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Legal Protection of Aquatic Biodiversity in India: An Analysis of Statutory Framework and Judicial Activism

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ABSTRACT

On April 17, 2025 a significant development towards the protection of aquatic biodiversity could be seen in our country where the “Union Ministry of Jal Shakti and Wildlife Institute of India” in collaboration launched a digital platform to boost the “Aquatic Biodiversity Conservation in India.” These are some of the instances where the concern regarding protection of aquatic biodiversity in India has been shown. The aquatic ecosystem of our country is very diverse in nature as India provides a variety of spectrum for the aquatic biodiversity ranging from fresh water lakes and river to marine ecosystem. The range of these aquatic species also varies from being microscopic level to large scale mammals such as whales. Moreover, it is to understand that the term ‘Aquatic Biodiversity’ should not be confused totally with ‘Aquatic Species’ as the former includes large varieties of species living inside as well as outside the water bodies in a way that they are interdependent with the aquatic species. Considering the diversity in the geographical conditions of our country, the aquatic ecosystem emerges out to be very rich in its nature. It can be further divided into two broad categories i.e., Freshwater ecosystem which primarily includes lakes, rivers and wetlands, and Marine ecosystems which includes “mangroves, coral reefs, seagrass meadows, sea shores and the vast ocean.” Considering the rich aquatic biodiversity of our country it becomes utmost important for us to discuss about the protection of this biodiversity as well as the role played by the judiciary and the legal entities for the protection of the same. The author in this research paper titled “Legal Protection of Aquatic Biodiversity in India: An Analysis of Statutory Framework and Judicial Activism” has tried to analyse the need of protecting biodiversity and the efforts of the legal framework towards the same.

Keywords: Aquatic Biodiversity, Ecosystem, Wetlands, Pollution, Environmental Conservation.

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I. INTRODUCTION

Economic With the existing 85 Ramsar Sites in the country, recently, in February 2025, the central government announced 4 new such sites, making the total to 89. This was done on the “World Wetlands Day” celebrated on February 2nd every year. This comes under the purview of “Ministry of Environment, Forest and Climate Change.” The significance of these sites as well as the other aspects of aquatic biodiversity could be analysed from the fact that they not only provide living habitat for the species but also provides support to local people living around them as well as plays a major role in the conservation of environment as a whole. The author in this research paper has discussed the significance of aquatic biodiversity in great detail.

The term ‘biodiversity’ signifies the vast number of species which are native to a particular place. In the same manner, ‘Aquatic Biodiversity’ would include the aquatic specie belonging to any native place, which in the present context would be Indian Aquatic Biodiversity. It is astonishing as to how many different kinds of life there are in the marine ecosystem. Aquatic life comes in a wide variety of sizes, forms, and colours. Their living styles are equally diverse. It may seem impossible to make sense of all this variation.

However, there exists a common idea that makes sense of the confusing diversity of existence in the aquatic ecosystem and that common idea is the “theory of evolution” detailed by the renowned naturalist and geologist, Charles Darwin. Evidence for evolution, or the slow change in the genetic formation of a specie is voluminous. On the other hand, biologists always remain amazed and fascinated by the process of evolution. The holistic concept of “Life on Earth,” which includes microorganisms, flora and fauna, as well as the genes they contain and the ecosystems they generate, is the most basic understanding of Aquatic biodiversity.

Firstly, the author has discussed an overview of aquatic biodiversity in India. Secondly, the author has discussed the constitutional and legislative framework on aquatic biodiversity in the country. Thirdly, the author has discussed the role of Indian Judiciary in Aquatic Life Conservation in the country. Fourthly, the author has discussed gaps in enforcement and legal challenges in this regard. Fifthly, the author has discussed the recommendations for addressing these gaps and legal challenges in an effective manner.

