

SEABED POLLUTION AND SUSTENANCE OF MARINE SPECIES: ANALYSIS OF EXISTING LEGAL INTERNATIONAL FRAMEWORK

*Anu Bhuvanachandran**

*Sanskriti Mishra***

ABSTRACT

Life on earth exist as there is an ideal balance of all the components and resources like air, water and land. Presently, from jelly fish to white sharks are under sever threats due to increasing pollution in the marine environment. This research paper discusses the various prevailing issues with respect to marine environment and the international, legal framework for protection of the marine species. Further the paper analyses how the existing laws are actually catering for protection, preservation and conservation of marine resources in the seabed due to pollution. And the paper concludes by projecting responsibilities and need for protection of marine environment for ensuring sustainable development.

Keywords: Seabed Pollution, Marine Species, UNCLOS, international law, marine ecosystem

- I. Introduction**
- II. Concept of Marine Environment**
- III. International Legal Framework**
- IV. Regional Legal Framework**
- V. Territorial Legal Framework: US, UK and India**
- VI. Issues and Challenges**
- VII. Recommendations**
- VIII. Conclusion**

I. Introduction

THE UNDERSTANDING of life on Earth to date remains entrenched in philosophical discourse rather than scientific certainty. This perception is underscored by the persistent absence of empirical evidence elucidating the mechanisms by which life emerges across diverse species and the unresolved inquiries regarding genetic intricacies. As a result, many

* Ph.D. Research Scholar, School of Law, Sharda University, Greater Noida and Advocate on Record, Supreme Court of India.

** Assistant Professor, School of Law, Sharda University, Greater Noida.

fundamental questions pertaining to life's origins and evolution continue to straddle the realms of science and philosophy. Similarly, life is given utmost importance irrespective of the species. When man started exploring and further keen towards exploitation, the issues affecting smooth and healthy life of species commenced. The commencement of these issues can be traced after the first half of the first millennium. Now in the second millennium, life for another year is considered as bonus, especially with the outbreak of pandemic and many other reasons in the pre pandemic and post pandemic stage. One of the major reasons for the threat to life is pollution immaterial of air, water or land.

This research paper covers the seabed pollution and detrimental to the health of marine species. Right from the outbreak of the First World War to till date there is complete acceleration in the issues and debates with respect to marine environment pollution causing extinction and vulnerability of extinction of marine species in a greater pace. It is to be noted that seventy percent of the earth's surfaced is covered by water in the form of ocean, seas, lakes, estuaries, rivers etc. and hence it appears blue. Water, despite its widespread presence, exhibits uneven distribution in terms of density and species composition, leading to distinct ecological and environmental implications. Understanding these variations is crucial for comprehending aquatic ecosystems' dynamics, resource management, and the broader impact on global biogeochemical cycles.

Whereas in the Second World War Indian Ocean was the main trade route of most of the nation. Many warships and other vessels were burnt and sank in the sea and also the remains of war were recklessly dumped in the sea.¹ This activity has paved way to pollution of the sea and seabed along with serious consequences to marine environment as a whole. There were active and healthy discussions happened around the world addressing this issue and thereafter laws were made at international and regional level to regulate the issues with respect to pollution of the seabed and adoption of such laws by signatory members to enforce it territorially. In order to understand the laws and its intention there is a need to understand the basic concepts involved with respect to the research conducted herein.

¹ Richard A Barnes, *A History of North Atlantic Fisheries*, David Starkey, *Law of the Sea 1850-2010*, 177-255, 2012, available at: https://www.researchgate.net/publication/317388061_Law_of_the_Sea_1850-2010/link/59383387aca272bcd182b822/download (last visited on August 15, 2022).

II. Concept of Marine Environment

The concept of marine environment is inclined to its resources, concerns and subjects. In simple sense, marine environment is the environment in the sea, its seabed, ocean floor and subsoil consisting of living and non-living organisms, minerals, metals etc. capable of maintaining balance of the ecology through the functions that they do. There are several jurists around the world attempted and contributed several definitions for marine environment. Marine environment can be defined as the physical, atmospheric and biological components, conditions and factors that interactively determine the productivity, state, condition and quality of the marine ecosystem.²

It means the sea environment including physical, chemical biological and genetic components, conditions and factors which interact and determine the productivity, state and quality of the marine waters and the subsoil thereof.³ It is an environment where the oceans, seas, bays, estuaries and other major waterbodies, including their surface and interaction, with atmosphere and with land seaward of mean high watermark.⁴ The marine environment consists of flora, fauna, minerals, metals and things of tiny to giant nature *i.e.* their population may be more than the consolidated population of two most populous countries in the world. But the difference is that each species may presence in different marine eco-system based on the density of water, availability of oxygen, minerals, corals, nature of seabed and many other subjects where the balance of ecosystem is necessary for the sustenance.

The marine environment consists of wide variety of living species which may range from jelly fish to giant blue whales which are co-existing in the marine ecosystem which are generally known as marine species. Marine species generally includes fish, shellfish, marine animals and their egg, sperm, larvae, spat and other stages.⁵

² Definition of Marine Environment, *available at*: <https://www.lawinsider.com/dictionary/marine-environment#:~:text=Marine%20environment%20means%20the%20environment%20of%20the%20sea%2C,the%20seabed%20and%20ocean%20floor%20and%20subsoil%20thereof%3B> (last visited on August 15, 2022).

³ International Seabed Mineral Management Decree 2013, *available at*: https://www.ffa.int/system/files/International_Seabed_Mineral_Management_Decree_2013.pdf (last visited on August 15, 2022).

⁴ *Supra* note 2.

