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Marine Biological Diversity in Areas beyond National Jurisdiction; Legal Framework under the New Legally-Binding Convention on BBNJ

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Abstract

The concerns of the international community regarding the potential environmental crisis for future generations have been increased arising out of the intensification of the challenges and threats to the marine environment as well as diminution of the biological resources as a result of the aggregation of harmful human activities over the maritime zones. At the same time, conservation, sustainable use and governance of the oceans through the application of the rule of law is one of the most important issues that have been at the forefront of the international community's endeavor dealing with law of the sea and ocean affairs. The United Nations General Assembly in order to resolve the challenges of the existing legal framework governing marine biodiversity has established a legally binding instrument for conservation and sustainable use of marine biological diversity in areas beyond national jurisdiction known as the BBNJ process within the framework of the Convention on the Law of the Sea (UNCLOS). The present paper, while considering the basic foundations of the existing international legal framework applicable to marine biological diversity in areas beyond national jurisdiction, describes the strengths and weaknesses of the current legal framework in order to improve the ongoing international legally binding instrument concerning BBNJ and will pursue the monitoring of the ongoing process from international law perspectives.

Key words: Marine Biological Diversity; Genetic Resources; Inter-generational equity; Conservation and sustainable use

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Introduction

The international community in recent years has emphasized on the enforcement of the rule of law over the seas and regulating the oceans facing with a new phenomenon challenging the balance of reasonable conservation and sustainable use of marine environment. Such efforts have augmented with the intensification of threats to the marine environment through declining miraculous biological resources and international concerns about the environmental crisis for future generations undermining the principle of inter-generational equity.

In order to confront such concerns, the issue of conservation and sustainable use of marine biodiversity has entered into the international literature since the beginning of the twentieth century and emersion of agreements on ocean resources and their sustainable management. In addition, the legal system governing the biodiversity is being formed especially in the framework of international treaties and mechanisms. In order to resolve the weaknesses and challenges of the existing international legal framework of marine biodiversity and genetic resources, the UN General Assembly seeks to regulate the rule of law by codifying a binding instrument on the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction within the framework of the United Nations Convention on the Law of the Sea (UNCLOS) known as the BBNJ process which initiated since 2004 and continues to be elaborated up to present.

In order to explain the elements of the international legal framework governing the conservation and sustainable use of marine biodiversity in the current international legal literature, it is first necessary to clarify and redefine the important elements and key issues raised in this legal system. In this sense, biodiversity is the diversity of life at the genetic level, animal and plant species, and the ecosystems that play a key role in life on Earth. (Kohona & Lijnzaad, 2011) This notion has been defined in second Article of the Convention on

Biological Diversity (CBD)[2] as follows: "Biological diversity" means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are parts. This concept includes diversity within species, among species and ecosystem diversity."

On the other hand, areas beyond national jurisdiction of States under international law of the sea include all areas that do not fall within the national jurisdiction of a State or those over which no State exercises its sovereign rights. The maritime areas that fall within the state jurisdiction or any state exercise its sovereignty over it include the territorial sea, the exclusive-economic zone and the continental shelf. Therefore, areas beyond national jurisdiction are limited to other maritime areas including seabed areas and high seas. The principle of freedom of the high seas render plenty of freedom of action to the government, provided that they comply with certain conditions.(Buck, 1998, at 1)[3] While the principle of the common heritage of mankind limits the principle of freedom for the sake of prominent interests of human society. The existing international legal framework of the conservation and sustainable use of marine biodiversity includes customary international law and treaty regulations. International law governing the conservation of biodiversity is reflected in international judicial decisions, international treaties, and domestic law. In this context, given the limitations of the paper, we investigate the international customary legal system and existing treaties governing the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction within the framework of 1982 Convention on the Law of the Sea (UNCLOS) and other documents and

[2]Convention on Biological Diversity, opened for signature 5 June 1992, ATS 32 (entered into force 29 December 1993.

[3]Although some provisions of the Convention on the Law of the Sea provide just a few obligations for governments to exploit the high seas, this does not mean restricting the use and systematic use of resources. To read more about this, see:Article 87 and 89 UNCLOS.

mechanisms governing the international biodiversity and then examine the strengths and weaknesses of these mechanisms in details.

1. International legal framework for the conservation and sustainable use of biological resources and marine biodiversity in areas beyond national jurisdiction

From time immemorial, the international legal framework for conservation and sustainable use of marine genetic resources and biodiversity in areas beyond national jurisdiction, including customary international law, treaties and soft law has been gradually established and it is more or less developing and evolving. In order to comprehensively analyze the issue of conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction and to analyze the basic elements of the new legally binding instrument for conservation and sustainable use of biodiversity within the framework of the Convention on the Law of the Sea, we must first study the existing and applicable international legal regulations. More than 50 percent of the world's land is covered by oceans which many of them are beyond the national jurisdiction of governments, hence much of the world's biodiversity and genetic resources are located beyond national borders and deep in the oceans.Through the following paragraphs, we will take a look at the customary international legal framework and the existing treaties governing the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction. Therewith the customary legal system, conventions and binding or advisory documents that have played an important role in the formulation and development of international law on biodiversity and genetic resources will be considered. These legal documents include the 1982 Convention on the Law of the Sea, the 1992 Convention on Biological Diversity and its Protocol around Accession to Genetic Resources and sharing benefits from their exploitation fairly and equitably (Nagoya Protocol), the South Pole Treaty[4] System

[4] The Antarctic Treaty, Washington D.C., 1 December, 1959 (entry into force 23 June, 1961). Available at www.ats.aq/documents/ats/treaty_original.pdf

including the Antarctic Treaty and its Environmental Protection Protocol (Madrid Protocol)[5] and the Convention for the Protection of the Living Resources of Antarctic[6] and other international documents and treaties governing biodiversity and intellectual property rights of marine genetic resources.

