

## The Planetary Future

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# Tinkering While the Arctic Marine Environment Totters: Governance and the Triple Polar Crisis<sup>\$</sup>

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**Abstract.** After describing how the marine environment is tottering in the face of the triple environmental crisis, this article explores the limited governance progressions at the global and regional levels in addressing the threats of pollution, climate change and biodiversity loss in the especially vulnerable Arctic. For pollution, key limitations include slow and arduous processes to add chemicals for control under the Stockholm and Rotterdam Conventions and reliance at the regional level on a fragmented array of pollution studies and projects but without specific region-wide legally binding pollution standards. For climate change, the world is not on track to meet the Paris Agreement's temperature targets which is especially problematic for the Arctic cryosphere while the Arctic Council has largely been limited to providing general statements of concern and aspirational calls for enhanced climate mitigation and adaptation actions. For marine biodiversity losses, a pan-Arctic network of marine protected areas has yet to be developed and various implementation challenges surround the Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean including the need to ensure adequate financial, human resource and technical support. The paper concludes by highlighting some promising future governance directions. They include: the conclusion of a global treaty on plastic pollution; implementation of a new Global Framework on Chemicals – For a Planet Free of Harm from Chemicals and Waste; expected further clarifications from international tribunals on State responsibilities to address climate change; and regional implementation of the Kunming-Montreal Global Biodiversity Framework and the new agreement under the UN Convention on Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction.

Keywords: Triple planetary crisis, long-range pollution, climate change, marine biodiversity loss, governance, Arctic

## 1. Introduction: A Tottering Arctic Marine Environment

With an article over 20 years ago already describing the tottering Arctic marine environment due to long-range pollution and climate change pressures,<sup>1</sup> the tottering image holds even more true today in light of the recognition of the triple planetary crisis<sup>2</sup> and the special vulnerabilities of the Arctic to pollution, climate change and biodiversity losses. Elevated levels of environmental pollutants, most of which are transported by atmospheric

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1 David VanderZwaag, Robert Huebert, and Stacey Ferrara (2002), "The Arctic Environmental Protection Strategy, Arctic Council and Multilateral Environmental Initiatives: Tinkering While the Arctic Marine Environment Totters", *Denver Journal of International Law and Policy*, 30: 131-171.

2 UNFCCC, "What is the Triple Planetary Crisis?" 13 April 2022, available at: <https://unfccc.int/news/what-is-the-triple-planetary-crisis>.

and ocean currents from lower latitudes, continue to be found in Arctic wildlife and Indigenous residents with ongoing concerns over detrimental effects.<sup>3</sup> Levels of persistent organic pollutants (POPs), such as PCBs, and mercury are putting many Arctic biota including polar bears, killer whales, pilot whales, seals and various seabirds and shorebirds at higher risk of immune and reproductive and/or carcinogenic effects.<sup>4</sup> The suite of environmental contaminants in Arctic apex predators is expanding.<sup>5</sup> About 65 high-production volume chemicals (>1000 tonnes per year) have been identified as having the potential to bio-magnify in Indigenous peoples' traditional food supplies with approximately another 4300 organic chemicals most with low or unknown production having Arctic bioaccumulation properties.<sup>6</sup> Substantial uncertainties surround the effects of multichemical exposures and multiple stressors, such as harvesting pressures, habitat losses, infections, diseases and changes in food availability.<sup>7</sup>

Increases in production and releases of chemicals and other novel entities such as plastics leaping beyond the global capacity for assessment, monitoring and management has recently been subject to critical review. A group of scientists has concluded that the planetary boundary for novel entities is now being exceeded.<sup>8</sup>

Climate change is also threatening marine ecosystem integrity in the Arctic on many fronts. Since 1979, the Arctic has warmed about four times faster than the rest of the globe<sup>9</sup> with such warming contributing to reductions in the extent, age and thickness of sea ice. The volume of Arctic sea ice in September has declined by 75 percent since 1979<sup>10</sup> and the proportion of Arctic sea ice at least five years old declined from 30% to 2% between 1979 and 2018.<sup>11</sup> The Arctic Ocean might face an ice-free summer period by 2050.<sup>12</sup> Cryospheric tipping point threats have been identified for the Greenland ice-sheet, Arctic sea ice loss, retreat of glaciers, and permafrost thawing.<sup>13</sup>

While considerable uncertainties surround projected climate change and ocean acidification impacts on Arctic marine ecosystems and coastal communities, many socio-ecological concerns exist. The geographical range of Arctic marine species, including marine mammals, fish and birds, is projected to contract while the range of some sub-Arctic fish populations is projected to expand, possibly increasing pressure on high-Arctic species.<sup>14</sup> Twenty new fish species and 59 range shifts have already been confirmed in the Chukchi and Beaufort Seas over the past 15 years.<sup>15</sup> Broader effects include losses of habitat, disruptions in food availability and timing, changes in food-webs and increased risks of invasive non-native species.<sup>16</sup> Negative impacts on future fisheries for green sea urchins off Norway, Barents Sea cod and catches off Southern Alaska have been projected.<sup>17</sup>

3 AMAP (2021), AMAP Assessment 2020: POPs and Chemicals of Emerging Concern: Influence of Climate Change. Summary for Policy-Makers; Tromsø, Norway: Arctic Monitoring and Assessment Programme (AMAP).

4 AMAP (2018), AMAP Assessment 2018: Biological Effects of Contaminants on Arctic Wildlife and Fish. Summary for Policy-Makers; Oslo, Norway: Arctic Monitoring and Assessment Programme (AMAP).

5 *Ibid.*

6 AMAP (2009), Arctic Pollution 2009; Oslo, Norway: Arctic Monitoring Assessment Programme (AMAP), p. 22.

7 AMAP, n. 4.

8 Linn Persson et al. (2022), "Outside the Safe Operating Space of the Planetary Boundary for Novel Entities", *Environmental Science & Technology*, 56: 1510-1521.

9 Mika Rantanen et al. (2022), "The Arctic Has Warmed Nearly Four Times Faster Than the Globe Since 1979", *Communications Earth & Environment*, 3: 168; available at: <https://doi.org/10.1038/s43247-022-00498-3>.

10 AMAP (2019), Arctic Climate Change Update 2019; Tromsø, Norway: AMAP Secretariat.

11 Michael Meredith et al. (2019), "Polar Regions" in H.O. Pörtner et al. (eds.), *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate*. Cambridge, UK: Cambridge University Press. Chapter 3, p. 214; Alexandra Jahn et al. (2024), "Projections of an ice-free Arctic Ocean", *Nature Review Earth & Environment*, 5: 164-176.

12 T.M. Lenton et al. (2023), *The Global Tipping Report 2023*, Exeter, UK: University of Exeter, p. 67.

13 *Ibid*, Chapter 1.2.

14 IPCC (2019), "Summary for Policymakers", in H.O. Pörtner et al., n. 11, p. 22.

15 AMAP, n. 10, p. 6.

16 Paris Call for Glaciers and Poles – Declaration for the One Planet – Polar Summit (10 November 2023); available at: <https://www.elysee.fr/en/emmanuel-macron/2023/11/10/paris-call-for-glaciers-and-poles-declaration-for-the-one-planet-polar-summit>.

