The Evolution and Importance of the Law of the Sea in the Contemporary Multidisciplinary World
საზღვაო სამართლის ევოლუცია და მნიშვნელობა თანამედროვე მრავალდარგიან სამყაროში

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Motto: "Nothing is agreed until everything is agreed."[298]

Abstract: The law of the sea is a branch of international law that is highly interdisciplinary, incorporating elements of maritime law, environmental law and international relations. As such, it is an area of research that is particularly suited to multi- and trans-disciplinary inquiry, by which we mean that particular intersection between the civilization of multiple disciplines. Recent years have seen increased concern for the protection of the marine environment and sustainable resource management, with a move towards new regulations on pollution, fisheries management and other human activities that may affect this environment. Recognition of the importance of fisheries and aquaculture to food security is conferred by the fact that they are important sources of food for billions of people around the world. Added to this are other concerns about the increasing numbers of migrants and people being trafficked via sea routes and the fight against piracy and other illegal activities. By incorporating transdisciplinary perspectives, the law of the sea can be better equipped to address the interconnected nature of marine issues such as marine pollution, climate change and ocean governance. In an ever-changing world, society has increasingly moved towards shaping international rules, creativity and transdisciplinarity as a tool for regulating all the issues arising from them. Through these variations of contemporary reality, we see how multi- and transdisciplinarity has become an important and necessary tool even for 'conservative' international law. One of the mutations has been the shift from the statocentric to the cosmopolitan view, through the recognition that not only states

[298] The statement "Nothing is agreed until everything is agreed" can be found in various international documents and treaties. It is also sometimes referred to as "principle", "mantra", "golden rule" or "legal principle". In the Geneva Agreements it has been called the "standard principle".

but also other entities, such as non-governmental organizations and individuals, play an important role in a global system of governance. The arguments and conclusions of this paper are intended to highlight the importance of understanding the finding and establishing another, more comprehensive research method in its adaptation to the new dynamics of society, going through the appropriate meta-analysis filtered through the ethos of the researcher. The elaboration of this article is based on the method of specific scientific introspection correlated with the transdisciplinary method. The sources used were specific primary and secondary sources from scientific journals, books, documents, expert opinions and other publications.

Keywords: law of the sea, society, transition, international law, transdisciplinarity.

კრისტინა ელენა პოპა ტაჩე
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დევიზი: "არაფერი არის შეთანხმებული, სანამ ყველაფერი არ არის შეთანხმებული."

აბსტრაქტი: საზღვაო სამართალი არის საერთაშორისო სამართლის მიმართულება, რომელიც მაღალი დონით არის ინტერდისციპლინარული და მოიცავს საზღვაო სამართლის, გარემოს დაცვის სამართლის და საერთაშორისო ურთიერთობების ელემენტებს. შესაბამისად, ეს არის კვლევის სფერო, რომელიც განსაკუთრებულად კარგადაა განკუთვნილი მულტიდისციპლინარული კვლევისთვის, რომელიც გულისხმობს სხვადასხვა დარგის ცივილიზაციების გადაკვეთას. ბოლო წლებმა გაზარდა ყურადღება საზღვაო გარემოს დაცვისა და მდგრადი რესურსების მართვის საკითხებზე, ახალი რეგულაციების დანერგვით, რომლებიც ეხება დაბინძურებას, თევზსაჭერების მართვას და სხვა ადამიანურ საქმიანობებს, რომლებსაც შეიძლება გავლენა ჰქონდეთ ამ გარემოზე. თევზჭერისა და აკვაკულტურის მნიშვნელობის აღიარება საკვები უსაფრთხოებისთვის არის ნაჩვენები იმით, რომ ისინი ამა თუ იმ მილიარდობით ადამიანისთვის განკუთვნილი საკვების მთავარ წყაროს წარმოადგენს. ამასთანავე, გაზრდილი რაოდენობის მიგრანტები და ზღვის გზებით ტრეფიკინგი, მეკობრეობისა და სხვა უკანონო აქტივობების წინააღმდეგ ბრძოლაც

მნიშვნელოვან საკითხებად რჩება. ინტერდისციპლინური პერსპექტივების ჩართვით, საზღვაო სამართალი უკეთ მომზადებული იქნება იმისთვის, რომ გაუმკლავდეს საზღვაო პრობლემების ურთიერთდაკავშირებულ ბუნებას, როგორიცაა ზღვის დაბინძურება, კლიმატის ცვლილება და ოკეანის მმართველობა. მუდმივ ცვლად მსოფლიოში საზოგადოება სულ უფრო მეტად მიდის საერთაშორისო წესების ფორმირებისკენ, კრეატიული მიდგომებისა და ინტერდისციპლინურობის გამოყენებით, რათა დაარეგულიროს ყველა პრობლემა, რომელიც მასთან არის დაკავშირებული. ამ თანამედროვე რეალობის ვარიანტების გავლით, ვხედავთ, როგორ გახდა ინტერდისციპლინურობა მნიშვნელოვანი და საჭირო ინსტრუმენტი, თუნდაც „კონსერვატიული“ საერთაშორისო სამართლისთვის. ამ მხრივ, ერთ-ერთი გარდატეხა იყო სტატოცენტრიული ხედვიდან კოსმოპოლიტური ხედვისკენ გადასვლა, რაც აღიარებს, რომ არა მხოლოდ სახელმწიფოები, არამედ სხვა სუბიექტებიც, როგორიცაა არასამთავრობო ორგანიზაციები და ინდივიდები, მნიშვნელოვან როლს ასრულებენ გლობალური მმართველობის სისტემაში. ამ ნაშრომის არგუმენტები და დასკვნები მიმართულია იმ ფაქტის გაუსწორებლად წარმოჩენაზე, რომ საჭიროა სხვა, უფრო ყოვლისმომცველი კვლევის მეთოდის აღმოცენება, რომელიც ადაპტირდება საზოგადოების ახალ დინამიკასთან, შესაბამისი ჭარბი ანალიზის გავლით, რომელიც ფილტრავს მკვლევარის ეთოსს. ნაშრომი ძირითადად ეფუძნება სპეციფიკური მეცნიერული თვითშეფასების მეთოდს, რომელიც კორელაციაშია ინტერდისციპლინურ მეთოდებთან. გამოყენებულია წყაროები, როგორც სპეციფიკური პირველადი და მეორადი, ისე, მეცნიერული ჟურნალებიდან, წიგნებიდან, დოკუმენტებიდან, ექსპერტების მოსაზრებებიდან და სხვა გამოცემებიდან.

