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The area-based management tools coordination between IMO and BBNJ agreement regimes and its implications on vessel pollution control

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The International Maritime Organization (IMO), as a specialized agency of the United Nations responsible for the safety and security of international shipping and the prevention of pollution from ships, has applied two main area-based management tools (ABMTs): the "Special Areas" established under the MARPOL 73/78; and the "Particularly Sensitive Sea Areas" (PSSAs) established under the IMO resolutions. The new 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) stipulates the establishment of a comprehensive system of ABMTs to conserve and sustainably use areas beyond national jurisdiction. Strengthening coordination in the use of ABMTs established by the IMO and the BBNJ Agreement is important for vessel pollution control in the high seas. The IMO is a stakeholder for relevant proposals and consultations on proposals regarding the establishment of ABMTs in the BBNJ Agreements, and can provide information on the implementation of them. The Conference of the Parties (COPs) to the BBNJ Agreement can also make recommendations to the IMO and its parties to promote the adoption of special areas and PSSAs. This article respectively elaborates on the practices and effect of ABMTs of the IMO and explores the relevant rules of the BBNJ agreement and their enforcement. Then this article discusses the possible approaches for the ABMTs coordination between the IMO and the BBNJ agreement regimes and their implications on vessel pollution Control in the high seas. Overall, relevant rules of the BBNJ agreement shall be interpreted and applied in a manner that does not undermine relevant legal instruments of the IMO. Meanwhile, it is necessary to promote cooperation and coordination between the COPs to the BBNJ Agreement and the IMO under the idea of conserving ecosystem integrity, gradually forming a normal cooperation and information exchange mechanism.

KEYWORDS

area-based management tools (ABMTs), International Maritime Organization (IMO), marine biological diversity, areas beyond national jurisdiction (ABNJ), vessel pollution control

1 Introduction

The International Maritime Organization (IMO), as a specialized agency of the United Nations responsible for ensuring the safety, security, and environmental protection of international shipping, strives to promote safe, secure, efficient, and sustainable shipping through international cooperation (IMO, 2022). Currently, the IMO employs two primary area-based management tools for shipping: "Special Areas", established under Amendments to the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973 (MARPOL 73/78)[1]; and "Particularly Sensitive Sea Areas" (PSSA), designated under the IMO Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas (IMO, 2006). The new 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) stipulates the establishment of a comprehensive system of ABMTs for the conservation and sustainable use of Areas Beyond National Jurisdiction (ABNJ). The third part of the BBNJ Agreement, "measures such as area-based management tools, including marine protected areas" specifies objectives, area of application, proposals, publicity and preliminary review of proposals, consultations on and assessment of proposals, establishment of area-based management tools, including marine protected areas, decision-making, emergency measures, implementation, monitoring and review. The BBNJ Agreement have open for signature on 20 September 2023. The BBNJ Agreement provides explicit rules for the establishment of ABMTs beyond national jurisdiction, promoting the establishment of such tools in high seas. Strengthening coordination in the use of ABMTs established by the IMO and the BBNJ Agreement is important for vessel pollution control in the high seas. In this article, we provide an overview of the legal framework and practices for the IMO's ABMTs for vessel pollution control in the second section, elaborates Special Area under MARPOL and UNCLOS and the IMO's PSSA regime. The third section explains the ABMTs regime under the BBNJ Agreement, including the process of establishing ABMTs, and relevant international cooperation and coordination issues. The fourth section conducts an analysis on coordination between IMO and BBNJ Agreement regimes for vessel pollution control, paving the way for a set of proposals for coordination between the ABMTs of them.

1 MARPOL 73/78 is an umbrella term that usually includes the International Convention for International Convention for the Prevention of Pollution from Ships, 1973 and the Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973.

2 The IMO's ABMTs for vessel pollution control

2.1 Concepts of the Special Area and PSSA

2.1.1 The Special Area under MARPOL and UNCLOS

The MARPOL Convention, adopted on 2 November 1973, and its 1978 Protocol were responses to a series of tanker accidents during the 1880s, exemplified by the "Torrey Canyon". MARPOL 73/78 designates certain sea areas as "Special Areas" where, for technical reasons related to sea conditions, ecology, and maritime traffic, special enforcement measures are required to prevent marine pollution from ships (IMO, 2002b). These Special Areas are established to afford a higher level of protection to vulnerable sea regions with unique ecological conditions and factors such as heavy maritime traffic, limited water exchange, extreme ice conditions, and endangered marine species (IMO, 2023a). Special Areas can encompass multiple countries and may be fully or semi-enclosed within seas. Notable examples include the Mediterranean, the Black Sea, the Baltic Sea, the Red Sea, and the Persian Gulf, which were among the first identified as Special Areas necessitating enhanced marine protection. Different annexes of MARPOL 73/78, namely Annexes I, II, V, and VI, regulate the special sea areas concerning oily substances, noxious liquid substances, sewage, and garbage from ships, respectively. Additionally, ABNJ, such as the Antarctic and the Southern Ocean (south of 60°S), were later included within the scope of Special Areas (UNGA, 2007).

Article 211, paragraph 6, of the 1982 United Nations Convention on the Law of the Sea (UNCLOS), acknowledges the existence of Special Areas as provided by MARPOL 73/78. The Special Areas established under MARPOL 73/78 are not subject to mandatory restrictions and may extend into the high seas. In contrast, UNCLOS, under Article 211, specifies that a Special Area must be clearly delineated within the exclusive economic zone (EEZ) of the coastal State (United Nations Convention on the Law of the Sea, 1982). The coastal State may require the adoption of laws and regulations for the prevention, reduction and control of pollution from ships in specific areas of the EEZ where, for recognized technical reasons, related to oceanography, area usage, resource conservation, and navigation, necessitate special mandatory measures for pollution prevention (United Nations Convention on the Law of the Sea, 1982). The Special Area regime in UNCLOS serves as a framework provision, dependent on the regime established by MARPOL. If a coastal State intends to adopt and implement special mandatory measures for its Special Area that go beyond the international rules and national laws referred to in Article 211, paragraph 1, it must obtain the substantive approval of the competent international organization, the IMO (Yingchun, 2009). At present, Special Areas are designated within the framework of MARPOL, and no designations have been made under UNCLOS.

2.1.2 The IMO's PSSA regime

The PSSA regime was introduced to address the limitations of the Special Areas regime. However, upon the issuance of the first

relevant IMO resolution, uncertainties arose regarding the positioning of PSSAs—whether they should be viewed as a stand-alone concept or as a measure to strengthen the Special Areas regime (Roberts, 2006b). To oversee the PSSA regime, the Marine Environment Protection Committee (MEPC) has been designated by IMO. In 1991, the IMO Assembly adopted Resolution A. 720 (17), which outlined the "Guidelines for the Designation of Special Areas and the Identification of Particularly Sensitive Sea Areas", setting criteria for the identification of PSSAs (IMO, 1992). Nonetheless, the complex and lengthy identification process posed challenges, and for seven years, only Cuba's Sabana-Camagwasüey Archipelago was identified as a PSSA. To improve practicality and efficiency, Resolution A. 885(21) supplemented the Procedures for the Identification of PSSAs and the Adoption of Associated Protective Measures (APM) (IMO, 1999). Subsequently, to further streamline the process, the MEPC finalized a draft Assembly resolution on the "Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas" (IMO, 2002a). These new guidelines received approval from the IMO Assembly during its 22nd session in 2001, resulting in the formal adoption of Resolution A. 927(22) (IMO, 2002a), which replaced Resolutions A. 720(17) and A. 885(21) (IMO, 1999). As of now, the most recent guidance document on the identification and designation of PSSAs is Resolution A. 982(24). Versions of resolutions on PSSAs are displayed in Table 1.