2-1. United Nations Convention on the Law of the Sea 1982 on the conservation and sustainable use of marine biodiversity; a look at the international framework of maritime law

Significant advances in human life and technology in recent years, especially since the 1982 Convention on the Law of the Sea, have posed serious risks and damages to ecosystems and biodiversity that require applicable legal mechanisms and comprehensive, integrated and prudent management to confront it. The Convention on the Law of the Sea as the constitution law of the oceans and seas has codified several regulations for conservation and sustainable use of the marine environment and its ecosystem. Although it is the result of governments negotiations on issues at the time of the Convention (from 1973 to 1982)and not new innovations, most of its regulations have been formulated in such a way that they can be adapted as general and basic rules for applying to the new conditions.(Elferink (ed), 2005; Freestone, et al (eds), 2006; Barrett & Barnes (eds), 2016.)

In this regard, Section 11 of this Convention contains general obligations of States in the protection and conservation of the marine environment, including areas beyond national jurisdiction, which can be considered as the strengths

[5] Protocol on Environmental Protection to the Antarctic Treaty, Madrid, 4 October, 1991 (entry into force 14 January, 1998). Available at www.ats.aq/documents/recatt/Att006_e.pdf

[6]CCAMLR. Convention on the Conservation of Antarctic Marine Living Resources, Canberra, 20 May, 1980 (entry into force 7 April, 1982). Available at www.ats.aq/documents/ats/ccamlr_e.pdf .

point of this Convention in formulating a general framework governing the protection and conservation of the marine environment. Only two provisions of this Convention are directly applicable to the conservation of marine biodiversity; The first one has been set forth in paragraph 5 of Article 194, which provides that the measures which we are taken in accordance with Section 11 of the Convention shall include the necessary measures to protect and safeguard scarce or vulnerable ecosystems such as the ecosystem at the danger of destruction, Species at risk or danger and other types of marine life.[7] On the other hand, the Convention contains regulations that require governments to take the necessary measures (whether collective or individual) to prevent and reduce all forms of marine environmental pollution and to prevent the transmission of pollution caused by technology and toxins into the sea or changing one type of pollution into another.[8]

In addition to these general provisions, the Convention on the Law of the Sea contains specific provisions relating to the protection of marine biodiversity at the regional and international levels, which applied to the seabed area and the high seas. According to this Convention maritime areas under state jurisdiction or the zones that any State exercises its sovereign rights over it include the territorial sea, the exclusive economic zone and the continental shelf. Therefore, areas beyond national jurisdiction are limited to other maritime areas including seabed and high seas.The principle of freedom of the seas, which has the nature of customary international law and was codified under the 1958 Geneva Convention on the Law of the Sea, gives governments great freedom of action provided that they meet certain conditions. While the principle of the common heritage of mankind, in fact, limits the principle of freedom to a greater benefit, which is the interests of human society. Chapter 11 of the 1982 United Nations

[7] see Articles 192and 194 of the 1982 Convention on the Law of the Sea.

[8] These include a commitment to conduct environmental assessments when there is good reason to believe that planned actions may cause significant damage to the marine environment. In this connection, see Articles 194, 195 and 196 of the 1982 Convention on the Law of the Sea

Convention, although explaining the framework of the common heritage of mankind in the depths of the sea and beyond the territorial boundaries of countries, its obligations in some matters such as conservation and sustainable use of marine biodiversity have some kind of ambiguities and shortcomings. These are due to the lack of knowledge or absence of scientific information regarding the existence of genetic resources and widespread biodiversity in areas beyond national jurisdiction at the time of the Convention drafting.

On the other hand, due to the formal conflict between the convention's provisions since of adopting two different legal regimes governing areas beyond national jurisdiction including the high seas (the principle of freedom of the seas) and the deep region (the common heritage of mankind principle), the issue of marine biodiversity and genetic resources Locating in the region beyond national jurisdiction of states is not subject to a specific legal framework. Therefore, since of the mental and indeterminate nature of genetic resources and marine biodiversity, this matter causes widespread ambiguities, contradictions and discords among developing and developed countries regarding the determination of the legal regime governing the mentioned sources.

Although 1982 Convention contains provisions relating to the high seas (Section 7 of the Convention), the Deep Region (Eleventh Section of the Convention) or Scientific Marine Research (Section 13of the Convention), It does not include or define the term "marine genetic resources" in any part of it. The 7thSection contains provisions relating to the commitment of States to take measures for protecting living resources in the high seas, without reference to marine genetic resources. Also similarly in relation to the deep region, some measures have been taken to protect the marine environment against the harmful effects of human activities in the deep region. However, the provisions of the Convention on the Law of the Sea regarding live marine resources of the high seas reform a regime based on the Geneva Convention 1958 [9]and Articles 117

[9] Convention on the High Seas (1958), 450 U.N.T.S. 82; Convention on Fishing and Conservation of the Living

to 119 of the 1982 Convention extend the concept of marine life to resources other than fish, although it does not provide a comprehensive interpretation of the conservation and protection of this type of resource. According to the high Sea regime, governments enjoy a variety of freedoms including freedom of navigation, fishing, installation of submarine cables and pipes, freedom of construction of artificial islands, and other facilities permitted under international law and scientific research[10] but At the same time, they have a duty to exercise these freedoms in line with the goals of peace and the interests of other countries.[11]

