



## MARINE BIODIVERSITY IN INDIA: LEGAL FRAMEWORK AND CHALLENGES

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*"If we pollute the air, water and soil that keep us alive and well, and destroy the biodiversity that allows natural systems to function, no amount of money will save us."*

- David Suzuki

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### Abstract

Marine biodiversity in India encompasses a diverse array of ecosystems, species, and genetic resources, playing a crucial role in the nation's natural heritage and ecological balance. The legal framework governing marine biodiversity primarily consists of legislations such as the Wildlife Protection Act of 1972, Forest (Conservation) Act of 1980, Environment (Protection) Act of 1986, Biological Diversity Act of 2002, and Coastal Regulation Zone (CRZ) notifications. These laws aim to regulate activities affecting marine biodiversity and promote sustainable practices. However, despite the existence of these legal instruments, India faces significant challenges in marine biodiversity conservation, including overfishing, habitat destruction, pollution, and climate change impacts. Insufficient enforcement, inadequate monitoring, and coordination gaps further hinder effective conservation efforts. This paper discusses the legal framework, key challenges, and emphasizes the need for integrated approaches and collaborative efforts to ensure the sustainable management and preservation of India's marine biodiversity.

**Keywords:** Marine biodiversity, National & International legal framework, conservation, challenges & Measures.



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### INTRODUCTION AND IMPORTANCE OF MARINE BIODIVERSITY

Water is the elixir of life, the liquid which makes life as we know it possible. More than seventy per cent of Planet Earth is covered by water. Out of the water found on earth, around 97% is unpotable salty sea or oceanic water, while the rest 3% is considered to be freshwater water and hence potable. While conversations about the relationship between human beings and water especially potable water are commonplace, there is little to no conversation about the organisms with which we share our water bodies with. The Cambridge Dictionary defines Biodiversity as "the number and types of plants and animals that exist in a particular area or

<sup>1</sup> <https://www.trvst.world/biodiversity/biodiversity-quotes/>

in the world generally”<sup>2</sup> while Marine has been defined as “ Related to the sea”.<sup>3</sup> Hence, it can be inferred that Marine Biodiversity relates to the organisms which comprise the marine ecosystem. Given that marine regions cover such a vast majority of our planet’s surface area, naturally, it is also the biome with the largest number of bio-organisms which thrive within it. These regions also encompass oceans, coral reefs, estuaries, etcetera.

Every ecosystem performs functions that are critical for organisms. One of the most important functions of marine ecosystems is the production of plant biomass from sunlight and nutrients (primary productivity), which serves as the primary food source for all marine life and, eventually, humans. Microscopically small plants, known as phytoplankton, grow and divide in the ocean and account for roughly half of global primary productivity. Another function that ecosystems perform is the formation of habitats, or structures, in coastal ecosystems.

The ocean is a major repository for the world's biodiversity. It covers more than 90% of the planet's habitable space and contains over 250,000 known species, with many more yet to be discovered—at least two-thirds of the world's marine species remain unidentified. The ocean and its life are critical to the planet's health, supplying half of the oxygen we breathe and absorbing approximately 26% of the anthropogenic carbon dioxide emitted into the atmosphere each year.

Evidence demonstrating the critical role of marine biodiversity in supporting a healthy planet and social well-being continues to emerge. The fishery and aquaculture sectors employ hundreds of millions of people, particularly low-income families, and contribute directly and indirectly to food security. Marine ecosystems provide numerous services to coastal communities worldwide. Mangrove ecosystems, for example, provide food for more than 210 million people while also providing a variety of other services such as livelihoods, clean water, forest products, and protection against erosion and extreme weather events.<sup>4</sup>Not surprisingly, given the resources provided by the ocean, human settlements have mushroomed near the coast, with thirty-eight per cent of the world's population residing within 100 kilometres of the coast, forty-four per cent within 150 kilometres, fifty per cent within 200 kilometres, and sixty-seven per cent within 400 kilometres. The ocean and coastal areas within 100 kilometres of the coastline generate roughly sixty-one per cent of the world's total gross domestic product.