საკვანძო სიტყვები: საზღვაო სამართალი, საზოგადოება, ტრანსფორმაცია, საერთაშორისო სამართალი, ინტერდისციპლინურიბა

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1. **Introduction.** This article presents a new application of transdisciplinary methodology by applying it to the law of the sea, approached from the angle of the multiple mutations of our societies. It can be said that transdisciplinarity and universality support each other in the destiny of international law. The analysis allows the scope of teaching and research to be broadened to include the entire international legal system, with a broad vision that explores its links with the political, economic, social, historical, anthropological and cultural fields. As I argue in all my recent works, the trans-methodological approach cannot be understood or used to deprive certain branches of law of autonomy, its purpose being to highlight

the strength and value of its (its) regulatory function by identifying the gaps and limitations of the current legal system and to formulate numerous proposals for reform aimed at filling them. These issues have divided the academic world into two parts, and it is necessary to identify ways to enable the transdisciplinary exercise first, in order to measure its effectiveness later.

The positive aspect that emerges from this is the effort of specialists to analyse and restore the limits through appropriate regulations[299] . Transdisciplinarity, in addition to its attribute as a research method, is a sought-after practice in recent times, being considered both necessary for achieving the United Nations (UN) Sustainable Development Goals (SDGs) and indispensable for the success of the UN Decade of Ocean Sciences for Sustainable Development, which began in 2021 and sets out visions for developing and sustaining "the science we need for the ocean we want" to ensure we develop "transformative" solutions to achieve the 2030 Agenda and "connect ocean science with the needs of society"[300] . The role of transdisciplinarity is identical to that of a foundation because, as the Transdisciplinarity Charter states, transdisciplinarity is complementary to the disciplinary approach; from the confrontation between disciplines, it brings new results and new bridges between them; it gives us a new vision of Nature and Reality. Transdisciplinarity does not seek to develop a super-discipline encompassing all disciplines, but to open all disciplines to what they have in common and to what lies beyond their boundaries (art. 3)[301]. The Charter was adopted in consideration of the following guidelines: "1) believing that only an intelligence capable of understanding the planetary dimension of today's conflicts could face the complexity of our world and the contemporary danger of the material and spiritual self-destruction of our species; 2) believing that life is seriously threatened by a triumphant technoscience that only obeys the frightening logic of efficiency in the service of efficiency; 3) believing that the contemporary rupture between an increasingly rich knowledge and an increasingly poor inner being is leading to the emergence of a new obscurantism whose consequences on

[299] Mia Strand and others, *Transdisciplinarity in transformative ocean governance research-reflections of early career researchers,* ICES Journal of Marine Science, Volume 79, Issue 8, October 2022, pp. 2163-2177, https://doi.org/10.1093/icesjms/fsac165.

[300] See Moallemi E. A., Malekpour S., Hadjikakou M., Raven R., Szetey K., Ningrum D., Dhiaulhaq A. et al., *Achieving the sustainable development goals requires transdisciplinary innovation at the local scale,* One Earth, 3:2020, pp. 300-313; or UNESCO, *The science we need for the ocean we want. The United Nations Decade of Ocean Science for Sustainable Development (2021-2030*), United Nations Educational, Scientific and Cultural Organization, New York, NY, 2020.

[301] The Charter of Transdisciplinarity, adopted at the First World Congress on Transdisciplinarity, Convento da Arrábida, Portugal, 2-6 November 1994, paved the way for numerous studies that have made a huge contribution to the evolution of scientific research worldwide.

the individual and social level are incalculable; 4) considering that the accumulation of knowledge, unprecedented in history, accentuates the inequality between those who possess it and those who do not, thus provoking inequality within nations and between nations on our planet; and 5) considering, at the same time, that all these dangers also have a positive counterpart, as the extraordinary growth of knowledge may eventually lead to a mutation comparable to that of the transformation of primates into homo sapiens[302] ".

Proponents of legal post-modernism have pointed to the inadequacy of the legal norm, of law in general. In these circumstances, in which the question is whether legal globalisation will be achieved, there is a need to accept other, extra-static or supra-static formulas of regulation that go beyond the classical positivist conception. "Law crosses borders as an export product. Increasingly, the rules that organise our lives will have been devised elsewhere, and those that have been devised here will be used to construct laws in foreign countries. Modest engineers, rather than great architects, trade with each other across borders, exchange arguments, decisions, ideas... This new international judicial sociability is disrupting the ways in which law is produced and reproduced in relation to the sensitive issues of life"[303] .

International law plays a leading role in finding the most effective solutions. Still referring to transdisciplinarity, when we look at the human being (the natural person) through the prism of his dignity and nationality, it can indeed be said that "the recognition by international law of this double belonging - to a nation and to the Earth - is one of the aims of transdisciplinary research[304] ". As we have said, there are some reservations expressed by the academic world both in terms of the complexity of the concept of transdisciplinarity, the lack of knowledge of its scope of operation, the lack of trans practice, and its attribute as a tool or vehicle in research[305] . In the remainder of this study, I will focus on the practical usefulness of this new avenue.

As I said in the summary, the law of the sea is very suitable for pluri- and transdisciplinary inquiry, and is in fact their creation. Modern concepts such as

[302] Ibid. See the preamble to the Charter.
[303] J. Allard, A. Garapon, *Les Juges dans la mondialisation: La nouvelle révolution du droit*, Editions du Seuil and La République des idées, 2005, pp. 1-19.
[304] Article 8 of the Charter.
[305] Jahn S., Newig J., Lang D. J., Kahle J., Bergmann M., *Demarcating transdisciplinary research in sustainability science-five clusters of research modes based on evidence from 59 research projects*, Sustainable Development, 30: 1-15, 2021; and Heinzmann J., Simonson D. A., Kenyon D. B., *A transdisciplinary approach is essential to community-based research with American Indian populations*, American Indian and Alaska Native Mental Health Research, 26: 15-41, 2019.

biodiversity (as we will see in the case study of this article), underwater cities, new technologies and the content of new treaties, etc., reinforce my claim that the law of the sea is a fruit of pluri- and transdisciplinarity.

