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**ARCTIC MARINE SHIPPING: OVERVIEW OF  
THE INTERNATIONAL LEGAL FRAMEWORK, GAPS,  
AND OPTIONS**

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## I. INTRODUCTION

It is now widely accepted that global climate change will have dramatic impacts for the Arctic. The rapid warming of the Arctic climate was the first and most prominent of the 10 key findings of the 2004 Arctic Climate Impact Assessment (ACIA).<sup>1</sup> On Sept. 15, 2007, the Arctic ice cap was 23% below the last record set in 2005.<sup>2</sup> This 2007 record exceeded the computer model predictions used to prepare the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (AR4) in 2007.<sup>3</sup> Perhaps even more important than ice-coverage is the increasing percentage of first-year sea-ice. Many scientists fear that the “Arctic meltdown” has become irreversible even though the 2007 record remained intact in 2008.<sup>4</sup>

Of particular importance to this article are the ACIA’s key findings four: “Animal species’ diversity, ranges and distribution will change,” and six: “Reduced sea ice is very likely to increase marine transport and access to resources.”<sup>5</sup> While the former predicts changes in the composition of the Arctic marine ecosystem in quantitative, qualitative, spatial, and temporal terms, the latter predicts increased pressure on this ecosystem due to more intensive exercise of existing maritime uses, *e.g.*, shipping and fishing, as well as new uses.

The aim of this article is to assess the adequacy of the current international legal framework for the regulation of Arctic marine shipping in the context of global climate change.<sup>6</sup> This assessment

1. ACIA, *Impacts of a Warming Arctic: Arctic Climate Impact Assessment*. Cambridge University Press, 2004.

2. Press Release, Nat’l Snow & Ice Data Ctr., *Arctic Sea Ice Shatters All Previous Record Lows* (Oct. 1, 2007), available at [http://nsidc.org/news/press/2007\\_seaiceminimum/20071001\\_pressrelease.pdf](http://nsidc.org/news/press/2007_seaiceminimum/20071001_pressrelease.pdf)

3. See Press Release, Nat’l Ctr. for Atmospheric Research, *Arctic Ice Retreating More Quickly than Computer Models Project* (Apr. 30, 2007), available at <http://www.ucar.edu/news/releases/2007/seaiice.shtml>.

4. See National Snow & Ice Data Center, <http://nsidc.org> (last visited Jan. 7, 2010), for recent information.

5. OVERVIEW REPORT, *supra* note 1, at Executive Summary, 10-11.

6. See Erik Jaap Molenaar, *Arctic Fisheries Conservation and Management: Initial Steps of Reform of the International Legal Regime*, 1 Y.B. POLAR L. (forthcoming2009) [hereinafter Molenaar, *Arctic Fisheries Conservation and Management*] (discussing arctic fisheries); see also TIMO KOIVUROVA & ERIK JAAP MOLENAAR, *INTERNATIONAL GOVERNANCE AND*

of adequacy is predominantly focused on the impacts of Arctic marine shipping, on the protection and preservation of the marine environment, and marine biodiversity of the Arctic marine area. This means that the mandate of the International Maritime Organization (IMO) over maritime safety and security in international shipping is in principle beyond this article's scope.<sup>7</sup> However, this article still takes account of IMO rules and standards that are primarily aimed at ensuring maritime safety and security but have a significant subsidiary purpose of pollution prevention.

For the purpose of this article, the following are regarded as "Arctic states:" Canada, Denmark (in relation to Greenland), Finland, Iceland, Norway, the Russian Federation, Sweden, and the United States. Even though there is no universally accepted definition for the "Arctic Ocean," it seems generally accepted that there are only five coastal states to the Arctic Ocean, namely Canada, Denmark (in relation to Greenland), Norway, the Russian Federation, and the United States.<sup>8</sup>

Currently, there is also no universally accepted definition for the spatial scope of the marine Arctic. Relevant instruments and processes use different definitions for the Arctic, for instance, the area north of the northern treeline, or the area north of the Arctic Circle (66°33' North). In this article, Arctic fisheries are regarded as the fisheries that occur in marine areas within the outer limits of the so-called "AMAP area," as agreed by the Arctic Monitoring and Assessment Programme (AMAP) of the Arctic Council.<sup>9</sup> These are the marine areas north of the Arctic Circle and north of 62°N in Asia and 60°N in North America, modified to include the marine areas north of the Aleutian chain, the Hudson Bay, and parts of the North Atlantic Ocean, including the Labrador Sea.<sup>10</sup> For the purpose of this article, these marine areas are referred to as the "Arctic marine area." Thus defined, the Arctic marine area has a broader spatial scope than the maximum scope of the application

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REGULATION OF THE MARINE ARCTIC: OVERVIEW AND GAP ANALYSIS, (World Wildlife Fund Jan. 2009) [hereinafter KOIVUROVA & MOLENAAR, INTERNATIONAL GOVERNANCE], available at [http://assets.panda.org/downloads/gap\\_analysis\\_marine\\_resources\\_130109.pdf](http://assets.panda.org/downloads/gap_analysis_marine_resources_130109.pdf) (for a cross-sectoral discussion); Timo Koivurova, Erik Jaap Molenaar & David VanderZwaag, *Canada, the EU and Arctic Ocean Governance: A Tangled and Shifting Seascape and Future Directions*, 18 J. TRANSNAT'L L. & POL'Y 249 (2009).

7. See generally DAVID VANDERZWAAG ET AL., GOVERNANCE OF ARCTIC MARINE SHIPPING (Marine & Env'tl. Law Inst., Dalhousie Univ. 2008), available at <http://arcticportal.org/uploads/vZ/6u/vZ6uVo9aTTQv45iw193oFw/AMSA-Shipping-Governance-Final-Report---Revised-November-2008.pdf>.

8. Arctic Ocean Conference, Ilulissat Declaration (May 28, 2008), available at <http://arctic-council.org/filearchive/Ilulissat-declaration.pdf>.

9. Arctic Monitoring & Assessment Programme [AMAP], Area Map (2003), <http://www.amap.no/AboutAMAP/GeoCov.htm> (last visited Oct. 11, 2009).

10. *Id.*

of the IMO Polar Shipping Guidelines.<sup>11</sup>

The article continues with section II on current and future Arctic marine shipping, followed by section III on the law of the sea in the Arctic marine area. Section IV then gives an overview of the international legal and policy framework with respect to the regulation of Arctic marine shipping. Subsequently, section V identifies gaps in the international legal and policy framework and options for addressing them. The article concludes with section VI on integrated, cross-sectoral ecosystem-based ocean management.

## II. CURRENT AND FUTURE ARCTIC MARINE SHIPPING

For the purpose of this article, Arctic marine shipping is regarded as the shipping that occurs, or could occur, in the Arctic marine area. Arctic marine shipping can be trans-Arctic or intra-Arctic. Trans-Arctic marine shipping can take place by means of various routes and combinations of routes. Two of these routes are the Northwest Passage and the Northern Sea Route. The official Northern Sea Route encompasses all routes across the Russian Arctic coastal seas from the Kara Gate (at the southern tip of Novaya Zemlya) to the Bering Strait.<sup>12</sup> The Northwest Passage is the name given to the marine routes between the Atlantic and Pacific oceans along the northern coast of North America that span the straits and sounds of the Canadian Arctic Archipelago. As a consequence of the accelerated melting of Arctic sea ice, however, the Central Arctic Ocean Route may soon be an option as well. The most suitable course of this latter route will probably vary greatly from year to year. These annual variations may lead to various combinations of the Central Arctic Ocean Route on the one hand and the Northwest Passage and Northern Sea Route on the other hand. Some of the routes of which the Northern Sea Route consists already pass through the high seas area of the Central Arctic

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11. See Int'l Maritime Org. [IMO], *Guidelines for Ships Operating in Polar Waters*, IMO Assembly Res. A.1024(26), Dec. 2, 2009; The Polar Shipping Guidelines will apply in conjunction with the 2002 Guidelines for Ships Operating in Arctic Ice-Covered Waters (Arctic Shipping Guidelines; IMO MSC/Circ. 1056, MEPC/Circ. 399, of 23 December 2002). This parallel applicability—even though they are not legally binding of course—can be deduced from the fact that the Preamble to the Polar Shipping Guidelines does not revoke the Arctic Shipping Guidelines (see also IMO doc. DE 52/WP.2, of 19 March 2009, at para. 28). Which Guidelines are applicable depends on the date of construction of ships (see Preambular paras 2 and 3 of the Polar Shipping Guidelines).

12. See generally Leonid Tymchenko, *The Northern Sea Route: Russian Management and Jurisdiction over Navigation in Arctic Seas*, in *THE LAW OF THE SEA AND POLAR MARITIME DELIMITATION AND JURISDICTION* 269-91 (Alex G. Oude Elferink & Donald R. Rothwell eds., 2001) (defining NSR). See also *FINAL REPORT OF THE ARCTIC MARINE TRANSPORT WORKSHOP* (for a map) (Lawson Brigham & Ben Ellis eds., 2004), available at <http://www.institutenorth.org/servlet/download?id=28>.

Ocean. Finally, it is important to note that all trans-Arctic marine shipping must pass through the Bering Strait.

Regarding the type of shipping, this article covers all intra-Arctic and trans-Arctic marine shipping, including but not limited to:

- Shipping for the purpose of tourism and for servicing installations used for the exploration and exploitation of offshore hydrocarbon resources.
- The larger fishing vessels that are covered by SOLAS 74.<sup>13</sup>
- Warships and other government ships operated for non-commercial purposes.<sup>14</sup>

Current Arctic marine shipping is mainly intra-Arctic, which dominates summer operations in the Canadian Arctic and around the east and west Greenlandic coasts. Year-round Arctic marine transport in the Russian Arctic has been maintained since 1978-79 between the port of Dudinka on the Yenisey River and Murmansk. There have been only a small number of trans-Arctic voyages in the summer for science and tourism across the Northwest Passage and the Northern Sea Route since 2000.<sup>15</sup>

Intra-Arctic and trans-Arctic shipping can be interesting alternatives to the much longer routes using the Panama and Suez Canals or Arctic routes that are partly terrestrial and partly marine. It is nevertheless important to realize that even though summers without sea-ice in much or all of the Arctic Ocean may only be a few decades ahead in the future, sea-ice is still expected to be widespread in winter. While much or most of this will be relatively thin first-year sea-ice, and thus not too problematic to marine shipping, there may be other factors that could adversely affect shipping conditions.<sup>16</sup>

The Arctic Marine Shipping Assessment (AMSA) finalized by the Arctic Council's Protection of the Arctic Marine Environment (PAME) working group in April 2009, provide projections of future Arctic marine shipping and consequential recommendations.<sup>17</sup> The

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13. International Convention for the Safety of Life at Sea, London, Nov. 1, 1974. In force 25 May 1980, with protocols and regularly amended [hereinafter SOLAS 74].

14. United Nations Convention on the Law of the Sea, art. 29, Dec. 10, 1982, 1883 U.N.T.S. 397 [hereinafter LOS Convention], available at [http://www.un.org/Depts/los/convention\\_agreements/texts/unclos/unclos\\_e.pdf](http://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf) (defining warship).

15. Information kindly provided by L. Brigham, Aug. 2008.

16. See also James Kraska, *The Law of the Sea Convention and the Northwest Passage*, 22 INT'L J. MARINE & COASTAL L. 2, 257-82, 260 (2007).

17. The recommendations are discussed in subsection IV(D)(3)(b).

future projections were facilitated by AMSA's Scenario Narratives<sup>18</sup> of May 2008, which are based on two variables, (a) governance stability and (b) demand in resources and trade.<sup>19</sup> These two variables lead to four scenarios referred to as (i) Arctic race, (ii) Arctic saga, (iii) Polar lows, and (iv) Polar preserve.<sup>20</sup> Each of these is potentially influenced by uncertainties or "wildcards," for instance, accelerated Arctic meltdown, major Arctic shipping disasters, and technology breakthroughs.<sup>21</sup> An example of the last is the Double Acting Tanker (DAT), which has a stern designed for ice-breaking and a bow optimized for open water conditions.<sup>22</sup>

At least in the near future, it seems that a high price for hydrocarbons will be an important driver, not only because of cost-benefits of shorter trans-Arctic shipping routes but also because the expected exploration and exploitation of hydrocarbon resources in the Arctic marine area will lead to increased shipping. The risk-assessments of classification societies and the marine insurance industry are nevertheless likely to be a crucial factor for the economic viability of all Arctic marine shipping. The future expansion of Arctic marine shipping is also likely to lead to more diverse stakeholders, which also do not necessarily have Arctic states as their main basis.<sup>23</sup> Trans-Arctic marine shipping is expected to be an important driver for this development.

