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China's role in global marine conservation: opportunities and challenges in implementing ABMTs in ABNJ under the BBNJ Agreement

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Area-based management tools (ABMTs) are crucial for conserving marine biodiversity in areas beyond national jurisdiction (ABNJ). The BBNJ Agreement establishes a global framework for the protection of critical ocean areas through implementing ABMTs. While this agreement provides a global framework, its success relies on individual states' participation and dedication. China has signed the BBNJ Agreement, recognizing the essential role of this global framework in coordinating international efforts to implement ABMTs. This article argues that China possesses capabilities to advance ABMTs in ABNJ, drawing from its established national policies, institutional framework, international collaboration, and extensive experience managing domestic marine protected areas (MPAs). However, to reinforce its contribution to global marine conservation, China needs to overcome key challenges. These include enhancing domestic legislation to better align with BBNJ Agreement, and building expertise in implementing ABMTs in ABNJ.

KEYWORDS

BBNJ Agreement, ABNJ, ABMTs, China, marine biodiversity, marine protected areas

1 Introduction

The United Nations Convention on the Law of the Sea (UNCLOS) establishes the legal framework for maritime zones and jurisdictions, from which the concept of areas beyond national jurisdiction (ABNJ) emerges as areas that fall outside national jurisdiction, including both high seas and 'the Area' - the seabed, ocean floor, and subsoil outside national boundaries.¹ ABNJ encompasses nearly two-thirds of the world's ocean. These vast regions harbor rich biodiversity, particularly unique species that have adapted to extreme environments. However, marine ecosystems in ABNJ face mounting threats and severe degradation (IUCN, 2022). To address this biodiversity loss, area-based management tools

¹ UNCLOS, Article 1 (1) and Article 86.

(ABMTs) have emerged as effective solutions. These strategic measures, which include marine protected areas (MPAs) (UNGA, 2007), enable targeted management of specific geographic zones to regulate activities with the aim of achieving particular conservation and sustainable use objectives.²

Currently, various types of ABMTs can be implemented using different frameworks, such as international, regional, and sector-specific mechanisms. For example, MPAs have been designated under regional conventions such as the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention)³ and the Convention for the Conservation of Antarctic Marine Living Resources (CAMLR Convention).⁴ Furthermore, the International Seabed Authority (ISA) has devised regional environmental management plans (REMPs), encompassing Areas of Particular Environmental Interest (APEIs), to support sustainable population maintenance amidst ongoing mining activities, especially in regions like the Clarion-Clipperton Zone (ISA, 2012). Additionally, some Regional Fisheries Management Organizations (RFMOs) have adopted measures like closures for vulnerable marine ecosystems (VMEs) to ensure the sustainability of deep-sea fisheries.⁵

In particular, the establishment of ABMTs in ABNJ underscores a profound commitment to conserving marine biodiversity. This is integral to achieving the '30 by 30' target detailed in the Kunming-Montreal Global Biodiversity Framework (GBF) (CBD, 2022). The primary aim of this ambitious target is to secure effective conservation and management of a minimum of 30% of terrestrial, inland water, and coastal and marine areas by 2030. The focus is on preserving areas that are crucial for biodiversity and ecosystem services, through the implementation of ecologically representative and well-connected protected zones, as well as other conservation measures.

Despite these efforts, existing legal mechanisms face significant challenges as the potential for effective marine conservation is limited by the lack of comprehensive and inclusive frameworks. Decision-making processes lack the involvement of all relevant stakeholders, leading to uneven implementation and participatory gaps. Competence gaps also exist because not all mechanisms have the authority or resources to enforce measures effectively. Further, geographical gaps arise as certain areas remain unprotected due to jurisdictional limitations (Duan, 2022a). These constraints hinder the broad establishment of ABMTs in ABNJ and highlight the significant challenge in reaching the global '30 by 30' target within ABNJ. Indeed, while ABMTs are widely recognized for their

effectiveness in conserving marine biodiversity in ABNJ, a mere 1.45% of ABNJ is currently under protection, strikingly less than the 19.24% of marine areas within national jurisdictions.⁶

To address the escalating concern of marine biodiversity loss in ABNJ, the international community has collaborated to develop the Agreement under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction (BBNJ Agreement), which was formally adopted on June 19, 2023, and was opened for signatures on September 20, 2023.⁷ The presence of 110 signatories and 17 ratifications thus far suggests that implementation is imminent.⁸ This new agreement establishes a comprehensive legal regime to 'ensure the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction',⁹ encompassing four key elements: (a) marine genetic resources, including the fair and equitable sharing of benefits (MGRs); (b) area-based management tools, including marine protected areas (ABMTs, including MPAs); (c) environmental impact assessments (EIAs); and (d) capacity building and the transfer of marine technology (CB&TT). Importantly, Part III of the BBNJ Agreement establishes a global framework for implementing ABMTs, including MPAs, in ABNJ. This would create a comprehensive system of ABMTs with ecologically representative and well-connected networks of MPAs designed to conserve and sustainably use areas that require protection.¹⁰

The successful realization of the BBNJ Agreement hinges on active participation and collective effort from all states, underscoring the pivotal role of individual state involvement in establishing ABMTs in ABNJ. In this regard, China demonstrated proactive engagement by both facilitating the agreement's finalization and promptly signing it upon its opening for signatures. It is anticipated that China will become a State Party and participate actively in decision-making processes regarding ABMTs. China's contributions to the finalization of the BBNJ Agreement further highlight its support for the agreement as a framework for ABMT development.

However, China's dual role as both a promoter of sustainable practices and a maritime state pursuing economic development presents a complex dynamic. China's marine economy is vital to its national development (Yu and Huang, 2023), with increasing

2 BBNJ Agreement, Article 1(1).

3 See OSPAR Marine Protected Areas Network. Available online at: https://odims.ospar.org/en/submissions/ospar_mpa_2021_07/ (Accessed 8 February 2025).

