Page 5274 - 5293 **DOI:** *https://doij.org/10.10000/IJLMH.119617*

INTERNATIONAL JOURNAL OF LAW MANAGEMENT & HUMANITIES

[ISSN 2581-5369]

Volume 8 | Issue 2

2025

Comparative Study of Marine Environmental and Fisheries Regulatory Laws in India

ARUN KUMAR M[1]

ABSTRACT

Marine ecosystems are quickly worsening as a result of overexploitation, pollution, and damaging fishing methods. This loss of habitat has profound consequences for biodiversity and sustainable livelihoods. In India, the impact of these challenges is exacerbated by jurisdictional overlaps, ineffective enforcement mechanisms, and out-dated regulatory frameworks. This study critically examines India's existing legislative framework for marine environmental protection and fisheries control, with a focus on the Indian Marine Fishing control Act of 1980 and other relevant environmental laws. This study coins a viewpoint on the increasing pressures India is facing with regard to its coastal and marine resources, where trans-boundary conflicts, such as those that reoccur between Indian fishermen and the Sri Lankan Navy, add seriousness to what is indeed an urgent discourse considering legal and policy reform. The international compatison of coastal and marine ecosystem control reveals the most effective global methods, as well as new fishing tactics that set the standard for sustainability and economic output. Thus, the current article examines the disparities between central and state regulations, as well as the implementation obstacles, which can be as severe as a lack of inter-agency collaboration or limited resources. The enormous gaps between law provisions and ground reality are subsequently determined. The study concludes with recommendations on how to improve regulatory enforcement, implement sustainable fishing practices, and implement a comprehensive governance strategy for marine biodiversity conservation. The study would contribute to the discussion over maritime law reform and the long-term growth of India's blue industry.

Keywords: *CBD, UNCLOS, (UNFCCC), (UNEP), UNCCD, MARPOL, SDG.*

I. INTRODUCTION

The ocean covers around 71% of the Earth's surface and includes 99% of the known amount of water that supports life, demonstrating the importance of marine variety. The intricacy of marine and coastal environments contains enormous biodiversity. The total number of reported marine species (plants and animals) in these ecosystems is smaller than that found in terrestrial habitats.

[1] Author is a student of VIT School of Law, Chennai, India.

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It is largely because marine variety has not been fully understood due to logistical constraints in exploration and specimen collecting. At higher taxonomic levels, however, marine life clearly outnumbers terrestrial creatures. All phyla except one, which is extinct, may be found in salt water. In comparison, just around half of all animal phyla may be found on land. Marine life has greater variance in appearance and body structure than terrestrial life. Similarly, marine life has a stronger ability for survival at both the single-cell and multicellular stages. Marine biodiversity is mostly investigated in coastal and offshore areas. The coastal zone encompasses around 18% of the Earth's surface and is home to over 60% of the human population. It is particularly significant from a biogeochemical perspective for the burial and mineralization of about 89%-90% of organic matter, as well as serving as a sink for an estimated 50% of worldwide carbonate deposition. Its ecological profile is also quite varied since it provides feed, nursery, and spawning places for a variety of marine species.

The fisheries sector contributes considerably to the Indian economy. India produces around 10% of the world's fish variety. India contributes around 6.3% of total global fish output. The sector's lengthy shoreline of 8129 kilometers, which includes additional inland water shares, contributes around 1% of our total GRP. Fisheries make for around 5% of overall agricultural GDP. Fisheries in India have traditionally been classified into two categories: marine and inland. Over time, the percentage of marine fisheries in total output has decreased dramatically, whereas inland fisheries now account for 65% of total production. In real world terms, fish and its value-added products are India's greatest agricultural exports, worth more than Rs. 30,000 crores per year. They account for more than 3% of the country's overall exports.

There are seven main fishing harbours; 52 minor fishing harbours are operational, with 31 under development; and 181 fish landing centres have been finished, with 29 still under construction. Along the beach, there are hundreds of little traditional landing stations. There are around four million fishermen in the nation, split into 874,749 households. India's top fish-producing states include Andhra Pradesh, West Bengal, Gujarat, Kerala, and Tamil Nadu. It is estimated that over 2.4 lakh fishing vessels operate along the coast. According to the International Collective in Support of Fish Workers, India today has just 0.9 million full-time fisherman, a significant fall from 1.7 million in the 1990s. Recent emphasis has shifted from traditional ways of capture to sophisticated and applied methods that may result in higher yield. The market price of fish items is currently rising when they are served on plates or packed in tins; nonetheless, the societal impression of fishing as a primitive source of income remains unchanged. Before get into the Indian legal instruments, let us see what are the common global legal regulations regarding the prevention of marine ecosystem and fisheries regulation.

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II. MARINE BIODIVERSITY & FISHERIES IN INDIA

India's maritime biodiversity is as rich as its terrestrial biodiversity. India's coastline, which stretches over 7500 kilometers and includes the islands of the Andaman and Nicobar groups as well as Lakshadweep, is home to unique maritime environments that support a diverse range of marine biological diversity. Estuaries, lagoons, mangroves, backwaters, salt marshes, rocky beaches, sandy stretches, and coral reefs are among the several coastal habitats found throughout India's coastline. These maritime ecosystems contribute significantly to the country's ecological and economic stability. A wide variety of marine species may be found in the coastal waters off the country's East and West coasts, as well as surrounding the two island groupings. The marine floral variety comprises 844 species of marine algae (sea weeds) from 217 genera, 14 species of sea grasses, and 69 species of mangroves [2].

