

# Can the BBNJ Treaty Support Dynamic Management for Arctic MPAs?

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**Matter commented on:** BBNJ Treaty and dynamic management of MPAs

## 1. Introduction

[The ongoing negotiations for a global treaty](#) on the conservation of marine biodiversity in areas beyond national jurisdiction (BBNJ) in part seek to fill the legal and governance gap for the establishment of marine protected areas (MPAs) in areas beyond national jurisdiction (ABNJ). The likely outcome — an Internationally Legally Binding Instrument (ILBI) — will facilitate the designation of new MPAs in ABNJ. Since negotiations are [ongoing](#), a platform remains for discussing how the MPA mechanism of the ILBI can support advances in science and technology and potentially better respond to evolving risks to BBNJ.

This blog post, based on the author’s master’s thesis ([Fisher, ‘Technical and Legal Implications for Dynamic Legalities...,’ 2021](#)’ and hereafter, ‘Fisher, LL.M. Thesis, 2021’), highlights one novel approach to area-based management called Dynamic Ocean Management (DOM). With DOM, spatial and temporal regulatory measures can constantly be updated to reflect changes to the marine environment in near real-time (see, e.g., [Welch et al., 2019](#)). For MPAs, it can lead to ongoing shifts of protected area boundaries or management regulations based on new ocean conditions (e.g., the presence of a vulnerable species). The approach could prove especially effective for conservation of BBNJ in marine environments facing rapid change and uncertainty, such as the Central Arctic Ocean (hereafter, Central Arctic Ocean is used to describe the ABNJ of the Central Arctic Ocean).

Scholars have discussed DOM’s promising potential for BBNJ conservation (see, [Crespo et al., 2020](#) and [Maxwell et al., 2020](#)), inspiring a more specific question addressed in this post: how can the BBNJ Treaty accommodate DOM decision-making for Arctic MPAs? The decision-making focus is due to a notable juxtaposition: DOM’s ongoing, near real-time decision-making process and international law’s consent-based procedures that value stability and certainty. The Arctic focus emerges due to the potential usefulness of a DOM approach for a rapidly changing Central

Arctic Ocean and simultaneously grounds the discussion in specific BBNJ relevant entities and context. Before exploring how the ILBI could support a DOM approach to Arctic MPAs, a brief overview of DOM and its potential for Central Arctic Ocean MPAs is provided.

## **2. A Dynamic Ocean Management (DOM) Approach to Central Arctic Ocean MPAs**

### **2.1. What is Dynamic Ocean Management (DOM)?**

DOM is a novel approach to sustainable use and conservation of marine diversity (see, e.g., [Lewison et al., 2015](#); [Maxwell et al., 2015](#); [Welch et al., 2019](#)) that can increase efficiency and efficacy of management (see, [Dunn et al., 2016](#) regarding fisheries management). With DOM ‘management changes rapidly in space and time in response to the shifting nature of the ocean and its users based on the integration of new biological, oceanographic, social and/or economic data in near real-time’ ([Maxwell et al., 2015](#)). Useful examples of its application include: (1) [TOTAL](#), a tool that triggers the consideration of a conservation area when endangered loggerhead turtles are more likely at risk to bycatch; and (2) [EcoCast](#), a tool that predicts the likely presence of targeted swordfish, as well as non-targeted species of concern for bycatch. Other examples of DOM include [WhaleWatch](#) and [Coral Reef Watch](#).

DOM is closely associated with more well-known theoretical frameworks for area-based management, including ecosystem-based management (EBM) and adaptive management (AM) ([Maxwell et al., 2015](#); [Lewison et al., 2015](#)). EBM and AM, like DOM, have foundations in the notion that marine ecosystems are complex, fluid, and evolving. The three frameworks also share a reliance on data-rich and iterative processes for assessments. DOM stands out, however, due to its ability to automate regulatory updates in near real-time with pre-set parameters and timescales. The automation can mean updates occur closer to changes on the water. In contrast, AM requires resource and time intensive elicitation of experts at each decision-making interval. Scholars ultimately, suggest DOM could be coupled with AM to automate regulatory decisions ([Maxwell et al., 2015](#)).

