and, on the other, its members' obligations under Article 4 of the UNFCCC to reduce or limit emissions from all forms of transportation, as well as their obligation under Articles 2 and 3 of the Paris Agreement to hold global warming below 2°C.[98] Moreover, as Daugirdas argues, the resolution of conflicts is best settled by the states which bear substantive treaty obligations that may conflict with an organization's constituent instrument.[99] As discussed in the next section, any treaty conflict between the principles in the maritime and climate regimes was addressed by the IMO members in the 2018 Strategy.

3. The IMO's 2018 Strategy as a Unilateral Declaration

International organizations routinely act unilaterally in the form of decisions, recommendations, and judicial and administrative acts authorized by their constituent instruments.[100] The formal elements and factual circumstances of a particular unilateral action by the IMO—the Strategy—are examined here to determine whether its characteristics allow for it to be classified as a binding unilateral declaration—in addition to being an IMO 'rule'.[101]

3.1 The 2018 Strategy

The MEPC adopted the Strategy in April 2018, marking the first time the IMO set a cap for shipping's emissions. The Strategy explains how it will achieve reductions to comply with the cap. In the preamble to the resolution adopting the Strategy, the MEPC 'recalled' IMO Convention Article 38(e), which, to reiterate, obliges the MEPC to 'consider and take appropriate action' regarding any matter falling within the scope of the IMO that would contribute to the prevention and control of marine pollution from shipping. The MEPC stated that it would keep the Strategy under review with a view to adopting a revised strategy five years later.[102] The Strategy's introduction casts it as a continuation of the IMO's work on greenhouse gas emissions that builds on the 2003 Assembly resolution and the MEPC's 2011, 2013, and 2016 measures. Under the heading 'Context', the Strategy identifies other legal instruments, including the LOSC, the UNFCCC, and the Paris Agree-

97 Daugirdas, *supra* n. 77, 350.

98 UNFCCC, Articles 2 and 4; Paris Agreement, Articles 2 and 3.

99 Daugirdas, *supra* n. 77, 350–51 (citing VCLT (1969), *supra* n. 75, Articles 30(2)-(3) and 59).

100 Virally, *supra* n. 11, 242–45. See ILC Guiding Principles, *supra* n. 13, para. 174 (discussing conceptual definitions of unilateral acts).

101 See DARIO, *supra* n. 14, Art. 2 (organizations are bound by their 'rules' and 'general principles of international law').

102 IMO Strategy, *supra* n. 5, 2.

ment.[103] It also lists the IMO's 'leading role' in the development, adoption, and assistance with the implementation of environmental regulations for shipping, the IMO Assembly's 2017 decision to respond to climate change as a 'strategic direction', and the UN 2030 Agenda for Sustainable Development.[104]

The Strategy lists its objectives as 'enhancing IMO's contribution to global efforts by addressing GHG emissions from international shipping'. The global efforts include 'the Paris Agreement and its goals', as well as Goal 13 of the UN 2030 Agenda for Sustainable Development, which calls for taking urgent action to combat climate change and its impacts. The Strategy's vision is that the 'IMO remains committed to reducing GHG emissions from international shipping and, as a matter of urgency, aims to phase them out as soon as possible in this century'.[105]

The Strategy sets out three 'Levels of Ambition.' First, the 'carbon intensity of the ship [is] to decline through implementation of further phases of the energy efficiency design index (EEDI) for new ships', with the percentage improvement to be determined for each ship type.[106] Second, the 'carbon intensity of international shipping [is] to decline to reduce co2 emissions per transport work, as an average across international shipping, by at least 40% by 2030, pursuing efforts towards 70% by 2050, compared to 2008'. Lastly, emissions from international shipping are to peak

> as soon as possible and [there is to be a reduction of] the total annual GHG emissions by at least 50% by 2050 compared to 2008 whilst pursuing efforts towards phasing them out as called for in the Vision as a point on a pathway of co2 emissions reduction consistent with the Paris Agreement temperature goals.[107]

The Strategy sets forth relevant legal principles from the maritime and climate regimes, and refers to the no-more-favorable-treatment principle alongside the CBDR principle. It also identifies 'candidate' short-, mid-, and long-term further measures, which include financing adaptation activities, technology transfer and cooperation, and capacity building.[108] It concludes with a quinquennial timeline for periodic revisions.[109]

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103 Ibid., 4–5.

104 Ibid., 5.

105 Ibid., 5.

106 Ibid., 6.

107 Ibid., 6.

108 Ibid., 7–10. It appears that these measures will mix voluntary programs and regulations enacted as amendments to MARPOL Annex VI: see Joung et al., *supra* n. 5.

109 IMO Strategy, *supra* n. 5, 10. The MEPC resolution adopting the Strategy included the Strategy as Annex I; it also included an Annex II that discusses in narrative form the IMO's work on greenhouse gas emissions.

3.2 Unilateral Declarations of International Organizations

States' ability to bind themselves with unilateral declarations is firmly established in international law, as is the test for when a state's conduct or statements give rise to a legal obligation and when declarations can be revoked.[110] The test requires that the person or entity making the declaration have authority to do so.[111] The declaration must be a clear and public expression, in specific terms, of an intent to be bound.[112] If those conditions are met, the declaration becomes binding based on the principle of good faith, and states are 'entitled to take them into consideration and rely on them, and require that such obligations be respected'.[113] A declaration may be addressed to a specific state or to the international community as a whole.[114] Obligations imposed by declarations are to be interpreted restrictively, and in 'interpreting the content of such obligations, weight shall be given first and foremost to the text of the declaration, together with the context and the circumstances in which it was formulated'.[115] If a unilateral declaration that creates a legal obligation is made, the declaration cannot be arbitrarily revoked.[116]

In contrast to the well-developed test for unilateral declarations of states, there have been no international judicial decisions on international organizations' capacity to bind themselves with their statements—or on the test to be applied. Nor has the International Law Commission addressed the question. At the UN General Assembly proceedings on the Unilateral Acts of States, member states indicated that the unilateral acts of international organizations 'could be genuine unilateral legal acts', but 'such acts were very specific and therefore required special rules'.[117] The Special Rapporteur on the Unilateral Acts of States

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110 See, e.g., *Nuclear Tests*, *supra* n. 14, 267–68, paras. 43 and 46, and 472–73, paras. 46 and 49; Case Concerning the Frontier Dispute (*Burkina Faso v. Rep. Mali*), Judgment, 1986 ICJ rep. 554 (22 December) (hereinafter *Frontier Dispute*) 573, para. 39; Legal Status of Eastern Greenland, Judgment 1933 PCIJ Series A/B, No. 53 (5 April) (hereinafter *Legal Status of Eastern Greenland*), 71; ILC Guiding Principles, *supra* n. 13. The ILC's Guiding Principles and their accompanying commentary 'are explanatory notes reviewing the jurisprudence of the International Court of Justice and pertinent State practice analysed by several members of the Working Group and the Special Rapporteur and summarized in the eighth report of the Special Rapporteur (A/cn.4/557)': Ibid. 369, fn. 921.

111 Ibid., Principle 4.

112 Ibid., Principles 4, 7.

113 Ibid., Principle 1. Eva Kassoti persuasively argues that 'the distinction between sources of law and sources of obligation is largely irrelevant on the international level', and therefore unilateral acts can be regarded as sources of law in the same manner as international agreements: *The Juridical Nature of Unilateral Acts of States in International Law* (Brill Nijhoff, 2015), 178.

114 ILC Guiding Principles, *supra* n. 13, Principle 6.

115 Ibid., Principle 7.

116 Ibid., Principle 10.

117 Víctor Rodríguez Cedeño, Second Report on Unilateral Acts of States, UN Doc. A/cn.4/500 (14 April 1999) (hereinafter Cedeño Second Report), para. 16 (citing statements by Italy, Bahrain,

commented that 'unilateral acts performed by an organ of an international organization or by an international organization as such may have legal force', but that they are 'performed as a result of the competence which States themselves have conferred on the body and of which they may become the object'.[118] Accordingly, the competence of an organization to perform such an act is 'regulated by the law peculiar to each international organization'.[119]

There is scholarly support, following that logic, for the idea that organizations, as subjects of international law, can bind themselves with unilateral acts.[120] Moreover, the idea was explored in an opinion by Advocate General (AG) Sharpston in the Venezuelan Fisheries case before the European Court of Justice.[121] The case concerned Decision 2012/19 of the EU Council, which was captioned as a 'Unilateral Declaration' making certain commitments regarding Venezuela's access to fisheries within French Guiana's exclusive economic zone.[122] The Council adopted the Decision following the EU Commission's recommendation; the Commission's view was that the declaration would be legally equivalent to an international agreement.[123] The Council asked the EU Parliament to give its opinion on the measure, but it declined, and the Council then adopted Decision 2012/19.[124] The Commission and Parliament sued in the European Court of Justice to annul the Decision, arguing it had a wrong legal basis, did not respect the prerogatives of Parliament, and distorted the Commission's proposal.[125]

AG Sharpston analyzed the legal nature of the Council's decision. She examined whether it constituted a unilateral declaration with independent legal effects, or was part of an international agreement that had effects only once it was accepted by the party to which it was addressed—Venezuela.[126] The Council maintained that the declaration was a unilateral instrument but also an element of an international agreement.[127] The AG noted that none of the parties at a hearing before Parliament 'could offer examples of other unilaterally binding instruments adopted by the EU or by other intergovernmental organizations'.[128] Nonetheless, the AG opined that there was no rationale for 'why international law would preclude an international organization with international legal personality from having the capacity to make a unilateral declaration with the intention to be bound as long as the

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Switzerland, Germany, and the United States).

118 Víctor Rodríguez Cedeño, First Report on Unilateral Acts of States, UN Doc. A/cn.4/486 (5 March 1998) (hereinafter Cedeño First Report), para. 35.

119 Ibid., para. 38.

120 See sources cited at notes 10 and 11, *supra*.

121 AG Sharpston Opinion, *supra* n. 11. See also Kassoti and Vatsov, *supra* n. 10.

122 AG Sharpston Opinion, *supra* n. 11, para. 2.

123 Ibid., para. 34.

124 Ibid., para. 48.

125 Ibid., para. 2.

126 Ibid., para. 72.

127 Ibid., para. 69.

128 Ibid., para. 70.

constitutive treaties establishing that organization authorize it to do so', and reasoned that such a view was consistent with the capacity of organizations to enter into treaties and other international agreements.[129] The AG found that the EU had both the capacity and the competence to unilaterally bind itself under international law.[130] The AG then applied the test for when a unilateral act of a state creates binding obligations.[131] In examining whether the declaration was made under a proper authority, she noted that although the EU's constituent instrument did not expressly authorize unilateral declarations, it did allow the EU to accept obligations in favor of third states and international organizations. The founders of the EU clearly wanted the EU to have international legal personality and all the capacities that international law attaches to that status—including the capacity to be unilaterally bound. It followed that the declaration was made with the requisite authority.[132] Examining the text of the declaration and its context, the AG concluded that the EU Council's Decision was a binding unilateral declaration, albeit one that was incorrectly adopted under European law.[133]

The European Court of Justice decided the case on a different basis and did not discuss AG Sharpston's analysis of whether the EU's decision was a unilateral declaration.[134] As Kassoti and Vatsov state, the court's judgment 'represents a missed opportunity (through engaging with the AG's Opinion) to shed light' on unilateral acts of international organizations.[135] Yet, in the absence of a judicial decision, the AG's opinion provides a valuable analytical roadmap for how to evaluate the legal force of international organizations' declarations.

As the Special Rapporteur pointed out, unilateral acts have other legal effects besides the creation of obligations, including the acceptance of, and reservations to, treaties.[136] The VCLT-IO allows organizations to accept treaties and make reservations to them, and some organizations have done just that.[137] The ILC has opined that treaty reservations by states and international organizations should be interpreted in the same manner.[138]138 And it

129 Ibid., para. 86, 87.

130 Ibid., para. 86, 94–7.

131 Ibid., para. 90; see also cases cited at *supra* n. 110, and ILC Guiding Principles, *supra* n. 13.

132 AG Sharpston Opinion, *supra* n. 11, para. 96, 100–1 (citing Consolidated Versions of the Treaty on European Union and the Treaty on the Functioning of the European Union, Art. 218, 2010 O.J. (C83), 2012 O.J. (C326) (hereinafter TFEU)).

133 Ibid., paras 102, 207.

134 ECJ Joined Cases C-103/12 and C-165/12, Parliament and Commission v. Council, Judgment of the Court, 26 Nov. 2014: ecli:eu:C:2014:2400, paras 52–83.

135 Kassoti and Vatsov, *supra* n. 10, 57.

136 Cedeño First Report, *supra* n. 118, 331; see also Alfred Rubin, 'The International Legal Effects of Unilateral Declarations,' (1977) 71(1) *American Journal of International Law* 1, 5.

137 See VCLT-IO, *supra* n. 77, Art. 35. The European Union is a party to a number of treaties, including the LOSC and the UNFCCC. Kassoti and Vatsov, *supra* n. 10; Dobson, *supra* n. 7.

138 Orakhelashvili, *supra* n. 11, 481 (discussing the ILC's guidelines on interpretations of reservations).

makes sense to draw parallels between treaty-making and unilateral acts, where 'unilateral acts can and have been used as an alternative to treaties in cases where the normal path of concluding an international agreement is unavailable on grounds of political expediency'.[139] In addition, international organizations can and do engage in unilateral political acts on the world stage, with significant policy consequences.[140] Organizations' ability to act unilaterally on the international plane thus provides a strong foundation on which to consider whether their statements qualify as unilateral declarations intended to create legal obligations.

Moreover, 'it has long been recognized that the customary international law of state responsibility applies mutatis mutandis' to international organizations.[141] Thus the ILC definition of 'obligation' for the purposes of the international responsibility of states and of international organizations is the same. For organizations, as with states, obligations 'may be established by a customary rule of international law, by a treaty or by a general principle applicable within the international legal order'.[142] As Reinisch notes, 'general principles of law are often considered to be directly applicable law for international organizations'.[143] Given that the binding nature of unilateral acts of states is based on the general principle of good faith,[144] an international organization's obligation to comply with that same principle encompasses an obligation to comply with its unilateral declarations.

3.3 Was the 2018 Strategy a Unilateral Declaration?

This section first evaluates whether the IMO has the requisite legal personality to unilaterally bind itself under international law, as well as whether the MEPC has the competence to bind the IMO to a greenhouse-gas-reduction strategy under the IMO Convention. It then analyses the 2018 Strategy to see if it qualifies as a unilateral declaration, and the obligations that it imposes if it does.

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139 Kassoti and Vatsov, *supra* n. 10, 57. See also Kassoti, *supra* n. 113, 104.

140 Dobson, *supra* n. 7 (analyzing the EU's unilateral climate actions with respect to aviation and maritime emissions). There is debate on whether unilateral acts should be regarded as political and legal, or as merely political, with some scholars casting 'doubt on the legal nature of such acts.' Kassoti, *supra* n. 113, 27 (providing a literature review). I agree with Kassoti that, consistent with international jurisprudence, unilateral acts have legal effects and can be sources of international law. Ibid., 178.

141 Radavoi, *supra* n. 11, 4.

142 Compare DARIO, *supra* n. 14, Art. 10, with Articles on State Responsibility, *supra* n. 13, Art 12.

143 August Reinisch, 'Sources of International Organization Law: Why Custom and General Principles Are Crucial,' in J d'Aspremont and S Besson (eds), *Oxford Handbook on Sources of International Law* (Oxford University Press, 2018), 1022 (discussing case law and practice of international organizations).

144 Nuclear Tests, *supra* n. 14, para. 46 ('just as the very rule of pacta sunt servanda in the law of treaties is based on good faith, so also is the binding character of an international obligation assumed by unilateral declaration').

3.3.1 IMO Capacity to Unilaterally Bind Itself

AG Sharpston's analysis of whether the EU could bind itself was rooted in its capacity to conclude an international agreement under its constituent instrument. However, the capacity of international organizations to conclude treaties is limited and differentiated. They 'possess the capacity to conclude treaties which is necessary for the exercise of their functions and the fulfillment of the purposes', as governed by their rules, defined as the 'constituent instruments, decisions and resolutions adopted in accordance with them and established practice of the organization'.[145]

The IMO's constituent instrument does not explicitly grant it a general capacity to enter into international arrangements with other organizations or states.[146] It does provide that the IMO 'shall' enter into an arrangement with the United Nations to become a UN specialized agency pursuant to Article 57 of the UN Charter, and that 'the legal capacity, privileges and immunities to be accorded to, or in connexion with, the Organization, shall be derived from and governed by the General Convention on the Privileges and Immunities of the Specialized Agencies'.[147] The General Convention grants specialized agencies juridical personality and the capacity to contract, acquire, and dispose of property and institute legal proceedings.[148] The IMO, in addition to its specialized-agency agreement with the United Nations, has concluded a headquarters agreement with the government of the United Kingdom.[149] Under both of these agreements, the IMO was granted legal rights and undertook obligations, indicating that it has international legal personality consistent with its purposes and functions, and juridical personality within domestic legal orders.[150]

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145 VCLT-IO, *supra* n. 77, preamble and Articles 6 and 2(1)(j). See, generally, Klabbers, *supra* n. 11, 41 (discussing organizations' treaty-making capacity). There have been many judicial decisions as well as voluminous scholarship on the limited competence and powers of international organizations. See, e.g., Nuclear Weapons, *supra* n. 27, para. 25.

146 Compare TFEU, *supra* n. 132, Art. 218, with IMO Convention, *supra* n. 2, Art. 69.

147 IMO Convention, *supra* n. 2, Art. 64, 69 (the IMO's legal capacity is derived from, and governed by, the General Convention on the Privileges and Immunities of Specialized Agencies, 16 Aug. 1949, 33 UNTS 261 (hereinafter General Convention)).

148 General Convention, *supra* n. 147, Art. ii, section 3.

149 See IMO, 'Agreement With the Host State Regarding Extension of Privileges and Immunities to Permanent Representatives and Divisional Directors', IMO Assem. Res. A.908(22), IMO Doc. A22 Res/908 (25 January 2002) (amending and approving headquarters agreement); IMO Specialized Agency Agreement, *supra* n. 32.

150 Ibid. See also Niels Blokker, 'Juridical Personality (Article II Section 3 Specialized Agencies Convention),' in A Reinisch (ed.), *The Conventions on the Privileges and Immunities of the United Nations and its Specialized Agencies: A Commentary* (Oxford University Press, 2016), 52–53 (the General Convention concerns the ability of specialized agencies to contract within domestic legal systems; it 'is not about the legal status of the Specialized Agencies in the international legal order').

As discussed in Section 2, the IMO has broad purposes and functions to regulate emissions from shipping, and it therefore has legal capacity to bind itself consistently with those purposes and functions, whether unilaterally or through an international agreement. The European Union possibly has a greater legal capacity than the IMO to unilaterally bind itself: its constituent instrument expressly grants it the ability to conclude treaties, and it has done so on many occasions; moreover, it is regarded by the ILC as a 'special case' among international organizations because of the high degree of integration between it and its members.[151] Yet, there is no reason to treat the European Union's declarations as having more legal force than the IMO's based on differences between the two organizations' legal personality. International organizations have international legal personality consistent with their purposes and functions.[152] While the IMO might not have the capacity to make a unilateral declaration with a legal effect beyond its limited personality, it does have the necessary capacity with regard to the 2018 Strategy at issue here.

3.3.2 MEPC Competence to Bind the IMO to a GHG-Reduction Strategy for Shipping

The ILC's Guiding Principles provide that 'persons representing the State in specified areas may be authorized to bind it, through their declarations, in areas falling within their competence', and the ICJ has noted that persons representing a state in specific fields, in addition to heads of state or government, are increasingly authorized to bind their states with their statements.[153] In addition, the unilateral acts of international organizations or their organs 'are performed as a result of the competence which States themselves have conferred on the body and of which they may become the object'.[154] Here, the MEPC—which under the IMO Convention is authorized to carry out the IMO's functions related to the prevention and control of marine pollution from shipping—was competent to bind the IMO with a unilateral declaration related to the regulation of greenhouse gas emissions from shipping.[155]

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151 TFEU, *supra* n. 113, Art. 218; DARIO, *supra* n. 14, Commentary to Art. 10, fn. 171.

152 Reparation for Injuries Suffered in the Service of the United Nations, Advisory Opinion, 1949 ICJ Rep 174 (11 April). See also Henry Schermers and Niels Blokker, *International Institutional Law* (5th ed., Brill Nijhoff, 2011), 990.

153 ILC Guiding Principles, *supra* n. 13, Principle 4; Case Concerning Armed Activities on the Territory of the Congo, New Application 2002 (*Dem. Rep. of the Congo v. Rwanda*), Judgement, 2006 ICJ Rep 6 (3 February) (hereinafter *Armed Activities*), para. 47.

154 Cedeño First Report, *supra* n. 118, para. 38.

155 My position is that the MEPC was competent to bind the IMO through a unilateral declaration; I do not argue in this article that the MEPC bound the IMO's member states. See generally, Klabbers, *supra* n. 11, 271–72 (discussing the 'layered nature' of legal relationships between international organizations and their members and questioning secondary and indirect legal responsibility).

3.3.3 The 2018 Strategy as a Unilateral Declaration

The 2018 Strategy has been characterized as a mere 'political document'.[156] But as Kassoti states, an objective and manifest intention to be bound is the dividing line between unilateral political acts and unilateral legal acts.[157] The Strategy's terms and factual circumstances show IMO had such an intent, and the Strategy therefore qualifies as a unilateral legal act.

The publicity requirements for a unilateral declaration appear to have been met, as the Strategy was debated and adopted in a public forum, and was transmitted to the international community through the UNFCCC's Talanoa Dialogue.[158] Unlike the EU Decision at issue in Venezuelan Fisheries, the Strategy is not captioned as a unilateral declaration. But 'it is generally accepted that the form of a unilateral declaration does not affect its validity or legal effects',[159] and international courts have recognized statements of policy, including oral statements, as unilateral declarations.[160] Thus the Strategy's name is not dispositive, and 'the sole relevant question is whether the language employed in any given declaration does reveal a clear intention'; in other words, the question is whether the text of the Strategy objectively manifests the IMO's intention to be bound by it.[161]

The Strategy's language reveals the IMO's clear intent to be bound. The Strategy uses mandatory rather than precatory terms: the IMO states that it is 'committed to reducing GHG emissions from international shipping'; and the quantified targets set out in the

156 Aldo Chircop, 'The IMO Initial Strategy for the Reduction of GHG Emissions from International Shipping: A Commentary,' (2019) 34 *International Journal Marine and Coastal Law* 482, 509 ('The IMO GHG Strategy is a political rather than a legal document').

157 Kassoti, *supra* n. 113, 143.

158 ILC Guiding Principles, *supra* n. 13, Principle 4; 2018 IMO Strategy, *supra* n. 5, 1.

159 ILC Guiding Principles, *supra* n. 13, Commentary on Principle 5, 74. Some scholars question whether law identification should analyze intent rather than written indicators of legal status such as whether statements are labelled as legally binding. See e.g. d'Aspremont, *supra* n. 8 at 178–81, 192. I adopt the generally accepted approach as expressed by the ILC and ICJ caselaw.

160 In *Nuclear Tests*, the ICJ has recognized a series of statements made by the French government that were not captioned as 'declarations' as giving rise to a binding obligation. (*Nuclear Tests*, *supra* n. 14, 265–78.) In *Legal Status of Eastern Greenland*, the Permanent Court of International Justice found that an oral statement by Norway's Foreign Minister that his government 'would not make any difficulties in the settlement' of a diplomatic dispute was a unilateral declaration. Legal Status of Eastern Greenland, *supra* n. 110, 71. State practice shows that unilateral declarations can take many different forms, including protests, proclamations, and note verbales. See Víctor Rodríguez Cedeño, Eighth Report on Unilateral Acts of States, UN Doc. A/cn.4/557 (26 May 2005) (hereinafter Cedeño Eighth Report), paras 85 and 99 (protests by the Russian Federation against Turkmenistan and Azerbaijan); 106–07 (statements by nuclear weapon states before an international body); 127 (Truman Proclamation of 1945); 140–42 (Swiss statements concerning the United Nations and its staff members).

161 Nuclear Tests, *supra* n. 14, 278 (quoting *Temple of Preah Vindar*, Preliminary Objections, Judgement, 1962 ICJ Rep. 17 (26 May), 32)

Levels of Ambition 'direct' the Strategy, including its measures and principles.[162] Thus the Strategy sets forth in binding language the IMO's climate policies and a substantive standard to which they will be held—an emission-reduction pathway consistent with the Paris Agreement's objective.

The IMO's language more clearly shows a binding intent than France's declaration in the Nuclear Tests Cases or Norway's in Legal Status of Eastern Greenland. France said that it 'would be in a position' to change its nuclear-testing policy, and that it 'would take steps' to do so, while Norway said that it 'would not make any difficulties' regarding a diplomatic dispute. In contrast, the IMO is 'committed' to a course of action, and has made that commitment by means of a resolution adopted under Article 38(e) of its Convention, namely the provision that authorizes it to 'consider and take appropriate action' related to the control of pollution from shipping.

In addition, the IMO's intention is expressed with specificity. 'The use of broad terms and the absence of a precise timeframe for carrying out the commitment usually indicate a political act and not a binding undertaking.'[163] The ICJ found that an official's statement that 'all reservations to human rights treaties will be withdrawn' was insufficiently specific to qualify as a unilateral declaration.[164] Here, in contrast, the IMO committed itself to achieving a quantified absolute reduction in overall GHG emissions from shipping, on top of a reduction in the carbon intensity of shipping, by 2050.[165]

'In order to assess the intentions of the author of a unilateral act, account must be taken of all the factual circumstances in which the act occurred.'[166] The factual circumstances of the 2018 Strategy were that it was the culmination of a series of decisions by the IMO Assembly and the MEPC wherein the IMO repeatedly stated that it, itself, was the sole competent organization for the global regulation of greenhouse gas emissions from international shipping.[167] The circumstances also include that the European Union had pressured the IMO to act through its unilateral regulation of emissions from ships visiting its ports; consequently, the IMO's adoption of a GHG-reduction policy came to be viewed by the IMO's member states as necessary for it to maintain its leading role.[168] The Strategy's factual context supports viewing it as a legal undertaking, in other words, as the taking of an action which both the actor and those affected by it conceived of as being pursuant to a legal responsibility of the actor to address.

The ICJ has stated that 'even greater caution' should be exercised in finding a binding intent when a unilateral declaration has no specific addressee.[169] The Strategy is not

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162 2018 Strategy, *supra* n. 5, 5–6.

163 Kassoti, *supra* n. 113, 154.

164 *Armed Activities*, *supra* n. 153, para. 45.

165 2018 Strategy, *supra* n. 5, 6.

166 *Frontier Dispute*, *supra* n. 110, 574.

167 See Section 2.

168 Dobson, *supra* n. 7, section 3.2.

169 *Frontier Dispute*, *supra* n. 110, 574.

addressed to anyone in particular. It was transmitted to the UNFCCC as comprising the international shipping sector's 'input' on the mitigation of climate change. Nevertheless, even viewed cautiously, the Strategy's clear, specific, mandatory language and its factual circumstances indicate that the IMO intended to bind itself to the vision and levels of ambition which the Strategy sets forth, as well as to the principles and specific measures contained within it. Because the IMO made this declaration erga omnes, any resulting obligation is likewise owed to all.[170]

3.4 International Obligations Imposed on the IMO by the 2018 Strategy

Having determined that the IMO intended to bind itself with the 2018 Strategy, what substantive legal obligations did it impose upon itself? Bearing in mind that obligations created by declarations are to be interpreted restrictively, this section examines 'first and foremost … the text of the declaration, together with the context and the circumstances in which it was formulated'.[171]

The terms of the 2018 Strategy indicate that the IMO has an obligation of conduct to mitigate climate change; in other words, that it is required to act diligently to meet its promise.[172] The promise in the Strategy's 'Vision' is that the IMO 'remains committed' to reducing 'GHG emissions from international shipping and, as a matter of urgency, aims to phase them out as soon as possible in this century'. On its face, this appears to be a weak obligation—the IMO only states that it will reduce shipping emissions and 'aims' to phase them out. Yet, the Vision's relatively general terms should be interpreted consistently with the specific provisions of the rest of the document.[173] One of the Strategy's objectives is that the IMO 'contribute' to the Paris Agreement's goals, and its declared level of emission-reduction ambition amounts to an effort to phase them out 'as called for in the Vision as a point on a pathway of CO2 emissions reduction consistent with the Paris Agreement temperature goals'. Thus, the terms of the Strategy, read together, incorporate the Paris Agreement's Article 2 global warming limitation goals into the IMO's mitigation obligation.

The Strategy's context and circumstances are consistent with interpreting the Strategy in this way. Leading up to the adoption of the Strategy, the MEPC members stated that the Strategy was intended 'to be able to demonstrate real progress to the UNFCCC'. They noted

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170 See ILC Guiding Principles, *supra* n. 13, Commentary on Guiding Principle 8 (citing Cedeño Eighth Report, *supra* n. 160).

171 Ibid., Principle 7.

172 See Benoit Mayer, 'Obligations of Conduct in the International Law on Climate Change: A Defence,' (2018) 27 *RECIEL* 130, 131 (civil law obligation of conduct 'requires an endeavor towards the thing which has been promised').

173 The interpretative maxim 'noscitur a sociis' has 'received some degree of recognition in the jurisprudence and literature of international law.' Arnold McNair, *The Law of Treaties* (Oxford University Press, 1986), 393. The law of treaties can be referenced to interpret unilateral declarations 'to the extent compatible with [their] sui generis character.' Fisheries Jurisdiction (*Spain v. Canada*), Judgment, 1998 ICJ rep. 432 (4 December), 453, para. 46.

that the Paris Agreement did not include a 'fair share for shipping', and that, in light of the Paris Agreement, 'a failure to take action on shipping will disappoint'.[174] They also stated that 'other international and regional bodies should not determine shipping's fair share to mitigate climate change'.[175] Although the member states disagreed about whether there should be an absolute cap for reductions from shipping, there was wide agreement that the Strategy was the shipping industry's 'contribution' to achieving the Paris Agreement's goals.[176] What does it mean for the IMO to have such an obligation? The Paris Agreement's global warming limitation goals are one of its central and most intensely debated features.[177] Articles 3 and 4 of the Agreement state that the global warming limitation goals of Article 2 are to be achieved through parties' NDCs and through their 'best efforts' to reach global peaking of emissions as soon as possible.[178] Scholars have characterized the limitation goals as a 'collective obligation', the subject of 'collective responsibility', and as a particularly strong objective which nevertheless does not impose any binding legal obligation, whether collective or individual.[179]

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174 IMO, Report to the Marine Environmental Protection Committee on its Seventieth Session, IMO Doc. MEPC 70/18 (11 November 2016), 48.

175 Ibid.

176 See IMO, International Shipping's Share in International Efforts to Limit the Rise of Global Average Temperature: Submitted by Antigua and Barbuda, Belgium, Côte d'Ivoire, Denmark, France, Germany, the Marshall Islands, Monaco, Morocco, Solomon Islands, and Tonga, IMO Doc. MEPC 70/7/6 (19 August 2016), 3 (the Strategy should refer to the IPCC to ensure that shipping makes its 'fair share' to global reductions in emissions); IMO, Report to the Marine Environmental Protection Committee On Its Seventieth-First Session, IMO Doc. MEPC 71/17 (24 July 2017), 43 (China and India wanted the Strategy to be 'durable, balanced and provide confidence', drawing on the experience of the Paris Agreement); IMO, Report to the Marine Environmental Protection Committee On Its Seventy-Second Session, Annex 16, IMO Doc. MEPC 72/17/Add.1 (18 May 2018), 29 (Saudi Arabia disagreed with the level of ambition for reduction but stated that 'any ambition must be in line with the spirit of Paris Agreement'). When the Strategy was adopted, the United States had announced its intention to withdraw from the Paris Agreement, therefore the Strategy's references to the Agreement 'were without prejudice' to that country's position. Ibid., 30.

177 Zahar, *supra* n. 12, 175-7 (surveying literature)

178 Paris Agreement, Articles 3 and 4.1.

179 See Zahar, *supra* n. 12, 172–74, 177 (discussing legal commentary on the Paris Agreement as imposing collective obligations and concluding that Article 4.1 imposes a strong collective aim but does not impose a collective obligation); Jaqueline Peel, 'Climate Change,' in A Nollkaemper and I Plakokefalos (eds) *The Practice of Shared Responsibility in International Law* (Cambridge University Press, 2017), 1028 (the 'softness' of the Paris Agreement's Article 4(1) language 'thwarts attempts to define specific obligations applicable to any state party or a collective of parties'); see also Mayer, *supra* n. 17, 252, 257 (Article 2.1 imposes a collective aspiration).

Regardless of whether the Article 2 goals impose any sort of obligation, by unilaterally declaring that the IMO would 'contribute' to them, and by specifying levels of ambition for shipping's reduction in emissions, the IMO functionally became a party to the Paris Agreement and bound itself to its declared mitigation ambition. Parties are obliged to submit NDCs that reflect 'their highest possible ambition'.[180] In setting out the levels of ambition it would apply to shipping, the Strategy thus served as a type of sectoral contribution, from a heretofore uncovered sector. Article 4.2 of the Paris Agreement states that parties 'shall pursue domestic measures, with the aim of achieving' their NDCs' objectives.[181] The Strategy likewise establishes how the IMO will realize its levels of ambition by listing 'candidate' measures, including efficiency regulations, market-based mechanisms, technology transfer, capacity building, and technical cooperation for Least Developed Countries and Small-Island Developing States.[182]

If the 2018 Strategy is a unilateral declaration imposing a legal obligation, the IMO cannot 'arbitrarily' revoke it.[183] The Strategy provides that its levels of ambition for reductions may be revised according to various criteria, including new information about emissions from shipping, new technology, and IPCC reports.[184] This provision is similar to the Paris Agreement's requirement that parties submit successive NDCs that represent a 'progression' beyond their current commitments.[185] The Strategy does not specify whether future revisions will lead to greater or lesser reductions from shipping. However, in discussions on the Strategy, the IMO member states noted that the Paris Agreement called for progressively more ambitious reduction targets, and that the IMO should likewise strengthen its reduction target every five years.[186] The Strategy does not provide that its 'vision' of reducing and eliminating emissions might itself change; instead, it provides that the Strategy's objective of articulating the IMO's 'contribution to global efforts by addressing GHG emissions from international shipping', including the Paris Agreement, will remain.[187] Thus the structure

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180 Paris Agreement, Art. 4.2.

181 Mayer, *supra* n. 172, 130–1 (Article 4.2 imposes an 'obligation of conduct' for parties to use their best efforts to enact measures that realize their promised reductions).

182 See 2018 Strategy, *supra* n. 5, 5–6, 8, 14–15.

183 ILC Guiding Principles, *supra* n. 13, 10.

184 2018 Strategy, *supra* n. 5, 5.

185 Paris Agreement, Art. 4(2) and (3).

186 See IMO, GHG Emissions Reduction Target of International Shipping Based on Energy Efficiency, Submitted by Japan, IMO Doc. MEPC 70/7/3 (19 August 2016), paras 8–9 (Japanese position at MEPC ahead of adoption of 2016 Roadmap for GHG Reductions); IMO, 'Note by the Secretariat, Reduction of GHG Emissions From Ships, Report of the Second Meeting of the Intersessional Working Group on Reduction of GHG Emissions From Ships (ISWG-GHG 2)', IMO Doc. MEPC 72/7 (3 November 2017), 25–6 (member states' discussion of need for periodic review of the Strategy in order to align and provide synergy with the Paris Agreement).

187 2018 Strategy, *supra* n. 5, 5.

of the Strategy indicates that the IMO does not envisage withdrawal of its declaration, but that it might revise portions of it consistently with its overall goals—i.e. non-arbitrarily.

Because the IMO did not reserve for itself autonomy to revoke the Strategy, its termination or withdrawal would require an assessment of whether the international community relied on the IMO's declaration, and if there had been a fundamental change in circumstances.[188] Given that the IMO functionally and formally contributed to the Paris Agreement's goal of limiting global warming in a way that is practically identical to a party to the Agreement, it is difficult to envision that it could revoke the Strategy and its legal obligation to mitigate climate change in a non-arbitrary manner.

4. The 2018 Strategy as the IMO's Bridge to the Climate Regime and as a Model for International Organizations' Climate Policies

The legal disconnect between the IMO and the climate regime is well documented.[189] But, interpreting the IMO's 2018 Strategy as a unilateral declaration can serve as a bridge between the maritime and climate regimes that furthers the Paris Agreement's goals, and as a model for other international organizations.

Zahar explains how the Paris Agreement's lack of 'individuation'—in other words, its vagueness about how each party should contribute to the global warming limitation goals—hinders the achievement of those goals.[190] He notes that the 2023 Global Stocktake called for in the Agreement could, if political will allows, serve as a forum for its parties to assess and debate how individual levels of ambition for reductions are collectively contributing to the achievement of the global warming limitation goals. Non-party stakeholders, including international organizations, will be invited to submit inputs to that stocktake.[191] If the IMO—which, in preparing its 2018 Strategy, studied how shipping can contribute its 'fair share' to mitigating climate change in pursuit of the Agreement's goals—contributes to the stocktake, it would be in a good position to further the individuation narrative called

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188 The ILC's Guiding Principles state that arbitrariness of withdrawal is assessed according to three criteria: the declaration's specific terms on revocation; the extent to which those to whom obligations are owed relied on the declaration; and the extent to which there has been a fundamental change in circumstances: ILC Guiding Principles, *supra* n. 13, Principle 10.

189 Oberthür, *supra* n. 74; Kopela, *supra* n. 23; Martinez Romera, *supra* n. 23. See also Ellen Hey, 'Regime Interaction and Common Interests in Regulating Areas Beyond National Jurisdictions,' in S Trevisanut et al. (eds) *Regime Interaction and Ocean Governance: Problems, Theories and Methods* (Brill Nijhoff, 2020), 96–9 (evaluating the IMO's regulation of greenhouse gas emissions as an interaction of 'epistemic communities').

190 Zahar, *supra* n. 12, 182.

191 UNFCCC, 'Report of the Conference of the Parties Serving as the Meeting of the Parties to the Paris Agreement on the Third Part of its First Session, Held in Katowice from 2 to 15 December 2018,' UN Doc. CCC/PA/CMA/2018/3/Add.2 (19 March 2019), 38.

for by Zahar and thus further the 'collective progress towards achieving the purpose of the Agreement'.[192]

In response to concerns that the Paris Agreement's parties will fail to live up to the promised contributions in their NDCs, Mayer argues that NDCs themselves are (or can be) unilateral declarations. He claims that viewing them as such invests at least some NDCs with 'double-bindingness': binding under the Agreement and binding as free-standing instruments of international law.[193] The flexibility implied by his analysis allows non-parties to the Paris Agreement that submit an NDC, such as Taiwan, which "declared" an NDC in 2015,[194] to be brought within the Agreement's legal rubric, and could have implications for climate commitments made by subnational entities.[195] As shown here, the law of unilateral declarations also allows for an international organization with the requisite legal capacity and competence to participate in the climate regime even if it is not a party to the UNFCCC.

In addition to furthering progress toward the collective aim of limiting global warming, interpreting international organizations' climate policies as unilateral declarations using the test applied to the IMO's 2018 Strategy could have positivist consequences for international law. International climate law is notoriously fragmented, and international organizations are increasingly adopting policies to mitigate climate change through their operations and matters under their jurisdiction.[196] 'Legalizing' such commitments by evaluating them as unilateral declarations would treat international organizations for what they are—subjects of international law with a capacity to bind themselves. As shown in this article, the fully developed test for unilateral declarations by states can be readily analogized to international organizations. Thus, applying the approach used here could promote a constitutional framework for international law, enhancing its legitimacy and encouraging decision makers within organizations to act with a 'constitutional mindset.'[197]

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192 Paris Agreement, Art. 14; see Zahar, *supra* n. 12, 186 (discussing the potential role of the Global Stocktake as an individuation forum).

193 Mayer, *supra* n. 17, 252, 272.

194 Ibid., 271-2; see Taiwan, Environmental Protection Administration, 'Taiwan Shares Expertise at UNFCCC COP 25', http://www.epa.gov.tw/eng/F7AB26007B8FE8DF/be69137e-dd10-4910-83b8-5f2a3bc8b79c

195 Mayer, *supra* n. 17, 272

196 See generally, van Asselt, *supra* n. 18. See also UN Environment Program, *Leading International Organizations Commit to Climate Action* (12 December 2018); World Bank Group, World Bank Group Climate Change Action Plan 2021-2025: Supporting Green, Resilient, and Inclusive Development (World Bank, 2021).

197 Ellis, *supra* n. 19, 317 (discussing the rule-creation process as a factor in the designation of international norms as law); Klabbers, *supra* n. 11, 316–17 (discussing constitutionalism and international organizations); Martti Koskenniemi, 'Constitutionalism as a Mindset: Reflections on Kantian Themes about International Law and Globalization,' (2007) 8 *Theoretical Inquiries in Law* 9 (constitutional thinking can influence decision-making within international organizations).

Because international organizations are not generally subject to third-party dispute-resolution mechanisms, the practical relevance of obligations they bear differs from those held by states.[198] But that does not necessarily lessen their importance.[199] Viewing climate commitments as non-binding pledges rather than as legal obligations could have advantages; as scholars have pointed out, 'soft law' or political pledges can give legal-regime participants flexibility and encourage greater buy-in.[200] But where, as here, an organization commits to contributing to the Paris Agreement's global warming limitation goals through specific action, treating that commitment as a legal obligation brings the organization within the Agreement's relatively flexible and broad rubric. Thus, the legalization of climate commitments—at least those similar to the IMO's—maintains international organizations' autonomy while indirectly benefiting the Paris Agreement's parties and furthering its goals through the individuation process discussed above.

Conclusion

One might argue that, notwithstanding any normative value of viewing the IMO's 2018 Strategy as imposing an erga omnes obligation, it instead should be classified as a mere political statement, or as an organizational rule applying only between the IMO and its members, which can be withdrawn at the IMO's discretion. After all, no court has yet found that an international organization has unilaterally imposed upon itself a binding undertaking. Neither, however, has international case law or jurisprudence closed the door on international organizations' ability to do so. As AG Sharpston illustrated in her opinion in the *Venezuelan Fisheries case*, and as Kassoti and other scholars have argued, there are good reasons to hold organizations to their declarations if made by a competent body in language revealing a clear and specific intent to be bound in light of all the circumstances.

Under that test, the 2018 Strategy would qualify as a unilateral declaration creating an erga omnes obligation. The IMO is a powerful international organization with a broad mandate to regulate greenhouse gas emissions from shipping; and it has a procedural obligation under its constituent treaty and MARPOL to act as a forum for its members to

198 Kenneth W. Abbott et al., 'The Concept of Legalization,' (2000) 54(3) *International Organization* 401, 415 (a dimension of legalization of international commitments is the extent of delegation of interpretation and enforcement authority to third parties).

199 Kristina Daugirdas, 'Reputation and Responsibility of International Organizations,' (2014) 25(4) *European Journal of International Law* 991, 992 (the law of international responsibility can hold organizations to account by shaping discourse about the legality of their conduct); see also Kristina Daugirdas, 'Reputation as a Disciplinarian of International Organizations,' (2019) 113(2) *American Journal of International Law* 221 (analyzing shortcomings of reputational concerns).

200 Kenneth W. Abbott and Duncan Snidal, 'Hard and Soft Law in International Governance', (2000) 54(3) *International Organization* 421, 445; but see Kal Raustiala, 'Form and Substance in International Agreements', (2005) 99(3) *American Journal of International Law* 581, 587–8 (critiquing the soft law/hard law categorization); d'Aspremont, *supra* n. 8 at 128 (same); Ellis, *supra* n. 19.

enact such regulations. With the Strategy, the IMO declared that it would mitigate climate change from shipping in order to meet the Paris Agreement's global warming limitation goals and further its collective purposes, and it set out the means it would use to do, as well as a specific time frame. The IMO acted in response to pressure from the European Union and with the hope that the Strategy would deter other unilateral regulation from intruding into its area of responsibility.

Viewing the Strategy as imposing an international legal obligation is not only interpretatively correct but would draw the IMO into the climate regime as a de-facto party to the Paris Agreement and thus bridge a notoriously fragmented divide between the maritime and climate legal frameworks. Doing so could also serve as a model for other international organizations as they increasingly align their activities with the Paris Agreement. Taking international organizations at their word when they make climate commitments in binding form could therefore serve the interests of both climate law and international law's evolving constitutional framework.

Chapter 3

Binding the International Maritime Organization to the United Nations Convention on the Law of the Sea

Baine P. Kerr, 'Binding the International Maritime Organization to the United Nations Convention on the Law of the Sea,' (2022) 19 *International Organizations Law Review* 391
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Abstract

The International Maritime Organization's member states are considering a range of measures to reduce greenhouse gas emissions from shipping, including a fuel oil levy to fund low and zero carbon technology research and development. This article evaluates whether the International Maritime Organization is legally bound by the United Nations Convention on the Law of the Sea—in particular its Articles 203 and 278—despite the organization not being a party to the Convention and not having expressly accepted the obligations it imposes. The article critically analyses and applies the *pacta tertiis* principle and examines whether the relevant portions of the Convention constitute an 'objective regime.' It then considers what viewing the Convention as binding would mean for the IMO's implementation of the proposed levy and its other climate measures, and how doing so could help unify the climate and maritime legal regimes.

Introduction

As part of their effort to reduce greenhouse gas (GHG) emissions, the International Maritime Organization (IMO)'s member states are considering a mandatory fuel oil levy to fund the research and development of low and zero carbon shipping technology.[1] The proposal would also create an International Maritime Research and Development Board (IMRB or Board) under the auspices of the IMO Secretary-General that will distribute approximately $5 billion raised by the levy to governmental, academic, and private applicants. The program is supported by the shipping industry and a mix of developed and developing states. The Board's draft terms of reference give it significant discretion to decide what projects are funded and whether there are intellectual property conditions attached to its grants.[2]

This proposal comes against the backdrop of a long-running debate about whether the climate regime's common-but-differentiated-responsibilities (CBDR) principle or the maritime regime's non-discrimination principle should apply to climate measures for shipping, including measures that involve technology transfer and technical assistance.[3] The CBDR principle holds that states have different obligations to reduce their greenhouse-gas emissions based on their capacities, while the non-discrimination principle requires global uniformity on vessel-source pollution standards regardless of what flag the vessel flies.[4] The conflict between these principles is a sticking point in the negotiations over the IMRB, in particular the extent to which developing states will be given preferential treatment in the dissemination of research funding or the technology developed by it.[5]

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1 IMO, Report of the Marine Environment Protection Committee on its Seventy-Eighth Session, (24 June 2022), Doc. MEPC 78/17, 45–46; IMO, 'Report of the Marine Environment Protection Committee on its Seventy-Fifth Session,' (15 December 2020), Doc. MEPC 75/18, 32–33; IMO, 'Comprehensive Impact Assessment on States Establishment of the International Maritime Research and Development Board and the IMO Maritime Research Fund,' (10 March 2021), Doc. MEPC 76/7/8. See International Chamber of Shipping Press Release 'Missed Opportunity to Decarbonise Shipping at MEPC 77,' (26 November 2021), available at: https://www.icsshipping.org/press-release/missed-opportunity-to-decarbonise-shipping-at-mepc-77/.

2 IMO, 'Proposed Draft Amendments to MARPOL Annex VI (Establishment of the International Maritime Research and Development Board and the IMO Maritime Research Fund)' (10 March 2021), Doc. MEPC 76/7/7, Annex 4.

3 See Sophia Kopela, 'Climate Change, Regime Interaction, and the Principle of Common but Differentiated Responsibility: The Experience of the International Maritime Organization,' (2014) 42(1) *Yearbook of International Environmental Law*, 81–85 (discussing UNFCCC and Kyoto Protocol's CBDR principle and the IMO's non-discrimination principle under its constitution and the United Nations Convention on the Law of the Sea).