4 See CCAMLR. Conservation Measures. Available online at: <https://cm.ccamlr.org/en> (Accessed 8 February 2025).

5 See Vulnerable Marine Ecosystems Database. Available online at: <https://www.fao.org/in-action/vulnerable-marine-ecosystems/vme-database/en/vme.html> (Accessed 8 February 2025).

6 See the statistics on Protected Planet website. Available online at: <https://www.protectedplanet.net/en> (Accessed 27 January 2025).

7 See the UN website of Agreement on Marine Biodiversity of Areas beyond National Jurisdiction (BBNJ Agreement). Available online at: <https://www.un.org/bbnjagreement/en> (Accessed 8 February 2025).

8 See UNTC website of 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 (New York, 19 June 2023). Available online at: https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXI-10&chapter=21&clang=_en (Accessed 24 February 2025).

9 BBNJ Agreement, Article 2.

10 BBNJ Agreement, Article 17.

maritime activities in ABNJ, including distant water fisheries (FAO, 2024), scientific research, and exploitation of marine genetic resources (Liu, 2022). The management of these activities within ABMT-designated areas will have a significant impact on China and other states with maritime interests in ABNJ. As such, balancing economic growth with environmental stewardship will be crucial.

This paper critically examines China's potential contributions to implementing ABMTs in ABNJ. Following the introduction, Section 2 provides an overview of the BBNJ rules governing ABMTs. Section 3 analyzes China's stance on ABMTs with reference to its position in the BBNJ negotiations. Section 4 examines favorable elements and challenges for China's active engagement in establishing ABMTs in ABNJ. Section 5 outlines strategies to strengthen China's potential contributions. Finally, Section 6 concludes.

2 An overview of the rules governing ABMTs in the BBNJ Agreement

The critical need to address the depletion of marine biodiversity and equitable exploitation of marine genetic resources in ABNJ has prompted extensive global deliberations aimed at conserving marine biodiversity and promoting their sustainable use. These discussions were initiated in 2004, starting as an *ad hoc* open-ended informal working group to study related issues (UNGA, 2004). It then advanced to a preparatory committee tasked with making 'substantive recommendations to the General Assembly on the elements of a draft text of an international legally binding instrument' under the UNCLOS (UNGA, 2015), which culminated in an intergovernmental conference (IGC) dedicated to elaborating the text (UNGA, 2017). This collaborative international effort resulted in the official adoption of the BBNJ Agreement (UNGA, 2023). Specifically, Part III of the BBNJ Agreement addresses ABMTs, including MPAs, and establishes a global legal framework for their implementation in ABNJ. This section highlights the key developments in relation to implementing ABMTs in the BBNJ Agreement.

2.1 Definition of ABMTs and MPAs

The BBNJ Agreement establishes a broad definition of ABMTs and MPAs, resolving previous ambiguities in international law and the variability in definitions across different conservation frameworks. Under the BBNJ Agreement, an ABMT is defined as 'a tool, including a marine protected area, for a geographically defined area through which one or several sectors or activities are managed to achieve particular conservation and sustainable use objectives'. An MPA is defined as 'a geographically defined marine area designated and managed to achieve specific long-term biological diversity conservation objectives, and may allow sustainable use only when it is consistent with these conservation objectives'.¹¹

11 BBNJ Agreement, Article 1.

The distinction between ABMTs and MPAs becomes apparent when considering their respective objectives under the BBNJ Agreement. ABMTs primarily target 'particular conservation and sustainable use objectives', while MPAs have a stronger focus on 'specific long-term goals for biodiversity conservation' and allow sustainable use only when it aligns with these objectives. This clarifies the key roles of both ABMTs and MPAs in conservation and sustainability objectives.

2.2 Framework for establishing ABMTs

The BBNJ Agreement outlines a comprehensive procedure for establishing ABMTs, which consists of multiple stages: proposal submission (Article 19), publicity and preliminary review (Article 20), consultations and assessments (Article 21), establishment (Article 22, 23), implementation (Article 25), and monitoring and review (Article 26). Additionally, Article 24 outlines provisions for emergency measures. To implement and facilitate these processes, internal bodies such as the Conference of the Parties (COP), the Scientific and Technical Body, and the Secretariat assume the corresponding mandates of decision-making, scientific review and administrative support, respectively (Bodansky, 2024).

This structured process prioritizes stakeholder participation and promotes collective decision-making. This is highlighted by Article 21, which mandates that consultations 'shall be inclusive, transparent, and open to all relevant stakeholders, including States, global, regional, subregional, and sectoral bodies, as well as civil society, the scientific community, Indigenous Peoples, and local communities'. However, broad stakeholder involvement could perpetuate conflicts due to diverging interests and lengthen the negotiation process. Balancing diverse perspectives is crucial for effective implementation but may slow down decision-making.

2.3 Alignment with relevant mechanisms

The BBNJ Agreement has also developed a cooperative framework for establishing ABMTs in alignment with relevant legal instruments, frameworks, and international bodies at global, regional, subregional, and sectoral levels (IFBs). This is enshrined in the principle of 'not undermining' the IFBs under Article 5 (Tang, 2024). This seeks to resolve the current fragmentation among the IFBs by promoting collaboration and coordination among these mechanisms (Kim, 2024).

However, this principle might lead to jurisdictional conflicts, as existing mechanisms may resist changes that affect their mandates. As such, the success of the BBNJ Agreement hinges on fostering genuine collaboration and overcoming institutional inertia. While guidance under Article 5 on collaboration is vital, its effectiveness will ultimately depend on the willingness of the IFBs to adapt and cooperate. Establishing clear mechanisms for coordination is essential to avoid overlaps and ensure that ABMTs achieve their conservation goals (Klerk, 2025).