Marine shipping has the following actual and potential impacts on the marine environment and marine biodiversity:

- Shipping incidents leading to accidental discharges of polluting substances (cargo or fuel) or physical impact on components of the marine ecosystem (*e.g.*, on benthos and large marine mammals).

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18. See generally ARCTIC MARINE SHIPPING ASSESSMENT (AMSA), THE FUTURE OF ARCTIC MARINE NAVIGATION IN MID-CENTURY: SCENARIO NARRATIVES REPORT (May 2008) [hereinafter AMSA, SCENARIO NARRATIVES REPORT], available at <http://arcticportal.org/uploads/sz/hm/szhmvPw3beAQMOJGoVxT9Q/GBN-AMSA-Scenario-Narratives-Report-FINALMay08-v1May.pdf>

20. *Id.* at 5.

21. *See id.* at 17-18.

21. *Id.* at 19; Lawson W. Brigham, Arctic Marine Shipping Assessment: What is Driving Arctic Marine Use?, Presentation at Conference "Opening the Arctic Seas: Envisioning Disasters and Framing Solutions" (Mar. 18, 2008) (see slide 11, "20 Key AMSA Uncertainties"), available at [http://www.crrc.unh.edu/workshops/arctic\\_spill\\_summit/presentations/lawson.pdf](http://www.crrc.unh.edu/workshops/arctic_spill_summit/presentations/lawson.pdf).

22. FINAL REPORT OF THE ARCTIC MARINE TRANSPORT WORKSHOP, *supra* note 12, at A.11.

23. *Contra* AMSA, SCENARIO NARRATIVES REPORT, *supra* note 18, at 2. *See also* Int'l N. Sea Route Programme Home Page, <http://www.fni.no/insrop/> (last visited Oct. 11, 2009).

- Operational discharges (cargo residues, fuel residues (sludge), (incineration of) garbage and sewage) and emissions.
- Navigation impacts (noise pollution and other forms of impacts on or interference with marine species potentially causing, for instance, disruption of behavior, abandonment or trampling of the young by fleeing animals or displacement from normal habitat).
- Introduction of alien organisms through ballast-water exchanges or attachment to vessel hulls (e.g., in crevices<sup>24</sup>).
- Anchoring impacts.

All these actual and potential impacts are also relevant for Arctic marine shipping. The likelihood of some of these impacts, for instance shipping incidents, may be higher in some parts of the Arctic marine area due to the presence of ice bergs and insufficient experience in navigating in ice-covered areas and the lack of accurate charts.<sup>25</sup> In addition, cold temperatures may affect machinery and icing can create additional loads on the hull, propulsion systems and appendages.<sup>26</sup> Moreover, the remoteness of much of the Arctic marine area, the limited availability of Maritime Safety Information (MSI) data<sup>27</sup> and the challenges of navigating therein mean that, once shipping incidents do occur, a response will take relatively long and may even then be inadequate to address impacts to the marine environment and marine biodiversity.

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24. *Australia: Establishment of Effective Antarctic Quarantine Controls for Tourism and Non-Government Activities*, at 2, ATCM XXVII Doc. WP-21/Rev.1 (2004), available at [http://www.ats.aq/27atcm/e/login/WP/27WP021E\(REV1\).doc](http://www.ats.aq/27atcm/e/login/WP/27WP021E(REV1).doc); ANTARCTIC TREATY CONSULTATIVE MEETING (ATCM), FINAL REPORT OF THE TWENTY-SEVENTH ANTARCTIC TREATY CONSULTATIVE MEETING, at ¶ 134 (2004) [hereinafter ATCM, FINAL REPORT] (referring, *inter alia*, to the fact that many vessels used in Antarctic tourism also operate in the Arctic); Erik Jaap Molenaar, *Sea-Borne Tourism in Antarctica: Avenues for Further Intergovernmental Regulation*, 20 INT'L J. MARINE & COASTAL L. 247, 258 (2005).

25. IMO, *Guidelines on Voyage Planning for Passenger Ships Operating in Remote Areas*, IMO Res. 25/9, A 25/Res. 999, (Jan. 3, 2008); Antarctic Treaty Consultative Meeting (ATCM), *Hydrographic Surveying and Chartering*, ATCM Res. 5(2008) (referring to the role of the International Hydrographic Organization (IHO)); see also Scott G. Borgeson, *Arctic Meltdown: The Economic and Security Implications of Global Warming*, 87 FOREIGN AFF. 63, 76 (2008).

26. Cf. VANDERZWAAG, *supra* note 7, at 13 (stating that “[e]xtreme cold temperatures may reduce the effectiveness of components ranging from deck machinery”).

27. This issue is addressed *inter alia*, in the IMO Sub-Committee on Radiocommunications and Search and Rescue (COMSAR) and by means of a joint IMO/IHO/World Meteorological Organization (WMO) Correspondence Group on Arctic MSI Services.



## III. THE LAW OF THE SEA IN THE ARCTIC MARINE AREA

The cornerstones of the current international law of the sea are the LOS Convention<sup>28</sup> and its two implementation agreements, the Part XI Deep-Sea Mining Agreement,<sup>29</sup> and the Fish Stocks Agreement.<sup>30</sup> The current international law of the sea applies to the marine environment of the entire globe, including the entire marine environment of the Arctic Ocean, however defined. All Arctic states are parties to these three treaties, except for the United States, which is not a party to either the LOS Convention or the Part XI Deep-Sea Mining Agreement.<sup>31</sup>

The LOS Convention recognizes the sovereignty, sovereign rights, freedoms, rights, jurisdiction, and obligations of states within several maritime zones. The most important of these for the Arctic are internal waters, territorial sea, exclusive economic zone (EEZ), continental shelf, high seas, and the Area.<sup>32</sup> There are likely to be at least two pockets (enclaves) of the Area in the central Arctic Ocean and four high seas pockets in the Arctic marine area (as defined in this article). The latter are the so-called "Banana Hole" in the Norwegian Sea, the so-called "Loop Hole" in the Barents Sea, the so-called "Donut Hole" in the central Bering Sea and the central Arctic Ocean. The outer limits of the maritime zones of coastal states are measured from baselines drawn in accordance with several provisions of the LOS Convention. The normal baseline is the low-water line along the coast.<sup>33</sup> The LOS Convention also allows coastal states to draw straight baselines in certain situations.<sup>34</sup> However, the straight baselines drawn by Canada around its Arctic islands are regarded by the United States and European Union (EU) Member States as inconsistent with

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28. See generally LOS Convention, *supra* note 14.

29. Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982, New York, July 28 1994. In force 28 July 1996, 33 I.L.M. 1309 (1994); see also U.N. Div. for Ocean Aff. & Law of the Sea, Oceans and Law of the Sea, [www.un.org/Depts/los](http://www.un.org/Depts/los) (last visited Jan. 7, 2010).

30. Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, New York, Aug. 4, 1995. In force 11 December 2001, 34 I.L.M. 1542 (1995); see also U.N. Div. for Ocean Aff. & Law of the Sea, Oceans and Law of the Sea, *supra* note 29.

31. Information obtained from the United Nations Division for Ocean Affairs & Law of the Sea, Oceans and Law of the Sea, *supra* note 29.

32. LOS Convention, *supra* note 14, art. 1(1) (defining Area as the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction).

33. Arts. 5-7.

35. Arts. 9-14.

international law.<sup>35</sup>

The LOS Convention recognizes the sovereignty of a coastal state over its internal waters, archipelagic waters and territorial sea, the airspace above, and its bed and subsoil. Sovereignty entails exclusive access and control of living and non-living resources and all-encompassing jurisdiction over all human activities, unless states have in one way or another consented to restrictions thereon. The right of innocent passage is a widely recognized restriction.<sup>36</sup> The LOS Convention also recognizes specified economic and resource-related sovereign rights and jurisdiction of a coastal state with respect to its EEZ and, where relevant, outer continental shelf. Nevertheless, other states have navigational rights or freedoms within the maritime zones of coastal states and, with respect to their EEZ and (where relevant) outer continental shelf, also the freedoms of overflight, laying of submarine cables and pipelines and “other internationally lawful uses of the sea related to these freedoms.”<sup>37</sup>

The fact that the current international law of the sea applies to the entire marine Arctic, however defined, is also emphasized by the five Arctic Ocean coastal states in the Ilulissat Declaration.<sup>38</sup> Accordingly, as the “law of the sea” is an “extensive international legal framework,” they “therefore see no need to develop a new comprehensive international legal regime to govern the Arctic Ocean.” Conversely, they recognize the need for appropriate measures as a consequence of developments in the Arctic Ocean. In the less than a single page text that follows, reference is among other things made to the safety of navigation, vessel-source pollution and contingency planning and emergency response to incidents with shipping and offshore exploitation. Notably, no mention is made of international fisheries instruments, fisheries management in general or the need for holistic, integrated or cross-sectoral governance or management.

It is worth noting that the Ilulissat Declaration refers to the “law of the sea” but not explicitly to the LOS Convention. This is hardly surprising as the United States is not a party to the LOS Convention. It is well-known that the United States takes the view that, except for its Part XI, the LOS Convention is already part of customary international law and in that way creates rights and

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35. J.A. ROACH & R.W. SMITH, *EXCESSIVE MARITIME CLAIMS* 65-67 (1994). *See also* Kraska, *supra* note 16, at 270-73; McRae, *infra* note 90.

36. Art. 17.

37. *Id.* art. 58 (1).

38. *See* Ilulissat Declaration, *supra* note 8.

obligations for the United States.<sup>39</sup> However, while the United States does not also explicitly single out the dispute settlement mechanism in Part XV of the LOS Convention from its statement on customary international law, this mechanism is not able to become part of that body of law as a consequence of its procedural nature.<sup>40</sup> The dispute settlement mechanism in Part XV is widely regarded as a critical component of the package deal that paved the way for the adoption of the LOS Convention. The fact that it provides for compulsory third-party dispute settlement entailing binding decisions in many scenarios was a novelty in international law at the time. It thereby helps to safeguard the preservation of the package-deal of the LOS Convention from undesirable applications and interpretations of its provisions. The non-applicability of the dispute settlement mechanism of Part XV of the LOS Convention as between Arctic Ocean coastal states is therefore a significant gap in the "extensive international legal framework" referred to in the Ilulissat Declaration.

#### IV. INTERNATIONAL LEGAL AND POLICY FRAMEWORK

##### *A. Interests, Rights, Obligations, and Jurisdiction*

The international legal and policy framework for vessel-source pollution balances the different interests of the international community as a whole with the interests of states that have rights, obligations or jurisdiction in their capacities as flag, coastal or port states or with respect to their natural and legal persons. While the term "flag state" is commonly defined as the state in which a vessel is registered and/or whose flag it flies,<sup>41</sup> there are no generally accepted definitions for the terms "coastal state" or "port state." For the purpose of this article however, the term "coastal state" refers to the rights, obligations, and jurisdiction of a state within its own maritime zones over foreign vessels. Conversely, the term "port state" refers to the rights, obligations and jurisdiction of a state over foreign vessels that are voluntarily in one of its ports. The rights, obligations, and jurisdiction of a port state do not overlap with those of a coastal state (*e.g.*, port states would have jurisdiction over illegal discharges that have occurred beyond the coastal

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39. Ronald Reagan, Presidential Proclamation 5030 (Mar. 10, 1983), 48 F.R. 10605, 3 C.F.R., 1983 Comp. 22.

40. Cf. Ted L. McDorman, *Global Ocean Governance and International Adjudicative Dispute Resolution*, 43 OCEAN & COASTAL MGMT. 255, 259 (2000).

