

Article

# Legal Instruments for Marine Sanctuary in the High Arctic

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**Abstract:** In response to heightened threat to Arctic marine biodiversity due to polar ice melt, the following paper seeks to use qualitative secondary research to analyze existing anthropogenic threat to Arctic marine life and to evaluate current efforts on the part of the Arctic Council to protect biodiversity through a network of state-created marine protected areas (MPAs). We conclude that the current method for MPA creation fails to offer adequate pathways for creation of MPAs in Areas Beyond National Jurisdiction (ABNJ), the high seas which fall beyond individual countries' exclusive economic zones (EEZs). Thus, our central research question is to determine what legal basis and mechanisms exist for the creation of MPAs in ABNJs, with particular focus on the Arctic marine environment. In keeping with The United Nations Convention on Biological Diversity's (UNCBD) precautionary approach, along with specific rules embodied within The United Nations Convention on the Law of the Sea (UNCLOS), we find a basis for creation of MPAs in the ABNJ. The text evaluates findings from the Boulogne-sur-Mer international conference of 2011 to suggest that such MPA creation in ABNJ could be approached via four pathways: regional agreement, UNCLOS implementing agreement, UNCBD additional protocol, or an Arctic Sanctuary modeled on the Antarctic Treaty. While we explore all four options, we argue that, due to geopolitical constraints, a comprehensive regional agreement offers the best path to High Arctic MPA creation.

**Keywords:** Arctic; ABNJ; biodiversity; MPAs; Sanctuary; exclusive economic zone

## 1. Introduction

Comparing in size to continental Africa, the Arctic is considered by many to be one of the Earth's final pristine ecosystems [1], while to others, a resource-rich final frontier [2]. Following significant sea ice melt—with a projected ice free summer in the next few decades—previously shielded marine ecosystems will lie increasingly vulnerable to disruption due to commercial activity in newly-open Arctic Waters. The following paper aims to understand the legal mechanisms by which marine protected areas (MPAs) might be established in the Arctic Ocean to preserve biodiversity, with particular attention to the Arctic High Seas presently excluded from existing pathways for creation of protected areas.

The unique Arctic marine ecosystem boasts incredible biodiversity, with over 5000 animal species, 2000 types of algae, and tens of thousands of ecologically critical microbes [3]. It is also important to note that Arctic marine ecosystem supports adaptive capacities for species in extreme environmental conditions [4]. In addition, hundreds of migratory species travel long distances in the Arctic each year, as they generally travel to the south during winter, and take advantage of a short Arctic summer [5]. However, the wealth of biodiversity in the Arctic presently faces its most acute challenge: rapid climate

change caused by global warming [6]. Over the last decades, the Arctic environment as a whole altered dramatically due to the impacts of climate change. Arctic sea ice has significantly melted and continues to melt at an alarming pace, with a projected ice-free summer in the next few decades ([7], pp. 39–55). Global surface temperature data revealed that 2015 was the hottest year so far on record, since recordkeeping began in 1880 [8]. As a result of opening waters, economic activity and resource capture are accelerating in what some describe as possible “rush for the Arctic” [9], and others as the “scramble for the Arctic” [10]. Any “rush for the Arctic” will likely be slower than such a term implies, due to market prices and technological barriers, especially in the case of oil [8]. Still, the threat posed by potential commercial conquest warrants a concerted effort to protect the marine ecosystem so critical to Arctic species resilience.

In response to risk of worldwide human-induced degradation, the United Nations Convention on Biological Diversity (UNCBD) established that the creation of protected areas plays a vital role in biodiversity conservation. Defined by the International Union for the Conservation of Nature/World Commission on Protected Areas (IUCN/WCPA), a protected area is a:

“clearly defined geographical space recognised, dedicated, and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.” ([11], p. 8).

The CBD’s Aichi Target 11—one of the targets developed in the UNCBD 2011–2020 Strategic Plan for Biodiversity under the strategic goal of improving the status of biodiversity by safeguarding ecosystems, species and genetic diversity—established the goal of designating at least 10% of marine and coastal areas as protected areas by 2020. Eight years away from this deadline, only 1.55% of Arctic marine and coastal waters were protected, this being done by OSPAR MPAs ([12], p. 29; [13]). Arctic terrestrial habitats are well protected by comparison, with over 17% considered protected [14]. Why then does marine preservation lag so far behind the strides made on land?

Nation-led, land-based conservation is generally aided by clear jurisdiction, whereas the borderless nature of the seas complicates designation of marine protected areas. The United Nations Convention on the Law of the Sea (UNCLOS) does allow for national claims to some waters, as it designates areas within 200 nautical miles as being within respective countries’ jurisdictions (in their exclusive economic zones, or EEZs). However, a sizable portion of the Arctic Ocean—approximately 20%—falls beyond any such jurisdiction [15]. Whereas the marine areas within national jurisdiction can be protected by national regulations, the high sea—an area beyond national jurisdiction—appears to be a space open for all states for maritime use despite the general limits set by the UN Law of the Sea Convention.