Along with the high Sea regime for live marine resources, Section 11of the Convention on the Law of the Sea declares that non-living seabed resources beyond national jurisdiction where known as the region[12], are common heritage of mankind and are governed by the international body called International Seabed Authority (ISA). ISA is deeply committed to acts on behalf of all humanity and distributes the financial and economic benefits of its activities in the region in a fairly manner[13]. ISA has the authority to set rules and guidelines to examine the effects of environmental impacts on activities in the region and may also prohibit the extraction of resources in areas where there is a risk of serious damage to the environment.[14]International Seabed Authority is also responsible for coordinating and promoting marine scientific research in the region and publishing the results of its research and analysis to inform the international community.[15] In fact, the Convention explicitly extends the scope of the ISA's authority to protect the region's natural resources and prevent damages to plant and animal species in the marine environment. This concept

Resources of the High Seas (Geneva 1958)
[10] See Articles 87 of the 1982 Convention on the Law of the Sea.
[11] See Articles 87 (para.1) and 88 of the 1982 Convention on the Law of the Sea.
[12]The Area
[13]See Articles 136, 137 (para.2), 140(par.2) and 153(Para 1) of the 1982 Convention on the Law of the Sea.
[14] See Article 145 of the Convention and Part XI of the Implementing Agreement adopted in 1944.
[15]See Articles 143 of the 1982 Convention on the Law of the Sea.

is clearly stated in paragraph 2 of Article 145 of the Convention on the Law of the Sea.

From a point of view, it can be inferred that Section 11 of the Convention on the Law of the Sea is merely a detailed legal framework for regulating the extraction and exploitation of seabed minerals and distributing their benefits among the member States of the Convention on the basis of equity principle and transferring the relevant technology to other countries and does not contain specific provisions regarding other resources available in areas beyond national jurisdiction of governments. As stated at the beginning of this article, in paragraph 1 of Article 133 of this Convention, the term "resources" in relation to the legal framework of the region is defined as means all solid, liquid or gaseous mineral resources in situ in the area at or beneath the seabed, including polymetallic nodule. Many researchers believe that this concept implies non-living resources as the mineral resources and do not include marine genetic resources. In addition, the stipulation of the above article regarding the resources inside deep sea or seabed causes the genetic resources located at the water levels to be excluded from the scope of this Convention. (Greiber, 2011; Korn, Friedrich & Ute Feit, 2003).According to this interpretation and due to the silence of the 1982 Convention on the system of Access to Living Marine Resources, it is possible to own them freely while respecting the rights of other nations. Contrary to that interpretation, there is another view that believes the above procedure causes the extinction of the biological society's organisms and put them in a serious danger. Hence the principle of common heritage of mankind should be applied to vulnerable species and Genetic sources are located deep in the seas. (Ibid)

The General Regulations of this Convention arises many issues related to the conservation and sustainable use of marine biodiversity and the challenges of the international community in recent years following the signing of the Convention. The scientific International law community has more or less

concluded that, despite the strengths and weaknesses of the Convention provision regarding Marine Biodiversity in areas beyond state jurisdiction and the conservation of the marine environment, the existing legal system is not sufficient enough to apply to the new situations and must be completed and amended accordingly. (Gjerde, 2012, at 839-847)

However, the implementation of the provisions of the 1982 Convention on the Law of the Sea as an oceanic constitution for the environment and marine biodiversity and biological and marine resources and also the recognition of legal entities such as international Seabed Authority reflects the evolutionary approach of the Convention in recognition of the competence of the regional and international organizations and also diplomatic conferences for ratifying rules, regulations and adopting advisory and precautionary procedures to prevent and confront marine environment destruction which itself can be nominated as a kind of innovation in 1980s. (Redgewell, 2006, p88) However, it is clear enough that the provisions of the Convention on the Law of the Sea have the strengths and weaknesses points, which will be discussed in detail in the next paragraph.

In general, the provisions of both the Convention on the Law of the Sea and the Convention on Biodiversity as the reference legal documents caused the promotion and development of both customary international law and treaties regarding the conservation and sustainable use of genetic resources and marine biodiversity. According to the preamble to the Convention on the Law of the Sea, "public international law (including customary law)" will apply to matters that have not been regulated by the Convention. In addition, Article 87of the Convention stipulates that the principle of freedom of the high seas shall apply in accordance with the terms of the Convention and "other provisions of international law".Accordingly, in cases of the shortcomings and legal loopholes in the provisions of the Convention on the Law of the Sea to resolve the problems of the oceans and seas, resorting to the procedure of international organizations and the rules of customary international law regarding marine

biological resources can be considered as a way out of the crisis. For instance, we can refer to Regional-centered management instruments and criteria for establishing maritime protected areas which are subject to the general provisions of customary international law on environmental protection and Biodiversity and other relevant treaties since they are not regulated by the Convention on the Law of the Sea.

