

Carbon Sequestration and Ocean Governance: Emerging Challenges between Traditional Sovereign Rights and the Need for Global Regulation

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12.1 Introduction

Climate change has noticeably demonstrated its ability to provoke noxious impacts on any component of the Earth's environment, including oceans.¹ The most patent example of this deleterious impact on the seas is provided by the increasing presence of carbon dioxide (CO₂) gathering therein. This presence is due to different reasons: on the one hand, the increasing CO₂ in the atmosphere is absorbed by the oceans that typically serve as a natural carbon sink.² For this reason, the amount of CO₂ is significantly more sizeable in the oceans than in the atmosphere.³ On the other hand, the increasing presence of CO₂ that is observed in the oceans originates from ship-born carbon emissions that directly affect seawater.⁴

The rising CO₂ presence also brings about the acidification and rising temperature of the oceans. These chemical and physical alterations are the reasons for the dramatic modifications of marine ecosystems: the shrinking of living resources, such as coral reefs, and relocation of animal species towards different latitudes. The degradation of the marine environment also affects human populations, especially those whose lives depend on the exploitation of marine resources.

Finally, the higher temperatures of the atmosphere and oceans bring about sea-level rise. This type of alteration does not only have a negative impact on marine ecosystems; the rise of sea levels may also alter the geophysical configuration of State coastlines and, consequently, the extent of the maritime areas that are subject to State jurisdiction. In the most serious circumstances, entire territories, such as small islands, may be submerged. Thus, even the statehood of small island States may be threatened. In fact, the permanency of the sovereign rights of these States is questionable because it is unclear in which territory such rights might be exercised.⁵

¹ For a thorough analysis of the impact of climate change on the environment, see D. Bodansky, J. Brunnée, L. Rajamani, *International Climate Change Law* (Oxford University Press, 2017).

² See D. T. Maher, M. Call, I. R. Santos, C. J. Sanders, Beyond burial: lateral exchange is a significant atmospheric carbon sink in mangrove forests. *Biology Letters* 2018, 14(7): 20180200, p. 1.

³ U. Siegenthaler, J. L. Sarmiento, Atmospheric carbon dioxide and the ocean. *Nature* 1993, 365: 119–125.

⁴ For a recent analysis of the impact of ship-born emissions on climate change see T. Van Geelen, The Paris Agreement's White whale: the hunt for greater ambition on shipping emission. *ILA Reporter* (2 September 2021). <https://ilareporter.org.au/2021/09/the-paris-agreements-white-whale-the-hunt-for-greater-ambition-on-shipping-emissions-tess-van-geelen>.

⁵ For a thorough scrutiny of this matter, see G. E. Wannier, M. B. Gerrard, Disappearing states: harnessing international law to preserve cultures and society, in O. C. Ruppel, C. Roschmann, K. Ruppel-Schlichting (eds.), *Climate Change: International Law and Global Governance* (Nomos, 2013), pp. 615, 649.

As affirmed above, oceans are threatened by climate change like any other component of the Earth's environment. However, they also play an important role as a natural carbon sink, in which CO₂ is sequestered and stored.⁶ In order to mitigate the degradation of the global environment, scientists have suggested enhancing this function of the oceans by means of some anthropogenic interventions, such as carbon sequestration.⁷ For the purposes of the present paper, carbon sequestration is 'the long-term storage of carbon in plants, soils, geologic formations, and the ocean' that is artificially enhanced through human interventions.⁸ At present, these interventions are not yet entirely practicable. In addition, the safety and long-term impact of these activities on the oceans is still uncertain. However, the urgent need to mitigate climate change may compel States or private persons to resort to actions the safety of which is not entirely verified.⁹

In the light of the above, the identification of proper technical and legal solutions seems to be necessary to safeguard both the rights of States and individuals and the conservation of the oceans. Carbon sequestration at sea is indeed key among prospective carbon sequestration methods, which fundamentally also include carbon capture and storage on land and via chemical processes such as the construction of absorption towers. While carbon capture is essential to achieving the objectives set in the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement, all of these techniques are in their infancy and entail overcoming complex issues in order to be cost-effective. This chapter underscores the pros and cons of carbon sequestration at sea as a test case and aims to ascertain whether existing international provisions are suitable for a broader and more evolutionary interpretation or if new specific substantive norms are required to regulate and control activities, such as carbon sequestration, that may mitigate the noxious impact of climate change on the oceans. The interaction between climate change and the preservation of the oceans primarily involves two international regimes, namely, those concerning climate change and the law of the sea. The climate-change regime does not have specific provisions concerning the impact of climate change on the oceans, but its norms apply with respect to both land and seas in the same manner.¹⁰ The law of the sea regulates several aspects concerning the conservation of the marine environment. Together with the general

⁶ On the relevance of the role of the oceans as carbon sinks to mitigate climate-change effects see also UNFCCC, Report of the Conference of the Parties on its Twenty-Sixth Session, held in Glasgow from 31 October to 13 November 2021, Glasgow Climate Pact, 13 November 2021, 17 Decision 1/CP.26, FCCC/CP/2021/12/Add.1, para. 50.

⁷ The need to reduce CO₂ in the oceans and, thus, protect the marine environment has been recently highlighted in a declaration supporting the sustainable use of the oceans that was adopted during the 2022 UN Ocean Conference. See UN Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development, Declaration on 'Our Ocean, Our Future, Our Responsibility', Lisbon 17 June 2022, A/CONF.230/2022/12, para. 4.

⁸ For a definition of 'carbon sequestration', see N. E. Selin, Carbon sequestration, in *Encyclopedia Britannica* (16 January 2019), www.britannica.com/technology/carbon-sequestration.

⁹ For example, in some cases, private companies have attempted to enhance carbon sequestration in some marine areas by means of iron fertilisation. See the Haida Salmon Restoration Corporation case that occurred close to the Canadian coast, as referred to by K. N. Scott, Mind the gap: marine geoengineering and the law of the sea, in R. C. Beckman, M. McCreath, J. A. Roach, Z. Sun (eds.), *High Seas Governance* (Brill, 2019), p. 34 (footnote 82).