No single state has sovereignty over the Arctic High Seas, making it an area beyond national jurisdiction (ABNJ), causing the discrepancy in reserve creation to be perpetuated by a perceived lack of any clear legal instrument for effective multilateral creation of marine protected areas in areas in the High Seas. The UNCLOS protects states’ sovereign rights in respective territorial waters, as well as rights to authority over the EEZ. The Convention, however, lacks a clear and comprehensive framework for protection of marine species in the high seas. Sector-specific regulations currently do exist, such as the International Convention for the Prevention of Pollution from Ships, adopted by the International Maritime Organization (IMO), which has established special protective measures in defined areas—Special Areas—both within and beyond areas of national jurisdiction where shipping presents a risk of impacts on marine biodiversity. In Special Areas maritime activities are closely regulated. IMO has also developed the guiding concept of Particularly Sensitive Sea Areas (PSSA), areas requiring special protection because of recognized ecological, socioeconomic or scientific attributes that may be vulnerable to damage by international shipping activities. Whereas to date the IMO has not designated any PSSAs in an ABNJ, the ecological and biological importance of the central Arctic Ocean make it particularly sensitive as a site of marine biodiversity.

Given the importance of high Arctic marine area as particularly sensitive area, the obligation set forth within the framework of UNCLOS for conserving marine living resources has to be addressed

through adoption of additional measures that are capable of mitigating adverse effects for the protection and conservation of high Arctic marine biodiversity. One such measure is establishing Marine Protected Areas (MPAs) in the Arctic high seas. An MPA is a space in the marine area where human activities are more strictly regulated than elsewhere, like a national park on land. The objectives of MPAs are generally to ensure long-term viability and to maintain the genetic diversity of marine species and systems through proper conservation of living resources and maintenance of stable ecosystem services. Despite these aims, it is presently unclear whether MPAs can be created in areas beyond national jurisdiction (ABNJs), popularly known as the high seas. Further, what would be the legal basis for such creation?

The following paper begins by reviewing the rationale for the creation of marine protected areas in arctic waters. We examine the existing legal framework for MPAs creation in the Arctic, as well as their limits. While a clear legal framework for creation of MPAs in national EEZs exists, a gap in marine protection exists when it comes to preserving marine ecosystems beyond national jurisdiction, in the Arctic high seas. As such, we more specifically consider the challenge of protecting marine life in the High Arctic ABNJ, the 2.8 million square kilometer (or 1.1 million square miles) high seas area in the northernmost Arctic waters in which no single nation possesses jurisdiction. We will turn to examine four potential legal instruments for MPAs creation in Arctic areas beyond national jurisdiction: a regional agreement, a UNCLOS implementing agreement, an additional protocol to the UNCBD, and an Antarctic-modeled legal designation as marine sanctuary. Each legal pathway, though differing in scope and political feasibility, has been selected for evaluation due to existing discussions among media representatives, NGOs and academics, particularly as exhibited at the Boulogne-sur-Mer Seminar on MPAs creation in 2011. Based on our analysis, we argue that a complementary, regional legal regime for MPAs creation in the High Arctic would offer a pathway to adequate protection while being more politically feasible than other alternatives. Such a regime, even where non-Arctic states are not parties, would set an important standard, and precedent, for the international community to respect the preservation of the High Arctic's unique biodiversity as well as the effective functioning of its ecosystem services.

## **2. Causes for Creation of Marine Protected Areas**

Though experts believe that the high seas of the Arctic Ocean will remain inaccessible for a considerable period of time in the future [16], increasing commercial and human activities along Arctic state coastlines, and within the exclusive economic zone and the seabed underneath the continental shelves, have the potential to compromise marine-based resources both within and beyond national jurisdiction. For example, one of the findings of the Arctic Biodiversity Assessment report observed that climate-induced effects on marine species and ecosystems are associated with a decrease in sea ice extent and duration [17]. The ABA report also highlighted the concern that rapid loss of multi-year ice in the central Arctic basins and changes in sea ice dynamics on the extensive Arctic shelves affect the biodiversity and productivity of marine ecosystems [17]. Marine life in the Arctic sheltered by ice may soon lie vulnerable to increased maritime traffic and human induced disruption, such as introduction of invasive species, vessel collisions and noise pollution, and offshore resource extraction.

Recent statistics suggest a gradual increase in the number of ships passing through the Arctic sea route—the Northern Sea Route. In 2009, for example, two ships—the “Beluga Fraternity” and “Beluga Foresight”—made the trans-continental journey. The number of trips doubled in 2010. The following years experienced a rapid growth in ship traffic, counting 34 ships in 2011, 46 ships in 2012 [18], and 71 ships in 2013 [19]. Though this number is negligible compared to the volume occurring through the traditional route, such as through the Suez Canal, the increased volume of ships through the Arctic route will disrupt and pollute the marine area, hence causing adverse effect on marine biodiversity ([20], p. 136). The volume of ship traffic will ultimately depend heavily on geopolitical circumstances—such as the status of shipping routes via the Suez Canal—and oil prices. However, according to Lloyd's of London, a transpolar route could save considerable time and mileage, translating to fuel savings [21].

Commercial viability will be constrained by costs of insurance, ice-breaking technology, *etc.* However, sea ice-melt is expected to make a transpolar “North Pole” route entirely accessible by 2045–2059 [21].