Marine Biodiversity encompasses a vast range of living forms. 451 species of sponges, over 200 species of corals, over 2900 species of crustaceans, 3370 species of marine mollusks, over 200 species of bryozoans, 765 species of echinoderm, 47 species of tunicates, over 1300 marine fish, 26 species of sea snakes, 5 species of sea turtles, and 30 species of marine mammals such as dugongs, dolphins, and whales. In addition, a great diversity of sea birds may be seen along the coastline. The marine environment in India consists of a variety of ecosystems occurring along the coastline which borders the Indian peninsula and encircles the two major Island groups. The Indian coastline measures 7,516 km of which the mainland part measures 5,422 km and that around the two major island groups measures 2,094 km (132 km around the Lakshadweep and 1962 km around the Andaman & Nicobar Islands. The mainland the coast is separated into two sections: the west coast and the east coast. The geomorphology of these two shores varies greatly. The West Coast is frequently exposed with severe surf, rocky coasts, and headlands, whereas the East Coast is often shelving with beaches, lagoons, deltas, and marshes. India's coastal zone supports a diverse range of coastal habitats, including estuaries, lagoons, mangroves, backwaters, and salt marshes. This page provides a brief explanation of India's key maritime habitats.

The marine environment in India is made up of a range of habitats that exist along the coastline that surrounds the Indian peninsula and the two major island groupings. The Indian coastline is 7,516 kilometers long, with 5,422 kilometers on the mainland and 2,094 kilometers around the two largest island groups (132 kilometers around Lakshadweep and 1962 kilometers around the Andaman and Nicobar Islands). The mainland's shoreline is divided into two sections: the west

[2] https://www.cbd.int/idb/image/2012/celebrations/idb-2012-in-zsi-marine.pdf .

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and east coasts. The geomorphology of these two coastlines differs significantly. The West Coast is typically exposed with rough surf, rocky shores, and headlands, whereas the East Coast is frequently shelving with beaches, lagoons, deltas, and marshes. Estuaries, lagoons, mangroves, backwaters, and salt marshes are among the many coastal ecosystems that thrive in India. This research gives a quick overview of India's major marine environments.

The Arabian Sea, which flows down the western and eastern coasts and is replenished by the Bay of Bengal, has two enormous marine eco systems that feed India's Exclusive Economic Zone. We have five coastal states along the western coast: Gujarat, Maharashtra, Goa, Karnataka, and Kerala, as well as two union territories: Daman and Diu and Lakshadweep. Similarly, the eastern coast includes Tamil Nadu, Andhra Pradesh, Orissa, West Bengal, and the union territories of Pondicherry, Lakshadweep, and Andaman Nicobar Islands. Though we have a distinct 200-nautical-mile-long Exclusive Economic Zone, the types of catch and boats employed are vastly diverse between these shorelines. Due to India's extensive Continental Shelf, the western coast accounts for more than 75% of total fish landings. While the eastern coast abutting the Bay of Bengal has a narrow shelf, fish landings are significantly lower than those along the western shore.

The Indian coastline may be classified into 22 zones depending on ecological form and function. Traditional Indian boats include catamarans, plank-built boats, machwas, and dhonis, as well as modern powered fibreglass boats, mechanized trawlers, and gillnetters. In the maritime fisheries industry, there were 1,94,490 fishing vessels, of which 37% were automated, 37% were motorized, and 26% were non-motorized. Of the total 1,67,957 watercraft wholly owned by fishermen, 53% were nonmotorized, 24% were powered, and 23% were automated. Trawlers accounted for 29% of the automated watercraft wholly owned by fishermen, followed by gillnetters (43%), and Dolnetters (19%).

Fishermen in this India rely nearly solely on coastal fishing. Traditional fishing is more than simply an employment for them; it is the primary means of life on which they were born and their predecessors were buried. The country's marine fish production climbed steadily, from 5.8 lakh tonnes in 1950 to 3.32 million tonnes in 2010[3], a six-fold increase. The expansion of the Indian Fisheries sector may be separated into three distinct stages.

[3] *Trend analysis of Marine Fisheries of India* (no date) *Agriculture.vikaspedia.in*. Available at: https://agriculture.vikaspedia.in/viewcontent/agriculture/fisheries/marine-fisheries/capture-fisheries/trend-analysis-of-marine-fisheries-of-india?lgn=en (Accessed: 29 April 2025).

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- The first phase (1950-66) landings were generally traditional, non-mechanized, and unsophisticated. Hook and line, gillnets, seines, bag nets, and traps, as well as catamarans, three canoes, and plank-built boats, were widely utilized.
- The second phase (1967-86) begins with the urge for motorisation; wonted boats were replaced with outboard engines rated at 5-7 horsepower.
- The third phase (1986-2000) marked the pinnacle of mechanisation, and the transition to commercial fishing had forced fishermen to become better suited for multi-day journeys. In the early 1990s, the fishing fleet included 180,000 traditional vessels propelled by sails or oars, 26,000 motorized traditional craft, and around 34,000 automated boats. During this period, extinction of fish species became a reality, and programs such as seasonal closures of declining types were implemented.
- The fourth phase 2000 (Postmodernisation) saw depleted fish supplies, decreased fish harvest, increased conflict over fish resources, and rising investment demands. Total marine fish output increased to 34.91 lakh tonnes by 2014-15 from 27.7 lakh tons in 2004-05. while the overall trend is upward, it is not as smooth as the rise in inland fish production. The table above shows how output in the maritime industry has grown at a diminishing pace over time.

Maritime Zone:

UNCLOS[4] (United Nations Convention on the Law of the Sea 1982), which India joined in 1995, divides the sea and its resources into three zones: internal waters (IW), territorial sea (TS), and exclusive economic zone (EEZ).

- The IW lies on the landward side of the baseline, and it comprises gulfs and small bays.
- The TS extends 12 nautical miles from the baseline, granting coastal states sovereignty over airspace, sea, seabed, and subsoil, as well as all life and non-living resources.
- The EEZ stretches out to 200 nautical miles from the baseline.
- Coastal nations have sovereign rights to explore, utilize, conserve, and manage all of their natural resources. Because fisheries is a state topic, fishing in the IW and TS falls under the authority of the respective states.