¹⁰ See D. Bodansky, The Ocean and climate change law. Exploring the relationships, in R. Barnes, R. Long (eds.), *Frontiers in International Environmental Law: Oceans and Climate Challenges. Essays in Honour of David Freestone* (Brill, 2021), p. 317. This author highlights that the UNFCCC only mentions the oceans and marine ecosystems in article 4(1)(d) in relation to the commitment to a sustainable management of carbon sinks and reservoirs. Similarly, the Paris Agreement only refers to the oceans in its preamble.

obligations that are included in the UN Convention on the Law of the Sea (UNCLOS),¹¹ more precise provisions are established in the maritime conventions that have been adopted within the International Maritime Organization (IMO) framework with the aim of preserving the marine environment, such as the Convention on the Prevention of Marine Pollution by Dumping of Wastes ('Anti-Dumping Convention')¹² and the International Convention for the Prevention of Pollution from Ships (MARPOL regime).¹³ Nevertheless, none of these norms regulates the impact of climate change on the oceans.

Therefore, existing international provisions seem to require co-ordination and adaptation to the emerging challenges affecting the oceans due to climate change. In spite of the absence of specific substantive norms concerning this matter, the most significant discrepancy between the climate-change regime and the international law of the sea concerns jurisdictional provisions. While the UNFCCC and Paris Agreement primarily establish obligations with respect to the States from the territory of which carbon emissions and other greenhouse gases originate, the international law of the sea recognises the powers and responsibility of States exercising sovereign and exclusive rights over some maritime areas. In addition, the management of the deep seabed is governed according to rules that must be internationally agreed, at least according to Part XI of the UNCLOS.

This discrepancy between the jurisdictional provisions of the climate-change regime and the law of the sea is justified by the fact that climate-change measures, unlike the law of the sea, are usually aimed at the mitigation of rather than adaptation to the noxious impacts of climate change on the environment.¹⁴ However, the State-centric approach emerging from both the climate-change regime and international law of the sea does not seem to provide adequate solutions to mitigate the adverse effects of climate change on the oceans. In this regard, some form of global governance seems to be required in order to safeguard and manage sea waters in the common interest regardless of the fact that these goods appear to be under State jurisdiction. Similarly, the mitigation of climate change requires the co-ordinated conduct of all States and private entities in order to be effective. Attention must be paid to some international legal regimes, for example, the Antarctic Treaty System (ATS), which establishes common rules and obligations with respect to States setting aside the jurisdictional criterion that is based on territorial sovereignty.

In short, the purpose of this chapter is to analyse the current norms of international law of the sea with the aim of identifying the appropriate legal instruments to regulate both the emerging challenges affecting the oceans due to climate change and the performance of the mitigating and adaptive measures that scientists have recently proposed to fight these challenges.

¹¹ UN Convention on the Law of the Sea (UNCLOS), opened for signature 10 December 1982, 1833 UNTS 396, entered into force 16 November 1994.

¹² Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters, opened for signature 29 December 1972, 1046 UNTS 120, entered into force 30 August 1975 ('Anti-Dumping Convention').

¹³ The MARPOL regime includes the 1973 International Convention for the Prevention of Pollution from Ships and Its Protocol (opened for signature 17 February 1978, 1340 UNTS 61, entered into force 2 October 1983).

¹⁴ Mitigation entails the general attempt to reduce the occurrence of a change in climate conditions, while adaptation is primarily aimed at fighting the noxious effects of such a change. On the different roles of climate-change norms and the law of the sea, see D. Bodansky, *The ocean and climate change law*, pp. 318–319.

12.2 Anthropogenic Carbon Sequestration in the Oceans

Carbon sequestration is a natural function of the oceans, as they capture CO₂ from the atmosphere and store it in their depths. Scientists have suggested enhancing this natural function through human intervention. One of the most frequently proposed solutions is ocean afforestation. Ocean afforestation ‘involves offshore transport and concurrent growth of nearshore macroalgae (seaweed), followed by their export into the deep ocean’.¹⁵ In fact, some living species, such as mangrove forests, saltmarsh and seagrass, are effective natural carbon sinks.¹⁶

Ocean afforestation may occur in both coastal and open waters. However, there is a significant difference between these two hypotheses as concerns applicable norms. If human intervention is aimed at enhancing the growth or introduction of new seaweeds in sea waters that are close to the coastline, the role of coastal States is crucial for the management and control over these activities. By contrast, according to the international law of the sea, ocean afforestation activities that are carried out in international waters might be barely monitored by States other than the one performing such activities. Offshore afforestation is even more difficult to control when it is carried out by private entities.¹⁷

In spite of the fact that ocean afforestation undeniably facilitates carbon sequestration, scientific evidence has also demonstrated that seaweeds grow rapidly and have short lifespans. This effect results in the production of an extensive quantity of residues that remain in the oceans. In addition, the proliferation of seaweeds, which provide food for fish, enhances the increase of fish stocks.¹⁸ Thus, ocean afforestation patently entails the alteration of the marine ecosystem including the modification of ocean chemical, physical, and ecological features.¹⁹ Moreover, navigation may be hindered by the excessive presence of seaweeds floating offshore. As such, regardless of the legal implications that may originate from the performance of afforestation activities in the different maritime areas, even from a merely scientific point of view, these activities seem to require a meticulous assessment in terms of their impact on the marine ecosystem.²⁰

Another activity that has been proposed by scientists in order to enhance the function of carbon sequestration of the oceans is fertilisation, that is, the addition of nutrients, such as iron or nitrates, to the upper layers of the oceans.²¹ This activity partially overlaps with ocean afforestation. In fact, iron fertilisation may facilitate the growth of ocean phytoplank-

¹⁵ P. W. Boyd, L. T. Bach, C. L. Hurd, et al., Potential negative effects of ocean afforestation on offshore ecosystems. *Nature Ecology and Evolution* 2022, 6: 675–683.

¹⁶ Maher et al., Beyond burial, p. 1. The growth of mangrove forests in the coastal areas with the aim of reducing the presence of CO₂ in the oceans has been also promoted within the framework of the 2022 UN Ocean Conference. See Secretary-General, 2022 UN Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development, Concept Paper, ‘Interactive Dialogue 2: Managing, Protecting, Conserving, and Restoring Marine and Coastal Ecosystems’, 29 April 2022, A/CONF.230/2022/10, para. 73(b). In his concept paper, the Secretary-General of the Conference highlights the significant contribution of some non-governmental programmes, such as the Blue Carbon Initiative and Global Mangrove Alliance, which currently carry out research studies to make ocean carbon sequestration effective.