A shipping swell is in part anticipated due to the development of offshore resource extraction, which particularly threatens the marine environment due to risk of oil spill and discharge. While it is suggested that the Arctic Ocean contains a significant amount of hydrocarbon resources, estimates suggest that 97 percent of these resources fall within the exclusive jurisdictions of the Arctic coastal states [22]. In other words, the majority of hydrocarbon resources fall within 200 nautical miles of continental shelves, according to the USGS ([22], pp. 1175–76). Regardless, extraction of oil and gas from the continental shelves will cause pollution to both surface and sub-surface water column, if oil spills occur either accidentally or in the phase of extraction process. Thus, though the majority of extraction may occur within an EEZ, resulting externalities diffuse throughout the water column and the entire marine environment. Research biologist and journalist Alun Anderson suggests that the time and location of Arctic oil spills—rather than solely the quantity of oil spilled—can be particularly damaging, due to migration and life cycle patterns of Arctic birds and mammals [9]. Thus, mapping of areas of biological vulnerability is ongoing, and particularly informative for ship routing and potential MPAs creation [9]. In addition to offshore drilling related oil spills, extraction related practices, such as the creation of artificial islands, noise and transportation of resources, result in relocation of species.

Another threat in the Arctic marine area is the introduction of invasive species. Though only a few invasive species have been detected in the Arctic thus far, the AMSA report expressed concerns that ballast water may introduce non-native species with invasive characteristics. Shipping sources, combined with the dual pressure of climate change and globalization, create pathways for the introduction of nonnative species in the Arctic region [23]. Other human-induced actions in the Arctic, such as increasing oil and gas activities, will risk the introduction of invasive species and will intensify the need for stringent cleaning and monitoring requirements ([24], p. 48). Pressure on the Arctic ecosystem resulting from the introduction of invasive species contributes to biodiversity loss, compromising future human access to potentially useful biodiversity resources ([24], p. 46). The risk in the Arctic is amplified by the fact that the introduction of invasive species will decrease native species stability while at the same time increasing uncertainty in ecosystem functioning, which will affect species resilience ([20], p. 46). For instance, cases have been reported where killer whales, moving into the warming Arctic from southern waters, have eaten beluga whales and narwhal, thus suggesting that Arctic animals may be unable to compete with their southern cousins [25]. A number of studies indicate that the risks of invasive species introduction in the Arctic rise due to increased shipping, energy development, mineral exploration, and associated shore-based developments, such as ports, roads, and other related human responses [24]. Trans-Arctic shipping, particularly between the North Atlantic and North Pacific, potentially represents a vector for the transfer of species to new areas ([20], p. 136). While the 2007 Arctic Council Assessment of Oil and Gas Activities found the level of existing oil pollution in the Arctic to be low, oil spills are still considered to be a major threat ([20], p. 135). Moreover, of ship-based impacts, accidental discharge of oil and toxic chemicals is considered to be one of the gravest threats to the Arctic ecosystem in both the immediate and long-term future ([20], p. 136). In the short term, such oil discharges damage Arctic marine species including seabirds, polar bears, and seal pups by reducing the ability of their fur and feathers to insulate them from the effects of hypothermia [20]. Further, the intake of hydrocarbons and toxic substances has the magnified potential to devastate the entire food chain when consumed by bottom feeding invertebrates that serve as the foundation of the Arctic food chain [20]. Due to the potentially devastating consequences of ship-based oil discharge, the IMO adopted the International Code for Ships Operating in Polar Waters, popularly called the Polar Code, in November 2014. The Polar Code (amendments to Annexes I, II, IV, and V of MARPOL and the endorsement of a new Chapter XIV within the framework of SOLAS with a specific focus on the Polar Regions) is intended to safeguard the Arctic environment through heightened ship safety restrictions to be enforced beginning in January of 2017 [26]. The Polar Code contains additional provisions regarding ballast water, to prevent the introduction of invasive species, and management of

sewage, chemicals, and other waste. While the Polar Code offers a major improvement in protections regarding the risk associated with heightened ship traffic, the risk of ship collision and environmental disruption remains.

Thus, without a new legal instrument, many critical *High Arctic* species are neglected in preservation and conservation efforts. Pew Charitable Trusts research data indicates that critical zooplankton and marine mammals depend on the High Arctic as their habitat. Notably, the majority of polar bear and ringed seal sightings occur within the Arctic High Seas ([27], pp. 3–5). Portions of the Arctic High Seas are also critical to the life and migration patterns of species such as beluga whales, narwhals, and walrus [27].

The height of maritime traffic presently occurs in late spring and summer months, due to sea ice melt. The timing of existing traffic combined with the lengthening shipping season threatens to conflict with times of migration and reproduction. Presently, summer shipping occurs primarily *after* marine mammals migrate through narrow shipping choke points. Continued sea ice melt may enable a longer shipping season, causing collisions between mammals and vessels. Stretches critical to life cycles, such as feeding and nursery areas, will become increasingly susceptible to ship-related disruption. For example, White Sea harp seals currently undergo significant pup mortality due to shipping, because vessels breach the ice in seal whelping groupings ([28], pp. 586–92). Limitations of existing frameworks for MPAs creation constrain capabilities to preserve targeted areas of the Arctic ABNJ that are critical to species’ migration and life cycles, and cannot be protected through regulations like the Polar Code alone.