⁵ Definition of Marine Species, *available at*: <https://www.lawinsider.com/dictionary/marine-species> (last visited on August 15, 2022)

The United Nations Convention on the Law of the Sea, 1982, art.1(4) defines the term pollution of marine environment.⁶ According to the article, pollution of marine environment can be done through introducing subjects or materials of any form directly or indirectly that alters the texture, behavior, pattern and properties of the resources and stand as minorly or majorly harmful to the any life at water, air or land. The pollution of marine environment can be either done from marine waters or from land or from aerial activities that are capable of impacting the marine life. The pollution can even occur from natural disaster or any accident at the sea.

Seabed is yet another concept in marine environment that is the subsoil under the sea or the ocean floor. According to Merriam Webster, seabed is the floor of the sea or ocean.⁷ Seabed is composed of clay, consolidated silt, fluid and soft materials, heavy silted areas of harbor etc. It is regarded as an ore of minerals, vibrant varieties of both flora and fauna, gases, fluids etc. In science, it refers to the top-surface of earth in seas and is known as seafloor⁸ and the surface has a topography which is directly related to the nature of subsurface geology,⁹ in places modified by ocean currents and sedimentary processes.¹⁰

According to geology, earth's crust is different from the seabed or the ocean floor in respect of thickness and components which it comprises of. Seabed or the oceanic crust is thin *i.e.*, 5 to 15Km and consists of dense iron ore and magnesium whereas the earth's crust is 35-40Km thick. And consists of minerals rich in silica, aluminium etc. Seabed also exposed to underwater volcanic eruption, land displacement etc. and is subjected to ocean cycle.¹¹ As per demands at the international level, seabed mapping is conducted to identify the components of seabed at various areas, security concerns, developmental activities etc. It has been done in Barents Shelf Seafloor, fjord areas etc. which was carried out by the Norwegian authorities. It is to be noted that the composition of seabed or the ocean floor varies with the area. The discussion

⁶ "Pollution of the marine environment" means the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities.

⁷ Definition of Seabed, *available at*: <https://www.merriam-webster.com/dictionary/seabed> (last visited on August 12, 2022).

⁸ Seline Trevisanut, *Decommissioning of Offshore Installations: A Fragmented and Ineffective International Regulatory Framework*, Catherine Banet (ed), *Law of the Seabed Access, Uses and Protection of Seabed Resources* 431 (Brill Nijhoff, Boston).

⁹ Herrald Brekke, *Setting Maritime Limits and Boundaries: Experiences from Norway*, Catherine Banet (ed), *Law of the Seabed Access, Uses and Protection of Seabed Resources* 85 (Brill Nijhoff, Boston).

¹⁰ *Ibid.*

¹¹ *Id.*, at 48.

underscores the intricate nature of the seabed and its associated components, highlighting their complexity and largely unexplored status.

This recognition emphasizes the need for comprehensive research and exploration initiatives to deepen our understanding of these critical marine environments and their interconnected elements. The seabed is facing challenges due to increasing pollution where by the marine species right to live and protected is been curtailed in every micro second. In April 20, 2010, deep water horizon oil rig explosion happened where five million barrels of oil was spilled and capped in the seabed creating large patches of oil residue in the seabed which has affected the marine life.¹² Similarly the Trans-Tasman Resources, a mining company had expressed its interest in opening a mine off the coast of Platea in South Taranaki Bight, which is regarded as an area with diverse flora and fauna and minerals and rare subjects. Till date the company is not permitted to open ore which will be a mouth for such other companies in the field.¹³

According to 2018 report by the United Nations, more than sixty countries have enacted rules to mitigate the pollution issues from plastic in the marine environment.¹⁴ France has recently increased fine for littering plastic in ocean for reducing marine pollution and for better protection of marine life. India has awarded Hundred Crore Rupees against Panama Shipping Company for causing oil pollution in the maritime waters of India by sailing an unseaworthy ship. The United States and the Russia has taken up several measures to reduce marine pollution. Before intruding into the subject matter, there is a need to analyze the international legal framework for the protection of marine environment especially seabed from pollution and of marine life thereof.

III. International Evolution

Use of sea by man dates back to 3000BC where evidences of trade conducted between India and Babylon and India to Arabian Coast through Red Sea, which linked India to the Gold Fields of Egypt and Judea are present. Apart from that the State of Rhodes played a pivotal role in sea

¹² Deep Water Pollution, *available at*: <https://www.scidev.net/global/news/deepwater-pollution-seabed/> (last visited on August 14, 2022).

¹³ What is Seabed? Why is it Threatening Oceans? *available at*: <https://www.greenpeace.org/aotearoa/story/what-is-seabed-mining-and-why-does-it-threaten-the-oceans/> (last visited on August 27, 2022).

¹⁴ Marine Pollution, *available at*: <https://education.nationalgeographic.org/resource/marine-pollution>, (last visited on August 14, 2022).

trade and paved trade routes to many ores. The power and prestige of state of Rhodes is well described by the historian Strabo:

States of Rhodes is the most favorable position capable of flourishing since Alexander's era and still more during the war of the successors. All the trades of Europe and Asia is concentrated in this state and Rhodesians are distinguished seamen with reputation and honesty and had their own laws of sea which is regarded as first law of sea in the life of mankind.