17 AMAP (2018), AMAP Assessment 2018: Arctic Ocean Acidification; Tromsø, Norway: Arctic Monitoring and Assessment Programme (AMAP), pp. 43-47.

Serious harms from climate change have already occurred in the Arctic region. They include a steep decline in black-legged kittiwake colonies coinciding with abrupt warming of sea-surface temperatures,<sup>18</sup> closure of the snow crab fishery off Alaska due to the disappearance of billions of crabs linked to starvation emanating from warmer ocean temperatures<sup>19</sup> and damages to coastal infrastructure due to the loss of sea ice protection buffering, exposure to storms and coastal erosion.<sup>20</sup>

Drivers other than climate change may also adversely impact Arctic marine biodiversity. These activities include development of offshore oil and gas resources, particularly in Russia,<sup>21</sup> expansion of commercial fishing and increased shipping linked to tourism and industrial activities.<sup>22</sup> Besides noise and potential vessel strikes with cetaceans, shipping carries the risk of introducing invasive alien species through biofouling and from ballast water discharges.<sup>23</sup>

The tottering Arctic marine environment has placed the political spotlight on the adequacy of global and regional governance approaches to counter the triple environmental emergencies. As the next part of this paper highlights, global and regional governance responses to date might be described as largely tinkering in addressing pollution, climate change and marine biodiversity losses in the Arctic. The article concludes by reviewing promising but also challenging future governance directions.

## 2. Tinkering: Governance Progressions and Limitations

The term “tinkering”, defined as the making of small and often limited improvements,<sup>24</sup> captures a variety of governance limitations contributing to the triple Arctic crisis. Key limitations as can be seen from the following discussion in this part include: failing to adopt clear and strong environmental standards; waiting for more science before taking management actions (paralysis by analysis); requiring consensus in international decision-making; leaving wide discretion in legal implementation; continuing debates and dialogues without resolutions or effective actions;<sup>25</sup> lagging recognition of human rights;<sup>26</sup> and trumping of national interests over common and planetary concerns.<sup>27</sup>

### (1) Pollution

#### (i) Global Instruments and Initiatives

Two global environmental agreements were negotiated to control long-range transport of pollutants with specific attention to the Arctic. Pursuant to the Stockholm Convention on Persistent Organic Pollutants,<sup>28</sup> explicitly acknowledging the particular risks of POPs for Arctic ecosystems and Indigenous communities

18 Meredith et al., n. 11, p. 229.

19 Cody S. Szuwalski et al. (2023), “The Collapse of Eastern Bering Sea Snow Crab”, *Science*, 382 (6668): 306-310.

20 AMAP, n. 10, p. 9; USGS, “Climate impacts to Arctic coasts”; 20 May 2022; available at: <https://www.usgs.gov/centers/pcm/science/climate-impacts-arctic-coasts>.

21 Luiza Brodt (2021), “The Development of Arctic Offshore Oil and Gas Resources in Russia: Energy Policy Updates and New Activities by Companies”, *Arctic Yearbook*, 2021: 1-15.

22 CAFF (2017), *State of the Arctic Marine Biodiversity Report*; Akureyri, Iceland: Conservation of Arctic Flora and Fauna International Secretariat, p. 185.

23 *Ibid.*

24 Oxford Advanced Learner’s Dictionary; available at: [https://www.oxfordlearnersdictionaries.com/us/definition/american\\_english/tinker.2](https://www.oxfordlearnersdictionaries.com/us/definition/american_english/tinker.2).

25 On the need to “walk the talk” in saving the planet, see Bharat H. Desai, “The Audacity of Hope for People and Planet: 2023 New York SDG Summit Outcome and Beyond: Part II”; 21 August, 2023; available at: <https://labs.iospress.com/news-blog/audacity-hope-people-and-planet-2023-new-york-sdg-summit-outcome-and-beyond-part-ii>.

26 On the need to consider human rights in addressing climate change, see Amicus Brief submitted to the International Tribunal for the Law of the Sea by the UN Special Rapporteurs on Human Rights & Climate Change (Ian Fry), Toxics & Human Rights (Marcos Orellana), and Human Rights & the Environment (David Boyd), International Tribunal for the Law of the Sea, Case No. 31, Request for an advisory opinion submitted by the Commission of Small Island States on climate change and international law (30 May 2023).

27 See, Bharat H. Desai, “Global Climate Change as a Planetary Concern: A Wake-Up Call for the Decision-makers”; August, 2023; available at: [https://www.greendiplomacy.org/article/wake\\_up\\_call/](https://www.greendiplomacy.org/article/wake_up_call/).

28 Stockholm Convention on Persistent Organic Pollutants, 22 May 2001, 2256 UNTS 119 (entry into force 17 May 2004).

through biomagnification,<sup>29</sup> Parties have listed chemicals under three annexes for prohibition/elimination (Annex A), restriction (Annex B) and reduction or elimination of releases of unintentionally produced POPs, such as dioxins and furans (Annex C), with a total of 34 chemicals listed as of April 2024.<sup>30</sup> The Minamata Convention on Mercury,<sup>31</sup> also recognizing the particular vulnerabilities of Arctic ecosystems and Indigenous communities from biomagnification of mercury in traditional foods,<sup>32</sup> sets an agenda for phasing-out mercury mining and mercury-added products; prohibits the use of mercury in listed manufacturing processes; calls for Parties to control and where feasible to reduce mercury emissions to the atmosphere from five source categories;<sup>33</sup> and encourages Parties to take steps to reduce or eliminate the use of mercury in artisanal and small-scale gold mining.

Both conventions stand out for their major limitations. The Stockholm Convention is not a comprehensive chemicals treaty as it only aims to control chemicals with POPs characteristics, namely, persistence, bio-accumulation, potential for long-range transport and adverse effects on human health or the environment.<sup>34</sup> The Convention establishes an arduous and time-consuming review process for adding POPs for control which includes preparation of a risk profile and risk management evaluation.<sup>35</sup> Key limitations of the Minamata Convention include allowing Parties to register for five-year exemptions for the phase-out of mercury-added products and manufacturing processes using mercury;<sup>36</sup> allowing a Party with an existing mercury mine at the time of entry into force of the Convention for it to continue the mining for a period of up to 15 years;<sup>37</sup> and providing broad discretion to Parties in addressing atmospheric emissions of mercury. For example, there is no overall requirement to reduce mercury emissions but only to control emissions.<sup>38</sup> For existing point sources of mercury emissions, Parties are given up to 10 years to implement one or more measures, such as setting emissions limit values or using best available techniques and best environmental practices, but Parties are allowed to take into account national circumstances and the economic and technical feasibility and affordability of measures.<sup>39</sup>

The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade,<sup>40</sup> adopted in 1998, is especially weak in addressing chemicals management. The Convention does not prohibit trade in hazardous chemicals and pesticides that are banned or severely restricted by a country but facilitates trade subject to a prior informed consent procedure. For chemicals listed on Annex III of the Convention, exporting States must ensure importing States receive notice of proposed shipments and consent to the imports. Listing chemicals under Annex III has been challenging due to the requirement for two or more Parties to have banned or severely restricted a pesticide or industrial chemical before listing can be considered and the need for the Conference of the Parties to reach consensus before a chemical can be listed. Only 55 chemicals (36 pesticides, 18 industrial chemicals and one in both categories) have been listed to date.<sup>41</sup>

The listing challenge was especially obvious at the 11th Conference of the Parties to the Rotterdam Convention in May 2023. Six out of seven listing proposals were not adopted due to a lack of consensus while 300 notifications meeting the information requirements of Annex I were awaiting a matching notification of final regulatory action

29 *Ibid*, preamble.

