

Chapter 6

The Past, Present and Future of Ocean Governance: Snapshots from Fisheries, Area-Based Management Tools and International Seabed Mineral Resources



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Abstract Ocean governance comprises the law of the sea as well as all related policy and normative dimensions that relate to the regulation of human activity at sea and increasingly places a strong focus on marine environmental protection and the conservation of marine resources, with the aim of ensuring a healthy and productive ocean while sustaining a resilient ocean-based economy. Premised on this observation, this chapter aims to reflect on the past, present and future of ocean governance using three case studies as snapshot examples, namely, fisheries at sea, marine area-based management tools and international seabed mineral resources. Put together, these three case studies will demonstrate how the law of the sea has evolved when considered from the dimension of ocean governance, particularly with respect to the challenge of protecting and preserving the marine environment through the sustainable use of marine resources.

6.1 Introduction

This chapter aims to provide some insights into the past, present and future of ocean governance using three case studies as snapshot examples, namely, fisheries at sea, marine area-based management tools and international seabed mineral resources. Put together, these three case studies will demonstrate how the law of the sea has

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evolved when considered from the dimension of ocean governance, in particular with respect to the protection and preservation of the marine environment as well as the sustainable use and conservation of marine resources.

The United Nations Convention on the Law of the Sea (LOSC), adopted in 1982, is also known as the ‘constitution for the oceans’ due to its comprehensiveness in codifying the law of the sea into a multilateral treaty with legally binding effect (Koh 1982). The LOSC explicitly designated the various maritime zones (alongside with the associated legal rights and obligations that apply respectively) and established a dedicated part to the protection of the marine environment. Although the LOSC only took shape from the late twentieth century, the law of the sea is one of the oldest branches of international law, where States have often sought to exercise rights and exert their influence. The LOSC, consequently, has had the benefit of centuries of experience of human activity at sea and could be seen as an instrument that configures the main framework for global ocean governance. As a concept, ocean governance has not been precisely defined and its contour and relationship with the law of the sea remains unclear (Takei 2015). However, it is clear that ocean governance comprises the law of the sea as well as all related policy and normative dimensions that relate to the protection of the marine environment and the regulation of human activity at sea (Rothwell and Stephens 2016).

Accordingly, ocean governance appears to place a strong focus on marine environmental protection and the conservation of marine resources (Singh and Ort 2019), with the aim of ensuring a healthy and productive ocean while sustaining a resilient ocean-based economy. Premised on this observation, we begin with fisheries at sea as representative of a marine resource exploitation activity long before the conclusion of the LOSC and an important interest of State Parties that the LOSC sought to protect (though still barely effective for addressing overexploitation and conserving marine ecosystems). We then turn to area-based management tools as a marine conservation approach that has received increasing attention since the 1980s and in the current times. Finally, we consider the management of the international seabed mineral resources as example of an interest that sparked great debate during the negotiations of the LOSC and yet today still remains an activity for the future. Each case study will involve a brief historical analysis prior to 1982, as well as attempt to track developments since the LOSC was adopted and subsequently entered into force, and critically evaluate how things broadly stand today.

6.2 Fisheries at Sea: A Persistent Challenge

Fisheries lie among the very origins of the law of the sea. Since the early attempts of managing the oceans, fishing activities have been involved in the development of a series of instruments that try to harmonize the needs, interests and concerns at sea. Yet, fisheries regulations so far have been barely effective for the purposes of protecting fish stocks from overexploitation and the conservation of marine ecosystems, what makes it a persistently challenging activity for ocean governance.

The origins of international fisheries law are intertwined with the foundation of the law of the sea. The great conflict between the defenders of exclusive rights (*mare clausum*) and those who claim free exploitation (*mare liberum*) over marine resources and spaces dates back to colonial times of the sixteenth–seventeenth centuries, and agreements aimed at restricting access to certain maritime areas could be identified already in the Classical Age (Markus and Markus 2021). But even though there were already several conservation measures foreseen in fisheries legal norms by the mid-twentieth century, reversing fish stocks depletion only became the main concern of international fisheries regimes around the 1970s. Before that, the priorities of States were pretty much focused on the conquest of new fishing grounds or the development of means to guarantee production levels (Garcia et al. 2014; Markus 2018). This shift came after the serious environmental impacts caused by the significant increase on the size and capacity of fishing vessels, usually fostered by State subsidies (WTO 1999; Sakai et al. 2019), started to become evident, giving birth to a multitude of marine living resources protection-oriented regional and global instruments.

The adoption of LOSC was undoubtedly a cornerstone to international fisheries law. While maintaining the principle of “freedom of the seas” on the high seas, which concerns freedom of navigation, fishing and exploitation of resources, non-prejudicial passage in regions beyond the jurisdiction of States (Arts. 87 and 116), the LOSC assured to coastal States full sovereignty in Inland Waters and the Territorial Sea of up to 12 nautical miles.¹ Sovereign rights were accorded over the exploitation of natural resources in the Exclusive Economic Zone (EEZ) and the Continental Shelf that can extend up to 200 nautical miles (and in the case of the continental shelf, may extend even further pursuant to Article 76). In terms of the conservation and sustainable use of fishing resources, the LOSC detailed out rights and duties of coastal States in the EEZ. In this respect, States shall determine the total allowable catch of their living resources based on the best available scientific knowledge and in co-operation with the competent international organizations in order to achieve maximum sustainable yield (Articles 61–62). In addition, international cooperation is required, directly or through regional or subregional organizations, to manage shared, straddling, marine mammals, anadromous or catadromous stocks. In this process, economic and environmental factors must be considered, such as the economic needs of coastal fishing communities and developing States, as provided for in Article 61(3).

