International Journal of Law and Politics Studies
ISSN: 2709-0914
DOI: 10.32996/ijlps
Journal Homepage: www.al-kindipublisher.com/index.php/ijlps

IJLPS
AL-KINDI CENTER FOR RESEARCH AND DEVELOPMENT

| RESEARCH ARTICLE

Analysing the Impact of Extended Continental Shelf on the Establishment of Marine Protected Areas within Areas beyond National Jurisdiction

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| ABSTRACT
The Biodiversity Beyond National Jurisdiction (BBNJ) treaty aims to enhance the conservation and sustainable use of marine biodiversity within areas beyond national jurisdiction (ABNJ). Marine Protected Areas (MPAs) are identified as a crucial tool under area-based management measures within this framework. However, the establishment of MPAs in ABNJ may face challenges due to the presence of extended continental shelves (ECS). This paper explores two primary issues: the overlap of ECS claims and the interaction between the water column and the ocean floor in ECS areas. It aims to analyse how these factors might affect MPA establishment under the BBNJ treaty.

| KEYWORDS
Marine Protected Area; MPA; BBNJ treaty, Extended Continental Shelf; UNCLOS.

| ARTICLE INFORMATION
ACCEPTED: 12 September 2024 **PUBLISHED:** 05 October 2024 **DOI:** 10.32996/ijlps.2024.6.5.8

1. Introduction

1.1. Objective and Scope

The extended continental shelf (ECS) regime, as outlined in the United Nations Convention on the Law of the Sea (UNCLOS)[1], permits coastal states to claim sovereign rights over the seabed and subsoil beyond their 200-nautical-mile exclusive economic zone (EEZ), provided they can demonstrate that the area is a natural extension of their land territory. This regime grants States exclusive rights to explore and exploit the natural resources of the ECS, including minerals and hydrocarbons.[2] However, the regime primarily addresses resource management and does not extend to the water column above the seabed, which remains part of the high seas.

In contrast, the establishment and management of Marine Protected Areas (MPAs) in areas beyond national jurisdiction (ABNJ) are governed by international frameworks that prioritize the conservation of marine biodiversity. A MPA is a designated space for conserving nature, which can include human activities like fishing.[3] When located in areas beyond national jurisdiction, it is termed an MPA in ABNJ, with "no-take areas" restricting fishing entirely.[4] The recently adopted High Seas Biodiversity Beyond National

[1] Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 397
[2] Dingwall, Joanna. 2021. "The Deep Seabed Beyond National Jurisdiction and the Rise of Mining Activities Within It by Non-state Actors". In Oxford University Press eBooks, 45–67. https://doi.org/10.1093/oso/9780192898265.003.0003
[3] Muraki Gottlieb H, Laffoley D, Gjerde K, Spadone A (2018) Report of the workshop on marine protected areas in areas beyond national jurisdiction, 9–11 October, IUCN Headquarters, Gland, Switzerland. IUCN, Gland
[4] Sun, Dong, and Miaozhuang Zheng. 2021. "Marine Protected Areas in Areas Beyond National Jurisdiction". In Springer eBooks, 1–6. https://doi.org/10.1007/978-981-10-6963-5_314-1

Jurisdiction (BBNJ) treaty[5] introduces new mechanisms for the protection of marine ecosystems, including provisions for the establishment of MPAs, conducting environmental impact assessments (EIAs), and fostering international cooperation. This creates an intricate interaction between the ECS regime, which emphasizes resource extraction, and the BBNJ treaty, which focuses on environmental protection.

The objective of this paper is to analyse how the establishment of an ECS influences the creation and management of MPAs in ABNJ. This involves examining the interplay between the ECS regime and the BBNJ treaty, identifying potential legal and practical challenges, and exploring how these frameworks can be harmonized to achieve both resource utilization and biodiversity conservation.

1.2. Research Questions

The central focus of this paper revolves around two primary research questions concerning the interaction between ECS claims and the establishment of MPAs in ABNJ. First, how does the establishment of an ECS impact the creation of MPAs in ABNJ? This question addresses the potential conflicts and synergies between the ECS regime and the BBNJ treaty. The ECS regime allows coastal states to extend their jurisdiction over the seabed and subsoil beyond their 200-nautical-mile EEZ, which can overlap with ABNJ where MPAs are designated or proposed.[6] The challenge lies in reconciling these overlapping claims, as resource exploitation rights under the ECS regime may conflict with conservation goals established for MPAs. Understanding how ECS claims influence the management and designation of MPAs is crucial for ensuring that both resource utilization and biodiversity conservation objectives are met.

Second, what are the legal challenges associated with the interaction between ECS claims and MPAs in ABNJ? This question explores the specific legal and practical issues that arise from the intersection of these frameworks. Legal challenges may include determining the extent of jurisdictional rights, managing environmental impacts, and ensuring compliance with conservation measures.[7] Additionally, the lack of clear enforcement mechanisms for MPAs in ABNJ further complicates the situation. Addressing these legal challenges involves analysing how international law can adapt to effectively balance resource exploitation with the protection of marine ecosystems and identifying potential solutions to these complex issues.

By addressing these questions, the paper aims to provide a comprehensive analysis of the interplay between ECS claims and MPA establishment, offering insights into how international legal frameworks can better manage and harmonize the competing interests of resource exploitation and marine biodiversity conservation.