A PSSA is an area that requires extra protection through IMO action because of its importance for acknowledged ecological, socio-economic, or scientific features, which may be vulnerable to harm by international maritime activities (IMO, 2002a). PSSAs are established by IMO resolutions and are not legally binding on non-members or even member states as it is not included in the text of the UNCLOS (Roberts, 2005). The criteria for identifying a PSSA and the criteria for designating a Special Area are not mutually exclusive and sometimes even overlap (IMO, 2023b). As for the defined area, PSSAs can be applied to ABNJ and are not restricted to the EEZ of the coastal State, but the 18 PSSAs identified to date are all located within national jurisdiction (IMO, 2023c). The salient characteristics of Special Areas and PSSAs are compared in Table 2.

TABLE 1 Versions of resolutions on PSSAs.

Adoption Time	Resolution	Outline	Characteristics and Progress
6 November 1991	Resolution A.720(17)	Guidelines for the Designation of Special Areas and the Identification of Particularly Sensitive Sea Areas	• Overly lengthy and confusing • Failure to set out the process for making determinations • Lack of recognition of values by the international community
25 November 1999	Resolution A.885(21)	Procedures for the Identification of Particularly Sensitive Sea Areas and the Adoption of Associated Protective Measures and Amendments to the Guidelines Contained in Resolution A.720(17)	• Revision of identification procedures • Adjustment of the name of the Protective Measures from "Special Protective Measures" to "Associated Protective Measures"
29 November 2001	Resolution A.927(22)	Guidelines for the Designation of Special Areas under MARPOL 73/78 and Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas	• Distinguish between Special Areas and PSSAs as two topics • Deletion of the description of MPAs in the preliminary version of the guide • Updated ecological criteria and other identification criteria
1 December 2005	Resolution A.982(24)	Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas	• Further updating of the criteria for recognition

2.2 Institutionalization of area-based shipping management tools

2.2.1 Legal basis for the institutionalization process

The institutionalization processes for Special Areas and PSSAs are founded on different legal basis. Special Areas are established under the MARPOL 73/78 and its related by-laws, while PSSAs are established based on IMO Assembly resolutions and MEPC resolutions. Consequently, the establishment of Special Areas and PSSAs differs in terms of timing and procedural steps. Since Special Areas require amendments to MARPOL, the implementation of relevant environmental protection measures can only occur after the amendments have entered into force, resulting in longer processing times. In contrast, the direct consideration of these protection measures by the MEPC and their confirmation in the form of a resolution makes the establishment of PSSAs a relatively simple and quick process.

However, there have been criticisms regarding the legal basis of PSSAs, with some scholars contending that IMO resolutions are non-binding and cannot serve as a proper legal foundation for the implementation of Associated Protective Measures (APM) (Peet, 1994; Roberts et al., 2005). For instance, the identification of the Torres Strait as an extension of the PSSA of the Great Barrier Reef by the MEPC at its 53rd session, as well as the confirmation of the two-way shipping lanes and the mandatory pilotage system developed by Australia, faced challenges from several States regarding its effectiveness (Zhang, 2014). The central issue lies in whether IMO resolutions, which are of a soft law nature only, can serve as a legal basis for establishing relevant APMs in PSSAs and whether a compulsory APM can be established in the absence of a clear treaty-based legal foundation.

TABLE 2 Comparison chart between Special Areas and PSSAs.

	Special Areas	PSSAs
Legal Basis	Article 211 of the UNCLOS MARPOL 73/78	IMO resolutions
Area Scope	Closed and semi-closed seas	No limitation
Criteria for Accreditation	Simultaneously meets the requirements of the three criteria of oceanography, ecology and the specific nature of transportation.	Only one of the ecological, socio-cultural and economic, scientific and educational criteria needs to be met and the region is vulnerable to impacts from international shipping activities.
Protective Measures	Measures covered by MARPOL 73/78 Provisions of the Convention relating to by-laws	any measure that is already available in an existing instrument or any measure that does not yet exist but that should be available as a generally applicable measure and that falls within the competence of IMO (IMO, 2006), and not limited to those measures
Establishment Procedures	Amendments to the MARPOL 73/78 Convention	Direct application by the applicant State, approved by the Marine Environment Protection Committee

On one hand, some scholars argue that the concept of PSSAs is merely a repetition of an existing state of affairs and does not provide a substantive legal meaning due to the weakness of its legal basis. Nevertheless, others suggest that PSSAs could find a legal basis in higher law, such as the UNCLOS, Convention on Biological Diversity and World Heritage Conservation List (Roberts, 2006a). Under the UNCLOS, States have an obligation to protect and preserve the marine environment (United Nations Convention on the Law of the Sea, 1982). And it is argued that the regime of Special Areas in article 211 (6) could provide a basis for the legitimacy of protection measures in certain PSSAs (Gjerde and Freestone, 1994). Moreover, the PSSA Guidelines emphasize that each protection measure must have a clear legal basis, which may exist through amendments or approvals of IMO documents (IMO, 2006). Provided that the legal effects of the concept are generally recognized by coastal States, the concept of PSSAs could then be considered in the context of international customary law (Scovazzi, 2004), with PSSAs being regarded as an application of the precautionary principle (Choi, 2022).

The author believes that more support should be garnered for the establishment of sensitive areas. The IMO is highly rigorous in adopting APMs supported by international law, and a clear legal basis is required through IMO approvals (IMO, 2006). Additionally, "as the Law of the Sea Convention defers to IMO on navigational rules, regulations and standards",[2] IMO resolutions are the *de facto* representative instruments for international vessel pollution control.

2.2.2 The requirements and procedures for the establishment of Special Areas and PSSAs

Special Areas must meet three criteria, each with various scenarios, to be identified as such. These criteria are: (a) oceanographic conditions, such as extreme ice conditions or marine conditions leading to the concentration or retention of hazardous substances in waters or sediments; (b) ecological conditions, involving the presence of endangered marine species necessitating protection from hazardous substances; and (c) vessel traffic characteristics, wherein the discharge of hazardous substances during regular operations is deemed unacceptable in the area (IMO, 2002a).

To establish a new Special Area, an application document is submitted to the MEPC, including relevant supporting information, documentation identifying the area, and MARPOL 73/78 draft amendment. The coastal state consults with other countries through IMO, sends notifications, provides evidence, and awaits IMO review within 12 months. Upon IMO confirmation, the coastal state formulates laws, regulations, and methods for ship pollution control. Before implementation, IMO reviews and approves domestic laws, regulations, and measures exceeding international standards in the Special Area.