30 UNEP, "All POPs listed in the Stockholm Convention"; available at: <https://www.pops.int/TheConvention/ThePOPs/AllPOPs/tabid/2509/Default.aspx>.

31 Minamata Convention on Mercury, 10 October 2013, 3202 UNTS, No. 54669 (entry into force, 16 August 2017).

32 *Ibid*, preamble.

33 Coal-fired power plants, coal-fired industrial boilers, smelting and roasting processes used in the production of non-ferrous metals, waste incineration facilities, and cement clinker production facilities. *Ibid.*, Art 8, Annex D.

34 Stockholm Convention, n. 28, Annex D.

35 *Ibid*, Art. 8.

36 Minamata Convention, n. 31, Art. 6.

37 *Ibid*, Art. 3(4).

38 *Ibid*, Art 8(1).

39 *Ibid*, Art. 8(5).

40 Rotterdam Convention, 10 September 1998, 2244 UNTS 337 (entry into force 24 February 2004).

41 UNEP, Annex III Chemicals; available at: <https://www.pic.int/TheConvention/Chemicals/AnnexIIIChemicals>.

so they could be forwarded to the Chemical Review Committee for consideration. A proposal to amend the Convention to allow listing of chemicals by a three fourths majority vote was defeated.<sup>42</sup>

Soft tinkerings in chemicals management have also occurred. Based upon three founding policy documents, the Dubai Declaration on International Chemicals Management, an Overarching Policy Strategy and a Global Plan of Action, the Strategic Approach to International Chemicals Management (SAICM) was initiated in 2006 as a voluntary, multi-stakeholder effort to promote chemical safety around the globe<sup>43</sup>. SAICM promoted capacity-building and technical cooperation; carried out various projects, such as a Global Environment Facility funded project on Global Best Practices on Emerging Issues of Concern focusing on lead in paint and chemicals in products; and encouraged sharing of information on chemical risks and management through the SAICM Knowledge Platform.<sup>44</sup>

In September 2023 at the fifth session of the International Conference on Chemicals Management, a new post-2020 agenda moving beyond SAICM was agreed to through two policy documents. The Bonn Declaration for a Planet Free from Chemicals and Waste,<sup>45</sup> noting the global goal of achieving the sound management of chemicals by 2020 was not met, pledges to build on the lessons from and cooperative efforts under SAICM with more ambition and urgent actions. The Declaration endorses the Global Framework on Chemicals – For a Planet Free of Harm from Chemicals and Waste as the main avenue forward. The Global Framework document<sup>46</sup> sets out five strategic objectives and 28 targets for addressing the sound management of chemicals and commits to establishing the International Conference on Global Framework on Chemicals – For a Planet Free of Harm from Chemicals and Waste with a mandate to meet every three years and to review and support implementation of the Framework. A voluntary Global Framework on Chemicals Fund to support stakeholders in implementing the Framework is also promised.

Addressing vessel-source pollution in the Arctic stands out as an area where governance efforts have gone somewhat beyond tinkering by making substantial progress through the International Maritime Organization (IMO). Through the adoption of the International Code of Safety for Ships Operating in Polar Waters,<sup>47</sup> entering into force on 1 January 2017, special discharge standards for ships operating in Arctic waters have been established. They include prohibitions on discharges of oil and oily mixtures and noxious liquid substances, limitation of garbage discharges largely to comminuted or ground food wastes if 12 or more nautical miles from the nearest land, ice-shelf or fast ice and control over sewage discharges, for example, requiring new ice-strengthened ships and new passenger ships to have approved sewage treatment plants.

In June 2021, a prohibition on the use and carriage for use as fuel of heavy fuel oil (HFO) by ships in Arctic waters was agreed to.<sup>48</sup> The prohibition will apply in Arctic waters after 1 July 2024 with the exception of ships engaged in search and rescue operations, dedicated to oil pollution preparedness and response or having protected fuel tanks. A coastal State bordering Arctic waters may temporarily waive the ban for ships flying its flag while operating in waters under its sovereignty or jurisdiction up to 1 July 2029.

Even though progressions have been made, key limitations in vessel-source pollution control still stand out.<sup>49</sup> Existing passenger ships are allowed to discharge raw sewage if more than 12 nautical miles from any ice-shelf or fast ice.<sup>50</sup> Grey water discharges, for example from ship showers, laundries and galleys, are not controlled under the MARPOL Convention. While emission control areas may be established to impose special limits

42 UNEP/FAO (2023), Report of the Conference of the Parties to the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade on the work of its eleventh meeting, UNEP/FAO/RC/COP.11/25.

43 SAICM (n.d.), "Overview"; available at: <https://www.saicm.org/about/overview>.

44 SAICM (n.d.), "SAICM Knowledge"; available at: <https://saicmknowledge.org/about>.

45 SAICM, Report of the International Conference on Chemicals Management on the work of its fifth session, SAICM/ICCM.5/4 (23 November 2023) Annex I to Resolution V/1.

46 *Ibid*, Annex II to Resolution V/1.

47 Adopted through IMO resolution, MSC 385(94) (21 November 2014) and MEPC 264(68) (15 May 2015) with amendments to the Safety at Life at Sea Convention (SOLAS) through MSC. 386(94) (21 November 2014) and amendments to the MARPOL Convention through MEPC. 265(68) (15 May 2015).