41. See, *e.g.*, LOS Convention, *supra* note 14, art. 91(1).

state's maritime zones,<sup>42</sup> as well as other violations of conditions for entry into port).

The balance in the abovementioned framework is primarily between the socio-economic interests of flag states in unimpeded navigation and a minimum of globally uniform international regulation and the environmental interests of the coastal state. The port state commonly seeks to balance its local environmental interests and the broader environmental interests that its coastal state has in its maritime zones, against the socio-economic interests of the port and its "hinterland." The interests of the international community normally overlap with those of flag, coastal and port states but are usually broader and more general. The interests of some states, however, clearly undermine those of other states and the international community. For instance, by not ensuring that their ships comply with international minimum standards or by allowing foreign vessels in their ports to be in non-compliance with international minimum standards, these states, vessels and ports thereby have a competitive advantage over states, vessels and ports that *do* comply with international minimum standards. Such "free riders" clearly benefit from the consensual nature of international law—meaning that a state can only be bound to a rule of international law when it has in one way or another consented to that rule. Regarding flag states, this problem is aggravated due to the flag state's discretion in registering ships, the primacy of a flag state's jurisdiction over ships flying its flag on the high seas, and the failure of the current body of international law to specify consequences for the absence of a genuine link between a ship and its flag state.<sup>43</sup>

It should be realized that states generally have interests, rights, obligations, and jurisdiction in more than one capacity. This often leads to a more balanced compromise position but occasionally also leads to contradictory positions of the same state within different fora. There is no reason or indication to assume that Arctic states are different in this regard. The definitions for "port state" and "coastal state" presented above are necessary for the legal analysis below.

A common distinction with regard to jurisdiction is that between prescriptive jurisdiction—whereby a state prescribes, or enacts, rules and standards—and enforcement jurisdiction—whereby a state enforces the rules and standards it has prescribed. The term regulation usually means prescription in this article, but

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42. See, e.g., *id.* art. 218.

43. See LOS Convention, *supra* note 14, arts. 91(1), 92(1), 94.

can also have a broader meaning to encompass enforcement. Jurisdiction is commonly restricted in terms of its spatial and substantive scope and the subjects that are covered. The next subsection devotes some more attention to the substantive scope of standards or requirements.

### *B. Substantive Standards or Requirements*

In view of the jurisdictional framework for vessel-source pollution laid down in the LOS Convention and the types of standards agreed to within IMO so far, the following main categories of substantive standards or requirements can be distinguished:

- Discharge and emission standards, including standards relating to ballast water exchange.
- Construction, design, equipment and manning (CDEM) standards, including fuel content specifications and ballast water treatment requirements.
- Navigation standards, in the form of ships' routeing measures, Ship Reporting Systems (SRSs) and Vessel Traffic Services (VTS).
- Contingency planning and preparedness standards and,
- Liability and insurance requirements.

This categorization is merely meant to facilitate the discussion below and does not capture the entire spectrum of types of standards or requirements developed within the IMO or applied by individual states acting in their various capacities. An Arctic Ocean coastal state may, for instance, require use of ice-breaker assistance and the payment of fees for such services.

### *C. Intergovernmental and Other Relevant International Bodies*

International regulation of vessel-source pollution is primarily performed by global bodies. This is a direct consequence of the global nature of international shipping and the interest of the international community in minimal but globally uniform international regulation. The LOS Convention safeguards the latter interest by only allowing unilateral coastal state prescription in a few situations.<sup>44</sup> The regional bodies or groupings of states that never-

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44. See *infra* subsection IV(D)(1)(b).

theless exercise prescriptive or enforcement jurisdiction over vessel-source pollution commonly do this in their capacities as flag or port states.<sup>45</sup> For instance, Annex IV, titled "Prevention of Marine Pollution" of the Environmental Protocol to the Antarctic Treaty<sup>46</sup> is largely a flag state approach<sup>47</sup> and regional agreements on port state control, such as the Paris Memorandum of Understanding (MOU)<sup>48</sup> and the Tokyo MOU,<sup>49</sup> are examples of a port state approach.

The IMO bodies of most relevance to this article are the Marine Environment Protection Committee (MEPC), the Maritime Safety Committee (MSC), and the latter's Sub-Committee on Navigation (NAV), its Sub-Committee on Design and Equipment (DE), and its Sub-Committee on Radiocommunications and Search and Rescue (COMSAR). Amendments to MARPOL 73/78<sup>50</sup> are adopted by the MEPC, and amendments to SOLAS 74 by the MSC. The MEPC also has a coordinating role in relation to particularly sensitive sea areas (PSSAs) and the MSC has the authority to adopt mandatory ships' routing systems and VTS pursuant to SOLAS 74 and COLREG 72.<sup>51</sup> Proposals for many of the associated protective measures (APMs) that are made applicable within PSSAs are first discussed in the NAV. After its revision of the 2002 IMO Arctic Shipping Guidelines<sup>52</sup> culminated in the 2009 IMO Polar Shipping

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45. LOS Convention, *supra* note 14, art. 211(3) (acknowledging the right of port states to prescribe, individually or in concert, more stringent standards than generally accepted international rules and standards (GAIRAS)).

46. Protocol on Environmental Protection to the Antarctic Treaty; Annexes I-IV, Madrid, Oct. 4, 1991. In force Jan. 14, 1998; Annex V (adopted as Recommendation XVI-10), Bonn, Oct. 17, 1991. In force May 24, 2002; Annex VI (adopted as Measure 1(2005)), Stockholm, June 14, 2005. Not in force. All texts available at Secretariat of the Antarctic Treaty, [www.ats.aq](http://www.ats.aq) (last visited Jan. 7, 2010).

47. *Cf.* art. 2 of Annex IV; *see also infra* note 139-140 and accompanying text (acts of the OSPAR Commission).

48. Paris Memorandum of Understanding on Port State Control, *entry into force* July 1, 1982, *available at* <http://www.parismou.org/upload/PSCC/MOU,%20incl.%2031st%20%20Amendment.pdf> (as regularly amended).

49. Tokyo Memorandum of Understanding on Port State Control in the Asia-Pacific Region, *entry into force* Apr. 1, 1994, *available at* <http://www.tokyo-mou.org/memorand.pdf> (as regularly amended).

50. International Convention for the Prevention of Pollution from Ships, Nov. 2, 1973, 1340 U.N.T.S. 61 [hereinafter MARPOL 73/78] (as modified by the 1978 Protocol (June 1, 1978) and the 1997 Protocol (Sept. 26, 1997) and as regularly amended). Entry into force varies for each Annex. At the time of writing, Annexes I through VI were all in force. IMO, International Convention for the Prevention of Pollution from Ships, [http://www.imo.org/Conventions/mainframe.asp?topic\\_id=258](http://www.imo.org/Conventions/mainframe.asp?topic_id=258) (last visited Oct. 11, 2009). At the 58th Session in Oct. 2008, the MEPC adopted a revised Annex VI and its associated NO<sub>x</sub> Technical Code. *Id.* These will enter into force on July 1, 2010 in accordance with the tacit amendment procedure. *Id.*

51. Convention on the International Regulations for Preventing Collisions at Sea, Oct. 20, 1972, 1050 U.N.T.S. 16 [hereinafter Convention for Preventing Collisions] (in force July 15, 1977; as regularly amended).

52. *See* IMO, *Guidelines for Ships Operating in Polar Waters*, *supra* note 11.

Guidelines, DE was charged with developing a mandatory Code for ships operating in polar waters.<sup>53</sup>

Of the Arctic Council bodies, the efforts of the PAME and the Emergency, Prevention, Preparedness and Response (EPPR) working groups are the most relevant to this article.

Other international bodies that are relevant include:

- The Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) establishing the OSPAR Commission.<sup>54</sup>
- The joint Norwegian-Russian Federation Commission on Environmental Protection established pursuant to a 1992 bilateral agreement.<sup>55</sup> Its Working Group on Protection of the Marine Environment, established in 2005, has to a certain degree dealt with issues related to transshipment of oil at sea, but not as one of its main themes.<sup>56</sup> Its predecessor, the Working Group on Marine Protection, dealt, among other things, with the implementation of a 1994 bilateral Agreement.<sup>57</sup>
- The Port State Control Committees set up under the Paris and Tokyo MOUs, and
- The International Association of Classification Societies (IACS), in particular on account of its Unified Requirements concerning Polar Class.<sup>58</sup>

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53. See IMO Doc, MSC 86/26, of June 12, 2009, at paras 12.21-12.23 & 23.32-23.34. The 53<sup>rd</sup> Session of DE, scheduled for February 2010, will commence with this task.

54. Convention for the Protection of the Marine Environment of the North-East Atlantic, Sept. 22, 1992 [hereinafter OSPAR Convention], available at [http://www.ospar.org/html\\_documents/ospar/html/OSPAR\\_Convention\\_e\\_updated\\_text\\_2007.pdf](http://www.ospar.org/html_documents/ospar/html/OSPAR_Convention_e_updated_text_2007.pdf) (in force Mar. 25, 1998); *id.*, Annex V (in force Aug. 30, 2000).

55. Agreement Between the Governments of the Kingdom of Norway and the Russian Federation on Cooperation in Environmental Matters, Nor.-Russ., Sept. 3, 1992 [hereinafter Cooperation in Environmental Matters, Nor.-Russ.]; NOR. MINISTRY OF FOREIGN AFFAIRS, OVERENSKOMSTER MED FREMMEDE MAKTER 1,532-35 (Oslo 1992). This agreement replaces a narrower 1988 under the same name (but between Norway and the Soviet Union. See also Olav S. Stokke, *Sub-regional Cooperation and Protection of the Arctic Marine Environment: The Barents Sea in PROTECTING THE POLAR MARINE ENVIRONMENT – LAW AND POLICY FOR POLLUTION PREVENTION* 124, 125. (D. Vidas ed., Cambridge Univ. Press 2000).

56. KOIVUROVA & MOLENAAR, INTERNATIONAL GOVERNANCE, *supra* note 6, at 25.

57. *Id.*

58. Int'l Ass'n of Classification Soc'ys (IACS), *Requirements for Polar Class*, Oct. 2007 (Corr.1) [hereinafter IACS, Unified Requirements], available at [http://www.iacs.org.uk/document/public/Publications/Unified\\_requirements/PDF/UR\\_I\\_pdf410.pdf](http://www.iacs.org.uk/document/public/Publications/Unified_requirements/PDF/UR_I_pdf410.pdf) (concerning unified requirements for "Polar Class Descriptions and Application," "Structural

### D. International Instruments

#### 1. LOS Convention

Most of the LOS Convention's provisions on vessel-source pollution are laid down in its Part XII, entitled "Protection and Preservation of the Marine Environment." This part begins with Section 1, entitled "General Provisions" and applies to all sources of pollution. Its first provision, Article 192, lays down the general obligation for all states, in whatever capacity therefore, "to protect and preserve the marine environment." This is elaborated in Article 194 with regard to measures to prevent, reduce and control pollution of the marine environment, aimed specifically at vessel-source pollution in paragraph (3)(b). Other relevant general obligations relate to rare or fragile ecosystems and the habitat of endangered species,<sup>59</sup> introduction of alien species,<sup>60</sup> co-operation on a global or regional basis,<sup>61</sup> contingency plans against pollution,<sup>62</sup> monitoring of the risks or effects of pollution,<sup>63</sup> and assessment of potential effects of activities.<sup>64</sup> Sections 5 and 6 contain separate provisions on prescription and enforcement for each of the sources of pollution.<sup>65</sup>

The jurisdictional framework relating to vessel-source pollution laid down in the LOS Convention is predominantly aimed at flag and coastal states. Apart from one explicit provision (Article 218), port state jurisdiction is only implicitly dealt with (see further below). As a general rule, prescriptive jurisdiction by flag and coastal states is linked by means of rules of reference to the notion of

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Requirements for Polar Class Ships," and "Machinery Requirements for Polar Class Ships"). Mention should be made of initiatives of individual classification societies such as the AMERICAN BUREAU OF SHIPPING (ABS), GUIDE FOR VESSELS OPERATING IN LOW TEMPERATURE ENVIRONMENTS (Oct. 2008), available at [http://www.eagle.org/eagleExternalPortalWEB/ShowProperty/BEA%20Repository/Rules&Guides/Current/151\\_VesselsOperatinginLowTemperatureEnvironments/Pub151\\_LTE\\_Guide\\_Dec08](http://www.eagle.org/eagleExternalPortalWEB/ShowProperty/BEA%20Repository/Rules&Guides/Current/151_VesselsOperatinginLowTemperatureEnvironments/Pub151_LTE_Guide_Dec08) (updated in Dec. 2008), as well as the joint initiatives between ABS and the Russian Maritime Register of Shipping (RS) on Arctic LNG (liquid natural gas) carriers, see Press Release, ABS, Joint Training of Surveyors for Arctic LNG Carriers Initiated by ABS and RS (Oct. 13, 2008), available at [http://www.eagle.org/eagleExternalPortalWEB/appmanager/absEagle/absEagleDesktop?\\_nfpb=true&\\_windowLabel=newControllerPortlet\\_1&newControllerPortlet\\_1\\_actionOverride=/externalportal/portlets/news/showDetails&newControllerPortlet\\_1nodePath=/BEA+Repository/News+%26+Events/Press+Releases/2008/13Oct2008&\\_pageLabel=ab\\_eagle\\_portal\\_news\\_listings\\_page](http://www.eagle.org/eagleExternalPortalWEB/appmanager/absEagle/absEagleDesktop?_nfpb=true&_windowLabel=newControllerPortlet_1&newControllerPortlet_1_actionOverride=/externalportal/portlets/news/showDetails&newControllerPortlet_1nodePath=/BEA+Repository/News+%26+Events/Press+Releases/2008/13Oct2008&_pageLabel=ab_eagle_portal_news_listings_page).