Over the years, we have seen how the law of the sea has been and continues to be a source of inspiration. For example, the legal status of outer space and celestial bodies is still dominated by the rule of freedom of use taken from the law of the sea, as the doctrine has noted, and which confirms use for exclusively peaceful purposes, the principle of cooperation, and the international responsibility of states[306] .

A contemporary definition of the law of the sea is that the law of the sea means a body of international law regulating the rights and duties of states in maritime environments[307] ; the concept can refer to matters such as navigation rights, marine mineral claims and jurisdiction over coastal waters; is drawn from a range of international customs, treaties and agreements; and the modern law of the sea derives largely from the United Nations Convention on the Law of the Sea (UNCLOS), in force since 1994, which is generally accepted as a codification of customary international rules of the law of the sea and is sometimes regarded as "the constitution of the oceans".

As a branch of public international law, the law of the sea has been defined as "the body of rules of law determining the powers of States in the marine environment, and the obligations imposed on them in the exercise of those powers"[308] . The sea is considered to be all areas of salt water, provided that they communicate freely with each other[309] .

2. **The evolution and importance of the law of the sea in pluri and transdisciplinary context.** According to the historical record so far, among the earliest examples of codes of law relating to maritime affairs is the Byzantine *Lex Rhodia*, enacted between 600 and 800 AD to govern trade and navigation in the Mediterranean. Maritime law codes were also created during the European Middle Ages, such as the *Rolls of Oléron*, which was drawn from the *Lex Rhodia*, and the *Laws of Wisby*, adopted among the trading city-states of the Hanseatic League. It is

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[306] R. Miga Beșteliu, "Public International Law. Curs universitar", Ed. C.H. Beck, 2015, p. 233; and Walter D. Gaveni, Kola O. Odeku, *An Analysis of Salient Provisions of Internatinal Law Instruments for Holding Perpetrators Liabile for Breach of the Duty of Care to the Environment*, Perspectives of Law and Public Administration Volume 11, Issue 3, October 2022, 353-360.

[307] J. Harrison, *Making the Law of the Sea: A Study in the Development of International Law*, ed. Cambridge University Press, 2011, p. 1.

[308] J. Basdevant, *Dictionnaire de la terminologie du droit international*, Ed. Sirey, Paris, 1960.

[309] R. Miga-Beșteliu, op. cit.

considered, however, that the earliest known formulation of the public international law of the sea was given by 17th century Europe, which experienced unprecedented navigation, exploration and trade across the world's oceans. Portugal and Spain led this trend, claiming both the land and sea routes they discovered. Spain considered the Pacific Ocean *a mare clausum - literally a "closed sea"* off-limits to other naval powers - in part to protect its possessions in Asia[310] .

Similarly, as the only known entrance from the Atlantic, the Strait of Magellan was periodically patrolled by Spanish fleets to prevent the entry of foreign ships. *Romanus Pontifex* (1455) recognised Portugal's exclusive right to sail, trade and fish in the seas near the discovered lands and, on this basis, the Portuguese claimed a monopoly on trade with East India, provoking opposition and conflict from other European naval powers. Against the background of increasing competition for maritime trade, the Dutch jurist and philosopher Hugo Grotius - considered the father of international law in general (as mentioned at the beginning of the course) - wrote *Mare Liberum* (*Freedom of the Seas*), published in 1609, in which he stated the principle that the sea was international territory and that all nations were thus free to use it for trade. He based this argument on the idea that "every nation is free to travel to and trade with any other nation" . [311]

Thus, there is a right of *innocent passage* on land and a similar right at sea[312] . Grotius observed that, unlike land, over which sovereigns could delimit their

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[310] See W.L. Schurz, *The Spanish Lake,* The Hispanic American Historical Review, 5(2), 1922, pp. 181-194.

[311] H. Grotius, *Mare Liberum*, Lodewijk Elzevir, 1609, p. 7.

[312] Innocent passage is a law of the sea concept that allows a ship to pass through the archipelagic and territorial waters of another state, with certain restrictions. Article 19 of the United Nations Convention on the Law of the Sea defines innocent passage as follows: "Passage is innocent so long as it does not prejudice the peace, good order or security of the coastal State. Such passage shall take place in accordance with this Convention and other rules of international law. The passage of a foreign vessel shall be considered to be prejudicial to the peace, good order or security of the coastal State if it engages in any of the following activities in the territorial sea: (a) any threat or use of force against the sovereignty, territorial integrity or political independence of the coastal State, or in any other manner in violation of the principles of international law embodied in the Charter of the United Nations; (b) any exercise or practice with weapons of any kind; (c) any act aimed at collecting information prejudicial to the defence or security of the coastal State; (d) any act of propaganda intended to prejudice the defence or security of the coastal State; (e) the launching, landing or taking on board of any aircraft; (f) the launching, landing or taking on board of any military device; (g) the loading or unloading of any cargo, currency or persons contrary to the customs, fiscal, immigration or sanitary laws and regulations of the Coastal State; (h) any act of wilful and serious pollution contrary to this Convention; (i) any fishing activity; (j) the conduct of research or survey activities; (k) any act intended to interfere with any communication systems or any other installations or facilities of the Coastal State; (l) any other activity not directly related to the passage. Innocent passage or

jurisdiction, the sea was akin to air, a common property of all: "Air belongs to this class of things for two reasons. In the first place, it is not susceptible of occupation; and in the second its common use is intended for all men. For the same reasons the sea is common to all, because it is so unlimited that it can become the possession of no one, and because it is adapted for the use of all, whether we regard it as such from the point of view of navigation or fishing"[313] .