1.3. Importance of the Topic

The importance of this topic is underscored by the increasing pressures on marine ecosystems from both resource extraction and environmental degradation. ABNJ, which covers a significant portion of the world's oceans, is home to some of the most ecologically sensitive and diverse marine habitats. The establishment of MPAs in ABNJ is critical for protecting these areas from overfishing, pollution, and other anthropogenic threats.[8] However, the expansion of ECS claims introduces new challenges to this conservation effort, as states seek to exploit resources in areas that may overlap with existing or proposed MPAs.

The recent adoption of the BBNJ treaty marks a significant step toward a more comprehensive approach to marine biodiversity conservation in ABNJ. By providing a legal framework for the creation of MPAs and emphasizing the need for EIAs, the BBNJ treaty aims to enhance the protection of marine ecosystems. Understanding how this new framework interacts with the ECS regime is crucial for ensuring that both resource utilization and environmental conservation goals are effectively addressed.

1.4. Methodology

This study employs an analytical and doctrinal approach to explore the interaction between extended continental shelf (ECS) claims and Marine Protected Areas (MPAs) in areas beyond national jurisdiction (ABNJ). It involves a detailed examination of the legal frameworks established by UNCLOS for ECS claims and the BBNJ treaty for MPAs and EIAs. The methodology includes doctrinal

[5] 2023 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, C.N.203. 2023.TREATIES-XXI.10; UN Doc A/CONF.232/2023/4

[6] Ricard, Pascale. 2020. "Sovereignty and Challenges of the Future International Legally Binding Instrument on Marine Biodiversity Beyond National Jurisdiction: How to Reconcile the Individual Interest of States at Sea and the 'Common Interest of Mankind'?" HAL. https://hal.science/hal-02514708

[7] ibid

[8] Gutierrez, Débora, Helena Calado, and Javier García-Sanabria. 2023. "A Proposal for Engagement in MPAs in Areas Beyond National Jurisdiction: The Case of Macaronesia." *The Science of the Total Environment* 854 (January): 158711. https://doi.org/10.1016/j.scitotenv.2022.158711

research on these legal principles, case studies illustrating practical challenges, and a review of related international agreements and empirical data to provide a comprehensive understanding of how these frameworks interact and can be harmonized.

2. Legal Framework of the Extended Continental Shelf and ABNJ

2.1. Extended Continental Shelf (ECS) under UNCLOS

UNCLOS provides a legal regime for coastal states to extend their sovereign rights over the seabed beyond the 200-nautical mile limit, which is typically considered the boundary of a state's EEZ. The ECS provision under Article 76 of UNCLOS is crucial in this regard. Article 76 allows coastal states to claim rights over the seabed and subsoil of the continental margin if they can demonstrate that it is a natural prolongation of their land territory. These rights, however, are restricted to the seabed and subsoil, and do not extend to the water column above, which remains part of the high seas.

The process of claiming an ECS is complex and requires states to submit scientific evidence, such as geophysical and bathymetric data, to the Commission on the Limits of the Continental Shelf (CLCS).[9] The CLCS is responsible for reviewing the data and providing recommendations on the outer limits of the continental shelf. However, the CLCS does not settle disputes between states, nor does it adjudicate issues related to sovereignty; its role is technical and advisory, leaving states to establish the final limits in accordance with the CLCS's recommendations.[10]

The rights of coastal states over the ECS are primarily concerned with the exploration and exploitation of natural resources, such as oil, gas, and minerals located on or under the seabed.[11] These rights are enshrined in Article 77 of UNCLOS, which provides that a coastal state has exclusive rights over these resources, and no other state may explore or exploit them without the coastal state's express consent. Furthermore, Article 82 introduces a novel obligation: coastal states must make financial contributions to the International Seabed Authority (ISA) for resource exploitation beyond 200 nautical miles, ensuring some benefits are shared internationally.[12]Despite these seemingly clear provisions, the ECS regime introduces significant complexities when viewed in conjunction with other parts of the ocean, particularly ABNJ.[13] The delineation of the ECS can overlap with ABNJ, creating a unique situation where the seabed is subject to national jurisdiction while the waters above remain part of the high seas, where the freedoms of navigation, fishing, and laying submarine cables are governed by Part VII of UNCLOS.

The complexity of ECS claims also gives rise to potential jurisdictional disputes. The slow and bureaucratic process of ECS submissions—further complicated by unresolved overlapping claims—creates legal uncertainty, particularly in regions like the Arctic[14] and parts of the Indian Ocean[15], where multiple states have submitted overlapping claims. This creates challenges not only in terms of sovereignty but also in terms of governance, as states must cooperate on managing resources and protecting the environment in these regions.

2.2. Legal Regime of Areas Beyond National Jurisdiction (ABNJ)

In contrast to the ECS, ABNJ are governed by the principle of res communis, which means that no single state has sovereignty or jurisdiction over these areas.[16] ABNJ include the high seas (the water column beyond 200 nautical miles from coastal baselines) and the seabed beyond the limits of national jurisdiction, often referred to as "the Area".[17] The legal framework governing ABNJ is designed to promote the shared use and conservation of these areas for the benefit of all humanity.