2.4 Potential weaknesses within the BBNJ Agreement

While the BBNJ agreement provides a comprehensive framework to support the establishment of ABMTs in ABNJ, it grants significant discretion which could potentially hinder the effectiveness and achievement of its objectives (Lucia, 2024). The criteria for identifying areas suitable for ABMTs—such as ‘uniqueness’, ‘rarity’, and ‘economic, social, and cultural factors’—remain abstract and require further clarification for practical applicability. This ambiguity could lead to inconsistent interpretations and implementation challenges across different states. Moreover, while Part III, especially Article 22, delineates provisions regarding the relationship between the BBNJ Agreement and the IFBs in the context of ABMT establishment, the concept of ‘not undermine’ is also undefined (Duan, 2024). This lack of clarity could result in conflicts between IFBs and the BBNJ Agreement, complicating enforcement and cooperation efforts.

Additionally, the decision-making mechanism of the BBNJ Agreement may pose challenges to the effective implementation of ABMTs. The COP allows decision-making through a vote by ‘a three-fourths majority of Parties present’ if a two-thirds majority determines that consensus is unattainable after exhaustive efforts,¹² and State Parties are permitted to adopt alternative measures if they object to ABMTs decided by the COP.¹³ These provisions could limit collective effectiveness, as states might bypass agreed measures and exempt themselves from the obligation (Duan, 2024). Consequently, the collaborative endeavors of State Parties to forge a consensus in establishing ABMTs will be crucial.

Only states implementing the BBNJ Agreement can address and resolve these weaknesses going forward. Ultimately, the success of the BBNJ Agreement depends on proactive state engagement. The activation of BBNJ mechanisms by states and their commitment to fulfilling obligations are crucial for the successful implementation of ABMTs (Tiller and Mendenhall, 2023). Without strong commitment and cooperation, the agreement risks becoming a symbolic gesture rather than a transformative tool for marine conservation.

3 China’s position on issues related to ABMTs in the BBNJ negotiations

China’s active involvement in the BBNJ negotiations highlights its strategic commitment to the development and execution of ABMTs in ABNJ. In this regard, a critical analysis of China’s contributions to the BBNJ negotiations reveals its objectives and the complexities it navigates in balancing national interests with global environmental responsibilities.

3.1 China’s underlying policy agenda

China’s involvement in the BBNJ Agreement reflects a strategic balancing act between advancing national economic interests and

upholding global environmental responsibility. This dual approach underscores a complex interplay between conservation aspirations and maritime development strategies. China’s emphasis on the dual objectives of ‘conservation and sustainable use of marine biodiversity’ in ABMTs points to its intent to align environmental stewardship with economic imperatives. China insists on a ‘reasonable balance’ to prevent the preferential treatment of conservation over sustainable use or vice versa.¹⁴

This approach reflects China’s broader policy agenda, which seeks to integrate ecological concerns with its rapidly growing economic activities in marine areas. Thus, the requirement for ABMTs to be grounded in both ‘the best scientific evidence’ and ‘socio-economic criteria’¹⁵ is a strategic move to ensure that environmental regulations do not stifle economic growth while still promoting long-term ecological resilience (Yu and Huang, 2023). This enables China to secure its maritime interests, including fisheries and resource extraction, through active participation in rule-making. Environmentally, it projects an image of responsibility, aligning with global conservation goals such as the ‘30 by 30’ target.

However, there are challenges in maintaining this balance. China’s domestic policies must align with international commitments to implement ABMTs effectively. Moreover, as a maritime power, China’s actions will be closely scrutinized by other states (Liu and Scott, 2024), necessitating transparency and cooperation to build trust. China’s involvement thus enhances its influence in global marine conservation but also requires careful navigation of potential conflicts between development and sustainability. The success of its strategy will depend on its ability to harmonize national priorities with global marine conservation objectives.

3.2 Developing a global governance framework

China’s vision for the BBNJ Agreement involves significant institutional influence through the COP (IISD, 2018). By advocating for the COP’s empowerment in establishing ABMTs via consensus-based decision-making, China positions itself to leverage its influence in a multilateral setting (IISD, 2019). This preference for consensus over majoritarian voting underscores China’s diplomatic strategy to assert its perspectives while

¹⁴ Chinese representative stated that ‘a reasonable balance should be struck between the two to avoid favoring one over the other’. Statement by Mr. Ma Xinmin, Head of Chinese delegation on the first session of the Intergovernmental Conference on the negotiation of an international instrument on BBNJ, Item 7: Measures such as area-based management tools, including marine protected areas (4.1-4.3), September 7 and 10, 2018. Available online at: <https://www.un.org/bbnj/sites/www.un.org.bbnj/files/china-item-7-abmts-including-mpas-chinese-statement-en.pdf> (Accessed 8 February 2025).

¹⁵ Chinese representative stated that ‘the identification of relevant protected areas should be based on the best scientific evidence, and meet both standards and criteria of the bio-ecological factors and socio-economic factors’. (n 8)

¹² BBNJ Agreement, Articles 23 (1), (2).

¹³ BBNJ Agreement, Article 23 (6).

avoiding dominance by any single bloc of states (Ahl, 2021). Additionally, this stance reflects a response to existing fragmented governance structures, which China views as limiting the comprehensive and cohesive management of ABNJ.

Given China's lack of geographical proximity to many ABNJ, privileging adjacent states could marginalize its influence and access to these international spaces. By advocating for equal participation rights, China seeks to safeguard its engagement rights and maintain geopolitical equilibrium in ocean governance. This stance aligns with China's broader strategic objectives to enhance its role and stake in global maritime policies (Wang, 2021).

As such, China's support for a centralized and inclusive COP framework reflects its approach to marine conservation that accommodates diverse state interests while enhancing global governance efficiency (Duan, 2022b). China's opposition to granting privileges to adjacent coastal states and its endorsement of the 'due regard' principle highlights its concern over equitable participation in implementing ABMTs (IISD, 2018). By advocating for balanced, scientifically informed, and inclusive processes in establishing ABMTs, China is positioning itself to contribute to the development of global ocean governance.

Finally, China's characterization of the BBNJ Agreement as a 'historical milestone' and its call for mutual consideration among states reflect an affirmation of its commitment to multilateral approaches (IISD, 2024).¹⁶ By recognizing the Agreement's respect for state maritime interests and its exclusion of disputed areas, China aligns its participation with principles of international cooperation and mutual respect (Xia, 2024). This indicates China's desire to be seen as a responsible actor that contributes to sustainable ocean governance.