However, the main measures of the conservation strategy adopted for the EEZ (namely, “total allowable catches” and “maximum sustainable yield”) are not only difficult to implement, as they are subject to the jurisdiction of coastal States and depend on high economic cost stocks assessments, but also tend to leave out relational analysis, such as bycatch and the impacts of marine pollution and other economic activities on biodiversity. Therefore, despite being known as the general legal

¹ Subject to the right of innocent passage of foreign vessels through these areas, as established from Articles 17 to 26 of the LOSC.

framework for international fisheries law, the LOSC lacks detailed and ambitious provisions applicable to all maritime spaces as well as a solution to the growing pressures on fish stocks, especially on the high seas (Birnie et al. 2009; Sands et al. 2018).

Since the LOSC was adopted, several norms and instruments to complement the regime applicable to marine fisheries have been developed. Of those pertaining to multilateral binding instruments, three agreements stand out. The first is the United Nations Agreement for the Implementation of the Provisions of the LOSC relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UNFSA or simply the UN Fish Stocks Agreement), which was adopted in 1995 and came into force in 2001. The UNFSA aims to ensure long-term conservation and sustainable use of these fish stocks (Article 2). It further elaborates upon relevant provisions under the LOSC by setting out obligations both for areas beyond and under national jurisdiction, such as the need for applying a precautionary approach (Article 6) and by strengthening the role of regional and sub-regional fisheries organizations (RFMO) (see Articles 8-14 and 17(1)(2)). Specifically, it stresses on the need to consider the effects of other activities and environmental factors on target populations and associated ecosystems in fisheries assessments (Article 5(d)), as well as the relationships between biological characteristics and geographical particularisms and the impacts on living marine resources as a whole in determining conservation measures (Article 7.2), and to avoid adverse impacts on and ensure access to fisheries by small-scale and artisanal fish workers (Article 24(2)(b)).

The other two global binding instruments were approved under the mandate of the UN Food and Agriculture Organization (FAO). On the one hand, the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (Compliance Agreement), adopted in 1993 and entered into force in 2003, aims to address the issue of compliance with international conservation measures in the high seas. In this sense, it requires flag States to take necessary measures to ensure that fishing vessels flying their flag do not engage activities that undermine international norms, such as the requirement of authorization to fish, the provision of sanctions and cooperation with other States to help identifying vessels engaged in such activities. On the other hand, the Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated (IUU) Fishing (PSMA), adopted in 2009 and in force since 2016, in turn, puts the spotlight on the point at which fish are landed, by providing, among others, that the local authorities can deny permission to entry into its port if they suspect that the vessel has engaged in IUU fishing (Article 9.1).

Apart from that, the contributions of the FAO to the development of international fisheries law through non-binding instruments also stand out.² In the last decades, the FAO has been striving to lead the settlement of the notion of sustainable

²The resolutions from the UN General Assembly, although less noticeable, have played an important role, too. On this subject, see the Chapter from Nakamura in this book.

fisheries. Notably, the most important means for that is the Code of Conduct, from 1995, which aims to promote responsible fisheries by providing principles, guidance and standards for its implementation (Article 2). Its Article 6 brings expressly the duty of States and users of bio-aquatic resources to conserve aquatic ecosystems as a result of their right to fish. The Code also gave birth to a series of plans of action, technical and international guidelines. One of them officially adopted what was called the “ecosystem approach to fisheries”, which presupposes the need for fisheries management to associate fisheries concerns with conserving the structure, diversity and functioning of the biotic, abiotic and human components of ecosystems, aiming to promote convergence towards a more holistic and balanced approach through principles such as the precautionary approach, equity, stakeholder participation and ecosystem integrity (FAO 2003). Another important example comes from 2014, with the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the context of Food Security and Poverty Eradication (SSF Guidelines). The document was approved in order to guide public policies in the sector and ensure decent working conditions to this marginalized group through a human-rights approach. It recommends, among others, that States (especially developing countries) facilitate, train and support fishing communities to participate and assume responsibilities in the management of resources (FAO 2015).

Regional arrangements have also proven to be fruitful in the provision of norms concerning the international conservation and management of fish resources. Indeed, building on the political momentum for considerations on sustainability driven by multilateral summits such as the UN Conference on Environment and Development 1992 (the Earth Summit or Rio Conference), the UNFSA explicitly called for the establishment of subregional and regional management organizations or arrangements in order to improve fisheries governance (Harrison 2019, p. 80). Since then, many RFMOs (that were already long in existence) have revised their enabling conventions in order to adopt innovative approaches, such as the ecosystem approach to fisheries management and the requirement of undertaking periodic performance reviews (Harrison 2019). Alongside with the efforts of other related institutions, these reforms have brought about progressive legal frameworks capable of providing tools for the sustainable management of stocks, particularly in the case of tuna and tuna-like species RFMOs (Unterweger 2015).

The Common Fisheries Policy (CFP), under the scope of the European Union (EU), is also worth mentioning. The CFP defines various principles and management tools in the search for long-term sustainable fisheries, notably since its last extensive reform which entered into force in 2014.³ The text provides for the adoption of a precautionary approach, as well as an ecosystem approach to fisheries management (see Art. 4(8 and 9)). In terms of conservation and sustainable exploitation measures, a wide range of options is listed, including input (e.g. multiannual plans and restrictions on the use of certain types of mesh or vessel sizes) and output (e.g. TAC and landing obligation) regulations, as well as market driven instruments,

³ See Art. 2 of Regulation n. 1380/2013 of the European Parliament and of the Council.

such as economic incentives to fishing with low impact on the marine ecosystem and fishery resources (Art. 7), making fisheries one of the most regulated activities in the EU (Hadjimichael 2018).