II. CONSTITUTIONAL AND LEGISLATIVE FRAMEWORK ON AQUATIC BIODIVERSITY

The protection of environment has always been a concern in India and for taking serious actions regarding the same, the framers of our constitution inserted various important provisions in the constitution regarding the same. Also, the parliament has also enacted various important

legislations in this regard. These collectively forms a significant legal framework for the protection of aquatic biodiversity of our country. In this part of the research paper, the author would be focusing upon these constitutional provisions and well as key statutes in India.

- **CONSTITUTIONAL PROVISIONS**

- **“Article 21”**

In the recent times, it can be seen that the concept of environmental protection has been synonymous to the use to “Article 21 of the Constitution.” This provision of the constitution guarantees that “No person shall be deprived of his life or personal liberty except according to procedure established by law.”² The interpretation of this provision of the Constitution by the Hon`ble Supreme Court especially in terms of environmental law has attracted a lot of attention as the same has been interpreted in a liberal and purposeful manner over the past few years. This clearly shows that the protection under Article 21 extends way beyond mere human existence but to live a dignified life.

The conservation of the aquatic biodiversity also falls with the realm of protection of Article 21. This has ensured that right to healthy life is not only the right of humans but of aquatic ecosystem as well. It is mainly because if the situation of the aquatic ecosystem would deteriorate then it would have an immediate effect on the life people who are dependent upon it. It can be said that clean drinking as well as clean rivers and aquatic ecosystem also forms an integral and important part of the fundamental right protected under “Article 21 i.e., Right to Life.” Therefore, it can be said that protection of the aquatic ecosystems is therefore not only an ecological duty but also a constitutionally mandated legal need.³

- **“Article 48A”**

This provision was added in the Indian Constitution by the “42nd Amendment Act 1976” under the head of the “Directive Principles of State Policy.”⁴ The primary purpose of this provision is to put a duty or obligation upon the state to ensure that the nature and wildlife of our country remains protected and efforts are made to flourish the environment in the country. This firmly includes providing protection to aquatic biodiversity as well. It can be said that a constitutional mandate has also been made to implement protective measures for the environment by the enactment of various laws and policies.

² “Constitution of India art. 21.”

³ “Praveen Patil, Article 21: a Reservoir of Right to Water? (BCJMS, 2014) <https://bcjms.bhattercollege.ac.in/V4/06_Right_to_Water.pdf> accessed 20 April 2025.”

⁴ “Constitution of India art. 48A.”

However, the only limitation regarding these directive principles is that they are not legally binding. It cannot be denied that the ambit of “Aquatic biodiversity” is itself covered under the broad concept of ‘wildlife,’ as highlighted under this provision. Every major environmental case law pertinently mentions about this provision whenever the concern is regarding protection of environment from harmful damages and enforcing the duties of state to protect the same.⁵

- **“Article 51A(g)”**

Apart from the obligation on the states, the constitution also puts several duties upon the citizen of the countries by way of “Fundamental Duties” which were inserted with “42nd Amendment Act, 1976.” Among the eleven duties pointed out under “Article 51A of the Constitution,” clause(g) of the provision specifically provides that it is the duty of the citizens “to protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures.”⁶ This clearly implies civic obligations upon the citizens of the country to be reasonable citizen by conserving the nature and environment of the country.

This provision specifically shows the concern raised under the constitution regarding protection of aquatic biodiversity by focusing upon lakes and rivers. Similar to “Directive Principle of State Policy,” the Fundamental Duties are also not enforceable in the courts, however, this particular provision under the Constitution is considered to of great persuasive sense as it seeks to protect and promote the protection of environment with the help of collective involvement of people of the country. “Article 51(g) of the Constitution” holds importance for aquatic biodiversity.⁷

- **IMPORTANT STATUTES**

- **“The Wildlife (Protection) Act, 1972”**

One of the most significant legislations regarding the protection of environment is “The Wildlife (Protection) Act, 1972,” which covers not only the species living on the land but also aquatic species. “**Section 2(37) of The Wildlife (Protection) Act, 1972,**” provides that the term wild life includes “any animal, aquatic or land vegetation which forms part of any habitat.”⁸ This this act certainly covers the aspect of aquatic biodiversity and provisions for the protection of the same. Additionally, it is important to note that the legislation does not specifically deals with the aspect of aquatic ecosystem specifically, but “**Section 2(15) of The Wildlife (Protection) Act, 1972,**” defines the term ‘Habitat’ which primarily includes “land, water or vegetation

⁵ “Dhirjyoti Deka, Analysis of Articles 48A & 51-A (g) of the Constitution of India (2022), Vol. 4 Issue 6.”