4 China's strengths and challenges in the establishment of ABMTs in ABNJ

China's supportive stance implies its active engagement in the implementation of ABMTs in ABNJ. Consequently, it is vital to assess China's capacity to effect positive change on the advancement of ABMTs by examining its relevant policies and practices. China's policies and practices reveal both significant strengths that could enhance the establishment of ABMTs in ABNJ and several critical challenges that must be addressed.

4.1 Strengths

4.1.1 National policy framework

China's commitment to environmental protection has been deeply rooted in its national policy framework since the First National Conference on Environmental Protection in 1973.¹⁷ This

initial commitment has evolved into a comprehensive legal and institutional framework that supports biodiversity conservation (State Council Information Office, 2021). The introduction of the 'ecological civilization' policy at the 17th National Congress of the Communist Party of China (CPC) integrates environmental considerations across all areas of national development (State Council, 2007). 'Ecological civilization' functions as a fundamental principle in Chinese environmental policy and rule-making. This concept emphasizes the harmonious coexistence between humans and nature (Hansen et al., 2018), promoting a balanced approach that integrates resource conservation and environmental protection to ensure sustainable development for both society and nature. The incorporation of 'ecological civilization' into the Constitution in 2018 provides a legal mandate to prioritize sustainability, making it a cornerstone of China's national development strategy (Wang and Zou, 2020). Therefore, ecological factors play a crucial role in the economy, politics, culture, and society, emphasizing the need for a holistic approach to national development (State Council, 2012). The 14th Five-Year Plan (2021-2025) and the Outline of Long-Range Objectives Through the Year 2035 (the 14th Five-Year Plan) further reinforce this commitment (State Council, 2021), emphasizing the importance of biodiversity, ecosystem stability, and sustainability (State Council, 2022). These documents outline clear objectives for enhancing ecosystem integrity, and extending the vision of ecological civilization to a global scale.

Concerning marine biodiversity, China's strategic plans focus on enhancing quality and resilience through preservation and restoration initiatives (Ministry of Ecology and Environment, 2022). Indeed, China has made firm commitments and adopted action plans to strengthen the resilience of marine ecosystems (State Council, 2016). These efforts align with global commitments such as the Sustainable Development Goals (SDGs),¹⁸ notably SDG 14, which advocates for the conservation and sustainable use of oceans and marine resources.¹⁹

China's call for international cooperation in building a global 'ecological civilization' also signals its willingness to engage with global partners on marine conservation, guided by the concept of a 'Maritime Community with a Shared Future'. The concept of 'Maritime Community with a Shared Future', proposed by President Xi Jinping, recognizes the ocean as a unifying force that connects all states. This vision acknowledges other states' legitimate interests and advocates for international cooperation in addressing

¹⁶ China 'called the BBNJ Agreement a historical milestone that opens a new chapter in cooperation on marine biodiversity', and recognized 'the Agreement fully respects the maritime interests of states and does not apply to disputed maritime areas, and all states should consider each other's concerns.'

¹⁷ See the website of Ministry of Ecology and Environment, The First National Conference on Environmental Protection (5-20 August 1973) (in Chinese). Available online at: https://www.mee.gov.cn/zjhb/lj/lj_zyhy/201807/t20180713_446637_wap.shtml (Accessed 8 February 2025).

¹⁸ See Sustainable Development Agenda. Available online at: <https://www.un.org/sustainabledevelopment/development-agenda/> (Accessed 8 February 2025).

¹⁹ UN Sustainable Goals, Goal 14: Life Below Water. Available online at: <https://www.un.org/sustainabledevelopment/oceans/> (Accessed 8 February 2025).

challenges and sharing the wellbeing of the ocean (Zhang et al., 2020; Chang, 2020). It highlights China's increasing role as a responsible stakeholder in preserving marine biodiversity in ABNJ.²⁰ This is explicitly supported by the 14th Five-Year Plan which calls for China's active participation in crafting an equitable international maritime order, thereby promoting the development of a cooperative maritime community (State Council, 2021).

Therefore, China's policies demonstrate a steadfast dedication to marine biodiversity conservation, extending its impact across both national and international arenas. While China has not yet formalized specific policies for ABMTs in ABNJ, the existing policy framework provides a foundation for future developments.

4.1.2 Institutional framework

The institutional reform undertaken by China in March 2018 represents a pivotal shift in its approach to marine conservation, enhancing the capability and flexibility of its governance structures (State Council, 2018). Before this reform, the State Oceanic Administration (SOA) served as the primary entity overseeing maritime affairs, with a broad range of responsibilities that included managing marine ecological protection and handling international cooperation.²¹ However, this comprehensive approach faced two major challenges. First, overlapping functions and unclear responsibility allocation with other departments led to inefficiencies in marine conservation (Wang et al., 2025). Second, the SOA's relatively low administrative status, not being a part of the State Council (Deng and Shi, 2023), limited its ability to effectively address the increasingly complex demands of global ocean governance.

The reform in 2018 led to the reorganization of ministries for marine conservation, creating two distinct entities with clearly defined roles: The Ministry of Natural Resources (MNR) and the Ministry of Ecology and Environment (MEE) (State Council, 2018). The MNR assumes comprehensive oversight of natural resource management, focusing on their sustainable utilization. This includes ABNJ such as polar regions and the high seas, positioning it to address broader international cooperation on natural resources.²² The MEE is tasked with environmental protection, spearheading efforts toward global marine ecological and environmental governance, which are critical for global marine conservation.²³

This bifurcation enhances the strategic capacity of China's marine management by fostering a focused and specialized approach to ocean governance, as the MNR and MEE each have their specialized domains to implement targeted policies and strategies. This approach is crucial for addressing sector-specific issues effectively and efficiently. The delineation of responsibilities also avoids potential institutional overlap and promotes cooperation between the different ministries, creating a cohesive framework for implementing policies that effectively address emerging global challenges. Furthermore, the reorganization has elevated marine conservation's institutional priority; both the MNR and MEE, as State Council departments, hold higher administrative authority than the former SOA. This enhanced status strengthens China's capacity to engage in global marine conservation, particularly in the establishment of ABMTs in ABNJ.