Despite the developments in international fisheries law built upon the LOSC, international fisheries law is still deficient not only in substantive fisheries measures but also in terms of compliance. The LOSC, even after being complemented by the UNFSA, is essentially based on the enunciation of generic measures and objectives, relying on state practice to detailing and implementing them. However, there is low compliance by the States, either because they cannot afford the high costs of conservation measures, especially in developing countries, or because they give priority to other economic and political interests, in the case of industrialized countries (Molenaar 2019). On the other hand, although FAO has made much progress in regulatory terms, it is unable to overcome the reluctance of States to a large extent. As for regional fisheries bodies, the existing ones still leave some regions and species uncovered (e.g. the South-West Atlantic), as well as not all have the power of adopting legally binding conservation and management measures (Harrison 2019). Moreover, most of them still have not reached transparent, timely and effective decision-making mechanisms (Leroy and Morin 2018). Even the CFP has not been able to overcome the contradictions between ambitious declarations and state practice. The officially established EU target of achieving maximum sustainable yield exploitation rates for all fish stocks by 2020 (see Art. 2.2 from EU Regulation 1380/2013) was not achieved (European Commission 2020) while small scale fisheries fleet has been decreasing since the beginning of the new millennium (Loret 2018), problems that experts link to the fact that the measures put into practice often fall considerably short of scientific recommendations and social concerns (Hadjimichael 2018; Lado 2016). Thus, there is an insistence on the application of traditional management techniques (e.g. gear and effort restrictions), with rare cases where measures that give due attention to the relationships among species are legally prescribed (Serdy 2018).

Therefore, fisheries at sea can be considered an example of how such a traditional activity can represent an ever-present challenge to ocean governance. If historically it was cause of conflicts primarily due to difficulties in regulating competing economic or geopolitical interests, the implementation of the increasingly important environmental protection measures and obligations suffers from the lack of political will or financial conditions by the States, as well as integration and coordination mechanisms for the many institutions and regulations that deal, direct or indirectly, with fisheries management.⁴ As a result, international fisheries law has not been able to overcome the serious failures in addressing the negative impacts generated by fishing activities in the ocean (see FAO 2020 and WWF 2020). Area-based management tools, which are essentially multidimensional, have been increasingly prescribed by international norms to tackle such deficiencies. Nevertheless, they also

⁴For a profound incursion on fisheries governance norms and institutions and the practical interaction between regimes, see: Young 2011.

face problems to encompass all the complexity involved in achieving a good ocean governance.

6.3 Area-Based Management Tools: The Current Trend

Area-based management tools (ABMTs) gained momentum throughout the years as a useful tool not only in the broader global conservation agenda, but also for the protection of the marine environment. Their ability to mobilize a variety of legal regimes in specific areas to achieve a desired outcome turned ABMTs into an essential element in the ocean governance toolbox. Although ABMTs are an undeniable success in terms of adoption (particularly considering marine protected areas), they can be controversial. In fact, sensitive issues regarding biodiversity conservation, such as acknowledging all the complexity of ecosystems and properly taking into consideration social interests, are even more challenging in marine realities.

Conceptually speaking, ABMTs can cover a wide range of different legal measures. They operate by guiding determined spaces to pursue certain objectives, such as the protection and preservation of marine environment, the conservation of marine biodiversity, sustainable use of marine biodiversity components and revolving conflicts of use and interests in coastal and maritime zones. A study carried out by the World Conservation Monitoring Centre (WCMC), from the United Nations Environment Program (UNEP), mapped case studies related to seven ABMT, such as: integrated coastal zone management (ICZM), marine spatial planning (MSP), marine protected areas (MPAs), locally-managed marine areas (LMMA), MARPOL⁵ special areas, particularly sensitive sea areas (PSSA) and fisheries closures (UNEP 2018). Nevertheless, since no global consensus on the definition of ABMT exists, we will focus here on the two examples which have been more significantly developed in international law: marine protected areas and marine spatial planning.⁶

The custom of protecting special places at sea by local communities exist for millennia (Laffoley et al. 2018). However, the creation of MPAs for environmental policy purposes is a recent development and mostly relies on the international regulatory framework for protected areas in general, since the LOSC does not mention them expressly. Protected areas were consecrated as an international commitment to spaces (terrestrial or marine) within the jurisdiction of the countries through the Convention on Biological Diversity (CBD) in 1992, which has become the main reference in the international arena for discussions and legal measures related to

⁵MARPOL is how the International Convention for the Prevention of Pollution from Ships, signed in 1973, together with its 1978 protocol, is better known.

⁶In this respect, it is important to note that MPAs have been much more widely integrated into international law and policies than MSP.

nature protection.⁷ The CBD also provides a definition of a protected area, described as “a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives”. As highlighted by the *Ad Hoc* Technical Expert Group on Marine and Coastal Protected Areas, created by the Conference of the Parties of CBD at its fifth meeting, they can cover both coastal and offshore zones, with the effect of increasing the level of biodiversity protection within these areas set aside by law (Secretariat of the Convention on Biological Diversity 2004a, b, p. 7).

Over the past two decades, the spatial area covered by MPAs showed a ten-fold increase.⁸ The LOSC appears to have contributed to this shift to some extent. Despite not explicitly mentioning MPAs, the LOSC strengthens coastal states capabilities to create such legal instrument, by granting them with sovereign rights in their territorial seas and EEZ for the purposes of managing and conserving natural resources and, at the same time, creating the duty to protect and preserve the marine environment. Most importantly, targets relating to the establishment of MPAs have been defined over the last decades. Back in 1992, Agenda 21 already dedicated Chap. 17 to push States to “undertake measures to maintain biological diversity and productivity of marine species and habitats under national jurisdiction”, including the “establishment and management of protected areas” (see Article 17(7)). Goal 11 of the Aichi Biodiversity Targets and Goal 14 of the 2030 UN Agenda for Sustainable Development established quantitative and qualitative targets: they call on States to conserve, by 2020, at least 10% of coastal and marine areas through protected areas or other effective means consistent with national and international law.⁹ This target could increase to 30% in the next global political commitment, i.e. the Post-2020 Global Biodiversity Framework, which is expected to be adopted in late 2022.¹⁰ All these factors have helped push MPAs to become the core of ocean governance legal strategies today, essentially through domestic action.