60. *Id.* art. 194(5).

61. *Id.* art. 196.

62. *Id.* art. 197.

63. *Id.* art. 199.

64. *Id.* art. 204.

65. *Id.* art. 206.

66. *Id.* art. 207-22.



“generally accepted international rules and standards” (GAIRAS). These refer to the technical rules and standards laid down in instruments adopted by regulatory organizations, in particular IMO. It is likely that the rules and standards laid down in legally binding IMO instruments that have entered into force can at any rate be regarded as GAIRAS.<sup>66</sup> The LOS Convention stipulates that flag state prescriptive jurisdiction over vessel-source pollution is mandatory and must have at least the same level as GAIRAS.<sup>67</sup> Flag states can therefore choose to require their vessels to comply with more stringent standards than GAIRAS, for instance by implementing the IMO Polar Shipping Guidelines in their legislation. Conversely, coastal state prescriptive jurisdiction over vessel-source pollution is optional under the LOS Convention but, if exercised, cannot be more stringent than the level of GAIRAS.<sup>68</sup> This is the general rule even though it is subject to some exceptions (see below).

The general rule is also applicable to marine areas where the regime of transit passage laid down in Part III, Section 2 of the LOS Convention applies.<sup>69</sup> This regime was developed for narrow straits that would no longer have a high seas corridor once the strait states would extend the breadth of their territorial seas to 12 nautical miles (nm). The applicability of the regime of transit passage is nevertheless dependent on various conditions. One of these is laid down in Article 37 and is of particular relevance for this article because it stipulates that the regime of transit passage only applies to “straits which are used for international navigation.”<sup>70</sup> Canada and the Russian Federation appear to interpret these words as requiring an actual degree of usage while rejecting potential usage and thereby conclude that the Northwest Passage and the Northern Sea Route are not subject to the regime of transit passage.<sup>71</sup> Assuming that climate change may soon allow increasing actual usage - provided Canada and the Russian Federation do not impede this - such an interpretation could be relied on less and less. The United States regards the Northwest Passage and parts of the Northern Sea Route as straits used for international naviga-

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66. ERIK JAAP MOLENAAR, COASTAL STATE JURISDICTION OVER VESSEL-SOURCE POLLUTION 140-67 (1998) [hereinafter MOLENAAR, COASTAL STATE JURISDICTION].

67. LOS Convention, *supra* note 14, art. 211(2).

68. *See id.* arts. 21(2), 39(2), 211(5).

69. *Id.* arts. 41, 42(1)(a)-(b).

71. LOS Convention, *supra* note 14, art. 37.

71. *See, e.g.*, DONALD R. ROTHWELL, THE POLAR REGIONS AND THE DEVELOPMENT OF INTERNATIONAL LAW 189-212 (1996); ERIK JAAP MOLENAAR, COASTAL STATE JURISDICTION OVER VESSEL-SOURCE POLLUTION 306 (1998).

tion subject to the regime of transit passage.<sup>72</sup> States with large fleets engaged in international shipping, in particular those relatively near the Arctic, such as China, Japan, Norway, South Korea, and several EU Member States, are likely to share this view. Strangely enough, the European Commission's Arctic Communication fails to articulate a clear position.<sup>73</sup>

a. General Exceptions

The abovementioned general rule only relates to pollution of the marine environment by vessels. The term "pollution of the marine environment" is defined in Article 1(1)(4) of the LOS Convention as:

the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities.

As neither anchoring nor discharges of ballast water seem to fall within this definition, the above-mentioned restriction on coastal state jurisdiction over vessel-source pollution does not apply either. As regards anchoring, this view seems to be supported by the practice of the United States in regulating anchoring beyond its territorial sea without seeking IMO approval and without any apparent objection by other states. In pursuing this practice, the United States apparently relies on its sovereign rights as a coastal state over resources.<sup>74</sup> As regards ballast water dis-

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72. See Press Release, White House, Arctic Region Policy: National Security Presidential Directive and Homeland Security Presidential Directive, § III.B.5. (Jan. 9, 2009), available at <http://georgewbush-whitehouse.archives.gov/news/releases/2009/01/20090112-3.html>; see also *infra* note 144 and accompanying text.

73. See generally *Communication from the Commission to the European Parliament and the Council on the European Union and the Arctic Region*, COM (2008) 763 final (Nov. 20, 2008). See also *id.* at 8 (mentioning the need to "defend the principle of freedom of navigation and the right of innocent passage in the newly opened routes and areas" without referring to the more liberal regime of transit passage). Conversely, the Council of the EU (2985<sup>th</sup> Foreign Affairs Council meeting, Dec. 8, 2009) "Conclusions on Arctic issues" refer explicitly to transit passage in para. 16.

74. See generally MOLENAAR, COASTAL STATE JURISDICTION OVER VESSEL-SOURCE POLLUTION, *supra* note 71, at 416-18 (probably primarily in relation to the EEZ pursuant to art. 56 of the LOS Convention, but art. 77 may also provide a basis in relation to the (outer) continental shelf).

charges, the above view is supported by the fact that instead of an Annex to MARPOL 73/78, the IMO decided to deal with ballast water management in a stand-alone treaty, namely the BWM Convention.<sup>75</sup> Moreover, the BWM Convention allows states individually or in concert to regulate more stringently above the minimum ballast water exchange level laid down in the Convention.<sup>76</sup>

More stringent standards can also be adopted for special areas pursuant to Article 211(6) of the LOS Convention. But as this requires, at any rate, IMO approval, it gives coastal states no unilateral prescriptive authority. The PSSA Guidelines<sup>77</sup> developed by IMO also implement Article 211(6)<sup>78</sup> and are clearly inspired by, and consistent with, that provision. It should also be realized that PSSA status is not a precondition for obtaining the majority of possible APMs. For instance, mandatory ships' routing measures, SRSs or VTS can be made applicable to the maritime zones of a coastal state upon its request by means of IMO approval.

#### b. Unilateral Coastal State Prescription

There are two exceptions to the above-mentioned general rule. First, a coastal state is entitled to prescribe more stringent (unilateral) standards for the territorial sea, provided they "shall not apply to the design, construction, manning or equipment of foreign ships unless they are giving effect to generally accepted international rules or standards."<sup>79</sup> The rationale of this provision is to safeguard the objective of "uniformity in the regulation of international shipping," which would be undermined if states unilaterally prescribe standards that have extra-territorial effects.<sup>80</sup> Unilateral fuel requirements affect this objective for the reason that compliance seems to require substantial and costly adjustments to vessels. Such requirements should therefore be treated analogous with CDEM standards.<sup>81</sup> The exception provided by this provision does not apply in marine areas where the regime of transit passage

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75. International Convention for the Control and Management of Ships' Ballast Water and Sediments, Feb. 13, 2004, IMO Doc. BWM/CONF/36 [hereinafter BWM Convention], available at <http://www.ecolex.org/server2.php/libcat/docs/multilateral/en/TRE001412.pdf> (not in force).

76. *Cf. id.* art. 2(3) & Annex, section C. See IMO, BWM Convention, *supra* note 108; *infra* note 103 and accompanying text.

77. *Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Area*, IMO A 24/Res. 982 (Dec. 1, 2005) [hereinafter *PSSA Guidelines*].

78. *Id.* ¶ 7.5.2.3(iii).

79. LOS Convention, *supra* note 14, art. 21(2).

80. See Erik Jaap Molenaar, *Port State Jurisdiction: Toward Comprehensive, Mandatory and Global Coverage*, 38 OCEAN DEV. & INT'L L. 225, 250 n.50 (2007).

81. *Id.*

laid down in Part III, Section 2 of the LOS Convention applies.<sup>82</sup>

A second exception is laid down in Article 234 of the LOS Convention. It is entitled "Ice-covered areas" and provides:

Coastal States have the right to adopt and enforce non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered areas within the limits of the exclusive economic zone, where particularly severe climatic conditions and the presence of ice covering such areas for most of the year create obstructions or exceptional hazards to navigation, and pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance. Such laws and regulations shall have due regard to navigation and the protection and preservation of the marine environment based on the best available scientific evidence.<sup>83</sup>

Article 234 was included in the LOS Convention as a result of, in particular, the efforts of Canada, which sought to ensure that its 1970 Arctic Waters Pollution Prevention Act (AWPPA)<sup>84</sup> and underlying regulations and orders<sup>85</sup> would no longer be regarded as inconsistent with international law.<sup>86</sup> Article 234 gives coastal states broad prescriptive and enforcement jurisdiction in ice-covered areas, even though for a limited purpose and subject to several restrictions.<sup>87</sup> One such restriction follows from the words "for most of the year."<sup>88</sup> However, decreasing ice-coverage means that fewer states will be able to rely on Article 234 in fewer areas. In addition to Canada, the Russian Federation also relies on Article 234 for prescribing standards that are more stringent than GAIRAS. The LOS Convention gives no guidance as to whether the regime of transit passage trumps the regime of Article 234 or vice

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83. See *id.*; see also LOS Convention, *supra* note 14, arts. 37-43.

84. LOS Convention, *supra* note 14, art. 234.

84. Arctic Waters Pollution Prevention Act, R.S.C. 1985, c. A-12 (1970) (Can.), available at <http://laws.justice.gc.ca>.

85. See Arctic Shipping Pollution Prevention Regulations, C.R.C. c. 353 (Can.), and a range of other regulations and Orders, available at <http://laws.justice.gc.ca>.

86. See Rob Huebert, *Article 234 and Marine Pollution Jurisdiction in the Arctic*, in *THE LAW OF THE SEA AND POLAR MARITIME DELIMITATION AND JURISDICTION*, 249-67, 249 (Alex G. Oude Elferink & Donald R. Rothwell eds., Martinus Nijhoff Publishers 2001).

87. MOLENAAR, *COASTAL STATE JURISDICTION OVER VESSEL-SOURCE POLLUTION*, *supra* note 71, at 419-21.

88. LOS Convention, *supra* note 14, art. 234 (some of the elements of this article could be regarded as an interpretation of the spatial scope of the IMO Polar Shipping Guidelines).

versa,<sup>89</sup> but the views of Canada and the Russian Federation can be expected to be the opposite of the views of the United States, other relevant states, and the EU.<sup>90</sup> Analyses by commentators of relevant legislation and enforcement by Canada and the Russian Federation indicate that navigation in the parts of the Northwest Passage and the Northern Sea Route that are within national jurisdiction is much more constrained than elsewhere.<sup>91</sup> As usage of the Northern Sea Route by foreign vessels is scarce, it is difficult to determine the precise scope and extent of the latter legislation.