2-2 Convention on Biological Diversity adopted in 1992

The Convention on Biological Diversity sets out a comprehensive legal framework for the conservation of biodiversity and extends the general obligations on the conservation of the marine environment obligations set forth in the Convention on the Law of the Sea. The principles and objectives of the Convention on Biological Diversity according to Article 1are as follow; the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.[16]

Although the term "benefits" is not defined in the Convention, it can include research and development results, commercial benefits and other benefits of genetic resources, access to technology transfer, biotechnology research and access to their results. According to the Convention on Biological Diversity, the conservation of biodiversity is a common concern of humanity and should be considered in the development process.[17]

Article 15of the Convention on Biological Diversity recognizes the sovereign rights of states over marine genetic resources, including the right of states to legislate and control the use of their genetic resources. However, the sovereign

[16] See article 15 of 1992 Convention on Biological Diversity
[17]See article 15, 16 and 19 of 1992 Convention on Biological Diversity

right of States Parties owning the origin of genetic resources is limited by this Convention. Moreover States Parties are required to create conditions to facilitate access to their genetic resources in accordance with the objectives of the Convention.[18] Access to genetic resources under the Convention on Biological Diversity is subject to the prior consent of the State which provided the genetic resources unless the Member State determines otherwise.

Pursuant to Article 4of this Convention, regulations relating to elements of biodiversity including biological resources (such as genetic resources, organisms or parts thereof), or other biological elements of ecosystems with the capacity of usability or actual or potential value for humanity)[19] applies within national jurisdiction of each Party. Although the Convention on Biological Diversity has comprehensive regulations on biodiversity in general, it explicitly excludes elements of marine biodiversity in region beyond national jurisdiction from its scope. Therefore enforcing its mentioned instruments for internal protection[20], including protected areas is not clarified explicitly (Gjerde, Op.cit, at 448). However, Article ٥ of this Convention restricts National Jurisdiction to a commitment to direct cooperation or in the form of international organizations.

The Convention on Biological Diversity, together with the Convention on the Law of the Sea, provide a set of complementary but at the same time non-comprehensive rules on access to genetic resources in the seabed. Regarding the distinctions between these two conventions, it can be said that both conventions entail member states to protect living resources and scientific

[18] Ibid
[19] See Article 2 of 1992 Convention on Biological Diversity
[20] "*In- situ* conservation"or "Internal protection" means the protection of ecosystems and natural habitats and the maintenance and restoration of species populations in their natural environment, and in the case of domesticated or improved species, in environments where they have developed their own characteristics. See the 1992 Biodiversity Convention.

maritime research on resources located in areas beyond national jurisdiction[21]. In addition, none of the Conventions on the Law of the Sea and Biodiversity directly address the issue of access to genetic resources in the high seas or deep regions; while the Biodiversity Convention seeks to protect the diversity of genetic resources. However, the Convention on the Law of the Sea's provision only considers the conservation of certain species or resources of aquatic life.[22] These two conventions use different approaches to conserving and managing resources and carry out different processes; While the Convention on Biological Diversity refers to the precautionary principle and ecosystem-centric approach, the Convention on the Law of the Sea has taken a cautious approach only indirectly and cautiously[23].

Pursuant to Article 22 of the Convention on Biological Diversity and Article 311 of the Convention on the Law of the Sea, this conflict will be resolved in favor of the latter Convention if there is a conflict between the obligations under the Convention on Biological Diversity and the provisions of the Convention on the Law of the Sea. Paragraph 2 of Article 22 of the Convention on Biological Diversity articulates that States Parties shall implement this Convention in accordance with the rights and obligations of States under the convention on the law of the sea regarding the Maritime Environment. Accordingly, in the event of a conflict between the rights and obligations of States in accordance with existing rights, the solution to this crisis would be to resort to international maritime law, including the provisions of customary international law and the Convention on the Law of the Sea. (Glowka, et al., 1994, at.109) On the other hand article 311 of the Convention on the Law of the

[21] See Articles 15,17,18 and 23 of 1992 Convention on Biological Diversity and Articles 87 and 143 of the 1982 Convention on the Law of the Sea

[22] See Articles 119 of the 1982 Convention on the Law of the Sea

[23] See Articles 119 of the 1982 Convention on the Law of the Sea and preamble of 1992 Convention on Biological Diversity. With regard to the Precautionary principle under the environmental law, see: Alireza Arashpour, The Stance of Precautionary principle in the Protection of marine environmental law, Legal Studies, Journal of Social Sciences and Humanities of Shiraz University, Vol 9, No. 4, 2018.

Sea, stipulates that the provisions of the present and future agreements on maritime law (including the 1992 Convention on Biodiversity) must comply with the provisions of the Convention on the Law of the Sea. Moreover, the 3rd paragraph of this article states that the basic principles set forth in this Convention, the violation of which is inconsistent with the subject matter and purpose of the Convention, take precedence over other provisions. (Kamau & Winter (Eds.) 2009, at.59)[24]

As noted earlier, in accordance with Article 4 of the Convention on Biological Diversity, the Convention's jurisdiction applies over the elements of biodiversity including the regime of marine genetic resources located in national jurisdiction of States which under international law contains the region governed by the rights of States Parties including internal water and territorial sea. With regard to the elements of biodiversity, in accordance with the above-mentioned article, the applicability of the Convention on Biological Diversity is limited to areas under national jurisdiction of states. While in respect of procedures and activities related to biodiversity, whether they are carried out in areas under or over national jurisdiction, the provisions of the Convention shall apply regardless of the place of influence of the effects of those activities. (Warner, 2015) According to this Interpretation, activities under the jurisdiction or control of the coastal State or flag state in areas beyond national jurisdiction, such as the exploration and extraction of genetic resources for commercial and medical purposes, may be subject to the Convention on Biological Diversity.