⁷ Before CBD, a few international conventions that mention species of marine protected areas can be listed: the 1971 Ramsar Convention established the list of Ramsar Sites (*Convention on Wetlands of International Importance Especially as Waterfowl Habitat* 1971, art. 2); in 1972, UNESCO introduced the concept of World Heritage Sites (UNESCO 1972, art. 4); in the 1990s, the Antarctic Specially Protected Areas and the Specially Managed Antarctic Areas were established by the 1991 Antarctic Protocol on Environmental Protection (*Protocol on Environmental Protection to the Antarctic Treaty* 1992, Annex V).

⁸ According to the World Database on Protected Areas online platform. See: <https://www.protectedplanet.net/marine>

⁹ The Zero Draft of the post-2020 Global Biodiversity Framework, which was released in July 2021, among the targets to be completed by 2030, calls for states to “ensure that at least 30 per cent globally of land areas and of sea areas, especially areas of particular importance for biodiversity and its contributions to people, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes” (CBD/WG2020/3/3).

¹⁰ For more information on the preparations for the Post-2020 Biodiversity Framework, visit: <https://www.cbd.int/conferences/post2020>

Indeed, in theory MPAs are very promising. MPAs work by establishing zones where different types and levels of human intervention are allowed or prohibited. Moreover, it is typically a multi-sector planning tool, instead of single-sector, enabling the application of rules to restrict different human activities at the same time. They have, then, the potential to encompass a comprehensive zoning approach (Singh & Ort 2019, pp. 48–49).

In addition, MPAs are intrinsically related to the ecosystem approach. The CBD bodies pioneered the development of ecosystem approach as a broad concept, encouraging its adoption as an approach that implies integrated and adaptive management techniques in order to adapt to the changing nature of a number of issues: the availability of scientific knowledge, the living systems themselves, the threats they suffer, as well as the multifaceted interests of those who use them (Secretariat of the CBD 2004a, b, pp. 1–4). The notion itself originated from practical experiences with the implementation of protected areas, which served, at the same time, to demonstrate that MPAs already provide many of the principles that make up the ecosystem approach and to call States to act upon protected areas failures and successes (CBD 1998).

The forthcoming binding international instrument under the LOSC on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (BBNJ Agreement) may improve MPAs regulation, which can be rather complicated when it comes to areas beyond the limits of national jurisdiction where no State may exercise sovereignty or sovereign rights. The pressing need for such an agreement was agreed in 2017 by the UN General Assembly (A/RES/72/249), after more than a decade of discussions within the *Ad Hoc* Open-ended Informal Working Group to Study Issues Relating to the Conservation and Sustainable Use of Marine Biological Diversity beyond Areas of National Jurisdiction. This legal instrument, whose draft text is under construction, was theme of three Intergovernmental Conferences and is expected to conclude its negotiations in 2023. ABMTs, in particular, MPAs, figure as one of the core components of the BBNJ Agreement, which may very well provide the necessary platform for the effective protection of the marine environment in areas beyond national jurisdiction.¹¹

The BBNJ Agreement is also an opportunity to consolidate the role of ABMT in international law and to better delimitate the scope of MPAs. The draft of the treaty innovates when it provides for definitions for both ABMT and MPA, which can

¹¹ For more information on the negotiations towards the BBNJ Agreement, see: <https://www.un.org/bbnj/>

serve as a legal framework also for areas under national jurisdiction.¹² The definitions proposed elect the possibility of taking into consideration particular and cumulative impacts of different human activities in determined areas as the essential feature of ABMTs, as well as reaffirm MPAs as a species of ABMT that is oriented for long-term marine biodiversity conservation and sustainable use objectives.¹³ Nonetheless, although there seems to be consensus on the desire to include in the Agreement a list of outcome-oriented objectives and to strengthen ecosystem approach, the use of best available science and of the traditional knowledge of local communities and indigenous peoples as basic requirements to the designation of any ABMT, the negotiations so far have not achieved significant outcomes on defining the creation, implementation, monitoring and reviewing processes and the bodies in charge of analyzing MPAs and other ABMT proposals (IISD 2019).

Aside from MPAs, marine (or maritime) spatial planning also stands out as a form of ABMT.¹⁴ This tool is already institutionalized in more than 20 countries and is expected to cover at least one third of the surface area of world's EEZ in 2030 (Ehler et al. 2019, p. 1) as well as to be implemented in areas beyond national jurisdiction (Becker-Weinberg 2017). MSP is essentially a public planning process that brings together and maps out different impacts from human uses occurring in the same area, thereby permitting decision-making to restrict or foster ocean-based activities based on this geographic mapping (Ehler and Douvère 2009, p. 18; Zacharias 2014). Originating due to the exceeding demand for marine uses against space availability, it had its first legal foundation indirectly formed by the notion of integrated coastal zone management or ICZM (e.g. item 17.5 from Agenda 21) and by the LOSC provisions on the need for promoting peaceful uses of the sea (see the Preamble) and the regulatory competence of coastal States on supra-sectorial planning.¹⁵ MSP aims to achieve social, economic and environmental results and has long been ascribed as a tool to implement an ecosystem-based approach *par*

¹²The revised text of November 27, in its Article 1 affirms that “ABMT means a tool, including a marine protected area, for a geographically defined area through which one or several sectors or activities are managed with the aim of achieving particular conservation and sustainable use objectives [and affording higher protection than that provided in the surrounding areas]” and that ““Marine protected area” means a geographically defined marine area that is designated and managed to achieve specific [long-term biodiversity] conservation and sustainable use objectives [and that affords higher protection than the surrounding areas]” (Intergovernmental conference on marine biodiversity of areas beyond national jurisdiction 2019).