4 Ibid.

5 IMO, Comments on the Proposal to Establish an International Maritime and Research Board, (21 April 2021) Doc. MEPC 76/7/20.

This article seeks to find a middle ground in that debate by evaluating whether the CBDR principle as manifested in the maritime legal regime—rather than the climate regime—can serve as a source of differentiation between states in the context of the IMRB proposal. Specifically, it analyses whether two of the United Nations Convention on the Law of the Sea's[6] previously overlooked provisions could legally bind the IMO in its implementation of the program. Article 203 of the Convention requires that international organizations grant preferences in funds and other assistance to developing states for environmental purposes. Article 278 obliges 'competent' international organizations to cooperate on the development and transfer of marine technology in a way that promotes the social and economic development of developing states. These provisions embody the CBDR principle as it is expressed in the Convention,[7] and more explicitly demand assistance and technology transfer for developing states than analogous articles in the IMO Convention.[8] Therefore, if these articles legally bind the IMO, under international law's rules of responsibility, the IMO and its agents—including the IMRB—will be required to implement the research and development program in a way that explicitly favors developing states.[9] Pursuant to that reading, the IMO's other climate policies, including energy efficiency measures and any

6 United Nations Convention on the Law of the Sea (adopted 10 December 1982, entered into force 11 November 1994) 1833 UNTS 3 (LOSC or Convention).

7 Daniel Bodansky, 'Regulating Greenhouse Gas Emissions From Ships: The Role of the International Maritime Organization,' in H Scheiber et al., (eds), *Ocean Law Debates: The 50-Year Legacy and Emerging Issues for the Years Ahead*, (Brill-Nijhoff, 2016), pp. 13, 15–16; James Harrison, 'Article 202,' in A Proelss, ed., *The United Nations Convention on the Law of the Sea: a Commentary*, (C.H. Beck 2017), p. 1346. See also Lavanya Rajamani, 'The Changing Fortunes of Differential Treatment in the Evolution of International Environmental Law,' (2012) 88(3) *International Affairs* 605, 606–608 (discussing Stockholm Declaration's 'common protection imperative' and differentiation in environmental treaties).

8 Compare LOSC *supra*, *supra* n. 6, Art. 203 and 278 with Convention on the Intergovernmental Maritime Consultative Organization (adopted 6 March 1948) 289 UNTS 3, as amended. A consolidated version is contained in IMO, Basic Documents, Volume I (IMO, 2010 ed.), 8–32 (hereinafter IMO Convention), Article 25; Part X. Article 17 of The International Convention for the Prevention of Pollution from Ships imposes technical assistance obligations on states but unlike the LOSC, is not specifically addressed to international organizations. See The International Convention for the Prevention of Pollution from Ships (adopted 11 February 1973, as modified by the Protocol of 17 February 1978, entered into force 2 October 1983) 1340 UNTS 61 (hereinafter MARPOL). The registered version of the 1978 MARPOL Protocol attaches and incorporates the 1973 Convention as an annex; the Convention begins at 1340 UNTS 184.

9 International Law Commission, 'Draft Articles on the Responsibility of International Organizations,' *Yearbook of the International Law Commission* (2011), vol. II, Part Two (hereinafter ILC DARIO Articles), Art. 6, 4; see Report of the International Law Commission on the Work of Its Sixty-third Session, General Assembly Official Records, Sixty-sixth Session, supp. no. 10 (a/66/10 and add. 1) (hereinafter ILC DARIO General Commentary), para. 3.

market-based mechanism, would likewise need to be administered in a way that transfers marine technology and gives assistance to developing states.[10]

At first glance, viewing Articles 203 and 278 as legal obligations for the IMO appears implausible: the IMO is not a party to the LOSC; it is not named in these provisions; and it has never expressly accepted any obligations imposed by them. Binding the IMO therefore arguably violates international law's *pacta tertiis* principle which requires consent to be bound. It would also be inconsistent with the Vienna Convention on the Law of Treaties on International Organizations (VCLT-IO), which mandates express written acceptance of obligations by 'third party' organizations.[11] Yet the IMO is widely recognized as a 'competent international organization' under the LOSC, and the text of Articles 203 and 278 are directed towards international organizations.[12] In this article, I look at whether the LOSC directly binds the IMO by critically evaluating the *pacta tertiis* principle and the VCLT-IO, rather than analyze whether it would be possible to bind the IMO to the LOSC based on its member states' obligations on the basis of theories such as 'transitory binding' or 'functional succession.'[13]

The generally-prevailing view that treaty obligations must be expressly accepted in writing by international organizations is not an established rule of law, and the VCLT-IO is not in force. Some scholars propose that the *pacta tertiis* principle and VCLT-IO procedures should be relaxed if certain conditions are met.[14] According to them, a more flexible approach is warranted if various factors are present, including where: there is legal proximity between organizations and their members; when the language of the treaty itself supports interpreting it as imposing a legal obligation on international organizations; and if an organization has acceded to functions assigned to it, and implicitly, legal obligations

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10 Several of the LOSC's provisions on marine scientific research also arguably also apply to IMO (see, e.g., LOSC, *supra*, n. 6, Art. 242, 243), but this article evaluates Articles 203 and 278 because of their implications for the IMO's climate mitigation measures.

11 Vienna Convention on the Law of Treaties between States and International Organizations or Between International Organizations, 25 ILM 543, 21 March 1986, Art. 35.

12 The IMO's role under the LOSC is discussed in detail in section 2.0 below.

13 Kristina Daugirdas, 'How and Why International Law Binds International Organizations,' (2016) 57(2) *Harvard International Law Journal* 325 (discussing grounds for binding international organizations to their members' legal obligations).

14 See Christian Tomuschat, 'International Organizations as Third Parties Under the Law of International Treaties,' in E Cannizzaro, ed. *The Law of Treaties Beyond the Vienna Convention*, (OSAIL 2011), 206; Francesco Salerno, 'Treaties Establishing Objective Regimes,' in E Cannizzaro, ed. *The Law of Treaties Beyond the Vienna Convention* (OSAIL 2011); Christine Chinkin, *Third Parties in International Law* (Clarendon Press 1993), 35; Caroline Laly-Chevalier, '1986 Vienna Convention, Observance, Application and Interpretation of Treaties: Treaties and Third States' in O Corten and P Klein, (eds), *The Vienna Conventions on the Law of Treaties* (Oxford University Press 2011).

that accompany those functions.[15] An additional basis for viewing a treaty's 'third party obligations' differently are when the treaty constitutes an 'objective regime,' which is a regime that has effects for states, entities, or individuals that have not or cannot join it.[16]

In my view those scholars are correct, and according to their logic, Articles 203 and 278 should be interpreted as imposing legal obligations on the IMO. I justify that conclusion by first briefly discussing the IMO's institutional structure and legal mandate for technology transfer and technical assistance programs for the reduction of GHG emissions from shipping (section 1). In section 2, I develop my central thesis that Articles 203 and 278 may bind the IMO based on a relaxed application of the *pacta tertiis* principle, and because the LOSC's technical assistance and technology transfer rules for international organizations constitute an objective regime. I provide a history of Articles 203 and 278 and the IMO's involvement in the drafting of the LOSC, and discuss its role as the competent international organization under the LOSC responsible for setting uniform vessel-source pollution standards. I also evaluate the IMO Secretary-General's reports about the meaning of those provisions, and statements by the IMO's plenary organs on the LOSC and the legal relevance of the LOSC for the IMO. I then set out scholarly views on binding non-party international organizations to treaties and apply them to the case at hand.

In section 3, I interpret the text and purpose of Articles 203 and 278 in order to analyze the substance of the obligations they impose on the IMO, and how they legally interact with the IMO's analogous obligations under its constitution. I next explain their relevance for the IMO's implementation of the proposed fuel oil levy (section 4). As I argue, if these provisions apply to the IMO, they oblige it to grant preferences to developing states—in particular small island developing states and least developed countries—in both the awarding of research grants and the dissemination of any technology developed from the program. I explain that the proposal as currently drafted does not comply with that objective, but it grants the IMO discretion to implement the program consistent with Articles 203 and 278. Finally, I conclude by reflecting on how viewing Articles 203 and 278 as legally binding would have a normative benefit in that it would bridge the climate and maritime legal regimes and further a constitutional mindset for the IMO.

1. The IMO's Institutional Structure and Technology Transfer and Assistance Mandate

Assessing whether Articles 203 and 278 impose obligations on the IMO requires understanding the IMO's legal personality and its mandate. This section therefore provides a brief overview of the IMO's institutional structure and the features of its technical assistance and technology transfer policies.

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15 As discussed in section 2, the factors these scholars describe are not set out as a test but instead a set of circumstances that could support finding that an organization should be bound to an obligation that it has not expressly accepted.

16 See sources discussed in section 2.1.

The IMO is a specialized agency of the United Nations with nearly universal membership.[17] It states it 'is regarded as the sole competent international organization with a global mandate to regulate all non-commercial aspects of international shipping, including reduction or limitation of GHG emissions.'[18] Pursuant to its constitution, the IMO is a powerful international organization that establishes global legally binding rules on pollution from international ships and shipping; these rules are adopted by its Marine Environmental Protection Committee (MEPC) and are designated as annexes to the MARPOL.[19] The IMO has instituted a number of GHG reduction regulations and related technical assistance measures, and is considering additional measures to meet its 2018 goal of reducing shipping's GHG emissions 50 percent below 2005 levels by 2050 consistent with the Paris Agreement's global warming temperature limitation goals.[20]

In addition to granting it prescriptive jurisdiction over vessel-source pollution, the IMO Convention and MARPOL give the IMO a technology transfer and technical assistance mandate.[21] Article 38 of the IMO Convention states that the MEPC 'shall ... provide for the acquisition of scientific, technical, or any other practical information on the prevention and control of marine pollution from ships, for dissemination to States, in particular to devel-

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17 UN General Assembly Res. 204 (III), Agreement between the United Nations and the InterGovernmental Maritime Consultative Organization, (18 Nov. 1948) at 61; Doc/RES/204(III) (Nov. 18, 1948) (adopting Economic and Social Council Resolution 165(VII), 27 August 1948, Art. II; see 'IMO Member States,' available at: https://www.imo.org/en/OurWork/ ERO/Pages/MemberStates.aspx.

18 IMO, 'Position Paper to UNFCCC Ad-hoc Working Group,' (7–18 Dec. 2009) IMO Doc. AWG-LCA 8, 6; see Yubing Shi, *Climate Change and International Shipping: the Regulatory Framework for the Reduction of Greenhouse Gas Emissions* (Brill-Nijhoff, 2017), 179–180 (discussing IMO mandate to regulate GHG emissions using technical means).

19 IMO Convention, *supra*, n. 8, Art. 1, 2, 11, 38; MARPOL, *supra*, n. 8, Art. 16(2). Some of the IMO's rules are addressed to the international shipping sector, others to individual ships. (Compare IMO, Adoption of the Initial IMO Strategy on the Reduction of Greenhouse Gases From Ships and Existing IMO Activity Related to Reducing GHG Emissions in the Shipping Sector, (13 April 2018) Doc. MEPC 304(72) (hereafter IMO GHG Strategy), p. 5 (calling for carbon intensity of shipping sector to decline with IMO, Amendments to the Annex to the Protocol of 1997 to Amend the International Convention for the Prevention of Pollution From Ships, 1973, As Modified by the Protocol of 1978 Relating Thereto, (15 July 2011), Doc. MEPC 203(62) (energy-efficiency measures directed to various categories of ships).

20 IMO Doc. MEPC 304(72), *supra* n. 19; see Baine P. Kerr, 'Bridging the Climate and Maritime Legal Regimes: The IMO's 2018 Climate Strategy as an Erga Omnes Obligation,' (2021) 11(2) *Climate Law* 119.

21 IMO Convention, *supra*, n. 6, Art. 38(c); 43; MARPOL, *supra*, n. 6, Art. 17. The interaction between the IMO Convention's Article 38 and Articles 203 and 278 of the LOSC are evaluated in section 3.

oping countries, and where appropriate, make recommendations and develop guidelines.'[22] And Part X of the Convention establishes a Technical Co-Operation Committee and charges it with considering any matter 'related to the Organization's activities in the technical cooperation field.'[23] MARPOL obliges its members states to 'promote, in consultation with [the IMO] and other international bodies,' support for parties which request assistance for the training of personnel, and the supply of equipment and facilities to further MARPOL's aims and purposes.[24]

Pursuant to that mandate, the IMO has implemented various technical cooperation and assistance programs for developing states, 47 percent of which relate to environmental protection.[25] The IMO does not define 'developing states,' for the purposes of these programs, but notes that the 'designations "developing countries" and "developing regions" are intended for statistical convenience and do not express a judgement about the stage reached by a particular country or area in the development process.'[26] Past IMO and United Nations practice reveals that certain categories of developing states—specifically small island developing states (SIDS) and least developed countries (LDCs)—have been given specific consideration in IMO assistance programs, and should be given such consideration in the future.[27]

The IMO has also enacted voluntary technology transfer measures specific to reducing GHGs from shipping.[28] These measures called on states to transfer energy efficiency tech-

22 IMO Convention, *supra*, n. 6, Art. 38(c); IMO, Amendments to the Convention on the Inter-governmental Maritime Consultative Organization, IMO Assembly Res. A400/X (29 November 1977) (establishing the Technical Co-operation Committee as a plenary organ in 1977).

23 IMO Convention, *supra*, n. 6, Art. 43.

24 MARPOL, *supra*, n. 6, Art. 17.

25 IMO, Technical Cooperation 2019 Annual Report, (IMO 2019), 8. The IMO's programs include its Integrated Technical Cooperation Program (ITCP), which IMO describes as 'a framework of regional and global programmes designed to respond to the technical assistance needs of Member States.' Ibid., 6. The goal of the ITCP and IMO's other programs is the 'strengthening of institutional capabilities and human resource development.' Ibid, p. 7. In 2019—the most recent year that reports are available—IMO spent $15.5 million on technical cooperation activities consisting of advisories and needs assessments, trainings, and fellowships to attend the World Maritime University and the IMO International Maritime Law Institute. Ibid. 47 percent of these activities related to environmental protection. Ibid., 8.

26 Ibid., 6, n. 1.

27 These categories of states are not part of the IMO Convention or the LOSC, but as discussed below, in recent decades the IMO has consistently addressed measures to them following their recognition at the 1992 Rio Conference and the adoption of UN General Assembly Resolution 56/227.

28 IMO, Promotion of Technical Cooperation and Transfer of Technology Relating to the Improvement of Energy Efficiency in Ships, (17 May 2013), Doc. MEPC 229(65), Annex 4.

nology and cooperate on such transfer, in particular with SIDS and LDCs.[29] The IMO's 2018 GHG Reduction Strategy called for the Secretary-General to make provisions to support SIDS and LDCs, and calls for the IMO to assess periodically the provision of financial and technological resources and capacity building to implement the Strategy.'[30] The Strategy also refers to the IMO's 2018–2023 Strategic Plan, which calls for the IMO to pay particular attention to SIDS and LDCs, and includes as candidate short and mid-term measures supporting developing states with technical assistance.[31]

Another measure in the Strategy was the establishment of an International Maritime Development and Research Board (IMRB) to oversee 'research and development activities addressing marine propulsion, alternative low-carbon and zero-carbon fuels' and technologies to 'enhance the energy efficiency of ships.'[32] That measure is currently under consideration at the MEPC as well as a broader carbon tax for shipping and other market-based mechanisms.[33]

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29 Ibid. A number of voluntary energy efficiency technical cooperation programs for shipping have been initiated under IMO auspices following the 2013 resolution. They included: the Global MTTC Network, funded by the European Union, which established regional maritime technology cooperation centers on energy efficient shipping; and the GloMEEP, an energy efficiency partnership funded by the United Nations Development Program and the World Bank's Global Environmental Facility. See 'Partnerships and Projects,' IMO website, available at: https://www.imo.org/en/OurWork/PartnershipsProjects/Pages/ Default.aspx. These energy-efficiency specific programs augment trainings that assist developing countries with implementation of energy-efficiency and GHG emissions data collection measures. IMO, 'Annual Report on ITCP,' IMO Technical Cooperation Committee, IMO Doc. TC/70(3), Annex 1, 19.

30 IMO Doc. MEPC 304(72), *supra*, n. 19, 10. Further IMO technical cooperation programs have been adopted, including a training program for SIDS and LDCs to support GHG reductions from shipping through capacity building established by the Republic of Korea and the IMO (the GHG-Smart Program) and the GreenVoyage2050 Project of Norway and the IMO, which is working with 12 pilot countries in different regions to meet climate change and energy efficiency goals related to international shipping. See 2019 Report (*supra*, n. 25).

31 Ibid., citing IMO, Strategic Plan for the Organization, (8 December 2017), Doc. A30/Res.1110. In 2019, the MEPC approved terms of reference for a voluntary GHG Trust Fund for technical cooperation activities to support SIDS and LDCs' implementation of the 2018 GHG Strategy. It invited member states and international organizations to contribute to the fund and instructed the Secretary-General to report to MEPC on its progress. IMO, Report of the Marine Environmental Protection Committee on its Seventy-Fourth Session, (9 June 2019), Doc. MEPC 74/18, pp. 53–54. MEPC 75/18, *supra*, n., 18

32 IMO GHG Strategy, *supra*, n. 19, 10.

33 See IMO Doc. MEPC 78/17, *supra*, n. 1, 45–46; IMO, Proposal for a Market-based Measure (MBM) to incentivize GHG reduction and to make equitable transition with an overview of mid- and long-term measures, Submitted by Japan, IMO Doc. MEPC 78/7/5 (1 April 2022); Seatrade, 'Shipping disappointed as IMO kicks the can down the road on climate change,' (29 November 2021),

2. The IMO and its Obligations Under the LOSC

In this section, I explain how the IMO is the legal addressee of Articles 203 and 278, and analyze the IMO's institutional reaction to the duties those articles appear to impose. I then discuss scholarship that critically evaluates the *pacta tertiis* principle and the VCLT-IO, and the concept of objective regimes. I apply those theories to the question posed here before examining what Articles 203 and 278 specifically require the IMO to do in section 3.

The IMO is not a party to the LOSC and is referred to explicitly only once in the Convention—and then in an annex—but it is widely viewed as being the un-named 'competent international organization' referenced in the Convention for the development of universally applicable rules for the protection of the marine environment from pollution from ships.[34] The LOSC obliges its signatories to implement 'generally accepted international rules and standards,' and 'internationally agreed rules, standards, and recommended practices' related to the prevention of pollution from ships; these are recognized as IMO regulations developed pursuant to MARPOL.[35] The LOSC thus does not 'specify precisely the content and extent of the laws and regulations,' on such pollution, but indirectly incorporates regulations adopted by the IMO as minimum standards.[36] Part of the reason why the LOSC operates this way is because it 'did not spring out of the minds of delegations to fill a vacuum,' but instead was preceded by a mass of national and international instruments, including IMO instruments.[37] In addition, the IMO 'was present throughout the [UNCLOS III] conference and took an active part in it.'[38]

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available at: https://www.seatrade-maritime. com/regulation/shipping-disappointed-imo-kicks-can-down-road-climate-change; IMO, Proposal to establish an International Maritime Sustainability Funding and Reward (IMSF&R) mechanism as an integrated mid-term measure, submitted by Argentina, Brazil, China South Africa and United Arab Emirates, Doc. ISWG-GHG 12/3/9 (1 April 2022).

34 See LOSC, *supra*, n. 6, Art. 211, 217, 208, 220; Annex VIII, article 2, paragraph 2. See generally Robert Beckman and Zhen Sun, 'The Relationship between UNCLOS and IMO Instruments,' (2017) 2(2) *Asia Pacific Journal of Ocean Law & Policy* 201 (discussing IMO's structure and mandate, and its role under the LOSC).

35 LOSC, *supra*, n. 6, Art. 207, 211. See Erik Molenaar, *Coastal State Jurisdiction over Vessel Source Pollution* (Kluwer Law International, 1998), 136–137 (the International Labor Organization and the International Atomic Energy Agency share competences with the IMO on certain aspects of vessel source pollution).

36 Alan E. Boyle, 'Marine Pollution Under the Law of the Sea Convention,' (1985) 79(2) *American Journal of International Law*, 347, 352.

37 Shabtai Rosenne, 'The International Maritime Organization Interface With the Law of the Sea Convention,' in MH Nordquist and JM Moore, (eds) *Current Issues and the International Maritime Organization*, (Martinus-Nijhoff 1999), 254–255.

38 Ibid.

The primary way the drafters of the LOSC accounted for the differing capabilities of its member states in implementing IMO regulations was by including cooperation and technology transfer provisions.[39] Thus, under the LOSC, IMO regulations apply globally without differentiating between states, and the Convention accounts for this by requiring its signatories to assist developing states and transfer technology to them. Accordingly, Article 202 of the Convention requires that states 'promote' technical, scientific, educational and other assistance programs for developing states, directly and through competent international organizations. Such assistance 'shall' include capacity building, facilitating participation in international programs, and the supplying of 'necessary equipment and facilities.' During UNCLOS III, the initial draft of Article 203 provided that 'states' shall grant preferences to developing states 'in the facilities,' of international organizations. The final version was amended to directly address international organizations, stating that developing states 'shall' be granted by preferences 'by' international organizations in '(a) the allocation of appropriate funds and technical assistance; and (b) the utilization of their specialized services.'[40]

Pursuant to the obligations set forth in Part XIV of the LOSC (Articles 266– 278) on the development and transfer of marine technology, signatories to the Convention are directed to promote cooperation on the development and transfer of marine technology to developing states, with regard to the protection and preservation of the marine environment and 'with a view to accelerating the social and economic development of the developing States.'[41] In so cooperating, states 'shall have due regard for all legitimate interests including, inter alia, the rights and duties of holders, suppliers and recipients of marine technology.'[42] Article 278 complements these obligations by stating that competent international organizations 'shall closely cooperate' with each other on fulfilling their functions and responsibilities technology transfer and assistance. Recalling the unified character of the LOSC, the United Nations General Assembly has long resolved that states and international organizations should promote the transfer of marine technology and provide technical assistance, and cooperate with each other in doing so.[43]

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39 Harrison, *supra*, n. 7, 1346.

40 James Harrison, 'Article 203,' in A Proelss, ed., *The United Nations Convention on the Law of the Sea: a Commentary*, (C.H. Beck 2017), 1354 (citing UNCLOS III documents)

41 LOSC, *supra*, n. 6, Art. 266.

42 Ibid., Art. 267.

43 UN General Assembly, Law of the Sea, (20 November 1989), Doc. A/Res 44/26, para. 12; UN General Assembly, Oceans and the Law of the Sea, (6 January 1999), Doc. A/Res 53/32, para. 18; UN General Assembly, Oceans and the Law of the Sea, (27 February 2001) Doc. A/Res 55/7, para. 32; UN General Assembly, Oceans and the Law of the Sea, (13 December 2001), Doc. A/Res 56/12, para. 8; 21; UN General Assembly, Oceans and the Law of the Sea, (16 January 2003), Doc A/Res/57/141, para. 41, 23. The International Oceanographic Commission (IOC) regards itself as a competent international organization for Part XIV of the LOSC, and in 2005 issued guidelines on the transfer of marine technology. The Commission's guidelines are focused on

2.1 The IMO and Articles 203 and 278

Beginning in 1985, the importance of the LOSC and Articles 203 and 278 for the IMO came into focus. That year, the IMO Assembly requested that the Secretary-General produce a report to help determine the 'scope and areas of appropriate IMO assistance to Member States and other agencies in respect of the provisions of the Law of the Sea Convention dealing with matters within the competence of IMO,' and to enable the IMO 'to develop suitable and necessary collaboration with the Secretary-General of the United Nations on the provision of information, advice and assistance to developing countries on the law of the sea matters within the competence of IMO.'[44] Over the course of several decades, the Secretary-General has produced reports on the LOSC and the IMO that were submitted to and implicitly adopted by the IMO Council. Those reports are summarized here and their legal relevance is evaluated in the next section.

The Secretary-General issued the first report in 1987 and submitted it to the IMO Council.[45] The report acknowledged that 'some Articles of the Convention assign or suggest to the IMO functions, responsibilities and powers which are deemed to be necessary or desirable for the effective implementation of the particular provisions.'[46] It also recognized that the LOSC may be assessed with respect to 'new procedures or revised machinery which IMO may need to establish in order to undertake responsibilities assigned to it by the Convention or otherwise assumed by the Organization as a result of the Convention's provisions.'[47] With respect to Articles 203 and 278, it states that the IMO is already carrying out cooperation activities on technology transfer for the protection of the marine environment.[48] Specifically, it recognizes that the LOSC gives the IMO 'responsibilities' in that field and that Article 278 'enjoins' it to cooperate.[49] The report notes that the IMO Assembly previously resolved that the IMO should cooperate with its member states and other

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the transfer of technology related to 'the study of the understanding of the nature and the resources of the ocean,' rather than the broader categories of technology transfer envisioned by the LOSC. (Compare IOC Advisory Body of Experts on the Law of the Sea, Criteria and Guidelines on the Transfer of Marine Technology Guidelines, UNESCO (2005) (IOC Information Document 1203), 3 with LOSC, *supra*, n. 6, Art. 266 (calling for technology transfer 'with regard to the exploration, exploitation, conservation and management of marine resources, the protection and preservation of the marine environment, marine scientific research and other activities in the marine environment compatible with this Convention').

44 IMO, 'Implications of the United Nations Convention of the Law of the Sea 1982 For the International Maritime Organization (IMO), Study by the Secretariat of the IMO,' (27 July 1987), IMO Doc. LEG/MISC/1. Reproduced in the Netherlands Institute for the Law of the Sea, 2 International Organizations and the Law of the Sea: Documentary Yearbook (1987), 340.

45 Ibid., 369.

46 Ibid.

47 Ibid., 370.

48 Ibid., 393–394.

49 Ibid.

international organizations on 'assistance by IMO to Member States and other agencies in respect of the provisions of the Convention on the Law of the Sea dealing with matters within the competence of IMO.'[50]

As more of its member states ratified the LOSC, the IMO's plenary bodies continued to recognize the legal relevance of the LOSC for the IMO's work. In 1991, in connection with the IMO's designation of Particularly Sensitive Sea Areas, the IMO Assembly noted that 'The United Nations Convention on the Law of the Sea (...) with the exception of the sea bed mining provisions, is widely accepted as customary international law'.[51] In 1995, the IMO's governing Council declared the IMO to be the 'competent international organization' for the United Nations System and the LOSC on matters related to the effect of shipping on the marine environment, and requested that the IMO Secretary General update the 1987 report on the interface between the IMO and the LOSC.[52] The Council also acknowledged the 1987 report and 'endorsed' the Secretary-General's proposal that he monitor the situation to determine if organizational changes were necessary for the IMO to fulfill its role as a competent international organization under the LOSC. The Council acted in response to a UN General Assembly resolution dealing with the entry into force of the Convention and requesting that agencies throughout the United Nations system consider 'whether there was a need for agencies to take additional measures to ensure a uniform, consistent and coordinated approach to the implementation of the provisions of UNCLOS.'[53]

In 1997, the IMO Secretary-General produced a further study for the IMO Council on the implications of the entry into force of the LOSC. It states that 'the basic objectives of international co-operation, as spelt out in articles 202 and 268 ... are already part of the fundamental aims of IMO and its Technical Co-operation Programme, as provided for in the IMO Convention' and the IMO's decisions.[54] It finds that Article 278 of the LOSC 'enjoins' on competent international organizations to take all appropriate measures to ensure cooper-

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50 Ibid., 394.

51 IMO Assembly, Guidelines for the Designation of Special Areas and the Identification of Particularly Sensitive Sea Areas, (6 November 1991), IMO Assembly Resolution A.720(17), 9, para. 1.3.7.

52 IMO Council, Summary of Decisions, (21 June 1995), Doc. C 74/D; see also IMO Council, Relations with the United Nations and the Specialized Agencies, N. by the Secretary General, (9 March 1995), Doc. C 74/22(b)/i.

53 UN General Assembly, Law of the Sea, (19 December 1994), Doc. A/Res 49/28 para 18; IMO, Executive Summary, Relations with the United Nations and the Specialized Agencies, N. by the Secretary-General, (6 October 1997) Doc. C/ES.19/19(b)/1, reproduced in the Netherlands Institute for the Law of the Sea, 13 International Organizations and the Law of the Sea: Documentary Yearbook 1997 796; IMO, 'Study on the Implications of the Entry into Force of the United Nations Law of the Sea Convention,' (6 October 1997), Doc. LEG/MISC/2, attached to IMO Doc. C/ES/19/19(b)/1.

54 1997 Study, *supra*, n. 52, 843.

ation among themselves.[55] The study notes that IMO has already developed 'very fruitful and cooperative arrangements' with other United Nations organizations regarding the IMO's 'assistance for developing states on law of the sea matters.'[56] An annex attached to the study states with regard to Article 203 that the 'IMO may take these guidelines into account when implementing the duty on technical assistance.'[57] With regard to Part XIV of the Convention it states that 'the pertinent provisions on the transfer of technology are part' of the IMO's technical assistance programs, and that the 'IMO may refer to some of the specific provisions and measures envisaged in UNCLOS.'[58]

In 2012, the IMO Sectary-General issued a study on the LOSC's implications for the IMO's work that characterized Articles 203 and 278 as imposing a legal obligation on the IMO. It states that 'in accordance with article 203, developing States … must be granted preference by international organizations,' and 'IMO is among the international organizations subject to the duty to grant preference to developing States when allocating technical assistance.'[59] It uses identical wording as the 1997 study in stating that Article 278 'enjoins' international organizations, including IMO, to coordinate on technical cooperation and transfer.[60] The 2014 study repeats the same formulation.[61]

2.2 The Binding Force of the LOSC on the IMO

Does the foregoing constitute a sufficient basis to conclude that the LOSC imposes legal obligations on the IMO, in particular that it must give preferences to developing states in the 'appropriate allocation' of funds and specialized services in connection with marine pollution, and closely cooperate on the transfer of marine technology? This sub-section answers that question in two different ways: by addressing whether the *pacta tertiis* principle should be relaxed; and by considering whether Articles 203 and 278 are part of an 'objective regime.'

2.2.1 Pacta tertiis

The principle of consent in public international law is expressed as the phrase 'pacta tertiis nec nocent nec prosunt,' meaning that a treaty binds its parties and only its parties subject

55 Ibid., 844.

56 Ibid., 844.

57 Ibid., 862.

58 Ibid., 867.

59 IMO, Implications of the United Nations Convention on the Law of the Sea for the International Maritime Organization—Study by the Secretariat of the International Maritime Organization, (19 January 2012), Doc. LEG/MISC 7, p. 81, Annex, 16.

60 Ibid., 93.

61 IMO, 'Implications of the United Nations Convention on the Law of the Sea for the International Maritime Organization—Study by the Secretariat of the International Maritime Organization,' (30 January 2014), IMO Doc. LEG/MISC 8, 90, Annex, 120.

only to narrow exceptions.[62] The consensual foundation for international legal obligations is reflected in the VCLT's distinction between how a non-party to a treaty accepts rights the treaty affords it – automatically – and how it can accept obligations, only expressly and in writing.[63] Article 35 of the VCLT-IO adopts that formulation by providing that a non-party international organization can accept obligations imposed on it by a treaty only expressly and in writing.[64] Yet, the VCLT-IO is not in force, and there is no established rule of law that governs how international organizations accede to treaty obligations as non-parties.

Here, the reports issued by the IMO Secretary-General acknowledge that Articles 203 and 278 impose obligations, but the IMO has not expressly adopted a statement in writing to that effect. The VCLT-IO states that an organization's 'acceptance of . . . an obligation shall be governed by the rules of that organization,' and ''rules of the organization' means, in particular, the constituent instruments, decisions and resolutions adopted in accordance with them, and established practice of the organization.'[65] The IMO's constituent instrument appears to invest the IMO Assembly, the IMO Council, and potentially also the MEPC with the authority to accept treaty obligations.[66] Yet none of these organs did so in response to the Secretary-General's reports. Thus, the reports standing alone do not meet the VCLT-IO's standard for the acceptance of a treaty obligation by a non-party international organization.

Scholars who have looked at whether these articles impose legal obligations on international organizations have concluded they do not on that basis.[67] Pinto notes that 'the

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62 This normative principle is present in Articles 11–17 of the Vienna Convention on the Law of Treaties (adopted 23 May 1969) 1155 UNTS 331, as well as Articles 34, 35, and 36 of that Convention. See generally Martins Paparinskis, 'Regulating Treaties: a Comparative Perspective,' in CJ Tams, et al., (eds) *Research Handbook on the Law of Treaties* (Elgar 2014) (discussing and evaluating consent as a precondition to a treaty's binding force). The related principle of *pacta sunt servanda* is also incorporated into the VCLT in Article 26, and provides that 'every treaty in force is binding upon the parties to it and must be performed by them in good faith.'

63 VCLT, *supra*, n. 61, Art. 35 and 36.

64 VCLT-IO, *supra*, n. 11, Art. 35(1). See Tomuschat, *supra*, n. 14, 206.

65 VCLT-IO, *supra*, n. 11, Art. 35(1); 2(1)(j).

66 See IMO Convention, *supra*, n. 8, Art. 2(d) (functions of organization include performing functions assigned to it by other international instruments); 15(i) (Assembly shall perform organization's functions under Article 2); 26 (Council shall perform Assembly's functions between its bi-annual sessions); 38 (MEPC shall consider any matter within the scope of the organization related to prevention and control of pollution of the marine environment from ships and perform any function conferred on the IMO by or under other international instruments related to the prevention and control of marine pollution from ships).

67 See Harrison, *supra*, n. 40, p. 1354 (Article 203 is a statement of policy for international organizations rather than a binding obligation because VCLT-IO not followed); Irini Papanicolopulu, 'Article 278,' in A Proelss (ed), *The United Nations Convention on the Law of the Sea: a Commentary* (C.H. Beck 2017) (finding the same with regard to Article 278); Moragodage Christopher Walter

implementation of directives addressed to them might still be achieved by their members which are also parties to the Convention.'[68] Indeed, Article 203 is complemented by Article 202—which obliges LOSC parties to directly and through competent international organizations transfer technology and provide assistance, especially to developing states. Similarly, Article 278 is a component of Part XIV of the Convention, which details states' obligations to work through international organizations to transfer marine technology and provide assistance.

In my view, it may be interpretatively preferable to avoid surplusage by giving effect to Articles 203 and 278 rather than supplanting them with their neighboring provisions.[69] That is especially so because the drafters of the Convention deliberately chose to address the provisions to international organizations rather than states.[70] Moreover, viewing them as binding rather than hortatory harmonizes the articles within the Convention: Articles 202 and Part XIV of the Convention impose legal obligations on states, thus, the analogous provisions addressed to international organizations should likewise be interpreted as obligations.[71] Doing so also reflects what the United Nations General Assembly has frequently characterized as the Convention's 'unified character.'[72]

Apart from the language of these particular articles, there are good reasons generally to question whether the procedural requirements of the VCLT-IO should apply to treaty obligations imposed on international organizations. In practice, international organizations do not always follow the VCLT-IO's Article 35, at least when accepting obligations to provide services for their member states.[73] For example, as Tomuschat explains, the Secretary-General of the United Nations and the Secretary-General of the Council of Europe perform depository functions for numerous treaties that their organizations did not or could not ratify, and the United Nations provides staff and facilities for human rights monitoring bodies such as the International Covenant on Civil and Political Rights and the Convention on the Rights of Persons with Disabilities.[74] The inconsistency of these international

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Pinto, 'The Duty of Cooperation and the United Nations Convention on the Law of the Sea,' in Adriaan Bos and Hugo Siblesz, (eds), *Realism in Law Making* (Martinus Nijhoff, 1986), 152 (same).

68 Pinto, *supra*, n. 66, 152.

69 According to the Latin canon 'verba cum effectu sunt accipienda;' wherever possible, each legal term and provision ought to be given effect. See Antonin Scalia and Brian A. Garner, *Reading Law: The Interpretation of Legal Texts* (Thomson/West 2012), 174.

70 Harrison, *supra*, n. 40, 1354 (citing UNCLOS III documents), LOSC, *supra*, n. 6, Art. 278.

71 It is frequently asserted that treaties should be interpreted so as to harmonize them with existing rules of international law. Arnold McNair, *The Law of Treaties* (Oxford University Press, 1986), 452 n. 3 (citing cases).

72 See sources cited at n. 43.

73 Tomuschat, *supra*, n. 14, 212–13, 220.

74 Ibid., 214.

organizations' operational practices with the VCLT-IO indicates that international law has developed in a way that departs from that treaty's requirements.[75]

Moreover, as Tomuschat argues, the VCLT-IO's formulation misses an important aspect of international organizations' legal personality that distinguishes them from states: organizations have a much closer relationship with their member states than states do with each other, and in a sense are the legal 'children' of their members.[76] Thus if an organization's members entrust it with certain functions or obligations, this is fundamentally a different legal process – and a less intrusive one – than if a group of sovereign states attempt to impose an obligation on a third state.[77] Therefore, an international organization is not a 'third' party to a treaty concluded by its members in a strict sense.[78]And, as Chinkin points out, the need for organizations to consent to obligations is grounded not in sovereignty, but the concern that the imposition of obligations would improperly enlarge organizations' powers.[79]

These scholars' reasoning applies with particular force here. The state parties to the Convention drafted Articles 203 and 278 with the IMO in mind, and the IMO actively participated in the UNCLOS III conference where the LOSC was written.[80] Before the Convention was adopted, the IMO stated that it was 'particularly equipped' to provide technical assistance to developing states, and it has long contended that it has complied with these provisions through its technology transfer and assistance programs and cooperation with other international organizations.[81] Moreover, the IMO has a uniquely central role within the LOSC's regime for the control of pollution from vessels as the international body responsible for establishing rules of reference for that pollution.[82] Therefore, binding the IMO to the LOSC's obligations—at least Articles 203 and 278, which contain mandatory language and are directed toward the IMO—is more legally sound than would be the case with a truly 'third' organization.

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75 Tomuschat, *supra*, n. 14, 220 (discussing United Nations' customary practice of providing services); see Ian Johnstone, 'Law Making Through the Operational Activities of International Organizations,' (2008) 40 *George Washington International Law Review*, 87, 118–19 (operational practice can contribute to the development of international law).

76 Tomuschat, *supra*, n. 14, 211.

77 Ibid.

78 Ibid., 214 (citing Giorgio Gaja, 'A 'New' Vienna Convention on Treaties Between States and International Organizations or Between International Organizations: A Critical Commentary,' (1987)) 58 *British Yearbook of International Law*, 253, 264.

79 Chinkin, *supra*, n. 14, 89.

80 Rosenne *supra*, n. 37, 254–55.

81 UN, 'The activities of the Inter-Governmental Maritime Consultative Organization in relation to shipping and related maritime matters,' (10 June 1974) in Official Records of the Third United Nations Conference on the Law of the Sea, volume III (Documents of the Conference, First and Second Sessions), UN Doc. A/CONF.62/27, at 51; 1997 Study, *supra*, n. 52, 844.

82 See sources cited at notes 35–37, *supra*.

In addition, the IMO itself has accepted the functions imposed by the LOSC, recognized the importance of the Convention for its members, and its plenary organs have implicitly agreed to the obligations imposed by Articles 203 and 278. The IMO Assembly commissioned the reports on the LOSC in order to determine the 'scope and areas of appropriate IMO assistance to Member States and other agencies in respect of the provisions of the Law of the Sea Convention dealing with matters within the competence of IMO,' and to enable the IMO 'to develop suitable and necessary collaboration with the Secretary-General of the United Nations on the provision of information, advice and assistance to developing countries on the law of the sea matters within the competence of IMO.'[83] The IMO Council received the Secretary General's reports that characterized the articles as imposing obligations on the IMO, which expressed his view that 'it is imperative for IMO to be kept aware in a timely fashion of the developments and trends in State practice, and indeed in the practice of other international organizations, under the provisions of the Convention on the Law of the Sea, to allow the Organization to make correct assessments and facilitate the fulfilment of its role as a 'competent international organization.''[84] Taken together, these statements arguably give rise to the inference that the IMO consented to its role under the Convention and any obligations imposed by it, notwithstanding that it did not sign the LOSC or expressly accept that treaty's obligations in writing.[85]

2.2.2 Objective Regimes

Alongside binding the IMO to these provisions based on the foregoing, there has long been support for relaxing the *pacta tertiis* principle generally with respect to so-called 'objective regimes.'[86] The distinction between objective regimes and other treaties is rooted in the fact that objective regimes have erga omnes effects for individuals and non-state actors even if they could not become parties to them.[87] Scholars therefore argue that, at least in the case of such treaties, *pacta tertiis* is overbroad.[88] They reason that it is not actually a general principle of international law, and the rule in the VCLT and VCLT-IO that obligations must be accepted in writing conflicts with customary rule of freedom of form in treaty making.[89] They suggest that with respect to objective regimes, the acceptance of obligations

83 1987 Study, *supra*, n. 44, 340.

84 See sources cited at n. 51.

85 Laly-Chevalier, *supra*, n. 14, 923 (an organization's consent to fulfill certain functions assigned to it by a treaty could be inferred 'from its concern for States becoming parties to it'.).

86 Salerno, *supra*, n. 14, 225; see McNair, *supra*, n. 70, p. 269; Bruno Simma, 'From Bilateralism to Community Interest in International Law,' (1994) 250 *Hague Academy of International Law: Recueil des Cours*, 217–384.

87 Salerno, *supra*, n. 14, 221.

88 Ibid., 230.

89 Ibid., 234.

by third states should follow the more flexible rule that applies to the acceptance of rights, where acceptance is presumed unless the contrary is indicated.[90]

There are several approaches to defining objective regimes. A 'law of treaties' approach differentiates between treaties that create international law (objective regimes) and those which merely settle conflicts between parties.[91] This 'treaty approach' is not reflected in the VCLT, but has been adopted in international practice since the early nineteenth century, including in 2003 by the Ethiopia-Eritrea Claims Commission.[92] There is historical support for a 'public law theories' approach that defines an objective regime as arising when a group of states assert 'quasi-legislative competence over a defined territory in the overall public interest,' although scholars have noted that this approach may no longer be relevant in light of transfer of that competence to the United Nations.[93] Treaties can also gain acceptance as customary law, and therefore achieve the status of an objective regime, but it is debatable whether that process differs from the usual process of the creation of general international law.[94]

Do the LOSC's provisions on technical assistance and technology transfer for international organizations – i.e., Articles 203 and 278 – constitute an objective regime?[95] A legal regime is defined by the International Law Commission as 'a set of special rules, including rights and obligations, relating to a special subject matter.'[96] These articles arguably are

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90 Ibid.; see also Chinkin, *supra*, n. 14, 40–41 (distinction between rights and obligations in VCLT 'excessively formalistic' in light of states' ability to otherwise bind themselves, such as through unilateral declarations).

91 Rosemary Rayfuse, 'Straddling and Highly Migratory Fish Stocks as an Objective Regime: A Case of Wishful Thinking?,' (1999) 20(1) *Australian Yearbook of International Law* 255 (discussing approaches to defining objective regimes).

92 Salerno, *supra*, n. 14, 23 (citing Eritrea–Ethiopia Claims Commission, 1 July 2003, Partial Award, Prisoners of War, Eritrea's claim, 17, para. 39).

93 Rayfuse, *supra*, n. 90, 263; see also Chinkin, *supra*, n. 14, 35.

94 Salerno, *supra*, n. 14, 241 (treaties creating objective regimes do not become customary upon their ratification; state practice and persistent objector rules still apply in determining their status); Reports of the International Law Commission on the second part of its 17th session and on its 18th session, (1966) 2 *Yearbook International Law Commission*, pp. 169, 231, UN Doc./CN.4/SER.A/1966/Add.1 ('the source of binding force' for objective regimes 'is custom, not the treaty').

95 See Luke T. Lee, 'The Law of the Sea Convention and Third States,' (1983) 77 *American Journal of International Law*, 541, 565–566 (discussing cases and finding LOSC does not qualify as an objective regime).

96 International Law Commission, ILC Study Group, 'Fragmentation of International Law: Difficulties arising from the Diversification and Expansion of International Law, Conclusions of the Work of the Study Group' UN Doc. A/CN.4/L.702 (18 July 2006), 11–12; see also Margaret Young, *Regime Interaction in International Law* (Cambridge 2012), p. 5 (discussing ILC's definitions of special regimes).

a regime that imposes rights and obligations on international organizations with respect to differentiating between states on the control of marine pollution from ships. The LOSC, described in its preamble as the 'legal order for the seas and oceans,' is a law-making treaty.[97] And the Articles at issue here are directed toward 'international organizations' as such—rather than organizations that are parties to the Convention— indicating that the drafters of the Convention may have intended for Parts XII and XIV to be binding on non-party organizations.[98]

The public law theory could hold as well: the parties to the LOSC assumed for themselves responsibility for legislating the functions and responsibilities of international organizations with regard to the law of the sea, and with the exception of the United States' position on the International Seabed Authority, that appears uncontroversial.[99] The state parties to the LOSC thus invested international institutions with public authority, in other words the capacity to autonomously make decisions in the common interest of their member states.[100] Moreover, there is some support for viewing portions of the LOSC as establishing customary international law, including, as noted above, from the IMO Assembly.[101]

As Rayfuse states, proof of the establishment of an objective regime should require evidence of non-objection by third parties.[102] Because the handful of states that are not parties to the LOSC continue to object to the entire treaty or portions of it, the LOSC as a whole does not meet that test.[103] But, those same states do not explicitly oppose the portions of the LOSC that establish obligations for technical assistance on environmental protection (Part XII, section 3) or marine technology transfer for the benefit of developing states

97 LOSC, *supra*, n. 6, Preamble.

98 See ibid., Parts XII and XIV; Stephen Vasciannie, 'Part XI of the Law of the Sea Convention and Third States: Some General Observations,' (1989) 48(1) *Cambridge Law Journal* 85, 90–91 (noting that some rules in Part XI of the Convention are addressed to 'all states' and some to 'state parties;' former may have been intended to have erga omnes effects).

99 The United States is not a party to the LOSC but recognizes it as customary international law, apart from Part XI on deep seabed mining. John A. Duff, 'The United States And The Law Of The Sea Convention: Sliding Back From Accession And Ratification,' (2005) 11(1) *Ocean & Coastal Law Journal*, 1, 10..

100 See Armin Von Bogdandy, Matthias Goldmann, and Ingo Venzke, 'From Public International to International Public Law,' (2017) 28 *European Journal of International Law* 115, 126–27 (discussing international institutional law as international public law). The LOSC's treatment of the IMO and other competent international organizations thus reflects 'international public law' as that concept is described by Von Bogdandy, et al.

101 IMO Assembly Resolution A.720, *supra*, n. 50.

102 Rayfuse, *supra*, n. 90, 268 (finding that 1994 Fish Stocks Agreement is not an objective regime).

103 See, e.g., statement by Turkey on its opposition to 2012 adoption of General Assembly resolution on Oceans and the Law of the Sea, available at https://www.un.org/press/ en/2012/ga11325.doc.htm.

(Part XIV).[104] Moreover, the third parties impacted by Articles 203 and 278—including the IMO—have not objected to viewing Articles 203 and 278 as imposing obligations. And the United Nations General Assembly repeatedly referred in its resolutions to the 'obligations' imposed on international organizations by Part XIV of the LOSC.[105] Thus Articles 203 and 278 are arguably part of an objective regime on international organizations' assistance for developing states under the LOSC, which further supports relaxing the *pacta tertiis* principle with regard to those provisions. They can thus be viewed as legal obligations that presumptively bind the IMO in the absence of any statement by it to the contrary.[106]

3. The IMO's Obligations under Articles 203 and 278

Assuming these provisions are legal obligations for the IMO per the discussion *supra*, what specifically do they require the IMO to do in terms of differentiating between its member states? Article 203 mandates that the IMO give 'preference' to 'developing states' in the 'allocation of appropriate funds and technical assistance' and the use of its 'services' for specific environmental purposes. None of these terms are defined, but their ordinary meaning and that given to them by the IMO serve as interpretive guideposts.[107] Preference can mean 'the act, fact, or principle of giving advantages to some over others,' or 'priority in the right to demand and receive satisfaction of an obligation.'[108] Thus, the IMO is obliged to give advantages or priorities to developing states in the right to demand and receive the enumerated categories of assistance.