MPA creation has additional importance as warming temperatures and sea melt drive marine species towards higher latitudes ([29], pp. 487–518). Migration patterns of fish stocks and large aquatic mammals, such as narwhals, increasingly occur in High Arctic waters [29]. Polar bears also increasingly migrate further north in pursuit of receding sea ice [29]. As the High Arctic becomes an increasingly important haven for vulnerable species struggling to adapt to climate change, meaningful conservation action will play a critical role in species resilience.

### 3. Existing Legal Framework for MPAs Creation

MPAs allow for heightened regulation of human activity and maritime traffic. For instance, an MPA might have a “no-take” fishing policy, require rerouting of boats, or have heightened regulations on environmentally friendly ship design. Presently, under the UNCLOS, actors are constrained in their ability to create marine protected areas, particularly in areas beyond national jurisdiction (ABNJs) because MPAs cannot be established unilaterally in these areas ([20], p. 54). States cannot unilaterally establish MPAs in the High Seas without violating UNCLOS Article 87, which outlines states’ notable rights to freedom of navigation, fishing, laying of submarine cables and pipelines, and scientific research in the high seas. Rather, human activity in areas that fall outside of national jurisdiction (ABNJs) instead can only be governed by international arrangements [20]. Thus, sectoral bodies, such as regional fishing management organizations (RFMO), currently play a critical role in establishing environmental regulations and protections in the Arctic. However, reliance on sectoral regimes’ key vulnerability lies in the difficulties in coordination between sectoral organizations.

The dialogue around marine conservation in the Arctic is presently confined to the creation of MPAs within individual countries’ exclusive economic zones (EEZ), extending 200 nautical miles from respective coastline. While issues of biodiversity conservation cross human-imposed borders, MPAs creation currently takes a country-led, piece-meal approach.

The Arctic Council—the intergovernmental forum that engages the eight Arctic states and relevant actors to address issues related to the Arctic—seeks to facilitate the creation of a network of marine protected areas in the Arctic in order to provide greater continuity between existing and future MPAs. However, as of May 2015, the Council recommends establishing the network of MPAs only *within Arctic states’ EEZs*, according to Director of the Arctic Council Secretariat, Magnus Johannesson [30]. The Arctic Council working group, Protection of the Arctic Marine Environment (PAME) was formally



tasked with establishing a framework and approach for creation of a network of MPAs *within EEZs*, published in April 2015 as the “Framework for a Pan-Arctic Network of Marine Protected Areas” ([31], pp. 1–76). This notably excludes vulnerable waters falling outside of the state parties’ EEZs, in the High Arctic.

The PAME Framework defines the desired Pan-Arctic Marine Protected Area as:

An ecologically representative and well-connected collection of individual marine protected areas and other effective area-based conservation measures in the Arctic that operate cooperatively, at various spatial scales, and with a range of protection levels, in order to achieve the long-term conservation of the marine environment with associated ecosystem services and cultural values more effectively and comprehensively than individual sites could alone ([31], p. 12).

The Pan-Arctic MPA network model allows for regional cooperation in MPA management and establishes reciprocity for compliance. However, this relies on state parties to designate and create MPAs to be included in the network. Following publication of the Framework in April 2015, PAME and CAFF (The Conservation of Arctic Flora and Fauna) are collaborating to release a three-phase project over the years 2015–2017 with the goal of informing and guiding policy decision making with scientific data analysis on existing marine protected areas as well as by identifying gaps and priorities in the Arctic MPAs network [31]. The report explicitly states that the network does not strive to be legally binding [31]. Rather, PAME outlines the Framework as solely offering guidance, which Arctic States can use to designate MPAs according to their own timelines, goals, and authorities [31]. As such, it is possible that a Pan-Arctic MPA network may be hindered by domestic politics and agendas.

#### **4. Looking to the High Arctic: Challenges for MPAs in ABNJs**

The PAME Framework acknowledges that the network does not currently extend to cover areas beyond national jurisdiction (ABNJ), instead relying on reserve creation within national waters. The Framework solely acknowledges that “linkages” exist between the Pan-Arctic MPA network and the high seas, as activities in one area impact the other [31]. Establishing an MPA equivalent in ABNJ will ultimately require establishment of new legal precedent or a regional regime to handle the process while abiding by UNCLOS.

As the Arctic Ocean opens up to oil and gas extraction, countries have an economic interest in claiming sovereignty over the continental shelves underneath the Arctic Ocean. By virtue of article 76 of the UNCLOS, such claim could extend to unlimited area of the ocean floor beyond 200 nautical miles, where the surface and subsurface waters above are still high seas subject to global commons ([32], Article 76). As of August 2015, four out of five coastal states of the Arctic Ocean (the United States being the exception), had filed their submissions to extend the limits of their continental shelves into the Arctic Ocean [33]. Russia was the first country to lodge its submission in 2001, claiming almost half of the Arctic Ocean seabed as its extended continental shelf [34]. In response to the request from the Commission on the Limits of Continental Shelf (CLCS) for re-submission with further data, it has renewed its claims recently in 2015, with even claiming greater portion of seabed. Norway submitted its claim in 2006, and received a final recommendation from the Commission on the Limits of Continental Shelf in 2009, whereas both Canada (partially) and Denmark submitted their claims, respectively, in 2013 and 2014 [35]. The United States is not yet a party to UNCLOS, and is thus not yet able to lodge any formal submission to the CLCS.