¹³In the same sense of IUCN's guidelines (see Day 2012). Scovazzi (2011, p. 14) proposes a different definition when he considers MPA “an area of marine waters or seabed that is delimited within precise boundaries (including, if appropriate, buffer zones) and that is granted a special protection regime because of its significance for a number of reasons (ecological, biological, scientific, cultural, educational, recreational, etc.)”, recalling note 11 of Decision VII/5 on marine and coastal biological diversity of the CBD's COP.

¹⁴Another ABMT that may gain value as a legal instrument in oceans governance for its integrative feature is the Ecologically or Biologically Significant Areas (EBSA), which prepares areas for the adoption of other management measures by describing spaces of ecological importance. To learn more about it, see: (Diz 2018).

¹⁵See Articles 56-58 of the LOSC.

excellence (Douve 2008). The manner in which it has been concretized in current legal systems, however, is not so coherent in practice.

In the implementation of MSP under national and regional legal settings, economic considerations seem to have prevailed over environmental concerns. MSP is usually institutionalized under the context of promoting the development of a “blue growth”.¹⁶ This can be illustrated by the case of the Directive 2014/89/EU establishing a framework for MSP. Although it can be considered a milestone for an integrated long-term planning of the EU maritime space (Schubert 2018, p. 1021) – i.e., by aiming to promote the sustainable growth of maritime economies, the sustainable development of marine areas and the sustainable use of marine resources (art. 1(1)) – coastal zones have been left out of it (Cudennec 2015), while studies show that it has been implemented mainly to further economic purposes (Frazão Santos et al. 2014).

Accordingly, experiences in other countries demonstrate the need for better assessing of MSP social implications (Flannery et al. 2016; Flannery et al. 2018; Queffelec et al. 2021). The tool is an answer to deal with the growing interest in the exploitation of marine resources and space. However, MSP also attracts new users to a territory that was historically used essentially for fishing purposes. Therefore, the allocation of new activities at sea, even if formally stated to seek integration and adaptability, may end up legitimizing, just like some MPAs do, expropriations of vulnerable coastal communities whose livelihoods depend on artisanal fisheries, a phenomenon increasingly described in literature as ocean grabbing (Bennett and Govan 2015).

In fact, in terms of effectiveness, even the apparent success of MPAs remain highly controversial. Shortcomings have been pointed out by scientists regarding both the lack of reliable information and ecological and socioeconomic MPAs’ potentialities. As for the latter, while there are studies showing that many public procedures behind the establishment of MPAs either do not take into consideration the rights, needs and interests of traditional coastal communities that are affected by the restrictive regimes they create or exclude them from the resources’ management, being source of various conflicts and injustices (Araujo and Moita 2018; Barros et al. 2021; Sharma and Rajagopalan 2017), others reveal that when MPAs receive local support, these have the tendency to be more effective and successful (Bennett and Dearden 2014; Andrade and Rhodes 2012; Alder et al. 2002). With respect to the effectiveness of results from an environmental conservation perspective, many scientific studies endorse that closing off areas of the ocean to fishing and other extractive activities through MPAs do help species recover, especially those habitually under threat. Nevertheless, partially protected areas and the surroundings are overlooked by scientists, which makes it hard to conclude that fully protected areas are the best for marine biodiversity conservation (Dasgupta and Fensome 2018). Moreover, there is still the proliferation of the so-called “paper MPAs”, i.e. those established in places that, instead of representing great biological importance,

¹⁶As recognized by UNESCO. See: <http://msp.ioc-unesco.org/world-applications/overview/>

are chosen simply because they have no economic importance and/or will unlikely implement any restrictions on exploitation or access (Rife et al. 2013).

The Chagos Marine Protected Area Arbitration helped in defining the role of MPAs in ocean governance, highlighting the need for balancing the competing rights at stake. In the dispute, Mauritius claimed that the creation of a MPA in the Chagos Archipelago by the United Kingdom violated Mauritian fishing rights, protected under the LOSC, among other agreements. In the decision rendered in 2015, the tribunal acknowledged that Part XII of the LOSC does not only apply to the prevention, reduction or control of marine pollution, but may also involve the creation of MPAs. In order not to violate the provisions of the LOSC, however, the coastal State must respect the rights and obligations of other States, which includes the duty to present a meaningful commitment to justify such a measure and after having explored other less restrictive alternatives. The tribunal declared that in establishing the MPA surrounding the Chagos Archipelago, the United Kingdom breached its obligations under Articles 2(3), 56(2), and 194(4) of the LOSC (PCA 2015, paras. 320; 538–541).

The ecosystem approach, which could be a guiding principle for the necessary adaptations of MPAs and the elaboration and implementation of new ABMTs, by its turn, does not have clearly delimited contours in international law. Notwithstanding the fact that it was the bodies of the CBD that most joined efforts to develop the ecosystem approach as a legal concept, there is no international consensus on its content and objectives yet (Engler 2015). This vagueness has been opening space for it to be appropriated by the discourse of ecosystems services economic valuation, which can reinforce chronic problems of ABMTs, instead of helping to overcome them (De Lucia 2018).