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[9] Baumert, Kevin A. 2024. "The Continental Shelf Beyond 200 Nautical Miles: Announcement of the U.S. Outer Limits". *American Journal of International Law* 118 (2): 275–98. https://doi.org/10.1017/ajil.2024.14

[10] Woker, Hilde. "Disagreements between the Commission on the Limits of the Continental Shelf (CLCS) and Submitting Coastal States". *The International Journal of Marine and Coastal Law* 39 (2): 252 – 278. https://doi.org/10.1163/15718085-bja10165

[11] Baumert, Kevin A. 2024. "The Continental Shelf Beyond 200 Nautical Miles: Announcement of the U.S. Outer Limits." American Journal of International Law 118 (2): 275–98. https://doi.org/10.1017/ajil.2024.14.

[12] Chircop, Aldo. 2020. "Implementation of Article 82 of the United Nations Convention on the Law of the Sea: The Challenge for Canada". *Publication on Ocean Development* 90, 371–94. https://doi.org/10.1163/9789004391567_018

[13] Westholm, Aron, and Gabriela Argüello. 2023. "Dynamic Ocean Management in Areas Beyond National Jurisdiction". *Ocean Development & International Law* 54 (4): 448–68. https://doi.org/10.1080/00908320.2023.2296392

[14] Skaridov, Alexander S. 2020. "The Seabed in the High North – How to Address Conflicts?" *Publication on Ocean Development* 90, 104–24. https://doi.org/10.1163/9789004391567_007

[15] Woker, H. J. 2023. "Challenging the Notion of a 'Single Continental Shelf'". *Ocean Development & International Law* 54 (4): 375–92. https://doi.org/10.1080/00908320.2023.2271393

[16] Massimi, Michela. 2024. "The Fraught Legacy of the Common Heritage of Humankind Principle for Equitable Ocean Policy". *Environmental Science & Policy* 153 (March): 103681. https://doi.org/10.1016/j.envsci.2024.103681

[17] UNCLOS; O'Leary, Bethan C., George Hoppit, Adam Townley, Harriet L. Allen, Christina J. McIntyre, and Callum M. Roberts. 2020. "Options for Managing Human Threats to High Seas Biodiversity". *Ocean & Coastal Management* 187 (April): 105110. https://doi.org/10.1016/j.ocecoaman.2020.105110

The governance of the high seas is rooted in Part VII of UNCLOS, which enshrines the principle of freedom of the high seas[18]. This freedom includes rights to navigation, overflight, fishing, and the laying of submarine cables and pipelines.[19] However, it also imposes responsibilities on states to protect the marine environment, prevent pollution, and cooperate on the conservation of living resources.[20] These responsibilities have been further developed through various regional and sectoral agreements, such as the Convention on Biological Diversity (CBD)[21] and the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR).

In terms of the deep seabed (the Area), Part XI of UNCLOS provides a framework for the exploration and exploitation of mineral resources beyond national jurisdiction. The ISA plays a central role in regulating these activities, ensuring that the benefits of deep-sea mining are shared equitably and that environmental protection measures are put in place.[22] The ISA has the authority to grant contracts for mineral exploration and exploitation, but it must do so in accordance with strict environmental standards to prevent harm to the unique ecosystems of the deep seabed.[23]

The legal framework governing ABNJ is currently undergoing significant evolution, particularly with the recent adoption of the BBNJ treaty in 2023. The BBNJ treaty aims to fill the legal gaps related to the conservation and sustainable use of marine biological diversity in ABNJ, particularly through the establishment of MPAs.[24] The treaty provides mechanisms for states to designate and manage MPAs in ABNJ, ensuring that biodiversity is protected in these vast and vulnerable regions. It also introduces provisions for environmental impact assessments (EIAs) and access and benefit-sharing related to marine genetic resources.[25]

However, the relationship between the ECS and ABNJ is far from settled under international law. Coastal states that establish an ECS gain exclusive rights to exploit the resources of the seabed, but the water column above remains part of ABNJ, creating a potential conflict of interest between resource exploitation and environmental protection.[26] This legal grey area has raised concerns about how the freedoms of the high seas can be reconciled with the sovereign rights of coastal states over the ECS, especially when it comes to protecting marine biodiversity through the establishment of MPAs.[27]

2.3. Overlapping Jurisdiction and Conflicts Between ECS and ABNJ

The intersection of ECS claims and ABNJ protection measures presents significant governance challenges. Coastal states have legitimate interests in exploiting the resources of their extended continental shelves, but these interests may conflict with the need to protect the marine environment in ABNJ, where the high seas regime guarantees freedoms to all states.[28] The designation of MPAs in ABNJ could be seen as a restriction on the rights of coastal states to exploit their ECS resources, leading to potential jurisdictional conflicts. For instance, the process of establishing MPAs in areas of the high seas that overlap with ECS claims could be hindered by the competing interests of coastal states and the international community.[29] Coastal states may argue that the creation of MPAs in such areas infringes on their sovereign rights to exploit the seabed, while proponents of environmental