Paradoxically, while a claim to national jurisdiction is needed under the present legal framework to effectively establish MPAs, the current push for extended continental shelves will make preservation of marine environment all the more difficult if said sovereignty claims exclude water column and yet enable extractive activity beneath. As such, it is all the more important for legitimization of a legal pathway to create MPAs in ABNJs, without territorial claim to water within an EEZ as a prerequisite.

## 5. Exploring Arctic Marine Governance: Four Frameworks for MPA Creation in ABNJs

Establishment of an MPA within the Arctic ABNJ would find its legal basis in UNCLOS Part XII, which outlines an obligation to protect the marine environment under Article 192 [36]. States also have a duty to protect rare and fragile ecosystems and the habitat of threatened species under Article 194 and the duty to cooperate under Article 107. According to Molenaar and Elferink, MPAs can be established in ABNJ within the framework of UNCLOS on the basis of Article 194(5) [37]. The other articles of UNCLOS also lend support to the creation of MPAs in ABNJ for the purpose of, for example, conservation and management of living resources in Article 61. Though there exists strong legal basis for creation of an MPA in an ABNJ, there presently exists no comprehensive legal framework for execution of such an obligation. As the Arctic high seas and seabed lying beyond continental shelf limits are part of the “global commons” and therefore common to all states, any such framework would need to engage international actors beyond the Arctic eight.

However, experts at the international seminar “Towards a legal framework for the creation and management of cross-sectoral marine protected areas in areas beyond national jurisdiction” in Boulogne-sur-Mer, France in 2011 concluded that there exist four potential avenues for conservation in ABNJ: regional arrangements, a UNCLOS implementing agreement, an UNCBD arrangement, or a paradigm shift involving the total cessation of human activity in ABNJ [38]. The Boulogne-sur-Mer international seminar was organized by IUCN and Institute for Sustainable Development and International Relations (IDDRI) in partnership with the Agency for Marine Protected Areas, University of the Littoral—Opal Coast, the European Office for Conservation and Development, and the Nausicaá (National Sea Centre—Boulogne-sur-Mer) with the goal of addressing the creation of marine protected areas in areas beyond national jurisdiction. Twenty international experts attended to apply precedents of international law to create four viable scenarios for the creation and management of MPAs in High Seas by 2030. Findings from the seminar were to be presented to the United Nations at the Rio +20 Conference and the IUCN World Congress in 2012 [38]. The four resulting pathways each have the potential to aid in Arctic biodiversity preservation, but only through quick adoption and cooperation.

### 5.1. Regional Arrangements

Regional agreements, referring to a region-specific legal tool for the protection of biodiversity in the ABNJ, have been used in the past to conserve marine habitats in ABNJ [12,39]. We explore here the possibility of an Arctic-wide agreement, particularly by the member countries of the Arctic Council. As previously discussed, the Director of the Arctic Council Secretariat Johannesson currently foresees no plan to facilitate or recommend an MPA network beyond its member countries’ jurisdictions [30,40]. However, we argue that such a possibility is not unrealistic. For example, Greenpeace suggests that the Arctic Council’s mandate to protect the Arctic environment might give it grounds for greater action, extending even beyond its respective countries’ borders. We adhere to this view as the Arctic Council has taken initiative to negotiate *binding* regional agreements in areas beyond national jurisdiction through past efforts such as the Agreement on Cooperation and Marine Oil Pollution Preparedness and Response and the Arctic Search and Rescue Agreement ([41], pp. 4–15). This precedent of binding treaties in waters outside of member EEZs demonstrates feasible legal basis for a regional treaty creating MPAs even beyond EEZs, though only binding for the 8 Arctic states and other parties that choose to accede to the treaty by way of future signature and ratification.

MPAs in ABNJs have been established worldwide under the auspices of the regional sea organizations. The coverage of the MPAs in the high seas is, however, limited to only four sea areas at the moment: the Northern Ocean, the Northeast Atlantic, the Mediterranean, and the central Pacific [42].

Such regional agreements were presented by experts at the Boulogne-sur-Mer workshop as a plausible tool for creating MPAs in ABNJs, based off of the precedent of regional initiatives in the Mediterranean and the Sargasso Sea [38]. The Arctic Council might look to the Sargasso Sea Alliance, which pursues protection for the Sargasso Sea through existing international institutions such as the

IMO, Convention on Migratory Species, and regional fishing organizations. The agreement was made via *non-binding* declaration signed by Bermuda, Monaco, the UK, the Azores, and the U.S. [43].

Presently, OSPAR—the regulatory body and legal instrument tasked with preserving environment and resources of the North-East Atlantic—is the *only* regional Convention with a mandate to create MPAs in *parts* of central Arctic Ocean beyond national jurisdiction. It does not however cover the Arctic high seas in a comprehensive manner due to its geographic limits. Despite this limited scope, OSPAR’s work in Arctic ABNJs shows that successful precedent exists for a coalition of regional actors to approach MPA creation in the High Arctic. A cooperation between OSPAR Convention and sectoral regulatory organizations, such as Regional Fisheries Management Organizations (RFMOs) offers a model for cooperation for the creation of a similar regional agreement applicable to the Arctic [38]. While only the Arctic coastal states of Norway, Denmark, and Iceland are members of OSPAR, the organization is responsible for portions of Arctic water running off the coast of Iceland, between Norway and Greenland, and extending to the the North Pole.