[4] The United Nations Convention on the Law of the Sea was adopted in 1982. It lays down a comprehensive regime of law and order in the world's oceans and seas establishing rules governing all uses of the oceans and their resources.

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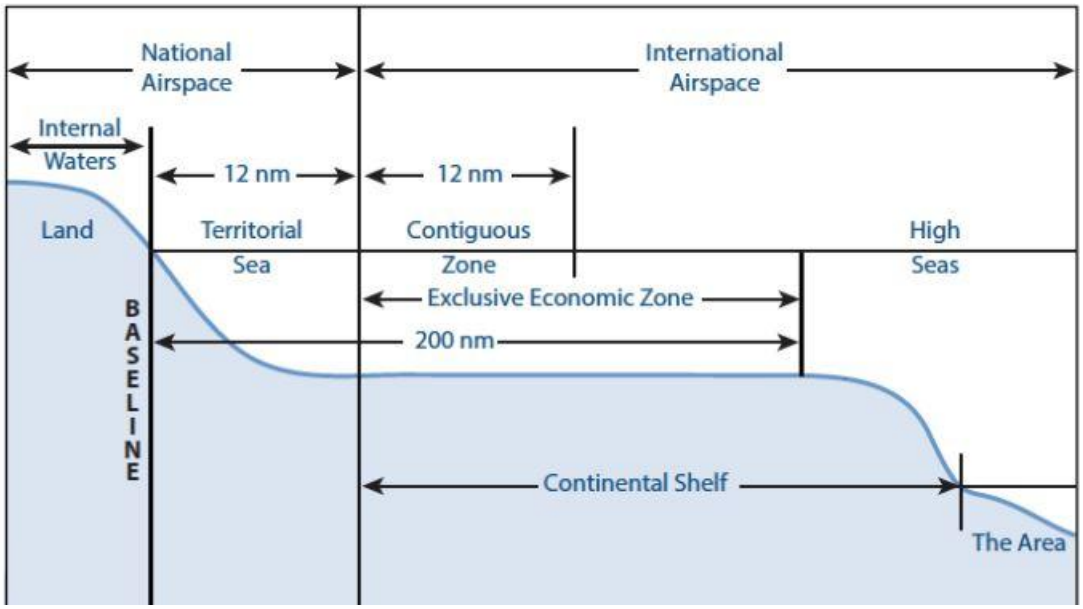
- The Union list includes other activities in the TS as well as fishing beyond the TS up to the boundary of the EEZ.



III. GLOBAL LEGAL CONVENTION, TREATIES AND AGREEMENT RELATED TO COASTAL & MARINE BIODIVERSITY:

The biodiversity-rich ecosystems provide essential benefits for human well-being. However, 15 of the 24 ecological services analyzed in the **Millennium ecological Assessment (2005)**[5] are declining. These include freshwater provision, marine fishery production, the number and quality of spiritual and religious sites, the atmosphere's ability to clean itself of pollutants, natural hazard regulation, pollination, and agricultural ecosystems' ability to provide pest control. Several species are on the edge of extinction, and many of the remaining species are experiencing genetic degradation.In a scenario where population growth is enormous, a major part of the population depends on natural resources, and rapid urbanization and industrialization are taking place in a major part of the world, this unprecedented biodiversity loss poses a significant barrier not only to ecological security, but also to finding ways to adapt to climate change and achieve the United Nations Millennium Development Goals such as poverty alleviation and environmental sustainability.

When it comes to creating sustainable solutions, many natural resources and related

[5] Its aims "to assess the consequences of ecosystem change for human well-being and to establish the scientific basis for actions needed to enhance the conservation and sustainable use of ecosystems and their contributions to human well-being."

environmental issues cross national borders, necessitating international solutions. This includes cases of migratory species that are protected in one country but hunted in another; transboundary protected areas; responsibility to conserve endemic species; the use of medicinal plant products from one country in other countries; and the effects of climate change on biodiversity, which is primarily caused by some industrialized countries while the victims are poor countries with high biodiversity. These instances clearly demonstrate the necessity for global decision-making forums, conventions, and treaties to reach an agreement on solutions to biodiversity loss and cooperative conservation efforts. India was among the first countries to express an interest in creating worldwide environmental treaties. The 1992 United Nations Conference on Environment and Development in Rio de Janeiro[6], Brazil (commonly known as the Rio Summit), was a watershed moment in worldwide environmental agreements. This large summit was attended by 172 nations, including 116 heads of state. The Rio Summit produced three framework protocols that are relevant to coastal and marine biodiversity. They are the Convention on Biological Diversity (CBD), the United Nations Framework Convention on Climate Change **(UNFCCC)**[7], and the United Nations Convention to Combat Desertification (UNCCD).

After 20 years, the Rio 20 Summit was held in Rio de Janeiro in June 2012 to mark the 20th anniversary of the Rio Summit. The summit's subject was "The green economy in the context of sustainable development and poverty eradication." International law is derived from both 'hard law' and'soft law'. 'Hard law' refers to legally binding treaties (also known as conventions, protocols, and agreements), academic texts, judicial decisions, and general principles of law, whereas'soft law' refers to rules that are not formally binding but still play an important role in the field of international environmental law, such as declarations, charters, and so on. The accepted rules of conduct are established informally through soft law. The traditional sources of international law, along with actions of international organizations and taking into account both hard and soft law, have resulted in a vast body of international legal duties that are directly or indirectly connected to environmental preservation.