[18] Article 87 of UNCLOS
[19] ibid
[20] Oral, Nilufer. 2018. "Freedom of the High Seas or Protection of the Marine Environment? A False Dichotomy". *Ocean Law Debates*, 329–53. https://doi.org/10.1163/9789004343146_013
[21] The Convention on Biological Diversity of 5 June 1992 (1760 U.N.T.S. 69)
[22] Blanchard, Catherine, Ellycia Harrould-Kolieb, Emily Jones, and Michelle L. Taylor. 2023. "The Current Status of Deep-sea Mining Governance at the International Seabed Authority". *Marine Policy* 147 (January): 105396. https://doi.org/10.1016/j.marpol.2022.105396
[23] Pickens, Chris, Hannah Lily, Ellycia Harrould-Kolieb, Catherine Blanchard, and Anindita Chakraborty. 2024. "From What-if to What-now: Status of the Deep-sea Mining Regulations and Underlying Drivers for Outstanding Issues". *Marine Policy*, January, 105967. https://doi.org/10.1016/j.marpol.2023.105967
[24] Friedman, Shani. 2024. "The Interaction of the BBNJ Agreement and the Legal Regime of the Area, and Its Influence on the Implementation of the BBNJ Agreement". *Marine Policy* 167 (September): 106235. https://doi.org/10.1016/j.marpol.2024.106235
[25] ibid
[26] N 2
[27] Mossop, Joanna. 2017. "The Relationship Between the Continental Shelf Regime and a New International Instrument for Protecting Marine Biodiversity in Areas Beyond National Jurisdiction". *ICES Journal of Marine Science* 75 (1): 444–50. https://doi.org/10.1093/icesjms/fsx111
[28] Ibid; see also Popova, Ekaterina, David Vousden, Warwick H.H. Sauer, Essam Y. Mohammed, Valerie Allain, Nicola Downey-Breedt, Ruth Fletcher, et al. 2019. "Ecological Connectivity Between the Areas Beyond National Jurisdiction and Coastal Waters: Safeguarding Interests of Coastal Communities in Developing Countries". *Marine Policy* 104 (June): 90–102. https://doi.org/10.1016/j.marpol.2019.02.050
[29] Davies, Tammy E., Ana P. B. Carneiro, Bruna Campos, Carolina Hazin, Daniel C. Dunn, Kristina M. Gjerde, David E. Johnson, and Maria P. Dias. 2021. "Tracking Data and the Conservation of the High Seas: Opportunities and Challenges". *Journal of Applied Ecology* 58 (12): 2703–10. https://doi.org/10.1111/1365-2664.14032

protection may contend that the global importance of preserving biodiversity in ABNJ outweighs the economic interests of individual states.[30]

The BBNJ treaty, though still in its early stages of implementation, offers a potential solution by providing a framework for cooperation between coastal states and the international community. It emphasizes the importance of international cooperation in establishing MPAs in ABNJ, as well as the need for transparency and the involvement of all relevant stakeholders.[31] However, the success of this framework will depend on the willingness of coastal states to cooperate and prioritize environmental protection over short-term resource exploitation.[32]

3. The Interaction Between Extended Continental Shelf Claims and the Establishment of Marine Protected Areas in ABNJ

The intersection of ECS claims and the establishment of MPAs in ABNJ presents a complex legal and governance challenge. Both frameworks, the ECS regime under UNCLOS and the emerging framework for ABNJ conservation under the BBNJ treaty, operate under distinct legal regimes with sometimes competing objectives.[33] On one hand, coastal states have legitimate claims to exploit the resources of their extended continental shelves. On the other hand, the international community, as embodied in the BBNJ treaty, seeks to safeguard marine biodiversity in ABNJ through the creation of MPAs.[34] These competing interests create both legal and practical obstacles to harmonizing the objectives of resource exploitation and marine conservation.

3.1. Overlapping Jurisdictions: Seabed versus Water Column

A key issue that arises when considering the interaction between ECS claims and MPAs in ABNJ is the legal distinction between the seabed (governed by the rights of the coastal state) and the water column (part of the high seas).[35] According to UNCLOS, coastal states enjoy exclusive sovereign rights over the resources of the ECS,[36] but the water column above remains subject to the freedoms of the high seas, where all states have equal rights to navigation, fishing, and other activities[37].

This duality creates a complex governance situation. For example, a coastal state may wish to exploit mineral or hydrocarbon resources in its ECS, but environmental advocates or international institutions may seek to protect the same area due to its ecological importance, pushing for the establishment of an MPA in the water column above.[38] Such areas could be biodiversity hotspots, deep-sea habitats, or migratory routes for marine species, making them critical for marine conservation. Scholars and international policymakers are grappling with how to resolve this tension. One proposed solution is to ensure that the creation of MPAs in the high seas does not infringe on the sovereign rights of coastal states over the ECS. This would require carefully drafting MPA regulations to balance resource extraction with biodiversity protection, perhaps through the use of EIAs and international consultations, as foreseen under the BBNJ treaty.[39]

3.2. Legal Conflicts and Cooperation Mechanisms

One of the most significant potential conflicts between ECS claims and the establishment of MPAs in ABNJ arises from the tension between coastal state sovereignty over natural resources and the global community's interest in preserving marine biodiversity. This conflict is particularly acute in regions with overlapping ECS claims or where the boundaries between national jurisdiction and ABNJ are not clearly delineated.[40] A case in point can be seen in the Arctic Ocean, where several coastal states, including Canada,

[30] Choi, Junghwan, and Sangseop Lim. 2024. "Establishing a Marine Protected Area in the Waters Surrounding Dokdo: Necessity and Legality." *Sustainability* 16 (2): 611. https://doi.org/10.3390/su16020611