### c. Port State Jurisdiction

It was already stated above that port state jurisdiction is only explicitly referred to in Article 218. This innovative provision gives a port state enforcement jurisdiction over illegal discharges beyond its own maritime zones, namely the high seas and the maritime zones of other states.

More generally, however, the point of departure for port state jurisdiction is that as ports lie wholly within a state's territory and fall on that account under its territorial sovereignty, customary international law acknowledges a port state's wide discretion in exercising jurisdiction over its ports. This was explicitly stated by the International Court of Justice (ICJ) in the *Nicaragua* case where it observed that it is "by virtue of its sovereignty, that the coastal State may regulate access to its ports."<sup>92</sup> While there may often be a presumption that access to port will be granted, customary international law gives foreign vessels no general right of access to ports.<sup>93</sup> Articles 25(2), 211(3) and 255 of the LOS Convention implicitly confirm the absence of a right of access for foreign vessels to ports as well as the port state's wide discretion in exer-

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89. MOLENAAR, COASTAL STATE JURISDICTION OVER VESSEL-SOURCE POLLUTION, *supra* note 71, at 289-90, 307.

90. See Donald McRae, *An Arctic Agenda for Canada and the United States*, in CANADA-US PROJECT, BACKGROUND PAPERS FROM CORRECT TO INSPIRED: A BLUEPRINT FOR CANADA-US ENGAGEMENT UNDER A NEW ADMINISTRATION 156-164, 157 (Carleton University 2009), available at <http://www.carleton.ca/ctpl/conferences>.

91. *E.g.* VANDERZWAAG, ET AL., *supra* note 7, at 49-67, 72; Rothwell, *supra* note 71, at 189-212; Huebert, *supra* note 86; Tymchenko, *supra* note 12; MOLENAAR, COASTAL STATE JURISDICTION OVER VESSEL-SOURCE POLLUTION, *supra* note 71, at 421-25; R.D. Brubaker, *Jurisdiction Governing the Straits in Russian Arctic Waters* (INSROP Working Paper No. 52-1996, IV.3.1, 1996); R.D. Brubaker, *THE RUSSIAN ARCTIC STRAITS* (2005); ERIK FRANCKX, *MARITIME CLAIMS IN THE ARCTIC: CANADIAN AND RUSSIAN PERSPECTIVES* (1993).

92. *Military and Paramilitary Activities (Nicar. v. U.S.)* 1986 I.C.J. 14, 111, ¶ 213 (June 27).

93. *Cf.* A.V. Lowe, *The Right of Entry into Maritime Ports in International Law*, 14 SAN DIEGO L. REV. 597, 597-98 (1977) (suggesting that no right of entry has been established in customary international law).

cising jurisdiction under customary international law.<sup>94</sup> A port state's residual jurisdiction, namely, its competence to prescribe more stringent standards than those agreed to within competent international organizations such as the IMO, is not affected by adherence to IMO instruments as such. The implications of international trade law on a port state's residual jurisdiction are unclear, however. Finally, the legality or justifiability of extra-territorial port state jurisdiction "depends not only on a sufficient jurisdictional basis but also on the type of enforcement action taken."<sup>95</sup> Most importantly, international law only very rarely authorizes port states to impose enforcement measures that are more stringent than denial of access or use of port (services) for extra-territorial behavior. Article 218 of the LOS Convention is one of these instances.

In the context of this article, port states within or beyond the Arctic marine area could, for example, deny access to certain types of ships or impose conditions for entry into port that are more stringent than GAIRAS, for instance by incorporating the IMO Polar Shipping Guidelines into their legislation.<sup>96</sup>

## 2. IMO Instruments

### a. Discharge and Emission Standards

MARPOL 73/78<sup>97</sup> and the BWM Convention<sup>98</sup> are the only IMO instruments that contain discharge and emission standards. The Annexes to MARPOL 73/78 contain discharge standards for oil (Annex I), noxious liquid substances (Annex II), sewage (Annex IV) and garbage (Annex V), and emission standards for ozone depleting substances, nitrogen oxides (NO<sub>x</sub>), sulphur oxides (SO<sub>x</sub>) and volatile organic compounds (VOCs) (Annex VI). Annexes I, II and V make use of so-called "special areas" where more stringent discharge standards apply.<sup>99</sup> Annex VI currently uses so-called "SO<sub>x</sub> Emission Control Areas," but this will be broadened with "particulate matter" and NO<sub>x</sub>.<sup>100</sup> Rather than emission standards, SO<sub>x</sub>

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94. LOS Convention, *supra* note 14, arts. 25(2), 211(3) & 255.

95. Molenaar, *Port State Jurisdiction*, *supra* note 80, at 246.

96. In view of the definitions for "port state" and "coastal state" in subsection IV(A), jurisdiction based on Art. 234 is regarded as coastal state jurisdiction.

97. *See supra* note 66 and accompanying text.

98. *See supra* note 75 and accompanying text.

99. See also the proposal in IMO Doc. MEPC 60/6/3, of Dec. 17, 2009, to introduce special areas for the purpose of Annex IV (sewage).

100. *See* MOLENAAR, COASTAL STATE JURISDICTION OVER VESSEL-SOURCE POLLUTION, *supra* note 66.

Emission Control Areas have maximum limits of the sulphur content in fuel and requirements relating to exhaust gas cleaning systems, which should either be regarded as CDEM standards or must be treated as analogous with them. No part of the Arctic marine area currently falls within either a special area or a SOx Emission Control Area. By contrast, the Antarctic area has been designated as a special area under Annexes I, II and V and the special discharge standards therein are currently also in effect.<sup>101</sup> Specific criteria and procedures have been developed for the designation of special areas and SOx Emission Control Areas.<sup>102</sup>

The BWM Convention stipulates that vessels using the ballast water exchange method should not discharge ballast water within 200 nm from the nearest land or in waters less than 200 meters deep and must meet an efficiency of at least 95% volumetric exchange.<sup>103</sup> It has also been noted above that the BWM Convention allows states individually or in concert to regulate more stringently above this minimum level.

#### b. CDEM Standards

CDEM standards are contained in many of the main legally binding IMO instruments, in particular SOLAS 74<sup>104</sup> and STCW 78.<sup>105</sup> The well-known double-hull standard, which was triggered by the *Exxon Valdez* disaster in 1989, is laid down in Annex I to MARPOL 73/78.<sup>106</sup> It was also mentioned above that the fuel content requirements in Annex VI to MARPOL 73/78 (within and beyond SOx Emission Control Areas) and the ballast water treatment requirements in the BWM Convention must be regarded as, or treated analogous with, CDEM standards. A similar argument could be made for prescriptions on the use of certain paints or coat-

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101. MOLENAAR, COASTAL STATE JURISDICTION OVER VESSEL-SOURCE POLLUTION, *supra* note 66, at 434. Cf. ØYSTEIN JENSEN, THE IMO GUIDELINES FOR SHIPS OPERATING IN ARCTIC ICE-COVERED WATERS: FROM VOLUNTARY TO MANDATORY TOOL FOR NAVIGATION SAFETY AND ENVIRONMENTAL PROTECTION? 10 (Fridtjof Nansen Inst. & WWF Nor. 2007), available at <http://www.fni.no/doc&pdf/FNI-R0207.pdf> (indicating on page ten that an earlier draft of what was to become the IMO Arctic Shipping Guidelines envisaged the Arctic to be designated as a special area under one or more Annexes of MARPOL 73/78).

102. See IMO, *Guidelines for the Designation of Special Areas under MARPOL 73/78 and Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas*, IMO A 22/Res. 927 (Nov. 29, 2001); MARPOL 73/78, *supra* note 50, Annex VI, App. III (on SOx Emission Control Areas).

103. IMO, BWM Convention, *supra* note 108, Regs. B-4 & D-1.

104. SOLAS 74, *supra* note 13.

105. International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, Dec. 1, 1978, 1361 U.N.T.S. 2 (in force April 28, 1984, as amended and modified by the 1995 Protocol).

107. MARPOL 73/78, *supra* note 50, Annex I.

ings pursuant to the Anti-Fouling Convention.<sup>107</sup>

The IMO Arctic Shipping Guidelines contain only CDEM standards and no discharge, emission, navigation or contingency<sup>108</sup> standards, or liability or insurance requirements. The Polar Shipping Guidelines are in general more elaborate and extensive than the Arctic Shipping Guidelines, for instance in relation to life-saving appliances. The Polar Shipping Guidelines will follow the definition of 'ship' used in SOLAS 74<sup>109</sup> and apply to all voyages in Antarctic waters but as regards Arctic waters only to international voyages. The linkage with the IACS Unified Requirements concerning Polar Class is at least as strong and,<sup>110</sup> like the Arctic Shipping Guidelines, it contains mostly CDEM standards.

### c. Navigation Standards

In subsection 4.2 above, the category of navigation standards includes ships' routing measures, SRSs and VTS. These navigation standards can be adopted by the MSC based on their authority under SOLAS 74 and COLREG 72.<sup>111</sup> As regards ships' routing measures, reference should be made to the General Provisions on Ships' Routing.<sup>112</sup> Examples of routing measures are: traffic separations schemes, deep-water routes, precautionary areas, areas to be avoided and no anchoring areas. Apart from the regulation of anchoring for the purpose of the conservation of living resources, the LOS Convention does not authorize coastal states to adopt mandatory navigation standards seaward of its territorial sea. In 1998, the General Provisions on Ships' Routing were

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107. International Convention on the Control of Harmful Anti-fouling Systems on Ships, Oct. 5, 2001, IMO Doc. AFS/CONF/26, available at <http://www.uscg.mil/hq/cg5/cg522/cg5224/docs/Antifouling.pdf> (in force Sept. 17, 2008).

108. IMO, *Guidelines for the Structure of an Integrated System of Contingency Planning for Shipboard Emergencies*, IMO A 20/Res. 852, ¶13.3.1 (Nov. 27, 1997) [hereinafter IMO, *Guidelines for the Structure of an Integrated System*] (requiring operating manuals to conform to resolution).

109. Which excludes, for instance, fishing and cargo vessels below a certain size or length and all naval vessels.

110. See, e.g., Polar Shipping Guidelines, paras P-2.8, 1.1.4, 2.2.1 & 7.1.1.

111. Convention for Preventing Collisions, *supra* note 51.

112. IMO, *General Provisions on Ships' Routing*, IMO A 14/Res/ 572 (Nov. 20, 1985). Amended, among other things, by Resolution MSC.71(69), Resolution MSC.165(78) and Resolutions adopted by MSC 70, MSC 73, MSC 79 and MSC 85. See IMO, *Amendments to the General Provisions on Ships' Routing*, IMO Doc. SN/Circ.204 (Jan. 8, 1999), available at [http://www.imo.org/includes/blastDataOnly.asp/data\\_id%3D1894/204.PDF](http://www.imo.org/includes/blastDataOnly.asp/data_id%3D1894/204.PDF); IMO, *Amendments to the General Provisions on Ships' Routing*, IMO Doc. SN/Circ.215 (Jan. 19 2001), available at [http://www.imo.org/includes/blastDataOnly.asp/data\\_id%3D1903/215.pdf](http://www.imo.org/includes/blastDataOnly.asp/data_id%3D1903/215.pdf); IMO, *Amendments to the General Provisions on Ships' Routing*, IMO Doc. SN/Circ.241 (Dec. 14, 2004), available at [http://www.imo.org/includes/blastDataOnly.asp/data\\_id%3D10924/241.pdf](http://www.imo.org/includes/blastDataOnly.asp/data_id%3D10924/241.pdf); and IMO Doc. SN/Circ.275 (Dec. 10, 2008).



amended by adding Annex 2 entitled "General Provisions for the Adoption, Designation and Substitution of Archipelagic Sea Lanes" (ASLs Provisions).<sup>113</sup> Archipelagic sea lanes are thereby essentially equated with ships' routeing systems.