Convention On Biological Diversity (CBD):

The Convention on Biological variety (CBD)[8] is the primary international legal instrument for the protection of biological variety, supporting the concepts of sustainable development and the precautionary principle outlined in the Rio Declaration. India ratified the Convention on

[6] A landmark event focused on global environmental issues and sustainable development.
[7] https://unfccc.int/ .
[8] https://www.cbd.int/.

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Bological Diversity. The CBD acknowledges protected areas as an essential instrument for biodiversity conservation. **Article 2** of the CBD defines a 'protected area' as "a geographically defined area, which is designated or regulated and managed to achieve specific conservation objectives." **Article 8** makes particular references to protected areas, encouraging Parties to:

- Create a network of protected areas or locations where particular precautions must be taken to preserve biological variety.
- Create, when needed, guidelines for the selection, establishment, and administration of protected areas or places where special measures are required to maintain biological variety.
- Ensure the conservation and sustainable use of biological resources within and outside protected areas.
- Promote environmentally sound and sustainable development in adjacent areas to further protect these areas.
- Collaborate on providing financial and other support for in-situ conservation, particularly in poor nations.

While the term **'protected areas'**[9] refers to both terrestrial and marine regions, the legal instruments and approaches available for marine biodiversity protection are far less evolved than those available for terrestrial habitats. This is despite the fact that the seas cover around 70% of the world's surface area and account for more than 90% of the planet's ecologically viable habitat. Furthermore, oceans perform an important role in ecosystems. Furthermore, these ecosystems are increasingly threatened by both internal and external activity. The Millennium Ecosystem evaluation, the first worldwide evaluation of the health of the world's ecosystems, discovered that marine and coastal systems are among the most vulnerable on the planet.

UNFCCC:

The UN Framework Convention on Climate Change **(UNFCCC)** is one of three 'Rio Conventions' enacted during the 1992 'Rio Earth Summit'. The Rio Conventions comprise the Convention on Biological Diversity (CBD) and the United Nations Convention to Combat Desertification (UNCCD). The UNFCCC went into effect in 1994 and now has 195 nations as parties. The UNFCCC's primary goal is to prevent 'dangerous' human involvement with the climate system. The CoP is the convention's final decision-making body, and it meets yearly to

[9] https://wii.gov.in/images/images/documents/GIZ/Reference.pdf.

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examine its implementation.Climate change impacts coastal and marine biodiversity. Changes in the coastal region's ambient temperature and seawater can have an impact on coastal and marine biodiversity. On the other hand, the diversity of flora and fauna on the coastlines and oceans stabilizes the ecosystem, reducing climate change (climate change mitigation) while simultaneously making it more resilient to climate change (climate change adaptation).

Bonn Convention:

The convention on the conservation of migratory species of wild animals CMS also known as the Bonn Convention.This aims to protect terrestrial, aquatic, and avian migratory species beyond their ranges, which frequently traverse several country boundaries. It is an international convention ratified by the **United Nations Environment Programme (UNEP)**[10] that focuses on the global protection of species and ecosystems. The treaty is supported administratively by a secretariat based in Bonn, Germany, and overseen by UNEP. The convention's decision-making institution is the **Conference of the Parties (CoP)[11].**

In the periods between regular CoP meetings, a standing committee provides policy and administrative direction. The scientific council, which is made up of professionals selected by individual member states and the CoP, advises on technical and scientific issues. The Wadden Sea Seal Agreement between Germany, Denmark, and the Netherlands is an excellent illustration of how the CMS may function. Since its completion in 1990, the common seal population has more than doubled from the estimated 5000 individuals remaining in 1989.

UNCCD:

The UN Convention on Climate Change, which was established in 1994, is the first legally binding international agreement that links the environment and development to sustainable land management. The convention focuses on arid, semiarid, and dry subhumid environments, sometimes known as drylands, which are home to some of the most vulnerable ecosystems and populations. The UNCCD is particularly devoted to a bottom-up strategy, encouraging local communities to help tackle desertification and land degradation. The UNCCD secretariat promotes collaboration between developed and developing nations, notably in terms of knowledge and technology transfer for sustainable land management.

Since the dynamics of land, climate, and biodiversity are inextricably linked, the UNCCD works closely with the other two Rio Conventions the CBD and the UNFCCC to address these complex issues through an integrated strategy and the most efficient use of natural resources.

[10] It is responsible for coordinating responses to environmental issues within the United Nations system.
[11] https://www.cms.int/

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The convention establishes the CoP as the primary decision-making body, with all convention parties represented. The CoP has two subsidiary bodies: the Committee on Science and Technology, which serves as a platform for scientific collaboration under the UNCCD, and the Committee for the Review of the Convention's Implementation, which is a standing subsidiary body tasked with regularly reviewing the convention's implementation. The 10-year strategy for improving convention implementation identifies the main topics for both subsidiary bodies from 2008 to 2018.

UNCLOS:

This agreement establishes a comprehensive system of law and order in the world's oceans and seas, including regulations for all uses of the oceans and their resources. It establishes the idea that all ocean-related issues are inextricably linked and must be handled as a whole. The United Nations Convention on the Law of the Sea comes into force in 1994, with 162 signatories. It addresses navigational rights, territorial sea limits, economic jurisdiction, the legal status of resources on the seabed beyond national jurisdiction, ship passage through narrow straits, the conservation and management of living marine resources, environmental protection, a marine research regime, and a binding procedure for resolving disputes between states[12].

Agreement On Straddling Fish Stocks & Highly Migratory Fish Stocks:

This agreement is known officially as the Agreement for the Implementation of the UNCLOS Provisions of 1992 on the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks. It establishes a cautious approach to the protection and management of rapidly declining fisheries resources by limiting the catch of deep-water and migratory species such as tuna, swordfish, and cod.