⁶ “Constitution of India art. 51A(g).”

⁷ “Dhirjyoti Deka, Analysis of Articles 48A & 51-A (g) of the Constitution of India (2022), Vol. 4 Issue 6.”

⁸ “The Wildlife (Protection) Act, 1972, s 2(37).”

which is the natural home of any wild animal or specified plant.”⁹ Therefore, the protection of this legislation also extends the aquatic habitat as well.

Another interesting aspect of this legislation is that “**Section 2(17) of The Wildlife (Protection) Act, 1972,**” defines the term Land which includes “canals, creeks and other water channels, reservoirs, rivers, streams and lakes, whether artificial or natural, marshes and wetlands and also includes boulders and rocks.”¹⁰

Some of which finds their place in Schedule I where sea turtles like “*Olive Ridley and Green Sea Turtles*” as well as the “*Gangetic River Dolphin*.” These aquatic species are considered to be critically endangered and requires most protection. Further, it is important to note that “**Schedules II to IV of the Wildlife (Protection) Act, 1972,**” prohibits the poaching, trade and hunting of some of other aquatic species like “sea cucumbers, seahorses, whale sharks, rays, corals.”¹¹

○ “**The Environment (Protection) Act, 1986**”

“**The Environment (Protection) Act, 1986**” was enacted in the aftermath of the infamous Bhopal Gas Tragedy and can be said to be the most comprehensive framework law for the maintenance and cleaning up of the environment throughout India.¹² The act gives the Central Government authority to take necessary measures for the improvement of the quality of the environmental along with steps to prevent, control, and minimize pollution and environmental damage.

“**Section 2(a) of The Environment (Protection) Act, 1986**” provides that the term ‘environment’ includes “water, air and land and the inter- relationship which exists among and between water, air and land, and human beings, other living creatures, plants, micro-organism and property.”¹³ This legislation forms the working base for the Preservation of the Aquatic biodiversity in a way that it empowers the Central Government to set water quality parameters and to intervene in matters that affect water resources and the species living in them in a negative manner. Provisions for issuance of dedicated notifications essential for the protection and maintenance of ecologically distressed aquatic ecosystem is also provided in this Act.

⁹ “The Wildlife (Protection) Act, 1972, s 2(15).”

¹⁰ “The Wildlife (Protection) Act, 1972, s 2(17).”

¹¹ “The Wildlife (Protection) Act, 1972, schedule II to IV.”

¹² “Swathu Satish, Environmental Laws in India (Clear IAS, 2 April 2024) <<https://www.clearias.com/environmental-laws-india/>> accessed 21 April 2025.”

¹³ “The Environment (Protection) Act, 1986, s 2(a).”

- **“Water (Prevention and Control of Pollution) Act, 1974”**

Another significant legislation regarding conserving of aquatic biodiversity is **“Water (Prevention and Control of Pollution) Act, 1974”** which manage the critical issues related to water pollution in the country in an efficient manner. As water pollution is the biggest threat to the aquatic biodiversity, it cannot be denied that this legislation holds prime importance for the instant discussion. Chapter II of this Act deals with the establishment of the “Central and State Boards for Prevention and Control of Water Pollution.”¹⁴ Further, **“Chapter IV of the Water (Prevention and Control of Pollution) Act, 1974”** deals with the “Powers and Functions of Boards”¹⁵ and Chapter VII of the Act deals with the procedure provided under the Act along with the penalties for the offences.¹⁶ There is no shadow of a doubt that this legislation protects the aquatic biodiversity from hazardous pollutants by making it illegal for anyone to discharge sewage, industrial effluents and other pollutants into the water body beyond prescribed legal limits.