Summing up, the adoption of LOSC and the shift towards marine environmental protection has strongly stimulated the adoption of ABMT, especially with respect to MPAs and MSP. This trend would seemingly continue in the near future, given the increase in global political commitments (e.g. Goal 14 of the SDGs) and should also make some important strides in areas beyond national jurisdiction through the forthcoming BBNJ Agreement. That said, it is apparent that the mere existence of such political commitments is still far from guaranteeing the harmonic consideration of all rights and concerns involved in the establishment and implementation of ABMTs and to arrest the increase in the level of marine biodiversity loss.¹⁷ It is expected that the forthcoming BBNJ Agreement would not seek to undermine any existing arrangements in areas beyond national jurisdiction, which most notably would include the dedicated regime established to administer the mineral resources of the international seabed.

¹⁷According to the Global Assessment Report on Biodiversity and Ecosystem Services (IPBES 2019), over one-third of marine mammals and nearly one-third of sharks, shark relatives, and reef-forming corals are threatened with extinction.

6.4 International Seabed Mineral Resources: Back to the Future

The deep seabed (of depths of 200 meters and beyond) is home to abundant mineral deposits with rich content of metals such as nickel, copper, cobalt, and manganese, amongst other critical metals. These deposits include polymetallic nodules, polymetallic sulphides and cobalt-rich ferromanganese crusts, which are known to exist in areas within the limits of national jurisdiction, as well as in areas beyond the limits of national jurisdiction (i.e. the international seabed). In the case of the latter, the framing of regulations to govern access to these resources as well as the sharing of financial and other economic benefits that are derived from their exploitation have been the subject of intense debates and ongoing negotiations for over half a century. In this respect, commercial mining activities are still yet to take place. With growing environmental concerns surrounding the harmful effects of seabed mining to the marine environment, and at the same time being one of the rare examples where a human activity is being thoughtfully regulated before it even commences, it remains to be seen how the regime and the legitimacy of its activities will shape up in the future.

The LOSC in Part XI classifies the seabed areas beyond the limits of national jurisdiction as the 'Area' and declares the mineral resources therein as the 'common heritage of mankind' (Articles 1(1)(1) and 136 of the LOSC). This declaration of the Area and its mineral resources as the 'common heritage of mankind', wherein the exploration for and exploitation of the mineral resources of the Area is to be carried out 'for the benefit of mankind as a whole' (Article 140(1) of the LOSC) through a single global regime, is consistently hailed as one of the greatest accomplishments of the LOSC (Lodge 2013). Essentially, the common heritage of mankind, now widely referred to as an established principle under international law, is considered as one of the foundational structures of the LOSC (Wolfrum 1983). Two salient provisions in the LOSC, both to be found outside of Part XI of the LOSC, confers strong support for this notion. First, the Preamble of the LOSC, which sets the tone for the entire instrument, gives stark effect to this declaration by affirming that "the area of the seabed and ocean floor and the subsoil thereof, beyond the limits of national jurisdiction, as well as its resources, are the common heritage of mankind, the exploration and exploitation of which shall be carried out for the benefit of mankind as a whole". Second, Article 311(6) of the LOSC unequivocally prescribes that there shall be no derogation from the "basic principle relating to the common heritage of mankind". Numerous provisions in Part XI, as will be explored in the coming paragraphs, also lend effect to the primacy of the 'common heritage of mankind' in the context of seabed mining activities in the Area.

However, in order to better comprehend the deep seabed mining regime for the Area that Part XI of the LOSC established, it is necessary to look beyond the LOSC and appreciate the historical developments that took place decades before the LOSC was adopted (White 1982). One particular fact to take cognizance of from the outset is that the LOSC, while concluded in 1982 after nearly a decade of multilateral

negotiations, only came into force in 1994. This is due to the dissatisfaction of numerous developed countries specifically with respect to Part XI (Tanaka 2011). It is important to stress here that the LOSC was negotiated with a view of adoption as a 'package deal' (Treves 2008), and additionally, any State wishing to be a signatory to the instrument must accept it as a whole without exceptions or exemptions, which are otherwise known as reservations (UN DOALOS 1998). Since there were disagreements in relation to the deep seabed mining regime in Part XI, a significant number of States (mostly industrialized) were not inclined to ratify the LOSC. This deadlock was only resolved with the adoption of the 1994 Agreement relating to the implementation of Part XI of the LOSC (UN DOALOS 2016).

Although the existence of ocean minerals was already known since the 1860s when the HMS Challenger successfully collected polymetallic nodules from the seabed, the defining moment that gave rise to the strong political will to initiate the process to establish a mining regime for the international seabed only came a century later (Morgan 2011). This impetus was largely driven by John L. Mero's publication entitled 'Mineral Resources of the Sea' in 1965, which speculated the availability of abundant mineral resources on the seafloor that could be easily procured with assured profits (The Geological Society 2013). However, other contemporaneous events may have also played a role in propelling the creation of the international seabed mining regime. Most notably, the traditional practice of the freedom of the high seas was already under challenge since the 1940s (UN DOALOS 1998). Through a 1945 Proclamation by President Truman, the US unilaterally declared jurisdiction over non-living seabed resources up to the extent of the continental shelf. In contrast, newly independent and developing countries, in particular in South America, were more concerned with living resources (i.e. fisheries) and sought to extend their jurisdiction over fish stocks up to 200 nautical miles (as compared to the existing practice of coastal State jurisdiction of between 3 to 12 nautical miles). As state practice proliferated in this regard, the areas that were left as areas beyond national jurisdiction were substantially reduced. Thus, questions arose about how to regulate access to resources in areas that were beyond national jurisdiction. These questions mainly centred on the mineral resources in those areas, given that most coastal States (in particular newly independent and developing States) were content if their claims of 200 nautical miles of exclusive rights over fisheries were acceded to (thereby leaving them little cause for concern overfishing activities taking place outside their jurisdiction). Developed States – mainly concerned with offshore resources at this point in time – were equally content if their rights over the non-living seabed resources on their continental shelf were acknowledged in return.