Coastal population densities are 2.6 times higher than in inland areas, and they benefit directly and indirectly from the goods and services provided by coastal and marine ecosystems, which contribute to poverty eradication, sustained economic growth, food security, and sustainable livelihoods and inclusive work, all while hosting a high biodiversity richness and mitigating climate change impacts.<sup>5</sup>

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<sup>2</sup> <https://dictionary.cambridge.org/dictionary/english/biodiversity>

<sup>3</sup> <https://dictionary.cambridge.org/dictionary/english/marine>

<sup>4</sup> <https://www.un.org/en/chronicle/article/marine-biodiversity-and-ecosystems-underpin-healthy-planet-and-social-well-being#:~:text=Marine%20biodiversity%2C%20the%20variety%20of,being%20and%20prosperity%20of%20humanity.>

<sup>5</sup> Ibid

However, human activity is endangering the health of the world's oceans. More than 80% of marine pollution is caused by land-based activities. From coral bleaching to sea level rise, entire marine ecosystems are changing at a rapid pace. Global warming is altering ocean chemistry and many oceanic processes, threatening many marine animal species that cannot cope with higher temperatures. Overfishing is another major issue in many parts of the world.<sup>6</sup>

Global warming, water pollution, oil spills, pesticide run-offs, sewage, etcetera are rapidly destroying the marine biome and endangering marine life and biodiversity. Such destruction will not just have consequences for marine life but also has long-lasting and grave ramifications for the human population.

#### **INDIAN LEGISLATION PERTAINING TO THE MARINE ECOSYSTEM AND BIOME**

The marine biodiversity of India is as diverse as its terrestrial biodiversity. The coastline of India, which stretches for over 7500 kilometres and includes islands, the Andaman and Nicobar groups, and Lakshadweep, is home to a variety of unique marine habitats. The biological diversity of the seas is diverse. On the Indian coast, coastal ecosystems include estuaries, lagoons, mangroves, backwaters, and salt marshes. These marine habitats play a critical role in the country's ecological and economic stability.

Given how intrinsically the Marine Ecosystems are intertwined with our lives, all nations including India have extensive legislation so as to govern all practices related to this biome. The Indian Fisheries Act 1897, the Wildlife Protection Act 1972, the Water (Prevention and Control of Pollution) Act 1974, the Indian Coast Guard Act 1974, the Maritime Zones of India Act (Regulation of Fishing by Foreign Vessels) Act 1981, the Biological Diversity Act 2002, and the Environment Protection Act 1986, are the main acts and rules that govern coastal and marine activities in India.

**The Indian Fisheries Act of 1897** is brief, and its current utility is limited. Although it is intended to be read in addition to other fisheries laws in force, its substance is aimed at prohibiting the use of explosives and poisons in inland waters and on coasts, as well as allowing State governments to make rules for fish protection. Furthermore, the Act defines "water" as the sea within one marine league of the seacoast (i.e. 3 nautical miles), where such measures may be taken.

However, there is no legislation in place to carry out India's responsibilities for its nationals, including vessels and people, as required by the 1982 Convention and the UN Fish Stocks Agreement.

**The Indian Maritime Zones (Regulation of Fishing by Foreign Vessels) Act 1981**, was passed prior to the 1982 Convention and the UN Fish Stocks Agreement, and a wide range of requirements under those and related instruments remain unimplemented. It applies to "fishing" activities, but the definition is inadequate and out of date in two major ways. For starters, it refers to "catching, taking, killing, attracting, or pursuing fish," which all involve the presence of fish. Modern definitions in national and international instruments include searching for and attempting to find fish, including the use of aircraft. Second, it is defined as

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<sup>6</sup> <https://www.nationalgeographic.com/environment/article/ocean-threats#:~:text=Global%20warming%20is%20causing%20sea,kills%20marine%20plants%20and%20shellfish.>

fish processing, preservation, transferring, receiving, and transporting. Modern definitions distinguish fishing from these "related activities" for administrative and legal purposes. The main provisions of the Act deal with the granting of licences, the prohibition of Indian citizens using foreign vessels, the procedures for granting permits or licences, and the permit holder's responsibility for compliance. When entering any maritime zone, unlicensed foreign vessels must stow their fishing gear, and scientific research is permitted. Other provisions concern search and seizure powers, offences and penalties, and miscellaneous items such as presumptions and trial location.<sup>7</sup>

**The Wild Life (Protection) Act of 1972 (WLPA)** is the primary Indian law protecting wildlife, including marine wildlife. It forbids hunting of the animals listed in its six schedules (lists) and regulates the trade in such animals and their parts. It also allows for the designation of protected areas where human activity is prohibited. These two approaches have had some success in protecting terrestrial wildlife: prohibiting hunting and regulating trade in species by listing them in schedules, and designating protected areas. However, their effectiveness in protecting marine ecosystems is debatable.