Writing in response to Grotius, the English jurist John Selden argued in *Mare Clausum* that "the sea was as capable of appropriation by sovereign powers as terrestrial territory"[314] . Thus rejecting Grotius' premise, Selden argued that there was no historical basis for the sea to be treated differently from land, nor was there anything inherent in the nature of the sea that prevented states from exercising dominion over parts of it[315] . In essence, according to him, international law could evolve to accommodate the emerging framework of national jurisdiction over the sea.

2.2. "Mare clausum" in the European Age of Discovery

According to the common historical evidence inherently and uniformly marked throughout the doctrine and, by implication, in all encyclopedias of international law, as an increasing number of nations began to expand their naval presence around the world, conflicting claims to the open sea increased. This has caused maritime states to moderate their stance and limit the extent of their jurisdiction over the sea from land. This was propelled by the compromise position put forward by the Dutch legal theorist Cornelius Bynkershoek, who in *De dominio maris* (1702), established the principle that maritime dominion was limited to the distance that cannon could effectively protect it.

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innocent transit admits the coastal state's territorial claim to the sea, as opposed to freedom of navigation, which directly challenges it.

[313] H. Grotius, op. cit. p. 28.

[314] See D. Rothwell, A. Oude Elferink, K. Scott, T. Stephens (eds.), *The Oxford Handbook of the Law of the Sea*, Oxford University Press, 2015.

[315] See Marchamont Nedham translation of 1652, *Of the Dominion, or, Ownership of the Sea*, pp. 3-5, 8-11, 168-179. Of the Dominion or Ownership of the Sea comprises two books: in the first it is shown that the sea, by nature or nations, is not common to all men, but is capable of private dominion or ownership, as well as land; in the second book it is proved that the dominion of the British sea, or what comprises the island of Great Britain, is and was a part or appendage of the empire of that island, a book written at first in Latin and entitled *Mare. clausum, seu, De dominio maris*, by J.S. Esquire; translated into English, and presented with some additional proofs and discourses, by Marchamont Nedham. Selden, John, 1584-1654, Nedham, Marchamont, 1620-1678, London, printed by William DuGard, 1652.

Grotius' concept of "freedom of the seas" became virtually universal by the 20th century, as a result of the global dominance of European naval powers. National rights and jurisdiction over the seas were limited to a specified belt of water extending from a nation's coastline, usually three nautical miles (5.6 km), according to Bynkershoek's "cannon shot" rule[316] . The very finding of this delimitation was a fruit of transdisciplinarity.

According to the principle of *mare liberum*, all waters beyond national boundaries have been considered free international waters for all nations but belonging to none[317] .

3. **Coding attempts.** At the beginning of the 20th century, some nations expressed their intention to extend their national maritime claims, namely to exploit mineral resources, protect fish stocks and enforce pollution control. To this end, the League of Nations convened a conference in The Hague in 1930, but no agreement was reached[318] .

By the middle of the 20th century, technological improvements in fishing and oil exploration expanded the nautical range in which states could detect and exploit natural resources.

The Convention on the Law of the Sea followed the following attempts:

1) First and second Law of the Sea Conference

[316] See K. Akashi, *Cornelius Van Bynkershoek: His Role in the History of International Law*, ed. Martinus Nijhoff Publishers, 1998, p. 150.

[317] H. Grotius, *The Freedom of the Seas/*(Latin and English version, Magoffin trans., 1608, Online Library of Liberty, Ed. Oxford University Press), manuscript available at (https://oll.libertyfund.org/title/scott-the-freedom-of-the-seas-latin-and-english-version-magoffin-trans), accessed 17.08.2022.

[318] See Chapter 1: International Law, Adoption of the Law of the Sea Convention - Law of the Sea, Law of the Sea: A Policy Primer, Customary International Law and the Adoption of the Law of the Sea Convention, The Fletcher School of Law and Diplomacy at Tufts University . As this material points out, no agreement was possible from the efforts of the League of Nations in the early 1930s to decide the extension of state sovereignty claims over adjacent waters. In 1945, President Harry S. Truman extended US control over all natural resources on the continental shelf, in accordance with the principle of customary international law that a nation has the right to protect its natural resources. Chile, Peru and Ecuador followed suit, extending their claim to 200 nautical miles to include their fishing grounds. Most countries have extended their territorial waters to 12 nautical miles. In the following years, various attempts were made to create a wide-ranging law of the sea regime which eventually culminated in the creation of the present Convention.

The first offshore oil rig started producing in 1947 and there was a slow growth of offshore operations until the 1950s. The 1960s saw a boom in activity and technology; rigs began drilling thousands of feet below the surface and could be located further and further offshore. At the same time, advances were made in fishing. Vessels increased in size and could travel further out of port and stay out longer. Nations began to exploit distant waters for fishing without restraint. Issues of geopolitics and nationalism, in addition to interest in ocean resources, amplified the desire of states to assert sovereign rights over increasingly large areas of the ocean. All these trends have increased the pressure to adapt the principles of customary law of the sea to a changing global environment.

In 1956, the UN convened its first Conference on the Law of the Sea. It ended in 1958, and the outcome of the first Conference consisted of four treaties: *a) the Convention on the Territorial Sea and Contiguous Zone; b) the Convention on the Continental Shelf; c) the Convention on the High Seas; and d) the Convention on Fishing and Conservation of the Living Resources of Great Britain. High Seas.* These treaties entered into force between 1962 and 1966. Although the Conference was heralded as a success, it failed to address some key issues, including the question of the breadth of territorial waters over which coastal states[319] could assert broad sovereign rights. The UN held a second conference in 1960, but it lasted only six weeks and no new agreements resulted.