In Second and third century B.C. the state of Rhodes codified the commercial practices of all time to Rhodian Sea law which laid foundation to modern maritime law jurisprudence.¹⁵

To commence the international legal framework, there is a need to know the circumstances that put forward to the demand for preservation, protection and conservation of marine life from pollution in the seabed. Indian Ocean played a remarkable role by acting as one of the main trade routes in the World War II. As a part of the war, many warships were burnt, sunk to the debris, turning the blue sea to reddish black with blood and oil. There are large patches of oil in the ocean floor that engulfed the marine life of in the seabed of the Indian Ocean and Atlantic Ocean. As per AMIO database records, the Japanese ships had majorly destroyed and sank to the seabed consisting of 85 percent of the vessels sunk in the Pacific Ocean in the Second World War.¹⁶

With regard to oil tankers, out of five hundred and twenty nine, one hundred and five were at ballast during the sunken time and pose little pollution risk whereas there is no information regarding two hundred and forty three oil tankers which is believed to have average amount of oil cargo at the sunken time.¹⁷ It can be seen that the cause of marine environment damage till date points to the massive ship wreck occurred in the World War II and also the components of the wrecked ship reacts with fluids and gases in the seabed causing noxious gases and toxic substances posing danger to the marine species in the seabed. These circumstances have led to

¹⁵ RP Anand, *Origin and Development of the Law of the Sea: History of International Law Revisited* 89, (Cambridge University Press, Hague 1983).

¹⁶ Marine Pollution from Ship Wrecks, available at: <http://www.seaaustralia.com/documents/The%20Global%20Risk%20of%20Marine%20Pollution%20from%20WWII%20Shipwrecks-final.pdf> (last visited on August 16, 2022).

¹⁷ *Ibid.*

increase demand for debates and need for law to regulate sea to protect the marine environment and allied activities at the sea.

When it comes to regulation of the sea, the finger points towards the United Nations Convention on the Law of the Sea 1982. Part XII of the Convention exclusively deals with the protection and preservation of the marine environment. It imposes general obligation on states to protect and preserve the marine environment¹⁸ and has given sovereign right to exploit their natural resources. It further narrates the measures to be taken to prevent, reduce and control marine pollution wherein it calls for mutual cooperation, controlled activities in the area states having jurisdiction, measures to protect fragile ecosystem and many more.¹⁹ Under article 194(3), the measures to be taken by the state to control pollution is narrated.

In this regard the Convention calls the state to take measures to minimize release of toxic substances of land based or by dumping or by accident or through any other means; to protect the environment from pollution arising from vessels by ensuring its seaworthiness and reducing unintentional discharge of wastes or oil or any such substances; pollution arising from discharge of effluents or noxious substances from the installations and devices at sea, or subsoil or at the seabed and to reduce pollution arising from controlled scientific research at the seabed or the ocean floor. The convention mandates the states to notify upon happening of the imminent danger to the marine environment to the other states so as to take immediate measures to protect and reduce the risk of damage of marine environment.

In this regard, the states can initiate contingency plans in the affected areas to minimize or reduce the pollution and states shall jointly cooperate with the international organizations to achieve the same.²⁰ Clause 3 of this Part caters for technical assistance in enhancing protection, preservation and conservation of the marine environment through promotion of scientific, education and other programs and creating awareness with respect to coordination of activities in the outbreak of hazard to the marine environment. Section 5 of this Part narrates various sources of pollution and how to deal the same at municipal level. It suggests the states to adopt laws and regulations to prevent, control and reduce marine pollution from land-based

¹⁸ The United Nations Conventions on Law of the Sea, 1982, art. 192.

¹⁹ *Id.*, art. 194.

²⁰ The United Nations Conventions on Law of the Sea, 1982, art. 198.

activities,²¹ sea-based activities,²² dumping,²³ from vessels²⁴ and from atmosphere²⁵ and states shall have jurisdiction on the activities that cause pollution of the marine environment.

Enforcement of laws by flag states shall be done in a manner which primarily in compliance with all the requirements and carry all the necessary certificates and inform all the states and respective international authorities with regard to outcome of an event occurred at sea which may result in the marine environment damage.²⁶ Article 218 envisages full-fledged port state control over the vessels that come under its jurisdiction including foreign vessels and port states are obliged to respect the sovereignty of such foreign vessel. Apart from this article 230 envisages monetary compensation for the marine environment damage caused by the foreign vessels in the territory or internal waters or at the exclusive economic zone of the territory and caters for institution of civil proceeding against the wrongdoers and state shall be liable for the loss or damage to the marine environment of the other state.²⁷

The UNCLOS Treaty *ipso facto* dedicates a major part for the conservation, preservation and protection of the marine environment but the part discussed herein shall not be applicable to any warships or such other vessels operated by a state for non-commercial governmental purposes. From UNCLOS III it can be understood that the provision narrates how to states shall regulate at territorial level and cooperate themselves in conserving, preserving and protecting the marine environment generously. The law also talk about the environment protection concerns with regard to marine species in the seabed which may be posed in danger through the marine pollution or damage originating from the sea, land-based, accident or of act of God.

Apart from Part XII of the UNCLOS III there are several provisions that regulate the events purporting to pollution in the marine environment. Article 19 of the Convention deals with the innocent passage where it is expressly said that passage of ship shall not be considered if it engages in willful act and serious pollution contrary to the convention²⁸ and mandates the coastal states to craft clear laws to regulate, impose liability and penalize such acts done by a

²¹ *Id.*, art. 207.

²² *Id.*, art. 208.

²³ *Id.*, art. 210.

²⁴ *Id.*, art. 211.

²⁵ *Id.*, art. 212.

²⁶ *Id.*, art. 217.

²⁷ *Id.*, art. 232.

²⁸ *Id.*, art. 19(2)(a).

foreign vessel.²⁹ This is applicable in case of transit passage of vessels as well.³⁰ Further, article 79 mandates the coastal states not to impede from maintenance of cables running through the continental shelf or the seabed for the purpose of controlling, preventing and reducing marine pollution. Article 145 of the Convention commands the states for protection of marine environment by controlling dumping, disposal of wastes, construction and operational activities such as piling, drilling and installation of structures and devices. Another major provision that caters for protection of marine environment is article 194 which mandates the states to take all measures to prevent, reduce and control marine environment originating from land-based sources, sea-based subjects etc.