While it is likely that there are currently several IMO navigation standards that apply within the Arctic marine area, it is not possible to provide an overview of these in the context of this article. However, it is clear that there is no comprehensive mandatory or voluntary IMO ships' routeing system for the Arctic marine area in its entirety or a large part thereof. So far, the Arctic marine area or the Arctic Ocean may not have been viewed or addressed as a unity for shipping. Arguably, the imminent significant expansion of Arctic marine shipping makes such an approach necessary. It is submitted that the routes described in section II above, which show possible future shipping routes of the Arctic marine area, resemble somewhat archipelagic sea lanes established pursuant to Article 53 of the LOS Convention.<sup>114</sup> The procedure laid down in this provision—implemented by Annex 2 to the IMO General Provisions on Ships' Routeing—may be suitable as a model for submitting an "Arctic Sea Lanes" proposal to IMO. The circumstance that some sea lanes may be situated in the high seas would not seem to be a problem as such.<sup>115</sup>

#### d. Contingency Standards

The contingency standards adopted within IMO are mainly laid down in OPRC 90<sup>116</sup> and its 2000 HNS Protocol.<sup>117</sup>

#### e. Liability and Insurance Requirements

The liability and insurance requirements adopted within IMO are those laid down in the 1969 Civil Liability Convention,<sup>118</sup> the

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113. IMO, *Adoption of Amendments to the General Provisions on Ships' Routeing (Resolution A 14/Res. 572)*, Res. MSC.71(69) (May 19, 1998).

115. LOS Convention, *supra* note 14, art. 53.

115. Note that ¶ 3.11, 3.14 and 3.16 of the IMO General Provisions on Ships' Routeing only provide exceptions for routeing systems "no part of which lies beyond their territorial sea" or in straits used for international navigation. See IMO, *General Provisions on Ships' Routeing*, *supra* note 112. See also MOLENAAR, COASTAL STATE JURISDICTION, *supra* note 95, at 526-28 (observing the role accorded to IMO under the LOS Convention).

116. IMO, *International Convention on Oil Pollution Preparedness, Response and Co-operation*, 1990, Nov. 30, 1990, 30 I.L.M. 733 (1991) (in force May 13, 1995).

117. IMO, *Protocol on Preparedness, Response and Co-operation to Pollution Incidents by Hazardous and Noxious Substances*, Mar. 15, 2000, IMO Doc. HNS-OPRC/CONF/11/Rev.1 (in force June 14, 2007); see also IMO, *Guidelines for the Structure of an Integrated System*, *supra* note 108.

118. IMO, *International Convention on Civil Liability for Oil Pollution Damage*,

1971 Fund Convention<sup>119</sup> (each modified by several protocols), the 1996 HNS Convention,<sup>120</sup> and the 2001 Bunker Oil Convention.<sup>121</sup>

f. PSSA Guidelines

Designation of an area as a PSSA pursuant to the PSSA Guidelines<sup>122</sup> does not bring about regulation of shipping within that area as such. This requires adoption of one or more APMs. Attention can in this context be drawn to the possibility to have special discharge standards within PSSAs (other than by means of designation as special area under MARPOL 73/78) and “other measures aimed at protecting specific sea areas against environmental damage from ships, provided that they have an identified legal basis.”<sup>123</sup> Innovative standards are therefore not ruled out.

g. Other

Reference should also be made to IMO Assembly Resolution A.999(25), Guidelines on voyage planning for passenger ships operating in remote areas,<sup>124</sup> that was adopted a week after the tragic sinking of the *MS Explorer*, a purpose-built, ice-strengthened tourist vessel originally named *MS Lindblad Explorer*, on November 23, 2007 in Antarctic waters. IMO Assembly Resolution A.999(25) complements the more general IMO Assembly Resolution A.893(21), Guidelines for voyage planning.<sup>125</sup> Resolution A.999(25) refers, *inter alia*, to the need to take account of shortcomings in available hydrographic data, the presence of places of

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Brussels, Nov. 29, 1969, 9 I.L.M. 45 (1970) (in force June 19, 1975).

119. IMO, International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, Dec. 18, 1971, 11 I.L.M. 284 (1972) (in force Oct. 16, 1978).

120. IMO, International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea, May 3, 1996, 35 I.L.M. 1406 (1996) (not in force).

121. International Convention on Civil Liability for Bunker Oil Pollution Damage, London, Mar. 23, 2001, available at <http://www.official-documents.gov.uk/document/cm66/6693/6693.pdf> (in force Nov. 21, 2008; link is to official British text published by The Stationary Office).

122. *PSSA Guidelines*, *supra* note 77.

123. *Id.* ¶ 6.1.3.

124. IMO, *Guidelines on Voyage Planning for Passenger Ships Operating in Remote Areas*, IMO A 25/Res. 999 (Nov. 25, 1999). Note that the rationale for adopting the Resolution, as set out in its Preamble, refers to the need to “prevent incidents of groundings and collisions, and thereby enhance safety of life at sea” but not to marine environmental protection. *Id.* preamble.

125. IMO, *Guidelines for Voyage Planning*, IMO A 21/Res. 893 (Nov. 25, 1999) [hereinafter IMO, *Guidelines for Voyage Planning*].

refuge<sup>126</sup> and the need of experience in navigating in ice-covered areas.

Also noteworthy is Regulation V/6 of SOLAS 74 on the Ice Patrol Service and the "Rules for the management, operation and financing of the North Atlantic Ice Patrol" contained in an Appendix to Chapter V.

Finally, in view of the remoteness of the Arctic marine area, particular account should be taken of the requirement for ships to carry an automatic identification system (AIS) under Regulation V/19 of SOLAS 74 and the more recent requirements relating to Long-range identification and tracking of ships (LRIT) under Regulation V/19-1 of SOLAS 74.<sup>127</sup> Regulation V/19-1 not only entitles port states to receive certain information prior to entry into port but also coastal states in relation to ships navigating within a distance of 1000 nm off their coast, subject to some exceptions.<sup>128</sup>

### 3. Arctic Council Instruments

#### a. General

The Arctic Council Members have committed themselves to implementing the Arctic Environmental Protection Strategy (AEPS)<sup>129</sup> in conformity with the LOS Convention.<sup>130</sup> It can be assumed that this also includes respect for the mandate and work of the IMO. In 2000, the Arctic Council adopted the Action Plan to Eliminate Pollution in the Arctic (ACAP) and determined that the ACAP would be a basis for developing and implementing actions under the Council's auspices with respect to pollution prevention and remediation.

#### b. Output of PAME

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126. See IMO, *Guidelines on Places of Refuge for Ships in Need of Assistance*, IMO A 23/Res. 949 A.949 (23) (Dec. 5, 2003) (adopted in the aftermath of the disaster with the *Prestige* in 2002).

127. Regulation V/19-1 was adopted by Resolution MSC.202(81), and will apply to ships constructed on or after Dec. 31, 2008, with a phased implementation schedule for ships constructed before Dec. 31, 2008. IMO, *Amendments to the International Convention for the Safety of Life at Sea, 1974, as Amended, Chapter V, Safety of Navigation*, Res. MSC 81/25/Add.1, Annex 2 (May 19, 2006), available at [http://www.imo.org/includes/blastDataOnly.asp/data\\_id%3D24228/MSC.202\(81\).pdf](http://www.imo.org/includes/blastDataOnly.asp/data_id%3D24228/MSC.202(81).pdf). The LRIT system is intended to be operational with respect to the transmission of LRIT information by ships from Dec. 30, 2008. See also IMO, *Report of the Maritime Safety Committee on its Eighty-First Session*, Res. MSC 81/25/Add. 1, Annexes 2, 13, 14 (May 19, 2006) [hereinafter IMO, *Report of MSC*].

128. IMO, *Report of MSC*, *supra* note 127, Reg. V/19-1(8.1) MSC 202(81).

129. Arctic Environmental Protection Strategy, June 14, 1991, 30 I.L.M. 1624 (1991).

130. *Id.* introduction, 30 I.L.M. at 1630.

In addition to its efforts in monitoring the IMO Arctic Shipping Guidelines,<sup>131</sup> mention can be made of the Arctic Marine Strategic Plan (AMSP)<sup>132</sup> and the Guidelines for Transfer of Refined Oil and Oil Products in Arctic Waters (TROOPS).<sup>133</sup>

The AMSA Report was released at the Arctic Council Ministerial Meeting in Tromsø, April 2009.<sup>134</sup> It contains a considerable number of Recommendations categorized under the headings “Enhancing Arctic Marine Safety,” “Protecting Arctic People and the Environment” and “Building the Arctic Marine Infrastructure.” The Senior Arctic Officials (SAOs) meeting in Tromsø, April 2009, recommended the Ministerial Meeting later that month to approve the AMSA recommendations, which was done by means of the Tromsø Declaration of 29 April 2009.<sup>135</sup> While it is not surprising that the declaration specifically encouraged, and urged for, further action within IMO, it is interesting to note that SAOs are requested “to develop appropriate follow up actions.”<sup>136</sup> The negotiation-process for an Arctic SAR instrument can be regarded as one of such actions.<sup>137</sup>

### c. Output of EPPR

The main products of the EPPR Working Group are

- Arctic Guide for Emergency Prevention, Preparedness and Response (updated annually), containing information on emergency systems and contact points, overview of environmental risks, and applicable agreements.
- Field Guide for Oil Spill Response in Arctic Waters (1998).
- Environmental Risk Analysis of Arctic Activities (1998).
- Circumpolar Map of Resources at Risk from Oil Spills in the Arctic (2002), which includes

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131. See Huebert, *supra* note 86, at 260; see also Jensen, *supra* note 101, at 8-15.

133. ARCTIC COUNCIL, ARCTIC MARINE STRATEGIC PLAN (2004), available at [http://arcticportal.org/uploads/vx/IW/vxIWcyCi\\_7UnSBwZDbPVug/AMSP-Nov-2004.pdf](http://arcticportal.org/uploads/vx/IW/vxIWcyCi_7UnSBwZDbPVug/AMSP-Nov-2004.pdf).

133. ARCTIC COUNCIL, GUIDELINES FOR TRANSFER OF REFINED OIL AND OIL PRODUCTS IN ARCTIC WATERS (2004), available at <http://old.pame.is/sidur/uploads/TROOP%20-%20English%202.pdf>.

134. Available at PAME, Arctic Marine Shipping, <http://www.pame.is/amsa> (last visited Jan. 7, 2010).

135. Available at Arctic Council, <http://arctic-council.org> (last visited Jan. 7, 2010).

136. At p. 4.

137. See *infra* note 160.

“a series of GIS-based circumpolar maps showing areas of highest risk because of sensitive natural resources and subsistence communities.”<sup>138</sup>

- Shoreline Clean-up Assessment Technique (SCAT) Manual (2004).

#### 4. Acts of the OSPAR Commission

While competence for the regulation of shipping lies first of all with the IMO, action under the OSPAR Convention is not entirely precluded. As with fisheries, the OSPAR Commission must first bring questions to the attention of the IMO, if it considers that action is desirable. Contracting Parties who are IMO members must endeavor to cooperate “in order to achieve an appropriate response, including in relevant cases that Organisation’s agreement to regional or local action . . . .”<sup>139</sup> The OSPAR Commission has already taken some supplementary action. This includes for example the adoption of regional voluntary guidelines to reduce the risk of the introduction of non-indigenous species through ships’ ballast water,<sup>140</sup> as an interim measure pending the entry into force of the BWM Convention. These guidelines recommend all vessels that fall within the scope of the BWM Convention entering the North East Atlantic to have a Ballast Water Management Plan, to record all ballast water operations and to exchange ballast water at least 200 nm from the nearest land in water at least 200 meters deep. These voluntary guidelines are recommended for all vessels, including those of non-contracting parties to the OSPAR Convention.

#### 5. Other

Other relevant instruments are:<sup>141</sup>

- The 1983 bilateral agreement between Canada and Denmark,<sup>142</sup> which relates to the preven-

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138. Cf. Timo Koivurova & David L. VanderZwaag, *The Arctic Council at 10 Years: Retrospects and Prospects*, 40 U. BRIT. COLUM. L.REV. 121, 146 n.134 (2007).

139. OSPAR Convention, *supra* note 54, Annex V, art. 4(2).

140. OSPAR Comm’n, *General Guidelines on the Voluntary Interim Application of the D-1 Ballast Water Exchange Standard in the North-East Atlantic*, Summary Record OSPAR 2007, OSPAR 07/24/1-E, Annex 9.