48 IMO Res. MEPC. 329(76) (17 June 2021) with a new regulation 43A added to chapter 9 of MARPOL, Annex I.

49 See, WWF, Implementation of the Polar Code, MSC 106/18/4 (30 August 2022).

50 Polar Code, Part II-A, Chapter 4, para. 4.2.1.2.

for emissions of nitrous oxides (NO<sub>x</sub>), sulfur oxides (SO<sub>x</sub>) and particulate matter,<sup>51</sup> no such areas have been designated in the Arctic, although Canada has been proposing to designate Canadian Arctic waters for additional protection.<sup>52</sup>

The operational efficiency of ballast water management systems (BWMS) in cold Arctic waters remains questionable<sup>53</sup> and non-compliance in meeting the BWMS performance standard has been problematic outside the region.<sup>54</sup> Controls over vessel noise and biofouling from ships remain subject to guidelines.<sup>55</sup> Effective regulation of black carbon emissions from ships has yet to occur with Indigenous Peoples in the Arctic especially vulnerable to the climate change impacts with black carbon being some 3,200 times more persistent than carbon dioxide on a 20-year timescale.<sup>56</sup>

(ii) *Regional Instruments and Initiatives*

While various regional approaches exist to address transboundary pollution relevant to the Arctic, such as the 1979 Convention on Long-Range Transboundary Air Pollution and its eight protocols,<sup>57</sup> Arctic specific efforts to control pollution have largely occurred through the Arctic Council's fragmented and soft initiatives.<sup>58</sup> No regional standards have been forged to manage offshore oil and gas operations with only regional guidelines updated in 2009.<sup>59</sup> A Regional Programme of Action (RPA) for the Protection of the Arctic Marine Environment from Land-based Activities, adopted in 1998 and revised in 2009,<sup>60</sup> sets general objectives and priorities for addressing eight source categories of land-based marine pollution but the RPA, having no national reporting or accountability mechanisms, has had limited impact and has largely been forgotten.<sup>61</sup> A Regional Action Plan on Marine Litter in the Arctic, adopted in May 2021,<sup>62</sup> pledges a range of actions to reduce marine litter inputs from fisheries, aquaculture, ships and offshore structures and calls for the development of best practices and guidelines to improve waste management and recycling systems in the Arctic.

The Arctic Contaminants Action Program (ACAP) Working Group of the Arctic Council has carried out many projects aimed at understanding and reducing pollution in the Arctic, especially in the Russian Federation. Four ACAP expert groups on POPs and Mercury, Waste, Short-Lived Climate Pollutants and the Indigenous Peoples' Contaminant Action Program, lead project activities.<sup>63</sup> Examples of projects include the phase-out of ozone depleting substances and fluorinated greenhouse gases at fish and seafood processing enterprises; solid waste management in remote Arctic communities; assessing impacts and developing remediation technology at the Dudinka Municipal Waste Landfill in Russia; and an inventory of POPs and mercury and their emission sources in the Murmansk region.<sup>64</sup>

51 IMO (2022), *MARPOL Consolidated Edition 2022*, Annex VI, Appendix III, London: IMO.

52 Canada, Development of a Proposal to Designate a Canadian Arctic Emission Control Area, MEPC 80/16/2 (27 April 2023).

53 PAME (2013), *The Arctic Ocean Review Project, Final Report (Phase II 2011-2013)*, Kiruna, May 2013; Akureyri: PAME Secretariat, p. 40.

54 See e.g., Australia, Findings from a Study to Evaluate the Performance of Ballast Water Management Systems Installed on Board Ships against the D-2 Standard of the Ballast Water Management Convention, MEPC 81/INF.6 (21 December 2023).

55 Revised Guidelines for the Reduction of Underwater Radiated Noise from Shipping to Address Adverse Impacts on Marine Life, MEPC.1/Circ.906 (22 August 2023); 2023 Guidelines for the Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species, Res. MEPC.378(80) (7 July 2023).

56 Report of the Special Rapporteur on the Implications for Human Rights of the Environmentally Sound Management and Disposal of Hazardous Substances and Wastes; Marcos Orellana: Shipping, Toxics and Human Rights, Note by the Secretary-General to the General Assembly, UN doc. A/78/169 (13 July 2023) paras. 53 and 54.

57 See, UNECE (n.d.), "The Convention and its Achievements"; available at: <https://unece.org/convention-and-its-achievements>.

58 Sabaa A. Khan and Seita Romppanen (2020), "Global Trajectories of Chemical Pollution: Legal Gaps and Complexities in the Polar Context", in Karen N. Scott and David L. VanderZwaag (eds.), *Research Handbook on Polar Law*, Cheltenham, UK: Edward Elgar, pp. 391-412, 404-406.

59 PAME, *Arctic Offshore Oil and Gas Guidelines* (April 2009).

60 PAME, *Regional Programme of Action for the Protection of the Arctic Marine Environment from Land-based Activities* (April 2009).

61 Nadja Steiner and David L. VanderZwaag (2020), "Ocean Acidification and the Arctic: Regional Scientific and Governance Responses", in David L. VanderZwaag et al. (eds.), *Research Handbook on Ocean Acidification Law and Policy*, Cheltenham UK: Edward Elgar, pp. 142-163 at 158.

62 PAME, *Regional Action Plan on Marine Litter in the Arctic* (May 2021).

63 ACAP (n.d.), "About"; available at: <https://arctic-council.org/about/working-groups/acap/home/about/>.

64 ACAP (n.d.), "Projects"; available at: <https://arctic-council.org/about/working-groups/acap/home/projects/>.

## (2) Climate Change

### (i) Global Responses

While greenhouse gas emissions have been addressed globally in specific sectors, such as in shipping<sup>65</sup> and aviation,<sup>66</sup> the Paris Agreement continues to serve as the main avenue for promoting climate mitigation and adaptation responses,<sup>67</sup> but the Agreement itself and subsequent implementation stand out as tinkering in light of Arctic human and environmental threats. An “inconvenient truth” is that the Paris Agreement’s temperature target of holding the increase in global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the increase to 1.5°C above pre-industrial levels<sup>68</sup> is problematic for the Arctic which has been experiencing temperature increases about four times the global average and already experiencing major decreases in ice extent and thickness even at the global mean temperature in 2022 of 1.15°C above the pre-industrial average.<sup>69</sup> The Paris Agreement’s preamble merely encourages Parties to consider human rights obligations in taking climate actions to address climate change and only mentions oceans once by noting the importance of ensuring the integrity of all ecosystems including the oceans. UNEP’s 2023 Emissions Gap Report showed that the world is still not on track to meet the Paris temperature goals with a temperature rise of 2.5-2.9°C projected with full implementation of the latest nationally determined contributions (NDCs).<sup>70</sup> Getting global agreement to phase-out the use of coal and fossil fuels has been highly political with only an agreement at COP 28 in Dubai in December 2023 on the need for “accelerating efforts towards the phase-down of unabated coal power” and “transitioning away from fossil fuels in energy systems.”<sup>71</sup>

### (ii) Regional Responses

Some progressions have occurred under the Arctic Council to address climate change. Council working groups have carried out numerous climate change assessments and projects including development of an Arctic Renewable Energy Atlas (AREA) for sharing experiences in renewable energy transitions and establishment of a Circumpolar Local Observer Network (CLEO) so communities can share observations on changing weather and seascapes.<sup>72</sup> The Arctic Council’s Strategic Plan 2021 to 2030 has placed addressing Arctic climate change as a first goal with seven strategic actions proposed including encouragement of stronger global mitigation efforts by providing an Arctic view and Indigenous Peoples’ perspectives to multilateral fora; work to enhance adaption and resilience of Arctic communities; and promotion of clean energy solutions and technology.<sup>73</sup>