In order to provide special attention to the seabed area, species, ecology there and activities carried out there, the Convention has established International Seabed Authority which is the only authority to deal with the issues and concerns pertaining to the international seabed and is established under article 156 with has international legal personality³¹ and shall enjoy the privileges and immunities enjoyed by the state parties to the Convention.³² The provision states that all state parties to the Convention shall be the members of this authority and is situated at Jamaica wherein it is empowered to establish regional establishment for better fulfillment of objectives of the Convention.

International Seabed Authority is based on sovereign equality of all state parties. The authority consists of legislative body, executory body and a secretariat for legislation and implementation of laws from time to time. The role of International Seabed Authority is to regulate the seabed by imposing equality on sovereignty of states³³ and make all the member states to serve their obligation under the Convention in good faith. The International Seabed Authority issues monthly newsletters projecting its agendas and activities that are carried out or aimed to carry out in near future. Presently, the Secretariat has invited comments on draft regional environmental management plan for the area of the northern mid-Atlantic Ridge with special focus on polymetallic sulphide deposits.³⁴

²⁹ *Id.*, art. 21(1)(f).

³⁰ *Id.*, art. 42.

³¹ *Id.*, art. 176.

³² *Id.*, art. 177.

³³ *Id.*, art. 157(3).

³⁴ Draft Regional Environment Management Plan, *available at*: <https://isa.org.jm/index.php/news/draft-regional-environmental-management-plan-northern-mid-atlantic-ridge-open-consultation> (last visited on August 12, 2022).

Unfortunately, present day is witnessing extreme traffic and patrolling and drills conducted by nuclear power nations *i.e.*, the United States, the United Kingdom, Russia, China and France especially in the Indian Ocean which can actually escape from their liability towards marine pollution by invoking sovereign immunity which acts as a major threat to the states bordered by the Indian Ocean. In addition, as water flows this pollution or damage can further spread to other oceans which may pose greater threat to the marine life existing there. Even though UNCLOS III is considered to be the magna carta of marine environment protection, there are many other legislations which caters for the protection of the marine environment.

The Convention on the Law of Non-Navigational Uses of International Watercourses also known as the United Nations Watercourses Convention was adopted by the General Assembly on May 21, 1997 for the purpose utilization, development, conservation and preservation of non-navigation watercourses towards sustainable development. It mandates the state parties to concentrate on equitable utilization of international watercourse available to them.³⁵ It mandates the state parties not to cause harm to other states that will restrict them in smooth utilization of watercourse and shall take all measures to prevent such harm.³⁶ Part IV of the Convention exclusively deals with protection, management and preservation of ecosystems and calls for international cooperation of water course states in reducing and control of pollution. The main aim of this Convention is to prevent the non-navigable watercourses from land-based pollution. Article 21 defines pollution of an international watercourse as any detrimental act leading to alteration in the quality of waters directly or indirectly by human conduct.

International Convention for the Prevention of Pollution from Ships otherwise known as MARPOL deals with pollution from ships; its prevention, control and reduction. Annex 5 deals with prevention of pollution from dumping from ships. It mandates the ships to dump garbage by following specific distance from land and impose complete ban on dumping plastics in the sea.

The Convention on the Prevention of Marine Pollution by Dumping of Wastes or other Matter commonly known as London Convention is regarded as the first convention to protect marine environment from human activities. It narrates that dumping includes deliberate disposal of

³⁵ The Convention on the Law of Non-Navigational Uses of International Watercourses, art. 5

³⁶ *Id.*, art. 7.

wastes at sea from or of vessels and does not include waste arising out of normal operations of vessels and whatever not contrary to the aims of the convention.³⁷ Article XII mandates the states to take adequate measures to protect marine environment from hydrocarbons, noxious or hazardous matters, wastes generated in the operation of vessels etc. In addition, 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter, known as London Protocol demands state to take precautionary measures with regard to pollution by dumping, adoption of polluter's principle in case of occurrence of marine environment damage; and prohibition of transfer or transmission of harmful elements that would directly or indirectly damage the marine environment.³⁸

Marine Litter Action Plan by OSPAR Commission's strategic marine litter objective to prevent pollution and damage of marine environment from litter has been carved to implement regionally to 2014-2021 period. In 2014, Regional Action Plan for Marine Litter was enacted to improve marine environment the evidence-based impact on marine environment, measures to add value to marine environment, support contracting parties to implement the measures of litter reduction etc.³⁹ In 2022, OSPAR's Second Marine Litter Regional Action Plan focuses to reduce marine litter in North-East Atlantic Ocean.⁴⁰

The Convention on Biological Diversity, 1992 is the international legislation that deals with conservation, protection and preservation of marine environment and to achieve this purpose the term biological diversity is defined as the variability among organisms from all sources including territorial, marine and other aquatic ecosystems and complexes that join a part of the ecosystem and includes diversity within species and of ecosystems.⁴¹ Article 3 narrates the principle upon which this legislation work *i.e.*, all states shall have sovereign right to exploit resources in such a way that it will not disrupt the balance of ecosystem or to damage it.

The Stockholm Convention on Persistent Organic Pollutants aims to prevent, control and reduce pollution from organic pollutants. In order to achieve this, it has mandated the state parties to get prior permission for import of certain chemical as per the domestic law in

³⁷ The Convention on the Prevention of Marine Pollution by Dumping of Wastes or other Matter, art. III (1).

³⁸ London Protocol, 1996, art. 3.

³⁹ Marine Litter Regional Plan, *available at*: <https://www.ospar.org/documents?v=34422> (last visited on August 12, 2022).