OSPAR began creating MPAs within the territorial waters of its twelve contracting parties in 2005 as part of an effort to create an OSPAR network of marine protected areas ([12], pp. 5–6; [39]). As a result, OSPAR regions such as the Greater North Sea have already met the CBD Aichi Targets for 2020 of having at least 10% of the area considered to be a protected area [12,39]. By 2012, OSPAR states created 333 MPAs covering 5.17 percent of the OSPAR water area—totaling twice the area of Germany [12,39].

In total, 324 MPAs were established within the EEZs of contracting parties, indicating that a nation-led approach is still the most pragmatic and established mode of MPA creation. However, nine MPAs were established beyond OSPAR member borders; seven of these were considered collective OSPAR MPAs, created in waters shared by coastal states, and two were state-created MPAs designated by states that had yet to receive approval from UNCLCS to extend their seabed claims, thus falling in waters yet to be included in their extended EEZs [12,39]. This action set the precedent that regional bodies are not restricted to MPA creation within their members’ EEZs, but can establish MPAs in shared areas (ABNJ) enforceable for ratifying parties.

While not all Arctic Council states are OSPAR members and OSPAR’s territorial area is comprised of the North Atlantic, covering only stretches of Arctic waters, OSPAR’s work models the potential for regionally established MPAs beyond respective countries’ EEZs. Despite ongoing cooperation in the Arctic coastal states since the Illusiat Declaration adopted in 2008, there exists no Arctic-wide regional sea organization to govern the entire Arctic. In lieu of such a body, engagement of organizations like OSPAR and RFMOs may provide the expertise and basis for legal mandate to begin MPA creation in Arctic ABNJs, under the guidance of the Arctic Council. In this regard, the recently established AC Task Force on Arctic Marine Cooperation is worth mentioning—the aim of which is to consider future needs for strengthened cooperation on Arctic marine areas, which could probably include a regional seas arrangement for the Arctic [40].

OSPAR itself still acknowledges that there is no universally accepted legal framework for the creation of MPAs in ABNJ. Moreover, coordination with international bodies such as the IMO will be essential to making sure that creation of a MPA in the High Seas does not violate existing international maritime law [12,39]. While the OSPAR Convention cannot enforce MPAs for international actors not party to the Convention (abiding by UNCLOS), the Convention has mechanisms to engage non-party states operating in OSPAR waters. The 17 contracting parties can invite non-party states to comply with the norms endorsed in the Convention, often through arrangements of mutual observer status or memorandums of understanding (MoUs), thus making the MPA in ABNJ more enforceable while respecting freedom of the high seas. Thus, an Arctic-style regional agreement guided by OSPAR could provide a robust marine environmental governance regime. However, so long as countries like the U.S. are sensitive to multilateral agreements, such a regime might not receive support or ratification even from all the Arctic states, which would greatly undermine both its legitimacy and its effectiveness ([44], p. 40). Moreover, Russia’s implementation of environmental regulations is already



considered poor. Consequently, lacking a new legal framework under an internationally accepted arrangement, an Arctic-wide regional agreement, likely linked to regionally applicable UNCLOS implementation agreements, by the Arctic states will be a best solution for the protection of High Arctic biodiversity. There is a precedent for Arctic Council legal arrangements in the ABNJ, evidenced by two past binding agreements under the Arctic Council concerning waters beyond national jurisdiction, the Arctic Search and Rescue Agreement (2011) and the Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic (2013) [45]. However, such a regionally created network is constrained by its inability to engage non-party states. Arctic Council observer states—such as China—may be compelled to abide by the reserves’ regulations for diplomatic reasons, but are not legally bound unless they are state parties to the agreement in question. Thus, any such agreement will still face significant challenges in engaging non-signatories (especially should there occur a “rush for the Arctic” with significant opportunity for economic gain).

Nevertheless, such a regional agreement with the Arctic states as parties can establish powerful normative precedents and also achieve non-party compliance through mutual observer status, which would establish reciprocity for the mutual acknowledgement of participating parties’ protected areas.

## 5.2. *UNCLOS Implementing Agreement*

The UNCLOS, considered the “constitution of the ocean”, has been regarded as the primary instrument for the governance of the seas. But, given the rudimentary nature of its rules, UNCLOS does not offer any precise implementation mechanism for many of its provision requiring states to resort to cooperation through regional or international arrangements, and/or organizations. Part XII of the Convention provides that states’ sovereign rights in the marine area co-exist with the duty to protect and preserve the marine environment ([32], Article 192). UNCLOS both establishes the “general” obligations of all states to safeguard the marine environment in its entirety and also offers a “comprehensive” structure for dealing with all sources of pollution at sea. Thus, enact the provisions embodied in the text, creation of an implementation agreement within the UNCLOS framework offers a legitimate avenue. Within the framework of UNCLOS, there are already two implementation agreements, namely, the UN Fish Stock Agreement (Source), and the Deep Sea-Bed agreement (Agreement relating to the implementation of Part XI of the UNCLOS). A similar kind of Agreement can be endorsed in order to protect marine biodiversity in the ABNJ, by which MPAs in ABNJs can be created, managed, and largely enforced. Compared to regionally authorized MPAs, a UNCLOS implementing instrument would apply to all the ratifying states regardless of their membership within the framework of UNCLOS. By explicitly forging an implementation agreement for governance of the high seas marine environment, all the state parties to UNCLOS would also be mandated to recognize an MPA in the Arctic High Seas. While perhaps less expedient than a regional agreement, such expansion and clarification of the UNCLOS would mandate greater legitimacy. Further, this arrangement would provide a legitimate avenue for enforcement under the International Tribunal for Law of the Sea [38].