The Arctic Council has been especially proactive in addressing black carbon and methane emissions through the adoption in 2015 of a Framework on Enhanced Black Carbon and Methane Emissions Reductions.<sup>74</sup> The Framework commits Arctic States to enhance national and collective action to reduce black carbon and methane emissions; to adopt an ambitious aspirational and quantitative collective goal on black carbon; and to submit biennial national reports on existing and planned actions to reduce black carbon and methane emissions along with national inventories of emissions and of available projections of future emissions. Observer States are invited to join Arctic States in reporting on emissions and seeking to reduce emissions. The Framework established an Expert Group on Black Carbon and Methane to review national reports, assess implementation progress and make recommendations for further emission reduction actions. In 2017, Arctic States adopted an Expert Group recommendation for a collective, aspiration goal to further reduce black carbon emissions by 25–33 percent relative to 2013 levels by 2025.<sup>75</sup>

65 See, IMO Strategy on Reduction of GHG Emissions from Ships, IMO Res. MEPC. 377(80) (7 July 2023).

66 For initiatives under International Civil Aviation Organization auspices to address aircraft emissions, see ICAO (n.d.), “Climate Change”; available at: <https://www.icao.int/environmental-protection/pages/climate-change.aspx>.

67 Paris Agreement, Paris, 12 December 2015, 3156 UNTS 79 (entry into force 4 November 2016).

68 *Ibid.*, Art. 2(1)(a).

69 World Meteorological Organization (2023), *State of the Global Climate 2022*; Geneva: WMO.

70 UNEP (2023), *Emissions Gap Report 2023: Broken Record-Temperatures Hit New Highs, Yet World Fails to Cut Emissions (Again)*, Nairobi: UNEP.

71 UNFCCC, Outcome of the First Global Stocktake, FCCC/PA/CMA/2023/L.17 (13 December 2023) para 28.

72 Arctic Council (n.d.), “The Arctic in a Changing Climate”; available at: <https://arctic-council.org/explore/topics/climate/>.

73 Arctic Council, Arctic Council Strategic Plan 2021 to 2030 (20 May 2021).

74 Enhanced Black Carbon and Methane Emissions Reductions: An Arctic Council Framework for Action, in Senior Arctic Officials Report to Ministers, Iqaluit, Canada (24 April 2015) pp. 118-130.

75 Fairbanks Declaration on the Occasion of the Tenth Ministerial Meeting of the Arctic Council, (11 May 2017) para. 24.

The Framework has some success but also limitations. The Expert Group's 3rd Summary of Progress report in 2021 found that Arctic States have reduced their collective black carbon emissions by 20% in 2018 compared to 2013, and are on track to meet the aspirational goal of reducing emissions by 25–35% of 2013 levels by 2025.<sup>76</sup> However, collective methane emissions were found to have increased by 2% from 2013 to 2018 with emissions projected to continue increasing to 2025. National reporting was not complete with seven Arctic States, but not the Russian Federation reporting. Only nine of the 13 Arctic Council Observer States reported with China being a notable exception.

While climate change has been a topic addressed in Arctic Council Ministerial declarations going back to 1998,<sup>77</sup> the Council has largely been limited to providing general statements of concern and aspirational calls for enhanced mitigation and adaptation actions. For example, in the 2021 Reykjavik Declaration Ministers reiterated “the need for enhanced action to meet the temperature goal and effective implementation of the Paris Agreement...”<sup>78</sup> At the 2019 Ministerial meeting in Rovaniemi, Finland, a joint ministerial declaration could not be agreed to because of U.S. opposition over the inclusion of language addressing climate change.<sup>79</sup>

### 3. Biodiversity Loss

#### (1) Global Efforts

Two of the central conventions for preventing and restoring marine biodiversity loss are the UN Convention on the Law of the Sea (LOSC)<sup>80</sup> and the Convention on Biological Diversity (CBD).<sup>81</sup> The obligations under Article 192 of LOSC to protect and preserve the marine environment and under 194(5) to protect rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species suggest due diligence responsibilities to take measures to protect and conserve the marine environment from a range of threats, including pollution, habitat destruction, overfishing and climate change.<sup>82</sup> The Agreement under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (BBNJ Agreement),<sup>83</sup> adopted in June 2023, promises to enhance obligations of Parties to undertake environmental impact assessments for planned activities taking place in areas beyond national jurisdiction and to strengthen international cooperation and coordination in establishing marine protected areas and the use of the area-based management tools on the high seas.

One of the main ways the CBD has addressed biodiversity loss is through MPA responsibilities. Article 8(a) of the Convention establishes a duty on each Party, as far as possible and as appropriate, to establish a system of protected areas or areas where special measures need to be taken to conserve marine biodiversity. The Kunming-Montreal Global Biodiversity Framework adopted by the Conference of the Parties to the CBD in December 2022, sets a target of protecting by 2030 at least 30 percent of marine and coastal areas through ecologically representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures.<sup>84</sup>

While Parties to the CBD have established a process to identify ecologically or biologically significant marine areas (EBSAs) in need of protection with 16 regional workshops held including an Arctic Ocean workshop to

76 Expert Group on Black Carbon and Methane, 3<sup>rd</sup> Summary of Progress and Recommendations (2021).

77 Tim Stephens (2024), “Climate Change and the Polar Region”, in Yoshifumi Tanaka et al. (eds.), *The Routledge Handbook of Polar Law*, New York: Routledge, pp. 205-219 at 216.

78 Reykjavik Declaration on the Occasion of the 12th Ministerial Meeting of the Arctic Council (20 May 2021) para. 19.

79 Timo Koivurova (2019), “Is this the End of the Arctic Council and Arctic Governance as We Know It?” *The Polar Connection*; 11 December, 2019; available at: <https://polarconnection.org/arctic-council-governance-timo-koivurova/>.

80 Montego Bay, 10 December 1982, 1833 UNTS 3 (entry into force 16 November 1994).

81 Rio de Janeiro, 5 June 1992, 1760 UNTS 79 (entry into force 29 December 1993).

82 Ingvild Ulrikke Jakobsen (2024), “Protection of Biological Diversity in the Polar Regions by Marine Protected Areas” in Tanaka et al., n. 77, pp. 220-239 at 223-224.

83 New York, 19 June 2023, UNGA A/CONF. 232/2023/4 (not yet in force).

84 CBD, Kunming-Montreal Global Biodiversity Framework, Decision 15/4 (19 December 2022) Target 3.



facilitate the description of EBSAs,<sup>85</sup> no mechanism exists under the CBD for ensuring protections. Measures, if any, are left to the discretion of States and relevant international organizations.<sup>86</sup>

## (2) Regional Efforts

Two main regional efforts stand out for seeking to stem marine biodiversity loss. The Arctic Council has promoted the development of a regional network of MPAs through a 2015 Framework for a Pan-Arctic Network of Marine Protected Areas.<sup>87</sup> The Framework sets out nine principles and four objectives to be followed in developing a network and calls for cooperation in establishing both MPAs and other effective area-based conservation measures.