The LOSC does not categorize states as 'developing' or not. But as Harrison writes, 'the term should be interpreted in light of United Nations practice,' and the United Nations General Assembly has resolved that 'capacity-building is essential to ensure that States, especially developing countries, in particular the least developed countries and small island developing States, as well as coastal African States, are able to fully implement the Convention.'[109] The IMO's practice is consistent with the resolution, because as discussed *supra*, it has emphasized small-island developing states (SIDS) and least-developed countries (LDCs) in its technical assistance programs, including for GHG reduction measures.[110]

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104 Ibid. (Turkey supports equity in the law of the sea); IMO, Comments on intellectual property rights and impact assessment on States, (30 April 2021), Doc MEPC 76/7/57 (comment by Turkey supporting universal access to technology developed pursuant to IMRB funding).

105 UN Doc A/Res/55/7 *supra*, n. 43, para. 34; UN Doc A/Res/57/141, *supra*, n. 43, para. 23.

106 Salerno, *supra*, n. 14, 234.

107 See VCLT, *supra*, n. 61, Art. 31(1).

108 'Preference,' Merriam-Webster.com Dictionary (2021).

109 UN General Assembly, Oceans and the Law of the Sea, (18 April 2013), Doc A/Res/67/78, para. 9.

110 Harrison, *supra*, n. 40, 1354, (citing Myron Nordquist, Shabtai Rosenne, Alexander Yankov ((eds)), *United Nations Convention on the Law of the Sea 1982*: A Commentary, vol. IV (J.G. Merrills 1990), 104). The IMO Convention also does not define 'developing states.' But, IMO's member

Harrison construes the 'allocation of appropriate funds and technical assistance and the utilization of specialized services' as the provision of financial and other types of technical assistance, as well as services such as advice.[111] That reading is consistent with a common legal interpretation of 'and' as the same as 'together with,' and is logical given the article's placement in section 3 of Part X, labelled 'technical assistance.'[112] A teleological interpretation[113] is similar: section 3 is included in Part X as a reflection of the presence of the CBDR principle in the law of the sea whereby developing countries' environmental protection capabilities should be strengthened by developed countries in recognition of differential abilities to meet legal obligations.[114] Therefore, Article 203 can be interpreted to mean that the IMO is obliged to give priority or advantages to SIDS and LDCs in the allocation of 'appropriate' funds as well as other technical assistance and advice in order to help them meet their obligations to prevent, reduce, and control pollution of the marine environment and minimize its effects.

What is the substance of the IMO's obligation to cooperate on technology transfer under Article 278? As Pinto argues, provisions that use the word 'shall' in the LOSC indicate a mandatory duty, and obligations to cooperate could be breached if a party to the Convention refused to enter into negotiations at the request of another.[115] He reasons that obligations to cooperate in the LOSC, including related to the transfer of technology, thus impose a positive duty to act.[116] Pinto's characterization of the scope of the obligations under Articles 278 is thus similar to the general duty to cooperate under international law, which is understood 'as the obligation for States to enter into coordinated action under a legal regime so as to achieve its specific goal.'[117]

Here, the goals of the LOSC's regime for cooperation on technology transfer includes the protection and preservation of the marine environment 'with a view to accelerating the social and economic development of the developing States.'[118] And the LOSC obliges its members to take a number of actions either 'directly or through competent international

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states have elaborated the meaning of 'developing countries' under Article 38 of the IMO Convention for the purposes of climate policy. (See also MEPC 304(72) *supra*, n. 19, 1, 6, 9 (calling for GHG reduction technology transfer and assistance programs to be aimed 'particularly' or 'especially' at SIDS and LDCs).

111 Harrison, *supra*, n. 40, 1354.

112 Scalia and Garner, *supra*, n. 68, 117–18 (discussing conjunctive/disjunctive semantic canon of construction); 221 (explaining title-and-headings canon).

113 See VCLT, *supra*, n. 61, Art. 31(1) (treaties should be interpreted in light of their object and purpose)

114 Harrison, *supra*, n. 40, 1347 (citing Ellen Hey, Common but Differentiated Responsibilities, MPEPIL, para. 15, available at: http://www.mpepil.com).

115 Pinto, *supra*, n. 66, 145.

116 Ibid.

117 Elisa Morgera et al., *Unraveling the Nagoya Protocol* (Brill, 2015), p. 210.

118 LOSC, *supra*, n. 6, Art. 266.

organizations' to achieve that end.[119] Thus, the IMO's obligation under Article 278 includes 'taking all appropriate measures to ensure' it acts as a forum for its members to transfer marine technology for the purpose of environmental protection and preservation in a way that accelerates social and economic development in developing states, and closely engages with other competent international organizations and states.

Articles 203 and 278 are not the IMO's only technical assistance and cooperation obligations—it is also required to engage in technical assistance and cooperate on environmental matters under its constitution, the IMO Convention. How to reconcile these sources of law? The *lex specialis* principle provides that 'a special rule of law takes precedence over a relevant general rule' when both cover the same legal subject.[120] Here, Article 203 is more specific than the articles in the IMO Convention on technical assistance: it requires that IMO give preferences or advantages to developing states in the distribution of enumerated categories of assistance, while the Convention's Article 25 provides that the IMO's Marine Environmental Protection Committee 'shall provide for the acquisition of scientific, technical, and any other practical information on the prevention and control of marine pollution from ships for dissemination to states, in particular to developing countries.' Similarly, Article 278 is more specific than Article 38(e), its analogous provision in the IMO Convention, which requires that the MEPC cooperate with international organizations on matters related to the marine environment, but does not specify that cooperation should be taken out on the transfer of marine technology with the purpose of accelerating developing states' economic development. Thus, the LOSC sets out more specific rules on how the IMO is to carry out technical assistance and technology transfer, and under the *lex specialis* principle it should take precedence over the IMO Convention.

Pursuant to the LOSC's Article 237, the provisions in Part XII of the Convention, including Article 203, are 'without prejudice to obligations assumed by States under special conventions and agreements concluded previously which relate to the protection and preservation of the marine environment.'[121] That could mean that obligations in the IMO Convention – which relates to the protection and preservation of the marine environment and was concluded before the LOSC – could govern over any obligations in the LOSC. But, Article 237 is addressed to 'obligations assumed by states,' while Article 203 and Article 38 of the IMO Convention are addressed to the IMO. As stated earlier, this article examines whether the IMO is itself bound by the LOSC – as opposed to being indirectly bound through its member states – therefore an evaluation of whether Article 237 bears on the IMO's obligations under Article 203 is outside its scope. Arguably, the IMO Convention, as the IMO's constitution, always functions as *lex specialis* because it applies specifically to the IMO, while Articles 203

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119 Ibid., Art. 266, 268, 269, 271, 272, 273, 275, 276.

120 Dirk Pulkowski, 'Lex Specialis Derogat Legi Generali/Generalia Specialibus Non Derogant,' in J Klinger, Y Parkhomenko, et al., eds, *Between the Lines of the Vienna Convention? Canons of Interpretation and Other Principles of Interpretation in Public International Law* (Kluwer 2018), 161.

121 LOSC, *supra*, n. 6, Art. 237.

and 278 apply to 'international organizations' and 'competent international organizations,' respectively. That position would be consistent with international organizations' assertions before the International Law Commission that their constitutions are *lex specialis* vis a vis customary international law or general principles of law.[122] But even accepting that the IMO Convention should govern over the LOSC, the legal relevance of Articles 203 and 278 depends on the presence of a conflict. That is because whether the *lex specialis* principle 'is used as a priority rule or a maxim of interpretation depends on whether the more special and the more general rule stand in conflict, such that the two rules cannot apply concurrently: where two rules conflict with each other, lex specialis applies as a priority rule; where no rule conflict exists, it applies as a maxim of interpretation.'[123]

Here, there does not appear to be any conflict. The IMO Convention requires that the IMO engage in technical assistance and cooperate on matters related to the marine environment, as does the LOSC, albeit in a more detailed way. Thus, the lex specialis principle positions Articles 203 and 278 as 'interpretive guidelines' for the IMO Convention. In practice this means the scope of the general obligations in the IMO Convention on technical assistance and cooperation should be limited by the more specific LOSC provision so as to allow both sets of obligations to operate concurrently.[124] Under that reading, the IMO would be obliged to undertake technical assistance and cooperation pursuant to the terms of its constitution, but the substance of those obligations would be informed by Articles 203 and 278 when the IMO is engaged in technical assistance for the purposes of prevention, reduction and control of pollution of the marine environment, or cooperation on the development and transfer of marine technology.[125]

4. The IMO's LOSC Obligations and the IMRB Proposal

Accepting that the IMO is bound by Articles 203 and 278, I now explore the implications for the IMO's IMRB proposal. This section provides an overview of the levy and the proposal for the IMRB, and discusses how Articles 203 and 278 could impact the IMO's administration of it. It then evaluates how viewing the Articles as binding on the IMO implicates the CBDR principle both for the IMRB proposal and the IMO's climate measures more generally.

The IMRB proposal is closely intertwined with the obligations discussed here because it involves both the distribution of money and the dissemination of technology for low and zero carbon shipping. In 2019 the MEPC began considering whether and how to establish the IMRB. The proposal included a fund would raise approximately $5 billion over 10 to 15

122 Daugirdas, *supra*, n. 13, 329.

123 Pulkowski, *supra*, n. 119, 163.

124 Ibid., 191.

125 See Southern Bluefin Tuna Case, *Australia and New Zealand v. Japan*, Award on Jurisdiction and Admissibility, 13 United Nations Reports of International Arbitral Awards (4 August 2000), 40 para. 52 (discussing parallelism of treaties and the 'accumulation and accretion of obligations').

years via a $2 per ton mandatory levy on fuel oil consumption.[126] In spring 2021, a coalition of major maritime states, flag states, SIDS, and the shipping industry submitted a detailed proposal for the IMRB and the governance structure that should apply within the IMO to both collect and spend the funds.[127] Under that proposal, the MEPC would charter the IMRB using an amendment to MARPOL Annex VI. Perhaps reflecting the IMO staff's reputation for neutrality and technical expertise,[128] the board members will be non-governmental professionals appointed by the IMO Secretary-General.[129] The MEPC will oversee the board and approve its annual budget, but the Board will be independent and have the final say over what projects are funded.[130] Since the proposal was made, the MEPC has continued to discuss it, and it remains under consideration along with a broader levy on marine fuel and other market-based mechanisms that could establish similar governance structures.[131] Thus, the proposal creates an independent subsidiary body of the IMO—the IMRB—that will have decision-making authority, positioning the IMO itself at the center of the program. Pursuant to the International Law Commission's Draft Articles on the Responsibility of International Organizations, the IMRB will be an agent of the IMO under international law, and Articles 203 and 278 would apply directly to it.[132] Therefore, if the IMRB failed to act consistently with the articles, the IMO could theoretically be held responsible under international law.[133]

The proposal's criteria for project selection do not contain any preference for developing states if research grants are considered to be 'appropriate funds' for technical assistance within the meaning of Article 203. The Board will establish a procedure where applicants can submit proposals for research projects, and it will also develop a process and criteria for reviewing unsolicited proposals.[134] Qualified applicants may include any government,

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126 MEPC 75/18, *supra*, n. 1, 32–33.

127 MEPC 76/7/7, *supra*, n. 2.

128 Kendall Stiles, 'Disaggregating Maritime Safety Delegation,' in J Ostreich, ed. *International Organizations as Self-Directed Actors: a Framework for Analysis*, (Routledge 2012), 172; Liesbet Hooghe and Gary Marks, 'Delegation and Pooling in International Organizations,' (2012) 10(3) *Review of International Organizations*, 305, 308–309 (the IMO is viewed by some scholars as exercising a high degree of authority due to majoritarian decision-making, but its staff has relatively little delegated authority from its member states).

129 MEPC 76/7/7, *supra*, n. 2, Annex 4.

130 Ibid.

131 See MEPC 78/17, *supra*, n. 1, 45–46; IMO Doc. ISWG-GHG 12/3/9, *supra*, n. 33; IMO Doc. 78/7/5, *supra*, n. 33.

132 See ILC DARIO, *supra*, n. 9, Art. 6 (the conduct of an agent of an organization in the performance of its functions shall be considered an act of the organization under international law); 2 (defining agent).

133 Ibid., Art. 4 (defining internationally wrongful act of international organization).

134 134 Ibid., Art. 4, 7.

public, private, or non-profit institution or consortium.[135] The Board staff will review proposals based on their 'merit, feasibility, proposed cost, and scientific and technical potential' and recommend them to the board for final approval, which will be made with a majority vote. Criteria that will be used include the potential to meet the objectives in the Board's charter and the potential readiness for the transition to zero and low carbon shipping, safety considerations, and other factors.[136] The proposal's objective is that the Board disseminate knowledge to 'both developed and developing states, particularly SIDS and LDCs,' but this language does not constitute a clear and express advantage or priority for developing states in receiving funds as Article 203 requires.[137]

Under the proposal, the Board is given discretion to attach intellectual property conditions to research grants, but the proposal states that intellectual property resulting from funded projects should be made available to 'anyone' in the world on fair, reasonable, and non-discriminatory terms.[138] On the one hand, that appears consistent with the LOSC's Part XIV, which provides that states shall promote the transfer of technology on fair and reasonable terms and conditions, and have due regard for 'all legitimate interests including, inter alia, the rights and duties of holders, suppliers and recipients of marine technology.'[139] But, as discussed *supra*, Part XIV is also guided by the 'social and economic development of developing states,' implying that marine technology should be made available to developing states on preferential terms so as to enable their development.[140] That interpretation is consistent with other international instruments, and therefore is supported by the in pari materia canon[141] of construction: Agenda 21 calls for environmental technology transfer to developing states on 'preferential and concessional terms;' the Paris Agreement obliges its parties to financially support developing states' access to climate mitigation and adaptation technology developed pursuant to its Article 10 Technology Mechanism; and the International Oceanographic Commission's marine technology transfer guidelines call for transfers to developing states 'free of charge, or at a reduced rate for the benefit of the

135 Ibid., Art. 7.

136 Ibid.

137 See MEPC 76/7/7, *supra*, n. 2, Art. 7 (emphasis added).

138 Ibid., Art. 7(b). See also IMO, Establishment of an International Maritime Research and Development Board and an IMO Maritime Research Fund, (16 September 2021), Doc. MEPC 77/7/6, 4 ('underlying purpose of the IMRB is to ensure that the world economy, including LDCs and SIDS, and nations remote from their markets, will continue to access efficient and economically sustainable maritime transport'); IMO, Use of Intellectual Property Generated from IMRB Projects, (1 October 2021) Doc. MEPC 77/7/21, Annex, 3 (proposing that intellectual property developed with grant funds be made available to 'all member states' on a fee-free basis).

139 LOSC, *supra*, n. 6, Art. 266(1); 269(b); 268.

140 Ibid., Art. 278.

141 Paula F. Henin 'In Pari Materia Interpretation in Treaty Law,' in J Klinger et al. (eds) *Between the Lines of the Vienna Convention? Canons and Other Principles of Interpretation in Public International Law* (Kluwer 2018), 211.

recipient country.'[142] Thus, Article 278 implies that the IMRB is obliged to act as a forum for its members states to transfer technology so as to promote the social and economic development of SIDS and LDCs, not merely to make technology available on fair, reasonable, and non-discriminatory terms.

Despite the proposal not incorporating Articles 203 and 278 into the IMRB's terms of reference, it grants the Board discretion to add or change terms to the project selection criteria or attach additional conditions governing intellectual property.[143] Thus, the Board would function both as a policy maker and a policy implementer, and would itself determine the extent to which the program complied with Articles 203 and 278.[144] Moreover, the IMO's institutional role can be expected to increase if there are conflicts between states as to how the program should operate, in which case the Board and staff's decision-making could be seen as a 'second-best option.'[145] Therefore, as the proposal is currently written, Articles 203 and 278 would be legal obligations the Board would be bound to follow as it designs and implements the program.[146]

The proposal may yet change, and the IMO's member states could potentially constrain the IMO's discretion in its administration of the IMRB or other climate measures in a way that would depart from Articles 203 and 278. In addition to being IMO resolutions, MARPOL Annexes are themselves treaties. An amendment to MARPOL Annex VI creating the IMRB would need to be consistent with Article 311(3) of the LOSC, which provides that state parties to the LOSC may not adopt agreements derogating from provisions that are essential to the effective execution of the object and purpose of the LOSC and reflect its basic principles.[147] Those provisions are not identified, and in diplomatic fora states have opposed agreements by arguing that they are inconsistent with the LOSC and impermissible under

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142 UN, Earth Summit Agenda 21 (United Nations 1992), Chapter 34; Paris Agreement, (4 November 2016), United Nations Registration No. 54113, Art. 10(6); IOC Guidelines, *supra*, n. 43, 10; see generally Abbe E.L. Brown, 'Intellectual Property and Climate Change,' in RC Dreyfuss and J Pila, (eds) *The Oxford Handbook of Intellectual Property Law* (Oxford, 2018), 975–976.

143 MEPC 76/7/7, *supra*, n. 2, Annex 4, 9 (criteria to be used for grant applications include 'specific project criteria as specified by the IMRB; grant conditions 'may include' requirement that patents be made available on fair, reasonable, and non-discriminatory terms).

144 See generally Stiles, *supra*, n. 127 (discussing delegation of authority to IMO according to various forms of principal-agent theory); Daugirdas, *supra*, n. 13, 364–65 (discussing generally the 'significant policy making role' of international organization staff).

145 Stiles, *supra*, n. 127, 189–90 (finding that the IMO staff's expansion of powers came from disagreements between states on implementation of maritime safety policies).

146 Daugirdas, *supra*, n. 13, 364-56 (discussing international civil servants' 'on-the ground autonomy' as policy makers).

147 LOSC, *supra*, n. 6, Art. 311(3); see Nele Matz-Lück, 'Article 311,' in A Proelss (ed), *The United Nations Convention on the Law of the Sea: a Commentary*, (C.H. Beck 2017), 2010, 2017–18. There are similar provisions in the VCLT-IO. (See VCLT-IO, *supra*, n. 11, Art. 41 and 58).

Article 311(3).[148] Thus, it is unclear whether a measure implementing the IMRB that derogated from Articles 203 and 278 would constitute an invalid inter se agreement under the LOSC, or whether such an argument could impact its negotiation and adoption.[149]

Regardless, in my view, there are good reasons for the IMRB proposal or any of the IMO's climate measures to incorporate the principles underlying Articles 203 and 278. There is a consensus that one of the central obstacles to the wide-scale deployment of zero and low carbon shipping technology is the relative disadvantage of developing states,[150] and the IMO has long faced implementation challenges with vessel-source pollution standards.[151] Technical assistance and technology transfer are therefore necessary for the IMO to achieve its climate strategy. In addition, the disagreement between the IMO's members about whether the climate regime's CBDR principle should apply would only be exacerbated by measures that do not differentiate between developed and developing states.[152]

That differentiation has been repeatedly called for by the IMO. In 2010, its criteria for a market-based climate mechanism for shipping included 'the need for technology transfer to, and capacity-building within, developing countries, in particular' LDCs and SIDS, in relation

148 David Freestone and Alex G. Oude Elferink, 'Flexibility and Innovation in the Law of the Sea,' in AG Oude Elferink (ed), *Stability and Change in the Law of the Sea: the Role of the LOS Convention* (Martinus-Nijhoff 2005), 182–183 (discussing state practice under Article 311); see also Shirley Y. Scott, 'The LOS Convention as a Constitutional Regime,' in in *Stability and Change in the Law of the Sea: the Role of the LOS Convention*, AG Oude Elferink, ed. (Martinus-Nijhoff 2005), 18–19 (LOSC has characteristics similar to a constitution, but Article 311 is 'nowhere near comparable' with Article 103 of the UN Charter.).

149 See Freestone and Oude Elferink, *supra*, n. 147, 183.

150 IMO, Comments on submissions concerning an International Maritime Research and Development Fund, (21 April 2021), Doc MEPC 76/7/49; see Harilaos N. Psaraftis and Christos A. Kontovas, 'Decarbonization of Maritime Transport: Is There Light at the End of the Tunnel?,' (2021) 13(1) *Sustainability*, 237 (discussing technical aspects of implementing MBM for shipping).

151 Saiful Karim, 'Implementation of the MARPOL Convention in Developing Countries,' (2010) 79 *Nordic Journal International Law*, 303, 312–13; Jesper Jarl Fanø, *Enforcing International Maritime Legislation on Air Pollution Through UNCLOS* (Bloomsbury, 2019); Michael Bloor et al., 'Enforcement Issues in the Governance of Ships' Carbon Emissions,'(2015) 4 *Laws*, 335.

152 There has been extensive scholarly and diplomatic discussion about the extent to which the climate regime's CBDR principle applies to the IMO's climate measures. See Kopela, *supra*, n. 3, 96–97 (MBM as possible area for synergy between climate change and maritime legal regimes); Bodansky, *supra*, n. 7, 13, 15–16 ('the IMO Secretariat is clearly correct that there is no conflict between the UNFCCC's principle of CBDR-RC and the IMO's principle of non-discrimination'; discussing possible legal and design elements for shipping MBM); Saiful Karim, *Prevention of Pollution of the Marine Environment From Vessels* (Springer, 2015), 118–121 (collecting views and proposals of states and industry organizations); Yubing Shi, 'Reducing Greenhouse Gas Emissions from International Shipping: Is it Time to Consider Market-Based Measures?,' (2016) 64 *Marine Policy* 123.

to implementation and enforcement of the proposed mechanism, including the potential to mobilize climate change finance for mitigation and adaptation actions.[153] Shi contends this criterion encompasses the CBDR principle as it is broadly understood because it calls for differentiated treatment between states through technical assistance and technology transfer.[154] Yet, as Karim notes, the IMO's 2016 resolution on technology transfer 'does not establish any significant legal obligation for financial assistance or technology transfer.'[155]

Viewing the IMO as bound by Articles 203 and 278 would establish just such a legal obligation. It would thus help bridge long-standing disputes over what principles should apply to the IMO's climate policies by legally requiring the IMO to differentiate between its members and grant preferences to SIDS and LDCs. And it could apply beyond the IMRB proposal: some IMO member states have proposed the imposition of a $100 per ton fuel levy meant to reduce GHG emissions, and called for the creation of a subsidiary entity within the IMO that would distribute the funds raised by the levy.[156] More broadly, viewing Articles 203 and 278 as obligations would promote constitutionalism and the rule of law within that important international organization by setting legal parameters for how it exercises its authority and discretion.[157]

Conclusion

As I discuss in this article, the IMO is charged with developing uniform regulations for pollution from ships—including greenhouse gases—but the climate regime is founded on the principle that not all states are equally responsible for mitigating climate change, nor do they have the same capacities to do so. The LOSC addresses the differential capabilities of states in the context of environmental regulations in part by requiring international organizations to give preferences to developing states in the allocation of funds under Article 203, and cooperate on the transfer of marine technology so as to encourage developing states' economic and social development pursuant to Article 278.

Although the IMO is not a party to the LOSC and has never accepted these articles as legal obligations expressly and in writing, several factors support viewing them as such. They

153 IMO, 'Report of the Marine Environment Protection Committee on Its Sixtieth Session, MEPC 60th Session, Agenda Item 22,' (22 April 2010), IMO Doc MEPC 60/22, Annex 9.

154 Shi, *supra*, n. 151, 128 (citing Lavanya Rajamani, *Differentiated Treatment in International Environmental Law* (Oxford 2006), 191).

155 Karim, *supra*, n. 151, 122.

156 See IMO, 'Proposed draft amendments to MARPOL Annex VI,' (20 August 2021), IMO Doc MEPC 77/7/4, 3; Annex 3, 2. The proposal as drafted calls for 51 percent of the levy's proceeds to be directed towards SIDS and LDCs. (See Ibid., Annex 1, 3.)

157 See Jan Klabbers, 'International Constitutionalism,' in R Masterman and R Schütze, (eds), *The Cambridge Companion to Comparative Constitutional Law* (Cambridge 2019), 514; Jose E. Alvarez, *The Impact of International Organizations on International Law* (Brill 2016), 403–04 (discussing need for legal limits on the actions of international institutions).

include that: the IMO participated in the UNCLOS III conference and has an important role under the LOSC as the international organization responsible for establishing regulations for pollution from ships; the IMO Secretary-General has described the provisions as duties or obligations for many decades, and the IMO Council was aware of that view and did not object; and the LOSC's provisions on technical assistance and technology transfer arguably constitute an objective regime, at least as to the IMO.

Thus, accepting that Articles 203 and 278 bind the IMO, the CBDR as it is articulated in the LOSC can bridge the divide between the climate and maritime legal regimes and provide legal parameters for how the IMO implements climate policies for shipping. As Cassese explains, states and international institutions interact in a 'marbled structure' where states confer public tasks on organizations but are also 'controlled by them and act as their agents, implementers and enforcers.'[158] The IMRB proposal illustrates that marbled structure well: the IMO and its agent, the IMRB, would distribute billions of dollars among the IMO's member states and set the terms for how low and zero-carbon shipping technology is disseminated. A similar dynamic may very well develop for a carbon tax or other market-based mechanism for shipping, as those proposals likewise envision the IMO collecting and distributing large sums of money. Re-evaluating the *pacta tertiis* principle and the VCLT-IO as is done here could therefore constitutionalize the IMO, and unify international law more broadly.

158 Sabino Cassese, 'Governing the World,' in S Cassese, ed., *Research Handbook on Global Administrative Law* (Elgar 2017), 506.

Chapter 4

Shipping's Fair Share

Baine P. Kerr, 'Shipping's Fair Share,' (2024) 54 *Environmental Law Reporter* 10410

Abstract

In July 2023, the International Maritime Organization (IMO) resolved that it would reduce international shipping's greenhouse gas emissions to net zero 'by or around, i.e., close to' 2050. There is a long running scholarly and diplomatic debate about whether the sector should decarbonize and how it could do so in a way that is equitable for states and the shipping industry. This article is the first to normatively define shipping's fair share of the overall climate mitigation burden using principles of international environmental law. It refers to the IMO's institutional rules and practice to identify relevant principles and evaluates shipping's emission reduction pathways based on the sector's technological potential. It determines that a fair share for shipping would be its highest possible ambition in light of the sector's unique capacity to mitigate. The article ties shipping's climate goals to a broader framework of international environmental law, and offers a structure to assess its climate ambition going forward.

Introduction

In London last July, small island states, environmental groups, and some developed countries urgently demanded that the International Maritime Organization (IMO) adopt ambitious new goals for reducing the international shipping sector's climate pollution.[1] The IMO is a quasi-legislative United Nations agency charged with developing uniform and globally binding environmental rules for ships.[2] It has enacted a series of climate measures since 2011, including an initial greenhouse gas (GHG) reduction strategy in 2018 that called for reducing emissions 50 percent below 2008 levels by 2050.[3] Since then, large shipping companies have committed to far deeper and faster reductions, raising hopes that the IMO would as well.[4]

After two weeks of negotiations, the IMO did so.[5] Its Secretary-General remarked that 'we have a clear direction, a common vision, and ambitious targets to guide us to deliver what the world expects of us.'[6] The IMO now aims to reach net-zero GHG emissions for shipping 'by or around, i.e., close to, 2050. . .'[7] It also enacted 'indicative checkpoints' to reach that goal: reductions of 'at least 20% striving for 30% by 2030,' and 'at least 70%, striving for

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1 See Clean Shipping Coalition, 'The Wrong Side of History: Shaama Sandooyea's Address to MEPC 80,' available at: https://cleanshipping.org/news/the-wrong-side-of-history-shaama-sandooyeas-address-to-mepc-80/ (last visited Jan. 30, 2024); Section 1, *infra*. This Article concerns the law that applies to international shipping, and refers to 'international shipping' and 'shipping' interchangeably.

2 Convention on the Intergovernmental Maritime Consultative Organization, 6 March 1948, 289 UNTS 3, as amended. A consolidated version is contained in IMO, *Basic Documents, Volume I* (IMO, 2010 ed.), 8–32 [hereinafter IMO Convention]; Craig Allen, 'Revisiting the Thames Formula: The Evolving Role of the International Maritime Organization and Its Member States in Implementing the 1982 Law of the Sea Convention,' (2009) 10 *San Diego International Law Journal* 265, 271-90 (discussing the IMO's legal role and competence).

3 See IMO, 'Adoption of the Initial IMO Strategy on the Reduction of Greenhouse Gases From Ships and Existing IMO Activity Related to Reducing GHG Emissions in the Shipping Sector,' IMO Doc. MEPC 304(72) (13 Apr., 2018) [hereinafter IMO 2018 Strategy]. See generally Günther Handl, 'Decarbonising the Shipping Industry: A Status Report,' (2023) 38 *International Journal Marine & Coastal Law* 1.

4 See World Shipping Council, *Delivering Net Zero by 2050: The Cornerstones of Effective IMO GHG Regulations*, available at: https://www.worldshipping.org/net-zero-2050 (last visited 30 Jan., 2024); Part I *infra*.

5 IMO, Resolution MEPC.377(80), IMO Doc. MEPC 80/WP.12, Annex 1 (7 July, 2023) [hereinafter IMO 2023 Strategy] Annex 1.

6 See IMO, Revised GHG Reduction Strategy for Global Shipping Adopted, (7 July, 2023), available at: https://www.imo.org/en/MediaCentre/PressBriefings/pages/Revised-GHG-reduction-strategy-for-global-shipping-adopted-.aspx (last visited 22 Jan., 2024).

7 IMO 2023 Strategy, *supra* n. 5, Annex 1, 6.

80%, by 2040.'[8] Despite the celebratory remarks, scientists believe that shipping needs to decarbonize more quickly to be compatible with limiting global warming to 1.5 degrees Celsius.[9] It is also unclear whether the IMO's goals will be met: current measures will not reduce emissions,[10] and a market-based mechanism for shipping and a clean fuel standard will not be implemented until 2027 at the earliest.[11]

Within the IMO there is a long-running debate about whether and how much shipping's emissions should be reduced, and whether there should be a differentiation between developed and developing states.[12] Underlying this debate are notions of fairness: what is fair for various actors within the maritime regime—states and private actors such as shipping companies—and what is fair for shipping as a sector when compared to other sectors and states.[13] All sides agree that shipping should contribute its 'fair share' toward achieving the Paris Agreement's global warming limitation goals, but there is no common understanding of what that means.[14]

In this article, I normatively define shipping's fair share, and apply it to the IMO's newly enacted climate goals. Scholars and non-governmental organizations such as Climate Action Tracker understand fair share to mean a 'share of the effort for mitigating climate change that is in accordance with the equitable principles of international environmental law.'[15] The equitable principles of international environmental law include harm preven-

8 Ibid.

9 Simon Bullock et al., 'The Urgent Case for Stronger Climate Targets for International Shipping,' (2022) 22(3) *Climate Policy* 301, 301; Jean-Marc Bonello et al., *Science Based Target Setting for the Maritime Sector* Version 11, 9 (2023), https://sciencebasedtargets.org/resources/files/SB-Ti-Maritime-Guidance.pdf ('For maritime transport emissions, a long-term science-based target means reducing emissions to a 96% residual level in line with 1.5°C scenarios by no later than 2040.'). When referring to temperature, this article uses Celsius rather than Fahrenheit.

10 IMO, Fourth Greenhouse Gas Study 2020, 26, Figure 26 (2021), https://www.imo.org/en/OurWork/Environment/Pages/Fourth-IMO-Greenhouse-Gas-Study-2020.aspx

11 IMO 2023 Strategy, *supra* n. 5, 8, 11.

12 See Section 1, *infra*.

13 See, e.g., IMO, *Moving Forward on 'Fair Share' Discussions*, IMO Doc. MEPC 70/7/11 (9 Sept., 2016), 2 (fair share should be determined based on limiting global warming to 1.5 degrees); IMO, *Development of a Road Map to Determine a Possible IMO Fair Share Contribution*, IMO Doc. MEPC 70/7/8 (Aug. 8, 2016), 2 (shipping industry fully agrees 'that IMO should determine a possible fair share contribution for the international shipping sector' taking into account that shipping 'is already, by far, the most energy efficient form of commercial transport').

14 See Section 1 *infra*; IMO, 'Report to the Marine Environmental Protection Committee On Its Seventieth Session,' IMO Doc. MEPC 70/18 (11 Nov., 2016), 48; see U.N. Framework Convention on Climate Change Conference of the Parties, Twenty-First Session, Adoption of the Paris Agreement, art. 2, U.N. Doc. FCCC/CP/2015/10/Add.1 (26 Jan., 2016) [hereinafter Paris Agreement], Art. 2 (global warming limitation goals).

15 Lavanya Rajamani, et al., 'National Fair Shares in Reducing Greenhouse Gas Emissions Within

tion, precaution, sustainable development, special circumstances, intergenerational and intra-generational equity, principles unique to the climate regime such as common-but-differentiated responsibilities and respective capacities (CBDR-RC) and highest possible ambition, as well as human rights principles.[16] Principles applying to states' fair shares can come from customary international law, treaties, or domestic law.[17]

Fair shares are legally salient. Under the Paris Agreement, states determine for themselves how much and with what measures they will reduce GHG emissions through 'nationally determined contributions' (NDCs) towards the collective goal of limiting global warming 'to well below 2 degrees,' and 'pursuing efforts' to limit warming to 1.5 degrees.[18] The Paris Agreement's 2018 Rulebook states that NDCs should provide narrative justifications for their levels of ambition and fairness,[19] and references to equity and other principles of international law, in particular the CBDR-RC principle, are throughout the Agreement.[20] The CBDR-RC principle holds that all states must address climate change, but each state's responsibility differs based on historic and current responsibility for the problem and capacity to address it.[21]

Qualitative and quantitative assessments of fair shares thus provide a basis to normatively evaluate states' NDCs.[22] Fair shares can be cited in diplomatic fora to argue a state

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the Principled Framework of International Environmental Law,' (2021) 21(8) *Climate Policy* 983, 984. *See* Climate Action Tracker, https://climateactiontracker.org/methodology/cat-rating-methodology/fair-share/ (last visited 29 Jan., 2023).

16 Rajamani et al., *supra* n. 15, 986.

17 Ibid., 988.

18 Paris Agreement, *supra* n. 14, Art. 2; 4.

19 UNFCCC, Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on the third part of its first session, held in Katowice from 2 to 15 December 2018, U.N. Doc. FCCC/PA/CMA/2018/3/Add.1, 7, 11. See also Lavanya Rajamani and Daniel Bodansky, 'The Paris Rulebook: Balancing International Prescriptiveness with National Discretion,' (2019) 68 *International and Comparative Law Quarterly* 1025, 1031.

20 Paris Agreement, *supra* n. 14, preambular recital, Art. 2(2), 4(1).

21 See Sumudu Atapattu, *Emerging Principles of International Environmental Law* (2007), 379 (discussing origin and meaning of CBDR principle); Christina Voigt and Felipe Ferreira, 'Dynamic Differentiation: The Principles of CBDR-RC, Progression and Highest Possible Ambition in the Paris Agreement,' (2016) 5(2) *Transnational Environmental Law* 285 (explaining CBDR-RC principle as expressed in the Paris Agreement).

22 Rajamani et al., *supra* n. 15, 984. See generally Gurav Ganti, et al. *Fair National Greenhouse Gas Reduction Targets Under Multiple Equity Perspectives - A Synthesis Framework*, Preprint DOI: 10.21203/rs.3.rs-397507/v1 (2021); Christian Holtz, et al., 'Fairly Sharing 1.5: National Fair Shares of a 1.5°C-compliant Global Mitigation Effort,' (2018) 18(1) *International Environmental Agreements: Policy, Law and Economics* 117; Harald Winkler, 'Putting Equity Into Practice in the Global Stocktake under the Paris Agreement,' (2018) 20(1) *Climate Policy* 124; Niklas Höhne, et al., 'Regional GHG Reduction Targets based on Effort Sharing: A Comparison of Studies,' (2014)

should be doing more; they therefore are an integral aspect of the Paris Agreement's collective action logic.[23] Moreover, the fairness of states' mitigation efforts have served as legal benchmarks to assess climate commitments by Dutch and German courts, as well as in a case recently decided by the European Court of Human Rights.[24] Thus, although legal principles are open-textured and not uniformly applied, they can and do give a concrete basis to evaluate states' mitigation commitments in the context of climate obligations.

So far these commitments have not included international shipping, except for those made by European Union member states.[25] For various reasons, emissions from transport beyond national territories (i.e., over and above the high seas) are not reported in national totals through the United Nations Framework Convention on Climate Change (UNFCCC) or the Paris Agreement.[26] Shipping serves countries at all levels of development and capacity, which has frustrated agreement on whether and how the CBDR-RC principle—a bedrock

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14(1) *Climate Policy* 122. This article offers a qualitative description of shipping's fair share rather than a numeric fair share range.

23 See Alexander Zahar, 'Collective Obligation and Individual Ambition in the Paris Agreement,' (2019) 9(1) *Transnational Environmental Law* 165, 187 ('In the collective logic of the Paris Agreement, a state must set its mitigation ambition so that it is a fair contribution, compared with the effort of other states').

24 Rajamani et al., *supra* n. 15, 984; Gerry Liston, 'Enhancing the Efficacy of Climate Change Litigation,' (2020) 9(2) *Cambridge International Law Journal* 241, 242 (discussing *the State of the Netherlands (Ministry of Economic Affairs and Climate Policy) v Stichting Urgenda (Urgenda)* [2019] Dutch Supreme Court 19/00135 (Engels)); *Case of Verein Klimaseniorinnen Schweiz and Others v. Switzerland*, App. No. 53600/20, ¶¶ 571, 573–74 (9 Apr., 2024), https://hudoc.echr.coe.int/eng?i=001-233206 (holding that Switzerland must establish a national carbon budget, and could do so by taking the CBDR principle into account).

25 See Baine P. Kerr, *All Necessary Measures: Climate Law for International Shipping*, (Aug. 1, 2023) *Virginia Journal of International Law.*, Forthcoming, Available at SSRN: https://ssrn.com/abstract=4549961, 1-2, 17-18 (discussing the European Union's climate measures); Manolis Kotzampasakis, 'Intercontinental Shipping in the European Union Emissions Trading System: A 'fifty–fifty' Alignment with the Law of the Sea and International Climate Law?', (2022) 32 *RECIEL* 29, 33.

26 See United Nations Framework Convention on Climate Change, May 9, 1992, 1771 U.N.T.S. 107, S. Treaty Doc No. 102-38 (1992); UNFCCC, *Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on the third part of its first session, held in Katowice from 2 to 15 December 2018*, UN Doc. FCCC/PA/CMA/2018/3/Add.2, 23, 27. See generally Ellen Hey, 'Regime Interaction and Common Interests in Regulating Human Activities in Areas Beyond National Jurisdiction,' in S Trevisanut et al. (eds), *Regime Interaction in Ocean Governance: Problems, Theories and Methods*, (Brill 2020) 93-98; Harro van Asselt, *The Fragmentation of Global Climate Governance: Consequences and Management of Regime Interactions* (Elgar 2014); Sebastian Oberthür, 'Institutional Interaction to Address Greenhouse Gas Emissions from International Transport: ICAO, IMO and the Kyoto Protocol,' (2003) 3 *Climate Policy* 193.

of the climate regime—applies.[27] Because of that incompatibility, scholars have remarked that determining shipping's fair share and allocating it to states has 'thus far proven challenging.'[28] The literature that has examined fairness or equity for shipping has looked at whether measures within the sector are fair for various states, rather than evaluating shipping's share of the mitigation burden in relation to other sectors and states.[29]

This Article adopts a different lens. It takes a sectoral approach to determine shipping's overall fair share based on legal principles rather than try to allocate or distribute its climate burden to individual countries. It thus complements quantitative research that forecasts shipping's emissions, suggests feasible pathways for reductions, and evaluates the sector's emissions and GHG reduction pathways alongside national commitments and actions.[30] To identify the principles that apply to shipping's fair share and assess their legal significance, I rely on the IMO's institutional rules—in other words its constituent instrument, 'decisions, resolutions and other acts,' and the organization's 'established practice.'[31]

The principles that apply to shipping's fair share thus originate from the organization's internal legal order.[32] Yet, as will be discussed below, they function as 'multi-sourced equivalent norms' (MSENs) because the same or similar principles apply to states' fair shares despite originating from different sources of international law.[33] Consequently, aspects of

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27 Sophia Kopela, 'Climate Change, Regime Interaction, and the Principle of Common but Differentiated Responsibility: The Experience of the International Maritime Organization,' (2014) 24(1) *Yearbook of International Environmental Law* 70, 80. See Section 1, *infra*.

28 Rajamani et al., *supra* n. 15, 998.

29 See Aldo Chircop, et al., *Shipping and Climate Change: International Law and Policy Considerations*, Centre for International Governance Innovation (2018), https://ssrn.com/abstract=3113274, 69; Meinhard Doelle & Aldo Chircop, 'Decarbonizing International Shipping: An Appraisal of the IMO's Initial Strategy,' (2018) 28 *RECIEL* 268; Aldo Chircop, 'The International Maritime Law Response to Climate Change: The Quest for the Shipping Industry's 'Fair Share' of GHG Emissions Reduction,' (Conference Paper, 2017), available at: https://digitalcommons.schulichlaw.dal.ca/scholarly_works/767/; Yubing Shi, 'The Implications of the Paris Agreement for the Regulation of Greenhouse Gas Emissions from International Shipping,' (2018) 32 *Ocean Yearbook* 528, 542 (fair share should be defined by IMO and connected to Paris Agreement goals).

30 See sources cited at n. 9, *supra.*

31 See International Law Commission, *Draft Articles on the Responsibility of International Organizations*, Yearbook of the International Law Commission (2011), Vol. II, Part Two, U.N. Doc. A/66/10 [hereinafter DARIO], Art. 2.

32 The literature thus far has considered shipping's fair share but not using the principles-based methodology I apply here. See sources at n. 29, *supra*.

33 Tomer Broude & Yuval Shany, 'The International Law and Policy of Multi-Sourced Equivalent Norms,' in T Broude & Y Shany (eds), *Multi-Sourced Equivalent Norms in International Law* (Oxford 2011), 5.

the normative content of these principles can be 'borrowed' from the climate regime to determine shipping's fair share.[34]

There are legal benefits to the perspective I take here. The IMO 2023 Strategy (the Strategy) commits the IMO to action 'consistent with the long-term temperature goal set out in Article 2 of the Paris Agreement.'[35] As a resolution of a plenary body of the IMO, the Strategy legally binds the organization.[36] By defining shipping's fair share, this article seeks to flesh out what that commitment to the Paris Agreement's temperature goals means, and to give a benchmark to measure whether the IMO is complying with it.

Moreover, the application of equitable principles to the IMO's levels of ambition for shipping furthers legal coherence.[37] The IMO's internal law is unified and clarified if the organization's policies align with their guiding principles and with the discourse about fairness within the IMO.[38] Accepting that these principles operate as MSENs, their application to the IMO's fair share shows how international law is not fragmented, but instead points in the same or similar directions for states and international shipping.[39]

In Section 1 I discuss how the IMO's members decided on its levels of ambition for GHG emission reductions and how that discussion was interwoven with the concept of fairness and equity. Section 2 establishes a normative framework for evaluating the fairness of the IMO's levels of ambition by identifying the principles that apply and explaining the legal relationship between them and the IMO's climate goals. Section 3 evaluates scientific forecasts on emission reduction pathways for shipping and the carbon budget in light of

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34 Benedikt Pirker, 'Interpreting Multi-Sourced Equivalent Norms: Judicial Borrowing in International Courts,' in T Broude & Y Shany, (eds) *Multi-Sourced Equivalent Norms in International Law* (Oxford 2011), 93-94 ('MSENs that are substantially equivalent in wording, although established by different instruments or procedures, eases the transfer of legal reasoning from one treaty regime to the other (even if they are not necessarily binding on the same parties)').

35 2023 Strategy, *supra* n. 5, 6-7.

36 See DARIO, *supra* n. 31, art. 2. It could potentially also qualify as a unilateral declaration. Baine P. Kerr, 'Bridging the Climate and Maritime Regimes: the IMO's 2018 GHG Strategy as an Erga Omnes Obligation,' (2021) 11(2) *Climate Law* 118, 122-123.

37 See Yannick Radi, 'Coherence,' in J d'Aspremont and S Singh (eds), *Concepts for International Law: Contributions to Disciplinary Thought* (Elgar 2019), 105; Amalia Amaya, *The Tapestry of Reason: An Inquiry into the Nature of Coherence and Its Role in Legal Argument* (Hart 2015), 38-34 (describing coherence as a normative value). See generally Jean d'Aspremont, 'The Chivalric Pursuit of Coherence in International Law,' *Leiden Journal of International Law*, First View (2023); James Devaney, 'Leaning from the Steep Slope: On Coherence in Response to Professor Jean d'Aspremont,' *Leiden Journal of International Law*, First View (2023).

38 See Radi, *supra* n. 37, 109-12 (discussing the value of coherence in terms of legal certainty).

39 Broude & Shany, *supra* n. 33, 9; Robert Howse, 'Multi-Sourced Equivalent Norms: Concluding Thoughts,' in T Broude & Y Shany (eds), *Multi-Sourced Equivalent Norms in International Law* (Oxford, 2011), 322 (discussing MSENs as promoting the integration and coherence of international law).

the identified principles, and the fairness discussion at the IMO. I thus consider whether shipping's climate ambition is indeed fair, and the legal parameters for its fair share going forward. I argue that a principled fair share for shipping would represent the sector's highest possible ambition in light of its unique capacity to mitigate. The article concludes by reflecting on the implications of its findings for the IMO and international law generally.

1. How the IMO Determined Shipping's Climate Goals

The IMO's role as the global regulator of shipping's GHG emissions has been contested by the parties to the UNFCCC and the organization's member states, in particular those in the European Union.[40] For decades, the rhetoric of fairness has been intertwined with discussions at the IMO about levels of ambition for shipping's GHG reductions. Yubing Shi submits that 'the 'fair share' discussion within the IMO proves that the IMO is a legitimate standard-setter in the field.'[41] This section gives an overview of those discussions and how the IMO arrived at its current goals leading up to the adoption of the Strategy in 2023.

My methodology here involved searching for and reviewing member state, intergovernmental observer, and non-governmental observer comments to the IMO's Marine Environmental Protection Committee (MEPC) since 2003 that related to a quantified metric for reducing GHGs from shipping, in particular comments on baselines for emissions and levels of ambition for reductions.[42] I also analyzed the MEPC committee reports that summarized its proceedings, and the documents submitted to the MEPC's Inter-sessional Working Group on GHGs. Because coalitions of states, as well as groups representing aspects of the shipping industry, often submit joint comments, for readability I only refer in the text to the first author listed. These comments individually do not carry legal weight as IMO 'rules,' and interpreting them as such would be inconsistent with the IMO's high degree of institutional autonomy and quasi-legislative character.[43] Nevertheless, the agreement about the importance of fairness for shipping's levels of ambition reinforces the relevance of the principled definition of shipping's fair share in Sections 2 and 3 below.

Following the IMO Assembly in 2003, the MEPC began considering whether and how to establish a baseline for shipping's GHG emissions, as well as what would be fair reductions for the sector.[44] Proposals included a methodology based on marginal costs of measures

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40 See Oberthür, *supra* n. 27, 199-200; Natalie Dobson, 'Competing Climate Change Responses: Reflections on EU Unilateral Regulation of International Transport Emissions in Light of Multilateral Developments,' (2020) 67 *Netherlands International Law Review* 183, 185 (2020).

41 Shi, *supra* n. 29, 537-538 (discussing the IMO's role as the global regulator of international shipping's GHG emissions).

42 The MEPC's institutional role is discussed in Section 2.1 *infra*.

43 DARIO, *supra* n. 31, Art 2. See Frederic L. Kirgis, Jr., 'Shipping,' in O Schacter & C Joyner (eds), *United Nations Legal Order, Volume II* (The American Society of International Law/Cambridge, 1995), 718-23 (discussing the IMO's legal character).