⁴⁰ 2nd Marine Litter Regional Action Plan, *available at*: <https://www.ospar.org/work-areas/eiha/marine-litter/regional-action-plan/rap2> (last visited on August 14, 2022).

⁴¹ The Convention on Biological Diversity 1992, art. 2.

conformity with the objectives and intention of the Convention. On other hand, Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal 1992 define waste as substances which are disposed of or are intended to disposed of or required to be disposed of by provisions of national law. It provides right to states to prohibit hazardous substances that damage or can damage the environment.⁴² It demands states to ensure that the generations of hazardous substances is in the reduced limit and shall give paramount importance to the life of the species and balance of the ecosystem.

It can be seen that there are amicable international legislations that are capable of regulating the seabed pollution directly or indirectly. Apart from the legislations, the international judiciary has played amicable role in extending the environmental protection and ecosystem at the seabed. One of the landmark judgements was given in *SS Lotus* case⁴³ where the question of exercise of national criminal jurisdiction over a foreign national upon a ship wreck at the high seas was discussed and held that the national jurisdiction of a territory cannot be exercised on another territory or of its components and a state shall not exercise any form of power on another territory in contrary to the international law.

In *Factory at Chorzow* case, the international principle of obligation to reparation arises upon the breach of obligation under the international law; was crafted which paved way to the option of reparation upon the occurrence of environment damage. The aspect of environment compensation was first implemented by the International Court of Justice in *Costa Rica v. Nicaragua*⁴⁴ where three-kilometer area of Costa Rica Wetland area under Ramsar Convention was seriously damaged by unlawful incursion and occupation by Nicaragua and awarded USD 120,000 against Nicaragua. Apart from the international efforts, the implementation is considered fruitful only if there is regional implementation of laws.

IV. Regional Legal Framework

As already said, regional implementation of laws paves way for better regulation. The regional implementation of laws can be analyzed based on the efforts by the European Union, Asia, Pacific and Africa.

⁴² The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal 1992, art. 4.

⁴³ *France v. Turkey*, 1927 P.C.I.J. (ser. A) No. 10 (Sept. 7).

⁴⁴ *Costa Rica v. Nicaragua*, ICGJ 490 (ICJ 2013).

Pacific

The Convention for the Strengthening of the Inter- American Tropical Tuna Commission, commonly known as Antigua Convention is established between the United States and Costa Rica aims to regulate fishing and thereby maintaining the balancing of ecosystem in the marine environment and at the seabed. The Convention mandates for precautionary approach by implementing code of conduct in fishing.⁴⁵ The Convention for Protection and Development of the Marine Environment in the Wider Caribbean Region also known as Cartagena Convention was adopted in 1983 at Columbia whereby regional centers are constituted for mitigating and responding regional marine pollution emergency information and training center exclusively for wider Caribbean.⁴⁶

The Convention pays key focus to pollution from ships, by dumping, seabed activities, airborne pollution and land-based pollution and member states are ought to take all steps to prevent, control and reduce the said pollution which affects marine environment including seabed. Convention for the Protection of Natural Resources and Environment of South Pacific Region 1986 also known as ‘Noumea Convention’ aims to regulate the marine environment in the South Pacific and address the issue of accelerating degradation of marine resources due to the human activities. It also contains protocols to regulate prevention of pollution by dumping and combating emergencies in the South Pacific. North-West Pacific Regional Marine Litter Action Plan imposes total ban on litter of plastic in marine waters which are capable of affecting species at the seabed even.

Asia

Kuwait Regional Convention for the Cooperation on the Protection of the marine Environment from Pollution also known as ‘Kuwait Convention’ to ROMPE Sea Area was adopted in 1978. It aims to ensure that the human activities shall not disturb the balance of marine ecosystem. In 2013, Regional Organization for the Protection of Marine Environment for preventing marine pollution on regional basis and caters for protocol that regulates biological diversity conservation by establishing protected areas within the region.⁴⁷ As already dealt in the

⁴⁵ The Convention for the Strengthening of the Inter- American Tropical Tuna Commission, 1949, art. IV.

⁴⁶ The Cartagena Convention, *available at*: <https://www.unep.org/cep/who-we-are/cartagena-convention> (last visited on August 12, 2022).

⁴⁷ Kuwait Convention for Cooperation for Protection of Marine Environment, *available at*: www.biodiversitya-z.org/content/kuwait-regional-convention-for-cooperation-on-the-protection-of-the-marine-environment-from-pollution-kuwait-convention (last visited on August 23, 2022).

international legislative framework, South Asian and East Asian Regional Marine Litter Action Plan regulates the marine litter in the South Asian and East Asian region. Further the Tehran Convention is a special legislation that regulates the marine environment in the Caspian Sea and the contracting parties are Russia, Iran, Azerbaijan, Kazakhstan and Turkmenistan. This legislation is crafted with an intention to reduce the deteriorating pollution of marine environment as a result of human activities leading to endangering of various living marine species in the sea and ocean floor. The Convention mandates the contracting parties to craft laws based on precautionary principle and wrongdoers shall be penalized on the basis of polluter pays principle.⁴⁸ It calls for international cooperation of contracting states in preventing and reducing environmental damage and protect the marine environment.