4.1.3 International engagement and collaboration

Extensive international collaboration and mutual understanding are necessary for the successful implementation of ABMTs in ABNJ. China's recent efforts in global biodiversity conservation exemplify its commitment to active participation in these collaborative endeavors, implying a strategic positioning to influence and lead in the establishment and governance of ABMTs in ABNJ. This involvement enhances China's global conservation leadership and strengthens its influence by building sustainable and cooperative international relationships. By participating in treaties, initiating projects, and forming partnerships, China positions itself in a key role in contributing to future policies and initiatives in marine conservation. This demonstrates an integrated approach to tackling the global challenges of marine biodiversity.

4.1.3.1 International treaties and conventions

China's engagement in international treaties and conventions is a strategic aspect of its international policy framework on marine conservation. Since the adoption of its 'reform and opening-up' policy, China has steadily increased its involvement in international agreements aimed at safeguarding marine biodiversity. This is highlighted by China's ratification of cornerstone agreements such as the UNCLOS.²⁴ The UNCLOS ratification was a key milestone, prompting necessary amendments to China's fisheries laws and facilitating bilateral fisheries management agreements with Japan (1997), South Korea (1998), and Vietnam (2000) (Mallory et al., 2022). Furthermore, China's accession to specialized marine conventions²⁵—including the Convention for a North Pacific Marine Science Organization (PICES),²⁶ the Convention on the Conservation and Management of Pollock

20 See China Daily, Maritime Community with A Shared Future (24 April 2019). Available online at: <http://www.chinadaily.com.cn/a/201904/24/WS5cbfa93da3104842260b7e61.html> (Accessed 8 February 2025).

21 See provisions on the main responsibilities, internal organization and staffing of the State Oceanic Administration (SOA) (June 2013) (in Chinese). Available online at: https://www.gov.cn/gongbao/content/2013/content_2449436.htm (Accessed 8 February 2025).

22 See website of Ministry of Natural Resources of the People's Republic of China. Available online at: https://www.mnr.gov.cn/jg/znzp/201809/t20180927_2200969.html (Accessed 8 February 2025).

23 See website of Ministry of Ecology and Environment of the People's Republic of China. Available online at: https://www.mee.gov.cn/zjhb/zyzz/201810/t20181011_660310.shtml (Accessed 8 February 2025).

24 UNCLOS was adopted in 1982, entered into force in 1994, and acceded to by China in 1996.

25 See Treaty Database of the People's Republic of China. Available online at: <http://treaty.mfa.gov.cn/Treaty/web/index.jsp> (Accessed 8 February 2025).

26 PICES was adopted in 1990, entered into force in 1992, and acceded to by China in 1992.

Resources in the Central Bering Sea,²⁷ and the CAMLR Convention,²⁸ etc.—demonstrates its active role in multilateral efforts to conserve and manage marine resources. These commitments extend to conventions designed to reduce marine pollution, such as the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 (London Convention) and its 1996 London Protocol.²⁹

On the other hand, China's commitment to global biodiversity conservation is evidenced by its active participation in key international agreements. These include the Convention on Biological Diversity (CBD),³⁰ the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (the Ramsar Convention on Wetlands),³¹ and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).³² Through sustained engagement with these multilateral frameworks, China has strengthened both its expertise in ecosystem conservation and its influence in shaping global biodiversity policies. China has demonstrated its commitment to global biodiversity through substantial financial support. As the largest contributor to the CBD's core budget and a major developing country donor to the Global Environment Facility (GEF), China has backed its environmental policies with significant resources (Duan et al., 2023). China also demonstrated its leadership by successfully hosting the 15th Conference of the Parties (COP15) of the CBD, where it helped shape the GBF.³³

4.1.3.2 International projects

In addition to treaty participation, China has proactively initiated international projects to foster marine conservation. In this regard, the Belt and Road Initiative (BRI) is a prominent example of China's efforts to expand its cooperative reach. By August 2023, the BRI had engaged 152 countries and 32

international organizations, demonstrating its broad influence.³⁴ While the BRI primarily addresses economic and developmental issues through bilateral and multilateral agreements (Chang, 2022), it also includes vital components related to marine biodiversity conservation.³⁵ For instance, cooperative agreements with states like Cambodia focus on marine ecosystem protection,³⁶ and collaborations with Mexico target the conservation of vulnerable marine species.³⁷

The BRI also facilitates the sharing of China's advances in marine environmental governance and ecological protection with partner states (Duan et al., 2023). The Belt and Road Initiative International Green Development Coalition (BRIGC), established in collaboration with the MEE and other stakeholders, focuses on implementing 'strong integration of environment and development elements of the SDGs'.³⁸ Additionally, events such as 'Greening the Blue Road' at the 2019 Our Ocean Conference highlight China's initiative to promote international marine environmental governance through the BRI framework.³⁹

Moreover, the 'Blue Partnership', introduced at the UN Ocean Conference in 2017 is another example of China's dedication to fostering collaborative sustainable ocean governance.⁴⁰ This initiative has led to bilateral partnerships with several states, including Portugal, the European Union, Seychelles, and Mozambique. China continues to seek partnerships with ASEAN countries, Pacific Small Island Developing States (P-SIDS), and African countries, further demonstrating its commitment to cooperative marine conservation.

34 See Xinhua Daily Telegraph, China has signed cooperation documents on the construction of the Belt and Road with 152 countries and 32 international organizations (25 August 2023) (in Chinese). Available online at: http://www.xinhuanet.com/mrdx/2023-08/25/c_1310738375.htm (Accessed 8 February 2025).

35 See Belt and Road Portal, Vision for Maritime Cooperation under the Belt and Road Initiative (2017). Available online at: <https://www.yidaiyilu.gov.cn/zchj/jggg/16621.htm> (Accessed 8 February 2025).