141. See Agreement on Cooperation in the Arctic and the North, Can.-Russ., June 19, 1992, 1884 U.N.T.S. 179 (entered into force Jun. 19, 1992).

142. Agreement for Cooperation Relating to the Marine Environment, Can.-Den., Aug. 26, 1992, 1348 U.N.T.S. 122 (entered into force Aug. 26, 1983).

tion, reduction and control of pollution of the marine environment resulting from activities within the area covered by the agreement, including pollution incidents resulting from shipping.<sup>143</sup>

- The 1988 bilateral agreement between Canada and the United States,<sup>144</sup> by which, *inter alia*, the “Government of the United States pledges that all navigation by U.S. icebreakers within waters claimed by Canada to be internal will be undertaken with the consent of the Government of Canada.”<sup>145</sup>
- The 1992 bilateral agreement between Norway and the Russian Federation<sup>146</sup> pursuant to which the Joint Norwegian-Russian Commission on Environmental Protection operates.
- The 1993 Agreement Between Denmark, Finland, Iceland, Norway and Sweden Concerning Cooperation in Measures to Deal with Pollution of the Sea by Oil or Other Harmful Substances.<sup>147</sup> The Agreement deals with a range of measures, including monitoring maritime zones and abatement in case of pollution incidents.
- The 1994 bilateral Agreement between Norway and the Russian Federation Concerning Cooperation on the Combating of Oil Pollution in the Barents Sea,<sup>148</sup> containing requirements on notification and contingency planning.
- The Joint Contingency Plan of the United States and the Russian Federation on Combating Pollution in the Bering and Chukchi Seas.<sup>149</sup>
- The Canada-United States Joint Marine Contingency Plan,<sup>150</sup> which provides for a coordi-

143. *Id.* Annex B, art. VII.

144. Agreement on Arctic Cooperation, Can.-U.S., Jan. 11, 1988, T.I.A.S. No. 11565.

145. *Id.* at ¶3. *See also* Rothwell, *supra* note 71, at 158-59, 191-96; Kraska, *supra* note 16, at 266-67 (putting this Agreement in the context of marine scientific research).

146. *See* Cooperation in Environmental Matters, Nor.-Russ., *supra* note 55.

147. Cooperation on Protection of the Sea from Oil Pollution or Other Noxious Substances, Mar. 29, 1993, 2084 U.N.T.S. 283 (in force Jan. 16, 1998).

148. *See* KOIVUROVA & MOLENAAR, INTERNATIONAL GOVERNANCE, *supra* note 6.

149. *See* U.S. DEPT OF AGRIC., NATIONAL RESPONSE PLAN 88 (2004), available at <http://www.usda.gov/documents/NRPallpages.pdf>.

150. *Id.*

nated system for planning, preparedness, and responding to harmful substance incidents in the contiguous waters of Canada and the United States. This plan is supported by five geographic annexes.

- The Basel Convention.<sup>151</sup>
- IACS Unified Requirements concerning Polar Class, which complement the IMO Arctic and Polar Shipping Guidelines and other relevant IMO instruments.<sup>152</sup>
- Port State Control MOUs.

#### V. GAPS IN THE INTERNATIONAL LEGAL AND POLICY FRAMEWORK AND NATIONAL REGULATION AND OPTIONS FOR ADDRESSING THEM

This subsection identifies gaps in the international legal and policy framework and in national regulation relating to Arctic marine shipping in light of current and future threats to the marine environment and marine biodiversity in the Arctic marine area, and options to address these gaps.

##### A. Gaps

Not all Arctic states are parties to relevant international instruments. For instance, the Russian Federation is not a party to OPRC 90. As regards substantive standards or requirements, the international legal framework contains:

- No special IMO discharge, emission or ballast water exchange standards for the Arctic marine area.
- No comprehensive mandatory or voluntary IMO ships' routing system for the Arctic marine area in its entirety or a large part thereof.
- No legally binding special CDEM (including fuel content and ballast water treatment) standards for the Arctic marine area.

These are factual conclusions and do not imply a need to address these in light of threats posed to the marine environment or

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151. U.N. Env't Programme (UNEP), Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, Mar. 22, 1989, UNEP/IG. 80/3, 28 I.L.M. 657 (in force May 5, 1992).

152. See *supra* notes 108-110 and accompanying text.

biodiversity in the Arctic marine area. However, reference can be made here to a commentator who has made several suggestions to address some aspects of the IMO Arctic Shipping Guidelines that are in his view shortcomings.<sup>153</sup>

Regarding the regional agreements on monitoring, contingency planning and preparedness for pollution incidents, it should be noted that these do not cover the entire Arctic marine area and that not all Arctic Ocean coastal states are parties to them. A related gap is the absence of a regional agreement on search and rescue.

In relation to compliance and enforcement, it can also be concluded that there is no regional approach by Arctic states or another group of states specifically aimed at ensuring compliance with applicable international rules and standards and national laws and regulations. It is moreover uncertain to what extent the IMO Arctic Shipping Guidelines and the IACS Unified Requirements concerning Polar Class are complied with by states, ship-owners and operators, crew and IACS members.<sup>154</sup>

### B. Options

This subsection contains various options for adjusting the current international legal framework relating to shipping in the Arctic marine area in case such adjustments are regarded as necessary in view of current or future threats of shipping to the marine environment and marine biodiversity in the Arctic marine area. The options are grouped together as options for action within the IMO; options for Arctic states at the regional level, in their capacities as coastal states; options for Arctic states and other states at the regional level, in their capacities as port states; other options for Arctic states, individually or collectively; and finally, other options for all states, individually or collectively, in their capacities as flag states. While the Arctic Council is not listed as a separate category, some of these options could be pursued there as well, with the important qualification that the output cannot be legally binding.

The following are options for action within the IMO:<sup>155</sup>

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153. Jensen, *supra* note 101, at 15-16.

154. *Id.* at 16-17 (noting that, “[a]s of today, no state has implemented the regulations through binding legislation” and observing that the IACS Unified Requirements for Polar Class allow individual members a margin of discretion which interferes which the goal of uniformity).

155. ARCTIC COUNCIL, ARCTIC MARINE STRATEGIC PLAN, *supra* note 181, at 10; *see also* Ilulissat Declaration, *supra* note 8, at 2 (expressing the commitment by the five Arctic Ocean coastal states to work within IMO).



- Make the IMO Polar Shipping Guidelines mandatory, for instance by incorporating them into SOLAS 74 and complementing them with new elements such as training for ice navigators, which could be incorporated in STCW 78.<sup>156</sup>
- Pursue the adoption of special standards, for instance:
  - Special discharge or emission standards for all or part of the Arctic marine area under MARPOL 73/78.
  - Special fuel content<sup>157</sup> or ballast water treatment standards.<sup>158</sup>
  - One or more mandatory ships' routing systems, whether or not in the form of a comprehensive "Arctic Sea Lanes" proposal.
  - Ship reporting systems.
  - Compulsory pilotage and ice-breaker or tug assistance.
  - Special anti-fouling standards.
- Designate (part of) the Arctic as a PSSA, with a comprehensive package of APMs consisting of one or more of the special standards mentioned above and other special standards such as special ballast water exchange standards.<sup>159</sup>

The following are options for Arctic states at the regional level, in their capacities as coastal states:

- Agree on legally binding agreements on monitoring, contingency planning and preparedness for pollution incidents, as well as on search and rescue (SAR)<sup>160</sup> and places of refuge.

156. Cf. VANDERZWAAG, *supra* note 7, at 69.

157. See, e.g., ATCM, *Decision 8: "Use of Heavy Fuel Oil"* (June 17, 2005), [http://www.ats.aq/devAS/info\\_measures\\_listitem.aspx?lang=e&id=343](http://www.ats.aq/devAS/info_measures_listitem.aspx?lang=e&id=343); ATCM, *Decision 2: "Ballast Water Exchange: Referral to IMO"* (June 23, 2006), [http://www.ats.aq/devAS/info\\_measures\\_listitem.aspx?lang=e&id=362](http://www.ats.aq/devAS/info_measures_listitem.aspx?lang=e&id=362); ATCM, *Resolution 3: "Ballast Water Exchange in the Antarctic Treaty Area"* (June 23, 2006), [http://www.ats.aq/devAS/info\\_measures\\_listitem.aspx?lang=e&id=365](http://www.ats.aq/devAS/info_measures_listitem.aspx?lang=e&id=365); ATCM, *Annex to Resolution 3: Practical Guidelines for Ballast Water Exchange in the Antarctic Treaty Area* (June 23, 2006), [http://www.ats.aq/documents/recatt/att345\\_e.pdf](http://www.ats.aq/documents/recatt/att345_e.pdf). See also MEPC, *Guidelines for Ballast Water Exchange*, *infra* note 158 (on the subsequent action by IMO); IMO, *Report of the Marine Environmental Protection Committee on its Fifty-Seventh Session*, ¶ 20.16-20.19, IMO Doc. MEPC 57/21 (Apr. 7, 2008) (discussing that the issue of "use and carriage of heavy grade oil (HGO) on ships in the Antarctic area" will be dealt with by the Sub-Committee on Bulk Liquids and Gases (BLG) during its 13th Session in Mar. 2009).

158. See Marine Env't Prot. Comm. [MEPC], *Guidelines for Ballast Water Exchange in the Antarctic Treaty Area*, IMO Doc. MEPC 56/23 (July 13, 2007).

159. *Id.*

160. Reference can be made here to the ongoing negotiation-process on an Arctic SAR instrument within the framework of the Arctic Council. The negotiation-process takes place within a dedicated SAR Task Force that reports to SAOs and that is meant to be completed by the Arctic Council's 2011 Ministerial Meeting. A first meeting of the Task Force took

- Agree on a harmonized approach on enforcement and ensuring compliance, inter alia by means of shared platforms (e.g., “Shiprider Agreements”).<sup>161</sup>
- Implement the BWM Convention individually or in concert.
- Take other action under Article 234 of the LOS Convention, in particular if the IMO Polar Shipping Guidelines are not made mandatory.

The following are options for Arctic states and other states at the regional level, in their capacities as port states:

- Develop a strategy for port state control in the Arctic, for instance by establishing an Arctic MOU on Port State Control or by adjusting the Paris and Tokyo MOUs on port state control to ensure that proper account is taken of intra-Arctic and trans-Arctic marine shipping.
- Implement Article 218 of the LOS Convention in concert.
- Exercise port state residual jurisdiction in concert, relying in part on Article 234 of the LOS Convention, in case the IMO Polar Shipping Guidelines are not made mandatory.

Other options for Arctic states in particular, individually or collectively:

- Address the need for hydrographic surveying and charting.<sup>162</sup>
- Consider the need to develop a regional liability regime.<sup>163</sup>
- Encourage self-regulation by the shipping industry, for instance the cruise industry,<sup>164</sup> by means of positive and negative incentives (e.g., positive discrimination and limiting landings and access to ports to cooperating players).<sup>165</sup>
- Urge IACS to restrict the margin of discretion that individual members have in relation to the IACS Unified Requirements concerning Polar Class.

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place in Washington D.C., Dec. 9-11, 2009 (cf., Final Report of the November 2009 SAOs Meeting, at 6-7).

161. See Erik Jaap Molenaar, *Multilateral Hot Pursuit and Illegal Fishing in the Southern Ocean: The Pursuits of the Viarsa 1 and the South Tomi*, 19 INT'L J. MARINE & COASTAL L. 19, 34-35 (2004).

162. See also ATCM Resolution 5(2008), *supra* note 25.

163. See also Environmental Protocol to the Antarctic Treaty, *supra* note 46, Annex VI.

164. See, e.g., Ass'n of Arctic Expedition Cruise Operators (AECO), <http://www.aeco.no> (last visited Oct. 18, 2009).

165. See also Molenaar, *Sea Borne Tourism in Antarctica*, *supra* note 24, at 47 (providing some suggestions relating to Antarctic sea-borne tourism).

- Require the marine insurance industry to promote compliance with IACS Unified Requirements concerning Polar Class, for instance by linking the level of compliance to the height of premiums.

Other options for all states, individually or collectively, in their capacities as flag states:

- Impose standards on their vessels that are more stringent than GAIRAS, such as requiring special discharge, emission and ballast water exchange standards or implementing the IMO Polar Shipping Guidelines into their legislation.