European Union

The Bucharest Convention on the Protection of Black Sea against Pollution 1992 commonly known as Bucharest Convention is regarded as the basic regional legal framework to regulate the protection of coastal and marine environment of the contracting states *i.e.*, Russia, Turkey, Ukraine, Bulgaria and Romania. The Convention establishes Black Sea Commission to implement the provisions ingrained in the Convention. The EU has conveyed its interest to become a full-time party to the convention and has done accession in the Seventh Environmental Action Programme. EU has extended its financial support in rejuvenating the coastal and marine environment of Black Sea. Another major regional document that regulates marine environment and species at the seabed is Helsinki Convention or the Convention on the Protection of Marine Environment of the Baltic Sea 1992. Article 3 of the Convention narrates the fundamental principles underlying the convention through which it calls for international cooperation to protect marine environment, adoption of polluter pays principle and precautionary principle etc.⁴⁹ and mandates for environment impact assessment for conducting a human activity in the coastal area or in the ocean floor.⁵⁰

Africa

The Nairobi International Convention on the Removal of Wrecks adopted on 2007 exclusively deals with wreck removal in Africa and protect the region from marine pollution arising from such wreck. It defines the term wreck as sunken or stranded ship or any part of such ship or

⁴⁸ *Id.*, art. 5.

⁴⁹ The Convention on the Protection of Marine Environment of the Baltic Sea 1992, art. 6.

⁵⁰ *Id.*, art. 7.

objects lost from sea or ships that are expected to sink without opportunity to take reasonable care.⁵¹ One of the main principles followed in this Convention is it does not entitle the state party to claim sovereign right over any part in the high seas.⁵² Article 10 of the Convention deals with liability of owner in case of wreck and provides exception if the event has occurred as an outcome of war, act of god etc.

Further the Regional Convention for the Conservation of the Red Sea and the Gulf of Aden Environment 1982 also known as ‘Jeddah Convention’ imposes general obligations over the contracting states to take measures individually to protect the marine environment in the Red Sea and call for regional cooperation and mandate to craft laws to implement this Convention.⁵³ The Convention for the Protection of Marine Environment and the Coastal Region of the Mediterranean and its Protocols (Barcelona Convention) mandates all the state parties to take all reasonable measures to prevent and reduce pollution by dumping at sea and the laws crafted shall be in conformity with the international law. The Convention for Cooperation in the Protection, Management and Development of the Marine and Coastal Environment of the Atlantic Coast of the West, Central and South Africa Region also known as ‘Abidjan Convention’ was adopted in 1984 mandates the contracting states to take all measures to reduce and prevent pollution arising from activities conducted in the seabed⁵⁴ and also to prevent coastal erosion.

V. Legal Framework : US, UK and India

The United States

There are five key laws that regulate the marine environment in the United States that are Magnuson-Stevens Fishery Conservation Act, Marine Mammal Protection Act, Coastal Zone Management Act 1972, Clean Water Act and National Environmental Policy Act 1969. Under the Magnuson Stevens Act over fishing is prohibited and fishes out of 200 miles from the seashore shall be protected with special consideration and establishes eight management councils to implement the laws said herein. The Marine Mammal Protection Act, 1972 expressly declares hunting, killing or harassment of marine mammals are illegal and has

⁵¹ The Nairobi International Convention on the Removal of Wrecks 2007, art. 1(4).

⁵² *Id.*, art. 2(4)

⁵³ The Regional Convention for the Conservation of the Red Sea and the Gulf of Aden Environment 1982, art. III.

⁵⁴ The Convention for Cooperation in the Protection, Management and Development of the Marine and Coastal Environment of the Atlantic Coast of the West, Central and South Africa Region, 1984, art. 8.

entrusted the government agencies and private individuals as responsible authorities to ensure the protection of the same. The Coastal Zone Management Act, 1972 boosts conjoining state governments to protect, preserve, conserve and develop nation's coastal zone resources. Further the Clean Water Act prohibits the discharge of oil and other hazardous substances to the United State's waters and act as allied legislation to Ocean Dumping Act, Oil Pollution Act etc.

The United Kingdom

Marine Pollution is recognized as a criminal offence if dumping is done against protocol and without marine license or breach of license conditions.⁵⁵ The pollution affects the sea out to 12 nautical miles and us due to an activity that normally requires an environmental permit. If the person committing pollution is without license conditions, then it is considered as an offence under regulation 38(1)(a) of Environmental Permitting Regulations 2010. Offshore Installations (Emergency Pollution Control) Regulations 2002 provides compensation for unreasonable environmental damage in the marine environment or ocean floor or seabed.⁵⁶

India

In the present days' environmental issues of air, water, land or any other element in the earth is taken on serious concerns due to the disastrous change in environmental condition due to human activities as well as through thrusting sustainable development. The subject in hand mainly focuses on marine environment protection and hence will stick on to the same. The Constitution of India caters for state's duties to preserve resources and fundamental duty of people to ensure fair exploitation of resources and provision to achieve their fundamental right to environment by providing writ jurisdiction under article 226 and 32 upon the state's inactive approach in matters relating to fundamental rights of the citizens.

The Merchant Shipping Act, 1958 is the legislation that regulates the shipping activities in a way so as to prevent marine pollutions from ships. Section 344G mandates the captain of the ship to give notice of Indian Nuclear ship accidents which is prone to cause environmental hazards. The Act also regulates the oil pollution from the ships. Further sections 3, 6 and 7 of the Maritime Zones Act, 1976 provides that the central government shall exercise sovereign

⁵⁵ The Marine and Coastal Access Act, 2009, s.85.

⁵⁶ Offshore Installations (Emergency Pollution Control) Regulations 2002, s. 4.

rights for protection, preservation, conservation and management of marine environment and reduction and prevention of marine pollution.