The PSSA determination is more lenient in terms of requirement items, and the area should meet at least 1 of the listed 3 criteria and the threat posed by international shipping activities should be present for an application to be made. The criteria are as follows: (a) ecological criteria, whereby the ecology of the area is unique, rare, or constitutes a key spawning or critical habitat for organisms, or possesses significant ecological representation; (b) social, cultural, and economic criteria, wherein the area provides substantial economic benefits and has high human dependence; and (c) scientific and educational criteria, as areas of ecological research significance contributing to baseline and monitoring studies (IMO, 2002a). The subject of the geographical extent of PSSAs is often controversial. Decisions on the size of PSSAs, which depend only on a value judgment as to whether or not their waters require special protection, so vague definitions or unclear provisions in the resolution can lead to ambiguity as to their geographic extent. The proposed size of the Western European PSSA includes areas that MPEC considers not to qualify as PSSAs, but MPEC's reasoning is weak.[3]

The procedure for applying for the designation of a PSSA is relatively simple and swift compared with the designation of a Special Area. The coastal state needs to submit the application together with the relevant protective measures to the MEPC, and the responsible subcommittee will review the materials and finally make the decision (IMO, 2002a). The IMO resolution serves as the basis for the establishment of PSSAs without requiring the support of other international treaties or procedures.

2 IMO, Comments made by the Division for Ocean Affairs and the Law of the Sea of the United Nations (DOALOS) in Connection with Issues Raised in Document LEG 87/16/1 (October 2003), IMO Doc. LEG 87/WP.3, para.9.

3 IMO, 'Designation of a Western European Particularly Sensitive Sea Area', LEG87/16/1(15 September 2003).

2.2.3 Dilemma of common interests in the establishment process

Area-based Shipping Management Tools encounters legal procedural challenges during its establishment. A proposal should be submitted to the MEPC for the designation of a marine area as a Special Area, but there is no explicit subject matter requirement for the proponent of the proposal (IMO, 2002a). Reference is made to the application requirements of the PSSA, which provide that the delineation of a PSSA, in accordance with the Revised Guidelines for the Identification and Designation of PSSAs, requires a coordinated proposal to the IMO by one or more Member Governments in respect of specific sea areas of common interest (IMO, 2006). In practice, several European, American and Oceanian States have actively applied for PSSAs in a joint manner. Notably, the Wadden Sea PSSA, Western European Waters PSSA, and Baltic Sea PSSA are examples of joint applications.

Coastal States rarely agree on how to work together on marine conservation and management (Sandwith et al., 2001). On the high seas, however, there may be an implementation dilemma with regard to the expression "common interest in a PSSA". According to Article 87 of the UNCLOS, the high seas are open to all States, whether coastal or land-locked (United Nations Convention on the Law of the Sea, 1982), and the freedom of the high seas is exercised under the conditions laid down by the UNCLOS and by other rules of international law. Consequently, all States may claim a "common interest" with respect to the high seas.

This raises the issue that it would contradict the principle of common interest if only a small number of Member Governments jointly applied for a PSSA located in the high seas. Conversely, if all Member Governments were required to propose the establishment of such an area, it would not align with the practical realities. A practical solution would involve States parties to a regional agreement or other multilateral agreements, where a particular marine area falls under the agreement's coverage, making a joint proposal that reflects the "common interest" of all concerned States parties (Roberts et al., 2010). However, this approach may not cover all situations due to the existence of preconditions. Taking the Baltic Sea as an example, MEPC, when discussing the proposal to designate parts of the Baltic Sea as a PSSA, had met with strong opposition from the Russian Federation. The Russian Federation believes that all States with an interest in the area participate in the discussion process to form a common special program. The other Baltic States concerned, on the other hand, argued that the area was not part of any waters under Russian jurisdiction and that it did not have a right of veto. The existence of a common interest became the centerpiece of Russia's veto, and the MEPC ultimately did not support Russia, designating the Baltic Sea as a PSSA in addition to Russian waters (Uggla, 2007).

In addition, when analyzing the common interests in a given maritime area, the interests of important flag States have to be taken into account, in addition to the jurisdiction of the coastal State. The uncertainty as to the scope, extent and necessity of the establishment of a broad consensus creates ambiguity in the application process. Perhaps this is one of the reasons why shipping management tools are typically confined to national jurisdictions and difficult to extend effectively to marine ABNJ.

2.3 Status of and conflicts over the APMs in Special Areas and PSSAs

2.3.1 Status of existing measures

International experience has clearly demonstrated that merely marking an area on a chart as being environmentally significant for protection and does not automatically provide protection for that area (Roberts et al., 2010). The identification of protected areas and the adoption of related protective measures are distinct yet interconnected matters (Roberts, 2006b). In terms of the implementation of preventive measures, Special Areas is managed mainly through the relevant bylaw provisions of the MARPOL to achieve environmental protection objectives, employing emission standards to limit the discharge of specific pollutants from ships; whereas PSSA utilize a broader array of APMs, such as restricting ship activities in specific regions (Zhao, 2021). Measures shall start to apply to ships after a period of publicity following the review process.

The protective measures that can be taken in Special Areas are scattered in the discharge rules and specific standards formulated by Annex I, Annex II, Annex IV and Annex V of the MARPOL 73/78, which is reflected in the restrictions and prohibitions of oil pollution, toxic liquids, garbage and air pollutants (IMO, 2023d). The Baltic Sea area is the first Special Area under Annex IV (IMO, 2016). Taking the Baltic Sea as an example, Resolution MEPC.200 (62) stipulates the requirements for sewage discharge and reception facilities of passenger ships operating within a Special Area intending to discharge treated sewage effluent into the sea (IMO, 2011). The emission requirements of the Baltic Sea Zone will come into force in three phases, 2019 for new passenger ships, 2021 for existing passenger ships, and 2023 for existing passenger ships en route directly to or from a port located outside the Special Area and to or from a port located east of longitude 28°10' E within the Special Area that do not make any other port calls within the Special Area (IMO, 2016). In general, regulations prohibit passenger ships from discharging sewage in Special Areas, unless the ship has an approved sewage treatment plant certified by the competent authority (IMO, 2012). When the competent authority checks its type approval certificate, sewage treatment plant installed on passenger ships intended to discharge sewage in specific regions must also fulfill the nitrogen and phosphorus removal norms (IMO, 2012). Sewage from an approved sewage treatment plant operating must not produce visible floating solids nor discolor the surrounding water (IMO, 2011).

Regarding PSSAs, the corresponding APMs are more diverse and selective. From the base option, it covers the strict enforcement of MARPOL discharge regulations, involving restrictions and prohibitions on specific pollutants like oil, garbage, sewage and air pollutions, supplemented by equipment requirements for ships and installation requirements for ship traffic services (IMO, 2006). In addition, APMs also added ships routing measures and other more effective measures to protect the marine environment, such as rounding routes and mandatory pilotage. All ships or certain classes of ships should avoid areas where navigation within the prescribed limits is particularly dangerous or important to avoid casualties (IMO, 2006). Measures that could also be considered include the

adoption of ship routing and reporting systems near or within the area in accordance with the International Convention for the Safety of Life at Sea (SOLAS) and the General Rules for Ship Routing and the Guidelines and Standards for Ship Routing Reporting Systems (IMO, 2006). MEPC was encouraged to provide more specific types of APMs and to specify the effect of APMs on the effectiveness of foreign vessels (Choi, 2022). Table 3 illustrates the currently established PSSAs and their corresponding protection measures.