[31] Kachelriess, D. (2023). The High Seas Biodiversity Treaty: An Introduction to 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. In M. Epps & C. Chazot (Eds.), (vi+33p). IUCN. https://iucn.org/sites/default/files/2024-01/iucn-bbnj-treaty-policy-brief.pdf

[32] Kim, Rakhyun E. 2024. "The Likely Impact of the BBNJ Agreement on the Architecture of Ocean Governance". *Marine Policy* 165 (July): 106190. https://doi.org/10.1016/j.marpol.2024.106190

[33] N 24

[34] N 6

[35] ibid

[36] Article 77 of UNCLOS

[37] Articles 86 and 87 of UNCLOS

[38] N 31

[39] Patrick, Stewart. 2023. "The High Seas Treaty Is an Extraordinary Diplomatic Achievement". *Carnegie Endowment for International Peace*, March 8, 2023. https://carnegieendowment.org/posts/2023/03/the-high-seas-treaty-is-an-extraordinary-diplomatic-achievement?lang=en

[40] Mackelworth, Peter Charles, Yael Teff Seker, Tomás Vega Fernández, Márcia Marques, Fátima Lopes Alves, Giovanni D'Anna, Darren A. Fa, et al. 2019. "Geopolitics and Marine Conservation: Synergies and Conflicts". *Frontiers in Marine Science* 6 (December). https://doi.org/10.3389/fmars.2019.00759

Russia, and Denmark, have submitted overlapping ECS claims.[41] These claims cover areas of the seabed that are rich in hydrocarbons and other resources but also home to fragile ecosystems. Conservationists argue that some of these areas should be designated as MPAs under the BBNJ treaty, but the coastal states may resist such efforts, citing their sovereign rights under UNCLOS.[42]

The BBNJ treaty introduces new cooperation mechanisms aimed at resolving such conflicts. It calls for the establishment of a process to designate MPAs in ABNJ through international consultations and consensus-building among relevant stakeholders, including coastal states with ECS claims.[43] This approach acknowledges that effective governance of ABNJ cannot occur in isolation from the rights and interests of coastal states. The BBNJ treaty also emphasizes the importance of conducting EIAs before any resource extraction activities can take place in areas that overlap with MPAs or other conservation zones.[44] This provision seeks to balance the economic interests of coastal states with the need to protect vulnerable marine ecosystems. However, the success of this mechanism will depend on its implementation and the extent to which coastal states are willing to prioritize environmental protection over resource extraction.

3.3. Case Studies and Practical Implications

Several recent cases illustrate the complexities of balancing ECS claims with the establishment of MPAs in ABNJ. One prominent example is the Sargasso Sea, an ecologically unique region of the North Atlantic. The Sargasso Sea is located entirely in ABNJ, but several coastal states, including Bermuda (a British Overseas Territory), have proposed its designation as an MPA due to its rich biodiversity and the critical role it plays in global ocean currents.[45] While the seabed in the Sargasso Sea is part of ABNJ and not subject to ECS claims, the legal situation becomes more complicated in regions like the North Atlantic's "Mid-Atlantic Ridge".[46] The Mid-Atlantic Ridge is home to both ECS claims and sensitive ecosystems, leading to potential conflicts between resource extraction (such as deep-sea mining) and environmental protection.[47] The establishment of MPAs in this area could potentially restrict the activities of states with ECS rights, requiring a delicate balance between these competing interests.

Another example is the Barents Sea, where Norway and Russia have submitted overlapping ECS claims.[48] The Barents Sea is also home to rich fishing grounds and sensitive marine ecosystems, leading to calls for the creation of MPAs in the region. Norway and Russia have both expressed interest in exploiting the region's oil and gas reserves, raising concerns about the environmental impact of such activities.[49] The resolution of these competing interests will likely require both countries to engage in international consultations and potentially agree to shared management of the region's resources and environmental protection.

3.4. BBNJ Treaty: A Framework for Harmonizing ECS Claims and Marine Conservation

The adoption of the BBNJ treaty represents a significant step forward in addressing the legal and governance gaps related to the protection of biodiversity in ABNJ. While the treaty does not directly resolve the tensions between ECS claims and MPAs, it provides a framework for international cooperation and dialogue, which can help reconcile these competing interests. The BBNJ treaty, adopted in March 2023, represents a significant advancement in the international legal framework for marine conservation. The treaty introduces several key mechanisms aimed at safeguarding marine biodiversity in ABNJ. One of the most crucial aspects of the treaty is its provision for MPAs. Article 6 of the BBNJ treaty provides a framework for the establishment of MPAs in ABNJ, emphasizing the need to conserve marine ecosystems and protect biodiversity from the adverse effects of human activities. This provision is particularly relevant given the increasing overlap between ECS claims and MPAs, as coastal states extend their jurisdiction over the seabed and subsoil beyond the 200-nautical-mile EEZ.