¹⁷ For example, in the Haida Salmon Restoration Corporation case, a private company performed ocean fertilisation unbeknown to Canadian authorities. See Scott, *Mind the gap*, p. 34 (footnote 82).

¹⁸ Boyd et al., Potential negative effects of ocean afforestation, p. 675. ¹⁹ Ibid. ²⁰ Ibid.

²¹ See A. L. Strong, J. J. Cullen, S. W. Chisholm, Ocean fertilization: science, policy, and commerce. *Oceanography* 2009, 22(3): 236–261.

ton that, as affirmed above, is a biological pump sequestering inorganic carbon.²² Moreover, iron fertilisation may favour the formation of carbonate sediments on the sea floor that are capable of dissolving calcium carbonate minerals in the sea waters. Consequently, both the volume of CO₂ in the atmosphere and the amount of ocean acidification would decrease significantly.²³

In spite of these positive effects, ocean fertilisation fundamentally entails the dumping of external matter into the oceans. Dumping at sea has been regulated under international law for at least five decades. In addition, as has been highlighted by scientists,²⁴ ocean iron fertilisation might have a negative impact on climate change because it can increase ocean nitrification, more precisely the presence of nitrous oxide (N₂O) in the oceans and atmosphere, which is a much more powerful greenhouse gas than CO₂.²⁵ Therefore, the appropriateness of this type of measures for the mitigation of the noxious effects of climate change must be scrutinised from both the scientific and legal perspectives.

Finally, carbon sequestration may entail the storage of CO₂ in the oceans. This type of sequestration may occur either in the mid-depth ocean,²⁶ or by means of the injection of CO₂ directly into the ocean floor. The latter solution combines geological sequestration and ocean sequestration.²⁷ Thus, the burial of CO₂ into the seabed might affect one of the most controversial issues that are dealt with under the law of the sea, namely the management and control of the deep seabed. In addition, uncertainty concerns the safety of an activity, such as CO₂ burial, which entails the creation of stationary CO₂ sinks in the oceans.²⁸

In sum, waiting for more precise scientific information concerning the feasibility and safety of ocean carbon sequestration, an analysis is required to ascertain whether and how such an activity may be regulated under the current provisions of the international law of the sea.

12.3 Carbon Sequestration and the Law of the Sea

As affirmed above, there are no specific provisions of the law of the sea that are aimed at mitigating the noxious effects of climate change on the oceans. This is not surprising, in the light of the fact that the most significant legal instrument concerning the law of the sea – the UNCLOS – was adopted in 1982 when the issue of climate change had not yet attracted the attention of mainstream political and legal audiences.

²² See Division on Earth and Life Studies National Research Council of the National Academies, National Academies of Sciences, Engineering, and Medicine, *Climate Intervention: Carbon Dioxide Removal and Reliable Sequestration* (The National Academies Press, 2015), pp. 46, 56.

²³ *Ibid.* at p. 47. ²⁴ *Ibid.* at p. 62.

²⁵ See B. Jameson, Nitrous oxide, a powerful greenhouse gas, is on the rise from ocean dead zones. *The Conversation* (5 July 2021), <https://theconversation.com/nitrous-oxide-a-powerful-greenhouse-gas-is-on-the-rise-from-ocean-dead-zones-162812#:~:text=Nitrous%20oxide%2C%20more%20commonly%20known,activities%20that%20stimulate%20its%20production>.

²⁶ Mid-depth ocean corresponds to waters that are located at a depth of 1000–3000 m. See Division on Earth and Life Studies National Research Council of the National Academies, National Academies of Sciences, Engineering, and Medicine, *Climate Intervention*, p. 80.

²⁷ For example, CO₂ may be injected into deep-sea basalt reservoirs. See *ibid.*, pp. 80–81. Research studies relating to this type of carbon sequestration have also been encouraged during the 2022 UN Ocean Conference. See Secretary-General, 2022 UN Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development, Concept Paper, 'Interactive Dialogue 3: Minimizing and Addressing Ocean Acidification, Deoxygenation and Ocean Warming', 29 April 2022, UN Doc. A/CONF.230/2022/11, para. 36(a)(v).

²⁸ G. Xue, Climate change challenges and the law of the sea responses, in O. C. Ruppel, C. Roschmann, K. Ruppel-Schlichting (eds.), *Climate Change: International Law and Global Governance* (Nomos, 2013), pp. 549, 555.

Nevertheless, the UNCLOS outlines general principles including the duty to protect the marine environment. These principles must be considered to ascertain if and to what extent UNCLOS norms may guide the adoption of measures aimed at the mitigation of the adverse effects of climate change. Moreover, in the light of the highly invasive capacity of climate-change adaptation methods, such as carbon sequestration, their legitimacy must be scrutinised in relation to the UNCLOS principles.

Among general rules, the fundamental duty to protect the marine environment is sanctioned in article 192 of the UNCLOS. To this end, article 194 recognises the obligation of States to adopt preventative and control measures. Most specifically, under articles 207 and 208 of the UNCLOS, States must adopt legislation for the prevention of marine pollution originating from activities that are carried out on land and in the seabed under State jurisdiction, respectively. In both these cases, the State that is competent to adopt such legislation is the coastal State that has jurisdiction over the land and seabed, namely, its territory and continental shelf. By contrast, according to article 209, the protection of the marine environment corresponding to the Area – that is, the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction (UNCLOS article 1(1)) – is ensured by means of agreed international rules. An example of this type of rule is the Agreement on the conservation of marine biological diversity beyond national jurisdiction recently finalised at the UN.²⁹ Article 7, setting the fundamental principles of the Agreement, establishes an obligation to preserve marine biodiversity against the adverse effects originating from climate change.³⁰