36 See Belt and Road Portal, China ASEAN Blue Economy Forum signs a series of cooperation agreements (19 September 2023) (in Chinese). Available at: <https://www.yidaiyilu.gov.cn/p/022PLFB9.html> (Accessed 8 February 2025).

37 See Belt and Road Portal, China, Mexico join hands to protect marine ecosystem (20 July 2023). Available at: <https://eng.yidaiyilu.gov.cn/p/05AM73IV.html> (Accessed 8 February 2025).

38 See the website of the BRI International Green Development Coalition. Available online at: http://en.brigc.net/About_us/Overview/202009/t20200928_102502.html (Accessed 8 February 2025).

39 See Side events: 23 October, Greening the Blue Road: Promoting Marine Environment Governance in the Belt and Road Initiative (Our Ocean 2019). Available online at: <https://ourocean2019.no/side-events/> (Accessed 8 February 2025).

40 See Friends of Ocean Action, Sustainable Blue Partnership Cooperation Network. Available online at: <https://www.weforum.org/friends-of-ocean-action/sustainable-blue-partnership-cooperation-network> (Accessed 8 February 2025).

27 The Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea was adopted in 1994, entered into force in 1995, and acceded to by China in 1995.

28 CAMLR Convention was adopted in 1980, entered into force in 1982, and acceded to by China in 2005.

29 London Convention was adopted in 1972, entered into force in 1975, and acceded to by China in 1985. Its Protocol was adopted in 1996, entered into force in 2006, and acceded to by China in 2006.

30 CBD was adopted in 1992, entered into force in 1993, and acceded to by China in 1993.

31 The Ramsar Convention on Wetlands was adopted in 1971, entered into force in 1975, and acceded to by China in 1992.

32 CITES was adopted in 1973, entered into force in 1975, and acceded to by China in 1981.

33 See CBD Press Release, The final text of the historic Kunming-Montreal Global Biodiversity Framework, agreed at the 15th meeting of the Conference of Parties to the UN Convention on Biological Diversity is now available as document CBD/COP15/L25 (22 December 2022). Available online at: <https://www.cbd.int/article/cop15-final-text-kunming-montreal-gbf-221222> (Accessed 8 February 2025).

4.1.4 Practical experience in establishing MPAs

China's extensive dedication in establishing MPAs over the past six decades provides a robust foundation for advancing marine conservation efforts. In 1963, China established its first marine nature reserve (MNRs) with the official designation of Dalian Snake Island in Liaoning Province. The official recognition and expansion of this reserve into the Snake Island Laotie Mountain National Nature Reserve in 1980 marked the formal initiation of comprehensive MPA development in China (Hu et al., 2020).

From the 1990s through the 2010s, China made significant strides in the legal and practical dimensions of MPAs (Hu et al., 2020). By 2018, China had successfully established 273 MPAs, showcasing its commitment to marine conservation across various levels of governance (Bohorquez et al., 2021). Indeed, studies suggest that, when considering MPAs and aquatic germplasm reserves (AGRs), China may have met the CBD's 'Aichi Target' of conserving at least 10% of coastal and marine areas through area-based measures (CBD, 2010; Bohorquez et al., 2021).

The watershed 2018 institutional reform further refined the MPA management framework. This reform restructured management agencies, leading to the reclassification of MPAs into a more comprehensive system of Natural Protected Areas (NPAs). According to the 2019 Guiding Opinions, the system is designed to optimize and integrate selection and management approaches, accounting for ecological conditions and conservation objectives (State Council, 2019). Under this strategy, the 2022 Spatial Layout Plan for National Parks aims to establish five Marine National Parks by 2035 (National Forestry and Grassland Administration, 2022). Establishing the NPA system is a crucial foundational step (Jiang et al., 2024), and its success will depend on effectively implementing policies and regulations (Zhao et al., 2022).

Ensuring the effectiveness of MPAs and promoting greater marine biodiversity conservation is essential to meeting the global '30 by 30' target (Zeng et al., 2022). In this regard, China's rich experience offers critical insights for developing ABMTs in ABNJ, including the value of adopting flexible management strategies that balance conservation with sustainable economic development. For instance, Special Marine Protected Areas (SMPAs) (Zhao et al., 2022) emerged as a response to the slowing pace of expansion of strictly protected MNRs due to economic development pressures (Hu et al., 2020). Initial MNRs, while beneficial for ecosystems and endangered species, were frequently reactive solutions lacking comprehensive planning (Zhao et al., 2019). In contrast, SMPAs respond to unique geographical and ecological needs by integrating effective protection with rational use, allowing for adaptive management and multiple uses, and addressing deficits in earlier MNRs strategies.⁴¹ The Leqing Ximen Island SMPA, approved in 2005 by the former SOA (Zhao et al., 2019), was the first of these, and the SMPA network has since grown significantly.

China's experience in establishing MPAs also emphasizes the importance of developing a standardized evaluation framework, which ensures long-term ecological monitoring, secure financial resources, and foster public engagement (Zeng et al., 2022). These elements are crucial not only for domestic conservation efforts but also for China's potential contribution to global marine conservation. This comprehensive strategy positions China as a significant player in developing ABMTs in ABNJ, potentially guiding the development of international standards in marine biodiversity conservation through its experience and innovations in MPA management.

4.2 Challenges

4.2.1 National legal framework

China's domestic legal framework for environmental protection is hierarchically structured. The Constitution serves as the foundational law, establishing overarching objectives and providing the legal basis for environmental protection legislation. Article 26 explicitly mandates that 'the state shall protect and improve living environments and the ecological environment, and prevent and control pollution and other public hazards.'⁴² With respect to marine conservation, the Marine Environmental Protection Law constitutes the cornerstone, complemented by ancillary regulations such as the Regulations on Administration of Prevention and Control of Pollution to the Marine Environment by Vessels and Regulations on Administration of Marine Dumping (Ma and Zhao, 2019).