Despite the establishment of the PSSA regime, only 15 areas have been identified as PSSAs. One noteworthy phenomenon is that most member States have not actively adopted ship routing measures through the establishment of PSSAs. Compared with the cumbersome declaration of PSSAs and APMs, some countries, such as New Zealand and the United States, have opted to seek the consent of the IMO directly for the adoption of separate ship routing measures, so as to achieve the same restraining effect with simpler procedures (Peet, 1994). This raises questions about the value and effectiveness of the existing PSSA regime (Peet, 1994).

2.3.2 Doubts about the power allocation and power conflicts

As mentioned earlier, the designation of a PSSA in terms of its environmental protection value does not alter the existing rights and powers of States to pass ships through the designated area, as stipulated by UNCLOS. Only the realistic application of the APMs can provide a basis for the exercise of those rights for the management of shipping by coastal States (Roberts et al., 2010). However, it is crucial to emphasize that, regardless of the establishment of special maritime zones and APMs, the mandatory effect of such measures cannot affect the rights of States under the UNCLOS, such as the right of innocent passage (Frank, 2005).[4] The conflicts in this context arise from disagreements between the existing rights and powers of the designated area and the power to set relevant APMs and control behavior within the area. While the creation of PSSAs aims to enhance environmental protection, it must be navigated within the confines of UNCLOS provisions. This delicate interplay raises questions about the scope and limitations of PSSA authority. The dynamic between coastal State jurisdiction and flag State rights becomes particularly evident in instances like the application to extend the Great Barrier Reef PSSA to the Torres Strait.

Australia and Papua New Guinea's application in 2003 for the extension of the Great Barrier Reef PSSA to the Torres Strait met with strong protests from other maritime States. The reason behind the opposition was that the Torres Strait, as a "waters forming straits used for international navigation", should be subject to the Transit Passage regime under the UNCLOS, allowing for the exercise of freedom of navigation and overflight for continued, uninterrupted, and expeditious transit (United Nations Convention on the Law of the Sea, 1982). The establishment of a compulsory pilotage requirement would infringe upon the right of transit passage of the flag State. The distribution of powers between flag State jurisdiction and coastal State control in the three maritime areas of the high seas, the EEZ, and the territorial seas further complicates matters.

Any maritime area has the opportunity to apply for designation as a PSSA. However, most of the ABMTs implemented by IMO are under national jurisdiction. Extending PSSAs to the high seas may attract a lot of opposition due to perceived infringements on the

TABLE 3 Currently 15 PSSAs and APMs.

PSSAs	Associated Protective Measures
1. Great Barrier Reef, Australia	compulsory pilotage and a mandatory ship reporting system
1.1 Torres Strait, Australia and Papua New Guinea	a two-way shipping route through the Strait
1.2 South-West Coral Sea, Australia	a two-way shipping route
2. Archipelago of Sabana-Camagüey, Cuba	an area to be avoided by ships, outside of which lie several traffic separation schemes
3. Malpelo Island, Colombia	an area to be avoided by all fishing vessels and large ships in excess of 500 gross tonnage
4. Florida Keys, United States	areas to be avoided by all ships carrying cargoes of oil and hazardous material and all ships greater than 50 meters in length
5. Wadden Sea, Netherlands, Denmark and Germany	a mandatory deep-water route and traffic separation scheme
6. Paracas National Reserve, Peru	an area to be avoided by large ships carrying oil or hazardous materials
7. Western European Waters, Belgium, France, Ireland, Portugal, Spain and United Kingdom	areas to be avoided, outing measures and a mandatory ship reporting system
8. Canary Islands, Spain	areas to be avoided, traffic separation schemes, and a mandatory ship reporting system
9. The Galapagos Archipelago, Ecuador	mandatory ship reporting and two traffic separation schemes
10. Baltic Sea, Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland and Sweden	several ship routeing and protective measures, including areas to be avoided, deep-water routes, and traffic separation schemes
11. Papahānaumokuākea Marine National Monument, United States	an extension to areas to be avoided and a mandatory ship reporting scheme for ships of 300 gross tonnage or greater, fishing vessels and all ships that develop an emergency
12. Strait of Bonifacio, France and Italy	mandatory ship reporting for ships of 300 gross tonnage and over
13. Saba Bank, Netherlands	an area to be avoided by ships greater than 300 gross tonnage, and a mandatory no anchoring area designed to prevent damage to the fragile coral banks just beneath the surface of the water
14. Jomard Channel, Papua New Guinea	routeing systems including four, two-way routes and a precautionary area
15. Tubbataha Natural Park, Philippines	an area to be avoided by all ships of 150 gross tonnage and a recommendation for pilotage for large ships and those carrying hazardous materials

4 IMO, 'Torres Strait PSSA Associated Protective Measure – Compulsory Pilotage Submitted by Australia and Papua New Guinea', LEG89/15 (2004).

principle of freedom of the high seas. This principle grants all States the right to exercise freedom of navigation, overflight, laying submarine cables and pipelines, constructing artificial islands and other installations permitted under international law, fishing, and conducting scientific research exclusively for peaceful purposes. The restrictive nature of PSSAs and Special Areas, which limit or prohibit activities such as exploitation and navigation, makes their effective extension to ABNJ challenging, as they will inevitably detract from, or even jeopardize, the exercise of the right to freedom of the high seas by other States.

Coercive measures taken in certain sensitive areas through IMO resolutions might interfere with the rights and interests of other States (Roberts et al., 2010). As the United Nations Division for Ocean Affairs and the Law of the Sea (DOALOS) has pointed out, APMs that violate the principle of freedom of navigation are unacceptable.[5] The designation of the Baltic Sea (except Russian waters) as a PSSA in 2005 sparked intense debate within the IMO, involving a conflict between the fundamental principles of international law balance, territorial sovereignty, and freedom of the high seas (Uggla, 2007). The PSSA has been questioned as to whether the criteria are too broad and too frequently used (Detjen, 2006). Even if these specific measures are taken on the high seas with coercive force, they may still affect the rights and interests of third parties (Roberts et al., 2010). Irrespective of the rules governing Special Areas and PSSAs, these coercive measures cannot impede the rights of states under UNCLOS to pass through designated routes (Frank, 2005). Under the PSSA regime, if States were able to establish specific APMs through IMO resolutions, it is conceivable that they could enforce these measures on the high seas as a condition of entry. IMO has been relatively cautious in adopting these measures.

2.3.3 Coexistence and challenges under the global ocean governance system

Ideally, there is a need for a unified instrument that encompasses various measures to identify and protect a designated area (Gjerde and Ong, 1993; Trinder et al., 1994), enabling the full integration of all relevant activities within the particular area. However, the current situation is marked by chaos. Many route control measures were already in place before the advent of the Area-based Management Tool for shipping. These routing measures, such as those outlined in the International Convention for the Safety of Life at Sea (SOLAS) and the General Provisions for Ship Routing (GPSR), were primarily aimed at enhancing ship navigation safety. Unfortunately, their effectiveness in protecting the marine environment has not been duly recognized. The emergence of Special Areas and PSSAs has partially addressed this gap in Area-based Management Tools for marine protection. Nevertheless, the adoption of APMs under the IMO Area-based Management Tool for shipping is still limited to one sector of ocean governance: shipping (Kachel, 2008). Considering the complementary functions of APMs and the previous coupling of different Area-based Management Tools, the existing framework of global governance for marine protection requires not only the exploration of other entry points for action to protect the marine environment beyond the shipping traffic, but also attention to the conflicts and cooperation between different Area-based Management Tools in the shipping sector.