2) Third Law of the Sea Conference

The unanswered problem of territorial waters needed to be solved. In 1966, President Lyndon B. Johnson referred to the depth of the sea and the seabed as the legacy of all people. The following year, Malta's ambassador to the UN, Arvid Pardo, presented a proposal to the UN General Assembly declaring that the seabed should be part of the common heritage of mankind. In 1973, the Third Conference on the Law of the Sea was held in New York. For nine years, states negotiated on the parameters of the law of the sea until the Convention was finalised in 1982. The US strongly supported the initiative of the Third Conference and played a leading role in its negotiations during the Nixon, Ford and Carter administrations. US negotiators focused on preserving the principles of freedom of navigation and other vital security concerns, as well as protecting the US right to conserve and exploit

[319] "Coastal State" means a State from whose coastline or baselines the breadth of the territorial sea is measured, those baselines being determined in accordance with Articles 5-7, 9-10 and 47 of UNCLOS. Throughout this course, it can be seen how the treaties use coastal state and riparian state as similar terms. Riverine means situated on the bank of a water or traversed by a flowing water.

the resources of the continental shelf and the 200-mile exclusive economic zone. American negotiators have been successful in these efforts.

Objections to US ratification of the LOSC (acronym for Law of the Sea Conference), as originally negotiated, have largely focused on Part XI of the LOSC, which governs deep seabed management and provides for mandatory dispute settlement through the Seabed Disputes Chamber[320] . Following the US lead, many other developed states have refused to ratify the Convention. To address concerns preventing the US and other states from joining the LOSC, in 1994, the UN General Assembly (under the acronym UNGA) negotiated what became known as the Agreement relating to the Implementation of Part XI of the United Nations Law of the Sea (hereafter referred to as the Agreement, which is the source of the related exposures). The Agreement is intended to be interpreted in conjunction with Part XI of the Convention and addresses concerns that developed nations have had about deep seabed exploitation and management. In the event of any conflict or contradiction between the texts or their interpretations, the text of the Agreement shall prevail. Any State that ratifies the Convention after implementation of the Agreement is also bound by the Agreement. States that ratified the Convention before the Agreement may accede to the Agreement separately.

Billed as the "Constitution of the Sea", the Convention entered into force in 1994 and in June 2016, 168 Parties acceded to the Convention. The US is a signatory, but the Senate has not ratified the Convention. The LOSC defines the rights and responsibilities of nations and their use of the planet's oceans. It sets guidelines for business, the environment and the management of marine natural resources. Several developed nations with significant naval and maritime assets, the U.S. and the U.K., for example, strongly support the Convention. Since its entry into force in 1994, the LOSC has increasingly become an important part of the international legal order. Followed by the vast majority of the world's states, the LOSC provides the only framework in international law for resolving contentious issues such as freedom of navigation, fishing rights and the proper scope and limits of maritime zones.

Constitutions, such as that of the US or other countries in the world, are documents that outline the fundamental rights and protections of a group, as well as a certain way of governing. The Convention was consciously written as a comprehensive articulation of the rights and responsibilities of states in relation to, among other things, navigation, resource exploitation and exploration of the world's oceans. In addition, the Convention covers governance over the sea and related disputes. From

[320] United Nations Convention on the Law of the Sea, Part XI, Section 5, Dec. 10, 1982, 1833 U.N.T.S. 397 [hereinafter LOSC].

the outset, states have worked together to achieve a "package" of mutually supportive agreements, rather than a single treaty with limited scope. They have sought to create a "comprehensive regime" to deal with all issues related to the law of the sea. The LOSC was the embodiment of this desire and was to "establish true universality in the effort to achieve a 'just and equitable international economic order' governing ocean space"[321] .

The United Nations Convention on the Law of the Sea, signed in Montego Bay in 1982, codifies and regulates concepts such as the delimitation of marine areas between neighbouring States, the rights of coastal States over the exclusive economic zone, the exploitation of the international zone of submarine territories, the fight against pollution, scientific research and the creation of two new international bodies: the International Seabed Authority and the International Tribunal for the Law of the Sea.

This convention was reached by consensus and prohibited the formulation of reservations, in order to strengthen the uniformity and unity of the established regimes. Shore baselines are the basis for the delimitation of marine areas, and the Convention established two methods of calculation, as follows: 1) for straight shorelines without deep indentations, the baselines coincide with the shoreline or the line of highest tide for seas affected by this phenomenon - the shoreline; and 2) for deeply indented shorelines, the baselines are obtained by joining the most seaward points of such relief - straight baselines. In addition, the way baselines are calculated is generated by military, economic, mathematical or social considerations.

Currently, the most important regulation, considered historic, is the Marine Biodiversity Treaty, signed by consensus in June 2023. The treaty is a demonstration of the fact that it is now possible to draw up and see enter into force multilateral treaties, although such initiatives have proved almost impossible in other areas such as international investment[322]. Achieving a multilateral treaty has always been difficult. Treaties often depend on how specific steps are organised and on the resources of the parties[323] . So is the modification of multilateral treaties,

[321] See LOSC, Parts XI and XV; T. Koh, *A Constitution for the Oceans*, Remarks of the President of the Third United Nations Conference on the Law of the Sea at the Conference at Montego Bay (December 1982), and B. Zuleta, *Introduction in The Law of the Sea*, The United Nations, New York, 1983, pp. xix-xxvii.

[322] Cristina Elena Popa Tache, *The EU-China road to the Comprehensive Agreement on Investment*, „Juridical Tribune - Tribuna Juridică", volume 12, issue 4, December 2022, pp. 476-494.

[323] On the Biodiversity Treaty, I cite the example of the representative of Samoa, who, speaking movingly on behalf of Pacific small island developing states, explained the vital importance of the negotiation process for his delegation. The Pacific islands had come in good faith from far

from revising or creating new rights and obligations to establishing new institutional arrangements[324] .

Transdisciplinarity in ocean research is in fact the driving force behind the signing of this treaty. The characteristics of the oceans have made this particular type of research required because, first and foremost, for future solutions there will be foundations such as equity, history, rights and transformation[325] . According to the European Commission, on 19 June 2023 the Treaty of the High Seas was adopted by consensus during the United Nations meeting in New York. This Treaty is key to protect the ocean, promote equity and fairness, tackle environmental degradation, fight climate change, and prevent biodiversity loss in the high seas[326] .