44 See IMO, IMO Assemb. Res. A.963(23) 'IMO Policies and Practices Related to the Reduction of

that sought to make reductions effective and fair in balancing the reduction potential and costs for the maritime industry, and thereby ensuring shipping was not 'unfairly' burdened compared to other industries.[45] South Africa stated that shipping should 'contribute fairly to reducing GHG emissions,' and India said that any IMO framework on GHG emission reductions from shipping should 'contribute fairly to the ultimate objective of the UNFCCC.'[46] The World Shipping Council, which is the primary group representing liner carriers, argued that because shipping is the most energy efficient way to transport goods, it should be encouraged, not treated more severely than other forms of transportation. It suggested that the transport sector's emissions should be considered as a whole rather evaluating shipping's in isolation.[47] The International Union for Conservation of Nature proposed a price on shipping's GHG emissions that would be linked to the carbon price set for other sectors.[48] It argued its approach would ensure that reductions from shipping were proportional to other sectors, would allow for differentiation among states, and would encourage energy efficiency improvements consistent with shipping's decarbonization potential.[49]

Although the IMO approved energy efficiency measures for shipping in 2011 and GHG data collection rules in 2016,[50] it deferred setting a reduction target for shipping for many years.[51] In 2015, the Marshall Islands urged the MEPC to do so, and stated that the target needed to be consistent with limiting global warming to 1.5 degrees.[52] In light of the

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GHG Emissions from Ships' (5 Dec., 2003); IMO, 'Report of the Working Group on Air Pollution (Part 2),' IMO Doc. MEPC 55/4 (18 Apr., 2006) 2-3; IMO, 'Report of the Marine Environment Protection Committee on its Fifty-Fifth Session,' IMO Doc. MEPC 55/23 (16 Oct., 2006).

45 IMO, 'Report of the Marine Environment Protection Committee on its Sixtieth Session,' IMO Doc. MEPC 60/22 (May 11, 2010), 42; IMO, 'A Methodology for Establishing an Emission Cap in an ETS for International Shipping,' IMO Doc. MEPC 59/4/24 (8 May, 2009), 1-2; IMO, 'Alternative Emission Caps for Shipping in 2020 and 2030,' IMO Doc. MEPC 60/4/23 (15 Jan., 2010), 2.

46 IMO, 'A Hybrid Market-based Instrument for Shipping to Contribute Fairly to Climate Change Mitigation and Adaptation,' IMO Doc. MEPC 57/4/27 (25 Feb., 2008), 3; IMO, 'Report of the Marine Environment Protection Committee on its Fifty-Seventh Session,' IMO Doc. MEPC 57/21 (29 Jul., 2008), 48.

47 IMO, 'Emission 'Caps' and Reduction Targets,' IMO Doc. MEPC 60/4/28 (21 Jan., 2010), 2. The shipping industry extensively participates in IMO negotiations, and 'are accepted as legitimate participants partly based on their historical structural importance' to world trade. Christian Hendriksen, 'Navigating Norms and Invisible Rules: Explaining the Case of Business Influence in International Shipping Regulation,' (2022) 24(1) *Business & Policy* 79, 88.

48 IMO, 'A Rebate Mechanism for a Market-based Instrument for International Shipping,' IMO Doc. MEPC 60/4/55 (15 Feb., 2010), 6.

49 Ibid.

50 IMO, MEPC Res. 203(62), (15 July, 2011); IMO, MEPC Res. 278(70), (28 Oct., 2016).

51 IMO, 'Report of the Marine Environment Protection Committee on its Sixty-Eighth Session,' IMO Doc. MEPC 68/21 (26 June, 2015), 42

52 See IMO, 'Setting a Reduction Target and Agreeing Associated Measures for International Ship-

UNFCCC Conference of Parties in Paris later that year, the MEPC agreed to postpone a reduction target and 'acknowledged the need to move forward cautiously.'[53]

After the Paris Agreement was adopted, the IMO considered several proposals on shipping's GHG emission reduction goals.[54] One industry group stated that, in light of the Paris Agreement, it supported the Marshall Islands' suggestion that the IMO establish reduction commitments for the shipping sector, but it did not suggest any methodology for arriving at a reduction target.[55] Other industry groups proposed that a quantified target should be considered within the context of 'the objectives to be achieved more broadly in the global economy,' and the need for proportionality with other transport modes.[56] At the discussion, the UNFCCC representative stated that both the shipping and aviation sectors 'have to contribute their fair share to global efforts towards the agreed temperature goal by contributing to the global peaking of greenhouse gas emissions as soon as possible, rapidly reducing them thereafter and moving towards global low-emission and climate-neutral development.'[57]

Many states argued that the Paris Agreement temperature goals should guide the sector's emission reductions. Norway urged the IMO to adopt a long-term strategy for GHG emissions from shipping that focused on various emission scenarios in the context of the Paris Agreement's temperature goals and what shipping could accomplish by mid-century.[58] Canada agreed.[59] European countries and some small island developing states (SIDS) noted that shipping should do its 'fair share' towards mitigating climate change and set forth how to identify what a fair share should be.[60] They named several approaches without endorsing any particular methodology. These included: the economic effort to reduce GHG emissions in the sector; the technical and operational GHG abatement potential; and a fair share similar in ambition to NDCs from a country or group of countries. Each approach

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ping,' IMO Doc. MEPC 68/5/1 (27 Mar., 2015), 2.

53 IMO, *supra* n. 51, 43-44.

54 IMO, 'Report of the Marine Environment Protection Committee on its Sixty-Ninth Session,' IMO Doc. MEPC 69/21 (16 June, 2016), 35-37.

55 IMO, 'Proposal to Develop an 'Intended IMO Determined Contribution' on CO2 Reduction for International Shipping,' IMO Doc. MEPC 69/7/1 (17 Feb., 2016), 1.

56 IMO, 'Establishing a Process for Considering Shipping's Appropriate Contribution to Reducing CO2 Emissions,' IMO Doc. MEPC 69/7/4 (4 Mar., 2016), 2.

57 IMO, 'Report of the Marine Environment Protection Committee on its Sixty-Ninth Session, Addendum,' IMO DOC. MEPC 69/21/Add.1. (17 May, 2016) Annex 17, 4.

58 IMO, 'Developing a Long-term Strategy to Address Greenhouse Gas Emissions from Shipping,' IMO Doc. MEPC 70/7/5 (26 Aug., 2016), 3.

59 IMO, 'Comments on Documents 70/7/3, 70/7/4, 70/7/5, and 70/7/6,' IMO Doc. MEPC 70/7/14 (8 Sept., 2016), 2-3.

60 IMO, 'International Shipping's Share in International Efforts to Limit the Rise of Global Average Temperature—Further Clarifications,' IMO Doc. MEPC 70/7/6 (26 Aug., 2016), 2.

would take into account the overall emissions reductions required to achieve the Paris Agreement's objectives.[61]

These states also argued that 'fairness' for shipping could be considered in terms of the capability of the shipping sector, by comparing shipping to other transport sectors, and by apportioning shipping a share of the carbon budget for the Agreement's temperature goals using information derived from its historical share of emissions.[62] They noted that a target for reductions did not itself impose transport costs, although the measures implementing it could. They suggested that implementing measures should avoid disproportionately impacting developing or island states.[63]

A coalition of groups representing the shipping industry agreed that shipping should contribute a 'fair share' but argued that 'great care' was needed because many UNFCCC parties' (intended) NDCs made clear that they were not able to commit to absolute carbon dioxide (CO_2) reductions because of their legitimate desire to maintain sustainable development.[64] The coalition noted that shipping was the most energy-efficient mode of transportation, and that any fair share should be realistic and not stifle maritime transport.[65] Another industry group argued that international aviation's approach of capping emissions at 2020 levels and offsetting further emissions growth should be considered for shipping.[66] Environmental groups did not articulate a fair share, but noted that the Paris Agreement's temperature goal implies a fixed carbon budget, and argued for a numerical target for reductions that emphasized early action in order to provide a 'smooth landing' for the shipping industry.[67]

The translation of the Paris Agreement goals into quantified emission reduction targets was a point of contention. Denmark and a group of other countries submitted a report stating that because shipping services both developed and developing economies, a fair or egalitarian reduction level should be a hybrid between two quantified levels of reduction.[68] The report noted that shipping could assume a follower or leader role in relation to NDCs,

61 Ibid., 3-4.

62 IMO, 'International Shipping's Share in International Efforts to Limit the Rise of Global Average Temperature – Comments on Method and Transport Cost Considerations,' IMO Doc. MEPC 70/7/13 (8 Sept., 2016), 3.

63 Ibid., 4; Paris Agreement, *supra* n. 14, Art. 4.

64 IMO MEPC 70/7/8, *supra* n. 13, at 2; IMO, 'Comments on Document 70/7/8 Development of a Road Map to Determine a Possible IMO Fair Share Contribution,' IMO Doc. MEPC 70/7/9 (13 Sept., 2016), 2; IMO, 'Development of a Road Map to Determine a Possible IMO Fair Share Contribution,' IMO Doc. MEPC 70/7/12 (8 Sept., 2016), 2.

65 IMO MEPC 70/7/8, *supra* n. 13, 4-5.

66 IMO, 'Considering the International Civil Aviation Organization's (ICAO) Approach to GHG Reduction Within the Maritime Sector,' IMO Doc. MEPC 70/7/10 (6 Sept., 2016), 2-3.

67 IMO Doc. MEPC 70/7/11, *supra* n. 13, 3.

68 IMO, 'A Scientific Study on Possible Reduction Targets and Their Associated Pathways,' IMO Doc. MEPC 71/INF.35 (8 May, 2017), 58-59.

where it either derived a fair share from existing commitments or established a longer term and more stringent ambition sooner.[69] China, India, and Argentina agreed that the IMO's objective should be to hold global temperature increases to the Paris Agreement's levels, but strongly opposed setting an overall cap on shipping's emissions, even as an aspirational goal.[70] The Marshall Islands and Solomon Islands did not propose a concrete date for peaking of emissions or a rate for reductions, but reiterated that they should be as ambitious as possible based on a fair share of overall global effort to limit warming to 1.5 degrees.[71]

Difficulties with how to assess fairness in relation to other sectors and national efforts arose. Antigua and Barbuda, other SIDS, and several European states argued that shipping needed to be consistent with the overall global effort for reductions in that the sector's emissions need to start declining soon, and fall in the second half of the century toward zero.[72] They noted several scientific proposals on how to determine shipping's ambition in connection with the global reduction pathway, including that shipping should reduce emissions proportionate to its current share, proportionate to the efforts of other sectors, proportionate to the efforts of all or a set of countries, or more or less than the above based on whether it is easier, cheaper, more costly or more difficult for the sector to achieve reductions. The latter approach presumed that any deviation by the sector would be balanced by other sectors or NDCs.[73]

A similar group of countries noted that GHG reduction measures' impacts on states could be considered in connection with those specific measures and should not impact the level of ambition that is set for the sector.[74] They proposed several strategies to mitigate any additional costs from GHG reduction measures.[75] Canada suggested that technical feasibility of decarbonization by 2050 should be considered when setting the level of ambition for reductions.[76] The shipping industry stated that the IMO should show to the wider global community that shipping is committed to reducing its GHG emissions, 'matching the spirit

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69 Ibid. at 59 (finding that 33Gt budget for 2010-2100 would be fair under these principles).

70 IMO, 'Proposal on the Development of a Comprehensive IMO Strategy on Reduction of GHG Emissions from Ships,' IMO Doc. MEPC 71/7 (21 Apr., 2017), 4-5; IMO, 'Guiding Principles for the IMO Strategy on Reduction of GHG Emissions from Ships,' IMO Doc. MEPC 71/7/6 (5 May, 2017), 2-3.

71 IMO, 'The Need for a High Level of Ambition Within the Comprehensive Strategy on Reduction of GHG Emissions from Ships,' IMO Doc. MEPC 71/7/3 (5 May, 2017), 2.

72 IMO, 'The Level of Ambition of the Comprehensive IMO Strategy on Reduction of GHG Emissions from Ships,' IMO Doc. MEPC 71/7/8 (5 May, 2017), 4.

73 Ibid., 4-5.

74 IMO, 'Impacts of GHG Reduction Measures on Transport Costs and on States,' IMO Doc. MEPC 71/7/9 (5 May, 2017), 2-3.

75 Ibid.

76 IMO, 'Proposal of Key Measures to Reduce GHG Emissions from Shipping,' IMO Doc. MEPC 71/7/10/Rev. 1 (12 May, 2017), 3.

and ambition of the Paris Agreement.'[77] They proposed that the IMO establish 'aspirational objectives' that set a baseline year for the peaking of shipping's GHG emissions, but that these objectives should be non-binding.[78]

In 2018, the IMO adopted an initial strategy for GHG reductions.[79] Several delegations from developing countries noted the 'highly sensitive issue' on the level of ambition,[80] but the Strategy and its levels of ambitions were ultimately adopted, albeit not by consensus.[81] The Strategy set two different levels of ambition for reductions. It called for reducing the carbon intensity of ships 40 percent by 2030 and the sector's GHG emissions 50 percent by 2050 against the sector's 2008 levels.[82] The first was unrelated to increases in shipping volume, in that carbon intensity can decrease even as overall emissions increase.[83] Meinhard Doelle and Aldo Chircop explain that there is no indication that the IMO's 2018 reduction targets were 'based on an objective assessment of what would be a fair contribution to the global effort, rather than on pragmatic and political considerations.'[84]

Since 2018, a consensus has developed that shipping would reduce its emissions consistent with limiting global warming to 1.5 degrees, but states and stakeholders disagree about what that means. An association representing shipowners submitted that GHGs should be reduced to net zero by 2050.[85] India noted that 85 percent of the $1.5 trillion investment required for decarbonization of shipping will involve land-based infrastructure and argued those costs should be shouldered by developed countries consistent with the CBDR-RC principle. It also cited the polluter pays principle to argue that more polluting ship types should invest more in decarbonization projects.[86] A coalition of developed countries and SIDS took the position that the Strategy needs to be revised such that 2050 is the phase

77 IMO, 'Elements for Inclusion in the IMO Strategy,' IMO Doc. MEPC 71/7/12 (18 May, 2017), 1.

78 Ibid., 3.

79 IMO 2018 Strategy, *supra* n. 3, 4.

80 IMO, 'Report of the Marine Environment Committee on its Seventy-Second Session,' IMO Doc. MEPC 72/17/Add.1 Annex 16 (28 June, 2018), 7 (statement by Philippines), 14 (statement by South Africa).

81 IMO, 'Report of the Marine Environment Committee on its Seventy-Second Session,' IMO Doc. MEPC 72/17 (30 Aug., 2018), 43; Sophia Kopela, 'Climate Change and the International Maritime Organization,' in J McDonald, et al. (eds), *Research Handbook on Climate Change, Oceans, and Coasts* (Elgar 2020), 142.

82 IMO Doc. 304(72), *supra* n. 79, 4.

83 IPCC, *Working Group III Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (Intergovernmental Panel on Climate 2022) [hereafter IPCC WG III Report], 1695 (discussing whether reduction in carbon intensity is achievable using various fuel stocks); 2444 (shipping sector will likely overachieve 2030 goal of 40 percent reduction in carbon intensity).

84 Doelle and Chircop *supra* n. 32, 273.

85 IMO, 'Revision of the IMO GHG Strategy,' IMO Doc. MEPC 78/7/2 (10 Mar., 2022), 2.

86 IMO, 'Revision of the IMO GHG Strategy,' IMO Doc. MEPC 78/7/4 (5 Apr., 2022), 4-5.

out date for GHG emissions from ships consistent with what is required to maintain a 1.5 degree warming pathway.[87] Other developing countries responded that all of the elements of the Strategy need to be updated, not only the levels of ambition for reductions, but also funding, technology transfer, capacity building and measures designed to avoid negative impacts from the IMO's climate policies.[88]

In the lead-up to adoption of a revised GHG strategy in 2023, a group of European Union member states and the European Commission cited a compilation of scientific studies to argue that limiting warming to 1.5 degrees required a 29 percent reduction in shipping's GHG emissions by 2030 and 83 percent by 2040 compared to 2008, with a 100 percent phase out of GHG emissions by 2050 at the latest.[89] Citing a different study, Canada, the United Kingdom and the United States argued that shipping's sectoral contributions to mitigating climate change fall far short of the Paris Agreement goals, and proposed that in addition to a 2050 phase out, interim targets for reduction should be set at a 37 percent reduction by 2030 and a 96 percent reduction by 2040 against 2008 levels.[90]

The rhetoric of fairness was invoked by states pushing for more climate action. A group of African countries stated that action was needed to meet the 1.5 degree goal, and that a global regulation should be 'just, fair and equitable taking into consideration, the peculiar needs of developing countries, in particular' SIDS and least developed countries (LDCs) 'that are most climate vulnerable and are further expected to be impacted by climate change.'[91] The Marshall Islands and other SIDS emphasized the importance of equity in

87 IMO, 'Comments on the Correspondence Group on Carbon Intensity Reduction,' IMO Doc. MEPC 78/7/15 (11 Apr., 2022); IMO, 'Revision of the IMO GHG Strategy on Reduction of GHG Emissions from Ships,' IMO Doc. MEPC 78/7/20 (13 Apr., 2022).

88 IMO, 'Comments on the Revision of the Initial IMO GHG Strategy,' IMO Doc. MEPC 78/7/26 (27 Apr., 2022), 203.

89 IMO, 'Specification of the Levels of Ambition in the Revised IMO Strategy on Reduction of GHG Emissions from Ships,' IMO Doc. ISGW-GHG 15/2/2 (12 May, 2023), Annex 4.

90 IMO, 'Draft Text and Considerations for the Revision of the Initial IMO Strategy,' IMO Doc. ISWG-GHG 15/2/10 (12 May2, 2023), 3-4 (citing Bonello, et al., *supra* n. 9). See also IMO, 'Commenting on Document MEPC 78/7/14 on the Revision of the Initial Imo GHG Strategy,' IMO Doc. MEPC 78/7/24 (22 Apr. 2022), 4-5 (submission by India noting costs and investments needed for shipping's decarbonization).

91 IMO, 'Considerations and Takeaways/recommendations as a Follow up to the Africa Green Shipping Conference,' IMO Doc. ISGW-GHG 15/2/3 (12 May, 2023), 1-2. SIDS and LDCs are identified by the United Nations: currently there are 39 SIDS, eight of which are LDCs. See United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries, and Small Island Developing States, *List of SIDS*, available at: https://www.un.org/ohrlls/content/list-sids (last visited 30 Jan., 2024). 37 more countries are LDCs. See United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries, and Small Island Developing States, *List of LDCs*, available at: https://www.un.org/ohrlls/content/list-ldcs (last visited 30 Jan., 2024).

the revised strategy, and stated that an 'equitable transition fundamentally requires shipping reductions that ensure a temperature increase of 'no more than 1.5°C' with a clear timeline that includes intermediate targets.'[92] As explained next, equitable principles of international environmental law are embedded within the 2023 Strategy's text and the IMO's organizational practice that can be used to assess whether the IMO's climate goals are indeed fair.

2. The Legal Principles for Shipping's Fair Share

In this section, I develop a normative structure to evaluate the fairness of the IMO's levels of ambition in three steps. First, I summarize the IMO's 2023 Strategy and discuss its status as an international legal act. I next identify the Strategy's equitable principles and explain how those are textually linked to the IMO's levels of ambition for GHG reductions. I then describe how certain of the principles set forth in the Strategy arise in the IMO's broader institutional legal framework as part of the organization's practice, and therefore carry particular normative weight. Although these principles apply to the IMO because of its resolutions and organizational practice, as shown here they also have an external meaning and operate as MSENs.[93] Their content can therefore be derived internally and externally, and they legally contextualize the IMO's actions. Consequently, the application of these principles to the IMO's levels of ambition for GHG reductions furthers the coherence of the IMO's internal law and international law generally.[94]

2.1 The 2023 Strategy as a Legal Act

Unlike other resolutions that can be adopted by the MEPC, the 2023 Strategy does not have the force of law for the IMO's member states.[95] But, in enacting it, the IMO used mandatory

92 IMO, 'Defining an 'equitable transition' and Related Terminology "just", "fair" and "inclusive" to Delegations in the Choice of Wording for Use in the Revised Strategy,' IMO Doc. ISWG-GHG 14/2/5 (3 Feb., 2023), 3.

93 See Broude and Shany, *supra* n. 33, 5 (defining MSENs).

94 Howse, *supra* n. 39, 322; Christiane Ahlborn, 'The Rules of International Organizations and the Law of International Responsibility,' (2011) 8 *International Organizations Law Review* 397, 427-428; see Phillipa Webb, *International Judicial Integration and Fragmentation* (Oxford 2013), 7-8 (coherence within international law is a desirable policy goal, especially over the long run); Richard Collins, 'Modernist-positivism and the Problem of Institutional Autonomy in International Law,' in R Collins & ND White (eds), *International Organizations and the Idea of Autonomy* (Routledge 2011), 34-35 (discussing reconciliation of institutional autonomy with international law's coherence).

95 See Kerr, *supra* n. 25, 13-14 (discussing the IMO's law making power); Aldo Chircop, 'The IMO Initial Strategy for the Reduction of GHG Emissions from International Shipping: A Commentary,' (2019) 34 *International Journal of Marine and Coastal Law* 482, 509 (arguing that the IMO's Initial GHG Strategy was a political rather than legal document).

terms, stating that the IMO 'aims to phase' out GHG emissions 'as a matter of urgency,' the IMO is 'committed' to reducing GHG emissions from shipping in order to contribute to the Paris Agreement's temperature goals, and would do so with certain measures over a specified period.[96] It therefore qualifies as an organizational 'rule,' the breach of which by the IMO would constitute an internationally wrongful act for the organization itself.[97]

The IMO's institutional structure and organizational practice support characterizing the 2023 Strategy as a legal document that carries normative weight.[98] The IMO Constitution created several plenary organs, including the IMO Assembly and the MEPC.[99] It charges the Assembly with 'performing the functions of the organization,'[100] and the IMO's website describes the Assembly as its 'highest governing body.'[101] Article 38 of the IMO Constitution mandates that the MEPC consider 'any matters within the scope of the Organization concerned with the prevention and control of marine pollution from ships.'[102]

The IMO Assembly specifically tasked the MEPC with considering the reduction of GHG emissions from shipping in 2003, 2009, 2017, and 2021.[103] The MEPC cited its mandate under Article 38 of the IMO Constitution in its resolution adopting the Strategy, and has reported its work on GHG reductions to the Assembly.[104] Thus, for decades, there has been a practice within the IMO of allocating responsibility for setting the organization's climate policy to the MEPC.[105] As Special Rapporteur Gaja found, rules of international organi-

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96 IMO 2023 Strategy, *supra* n. 5, 2, 5-6.

97 DARIO, *supra* n. 31, Art. 2, 10.

98 See generally Kerr, *supra* n. 36 (discussing legal character of IMO's 2018 GHG Strategy).

99 See IMO Convention, *supra* n. 2, Art. 12, 38.

100 Ibid., Art. 15(i).

101 See IMO, *Structure of the IMO*, https://www.imo.org/en/About/Pages/Structure.aspx (last visited 30 Jan, 2024).

102 IMO Convention, *supra* n. 99, Art. 38. *See also* International Convention for the Prevention of Pollution from Ships (adopted 11 Feb. 1973, as modified by the Protocol of 17 February 1978, entered into force 2 Oct. 1983) 1340 UNTS 61, Art. 15; 16. The registered version of the 1978 MARPOL Protocol incorporates the 1973 Convention as an annex; the Convention begins at 1340 UNTS 184.

103 IMO, 'IMO Policies and Practices Related to the Reduction of Greenhouse Gases from Ships,' IMO Doc. Assembly Res. A.963(23) (5 Dec., 2003), 2-3; IMO, 'High-Level Action Plan of the Organization and Priorities for the 2010-2011 Biennium,' IMO Doc. Assembly Res. A.1012(26) (2 Dec., 2009), Annex, 20; IMO, 'Strategic Plan for the Organization for the Six Year Period 2018-2023,' IMO Doc. Assembly Res. A.1110(30) (6 Dec., 2017), Annex, 15; IMO, 'Revised Strategic Plan for the Organization for the Six Year Period 2018 to 2023,' IMO Doc. Assembly Res. A.1149(32) (28 Jan. 2022), Annex, 3, 15.

104 IMO, 'Consideration of the Reports and Recommendations of the Marine Environment Protection Committee,' IMO Assembly Doc. A 32/14 (6 Dec. 2021), 3.

105 See Christopher Peters, 'Subsequent Practice and Established Practice,' (2011) 2(3) *Goettingen Journal of International Law* 617, 629-634 (explaining established practice and setting out test

zations, including their established practice, determine who can make a claim on their behalf.[106] And here, consistent with the IMO Constitution, the IMO Assembly allocated the organization's competence to regulate GHG emissions from ships to the MEPC. Therefore, the MEPC acted for the organization when adopting the Strategy, and that document legally binds the IMO.[107]

2.2 The Strategy's Principles

Principles and rules can be textually identified and distinguished according to their source, form, or function.[108] Section 3 of the 2023 Strategy is captioned 'Levels of Ambition, Indicative Checkpoints, and Guiding Principles,' with paragraph 3.3 articulating the levels of ambition and paragraph 3.5 identifying principles 'guiding the 2023 IMO GHG Strategy.'[109] Thus, the applicable principles are clearly labelled as such.[110] They include:

- The need to consider 'the impacts of measures on States, including developing countries, in particular LDCs and SIDS ... and their specific emerging needs, as recognized in the Revised Strategic Plan for the Organization (resolution A.1149(32));' and
- The 'need for evidence-based decision-making balanced with the precautionary approach as set out in resolution MEPC 67(37).'[111]

In my view, the other principles named in paragraph 3.5 relate to the IMO's implementation of its climate measures rather than its levels of ambition. They are the 'non-discrimination,' 'no more favourable treatment,' and 'full and complete effect to mandatory measures' principles from the maritime legal regime, and the CBDR-RC principle from the climate regime.[112] There is a decades-long and well documented scholarly and diplomatic debate about how to reconcile these seemingly opposed principles when designing maritime climate measures.[113] Because they are grounded in state conduct and obligations, these principles are

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to identify it).

106 Giorgio Gaja, *Eighth Report on Responsibility of International Organizations*, UN Doc. A/CN.4/640 (14 Mar., 2011), para.19

107 Ibid. (rules of organization, including its established practice, are relevant to determining who is competent to speak for the organization).

108 Gilles J. Martin, 'Principles and Rules,' in M Faure (ed), *Elgar Encyclopedia of Environmental Law IV* (Elgar 2018), 15-16.

109 IMO 2018 Strategy, *supra* n. 3, 5-6.

110 Martin, *supra* n. 108, 15-16 (environmental legal principles that accompany rules can be textually determined).

111 IMO 2023 Strategy, *supra* n. 5, 6. Evidence-based decisionmaking is discussed in Section 4.4, *infra*.

112 IMO 2023 Strategy, *supra* n. 5, 5-6.

113 See Handl, *supra* n. 3, 49-55 (collecting literature).

not easily analogized to the perspective taken in this article, which is viewing the IMO as an autonomous organization that is operating on the international legal plane on behalf of the shipping sector. Therefore, while certainly applicable to the measures the IMO adopts to reduce GHG emissions,[114] they are unrelated to the sector's fair share of global climate mitigation efforts.

The Strategy refers to other equitable principles relevant to shipping's fair share in addition to special consideration for SIDS and LDCs and evidence-based decision-making balanced with the precautionary approach. These can be identified based on their form, in other words, 'that they are characterized by a high level of abstraction,' and their 'symbolic, orienting' and 'strategic' function.[115] The MEPC resolution adopting the 2023 Strategy recalls several international instruments, including the 2030 Agenda for Sustainable Development and the Paris Agreement.[116] In addition, paragraph 1.10 of the Strategy states that its objective is 'aimed at enhancing IMO's contribution to global efforts by addressing GHG emissions from international shipping. International efforts … include the Paris Agreement and its goals and the 2030 Agenda for Sustainable Development' and its Sustainable Development Goal (SDG) 13, which is to take urgent action to combat climate change and its impacts.[117]

Thus, the Strategy cites values—sustainable development and SDG 13, and the Paris Agreement and its goals—to orient the IMO's Strategy towards a particular outcome: the promotion of sustainable development and the limitation of global warming consistent with the Agreement. In my view, the legal characters of those values differ in that one is a principle and the other is a goal.[118] Sustainable development is a particularly abstract and general principle that rests on 'three interdependent and complementary pillars—economic development, social development and environmental protection.'[119] The Paris Agreement seeks to limit global warming, which is a policy objective or goal of trying to protect a 'present feature from adverse change.'[120] As discussed above, that goal establishes an overall ceiling on how much carbon can be emitted that should be equitably shared based on international principles that run through the Agreement's provisions.[121] The

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114 See Baine P. Kerr, 'Binding the International Maritime Organization to the United Nations Convention on the Law of the Sea,' (2022) 19 *International Organizations Law Review* 391, 392-93 (evaluating the United Nations Convention on the Law of the Sea as a legal source of differentiation for the IMO's maritime climate measures).

115 Martin, *supra* n. 108, 16-18.

116 2023 Strategy, *supra* n. 5, 1.

117 Ibid., 5.

118 See Ronald Dworkin, *Taking Rights Seriously* (Bloomsbury 2013) (Harvard 1977), 39 (discussing difference between goals and principles.

119 Virginie Barral, 'The Principle of Sustainable Development,' in M Faure (ed), *Elgar Encyclopedia of Environmental Law IV* (Elgar 2018), 110-11, and discussion in Section 3.2 *infra*.

120 Dworkin, *supra* n. 118, 39.

121 Lavanya Rajamani & Jacob Werksman, 'The Legal Character and Operational Relevance of the

Strategy identifies which principles can be used to identify shipping's fair share of that budget: special consideration for SIDS and LDCs; the precautionary principle balanced with evidence-based decision-making; and sustainable development.

2.3 The Principles' Legal Weight and Nature

What weight do these principles carry in connection with determining shipping's fair share? As explained above, the 2023 Strategy was an IMO 'rule' that imposes an obligation on the IMO itself. These principles can illuminate the content of that obligation: as Ronald Dworkin explained, principles can 'point to particular decisions about legal obligations in particular circumstances.'[122] They give 'a reason that argues in one direction, but does not necessitate a particular decision.'[123] Thus, international shipping's levels of ambition can be normatively derived from the equitable principles outlined above, and the force of that assessment depends on the principles' relative 'weight or importance.'[124]

The principles here carry distinct weight. Sustainable development, evidence-based decision-making balanced with the precautionary approach, and special consideration for SIDS and LDCs are not only mentioned in the 2023 Strategy, they are also part of the IMO's central mandate. In its strategic plans adopted in 2017 and 2021, the IMO Assembly resolved that the SDGs are a core component of the organization's mission, stating that it is 'fully committed to achieving the SDGs.'[125] Likewise, for many years the Assembly has recognized the special needs of SIDS and LDCs.[126] In 1995, the IMO Assembly first resolved that the organization would apply the precautionary principle balanced with evidence-based decision making, and in 2011, the Assembly called for incorporating precaution into its strategic plan for the organization.[127] Thus, these three principles constitute part of the

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Paris Agreement's Temperature Goal,' (2018) 376 *Philosophical Transactions: Mathematical, Physical an Engineering Sciences* No. 2119, 8.

122 Dworkin, *supra* n. 120, 40.

123 Ibid., 42.

124 Ibid., 43.

125 See IMO A 30/Res.1110, *supra* n. 103, 4 (IMO's vision is to uphold its leadership role as the global regulator of shipping . . . while addressing the need to meet the 2030 Agenda for Sustainable Development); 5 ('IMO has an important role to play in achieving the 2030 Agenda for Sustainable Development … IMO is fully committed to achieving the 2030 Agenda and the SDGs'); IMO, 'Revised Strategic Plan for 2018 to 2023,' Doc. IMO Resolution A 32/Res. 1149 (28 Jan., 2022), 2 (noting the importance of the 2030 Agenda and SDGs).

126 See IMO, 'Application of the Strategic Plan and the High-Level Action Plan of the Organization,' IMO Doc. Assembly Resolution A29/Res. 1099 (25 Nov., 2015), 7.

127 IMO, 'Strategic Plan for the Organization (for the Six Year Period 2012 to 2017),' IMO Doc. Assembly Res. 1037(27) (22 Nov., 2011) 5 (the challenge for the IMO, in line with the global emphasis on sustainable development, is to be proactive in Identifying shipping activities and incidents that could have an adverse impact on the environment and, therefore, in developing corresponding preventive measures). See generally Bénédicte Sage-Fuller, *The Precautionary*

organization's legal mandate, as they can be shown through the IMO's 'body of practice' formed 'after a number of years' that is an 'integral part' of the organization's rules and is neither 'disputed nor uncertain.'[128]

By connecting the IMO's climate ambition to an external legal framework these principles function as MSENs. MSENs are 'two or more norms which are (1) binding upon the same international legal subjects; (2) similar or identical in their normative content; and (3) have been established through different international instruments or 'legislative' procedures or are applicable in different substantive areas of the law.'[129] The principles here apply to the IMO pursuant to its internal resolutions and organizational law, and to states through the climate treaties, their domestic law, or customary international law. With the potential exception of the precautionary approach—which is discussed in Section 3.4 below—they are similar or identical in their normative content: in incorporating them through the Strategy and its established practice, the IMO referenced the Paris Agreement, the Rio Declaration, and United Nations General Assembly Resolutions on SIDS and LDCs. And they were established through 'different international instruments' and legal procedures.[130] Consequently, because these norms exist in parallel regimes and have identical or similar wording, their content and meaning for the IMO can be derived externally.[131]

That has legal and practical implications for the assessment of the IMO's fair share. The 2023 Strategy states that it 'represents the continuation of work by IMO as the appropriate international body to address' GHG emissions from international shipping.[132] And the IMO submitted the Strategy to the Paris Agreement's First Global Stocktake, which 'enables countries and other stakeholders to see where they're collectively making progress toward meeting the goals of the Paris Agreement—and where they're not.'[133] The IMO's climate policies were enacted in the context of potential action under the UNFCCC and the European Union's unilateral actions, which threaten to displace the IMO.[134]

Accordingly, the IMO's recitation of certain principles has two external functions. First, it enhances the IMO's legitimacy as the self-described 'sole competent international organization with a global mandate to regulate all non-commercial aspects of international

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Principle in Marine Environmental Law (Routledge 2013), 219-23 (discussing the IMO and the precautionary principle).

128 International Law Commission, 'Draft articles on the law of treaties between States and international organizations or between international organizations with commentaries,' in *Yearbook of the International Law Commission* (1982), Vol. II (Part 2) (available at: https://legal.un.org/ilc/texts/instruments/english/commentaries/1_2_1982.pdf), 21.

129 Broude and Shany, *supra* n. 33, 5.

130 Ibid.

131 Pirker, *supra* n. 34, 93-94.

132 2023 Strategy, *supra* n. 5, 4.

133 See 'Global Stocktake,' United Nations Climate Change (https://unfccc.int/topics/global-stocktake) (last visited 30 Jan., 2024).

134 See Dobson, *supra* n. 40, 185.

shipping, including reduction or limitation of GHG emissions.'[135] Second, the principles place the IMO's actions within the 'global and coherent policy'[136] of collective action towards the mitigation of climate change. The principles thus align technical and seemingly ad-hoc rules, such as the IMO's levels of ambition, to a larger body of environmental law and the broad international effort addressing climate change.[137] Therefore, although they operate as part of the IMO's internal law, the principles have equivalent and parallel meanings across the climate and maritime legal regimes that can be used to assess shipping's fair share.[138]

What does that mean for the levels of ambition that are set forth in the 2023 Strategy? Gilles Martin writes about environmental legal principles that those that ''overhang' provide precious assistance in the interpretation and application of a rule.'[139] The 'rule' established by the IMO is unclear because it mixes quantitative and qualitative elements. The levels of ambition are that carbon intensity will decline by 40percent by 2030 compared to 2008 levels, and emissions will reach net-zero 'by or around, i.e, close to 2050.' The indicative checkpoints to reach net-zero emissions are that shipping's GHG reductions will be reduced by at least 20 percent, striving for 30 percent, by 2030, and will be reduced by 70 percent, striving for 80 percent, by 2040.[140] But the Strategy also states that emissions will be phased out 'consistent with the long-term temperature goal set out in Article 2 of the Paris Agreement.'[141]

The Paris Agreement's long term temperature goal requires a collective effort across states and sectors that is rooted in fairness and equity. As shown in Section 1 above, the IMO's member states fundamentally agree on that premise and frame their discussion in those terms. The principles included in the Strategy can serve as interpretive guideposts in assessing whether the IMO's numeric reduction objectives represent a fair share of the international shipping sector's contribution towards the Paris Agreement's goals.[142] Their application also brings coherence and meaning to the fairness discourse within the IMO.[143]

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135 IMO, 'Position Paper to UNFCCC Ad-Hoc Working Group,' IMO Doc. AWG-LCA 8) (17-18 Dec., 2009), 6.

136 Martin, *supra* n. 108, 20 (discussing principles' legitimizing role).

137 Ibid.

138 Broude and Shany, *supra* n. 33, 9 ('In every set of MSENs, there is a core of equivalence, but also a measure of difference. . . MSENs are norms which on their face are presumed to be mutually reinforcing, even though at some level of analysis and with certain factual patterns there might emerge an inconsistency between them.')

139 Martin, *supra* n. 108, 21.

140 2023 Strategy, *supra* n. 5, 6.

141 Ibid., 6.

142 Martin, *supra* n. 108, 21-22 (discussing judicial reference to principles to justify and explain interpretation of rules).

143 See Amaya, *supra* n. 37, 420-21 ('a discourse is coherent if it "makes sense as a whole"').

Article 2 of the Paris Agreement itself is unclear in that it refers to both 1.5 and 2 degrees warming.[144] In 2018, the Intergovernmental Panel on Climate Change (IPCC) found that warming of 2 degrees presents a significantly higher risk of a wide range of harms to biodiversity, ecosystems, and human health and security than 1.5 degree warming.[145] Because the Paris Agreement signatories recognized 'the need for an effective and progressive response to the urgent threat of climate change on the basis of the best available scientific knowledge,' IPCC reports are viewed as having particular importance in understanding the Agreement's temperature goals.[146]

In addition, in 2021, the UNFCCC member states adopted the Glasgow Climate Pact, which found 'that climate impacts will be much lower at 1.5 degrees compared with 2 degrees' and resolved 'to pursue efforts to limit the temperature increase to 1.5 degrees.'[147] The IMO has acknowledged the recent IPCC reports and the Glasgow Climate Pact, and recognized 'the urgency for all sectors to accelerate their efforts to reduce GHG emissions'.[148] In light of the IPCC's finding, the Glasgow Climate Pact, and the IMO's recognition of those developments, international shipping's fair share should be tied to 1.5 degrees rather than 2 degrees. As explained next, the 1.5 degree goal itself and the equitable principles identified above show what that share should be.

3. Shipping's Principled Fair Share

Doelle and Chircop point out that determining shipping's fair share involves deciding whether shipping will achieve the average global effort required by the Paris Agreement's goal, more rapid reductions, or 'whether there are reasons to allow the sector more time to reduce emissions.'[149] This section answers those questions by first considering what levels of reductions would be consistent with limiting global warming to 1.5 degrees, and then by applying the equitable principles identified above.

3.1. The Paris Agreement's 1.5 Degree Goal

The 2023 Strategy specifically tied the Paris Agreement's temperature goals to shipping's levels of ambition, and as discussed in Section 1, there is broad agreement among IMO

144 Paris Agreement, *supra* n. 14, Art. 2.

145 IPCC, *IPCC Special Report: Global Warming of 1.5 Degrees C* (Cambridge, 2018), Summary for Policy Makers, section B.

146 Paris Agreement, *supra* n. 14, preamble; *see* Erland Hermansen, et al., 'Post-Paris Policy Relevance: Lessons From the IPCC SR15 Process,' (2021) 169 *Climatic Change*, Article 7, 1.

147 UNFCCC, 'Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on its third session, held in Glasgow from 31 October to 13 November 2021,' UN Doc. FCCC/PA/CMA/2021/10/Add.1 (8 Mar., 2022), Decision 1/CP.26, para. 21.

148 IMO, 'Report of the Marine Environment Protection Committee on its Seventy-Eighth Session,' IMO Doc. MEPC 78/17 (24 June, 2022), 33, 40.

149 Doelle and Chircop, *supra* n. 32, 268.

member states and observers that the 1.5 degree goal should guide the IMO's actions. Doelle and Chircop argue that fairness for the sector 'ought to be determined in alignment with the average global effort required by' the Paris Agreement.[150] In other words, because shipping serves states at all levels of development, the sector's reductions should be equal to the average emission reductions required world-wide that would limit warming to 1.5 degrees by mid-century.[151] According to Simon Bullock et al., for shipping to do so, the sector needs to reduce emissions by 34% percent by 2030 and to have zero emissions by 2040 to have a 50 percent probability of meeting the 1.5 degree goal.[152] Other studies reached similar conclusions.[153] Thus, the 2023 levels of ambition do not comply with the 1.5-degree goal, assuming that shipping only needs to achieve the average global effort rather than do more than certain states or sectors.

3.2. Sustainable Development

The sustainable development principle indicates that the current levels of ambition do not represent shipping's fair share, and that even a reduction pathway based on the average global effort would not be equitable. The 2030 Sustainable Development Agenda calls for intergenerational and intragenerational equity, in particular related to climate change, and SDG 13 calls for 'taking urgent action to fight climate change and its impacts.'[154] Thus while sustainable development includes economic elements, its aspects relating to climate change implicate the need to protect the environment now for the benefit of future generations,[155] thereby integrating demands for intergenerational equity.[156] Consistent with that, in *Neubauer v. Germany*, the German Constitutional Court found that in the climate context, intergenerational equity stands for the proposition that 'one generation must not be allowed to consume large portions of the CO_2 budget while bearing a relatively minor share of the reduction effort, if this would involve leaving subsequent generations with a drastic reduction burden and expose their lives to serious losses of freedom.'[157] While a German court decision is not directly applicable to the IMO, it shows how the principle of intergenerational equity can be viewed as an MSEN with a cumulative meaning: it cuts

150 Ibid.

151 Ibid.

152 Bullock et al., *supra* n. 9, 302.

153 See sources cited at n. 9, *supra*.

154 UN Gen. Ass., Transforming Our World: the 2030 Agenda for Sustainable Development, UN Doc A/Res/70/1 (21 Oct., 2015) [hereinafter SDGs], 2, 23.

155 Rajamani et al., *supra* n. 15, at 989 (citing International Law Association, *Legal Principles on Climate Change and Climate Liability Under Public International Law* (2014), Draft Article 3, 10, para. 4).

156 Barral, *supra* n. 119, 110-111.

157 Bundesverfassungsgericht [BvR] [Federal Constitutional Court] Mar. 24, 2021, 2656 Entschiedungen des Bundesverfassungsgerichts [BVerfGE], 1, 192 (2021) (English translation).

across different legal regimes; arises from different legal instruments; and has a flexible and contextually diverse application.[158]

What levels of ambition for shipping would be consistent with sustainable development, and in particular its call for intergenerational equity and urgent action to fight climate change? As discussed above, the IMO's current levels of ambition set an interim goal of a 40 percent reduction in carbon intensity by 2030, an uptake of at least 5 percent of zero or near-zero GHG emission technologies, 'fuels and/or energy sources,' by 2030, peaking GHG emissions 'as soon as possible' and net zero GHG emissions 'by or around, i.e., close to' 2050.[159] They also include 'indicative checkpoints' to reach net-zero emissions: total emissions are to be reduced by at least 20 percent, striving for 30 percent by 2030 compared to 2008 levels; and at least 70 percent, striving for 80 percent by 2040.[160]

The IMO's goal was adopted in the context of studies showing that frontloading GHG reduction requirements would avoid stranded assets because most commercial vessels have a 25-year life-span.[161] By delaying GHG reductions that could happen now and consuming an increasing portion of the carbon budget, the IMO is locking emissions in and leaving future generations with a greater reduction burden both within and beyond the shipping sector than they would otherwise bear.[162] Thus, the principle of intergenerational equity suggests that a fair share for shipping would include urgent and immediate reductions in emissions.

Sustainable development also implicates intragenerational equity, as the preamble of the SDGs and nearly all the individual goals emphasize the need for equity within the present generation.[163] Reductions equal to the average global effort would be inconsistent with intragenerational equity because shipping could reduce emissions sooner and more cheaply compared with other sectors. One study shows that shipping could feasibly decarbonize by 2035,[164] and compared with aviation, there are more options to implement low and ze-

158 Broude and Shany, *supra* n. 33, 13-14 (discussing International Court of Justice's 'cumulative' approach to cross-cutting norms).

159 2023 IMO Strategy, *supra* n. 5, 6.

160 Ibid.

161 Simon Bullock et al., 'Shipping and the Paris Climate Agreement: a Focus on Committed Emissions,' (2020) 2 *BMC Energy* art. 5, 12, 14.

162 Ibid.

163 See SDGs, *supra* n. 154.

164 OECD, *Decarbonising Maritime Transport: Pathways to Zero Carbon Shipping by 2035* (2018), 51.

ro-carbon technologies in the 2020s and 2030s.[165] Viable technologies could lead to deep decarbonization of shipping if regulations incentivize private investment.[166]

Thus, the IMO is positioned to enact deep reductions to shipping's emissions in a way that would be impossible for aviation, which like shipping serves developed and developing states, and the land use and agriculture sectors, which simultaneously face increased disruption from climate impacts and increased demand for food and bioenergy.[167] The principle of intragenerational equity thus calls for the IMO not only to adopt levels of ambition that are consistent with the 1.5 degree temperature goal as discussed above, but also to adopt an emissions reduction pathway that reflects its unique technological capacity to reduce emissions.

Arguably it would conflict with intragenerational equity—from a North-South perspective—to require emission reductions from shipping greater than the global average.[168] Some scholars have argued the sector should be allowed more time to reduce emissions because of its importance to world trade and developing economies,[169] and some developing countries have opposed increasing the IMO's levels of ambition for reductions.[170] Yet studies show that although shipping benefits both developing and developed countries, 'global trade is significantly driven by wealthier countries,'[171] and more than 70 percent of the world's merchant fleet is owned by companies in developed countries.[172] Therefore—

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165 Maria Sharmina, et al., 'Decarbonising the Critical Sectors of Aviation, Shipping, Road Freight and Industry to Limit Warming to 1.5–2°C,' (2021) 21(4) *Climate Policy* 455, 462; Bullock et al. *supra* n. 161 at 12; Jonathan Köhler, et al., 'Transitions for Ship Propulsion to 2050: the AHOY Combined Qualitative and Quantitative Scenarios,' (2022) 140 *Marine Policy* 105049, 6 (rapid reductions of shipping's GHG emissions possible; aviation has 'fewer realistic technical alternatives than shipping'); Jasper Faber, *Shipping GHG Emissions 2030: Analysis of the Maximum Abatement Potential* (CE Delft June 2023), available at: https://cedelft.eu/wp-content/uploads/sites/2/2023/06/CE_Delft_230208_Shipping_GHG_emissions_2030_Def.pdf (discussing technical feasibility of shipping's decarbonization).

166 IPCC WGIII, *supra* n. 83,1744, 1764.

167 See Beatriz Martinez Romera & Harro van Asselt, 'The International Regulation of Aviation Emissions: Putting Differential Treatment into Practice,' (2015) 27 *Journal of Environmental Law* 259, 262 (discussing debate over the common but differentiated responsibilities principle within the International Civil Aviation Organization); IPCC, *Climate Change and Land: an IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems* (2019), Summary for Policymakers, 21.

168 Intragenerational equity is concerned with the implications of climate policy in a North-South context. See Rajamani et al., *supra* n. 15, 990.