MARPOL:

Regulation 8 of Annex V of MARPOL, the International Convention for the Prevention of Pollution from Ships, forbids the discharge of most waste from ships. Controlling this on the open seas is difficult, particularly for tiny governments that provide low-cost ship registries (Convenience Flags). The Department of Merchant Shipping (DMS) in Cyprus, on the other hand, conducts random inspections of all ships (national and foreign) in Cyprus' port regions, as well as inspections of Cypriot ships overseas (a fleet of around 1000 foreign-going ships). Practically, the officers examine the ship's waste management plan, the rubbish record

[12] *United Nations Convention on the law of the sea* (no date) *International Maritime Organization*. Available at: https://www.imo.org/en/ourwork/legal/paginas/unitednationsconventiononthelawofthesea.aspx (Accessed: 29 April 2025).

book, and the presence of garbage disposal receipts from past ports. They also ensure that collected rubbish is correctly stored and separated, and that banners informing the crew and passengers about waste disposal rules are posted as necessary. Inspections are carried out by DMS Marine Surveyors or 14 independent Inspectors assigned to 12 ports across the world. Small passenger ships operating in coastal waters are also inspected on a regular basis to ensure compliance with appropriate national laws.

SDG 14:

SDG 14 is a globally commitment to conserving and using the oceans, seas, and marine resources for sustainable development. The oceans are the world's biggest ecosystem, accounting for more than 70% of the planet's surface and providing more than half of all oxygen. They also absorb over 30% of carbon dioxide emissions, feed and support over 3 billion people, and are home to over 2 million species. Overfishing, marine pollution, coastal deterioration, ocean acidification, and the effects of climate change all pose serious dangers[13].

SDG 14 is made up of ten particular objectives, each of which focuses on a key issue impacting the ocean and marine life. Target 14.1 intends to minimize marine pollution by 2025, with an emphasis on plastic waste, sewage discharge, and chemical runoff. Target 14.2 aims to protect marine ecosystems by 2020, combat ocean acidification, end overfishing, conserve marine areas, eliminate harmful fishing subsidies, improve sustainable use for economic benefit, increase marine research and technology transfer, support small-scale fishermen, and enforce international law (UNCLOS).

India, as a signatory to the 2030 Agenda for Sustainable Development, has undertaken attempts to regulate coastal zones, marine fisheries, and national programs such as SAGAR and the Blue Economy Policy Framework. However, obstacles persist owing to pollution in coastal waters, a lack of marine data and scientific resources, lax enforcement of marine regulations, and conflicts between conservation and fishing livelihoods. SDG 14 encourages legislative reform and stronger governance by requiring national and state-level marine and fisheries legislation to line with SDG 14 objectives, a greater role for the courts, regulators, and international collaboration, and policymaking that balances economic requirements and environmental protection.

IV. INDIAN LEGAL INSTRUMENTS ON MARINE BIODIVERSITY & FISHERIES:

The constitution imposes an obligation on both the state and citizens to safeguard and conserv

[13] *Goal 14 | Department of Economic and Social Affairs* (no date) *United Nations*. Available at: https://sdgs.un.org/goals/goal14 (Accessed: 29 April 2025). .

the environment in general, and biological variety in particular. According to **Article 48A**[14], which deals with environmental preservation and improvement, as well as the safeguarding of forests and wildlife, **'The State should seek to maintain and enhance the environment and to safeguard the forests and wildlife of the nation.'**

The Subparagraph (g) of **Article 51A**, which addresses the fundamental obligations of all Indian citizens, declares that "it shall be the duty of every citizen of India to protect and improve the natural environment, including forests, lakes, rivers, and wild life, and to have compassion for living creatures."

Wildlife (Protection) Act, 1972:

The Wildlife (Protection) Act of 1972 (Wildlife Protection Act) establishes the overarching procedure for classifying and notifying regions as **'protected areas'**. The Wildlife (Protection) Amendment Act of 1991 clearly acknowledged and represented the necessity to safeguard maritime flora and animals.

The Wildlife Protection Act was amended in 2002 to include Section 2(24), which defined 'protected area'. According to the definition, a protected area is "a national park, sanctuary, conservation reserve, or community reserve area as notified under **sections 18, 35, 36A, and 36C** of the Act." It should be emphasized that the term in the legislation is not broad; rather, it identifies just four types of protected areas. The Wildlife (Protection) Act of 1972 outlines the procedural criteria for declaration, governance structures, and the corresponding rights, limits, and duties for each category. This section examines each kind of 'protected areas', as well as its consequences and relevance to maritime environments[15].

The Maritime Zones of India (Regulations of fishing by foreign vessels) Act, 1981:

This act was enacted to regulate the activities of foreign fishing vessels within the Indian Maritime Zone. It serves as the foundation for joint ventures and chartered vessels, as well as bilateral and multilateral fishing access agreements. Any foreign vessel that violates the provisions of **Section 3 o**f the Act in any area within India's territorial waters is punishable by imprisonment for a term not exceeding three years or a fine not exceeding rupees.The penalty for violating a permit relating to the region of operation or manner of fishing indicated in such permission will not exceed rupees five lakhs, and rupees fifty thousand in other situations. If any person intentionally obstructs any authorized officer in the exercise of any powers conferred under this Act, or fails to afford reasonable facilities to the authorized officer, or fails to stop

[14] Constitution of India.
[15] The Wild Life (Protection) Act, 1972.

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the vessel or produce the license permit, log book, or other document, or any fish, fishing gear, or other equipment on board the vessel when required to do so by the authorized officer, shall be punished with imprisonment for a term which may extend to one year, or with a fine[16].

