

Regime Interaction between the Law of the Sea and Climate Change Law

Naoki Iwatsuki

1 Introduction

Climate change impacts, such as sea-level rise, water-warming, acidification, have various implications for ocean spaces and the utilization of marine natural resources.¹ Considering these impacts, the law of the sea, embodied principally in the United Nations Convention on the Law of the Sea (UNCLOS), must be implemented to protect the marine environment and adapt to changing ocean conditions. In this respect, the law of the sea may work in *collaboration* with climate change law to achieve the prime objective: the protection of the climate system for present and future generations.²

On the other hand, issues are arising from the endeavor to alleviate the effect of climate change and to reduce the emissions of carbon dioxide (CO₂) or other greenhouse gases (GHGs). Researchers have discussed the availability and feasibility of using ocean spaces as a CO₂ reservoir by applying innovative forms of geo-engineering, such as ocean fertilization and sub-seabed carbon storage.³ Undoubtedly, the development of new methods contributing to the reduction of GHGs is highly desirable from the perspective of the climate change law, embodied in the United Nations Framework Convention on Climate Change and its protocols. However, such ocean space utilization must

1 See generally, R.S. Abate and S.E. Krejci, 'Climate Change Impacts on Ocean and Coastal Law: Scientific Realities and Legal Responses', in: R.S. Abate (ed.), *Climate Change Impacts on Ocean and Coastal Law: U.S. and International Perspectives* (New York, Oxford University Press, 2015), pp. 2–24.

2 For different types and forms of regime interaction, see H. van Asselt, *The Fragmentation of Global Climate Governance: Consequences and Management of Regime Interactions* (Cheltenham, Edward Elgar, 2014), pp. 44–59.

3 See generally, D.P. Keller, 'Marine Climate Engineering', in: T. Markus and M. Salomon (eds.), *Handbook of Marine Environment Protection: Science, Impacts and Sustainable Management* (Cham, Springer, 2018), pp. 261–278. Also see, H. Ginzky, 'Marine Geo-Engineering', in: *ibid.*, pp. 997–1012; K.N. Scott, 'International Law in the Anthropocene: Responding to the Geoengineering Challenge', 34 *Michigan Journal of International Law*, 2013, No. 2, 309–358.

be performed in consonance with the obligations under the law of the sea.⁴ In this respect, there may be some conflict between the law of the sea and climate change law. Thus, appropriate *coordination* between these two legal regimes should be sought.

2 Collaboration between the Law of the Sea and Climate Change Law

2.1 *Key Points of Collaboration*

I will first present the possibilities and limits of collaboration between the two regimes. The key to collaboration between the law of the sea and climate change law is Chapter XII of UNCLOS. The first article of that Chapter, Article 192, obliges states to protect and preserve the marine environment. Under this general obligation, Article 194, paragraph 1, specifies that states shall take all measures necessary to prevent, reduce, and control pollution of the marine environment *from any source*.

Additionally, paragraph 3 of that article specifies that measures to be taken by states pursuant to Chapter XII shall deal with *all sources* of marine environment pollution. This includes, *inter alia*, measures designed to minimize toxic, *harmful*, or noxious substance-release from land-based sources.

Based on these provisions, some authors maintain that states are obliged to take measures to control and regulate the activities contributing to climate change. For example, one author contends that, under Articles 192 and 194 of UNCLOS, states are obliged to control and reduce CO₂ emissions from any source likely to pollute the marine environment and cause harm to other states.⁵

As argued by some authors, Articles 192 and 194 may represent the legal basis for the encouragement of states to conduct further efforts toward more efficient reduction of GHGs. However, one may question the precise substance of the obligation at issue. The arbitral tribunal in the *South China Sea* arbitration noted that the obligation under Articles 192 and 194 is an obligation

4 On this issue, an excellent series of works by K.N. Scott must be referred to. Among others, K.N. Scott, 'The Day After Tomorrow: Ocean CO₂ Sequestration and the Future of Climate Change', 18 *Georgetown International Environmental Law Review*, 2005, No. 1, 57–108; *idem*, 'Regulating Ocean Fertilization under International Law: The Risks', 2013 *Carbon & Climate Law Review*, No. 2, 2013, 108–116; *idem*, 'Ocean Acidification: A Due Diligence Obligation under the LOSC', 35 *International Journal of Marine and Coastal Law*, 2020, 382–408.