- **“Wetlands (Conservation and Management) Rules, 2017”**

“Wetlands (Conservation and Management) Rules, 2017” were framed under the “Environment (Protection) Act, 1986,” with the primary motive of conservation and protection of aquatic biodiversity which holds ecological significance such as wetlands.¹⁷ These rules mandate that Wetlands should be left in their natural habitat without hampering who are naturally dependent upon it.

These rules ensures that the conservation and environmentally appropriate use of wetlands by prohibiting any activity which is harmful for such wetlands. **“Rule 2(g) of the Wetlands (Conservation and Management) Rules, 2017”** defines the term Wetland as “means an area of marsh, fen, peatland or water; whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters, but does not include river channels, paddy fields, human-made water bodies/tanks specifically constructed for drinking water purposes and structures specifically constructed for aquaculture, salt production, recreation and irrigation purposes.”¹⁸

¹⁴ “The Environment (Protection) Act, 1986, Ch II.”

¹⁵ “The Environment (Protection) Act, 1986, Ch IV.”

¹⁶ “The Environment (Protection) Act, 1986, Ch VII.”

¹⁷ “Sandrp, India Wetlands Review 2017: Important Governments Decisions (2018) <<https://sandrp.in/2018/02/03/india-wetlands-review-2017-important-governments-decisions/>> accessed 21 April 2025.”

¹⁸ “The Wetlands (Conservation and Management) Rules, 2017, Rule 2(g).”

○ **“Costal Regulation Zone Notification”**

Another significant enactment for the protection of aquatic ecosystem in our country is “Costal Regulation Zones.” These are the series of notifications issued over a period of time which related to the protection and regulations of these zones. For the first time it was under the “Environment (Protection) Act, 1986” that the “Costal Regulation Zone” were declared by the “Ministry of Environment, Forest and Climate Change.”¹⁹

These zones are spread across the country the country and are current divided into four major zones.²⁰ The categorisation of these zones is done as per their ecological sensitivity as well as ongoing developments which are as follow-

- a) **“Coastal Regulation Zone-I”**- These are the most delicate zone wherein the part of aquatic biodiversity such as “mangroves and coral reefs” finds their place. In such zone any type of industrial and development project is completely prohibited.
- b) **“Coastal Regulation Zone-II”**- Those areas which are already been developed under any project are categorised under this Zone.
- c) **“Coastal Regulation Zone-III”**- Zones which are in rural areas and are either not under development or are developed very less falls within this category.
- d) **“Coastal Regulation Zone-IV”**- lastly, those areas where water bodies such as the sea and inland waters are affected by the tidal waves are included under this Zone.

III. ROLE OF INDIAN JUDICIARY IN AQUATIC LIFE CONSERVATION

The author would be discussing some of the important judgments related to the protection of aquatic biodiversity and how judiciary plays an active role in the same.

- **Landmark Judgments and Orders**

The concept of “Public Interest Litigation” could be considered as one of the best legal developments in the country. This is because it allows even those people to initiate legal proceedings before the court who are not directly the party to the case but are largely affected

¹⁹ “S Arathy, Reviewing the implementation of CRZ notifications (DSPACE, November 2024) <<https://dSPACE.spab.ac.in/handle/123456789/2410>> accessed 21 April 2025.”