In its original form, the WLPA was oriented terrestrially. It did not consider protected areas in terrestrial and marine ecosystems separately for nearly 20 years after its enactment. The Act did not establish a separate procedure for declaring marine protected areas, and its Schedules contained only a few marine species. However, in response to international developments in marine conservation, India's Ministry of Environment, Forests, and Climate Change (MoEF&CC) has superimposed existing terrestrial-oriented policies on marine ecosystems. There are over 30 marine protected areas (MPAs) in peninsular India and over 100 in the Indian islands. In addition to the crocodiles and turtles that were included in the WLPA schedules during its early years, a number of elasmobranchs, coelenterates, and molluscs have been added to the legislation's schedules since 2001, accounting for the majority of marine species protected under the legislation.<sup>8</sup>

**The Water (Prevention and Control of Pollution) Act of 1974** was the first in a series of laws enacted by the Indian government to address environmental concerns in the country. Concerns about water contamination from industrial and domestic activities prompted the passage of this law.

The Act's goal is to prevent and regulate water contamination. It establishes national and state pollution control boards. Under the Act, these Boards are given authority and responsibilities for pollution control. The Act forbids the discharge of sewage or pollutants into bodies of water, including lakes, and it is the state pollution control board's responsibility to intervene and prevent such behaviour. The Act forbids the discharge of any poisonous, noxious, or polluting material into the flow of water in a stream. It also includes a provision for preserving and restoring the 'wholesomeness' of our aquatic resources.

While it does not expressly mention marine biodiversity protection, because it regulates water pollution and contamination, which endanger marine life, it can be interpreted as a regulation protecting marine biodiversity.

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<sup>7</sup> <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=50056>

<sup>8</sup> <https://india.mongabay.com/2021/06/commentary-conserving-marine-ecosystems-through-the-wild-life-protection-act-is-not-very-effective/>

**The Biological Diversity Act, 2002** arose from India's attempt to realise the goals enshrined in the 1992 United Nations Convention on Biological Diversity (CBD), which recognises states' sovereign rights to use their own biological resources. The Act aims to conserve biological resources, manage their sustainable use, and enable fair and equitable benefit sharing from the use and knowledge of biological resources with local communities. The Act calls for a three-tiered structure to govern access to biological resources. The National Biodiversity Authority (NBA), the State Biodiversity Boards (SBBs), the Biodiversity Management Committees (BMCs) (at the local level). Furthermore, the State Government, in consultation with local bodies, may designate areas of biodiversity importance as Biodiversity Heritage Sites under Section 37 of the Act. These Biodiversity Heritage Sites are well-defined areas that are unique, ecologically fragile ecosystems, which may be terrestrial, coastal, and inland waters, or marine, and with rich biodiversity that includes any one or more of the following components: richness of wild as well as domesticated species or intra-specific categories, high endemism, presence of rare and threatened species, keystone species, species of evolutionary significance, wild ancestors of domestic/cultivable species.<sup>9</sup>

India has a vast marine ecosystem and bio-diversity, which supports a large number of species, and the coastal populace is dependent on the resources provided by this marine ecosystem. The importance of protecting this ecosystem has been recognised globally, and UNCLOS 1982 places the responsibility on coastal states to preserve and protect the marine environment and associated resources. According to **the Coast Guard Act of 1978**, the Indian Coast Guard is responsible for the preservation and protection of the marine environment, as well as the control of marine pollution.

The Indian Coast Guard was designated as the Central Coordinating Authority for oil-spill response in India's Maritime Zones in 1986, and Coast Guard officers are authorised under the Merchant Shipping Act of 1958 to take appropriate action against polluters. Furthermore, in 1993, the Government of India approved the National Oil-spill Disaster Contingency Plan (NOSDCP), which assigned functional responsibilities for oil-spill response in India's Maritime Zones to various ministries and departments.<sup>10</sup>

**The Environment (Protection) Act of 1986** is the overarching legislation for environmental protection, granting the Central Government broad powers to address its various aspects. Subject to the provisions of this Act, the Central Government shall have the authority to take all necessary or expedient measures to protect and improve the quality of the environment, as well as prevent, control, and abate environmental pollution.