The automation—or the ability for DOM to update regulations in near real-time—lies in expert-created tools that build-in conservation priorities and thresholds for triggering new regulations as

new ocean data is processed. The innerworkings of DOM tools are outside the scope of this blog post, but readers may be interested in scientific literature (see, e.g., [Welch et al., 2019](#)) or the general overview provided in [Fisher, LL.M. Thesis, 2021](#) (Chapter 3). Takeaways relevant to this post, include: (1) DOM is operationalized by scientific experts via automated tools; and (2) decisions on how tools are developed and utilized, including parameters (e.g., how often regulatory updates are considered) could be determined by decision-making processes of international law (see, [Fisher, LL.M. Thesis, 2021](#), Chapter 3).

## **2.2. A Case for a DOM approach for Central Arctic Ocean MPAs**

A DOM approach to MPAs offers the possibility of shifting protected area boundaries and management measures based on iterative evaluations of new ocean data. For example, with DOM, a recommendation to alter a protected area boundary may result when data suggests the likely presence of a conservation target, such as bowhead whales. In such a circumstance, a DOM tool could also, in theory, produce regulatory recommendations for vessels to reduce their speed to minimize the risk of ship strikes.

Unlike static-boundary MPAs —often based on single, simplified assumptions— protected areas with a DOM approach can account for changes in the marine environment in near real-time. A DOM approach can go beyond dynamic features of current MPAs, such as seasonal closures, by implementing closures or other updates more frequently. The flexibility to adapt regulatory measures may prove especially useful in marine environments facing rapid change (i.e., where there are higher levels of knowledge uncertainty regarding species migration and ecosystem restructuring due to changes in food source or habitat). Maxwell et al., 2020 highlights that such flexibility can ‘[safeguard marine life and build ecosystem resilience.](#)’

This author argues that the Central Arctic Ocean is one such marine ecosystem that could benefit from a DOM approach to MPAs. The region has seen adverse effects of climate change, including warming average temperatures and declines in sea ice mass ([IPCC Polar Report](#)). The unprecedented change has implications for ice-dependent species (e.g., polar bears and Arctic cod), as well as the broader ecosystem. New migrations of species that are seeking more suitable habitat is another example of potential restructuring of the ecosystem. Also, Arctic change has

implications for anthropogenic activities. Less sea ice, for one, provides more (and relatively new) access for shipping and other commercial activities in the Central Arctic Ocean. Connected risks (e.g., ship strikes and pollution) will only compound the forementioned effects of climate change on BBNJ, making management approaches that build-in ecosystem resilience preferable.

A static MPA for BBNJ of the Central Arctic Ocean could miss the mark, if for example, a conservation target (e.g., polar bears following new ice patterns) move outside a fixed conservation area meant to protect them. In contrast, DOM can provide the option to update those protected area boundaries in result of the polar bear's changed behavior in near real-time, thereby minimizing the species overlap with risks. A DOM approach to MPAs for BBNJ of the Central Arctic Ocean has promising potential and can already be supported by existing spatial information, such as the [Ecologically or Biologically Significant Area \(EBSA\)](#) for Multi-Year Ice of the Central Arctic Ocean and the [Large Marine Ecosystem \(LME\)](#) of the Central Arctic Ocean ([Hobday et al., 2014](#) discusses using an EBSA to inform DOM tools).

### **3. How Can the ILBI Accommodate a DOM Approach to Arctic MPAs?**

With the notion that a DOM approach to Arctic MPAs could be a worthwhile conservation pathway, the question remains: how can the ILBI accommodate DOM decision-making for Arctic MPAs? To summarize, DOM decision-making requires ongoing decisions to adjust regulations, timely assessments, the incorporation of ecological knowledge, and expert-centered, automated decision-making (see, [Fisher, LL.M. Thesis, 2021](#), Chapter 3 for more details). In contrast, international law's decision-making processes are sovereign-based and emphasize principles of stability and certainty. This blog post does not focus on the legal issues with DOM's regulatory fluidity or expert-led decision processes (see, [Fisher, LL.M. Thesis, 2021](#), Chapter 3), however, the potential obstacles are not insignificant. It should be noted that since treaty negotiations are still occurring, the [revised draft text](#) and [summaries of negotiations](#) are central to exploring how the ILBI can accommodate the unique decision-making characteristics of a DOM approach for Arctic MPAs (this section is based on analysis available in [Fisher, LL.M. Thesis, 2021](#), Chapter 4).