Exercise of sovereign rights is the prime activity which is vital with regard to national security, public order and peace in the waters. The Maritime Zones Act, 1976 is the legislation that regulate different maritime zones. Section 3 deals with limits and sovereignty rights of India in the territorial waters. It envisages complete exercise of sovereignty rights within the limit of twelve nautical mile from the nearest point of baseline. Section 4 of the Act mandates entry and exit passes for foreign warships, submarines and underwater vehicles. In the contiguous zone, sovereignty rights pertaining to the national security, immigration, sanitation and fiscal matters. When it comes to the continental shelf, sovereignty rights can be exercised with regard to exploration, exploitation, conservation and management of resources; exclusive rights with regard to construction of structures or installations or devices for exploration and exploitation, control of scientific research and to preserve and protect marine environment from pollution.⁵⁷

For constructing or installing in the continental shelf, all the persons including foreign states has to get licence or letter of authority granted by the central government. In the Exclusive Economic Zone, the sovereignty rights can be exercised for the purpose of exploration and exploitation, conservation and management of marine resources; construction and installation of structures or devices, control scientific research and other rights under international law.⁵⁸ Further section 9 caters for maritime borders between Indian and or any state opposite and adjacent to India based on agreement based on equidistant principle.

The Constitution of India under articles 14, 19 (1)(g), 21, 48(A), 51, 51A, and 253 caters for environment protection in India. Article 48A and 51A(g) is inserted vide 42nd Constitutional amendment 1976 as a part of effect of Stockholm Conference and more spread of environment awareness in the territory. Article 48A impose obligation on citizens to protect the environment in the territory and refrain from all activities that would lead to environment damage. Whereas article 51A(g) imposes obligation on the state to protect and cater for improvement of natural environment. Article 253 has greater significance in India as it provides power to the

⁵⁷ *Id.*, s. 6.

⁵⁸ *Id.*, s. 7.

Parliament in crafting a law for implementing any international legislation through which Air Act and Environment Protection Act 1972 with an intend to implement Stockholm Conference.

In *M.C. Mehta v. Kamal Nath*,⁵⁹ the encroachment by a motel for beautification in the riverside was imposed with a fine of Rs. 10,00,000 on the polluter for damaging the environment and in judgement it was specially mentioned that the fine amount shall be utilized for reversing the damage caused to the nature. In *Oleum Gas leak case*,⁶⁰ the Supreme Court of India invoked absolute liability principle on the polluter causing serious environment damage. With regard to article 19(1)(g), the famous case of *Ratlam Municipality v. Vardi Chand*⁶¹ held that pollution free environment is an integral part of fundamental right to life under article 21 of the Indian Constitution. Coming to Directive Principles of State Policy which is non justiciable in nature, through *Sher Singh v. State of Himachal Pradesh*⁶² held that the citizens of India has the right to live in clean environment. These are just few petals from the bouquet.

India also has ample substantial laws for environment protection *i.e.*, The Environment (Protection) Act, 1986, The Wildlife (Protection) Act, 1972, The Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act, 1981, The Coastal Regulation Zone (CRZ) Notification, 2018, The Energy Conservation Act, 2001, The Biological Diversity Act, 2002, The National Green Tribunal Act, 2010 and many more. Further the Coastal Regulation Zone (CRZ) Notification of 1991 caters for protection of coastal areas from construction.

With regard to marine environment protection, India has identified list of sources that caters for pollution. This includes pollution from ships, vessels or any vehicles in or under water, hazardous waste dumping, atmospheric pollution, deep seafloor mining, pollution from land-based activities. In order to protect its marine environment, it has signed UNCLOS III, the International Whaling Mission, the Convention on Biodiversity, Antarctica Treaty, the Ramsar Convention on Wetlands, International Convention for prevention of Sea by Oil 1954. In compliance with the Convention on Biodiversity, India has identified 128 marine protected

⁵⁹ *M.C. Mehta v. Kamal Nath* (1997) 1 SCC 388.

⁶⁰ *M.C. Mehta v. Union of India* (1987) 1 SCC 395.

⁶¹ 1980 AIR (SC) 1622.

⁶² Original Application No. 637/2018 (PB), available at: <https://www.wvfindia.org/?222777/Sher-Singh--Versus-Govt-of-Himachal-Pradesh> (last visited on August 25, 2022).

areas which includes marine national parks, tiger reserves, coral reefs center at Lakshadweep and many more.

Coming to the compensation part, the National Green Tribunal in 2016 awarded compensation of Rs.100 crore against a shipping company in Panama for causing marine environment damage by sailing unworthy ship through Mumbai Coast leading to oil spill.⁶³ Further on February 19, 2021, the Ministry of Environment, Forest and Climate Change has circulated an office memorandum to all coastal states mandating all the procedures dealing with CRZ clearance for industries and strictly said that the violators cannot get away from compensation.⁶⁴

VI. Issues and Challenges

UNCLOS has framed jurisdiction based on zones and provides complete jurisdiction of territorial waters and limited jurisdiction on archipelagic waters and identified international seabed area as the common heritage of mankind thereby pose a huge freeze to exercise jurisdiction if the same heritage is used for military activities. It points out the basic difficulties posed by the customary international law in exercising state jurisdiction by showcasing the Fisheries Jurisdiction case⁶⁵ and the Anglo-French Arbitral Award, 1977 on continental shelf delimitation. The article further conducts discussion of evolution of territorial jurisdiction to 12 miles by showcasing debates and instances.

It can be narrated that article 2 of Geneva Convention on the Continental Shelf which says high seas freedom shall be exercised in reasonable regard considering the interest of other states at high seas. The author concludes that the Partial Test Ban Treaty, Seabed Treaty and Tlatelolco Treaty has encouraged in eliminating conflicts with activities in the seabed area.⁶⁶ Further a complete revisit on the issues regarding peaceful purpose by elaborately discussing its meaning under the Seabed Treaty and UNCLOS III. It analyses the how the peaceful purpose under Seabed Treaty is interpreted. It advances by throwing light on the Seabed Treaty and Coastal

⁶³ Environmental Compensation of Rs.100crore imposed upon shipping company for causing marine pollution *available at:* <https://www.sconline.com/blog/post/2016/09/01/environmental-compensation-of-rs-100-crore-imposed-upon-shipping-company-for-causing-marine-pollution/> (last visited on August 15, 2022).