On the other hand, the Nagoya Protocol, attached to the Convention on Biological Diversity regarding access to genetic resources and sharing benefits of revenues from exploitation equitably and fairly which ratified on October 29, 2010 in Japan[25], has improved and strengthened the goals relating conservation

[24] See article 23 of 1992 Convention on Biological Diversity and Articles 311 of the 1982 Convention on the Law of the Sea.
[25] Union of Ethical Bio Trade. 2010. *Nagoya Protocol on Access and Benefit Sharing – Technical Brief.* Available at:http://ethicalbiotrade.org/news/wp-content/uploads/UEBT_ABS_Nagoya_Protocol_TB.pdf

genetic resource and sharing system through creating a basis for legal certainty and greater transparency for both group of parties; the genetic resources providers and also its users. The Convention on Biological Diversity provides a substantial, structural, and procedural basis for the system of sharing benefits and revenues from the exploitation of genetic resources and related traditional knowledge in the Nagoya Protocol. Thus this Protocol can be considered as the executive arm of the Convention. However, the jurisdiction of the Nagoya Protocol, as set out in Article 3, does not clearly determine the geographical scope of the Protocol; it just defines its substantive jurisdiction and the resources that fall within the scope of the Protocol's jurisdiction. (Thomas Greiber, op.cit, at18)

It is noteworthy that since the provisions of the Nagoya Protocol are codified based on two basic concepts of intellectual property rights, including Prior-informed Consent and Mutually agreed terms to access and exploit the biological resources, they are not comprehensive and applicable to the marine biodiversity and genetic resources in areas beyond jurisdiction based on the interpretation of the 1982 Convention except those kind of activities that carried out under the jurisdiction of coastal states or flag state.

2.3. Other international documents and mechanisms for the conservation and sustainable use of marine biodiversity

In addition to the aforementioned international legal mechanisms and documents governing the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction, numerous other international documents and conventions, directly or indirectly, examine the subject of conservation and sustainable utilization of biodiversity and the prevention of damages to the marine environment and regulates it in the form of soft (unsustainable) regulations or regional ones considering special matters.

Examples include the International Convention for the Regulation of Whaling[26], the Convention on the Conservation of Migratory Species of Wild Animals[27] and the documents regarding the conservation of Marine Species, including the Convention on International Trade in Endangered Species of Wild Fauna and Flora[28], London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter and 1966 Protocol[29] on the Prohibition of Dumping of toxic Wastes in the Marine environment, has established regulations to prevent, reduce and confront increasing harm to the marine environment.

In addition, the International Maritime Organization has directly examined the issue of protection and conservation of the marine environment and biodiversity, and the importance of dealing with environmental threats and challenges in the form of numerous international documents and conventions. The most important documents adopted by the International Maritime Organization are as follow: The International Convention on Control and Management of Ballast Water and the International Convention on Controlling of Malicious Anti-fouling systems for Ships. (De La Fayette, 2009, at 249)

On the other hand, the International Maritime Organization can determine and demonstrate highly vulnerable marine areas that need the organization's protection measures to protect marine biodiversity and specific areas from the harmful effects of human activities and set guidelines as effective tools for protecting and conserving the marine biodiversity against the harmful effects of

[26] International Convention for the Regulation of Whaling (adopted 2 December 1946, entered into force 10 November 1948) 161 UNTS 72.
[27] Convention on the Conservation of Migratory Species of Wild Animals (adopted 23 June 1979, entered into force 1 November 1983) 1651 UNTS 333.
[28] Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (adopted 3 March 1973 entered into force 1 July 1975) 993 UNTS 243
[29] London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (adopted 29 December 1972, entered into force 30 August 1975) 1046 UNTS 120; 1996 Protocol to the 1972 Convention on the Prevention on Marine Pollution by Dumping of Wastes and Other Matters (adopted 7 November 1996, entered into force 24 March 2006).

shipping activities.For example, the theory of " Particularly Sensitive Sea Area (PSSA)", which is a unique concept in soft (unsustainable) law, has been legislated in the form of advisory principles of the International Maritime Organization to protect sensitive and vulnerable environmental areas within areas located beyond national jurisdiction. This concept was coined in 1978 by issuing a resolution during the International Conference on Tanker Safety and Prevention of Pollution which entitled "Support for Particularly Sensitive Sea Area". Accordingly, Particularly Sensitive Sea Area are those due to their importance for ecological, political-economic or scientific reasons, and their vulnerability to maritime activities, require special support from the International Maritime Organization. These guidelines and advisory principles are developed in the framework of the convention on the prevention of marine pollution from (MARPOL) and the recent resolutions of the General Assembly of the International Maritime Organization[30] and the precise criteria for the highly sensitive areas has been clarified.

In addition to the international regime of environmental conservation and marine biodiversity in areas beyond national jurisdiction of states, a number of regional treaties and approaches to the issue are also noteworthy, including the South polar treaty system, includes the Antarctic Treaty[31] and its Environmental Protection to the Antarctic Protocol (Madrid Protocol)[32] and Convention on the Conservation of Antarctic Marine Living Resources[33], the Barcelona Convention[34] and its Protocol on Particularly Sensitive Sea Area and

[30] IMO Doc. A 17/Res.720 of 9 January 1992.
[31] The Antarctic Treaty, Washington D.C., 1 December, 1959 (entry into force 23 June, 1961). Available at www.ats.aq/documents/ats/treaty_original.pdf
[32] Protocol on Environmental Protection to the Antarctic Treaty, Madrid, 4 October, 1991 (entry into force 14 January, 1998). Available at www.ats.aq/documents/recatt/Att006_e.pdf.
[33]CCAMLR Convention, op.cit.
[34] Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean(adopted in 16 February 1976, entered into force 2 December 1978) 1102 UNTS 27 (Barcelona Convention).