As set out above, even ship-borne CO₂ emissions may enhance the noxious impact of climate change on the oceans. Therefore, the UNCLOS recognises regulatory and control powers over vessels in order to prevent their polluting activities. In this regard, vessels are primarily subject to the jurisdiction of their flag State according to the criterion of ‘nationality’.³¹ This is particularly so with respect to cases in which a vessel carries out polluting activities in international waters. Moreover, coastal States may exercise their territorial jurisdiction over foreign vessels that have caused or may cause pollution in their territorial sea and exclusive economic zone (EEZ).³² However, according to article 211(5) of the UNCLOS, which regulates the activities that occur in the EEZ, coastal States can only adopt domestic legislation that is consistent with generally recognised international obligations. In recent times, some States have attempted to enact national legislation that is aimed at safeguarding the marine ecosystem within their jurisdiction against the adverse effects of climate change.³³ Nevertheless, other States may claim that this legislation is too restrictive and, thus, inconsistent with some of the existing international rules of the law of the sea, such as the norm recognising the freedom of navigation. For this reason, agreed

²⁹ See the intergovernmental conference on an international legally binding instrument 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, 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, Further Resumed Fifth Session, 19 June 2023, A/CONF.232/2023/4*, <https://documents-dds-ny.un.org/doc/UNDOC/LTD/N23/177/28/PDF/N2317728.pdf?OpenElement>.

³⁰ Ibid. ³¹ Article 211(2) of the UNCLOS. ³² Article 211 subsections (4) and (5), respectively.

³³ For an example of this type of national legislation, see Republic of Seychelles, Blue Economy Strategic Framework and Roadmap. Charting the Future (2018–2030), 31 January 2018. www.seychellesconsulate.org.hk/download/Blue_Economy_Road_Map.pdf.

international norms are needed to avoid conflicting views relating to the fundamental issue of the conservation of the marine environment.

Finally, port States may carry out controls over foreign vessels that are voluntarily within their ports in order to ascertain if these vessels comply with technical requirements that ensure that their navigation is not detrimental for the marine environment.³⁴ In addition, according to article 217 of the UNCLOS, port States may conduct investigations with respect to foreign ships that are assumed to have carried out polluting activities in international waters.

Thus, under the UNCLOS, the governance of the oceans resides in the hands of a few States that may regulate and control the human activities that affect the marine environment. This may prevent the uniform and effective enforcement of general international obligations. This is particularly so with respect to the non-environment-friendly conduct that, in international waters, may be carried out by the vessels flying the flag of a State the legislation of which is not particularly concerned with the conservation of the oceans.

The duty to prevent the adverse effects of climate change on the marine environment seems to be implicitly sanctioned in the abovementioned provisions of the UNCLOS due to their very general content. However, these norms just define the framework within which more specific provisions are adopted.³⁵ In addition, the jurisdictional criteria that underpin the UNCLOS do not guarantee the conservation of the oceans in the common interest. By contrast, both the UNFCCC and the Paris Agreement seem to allow States to adopt measures that are applicable to mitigate the negative impact of climate change on the areas that are located beyond national jurisdiction, such as the international seas.³⁶ Therefore, the co-ordinated application of the norms of the climate-change regime and the law of the sea might facilitate the adoption of the most appropriate regulatory measures. In particular, the synergy of these two legal regimes seems to be necessary to face the new challenges that are affecting the governance of the oceans.

One of these challenges concerns the delimitation of the maritime areas, over which coastal States exercise their jurisdiction. According to the UNCLOS, the extent of the territorial sea, continental shelf, and EEZ is measured from the low-water line along the coast³⁷. Increasing sea-level rise, which is one of the detrimental effects of climate change, may shift the inner limit of the territorial sea and EEZ inward so as to expand their actual breadth beyond the maximum extent allowed under the law of the sea (which is 12 and 200 nautical miles, respectively). In this case, the strict application of the law of the sea would compel coastal States to move the outer limits of their maritime areas inward so as to guarantee that the maximum extent of these areas is respected. Nevertheless, the recognition of the duty of co-operation between States that is sanctioned in the climate-change regime in order to fight the adverse effects of climate change should also justify a more flexible application of UNCLOS provisions concerning the delimitation of maritime areas. This approach seems to have been also adopted by the International Law Association, which, on

³⁴ Article 211(3) of the UNCLOS.

³⁵ For the view that the Paris Agreement is *lex specialis* with respect to the law of the sea, see Bodansky, The ocean and climate change law, p. 325.

³⁶ For this view, see *ibid.*, pp. 334–335. ³⁷ Article 5 of the UNCLOS.

the grounds of legal certainty and stability, has suggested that the outer limits of maritime areas be maintained as they were originally defined in spite of the changes occasioned by any future sea-level rise.³⁸ Indeed, the law of the sea already establishes exceptional rules when particular geographic conditions are present, for example, the cases in which coastlines are deeply indented or face fringes of islands. In these cases, straight baselines joining projecting coastal points may be drawn.³⁹ Along these lines, the peculiar physical conditions of coastlines that originate from sea-level rise might justify the application of special rules for the delimitation of corresponding maritime areas.

Most dramatically, in the case of the disappearance of entire territories, such as small island States, the maritime areas corresponding to such territories no longer have a reason to exist according to the law of the sea. In fact, the exclusive rights that coastal States enjoy over their maritime areas are the extension of the sovereign rights that are recognised over their territory. In this regard, a distinction must be drawn between the rights of the State (that is to say, the governmental organisation with respect to which international personality is recognised) and the rights of the population of such a State. In fact, if the territory of a State totally disappears under the sea, the State loses one of the main features allowing the recognition of its international personality. The termination of the rights of a State should not necessarily entail the cessation of the rights of the population of this State over marine natural resources that are located in the waters that used to be the maritime areas of the disappeared State.⁴⁰ It has indeed been suggested that the population should retain its human right to self-determination,⁴¹ which encompasses both civil and economic rights, such as the right to preserve its land, waters, and cultural identity and the right to have access to the marine resources on which these persons have habitually based their life.⁴² Thus, current challenges that are raised by adverse climate-change conditions require adapting the existing norms of the law of the sea to the new physical and legal status of the oceans. Within this context, a further challenge affecting both the climate-change regime and the law of the sea concerns the need to regulate and control those human interventions aimed at enhancing natural processes with a view to mitigating the adverse effects of climate change, such as ocean afforestation and fertilisation. In this regard, the law of the sea can supplement the climate-change regime with some substantive rules and enforcing instruments that may ease control over human intervention. In fact, human activities that are aimed at enhancing natural carbon sequestration may also have a noxious impact on the marine environment.⁴³

³⁸ International Law Association, Committee on International Law and Sea Level Rise, Resolution 5/2018 (24 August 2018). www.ila-hq.org/images/ILA/Resolutions/ILAResolution_5_2018_SeaLevelRise.pdf. For a comment on this resolution see Bodansky, The ocean and climate change law, pp. 333–334.