169 See Bullock, *supra* n. 9, 303 (citing literature).

170 See discussion at Section 1 *supra*.

171 Bullock, *supra* n. 9, 303.

172 This figure includes ships owned by companies in South Korea, Hong Kong, and Taiwan. United

assuming measures do not unfairly burden developing states—sustainable development and its component principles of intergenerational and intragenerational equity indicate that a fair share for shipping would include urgent and immediate reductions beyond those required by the IMO's 2023 Strategy. That conclusion is consistent with arguments by European states and SIDS that fairness for shipping should be defined in relation to its technological capability and in comparison with other sectors.[173]

3.3 Special Circumstances for Small Island Developing States and Least Developed Countries

This principle 'requires that the special circumstances and specific needs of developing states, especially those that are least developed, and particularly vulnerable, be given priority.'[174] The IMO Assembly has repeatedly resolved, including in the strategic plan adopted for 2018-2023, that the 'IMO will ensure that the views of all stakeholders are taken into account in its decision-making processes and continue to pay particular attention to the needs of developing countries, especially small island developing States (SIDS) and least developed countries (LDCs).'[175] Those decision-making processes include ensuring a balance for 'international shipping between the need for economic development, facilitation of international trade, safety, security and environmental protection.'[176]

In discussions about shipping's climate impacts, there has been little disagreement among SIDS and LDCs about whether the IMO should adopt an ambitious cap for GHGs from shipping and act quickly to reduce emissions. Eight of the SIDS that have publicly taken a position—Antigua and Barbuda, Fiji, Kiribati, the Marshall Islands, the Solomon Islands, Tonga, Tuvalu, and Vanuatu—have called for the highest possible level of ambition, and for shipping's decarbonization by mid-century.[177] Among LDCs, three of which are also SIDS, Kiribati, the Solomon Islands, and Tuvalu support a high level of ambition for reductions.[178] Angola has opposed a GHG emissions cap for shipping.[179] As IMO member states have noted, SIDS and LDCs, may not have necessary resources to travel to and participate in MEPC meetings, which could account for the lack of public comment on this and other issues by some SIDS and LDCs.[180]

Nations Conference on Trade and Development, *Review of Maritime Transport* (2015), 36.

173 See MEPC 70/7/6, *supra* n. 60 at 3-4; MEPC 71/7/10/Rev. 1, *supra* n. 76, 3; Section 1 *supra*.

174 Rajamani et al., *supra* n. 15, 989.

175 IMO Doc. A30/Res.1110, *supra*, n. 103, 4.

176 Ibid.

177 IMO, *supra* n. 80, Annex 16, 2-4, 11-12, 32, 40; ; IMO, 'Report of the Marine Environment Protection Committee on its Seventy-Ninth Session,' IMO Doc. MEPC 79/5/Add.1 (9 Feb., 2023), annex 16, 33-34..

178 IMO, *supra* n. 80, 2-4.

179 IMO, 'Proposal on How to Progress on the Contribution of International Shipping to GHG Emissions Reductions Efforts,' IMO Doc. MEPC 70/7/4 (25 Aug., 2016), 2.

180 IMO, 'Report of the Marine Environment Protection Committee on its Seventy Fourth Session,'

The SIDS and LDCs that support a high level of ambition argue that although they face the highest per capita maritime transport costs in the world, they are the most vulnerable in terms of the effect and timing of climate change. For atoll and low-lying SIDS those effects are potentially existential.[181] Those states argue that climate effects 'outweigh the risks of hesitation. All sectors and all actors must bear their share if the effects of some are not to be disproportionate on others.'[182]

There was disagreement among SIDS and LDCs about whether the IMO met that standard with its 2023 levels of ambition. Fiji stated that the Strategy 'has fallen short of the 1.5 degree target,' but nevertheless 'sets the pathway to achieving decarbonization by 2050.'[183] Kiribati, Tuvalu and Vanuatu likewise expressed disappointment with the outcome.[184] Jamaica noted the importance of the indicative checkpoints, and a further revision of the Strategy planned for 2028, where it anticipates that the targets will change.[185] The Marshall Islands similarly stated that more work needed to be done.[186] The Cook Islands and Palau made positive remarks.[187] Among LDCs, the only states that commented were Bangladesh, which welcomed the adoption of the Strategy and said that it takes into account the concerns of SIDS, LDCs, and climate-vulnerable countries, and Madagascar, which stated that the IMO did not fail in its mission but that much remains to be done, in particular in this decade.[188]

The principle of special consideration for SIDS and LDCs indicates that the IMO should weigh those states' needs heavily. Yet as discussed above, the IMO's 2023 levels of ambition for reductions are inconsistent with limiting global warming to 1.5 degrees, and will exacerbate rather than address climate risks for SIDS and LDCs.[189] Therefore, like the sustainable development principle, special consideration for SIDS and LDCs suggests that a fair share for shipping would reflect the highest possible levels of ambition for GHG reductions.

IMO Doc. MEPC 74/18 (9 June, 2019), 53.

181 MEPC 71/7/3, *supra* n. 71, 2.

182 Ibid.

183 IMO, 'Report of the Environmental Protection Committee on its Eightieth Session,' IMO Doc. MEPC 80/17/Add.1 (25 Aug., 2023), Annex 30, 57-58.

184 Ibid., 62, 69, 72-73.

185 Ibid., 62.

186 Ibid., 63-64.

187 Ibid., 65-66.

188 Ibid., 52, 63.

189 UNEP & UNEP Copenhagen Climate Center (UNEP-CCC), *Emissions Gap Report 2020* (2020), xiii (international shipping and aviation together will consume between 60 and 220 percent of the allowable carbon budget by 2050 to meet the 1.5 degree temperature threshold).

3.4 Evidence-Based Decisionmaking Balanced With the Precautionary Principle

In 1981, the IMO Assembly resolved that the organization should only entertain proposals for new measures 'on the basis of clear and well documented demonstration of compelling need . . . and having regard to the costs . . . and the burden on the legislative and administrative resources of Member States.'[190] This became known as the evidence-based decision making principle, and as Chircop and other scholars have stated, in the maritime context it means that pollution-control technologies should be available and their need proven before regulations are put into place.[191]

After the Rio Declaration was adopted, the IMO Assembly resolved that the precautionary approach—as articulated in Principle 15 of the Rio Declaration—should guide 'anticipation and prevention of environmental problems arising from any regulatory activities of IMO and striving for continual improvement in all facets of those activities.'[192] Principle 15 states that 'where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.'[193] But the IMO Assembly also resolved that 'the precautionary approach should not be considered in isolation of other IMO practices, procedures, and resolutions, including resolutions A.500 and A.777' which articulate evidence-based decision making.[194]

As Aldo Chircop and Desai Shan state, the effective fulfilment of the IMO's climate goals will require reconciling these two principles in order to 'shift from the IMO's history of predominantly reactive regulation, to greater proactive regulation that sets the long-term path to decarbonisation.'[195] In other words, the organization will need to proactively regulate in a way that encourages the adoption of low and zero carbon shipping technology quickly and across the sector. Thus far, the IMO has implemented the principle through a 'three step approach' to its energy efficiency and GHG emission reporting measures that consists of data collection, a pilot phase, and full implementation.[196]

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190 Inter-governmental Maritime Consultative Organization, 'Objectives of the Organization in the 1980s,' IMCO Doc. Assem. Res. A XII/500 (20 Nov., 1981).

191 Aldo Chircop and Desai Shan, 'Governance of International Shipping in the Era of Decarbonisation: New Challenges for the IMO?' in P Mukherjee et al. (eds), *Maritime Law in Motion*, (Springer, 2020), 109.

192 IMO, 'Guidelines on Incorporation of the Precautionary Approach in the Context of Specific IMO Activities,' IMO Doc. MEPC 37/22/Add.1 (15 Sept., 1995), Annex 10, 1, 3.

193 UN General Assembly, 'Report of the United Nations Conference on the Environment and Development,' UN Doc. UNGA A/CONF.151/26 (Vol. I) (12 Aug., 1992), 3.

194 Ibid.

195 Chircop and Shan, *supra* n. 191,109.

196 Kjersti Aalbu and Tore Longva, 'From Progress to Delay: The Quest for Data in the Negotiations on Greenhouse Gases in the International Maritime Organization,' (2022) 22 *Global Environmental Politics* 136, 137; Kopela, *supra* n. 81, 140-141.

In my view, the three step approach is inapplicable to shipping's levels of ambition for reductions and whether they represent a fair share, as opposed to the discrete measures that the IMO adopts to operationalize its goals. As stated above, it is unclear how quickly shipping could decarbonize, with the Organization for Economic Co-operation and Development estimating that 2035 would be feasible, and other studies showing that there are significant market barriers that would make such a target difficult to achieve.[197] Certain delegations to the IMO opposed setting a reduction target because of uncertainties about low-and-zero-carbon shipping technologies and their supply chains, and argued that the IMO's levels of ambition should be informed by scientific assessments on the availability of alternative fuels and technologies.[198]

But, in light of expected increases in demand for global shipping and the limited carbon budget, there is a 'demonstrated need' for GHG reductions from shipping, and the necessary technology is known, even if not widely available.[199] In addition, emission reductions need to be front-loaded in order to preserve the option 'to further tighten remaining carbon budgets in light of new scientific findings,' and sooner and faster climate mitigation action is a more cost-effective way of achieving the Paris Agreement's temperature goals.[200] Therefore, a high level of ambition for shipping's reductions is consistent with evidence-based decision making.

Moreover, as mentioned above, when compared to reductions from other sectors, shipping reductions are a low-cost option for mitigating climate change.[201] Any lack of certainty about the feasibility of pollution-control measures should not be a basis for postponing reductions. That is especially so because the climate crisis requires policy responses that are larger in scope and effect than other types of pollution control.[202] Accordingly, evidence-based decision making balanced with the precautionary approach indicates that shipping's levels of ambition for reductions should reflect what might be technologically achievable in the future rather than what is achievable now.

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197 *Cf.* OECD, *supra* n. 164 *with* Michael Traut, et al., 'CO2 Abatement Goals for International Shipping,' (2018) 18(8) *Climate Policy* 1066, 1073.

198 See Section 1 *supra*; Aalbu & Longva, *supra* n. 196, 148; Kopela, *supra* n. 81, 143.

199 Traut et al., *supra* n. 197, 1069-1070 (discussing expected rise in demand for shipping as driver in increasing emissions); MEPC 78/7/4, *supra* n. 86, 4-5 (85 percent of cost of decarbonizing will involve land-based renewable energy infrastructure).

200 Sam Fankhauser, et al., 'The Meaning of Net Zero and How to Get it Right,' (2022) 12 *Nature Climate Change* 15, 17.

201 See sources cited at notes 165-167, *supra*. See also MEPC 78/7/4, *supra* n. 86, 4 (cost of decarbonizing shipping $1.5 trillion); '€860 billion needed to finance German climate goals,' https://www.euractiv.com/section/energy-environment/news/e860-billion-needed-to-finance-german-climate-goals/, last visited 7 Nov. 2023.

202 See generally William Boyd, 'The Poverty of Theory: Public Problems, Instrument Choice, and the Climate Emergency,' (2021) 46 *Columbia Journal Environmental Law* 399.

Conclusion

Under the IMO's current policies, international shipping will consume an increasing share of the carbon budget that remains to prevent global warming above 1.5 degrees even though the sector has a unique technological ability to reduce emissions compared with international aviation and other sectors such as land use and agriculture. Within the IMO, states, industry groups, and non-governmental organizations appeal to notions of fairness and a fair share for shipping to support their position. The IMO specifically cited equitable principles of international environmental law in its climate resolutions, and those principles are integrated into its overall regulatory mandate. Because these norms apply to the IMO in parallel to states and other legal subjects, their content and meaning can be derived from the climate regime and international environmental law generally.

These principles signal that the IMO is not contributing its fair share toward addressing the climate crisis. Compatibility with the Paris Agreement's temperature goal requires a level of ambition for reductions that is at least equal to the average global effort required to limit warming to 1.5 degrees. Sustainable development and its component equitable principles, as well as special consideration for SIDS and LDCs point to a more stringent reduction pathway that reflects the highest possible ambition for the sector. The precautionary approach balanced with evidence-based decisionmaking implies that the IMO should set its levels of ambition based on what might be technologically achievable in the future rather than what is presently available. These principles taken together mean that a fair share for shipping would be its highest possible ambition in light of the sector's unique capacity to mitigate.

That capacity is dynamic and difficult to define. The IMO resolved that it would revisit its levels of ambition for reductions every five years, but there is no legal reason why it cannot do so more flexibly and iteratively. Periodic re-assessments of states' emission-reduction commitments is contemplated by the Paris Agreement, which provides that a party to it 'may at any time adjust its existing nationally determined contribution with a view to enhancing its level of ambition.'[203] And reassessments of shipping's technological capacity may be required if the Paris Agreement's temperature goals are to be met—achieving net zero emissions requires ambitious long term targets that are made credible with near term action and flexible intermediate goals.[204]

Therefore, the IMO's levels of ambition will need to be frequently revisited in order for them to be consistent with the principles discussed here. As the IMO moves forward, the application of equitable principles to its levels of ambition for GHG reductions will help ensure that shipping's share of the mitigation burden is truly fair, integrate the sector into the climate regime, and further the coherence of international law.

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203 Paris Agreement, *supra* n. 14, Art. 4(11).

204 Fankhauser et al., *supra* n. 200, 17.

Chapter 5

All Necessary Measures: Climate Law for International Shipping

Baine P. Kerr, 'All Necessary Measures: Climate Law for International Shipping,' (2024) 64(3) *Virginia Journal of International Law* 523

Abstract

International shipping is one of the largest sources of climate pollution. The conventional view is that, despite some ambiguities in the climate treaties, international law only requires states to implement global rules adopted by the International Maritime Organization. This overlooks the important and timely question of whether other sources of law oblige states to do more. This article argues that customary environmental principles, human rights law, and the UN Convention on the Law of the Sea mandate that states take all necessary measures to prevent and reduce shipping's climate risks. The measures that are necessary are dynamic and differential, and they include support for ambitious and effective global rules and unilateral actions. Because shipping is a well-quantified sector, emissions data is readily available and there are various options for legal accountability.

Introduction

What law governs the world's eighth-largest greenhouse gas (GHG) emitter? International shipping—a vast industry and the backbone of world trade—emits approximately 700 million metric tons of carbon annually; if it were a country, shipping's emissions would be about the same as Germany's.[1] The sector is regulated on a global level by the International Maritime Organization (IMO), a specialized agency of the United Nations headquartered in London.[2] In July 2023 the IMO's member states agreed 'to peak GHG emissions from international shipping as soon as possible and to reach net-zero GHG emissions by or around, i.e. close to, 2050. . .'[3] But the measures currently in place are inadequate to meet that goal, with emissions projected to either remain relatively constant or even rise between now and the middle of the century.[4] Emissions at that level are incompatible with limiting global warming to 1.5 degrees above pre-industrial levels,[5] which the Paris Agreement calls for and scientists view as necessary to avoid catastrophic climate change.[6] Last year,

1 UN Conf. Trade & Devl., *Review of Maritime Transport 2022*, xv, 33, 107, U.N. Doc. UNCTAD/RMT/2022 and Corr.1, (2022) [hereinafter UNCTAD]; Eur. Comm., *JRC Science for Policy Report: CO2 Emissions of all World Countries*, EUR 311812, 4, 33, 110 (2022).

2 Int'l Maritime Org. [hereinafter IMO], IMO Assem. Res. A.908(22), Agreement With the Host State Regarding Extension of Privileges and Immunities to Permanent Representatives and Divisional Directors, (Jan. 25. 2002) (amending and approving headquarters agreement); Convention on the Intergovernmental Maritime Consultative Organization, art 1, 2, 38, 6 Mar., 1948, 9 U.S.T. 621, 289 U.N.T.S. 3, as amended. A consolidated version is contained in IMO, *Basic Documents, Volume I* (IMO, 2010 ed.), 8–32 [hereinafter IMO Convention].

3 IMO, Resolution MEPC.377(80), IMO Doc. MEPC 80/WP.12, Annex 1 (7 Jul., 2023) [hereinafter IMO 2023 Strategy], 5-6.

4 IMO, Fourth Greenhouse Gas Study 2020, 26, Figure 26 (2021), https://www.imo.org/en/OurWork/Environment/Pages/Fourth-IMO-Greenhouse-Gas-Study-2020.aspx

5 Simon Bullock et al., 'The Urgent Case for Stronger Climate Targets for International Shipping,' (2022) 22(3) *Climate Policy* 301, 301 (stating that Paris-compliant targets for international shipping 'require a 34% reduction in emissions by 2030, with zero emissions before 2050'); Jean-Marc Bonello et al., *Science Based Target Setting for the Maritime Sector Version* 11, 9 (2023), https://sciencebasedtargets.org/resources/files/SBTi-Maritime-Guidance.pdf ('For maritime transport emissions, a long-term science-based target means reducing emissions to a 96% residual level in line with 1.5°C scenarios by no later than 2040'); UNEP & UNEP Copenhagen Climate Center (UNEP-CCC), *Emissions Gap Report 2020*, xiii (2020), https://www.unep.org/emissions-gap-report-2020 (explaining that shipping and aviation together will consume between 60-220% of the carbon budget for the goal of 1.5 degrees by 2050). When referring to temperature, this article uses Celsius rather than Fahrenheit.

6 U.N. Framework Convention on Climate Change Conference of the Parties, Twenty-First Session, Adoption of the Paris Agreement, Art. 2, U.N. Doc. FCCC/CP/2015/10/Add.1 (29 Jan., 2016) [hereinafter Paris Agreement]; IPCC, *Special Report: Global Warming of 1.5°C*, 4-6 (2018), https://

the European Union enacted climate regulations for international shipping that are more stringent than the IMO's, stating that progress at the IMO 'has so far not been sufficient to achieve the objectives of the Paris Agreement.'[7]

This article identifies states' international legal obligations to mitigate shipping's climate emissions and describes the ways in which compliance with those obligations may be assessed.[8] It analyzes the IMO's institutional structure and relationship with its members, as well as the international law that applies to the regulation of climate pollution from ships. Historically, the scholarly attention on this subject has focused on obligations—or the lack thereof—that might arise from international climate treaties.[9] The conventional view is that, despite some ambiguities in the climate treaties, states are solely required to implement the IMO's rules.[10]

That view is incomplete. There is an ongoing debate about whether climate treaties are the exclusive source of international obligations regarding climate change.[11] Other sources of law that could apply are customary international law (informed by principles

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www.ipcc.ch/sr15/.

7 Directive (EU) 2023/959 of the European Parliament and of the Council of 10 May 2023 Amending Directive 2003/87/EC Establishing a System for Greenhouse Gas Emission Allowance Trading Within the Union and Decision (EU) 2015/1814 Concerning the Establishment and Operation of a Market Stability Reserve for the Union Greenhouse Gas Emission Trading System, 2023 J.L. (L 130/134), ¶ 19 [hereinafter EU Maritime ETS Measure]. The EU also recently enacted a maritime fuel measure to reduce GHG emissions. See Regulation 2023/1805 of the European Parliament and of the Council of 13 September 2023 on the Use of Renewable and Low Carbon Fuels in Maritime Transport, and Amending Directive 2009/16/EC, 2023 O.J. (L 234/48) [hereinafter EU Maritime Fuel Measure].

8 For reasons of space, this article does not address the important question of whether ship owners, operators, or other components of the shipping industry could be independently liable for climate emissions. Nor does it address the IMO's climate obligations, which have been explored in other scholarship. See, e.g., Baine P. Kerr, 'Bridging the Climate and Maritime Legal Regimes: The IMO's 2018 Climate Strategy as an Erga Omnes Obligation,' (2021) 11 *Climate Law* 119; Baine P. Kerr, 'Binding the International Maritime Organization to the United Nations Convention on the Law of the Sea,' (2022) 19 *International Organizations Law Review* 391.

9 Section 2.1 *infra*; Beatriz Martinez Romera, 'The Paris Agreement and the Regulation of International Bunker Fuels,' (2016) (2)25 *RECIEL* 215 (noting that bunker fuels and shipping's climate impacts were deliberately omitted from the Paris Agreement, although some mitigation obligation might apply based on UNFCCC Art. 4.1).

10 See, e.g., Yubing Shi, *Climate Change and International Shipping* (Brill 2017), 424 (describing how under the harm prevention principle, flag states must implement pollution control rules taking into account IMO standards).

11 Compare Alexander Zahar, 'The Contested Core of Climate Law,' (2018) 8 *Climate Law* 244 with Benoit Mayer, 'Interpreting States' General Obligations on Climate Change Mitigation: a Methodological Review,' (2019) 28 RECIEL 107.

such as harm prevention and the precautionary approach), human rights treaties, and the UN Convention on the Law of the Sea (LOSC, sometimes styled UNCLOS).[12] At least three international courts—the International Court of Justice, the Inter-American Court of Human Rights, and the International Tribunal for the Law of the Sea—are examining this question in advisory proceedings.[13] I do not definitively determine whether and how customary principles, human rights law, or the LOSC apply to climate change. But to the extent that they do, a state's obligations to mitigate climate change should encompass all activities within its territory and under its jurisdiction and control—including ships that fly its flag, the voluntary entry of ships into its ports, its regulation of shipping companies, and the positions its representatives take at the IMO.[14]

I argue that states have a due diligence obligation to reduce GHG emissions from shipping beyond the obligations imposed by climate treaties and IMO rules.[15] Customary international law principles require that states take all necessary measures to prevent transboundary harm and exercise precaution when making decisions that pose a risk of harm to the environment.[16] Shipping's climate impacts cross these thresholds.[17] There is not yet sufficient state practice to demonstrate a binding customary obligation on states to mitigate these effects, but there is an emerging customary norm, and that has several important legal

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12 See sources at *infra* notes 16, 20, 21, 22, 23, and 27.

13 UN General Assem., Request for an Advisory Opinion of the International Court of Justice on the Obligations of States in Respect of Climate Change,' Res. A/77/L.58 (29 Mar., 2023); Order on Request for Advisory Opinion Submitted by the Commission of Small Island States on Climate Change and International Law, Case No. 31, Order 2023/4 of June 30, 2023, https://www.itlos.org/en/main/resources/media-room/calendar-of-events/#ar542; Request for an Advisory Opinion on the Climate Emergency and Human Rights Submitted to the Inter-American Court of Human Rights by the Republic of Colombia and the Republic of Chile, (9 Jan, 2023), https://www.corteidh.or.cr/solicitud_opiniones_consultivas.cfm?lang=en

14 See Federica Violi, 'The Function of the Triad 'Territory,' 'Jurisdiction,' and 'Control' in Due Diligence Obligations,' in H Krieger, et al. (eds), *Due Diligence in the International Legal Order* (Oxford 2021), 75; Ana Sofia Barros & Cedric Ryngaert, 'The Position of Member States in (Autonomous) Institutional Decision-Making,' (2014) 11 *International Organizations Law Review* 53, 55; Section 3 *infra*.

15 I use the term due diligence to describe a type of primary obligation rather than a stand-alone rule of international law. See generally Neil McDonald, 'The Role of Due Diligence in International Law,' (2019) 68 *International & Comparative Law Quarterly* 1041.

16 Jorge E. Viñuales, 'Due Diligence in International Environmental Law: a Fine-Grained Cartography,' in H Krieger, et al. (eds), *Due Diligence in the International Legal Order*, (Oxford 2021), 113; *see also* Mayer, *supra* n. 11 (discussing the general obligation to avoid transboundary harm); Benoit Mayer, 'Climate Change Mitigation as an Obligation Under Customary International Law,' (2023) 48(1) *Yale Journal of International Law* 105, 130-31 (discussing how the precautionary approach is related to the obligation of prevention).

17 See Sections 2.1 and 2.2 *infra*.

consequences.[18] In addition, customary international law principles inform and define the scope of states' other obligations, in particular by requiring that states mitigate climate change in order to prevent warming above 1.5 degrees.[19]

International human rights treaties guarantee rights to life and property—rights that international and domestic courts have found implicate a positive obligation to reduce environmental risks, including risks of harm from climate change.[20] Recent opinions from human rights treaty bodies have articulated a test for the application of human rights obligations to climate change: if it is reasonably foreseeable that an activity under a state's jurisdiction or control will cause a risk of climate harm, the state must diligently prevent the harm within the limits of its capacity.[21] Applying that test to shipping suggests that

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18 See Michael P. Scharf, 'Accelerated Formation of Customary International Law,' (2014) 20(2) *ILSA Journal of International and Comparative Law* 305, 314. See generally Irit Mevorach, 'Modified Universalism as Customary International Law,' (2018) 96(7) *Texas Law Review* 1403 (describing formation and function of customary international law).

19 Section 2.1 *infra*.

20 See, e.g., *See, e.g.*, Case of Verein Klimaseniorinnen Schweiz and Others v. Switzerland, App. No. 53600/20, (9 Apr., 2024), ¶¶ 573–74 https://hudoc.echr.coe.int/eng?i=001-233206 (holding that Switzerland is required to quantify GHG emissions limitations through a carbon budget and implement reduction measures); Budayeva v. Russia, App. No. 15339/02, ¶ 116, 133 (20 Mar., 2008), https://hudoc.echr.coe.int/eng?i=001-85436 (states have a positive obligation to protect life and property from environmental risks); *The State of the Netherlands (Ministry of Economic Affairs and Climate Policy) v Stichting Urgenda (Urgenda)* [2019] Dutch Supreme Court 19/00135 (Engels) [hereinafter *Urgenda*]. See also Jaqueline Peel & Hari Osofsky, 'A Rights Turn in Climate Change Litigation', (2018) 7(1) *Transnational Environmental Law* 37, 48 (discussing case law); Siobhan McInerney-Lankford, 'Climate Change and Human Rights: an Introduction to Legal Issues,' (2009) 33 *Harvard Environmental Law Review* 431, 433 (examining the nexus of human rights and climate change). Other courts have recognized the right to a healthy environment as an autonomous right. See, e.g., The Environment and Human Rights (Art. 4(1) and 5(1) American Convention on Human Rights), Advisory Opinion OC-23/17, Inter-Am. Ct. H.R. (ser.A) No. 23 (15 Nov., 2017) [hereinafter *Colombia Advisory Opinion*], ¶¶ 62–63; 101–103.

21 UN Human Rights Committee, 'Views adopted by the Committee under article 5 (4) of the Optional Protocol, concerning communication No. 3624/2019,' UN Doc. CCPR/C/135/D/3624/2019 (22 Sept., 2022) [hereinafter *Billy et al.*], ¶ 8.13; UN Committee on the Rights of the Child, 'Decision adopted by the Committee under the Optional Protocol to the Convention on the Rights of the Child on a communications procedure, concerning communication No. 104/2019,' No. CRC/C/88/D/104/2019 ¶ 10.5-.7 (8 Oct., 2021) [hereinafter *Saachi*]. *See* Case Comment, 'Committee on the Rights of the Child Extends Jurisdiction over Transboundary Harms; Enshrines New Test, *Saachi v. Argentina*,' (2022) 135(7) *Harvard Law Review* 1981; Violi, *supra* n. 14, 81-82 (stating that in *Colombia Advisory Opinion*, *supra* n. 20 'court equated jurisdiction with causality and ultimately with imputability, thus altering the vertical understanding of human rights jurisdiction, and eventually risk proximity.')

states must use their best efforts to mitigate the risk that their acts and omissions related to international shipping will result in harmful climate change.

The LOSC mandates that states protect the marine environment, and instructs them to 'take, individually or jointly as appropriate, all measures consistent with this Convention that are necessary to prevent, reduce and control pollution of the marine environment from any source.'[22] Climate effects 'more than satisfy the test for marine pollution' under the LOSC, and therefore states must take all necessary measures to prevent, reduce, and control them.[23] Accordingly, the LOSC and human rights law impose an equivalent obligation—whether termed 'best efforts' or 'all necessary measures'—on states to diligently mitigate shipping's climate emissions.[24]

The obligation I identify shares characteristics with other due diligence obligations.[25] It is complex, contingent, and dynamic, with a graduated level of care that correlates to the gravity of risk presented.[26] Drawing on reasoning from other scholars, I argue that in this context, the risk calculus includes the inadequacy of states' commitments under the Paris

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22 United Nations Convention on the Law of the Sea art. 192, 194(1), Dec. 10 1982, 1833 U.N.T.S. 396 [hereinafter LOSC]. The United States has not ratified the LOSC but regards portions of it as reflecting customary international law. See John A. Duff, 'The United States And The Law Of The Sea Convention: Sliding Back From Accession and Ratification,' (2005) 11(1) *Ocean & Coastal Law Journal*, no. 2, at 10, 15. Articles 192 and 194 impose obligations on 'states' rather than 'state parties,' indicating they may have been intended to have legal effects even for states that did not ratify the LOSC. See Stephen Vasciannie, 'Part XI of the Law of the Sea Convention and Third States: Some General Observations,' (1989) 48(1) *Cambridge Law Journal* 85, 91 (explaining that some rules in Part XI of the LOSC are addressed to 'all states' and some to 'state parties;' and that the former may have been intended to have erga omnes effects).

23 Alan Boyle, 'Litigating Climate Change Under Part XII of the LOSC,' (2019) 34 *International Journal of Marine & Coastal Law* 458, 463. But see Shi, *supra* n. 10, 43 ('GHG emissions from international shipping can be regarded as a type of "conditional" pollution.'). The non-governmental organization Opportunity Green argued in a submission to the International Tribunal for the Law of the Sea that the LOSC requires GHG reductions for international shipping. See Amicus Curiae Brief of Opportunity Green, Request for An Advisory Opinion Submitted by the Commission of Small Island States on Climate Change and International Law (Case No. 31) (15 June, 2023).

24 See generally Tomer Broude & Yuval Shany, 'The International Law and Policy of Multi-Sourced Equivalent Norms,' in T Broude & Y Shany (eds), *Multi-Sourced Equivalent Norms in International Law*, (Bloomsbury 2011), 5 (discussing 'normative parallelism and equivalence' in international law).

25 See generally Anne Peters et al., 'Due Diligence in the International Legal Order: Dissecting the Leitmotif of Current Accountability Debates' in H Krieger et al. (eds), *Due Diligence in the International Legal Order* (Oxford 2021), 1.

26 Viñuales, *supra* n. 16 at 124 (citing United Nations, International Law Commission (ILC), Rep. on the Work of Its Fifty-Third Session, U.N. Doc. A/56/10, at 155, commentary to art. 3, ¶ 18).

Agreement, as well as the IMO's insufficient climate measures.[27] In other words, because the risk of harm posed by climate change is not effectively addressed by the climate regime or IMO rules, general obligations imposed by human rights treaties and the LOSC demand that states do more.

When and how this obligation applies depends on the state. The size of a state's maritime sector, measured by the number of vessels that fly its flag or by its port traffic, impacts its lawmaking power within the IMO and the mitigation potential of any unilateral measures.[28] As with other international environmental obligations, the required degree of diligence differs based on states' development and individual circumstances, and it can change over time.[29] Thus, similarly to the International Law Commission's finding on hazardous transboundary activities,[30] a highly developed or technologically advanced state with a large maritime sector has a greater scope of diligent conduct than other states.

There are two specific types of acts—or omissions—that in my view are particularly relevant to assess compliance with the obligation I identify.[31] Cases from the International Court of Justice, the International Tribunal for the Law of the Sea, and the European Court of Human Rights indicate that when states make decisions within an international orga-

27 See Natalie Dobson, *Extraterritoriality and Climate Change Jurisdiction: Exploring EU Climate Protection Under International Law* (Bloomsbury 2021), 30; Jaqueline Peel, 'Climate Change,' in A Nollkaemper and I Plakokefalos (eds), *The Practice of Shared Responsibility in International Law* (Cambridge 2018), 1041-1044 (explaining that failure to stop, reduce or regulate emitting activities could be a basis for finding that a state did not discharge its due diligence obligation of harm prevention); Rozemarijn J. Roland Holst, 'Taking the Current When It Serves: Prospects and challenges for an ITLOS Advisory Opinion on Oceans and Climate Change' (2022) 32(2) *RECIEL* 217, 223 ('as long as current NDCs collectively fall short of reaching this target, it can be argued that due diligence under UNCLOS obligates States to do more').

28 Flag states have codified influence in the adoption of IMO rules that correlate to the relative size of their fleet. Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973 (with annexes, final act and International Convention of 1973), art. 16(2)(f)(ii); 16(2)(f)(iii) (17 Feb., 1978) 1340 U.N.T.S. 61, 191 [hereinafter MARPOL] (stating that amendments to MARPOL are effective when ratified by states representing 50 percent of the world's merchant fleet). As discussed in Section 1, *infra*, flag states and port states have prescriptive jurisdiction to set vessel-source pollution rules under the LOSC.

29 Viñuales, *supra* n. 16, 125-126; Peel, *supra* n. 27, 1033.

30 United Nations, International Law Commission (ILC), Draft Articles on the Prevention of Transboundary Harm from Hazardous Activities, A/ RES/ 56/ 82, 12 December 2001, commentary to Art. 3, ¶ 18. See Viñuales, *supra* n. 16, 124, 126.

31 Generally speaking, due diligence obligations 'do not prescribe a particular measure that has to be taken.' Medes Malaihollo, 'Due Diligence in International Environmental Law and International Human Rights Law,' (2021) 68 *Netherlands International Law Review* 121, 123. But whether a measure is 'necessary,' is fact dependent, and in certain scenarios, only some might be sufficient to show compliance. Ibid., 146 (discussing European Court of Human Rights jurisprudence).

nization, they must adhere to their human rights obligations and substantive obligations related to the organization's area of competence.[32] Therefore, the IMO's member states are required to use their best efforts to ensure that shipping's GHG emissions do not harm human rights or the marine environment when they adopt climate measures at the IMO. Assuming that proposed climate measures do not burden the least developed countries or small island developing states and otherwise account for equitable principles,[33] IMO members are obliged to use their influence to push the organization to adopt ambitious and effective measures that are consistent with scientific and technological developments.[34]

States' jurisdiction over their ports, ships that fly their flags, and private entities within their territories likewise implicate their obligations to prevent and reduce shipping's climate impacts. Ports are part of states' territories, and port states have jurisdiction under international law to condition the voluntary entry of ships on environmental standards.[35] Moreover, states can regulate ships that fly their flags and shipping companies that operate from within their territories. The EU has asserted this jurisdiction to reduce international

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32 Application of the Interim Accord of 13 September 1995 (The Former Yugoslav Republic of Macedonia v. Greece), Judgment, 2011 I.C.J. Rep. 644 (5 Dec.) [hereinafter *FYROM*]; Southern Bluefin Tuna (N.Z. v. Japan; Austl. V. Japan), Cases Nos. 3 and 4, Order of 27 Aug., 1999, ITLOS Reports 1999 [hereinafter *Southern Bluefin Tuna*], ¶ 50*; Gasparini v. Italy and Belgium*, App. No. 10750/03, (19 May, 2009), https://hudoc.echr.coe.int/eng?i=001-92899; *Perez v. Germany*, App. No. 15521/08 (6 Jan., 2015), https://hudoc.echr.coe.int/eng?i=001-151049; *Klausecker v. Germany*, App. No. 415/07 (6 Jan., 2015), https://hudoc.echr.coe.int/eng?i=001-151029. See generally Barros and Ryngaert, *supra* n. 14 at 55; Ana Sofia Barros, *Governance as Responsibility: Member States As Human Rights Protectors in International Financial Institutions* (Cambridge 2019). There are multiple and complex ways in which states and international organizations obligations intersect. See, e.g., Kristina Daugirdas, 'Member States' Due Diligence Obligations to Supervise International Organisations,' in H Krieger et al. (eds), *Due Diligence in the International Legal Order* (Oxford 2021), 59. Those are surveyed and distinguished from the case at hand in Section 3.1 *infra*.

33 *See* Kerr (2022), *supra* n. 8, 395-396 (discussing preferences for developing states in IMO measures).

34 See Nikolaos Giannopoulos, *International Law and Offshore Energy Production: Marine Environmental Protection through Normative Interactions* (2020) (PhD dissertation, Utrecht University, on file with Utrecht University Library at https://dspace.library.uu.nl/handle/1874/400007), 456-57 (demonstrating that the best available techniques and best environmental practices required by due diligence obligations are subject to change).

35 LOSC, *supra* n. 22 at Art. 211(3). As discussed in Section 1 *infra*, although generally accepted, this understanding of port state jurisdiction is nevertheless contested. Arron N. Honniball, 'The "Enrica Lexie" Incident Award and Exclusive Flag State Jurisdiction,' National University of Singapore CIL Dialogues, https://cil.nus.edu.sg/blogs/the-enrica-lexie-incident-award-and-exclusive-flag-state-jurisdiction-by-arron-n-honniball/ (last visited 18 July, 2023) (discussing the M/Norstar Judgment and Enrica Lexie Award).

shipping's climate emissions more steeply and comprehensively than the IMO has. This type of action is particularly relevant in determining whether a state is complying with its due diligence obligation, at least for states similarly situated to the EU.[36]

In addition to being interpretively sound, there are legal and practical benefits to the approach taken here. By clarifying the legal source and nature of states' obligations to address shipping's climate impacts, it unifies rather than fragments international law.[37] Yet it is also flexible: the standard of compliance changes over time, is responsive to new scientific and technological developments, and accounts for states' differential capacities and capabilities.[38] It is therefore consistent with equity, sustainable development, and the common-but-differentiated responsibilities principle.[39] Because shipping is a well-studied and quantified sector, states' individual shares of the total risk can be easily determined and assigned, and the multi-source nature of the obligation means that there are various legal options for ensuring compliance.[40]

To prove its claims, the article first explains the current regulatory framework for GHG emissions from ships in Section 1. It discusses the IMO's prescriptive jurisdiction over vessel-source pollution under the LOSC and states' jurisdiction to set rules for ships that enter their ports and fly their flags.[41] In so doing, it provides the legal basis for the maritime climate measures enacted by the IMO and the European Union. Section 2 develops the article's central thesis that states have a due diligence obligation to mitigate shipping's climate impacts. It addresses the conventional view, grounded in the climate treaties, that international law does not directly or clearly require that states reduce GHG emissions from shipping. I survey scholarship and caselaw on customary international principles, human rights law, and the LOSC, showing that these sources of law indicate that states must diligently address the climate risks posed by shipping. Section 3 develops a framework to assess whether states are meeting this obligation, focusing on decision making within the

36 As a party to the Paris Agreement and in light of its actions to regulate shipping's emissions, the EU itself may bear legal obligations related to the sector's climate emissions. Natalie L. Dobson, 'Competing Climate Change Responses: Reflections on EU Unilateral Regulation of International Transport Emissions in Light of Multilateral Developments,' (2020) 67 *Netherlands International Law Review* 183, 206. That question is beyond the scope of this article.

37 See International Law Commission, ILC Study Group, Fragmentation of International Law: Difficulties arising from the Diversification and Expansion of International Law, Conclusions of the Work of the Study Group, UN Doc. A/CN.4/L.702 (18 July, 2006).

38 Giannopoulos, *supra* n. 34, 457.

39 See generally Sumudu Atapattu, *Emerging Principles of International Environmental Law* (Brill 2007) (discussing international environmental principles' legal sources, significance, and interactions).

40 See Section 3 *infra*.

41 For a description of different types of jurisdiction under LOSC see generally Aaron Honniball, 'The Exclusive Jurisdiction of Flag States: A Limitation on Pro-active Port States?,' (2016) 31 *International Journal of Marine & Coastal Law* 499.

IMO and on unilateral actions. The article concludes by briefly examining potential legal venues to hold states to account.

1.0 Regulating Shipping's Climate Pollution

Defining climate obligations for shipping requires understanding state jurisdiction over ships and how that jurisdiction relates to IMO rules. Under the LOSC, vessels engaged in international shipping are regulated by multiple states.[42] These include the states where they are flagged or registered, the states whose coastal zones they sail through, and states whose ports they enter.[43] When and how these states can assert jurisdiction varies. In the context of pollution control, jurisdiction is tightly tied to rules adopted by the IMO's Marine Environment Protection Committee (MEPC), which are made effective as annexes to the International Convention for the Prevention of Pollution by Ships (MARPOL).[44] In addition to directly regulating ships, states can also regulate shipping companies doing business within their territories. Section 1 explains these different bases for jurisdiction, and in doing so gives an overview of the IMO's GHG reduction measures and the European Union's parallel measures.

The IMO is charged with developing uniform pollution-control rules for ships engaged in international voyages.[45] Over eighty percent of world trade in goods is conducted by sea, and the IMO has stated that 'the global character of shipping requires global regulation that applies universally to all ships.'[46] The IMO has emphasized the need for uniform climate measures for shipping as well, asserting that 'IMO regulations apply worldwide without discrimination, thus providing a global equal level playing field, preventing distortion of specific trade flows and trade agreements, avoiding carbon leakage or sub-optimal shipping in certain parts of the world.'[47]

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42 Henrik Ringbom, 'Regulating Greenhouse Gas Emissions from Ships' in E Johansen et al. (eds), *The Law of the Sea and Climate Change* (Cambridge 2021), 131.

43 Donald R. Rothwell & Tim Stephens, *The International Law of the Sea* (Bloomsbury, 2nd ed. 2016), 382-86.

44 MARPOL, *supra* n. 28; IMO Convention, *supra* n. 2, Art. 38.

45 See sources cited at *supra* n. 2; Frederic L. Kirgis, Jr., 'Shipping,' in O Schacter & C Joyner (eds), *United Nations Legal Order, Volume II* (The American Society of International Law/Cambridge 1995), 718-23.

46 UNCTAD, *supra* n. 1 at 153; IMO, Submission to the 34th Session of SBSTA, U.N. Doc. FCCC/SBSTA/2011/MISC.5, paper no. 2, 15, ¶ 2 (20 April, 2011).

47 IMO, Note by the International Maritime Organization to the fifty-seventh session of the UNFCCC Subsidiary Body for Scientific and Technological Advice (SBSTA 57), Sharm El Sheikh, Egypt, 6 to 12 November 2022, https://www4.unfccc.int/sites/SubmissionsStaging/Documents/202210281824---IMO%20submission%20to%20SBSTA%2057.pdf (last visited 19 July, 2023). See Ellen Hey, 'Regime Interaction and Common Interests in Regulating Human Activities in Areas Beyond National Jurisdiction,' in S Trevisanut, et al. (eds), *Regime Interaction in Ocean*

MARPOL Annex VI entered into force in 2005 and regulates air pollution from ships.[48] Annex VI provisions cover various types of pollution, including nitrous oxides, sulfur oxides, and volatile organic compounds.[49] The MEPC—which is composed of all IMO member states—usually adopts measures by consensus,[50] but it can amend a MARPOL annex through a two-thirds majority vote representing fifty percent of the world's merchant fleet.[51] The amendment must then be ratified by individual states to become effective, but as with the MEPC procedure, not all IMO member states are equal in this process: for a MARPOL annex or amendment to enter into force it must be adopted by states representing at least fifty percent of the world's merchant fleet.[52] Once effective, IMO rules are regarded as 'generally accepted international rules and standards' under the LOSC, and thereby trigger a variety of obligations and powers for flag, coastal, and port states.[53]

Shipping's climate impacts have been on the IMO's agenda since the early 1990s.[54] It did not act until 2011, when it amended MARPOL Annex VI, instituting fuel efficiency rules for new ships over a certain size and operational rules that adjusted ship routing and speed to lower energy consumption.[55] In 2016, the IMO adopted rules requiring that ships collect and register data on their fuel consumption.[56] In 2021, it strengthened the efficiency and operational rules in an effort to reduce carbon intensity across the sector.[57]

These climate measures—like other MARPOL provisions—bind states and are enforceable against ships in various ways that illustrate the breadth and depth of the IMO's law-making authority. Under the principle of no-more-favorable treatment, states that have

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Governance: Problems, Theories and Methods (Brill 2020), 93-98 (discussing the IMO's design and implementation of non-discriminatory climate measures).

48 IMO, International Convention for the Prevention of Pollution from Ships (MARPOL), https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-(MARPOL).aspx (last visited July 19, 2023).

49 IMO, Index of MEPC Resolutions and Guidelines Related to MARPOL Annex VI, https://www.imo.org/en/OurWork/Environment/Pages/Index-of-MEPC-Resolutions-and-Guidelines-related-to-MARPOL-Annex-VI.aspx (last visited 19 July, 2023).

50 Sophia Kopela, 'Climate Change, Regime Interaction, and the Principle of Common but Differentiated Responsibility: The Experience of the International Maritime Organization,' (2014) 24(1) *Yearbook of International Environmental Law* 70, 80 (2014).

51 MARPOL, *supra* n. 28, art. 16(2)(d); 16 (2)(f).

52 Ibid. For readability, this article refers to effective MARPOL annexes as 'IMO rules.'

53 LOSC, *supra* n. 22, art. 211; see Erik Molenaar, *Coastal State Jurisdiction over Vessel Source Pollution* (Kluwer Law International 1998), 136-137 (the IMO is 'the competent international organization' for vessel source pollution under the LOSC).

54 IMO, Prevention of Pollution By Air From Ships, IMO Ass. Res. A.719(17), IMO Doc. A 17/Res. 719 (4 Dec., 1991).

55 IMO, MEPC Res. 203(62), (15 July, 2011).

56 IMO, MEPC Res. 278(70), (28 Oct., 2016).

57 IMO, MEPC Res. 328(76), (12 July, 2021).

ratified an IMO rule must enforce it not only against their own ships but also the ships of non-parties that visit their ports.[58] The principle thus promotes a level playing field by preventing states from opting out of pollution-control rules.[59] To illustrate, even though Bahrain, Colombia, Israel, and other states have not ratified MARPOL Annex VI, ships flying their flags are subject to IMO climate measures when visiting the ports of Annex VI parties, including the United States, the Netherlands, China, and other major maritime states.[60] Moreover, under the LOSC, flag states' national rules relating to vessel-source pollution must have 'at least the same effect' as IMO rules, regardless of whether they have ratified a particular MARPOL annex or amendment.[61] And flag states must take IMO rules 'into account' for atmospheric pollution from vessels.[62] IMO rules thus operate as binding legal standards for all states.

Under the LOSC, IMO rules are enforceable at port and at sea. States cannot independently set pollution rules for ships sailing through their exclusive economic zones and territorial seas unless ecological conditions for a clearly defined area warrant the rules and procedural steps are followed.[63] But they can enforce IMO rules for violations in their territorial seas, including by detaining suspect ships, and suspected violations of IMO rules in exclusive economic zones can trigger a more limited enforcement procedure.[64]

States have discretion to go beyond IMO rules for ships voluntarily entering their ports.[65] Although some scholars contend that there is a customary international law principle establishing a right to entry,[66] there is little state practice supporting that position,[67] and

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58 MARPOL, *supra* n. 28 at art. 5(4); 16(4)(a); IMO, Procedures for Port State Control, 2017, IMO Ass. Res. A30/1119, (6 Dec., 2017), Annex, 4-5.

59 Molenaar, *supra* n. 53, 114.

60 See IMO, Ratifications by State, https://www.imo.org/en/About/Conventions/Pages/StatusOfConventions.aspx (last visited 21 July, 2023).

61 LOSC, *supra* n. 22, Art. 92, 211. Kirsten Bartenstein, 'Article 211,' in A Proells (ed), *The United Nations Convention on the Law of the Sea: A Commentary* (Beck/Hart 2017), 1419, 1436.

62 LOSC, *supra* n. 22, Art. 212(a). Whether the IMO's GHG rules relate to pollution of the marine environment or atmospheric pollution—and thus operate as a floor for flag state rules or merely as standards that need to be taken into account—has not been formally determined and is not relevant to the claims made here.

63 LOSC, *supra* n. 22, Art. 211(6).

64 LOSC, *supra* n. 22, Art. 211(5); 220(2),(3).

65 LOSC, *supra* n. 22, Art. 211(3). They cannot do so for vessels in distress or in *force majeure* situations. Aaron Honniball, *Extraterritorial Port State Measures: the Basis and Limits of Unilateral Port State Jurisdiction to Combat Illegal, Unreported and Unregulated Fishing* (2019) (Ph.D. dissertation, Utrecht University, on file with Utrecht University Library) at 144-45.

66 A. V. Lowe, 'The Right of Entry into Maritime Ports in International Law,' (1977) 14 *San Diego Law Review* 597, 598 (discussing *Aramco Arbitration* 27 I.L.R. 117, 212).