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[41] Antsygina, Ekaterina, and Cornell Overfield. 2022. "The Problems of Overlapping Governance on the Arctic Continental Shelves Pending Delineation and Delimitation". The NCLOS Blog. October 4, 2022. https://site.uit.no/nclos/2022/10/04/the-problems-of-overlapping-governance-on-the-arctic-continental-shelves-pending-delineation-and-delimitation/

[42] Kraabel, Kristine Dalaker. 2022. "Institutional Arrangements in a BBNJ Treaty: Implications for Arctic Marine Science". *Marine Policy* 142 (August): 103807. https://doi.org/10.1016/j.marpol.2019.103807

[43] N 31

[44] N 32

[45] Gjerde, Kristina M., and Ole Varmer. 2021. "The Sargasso Sea". Frontiers in International Environmental Law: Oceans and Climate Challenges, Chapter 17, 446–89. https://doi.org/10.1163/9789004372887_018

[46] IILSS - "About Irminger Sea, facts and maps." 2023. International Institute for Law of the Sea Studies. February 13, 2023. https://iilss.net/about-irminger-sea-facts-and-maps/

[47] Miller, Kathryn A., Kirsten F. Thompson, Paul Johnston, and David Santillo. 2018. "An Overview of Seabed Mining Including the Current State of Development, Environmental Impacts, and Knowledge Gaps". *Frontiers in Marine Science* 4 (January). https://doi.org/10.3389/fmars.2017.00418

[48] Baker, Betsy. 2020. "Arctic Overlaps: The Surprising Story of Continental Shelf Diplomacy". Polar Perspectives (3). https://www.wilsoncenter.org/sites/default/files/media/uploads/documents/Polar%20Perspective%203.pdf

[49] ibid

The BBNJ treaty also mandates EIAs under Article 9 for activities that may impact marine biodiversity. This requirement ensures that potential environmental impacts are assessed and mitigated before projects are approved, addressing a significant gap in the regulation of high seas activities. For instance, activities such as deep-sea mining within ECS areas must now undergo rigorous environmental assessments, as stipulated by the BBNJ treaty, to evaluate their impact on marine ecosystems. This regulatory framework is intended to balance resource extraction with conservation, ensuring that the ecological integrity of ABNJ is maintained.

However, the interaction between the ECS regime under the UNCLOS and the BBNJ treaty presents several legal and practical challenges. UNCLOS, particularly Articles 76 and 77, grants coastal states rights over the seabed and subsoil beyond 200 nautical miles if they can demonstrate the natural prolongation of their land territory. This regime primarily addresses the rights to exploit seabed resources, while the BBNJ treaty focuses on the protection of the marine environment and the designation of MPAs in the high seas. The overlap between these regimes creates potential conflicts, as the ECS regime's focus on resource extraction may be at odds with the conservation goals of MPAs established under the BBNJ treaty.

One key challenge is the need for integration and coordination between these two frameworks. The ECS regime does not directly address the management of the water column above the extended continental shelf, which remains part of the high seas and is thus subject to the BBNJ treaty's conservation measures. The spatial overlap of ECS claims and MPAs necessitates careful management to reconcile resource extraction with biodiversity conservation. This involves developing guidelines to harmonize the implementation of both sets of regulations, ensuring that activities such as deep-sea mining do not undermine the conservation objectives of MPAs.[50]

Enforcement and compliance represent additional challenges. The BBNJ treaty's effectiveness in protecting marine biodiversity depends on robust enforcement mechanisms, which are crucial for ensuring that conservation measures are upheld in overlapping ECS areas. The treaty's provisions for capacity building and technology transfer are designed to support developing countries in implementing these measures, but the successful application of these provisions requires substantial international cooperation and financial resources.[51]

Case studies such as the Antarctic MPA initiative and ECS claims in the Arctic provide practical insights into these challenges. The Antarctic MPA initiative, for example, highlights the complexities of managing conservation areas in the context of competing interests and overlapping claims.[52] Similarly, ECS claims in the Arctic underscore the need for coordinated international efforts to address overlapping jurisdictional and conservation objectives, illustrating the necessity of integrating resource management with biodiversity protection.[53]

While the BBNJ treaty provides a robust framework for marine biodiversity conservation in ABNJ, its interaction with the ECS regime under UNCLOS presents complex challenges. Addressing these challenges requires a coordinated approach that integrates resource management with conservation efforts, supported by effective enforcement mechanisms and international cooperation. The BBNJ treaty's provisions for MPAs and EIAs are crucial in ensuring that marine biodiversity is preserved while balancing the demands of resource exploitation in extended continental shelf areas.

4. Implications for Marine Biodiversity Conservation

The interaction between ECS claims and the establishment of MPAs in ABNJ has significant implications for marine biodiversity conservation. While the ECS regime focuses on resource exploitation, the emerging international legal framework governing ABNJ emphasizes environmental protection. This tension creates both challenges and opportunities for marine conservation, particularly in light of the ongoing degradation of ocean ecosystems and the increasing threats posed by climate change, overfishing, and pollution.

[50] ISA Secretariat, A review of the contribution of ISA to the objectives of the 2023 Agreement under UNCLOS on the Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdictions, 2024. https://www.isa.org.jm/wp-content/uploads/2024/06/The_contribution_of_ISA_to_the_BBNJ_objectives.pdf

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[53] N 51

4.1. The Role of Marine Protected Areas in Biodiversity Conservation

MPAs have long been recognized as one of the most effective tools for conserving marine biodiversity. By designating specific areas where human activities are regulated or restricted, MPAs help protect critical habitats, species, and ecosystems from the pressures of exploitation. In ABNJ, the importance of MPAs is heightened, as these areas are home to some of the planet's most unique and vulnerable ecosystems, including deep-sea habitats, hydrothermal vents, and migratory corridors for marine species. However, the establishment of MPAs in ABNJ is more complicated than in areas within national jurisdiction. The high seas, as governed by Part VII of UNCLOS, are subject to the principle of freedom, which guarantees all states the right to navigate, fish, lay submarine cables, and carry out other activities. This freedom must be balanced with the need to protect marine biodiversity, as reflected in emerging international agreements like the BBNJ treaty.