### **3.1. An Overview of Decision-Making for MPAs**

Decision-making has been a consistent theme during [negotiations](#). In [Part III of the Draft Text](#) (on ‘Measures such as Area-Based Management Tools, Including Marine Protected Areas,’), decision-making is addressed in respect to identifying areas in need of protection ([Article 16](#)), proposals ([Article 17](#)), consultation and assessment of proposals ([Article 18](#)), establishment ([Article 19](#)), implementation ([Article 20](#)), and monitoring and review ([Article 21](#)). It is still to be determined, however, whether decision-making for those areas will occur under the proposed global body (the Conference of the Parties (COP)) or competent regional bodies and instruments (see, e.g., [IISD, Summary on the Fourth Session of the Intergovernmental Conference](#)). [Article 19](#) exemplifies the debate on who will take decisions with bracketed text (suggesting language is still being negotiated) regarding if the COP ‘[shall] or [may] take decisions’ on MPAs. [Article 19](#) also has two decision-making scenarios: Alternative 1 implies the COP will have decision-making powers to identify the area, the MPA and its measures, while ‘taking into account’ measures of other relevant entities. Alternative 2 of [Article 19](#) states that COP will have decision-making powers to identify potential MPAs and recommend measures but leaves the ‘primary authority for the adoption of such measures’ with respective mandates of existing legal bodies and instruments.

While the institutional makeup is undecided, scholarship suggests that a hybrid model, one which combines the decision-making functions and powers of regional and global bodies and instruments, will be pursued ([Clark, 2020](#)). During the BBNJ process, foundational themes regarding the institutional arrangement have included the mandate to ‘not undermine’ existing bodies ([Draft Text, Article 4 \(3\)](#)) and the call for cooperation with existing bodies and instruments ([IISD, Summaries of Negotiations; Draft Text, Article 6](#) and [Articles 14 and 15](#) regarding ABMTs, including MPAs). Although not a focus of this blog post, this author recommends a cooperative mechanism to accommodate a DOM approach, to minimize duplication, to abide by the mandate to not undermine, and to harmonize the science and legal processes ([Fisher, LL.M. Thesis, 2021](#), Chapter 5).

### **3.2. Accommodation of a DOM Approach in the Arctic Context**

The process flow for an Arctic MPA remains theoretical due to the unresolved institutional arrangement. Yet, in theory, the COP could identify the ABNJ of the Central Arctic Ocean as an

area in need of protection. Next, an Arctic State or multiple Arctic States could submit a proposal for an MPA with a recommendation to have a DOM approach. The proposal would have a description of the space, human activities occurring, conservation and sustainable use objectives and measures, and a monitoring and review plan with priority elements ([Draft Text, Article 17](#)). After consultation and review by the proposed Science and Technical Body (STB), the COP could adopt the MPA with a DOM approach. The adoption could equate to BBNJ parties' consent to the ongoing adjustments to boundaries and measures as legally binding.

An undecided institutional arrangement also means that there are multiple bodies —global, regional and sectoral— with potential for accommodating a DOM approach in the Arctic. The envisioned global bodies, currently proposed as the COP, the STB, and the Secretariat will likely play some role in inhibiting or accommodating a DOM approach. Recalling that a DOM approach requires expert-driven decision-making for continuous regulatory adjustments, the COP —as a rigid decision-making body with low decision frequency— is an unlikely host of DOM processes and decisions. It is more likely that the intricate decisions and operationalization of DOM would be taken at a lower institutional level. Nevertheless, the COP could be the right entity for identifying an area in need of protection or adopting an MPA framework which enables a DOM approach. The COP will also likely play a key role in ensuring a sovereign-based decision-making process remains central, albeit the application of an expert-driven DOM tool that can produce regulatory updates.