The pursuit of comprehensive marine protection requires the integration of different regulatory approaches. Although the existing ABMTs for shipping strives to reconcile the traditional governance system outlined in UNCLOS with jurisdictional constraints, it possesses certain limitations. Notably, the IMO's primary focus lies in the regulation of international shipping, particularly vessel traffic characteristics, rather than in the assessment of oceanographic and ecological conditions. Consequently, assessments concerning ecological conditions may be better conducted and validated by other relevant bodies. Moreover, the influence of political pressures within the IMO must not be underestimated. The ambiguity surrounding PSSA criteria, coupled with the strong political influence of certain developed nations (IMO, 2001), may lead to IMO decisions that contradict the principles of intra-generational equity and sustainable development (Kachel, 2008).

The recognition of coherent ecosystems in the ABMTs for shipping was highlighted in the report on the work of the United Nations Informal Consultative Process on Oceans and the Law of the Sea during its seventh meeting. This report concluded that establishing PSSAs facilitates the implementation of an ecosystem approach, allowing additional protective measures to be implemented for vulnerable environments (UNGA, 2006). But the IMO Guidelines are not clearly defined, leaving MEPC with a great deal of leeway in deciding whether a proposal meets the criteria, provoking discussion and controversy. In practice, unlike the characteristics of areas previously granted the status of PSSAs, the Baltic PSSAs and the Western European PSSAs are not large contiguous sea areas, but rather consist of particularly vulnerable fragments of cultural landscapes shaped by human activities. The reason for the dispute is that the definition is vague as to whether there is a requirement for ecological coherence (Kachel, 2008). The ambiguity surrounding PSSA criteria presents a challenge that necessitates a more refined and universally accepted definition, allowing for a clearer delineation of eligible areas. The occurrence and recognition of such a situation needs to be complemented by other ABMTs.

IMO governance on shipping is based on global and regional cooperation. IMO remains as the central focus, while some regionally based initiatives have emerged to higher the ambition level of maritime governance (van Leeuwen, 2015). For example, in some regions the UNEP Regional Seas Programme has mobilized regional cooperation in support of IMO maritime conventions (Chircop, 2019). The Special Area provisions of the MARPOL Convention explicitly reflects regional sensitivity, as a Special Area with stronger standards regarding vessel discharges or emissions than global general requirements. Existing regulations stipulate that member countries must jointly propose the establishment of PSSAs and relevant APMs, posing a substantial

5 IMO, Comments made by the Division for Ocean Affairs and the Law of the Sea of the United Nations (DOALOS) in Connection with Issues Raised in Document LEG 87/16/1 (October 2003), IMO Doc. LEG 87/WP.3.

obstacle to their mandatory implementation. PSSAs necessitate a specified level of harm determination before protective measures can be enacted, making their operational implementation on the high seas unsatisfactory. Despite being non-binding, PSSAs require a demonstrable link between shipping activities and the risk of harm, which can be challenging to establish on the high seas. On the high seas, it can be challenging to establish such links, as collisions between vessels and large marine animals are difficult to recognize, groundings are unlikely to occur, and oil spills at sea may go unreported (Nordtvedt Reeve et al., 2012). Moreover, in practice, the IMO requires that the relevant protective measures must have a clear legal basis; even if they do, it is reluctant to agree to the adoption of such measures if the applicant State fails to make sufficiently clear the need for their application (Roberts, 2007).

2.4 Extrinsic positioning and intrinsic benefits of IMO's ABMTs for shipping

The establishment of the Special Areas and PSSAs system was strongly influenced by the concept of marine protected areas (MPAs). The protection of marine areas under global, regional and national arrangements, as well as under the provisions of the IMO, was extensively described in the 1991 guidelines (IMO, 1992). With the 2001 Guidelines further distinguishing and delineating the elements of MPAs, Special Areas and PSSAs became independent types of special MPAs to safeguard special areas from international shipping activities. There are many scholars who regard them as a specialized type of MPA(G. Kelleher et al., 1995; Agardy, 1997; de la Fayette, 2001) or evaluate them as "true MPAs" because of their broad applicability (Roberts, 2007). Beyond their classification as specialized MPAs, the intrinsic value of IMO Area-based Management Tool for Shipping goes far beyond their surface significance. Certain scholars have affirmed the value of IMO Area-based Management Tool for Shipping (Warren, 1994), recognizing the importance of the regime of Special Areas and PSSAs for the protection, restoration, wise use, understanding and enjoyment of the world's marine heritage (Roberts, 2006b).

Firstly, Special Areas and PSSAs serve as authoritative indicators of the vulnerability of the marine ecosystems with their unique assessment criteria, attracting the attention of governments, researchers, and environmentalists alike. Moreover, the Special Area and PSSA regimes empower the relevant coastal states to adopt targeted APMs. The issue of environmental jurisdiction balance between flag states and coastal states has long been a topic of intense discussion. In cases where flag State regulation is absent or insufficient, the Special Area and PSSA regimes breaks away from the traditional exclusive jurisdiction granted to flag States under the principle of maritime liberalism and expands the jurisdiction of coastal States over the marine environment, which enhances global efforts to address pollution from ships and other maritime activities (Han et al., 2017). Such regimes have been questioned in case-by-case discussions because of their weak legal basis and functional substitutability (Peet, 1994). Critics have argued that the PSSA regime is merely a superficial acknowledgment of the unique character of an area and lacks substantial significance (Molenaar, 1998). They claim that coastal States might use Special Areas and PSSAs as mere political tools to extend their jurisdiction over foreign vessels. According to this view, if existing measures provide sufficient protection, new establishment is redundant; if current measures are inadequate, new ones should not just build on these ineffective measures (Roberts, 2006b).

However, from the point of view of the ecosystem approach and global environmental governance, IMO Area-based management tool system overcomes the fragmentation of maritime zoning jurisdiction and isolated measures under the traditional UNCLOS system of marine environmental management (Jin, 2015). It represents a significant initiative for the coordination, prevention, and control of pollution from ships. As the international community continues to recognize the significance of these management tools, further research and collaboration are necessary to ensure their continued effectiveness in safeguarding our oceans for future generations.

3 The ABMTs regime under the BBNJ agreement

3.1 The process of establishing ABMTs under the BBNJ agreement

States possess the sovereign right, in line with the United Nations Charter and international law principles, to develop and utilize their own resources based on their environmental policies. They also bear the responsibility to undertake appropriate measures, ensuring that activities within their jurisdiction or control do not harm the environment of other States or ABNJ. The legal principles guiding States in assuming equivalent obligations in such areas, like the high seas, remain unclear. Consequently, there is controversy as to whether certain environmental issues that conflict with the traditional legal regime of the freedom of the high seas, including the establishment of ABMTs, such as Marine Protected Areas (MPAs), are justified under international law (Shi and Chang, 2017).