²⁰ “Dr. M Sakthivel and Nagma Khan, Protection of the Indian Coastal Ecosystem through CRZ Notifications: An Analysis (LUMS) <<https://sahsol.lums.edu.pk/sites/default/files/2024-05/Protection%20of%20the%20Indian%20Coastal%20Ecosystem%20through%20CRZ%20Notifications%20An%20Analysis.pdf>> accessed 21 April 2025.”

by the consequences of the proceedings. The biggest use of “Public Interest Litigation” could be seen for the protection of environment and raising voice against environmental degradation. On such leading case is of **“M.C. Mehta v. Union of India”**²¹ which is also prominently known as river Ganga and Yamuna case. The significance of this case appears from the fact that these rivers are considered to be sacred in nature holding mythological significance. Further, they also act as basis for subsistence for many people living across these rivers. However, due to increase in industrialisation, the pollution in these rivers increased exponentially against which a “Public Interest Litigation” was filed before the Supreme Court.

The court in this case heavily condemned the discharge of untreated effluents having toxic pollutants directly into the rivers especially the tanneries which were situated in Kanpur area. The court mandated treatment plants for these tanneries and until they install the same, they should remain closed. The judgment was in line with the provisions of “Water (Prevention and Control of Pollution) Act, 1974,” and has been a landmark ruling for protection of aquatic biodiversity in India.²²

It is pertinent to mention that in the year 2017, these rivers were again in news. This was due to the fact that the Uttarakhand High Court in the case of **“Salim v. State of Uttarakhand”**²³ declared that Ganga River and Yamuna River are now to be considered to be living entities. The court while remarking the significance of these rivers held that “The rivers have provided both physical and spiritual sustenance to all of us from time immemorial. Rivers Ganga and Yamuna have spiritual and physical sustenance. They support and assist both the life and natural resources and health and well-being of the entire community. Rivers Ganga and Yamuna are breathing, living and sustaining the communities from mountains to sea.” This judgment was celebrated by the public as well as environmentalists.

However, the government of Uttarakhand went against this judgment before the Supreme Court where the court held that these rivers cannot be granted the status of legal entities.²⁴ This restrictive approach were heavily criticised as considering the significance of these rivers and the level of pollution in them, they should be granted such status. This becomes more significant as in the same month of that year, New Zealand became the first country to grant such status to Whanganui River.²⁵

²¹ “MC Mehta v Union of India, AIR 1988 SC 1115.”

²² “Seersha Chaudhuri, M.C. Mehta vs Union of India - A Landmark Case in Environmental Protection (Vaquill, 15 October 2024) <<https://vaquill.com/cases/mc-mehta-vs-union-of-india/>> accessed 22 April 2025.”

²³ “Mohd Salim v State of Uttarakhand (2017) SCC OnLine Utt 367.”

²⁴ “State of Uttarakhand v Mohd. Salim, SLP (C) No. 16879/2017.”

²⁵ “Klaus Bosselmann, The River as a Legal Person: The case of the Whanganui River in New Zealand (Heinrich,

Apart from the protection of rivers, Supreme Court has also given several landmark judgments for the protection for aquatic species. In the case of *“Centre for Environmental Law v. Union of India”*²⁶ where the primary issue was related to the protection of Gangetic Dolphin which is also the national aquatic animal of our country. Although, these dolphins were under the category of endangered species, they were still facing serious threat within their aquatic environment. To provide protection to them a “Public Interest Litigation” was filed before the Supreme Court for seeking urgent legal actions for the protection of these species. The court directed “the Ministry of Environment, Forest and Climate Change” to take immediate measures for the protection of these dolphins and also directed for creating conservation habitats.

The role of “National Green Tribunal” for the protection of aquatic biodiversity could be considered from the case popularly known as *“Sundarbans Cases.”*²⁷ The issue as taken by the “National Green Tribunal” on a Suo moto basis for the protection of Sundarbans which were under threat of great environmental damages. The primary reason for the same was illegal industrial activities, construction, hunting and poaching as well as prevalent pollution. The tribunal took stringent measures by ordering the demolition of illegal structure and shutting down all illegal industries. The tribunal also raised concern for the protection of some of the endemic mammals and species such as Bengal Tiger and Saltwater Crocodile. The tribunal further discussed that mangroves holds prime significance and due to that they fall within the “Coastal Regulation Zone Notifications.”²⁸

• Doctrines Applied by Courts

Apart from these landmark judgments, the environmental jurisprudence in our country has been developed from various principles which were also developed in the judgments only such as “Precautionary Principle, Polluter Pays Principle and Public Trust Doctrine.” In this part the author would be discussing as to how these principles were developed and how they are used by the courts for ensuring the protection of environment and aquatic biodiversity.