⁶⁴ Industries violating coastal zone law can now get away with paying compensation, *available at:* <https://india.mongabay.com/2021/03/industries-violating-coastal-zone-law-can-now-get-away-with-paying-compensation/> (last visited on August 15, 2022).

⁶⁵ *United Kingdom v. Iceland* (1973) ICJ Rep 3.

⁶⁶ Dore, I. I., "International Law and the Perservation of the Ocean Space and Outer Space as Zones of Peace: Progress and Problems" 15(1) *Cornell International Law Journal*, 3-61(1982).

maritime zones where it discusses the jurisdictional issues pertaining to employment of arms in the territorial seabed as the treaty remains silent on territorial demilitarization. It identifies that the weapons can be emplaced in territorial seabed cannot be covered under innocent passage as it is applicable on the water surface. It identifies that the treaty remains dissatisfactory with respect to demilitarization in the continental shelf. The treaty gives a complete yes to mobile underwater weapons systems and placement of such systems in the seabed. It further says that the UNCLOS also not strictly says no to militarization in the seabed. The effect of nuclear waste disposal or its interaction in marine environment.

The U.S. military sponsored research during Second World War to study the effect of radioactive and nuclear effluent in the marine resources. It also discusses the environmental impacts of Lucy Dragon accident in Marshall Islands.⁶⁷ The effects of interaction of radioactive effluent drained by one territory over the other coastal states and the costs involved in marine environment is irreparable. It points out the investigations made by the Joint Committee on Atomic Energy with regard to possible ecological catastrophes by nuclear wars. It refers to several round tables on Nuclear war and effect on marine environment and identifies how the round table meetings have deviated from its actual agenda and aims.

The several anthropogenic activities including military sonar in the deep-sea bed will cause noise and disturbances which will affect the existence of several marine species in the deep seabed. It also talks about the threat involved in nuclear power plant located in the coastal areas by quoting the example of Fukushima Daiichi in Japan which engulfed a huge variety of marine species.

The territories' actions for socio-economic development often creates repercussions beyond the territorial jurisdiction of other states but the impact will be directly or indirectly in the territory. It relies on Manila Declaration, UNEP efforts, Montreal Declaration and many other statutes to establish how marine concerns are resolved. Further it identifies UNCLOS III only as a binding instrument and not actually redress any cause.

⁶⁷ Feron, H., "A New Ocean: The Legal Challenges of Arctic" 45(1) *Ecology Law Quarterly*, 83-128 (2018).

VII. Suggestions

While analyzing the issues and challenges, the major concern popped up is the incapability of laws to implement in the area beyond the territorial waters. On the other hand, judiciary is too much inclined to victim state and passes awards that affect the financial stability of the responsible state. Considering the existing issues and challenges the following suggestions are put forth to enhance better conservation, protection and preservation of species in the marine environment:

- i. To initiate steps to implement the existing laws regulating the territories sharing the maritime waters and call for compulsory cooperation to mitigate exigencies and to take precaution to maintain the sanctity of the marine environment from the pollution or any alteration to the marine environment leading to damage.
- ii. To raise common funds by territories sharing same maritime waters to meet the exigencies and to revive the marine environment damage or to take precaution to reduce its effects. Common Funds can be raised by establishing joint funding mechanisms based on economic capacity and resource usage among territories sharing maritime waters. Impose user fees on marine industries, offer tax incentives for eco-friendly practices, seek international grants, and engage public-private partnerships to fund marine conservation, restoration, and mitigation efforts effectively.
- iii. The territories shall be given extra powers not only to preserve marine environment in the zones other than territorial waters but also to take actions against the responsible owners and states for causing pollution and damage the environment.
- iv. There are activities conducted by territories allowing discharge of ballast water of vessels owned by foreign countries without following the norms of such discharge. There are many rumors roaming globally that territories are making financial gains from such activities which shall be cognized seriously.
- v. The port state shall take strict measures against the actions of vessels that damage or prone to damage the marine environment or in any way violate the laws of the port state in this regard.
- vi. The judicial systems of all territories and the international judicial system shall consider the financial stability of the responsible state while awarding compensation against them and ensure that the compensation shall not be crippling nature.

- vii. Equal importance shall be given for the protection and conservation of all the species irrespective of their size, capabilities, their contribution to retain ecological balance and
- viii. There is no special law that exclusively regulates the seabed and the UNCLOS III makes no force to states to abide it many times. A specialized law for the seabed is essential due to its unique ecosystem, containing valuable resources and facing environmental threats. Such a law would enforce sustainable resource management, stringent environmental protections, and international cooperation. It would also promote scientific research, address climate change impacts, and protect endangered species. Overall, a dedicated legal framework is crucial for balancing human activities with the preservation of seabed ecosystems and biodiversity.

VIII. Conclusion

Development across the world is based on competition irrespective of its economy or technology. The trade and commerce are attaining greater attention right from the globalization period. But it is noted that the concern for encouraging sustainable development and protection of marine species and balance of marine ecosystems is debated so late *i.e.*, after the causation of major damage and endanger to several marine species in the seawater or in the seabed. Right to life is not only a human right is a right of every species having life in it. Even though the present decade is making rigorous efforts to bringing up concerns with respect to protection of marine environment, reduction and prevention of pollution, it is not yet been implemented in full-fledged by the contracting states in the fullest sense. Even though the owners of the vessels are made liable for the pollution and environment damage caused thereby, it is found that due to lack of jurisdiction, the offenders escape from the thorns of law. Apart from all there we ourselves shall be sincerely responsible to the conservation, preservation and protection of marine environment. Efforts from both the authorities and the stakeholders of the sea shall be made to protect the marine environment.