Before the BBNJ Agreement, there was a lack of international legal instrument providing for the establishment of ABMTs or procedures to promote ecological management in international waters. The Special Areas and PSSA criteria in the IMO, however, can be seen as a robust starting point for cooperative conservation efforts, although attempts to apply them in the high seas have proven challenging. Conceivably, without a global agreement to build scientific, legal and technical capacity for managing high seas areas, MPAs may only be established in regions surrounded by developed countries (Nordtvedt Reeve et al., 2012). The BBNJ Agreement provides explicit rules for the establishment of ABMTs beyond national jurisdiction, promoting the establishment of such tools in high seas. The BBNJ Agreement incorporates the objective of "strengthen resilience to stressors, including those related to climate change, ocean acidification and

marine pollution" for the ABMTs regime. This reflects the aim of integrating responses to climate change factors into the system of ABMTs.

The marine scientific research is still developing (Warner, 2017), understanding critical information about the distribution of marine biodiversity and the vulnerability of these ecosystems to human activities is insufficient (De Santo et al., 2019). As a result, there is scientific uncertainty about the specific impacts of human activities on marine ecosystems, the relationship between actions and damage, and how to eliminate the effect. Applying the precautionary approach is to improve the management of conservation and sustainable use of marine biodiversity by guiding the states' behavior based on "scientific uncertainty" (Wagenaar, 2022).

3.1.1 Proposals, consultations on and assessment

Articles 19 and 24 of the BBNJ Agreement stipulated that proposals and emergency measures shall be based on the best available scientific and information, taking into account ecosystem approaches and precautionary approaches. This reflects the BBNJ Agreement's approach to addressing scientific uncertainty, emphasizing both the utilization of the best available science and the prohibition of using the lack of sufficient scientific evidence as a justification for inaction. Regarding the specific content of the proposal, the BBNJ Agreement stipulates that the proposal should provide an explanation of the marine environment and biodiversity within the identified area. Additionally, it should specify relevant scientific inputs and, where available, the traditional knowledge of indigenous peoples and local communities. Subsequently, after the Secretariat receives the proposal and conducts a preliminary review by scientific and technical institutions, the proposal needs further negotiation and evaluation. At this stage, States, in particular adjacent coastal States, bodies of relevant legal instruments and frameworks and relevant global, regional, subregional and sectoral bodies, and indigenous peoples, local communities, the scientific community, civil society, and other relevant stakeholders can submit any additional relevant scientific inputs for the negotiation and evaluation of the proposal.

In the process of formulating proposals, parties shall collaborate and consult with relevant States, bodies of relevant legal instruments and frameworks, and other stakeholders. Additionally, the BBNJ Agreement stipulates ten elements that should be included in the proposal, and further revisions can be made by the Scientific and Technical Body as needed for deliberation and approval by the Conference of the Parties. After receiving a written proposal, the Secretariat should publicize it and submit it to the Scientific and Technical Body for a preliminary review. Subsequently, open negotiations and evaluations of the proposal are conducted with all relevant stakeholders. The Conference of the Parties, based on the final proposal and drafted management plan, taking into account the contributions and scientific input received during the consultation process, and the scientific advice and recommendations of the Scientific and Technical Body, shall makes the final decision, according to the Article 22 of the BBNJ Agreement.

3.1.2 Decision-making

The BBNJ Agreement takes the consensus-based decision-making as the priority. However, the Article 23 of the BBNJ Agreement stipulates that if no consensus is reached, decisions and recommendations on MPAs shall be taken by a three-fourths majority of the Parties present and voting, before which the COPs shall decide, by a two-thirds majority of the Parties present and voting that all efforts to reach consensus have been exhausted. The objective parties cannot be binding by the decisions. But if a party want to make an objection, it needs fulfill some requirements, such as objection shall be based on specific reasons, including the decision is inconsistent with the BBNJ Agreement and the UNCLOS. In addition, the Article 23 stipulates objecting parties to take alternative measures or actions that are equivalent in effect to the decision, and not take measures or actions that would undermine the effectiveness of the decision. The establishment of this voting mechanism provides an opportunity for the smooth establishment and implementation of ABMTs, particularly in cases where there may be differences of opinion on the legitimacy and necessity of such tools. This also would lead to the numerical advantage becoming the dominant factor in the negotiations among dissenting States groups (Buzan, 1981). Therefore, the consensus-based decision-making shall be adhered to whenever possible. The consensus-based decision-making process reflects an art of negotiation. The requirement for consensus means that States can achieve a basic agreement through repeated negotiations and compromises. During this process, there are opportunities for lobbying, negotiation, and transactions among States. This allows States that may suffer losses due to a decision to have a chance for compensation without violating their initially expressed intentions. For IMO's decision making concerning marine environment, consent should be sought from all countries with jurisdiction or in the region of potential impact, reflecting the same idea.

3.1.3 Implementation, monitoring and review

Articles 25 and 26 of the BBNJ Agreement stipulate the implementation, monitoring and review of area-based management tools. Contracting States shall ensure that activities under their jurisdiction or control that take place in ABNJ are conducted consistently with the decisions. This implies that the implementation stage should also adhere to requirements related to the scientific aspects based on the best available science and scientific information. The BBNJ Agreement includes a general obligation for Parties to implement and monitor the implementation of ABMTs, as well a report on the implementation, but does not go into any detail regarding what this will entail (IUCN, 2023). The implementation of existing ABMTs, including the International Maritime Organization's Special Areas and PSSAs, can provide valuable lessons for the COPs of the BBNJ agreement in further developing more detailed implementation rules.

For assessing the effectiveness of the ABMTs, the Scientific and Technical Body should monitor and conduct periodic reviews of the relevant measures. Following the review, the COPs shall take decisions or recommendations on the amendment, extension or revocation of ABMTs on the basis of the best available science and scientific information. Therefore, in the monitoring and review stage of ABMTs, special attention should be given to scientific issues. Monitoring provides data on the current status and trends of biodiversity, offering information for the development of conservation policies and the evaluation of the effectiveness of existing regulations and policies (Schmeller et al., 2017). Monitoring activities can serve as guiding tools to assess formulated strategies and identify factors affecting conservation goals, providing information for adaptive management. Therefore, reasonable monitoring measures can ensure the effectiveness of such tools.

3.2 International cooperation and coordination

The BBNJ Agreement emphasizes cooperation and coordination with relevant legal instruments and frameworks and relevant global, regional, subregional and sectoral bodies (IFBs) with regard to ABMTs. As an implementing agreement for UNCLOS, the BBNJ Agreement shall be interpreted and applied in the context of and in a manner consistent with the UNCLOS. Article V of the BBNJ Agreement endorsed the principle and stipulates that the agreement shall be interpreted and applied in a manner that promotes coherence and coordination with relevant IFBs (United Nations, 2023). Cooperation with relevant IFBs is also stressed in the Article 8 of the BBNJ Agreement. ABMTs including MPAs, are one of the four elements of the "package of issues" in the BBNJ Agreement, a vital tool for biodiversity conservation. Under an ecosystem approach, the establishment and management of MPAs should not be considered solely in terms of States, but rather in terms of ecosystems or bioregions when the ecosystems transcend national boundaries (Convention on Biological Diversity, 2004a). Adopting an ecosystem approach can facilitate integrated ocean management across sectors and sectors (Convention on Biological Diversity, 2004b). Article 7 of the BBNJ Agreement regulates that Parties shall be guided by an ecosystem approach. The application of an ecosystem approach aims to integrate the various legal and management strategies relevant to area- and species-based conservation, address the issue of the current fragmented legal and institutional framework (Wagenaar, 2022).