5 E.g., Alan Boyle, 'Law of the Sea Perspective on Climate Change', 27 *International Journal of Marine and Coastal Law*, 2012, 834.

of conduct, requiring the 'due diligence' by a state not only to adopt appropriate rules and measures but also to ensure a 'certain level of vigilance in their enforcement and the exercise of administrative control'.⁶ So far, so good. However, what actually matters is the level of vigilance regarding the reduction of CO₂ emissions required to mitigate impacts of climate change on the marine environment. On this point, it is suggested that the law on climate change is relevant, and that the Paris Agreement sets a standard for giving effect to the obligation *under* UNCLOS. According to this argument, the Paris Agreement indicates the necessary measures related to GHG emissions, and, as such, it constitutes the generally accepted international rules or standards for that purpose.⁷

2.2 *Limits for Collaboration*

Assuming that the impacts of climate change, such as water-warming and acidification, constitute 'pollution' as defined by UNCLOS,⁸ one may agree with that line of thought. However, in my opinion, it is necessary to note one caveat. I question whether Articles 192 and 194 may be interpreted as a clause of *automatic* incorporation of the standards laid down *outside* the law of the sea regime. UNCLOS has such incorporation provisions, for example, in relation to the laws and regulations on shipping and marine transportation.⁹ Admittedly, Article 212 under Chapter XII appears to be similar in that it requires states to take into account internationally agreed rules, standards and recommended practices and procedures in adopting laws and regulations with respect to pollution from or through the atmosphere. However, the phrase 'taking into

6 *The South China Sea Arbitration (the Republic of Philippines v. the People's Republic of China)*, Award of 12 July 2016, para. 944.

7 Alan Boyle, 'Litigating Climate Change under Part XII of the LOSC', 34 *International Journal of Marine and Coastal Law*, 2019, 466–467.

8 Article 1, Paragraph 1 of 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 and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities*' (emphasis added).

9 See, Articles 21, 39, 94, 211. For example, Article 94 (Duties of the flag State), Paragraph 5 provides: 'In taking the measures called for in paragraphs 3 and 4 [measures for ships flying its flag as are necessary to ensure safety at sea] *each State is required to conform to generally accepted international regulations, procedures and practices and to take any steps which may be necessary to secure their observance*'. (emphasis added).

account' in Article 212 is the 'weakest of the qualifications used' in relation to the obligations of the states regarding internationally agreed measures.¹⁰

Furthermore, the level of vigilance for the prevention and mitigation of the impacts of climate change on the marine environment is not necessarily the same as that set out by climate change law.¹¹ More precisely, even if the law of the sea and climate change law commonly oblige states to seek to alleviate the impacts of climate change to protect the environment, the required level of vigilance for that purpose may be determined differently within the respective regimes. Concerning climate change law, the stabilization of GHG concentrations in the atmosphere at a level needed to prevent dangerous anthropogenic interference with the climate system is essential.¹² However, what is at stake for the law of the sea is to promote the protection and preservation of the marine environment *together with* the equitable and efficient *utilization* of the ocean spaces and their natural resources.¹³ Thus, the different objectives of each regime would lead to divergent standards to be applied.