Biodiversity, Convention for the Protection of the Marine Environmental of the North-East Atlantic[35], Convention for the conservation of the Natural Resources and Environmental of the South Pacific Region[36] and Other Documents And international treaties for biodiversity and intellectual property rights governing marine genetic resources; All include regulations governing the necessity to take measures to protect and conserve natural ecosystems and biodiversity, especially Particularly Sensitive Sea Area where are Exposed to the destructive and negative effects of environmental threats.

In addition to the above-mentioned binding documents on protection and conservation of marine environment and biodiversity, some soft legal documents (non-consolidated) and resolutions of international organizations legislate regulation on biodiversity and the protection of certain species and natural ecosystems in order to Complete the existing international law; The provisions of which are reflected in international conventions, binding documents and many of their provision are manifestation of customary international law. A clear example of these non-binding legal provisions is documents issued by the United Nations Conference on Environment and Development, known as Agenda 21, which by resorting to Futuristic and cautious approach rather than a reactive approach, reminisce the government commitments to collective or individual Bilateral, regional or multilateral action to prevent the destruction of the marine environment[37]. It is clear that the international community needs to promote international and regional cooperation between the relevant international organizations to the maritime issues beyond national jurisdiction such as the International Maritime Organization and, the United Nations Environment and Development Program,

[35] Convention for the Protection of the Marine Environmental of the North-East Atlantic (adopted 22 September 1992, entered into the force 25 March 1998) 2354 UNTS 67 (OSPAR Convention)
[36]Convention for the Protection of the Natural Resources and Environmental of the South Pacific Region (adopted 24 November 1986, entered into the force 22 August 1990) 26 ILM 38 (Noumea Convention).
[37]See agenda 21 which has been ratified in 1992.

and effective non-governmental organizations such as the International Union for Conservation of Nature or World Conservation Union in order to strengthen the practical implementation of the determining marine protected areas with biological capacity in the high seas.

3. The strengths and weaknesses of the existing international legal framework for the conservation and sustainable use of marine biological resources and biodiversity

In accordance with the foregoing, the existing legal system governing the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction contains several regulations to regulate the human activities in the marine environment and achieving a sustainable biodiversity system of which as an achievement of the present international community present over time is relatively comprehensive; While there are many weaknesses and vacuums in the legal regime that governs it. In the following paragraphs, the strengths and weaknesses of the existing international legal framework for conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction will be analyzed.

3.1. Explicit Critique of the Legal Framework Governing the Protection and conservation of the Marine Environment and Biodiversity in the Convention on the Law of the Sea

Regarding the legal system governing the protection and conservation of the marine environment and biodiversity in the Convention on the Law of the Sea, it should be noted that the general protection and conservation obligations of States regarding vulnerable ecosystems and the ecosystems which are endangered and other types of maritime life contained in the Convention are in fact the cornerstone of other international legal regulations. As a matter of fact, it was codified customary international law governing the protection of the environment and biodiversity and the prevention of marine pollution in all its forms whether it caused by shipping, mining, atmospheric or waste collection

activities.[38]These regulations are evolving evolutionary approach due to the recognition of the competence of regional and international organizations and diplomatic meetings to formulate rules, regulations and advisory procedures for the prevention, reduction and control of pollution and through the development and solstice conservation rules and standards leads to a level of cautionary approach (the principle of prohibition of actions unless prescribed by law or related terms and conditions) (Redgewell, 2006, at 188). However, the focus of the Convention on the Law of the Sea on marine pollution and the emphasis on the importance of the prevention of marine pollution more than other considerations of biodiversity such as genetic resources and species and ecosystems of the marine environment can be considered as the weaknesses of regulations in this document. The 1992 Convention on Biological Diversity explicitly excludes the elements of biodiversity in areas beyond national jurisdiction from its scope, which means that protecting the resources in the habitat such as protected areas in the zone beyond national jurisdiction have less legal protection under these Conventions.

The Convention on the Law of the Sea, as the most important document on the fundamental rights of the oceans, for the first time provides precise and regulatory regulations regarding the need for technical and scientific assistance to developing countries by developed countries and international organizations and institutions which has been unprecedented in previous legal documents. Recognizing this necessity along with the commitment of governments to continuous environmental assessments, as well as international cooperation and assistance to achieve protective and conservative goals demonstrates the importance of a comprehensive and integrated approach to environmental issues from the perspectives of the Convention on the Law of the Sea. Although it seems that the international community is facing shortcomings and vacuums

[38] See Articles192 and 194 of the 1982 Convention on the Law of the Sea

in its implementation and operation which we will discuss it in more detail below.