At the Rio +20 UN Conference on Sustainable Development in 2012, participants renewed interest in reforming the institutional framework for ocean governance, with particular attention to an amendment to UNCLOS. The conference established a proposal to identify gaps in the existing legal framework for conservation in ABNJ. Further, the proposal included reference to a “possible development of a multilateral agreement” under UNCLOS as well as a call for examination of the need for a lead UN agency to manage MPAs designation ([46], pp. 39–40).

## 5.3. *UNCBD Additional Protocol*

As long as the UNCLOS mandates state parties to establish appropriate regional or international organizations and agreements to address issues related to marine environment, other existing legal instruments complement objectives to be achieved. The Convention of Biological Diversity (CBD), for example, addresses the protection of marine biodiversity. In its preamble, the CBD directs the parties to adopt the precautionary approach [47], which is then again reiterated by COP Decision

II/10 concerning marine environment [48]. While the CBD does not provide additional guidance on nature and scope of this mandate, the Arctic coastal states that are parties to the Convention, like all other state parties, are necessarily guided by the principle of the precautionary approach in marine governance [49]. Thus far, the CBD is frequently discussed as a legal precedent of secondary status to the UN Law of the Sea. Yet, it is important to note that the CBD already possesses value in its ability to provide scientific knowledge that is crucial to the designation of Ecologically or Biologically Significant Areas (EBSAs), criteria also used to create MPAs [49]. Additionally, The Conference of Parties (CoP) to the CBD has addressed the issue of MPAs in ABNJ on a number of occasions [37]. In absence of action on an UNCLOS implementing agreement, the CBD could, with an additional protocol, adopt institutional basis for the establishment of an MPA in an ABNJ, according to its legal basis in article 5 of the CBD, while combining the mandates to be found in the UNCLOS, as recognized in CoP decision VII/21 referring the role of the UNCLOS to cooperate within the relevant international and/or regional organizations in order to promote the conservation, management and sustainable use of marine biodiversity in the ABNJ [50].

#### *5.4. Radical Paradigm Shift and Arctic Sanctuary*

The slow adoption and negotiation of multilateral agreements might hinder the preservation of critical Arctic marine ecosystems. MPAs creation itself is slow; it can take over 10 years to establish an MPA [51]. With expanded transarctic human activity on the near horizon, a more radical solution may become necessary. Experts at the Boulogne-sur-Mer workshop indicated that pending further environmental degradation, such as severe ocean acidification, a paradigm shift might fundamentally alter the legal dialogue around ocean preservation and expedite the process of MPAs creation [38].

The Boulogne-sur-Mer experts optimistically indicated that MPA creation might then occur on a grand scale, in the manner in which a “global commons” was established in the Southern Ocean (Antarctic). The Antarctic Treaty System (ATS) might then serve as legal precedent for a similar treaty establishing the High Arctic as a global commons. An ATS model system differs from the above frameworks largely due to its sweeping coverage and manner of implementation, though it could in theory be established by a regional arrangement or international treaty. In the spirit for the Antarctic Treaty, the area would be designated as a commons for scientific use, prohibiting mineral resource extraction [52]. Such an arrangement would call for the prohibition of all human activity in the ABNJ unless explicitly approved by relevant institutions. Though likely politically infeasible, the ATS model warrants discussion due to its popularity amongst academics, particularly leading up to and following the 2008 Ilulissat Declaration. The experts attending the Boulogne-sur-Mer seminar envisioned explicit designation of “economic activity zones”—rather than the current vision for protected zones—which would signal a drastic shift in the discourse about how to regulate activity in the Arctic [38]. Rather than designating protected areas, relevant actors would have to agree to designate areas as being open to commercial activity. This resembles the vision for the Arctic articulated by Greenpeace, which calls for an “Arctic Sanctuary” consisting of 2.8 million square kilometers (out of a total Arctic Ocean size of 14 million square kilometers) to be established for global application, with strict prohibition of commercial fishing and hydrocarbon extraction and strict regulation of shipping [41]. However, unlike the Southern Ocean, some human activity is already conducted in the Arctic High Seas. Further, the two poles have considerable geographic differences and political difficulties that complicate adaptation of the model treaty for the Arctic ABNJ. Lacking a paradigm shift caused by drastic environmental damage, the designation of the Arctic as a Sanctuary will remain impractical due to geopolitical circumstances that constrain states’ political will to forge such a restrictive treaty.