Having said that, I do not intend to emphasize the problem of fragmentation resulting from the distinctiveness of each regime. Rather, my point is that the incorporation of the standards of one regime into another *should be carried out* with due respect for the differences in the objectives and structure of each regime. The aim of collaboration for effective climate change mitigation is not to integrate the two regimes. Rather, collaboration should be sought through continuous adjustments of relevant regime operations, while keeping in mind the distinctiveness of the respective regimes. Such adjustments may be better attained through dialog among relevant international organizations and

10 Myron H. Nordquist (ed.), *United Nations Convention on the Law of the Sea 1982: A Commentary*, Vol. IV (Dordrecht/Boston, M. Nijhoff, 1991), p. 132; Alexander Proelss (ed.), *United Nations Convention on the Law of the Sea* (München, Hart, 2017), p. 1385.

11 Scott, *supra* note 4 (Due Diligence Obligation), 402–403.

12 Article 2 of the United Nations Framework Convention on Climate Change (1992) provides: 'The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system'.

13 Preamble, fourth paragraph, of the United Nations Convention on the Law of the Sea (1982) stipulates: 'Recognizing the desirability of establishing through this Convention [...] a legal order for the seas and oceans which [...] will promote the peaceful uses of the seas and oceans, the equitable and efficient utilisation of their resources, the conservation of their living resources, and the study, protection and preservation of the marine environment'.

forums *than* through automatic incorporation of the standards of one regime into another.

3 Coordination between the Law of the Sea and Climate Change Law

3.1 *Conflict between the Regimes*

Now, let us turn to the second issue, coordination between the law of the sea and climate change law. Here, I aim to discuss coordination as a matter of conflict between legal regimes.

As I have just mentioned, the law of the sea and climate change law represent two distinct legal regimes. Nevertheless, implementation measures of one regime may conflict with the regulations of the other. Such regime conflict has increasingly arisen in relation to so-called ocean-based mitigation options. Among these, I will discuss here two options: ocean fertilization and sub-seabed carbon storage.

Ocean fertilization is a geo-engineering project for transferring carbon from the atmosphere to the ocean. Its fundamental idea is to add inorganic nutrients, such as iron, nitrate, phosphate, and urea, to the near-surface ocean to stimulate the biological production of organic matter.¹⁴ Introducing such nutrients to seawater stimulates phytoplankton blooms and increases the seawater's atmospheric CO₂ uptake.

Several studies show positive estimates for ocean fertilization as a means of mitigating GHG s. However, there are numerous uncertainties regarding the process. Indeed, the Intergovernmental Panel on Climate Change perceives ocean fertilization negatively, indicating the risks of unintended side effects and low acceptability.¹⁵ Nevertheless, experimental research on the feasibility and effectiveness of ocean fertilization is underway, although such experimental research has provoked considerable concern regarding compatibility with the obligations imposed by the law of the sea, particularly Articles 195 and 210 of UNCLOS.¹⁶

14 High Level Panel for a Sustainable Ocean Economy, *The Ocean as a Solution to Climate Change: Five Opportunities for Action* (2019), p. 75 (available at <https://oceanpanel.org/sites/default/files/2019-10/HLP_Report_Ocean_Solution_Climate_Change_final.pdf>).

15 *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate* (2019), p. 454 (available at <<https://www.ipcc.ch/srocc/>>).

16 Robin Warner, 'Marine Snow Storms: Assessing the Environmental Risks of Ocean Fertilization', 2009 *Carbon & Climate Law Review*, 2009, No. 4, 429–431; A.C. Lin, 'International Legal Regimes and Principles Relevant to Geoengineering', in: W.C.G. Burns and A.L. Strauss (eds.), *Climate Change Geoengineering: Philosophical Perspectives*,

Article 195 establishes an obligation ‘not to transfer [...] damage or *hazards* from one area to another or transform one type of pollution into another’ (emphasis added). Article 210 specifically requires states to take measures, as necessary, to prevent, reduce, and control pollution of the marine environment *by dumping*. Dumping is defined under Article 1, paragraph 5, as ‘*any deliberate disposal of wastes or other matter [...] at sea*’ (emphasis added). This definition is sufficiently broad to cover the activities of ocean fertilization.¹⁷