However, the regional initiative has struggled with major limitations and challenges.<sup>88</sup> The Framework is not legally binding and emphasizes that each Arctic State will pursue MPA development based on its own authorities, priorities and timelines. The Framework is limited to promoting the development of MPAs located within the national jurisdiction of Arctic States. While an MPA Network Expert Group (MPA-EG) is tasked with coordinating and developing the network, the MPA-EG has not been given any clear authority nor dedicated resources.<sup>89</sup>

The second major regional biodiversity-related effort is the adoption of the Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean<sup>90</sup> which entered into force on 25 June 2021 with the five Arctic coastal States, China, the European Union, Iceland, Japan and South Korea as Parties. Each Party is obligated not to authorize its flagged vessels to conduct commercial fishing in the Agreement Area unless fishing is pursuant to conservation and management measures adopted by one or more regional or sub-regional fisheries management organizations or arrangements, or pursuant to interim measures adopted by Parties under the Agreement. The Agreement calls for the establishment of a Joint Program of Scientific Research and Monitoring (JPSRM) and a data sharing protocol within two years of the Agreement's entry into force and an exploratory fishing protocol within three years of the Agreement's entry into force. Parties agree to keep under review whether the distribution, migration and abundance of fish in the Agreement Area would support a sustainable commercial fishery and, if so, whether to commence negotiations to establish one or more regional or subregional fisheries management organizations or arrangements. At a second in-person meeting of the Conference of the Parties in June 2023, a framework for the JPSRM was adopted with a further JPSRM implementation plan expected to be completed by June 2024.<sup>91</sup>

Various implementation uncertainties surround the Agreement.<sup>92</sup> They include among others, ensuring adequate funding and human and technical resources to carry out the JPSRM; distinguishing between scientific research fishing and exploratory fishing which will be subject to an exploratory fishing protocol; incorporating Indigenous and local knowledge;<sup>93</sup> deciding whether other States with a "real interest" should be invited to accede to the Agreement; and determining what the new BBNJ Agreement will mean for the central Arctic Ocean.<sup>94</sup>

85 CBD (n.d.), "Background on the EBSA Process"; available at: <https://www.cbd.int/ebsa/about>.

86 CBD, Marine and coastal biodiversity, Decision X/29 (29 October 2010) para. 26.

87 PAME (2015), Framework for a Pan-Arctic Network of Marine Protected Areas, Akureyri, Iceland.

88 Suzanne Lalonde, "Marine protected area networks at the Poles", in Scott and VanderZwaag, n. 58 at 246-370.

89 *Ibid.*, p. 358.

90 Ilulissat, 3 October 2018, Canada Treaty Series 2021/11 (entry into force 25 June 2021).

91 CAOFA Report: Meeting of the Conference of the Parties to the Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean, Incheon, Korea, 12-14 June 2023, CAOFA-2023-COP 2-R.

92 David L. VanderZwaag (2019), "Governance of Fisheries in the Central Arctic Ocean: Cooperative Currents, Foggy Future", in Nengye Liu et al. (eds.), *Governing Marine Living Resources in the Polar Regions*, Cheltenham, UK: Edward Elgar, pp. 92-108.

93 Valentine Schartz (2019), "The Incorporation of Indigenous and Local Knowledge into Central Arctic Ocean Fisheries Management", *Arctic Review on Law and Politics*, 10: 130-134.

94 David A. Balton (2022), "What will the BBNJ agreement mean for the Arctic fisheries agreement?" *Marine Policy*, 142: 103745.

#### 4. Future Directions

It is hard to be optimistic about future governance directions for effectively addressing the triple environmental crisis and the dramatic threats to the Arctic in light of depressing past and present realities. On the pollution front, the global goal of achieving by 2020 the environmentally sound management of chemicals and all wastes throughout their life cycle<sup>95</sup> was not met.<sup>96</sup> Listing of chemicals for elimination and restriction under the Stockholm Convention has been tedious and slow while Rotterdam Convention efforts have been stymied by the need for consensus before adding chemicals to Annex III and the narrow focus on subjecting listed chemicals to a prior informed consent procedure in trade.

Progress in addressing climate change under the UNFCCC and Paris Agreement has been a struggle. Parties are not on track to meet the Paris Agreement's temperature goals with national pledges to reduce GHG emissions projected to lead to a 2.5 to 2.9°C temperature rise above pre-industrial levels.<sup>97</sup> Urgings for the transformational phase-out of fossil fuels have not been adopted with COP 28 of the UNFCCC settling for compromised commitments to transition away from fossil fuels in energy systems and to accelerate efforts towards the phase-down of unabated coal power.<sup>98</sup> The adequacy of the Paris Agreement's temperature targets to protect the cryosphere and Arctic ecosystems remains doubtful.

The protection of biodiversity has also lagged. None of the 2011–2020 Aichi targets under the Convention on Biological Diversity were fully met including the key target 11 of protecting 10 percent of coastal and marine areas by 2020.<sup>99</sup> Although more than 330 ecologically or biologically significant marine areas have been identified including 11 in the Arctic region, actual protections are left to the discretion of States and intergovernmental organizations.<sup>100</sup>

At the regional level, the governance future is also not optimistic. The Russia-Ukraine crisis has placed the future of the Arctic Council in doubt and cooperation has been upset by the exclusion of Russian participation in Council activities.<sup>101</sup>

Nevertheless, various transitional ways forward do stand out at both the global and regional levels and further effective multilateral actions are possible.<sup>102</sup> The UN Environment Assembly has placed reaching a pollution-free planet on the global agenda<sup>103</sup> and that agenda is being addressed on three main fronts in addition to implementation efforts under the global chemicals and waste conventions. Negotiations for an international legally binding instrument on plastic pollution are continuing with the ambition to complete negotiations by the end of 2024 with the fifth negotiation session set for Busan, Republic of Korea, 25 November – 1 December 2024.<sup>104</sup> In March 2022, the UN Environment Assembly decided to establish a science-policy panel on chemicals, waste and pollution prevention and an ad hoc open-ended working group has been preparing proposals regarding the panel with an ambition of completing the process by the end of 2024.<sup>105</sup> In September 2023, a new Global Framework on Chemicals – For a Planet Free of Harm from Chemicals and Waste was adopted with five strategic objectives and 28 targets.<sup>106</sup> The Framework is to be implemented through international conferences expected to

95 UNEP (2006), *Strategic Approach to International Chemicals Management Overarching Policy Strategy*, 15 September, 2006; para. 13, available at: <https://www.unep.org/resources/report/strategic-approach-international-chemicals-management>.

96 SAICM, n. 45, *Bonn Declaration for a Planet Free of Harm from Chemicals and Waste*, para. 5.

97 UNEP, n. 70.

98 UNFCCC, n.71.

99 Secretariat of the Convention on Biological Diversity (2020), *Global Biodiversity Outlook 5* (Montreal), p.8.

100 CBD (n.d.), "EBSAs Regions, Arctic"; available at: <https://www.cbd.int/ebsa/ebsas>.

101 Brett Simpson (2023), "The Rise and Sudden Fall of the Arctic Council"; available at: <https://foreignpolicy.com/2023/05/31/arctic-council-russia-norway/>; Lawson W. Brigham, "Ten Ways Russia's Invasion of Ukraine Impacts the Arctic and the World", *The Hill* (15 November 2022).