4. **The most multidisciplinary modern approach.** According to the High Seas Alliance[327] , on 24 December 2017, the UN General Assembly adopted by consensus Resolution 72/249 to convene an intergovernmental conference and undertake formal negotiations for a new legally binding international instrument under the UN Convention on the Law of the Sea (UNCLOS) for the conservation and sustainable development of marine biological diversity in areas beyond national jurisdiction . The European Union is a party to the negotiations for all Member States. The conference opened to draft the first treaty on ocean biological diversity. Resolution 72/249, with 141 government co-sponsors, sends a resounding message of support for the need to protect this neglected half of our planet. The enthusiasm for this initiative is not without its pitfalls.

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and wide, spending $260,000 to bring 24 people. He explained how this represented a significant investment, arguing that these funds were not spent on roads, medicines or schools at home, but on travel to come "here", i.e. to the negotiations to seek and obtain a treaty of great importance to the marine environment.

[324] See for details Buga, Irina, "Modification of Treaties by Subsequent Practice", Oxford, 2018, introductory chapter.

[325] Mia Strand, Kelly Ortega-Cisneros, Holly J Niner, Michel Wahome, James Bell, Jock C Currie, Hashali Hamukuaya, Giulia La Bianca, Alana M S N Lancaster, Ntemesha Maseka, Lisa McDonald, Kirsty McQuaid, Marly M Samuel, Alexander Winkler, op cit, p 2164.

[326] Material posted on the official website of the European Commission, *Oceans and Fisheries, Protecting the ocean, time for action*
High Ambition Coalition on Biodiversity Beyond National Jurisdiction, available here: https://oceans-and-fisheries.ec.europa.eu/ocean/international-ocean-governance/protecting-ocean-time-action_en, accessed 29.06.2023.

[327] Since its founding in 2011, the High Seas Alliance (HSA), with its more than 40 non-governmental members and the International Union for Conservation of Nature, has worked to protect the 50% of the planet that is the high seas. As a region of the global ocean that lies beyond national jurisdiction, the high seas include some of the most biologically important, least protected and most threatened ecosystems in the world.

What is recent in terms of the high seas is an attempt at mediated codification. On 15 August 2022 an article was published announcing that:" UN member states will gather in New York to conclude a long-awaited treaty that, if agreed, will govern the planet's last lawless wilderness: the high seas."

Two hundred nautical miles beyond the territorial waters and jurisdiction of nations, the high seas have been treated "recklessly", according to environmental groups.

At the time, it was said that the outcome of the talks would determine the fate of the ocean for generations, and world leaders were urged to agree to an ambitious, legally binding treaty to protect marine life and reverse biodiversity loss.

"The high seas symbolise the tragedy of the commons," said Marco Lambertini Director General of WWF International. "Because it belongs to no one, it has been treated with recklessness and impunity. We need a common governance mechanism for our oceans to ensure that nobody's waters become everybody's waters - and everybody's responsibility."[328]

This attempt comes against the background that only 1% of the open sea can be said to be protected. The media also highlights the fact that 100 nations have pledged to protect 30% of the planet's land and seas by 2030. But without an agreement, these commitments will have no legal basis in the high seas.

In general, the intention of the parties to any treaty is to establish a particular legal regime appropriate to the subject matter of that treaty. Let us bear in mind that certain characteristics underpin all such instruments: treaties vary in terms of obligations (the extent to which states are bound by rules), precision (the extent to which rules are unambiguous) and delegation (the extent to which third parties have the authority to interpret, apply and formulate rules)[329] .

Treaties serve as the primary sources of international law and have codified or established most international legal principles since the early 20th century, hence the growing importance of treaties as a source of international law and as a means of developing peaceful cooperation between nations, regardless of their constitutional and social systems[330] . In view of all this, the expectations of

[328] See The Guardian of 15.08.2022, article entitled: "UN member states meet in New York to hammer out high seas treaty" and details here: https://press.un.org/en/oceans-and-law-sea , accessed 19.08.2022.
[329] See Simmons, Beth , "Treaty Compliance and Violation", in Annual Review of Political Science. 13 (1): 2010, pp. 273-296; and Abbott, Kenneth W.; Keohane, Robert O.; Moravcsik, Andrew; Slaughter, Anne-Marie; Snidal, Duncan, "The Concept of Legalization", in International Organization. 54 (3), 2000, pp. 401-419.
[330] Vienna Convention on the Law of Treaties signed in Vienna on 23 May 1969.

international society from the biodiversity treaty are commensurate, the aim being to establish a comprehensive and unequivocal legal regime for the protection of marine biodiversity[331] .

In essence, as the preamble to the treaty makes clear, the most important issue is how the signatories will act as stewards of the oceans in areas beyond national jurisdiction on behalf of present and future generations. Any act of administration requires the resources to carry it out[332].

How will the act of administration be carried out? How will it be enforced under this agreement? Several questions can be raised, but they will not find their way into this article, given our focus on multi- and trans-disciplinary issues. We only recall, for an overview, the following provisions of the treaty text contained in Part II of the document, which come to regulate the issue of marine genetic resources, including benefit-sharing issues, setting as precise objectives: "(a) to promote the fair and equitable sharing of the benefits arising from marine genetic resources in areas beyond national jurisdiction; (b) to strengthen and develop the capacity of developing States Parties, in particular the least developed among them, landlocked developing States, geographically disadvantaged States, small island developing States, coastal African States and middle-income developing States, to collect *in situ*, access *ex situ,* including digital sequence information, and utilize marine genetic resources in areas beyond national jurisdiction; (c) promote the generation of knowledge and technological innovation, including by promoting and facilitating the development and conduct of marine scientific research in areas beyond national jurisdiction in accordance with the Convention; (d) promote the development and transfer of marine technology, with due regard to all legitimate interests, including, inter alia, the rights and obligations of holders, providers and recipients of marine technology. The provisions of this Part shall not apply to the use of fish and other living resources as commodities or to fishing or fishing activities regulated under relevant rules of international law."

These targets were launched amid the urgency highlighted by Greenpeace, which recalled that the oceans have lost 70% of sharks in the last 50 years, while over 100

[331] This desire is included in the preamble to the draft treaty itself, as follows: "Emphasizing the need for the comprehensive global regime to better address the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction".