³⁹ Article 7 of the UNCLOS.

⁴⁰ See I. Falefua Tapu, Finding Fonua: disappearing Pacific Island nations, sea level rise, and cultural rights. *Arizona Law Review* 2020, 63: 785–803, at p. 786.

⁴¹ For an analysis of the right to self-determination in connection with State disappearance, see C. Moore, Waterworld: climate change, Statehood, and the right to self-determination', in O. Quirico, M. Boumghar (eds.), *Climate Change and Human Rights. An International and Comparative Law Perspective* (Routledge, 2016), p. 104. On the relevance of the cultural rights of the population of disappearing island States, see Falefua Tapu, Finding Fonua, p. 803.

⁴² These types of rights mainly concern indigenous peoples. On the recognition of the rights of Nature and the link between peoples and waters, see E. J. MacPherson, *Indigenous Water Rights in Law and Regulation* (Cambridge, 2019).

⁴³ The need to ascertain the impact of ocean carbon capture on the marine environment has been also highlighted during the 2022 UN Ocean Conference. See Secretary-General, 2022 UN Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development,

Agreed international rules and enforcing instruments are necessary to avoid States and private actors enacting ocean afforestation and fertilisation measures independently. These measures have so far remained on paper, although some States have recently shown interest in testing their effectiveness.⁴⁴ In this regard, the norms of the UNCLOS concerning land-originated pollution may be of assistance to establish some limitations to ocean afforestation that may harm the marine environment. According to article 207 of the UNCLOS, coastal States are responsible for those noxious effects created by activities such as the planting of new mangrove forests in their territorial sea. In fact, under article 1(1)(4) of the UNCLOS,⁴⁵ ocean afforestation may be considered as a polluting activity when it results in the alteration of the chemical, physical, and ecological features of the marine ecosystem. The responsibility of coastal States may be also envisaged when navigation in international waters, which are close to the coast, is hindered by the excessive presence of seaweeds floating offshore due to afforestation activities on the land or in the maritime areas under the jurisdiction of a State.⁴⁶

Similarly, ocean fertilisation may be in some way equated to dumping activities. In fact, under articles 1(1)(5)(a)(i) and 4(1)(1) of the UNCLOS and the 1996 Protocol to the Anti-Dumping Convention, respectively, dumping is defined as ‘any deliberate disposal of wastes or other matter from vessels, aircraft, platforms or other man-made structures’. Although fertilising substances may be beneficial to enhance the carbon sequestration capability of the oceans, they are undoubtedly extraneous elements that are introduced into the sea. This view has been also embraced in the Anti-Dumping Convention regime, including two non-binding resolutions prohibiting ocean fertilisation save for scientific purposes (and subjecting such activity to the assessment framework for scientific research).⁴⁷ More recently, the Parties to the Anti-Dumping Convention have made some amendments to existing obligations so as to make binding the provisions of the above-mentioned resolutions. These amendments, which are not yet into force, also encompass the definition of both ‘marine geoengineering activities’ and ‘ocean fertilisation’, which are considered anthropogenic interventions affecting the natural features of the marine environment.⁴⁸

Concept Paper, ‘Interactive Dialogue 6: Increasing Scientific Knowledge and Developing Research Capacity and Transfer of Marine Technology’, 29 April 2022, UN Doc. A/CONF.230/2022/6, para. 16.

⁴⁴ Some States have recently promoted prospective activities in order to ascertain the feasibility of carbon sequestration measures. See, for example, the co-ordinated study promoted by Indonesia, Philippines, Thailand and Viet Nam. Asian Development Bank, *Prospects for carbon capture and storage in Southeast Asia*, Mandaluyong City, 2013. See also the research paper submitted by the United States to the 2022 UN Ocean Conference promoting blue carbon policies by adopting carbon sequestration measures: United States of America, UN Ocean Conference, Contributions from Member States to the Concept Papers on the Themes of the Interactive Dialogues, ‘Addressing Ocean Plastic Pollution’ (15 February 2022), p. 12. https://sdgs.un.org/sites/default/files/2022-02/US_20220221_US_Input_for_2022_UNOC_Concept_Paper.pdf.

⁴⁵ Article 1(1)(4) of the UNCLOS defines ‘pollution of the marine environment’ as ‘the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm’ to living resources, human beings, human activities.

⁴⁶ Boyd et al., Potential negative effects of ocean afforestation, p. 675.

⁴⁷ Contracting Parties to the to the London Convention, Resolution LC-LP.1 on the Regulation of Ocean Fertilization, Thirtieth Meeting, 31 October 2008, LC 30/16 and Contracting Parties to the London Convention, Resolution LC-LP.2(2010) on the Assessment Framework for Scientific Research Involving Ocean Fertilization, Thirty-Second Consultative Meeting, 14 October 2010, LC 32/15. For a thorough review of these resolutions, see Scott, *Mind the gap*, p. 46.

⁴⁸ According to Annex 4 to be added to the 1996 Protocol, marine geoengineering is ‘a deliberate intervention in the marine environment to manipulate natural processes, including to counteract anthropogenic climate change and/or its impacts, and that has the potential to result in deleterious effects, especially where those effects may be widespread, long-lasting or severe’, while

The law of the sea may also govern activities affecting the burial of CO₂ in the seabed. For example, according to Annex 1 to the 1996 Protocol to the Anti-Dumping Convention, CO₂ streams may be injected into the sub-seabed only if CO₂ is their primary component.⁴⁹ In addition, under article 6(2) of that protocol, the export of CO₂ streams may only occur upon the agreement of the exporting and importing States.⁵⁰ This is also in line with the provisions of article 210(5) of the UNCLOS, which requires the express prior approval by a coastal State for dumping activities that are carried out within its territorial sea, EEZ, and continental shelf. The rights of coastal States to permit, regulate, and control dumping activities in the waters under their jurisdiction are supplemented by the right and duty of control that flag States may exercise over the vessels flying their flag and the power of investigation that port States may carry out with respect to foreign vessels that are assumed to have carried out polluting activities in the international sea.