This domestic legal framework has evolved in parallel with international environmental principles and initiatives. China's legislation for marine conservation began with the Marine Environmental Protection Law in 1982, addressing various forms of marine pollution. This legislation was significantly influenced by the United Nations Conference on the Human Environment in 1972, which marked the inception of China's environmental protection efforts (Sun, 2019). Since then, China has progressively integrated global environmental concepts into its legal framework. The 1999 revision of the Marine Environmental Protection Law introduced the objective of 'promoting sustainable economic and social development' and added a dedicated chapter on 'marine ecological protection' (Liu, 2024). These amendments were substantially informed by China's accession to the UNCLOS and the principles outlined in Agenda 21 (1992) (Zou, 2021). Most recently, the 2023 revision of the Marine Environmental Protection Law bolstered the legal framework by enhancing provisions for biodiversity conservation and ecological protection,⁴³ further demonstrating China's commitment to marine conservation.

However, China's current marine environmental legislation has a notable limitation: it does not explicitly address activities in ABNJ that

⁴² Constitution of the People's Republic of China (2018). Available online at: <http://en.npc.gov.cn.cdurl.cn/constitution.html> (Accessed 22 February 2025).

⁴³ Marine Environmental Protection Law (2023) (in Chinese), Article 36. Available online at: https://www.mee.gov.cn/ywgz/fgbz/fl/202310/t20231025_1043942.shtml (Accessed 8 February 2025).

⁴¹ Management Measures for SMPAs (2010) (in Chinese), Article 2. Available online at: http://f.mnr.gov.cn/201807/t20180702_1966580.html (Accessed 8 February 2025).

may harm marine biodiversity. This gap represents a disconnect between China's domestic legal instruments and its international commitments (Gao and Liu, 2024). The extraterritorial reach of China's marine environmental legislation extends only to cases where external sources impact Chinese waters.⁴⁴ This limitation is evident in key regulations such as the Regulations on Administration of Prevention and Control of Pollution to the Marine Environment by Vessels (2018)⁴⁵ and the Management Provisions on Emergency Preparedness and Emergency Disposal of Marine Environmental Pollution from Vessels (2019).⁴⁶ These regulations and provisions focus primarily on domestic impacts, lacking provisions for broader ABNJ concerns. In this context, the existing domestic legislation provides insufficient support for China's activities in ABNJ, particularly in establishing and managing ABMTs in these areas.

4.2.2 International practices of establishing ABMTs in ABNJ

China's engagement in establishing ABMTs in ABNJ reflects its evolving role in global ocean governance. As a member state of relevant mechanisms, China has participated in establishing MPAs within the Antarctic region under the CAMLR Convention (Tang, 2017) and contributed to the designation of REMPAs at the ISA.⁴⁷ However, China remains in the early stages of establishing ABMTs in ABNJ. China's evolving position on Antarctic MPAs implies its ongoing efforts to balance maritime interests with global environmental responsibilities while exploring the practical application of the rules and standards of establishing ABMTs (Liu and Brooks, 2018). China's practical experience in developing ABMTs in ABNJ remains limited, having neither spearheaded nor collaborated on ABMT proposals in these areas. This lack of direct involvement may hinder future engagement due to unfamiliarity with international processes and standards.

5 Recommendations

To effectively address the challenges and strengthen China's potential contributions to ABMTs in ABNJ, this paper proposes the following recommendations.

5.1 Enhancing national legislation

The BBNJ Agreement provides a crucial international framework, particularly in supporting global initiatives like '30 by 30' target. These international commitments require states to establish corresponding national laws and regulatory frameworks (Ferraro et al., 2011). As such, China must translate international agreements into effective domestic legislation. In this regard, significant steps have been taken toward enhancing the systemic and ecological integrity of its marine conservation policies under its 'building an ecological civilization' mandate.

To align with its international obligations and effectively contribute to establishing ABMTs in ABNJ, China can draw valuable insights from its regulatory framework for Antarctic activities. Under the Antarctic Treaty System, China has developed a comprehensive set of national laws to regulate environmental and ecosystem protection in the Antarctic region, which include the Regulations on the Administrative Licensing for Antarctic Expedition (2014),⁴⁸ the Regulations on Environmental Impact Assessment for Antarctic Expedition (2017),⁴⁹ and the Regulations on Environmental Protection over Antarctic Activities (2018).⁵⁰ These policies effectively govern activities and ensure ecological preservation within the Antarctic region. China could adopt a similar regulatory framework for ABNJ that includes specific provisions for marine scientific research, stringent environmental protection measures, responsible technology use, and explicit standards for ships and maritime personnel operating beyond national jurisdiction. Such alignment would not only fulfill China's international obligations but also enhance its contribution to global marine conservation efforts. By addressing these legislative gaps, China can better balance its economic interests with its role as a responsible steward of marine biodiversity.

5.2 Augmenting scientific capacity

Robust scientific evidence is essential for identifying areas that require protection and serves as a fundamental component in the design, objectives, management plans, and evaluation of ABMTs. Scientific expertise not only guides the initial establishment of these measures but also ensures their ongoing effectiveness by continuously assessing ecological outcomes. To enhance its

44 Marine Environmental Protection Law (2023) (in Chinese), Article 2.

45 Regulations on the Prevention and Control of Vessel-induced Pollution to the Marine Environment (2018) (in Chinese). Available online at: https://www.mee.gov.cn/ywgz/fgbz/xzfg/201805/t20180516_440446.shtml (Accessed 8 February 2025).

46 Management Provisions on Emergency Preparedness and Emergency Disposal of Marine Environmental Pollution from Ships (2019) (in Chinese). Available online at: https://xxgk.mot.gov.cn/2020/gz/202112/t20211224_3632777.html (Accessed 8 February 2025).

47 See Statement by Ambassador Tian Qi, Permanent Representative to the International Seabed Authority, at the twenty-sixth session of the Authority, under the item 'Report of the Secretary-General' (in Chinese) (Permanent Mission of PRC to ISA, December 2021). Available online at: http://isa.china-mission.gov.cn/xwdt/202112/t20211216_10470271.htm (Accessed 8 February 2025).