The Environment (Protection) Act, 1986:

The **Coastal Regulation Zone** (CRZ)[17] 1991 is a zoning concept issued under the Environment (Protection) Act of 1986, aimed at regulating development within a predetermined coastal region. The CRZ is defined as the coastline stretch impacted by tidal action up to 500 m from the high tide line (HTL) and the land between the low-tide line (LTL) and the HTL. It places limits on the establishment and extension of industries, operations, or processes within the CRZ. The CRZ is divided into four categories: CRZ-I, CRZ-ll, CRZ-III, and CRZ-IV. CRZ-I includes ecologically sensitive areas such as national ponds, marine parks, sanctuaries, reserved forests, wildlife habitats, mangroves, corals, breeding grounds for fish and other marine life, and areas rich in genetic diversity. CRZ-ll covers previously developed regions up to or near the shoreline. CRZ-III includes regions that are reasonably unspoiled and do not fall under either CRZ-I or II. CRZ-IV encompasses coastline lengths in the Andaman and Nicobar Islands, Lakshadweep, and tiny islands not categorized as CRZ-I, CRZ-ll, or CRZ-III.

New Deep Sea Fishing Policy, 1991:

The Indian government introduced the **New Deep Sea Fishing Policy (NDSP)[18]** in March 1991 as part of its economic reform agenda. The policy included three schemes:

(i) leasing out foreign fishing vessels to operate in the Indian EEZ;

(ii) engaging foreign fishing vessels for test fishing; and

(iii) forming 49:51 equity joint ventures between foreign and Indian companies in deep sea fishing, processing, and marketing. The Government of India began issuing licenses for joint ventures, leasing, and testing fishing vessels. Artisanal fisherman opposed the policy.

Murari Committee, 1995:

The Murari Committee, consisting of 41 members, including bureaucrats, specialists, activists, and fishing community leaders, was formed. It was divided into five groups and traveled around the coastal states to get feedback from various segments of the Fisheries Sector. All five groups unanimously recommended the termination of all foreign vessel licenses and a revision of the

[16] The Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Act, 1981.
[17] The coastal land up to 500m from the High Tide Line (HTL) and a stage of 100m along banks of creeks, lagoons, estuaries, backwater and rivers subject to tidal fluctuations.
[18] https://www.fisheries.tn.gov.in .

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deep sea fishing policy. The committee made 21 suggestions, the most important of which are as follows[19]:

- No renewals, extensions, or new permits will be given in the future to joint venture,
- charter, lease, or test fishing vessels.
- The current licenses will be terminated after going through the legal processes.
- Improve the fishing community's skills so that they can utilize deep sea resources.
- Reduce pollution
- Provide discounted fuel
- Implement fishing laws in the EEZ
- A separate ministry to manage the whole fisheries
- Monsoon trawl ban

The Indian government has approved recommendations from the Murari Committee, which aims to prevent the exploitation of areas already exploited by traditional craft or mechanized vessels under 20m in size by vessels longer than 20m. The current Indian vessels can only operate in these areas for three years. The government has established general rules for the operation of Indian deep-sea fishing vessels in the Indian Exclusive Economic Zone (EEZ).

To operate a fishing vessel in the EEZ, the nodal ministry must provide written permission (LOP), with authorization granted for tuna long lining, tuna purse seining, squid jigging and hand lining, mid-water/pelagic trawling, and trap fishing. The operations of these vessels are controlled by executive directives and the region of operation is governed by instructions/orders issued by the Government of India.

To ensure proper monitoring and sea safety, operators must report their vessels' position, course, speed, and area of operation to the Coast Guard at 08.00 hours daily or any other time specified by the authority. Before each sailing, the Coast Guard and Fishery Survey of India, Mumbai, must be notified of the voyage's start date, expected duration, and crew list. Operators must also provide an undertaking stating they will not engage in any fishing other than permitted, will not exploit endangered species, and will not violate the **Code of Conduct for Responsible Fisheries (CCRF)[20]**.

[19] http://icsfarchives.net/17304/ .

[20] *Fao.org* (no date) *Code of Conduct for Responsible Fisheries | Illegal, Unreported and Unregulated (IUU) fishing | Food and Agriculture Organization of the United Nations*. Available at: https://www.fao.org/iuu-fishing/international-framework/code-of-conduct-for-responsible-fisheries/en/ (Accessed: 29 April 2025).

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Biological Diversity Act, 2002:

The main purpose of the Act is to safeguard India's biological diversity. The Act calls for the protection of biological variety, the long-term utilization of its components, and the fair and equitable distribution of benefits resulting from the use of biological resources, knowledge, and related topics. There is a provision for establishing National and State Biodiversity Boards. The Act promotes conservation and includes a clause that declares a fish population vulnerable if it is overexploited.

The Marine Fishing Policy, 2004:

The Ministry of Agriculture has been prioritizing the development of India's deep-sea fishing sector over the last decade. The 1981 Charter Policy was implemented to allow foreign fishing vessels to fish in the Indian **Exclusive Economic Zone (EEZ)[21],** which was later amended to address faults and make it more beneficial for the country. A revised charter policy for 1986 was issued, allowing Indian companies to acquire boats through import/construction in India, joint ventures, and other means. This allowed 97 companies to operate 311 foreign fishing vessels.

The New Deep Sea Policy of 1991 expanded the program under the Indian flag, allowing Indian enterprises to form joint ventures with international fishing corporations and buy fishing vessels to fish in the EEZ while flying the Indian flag. Other resource protection techniques include implementing a limited season, prohibiting damaging fishing practices, and regulating mesh size. The strategy also calls for the ban of catching juveniles and non-targeted species, as well as the dumping of less desirable species after they have been caught by law.

The monitoring control and surveillance system (MCS) would be enforced by posting observers on commercial fishing vessels. Seed production for sea ranching, the designation of specific areas as marine sanctuaries, and the regulation of brood stock capture from these locations are important components of a resource enhancement programme. Open sea cage culture and fish aggregating devices form other important areas of resource management.