[332] „Where the aforementioned powers are exercised exclusively by an administrative authority, decisions shall be reasoned in all cases." Rodica Diana Apan, *Outlook of the European Court of Justice Regarding Comparative Advertising,* in International Investment Law Journal Volume 2, Issue 2, July 2022, p. 163. See for some specific details, Cătălin-Silviu Săraru, *Competence determined strictly by the law and the discretionary power of public administration*, Tribuna Juridică/Juridical Tribune, Volume 6, Issue 2, December 2016, pp. 247-251.

marine species continue to be seriously threatened. International organisations with a role in this area have called for agreement on a text by the end of 2022[333] when the 27th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP27) will also take place.

Article 41a of the Treaty text on biodiversity contains guidelines to be developed by the scientific and technical body created for this purpose.

4.1. Meaning of some terms

Biodiversity means, in a broad sense, the existence on Earth of a multitude of ecosystems with distinct characters, the maintenance of which guarantees life on Earth itself.

Biodiversity, a concept created in 1985, covers the genetic diversity of species and the diversity of ecosystems, and is seen as the living fabric through which we are both actors and dependent[334]. It covers all natural environments and living organisms (plants, animals, fungi, bacteria, etc.) and all relationships and interactions between living organisms and between these organisms and their living environments. Biodiversity is essential to the functioning of ecosystems, forests, waters, coral reefs, soils and even the atmosphere, ensuring life on Earth. These ecosystems provide us with countless vital services for agriculture and soil regeneration, climate regulation and coastal protection, air and water quality, pollination, medicines extracted from nature, food, medicines and clothing, etc. Under pressure from human activity, natural environments and the species that inhabit them are in unprecedented dramatic decline. "Humans have caused the sixth major extinction crisis by massively accelerating the process of species extinction, the previous one being that of the dinosaurs 65 million years ago." These findings, along with the five major causes of biodiversity damage are identified and detailed in the latest IPBES (Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services) report published in 2019 :

- Destruction, degradation and fragmentation of natural environments linked in particular to increasing urbanisation, tourism development, expansion of agricultural land and development of transport, fishing, mining and logging infrastructure;

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[333] The call is also made by the International Union for Conservation of Nature and Natural Resources, the High Seas Alliance and the Deep Sea Conservation Coalition.

[334] „Also, the rich biodiversity of the maritime spaces with special valences for the pharmaceutical industry is an additional argument for increasing the European Union's interest in maritime issues." Laura Magdalena Trocan, *The Interest of the European Union in the Exploration*, in International Investment Law Journal Volume 3, Issue 1, February 2023, p. 18.

- Overexploitation of wild plant, timber or animal species and their products (overfishing and overhunting, deforestation, etc.) for local or international trade which encourages illegal trade in them;

- Pollution of water, land and air from industrial, agricultural or domestic sources;

- Introduction of invasive alien species;

- Climate change which, among other causes, negatively amplifies by changing the living conditions of species, forcing them to migrate or adapt their way of life, and some are unable to do so[335] .

These definitions have occupied a particularly important place in the interpretation of international law.

It tries to establish the meaning of terms such as: "*ex situ* access, including in the form of digital sequential information[336] "; "activity under the jurisdiction or control of a State[337] "; "area-based management tool[338] "; "areas beyond national jurisdiction" (means high seas and area); "biotechnology[339] "; "*in situ* collection[340] "; "cumulative impacts[341] "; "derived"; "environmental impact assessment[342] "; "marine genetic

[335] IPBES Report - Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services , published in 2019 can be found here: https://ipbes.net/sites/default/files/downloads/spm_unedited_advance_for_posting_htn.pdf, accessed 20.09.2022.

[336] Which can mean access to samples, data and information, including digital sequence information.

[337] It means an activity over which a state has effective control or exercises jurisdiction.

[338] Terms on which there is still debate. May mean an instrument, including a marine protected instrument, for a geographically defined area whereby one or more sectors or activities are managed to achieve specific conservation and sustainable use objectives in accordance with this Agreement, or shall mean an instrument, including a marine protected instrument, for a geographically defined area whereby one or more sectors or activities are managed to achieve, in accordance with this Agreement: (a) In the case of marine protected areas, conservation objectives; (b) In the case of other area-based management instruments, conservation and sustainable use objectives.

[339] Means any technological application that uses biology, biological systems, living organisms or derivatives thereof to make or modify products or processes for a specific use.

[340] With regard to marine genetic resources, it means the collection or sampling of marine genetic resources in areas beyond national jurisdiction.

[341] Means the incremental effects of a proposed activity under the jurisdiction and control of a Party, when added to the effects of past, present and reasonably foreseeable activities, or from the recurrence of similar activities, including climate change, ocean acidification and possible transboundary impacts, whether or not the Party exercises jurisdiction or control over these other activities; or could mean impacts on the same ecosystems resulting from different activities, including past, present or reasonably foreseeable past, present or reasonably foreseeable past, or from the recurrence over time of similar activities, including climate change, climate change, ocean acidification and related impacts.

resources"; "marine protected area" (means a geographically defined marine area that is designated and managed to achieve specific long-term conservation of biodiversity and sustainable use); "marine technology" (we render the meaning in the text due to its importance: means information and data, provided in a user-friendly form on marine science and related marine operations and services; manuals, guidelines, criteria, standards, reference materials; sampling and methodology, sampling and sampling equipment; observation facilities and equipment for *in situ* and laboratory observations, laboratory observations, analyses and experiments; computers and software, including models and modelling techniques; and expertise, knowledge, skills, technical, scientific and legal knowledge and analytical methods related to marine scientific research and observation); "strategic environmental assessment[343] "; "sustainable use" (means using the components of biological diversity in a way and at a rate that does not lead to a long-term decline in biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations); "transfer of marine technology" (means the transfer of tools, equipment, expertise, vessels, processes and methodologies necessary for the development and use of knowledge to improve the study and understanding of marine nature and resources); or "utilisation of marine genetic resources" (means the conduct of research into the development of the genetic and/or biochemical composition of marine genetic resources, including through the application of biotechnology).