## **6. Conclusions**

As the 2020 deadline for the UN Convention on Biodiversity Aichi targets approaches, the collective global failure to preserve marine biodiversity in the global commons continues to expose itself. While no legal instrument for marine protected area (MPA) creation in ABNJ currently exists,

clear pathways and precedents could allow for MPA creation in the Arctic High Seas: a regional treaty, an UNCLOS implementing agreement, a new UNCBD protocol, or perhaps most optimistically, the creation of an Arctic Sanctuary protected from human activity. Each option is strikingly long-term in nature, requiring the cooperation of stakeholders, experts, and relevant institutions. Considering the unique geopolitical characteristics of the Arctic, a unique and robust approach will be necessary to protect marine resources, particularly in the High Arctic Ocean.

The political strategies of the Arctic states, in particular of the coastal states, suggest adherence to the existing framework of governance under UNCLOS in combination with the Arctic Council's efforts to mitigate governance challenges [53]. Namely, present action exists to share knowledge and ecological management tactics in creating a Pan-Arctic MPA network consisting of marine protected areas in member states' exclusive economic zones (EEZs). But in lieu of adoption of a legal instrument to allow the designation of MPAs in areas beyond national jurisdiction, critical portions of the marine environment in the High Arctic ABNJ still go unprotected.

Though the Arctic Ocean exhibits characteristics of being a semi-enclosed sea offering specific rights to the coastal states under Part IX to manage marine area even beyond the EEZ ([32], Article 123), according to Oran Young, it is unlikely that non-Arctic States will agree on considering the Arctic Ocean as a semi-enclosed sea [54]. Further, adoption of article 234 authorized stricter environmental protection regulations in the ice covered sea but remains limited to coastal states' EEZ, excluding the high seas. Since both the high seas and the seabed beyond the outer limits of the continental shelf are international commons, all other states, including those in the Arctic, have legitimate interests, as well as obligations, in that part of the marine area. Resource governance in the commons would therefore need to reflect the interests of all other states, while at the same time remaining sensitive to the unique challenges of the sensitive Arctic ecosystem.

These legitimate interests—often related to security and economic opportunity—may make creation of a large High Arctic MPAs largely infeasible. It is unlikely that an Arctic Sanctuary modeled after the Antarctic Treaty can be created in the short term, in the absence of grand paradigm shift. Existence of human activities in the Arctic further complicates the possibility of a grand scale Arctic Sanctuary, even in the area beyond national jurisdiction. Further, competing submissions of seabed claims indicate a political tendency toward claiming the seabed for extractive purposes, indicating possible lack of political will to restrict human activity in the high Arctic and its water column.

Instead, states may find it more palatable to pursue a piece-by-piece strategy of MPAs creation around particularly biologically critical areas, such as waters used in migration patterns or where particularly critical species are found, while enabling extractive activities in other less critical areas. Of course, such a strategy would still rely on a legal instrument for creation of MPAs in the high seas.

Demand clearly exists for an international legal instrument to create broad MPAs in areas beyond national jurisdiction, as articulated as a goal at the Rio+20 United Nations Summit in 2012 [46]. The argument for creation of a UNCLOS implementing agreement or UNCBD additional protocol is gaining traction, evidenced by the discourse at the Rio+20 Conference that specifically identified this dilemma as an area of need. In lieu of such a legal instrument in the short term, a regional seas agreement similar to the OSPAR model that exists in the Northeast Atlantic, which offers an ecosystem-based governance regime, offers the best immediate option to begin protection of areas of the Arctic ABNJ. Such action would likely occur under the watch of Arctic Council coastal states informed by expert groups, under the pretext that the Arctic is a shared semi-enclosed sea offering special rights to the coastal states to oversee its management.

Coordination of regional bodies, through a coalition of sectoral organizations and the Arctic Council, offers a potential avenue for creation of a connective MPAs in the Arctic ABNJ. Present progress on behalf of the Arctic Council, through the working groups PAME and CAFF, and a strengthening MPA expert group, demonstrates that the body itself may have ability to catalyze the cooperation of various sectoral regulatory groups in the Arctic ABNJ. A regional, and legally binding, agreement under the auspices of the Arctic Council in cooperation with the bodies, such as

the IMO where appropriate, can offer the most politically feasible avenue for the designation of areas of the High Arctic as ecologically significant and in need of formal protection. While such a regional arrangement will lack binding power over states that are *not* parties of the Arctic Council, whereas a UNCLOS or UNCBD arrangement (which are politically infeasible in the near future) would have such reach, an effective regional agreement still might possess the normative power and precedent needed for improvement in High Arctic marine ecosystem management. Preserving the marine biodiversity in the High Arctic presents ever-higher stakes; global governance bodies will have to play accordingly, guided by the rules of a regional agreement.

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## Abbreviations

The following abbreviations are used in this manuscript:

ABA	Arctic Biodiversity Assessment report
ABNJ	Area Beyond National Jurisdiction
AMSA	The Arctic Marine Shipping Assessment 2009 Report
ATS	Antarctic Treaty System
CAFF	Conservation of Arctic Flora and Fauna (an Arctic Council working group)
EEZ	Exclusive economic zone
IMO	International Maritime Organization
MARPOL	The International Convention for the Prevention of Pollution from Ships
MPA	Marine Protected Area
OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic
PAME	Protection of the Arctic Marine Environment (an Arctic Council working group)
UNCBD	United Nations Convention on Biological Diversity
UNCLOS	United Nations Convention on Law of the Seas

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