This also applies to sub-seabed carbon storage. The idea is relatively simple: injecting concentrated and compressed CO₂ into sub-seabed geological formations.¹⁸ Sub-seabed carbon storage is promising, and its practical utilization has been actively explored by states. In Japan, for example, feasibility studies have been successfully completed, and it is reported that progress is now underway toward commercialization by 2030.¹⁹

Sub-seabed storage can be implemented within territorial seas. However, the point is that injecting CO₂ into the seabed might be qualified as deliberate disposal at sea wherever it is performed; as such, sub-seabed storage might be qualified as dumping to be regulated by the law of the sea.²⁰

3.2 *Coordination between the Regimes*

If these ocean-based mitigation options for disposing of CO₂ are indispensable for attaining the objective of the law on climate change, the law of the sea should be interpreted, or, if necessary, revised, to accommodate those novel methods as long as they are proved to be acceptable in light of the precautionary approach as adopted in the law of the sea.²¹

Legal Issues, and Governance Frameworks (New York, Cambridge University Press, 2013), pp. 191–193.

17 However, it must be noted that, in line with the London Convention and Protocol, UNCLOS attaches a reservation clause to this broad definition, which excludes ‘placement of matter for a purpose other than the mere disposal thereof, provided that such placement is not contrary to the aims of this Convention’. Whether fertilisation should be admitted as sort of placement is a question in point. Warner, *supra* note 16, 433–434; Scott, *supra* note 4 (Regulating Ocean Fertilization), 111–114.

18 P. Verlaan, ‘Geo-engineering, the Law of the Sea, and Climate Change’, *Carbon & Climate Law Review*, Issue 2009, No. 4, 448; *Ocean as a Solution*, *supra* note 14, 70.

19 Agency for Natural Resources and Energy (Japan), <https://www.enecho.meti.go.jp/about/special/johoteikyo/ccs_tomakomai_2.html> (in Japanese).

20 Scott, *supra* note 4 (The Day after Tomorrow), 73–79; Mark A. de Figueiredo, *The International Law of Sub-Seabed Carbon Dioxide Storage: A Special Report to the MIT Carbon Sequestration Initiative*, August 2015, 13–14 (available at <https://sequestration.mit.edu/pdf/international_law_subsea_co2_storage.pdf>).

21 *Responsibilities and Obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area*, *Advisory Opinion of 2011*, paragraph 135; Joanna Mossop, ‘Can We

Indeed, such coordination has been sought, particularly in relation to the London Protocol to the Convention on the Prevention of Marine Pollution by Dumping. Under the London Protocol, any deliberate disposal into the sea of wastes or other matter is prohibited as dumping, except those listed in Annex 1 to the Protocol. In response to the growing interest in sub-seabed storage, the amendment of Annex 1 with a new item 'Carbon dioxide streams from carbon dioxide capture processes for sequestration' was proposed and adopted in 2006 at the first Meeting of the Contracting Parties. This amendment opened a legal avenue for sub-seabed carbon storage, subject to the permit procedure under Annex 2. Importantly, permissible carbon storage under this amendment is limited to the disposition into sub-seabed geological formation *only* (Annex 1, paragraph 4.1), not into other ocean spaces, such as the water column above the seabed.²²

Regarding ocean fertilization, a more cautious attitude has been observed. At the third Meeting of the Contracting Parties in 2008, a resolution regarding the regulation of ocean fertilization was adopted by consensus. This resolution accepts ocean fertilization *only if* it is legitimate scientific research. Proposed projects are to be scrutinized following the assessment framework established by the 2010 Resolution adopted at the fifth Meeting of the Contracting Parties. If approved as legitimate scientific research, implementation of the project is regarded as a 'placement of matter' under Article 1.4.2.2 of the London Protocol.²³ It is noteworthy that the 2008 Resolution also specifies that 'given the present state of knowledge, ocean fertilization other than legitimate scientific research should be considered contrary to the aims of the Protocol and not currently qualify for any exemption from the definition of dumping of the Protocol'. This implies that states consider that the admissibility of ocean-based mitigation options should be examined carefully in light of the precautionary approach as embedded in the law of the sea.²⁴