In 1967, Ambassador Arvid Pardo (Malta) delivered a speech to the First Committee of the United Nations, expressing the urgent need to designate the Area and its mineral resources as the 'common heritage of mankind' in order to ensure that it is not exploited by rich and developed countries on a 'first come, first serve' basis (United Nations General Assembly 1967). This passionate plea gained widespread acceptance and formed the basis of two important UN General Assembly resolutions in 1970, which designated the international seabed and its mineral

resources as the common heritage of mankind, that it should be developed ‘for the benefit of mankind as a whole’ and administered through an agreed international machinery (United Nations General Assembly, Resolutions 2749 and 2759 (XXV), 1970a, b). Another unrelated event to deep seabed mining that might have also propelled the demand for ‘enclosing’ the then open access feature of the international seabed is the publication of Garrett Hardin’s ‘The Tragedy of the Commons’ in 1968, which resulted in increased attention towards the problems of open and unregulated access to a shared common resource (Hardin 1968). Shortly thereafter, in 1973, multilateral negotiations via the Third UN Conference on the Law of the Sea (UNCLOS III) commenced. The UNCLOS III culminated in 1982 with the conclusion of the LOSC (UN DOALOS 1998).

On the one hand, the conclusion of the LOSC brought an end to differing state practices in relation to the rights (and obligations) of coastal States over the maritime space in areas within national jurisdiction as well as provided legal clarity with respect to the rights (and obligations) of all States in areas beyond national jurisdiction. On the other hand, the LOSC has also received some criticism for affirming the claims of States that effectively ‘territorialized’ the seas and allowed States to disproportionately appropriate its commonly-owned resources through the exercise of sovereignty or sovereign rights (Constantinou and Hadjimichael 2020). Indeed, it has been observed that the speech delivered by Ambassador Pardo and the genesis of the ‘common heritage of mankind’ principle, as applicable to the Area and its mineral resources through the LOSC, specifically embodied a highly anthropocentric view and sense of entitlement over those resources with the primary intention of securing monetary gains (Constantinou and Hadjimichael 2020).

Part XI of the LOSC is dedicated to the Area and its mineral resources. It establishes the International Seabed Authority (ISA), headquartered in Kingston, Jamaica, to organize, manage and control the conduct of activities in the Area (defined as the exploration and exploitation of mineral resources in the international seabed area) (Articles 1(1)(1), 153(1), 156(1) and (4) of the LOSC). In particular, Part XI of the LOSC entrusts the ISA to establish a regulatory framework to administer the mineral resources of the Area (Article 157(1) of the LOSC) while simultaneously ensuring the effective protection of the marine environment from the harmful effects of mining activities (Article 145 of the LOSC). To this end, the LOSC authorizes the ISA to issue out contracts for mineral exploration (and in future, exploitation) activities, to supervise the conduct of such activities and ensure compliance, and to distribute the proceeds therefrom in an equitable manner through an appropriate mechanism (Articles 140 and 153 of the LOSC). The ISA comprises of three main organs: the Assembly, the Council and the Secretariat. The Assembly is the supreme organ of the ISA; all member States to the LOSC are *ipso facto* members of the Assembly (Article 156(2) of the LOSC). The Council is the executive organ of the ISA; the Assembly elects 36 member States to sit in the Council, which is entrusted with critical decision-making functions (Articles 161 and 162 of the LOSC). The Council is assisted by the Legal and Technical Commission, an advisory subsidiary body that provides recommendations to the Council on matters under its purview (Articles 163 and 165 of the LOSC). The Secretariat is the

administrative organ of the ISA; it is led by the Secretary-General, which administers the day-to-day functions of the ISA pursuant to the instructions from the Council or Assembly, as the case may be (Article 166 of the LOSC).

Pursuant to its mandate, the ISA has developed three sets of regulations to govern the exploration of the three mineral resources of interest: polymetallic nodules (exploration regulations adopted in 1999, amended in 2013), polymetallic sulphides (exploration regulations adopted in 2010), and cobalt-rich ferromanganese crusts (exploration regulations adopted in 2012). As of June 2021, the ISA has issued 31 exploration contracts covering all three types of resources in various parts of the Area. It is to be noted that a majority of the existing contractors are either private actors or state agencies. These actors or entities operate under the sponsorship of a member State of the ISA. This concept of a sponsoring State is particularly pertinent, given that only States and international organizations are recognized as subjects of international law (and therefore, liable to responsibility for internationally wrongful acts). While contractors remain contractually liable for the conduct of their activities, which is enforceable under the domestic laws of the sponsoring State, the sponsoring State is exposed to responsibility under international law (Seabed Disputes Chamber, Advisory Opinion 2011).

Exploration contracts permit contractors to survey their contract areas, with a view of determining specific areas of interest to exploit, but do not permit the commercial harvesting of the resources. The commercial exploitation of the resources is to be conducted at a later stage, which entails a separate round of application, approval and award of a contract. Given that some exploration contracts have been in existence for approximately two decades, the present focus of the ISA is now shifted towards developing regulations to facilitate exploitation activities. Contrary to the earlier approach with exploration, the ISA is proceeding to develop one set of exploitation regulations that will govern the exploitation of all three types of mineral resources. The current draft exploitation regulations is at an advanced stage and is being considered by the Council (ISA 2019). Simultaneously, the ISA is also taking steps to develop the financial terms for exploitation, to design an appropriate mechanism to distribute the proceeds from activities in the Area in a fair and equitable manner, to study how activities in the Area could affect the economies of developing countries that depend on land-based mining sources, and to develop necessary standards and guidelines that would accompany the final regulations.