#### VI. INTEGRATED, CROSS-SECTORAL ECOSYSTEM-BASED OCEAN MANAGEMENT

So far, this article has approached the regulation of Arctic shipping exclusively by means of a sectoral perspective. The inherent limitations of sectoral approaches to ocean management are increasingly recognized and have led to various non-legally binding commitments to pursue ecosystem-based ocean management at the global level.<sup>166</sup> While there is currently no universally accepted definition for the term “integrated, cross-sectoral ecosystem-based ocean management,”<sup>167</sup> it is nevertheless widely accepted that the different words included in the term indicate a holistic approach which takes due account of spatial dimensions, processes and relationships within ecosystems.<sup>168</sup> It is also submitted that integrated, cross-sectoral, ecosystem-based ocean management operates at a higher hierarchical level than sectoral ecosystem-based management, for instance EAF. Moreover, sectoral ecosystem-based management can also be pursued in the absence of an overarching integrated approach.<sup>169</sup>

While neither the LOS Convention nor any other global instrument contains a legally binding obligation to pursue inte-

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166. *E.g.*, U.N. Econ. & Soc. Council [ECOSOC], Div. of Sustainable Dev., *Johannesburg Plan of Implementation of the World Summit on Sustainable Development*, ¶ 30(d), 32(c) (2002), available at [http://www.un.org/esa/sustdev/documents/WSSD\\_POI\\_PD/English/WSSD\\_PlanImpl.pdf](http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/WSSD_PlanImpl.pdf); G.A. Res. 61/222, ¶ 119, U.N. Doc. A/RES/61/222 (Mar. 16, 2007).

167. *Cf.* U.N. GAOR, *Report on the Work of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea at its Seventh Meeting*, ¶ 6, U.N. Doc. A/61/156 (July 17, 2006) (subsequently listing various elements relating to ecosystem approaches and oceans).

168. *Id.*

169. *See also* Press Release, The White House, Arctic Region Policy, *supra* note 72, III(H)(6)(d) (specifically mentioning the objective of pursuing ecosystem-based management in the section on “Environmental Protection and Conservation of Natural Resources”).

grated, cross-sectoral, ecosystem-based ocean management, reference has already been made to relevant commitments above. Support for integrated, cross-sectoral, ecosystem-based ocean management also exists within several Arctic states, such as Norway,<sup>170</sup> and various international bodies that are relevant to the Arctic marine area. For instance, integrated management of resources and ecosystem-based management features prominently in the Norwegian, Danish and Swedish common objectives for their Arctic Council chairmanships 2006-2012.<sup>171</sup> Perhaps even more pertinent, however, are the pursuance of the ecosystem approach by the OSPAR Commission<sup>172</sup> and the large overlap between the spatial competence of the OSPAR Commission, the North East Atlantic Fisheries Commission (NEAFC), and the International Council for the Exploration of the Sea (ICES), which is conducive to integrated, cross-sectoral, ecosystem-based ocean management. The establishment of cooperative arrangements between NEAFC and the OSPAR Commission<sup>173</sup> and the proposal for an OSPAR marine protected area (MPA) situated beyond 200 nm from the coast<sup>174</sup> are aimed at testing this conduciveness.<sup>175</sup>

But while most, if not all, states would acknowledge the merits of integrated, cross-sectoral, ecosystem-based management of the Arctic marine area, they are likely to have very diverging views on how it should be pursued. Disagreements are likely to include, whether it should be pursued at the global or at the regional level, or whether it should be pursued by means of legally binding or non-legally binding instruments. Support for global approaches in

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170. See ROYAL NORWEGIAN MINISTRY OF THE ENV'T, HELHETLIG FORVALTNING AV DET MARINE MILJØ I BARENTSHAVET OG HAVOMRÅDENE UTENFOR LOFOTEN (FORVALTNINGSPLAN) [REPORT NO.8 TO THE STORTING: INTEGRATED MANAGEMENT OF THE MARINE ENVIRONMENT OF THE BARENTS SEA AND THE SEA AREAS OFF THE LOFOTEN ISLANDS] (2005-2006), available at <http://www.regjeringen.no/Rpub/STM/20052006/008/PDFS/STM200520060008000DDDPDFS.pdf>, translated at [http://www.regjeringen.no/upload/MD/Vedlegg/STM200520060008EN\\_PDF.pdf](http://www.regjeringen.no/upload/MD/Vedlegg/STM200520060008EN_PDF.pdf). The plan, which does not extend beyond the maritime zones of Norway, was approved by the Norwegian Parliament in June 2006. See also Press Release, The White House, *supra* note 72 (regarding the United States).

171. Available at the Arctic Council website, <http://www.arctic-council.org> (last visited Jan. 7, 2010).

172. See First Joint Ministerial Meeting of the Helsinki and OSPAR Commissions (JMM), June 25-26, 2003, Bremen, F.R.G., *Statement on the Ecosystem Approach to the Management of Human Activities*, Annex 5, ¶ 5, available at <http://www.helcom.fi/stc/files/BremenDocs/JointEcosystemApproach.pdf>.

173. OSPAR Comm'n, *Draft Memorandum of Understanding (MOU)*, Annex 13, OSPAR 08/24/1-E, (June 23-27, 2008) (in force Sept. 15, 2008); see also OSPAR Comm'n, *Summary Record*, ¶ 7.23(f), OSPAR 08/24/1-E (June 23-27, 2008).

174. OSPAR Comm'n, *Proposal for an OSPAR Area of Interest for Establishing an MPA on the Mid Atlantic Ridge/Charlie Gibbs Fracture Zone*, Doc. OSPAR 08/7/9-E (June 27, 2008); see also OSPAR Comm'n, *Summary Record*, *supra* note 173, ¶ 7.16-7.24.

175. See KOIVUROVA & MOLENAAR, INTERNATIONAL GOVERNANCE, *supra* note 6, at 15-19.

this context seems minimal. This can be deduced from the fact that the EU proposal for an Implementing Agreement to the LOS Convention<sup>176</sup> has received, so far, little support by non-EU member states. Linking a legally binding instrument for the marine Arctic to the LOS Convention,<sup>177</sup> even if its spatial scope would be limited to areas beyond national jurisdiction (high seas and the Area), would also not be acceptable to Arctic Ocean coastal states because its negotiation would fall under the United Nations General Assembly (UNGA); a forum where the five Arctic Ocean coastal states could potentially be confronted by 180-odd states with opposing views and interests.

Regional approaches for pursuing integrated, cross-sectoral, ecosystem-based ocean management in the marine Arctic are likely to attract more support.<sup>178</sup> However, the Arctic Ocean coastal states are, in view of their Ilulissat Declaration, not in favor of a legally binding instrument that would amount to “a new comprehensive international legal regime to govern the Arctic Ocean.”<sup>179</sup> Proposals such as those by the European Parliament in its Resolution of October 9, 2008 on Arctic governance<sup>180</sup> for a treaty inspired by the Antarctic Treaty have the additional hurdle of being too closely associated with the agreement to disagree on the status of

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176. Cf. Eur. Community (EC), *Communication: An Integrated Maritime Policy for the European Union*, at 14, COM (2007) 574 final (Oct. 10, 2007) (noting that the “Commission will propose an Implementing Agreement of UNCLOS on marine biodiversity in areas beyond national jurisdiction and work towards successful conclusion of international negotiations on Marine Protected Areas on the high seas” and also noting that the European Commission’s Arctic Communication refers to these items as possible policy actions on page 11). It is not altogether clear, however, why these items with a global scope should be listed in the Arctic Communication. The precise meaning and intention of these items is not clear, but they seem at any rate related to a process at the global level that is intended to have output that applies throughout the globe and not just the Arctic. Or does it imply that the high seas in the Arctic Ocean should be designated as a marine protected area? The EU Council’s Conclusions on Arctic issues, *supra* note 73, invites EU Member States “to support efforts to protect Arctic ecosystems and their biodiversity, particularly by considering measures for protection of biodiversity in the high seas and by encouraging Arctic states to develop marine protected areas (MPAs) on an individual or a cooperative basis.”

177. See Jacqueline McGlade, Executive Director, European Env’t Agency, *The Arctic Environment – Why Europe should care*, Speech at the Arctic Frontiers Conference, Tromsø (Jan. 23, 2007), available at <http://www.eea.europa.eu/pressroom/speeches/23-01-2007>. The actual wording used in this speech is “Polar Ocean protocol.” This wording is confusing because it can be interpreted as applying to both the Arctic Ocean and the Southern Ocean. Note that the words “based on UNCLOS” in page 10 of the European Commission’s Arctic Communication indicate that the option of an Implementation Agreement under the LOS Convention is no longer pursued).

178. Rosemary Rayfuse, *Melting Moments: The Future of Polar Oceans Governance in a Warming World*, 16 REV. EUR. CMTY. & INT’L ENVTL. L. 196, 215 (2007) (putting forth the idea of a regional oceans management organization (ROMO)).

179. See *supra* note 38 and accompanying text.

180. Resolution on Arctic Governance, EUR. PARL. DOC. P6\_TA-PROV(2008)0474 (Oct. 9, 2009), available at [http://www.europarl.europa.eu/meetdocs/2004\\_2009/documents/ta/p6\\_ta-prov\(2008\)0474/P6\\_TA-PROV\(2008\)0474\\_en.pdf](http://www.europarl.europa.eu/meetdocs/2004_2009/documents/ta/p6_ta-prov(2008)0474/P6_TA-PROV(2008)0474_en.pdf).

sovereignty in Antarctica.<sup>181</sup> Expanding the spatial scope of the OSPAR Convention to include the entire Arctic Ocean would not strictly speaking be a “new regime,” but it is questionable if Canada, the Russian Federation, and the United States would be prepared to accept this entire “acquis”; namely the OSPAR Convention as well as all the legally binding decisions, non-legally binding recommendations and other agreements adopted by the OSPAR Commission—without significant amendments. An alternative to these legally binding options is to transform the Arctic Council into a mechanism for cooperation and coordination in pursuing integrated, cross-sectoral, ecosystem-based ocean management.<sup>182</sup>

A pertinent question is how the Ilulissat Declaration should be interpreted in this regard: does it draw a line in the sand or is it an opening bid in the initial stages of the ongoing debate on reform? The latter could certainly turn out to be the better interpretation, in particular if the primary purpose of the cited phrase is to reject reform along the lines of the Antarctic Treaty, and if existing and newly established sectoral arrangements do not succeed in adequate coordination and coordination.<sup>183</sup> The pace of change in the Arctic is likely to be a crucial factor in that regard.

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181. See Press Release, The White House, Arctic Region Policy, *supra* note 72, III(C)(3) (observing that the “geopolitical circumstances of the Arctic region differ sufficiently from those of the Antarctic region such that an “Arctic Treaty” of broad scope—along the lines of the Antarctic Treaty—is not appropriate or necessary”). The European Commission’s Arctic Communication has not enthusiastically embraced the suggestion by the European Parliament but, arguably, does not rule out new instruments either (see the terms “instruments” and “frameworks” on pages 10 and 11).

182. McRae, *supra* note 90, at 8; see also Oran R. Young, Arctic Governance: Emerging Challenges – New Opportunities, Presentation at the Alliance for Liberals and Democrats for Europe (ALDE) Seminar (May 7, 2008) (PowerPoint presentation at <http://www.slideworld.com/slideshows.aspx/Arctic-Governance-Emerging-Challenges--New-Opp-ppt-961693>). In this presentation, Young does not repeat his earlier idea of establishing a Commission on Arctic Sustainable Development (CASD) modeled on the World Commission on Environment and Development. See ORAN R. YOUNG, ARCTIC GOVERNANCE: PREPARING FOR THE NEXT PHASE (2002), available at [http://www.arcticparl.org/\\_res/site/File/static/conf5\\_spar2002.pdf](http://www.arcticparl.org/_res/site/File/static/conf5_spar2002.pdf) (paper presented at Fifth Conference of Parliamentarians of the Arctic Region).

183. See also Young, *supra* note 182 (identifying “the prospect that individual elements of the Arctic’s institutional complex will collide with one another or work at cross purposes” as one of three main concerns).