Section 5 of the Act creates one of the most important sections of the Act. It establishes prohibitions and restrictions on the location of industries, as well as the conduct of processes and operations in various areas. The Central Government may consider any number of factors when prohibiting or restricting the location of industries and the carrying on of processes and operations in various areas. The biological diversity of the area, which the Central Government believes should be preserved, the net adverse environmental impact likely to be caused by an industry, process, or operation proposed to be prohibited or restricted, and so

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<sup>9</sup> <https://www.drishtias.com/to-the-points/paper3/biological-diversity-act-2002>

<sup>10</sup> [https://indiancoastguard.gov.in/content/246\\_3\\_MarineEnvironmentProtection.aspx](https://indiancoastguard.gov.in/content/246_3_MarineEnvironmentProtection.aspx)

on. However, protected areas are only one aspect of coastal and marine ecosystem protection. In the 'ecosystem approach,' activities along the coastline, particularly in contiguous areas, must also be considered. Other activities along coastal areas must be regulated in addition to the provisions for designating specific areas as protected areas or zones. In the Indian context, the main tool is the Coastal Regulation Zone Notification under the Environment Protection Act. The restrictions on fishing along coastal areas are also significant.

**The Coastal Regulation Zone (CRZ) Notification, 2011**, took effect on January 6, 2011. This notification supersedes the CRZ notification of 1991 and is issued under the provisions of the Environment (Protection) Act of 1986. The CRZ Notification, 2011, was the result of extensive deliberation and consultation, and it includes specific provisions for the protection of marine areas. The CRZ notification is based on the categorization of coastal areas based on their geographical location rather than on a hierarchy. The notification's stated goal is to "conserve and protect coastal stretches, its unique environment, and its marine areas." It is also stated that the goal is to provide livelihood security to fisher communities and other local communities in coastal areas.

The CRZ notification imposes a variety of restrictions and regulations on various activities in the various categories. It is a significant legal instrument that restricts the establishment and expansion of industries, as well as operations and processes in coastal stretches including creeks and the landward side of creeks.

It expressly prohibits the establishment of new industries as well as the expansion of existing industries. The prohibition, however, is not absolute, and certain industries and activities are permitted in the CRZ. These include Department of Atomic Energy projects, non-conventional energy generation, and the establishment of desalination plants in areas other than CRZ -1. Furthermore, local community dwelling unit reconstruction and repair, including fisher communities, fish drying, and hatchery establishment are permitted.

#### **INTERNATIONAL LEGISLATION PERTAINING TO THE MARINE ECOSYSTEM AND BIOME**

In addition to the above mentioned national legislations, India is also a signatory to various international protocols and conventions which deal with the preservation of marine biodiversity and the obligations to be fulfilled by member states to such rules and regulations. The struggle for control over marine areas among coastal states resulted in the development of the Laws of the Sea. Following the Second World War, the international community approached the United Nations International Law Commission to codify ocean-related laws. In the first United Nations Conference on the Laws of the Sea (UNCLOS-I), held from February 24 to April 29, 1958, four conventions collectively known as the 1958 Geneva Conventions were adopted, and the Commission began its work on framing laws of the sea in 1949. These four conventions are as follows:

- (i) the Convention on the Territorial Sea and Contiguous Zones;
- (ii) the Convention on the High Seas;
- (iii) the Convention on High Seas Fishing and Conservation of Living Resources; and,
- (iv) the Convention on the Continental Shelf.

The Convention on Biological Diversity (CBD) is the primary international legal instrument for biological diversity conservation, substantiating the principles of sustainable development and the precautionary principle articulated in the Rio Declaration. The Convention on

Biological Diversity has been ratified by India. The CBD recognises protected areas as a critical tool for preserving biodiversity.

Concerns about the drastic declines in biodiversity prompted the creation of the Convention on Biological Diversity. The Convention has three complementary goals: biodiversity conservation, sustainable use of its components, and the fair and equitable sharing of benefits resulting from the use of genetic resources. Participation in the Convention is nearly universal, with 196 Parties, indicating that our global society recognises the importance of working together to ensure the survival of life on Earth.<sup>11</sup>

The Convention also serves as a new focal point for biodiversity for the entire United Nations system, as well as a foundation for other international instruments and processes to incorporate biodiversity considerations into their work; as such, it is a critical component of the global framework for sustainable development.