The 2006 amendment of the London Protocol and the adoption of relevant resolutions are exactly what is envisioned by Article 210, paragraph 4 of UNCLOS. This article requires states to endeavor to establish rules and standards

Make the Oceans Greener? The Successes and Failure of UNCLOS as an Environmental Treaty', 49 *Victoria University of Wellington Law Review*, No. 4, 2018, pp. 588–589.

22 See David Langlet, 'Exporting CO₂ for Sub-Seabed Storage: The Non-Effective Amendment to the London Dumping Protocol and Its Implications', 30 *International Journal of Marine & Coastal Law*, 2015, 405–410.

23 See Harald Ginzky & Robyn Frost, 'Marine Geo-Engineering: Legally Binding Regulation under the London Protocol', 2014 *Carbon & Climate Law Review*, 2014, No. 2, 83–85.

24 *Ibid.*, 83. See Scott, *supra* note 4 (Due Diligence Obligation), 400.

relating to marine environment pollution caused by dumping, acting through competent international organizations or diplomatic conferences. It is hoped that further coordination between the law of the sea and climate change law regarding ocean-based geo-engineering options are pursued through such endeavors. Consultation and cooperation among relevant international institutions and organs are indispensable for that purpose.

4 Concluding Remarks

Instead of concluding remarks, I will make reference to the dispute settlement system under UNCLOS. Some argue that this system offers a mechanism for ensuring effective implementation of the rules and standards concerning climate change, as it provides compulsory judicial procedures not available within the law on climate change.²⁵ Indeed, it may be possible and desirable that the rules and standards to be followed by states are ascertained and established by the International Tribunal for the Law of the Sea or the International Court of Justice, considering the adverse impact of climate change on the ocean. However, given the complexity of climate change and its impacts on the marine environment, it would be challenging for the Court and Tribunals to identify the level of vigilance required to establish the illegality of alleged acts and appropriateness of risk assessment by states concerned.²⁶

Therefore, if the compulsory judicial procedures under UNCLOS effectively contribute to the mitigation of climate change, it will be through the interpretation and application of specified international rules and standards that are established through competent international organizations or diplomatic conferences for the protection and preservation of the marine environment.²⁷ Importantly, those international rules and standards established through international organizations or international conferences are specifically placed under the jurisdictional scope of the Court and Tribunals by Article 297, paragraph 1 (c).²⁸ The judicial settlement mechanism under UNCLOS may

25 Boyle, *supra* note 7, p. 474.

26 Mossop, *supra* note 21, 590.

27 See Scott, *supra* note 4 (Due Diligence Obligation), 406–408.

28 *Chagos Marine Protection Area Arbitration (Mauritius v. United Kingdom)*, Award of 2015, paras. 316 (“The Tribunal also notes that, in certain respects, Article 297(1) expands the jurisdiction of a Tribunal over the enumerated cases beyond that which would follow from the application of Article 288(1) alone. In addition to describing disputes relating to the interpretation and application of the Convention itself, *each of the three specified cases in Article 297(1) includes a renvoi to sources of law beyond the Convention itself* [...].

be expected to work effectively if collaboration and coordination between the law of the sea and climate change law are pursued through the standard-setting efforts within the relevant international institutions along with inter-institutional dialog for that purpose.

Article 297(1) thus expressly expands the Tribunal's jurisdiction to certain disputes involving the contravention of legal instruments beyond the four corners of the Convention itself and ensures that such disputes will not be dismissed as being insufficiently related to the interpretation and application of the Convention' (emphasis added). See also *ibid.*, paras. 319–322.