The policy emphasizes preserving the socioeconomic security of fisherman. Artisanal fisheries using outboard motors (OBMs) and small mechanized boats up to 12 m would be classified similarly to agriculture, while small scale fisheries utilizing mechanized boats under 20 m registered length would be considered similarly to small scale enterprises. Fishing vessels larger

[21] Defined under the 1982 United Nations Convention on the Law of the Sea (UNCLOS), an area of the ocean extending up to 200 nautical miles (370 km) immediately offshore from a country's land coast in which that country retains exclusive rights to the exploration and exploitation of natural resources.

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than 20 meters in length, as well as fishing activities including mother ships or factory vessels, would be considered industrial. Full-time occasional fisherman whose families do not possess a boat would be regarded equally with landless laborers and eligible for special care and protection.

The Marine Fisheries (Regulation and Management) Bill 2009 proposes to include Indian fishing vessels of Indian origin in the Indian EEZ, covering territorial waters, the contiguous zone, the exclusive economic zone, and the continental shelf. This bill aims to bring all Indian and foreign vessels and related interests in the EEZ under a legal mechanism to meet India's obligations under the 1982 United Nations Law of the Sea Convention and the 1995 United Nations Fish Stocks Agreement, as well as drawing on relevant sections from the 1995 FAO Code of Conduct for Responsible Fisheries.

Why there was a massive opposition for the "Marine Fisheries Bill, 2021"?

The **Indian Marine Fisheries Bill, 2021**[22], was a draft bill proposed by the Union Government to repeal the Marine Fishing Regulation Act of 1978 and focus on sustainable development and management of marine fisheries in India's Exclusive Economic Zone (EEZ) and high seas. However, it has not been passed into law in India due to strong opposition from stakeholders, particularly traditional and small-scale fishers. Concerns include mandatory licensing for fishing in the EEZ, jurisdictional issues, the definition of small-scale fishers, lack of consultation with traditional fisherfolk, and potential for centralization.

The Bill was not passed in the anticipated sessions due to strong opposition and issues raised by stakeholders. The government accepted these concerns and held consultations with fishermen's associations and other stakeholders, making some changes to the provisions of the Bill. The current status of the revised bill is unclear, but as of April 24, 2025, the bill has not been enacted as law in India.

The Bill aims to regulate fishing and related activities in India's Exclusive Economic Zone (EEZ) and high seas. Key provisions include licensing requirements for Indian fishing vessels, regulation of foreign vessels, sustainable fishing practices, enforcement mechanisms, and the press information bureau. Stakeholders, particularly from coastal states like Tamil Nadu, have expressed concerns over the Bill's provisions, including its impact on traditional fishers, lack of consultation, and potential for centralization.

The main issue with this bill is that it does not encourage traditional fishing communities. The

[22] https://dof.gov.in/sites/default/files/2021-10/Draft_Indian_Marine_Fisheries_Bill_2021.pdf .

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bill states that fishermen communities must obtain a license from the Union government under the guidelines of the **Merchant Shipping Act of 1958**[23]**,** and that no longer will the state marine fishing regulation act have the authority to provide licenses to fishermen communities. The issue here is that the Union government's licenses place certain restrictions on fishermen's ability to catch specific kinds of fish as specified in the act's rules. Furthermore, the license is only granted to bigger stake holders, not to intermediate or small fisherman.

To address these concerns, the government has held consultation meetings with stakeholders, including fishermen's associations and coastal state governments, and made revisions to the draft Bill. The revised draft of the Indian Marine Fisheries Bill, 2021, is available for public viewing, but it has not yet been introduced in Parliament for enactment.

V. INDIA, SRI LANKA FISHERMEN ISSUES & PALK BAY SCHEME:

The issue of fishing ground between India and Sri Lanka is a complex one, involving both countries' maritime boundary agreements signed in 1974-1976. The 1974 agreement allowed Indian fishermen to fish in the Palk Bay area, while the 1976 agreement allowed them to engage in fishing in the historic waters, territorial sea, and Exclusive Economic Zone of Sri Lanka. However, the 1983 civil war in Sri Lanka led to the loss of livelihoods, properties, and lives due to accidental crossings of the I**nternational Maritime Boundary Line (IMBL)**[24]. The Indian government has been promoting mechanized trawlers to increase productivity and gain, leading to a situation where the Indian side of the Palk Bay is heavily depleted of fish, forcing Indians to venture further into Sri Lanka territory to "**poach**" [25]This would result in Indian poaching in Sri Lankan waters, causing an estimated 40 million dollars annually to Sri Lanka, adversely affecting the livelihoods of coastal towns.

Environmental concerns are also present, as Indian fishing trawlers and their exploitative bottom trawling negatively affect the ecosystem, marine life, and fish stocks of the states in the Palk Bay. Deep-sea fishing is promoted by the Tamil Nadu Marine Fisheries Regulation Act of 1983 but has not proven effective. In 2017, Sri Lanka banned all bottom trawling in response to concerns raised by Sri Lankan fishermen whose livelihoods were threatened by encroaching Indian bottom trawlers, which depleted marine resources on the Sri Lankan side.

[23] An Act to foster the development and ensure the efficient maintenance of an Indian mercantile marine in a manner best suited to serve the national interests and for that purpose to establish a National Shipping Board to provide for the registration, certification, safety and security of Indian ships.

[24] A line that defines the legal and territorial limits of a nation's maritime zone.

[25] Ramakrishnan, T. (2025) *Sri Lanka's Northern Province fishermen leaders favour India - SL joint patrolling to curb 'poaching' in Palk Bay Region*, *The Hindu*. Available at: https://www.thehindu.com/news/international/sri-lankas-northern-province-fishermen-leaders-favour-india-sl-joint-patrolling-to-curb-poaching-in-palk-bay-region/article69289442.ece (Accessed: 29 April 2025).