67 John T. Oliver, 'Legal and Policy Factors Governing the Imposition of Conditions on Access to and Jurisdiction over Foreign-Flag Vessels in U.S. Ports,' (2009) 5(2) *South Carolina Journal of*

the LOSC specifies that states exercise sovereignty over their ports as part of their territories.[68] Moreover, many scholars agree that states retain jurisdiction over their ports under customary international law.[69] The U.S. Supreme Court has held that ports and inland waters are 'subject to the complete sovereignty of the nation, as much as if they were a part of its land territory, and the coastal nation has the privilege even to exclude foreign vessels altogether.'[70]

The European Union has assertively exercised this type of jurisdiction to regulate international shipping's climate impacts. In 2016, it instituted a GHG emissions data collection scheme more stringent than the IMO's global measure for ships visiting European ports and flying European flags.[71] In 2023, it expanded the scope of the EU Emissions Trading System to include maritime emissions, and limited the GHG intensity of energy used by ships; both measures are designed to lower emissions from international shipping far more quickly than the IMO's current regulations.[72] The European Union enforces these measures by regulating shipping companies that are registered within its member states' territories, individual ships that enter EU ports, and ships that fly its members' flags.[73]

The EU measures will initially cover fifty percent of emissions from all international voyages to and from its member states' ports; the scope of maritime emission coverage in the ETS will rise to one hundred percent if the IMO does not adopt a global market-based measure by 2028.[74] The ETS measure requires that companies legally affiliated to ships entering and departing European ports purchase credits through the trading system based on emissions for each voyage.[75] The GHG intensity limit requires that companies report and reduce the yearly average GHG intensity of energy used by ships according to a set schedule.[76] A ship's operations on the high seas, including its speed and route, as well as its equipment and the fuel it uses, will impact the quantity of credits that companies must

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International Law & Business 209, 213-14.

68 LOSC, *supra* n. 22, Art. 2(1).

69 See, e.g., Erik Molenaar, 'Port State Jurisdiction: Toward Comprehensive, Mandatory and Global Coverage', (2007) 38 *Ocean Development & International Law* 225, 227. See also Donald Rothwell, et al., 'Chartering the Future for the Law of the Sea,' in D Rothwell et al. (eds), *The Oxford Handbook of the Law of the Sea* (Oxford 2015), 893 ('the balance of the power between flag States and coastal/port States has undoubtedly shifted from the former to the latter of the last two decades . . .').

70 *United States v. Louisiana*, 394 U.S. 11, 22 (1969).

71 Dobson, *supra* n. 36, 194-195 (comparing EU and IMO monitoring schemes).

72 EU Maritime ETS Measure, *supra* n. 7, ¶¶ 8, 9 ; EU Maritime Fuel Measure, *supra* n. 7, Art. 1, 4.

73 EU Maritime ETS Measure, *supra* n. 7, ¶¶ 31-32; 34-35; EU Maritime Fuel Measure, *supra* n. 7, Art. 2(1); 6; 7; 25.

74 EU Maritime ETS Measure, *supra* n. 7, ¶ 28; EU Maritime Fuel Measure, *supra* n. 7, Art. 2(1)(d)

75 EU Maritime ETS Measure, *supra* n. 7, ¶ 20.

76 EU Maritime Fuel Measure, *supra* n. 7, Art. 4(2); Art. 8; Annex III.

obtain and compliance with the GHG intensity limits.[77] By indirectly regulating ships' conduct on the high seas, the measures represent a significant extraterritorial expansion of port state jurisdiction.[78]

Despite this expansion of regulation on the high seas, the European Union's measures are lawful.[79] Under the LOSC, port state 'operational measures regulating behaviour occurring outside a state's territory may raise issues of extraterritoriality.'[80] In addition, measures that relate to the construction, design, equipment, and manning (CDEM) of ships are 'often considered to be the most intrusive ones with respect to ships' navigational rights,'[81] and are specifically assigned to the jurisdiction of flag states by the LOSC.[82]

But CDEM standards enacted by port states can be justified on a territorial basis because vessels violate the standards when they sail into port.[83] As Kotzampasakis explains, the text of the LOSC shows that it 'does not preclude States from establishing port entry conditions in relation to ships' conduct beyond their territorial sea, but it prevents them from undertaking in-port investigations and instituting proceedings related to extraterritorial vessel-source pollution, unless a breach of international rules is suspected.'[84] Thus, because the European Union's maritime climate measures operate as port entry conditions, they comply with the LOSC.[85]

Under customary international law's jurisdictional limitations—non-intervention, non-interference, and sovereign equality—states should exercise self-restraint in designing extraterritorial regulations.[86] But, as Dobson points out, the question is more complex when it comes to climate change and the relative stringency of the European Union's regulations compared to the IMO's measures, given that EU member states will internally suffer the

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77 EU ETS Measure, *supra* n. 7, ¶ 32; ibid., ¶ 63.

78 Manolis Kotzampasakis, 'Intercontinental Shipping in the European Union Emissions Trading System: A 'Fifty–Fifty' Alignment with the Law of the Sea and International Climate Law?,' (2022) 32 *RECIEL* 29, 33.

79 Ibid.

80 Dobson, *supra* n. 27, 104.

81 Henrik Ringbom, 'Global Problem-Regional Solution? International Law Reflections on an EU CO2 Emissions Trading Scheme for Ships,' (2011) 26 *International Journal of Marine & Coastal Law* 613, 621.

82 LOSC, *supra* n. 22, Art. 94.3.

83 Ringbom, *supra* n. 81, 632; see also Dobson, *supra* n. 27, 104-105 (collecting literature on the territorial basis for port state jurisdiction over CDEM standards).

84 Kotzampasakis, *supra* n. 78, 33.

85 Kotzampasakis finds that a non-compliance fine included in the measures likely is not a permissible enforcement measure, although the denial of right of entry is. Ibid., 36.

86 Dobson, *supra* n. 27, 240-41. S*ee also* Cedric Ryngaert, *Jurisdiction in International Law* (Oxford 2015), 35-37; *Restatement (Fourth) of the Foreign Relations Law of the United States* (Am. L. Inst. 2018), §§ 403, 407-13 (providing equivalent 'reasonableness' jurisdictional test).

adverse effects of climate harm caused by ships that enter their ports.[87] Thus, although port state jurisdiction remains a contested issue in the law of the sea,[88] states have jurisdiction to regulate a ship's climate emissions outside their territory more stringently than the IMO does, so long as they do so in a manner consistent with the LOSC and with general principles of international law, such as good faith and non-abuse of rights.[89]

At the moment, the European Union stands alone in taking this step: the United States and other major maritime states are using incentives and funding to decarbonize their shipping sectors, but do not currently implement maritime climate regulations other than IMO rules.[90] Having shown what states may do to regulate shipping's climate emissions, I now turn to what they must do.

2.0 Legal Obligations

2.1 The Climate Treaties

The climate treaties are a logical place to look for state obligations to reduce GHG emissions from shipping, and that is where scholarly attention has focused.[91] As I will elaborate, the climate treaties implicitly include shipping when interpreted in a certain way, but they do not clearly or directly mandate that states reduce GHG emissions from the sector. Despite this ambiguity, the 1.5 degree temperature goal does serve as a binding legal norm for shipping because states have resolved that it will guide the sector's emissions reductions at the IMO, and the goal reflects what international environmental principles demand.

The United Nations Framework Convention on Climate Change (UNFCCC) encompasses international transport in that its goal is the prevention of 'dangerous' climate change, and its principles state that climate policies should 'comprise all economic sectors.'[92] Article 4(2) provides that developed countries 'are taking the lead' in adopting national policies and measures to limit GHG emissions.[93] This is described by scholars as a very soft obliga-

87 Dobson, *supra* n. 27, 179 (defining 'climate change jurisdiction' under customary international law).

88 Honniball, *supra* n. 35.

89 Kotzampasakis, *supra* n. 78.

90 White House, Ocean Climate Action Plan, 36-38 (Mar. 2023) https://www.whitehouse.gov/wp-content/uploads/2023/03/Ocean-Climate-Action-Plan_Final.pdf. *See* Section 3 *infra* (discussing states' voluntary measures). There is legislation pending in Congress that would amend the Clean Air Act to direct the EPA to implement sustainable fuel standards for international shipping, Clean Shipping Act of 2023, H.R. 4024, 118th Cong. § 2 (2023), and impose a $150 per ton fee on carbon emissions on marine bunker fuel. International Maritime Pollution Accountability Act of 2023, S.1920, 118th Cong. § 5 (2023).

91 *See, e.g.*, Martinez Romera, *supra* n. 9.

92 United Nations Framework Convention on Climate Change, art. 3, May 9, 1992, 1771 U.N.T.S. 107, S. Treaty Doc No. 102-38 (1992).

93 *Id.*, Art. 4(2)(a).

tion.[94] And it may not even apply to shipping because the UNFCCC's conference of parties decided that international transport emissions should not be included in national totals for Article 4(2) purposes.[95] Under the Kyoto Protocol, developed countries 'shall pursue limitation or reduction' of GHG emissions from shipping, 'working through' the IMO.[96] But even assuming this language constitutes an obligation, it only applies to developed countries that are parties to the Protocol, and thereby excludes non-party developed states such as United States and Canada, and China, India, Singapore, South Korea, and the Gulf States, which the UNFCCC classifies as developing states.[97]

The Paris Agreement does not directly refer to shipping or the IMO. For nearly a year, the Agreement's negotiating text contained provisions requiring parties to work through the IMO to reduce emissions consistent with the Agreement's temperature goals, and that they establish a levy scheme for shipping to that end.[98] Those provisions were removed from the Agreement's text at the last minute, without any public explanation.[99] Some scholars nevertheless view the Paris Agreement's temperature goal as a 'rule for interpretation' for all obligations within the UNFCCC, including its implicit requirement that states limit all emissions, including those arising from shipping, so as to prevent dangerous climate change.[100] Others argue that the Paris Agreement is a stand-alone treaty, albeit one that is closely linked to the UNFCCC.[101]

Regardless of the Paris Agreement's relationship with the UNFCCC, several of its articles indirectly include shipping. These include Article 4(4), which states that developed country parties 'should continue taking the lead by undertaking economy-wide absolute emission

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94 Daniel Bodansky, 'The United Nations Framework Convention on Climate Change: a Commentary', (1993) 18 *Yale Journal of International Law* 451, 515-16, (citing Philippe Sands, *The United Nations Framework Convention on Climate Change,* 1 RECIEL 270 (1992)). See also Beatriz Martinez Romera, *Regime Interaction and Climate Change: The Case of International Aviation and Transport* (Routledge 2018), 67 (UNFCCC Art. 4(2) as an 'ill-defined obligation').

95 Fahara Yamin & Joanna Depledge, *The International Climate Change Regime* (Cambridge 2004), 84.

96 Kyoto Protocol to the United Nations Framework Convention on Climate Change, Art. 2(2) (10 Dec., 1997) 2303 U.N.T.S. 148.

97 UNFCCC, *supra* n. 92, Annex I, II; United Nations Treaty Collection, Status of Ratification of Kyoto Protocol, https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-a&chapter=27&clang=_en (last visited 19 July, 2023).

98 Yubing Shi, 'The Implications of the Paris Agreement for the Regulation of Greenhouse Gas Emissions from International Shipping,' (2018) 32 *Ocean Yearbook* 528, 532; Ringbom, *supra* n. 42, 136.

99 Martinez Romera, *supra* n. 94 at 80. See generally Radoslav S. Dimitrov, 'The Paris Agreement on Climate Change: Behind Closed Doors,' (2016) 16 *Global Environmental Politics* 1.

100 Martinez Romera, *supra* n. 94, 181.

101 Daniel Bodansky, 'The Paris Climate Change Agreement: a New Hope?,' (2016) 110(2) *American Journal of International Law* 288, 296.

reduction targets.'[102] Because international shipping is a part of developed countries' economies the sector could be construed to fall within that provision. The European Union appears to agree: in its legislation including maritime transport in the EU carbon market, the European Union noted that all sectors of the economy need to contribute to achieving emissions reductions; and its 2020 nationally-determined contribution stated that the EU complies with Article 4(4) by having an economy-wide absolute target.[103] But, as Lavanya Rajamani points out, Article 4(4) uses the term 'should' rather than 'shall,' indicating a normative expectation that parties will exercise a particular mitigation pathway, rather than a legal obligation.[104] That word choice was deliberate, and appears to have been a precondition for the United States to join the Agreement.[105] Thus, Article 4(4) should be read as indicating a normative expectation that states will implement economy-wide reductions in light of their national circumstances, rather than a binding obligation that they must do so.

Other provisions in Article 4 could likewise encompass shipping. Article 4(2) states that parties 'shall' submit nationally-determined contributions (NDCs) towards the temperature goals, and that parties 'shall pursue domestic mitigation measures' in order to achieve those contributions.[106] But scholars disagree about whether these are substantive obligations at all given the aspirational nature of the temperature goals and the procedural nature of NDCs.[107] And, in 2018, the parties to the Paris Agreement decided that emissions from international shipping and aviation should be reported separately from national totals.[108] The logic of the Paris Agreement is premised on the reporting of national emissions, the communication of national contributions towards the temperature goals based on emissions reporting, and an obligation that states pursue domestic mitigation measures to meet their contributions.[109] Because national emissions reporting is legally tied to substantive mitigation requirements under the Agreement, it is therefore unclear whether Article 4(2) encompasses shipping.[110]

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102 Paris Agreement, *supra* n. 6 at art. 4.4.

103 EU Maritime ETS Measure, *supra* n. 7, ¶¶ 2, 4; Council of the European Union, Update of the NDC of the European Union and its Member States, Annex at 19 (17 Dec., 2020), https://unfccc.int/NDCREG

104 Lavanya Rajamani, 'Ambition and Differentiation in the 2015 Paris Agreement: Interpretive Possibilities and Underlying Politics,'(2016) 65 *International & Comparative Law Quarterly* 493, 510-11.

105 Ibid., 510-511.

106 Paris Agreement, *supra* n. 6, Art. 4(1)-(3).

107 Alexander Zahar, 'Collective Obligation and Individual Ambition in the Paris Agreement,' (2019) 9 *Transnational Environmental Law* 165, 167-173 (collecting and discussing literature).

108 UNFCCC, Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on the third part of its first session, held in Katowice from 2 to 15 December 2018, UN Doc. FCCC/PA/CMA/2018/3/Add.2, 23, 27.

109 See Rajamani, *supra* n. 104, 497-98.

110 *See* Chris Lyle, 'Beyond the ICAO's CORSIA: Towards a More Climatically Effective Strategy for

Can supplementary means of interpretation resolve this ambiguity?[111] The conscious decision of the Agreement's drafters to omit any explicit reference to shipping indicates that the sector's emissions should not be subject to the Agreement's obligations, whether substantive or procedural.[112] Nevertheless, Cabo Verde, China, the Marshall Islands, the United Kingdom, and the United States asserted in their NDCs that they are committed to reducing shipping's impacts through the IMO.[113] Yet the Vienna Convention on the Law of Treaties 'demands the agreement of *all the parties* in order to make [subsequent] practice relevant for treaty interpretation,'[114] and most states do not refer to shipping at all in their NDCs. Instead, the only relevant practice on this point is the decision by the Agreement's parties to exclude shipping from national totals.[115] That carries particular weight because decisions by the Paris Agreement's conference of parties have binding legal force under the Agreement.[116] State practice is therefore insufficient—at least currently—to support interpreting the Paris Agreement's obligations as including international shipping's GHG emissions.

Yet there are two ways in which the Agreement's temperature goals, as opposed to its procedural and substantive obligations, are legally linked to international shipping. First,

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Mitigation of Civil-Aviation Emissions,' (2018) 8 *Climate Law* 104, 122 (arguing that international aviation should be brought under the direct responsibility of states through their NDCs).

111 Vienna Convention on the Law of Treaties, Art 32 (23 May, 1969), 1155 U.N.T.S. 331 (stating that if the meaning of a treaty is ambiguous, 'recourse may be had to supplementary means of interpretation, including the preparatory work of the treaty and the circumstances of its conclusion'). See also Arbitral Award of 31 July 1989 (*Guinea-Bissau v. Sen.*), Judgment, 1991 I.C.J. Rep. 53 ¶ 48 (11 Nov.) ('…Articles 31 and 32 of the Vienna Convention on the Law of Treaties…may in many respects be considered as a codification of existing customary international law…').

112 See Richard Gardiner, *Treaty Interpretation* (Oxford, 2nd Ed. 2015), 386-87 (discussing cases interpreting 'the meaning of a term by showing that the course of the negotiations excluded an interpretation that is being put forward').

113 Cabo Verde First NDC (Updated Submission) 26 (2 Apr., 2021); China First NDC (Updated submission) 47 (28 Oct., 2021); Updated Communication on the Marshall Islands Paris Agreement NDC 3 (30 Dec., 2020); United Kingdom of Great Britain and Northern Ireland's Nationally Determined Contribution 6 (22 Sept., 2022); The United States of America Nationally Determined Contribution 4 (4 Apr., 2021), https://unfccc.int/NDCREG.

114 Christopher Peters, 'Subsequent Practice and Established Practice of International Organizations: Two Sides of the Same Coin?,'(2011) 2(3) *Goettingen Journal of International Law* 617, 619 (emphasis in original).

115 Ibid., 627 (stating that the resolutions of a treaty's parties reflect their agreement on its interpretation).

116 Rajamani, *supra* n. 104 at 499-500 (citing Paris Agreement, *supra* n. 6, Art. 4(8); 4(9)). See also Harro van Asselt, *The Fragmentation of Global Climate Governance: Consequences and Management of Regime Interactions* (Edward Elgar 2014) (discussing importance of climate regime lawmaking by treaty bodies).

in 2018, the IMO's member states, all of whom are parties to the Agreement, resolved that the IMO would reduce shipping's GHG emissions fifty percent below 2008 levels by 2050, 'whilst pursuing efforts towards phasing them out as called for in the Vision as a point on a pathway of CO2 emissions reduction consistent with the Paris Agreement temperature goals.'[117] The IMO has also stated that it supports the Glasgow Climate Pact, which resolved to pursue efforts to limit global temperature increase to 1.5 degrees.[118] In its July 2023 climate strategy, the IMO resolved that GHG emissions from shipping would reach net-zero 'by or around, i.e. close to 2050 . . . consistent with the long-term temperature goal set out in Article 2 of the Paris Agreement.'[119]

Moreover, principles of international environmental law indicate that the Paris Agreement's 1.5 degree temperature goal should guide states in their actions related to shipping's climate impacts. Under the harm prevention principle, a state is required to 'take all appropriate measures to prevent significant transboundary harm or at any event minimize the risk thereof' from activities in its territory or arising under its jurisdiction or control.[120] Viñuales explains that this principle overlaps with others, including the 'responsibility to ensure that activities within [a State's] jurisdiction and control do not cause damage to the environment of other States or of areas beyond national jurisdiction'—articulated in the Rio Declaration—and the requirement that states take precautionary measures even in the absence of scientific certainty as to significant harm.[121] Climate change poses a risk of significant harm: 'assuming an approximately linear relation between GHG concentrations in the atmosphere and the severity of climate change, even very small cuts in global emissions can achieve significant global harm-prevention (or risk-reduction) benefits.'[122] Accordingly, these customary principles apply to climate change.[123]

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117 IMO, MEPC Res. 304(72), IMO Doc. MEPC 304(72) (13 Apr., 2018), at 6. Compare IMO, Member States, https://www.imo.org/en/OurWork/ERO/Pages/MemberStates.aspx (last visited 20 July, 2023) with United Nations Treaty Collection, Status of Paris Agreement, https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-d&chapter=27&clang=_en (last visited 20 July, 2023).

118 UNFCCC, 'Report of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement on its third session, held in Glasgow from 31 October to 13 November 2021,' UN Doc. FCCC/PA/CMA/2021/10/Add.1 (8 Mar., 2022), Decision 1/CP.26, ¶ 16; IMO, Report of the Marine Environment Protection Committee on its Seventy-Eighth Session, IMO Doc. MEPC 78/17 (June 24, 2022), 33, 40.

119 IMO, *supra* n. 3, 6.

120 ILC, *supra* n. 16, 115.

121 Viñuales, *supra* n. 16, 116-117 (citing Rep. of the UN Conf. on Envir. and Devel., Rio Declaration on Environment and Development, A/ CONF.151/ 26 (1992); Responsibilities and Obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area, Advisory Opinion, Case No. 17, 2011 ITLOS Rep. 10, ¶¶ 125-135 [hereinafter *Seabed Advisory Opinion*]).

122 Mayer, *Climate Change Mitigation, supra* n. 16, 134.

123 See Section 2.2.1, *infra* regarding their relevance to a customary international obligation.

They principles should be read to encompass shipping's climate impacts for the same reason that they encompass states' emissions: the sector's aggregate annual GHG emissions are more than 700 million metric tons of carbon, which qualifies it as a leading global source of climate pollution.[124] Accordingly, the risk that shipping contributes to climate change is likely rather than speculative.[125] Although each state's share of the harm posed by shipping's climate impact varies depending on its maritime trade, incremental reductions will lessen the risk of significant harm, as with other emissions. Shipping's climate impacts therefore cross the threshold for harm prevention. Because limiting global warming to 1.5 degrees is necessary to avoid a high risk of sea level rise that damages small islands and coastal areas, species loss and extinction, ocean acidification, and other harm,[126] the Paris Agreement's 1.5 degree goal should be interpreted as a legal benchmark for shipping's climate emissions and for the prevention of disastrous levels of climate change more broadly.

Yet multiple studies suggest that the IMO's current measures are not compatible with that goal, assuming that shipping only needs to achieve average global reductions.[127] Thus, although the Paris Agreement's temperature goals are substantively linked to shipping—through the IMO's citation to them in its resolutions and the application of international environmental principles—there is not yet a legal framework to hold states to account for this sector's emissions. National courts have given the Paris Agreement's temperature goals legal weight as normative standards for actions by governments and corporations that inform the substance of legal obligations.[128] As discussed next, the 1.5 degree goal can operate in a similar way to inform legal obligations for international shipping.

2.2 A Due Diligence Obligation to Mitigate

In this section, I discuss the debate on whether states have a due diligence obligation to take all necessary measures to mitigate climate change, imposed by three areas of international law: customary international law; human rights treaties; and the LOSC. I do not definitively answer those important questions, but instead examine sources of law and scholarly perspectives to determine that, to the extent that such obligations exist, they must extend to international shipping.

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124 See sources cited *supra* notes 1 and 5 .

125 Viñuales, *supra* n. 16, 123 ('Risk, in this context, requires a reliable probability ("high" or "small", but reliable as opposed to volatile) of a negative outcome').

126 IPCC, *supra* n. 6, 8-9.

127 See sources cited *supra* n. 5. There are reasons to believe that the sector should decarbonize more quickly given that it is relatively easy and inexpensive for it to do so compared with other economic sectors such as aviation and land use. Maria Sharmina, et al., 'Decarbonising the Critical Sectors of Aviation, Shipping, Road freight and Industry to Limit Warming to 1.5–2°C,' (2021) 21(4) *Climate Policy* 455, 462.

128 See, e.g., *Urgenda v. Netherlands*, *supra* n. 20; Bundesverfassungsgericht [BvR] [Federal Constitutional Court] 24 Mar., 2021, 2656 Entscheidungen des Bundesverfassungsgerichts [BVerfGE], 1, 192 (2021) (English translation) [hereinafter *Neubauer*], ¶ 7.

2.2.1 Customary International Law

The application of international environmental legal principles to specific disputes—and their crystallization into binding customary international law—is ad-hoc.[129] Courts identify customary international law by looking to whether there is a 'general practice . . . accepted as law,' in other words, whether there is widespread, representative, and consistent practice among states that is viewed by those states as legally required.[130]

Mayer surveys state practice and identifies a customary obligation to mitigate climate change, but finds that because almost all states are mitigating in a way that is inconsistent with the Paris Agreement's temperature goals (both the 2 and 1.5 degree goals), there is currently insufficient state practice to support a customary obligation tied directly to them.[131] He instead identifies an obligation for states to 'follow consistently, over time, a reasonable interpretation of the temperature targets' as applied to their own mitigation goals, in other words, a state could choose the least demanding interpretation of its fair share of the collective effort to meet the targets as long as the choice was justified.[132] Under Mayer's analysis, as part of their good faith mitigation efforts, states must take necessary or appropriate measures, which might include assessment, project planning, and internally consistent policies.[133] He concedes that his conservative approach is less demanding than that adopted by several courts that have relied on customary legal principles in climate disputes, including the Dutch Supreme Court's approach in *Urgenda v. Netherlands*.[134]

How does Mayer's finding intersect with international shipping? I agree that there is insufficient state practice to indicate a customary legal obligation to mitigate climate change consistent with the Paris Agreement's goals. Mayer also appears correct that states have a customary obligation to identify and implement a fair share contribution towards the prevention of global warming that reaches disastrous levels.[135] That process necessarily involves consideration of international shipping: the sector consists of a large and growing share of the carbon budget available to prevent global warming above 1.5 degrees; and some studies estimate that it will account for more than one hundred percent by 2050 under a business-as-usual scenario.[136] Thus, any 'reasonable interpretation' of what the temperature goals demand must include the sector and its growth.[137]

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129 Pierre-Marie Dupuy & Jorge E. Viñuales, *International Environmental Law* (Cambridge, 2nd Ed. 2018), 60-62 (discussing differences between principles, concepts, and rules).

130 ILC, Draft Conclusions on Identification of Customary International Law, conclusion 8(1), in ILC Rep., 70th Sess., 120, UN Doc. A/73/10 (2018).

131 Mayer, *Climate Change Mitigation, supra* n. 16 at 142-43.

132 Ibid., 145.

133 Ibid., 147-50.

134 Ibid., 150.

135 Ibid., 145.

136 See sources *supra* at n. 5.

137 See Mayer, *Climate Change Mitigation, supra* n. 16.

Is there also a specific customary legal obligation to consider and mitigate the international shipping sector's emissions, either through the IMO or on a unilateral, bilateral, or regional basis? The IMO's member states have unanimously resolved that the IMO will reduce shipping's emissions consistent with the Paris Agreement's temperature goals.[138] But those resolutions themselves do not legally bind states,[139] and the IMO has not implemented measures that would achieve emissions reductions consistent with the Agreement's temperature goals.[140] The resolutions therefore do not constitute state practice consistent with a customary legal obligation.

As noted above, some states have asserted in their NDCs that they are committed to reducing shipping's climate impacts through the IMO.[141] NDCs have legal status under the Paris Agreement, are arguably binding undertakings, and have been enforced against states in domestic courts.[142] Committing to act in an NDC therefore has particular legal salience. In contrast to state practice when used as a supplementary means of treaty interpretation, in which case the practice must be unanimous, in the case of the identification of customary international obligations 'the most important practice is that of 'States whose interests are specially affected.'[143] The states that have committed to work through the IMO in their NDCs to reduce shipping's emissions include some, but not all, major flag and port states.[144] But it is very difficult to determine which, if any, states are 'specially affected' by international shipping's climate impacts given its global reach.[145] Therefore, in my view there is insufficient support for a customary international legal obligation requiring that states reduce shipping's climate impacts through the IMO or on a unilateral, bilateral, or regional basis.

Yet states' commitments in their NDCs and increasing unilateral actions indicate that there may be an emerging customary norm that states must address shipping's climate impacts.[146] This has several legal consequences. States are under an obligation to persistently

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138 MEPC 304(72), *supra* n. 117 at 4; MEPC 377/80, *supra* n. 3 at 6; MEPC 78/17, *supra* n. 118, 33.

139 Aldo Chircop, 'The IMO Initial Strategy for the Reduction of GHG Emissions from International Shipping: A Commentary,' (2018) 34 *International Journal of Marine & Coastal Law* 482, 509.

140 IMO, *supra* n. 4.

141 See sources *supra* at n. 113.

142 Benoit Mayer, 'International Law Obligations Arising in Relation to Nationally Determined Contributions,'(2018) 7(2) *Transnational Environmental Law* 251; Mayer, *supra* n. 16.

143 Scharf, *supra* n. 18 at 314 (quoting *North Sea Continental Shelf,* ¶ 74.).

144 See sources cited at *supra* n. 113; UNCTAD, *supra* n. 1, 41 (top flag states), 82 (top port states).

145 See UNCTAD, *supra* n. 1, xv (noting that ships carry over 80 percent of the volume of global trade); Kevin Jon Heller, 'Specially-Affected States and the Formation of Custom,' (2018) 112(2) *American Journal of International Law* 191, 193 ('a state should be considered specially affected if it either engages in a practice that some states do not or is distinctively affected by a practice-directly or indirectly-in a manner that distinguishes it from other states').

146 See Scharf, *supra* n. 18, 318-20 (discussing the role of emerging norms in development of customary international law); 323 (explaining how the acceptance of such norms as law can be shown by couching "their innovation in the language of existing law" or through "consent to an

object to an emerging customary norm if they disagree in order to avoid being bound to the resultant customary legal obligation.[147] The current body of state practice will be relevant to judicial determinations of general trends that can 'crystalize emerging rules and influence state behavior.'[148] In addition, a future UN General Assembly resolution could be sufficient to 'consolidate' the state practice into a customary obligation, depending on the resolution's text and the vote.[149]

Even though there is no binding obligation in customary international law to mitigate shipping's climate emissions, principles of international environmental law nevertheless play an important role in the scope and content of any treaty obligation to do so. Principles can give coherence to obligations and help with their interpretation.[150] They 'point to particular decisions about legal obligation[s] in particular circumstances,' and give 'a reason that argues in one direction, but does not necessitate a particular decision.'[151] There are many examples of this function: the harm prevention and precaution principles were used by the International Court of Justice to illuminate Uruguay's treaty obligations in *Pulp Mills*;[152] the Dutch Supreme Court cited the no harm principle to interpret Articles 2 and 8 of the European Convention on Human Rights;[153] and the Inter-American Court of Human Rights referred to the principles of harm prevention and precaution among others in addressing Colombia's obligation to respect the rights to life and personal integrity.[154] Thus the climate risks posed by a state's maritime sector and a state's associated due diligence obligations under treaty regimes should be informed by general principles, such as harm prevention and precaution, even in the absence of a legally-binding customary obligation.

2.2.2 Human Rights

For over a decade, climate law has experienced a 'rights based turn,'[155] and in recent years that turn has been wide enough to encompass international shipping. Successful climate lawsuits have been grounded in human rights guaranteed under international treaties, state constitutions, and other legal bases, such as the use of tort law in the *Urgenda* case.[156]

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emerging rule" rather than acknowledgement that it already has the force of law).

147 Ibid., 318.

148 Ibid., 321 (quoting Anthea E. Roberts, 'Traditional and Modern Approaches to Customary International Law: A Reconciliation,' (2001) 95 *American Journal of International Law* 757, 775).

149 Ibid., 326–27.

150 Gilles J. Martin, 'Principles and Rules,' in M Faure (ed), *Elgar Encyclopedia of Environmental Law, Volume IV* (Elgar 2018), 19-21.

151 Ronald Dworkin, *Taking Rights Seriously* (Bloomsbury 2013) (Harvard 1977), 40, 42.

152 Pulp Mills on the River Uruguay (*Arg. v. Uru.*), 2010 I.C.J. Rep. 14, ¶ 193, 200 (20 Apr.).

153 *Urgenda*, *supra* n. 20, ¶¶ 5.6.1, 5.7.5.

154 *Colombia Advisory Opinion*, *supra* n. 20, ¶¶ 104(h), 106, 107. See also Mayer, *supra* n. 16, 139, 143 (citing domestic and regional litigation that appeals to customary law).

155 Peel and Osofsky, *supra* n. at 20, 46.

156 *See, e.g., Urgenda*, *supra* n. 20, fn. 35; *Neubauer*, *supra* n. 128, ¶ 203. *See also* Anxhela Mile, 'Emerg-

The European Court of Human Rights recently ruled that Switzerland's climate mitigation measures were inconsistent with the rights to life and health guaranteed under the European Convention on Human Rights.[157] The UN General Assembly in its request for an advisory opinion to the International Court of Justice asked the court to have regard for the 'the International Covenant on Civil and Political Rights, the International Covenant on Economic, Social and Cultural Rights . . . [and] the rights recognized in the Universal Declaration of Human Rights,'[158] demonstrating that human rights implicate climate obligations.

Many scholars and UN bodies take this view, finding that the protection of human rights necessarily requires preventing and addressing climate harm.[159] Others argue that human rights offer only a 'narrow window' to compel mitigation for various reasons, including the diffuse and technical causes of climate change and the 'absence of identifiable victims.'[160] For example, Mayer writes that 'a state's action on climate change mitigation, in itself, cannot be considered as a necessary or appropriate measure because it would result in virtually no benefit to the rights of individuals within that state's territory or under its jurisdiction.'[161] He concludes that, because a state's individual emission reductions alone are insufficient to remedy human rights violations resulting from climate harm within its territory, human rights law—with its traditional territorial grounding—is not legally suited to address climate change.[162]

Recently, the Committee on the Rights of the Child in *Saachi v. Argentina* took a different approach, adopting a test that looked to whether petitioners' asserted climate harms were caused by the respondent states' acts or omissions because they were 'reasonably

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ing Legal Doctrines in Climate Change Law – Seeking an Advisory Opinion from the International Court of Justice,' (2021) 56 *Texas International Law Journal* 59, 83-85 (discussing human rights cases and climate mitigation duties).

157 *Case of Verein Klimaseniorinnen Schweiz and Others v. Switzerland*, *supra* n. 20, ¶¶ 573–74.

158 A/77/L.58, *supra* n. 13, 3.

159 See, e.g., OHCHR, Report of the Office of the United Nations High Commissioner for Human Rights on the Relationship between Climate Change and Human Rights, UN Doc. A/HRC/10/61 (15 Jan., 2009) ¶ 16; UN HRC Res. 29, 'Human Rights and Climate Change', UN Doc. A/HRC/29/L.21 (30 June, 2015), ¶ 4; Alan Boyle, 'Climate Change, the Paris Agreement and Human Rights,' (2018) 67 *International & Comparative Law Quarterly* 759, 773-776; John H. Knox, Essay, 'Climate Change and Human Rights,' (2009) 50 *Virginia Journal of International Law* 163, 190-210.

160 Benoit Mayer, 'Climate Change Mitigation as an Obligation under Human Rights Treaties?,' (2021) 115 *American Journal of International Law* 409, 413, 422; see also Alexander Zahar, 'Human Rights Law and the Obligation to Reduce Greenhouse Gas Emissions,' (2022) 23 *Human Rights Review* 385, 407 (arguing that causation and non-trivial harm amounting to a human rights violation cannot be shown from GHG emissions).

161 Mayer, *supra* n. 160, 433; see also Peel and Osofsky, *supra* n. 20, 40, 63 (noting that many states resist extra-territorial human rights obligations).

162 Mayer, *supra* n. 160, 424-425.

foreseeable' consequences of the states' GHG emissions.[163] The Committee drew on the Inter-American Court of Human Right's 2017 *Advisory Opinion on the Environment and Human Rights* which held that a state's human rights jurisdiction for transboundary harms arises 'if there is a causal link between the action that occurred within its territory and the negative impact on the human rights of persons outside its territory.'[164] Although the Committee ultimately found it did not have jurisdiction because the petitioners failed to exhaust domestic remedies,[165] the decision nevertheless represents a meaningful evolution in human rights jurisprudence.

In addition to causation objections, scholars and states have argued against using the climate regime's temperature goals in human rights disputes.[166] For example, in the *Billy et. al.* case at the UN Human Rights Committee, Australia argued that systemic integration under the Vienna Convention on the Law of Treaties did not justify the incorporation of the Paris Agreement's temperature goals into its obligations under the International Covenant on Civil and Political Rights (ICCPR) because the 'two instruments have different aims and scopes.'[167] The Committee found that it could consider arguments about whether Australia was complying with its obligations under other treaties and agreements,[168] but did not directly incorporate the climate regime's principles or standards into ICCPR obligations.[169] On the merits, the Committee determined that because the threat to Torres Strait islanders from climate change was reasonably foreseeable to Australia, Australia had a duty to take 'necessary' measures, including adaptation measures that would protect the islanders' human rights.[170] Several Committee members wrote separately to say that Australia also had human rights obligations to reduce its GHG emissions in a way that was consistent with the Paris Agreement's temperature goals.[171]

Other scholars claim that human rights law requires states to go beyond the commitments in their Paris Agreement NDCs because the commitments, even if carried out, fall far short of preventing 'disastrous' human rights outcomes.[172] Margaretha Werwerinke-Singh

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163 *Saachi*, *supra* n. 21, ¶ 10.5-.7.

164 Ibid.; *Colombia Advisory Opinion*, *supra* n. 21, ¶ 104(h).

165 Ibid., ¶ 10.21.

166 Mayer, *supra* n. 160 at 442–443.

167 *Billy et al.*, *supra* n. 21, ¶¶ 4.1-4.3.

168 Ibid., ¶ 7.5.

169 Ibid., ¶¶ 8.1-12 (climate regime's principles and standards not referenced in merits portion of decision). See also *Teitiota v New Zealand*, UNHRC, Comm No 2278/2016, UN Doc CCPR/C/127/D/2728/2016 (2019), ¶ 9.11 ('without robust national and international efforts, the effects of climate change in receiving states may expose individuals to a violation of their rights under articles 6 or 7 of the Covenant').

170 Ibid., ¶ 11.

171 Ibid., Annex I, ¶¶ 4-6 and Annex II, ¶¶ 10-13.

172 Boyle, *supra* n. 159, 774 (quoting John Knox (Special Rapporteur on the Issue of Human Rights Obligations Relating to the Enjoyment of a Safe, Clean, Healthy and Sustainable Environment)

and Ashleigh McCroach argue that the 1.5 degree target should be incorporated into human rights obligations, and, in a similar approach to the one taken in *Urgenda*, suggest that courts could determine acceptable emissions trajectories for particular states using principles such as equity and common-but-differentiated responsibilities and respective capacities (CBDR-RC).[173] They reason that the 1.5 degree target can be seen as 'common ground' between states, which must then individually translate scientific evidence into fair shares in light of those principles.[174]

That approach is being implemented in practice. A member of the UN Human Rights Committee in *Billy et. al.* found that states have a due diligence obligation to set their national mitigation targets at the highest possible level, and a higher standard of due diligence applies with respect to states with significant total emissions, very high per capita emissions, and those with greater capacities to mitigate.[175] The Dutch Supreme Court followed a similar line of reasoning when holding that the Netherlands had to do more because of its high level of development and high per capita emissions.[176] And in *Declic Association v. The Government of Romania et al.,* the petitioners argue that the test of whether 'all possible measures [have] been taken to reduce emissions' consistent with human rights obligations requires examining whether a state has taken steps to eliminate 'luxury emissions' or 'convenience emissions' and only allowed emissions 'strictly necessary for the realization of human rights.'[177] Thus, a sliding scale of risk and care can be applied depending on a respondent's level of development and the diligence of its actions.[178]

A human rights obligation to prevent climate harm would likewise apply to international shipping. The sector has many legal interactions with states—through the control of shipping companies by flag states and other states, the regulation of port access, and decision-making within the IMO.[179] The European Court of Human Rights has held that states are required to use all possible efforts to secure rights even if a state does not have

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Report of the Special Rapporteur, UN Doc A/HRC/31/52 (1 Feb., 2016), ¶¶ 72–84).

173 Margaretha Wewerinke-Singh and Ashleigh McCoach, 'The State of the Netherlands v Urgenda Foundation: Distilling Best Practice and Lessons Learnt for Future Rights-based Climate Litigation,' (2019) 30 *RECIEL* 275, 278-20.

174 Ibid. at 280.

175 *Billy et al.*, *supra* n. 21, Individual opinion by Committee member Gentian Zyberi (concurring), ¶ 3-5.

176 *Urgenda*, *supra* n. 20, ¶¶ 6.2, 7.3.4.

177 Declic Association. v. the Government of Romania (Complaint), Cluj Court of Appeal, File No. 114/33/2023, (31 Jan., 2023) (Rom.) at 44, *translated at*:https://climatecasechart.com/non-us-case/declic-et-al-v-the-romanian-government/

178 Knox, *supra* n. 172, ¶ 46 ('all States have a duty to work together to address climate change, but the particular responsibilities necessary and appropriate for each State will depend in part on its situation').

179 See Section 1, *supra*.

full control over a territory or activity.[180] In calling for a new binding instrument to regulate transnational corporations with respect to human rights, the UN Human Rights Council stressed that while international obligations to protect human rights lie with states, they 'must protect against human rights abuse within their territory and/or jurisdiction by third parties, including transnational corporations.'[181] Similarly, the Committee on the Rights of the Child found that states' obligations under the Convention on the Rights of the Child 'must' be fulfilled with respect to business activities under their jurisdiction.[182] Thus, states' jurisdiction over the entities and vessels engaged in international shipping implicates their due diligence obligations to prevent climate harm, even though vessels emit GHGs both outside and within national maritime zones.[183]

Shipping's climate impacts meet the causal test articulated in *Saachi v. Argentina* and *Billy et. al.*[184] Large port states have shipping sectors that generate millions of tons of carbon dioxide emissions annually, and some flag states have primary jurisdiction over of thousands of ships.[185] It is therefore reasonably foreseeable that those states' shipping policies could pose a significant risk of climate change that will harm human rights.[186] And the sector as a whole, governed by states through the IMO, emits a significant and increasing share of global emissions.[187] Therefore, states must diligently address ship emissions at the IMO and unilaterally in order to prevent temperature increases above 1.5 degrees and avoid the human rights harms that will foreseeably follow.

Moreover, human rights law continues to evolve towards environmental protection. In 2022, the UN General Assembly recognized the right to a clean, healthy, and sustainable environment as a human right,[188] and pending cases before regional human rights courts

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180 Ilaşcu and Others v. Moldova and Russia, App. No. 48787/ 99, ¶¶ 331, 333 (8 July, 2004), https://hudoc.echr.coe.int/eng?i=001-61886.).

181 UN Human Rights Council, Res. 26/9, Elaboration of an international legally binding instrument on transnational corporations and other business enterprises with respect to human rights, UN Doc. A/HRC/RES/26/9 (29 June, 2014), 2.

182 UN Committee on the Rights of the Child, General comment No. 16 (2013), State Obligations Regarding the Impact of the Business Sector on Children's Rights, Doc. CRC/C/GC/16 (17 Apr., 2013), ¶ 8.

183 See Alex Oude Elferink, 'The Arctic Sunrise Incident: A Multi-faceted Law of the Sea Case with a Human Rights Dimension,' (2014) 29 *International Journal of Marine & Coastal Law* 244, 270-273 (discussing interaction between a state's human rights jurisdiction and enforcement jurisdiction under the law of the sea).

184 *Billy et al.*, *supra* n. 21, ¶ 8.3; *Saachi v. Argentina*, *supra* n. 21, ¶¶ 10.4-.5.

185 2020 UK Greenhouse Gas Emissions, Final Figures (1 Feb., 2022) (stating that international shipping emissions were estimated at 6.1 million tons in 2020); UNCTAD, *supra* n. 1, 42.

186 See sources cited at *supra* n. 21.

187 See sources cited at *supra* notes 1 and 5.

188 G.A. Res. 76/300, The Human Right to a Clean, Healthy and Sustainable Environment, 3 (28 July, 2022).

and the International Court of Justice may clarify how human rights intersect with and impact states' obligations to prevent climate harm.[189] In light of the international shipping sector's climate impacts, human rights law requires that states diligently mitigate the risk of climate harm that the sector poses to greatest extent possible.

2.2.3 The UN Convention on the Law of the Sea

Similar to human rights treaties, the LOSC does not mention climate change or ocean warming and acidification. But Part XII of the treaty imposes environmental obligations that apply to states' climate emissions, including those arising from shipping.[190] Article 192 provides that '[s]tates have the obligation to protect and preserve the marine environment.'[191] Article 194 requires that they take 'all measures consistent with this Convention that are necessary to prevent, reduce and control pollution of the marine environment from any source,' and that they 'take all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other States and their environment.'[192]

These provisions codified the harm prevention principle in the context of protecting the marine environment.[193] Perhaps recognizing the existence of a customary obligation, the UN General Assembly asked the International Court of Justice to have regard to 'the duty to protect and preserve the marine environment,' in addition to having regarding to the LOSC, in an advisory opinion on climate obligations.[194] But in contrast to a legal principle that binds through custom, the LOSC is a treaty that has been ratified by nearly every state.[195] The most significant non-party—for the purposes of this Article—is the United States, whose courts have found that certain of its provisions, including those in Part XII, reflect customary international law.[196] Accordingly, the treaty's text, its signatories subsequent

189 See sources at *supra* notes 13 and 157.

190 Catherine Redgwell, 'Treaty Evolution, Adaptation and Change: Is the LOSC 'Enough' to Address Climate Change Impacts on the Marine Environment,' (2019) 34 *International Journal of Marine & Coastal Law* 440, 445. See also James Cameron Glickenhaus, 'Potential ICJ Advisory Opinion: Duties to Prevent Transboundary Harm from GHG Emissions,' (2015) 22 *N.Y.U. Environmental Law Journal* 117, 141-145 (discussing states' affirmative duties under the LOSC and that they encompass the prevention of GHG emissions).

191 LOSC, *supra* n. 22, Art. 192.

192 Ibid., Art. 194.

193 Dupuy and Viñuales, *supra* n. 129, 67.

194 A/77/L.58, *supra* n. 13, 3.

195 United Nations Treaty Collection, Status of Treaties, United Nations Convention on the Law of the Sea, https://treaties.un.org/Pages/ViewDetailsIII.aspx?src=IND&mtdsg_no=XXI-6&chapter=21&Temp=mtdsg3&clang=_en (last visited 20 July, 2023).

196 *Sarei v. Rio Tinto, PLC*, 221 F.Supp. 2d 1116, 1160-63 (C.D. Cal. 2002) (plaintiffs could state a claim that for environmental harm based on violation of LOSC provisions because the treaty 'reflects customary international law'); *Sarei v. Rio Tinto, PLC*, 650 F.Supp. 2d 1004, 1026 (C.D.

practice, and judicial decisions applying the treaty can be used to help determine the scope and content of what it requires.[197]

The LOSC's reference to 'pollution of the marine environment' encompasses GHG emissions.[198] The Convention defines pollution broadly as 'the introduction by man . . . [of] substances or energy into the marine environment' and various types of pollutants have been classified as such in IMO legal instruments, including noise, trash, and GHG emissions from ships.[199] Moreover, ocean acidification directly results from CO_2 emissions, establishing a clear nexus between impacts on marine biodiversity and the predominant climate pollutant.[200] Thus, 'there is widespread consensus that climate change and ocean acidification fall within the scope of Part XII.'[201] Accordingly, the LOSC is facially broad enough to include GHG emissions from any source within its definition of pollution of the marine environment.[202]

Moreover, LOSC jurisprudence supports the argument that the treaty imposes a due diligence obligation to mitigate climate change.[203] The *South China Sea* arbitral tribunal found that Articles 192 and 194 impose due diligence obligations to protect the marine environment from future damage and preserve the marine environment in its present condition.[204] And, in an advisory opinion examining the general obligations in Articles 192 and 194, the International Tribunal for the Law of the Sea found that due diligence requires a state to 'deploy adequate means, to exercise best possible efforts, to do the utmost.'[205] As

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Cal. 2007) (explaining that while the LOSC's environmental provisions 'may reflect customary international law that is specific and obligatory' they are not *jus cogens* norms). See Duff, *supra* n. 22.

197 Redgwell, *supra* n. 190, 446 ('LOSC was always intended to be capable of further evolution'); Irina Buga, *Modification of Treaties by Subsequent Practice* (Oxford 2018), 337, n. 835 ('the general environmental approach of the LOSC is gradually changing through regime interaction fuelled by subsequent practice').

198 Boyle, *supra* n. 23, 463.

199 LOSC, *supra* n. 22, Art. 1(1)(4); IMO, *supra* n. 48.

200 Karen N. Scott, 'Ocean Acidification: a Due Diligence Obligation Under the LOSC,' (2020) 35 *International Journal of Marine & Coastal Law* 382, 384-389.