Disadvantages of the Convention on the Law of the Sea include the implementation of rules related to the protection and conservation of the marine environment regardless of the destruction and increasing destruction of biodiversity in areas beyond national jurisdiction and the few measures taken to prevent and avoid the destruction of endanger ecosystem and specific species. It can be said that the regional-centered approach of the Convention on the Law of the Sea which measured based on the distance from the coast has failed to contain the interconnectedness as well as the sensitivity and vulnerability of ecosystems or species that are constantly migrating to areas beyond national jurisdiction. This is one of the most important weaknesses of the Convention despite its role in determining the rights and obligations of coastal states, flag state and others (Gjerde, 2012 ; Dire Tladi, 2011).On the other hand, the provisions of the Convention on the Law of the Sea, in the case of maritime areas beyond national jurisdiction, create a divided jurisdiction instead of a coherent jurisdiction and a distinct legal status between the blue water column of the high seas and the seabed area. This matter will lead to the development of a comprehensive approach for protection of the marine environment and the conservation of marine biodiversity in areas beyond national jurisdiction which faced with complexity. (Ardron & Warner, 2015)

In addition, the evolutionary approach contained in the 1982 Convention and the Precautionary Approach which despite lack of direct reference in the Convention has always been emphasized by the 1995Fish Stock Agreement as the implementing agreement of the Convention on the Law of the Sea are limited to a mere reactionary approach. This matter leads to serious and irreparable damages to the environment of the areas beyond the national jurisdiction through the development of the installation of marine cables, oil and gas facilities, marine scientific research and ocean erosion, that has to be

abundant without specific binding regulation. Moreover the rules regarding the assessment of the human activity's effect on the environment have been met with little progress (Gjerde*et al*., 2008).

Apart from activities such as mining, waste collection or deep-sea fishing which are considered the most by the Convention, lack of general and common rules for evaluation the environmental impacts of activities which are potential to be detrimental to the marine environment of areas beyond national jurisdiction shall be considered as other shortcomings of the Convention. In addition, the commitment to international cooperation at the regional and international levels and providing technical and scientific assistance to developing countries has not been fully implemented yet. Moreover, most areas beyond national jurisdiction have lacked an executive monitoring body which could promote international cooperation and coordination for conservation and sustainable use of marine biodiversity and genetic resources.

3.2. Vacuums and shortcomings of the existing set of normative framework of international law in the field of marine biodiversity

Generally Among the gaps and shortcomings of the existing international legal framework for the conservation of marine biodiversity, we can refer to the fragmented organizational framework, lack of a comprehensive set of principles and rules governing ocean, legal uncertainty and lack of comprehensive and integrated rules regarding the status of special protected areas and marine genetic resources (Wolfrum & Matz, 2000, at 479), assessments of environmental and strategic effects in areas beyond national jurisdiction, lack of capacity building and technology transfer, management of aquatic resources and high sea's fish comprehensively and responsibility of the flag-state and the issue of "real communication[39]", which all have great importance.(Elferink & Molenaar (eds.), 2010; Wright et al, 2015)

[39] Genuine Link

From a purely legal point of view, the gaps and shortcomings of the legal system governing marine biodiversity and the conservation of genetic resources can be divided into two important categories: legislative and managerial gaps and weaknesses (Sovereignty and operational weaknesses). (Gjerde et al, 2008) In addition to legislative and Sovereignty gaps, the lack of inclusive participation of states in existing legal mechanisms and ineffective implementation of regional and international commitments in the mechanisms of binding and non-binding treaties and advisory guideline of International organizations and institutions governing the oceans[40] are another type of weakness and shortcomings in the current international legal framework. We address the legislative gaps and weaknesses of governance and management in the international legal framework.

Legislative gaps, in one view, are substantive or geographical gaps within the framework of the existing international legal framework and include issues that have not yet been regulated at the global, regional, and local levels or have not been sufficiently considered by international lawmakers in the form of treaties. In addition, governance and management gaps address deficiencies in the international structural and organizational framework that include the lack of institutions or mechanisms at the global, regional, and local levels or the asymmetric and inconsistent powers of the existing institutions and organizations for governing over the issues of the oceans. (Ibid, at 1)

In the context of the above division, one of the most important types of legislative gaps is the lack of a comprehensive legal instrument or mechanism to incorporate new principles of conservation and exploitation, including an ecosystem-based approach or precautionary one that are compatible with general obligations under treaties and Mechanisms such as the Convention on the Law of the Sea and the Convention on Biological Diversity. Moreover, there

[40]Such as Regional fisheries management organizations

is lack of regulations and standards that can cover all activities related to the areas beyond jurisdiction including marine scientific research, exploration of specific species for special pharmaceutical and medical purposes, construction of various human facilities, Illegal fishing, Tourism especially in seabed, modern methods to reduce climate change, military activities and nuclear tests and weapons at sea. Furthermore, the shortcoming of specific legal regulations for governing the basic elements of modern conservation, including human activities impact's assessment on environmental, regional-centered management measures, networks of marine protected areas, principles governing the sustainable use of marine genetic resources. Strategic Environmental Assessments and the Monitoring and Reporting Process, along with the lack of mechanisms for adherence and implementation at the global and regional levels for human actions and activities, are all entitled as the gaps and shortcomings of the current legal system regarding legislation matter.

In addition, the comprehensive survey of the strengths and weaknesses of the legal system governing marine biodiversity and genetic resources should not ignore the shortcomings arising from the lack of management and governance of the oceans and the lack of operational mechanisms resulting from them. These shortcomings include a lack of mechanisms to ensure cooperation and coordination between governments, organizations, executive bodies and management tools overseeing human activities in areas beyond national jurisdiction as well as the lack of comprehensive and integrated management of biodiversity and the biological resources and dilemmas arising from non-fulfillment of the obligations of the submarine vessels with the flag under the existing regulations of the international legal framework.