Coastal security is another concern, with detained trawlers and Indian fisherman being released to maintain healthier bilateral relations with India. Since the end of the civil war in 2009, the Sri Lankan navy has increasingly detained a bulk of Indian fishermen and trawlers entering sovereign territory. Cultural factors also play a role in the situation, as local fishermen in both Sri Lanka and India are Tamil speakers and have shared culture and festivals due to centuries of contact and connection with religion, literature, frequent migrations, and intermarriages. The issues of coastal insecurity and overfishing have negatively affected these communities. To address this issue, it is essential to recognize that other stakeholders, such as the governments of Northern Province and Tamil Nadu, and the fishing communities of both countries, must be engaged for an amicable solution. Fisher-level talks between India and Sri Lanka could be used to reconcile any dispute over the island of **Kachchatheevu**[26].

The people of both countries share common threads of language, culture, and religion, which could be purposefully used to reconcile any dispute. India could potentially lease the island of Kachchatheevu, allowing Indian fishermen to operate in its vicinity without Sri Lanka losing ownership of the island. This could be modelled on the Tin Bigha case, where under the 1974 India-Bangladesh boundary agreement, Tin Bigha was given into India's sovereignty but later a lease in perpetuity enabled Bangladeshis to use it for civilian purposes. Permit licensed fisherman can be permitted to fish within a designated area of Sri Lankan waters and vice versa. This would persuade Sri Lanka to permit licensed Indian fishermen to fish in Sri Lankan waters for five nautical miles from the IMBL. In 1976, the boundary agreement allowed licensed Sri Lankan fishermen to fish in the Wadge Bank, a fertile fishing ground located near Kanyakumari for a period of three years. The creation of a Palk Bay authority, consisting of fisheries experts, marine ecologists, fishermen's representatives, strategic specialists, and government officials, could determine the ideal sustainable catch, type of fishing equipment, and the number of fishing dates for Indian and Sri Lankan fishermen.

Diplomatic engagement would help signal the priorities and commitment of the Indian government towards maintaining strong relations with Sri Lanka and advancing sustainable fishing practices. The focus should be on the enrichment of marine resources and a qualitative improvement in the lives of coastal people. Bilateral cooperation between the Tamils on both sides can cooperate on solutions like the introduction of multiday boats for deep sea fishing. The Joint Working Group (JWG) should meet every 3 months to improve efficiency and enforcement. The JWG agreed to conduct joint research on fisheries, commissioning it at the

[26] Henry, N. (2024) *Katchatheevu: Tiny Sri Lankan island sparks political row in India*, *BBC News*. Available at: https://www.bbc.com/news/world-asia-india-68707161 (Accessed: 29 April 2025).

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earliest. India could regulate fishing activities, such as banning bottom trawling, to protect the ecosystem of the Indian side of the Palk Bay. A buy-back scheme could be implemented, with the buy-back cost of trawlers divided between the Tamil Nadu government and the central government in India to fund the buy-back scheme. These mechanized trawlers can later be bought by other state governments for use in waters where they do not harm the ecosystem and coastal environments.

Alternate livelihood opportunities, such as seaweed cultivation, open sea cage cultivation, and sea ranching, need to be implemented proactively by the central and state governments to cover alternative livelihood measures. The all-embracing method involves involving other stakeholders, such as the governments of Northern Province and Tamil Nadu, and the fishing communities of both countries, to arrive at an amicable solution.

VI. CONCLUSION

Overfishing, habitat modification, pollution, and weak enforcement of laws have significantly impacted India's marine and coastal ecosystems. The Marine Fishing Regulation Act of 1980, the Environment Protection Act of 1986, and the Wildlife Protection Act of 1972 have been outdated and failed to address the rapid depletion of marine biodiversity and socio-economic issues faced by fishing communities. Jurisdictional overlap between central and state governments, antiquated regulations, and weak enforcement continue to pile pressure on the crisis. Regulatory gaps and conflicts exist, with some states' regulations conflicting rapidly, leading to far-from-sustainable practices in fishing and aquaculture. The Marine Fisheries Bill, 2021, is widened for the grievance of any actor, while marginalizing traditional fishers. A more comprehensive approach to resolving these conflicts includes diplomatic efforts, livelihood alternate rehabilitation programs, and bilateral cooperation.

Suggestion

From my opinion,

1. To regulate overfishing and overexploitation in marine ecosystems, rather than continuing with traditional fishing methods such as purse seine net fishing, Indian fishermen should follow Chinese and Japanese fishing methodologies such as pole and line fishing, bottom trawling fishing, long line fishing, and so on, which are considered successful and safe techniques of fishing that do not harm fish populations or marine resources.

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2. India is a member of several international conventions, but implementation at the country level remains weak. Enhancing monitoring, control, and surveillance (MCS) mechanisms, using sustainable fishing methods, and developing marine protected areas (MPA) for conservation are urgent actions.
3. Socio-economic equity is crucial, as small-scale fishers have been displaced by industrialization and commercial fishing in favor of larger operators. The legal regime needs to recognize their rights and provide incentives for the transition of small-scale fishers to deep-sea fishing and alternative livelihood options.
4. To guarantee sustainable marine resource management, India needs to enact a revised Marine Fisheries Act with guidelines on licensing, sustainable catch limits, and penalties for illegal activity, increase enforcement through institutional mechanisms and on-the-ground capacity, promote eco-friendly practices, strengthen international cooperation, and integrate marine conservation into the Blue Economy policy.
5. Marine biodiversity and the fisheries sector of India are at a critical stage, and immediate reforms through legal, institutional, and community-based approaches are needed to ensure the potential of the blue economy in India.

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 [ISSN 2581-5369]