201 Redgwell, *supra* n. 190, 445 n. 27 (citing Alan Boyle, 'Law of the Sea Perspectives on Climate Change,' (2012) 27 *International Journal of Marine & Coastal Law* 831, 832. *See also* Roland Holst, *supra* n. 27 (accord).

202 Redgwell, *supra* n. 190, 448-450.

203 Roland Holst, *supra* n. 27, 5 (citing South China Sea Arbitration (Phil. v. China), PCA Case Repository, Case No. 2013-9 (12 July, 2016) [hereinafter *South China Sea*] and *Southern Bluefin Tuna*, *supra* n. 32, ¶ 70).

204 *South China Sea*, *supra* n. 203, ¶ 940.

205 Request for Advisory Opinion Submitted by the Sub-Regional Fisheries Commission, Advisory Opinion, Case No. 21, 2015 ITLOS Rep. 4, ¶129 [hereinafter *SRFC Advisory Opinion*] (quoting *Seabed Advisory Opinion*, *supra* n. 121, ¶¶ 110-117.)

Roland Holst points out, 'the open-ended character of due diligence obligations … requires a case-by-case assessment,' and 'also provides an opening for systemic integration by interpreting UNCLOS' in line with other sources of international law such as the UNFCCC, Paris Agreement, or customary international law.[206] She further notes that because states' NDCs under the Paris Agreement fall short of preventing warming above its temperature goals, 'it can be argued that due diligence under UNCLOS obliges states to do more.'[207]

The LOSC has a global reach.[208] In *South China Sea*, the tribunal held that 'the obligations in Part XII apply to all states with respect to the marine environment in all maritime areas, both inside the national jurisdiction of States and beyond it.'[209] In that case and *Southern Bluefin Tuna*, the tribunals found that the general obligation in Article 192 and 194 to protect the marine environment includes the protection of ecosystems and biodiversity, in line with developments in international environmental law.[210] Thus, the LOSC's scope includes the entirety of the world's ocean and the life within it.

There would likely be *lex specialis* objections to interpreting the LOSC as imposing climate obligations that are more stringent than what the Paris Agreement demands.[211] But what the Paris Agreement demands is open-textured.[212] Thus, as Boyle explains, 'if the question arises what measures are 'ambitious' enough to constitute the 'necessary measures' required by the LOSC, a comparison could be made with the best performers in a similar situation.'[213] Accordingly, the LOSC's broad environmental obligations and progressive caselaw indicate it could support a due diligence climate change obligation that, depending on the state and the factual situation, would allow incorporation of the Paris Agreement's requirement that states adopt the highest possible ambition for GHG reductions.[214]

Yet, as detailed above, the Paris Agreement does not directly or clearly apply to shipping, while the LOSC does. Irini Papanicolopulu notes that the content of the LOSC's general due diligence obligation can be 'proceduralized' with specific rules that must be adopted. She gives as an example the pollution of the marine environment by ships and 'generally accepted international rules and standards,' (GAIRS) i.e., MARPOL.[215] In a similar vein, Redgwell writes that 'the only elaboration of GAIRS in the climate context has been the

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206 Roland Holst, *supra* n. 27, 223.

207 Ibid.

208 *But see* Mayer, *supra* n. 16, 109 (LOSC 'may imply an obligation for states to mitigate climate change only in relation to the particular environmental resources [it] obliges states to conserve').

209 *South China Sea Arbitration*, *supra* n. 203, ¶ 940.

210 Ibid., ¶¶ 941-945; *Southern Bluefin Tuna*, *supra* n. 32, ¶70.

211 Boyle, *supra* n. 23, 471-472.

212 See Section 2.1 *supra*.

213 Boyle, *supra* n. 23, 474.

214 Ibid.

215 Irini Papanicolopulu, 'Due Diligence in the Law of the Sea' in H Krieger et al. (eds), *Due Diligence in the International Legal Order* (Oxford 2021), 158.

amendment of MARPOL Annex VI to include the regulation of GHG emissions from international shipping.'[216] Other scholars have argued that Article 211, which requires that states establish GAIRS for shipping through the IMO, 'completes the obligation of States under article 194, paragraph 3(b), to take measures designed to minimize to the fullest possible extent pollution of the marine environment from vessels.'[217]

In my view, the reference to the 'fullest possible extent' in Article 194 is analogous to the Paris Agreement's requirement that its parties make contributions represent their 'highest possible ambition' to the temperature goals.[218] Thus, when adopting GAIRS at the IMO, states are obliged to take all necessary measures to protect the marine environment. That obligation has a particular meaning in the context of designing and implementing IMO climate regulations, discussed in Section 3(1) below.[219]

The LOSC can also be interpreted to obligate states to act unilaterally to prevent, reduce, and control vessel source pollution in a way that is more aggressive than what GAIRS require. In other words, IMO rules should be seen as either a floor or a reference point for what states must do to fulfill their general obligations to protect the marine environment, not a standard that per se satisfies Articles 192 and 194.[220] Under the LOSC's Article 211, flag states must adopt rules 'at least as effective' as IMO rules, and Article 212 requires flag states to adopt and implement rules for atmospheric pollution from ships that take IMO rules 'into account.'[221] Other articles in the LOSC differ because they require that states enact or enforce laws that 'conform to' GAIRS or 'ensure compliance with them.'[222] In contrast the LOSC's drafters expressly anticipated in this case that states could and would implement measures that are more demanding than IMO rules.

Moreover, Articles 192 and 194 mandate that states protect the marine environment using the 'best practicable means at their disposal and in accordance with their capabilities.'[223] This differentiated approach contrasts starkly with the no-more-favorable treatment principle enshrined in Articles 211, 212, and MARPOL,[224] and it applies to all states and all maritime zones, not only flag states.[225] The LOSC contemplates that states will impose 'particular requirements'[226] for vessels that voluntarily enter their ports, and port state control is 'developing from a right into an obligation'[227] In light of the current

216 Redgwell, *supra* n. 190, 450-51.

217 'Article 211,' in *UNCLOS Commentary Online*, Myron H. Nordquist et al. (eds) (Brill 2011), 180.

218 Paris Agreement, *supra* n. 6, Art. 4(3).

219 See Section 3 *infra*.

220 LOSC, *supra* n. 22, Art. 211.

221 Ibid., Art. 211, 212.

222 Ibid., Art. 41(3); 53(8); 94(5).

223 Ibid., Art. 194(1).

224 See *supra* text accompanying notes 58-62.

225 LOSC, *supra* n. 22, Art. 211, 212.

226 Ibid., Art. 211(3); 218(2).

227 Rothwell, et al., *supra* n. 69., 893.

inadequacy of the IMO's climate rules,[228] the best practical means to protect the marine environment are unilateral measures, at least for states similarly situated to those in the European Union.[229]

This progressive interpretation of states' obligations under the LOSC is consistent with the way in which due diligence climate obligations are viewed generally. As Jaqueline Peel explains, compliance with climate treaty obligations should not be viewed as legally equivalent to satisfying a due diligence obligation to prevent environmental damage.[230] She reasons that the climate regime has a relatively narrow focus on requiring cooperation between states, and emission reduction commitments made within it are widely viewed as inadequate.[231] Similarly in the context of maritime climate measures, because the emission reduction pathways established by IMO rules are incompatible with limiting global warming to 1.5 degrees, compliance with them should not be viewed as satisfying the requirement that states take 'all measures . . . that are necessary to prevent, reduce and control pollution of the marine environment from any source.'[232] State practice more stringent than IMO pollution rules is 'scarce.'[233] But the European Union's climate measures, and an earlier ship recycling regulation, are notable examples.[234] Accordingly, rather than merely requiring that states implement IMO rules, the LOSC—read together with human rights obligations and customary principles—obliges states to use all necessary measures to mitigate shipping's climate risks.

3.0 Necessary Measures

What exactly must states do to fulfill their due diligence obligation to mitigate shipping's climate impacts? The sector's effects on the climate system are cumulative to those from national emissions and international aviation. Thus, if states collectively reduced emissions from all sources besides shipping and implemented carbon removal and sequestration to address shipping's emissions, no further action would be needed to prevent 1.5 degree warming.[235]

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228 See sources at notes 5 and 6, *supra*.

229 See EU Maritime Climate Legislation, *supra* n. 7, ¶ 28 (expanding shipping measures in 2028 if IMO has not enacted a market-based measure by then.) See Section 3.2 *infra* (discussing unilateral measures).

230 Peel, *supra* n. 27, 1034-1035.

231 Ibid.

232 LOSC, *supra* n. 22, Art. 194.

233 Bartenstein, *supra* n. 61, 1429, n. 55.

234 Ibid.

235 See Bullock, *supra* n. 5, 304-05 (global carbon budget of 373 gigatons of CO_2 from 2021 to 2050 available for a 50 percent chance of limiting warming to 1.5 degrees); IMO Fourth Greenhouse Gas Study, *supra* n. 4, Table 1, Figure 1 (estimating international shipping's annual emissions from 2021 onwards at between 800 million and 1 gigaton of CO_2).

That scenario is unrealistic. Therefore, states must address the sector's emissions in order to prevent climate change that harms human rights and the marine environment. But not every action relating to shipping's impact on the climate would be enough. Establishing compliance with due diligence obligations in the climate context 'requires assessing whether a balance has been equitably struck between what is possible and what is economically acceptable.'[236] Reasonableness, flexibility, and objectivity are common elements of due diligence obligations, and measures must be proportional, meaning that technological and economic abilities should be balanced against state interests.[237] Accordingly, the content of obligations can change over time.[238] Due diligence can be measured 'in terms of technical and scientific standards of behavior that are commonly accepted by States.'[239] As Nikolaos Giannopoulos writes, states 'must consider the contemporary level of technological and scientific progress, because developments in scientific awareness regarding the risks posed by specific activities may enhance the level of due diligence required.'[240]

Shipping industry practice also illuminates the due diligence that should be expected from states. The World Shipping Council, which represents the liner shipping industry, has endorsed climate policies that are more ambitious than the IMO's, calling for application of a carbon price using a market-based mechanism such as a trading system or tax on maritime fuel.[241] Specific companies have gone further: Maersk, one of the world's largest container shipping companies, has committed to net zero emissions by 2040; and other companies have committed to interim goals and policies that are more ambitious than those adopted

236 Annalisa Savaresi, 'Inter-State Climate Change Litigation: 'Neither a Chimera nor a Panacea,' in I Alogna, et al. (eds), *Climate Change Litigation: Global Perspectives* (Brill 2021), 377.

237 Papanicolopulu, *supra* n. 215, 152-153 (citing *Seabed Advisory Opinion*, *supra* n. 121, ¶ 110). See also Christina Voigt, 'State Responsibility for Climate Change Damages,' (2008) 77 *Nordic Journal of International Law* 1, 10 (with due diligence obligations, 'What constitutes the appropriate standard of care is, thus, determined by looking at a State's means and capacities at its disposal in an international context').).

238 Papanicolopulu, *supra* n. 215, 49-150.

239 Giannopoulos, *supra* n. 34, 156 (quoting Duncan French and Timothy Stephens, International Law Association Study Group First Report on Due Diligence (2014), 29-30).

240 Ibid., 156.

241 IMO, Reduction of GHG Emissions from Ships, Submitted by WSC, IMO Doc. MEPC 78/7 (9 Feb., 2022), 2-3.

by the IMO.[242] These industry practices form part of the facts and circumstances in which states' diligence can be assessed.[243]

Due diligence requires states to 'employ all means reasonably available to them' to prevent a violation 'so far as possible.'[244] The types of conduct that could breach a due diligence obligation include action, inaction, or deficient action.[245] With that in mind, this section discusses two primary areas of state conduct—decision-making within the IMO and states' unilateral actions. It also shows how relatively few states control whether and how quickly shipping decarbonizes, and it establishes a framework to differentiate and assess states' compliance with the obligation identified above. This section concludes by surveying legal venues that could hold states to account.

3.1 Decisionmaking Within the IMO

As an international organization, the IMO has legal personality and can bear obligations under international law.[246] Thus, there are complex and overlapping ways to conceptualize legal responsibility between the IMO and its member states, given that states and organizations have different international legal obligations and organizations exercise varying degrees of autonomy.[247] Possible configurations of this legal relationship include

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242 Maersk, Decarbonising Ocean Transport, https://www.maersk.com/sustainability/our-esg-priorities/climate-change/decarbonising-ocean-shipping (last visited 20 July, 2023); Evergreen Marine, Energy and Emission Management, https://csr.evergreen-marine.com/csr/jsp/CSR_EnergyEmissionManagement.jsp (last visited 20 July, 2023) (committing to a 50 percent reduction below 2008 levels by 2030); Hapag-Lloyd, Sustainability Strategy, https://www.hapag-lloyd.com/en/company/responsibility/sustainability/strategy.html (last visited 20 July, 2023), (objective of net-zero GHG emissions by 2045). See Marine Insight, *20 Largest Container Shipping Companies in the World in 2023* (30 April, 2023).

243 Peel, *supra* n. 27, 1035.

244 Case Concerning the Application on the Convention on the Prevention and Punishment of the Crime of Genocide (Bosn. & Herz. v. Serb. & Montenegro), Judgment, 2007 I.C.J. Rep. 43, ¶ 430 (26 Feb., 2007) [hereinafter *Genocide*]; SRFC Advisory Opinion, *supra* n. 205, ¶ 129 (accord). Although the court in *Genocide* interpreted a treaty obligation, 'its comments on the obligation of prevention are of a general nature.' John Dugard & Annemarieke Vermeer-Künzli, 'The Elusive Allocation of Responsibility to Informal Organizations: the Case of the Quartet on the Middle East' in Maurizio Ragazzi (ed), *Responsibility of International Organizations: Essays in Memory of Sir Ian Brownlie* (Brill 2013), 265; see also Barros *supra* n. 32, 158, n. 916 (making same argument).

245 See Barros, *supra* n. 32, 195 (explaining that conduct breaching the due diligence obligation can be action, inaction, or the 'maintenance of a situation of risk of damage to human rights').

246 See Interpretation of the Agreement of 25 March 1951 between the WHO and Egypt, Advisory Opinion, 1980 I.C.J. Rep. 73, ¶ 37 (20 Dec., 1980).

247 Tarcicio Gazzini, 'The Relationship Between International Legal Personality and the Autonomy of International Organizations,' in R Collins & ND White (eds), *International Organizations and*

that states might have duties to 'supervise' organizations to prevent them from violating their organizational obligations;[248] they might be required to implement organizational acts which violate their own obligations;[249] and states might be jointly responsible with organizations for internationally wrongful acts.[250]

This Article is concerned with a particular way in which the IMO and its member states interact: the conduct of the IMO's members in the organization's institutional-decision making.[251] International organizations are 'Janus-faced.'[252] They are autonomous entities with their own will, yet they are also fora for their member states to collectively make decisions.[253] The individual diplomats representing states in organizations are state actors under the rules of international responsibility.[254] In treaties, soft law, and scholarship, states are often referred to as 'acting within' international organizations when they participate in those organs.[255] Thus, if the American Permanent Representative to the IMO votes against a climate resolution in the MEPC, her vote is presumably cast under instructions from her government, and it is legally an act of the United States.[256]

Ana Sofia Barros and Cedric Ryngaert submit that 'when member States participate in [an] international organization's decision-making processes, they are arguably carrying out state acts which have to comport with their international obligations.'[257] The Interna-

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the Idea of Autonomy (Routledge 2011), 196.

248 Kristina Daugirdas, 'Member State Due Diligence Obligations to Supervise International Organizations,' in H Krieger et al. (eds), *Due Diligence in the International Legal Order* (Oxford 2021), 64.

249 Iain Cameron, 'UN Targeted Sanctions, Legal Safeguards and the European Convention on Human Rights,' (2003) 72 *Nordic Journal of International Law* 159, 168.

250 Antonios Tzanakopoulos, 'Sharing Responsibility for UN Targeted Sanctions,' in AS Barros & C Ryngaert (eds), *International Organizations and Member State Responsibility: Critical Perspectives* (Brill 2016), 151-158. See generally André Nollkaemper & Dov Jacobs, 'Shared Responsibility in International Law: A Conceptual Framework,' (2013) 34 *Michigan Journal of International Law* 359, 365-69 (2013); Moshe Hirsch, *The Responsibility of International Organizations Toward Third Parties: Some Basic Principles* (Brill 1995).

251 See Barros & Ryngaert, *supra* n. 14; Barros, *supra* n. 32.

252 Ramses A. Wessel & Ige F. Dekker, 'Identities of States in International Organizations,' (2015) 12 *International Organizations Law Review* 293, 306. See generally Catherine Brölmann, *The Institutional Veil in Public International Law* (2007) (describing the legal nature of international organizations).

253 Wessel & Dekker, *supra* n. 252, 306.

254 UN General Assem. Res. 56/83, Responsibility of States for Internationally Wrongful Acts, (12 Dec., 2001), 2-3.

255 Barros & Ryngaert, *supra* n. 14, 58.

256 See Wessel & Dekker, *supra* n. 252, 306.

257 Barros & Ryngaert, *supra* n. 14, 55.

tional Court of Justice made just such a finding in *FYROM v. Greece*.[258] That case concerned Greece's opposition to the Former Yugoslav Republic of Macedonia (FYROM)'s accession to the North Atlantic Treaty Organization (NATO). In a 1995 treaty, Greece agreed 'not to object' to FYROM's membership in international organizations.[259] Greece made clear before, during, and after a NATO summit in 2008 that it opposed FYROM's membership in the alliance, and NATO collectively decided not to invite FYROM to apply.[260] The Court held that Greece's opposition to FYROM's membership could be considered separately from the conduct of NATO's other members and evaluated in light of Greece's obligations under the treaty.[261] Moreover, NATO's collective decision was irrelevant because Greece had an obligation of conduct not to oppose FYROM's membership.[262] The Court concluded that Greece breached its obligation.[263]

In a dictum in *Southern Bluefin Tuna*, the International Tribunal for the Law of the Sea likewise found that it could examine state conduct within an international organization to determine compliance with legal obligations.[264] In that case, Australia and New Zealand argued that Japan violated the LOSC by unilaterally fishing for southern bluefin tuna in excess of its national allocation agreed to by the Commission for the Conservation of Southern Bluefin Tuna (the Commission). The tribunal observed that 'the conduct of the parties within the Commission . . . is relevant to an evaluation of the extent to which the parties are in compliance with their obligations' under the LOSC.[265] It ordered that the parties refrain from unilateral fishing exceeding their national allocations pending further proceedings.[266] An arbitral tribunal later found that it lacked jurisdiction to consider the merits of the claims.[267] Yet, like *FYROM*, *Southern Bluefin Tuna* shows that courts might be willing to determine the lawfulness of states' conduct within international organizations.

Jurists and scholars nevertheless disagree about whether states should be held individually responsible for the positions they take in international organizations. In *FYROM*, the Greek *ad hoc* judge Roucounas argued in dissent that holding a member state legally responsible for its position undercuts the international organization's autonomy because

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258 *FYROM, supra* n. 32.

259 Ibid., ¶ 21, citing Interim Accord, Article 11, ¶1.

260 Ibid., ¶¶ 42-43.

261 Ibid.

262 Ibid., ¶ 70. Barros & Ryngaert, *supra* n. 32, 77-78.

263 *FYROM*, *supra* n. 32, ¶ 170.

264 *Southern Bluefin Tuna*, *supra* n. 32, ¶ 50. See generally Moritaka Hayashi, 'The Southern Bluefin Tuna Cases: Prescription of Provisional Measures by the International Tribunal for the Law of the Sea,' (2000) 13 *Tulane Environmental Law Journal* 361 (discussing case background and outcome).

265 *Southern Bluefin Tuna*, *supra* n. 32, ¶ 50.

266 Ibid., ¶ 90.

267 Southern Bluefin Tuna (*New Zealand-Japan, Australia-Japan*), Award on Jurisdiction and Admissibility, XXIII United Nations Reports of Int'l Arb. Awards 1 (4 Aug., 2000), 43-45.

doing so in effect renders judgment on the organization itself.[268] Wessel and Dekker note that when states participate in organizations' decisionmaking processes they are not acting as states per se, but as *member* states who are fulfilling a particular role guaranteed to them under an organization's constituent instrument.[269] Therefore, in a sense they are a legal arm of the organization.[270]

Yet, a distinction can be drawn between decision-making and decision-implementing.[271] The former conduct is by a member state—only states (and other international organizations that are also members) hold decision-making authority in international organizations, and they do so as an attribute of their sovereignty. States therefore have discretion to participate, or not, and to take whatever position they like, subject to their other legal obligations.[272] In contrast, when carrying out an international organization's decision, a member state acts more like an arm of the institution, particularly when a state is under a legal obligation to do so, as with implementing of UN Security Council sanctions.[273] Thus, the degree to which a member state can be seen through an organization's institutional form depends on the legal context.[274]

FYROM involved a discrete and specific obligation—Greece had explicitly committed not to do exactly what it did.[275] The International Court of Justice has not yet ruled on whether states' positive obligations also apply to their decision-making within international organizations. But, United Nations' human rights bodies have commented that states retain their obligations to comply with human rights when acting within international organizations.[276] And in a string of cases, the European Court of Human Rights has gone further. In *Gasparini v. Italy and Belgium*, the court held that states' human rights obligations bind them when

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268 *FYROM*, *supra* n. 32 at Dissenting Opinion of Judge *ad hoc* Roucounas, ¶ 47.

269 Wessel & Dekker, *supra* n. 252, 304-305.

270 Ibid.; see also Niels Blokker, 'International Organizations and Their Members,' (2004) 1(1) *International Organizations Law Review* 144, 147-148.

271 Barros, *supra* n. 32, 77-81.

272 Ibid., 100.

273 See U.N. Charter, XV UNCIO 335, amendments in 557 UNTS 143, 638 UNTS 308 and 892 UNTS 119, Art. 25; Tzanakopoulos, *supra* n. 250.

274 Catherine Brölmann, 'Transparency as a Contested Fundamental in the Law of International Organizations,' (2023) 20 *International Organizations Law Review* 10, 18-19.

275 *FYROM*, *supra* n. 32, ¶ 70.

276 Comm. on Econ, Soc., and Cult. Rights, Gen. Comm. 19—The right to social security, E/C.12/GC/19, (2008), ¶ 58 ('States parties should ensure that their actions as members of international organizations take due account of the right to social security'); Comm. on the Rights of the Child, *supra* n. 182, ¶¶ 47-48 (stating that states should uphold their obligations under Convention on the Rights of the Child 'when acting as members' of international organizations). See Martina Buscemi, 'The Duty of States to Ensure Respect for the Duty of Care Through Their Membership in International Organizations,' in A De Guttry et al. (eds), *The Duty of Care of International Organizations Towards Their Civilian Personnel* (Springer 2018), 131.

they participate in international organizations' decision-making.[277] In *Perez v. Germany* and *Klausecker v. Germany*, it likewise contemplated that Germany could be held responsible for the lack of due process at United Nations bodies and the European Patent Office when it had participated in decisionmaking within those organizations.[278]

Barros persuasively applies those cases to the governing boards of international financial institutions, arguing that member states have due diligence obligations to take all measures to ensure that they know about risks to human rights before approving loans, mitigate those risks when making decisions, and ensure that loans already issued conform to their human rights conditions.[279] Her approach is broader and more comprehensive than the International Law Commission's in its Draft Articles on the Responsibility of International Organizations, which is limited to states' intentional efforts to 'support, push or force international organisations to commit an act that is internationally wrongful.'[280] But, the Commission itself acknowledged that '[n]ot all the questions that may affect the responsibility of a State in connection with the act of an international organization are examined in the present draft articles.'[281] Instead, as Barros argues, the Articles on State Responsibility—which were applied by the International Court of Justice in *FYROM*— indicate that the conduct of state representatives when making decisions at international organizations can be attributed to their state and independently assessed.[282]

The same reasoning applies to states' climate decision-making within the IMO. Even more so than directors at international financial institutions, whose legal status 'has long been a matter fraught with controversy,' member state representatives at the IMO speak directly on behalf of their governments.[283] Because climate change harms human rights,[284] and IMO member states are bound by their human rights obligations when acting as decision-makers within the IMO, they are therefore under an obligation to do all they can in that role to make sure the IMO's climate decisions uphold human rights.

States' due diligence obligation to protect the marine environment under the LOSC yields the same result. Article 194 provides that states are to take all necessary measures to 'prevent, reduce and control pollution of the marine environment,' and the measures must include those 'designed to minimize to the fullest possible extent,' pollution from vessels.[285]

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277 *Gasparini v. Italy and Belgium*, *supra* n. 32.

278 *Perez v. Germany* and *Klausecker v. Germany*, *supra* n. 32; Buscemi, *supra* n. 276, 137.

279 Barros, *supra* n. 32 at Chapter III. See also Pasquale De Sena, 'International Monetary Fund, World Bank and Respect for Human Rights: A Critical Point of View,' (2010) 20(1) *Italian Yearbook of International Law* 247, 257 (accord).

280 Barros, *supra* n. 32, 215.

281 ILC, Report of the International Law Commission on the Work of Its Sixty-third Session, *General Assembly Official Records*, Sixty-sixth Session, supp. no. 10 (a/66/10 and add. 1), 157.

282 Barros, *supra* n. 32, 94.

283 Compare Ibid. at 103 with MEPC 78/17, *supra* n. 118.

284 See Section 2.3, *supra*.

285 LOSC, *supra* n. 22, Art. 194.

Thus states are obliged to cooperate when establishing rules within the IMO,[286] but they must also design them to mitigate climate harm 'so far as possible.'[287]

This means that IMO member states must consider and apply the most comprehensive and current levels of scientific and technological expertise in designing and adopting climate standards for shipping.[288] States are therefore required to consider how policies can avoid path dependence and force technological innovation.[289] And if a proposed level of ambition or reduction measure is clearly inadequate—and therefore it is reasonably foreseeable that it would exacerbate the risk of catastrophic climate harm—due diligence demands that states vote against it and instead support more ambitious and effective climate measures.

The Paris Agreement's temperature goals—in particular its 1.5 degree goal—operate as legal benchmarks for avoiding harmful climate change and informing the level of diligence that should be expected of states. As noted above, major maritime states committed in their NDCs to working through the IMO to reduce shipping's GHG emissions, and within the IMO, its member states have agreed that the temperature goals should guide the IMO's climate policies in several resolutions adopted over a period of years.[290] Application of the harm prevention principle and precautionary principle yields the same result.[291] Thus, states are obliged to support a reduction pathway in the IMO that will credibly achieve zero emissions by 2050 and steep emission cuts by 2030,[292] which is more ambitious than what the IMO agreed to in July 2023.[293]

Should states be held to different standards for their compliance with this duty based on their economic development or other factors? There is a long-standing disagreement about the degree to which the common-but-differentiated-responsibilities (CBDR) principle should be incorporated into climate measures for shipping.[294] In my view, the costs and benefits associated with the sector's decarbonization should be allocated in a way that

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286 LOSC, *supra* n. 22, Art. 210; 211.

287 *Genocide*, *supra* n. 244, ¶ 430; *Seabed Advisory Opinion*, *supra* n. 121, ¶ 117 (stating that the standard of due diligence is 'more severe for the riskier activities').

288 Giannopoulos, *supra* n. 34, 156-157.

289 See Jonathan Kohler, et al., 'Transitions for Ship Propulsion to 2050: the AHOY Combined Qualitative and Quantitative Scenarios,' (2022) 140 *Marine Policy* 105049 (analyzing policy as driving shipping's rapid decarbonization); Eeva-Lotta Apajalathi, Gregor Kugl, 'Path Dependence and Path Break-out in the Electricity Sector,' (2022) 43 *Environmental Innovation and Social Transitions* 220, 221-23 (defining and discussing path dependence).

290 See *supra* notes 113, 3, 117.

291 See Section 2.1, *supra*.

292 See Bullock, *supra* n. 5. See generally Sam Fankhauser, et al., 'The Meaning of Net Zero and How to Get it Right,' (2022) 12 *Nature Climate Change* 17; Shelley Welton, 'Neutralizing the Atmosphere,' (2022) 132(1) *Yale Law Journal* 171.

293 See *supra* n. 3.

294 Kopela, *supra* n. 50, 81-85.

is consistent with the CBDR principle.[295] But, the principle applies in a specific way here. Unlike climate policies affecting national emissions, states have equal capacity to make informed decisions at the IMO, and the IMO has nearly universal membership.[296] Even small landlocked states therefore have some capacity to address shipping's risk of climate harm by virtue of their influence within the IMO's rule-making processes. Thus, if the IMO's climate policies prevent small island developing states and least developed countries from bearing the burden of decarbonizing shipping and give them preferences in any technology transfer and financial assistance,[297] these states are also obliged to use their influence to push the organization to adopt a high level of ambition and effective climate measures.

To the extent that there is differentiation, large flag states should be held to a higher standard because they enjoy special lawmaking authority within MEPC, and therefore have more 'control' over the IMO than other states.[298] The Marshall Islands seemed to acknowledge that in its most recent NDC, where it noted that it is the second-largest flag registry in the world, and stated that it 'is proud to support efforts for ambitious decarbonization action in the International Maritime Organization, including through the introduction of a market-based measure to put a price on carbon.'[299] The Marshall Islands' long-standing commitment to a high level of ambition and effective measures at the IMO has not yet been mirrored by a majority of states at the MEPC.[300] And, as discussed below, the IMO's inadequate response obliges states to enact measures that are more ambitious than the global minimum.

3.2 Unilateral Measures

States are taking a variety of independent actions to decarbonize the international shipping sector. Norway and Singapore are working with the IMO to assist small island developing states and least developed countries with maritime climate policies.[301] Cabo Verde and

295 Kerr (2022), *supra* n. 8, 419-20.

296 The MEPC is a plenary organ of the IMO. IMO Convention, *supra* n. 2 at art. 37.

297 Shawkat Alam, 'Technology Assistance and Transfers' in L Rajamani et al. (eds), *Oxford Handbook of International Environmental Law (2nd Edition)* (2nd Ed. Oxford 2021), 957 ('At its heart, technology transfers aim to address the inequitable distribution of costs and benefits that have occurred between developed and developing countries under conventional patterns of economic growth').

298 See *supra* n. 28; Barros, *supra* n. 32, 86 (discussing differentiated diligence burdens on international legal subjects based on the degree of 'control' exercised within international organizations).

299 Marshall Islands NDC, *supra* n. 113, 3.

300 IMO, Report of the Marine Environment Protection Committee on its Seventy-Ninth Session, IMO Doc. MEPC 79/15/Add.1 (9 Feb., 2023), Annex 16, 26-27 (statement by Marshall Islands to IMO).

301 IMO, 'IMO, Norway and Singapore Sign MOU on Maritime Decarbonization,' (21 Mar., 2023), available at: https://greenvoyage2050.imo.org/1768-2/ (last visited 20 Feb., 2024).

the United States are using voluntary domestic measures to stimulate the sector's decarbonization.[302] Other policies include India's development of renewable energy at ports and green shipbuilding, Norway's public procurement of low and zero carbon ships, the United Kingdom's support for innovators in clean maritime fuel, and Japan's technology research and development to help meet the IMO's climate ambition.[303]

At the Glasgow UNFCCC Conference of the Parties, twenty-four states agreed on the 'Clydebank Declaration' to establish green corridors for shipping.[304] The declaration's signatories, which include Japan, Singapore, the United Kingdom, and the United States, noted the 1.5 degree global warming goal, and the IMO's endorsement of the goal in its 2018 Strategy.[305] They stated that they are alarmed that shipping's emissions are projected to be 90 to 130 percent of 2008 levels by 2050, and they therefore aimed to establish up to six green shipping corridors by 2030 where zero carbon technology will be used. The declaration specified that ship operators' participation will be voluntary.[306]

Is the voluntary encouragement of green shipping enough to satisfy the due diligence obligation described above? Scientists believe the sector must reduce emissions by thirty-four to thirty-six percent by 2030 for it to be compatible with limiting global warming to 1.5 degrees.[307] Measures that do not represent best efforts toward that goal do not comply with the due diligence obligation identified here. Best efforts can be defined based on risk: states are held to a higher standard of care if activities under their control present a greater risk of harm; and they must do more if they have a greater capacity to address that risk.[308] Thus, the legal sufficiency of a measure is fact-dependent, dynamic, and dependent on the state in question.

In this context, major port states and flag states are held a higher standard of care because more of the international shipping sector falls under their control. Although shipping

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302 See notes 90, 113, *supra*.

303 India, Maritime India Vision 2030, (22 Feb., 2021), 223-225; IMO, Update on the Norwegian National Action to Address GHG Emissions from Ships, MEPC 76/7/1 (9 Mar., 2021); United Kingdom Department of Transport, *Clean Maritime Plan*, at 5, (July 2019); Japan, *Roadmap to Zero Emission from International Shipping*, (May 27, 2020). See IMO, National Action Plans, https://www.imo.org/en/ourwork/environment/pages/relevant-national-action-plans-and-strategies.aspx (last visited 20 July, 2023).

304 Policy Paper, United Kingdom Department of Transport, COP 26: Clydebank Declaration for Green Shipping Corridors (6 Dec., 2023), https://www.gov.uk/government/publications/cop-26-clydebank-declaration-for-green-shipping-corridors/cop-26-clydebank-declaration-for-green-shipping-corridors.

305 Ibid.

306 Ibid.

307 Bullock et al., *supra* n. 5, 305-307; Bonello et al., *supra* n. 5, 14.

308 Viñuales, *supra* n. 16, 124, 125-26 (citing ILC, *supra* n. 26); Peel, *supra* n. 27, 1035 (nothing that states with high per capita GHG emissions or high total emissions are subject to more stringent standards to mitigate climate change).

is a global industry that is important for nearly every national economy, control over it is concentrated: the twenty-five states with the busiest container ports account for seventy-seven percent of global container traffic.[309] Slightly more than half of global maritime traffic is containerized, with most of the rest split between tanker and cargo.[310] The states with the largest tanker terminals—the United States, Saudi Arabia, the United Arab Emirates, Singapore, the Netherlands, and China—overlap with the states with the most container traffic.[311] The states with the most bulk carrier traffic are also generally the same as those with the most container traffic.[312] The top ten flag states overlap with the top port states with the exception of Liberia, the Marshall Islands, and the Bahamas.[313] And the top 10 ship-owning countries overlap with the biggest port states, with the addition of Norway and Switzerland.[314] Thus, thirty-three states control the vast majority of international shipping, and six of those are members of the European Union.[315]

Among these states, capacity to address shipping's climate risk can be differentiated based on wealth and technological capacity.[316] These are relevant factors because the installation of port infrastructure to accommodate low and zero carbon shipping requires significant capital investment and technology, and decarbonization measures will likely lead to incremental shipping costs and potential loss of market share.[317] Figure 1 depicts some major maritime states according to their wealth, measured in terms of gross domestic product per capita based on purchasing power parity (GDP PPP), and in terms of techno-

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309 UNCTAD, *supra* n. 1, 82. Although Hong Kong is often designated separately from China in shipping data, this article does not distinguish between them.

310 World Shipping Council, Facts and Figures, https://www.worldshipping.org/facts-figures (last visited 21 July, 2023). Although container vessels emit the most carbon per ton mile, container, tanker and cargo traffic each account for about the same amount of GHG emissions. UNCTAD, *supra* n. 1, 107.

311 Craig Jallal, *Top 10 Tanker Terminals Revealed*, Riveria, (5 Dec., 2019), https://www.rivieramm.com/news-content-hub/news-content-hub/top-ten-tanker-terminals-57057#:~:text=1%20Singapore%202%20Fujairah%203%20Ras%20Tanura%204,6%20Galveston%207%20Gwangyang%208%20Houston%20More%20items

312 UNCTAD, *supra* n. 1, 87.

313 Ibid., 42-43

314 Ibid., 39.

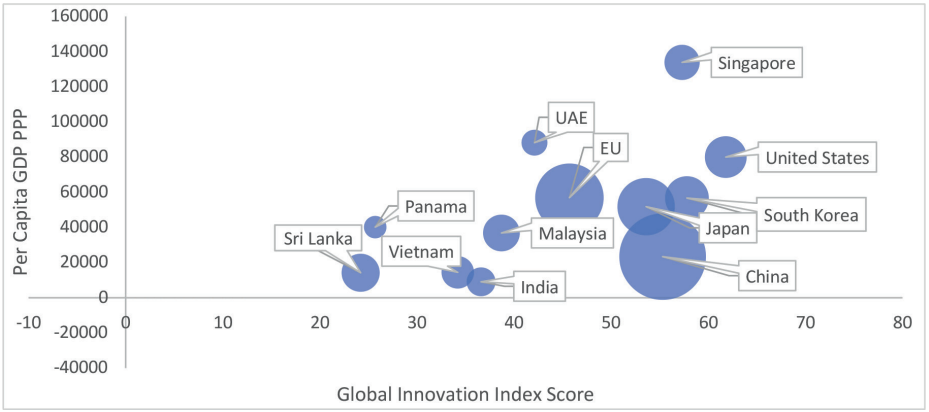
315 These states are Australia, the Bahamas, Belgium, Brazil, Canada, China, Egypt, Germany, Greece, India, Indonesia, Japan, Liberia, Malaysia, Malta, the Marshall Islands, Morocco, the Netherlands, Norway, Oman, Panama, the Philippines, Saudi Arabia, Singapore, South Korea, Spain, Sri Lanka, Switzerland, Thailand, the United Arab Emirates, the United Kingdom, the United States, and Vietnam. See sources cited at notes 309-314 *supra*.

316 See ILC, *supra* n. 26; Viñuales, *supra* n. 16, 124 (asserting that assessment of a breach should be differentiated based on a state's individual circumstances).

317 IMO, Reduction of GHG Emissions from Ships, Submitted by India, MEPC 78/7/4 (30 Mar., 2022), 4-5; EU Maritime Climate Measure, *supra* n. 7, ¶¶ 17, 28.

logical sophistication, measured in terms of the score assigned by the Global Innovation Index (GII), which is published by the World Intellectual Property Organization.[318] GDP PPP equitably depicts the ability of a country to finance decarbonization: it reflects total economic activity adjusted for population and price differentials across countries; and it also reflects the world income distribution.[319] GII ranks innovation among 132 countries, and has been recognized as an important metric for sustainable development by the UN General Assembly.[320] Bubble sizes correspond to container ship port arrivals, which is a metric used to measure maritime traffic.[321]

Figure 1: Shipping's Risk of Climate Harm and State Capacity to Address It



As Figure 1 shows, a handful of states' shipping sectors pose a significant risk of climate harm, and some of those states are also wealthy and have a high degree of technological sophistication. Accordingly, Japan, Singapore, South Korea, and the United States bear a higher standard of due diligence.[322] These states have policies that are undoubtedly important and necessary for the sector to decarbonize—such as technology development and transfer.[323] But the European Union's measures demonstrate what technical and scientific GHG reductions are currently possible, and what constitutes 'means reasonably available'

318 International Monetary Fund, World Economic Outlook Database, (April 2023); World Intellectual Property Organization, Global Innovation Index 2022, Soumitra Dutta et al. (eds), 2022) [hereinafter 2022 GII Report].

319 *Princeton Encyclopedia of the Global Economy*, Kenneth A. Reinert, et al. (eds) (Princeton 2009), 700 (describing the use of per-capita GDP as the main way of defining world income distribution), *id.*, 1224 (defining purchasing power parity).

320 2022 GII Report, *supra* n. 318; G.A. Res. A/RES/76/213, ¶ 18 (7 Jan., 2022).

321 UNCTAD, *supra* n. 1, 82.

322 Peel, *supra* n. 27, 1033-1035.

323 See sources at *supra* n. 303.

to similarly situated states.[324] Thus, for highly developed and technologically advanced major maritime states, unilateral actions that do not meet that standard are deficient and inconsistent with the obligation identified here.[325] A lesser degree of diligence would be expected from states such as Panama, Sri Lanka, or Vietnam, which could satisfy their due diligence obligations based on support for ambitious and effective measures at the IMO or participation in voluntary programs such as those discussed above.

Whether a state meets the required level of diligence is fact driven and shaped by the opportunity to act.[326] Maritime states without a cap-and-trade system similar to the European Union's—such as the United States—would need to use other market-based instruments or technology mandates to accomplish reductions.[327] And landlocked states with close economic connections to the shipping sector such as Switzerland would be expected to regulate business entities in a way that reduces climate emissions.[328] Global economic patterns are also relevant: because the European Union's largest maritime trading partner is the United States, if the United States acted similarly to the European Union, a highly significant share of global emissions from shipping would be mitigated in a way that is more ambitious and effective than IMO measures.[329] Similarly, Japan, China, the EU, and the United States account for half of all shipping imports and exports worldwide.[330] By offering the potential for enhanced shipping mitigation corridors, the EU's action increases the diligence expected of those other states.

3.3 Accountability

There are various interrelated mechanisms that could hold states to account for their obligation to prevent and reduce shipping's climate risks. Some scholars have proposed utilizing the law of state responsibility for climate harm and damages.[331] Others have cau-

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324 *Genocide*, *supra* n. 244, ¶ 430; Giannopoulos, *supra* n. 34, 447. The EU will need to monitor the effectiveness of its measures in real time and adjust them in light of 'developments in scientific awareness.' Ibid., 479.

325 Viñuales, *supra* n. 16, 125-126; Boyle, *supra* n. 23, 474 (explaining that comparison can be made to a best performer to find out whether 'necessary measures' have been implemented).

326 Voigt, *supra* n. 237, 11-15.

327 See sources at n. 90 *supra*.

328 See UNCTAD, *supra* n. 1, 39 (identifying Switzerland as the 11th largest ship-owning country).

329 See Eurostat, USA-EU International Trade in Goods Statistics (Feb. 2023), https://ec.europa.eu/eurostat/statistics-explained/index.php?title=USA-EU_-_international_trade_in_goods_statistics#:~:text=United%20States%20largest%20partner%20for%20EU%20exports%20of%20goods%20in%202022. See EU Maritime ETS Measure, *supra* n. 7.

330 Eurostat, *supra* n. 329, Figure 3.

331 Voigt, *supra* n. 237; Werwerinke-Singh, *supra* n. 173; Seokwoo Lee & Lowell Bautista, 'Part XII of the United Nations Convention on the Law of the Sea and the Duty to Mitigate Against Climate Change: Making out a Claim, Causation, and Related Issues,' (2018) 45 *Ecology Law Quarterly* 129.

tioned that showing causation between a claimed injury and an internationally wrongful act would be difficult because of the diffuse nature of climate emissions and harms.[332] But a case based on shipping could avoid some of those difficulties: as shown above, relatively few states exercise disproportionate jurisdiction and control over the shipping sector, and there is already ample data available about vessel movements and emissions. Accordingly, a market-share division of liability for shipping could be more feasible and justiciable.[333] Moreover, as Millicent McCreath points out with respect to a claim brought under the LOSC, proving causation is only necessary if damages are claimed: a state could seek declaratory relief and remedies such as cessation, assurances, or guarantees of non-repetition based on an alleged breach of the LOSC's environmental obligations, which are owed to the world at large.[334]

A climate claim based on shipping could be also grounded in human rights and brought before a regional court or a human rights treaty body. The European Court of Human Rights recently issued a landmark ruling finding that Switzerland had inadequate climate mitigation measures that violated its citizens' human rights.[335] The Inter-American Court of Human Rights could hear a claim by citizens alleging that their country was violating human rights by not diligently addressing shipping's climate impacts if the case were first referred to the court by the Inter-American Commission on Human Rights or by a state party to the American Convention on Human Rights.[336] The third regional human rights court—the African Court on Human and People's Rights—is charged with upholding the African Charter on Human and People's Rights, which guarantees the right to a satisfactory environment as well as other rights that implicate climate change.[337]

As discussed above, the UN Committee on Human Rights found that Australia violated human rights based on climate inaction, and the UN Committee on the Rights of the Child articulated a causal test for climate harm and human rights.[338] States that have submitted to monitoring of their compliance with the ICCPR by the UN Committee on Human Rights include Australia, Brazil, Canada, South Korea, Turkey, and all members of the European Union.[339] Most South American states, European states, and Turkey have agreed to com-

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332 Peel, *supra* n. 27, 1042-1044.

333 See ibid., 1046-1047 (discussing the market share concept)

334 Millicent McCreath, 'The Potential for UNCLOS Climate Change Litigation to Achieve Effective Mitigation Outcomes,' in J Lin & D Kysar (eds), *Climate Change Litigation in the Asia Pacific*, (Cambridge 2020), 131-132; *contra* Lee and Bautista, *supra* n. 331, 147.

335 *See Case of Verein Klimaseniorinnen Schweiz and Others v. Switzerland*, *supra* n. 20.

336 American Convention on Human Rights, art. 61 (22 Nov., 1969) 1144 U.N.T.S.123.

337 African Charter on Human and Peoples Rights, art. 24, 2-17, 20, 21, 24 (27 June, 1981) 1520 U.N.T.S. 217. See Ademola Oluborode Jegede, *Climate Change and the Future Generation under the African Human Rights System: Fostering Pathways and Partnerships*, Global Campus Africa (2021) (discussing potential climate litigation under the African human rights system).

338 See *Billy et al., supra* n. 21; *Saachi*, *supra* n. 21, ¶¶ 8.12, 8.14.

339 United Nations Human Rights Office of the High Commissioner, Ratification of 18 International

pliance procedures before the UN Committee on the Rights of the Child.[340] It is therefore plausible that an individual or group of individuals could allege that those states are not complying with their due diligence obligations to address shipping's climate impacts.[341] Findings by human rights treaty bodies do not bind respondent states, but they are nevertheless important in international diplomatic fora and domestic legal and political processes, and they would inform the content of the due diligence obligation described here.[342]

International law can influence how national constitutions and statutes are interpreted in climate cases. Some countries' court systems allow direct allegations of violations of international law.[343] In many others, international decisions are relevant to the interpretation of national laws. The American Convention on Human Rights requires that its parties' judiciaries consider any decision by the Inter-American Court of Human Rights, including its advisory opinions, when deciding domestic cases.[344] The International Tribunal for the Law of the Sea has noted that a domestic court's interpretation of enforcement measures against ships would be guided by the LOSC's provisions.[345] Presumably a court's interpretation of the legality of national climate measures for shipping—or the lack thereof—would as well. Germany's constitutional court interpreted the Paris Agreement's temperature goals as legal benchmarks for the constitutionality of the federal government's carbon budget.[346] American federal courts give 'respectful consideration' to the interpretation of international agreements by international courts and tribunals, and international law can be used to interpret statutes and constitutional provisions.[347] Thus, an assertion that

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Human Rights Treaties, https://indicators.ohchr.org/ (last visited 20 July, 2023).

340 Ibid.

341 See *Billy et al.*, *supra* n. 21.

342 Rosanne van Albeek & André Nollkaemper, 'The Legal Status of Decisions by Human Rights Treaty Bodies in National Law' in *UN Human Rights Treaty Bodies: Law and Legitimacy*, Helen Keller & Geir Ulfstein, (eds) (Cambridge 2012), 412; Michael O'Flaherty, 'The United Nations Treaty Bodies as Diplomatic Actors' in M O'Flaherty et al. (eds), *Human Rights Diplomacy: Contemporary Perspectives* (Brill 2011), 161. See also Ingrid Wuerth, 'International Law in the Post-Human Rights Era,' (2017) 96(2) *Texas Law Review* 279, 284 (discussing problems with human rights conditions and enforcement).

343 See e.g., *Urgenda*, *supra* n. 20.

344 Maria Antonia Tigre et al., *A Request for an Advisory Opinion at the Inter-American Court of Human Rights: Initial Reactions*, Climate Law, a Sabin Center Blog (17 Feb., 2023) (citing Almonacid-Arellano et al. v. Chile, Judgment, Inter-Am. Ct. H.R. (ser. C) No 154, ¶124 (26 Sept., 2006)). The United States is not a party to the Convention. Ratifications, Inter-American Commission on Human Rights, Organization of American States, https://www.cidh.oas.org/basicos/english/Basic4.Amer.Conv.Ratif.htm (last visited 17 July, 2023).