5. **Specific debates.** The ocean plays a critical role in protecting the world from the climate crisis by absorbing carbon dioxide and 90% of the heat caused by

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[342] Means a process of assessing the potential environmental impacts, including cumulative impacts, of an activity with an effect on areas within or beyond national jurisdiction, taking into account, inter alia, interrelated social and economic, cultural and human health impacts, both beneficial and adverse, or could mean a process of identifying, predicting and assessing the potential effects that an activity may have on the marine environment in the short, medium and long term, to take the necessary measures, including mitigation, to address the consequences of such an activity before it commences.

[343] Means a higher level assessment of assessment process that can be used in three main ways: (a) to prepare a development or resource use strategy for a defined area of land and/or ocean; (b) to examine potential environmental effects that may arise from or may impact the environmental plan, implementation of government policies, plans and programs; and (c) to evaluate different classes or types of development projects so as to produce an overall picture of environmental management policy or design guidelines for classes or types of development. development. It may also mean the evaluation of likely environmental effects, including health effects, which includes determining the scope of an environmental report and preparing it, conducting public participation and consultation studies, and considering the environmental report and the results of public participation and consultation in a plan or program.

warming. But sea levels, ocean warming, acidification and greenhouse gas concentrations all reached record levels last year (2021), according to the World Meteorological Organisation's Global Climate Report, hampering the ocean's ability to absorb carbon.

The international area, or as it is more simply called: the zone, consists of the seabed and ocean floor and subsoil beyond the limits of national jurisdiction.

Among the general principles of the activities in the "Zone", we list: 1) the Area and its resources are inalienable and are the common heritage of mankind, and activities in the Area shall be carried out for the benefit of all mankind; 2) no State may claim sovereignty or sovereign rights over any part of the Area or its resources; 3) the use of the Area must be for exclusively peaceful purposes and remain open to peaceful use by all States without discrimination; and 4) States Parties to UNCLOS must ensure that entrepreneurs possessing their nationality or nationality, or controlled by them, strictly abide by the rules of the Convention concerning the exploitation of the resources of the Area[344].

Today, in addition to the problems of delimitation, exploration and exploitation, the possibility of living underwater is being discussed. We all remember the great explorer Jacques-Yves Cousteau. His nephew Fabien Cousteau has a new vision of how people can live and work in the ocean. He imagines that staying underwater for the long term could be made possible by building underwater habitats that look like homes, as opposed to sealed, submarine-like bubbles, which can raise new and specific issues of international law. According to recent press reports (March 2022), the project, called Proteus, would be a marine analogue of the International Space Station and would primarily house aquanauts, the equivalent of an astronaut in the ocean. Proteus Ocean Group, a private company that will operate and manage Proteus, recently signed an engineering, procurement and construction (EPC) contract with a firm that has experience creating hyperbaric and pressure vessels in the ocean environment. Much of what Proteus does in terms of the technology it explores is similar to space technology. Therefore, the rules of international law could apply through assimilation or through the intervention of new regulatory treaties.[345] This remains a research topic for future international law specialists.

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[344] R. Miga Beșteliu, op. cit. p. 227.

[345] The article was published in Popular Science in March 2022. See: https://www.popsci.com/technology/fabien-cousteau-proteus-underwater-international-space-station/, accessed 19.08.2022. The article reports that the first unit will be installed off Curaçao, an island north of Venezuela, in a marine protected area about 60 feet deep. The team is seeking additional locations in Europe and the US for future stations - their goal is to create a network of them. They have already completed 3D mapping of the seabed around the general area where Proteus will be located.

As an institutional structure for exploiting the area's resources, we note: International Submarine Territories Authority (with a role in administration), the Enterprise (the operational entity for the management and exploitation of the area) and the Chamber for the Settlement of Disputes concerning Submarine Territories (with a dispute settlement role, part of the structure of the International Tribunal for the Law of the Sea)[346] .

The continuous emergence of new actors in the legal relations of the law of the sea will lead this field towards multi- and transdisciplinary research methodologies.

6. **Closing Remarks.** We can easily see that in order to adapt today to the conditions of diversity, complexity, dynamics and scale issues of the oceans, a different way of thinking is needed such as the theory of "interactive governance " understanding interactions both within and between systems, i.e. the governing system and the natural and social systems that are governed, by identifying opportunities, fostering creativity or a different understanding[347] . Because one of the criticisms of transdisciplinarity is that it is about existing institutional capacity, the focus is also to be on creating new, more permeable institutional frameworks capable of developing and successfully using new methods for the benefit of all humanity.

This article is a demonstration of the fact that transdisciplinarity has been and continues to be present in international law, particularly in the law of the sea. Although the concept is used and experimented with in many other fields such as new technologies, biology, ecoengineering or geology, the law has encountered several reservations that today seem not so unresolved, especially against the background of the recognition of citizen science. The interaction between humans and nature finds a more appropriate development through the adapted development of transdisciplinary methodology. Over time, in the literature the concepts of inter, multi or transdisciplinarity have been intertwined and analysed in common, especially in marine research[348] .

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[346] See Cristina Popa Tache, "Public International Law. University course", Ed. C.H. Beck 2022.

[347] V.A. Brown et al., *Towards a Just and Sustainable Future*, in Tackling Wicked Problems: Through the Transdisciplinary Imagination (eds.), V.A. Brown, J.A. Harris and J.Y. Russell (London & Washington, DC, Earthscan, 2010), pp. 3-15. See also generally Chuenpagdee, R., *Transdisciplinary Perspectives on Ocean Governance*, In The Future of Ocean Governance and Capacity Development. Leiden, The Netherlands: Brill | Nijhoff, 2019, doi: https://doi.org/10.1163/9789004380271_006.

[348] Grünhagen, Caroline and Schwermer, Heike and Wagner-Ahlfs, Christian and Voss, Rudi and Gross, Felix and Riekhof, Marie-Catherine, *The Multifaceted Picture of Transdisciplinarity*

These methods are a link between specialists and all stakeholders in the field and bridge the knowledge gap. All this will in the future facilitate coherent and sustainable decision-making and policy development processes[349] . We can also conclude for these debates that transdisciplinarity is that emission of disciplines capable of generating other phenomena, standards and principles for the benefit of universal research.

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