102 UNEP (2023), *Effective, Inclusive and Sustainable Multilateral Actions to Tackle Climate Change, Biodiversity Loss, and Pollution – Report of the Executive Director*, UNEP/EA.6/2.

103 UNEA (2017), *Ministerial declaration of the United Nations Environment Assembly at its third session: Towards a pollution-free planet*, UNEP/EA.3/HLS.1.

104 UNEP (n.d.), *Intergovernmental Negotiating Committee on Plastic Pollution*; available at: <https://www.unep.org/inc-plastic-pollution>.

105 UNEP (n.d.), *Ad hoc open-ended working group on a science-policy panel on chemicals, waste and pollution prevention*; available at: <https://www.unep.org/owg-spp-chemicals-waste-pollution>.

106 SAICM, n. 46.

be held every third year and multi-stakeholder working groups. A voluntary Global Framework on Chemicals Fund will support stakeholder implementation.

A key question and challenge is how strengthening the global treaty framework for managing chemicals might be addressed in the future. Various reform options have been suggested including a new pesticides treaty<sup>107</sup> or a comprehensive global chemicals convention<sup>108</sup> promoting precaution and respect for human rights.<sup>109</sup> Key elements of a new chemicals convention might include a reverse listing approach to the introduction of new chemicals where only chemicals on a global “safe list” would be allowed on the market<sup>110</sup> and a global registration process for existing chemicals with a mandate for the chemical industry to provide toxicity and safety data within a stated timeframe or face a marketing prohibition (no data, no market).<sup>111</sup> Difficult questions would certainly surround the formulation of a comprehensive convention including: What should be the criteria for listing new chemicals as safe? Should there be exceptions to phase-out for existing chemicals in light of essential societal needs and lack of safer alternatives? What lessons in chemicals management might be incorporated from European Union progressive and complex regulatory experiences in promoting a toxic-free environment?<sup>112</sup> How would a new agreement be integrated with existing chemical and waste conventions?

The political appetite for launching serious international discussions on treaty reform needs and options does not look promising. The new Global Framework on Chemicals does not specifically call for a review of international treaty arrangements but charges the International Conference on the Global Framework on Chemicals with promoting the implementation of and coordination among existing international instruments and programmes relating to chemicals and waste although the Conference can address international gaps.<sup>113</sup> The Framework gives scant attention to international obligations with Target A5 calling on Governments by 2023 to work towards notifying, regulating or prohibiting the export of chemicals they have prohibited nationally, in line with their international obligations. Whether a new science-policy panel on chemicals, waste and pollution prevention might open the door to rethinking global chemicals governance remains to be seen. The UN Environment Assembly could be a proactive discussion venue, for example through appointment of an expert group to consider future legal directions for global chemicals management, but the UNEA seems content to leave risk management to existing arrangements such as the Global Framework on Chemicals.<sup>114</sup> The European Union in its 2020 chemicals strategy stops short of calling for a rethinking in international chemical agreements. Instead the strategy highlights the intention to promote implementation of existing international agreements, the development of innovative risk assessment tools and cooperation with third countries in building capacity to assess and manage chemicals in a sound manner.<sup>115</sup>

Future addressing pollution also remains on the Arctic Council agenda. During its chairship of the Council in 2023–2025, Norway has committed to strengthening Arctic cooperation on tackling marine litter and plastic pollution by initiating projects in follow-up to the 2021 Marine Litter Regional Action Plan.<sup>116</sup> The Arctic

107 Office of the United Nations High Commissioner for Human Rights, Pesticides are “global human rights concern”, say UN experts urging new treaty; 7 March, 2017; available at: <https://www.ohchr.org/en/press-releases/2017/03/pesticides-are-global-human-rights-concern-say-un-experts-urging-new-treaty>.

108 UNEP (2013), *Global Chemicals Outlook – Towards Sound Management of Chemicals*, p. 230; Baskut Tunçak and Daryl Ditz (2013), *Report to the Swedish Society for Nature Conservation, Paths to Global Chemical Safety: The 2020 Goal and Beyond*; Stockholm: Center for International Environmental Law, pp. 40-44; Klaus Günter Steinhäuser et al. (2022), “The Necessity of a Global Binding Framework for Sustainable Management of Chemicals and Materials – Interactions with Climate and Biodiversity”, *Sustain. Chem.* 3: 205-237.

109 David L. VanderZwaag (2011), “The Precautionary Approach and the International Control of Toxic Chemicals: Beacon of Hope, Sea of Confusion and Dilution”, *Houston Journal of International Law*, 33: 605-630.

110 Following the reverse listing approach taken to ocean dumping in the 1996 Protocol to the London Convention has been suggested as a precedent. See, David L. VanderZwaag and Anne Daniel (2009), “International Law and Ocean Dumping: Steering a Precautionary Course Aboard the 1996 London Protocol, but Still an Unfinished Voyage” in Aldo Chircop et al. (eds.), *The Future of Ocean Regime-Building*, Leiden: Martinus Nijhoff, pp. 515-550 at 549-550.

111 VanderZwaag, n. 109, p. 626.

112 European Commission (2020), *Chemicals Strategy for Sustainability: Towards a Toxic-Free Environment*, COM (2020) 667 final.

113 Global Framework on Chemicals, n. 46, para. 73.

114 See, e.g., UNEP (2024), *Resolution on the Sound Management of Chemicals and Waste*, UNEP/EA.6/Res.9.

115 European Commission, n. 112, pp. 23-24.

116 Arctic Council (2023), *Norway’s Chairship Arctic Council 2023-2025*.

Council's Strategic Plan 2021 to 2030 calls for cooperation among Arctic States in global fora addressing pollution issues and provision of Arctic views including Indigenous Peoples' perspectives.<sup>117</sup> In 2022, Arctic States were successful in getting IMO approval for adopting regional reception facilities within Arctic waters for ship-generated wastes<sup>118</sup> but detailed plans remain to be developed.