In addition, scientific uncertainty concerning the feasibility and safety of carbon sequestration measures requires carrying out some impact assessment, as highlighted by both scientists and lawyers.⁵¹ The obligation of carrying out such an assessment, which is sanctioned in articles 206 of the UNCLOS, seems to reflect the basic features of the precautionary principle, although this rule was not yet explicitly recognised at the time of the adoption of the UNCLOS. The need to adopt a precautionary approach is also reflected in the regime originating in the Biological Diversity Convention,⁵² which in 2012 established a moratorium with respect to ‘geoengineering activities that have a potential to cause significant adverse transboundary effects, and those deployed in areas beyond national jurisdiction’.⁵³ In addition, express reference to the precautionary principle is made with respect to innovative actions that States may enact in the oceans in the Declaration on ‘Our ocean, our future, our responsibility’ that was adopted during the 2022 UN Conference to Support the Implementation of Sustainable Development Goal 14.⁵⁴

Thus, the synergic application of the provisions of the climate-change regime and the law of the sea may contribute to the regulation of specific maritime activities, such as those aimed at ocean carbon sequestration. In fact, on the one hand, States must carry out such activities with a view to the common interest of mitigating the adverse effects of climate

‘ocean fertilisation’ entails ‘any activity undertaken by humans with the principal intention of stimulating primary productivity in the oceans’. Ocean fertilisation does not include ‘conventional aquaculture, or mariculture, or the creation of artificial reefs’. Contracting Parties to the 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, Eighth Meeting, Resolution LP.4(8) on the Amendment to the London Protocol to Regulate the Placement of Matter for Ocean Fertilization and Other Marine Geoengineering Activities, 18 October 2013, Annex 4.

⁴⁹ Contracting Parties to the 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, Resolution LP.1(1) on the Amendment to Include CO₂ Sequestration in Sub-Seabed Geological Formations in Annex 1 to the London Protocol, First Meeting, 2 November 2006.

⁵⁰ Meeting of Contracting Parties to the 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, Fourth Meeting, Resolution LP.3(4) on the Amendment of article 6 of the London Protocol.

⁵¹ For a scientific point of view that impact assessment is necessary before starting afforestation activities, see Boyd et al., Potential negative effects of ocean afforestation, p. 675. For a legal standpoint that carbon sequestration measures must be adopted in accordance with existing international obligations, see Bodansky, The ocean and climate change law, p. 331.

⁵² Convention on Biological Diversity, signed 5 June 1992, 1760 UNTS 79, entered into force 29 December 1993.

⁵³ Conference of the Parties to the Convention on Biological Diversity, Eleventh meeting, Decision XI/20. Climate-related geoengineering, 5 December 2012, UNEP/CBD/COP/DEC/XI/20, para. 8. On the contribution of the regime of the Convention on Biological Diversity to the analysis of the interaction between climate change and biological diversity, see K. N. Scott, *Mind the gap*, p. 52.

⁵⁴ UN Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development, Declaration on ‘Our Ocean, Our Future, our responsibility’, para. 13.

change. In this regard, the provisions of the climate-change regime establishing global goals may allow a more flexible application of the norms of the UNCLOS sanctioning the rigid distinction between the governance of maritime areas that are under State jurisdiction and those in international waters. On the other hand, the scientific uncertainty of carbon sequestration measures makes their performance at sea potentially harmful for the conservation of the marine environment. Therefore, according to the more flexible interpretation and co-ordinated application of the UNCLOS norms with the provisions on climate change, States might also exercise their enforcing powers that are recognised under the law of the sea to ensure that carbon sequestration measures are lawfully carried out in international waters.

12.4 Global Governance and Ocean Carbon Sequestration: The Antarctic Treaty Model

Ocean carbon sequestration measures, like other instruments aimed at mitigating the adverse effects of climate change, require the active involvement of the entire international community for at least two reasons. First, the anthropogenic activities that provoke the alteration of climate conditions touch upon nearly every part of this planet. Thus, global co-operation is needed to adopt co-ordinated rules to eradicate the problem: carbon sequestration measures may be effective only if they are applied at the global level. Second, conservation of the oceans affects the interests of the entire international community because the marine ecosystem and its resources permit the physical, economic,⁵⁵ and, in some cases, cultural existence of States, private entities, and humankind as a whole. For this reason, the oceans are included in the category of the so-called ‘global commons’, namely those goods that must be preserved in the common interest.⁵⁶ Thus, the oceans must be preserved against the detrimental effects that may derive from both climate change and carbon sequestration measures entailing hazardous activities.

Existing international norms do not provide a satisfactory solution to this problem. The provisions of the climate-change regime identify common goals in view of the common interest in the conservation of adequate climate conditions, but they do not establish detailed enforcing measures to achieve such goals. By contrast, the provisions of the law of the sea only establish precise obligations with the aim of safeguarding the exclusive rights that States enjoy in the maritime areas under their jurisdiction. The only detailed provisions aiming at satisfying the common interest are the norms of Part XI of the UNCLOS concerning the management of the Area, which, as is well known, is considered part of the ‘common heritage of humankind’. However, Part XI establishes an excessively rigid regulatory and institutional system that cannot be replicated to ensure the safeguard of the

⁵⁵ On the economic advantages that may derive from the improvement of the conditions of marine ecosystems through the adoption of carbon sequestration measures see Secretary-General, 2022 UN Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development, Concept Paper, ‘Interactive Dialogue 5: Promoting and Strengthening Sustainable Ocean-Based Economies, in particular for Small Island Developing States and Least Developed Countries’, 29 April 2022, A/CONF.230/2022/5, para. 50.

⁵⁶ For a thorough analysis of this matter, see S. Buck, *The Global Commons. An Introduction* (Island Press, 1998).

goods that have not been declared as ‘common heritage of humankind’, such as territorial and international waters.