One crucial important area within the scope of responsibilities of the ISA is the adoption of necessary measures to ensure the effective protection of the marine environment from the harmful effects of mining activities (Singh and Hunter 2019). In this respect, the ISA is currently in the process of developing regional environmental management plans (or REMPs) to ensure that region-specific considerations are given effect to, and in particular to ensure that spatial and temporal measures are adopted, in order to ensure the effective protection of the marine environment. One particular feature of REMPs is the designation of “areas of particular environmental interest” (or APEIs) within the region. In designated APEIs, no mining activities are expected to take place, at least in the short term (i.e. 5 years), and these areas will be used for monitoring purposes as controlled areas. In the sole existing REMP at

the moment, i.e. for the Clarion-Clipperton Zone (CCZ) of the Pacific Ocean, thirteen APEIs have been designated so far with the initial nine in 2021 and an additional four in 2021 (ISA 2021). However, it is pertinent to note that the REMP for the CCZ was only established after a significant amount of exploration contracts had already been awarded in the region, whereby APEIs had to be designated outside those contract areas and predominantly covered areas that were of lesser commercial interests, as opposed to truly representing areas in need of environmental protection (Wedding et al. 2013; Wedding et al. 2015; Dunn et al. 2018; Washburn et al. 2021).

Consequently, while APEIs are rightly accepted as a form of ABMT (Rayfuse 2020) and particularly as an exercise of MSP (McQuaid et al. 2020), their parity with MPAs (at least, when considered in a strict sense) may be open to debate. While its creation may have been guided by science, it is apparent that commercial mining interests would likely prevail over environmental considerations when it comes to the designation of APEIs. If this is the case, REMPs may be better termed as regional mining management plans, as opposed to environmental ones. That said, APEIs could play an important role in relation to short-term conservation efforts as well as for impact monitoring purposes in the CCZ region. Concurrently, efforts are ongoing to develop REMPs for other regions that are subject to increasing mining interests, namely, the Mid-Atlantic Ridge, Northwest Pacific Ocean and Indian Ocean (ISA 2021), and it remains to be seen how effective ABMT measures will be under these instruments. Finally, it is important to note that the Council of the ISA also has the powers to disapprove mining areas where substantial evidence indicates the risk of mining activities in those areas to cause serious harm to the marine environment (Article 162(2)(x) of the LOSC), which would then operate as a partial MPA (i.e. only closed to deep seabed mining activities, since the ISA has a narrow, sectoral mandate). To date, however, the ISA has not designated any of such “no mining” areas or formally considered any proposals to this effect, not least because the ISA is yet to define – in operational terms – what would amount to “serious harm” or the risk thereof. In this respect, it would be interesting to see how measures undertaken through the ISA, especially via REMPs or “no mining” areas, could be harmonized with efforts that could potentially be pursued with respect to MPAs and MSP in areas beyond national jurisdiction under the forthcoming BBNJ Agreement (Christiansen et al. 2022).

The international seabed mining regime represents a unique case study, in which a specific activity has been the subject of intense regulatory focus for decades, especially where no real activity has taken place to date. On the one hand, this may be seen as an application of the precautionary approach, whereby the conduct of an activity is postponed until its environmental implications are properly understood and can be effectively managed. On the other hand, it is apparent that economic and technological realities appear to have had a more controlling effect in hampering the conduct of seabed mining activities as opposed to the hitherto absence of detailed regulations. In any event, it is interesting to note that as the LOSC nears its 40th anniversary in 2022, deep seabed mining still remains an activity that is slated for

the future, when and if at all the international community decides to permit such activities to take place, under what conditions, and at what price.

6.5 Conclusion

The LOSC is the bedrock of the law of the sea and ocean governance, providing the legal framework for jurisdiction, rights and responsibilities that binds its State parties and the conduct of their ocean affairs. Indeed, from the perspective of ocean governance, the LOSC functions to promote collective action, and cooperation among states as well as international and regional organizations. As states design their own policies for a national sustainable ocean economy, it would be wise to remember that a true definition of an ocean economy should not only consider the economic activities of ocean-based industries, but also the assets, goods and services of marine ecosystems as natural capital (OECD 2016). In other words, there are limits to growth, and overconsumption, pollution, as well as irresponsible or unsustainable practices need to be urgently arrested. A healthy, resilient and productive ocean is necessary to sustain human well-being, and consequently, all states should be held accountable for pollution and degradation of the marine environment that occurs within their jurisdiction or under their control in areas beyond national jurisdiction.

The three snapshot case studies covered in this chapter have shown that the LOSC plays a central role in shaping how the ocean is governed with a focus on marine environmental protection and resource management in terms of fisheries of sea, marine area-based management tools and the international seabed mineral resources. At the same time, certain limitations became clear when we turned our attention to specific developments in the law of the sea in our case studies, such as that the trajectories have not always converge into an integrated management (which requires more coherent consideration on all the relevant social, economic and environmental interests as well as the spatial and natural interactions at stake). Being a “living instrument” that is capable of being extended to address new uses, interests and concerns (Barrett 2016; Barnes 2016), the LOSC will continue to play an important role in overcoming the environmental threats and problems of the ocean. Indeed, apart from the fields of interest from the past, present and future that are already anticipated by the LOSC (three of which have been considered in this chapter), emerging themes such as marine genetic resources, offshore renewable energy, marine geoengineering, and ocean-climate nexus, among others, will also turn to the LOSC for solutions and innovation.

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