In addition to MPAs, other forms of ABMTs at the global level include Special Areas and PSSAs established by the IMO, Regional Environmental Management Plans and Areas of Particular Environmental Interest established by ISA, seasonal or year-round area fisheries closures set by regional fisheries management organizations, and vulnerable marine ecosystems (De Santo, 2018). In this perspective, international cooperation and coordination is essential important for the implementation of ABMTs regime of the BBNJ Agreement. International cooperation and coordination is stipulated in nearly all the stages of the established of the ABMTs including MPAs in the BBNJ Agreement, such as consultations on and assessment of proposals (Art. 21), establishment of area-based management tools, including marine protected areas (Art.22), implementation (Art. 25) and monitoring and review (Art.26). This reflects the application of the BBNJ Agreement's the non-prejudice clause in the ABMTs regime. Besides, if an ABMT under the BBNJ Agreement is currently declared by a State or an international organization, it applies only to States that have agreed to establish the ABMT, and non-parties can disregard the measures taken in the ABMT (Petra, 2012). Under the article 25 of the BBNJ Agreement, non-parties that are entitled to become Parties will be encouraged by contracting parties to adopt measures supporting the decisions and recommendations of the COPs on ABMTs. Besides, non-parties shall not be discharged from the obligation to cooperate.

In the realm of global environmental governance, the consideration of national interests by sovereign states often conflicts with the emerging powers in the governance process. As a result, modern international law generally adopts the soft law or framework convention plus protocol model in the environmental field. Currently, the most pressing issue revolves around the legal basis of the PSSA, which lacks a specific international convention. This absence of a clear legal foundation poses potential challenges for the concrete application and future development of the system, necessitating additional support from its own or other shipping management tools to ensure effectiveness. While the existing IMO Area-based Management Tool for shipping is a step in the right direction, it becomes apparent that a more comprehensive strategy is necessary to bridge the gaps and harness the synergies between different ABMTs. The BBNJ Agreement may play an important role in the coordination between different ABMTs for vessel pollution control.

4 Analysis and recommendations on coordination between IMO and BBNJ agreement regimes for vessel pollution control

4.1 Understanding the pursuit of "not undermining" and coordination

To address common challenges faced by humanity, global governance is gradually strengthening, and the role of international organizations is becoming more prominent. In the case of environmental pollution or destruction in the global commons, international law provides a governance framework for coordinated efforts by States and international organizations. International organizations such as the IMO facilitate cooperation among States and establish corresponding international regimes. States, based on their jurisdiction and authorization from international regimes, engage in monitoring and enforcement actions against potential acts of pollution or destruction. The BBNJ Agreement claims that it does not undermine relevant legal instruments and promotes coordination with those instruments, while tries to promotes coherence and coordination with those

instruments. The tension between these two aspects exists. The Article 22 of the BBNJ Agreement as a whole arguably creates a comprehensive framework for ABMTs (Tang, 2024). The COPs of the BBNJ Agreement are mandated to establish arrangements for regular consultations, aimed at enhancing cooperation and coordination with relevant IFBs, as outlined in Article 22(3).The Article 22(4) of the BBNJ Agreement stipulates that the COPs may decide, as appropriate, to develop a mechanism regarding existing ABMTs, adopted by relevant IFBs. The term 'not undermining' could focus on the effectiveness of relevant measures (Langlet and Vadrot, 2023). This implies that "not undermine" is not equivalent to "not interacting" or "not affecting". The COPs could exert influence over relevant IFBs including IMO either directly or indirectly. Consequently, the BBNJ agreement should not undermine the authority of the IMO in the management of shipping, while it can provide such cross-sectoral and ecosystem-based ABMTs to enhance control measures for ship pollution.

4.2 Using compatibility clauses to enhance coordination

The term "competent international organization" in Article 211 (1) and (2) of the UNCLOS refers to the IMO (Nordquist et al., 1991). Similarly, the "generally accepted international rules, procedures, and practices" mentioned in Article 94(5) of the Convention also pertain to the relevant rules, procedures, and practices of the IMO (Nandan et al., 1995). The IMO has played a leading role in controlling ship-source pollution. Designating an area as a PSSA itself does not have legal significance. It is the additional protective measures that provide normative significance to PSSAs. Member States of the IMO are required to take all appropriate measures to ensure that vessels flying their flag comply with these additional protective measures. The BBNJ Agreement will also have an impact on ship pollution activities that threaten the conservation of biodiversity in the high seas. The harmonization of the BBNJ Agreement can be done through 'compatibility clauses'. Many international treaties will set a clause in their texts to deal with the relationship between them and related treaties, such as Article 301 of UNCLOS. These clauses are commonly referred to as "compatibility clauses". The relationship between international treaties is mainly handled with reference to the compatibility clauses in the treaties themselves. Compatibility clauses can play a perfect role in building bridges when dealing with the coordination between international treaties. As mentioned above, on the one hand, the final legal text of the BBNJ Agreement stipulates compatibility clauses in many places and explicitly stipulates coordination and cooperation with other international instruments and legal institutions. For example, Article 5 of the BBNJ Agreement provides a general regulation on the relationship with other relevant international legal instruments and institutions. Article 41 also stipulates the cooperation of all parties with other relevant instruments and institutions in capacity building and marine technology transfer.

The IMO's extensive experience in shipping management facilitates smoother negotiations among stakeholders during the formulation of management measures (Roberts and Tsamenyi, 2007). Relevant measures implemented in PSSAs include measures related to vessel navigation, such as delineating avoidance zones and no-anchor zones, but these measures should not extend beyond the scope of shipping or expand into activities such as fishing or mining (Scovazzi, 2014). The BBNJ Agreement focuses on areas beyond national jurisdiction, adopting a comprehensive perspective aimed at safeguarding marine biodiversity from various threats. However, the potential adoption of measures limiting navigation on the high seas under the COPs of the BBNJ Agreement or by established competent international organizations raises concerns about undermining the existing governance system, wherein the IMO holds a central role in shipping management. There are doubts regarding whether organizations other than the IMO can effectively supervise navigation restrictions and management in ABMTs, given the IMO's unparalleled expertise and experience in international shipping management. Hence, it is imperative that the relevant rules of the BBNJ Agreement are interpreted and applied in a manner that respects and does not undermine the pertinent legal instruments of the IMO, thereby preventing any adverse impacts on the established IMO frameworks.