Therefore, the emerging challenges affecting the oceans due to climate change and the uncertainty of the appropriateness and safety of the mitigating instruments that have been so far proposed by scientists call for the adoption of regulatory measures that both identify common goals and establish effective enforcing instruments to ensure the conservation of the marine environment. In this regard, the ATS,⁵⁷ which originates in the eponymous Antarctic Treaty,⁵⁸ provides a model for an international regime governing an area of global importance without resorting to the criteria of ‘State territorial sovereignty’ and the ‘common heritage of humankind’. In fact, according to the so-called ‘bifocal approach’,⁵⁹ ATS obligations concerning the management of Antarctica are equally applicable to both the State parties claiming sovereign rights over some of the Antarctic territories and those State parties that deny the legitimacy of these claims.⁶⁰ In line with this approach, the Protocol on Environmental Protection, which was added to the Antarctic Treaty in 1991,⁶¹ embraces an ecosystem-focused approach, according to which comprehensive protection must be ensured with respect to any Antarctic lands, waters, and resources.⁶² Consequently, the safeguarding of these areas and resources is guaranteed by paying attention to their intrinsic physical characteristics rather than to the condition of being under the jurisdiction of a State. If similar provisions were established to safeguard the oceans against the detrimental effects of climate change, all maritime areas, whether under or beyond State jurisdiction, would enjoy the same level of protection.

Furthermore, in order to ensure the effective conservation of the Antarctic environment, the Protocol on Environmental Protection adopts a rigid precautionary approach according to which a prior environmental impact assessment must be carried out with respect to any human activity that is planned in Antarctica.⁶³ Impact assessment procedures are also subject to the scrutiny of an international body, the Committee for Environmental Protection, aiming to provide scientific and technical advice to the State parties to the Antarctic Treaty.⁶⁴ In line with this rigid precautionary approach, article 7 of the Protocol establishes a moratorium on the exploitation of mineral resources, except for scientific purposes, in order to prevent irreversible detrimental effects on the Antarctic environment.⁶⁵ Such an approach would also be beneficial to ensure the adoption of safe

⁵⁷ The Antarctic Treaty System includes the Antarctic Treaty, its attached Protocol, the legal acts adopted by the Treaty parties, and its associated legal instruments, such as the Convention on the Conservation of Antarctic Marine Living Resources (opened for signature 20 May 1980, 1329 UNTS 47, entered into force 7 April 1982).

⁵⁸ Antarctic Treaty, opened for signature 1 December 1959, 402 UNTS 71, entered into force 23 June 1961.

⁵⁹ On the analysis of the concept of ‘bifocal approach’ see T. Scully, ‘The development of the Antarctic Treaty System, in P. A. Berkman, M. A. Lang, D. W. H. Walton, R. Oran (eds.), *Science Diplomacy: Antarctica, Science, and the Governance of International Spaces* (Smithsonian, 2011), pp. 29, 31.

⁶⁰ Article IV(c) of the Antarctic Treaty provides that ‘[n]othing contained in the present Treaty shall be interpreted as . . . prejudicing the position of any Contracting Party as regards its recognition or non-recognition of any other State’s right of or claim or basis of claim to territorial sovereignty in Antarctica’.

⁶¹ Protocol on Environmental Protection to the Antarctic Treaty, opened for signature October 1991, 2941 UNTS 3.

⁶² Article 2 of the Protocol on Environmental Protection. For a comment on the application of the ecosystem approach in Antarctica, see S. K. N. Blay, New trends in the protection of the Antarctic environment: The 1991 Madrid Protocol. *American Journal of International Law* 1992, 86: 377–399.

⁶³ Article 8 of the Protocol on Environmental Protection. ⁶⁴ Article 11 of the Protocol on Environmental Protection.

⁶⁵ For an analysis of the precautionary principle and its relationship with the ecosystem approach, see A. Trouwborst, The precautionary principle and the ecosystem approach in international law: differences, similarities and linkages. *Review of European Community & International Environmental Law* 2009, 18: 26–37.

carbon removal measures, such as ocean afforestation and fertilisation activities, which may have a significant impact on the marine ecosystem.

Although the ATS is aimed at regulating all the activities occurring in Antarctica in order to provide the overall protection of the land and marine environment, it does not include detailed provisions concerning the mitigation of the adverse effects of climate change on the Antarctic environment. In spite of the fact that governmental and non-governmental organisations had already raised this issue at the end of the twentieth century,⁶⁶ the State parties to the Antarctic Treaty only paid their full attention to the matter in 2009, when a special meeting of experts was established to study the interaction between climate change and Antarctica.⁶⁷ This group adopted 30 recommendations indicating which measures should be adopted, within and outside the Antarctic area, with the aim of mitigating the impact of climate change on the region.⁶⁸ For example, according to recommendation 7, State parties should consider the risk deriving from climate change when they carry out impact assessment procedures for the future construction of permanent structures in Antarctica. Most recently, the Committee for Environmental Protection adopted the Climate Change Response Work Programme,⁶⁹ and established the Subsidiary Group on Climate Change Response to facilitate the implementation of the programme.⁷⁰ The group must identify the goals to be pursued and the actions that must be prioritised with a view to the mitigation of the detrimental effects of climate change in Antarctica. The relocation of alien species and ocean acidification are at present some of the main concerns of the Climate Change Response Work Programme. As observed above, both the presence of alien species and ocean acidification equally affect the oceans in other areas of the planet. However, in some unfortunate circumstances, these matters may also be the result of the adoption of carbon sequestration measures, such as ocean afforestation and fertilisation. For this reason, measures should be implemented with caution.⁷¹

Arguably, a regime regulating the impact assessment of the activities that are carried out in the oceans should be inspired by the same rigid precautionary approach that has been adopted within the ATS. The success of this system has so far resided in the capacity to

⁶⁶ In order to bring attention to the issue of climate change, several documents were drafted by the Antarctic and Southern Ocean Coalition (ASOC), a non-governmental organisation interested in Antarctic issues, and the Scientific Committee on Antarctic Research (SCAR), a governmental agency that promotes Antarctic scientific research. See ASOC, *Antarctic Warming: Early Signs of a Climate Change*, XIX ATCM/IP056 1995; Id., *Climate Changes and Antarctica*, XXII ATCM/IP109 1998; Id., *The Antarctic and Climate Change*, XXVIII ATCM/IP104 2005; SCAR, *Climate Change: An Antarctic Perspective*, ATCM XXIX/IP076 2006.