Further addressing climate change also remains on global and regional governance agendas. The Paris Call for Glaciers and Poles, adopted in November 2023, calls for scaling up GHG emissions reductions<sup>119</sup> and States need to consider losses in the cryosphere and threats to the poles in setting their nationally determined contributions (NDCs) to mitigation. Meeting the COP 28 target of tripling renewable energy capacity globally by 2030 seems critical.<sup>120</sup> Further clarification on State responsibilities to address climate change can be expected from two global advisory opinion cases. Case No. 31 before the International Tribunal for the Law of the Sea is considering obligations under the UN Convention on the Law of the Sea to address climate change impacts.<sup>121</sup> The International Court of Justice is reviewing obligations of States in respect of climate change on a broader scale including under human rights documents, the Law of the Sea Convention, the UNFCCC and Paris Agreement, and the duty of due diligence.<sup>122</sup>

Climate change mitigation also remains a work in progress under the IMO. The 2023 IMO Strategy on Reduction of GHG Emissions from Ships remains to be implemented including finalizing a basket of mid-term reduction measures to be agreed to by 2025 and working towards a further strategy by 2028. After nearly 13 years of discussion, the IMO has yet to establish control measures for black carbon emissions with debates continuing within the IMO's Sub-Committee on Pollution Prevention and Response.<sup>123</sup>

Climate change also remains high on the Arctic Council agenda. The Arctic Council 2021 to 2030 Strategic Plan sets out seven strategic actions for addressing climate change including encouraging stronger global mitigation efforts through providing an Arctic view; enhancing adaptation and resilience of Arctic communities; and promoting clean energy solutions and technology. Work continues within the Council's Framework for Action on Enhanced Black Carbon and Methane Emissions reductions with a further aspirational target for black carbon emissions yet to be set and additional actions on methane emission reductions to be worked out. Encouraging Observer States to commit to reduction goals is a further challenge.<sup>124</sup>

Regarding future directions for addressing biodiversity losses in the Arctic, two main avenues look to be especially promising but also challenging. Implementing the Kunming-Montreal Global Biodiversity Framework at the regional level is one direction. The PAME Working Group has agreed to assess the need to update the Framework for a Pan-Arctic Network of MPAs in light of international developments with a PAME MPA Expert Group tasked with exploring potential updates.<sup>125</sup> That work has yet to be completed.

Applying the new BBNJ Agreement when it is in force to the central Arctic Ocean is a second avenue but key issues loom on the horizon. One is whether Arctic States would support a global process pursuant to the Agreement to establish MPAs and other area-based conservation measures in the CAO. Other biodiversity protection routes are also possible, such as working through the IMO to establish one more Particularly Sensitive Sea Areas (PSSAs) on the high seas,<sup>126</sup> adopting a specific regional biodiversity agreement which might include the creation of an

117 Arctic Council, n.73, Strategic Action 2.3.

118 Res. MEPC. 359 (79) (16 December 2022) and Res. MEPC. 360 (79) (16 December 2022).

119 Paris Call for Glaciers and Poles – Declaration for the One Planet – Polar Summit, n. 16.

120 UNFCCC, n. 71.

121 Roland Holst and Rozemarijn J. (2023), "Taking the current when it serves: Prospects and challenges for an ITLOS advisory opinion on oceans and climate change", *RECIEL*, 32: 217-225. The opinion is due to be delivered on 21 May 2024. ITLOS Press Release 349 (23 April 2024).

122 ICJ, Obligations of States in respect of Climate Change (Request for Advisory Opinion), Order of 20 April 2023.

123 FOEI, WWF, Pacific Environment and CSC, "Developing Concrete Measures to Reduce the Impact of Black Carbon Emissions from International Shipping", PPR 11/6/3 (13 December 2023).

124 Reykjavik Declaration, n. 78.

125 PAME (2021), PAME Work Plan 2021-2023.

126 Todd C. Stevenson et al. (2019), "An examination of trans-Arctic vessel routing in the Central Arctic Ocean", *Marine Policy*, 100: 83-89.

Arctic Science Council,<sup>127</sup> and placing further fishing restrictions under the CAO Fisheries Agreement. Another issue area is deciding on the future of potential seabed mining in the CAO. Once the five coastal States determine their extended continental shelf boundaries, most of the seabed will fall under national jurisdiction.<sup>128</sup> This raises the question of how the BBNJ Agreement's environmental impact assessment provisions will apply to national mining proposals and whether mining projects should be allowed in such a vulnerable region.

A final cross-cutting future direction is the potential role of the right to a clean, healthy and sustainable environment in addressing the polar and the triple planetary crisis<sup>129</sup> The right, recognized through a UN General Assembly resolution in July 2022,<sup>130</sup> has yet to be operationalized but could offer an additional normative tool in the quest for a healthy ocean.<sup>131</sup>

## 5. Conclusion

In light of the many governance progressions, limitations and future directions discussed above, one bottom line stands out. The world continues to tinker towards the transformations needed. Achieving a pollution free planet, living in harmony with nature and phasing out the use of fossil fuels will depend on many transitional steps and changes.<sup>132</sup> The rough waters of multi-level, polycentric and fragmented governance must be navigated in the quest for a new global political order.<sup>133</sup>

The Russian-Ukraine war continues to haunt the future of regional Arctic cooperation. Whether major strengthening in regional ocean governance will be possible, especially through the Arctic Council which has operated without stable financing and a firm legal foundation,<sup>134</sup> only the political tides will tell.

127 Alexander N. Vylegzhanin et al. (2020), "The Central Arctic Ocean Fisheries Agreement as an element in the evolving Arctic Ocean governance complex", *Marine Policy*, 118: 104001.

128 Ted L. McDorman and Clive Schofield (2020), "The Arctic Ocean Unscrambled: Competing Claims and Boundary Disputes", in Scott and VanderZwaag, n. 58, chapter 7.

129 Bharat H. Desai (2024), "The Audacity of Hope for People and Planet: 2023 New York SDG Summit Outcome and Beyond: Part – II", *EPL Blog*, January 25; The Audacity of Hope for People and Planet: 2023 New York SDG Summit Outcome and Beyond: Part – II | Labs (iospress.com); Bharat H. Desai (2023), (2023), *Regulating Global Climate Change: From Common Concern to Planetary Concern*. Amsterdam: IOS Press; *Regulating Global Climate Change* | IOS Press; Bharat H. Desai (2023), "The Triple Planetary Crisis", *EPL Webinar*, June 05: EPL Webinar: The Triple Planetary Crisis - YouTube.

130 UNGA Res. A/RES/76/300 (28 July 2022).

131 Sara L. Seck (2023), "The Right to a Clean, Healthy and Sustainable Environment and the Triple Planetary Crisis: Reflections for Ocean Governance", *Ocean Yearbook*, 37: 17-29.

132 Karen Morrow (2023), "The Anthropocene and Human Rights: A New Context and the Need to Revisit Collective Human Concerns" in Peter Burdon and James Martel (eds.), *The Routledge Handbook of Law and the Anthropocene*, New York: Routledge, pp. 211-226 at 223; Climate Governance Commission, *Governing Our Planetary Emergency*, November 2023.

133 Oran R. Young (2023), *Addressing the Grand Challenges of Planetary Governance: The Future of the Global Political Order*, Cambridge UK: Cambridge University Press.

134 Timo Koivurova and Erik J. Molenaar (2009), *International Governance and Regulation of the Marine Arctic: A Proposal for a Legally Binding Instrument*; Oslo Norway: WWF International Arctic Programme; David L. VanderZwaag (2014), "The Arctic Council and the future of Arctic Ocean governance: edging forward in a sea of governance challenges" in Tim Stephens and David L. VanderZwaag (eds.), *Polar Oceans Governance in an Era of Environmental Change*, Cheltenham UK: Edward Elgar, pp. 308-338; Natalia Loukacheva (2023), "The Arctic Council and Its 'Legislative' Activities" in Tanaka et al., n. 77, pp. 356-365.