4.3 Prompting information exchange between the IMO and the BBNJ Agreement

For the coordination and cooperation among international regimes, it is essential to emphasize the coordination role of the COPs among existing international legal instruments and institutions. Cooperation and coordination among international organizations can initially be achieved through voluntary agreements, gradually evolving into stable or regular mechanisms for collaboration and exchange. Stable or regular mechanisms for cooperation and exchange are crucial because the foundation of collaboration is not merely trust but the continuity of relationships. When interactions have the potential to endure over an extended period, participants tend to consider their future together, emphasizing the importance of sustained relationships. Moreover, when participants lack access to effective information, the uncertainty of collective action increases, making international cooperation extremely challenging. Therefore, regular information exchange and sharing between competent international organizations become crucial to facilitate effective communication and collaboration. For example, the IMO has strengthened control over ship black carbon emissions in recent years. In the index of MEPC resolutions and Guidelines related to MARPOL Annex VI, official resolutions or regulations classified as "Black Carbon related documents" are scarce, only "Protecting the Arctic from shipping Black Carbon emissions [MEPC.342(77)]" and "Reporting protocol for voluntary measurement studies to collect Black Carbon data" are available. The relevant resolutions and information can be submitted to the relevant bodies of the BBNJ Agreement through the Secretariat.

Information exchange between the IMO and the BBNJ Agreement is of significant importance for the design and implementation of ABMTs. For instance, the IMO has developed guidelines and standards for the Ship Reporting System, which mandates ships, or specific types carrying particular cargo, to report to coastal states.[6] While most Ship Reporting Systems are within national jurisdiction, there's no explicit prohibition on extending such systems beyond national borders. These systems are also applicable in ABMTs on the high seas, aiding in alerting ships to potential environmental issues such as the presence of ABMTs requiring special attention. Moreover, the Long-Range Identification and Tracking (LRIT), fully implemented by the IMO in 2009, aids in monitoring vessel movements within 1000 nautical miles from the coast, thereby contributing to the implementation of ABMTs established under the BBNJ Agreement. Information exchange is facilitated through communication and interaction between secretariats, authorized by the IMO and the COPs of the BBNJ Agreement.

4.4 Identifying the active role of member States

The States' actions can significantly promote cooperation between regimes or treaties. Through the States with overlapping membership, the generation of new knowledge or ideas may spread from one regime and affect the decision-making of another regime (Bradnee Chambers et al., 2008). Cooperation among international organizations under different departments or treaties the international legal system primarily depends on the actions of individual States (Stoll, 2021). The BBNJ Agreement also stipulates that parties shall promote, as appropriate, the adoption of measures within relevant IFBs of which they are members, to support the implementation of the decisions and recommendations made by the Conference of the Parties regarding the ABMTs. While the BBNJ Agreement does not directly regulate shipping, if ship-source pollution affects the conservation and sustainable use of biodiversity, the BBNJ Agreement's ABMTs may become applicable. Member states can promote coordination between the two institutions.

The IMO, as a sectoral organization with near-universal membership, holds the authority to decide on restrictions impacting the freedom of the high seas, such as limiting navigation in specific areas. These restrictions are obligatory for all its members. However, current practices concerning marine protected areas beyond national jurisdiction do not typically focus solely on limiting navigation on the high seas. It's important to note that measures affecting the freedom of the high seas, including navigation restrictions, necessitate the consent of the States affected to become effective (Freestone, 2018). In practice, the vast majority of navigation measures for ABMTs on the high seas fall under the framework of either the SOLAS or MARPOL Convention (Churchill, 2013). As of March 2, 2024, the SOLAS Convention has been ratified by 168 countries, with ships flying the flags of these countries accounting for 98.91% of the world's total registered tonnage. Similarly, MARPOL has 161 contracting parties, representing 98.89% of the world's total tonnage.[7] It's noteworthy that future members of the BBNJ Agreement often overlap with SOLAS and MARPOL membership. This convergence underscores the importance of member States' actions in facilitating coordination between the regimes of the IMO and the BBNJ Agreement for effective vessel pollution control. As required by the BBNJ Agreement, when proposed measures fall within the scope of IMO's authority, the co-contracting parties can make suggestions to facilitate the IMO in adopting relevant measures.

4.5 Potential application of marine spatial planning

Marine spatial planning contributes to ecosystem-based governance in ABNJ, safeguarding the integrity of ecosystems. While marine spatial planning is predominantly employed within national jurisdictions (European Commission, 2011), its principles are gradually being applied beyond these boundaries. A notable example is the use of marine spatial planning to protect the fragile benthic ecosystems in the Northeast Atlantic from the adverse impacts of deep-sea fishing and to safeguard submarine cables from the effects of deep-sea mining activities (Rayfuse, 2020). The Intergovernmental Oceanographic Commission of UNESCO has been instrumental in advancing the development of marine spatial planning, considering it a public process for analyzing and allocating the spatial and temporal distribution of human activities in specific marine areas to achieve ecological, economic, and social objectives, typically carried out through political processes (Ehler and Douvere, 2009). Under the concept of marine spatial planning, cooperation and coordination can take place between the IMO and the BBNJ Agreement's COPs regarding the application of ABMTs related to vessel pollution control and biodiversity conservation in significant maritime areas.

5 Conclusion

The establishment of the Special Areas and PSSAs system is important for vessel pollution control. Most of the ABMTs implemented by IMO are under national jurisdiction. Special

6 IMO. Resolution MSC.43(64) adopted on 9 December 1994. MSC 64/221 Add. I.

7 Here are the data for Annex I and Annex II of the MARPOL Convention. Annex III: 151 countries have joined, representing 98.54%. Annex IV: 147 countries have joined, representing 96.66%. Annex V: 156 countries have joined. See IMO: Comprehensive information on the status of multilateral Conventions and instruments in respect of which the International Maritime Organization or its Secretary-General performs depositary or other functions, https://www.imo.org/en/About/Conventions/Pages/StatusOfConventions.aspx.

Areas is managed mainly through the relevant bylaw provisions of the MARPOL to achieve environmental protection objectives, employing emission standards to limit the discharge of specific pollutants from ships; whereas PSSA utilize a broader array of APMs, such as restricting ship activities in specific regions. Extending PSSAs to the high seas may attract a lot of opposition due to perceived infringements on the principle of freedom of the high seas. The BBNJ Agreement provides explicit rules for the establishment of ABMTs beyond national jurisdiction, promoting the establishment of such tools in high seas, and emphasizes cooperation and coordination with IMO with regard to ABMTs. It is imperative to foster cooperation and coordination between the COPs to the BBNJ Agreement and the IMO. This collaboration should evolve into a regular mechanism for cooperation and information exchange. Achieving harmonization between the BBNJ Agreement and IMO's regimes can be facilitated through the inclusion of 'compatibility clauses'. To ensure effective coordination of ABMTs between the IMO and BBNJ Agreement regimes, a key emphasis should be placed on the coordinating role of the COPs. Relevant resolutions and information from the IMO can be communicated to the pertinent bodies of the BBNJ Agreement through its Secretariat. Additionally, in cases where ship-source pollution impacts biodiversity conservation and sustainable use, the BBNJ Agreement's ABMTs may come into play. Member states have the opportunity to facilitate coordination on ABMTs between the two institutions. Lastly, under the concept of marine spatial planning, there is an opportunity for cooperation and coordination between the IMO and the BBNJ Agreement's COPs regarding the application of ABMTs.

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