⁶⁷ The group was named 'Antarctic Treaty Meeting of Experts on the implications of climate change for the management and governance of Antarctica'. See Antarctic Treaty Consultative Meeting, *Final Report of the XXXII Antarctic Treaty Consultative Meeting*, Baltimore, 2009, 28, para. 52.

⁶⁸ Norway–United Kingdom, *Report from Antarctic Treaty Meeting of Experts on Implications of Climate Change for Antarctic Management and Governance*, XXXIII ATCM/WP63, 2010.

⁶⁹ Antarctic Treaty Consultative Meeting, *Resolution 4* (2015), CEP Climate Change Response Work Programme.

⁷⁰ Antarctic Treaty Consultative Meeting, *Decision 1* (2017), Subsidiary Group of the Committee for Environmental Protection on Climate Change Response (SGCCR).

⁷¹ In this regard, the concern of the parties to the Antarctic Treaty was raised by the 2009 LOHAFEX experiment, a joint iron fertilisation experiment carried out in 2009 by the Alfred Wegener Institute for Polar and Marine Research and the Indian National Institute of Oceanography. Approximately 6 tons of dissolved iron were applied to a 300 km² area that was located around 48° South latitude and, thus, outside the Antarctic Treaty geographic scope. Although the norms of the Antarctic Treaty could not apply in this case, the States parties to the Antarctic Treaty anyway recommended that research entities involved in the experiment carry out some type of previous impact assessment in order to prevent serious harm to the sub-Antarctic and Antarctic marine ecosystems. For an overview of this case, see D. L. VanderZwaag, *Ocean dumping and fertilization in the Antarctic: tangled legal currents, sea of challenges*, in P. A. Berkman et al., *Science Diplomacy*, pp. 245–252.

identify common goals that could be achieved by the States parties by means of their enforcing powers that are definitely more effective than those included in any existing international regime.

12.5 Conclusion

The increasing adverse effects of climate change, particularly on the oceans, calls for a rapid and effective response by the international community as a whole. Scientists have so far proposed solutions that may facilitate CO₂ reduction in the atmosphere by means of mechanisms allowing carbon sequestration in the oceans. Other means include carbon capture and storage on land and via chemical processes such as the construction of absorption towers. Scientific tests on these mechanisms cast doubts on the future possibilities of controlling carbon emissions. The increase of phytoplankton originating from anthropogenic afforestation and fertilisation significantly enhances the carbon-storing capacity of the oceans; nevertheless, scientific certainty does not yet exist as to the safety of these carbon sequestration mechanisms. This is due to the fact that the application of carbon sequestration methods is more difficult in the oceans than on land. In fact, carbon sequestration measures may have noxious effects on marine ecosystems and provoke some unforeseeable chemical interaction between the oceans and atmosphere.⁷² It is therefore necessary to establish agreed international standards for the performance of climate-change mitigating measures in order to avoid the autonomous initiatives of some States or private entities resulting in the aggravation of the already dreadful climate conditions of the oceans.

The adoption of common rules requires States to abstain from pursuing selfish interests if, in so doing, they would jeopardise the global goal of improving climate conditions. This renunciation does not entail the denial of those sovereign rights that the international law of the sea recognises in favour of coastal States over their maritime areas. Rather, State sovereignty and corresponding enforcing powers may serve to hinder noxious activities affecting marine ecosystems. Thus, coastal, flag, and port States should act as the custodians of the maritime areas that are under and beyond their jurisdiction with the purpose of accomplishing the global goal of safeguarding the oceans for the sake of the international community as a whole.

In addition, the agreed international rules governing climate-change policies and adaptive mechanisms should also pay attention to the diverse interests of States and private entities that are at issue. In a context where an evolutionary interpretation is required to recognise the rights of the populations that may lose the terrestrial and marine sources essential to their physical, economic, and cultural existence, the obligations of exchanging information and providing scientific and technical assistance should be guaranteed with respect to developing countries in accordance with both the climate-change regime and UNCLOS, in line with the principle of 'common but differentiated responsibility' established in article 4(1) of the UNFCCC.⁷³ The sharing of scientific knowledge concerning

⁷² For a recent comment on this matter see C. L. Hurd, C. S. Law, L. T. Bach, et al., Forensic carbon accounting: assessing the role of seaweeds for carbon sequestration. *Journal of Psychology* 2022, 58: 347–363, at p. 359.

⁷³ Articles 200 and 202 of the UNCLOS.

carbon removal, such as ocean afforestation and fertilisation, is even more significant because it is necessary to ensure compliance with the rigid precautionary approach that must be adopted to enact these techniques.⁷⁴

Finally, an effective regime for the global governance of crucial issues, such as climate change and corresponding carbon sequestration mechanisms, requires enhancing co-operation between different international legal systems to facilitate the adoption of similar rules within each system with the purpose of achieving common goals.⁷⁵ In this regard, the co-ordinated application of the climate-change regime and the law of the sea would be beneficial to ensuring the conservation of the oceans against the adverse impact of climate change.⁷⁶ These international legal systems appear to be more similar than expected if their basic principles and objectives are compared with each other.

⁷⁴ The need to share scientific information relating to carbon sequestration mechanisms with respect to developing countries has also been emphasised during the 2022 UN Ocean Conference. See UN Conference to Support the Implementation of Sustainable Development Goal 14, Declaration on 'Our Ocean, Our Future, Our Responsibility', para. 14(a).

⁷⁵ For a similar view, see H. A. Strydom, Some perspectives on global governance, judicial review and climate change, in O. C. Ruppel, C. Roschmann, K. Ruppel-Schlichting (eds.), *Climate Change: International Law and Global Governance* (Nomos, 2013), pp. 687, 689.

⁷⁶ In this regard, the 2022 UN Ocean Conference has underscored the need to avoid the unnecessary proliferation of international legal instruments that may raise overlaps and conflicts within the international context. In fact, paragraph 10 of the Conference's declaration states that 'we [that is, the State parties] emphasize that our actions to implement Goal 14 should be in accordance with, reinforce and not duplicate or undermine existing legal instruments, arrangements, processes, mechanisms, or entities. We affirm the need to enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in the United Nations Convention on the Law of the Sea, which provides the legal framework for the conservation and sustainable use of the oceans and their resources'. UN Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development, Declaration on 'Our ocean, Our Future, Our Responsibility', para. 10.