India has ratified the United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea (UN Convention on the Law of the Sea) dated 10 December 1982, Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UN Fish Stocks Agreement). Under this Agreement, coastal states and states whose people fish on the high seas have a duty to protect biodiversity in the marine environment, as well as to take measures to prevent or eliminate overfishing and excess fishing capacity, and to ensure that fishing efforts do not exceed those commensurate with the sustainable use of fishery resources. General Principles articulated under Article 5 lay down these restrictions and duties that such coastal states must adhere to.<sup>12</sup>

As stated by Article 253 of the Indian Constitution, the Indian Parliament has the authority to enact any law for the whole or any part of India's territory for the purpose of implementing any treaty, agreement, or convention with any other country or countries, or any decision made at any international conference, association, or other body. This has two consequences: first, it imports the standards, duties, and obligations of international instruments, as well as the decisions made under such instruments, to which India is a party. Second, this places legislative responsibility for implementing the instruments to which India has agreed. This is significant in India's quasi-federal structure, where legislative powers are divided between the Centre and the states.

As a result of this provision, even if the subject matter falls within the legislative competence of the states, the Central Government can take measures to implement international treaties.

In the specific context of the Convention on Biological Diversity and its implications for Indian domestic laws, the Supreme Court, in *K.M. Chinnappa and T.N. Godavarman*<sup>13</sup> *Thirumalpad v. Union of India*<sup>14</sup>, took note of certain decisions of the Convention on Biological Diversity, establishing that the Government had a duty to protect the environment

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<sup>11</sup> <https://www.un.org/en/chronicle/article/marine-biodiversity-and-ecosystems-underpin-healthy-planet-and-social-well-being#:~:text=Marine%20biodiversity%2C%20the%20variety%20of,being%20and%20prosperity%20of%20humanity.>

<sup>12</sup> <https://snrd-asia.org/wp-content/uploads/2018/04/CPMA-Technical-Report-Series-No.-02.-Legal-Framework-for-Conservation-of-Coastal-and-Marine-Environment-of-India-A-Review.pdf>

<sup>13</sup> Writ Petition (civil) 202 of 1995

<sup>14</sup> 1997 (3) SCC 312.

under Article 21 of the Indian Constitution, and as India had ratified the Convention on Biological Diversity, it must implement it.<sup>15</sup>

Hence, not only has India ratified several Conventions and Regulations dealing with the protection, preservation of marine life and regulation of activities which may affect such marine life, even the judicial bodies have time and again stressed upon the importance of enacting laws, rules and regulations to give the Conventions proper effect.

#### **CHALLENGES TO THE PROTECTION OF THE MARINE ECOSYSTEM AND BIOME**

Because of its long coastline and continuous population growth in coastal areas and islands, India's marine diversity is facing serious anthropogenic threats. Large-scale fishing, overexploitation of marine resources, pollution and marine litter, physical alteration of watersheds and coasts, land use changes, faulty land-use practises, exotic species introduction, species invasion, increased tourism, construction along the coasts leading to increased sedimentation, excessive use of fertilisers and chemicals in areas near coasts, and so on are some of the anthropogenic activities causing degradation, fragmentation, and loss of habitat.

India being a signatory to numerous international instruments and conventions related to the marine environment, including the UNCLOS, IWC (International Whaling Commission), CBD (Convention on Biological Diversity), CMS (Convention on Migratory Species or the Bonn Convention), Tuna Commission, International Oceanographic Commission, Antarctica Treaty, and others, and thus has an obligation to develop proper conservation and management of the marine habitat. However, it appears that marine conservation efforts in India have not been prioritised, despite the fact that the Indian coastline supports approximately 30% of the country's population.

The main constraints in marine biodiversity protection and conservation include a long coastline, inadequate infrastructure available to enforcement agencies, a lack of coordination among enforcement agencies, a lack of public awareness about the importance of marine biodiversity and ecosystems, insufficient information on the status of marine biodiversity due to a lack of proper survey and monitoring mechanisms, and no mechanism for sharing information among survey and research agencies.<sup>16</sup>

There are currently only five Marine Protected Areas, including four Marine National Parks and one Marine Sanctuary, but more Marine Protected Areas are needed. The Wildlife (Protection) Act of 1972 governs management in these Protected Areas; there is no separate Regulation/Act for marine life protection. The Environment Protection Act 1986's Coastal Regulation Zone notification 1991 is an effective means of conserving coastal areas by prohibiting construction activities along the coast, but its implementation has been poor in many areas.