345 M/V Virginia G (Pan. v. Guinea-Bissau), Judgment, Case No. 19, 2014 ITLOS Rep. 4, ¶ 294.

346 Neubauer, *supra* n. 128, ¶¶ 235-36.

347 *Sanchez-Llamas v. Oregon*, 548 U.S. 331, 355 (2006); see *Murray v. The Schooner Charming Betsy*, 6 U.S. 64 (1804) (interpreting a statute to avoid conflict with international law); *Procopio v.*

the United States or other countries are not diligently mitigating shipping's climate emissions as required by international law could be relevant to cases grounded in national constitutions or statutes.

Conclusion

Climate obligations are in flux, with judgments from international, regional, and national courts establishing increasingly demanding standards for states' behavior. As I discuss in this Article, those obligations should encompass a significant and growing source of climate pollution—the international shipping sector. Human rights law and the LOSC show that states have a due diligence obligation to mitigate shipping's climate impacts, and this obligation is informed and shaped by customary international legal principles of harm prevention and precaution. Consequently, states must take all necessary measures to address the climate risks posed by shipping in order to limit global warming to 1.5 degrees. Whether measures are necessary is fact-dependent, dynamic, and differential. They include decision-making within the IMO, as well as the exercise of jurisdiction over ships and shipping companies.

The European Union's maritime climate measures and commitments by the shipping industry show that states can and must do more. Wealthy and technologically advanced states with large maritime sectors are not yet diligently preventing and reducing the sector's climate risks, apart from those in the European Union. Although the IMO's member states recently set new goals for shipping's GHG emission reductions, the goals are incompatible with limiting global warming to 1.5 degrees and even they will not be met under current regulations. There are potential avenues to hold states to account for their conduct within the IMO and outside of it. Evaluating and applying climate obligations in terms of all activities under states' jurisdiction and control—as done here—can fill gaps in international governance and ensure that every sector is fully addressing the climate crisis.

Wilkie, 913 F.3d 1371 (Fed. Cir. 2019) (interpreting a statute in light of international law); *Latta v. Otter*, 779 F.3d 902, 906, n.7 (9th Cir. 2015) (considering European Court of Human Rights jurisprudence when ruling on constitutional right to same sex marriage).

Chapter 6

Conclusion

As this sentence is being written, the *Shofu Maru*, a bulk carrier flagged to Japan, is sailing from Noshiro to Newcastle.[1] It is truly sailing—with a telescoping rigid sail affixed to its bow. This sail reduces GHG emissions from the ship between 5 and 8 percent on international voyages.[2] The *Pyxis Ocean* is a Singaporean bulk carrier currently underway from Huasco to Paranagua with two such sails affixed to its deck.[3] These are expected to reduce GHG emissions 30 percent over the vessel's lifetime.[4] Other companies are racing ahead on alternative fuel powered vessels. The *Green Pioneer* can use either ammonia or conventional fuels, and debuted at the UNFCCC COP 28.[5] The *Yara Eyde* will sail the first zero-carbon green ammonia route between Norway and Germany in 2026.[6] EU Commission President Von der Leyen christened the container ship *Laura Maersk* last year, it runs on methanol produced from solar power and sails between Denmark, Sweden, and Germany.[7]

Despite their status as technological milestones, these vessels' individual circumstances illustrate the challenges of decarbonizing the international shipping sector. The *Shofu Maru* primarily carries coal—the dirtiest fossil fuel—the combustion of which will likely more than offset any GHG reductions from its sail.[8] The *Pyxis Ocean* carries soybean meal,

1 Marine Traffic, 'Shofu Maru,' IMO 9919395, available at: https://www.marinetraffic.com/en/ais/details/ships/shipid:7193451/mmsi:431794000/imo:9919395/vessel:SHOFU_MARU (last visited 8 Feb., 2024).

2 Marine Insight, 'Shofu Maru, World's First Cargo Vessel Equipped with "Wind Challenger" Hard Sail Delivered,' (10 Oct., 2022), available at: https://www.marineinsight.com/shipping-news/shofu-maru-worlds-first-cargo-vessel-equipped-with-wind-challenger-hard-sail-delivered/

3 Marine Traffic, 'Pyxis Ocean,' IMO 9798856, available at : https://www.marinetraffic.com/en/ais/details/ships/shipid:5045111/mmsi:563021600/imo:9798856/vessel:PYXIS_OCEAN (last visited 8 Feb., 2024); see Project Chek, 'Pyxis Ocean Sets Sail,' (21 Aug., 2023), available at: https://www.projectchek.eu/blog-posts/pyxis-ocean-sets-sail

4 See Project Chek, *supra* n. 3.

5 Fortescue, 'Fortescue's Green Pioneer Arrives in Dubai for COP28,' (3 Dec. 2023), available at: https://fortescue.com/news-and-media/news/2023/12/02/fortescue-s-green-pioneer-arrives-in-dubai-for-cop28

6 Yara, 'The World's First Clean Ammonia-Powered Container Ship,' (30 Nov. 2023), available at: https://www.yara.com/corporate-releases/the-worlds-first-clean-ammonia-powered-container-ship/

7 Maersk, 'EU Commission President Names Landmark Methanol Vessel "Laura Maersk"' (14 Sept. 2023), available at: https://www.maersk.com/news/articles/2023/09/14/eu-commission-president-names-landmark-methanol-vessel-as-laura-maersk

8 The *Shofu Maru* carries 100,000 deadweight tons of coal. 'Shofu Maru,' *supra* n. 1. Complete combustion of a ton of coal generates 2.86 metric tons of CO2. United States Energy Information Agency, 'Carbon Dioxide Emission Indicators for Coal,' (originally published as originally published in Energy Information Administration, Quarterly Coal Report, January-April 1994, DOE/EIA-0121(94/Q1) (Washington, DC, August 1994), 1-8). Bulk carriers on average emit approximately 5,000 tons of CO2 per year. See Jasper Faber, et al., *Comparison of CO2 Emissions*

but it uses demonstration technology developed with EU funding.[9] Currently there are not enough ports that supply green ammonia or green methanol to allow the *Yara Eyde* or *Laura Maersk* to venture beyond northern Europe.[10] In addition, these five vessels represent a tiny fraction of the more than 100,000 engaged in merchant shipping.[11]

It follows that market forces will not reduce the shipping sector's climate pollution quickly or broadly enough to limit global warming to 1.5 degrees. As the IMO has found, regulatory interventions are required.[12] This dissertation aimed to address that problem by identifying the international law that applies through the lens of international institutional law. In particular, it answered the research question: what are the obligations of the IMO and its member states to reduce climate pollution from international shipping, and how can the scope and content of these obligations be determined through international institutional law? That question and the sub-questions outlined in the introduction are largely answered in the articles that comprise Chapters 2 through 5. The sub-questions are:

1. Is the IMO legally obliged to reduce GHG emissions from international shipping?
2. Must the IMO give preferences or transfer technology to developing states when implementing its climate policies?
3. What is shipping's fair share of the climate mitigation burden as defined by the equitable principles of international environmental law?
4. Does international law require that states mitigate shipping's climate pollution, and how can their compliance with any obligation be assessed?

This chapter summarizes the main findings that can be drawn from those that preceded it, and explains how the dissertation employed the methodology and framework outlined in the introduction. It then ties them together by offering a broad perspective on the interactions of climate obligations for international shipping. It discusses the dissertation's limitations and avenues for future research before making final remarks.

1. Main Conclusions

1.1 Is the IMO legally required to reduce shipping's climate pollution?

Chapter Two was dedicated to mapping out the IMO's legal mandate to regulate shipping's climate pollution and its obligations to do so. It argued that the IMO's mandate arises from the maritime regime (the IMO Constitution, MARPOL, and the LOSC), rather than

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of MARPOL Annex VI Compliance Options in 2020, (CE Delft 2020), 29.

9 'Pyxis Ocean,' *supra* n. 4.

10 See n. 5, 6, and 7.

11 United Nations Conference on Trade and Development, Review of Maritime Transport 2023, UN Doc. UNCTAD/RMT/2023 (2023), 29

12 International Maritime Organization, Reduction of GHG Emissions From Ships, Fourth IMO GHG Study 2020, Final Report, IMO Doc. MEPC 75/7/15 (29 July 2020), 24-27.

Article 2(2) of the Kyoto Protocol as some scholars and states have claimed. Using a formal doctrinal method, this chapter contended that the organization is required to serve as a rule-making forum for its member states related to shipping's climate impacts: this obligation comes from Articles 2 and 38 of the IMO Convention and MARPOL Articles 2(7), 11(2), 14(4); 15 and 16. Although the IMO's purpose under Article 1 of the IMO Convention is to 'encourage the adoption of the highest practicable standard' for the protection of the marine environment, that provision does not constitute an obligation. Therefore, while the IMO Convention and MARPOL impose procedural obligations on the organization, they do not oblige it to reduce climate pollution in any particular amount or fashion.

The IMO is not a party to the climate treaties, and therefore cannot be directly bound by them. Chapter Two examined whether the IMO's member states' climate obligations as to international shipping—to the extent there are any—could bind the organization under a theory of functional succession. That doctrine holds that an international organization can succeed to its members' powers and will be bound by obligations linked to those powers. It is premised on the obligations in question existing prior to the conferral of powers.

Chapter One found the IMO could not be bound its members obligations under the climate treaties for two reasons. First, the IMO was created and gained its competence to regulate vessel-source pollution long before the UNFCCC came into force. Moreover, scholars have argued that binding organizations to their members' obligations is required when necessary to resolve treaty conflicts. Here, even if the IMO's climate mandate originated at the 1997 Air Pollution Conference—in other words after the UNFCCC came into force—there is no conflict between the IMO's procedural obligations and its members' substantive climate obligations under the UNFCCC and Paris Agreement. Accordingly, binding the IMO to its members climate treaty obligations is not warranted.

Having established that treaties only impose procedural obligations on the IMO requiring that it act as a forum for the mitigation of shipping's climate pollution, the chapter pivoted to examine the legal relevance of the IMO's Strategy. It surveyed the law and practice on unilateral declarations of states, and the well-established test for when such declarations constitute binding undertakings. Examining a case before the European Court of Justice, the chapter argued that there are good reasons to take organizations at their word when they make a promise within their area of competence: doing so is consistent with how organizations' declarations are characterized under treaty law, and the positions they can hold within the international legal system. Thus, the chapter pragmatically defined the IMO's legal character according to its role as shipping's global regulator.

Because the IMO has competence to regulate vessel-source pollution from shipping, it likewise had capacity to legally bind commit itself to doing so. Chapter Two applied the text-based test developed by the ICJ and the International Law Commission for unilateral acts of states to the IMO's GHG Strategy. The organization used mandatory rather than precatory language in the Strategy, declaring that it would lower emissions from shipping by a certain amount over a specific period of time, and that this would be done in order to limit global warming consistent with the Paris Agreement's temperature goals. The Strategy was adopted publicly and under formal procedures. The IMO used words that indicate as much

or more of a binding intent than states had used when making unilateral declarations in other contexts. And the context here supported interpreting the Strategy as international law: the IMO was acting in response to pressure from the EU and the UNFCCC and did so in order to preserve its law-making role in the international system.

Accordingly, the test for a unilateral declaration was met, and the IMO legally committed itself to reducing GHG emissions from shipping in order to limit global warming consistent with the Paris Agreement's temperature goals. In addition, it did so in a way that resembled a nationally-determined contribution that would be made by a state pursuant to the Paris Agreement. Chapter Two thus found that the IMO's declaration gave rise to a legal obligation to mitigate climate change from the shipping sector, and its failure to do so, or failure to do effectively, could constitute an internationally wrongful act.

Chapter Two viewed the IMO's legal character as opaque rather than transparent. In declaring itself the global regulator of shipping's climate impacts to the UNFCCC and the world generally, the IMO acted as an autonomous agent on the international plane and should be treated as such. This chapter aimed to bridge the maritime and climate regimes by constitutionalizing the IMO and subjecting it to the rule of law.

1.2 Must the IMO give preferences or transfer technology to developing states when implementing its climate policies?

Chapter Three evaluated the IMO's implementation obligations for its climate ambition. Specifically, it sought to resolve a long-standing dispute within the IMO and among scholars about how to reconcile the common-but-differentiated-responsibilities (CBDR) and the no-more favorable treatment principles in climate measures for shipping. That issue goes to the heart of whether the sector will be able to decarbonize in an equitable way that reflects the historical and differentiated responsibility for the problem of climate change, and the importance of international shipping for many states, particularly developing and island states.

This chapter examined whether the CBDR principle as expressed in the maritime regime applies to the IMO's climate measures. Articles 203 and 278 require that international organizations give developing states preferences in financial and technical assistance and cooperate on transferring technology related to the control of pollution of the marine environment.[13] A proposed fuel-oil levy that would fund low and zero-carbon shipping

13 Article 203 provides that developing states 'shall, for the purposes of prevention, reduction, and control of pollution of the marine environment or minimization of its effects, be granted preference by international organizations' in the allocation of funds and technical assistance and the utilization of their specialized services. United Nations Convention on the Law of the Sea, 10 Dec., 1982, 1833 U.N.T.S. 396, Art. 203. Article 278 is addressed to 'the competent international organizations' referred to in Part XIV, which among other things, deals with the transfer of marine pollution control technology to developing states. Ibid., Art. 278. Such organizations 'shall take all appropriate measures to ensure, either directly or in close cooperation among themselves, the effective discharge of their functions and responsibilities' under Part XIV. Ibid.

technology research and development was used as a case study to examine whether and how Articles 203 and 278 would apply to the IMO's climate measures.

The IMO is not a party to the LOSC and has never expressly accepted the obligations imposed by these provisions as a 'third party' to the treaty. Chapter Three argued that it should nevertheless be seen as bound by them. The IMO participated in the UNCLOS III conference when these provisions were drafted, they were written with the IMO in mind, and in a series of reports to the IMO Council over three decades the IMO Secretary General referred to them as 'duties' or 'obligations' without any dissent or objection being registered by the IMO's member states. In these circumstances, the *pacta tertiis* principle requiring consent to be bound should be relaxed, and the existence of an obligation for a third-party organization should be assumed unless an objection is affirmatively made. Moreover, the LOSC's assistance and technology transfer provisions on the control of marine pollution can be seen as an 'objective regime' with law-making effects for its non-parties, including the IMO.

Consequently, the IMO must give developing states—in particular small island developing states (SIDS) and least developed countries (LDCs)—preferences in the awarding of funds and transfer of technology in the implementation of the proposed fuel oil levy program. Such preferences would include the awarding of research grants, the allocation of funds, and the conditioning of such grants on the free or low cost transfer of intellectual property to SIDS and LDCs. Similar rules would apply to other market-based maritime climate measures the IMO might adopt and is considering.

This chapter imputed obligations to the IMO that it did not expressly accept, but that were assigned to it by its members. It thus viewed the IMO's legal character as more transparent than Chapter Two did by pragmatically looking through its institutional veil. It privileged the relative legal position of the IMO's member states—who are mostly also parties to the LOSC—over the IMO's status as an independent subject of international law. Yet, Chapter Two reached this conclusion cautiously. The IMO has a particularly close legal relationship to the LOSC, which helps establish its law-making role and implicitly refers to it in many provisions. And the IMO's practice shows that it informally accepts the obligations set forth in Articles 203 and 278 as legal duties. A constitutional approach that identifies legal parameters for the IMO's implementation of its climate measures justifies a more flexible applicable of the *pacta tertiis* principle in this context.

1.3 What is shipping's fair share of the climate mitigation burden as defined by the equitable principles of international environmental law?

This chapter tackled an issue that other scholars describe as having 'thus far proven challenging.'[14] The logic of the Paris Agreement rests on the idea that each state will determine

14 Lavanya Rajamani, et al., 'National Fair Shares in Reducing Greenhouse Gas Emissions Within the Principled Framework of International Environmental Law,' (2021) 21(8) *Climate Policy* 983, 998.

for itself how much it will reduce GHG emissions and with what measures, as national contributions towards achieving the Agreement's temperature goals. Those contributions should be shaped by equitable principles of international environmental law such as CBDR-RC, sustainable development, the precautionary approach, and special consideration for SIDS and LDCs. In this way, states should contribute their fair share towards the overall climate mitigation burden necessary to limit global warming.

This chapter normatively defined shipping's fair share using a formalist methodology. It referred to the IMO's rules and organizational practice to identify relevant equitable principles of international environmental law. The chapter demonstrated how those principles arise from within the IMO's practice but also function as multi-sourced equivalent norms. Their content can therefore be derived from the climate regime and other external sources.

It then evaluated the IMO's newly-enacted levels of ambition for shipping's GHG emission reductions against those principles. Perhaps somewhat controversially, it argued that the CBDR-RC principle is not applicable to the sector's share of the climate mitigation burden, and instead is only relevant to how reductions are implemented. The chapter concluded that shipping's fair share should represent the sector's highest possible ambition for reductions in light of its unique technological capacity to mitigate, and contended that its current levels of ambition do not meet that standard. It recommended that the IMO's emission reduction goals be frequently revisited in order to make sure that shipping is fairly contributing towards the limitation of global warming.

This chapter used the IMO as a legal avatar for the shipping industry as a whole. It thus departed from the binary oscillation of the IMO as a forum or actor, and instead referred to the organization's practice to understand what principles should apply to the sector's climate mitigation burden. Rather than viewing the IMO's climate resolutions as political statements, it gave them normative weight that can apply to IMO's climate ambition. This formalist and pragmatic approach was warranted because the IMO has held itself out as the competent international organization to regulate shipping's climate pollution, and did so by invoking equitable principles. By scrutinizing these principles and holding them up against the IMO's climate goals, Chapter Four fleshed out the normative content of the climate obligations discussed in Chapters Two and Three. As discussed in Section 2 below, its conclusions also have implications for the obligations identified in Chapter Five.

1.4 Does international law require that states mitigate shipping's climate pollution, and how can their compliance with any obligation be assessed?

The dissertation next examined whether states have climate obligations for shipping and how their compliance with them can be assessed. As its title suggests, Chapter Five argued that states must take all necessary measures to reduce shipping's risk of climate harm. Necessary measures are state-specific and differential, and encompass decision-making at the IMO and unilateral maritime climate policies. States actions can be assessed with comparisons to best performers, and there are various options for legal accountability.

To reach that conclusion, the chapter first explained states' prescriptive jurisdiction over vessel source climate pollution and the IMO's law-making role, using the IMO's climate measures and the EU's parallel maritime climate measures as illustrations. Different perspectives on the proper scope of extraterritorial jurisdiction were discussed, and the article argued that states can legally regulate extraterritorial climate emissions from vessels voluntarily entering their ports.

Chapter Five next examined what states must do by surveying a broad range of potentially applicable sources of law and analyzing them using a formalist methodology. It interpreted the climate treaties and contended that while some ambiguous provisions in the UNFCCC and Paris Agreement could encompass GHG emissions from shipping, absent additional state practice those treaties do not mandate that states directly address the sector's climate pollution. But, the Paris Agreement's global warming limitation goal, in particular its 1.5 degree goal, is legally relevant for two reasons: the IMO, whose member states are all parties to the Agreement, has repeatedly resolved that shipping's emissions should be guided by it; and that goal represents what the customary harm prevention principle demands. Therefore, the 1.5 degree goal should operate as a legal benchmark for shipping's climate emissions.

The chapter then examined whether and how customary international law, human rights treaties, and the LOSC apply. It concluded that states must take shipping's emissions into account when determining their fair contribution towards the climate goals as required by the Paris Agreement, but there currently is insufficient state practice supporting a customary obligation to consider and mitigate the sector's GHG emissions. Yet, there may be an emerging customary norm that states must address shipping's emissions through the IMO and unilaterally, and that has important legal consequences. Moreover, international environmental principles—even if not crystalized into binding obligations—can play an important role in defining the scope and content of treaty obligations related to shipping's climate impacts.

Human rights treaties impose obligations that are increasingly applied to climate harm. The chapter surveys that developing jurisprudence, focusing on a new and controversial test that alters human rights law's traditional territorial grounding by looking at whether it is reasonably foreseeable that activities under a state's jurisdiction and control create a risk of harm to human rights through climate change. This test should apply to shipping's climate pollution because the sector has many legal interactions with states, and it is reasonably foreseeable that its emissions pose a significant risk to the climate and human rights. Consequently, human rights law requires that states use their best efforts to address shipping's risk of climate harm.

So does the LOSC. That treaty does not explicitly mention climate change, but its Articles 192 and 194 require that states take all necessary measures to prevent, reduce, and control pollution of the marine environment and ensure that activities under their control do not cause transboundary damage. There is wide agreement that the pollution of the marine environment encompasses GHG emissions, and increasingly scholarly attention on whether

the LOSC's environmental provisions require that states go beyond their Paris Agreement commitments.

Chapter Five argues that these provisions apply to shipping's climate emissions. Although the LOSC refers to IMO rules as 'generally applicable international rules and standards,'[15] the text and structure of the LOSC indicates that IMO rules should be seen as a floor or reference point for what states must do, not as legally equivalent to necessary measures. That is particularly so because the IMO's rules do not adequately protect the marine environment from the risk of climate harm. Accordingly, states have a due diligence obligation to address shipping's risk of climate harm that arises from customary principles, human rights law and the LOSC.

Necessary measures that would satisfy that obligation are differential, dynamic, and fact-dependent. They can be identified by looking directly through the IMO's institutional veil because the states remain bound by international law when acting as members of the organization. Drawing on reasoning from other scholars and international case law, Chapter Five thus claims that when states make decisions within the IMO, they must adhere to their human rights obligations and treaty obligations within the organization's area of competence. That requires that they diligently ensure that climate measures represent the sector's highest possible ambition.

Arguably, such an approach would interfere with organizations' autonomy and status as independent international actors. The chapter contends that when states make decisions within organizations, they do so as an attribute of their sovereignty. They have discretion to take whatever position they like, subject only to their legal obligations. In addition, the diplomats representing them are state actors under international law. Their deliberations and actions within the IMO should therefore have external legal relevance.

Moreover, depending on the state, advocating for strong global rules at the IMO may not sufficiently discharge the obligation Chapter Five identifies. Even though the shipping sector has a broad reach and serves countries at all levels of development, 30 states dominate its ownership and control, with East-West routes between Asia, Europe, and North America accounting for a majority of the sector's carbon emissions. States are taking a variety of measures related to shipping's climate emissions, including voluntary approaches and technological investments. But, the EU's maritime climate measures establish a standard against which similarly situated states' policies can be compared. The chapter concludes by discussing options for legal accountability.

2. Overarching Conclusions and Reflections on Climate Obligations for International Shipping

This dissertation's central goal was to identify climate obligations for international shipping by answering a discrete set of sub-questions related to the IMO and its member states. When read together, its chapters reveal overarching conclusions about shipping, climate

15 LOSC, Art. 211, 212.

change, the IMO, and the identification of legal obligations. In particular, climate obligations for shipping are dynamic and inter-connected across international legal regimes, including the climate treaties, law of the sea, and human rights. They run through the relationship between the IMO and its member states and can arise from a variety of legal instruments and doctrines. Moreover, the obligations identified in Chapters Two and Five are similar enough that they can be categorized as 'shared obligations' that bind the IMO and its member states.[16]

Each of the obligations identified in this dissertation are linked. Consider the two obligations related to climate ambition: the IMO must mitigate climate change from shipping consistent with the Paris Agreement's temperature goals; and states must take all necessary measures to prevent and reduce the shipping's climate risks. If states adopt ambitious goals at the IMO, all actors' climate obligations will be satisfied. Conversely, if the IMO fails to discharge the obligation identified in Chapter Two, its member states would be expected to take necessary unilateral measures that address shipping's risk of harm. The IMO's dual identity as forum and actor thus deepens and shapes the applicable law.

In addition to being practically connected, these are *shared obligations*. Nedeski defines such obligations as having 'two or more duty-bearers,' that 'are bound to an international obligation with similar normative content,' that 'pertains to the same constellation of facts.'[17] Each of those elements is met here. The source of obligations differ in that the IMO's duty arises from its unilateral declaration, and its member states' obligations come from their treaty obligations to protect human rights and the marine environment.[18] But, their normative content is similar: the IMO, as the global regulator of shipping's climate impacts, must fulfill its commitment to reduce shipping's GHG emissions in order to limit global warming; and so must states within and beyond the IMO.[19] These due diligence obligations relate to the same constellation of facts: the international shipping sector and its climate pollution, which is jointly controlled by all states and the IMO.[20] Thus while states' obligations do not bind the IMO, and the IMO's obligations do not bind states, all actors have a shared obligation to address shipping's climate risk.

That could be important for determining legal responsibility. Two or more states or international organizations can jointly commit a single internationally wrongful act (or omission) and be held jointly responsible. Nedeski points out that this requires 'dual or multiple attribution of conduct' and that 'the states or organizations that carry out the common conduct are bound to a shared obligation.'[21] Here, such a situation could arise

16 See Nataša Nedeski, *Shared Obligations in International Law* (Cambridge 2022).

17 Nedeski, *supra* n. 16, 24-25.

18 See ibid., 38-39 (shared obligations do not need to have the same legal source).

19 Ibid., 33-35 (discussing requisite similarity of normative content of shared obligations between international organizations and their member states).

20 Ibid., 42-43 ('simultaneous exercise of authority and control by a plurality of states' indicates existence of shared obligation).

21 Ibid., 148.

where the IMO's member states fail to enact measures at the IMO representing the shipping sector's highest possible ambition. The IMO's member states' conduct would legally be the same as the IMO's because the organization carries out its members' collective will, and the organization and its members could be held jointly responsible.

Given that states can also regulate shipping's climate pollution on a unilateral or regional basis, there could likewise be 'shared responsibility for multiple internationally wrongful acts' that 'involves separate courses of conduct that are each internationally wrongful' and 'contribute to a single harm.'[22] This shared responsibility scenario would be very complex and would require determining which states are doing their share to address shipping's risk of harm and which are not.[23] But state conduct and the IMO's would remain intrinsically linked: actors subject to shared obligations must take steps on their own and also try to persuade other parties to fulfill their legal duties.[24] Thus, the IMO and its member states are required to cooperate towards achieving the common objective of their shared climate obligations.

The obligations identified in the preceding chapters are also connected in less formal ways. For example, the implementation obligation identified in Chapter Three is related to the due diligence obligation identified in Chapter Five.[25] If the IMO gives preferences and transfers technology to SIDS and LDCs in its administration of climate programs as required by the LOSC, those programs will be more broadly implemented and therefore environmentally effective.[26] It is reasonable to expect that effective programs will materially lessen the climate risks posed by shipping, and thereby also impact the scope of necessary measures that would be expected of states.

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22 Ibid., 151.

23 Ibid., 165 (because an obligation is divisible does not mean that shared responsibility cannot arise, especially because collective non-performance is more likely to lead to harm), 160 ('Because each bearer is bound to do its own share, for the determination of responsibility, it must be determined in the concrete case at hand whether or not a duty-bearer has done that share, and differentiated performance (such as some states doing their share and others failing to do their share) in principle remains within the realm of possibilities.').

24 Ibid., 169-170 (citing Freya Baetens, 'Invoking, Establishing and Remedying State Responsibility in Mixed Multi-Party Disputes' in C Chinkin and F Baetens (eds), *Sovereignty, Statehood and State Responsibility: Essays in Honour of James Crawford* (Cambridge: Cambridge University Press, 2015) 437).

25 State assistance and transfer obligations for maritime pollution control technologies under the LOSC were not addressed in this dissertation, although they may also have similar normative content to the IMO obligation identified in Chapter Three. See LOSC, Art. 202 (states shall give financial assistance to developing states); 266 (states shall cooperate on the development and transfer of marine science and marine technology).

26 See Saiful Karim, 'Implementation of the MARPOL Convention in Developing Countries,' (2010) 79 *Nordic Journal International Law* 303, 312–13 (discussing importance and challenge of broadly implementing environmental measures for shipping).

The principled definition of shipping's fair share articulated in Chapter Four cuts across the IMO's climate obligations and those of its member states. It indicates the level of ambition for shipping the IMO and its member states must adopt within the organization. In addition, because the fair share is defined with multi-sourced equivalent norms, it suggests what economically and technologically developed states should consider when enacting unilateral measures.

Taken together, the preceding chapters indicate that climate obligations for shipping can be distilled into a single overarching obligation. The IMO's member states are obliged to advocate for, and the IMO adopt, the highest possible goals for shipping's GHG emission reductions that reflect the sector's unique capacity to mitigate. These goals must be realized by IMO measures that give preferences and transfer technology to SIDS and LDCs, and differential unilateral measures that equitably address shipping's risk of climate harm.

3. Limitations, Counter Arguments, and Avenues for Future Research

This dissertation's core limitation is that certain of its conclusions represent a snapshot in time. Some of the instruments examined here—such as IMO resolutions—will almost certainly be amended and updated in the coming years. The IMO could adopt climate goals or measures that are substantively different than what it has done before. More dramatically, the requests for advisory opinions pending at international courts could result in judicial findings on state climate obligations that are contrary to the arguments Chapter Five made.

In addition, this dissertation is built on a sequence of progressive and novel legal approaches. These include the unilateral declarations of international organizations, a relaxed application of the *pacta tertiis* principle and objective regimes, a sectoral definition of shipping's fair share, and deriving climate duties from customary principles, human rights treaties and the LOSC. Arguably these positions are inconsistent with state consent and the IMO's autonomy and expand legal doctrines to create obligations where there are none.

But the law is not static and neither is the climate. Perhaps more than other legal fields, international law constantly changes, including the principles and theories relating to the existence of obligations. Indeed, it must evolve and adapt to be effective: 'certain legal consequences attach to certain legal facts.'[27] This dissertation represents a traditional positivist view of international law, albeit one that is more forward leaning. There could be unintended consequences from applying a formalist methodology that flexibly evaluates the IMO's transparency, including the dilution and softening of climate commitments for shipping by the IMO and its member states. Yet, in my opinion, the severity of the climate crisis, the inadequate response thus far, and the need for international law to address shipping's climate pollution justify its approach.

27 Gleidar I. Hernández, 'Effectiveness,' in J d'Aspremont and S Singh (eds), *Concepts for International Law* (Elgar 2019), 237; 249-250 ('effectiveness only serves to determine the condition of the validity of certain rules . . . it is a principle with a systemic rather than substantive character').

This dissertation's methodology may prove a useful template to research similar issues. International aviation is a significant source of climate pollution, and its governance structure has some similarities to shipping. The climate obligations that apply to it could be identified in a comparable way.[28] The exploitation of minerals on and below the deep seabed, which is expected to accelerate in the coming years, presumably also emits climate pollution beyond national territories. I am not aware of any scholarship that has addressed it. Another promising avenue for future research that has not yet been explored is whether shipping companies themselves bear climate obligations, and if so, how they intersect and interact with the obligations identified here.

4. Final Remarks

I finish this dissertation by revisiting the story of the *Great Western* mentioned on its first page. Following that ship's successful debut, the Great Western Company invested all its resources in a new vessel, the *Great Britain*, the first built with iron and powered by a screw propeller.[29] The *Great Britain* was launched in 1843 and made its first trans-Atlantic voyage in 1845. It ran aground the next year, plagued by unexpected technological challenges posed by its innovative design.[30] The company went bankrupt and sold both ships.[31]

The difference between the Great Western's ships and the low and zero-carbon vessels mentioned at the beginning of this conclusion goes beyond the technology powering them. Unlike the transition from wind to steam, shipping's decarbonization is about much more than profit: if it runs aground, the companies advancing these technologies will fail and so will the climate. This dissertation aimed to show how international law requires that the IMO and its member states do all they can to quickly and equitably transition shipping away from fossil fuels rather than let market forces decide its course.

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28 My earlier scholarship examined some of the International Civil Aviation Organization's climate duties. See Baine P. Kerr, 'Mitigating the Risk of Failure: Legal Accountability for International Carbon Markets,' (2022) 18(2) *Utrecht Law Review* 145; Baine P. Kerr, 'Regulating the Environmental Integrity of Carbon Offsets for Aviation: the International Civil Aviation Organization's Additionality Rule as International Law,' (2020) 14(4) *Carbon and Climate Law Review* 255; Baine P. Kerr, 'Clear Skies or Turbulence Ahead? The International Civil Aviation Organization's Obligation to Mitigate Climate Change,' (2020) 16(1) *Utrecht Law Review* 101.

29 Douglas R. Burgess, Jr., *Engines of Empire: Steamships and the Victorian Imagination* (Stanford, 2016), 48-49.

30 Ibid., 51-51.

31 Ibid., 52.

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IMO Document Number	Date Adopted	MARPOL Annex?	Topic
MEPC 203(62)	15 July 2011	Yes	Operational and engine efficiency rules for new ships
MEPC 229(65)	17 May 2013	No	Voluntary technical assistance and technology transfer program for low and zero carbon shipping
MEPC 278(70)	28 October 2016	Yes	CO2 emissions reporting
MEPC 304(72)	13 April 2018	No	Initial GHG Strategy
MEPC 328(76)	12 July 2021	Yes	Strengthened energy efficiency rules
MEPC.377(80)	7 July 2023	No	Revised GHG Strategy

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Samenvatting

Probleemstelling en overzicht

De internationale scheepvaartsector is een van de grootste bronnen van broeikasgassen (BKG's). Op mondiaal niveau wordt deze sector gereguleerd door de Internationale Maritieme Organisatie [International Maritime Organization, "IMO"], een gespecialiseerd agentschap van de Verenigde Naties dat zijn hoofdkantoor in Londen heeft. De IMO heeft onlangs klimaatdoelen vastgesteld, op grond waarvan per saldo "tegen of rond" 2050 in de scheepvaartsector sprake zou moeten zijn van nul emissie. Uit de eigen onderzoeken van de IMO blijkt echter dat, uitgaande van de huidige maatregelen, de door de sector veroorzaakte emissies gedurende de periode vanaf heden tot halverwege deze eeuw óf op hetzelfde niveau zullen blijven, óf zelfs zullen stijgen. Dergelijke emissies voldoen niet aan het streven de opwarming van de aarde beperkt te houden tot 1,5 graad, zoals de Overeenkomst van Parijs voorschrijft en volgens wetenschappers noodzakelijk is om een catastrofale klimaatverandering te voorkomen.

Deze dissertatie gaat over het recht dat van toepassing is op de decarbonisatie van de scheepvaartsector. In het bijzonder wordt daarin geanalyseerd hoe de leerstukken en regels van het internationaal recht kunnen worden ingezet voor het identificeren van de wettelijke verplichtingen om de door de scheepvaart veroorzaakte klimaatvervuiling te beperken. In deze dissertatie onderzoek ik de rechtsverhouding tussen de IMO en haar lidstaten, met het doel licht te werpen op het recht dat van toepassing is op de vermindering van de door de internationale scheepvaartsector veroorzaakte BKG-emissies. Daarbij beantwoord ik de volgende onderzoeksvraag: welke verplichtingen hebben de IMO en haar lidstaten om de door de internationale scheepvaart veroorzaakte klimaatvervuiling te verminderen, en hoe kunnen de reikwijdte en de inhoud van die verplichtingen op basis van het internationale institutionele recht worden bepaald?

Deze onderzoeksvraag is geformuleerd in het kader van de probleemstelling waarop die vraag betrekking heeft, te weten het identificeren van het recht inzake klimaatmitigatie voor de scheepvaart. Klimaatmitigatie vraagt om gezamenlijk optreden. Zowel publieke als private actoren dienen de BKG-emissies te verminderen en zo samen bij te dragen aan een oplossing die pas na vele jaren zal worden gerealiseerd. Een onderdeel hiervan, te weten de bestrijding van de door de internationale scheepvaart veroorzaakte klimaatvervuiling, levert een ander gemeenschappelijk dilemma op – de institutionele sluier van de IMO en de manier waarop staten zich onttrekken aan het afleggen van verantwoording door zich daarachter te verschuilen. Voor het identificeren van het recht dat van toepassing is op de door de scheepvaart veroorzaakte gevolgen van klimaatverandering is het derhalve noodzakelijk dat de problemen waarvoor gezamenlijk optreden vereist is, als uien – laag voor laag – worden afgepeld.

Wat de zaken nog verder compliceert, is het feit dat de verplichtingen op het gebied van klimaatmitigatie bijzonder breed zijn. Volgens wetenschappers omvatten zij de plicht om samen te werken, milieubeoordelingen uit te voeren, financiering en ondersteuning te bieden voor de maatregelen van anderen, et cetera. Bovendien hebben die verplichtin-

gen een dynamisch karakter: er worden voortdurend nieuwe plichten gehanteerd door rechters en geïdentificeerd door wetenschappers. In potentie zou iedere verplichting van toepassing kunnen zijn op de door de scheepvaart veroorzaakte gevolgen van klimaatverandering, waaraan ook weer verplichtingen verbonden zijn die uit het recht van de zee kunnen voortvloeien.

In het licht van die uitdaging heb ik mijn onderzoek zodanig afgebakend dat daarvoor een formalistische methodologie en een internationaal institutioneel kader gelden. Zodra ik de probleemstelling vanuit die invalshoek ging onderzoeken, stuitte ik op een aantal onderling samenhangende kwesties waaraan mijns inziens nog niet de nodige aandacht was besteed, waaronder wat de IMO moet doen, als zij al iets moet doen, om de klimaatcrisis te bestrijden, en hoe de IMO uitvoering moet geven aan haar eventuele verplichtingen. Er wordt reeds lange tijd gediscussieerd over welke beginselen er van toepassing zijn op de bestrijding van de door de scheepvaart veroorzaakte klimaatvervuiling, maar er bestond nog geen juridische definitie van het aandeel van de scheepvaart in de algehele verantwoordelijkheid voor het beperken van de klimaatverandering. Er is wel enig onderzoek verricht naar de verplichtingen van staten om de door de scheepvaart veroorzaakte klimaatvervuiling te beperken, maar dat onderzoek biedt geen inzicht in nieuwe ontwikkelingen aangaande de toenemende reikwijdte van de klimaatverplichtingen. Evenmin zijn de verplichtingen van staten gekoppeld aan de rol van de IMO als wettelijke actor. Dwars door elk van die kwesties heen liepen tal van problemen met betrekking tot de manier waarop internationale verplichtingen zouden moeten worden geïdentificeerd.

Ik heb vier deelvragen geformuleerd, die elk zien op een ander aspect van de algehele onderzoeksvraag en de bestaande hiaten in de wetenschappelijke literatuur. Deze deelvragen worden geanalyseerd in de onafhankelijke wetenschappelijke artikelen die elk de vier inhoudelijke hoofdstukken in de dissertatie vormen. Zij luiden als volgt.

1. Is de IMO wettelijk verplicht om de door de scheepvaart veroorzaakte BKG-emissies te verminderen?
2. Moet de IMO bij het implementeren van haar klimaatbeleid voorrang geven of technologie overdragen aan ontwikkelingslanden?
3. Wat is het aandeel van de scheepvaart in de verantwoordelijkheid voor het beperken van de klimaatverandering, zoals naar billijkheid door het internationale milieurecht gedefinieerd?
4. Verplicht het internationaal recht staten om de door de scheepvaart veroorzaakte klimaatvervuiling te beperken, en hoe kan de nakoming door hen van een verplichting worden beoordeeld?

Hoofdstuk 2: is de IMO wettelijk verplicht om de door de scheepvaart veroorzaakte BKG-emissies te verminderen?

Hoofdstuk 2 vormt de hoeksteen van deze dissertatie. Dit hoofdstuk biedt een uiteenzetting van de geschiedenis van de IMO, haar wettelijke mandaat om BKG-emissies te reguleren, en haar karakter als wetgevende organisatie krachtens haar oprichtingsverdrag, MARPOL en

het VN-Zeerechtverdrag. Op basis van de bestudering van relevante verdragen waardoor de IMO wordt gebonden, waaronder het IMO-verdrag en MARPOL, wordt in kaart gebracht welke (eventuele) verplichtingen de IMO heeft om de klimaatcrisis te bestrijden. Tevens wordt in hoofdstuk 2 geanalyseerd of de klimaatverplichtingen van de lidstaten van de IMO de organisatie binden. De praktijk van de IMO wordt onderzocht op zijn wetgevende gevolgen, waarbij de nadruk ligt op de Klimaatstrategie 2018 van de IMO en de daaraan voorafgaande handelingen. Na bespreking van de vooralsnog onbeantwoorde vraag of internationale organisaties zichzelf krachtens internationaal recht eenzijdig kunnen binden, wordt in dit hoofdstuk vastgesteld dat de IMO, hoewel zij geen partij is bij de Overeenkomst van Parijs, zich er juridisch toe heeft verbonden om de door de scheepvaart veroorzaakte klimaatvervuiling te verminderen, zodat de opwarming van de aarde in overeenstemming met de doelstellingen van die Overeenkomst kan worden beperkt.

Hoofdstuk 3: moet de IMO bij het implementeren van haar klimaatbeleid voorrang geven of technologie overdragen aan ontwikkelingslanden?

In hoofdstuk 3 wordt getracht antwoord te geven op de vraag hoe de IMO uitvoering moet geven aan haar klimaatmaatregelen. Daartoe wordt ingegaan op een kwestie die de regulering van de door de scheepvaart veroorzaakte emissies heeft dwarsgezeten, te weten of het uit het maritieme regime bekende non-discriminatiebeginsel en het beginsel van de gemeenschappelijke maar gedifferentieerde verantwoordelijkheden met elkaar kunnen worden verenigd. In dit hoofdstuk wordt een voorgestelde stookolieheffing geëvalueerd waarmee een onderzoeks- en ontwikkelingsprogramma inzake technologie kan worden gefinancierd. Het betreffende voorstel wordt als casestudy gebruikt voor het creëren van inzicht in de vraag of de klimaatmaatregelen van de IMO moeten voldoen aan verplichtingen op het gebied van technologieoverdracht en technische hulp die de artikelen 203 en 278 van het VN-Zeerechtverdrag opleggen aan internationale organisaties. Daarbij worden het beginsel "pacta tertiis" en verdragsregels inzake het binden van niet-partijen kritisch geanalyseerd, door de relatie tussen de IMO en haar lidstaten af te tasten. In hoofdstuk 3 wordt betoogd dat de IMO bij het implementeren van zeeklimaatprogramma's verantwoording moet afleggen over de verschillende capaciteiten van haar lidstaten, door bepaalde voorrang te geven en hulp te bieden aan kleine eilandstaten in ontwikkeling en de minst ontwikkelde landen. Tevens wordt toegelicht wat dat betekent voor het technologievoorstel of andere marktmechanismen die de organisatie wellicht overneemt.

Hoofdstuk 4: wat is het aandeel van de scheepvaart in de verantwoordelijkheid voor het beperken van de klimaatverandering, zoals naar billijkheid door het internationale milieurecht gedefinieerd?

Hoofdstuk 4 verschilt van de andere hoofdstukken, in die zin dat het niet gericht is op wettelijke verplichtingen op zich, maar daarin de beginselen worden geïdentificeerd die aangeven hoe snel en vergaand de door de scheepvaart veroorzaakte BKG-emissies zouden moeten worden verminderd. In het bijzonder wordt in dit hoofdstuk verwezen naar de praktijk van de IMO, teneinde de billijkheid [equitable principles] van het internationale

milieurecht te identificeren die de leidraad zou moeten vormen voor de ambitieniveaus die zij voor de sector heeft aangenomen. Vervolgens wordt van die beginselen gebruikgemaakt voor het formuleren van een normatieve definitie van het aandeel van de sector in de verantwoordelijkheid voor het beperken van de klimaatverandering. Vastgesteld wordt dat dit aandeel van de internationale scheepvaart, in het licht van de unieke technologische capaciteit van de sector om de klimaatverandering te beperken, een zo hoog mogelijk ambitieniveau zou moeten weerspiegelen, waarbij de doelstellingen van de sector om BKG-emissies te verminderen regelmatig, in het licht van nieuwe wetenschappelijke ontwikkelingen, zouden moeten worden herzien. De aanbevelingen in hoofdstuk 4 zien dus op de bevindingen van alle andere hoofdstukken en brengen deze normatief samen.

Hoofdstuk 5: verplicht het internationaal recht staten om de door de scheepvaart veroorzaakte klimaatvervuiling te beperken, en hoe kan de nakoming door hen van een verplichting worden beoordeeld?

Als hoofdstuk 2 de hoeksteen van deze dissertatie is, dan is hoofdstuk 5 de sluitsteen ervan. In dit hoofdstuk worden de verplichtingen van staten geïdentificeerd om de door de scheepvaart veroorzaakte BKG-emissies te verminderen en te bestrijden. Er vindt een evaluatie plaats van de rechtsmacht van staten ten aanzien van verontreiniging door schepen en de rol van IMO-voorschriften, en er wordt onderzocht of en hoe de klimaatverdragen, internationaal gewoonterecht, mensenrechtenverdragen en/of het VN-Zeerechtverdrag staten verplicht(en) om de door de scheepvaart veroorzaakte gevolgen van klimaatverandering te bestrijden. Tevens wordt in hoofdstuk 5 het gedrag van staten besproken dat van belang is voor de nakoming van de zeeklimaatverplichtingen, waarbij de nadruk wordt gelegd op de besluitvorming door staten binnen de IMO en op eenzijdige maatregelen. Daarnaast wordt in dit hoofdstuk in kaart gebracht hoe staten wettelijk verantwoordelijk kunnen worden gehouden voor de door de scheepvaart veroorzaakte emissies. Omdat het uiteindelijk staten zijn die de IMO besturen – zij het gezamenlijk – wordt de argumentatie uit de eerdere hoofdstukken aangaande de verplichtingen van de IMO en het aandeel van de scheepvaart aangevuld en afgerond.

Conclusie

Deze dissertatie wordt afgesloten met een bespreking van de hoofdconclusies van ieder hoofdstuk en de lessen die kunnen worden geleerd als deze in samenhang worden gelezen. Vastgesteld wordt dat de in de hoofdstukken 2 en 5 behandelde verplichtingen als gemeenschappelijke verplichtingen krachtens internationaal recht kunnen worden aangemerkt, hetgeen gevolgen heeft voor de manier waarop nakoming daarvan kan worden afgedwongen. De verplichtingen zijn wat betreft de daadwerkelijke vervulling ervan ook op minder formele manieren aan elkaar verbonden. Daarnaast kan de unieke, in deze dissertatie gehanteerde en op het internationale institutionele recht gebaseerde methodologie wellicht een nuttige template bieden voor het identificeren van de klimaatverplichtingen in andere economische sectoren, zoals de internationale luchtvaart, de diepzeemijnbouw en de internationale publieke financiering.

Alles bij elkaar genomen wordt in deze dissertatie duidelijk gemaakt dat de klimaatverplichtingen voor de scheepvaart tot één enkele overkoepelende verplichting kunnen worden teruggebracht: de lidstaten van de IMO zijn verplicht te pleiten voor zo hoog mogelijke doelstellingen voor vermindering van de door de scheepvaart veroorzaakte BKG-emissies, die de unieke capaciteit van de sector weerspiegelen om de klimaatverandering te beperken; en de IMO is verplicht deze doelstellingen aan te nemen. Die doelstellingen moeten vervolgens worden verwezenlijkt door middel van IMO-maatregelen op grond waarvan voorrang wordt gegeven en technologie wordt overgedragen aan kleine eilandstaten in ontwikkeling en de minst ontwikkelde landen, alsmede door middel van verschillende eenzijdige maatregelen waarmee in billijkheid het door de scheepvaart veroorzaakte risico van klimaatschade wordt tegengegaan.

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Baine Kerr holds a bachelor's degree in Sociology from Vassar College in Poughkeepsie, New York, United States, as well as a juris doctor from UCLA School of Law, Los Angeles, California, United States. He also obtained an LL.M degree in Public International Law (cum laude) from Utrecht University.

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During his PhD, Baine published the articles included in this book as well as law review articles on carbon markets and international aviation, and he a co-authored a book chapter on regime interaction related to biodiversity beyond national jurisdictions. He taught undergraduate and graduate classes and coached moot court teams in 2019-2020 and 2021-2022. Baine was a visiting researcher at the Oxford University Public International Law Research Group and the University of Copenhagen Center for Climate Change Law and Governance. After his PhD, he will be a Postdoctoral Researcher at the University of Amsterdam Center for International Law.