48 Regulations on the Administrative Licensing for Antarctic Expedition (2014) (in Chinese). Available online at: <http://chinare.mnr.gov.cn/catalog/detail?id=9edc425a9b5d40baac3d3b6a28e023b5&from=zcfgngl¤tIndex=3> (Accessed 8 February 2025).

49 Regulations on Environmental Impact Assessment for Antarctic Expedition (2017) (in Chinese). Available online at: <http://chinare.mnr.gov.cn/catalog/detail?id=12d2198489bd4e60878422c0ef05032d&from=zcfgngl¤tIndex=3> (Accessed 8 February 2025).

50 Regulations on Environmental Protection over Antarctic Activities (2018) (in Chinese) Available online at: http://www.gov.cn/gongbao/content/2018/content_5303457.htm (Accessed 8 February 2025).

capability to contribute effectively to ABMTs in ABNJ, China should prioritize strengthening its scientific capacity. Historically, China has been disadvantaged due to its delayed start in marine scientific research in ABNJ compared to leading maritime states, resulting in fewer and smaller-scale research initiatives (He and Wang, 2021).

Fortunately, recent advancements in science and technology by China have significantly bolstered its ability to expand its research capabilities in ABNJ. The country's fleet of world-class research vessels, including the *Xue Long*, *Xiang Yang Hong*, *Da Yang*, *Ke Xue* (Science), and *Dong Fang Hong*, provides a robust foundation for expanding marine biodiversity research efforts in ABNJ (Zhang, 2020). The introduction of advanced vessels like *Xue Long 2* for research missions in East Antarctica highlights China's proactive investment in understanding and conserving marine resources in critical regions (CCAMLR, 2019). To capitalize on this growing capacity, China should continue to invest strategically in scientific infrastructure and international collaborations, generating comprehensive data to support the effective design and management of ABMTs. This will empower China to play a prominent role in global efforts to marine conservation.

5.3 Fostering broader international cooperation

Additionally, the successful implementation of ABMTs in ABNJ hinges on international collaboration. Effective bilateral and multilateral engagements facilitate the harmonization of national and global conservation priorities, promoting mutual understanding and cooperation. To leverage this potential, China should enhance its existing frameworks for multilateral partnerships dedicated to marine conservation. China could achieve this by initiating joint scientific research projects and hosting international workshops on strategies to tackle ABMT challenges. These initiatives would strengthen international networks and support collaborative proposals that bridge the gap between national and global conservation efforts, achieving alignment with current international laws and the forthcoming BBNJ Agreement.

In particular, China should partner with states and political entities that possess extensive experience in establishing ABMTs as part of this strategy. For instance, the EU has played a vital role in advancing MPAs in the Antarctic region (Liu, 2018) and has integrated ABMT discussions into the BBNJ Agreement (IISD, 2006). Through such partnerships, China can access essential expertise and resources that bolster its capacity to lead and participate in ABMT initiatives.

Further, non-state actors, including international organizations and Indigenous Peoples and Local Communities (IPLCs), are critical stakeholders in the establishment and success of ABMTs in ABNJ. Their insights and experiences are vital components of the BBNJ Agreement, particularly in the provisions related to ABMTs (Mulalap et al., 2020). In particular, the International Union for Conservation of Nature (IUCN) is a pioneer in advocating for

ABMTs, having initiated the first international efforts to establish national MPAs in 1962 and subsequently promoting ABMTs at a global scale. The IUCN provides crucial resources, workshops, and guidelines for shaping effective ABMT strategies (IUCN, 2019). Collaborating with non-state actors like the IUCN and IPLCs would allow China to incorporate diverse perspectives into its ABMT efforts, enrich its strategies with innovative ideas, and ensure alignment with international best practices. This would significantly enhance China's role in facilitating ABMTs in ABNJ, thereby reinforcing its commitment to global marine conservation.

6 Conclusion

The initiative to establish ABMTs for the conservation and sustainable use of marine biodiversity in ABNJ is a recent development in global ocean governance. In this regard, the adoption of the BBNJ Agreement introduces a comprehensive yet challenging framework for establishing ABMTs in ABNJ. This framework grants significant discretion to individual states and requires their active involvement to ensure effective implementation and realization of its objectives. Such participation is essential for global marine conservation.

China has played a proactive role in the BBNJ negotiations, signaling its support for establishing a global framework to facilitate ABMTs. Nevertheless, it is still uncertain to what extent China will contribute to the development and implementation of ABMTs in ABNJ. An analysis of China's existing policies and practices reveals several strengths that could enable substantial contributions. These factors encompass the presence of strong national policies that advocate for ecological civilization, a supportive institutional infrastructure, a foundation of international cooperation, and a wealth of experience gained from domestic MPA programs. Despite these strengths, China faces significant challenges that must be addressed. One primary challenge is the lack of comprehensive domestic legislation aligned with the BBNJ Agreement and international standards. Additionally, China's limited practical experience in establishing ABMTs in ABNJ may hinder its effective engagement in this area.

To address these obstacles, China should prioritize enhancing its domestic legislative framework to align with the requirements of the BBNJ Agreement. This alignment would provide a legal basis for implementing ABMTs effectively. In addition, China should prioritize the enhancement of its scientific research capabilities. These capabilities are essential for informing and supporting management decisions in complicated marine environments. By strengthening its research efforts, China will gain valuable insights and experience that will prove invaluable in the development of effective measures for the conservation of marine biodiversity. Finally, China should enhance cooperation with critical stakeholders, including states and non-state actors with established expertise in ABMTs. Such collaborations can facilitate knowledge exchange, capacity building, and the development of best practices.

By strategically addressing these areas, China can significantly enhance its role in establishing ABMTs in ABNJ and contributing to global marine conservation.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material. Further inquiries can be directed to the corresponding author/s.

Author contributions

XM: Formal analysis, Writing – original draft. LC: Formal analysis, Writing – review & editing.

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