It is difficult to apply traditional conservation laws and policies to marine areas because wildlife conservation laws have been written with terrestrial issues and concerns in mind, as evidenced by the Wildlife (Protection) Act of 1972.

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<sup>15</sup> Ibid

<sup>16</sup> <https://www.upsbdb.org/pdf/Souvenir2012/ch-14.pdf>



The Act and its various provisions are aimed at the establishment of protected areas within the terrestrial landscape. Certain provisions have been incorporated into subsequent amendments, primarily to meet its international obligations, to include marine areas within its scope. However, as the legal analysis demonstrates, treating territorial areas as equivalent to reserve forests is problematic, both in terms of community rights and long-term conservation goals.<sup>17</sup> Inclusion of a number of marine animals in Wildlife Schedule I has also not resulted in the desired effect and has instead compounded the problem by endangering the livelihoods of fisherfolk.

#### **MEASURES TO OVERCOME THESE CHALLENGES**

The legal instruments and tools available for creation and protection of marine areas are diverse. Marine areas are protected in various ways under wildlife, coastal, environmental, forest, and fisheries laws. However, no single tool can provide effective protection on its own. Much depends on the local situation, such as the nature of the threats and the perceptions of the communities living in and around existing and proposed marine areas. Before developing a marine diversity conservation strategy, it is necessary to understand various aspects of coastal ecosystems, such as the environmental process, functioning, flow of marine resources, and various conflicts. Proper legislative measures, socioeconomic analysis, and integrated management practises of both marine and terrestrial resources are required. Scientific research, public awareness campaigns, and the involvement of the local community is going to be crucial.<sup>18</sup>

Finally, unless local and other concerned citizens and groups take an active and vigilant role in defending and preserving marine life, it is unlikely to yield any positive results. The need of the hour is to educate communities about existing laws and seeking active support from them with implementing the laws.

#### **CONCLUSION**

Marine biodiversity is crucial for the planet's health, providing food, livelihoods, and services to coastal communities. The ocean covers 90% of the planet's habitable space and contains over 250,000 known species. Human settlements have grown near the coast, contributing to poverty eradication, economic growth, and sustainable livelihoods. However, human activity is endangering the health of the world's oceans, with over 80% of marine pollution caused by land-based activities. Global warming, water pollution, oil spills, pesticide run-offs, and sewage are destroying the marine biome, and endangering marine life and biodiversity. India's marine biodiversity is as diverse as its terrestrial biodiversity, with its coastline spanning over 7500 kilometres. India's vast marine ecosystem supports a large number of species, and the coastal populace relies on its resources. The country accordingly has extensive legislation to govern coastal and marine activities.

India is also a signatory to several international protocols and conventions focusing on marine biodiversity preservation. The Laws of the Sea, developed after the Second World War, were adopted by the international community after the Second World War. The Convention on Biological Diversity (CBD) is the primary international legal instrument for biodiversity conservation, recognizing protected areas as a critical tool for preserving

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<sup>17</sup> Supra 12

<sup>18</sup> Supra 14

biodiversity. India has also ratified the UN Agreement for the Implementation of the Provisions of the UN Convention on the Law of the Sea, requiring coastal states to protect biodiversity and prevent overfishing.

India's marine diversity faces threats from large-scale fishing, overexploitation, pollution, and land use changes. Despite being a signatory to international conventions, marine conservation efforts have not been prioritized. Challenges include a long coastline, inadequate infrastructure, lack of coordination, public awareness, and insufficient information. Currently, there are only five Marine Protected Areas, and traditional conservation laws are difficult to apply to marine areas.

Marine areas are protected through various legal instruments, including wildlife, coastal, environmental, forest, and fisheries laws. However, no single tool can provide effective protection. Understanding coastal ecosystems, legislative measures, socioeconomic analysis, and integrated management practices is crucial for developing a marine diversity conservation strategy. Scientific research, public awareness campaigns, and community involvement are essential. Active citizen participation is crucial for the successful implementation of marine laws. Hence, the need of the hour is extensive collaboration between the citizens and the government to bear fruit and effectively apply laws to protect not just the marine biosphere, but also the plethora of lives and livelihoods it supports.

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