For regional bodies, relevant to conservation and sustainable use of the Central Arctic Ocean, this author specifically explores the [Arctic Council](#), the [OSPAR Commission \(OSPAR\)](#), and the [North-East Atlantic Fisheries Commission \(NEAFC\)](#) for their potential role in accommodating a DOM approach. However, other existing frameworks and bodies that could contribute to or accommodate a DOM approach to MPAs in the Arctic include the [International Maritime Organization \(IMO\)](#) and the [International Seabed Authority \(ISA\)](#). A DOM approach could also be a platform for the inclusion of Arctic Indigenous Peoples in decision-making processes, especially in terms of Indigenous Knowledge being integrated into the management framework and the DOM tool. OSPAR and NEAFC have sectoral competence relevant for a small portion of the Central Arctic Ocean, and therefore, are considered entities that should not be undermined.

The two bodies are also capable, under their specific mandates, of adopting dynamic approaches for spatial and temporal measures for Arctic BBNJ, either outright or to complement a COP adopted MPA framework. The Arctic Council has ‘soft power,’ meaning it does not have legal competence to adopt a DOM approach. The Arctic Council could, however, play an important role in providing knowledge and cooperation platforms to support a DOM approach to Arctic MPAs. The work of the Arctic Council Working Groups, [Protection of the Arctic Marine Environment \(PAME\)](#) and the [Conservation of Arctic Flora and Fauna \(CAFF\)](#), are especially relevant. Further, the Arctic Council—under the auspices of Arctic States—has held negotiations leading to [three legally binding agreements](#), arguably showcasing its place as a unique platform for Arctic cooperation.

The Arctic, nonetheless, has an institutional and legal gap for establishing a holistic, cross-sectoral MPA in the Central Arctic Ocean. If the Arctic Council were to change legal character, or become a regional seas organization (RSO), the management void could be filled. For now, however, there is no regional avenue for full accommodation of a DOM approach. This suggests the value of a cooperative mechanism towards the accommodation of a DOM approach in the Arctic, a mechanism that could be facilitated by the BBNJ Treaty COP and Secretariat.

Finally, although only an illustrative discussion (for more, see, [Fisher, LL.M. Thesis, 2021](#), Chapter 4), the language of the ILBI—especially in overarching objectives, general principles, and guiding approaches for review decisions—can play a part in hindering or facilitating the decision-making needed for a DOM approach in the Arctic (or elsewhere). The [draft text](#), at least *prima facie*, does not outright inhibit a DOM approach. However, general principles and objectives could include language to emphasize a ‘dynamic approach’ or an ‘approach that recognizes spatial and temporal changes occurring in the marine environment’ ([Maxwell et al., 2020](#) recommends ‘spatially or temporally viable measures’ be added to objectives). As suggested by [Maxwell et al., 2020](#), the MPA definition listed in [Article 1 \(10\)](#) of the draft text could also be revised to better accommodate DOM. Currently, the emphasis that MPAs are ‘geographically’ defined could inhibit the ongoing shifts in protected area boundaries, integral to a DOM approach.

#### 4. Conclusion

A DOM approach could be highly relevant for the rapidly changing Arctic marine environment. Given its potential, the BBNJ treaty should ensure there is an avenue for a DOM approach to future Arctic MPAs. NEAFC and OSPAR —within their specific mandates— and the Arctic Council— with its knowledge and cooperation platforms— could each play a part in a DOM approach. However, there is still an institutional and legal gap for management of the Central Arctic Ocean. A DOM approach will likely be held at a lower institutional level that is more adept to the management and capacity needs of the region, however, the COP can play a role in setting rules and adopting an MPA framework with a DOM approach for Arctic BBNJ. The ILBI could also better accommodate a DOM approach to MPAs, generally, by adding language that supports dynamic approaches that account for spatial and temporal elements. This blog post sought to highlight DOM as a novel approach for conservation of BBNJ, and ultimately, recommends that the international community continue to have conversations regarding the ability for the ILBI to harness advancements that can effectively respond to a changing ocean.

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