The BBNJ treaty's framework for MPAs in ABNJ provides a novel mechanism for addressing this challenge. It introduces criteria for the identification and designation of MPAs based on scientific evidence, as well as mechanisms for international cooperation and enforcement. Importantly, the treaty emphasizes the need for states to engage in EIAs before carrying out activities that could harm biodiversity in ABNJ, particularly in or near designated MPAs.

In practice, this means that states seeking to exploit resources on the ECS must consider the potential environmental impacts of their activities on nearby MPAs in ABNJ. For example, deep-sea mining or oil and gas extraction in the ECS could have negative impacts on marine ecosystems located in the water column above, which may be designated as part of an MPA. The requirement for EIAs offers a pathway for balancing these competing interests, ensuring that biodiversity conservation is integrated into resource management decisions.

4.2. Challenges to Marine Biodiversity Conservation in Overlapping ECS and ABNJ Areas

While the BBNJ treaty provides a framework for cooperation, the practical implementation of MPAs in areas that overlap with ECS claims remains fraught with challenges. One major issue is the differing objectives of states and the international community.[54] Coastal states with ECS claims may prioritize resource exploitation, particularly in areas rich in hydrocarbons, minerals, or fisheries.[55] These states may perceive the establishment of MPAs as a threat to their economic interests, particularly if MPAs impose restrictions on activities that could impact the seabed, such as mining or fishing.[56]

Moreover, the scientific basis for MPA designation often relies on data about ecosystems located in the water column, while the impacts of activities on the ECS may extend beyond the seabed.[57] For instance, drilling or mining operations on the seabed could release pollutants or disturb marine species in the water column, potentially undermining the conservation goals of MPAs in ABNJ.[58] This creates a need for integrated management approaches that account for the connectivity between the seabed and the water column, an area where international law is still evolving. Another challenge is the lack of clear enforcement mechanisms for MPAs in ABNJ. While the BBNJ treaty emphasizes cooperation, it lacks binding enforcement provisions.[59] Coastal states may be reluctant to accept international oversight of their activities on the ECS, particularly if it involves restrictions on resource extraction.[60] Similarly, the absence of a clear legal regime for enforcement in ABNJ means that MPAs may exist in name only, without effective protection from harmful activities.

4.3. Potential Synergies: Harmonizing ECS and ABNJ Conservation Efforts

Despite these challenges, there are opportunities to harmonize the objectives of ECS exploitation and ABNJ conservation. One promising approach is the use of ecosystem-based management (EBM) principles, which focus on the sustainable use of marine resources while maintaining the health of the entire ecosystem.[61] EBM recognizes the interconnectedness of marine ecosystems and emphasizes the need to manage human activities in a way that minimizes their cumulative impacts on biodiversity.[62] In the context of ECS and ABNJ, EBM could provide a framework for integrating resource extraction and conservation efforts. For instance, coastal states with ECS claims could adopt best environmental practices, such as using low-impact technologies for resource

[54] N 13
[55] N 2
[56] ibid
[57] De Santo, Elizabeth M. 2018. "Implementation Challenges of Area-based Management Tools (ABMTs) for Biodiversity Beyond National Jurisdiction (BBNJ)". *Marine Policy* 97 (November): 34–43. https://doi.org/10.1016/j.marpol.2018.08.034
[58] Von Rebay, Anna. 2023. The Designation of Marine Protected Areas. https://doi.org/10.1007/978-3-031-29175-3
[59] N 13
[60] N 31
[61] Haugen, J. B., J. S. Link, K. Cribari, A. Bundy, M. Dickey-Collas, H. M. Leslie, J. Hall, et al. 2024. "Marine Ecosystem-based Management: Challenges Remain, yet Solutions Exist, and Progress Is Occurring." *Npj Ocean Sustainability* 3 (1). https://doi.org/10.1038/s44183-024-00041-1
[62] ibid

extraction, conducting regular monitoring of biodiversity in both the seabed and the water column, and engaging in international consultations to ensure that their activities do not undermine the goals of MPAs in ABNJ.[63]

Another potential avenue for cooperation is the development of regional agreements that complement the global framework established by UNCLOS and the BBNJ treaty. Regional fisheries management organizations (RFMOs), for example, have successfully regulated fishing activities in ABNJ through conservation and management measures.[64] Similar regional mechanisms could be established to regulate resource extraction and conservation efforts in areas where ECS claims overlap with ABNJ. Such agreements could include provisions for joint management of MPAs, shared research initiatives, and coordinated enforcement efforts.

5. Case Study: The Antarctic MPA Initiative

A case study that highlights both the challenges and opportunities of harmonizing ECS claims and ABNJ conservation efforts is the Antarctic MPA initiative. The Southern Ocean surrounding Antarctica is one of the most biologically diverse and ecologically significant regions on the planet, home to a range of unique species and ecosystems.[65] However, it is also a region rich in resources, including fisheries and potential mineral deposits. Several coastal states, including Australia, have submitted ECS claims in the Southern Ocean, while the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) has been working to establish a network of MPAs in the region. The tension between resource exploitation and conservation is evident, as states with ECS claims may seek to exploit the region's resources, while the international community advocates for the protection of its biodiversity.