On the other hand, the lack of executive or institutional processes to ensure the implementation of the new principles of environmental governance, including

the principle of transparency, responsibility[41], participation of regional and international actors, fair sharing of revenues' benefits and Intergenerational and Intra-generational equity and especially disputes arising from enforcement of the common heritage of mankind principle on marine genetic resources can be considered as shortcomings and lack of the comprehensive management and rule of law over the oceans. In this regard, due to the lack of efficient executive and regulatory procedures and mechanisms, it is necessary to establish a comprehensive and transparent framework that includes short-term and medium-term measures to force governments to inform others from the vessels 'activities and its citizens in high seas, as well as the existence of the commitment to evaluate the possible effects of these activities on the marine environment and to monitor and control them.[42]

These concepts along with the lack of recognition a legal position for the governments and international organizations to sue in international courts and other assemblies against wrongdoing states on behalf of themselves and the international community in order to ensure conservation and sustainable use of biological resources has led to numerous shortcomings in the international legal framework governing the protection of marine and environmental biodiversity in areas beyond national jurisdiction of states. As emphasized at the 1992 Conference of the Convention on Biological Diversity, threats to marine biodiversity in areas beyond national jurisdiction have increased. Therefore the need to strengthen the system of international cooperation to improve

[41] It should be noted that under the monitoring mechanisms stipulated in new environmental treaties, the Non-compliance mechanism has been substituted for the traditional liability and responsibility under international law which emphasizes on the internationally wrongful acts of the states. For further information, see Aghil Mohammadi, Comparison of Non-Compliance Procedure and Disputes Settlement Mechanisms and the International Responsibility of State in Environmental Treaties, Legal Studies, Journal of Social Sciences and Humanities of Shiraz University, Vol 11. No.3, 2019.

[42] IUCN, Workshop on High Seas Governance for the 21st Century. Co-Chairs Summary Report, December 2007, pp.12–13.

biodiversity conservation and sustainable use of resources in these areas are of great important[43].

It seems that there are some solutions that could be arisen in order to eliminate the shortcomings and gaps caused by the international legal framework governing biodiversity. This solutions include the development of international legal and normative mechanisms through the international binding documents contains protective and modern governance principles and norms to protect the marine environment, strengthening cooperation and coordination among governments and other competent international organizations and institutions which are responsible for carrying out activities in areas beyond national jurisdiction at the regional and global levels, ensuring comprehensive management and Strengthening transparent oversight procedures and processes and ensuring the governments adherence to their environmental obligations in accordance with the binding legal framework.

4. Conclusion

The effects of climate change, marine accumulation, ocean erosion, decomposition of carbon dioxide, and the advancement of human knowledge and technology which are increasingly reflected in the shipping, fishing, maritime cable, and maritime science and research industries are undoubtedly one of the most important potential threats to the environment of the oceans and seas. The sensitive, vulnerable and non-renewable ecosystems of the seas cannot tolerate these human developments, which are accelerating with increasing maritime trade and human transportation and transferring toxic and petroleum products; hence the result of this conflict is nothing else than increasing damages to the marine environment (Warner, 2009, at14-15).

[43] CBD, Conference of the Parties, 7th Session, Protected Area, COP 7 Decision VII/28 at Para 25-29.

Irregular and unsystematic use of marine aquatic and non-aquatic resources along with mineral extraction and exploration, pollution from ships, embedding of oil and gas pipelines, geological research, scientific marine research, discovery and extraction of species plants and animals for pharmaceutical and medical purposes (Bioprospecting Activities) and environmental manipulations in the absence of a legal system to regulate the exploitation of marine resources and facilities are contributing to the spread of marine environmental disasters (Halpern et al, 2008, at 948).

The most important challenges of the international community in the protection and conservation of marine biodiversity can be considered as follow: axial section and fragmented management and the lack of comprehensive and ecosystem-based management, weaknesses and shortcomings in the system of international cooperation and coordination among governments and responsible institutions to protect marine environment, the lack of a comprehensive legal framework for governing all elements of marine biodiversity in high seas, non-compliance of the governments with environmental obligations and dilemmas associated with the implementation or application of existing legal instruments. (Rayfuse & Warner, *2008*, at 399; Rochette (ed), 2009).

The legal status of the high seas as a public commons and the unconditional freedom of states based on the principle of freedom of the high seas themselves are among the challenges that make it difficult to achieve conservation and sustainable use of marine biodiversity. Therefore, the need to take serious measures at the regional and international levels to strengthen the legal and organizational frameworks for the preservation and conservation of marine biodiversity in the international community is completely clear to everyone. Under international law, the governments are committed to protect and support the marine environment and biodiversity according to their theoretical nature and tangible elements, including biological resources and marine ecosystems. It seems that the legal basis for the commitment to protect the biodiversity of

the high seas is in fact arising from the general commitment of states in accordance with customary international law to protect the marine environment from damages of human activities and Cooperating to achieve this goal, as well as the commitment of governments to protect the living resources of the seas and oceans.

In order to remove the above gaps and tackle the obstacles, the international community is trying to regulate the legal framework governing biodiversity in areas beyond national jurisdiction in the form of a new legally binding convention. Codifying a legally binding instrument to systematize the exploitation and sustainable use of marine biological resources is a major development in international law of the sea, the main beneficiary of which is for the human society and future generations. Scientifically, the issue of marine biodiversity in areas beyond national jurisdiction of states is one of the most important issues raised at the United Nations with regard to the law of the seas in recent years. Practically, the perception of marine biological resources as a common heritage of mankind leads to arising the concepts such as intergenerational equity, equitable benefit sharing among all countries of the world and transferring the technology from developed countries to developing ones which enable all countries of the world to benefit from this international mechanism. Thus, the international community needs to ratify a binding convention to systematize the conservation and sustainable exploitation of biological resources and biodiversity in areas beyond national jurisdiction of states, and the contemporary international law has no solution else than the abundant effort to practically put this legal framework into order.

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