Despite these tensions, the Antarctic MPA initiative has seen some success in promoting international cooperation. For example, in 2016, CCAMLR established the Ross Sea MPA, which covers an area of 1.55 million square kilometres.[66] The designation of this MPA was the result of extensive negotiations between coastal states and the international community, and it includes provisions for both biodiversity conservation and the sustainable use of resources.[67] The Antarctic MPA initiative demonstrates the potential for reconciling ECS claims with ABNJ conservation through international cooperation and the use of scientific data.[68] However, it also highlights the need for ongoing dialogue and compromise to ensure that the interests of coastal states and the global community are balanced.

The successful integration of ECS claims and ABNJ conservation efforts will depend on the continued development of international law. The BBNJ treaty represents a significant step forward, but further legal and institutional reforms may be needed to fully address the challenges posed by overlapping jurisdictions.[69] One potential pathway for legal development is the creation of a binding dispute resolution mechanism under the BBNJ treaty, which could help resolve conflicts between coastal states and the international community over the designation of MPAs.[70] Another potential development is the strengthening of environmental standards for resource extraction on the ECS. Coastal states could be required to adhere to stricter EIA protocols, including consultations with international organizations and stakeholders involved in ABNJ conservation. This would help ensure that resource extraction activities on the ECS do not undermine the conservation goals of MPAs in ABNJ.

[63] Krabbe, Niels, and David Langlet. 2024. "Changing Human Uses of Marine Resources and International Law: Looking Ahead." In Marine Bioprospecting, Biodiversity and Novel Uses of Ocean Resources: New Approaches in International La, 227–36. Hart Publishing. https://doi.org/10.5040/9781509968305.ch-012

[64] Langlet, Arne, and Alice B.M. Vadrot. 2023. "Not 'Undermining' Who? Unpacking the Emerging BBNJ Regime Complex". *Marine Policy* 147 (January): 105372. https://doi.org/10.1016/j.marpol.2022.105372

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[69] N 24

[70] Soria-Rodriguez, Carlos. "The Potential Contribution of the BBNJ Agreement to Strengthen Environmental Protection in the Development of Marine Renewable Energy Technologies in Areas Beyond National Jurisdiction". *Vermont Journal of Environmental Law*, April 5, 2023. https://vjel.vermontlaw.edu/potential-contribution-bbnj-agreement

6. Conclusion

The legal and practical implications of ECS claims and the establishment of MPAs in ABNJ highlight a growing tension between resource extraction and marine biodiversity conservation. This tension, though challenging, can be addressed through robust legal frameworks, international cooperation, and ecosystem-based management to ensure sustainable governance of ocean resources while protecting biodiversity. Under the UNCLOS framework, coastal states gain sovereign rights over seabed resources beyond their 200-nautical-mile EEZ, but the water column above remains part of the high seas. This distinction can lead to legal conflicts when coastal states seek to exploit seabed resources in regions of ecological importance, particularly in areas designated as MPAs.

MPAs are crucial for marine biodiversity protection, and the BBNJ treaty introduces a framework for creating and managing these areas, emphasizing international cooperation, EIAs, and transparent decision-making processes. However, balancing MPA conservation with ECS resource exploitation poses significant challenges. Overlapping ECS claims and MPAs in resource-rich regions, such as the Mid-Atlantic Ridge and the Barents Sea, exemplify these tensions. The BBNJ treaty's focus on environmental assessments and cooperation provides potential solutions, but real-world complexities persist. For example, while the Antarctic MPA initiative demonstrates the success of international collaboration, challenges remain in enforcement, scientific data sharing, and legal certainty.

Coastal states with ECS claims should be required to conduct thorough EIAs before beginning resource extraction activities near or within MPAs in ABNJ. These assessments should involve international stakeholders, including environmental groups and scientific organizations, to maintain the ecological integrity of MPAs. EBM should be adopted to balance resource use and conservation, recognizing the interconnectedness of marine ecosystems. Additionally, regional agreements should be developed under UNCLOS and the BBNJ treaty to address specific issues related to overlapping ECS claims and ABNJ conservation. A major obstacle to effective MPA management in ABNJ is the lack of enforcement mechanisms. Strengthening the BBNJ treaty's provisions for enforcement, such as through monitoring systems using remote sensing technologies, international inspections, and sanctions for non-compliance, is essential. The dispute resolution framework under the BBNJ treaty should also be expanded, potentially including binding arbitration mechanisms or international courts to handle conflicts between coastal states and the international community regarding ECS claims and MPA designations. The interaction between ECS claims and the establishment of MPAs in ABNJ represents a critical issue in international ocean governance. As coastal states seek to extend their resource rights and the global community aims to protect marine biodiversity, new legal, political, and scientific challenges will arise. However, with strong legal frameworks, international cooperation, and EBM approaches, it is possible to reconcile these interests and ensure the sustainability of ocean resources for future generations.

Acknowledgements: The research was conducted under the author's role as a postdoctoral researcher at the East China University of Political Science and Law with funding support solely from the China Postdoctoral Science Foundation. No other project funding or financial interests are relevant to this work.

Funding: This research received no external funding.
Conflicts of Interest: The authors declare no conflict of interest.
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