Firstly, the “Precautionary Principle” provides that when there are chances or probability of serious damage or harm to the environment then measures should be taken to prevent that harm

29 January 2025) <[²⁶ “Centre for Environmental Law, WWF-India v Union of India & Others, \(2013\) 8 SCC 234.”](https://www.boell.de/en/2025/01/29/river-legal-person-case-whanganui-river-new-zealand#:~:text=Facebook-,The%20River%20as%20a%20Legal%20Person%3A%20The%20case%20of,Whanganui%20River%20in%20New%20Zealand&text=In%202017%2C%20New%20Zealand%20became,to%20shape%20law%20and%20policy.> accessed 22 April 2025.”</p>
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²⁷ “Sundarbans Forests, In Re (2015) Original Application No. 20/2014 (EZ) (NGT).”

²⁸ “Sundarbans Forests, In Re (2015) Original Application No. 20/2014 (EZ) (NGT).”

as far as possible. This principle was developed in the landmark case of **“Vellore Citizens Welfare Forum v. Union of India,”**²⁹ where it was held that the environmental authorities should wait for environmental damage to happen, but should take measures even before any harm is done. This principle could be used to protect aquatic biodiversity in our country as by using advance scientific technique, the potential harm to the species and the ecosystem could be prevented and a better protection to the aquatic ecosystem could be ensured.

Secondly, the “Polluter Pays Principle” provides that anyone including any person or any legal entity, causing any type of environmental damage or harm to the biodiversity, should be responsible for taking up the damage and compensating for the same. In this way it ensures that one who pollutes should also pay for the damage. This has been used and applied by the courts in a consistently manner for the protection of environmental and to ensure damage control. This also conveys the essence of absolute liability for polluting or damaging the environment. This principle became popular with the Bichhri Village judgment or **“Indian Council for Enviro-Legal Action v. Union of India”**³⁰

Thirdly, the Public Trust Doctrine provides that the natural resources available to us are not private properties or subject matter of private exploitation, but they are for the benefit of all. The state is a trustee of these resources for the benefit of the public. The Supreme Court invoked this doctrine in **“M.C. Mehta v. Kamal Nath & Others,”**³¹ where it restrained any construction that would divert the course of a river, stating that ecologically fragile areas should not be converted into private ownership for commercial reasons. This doctrine plays a vital role in conserving the common aquatic resources for their sustainable use for the benefit of everyone.

- **Role of the “National Green Tribunal” in aquatic ecosystem protection**

The “National Green Tribunal” is set up in terms of the Act of 2010. It is a specialized statutory tribunal established to ensure effective and expeditious cases for all types of environmental protection and conservation for the forest and other natural resources with special reference to water bodies. The NGT was instrumental in protecting aquatic ecosystems through its own hearing of water pollutions and cases of wetlands conservation. Also, the Tribunal has powers to grant compensation for environmental harm and direct the restoration of affected sites. The swift approach of the NGT in taking cognizance of environmental issues, like in the Sundarbans cases, bears testimony to its commitment to protecting aquatic biodiversity and enforcing environmental law. Thus, its emphasis on the precautionary and polluter pays principles further

²⁹ “Vellore Citizens Welfare Forum v Union of India (1996) 5 SCC 647.”

³⁰ “Indian Council for Enviro-Legal Action v Union of India (1996) 3 SCC 212.”

³¹ “M.C. Mehta v Union of India (1997) 1 SCC 388.”

augment its action to make polluters responsible and take substantial steps to protect aquatic ecosystems from preventable destruction.

IV. GAPS IN ENFORCEMENT AND LEGAL CHALLENGES

The protection of aquatic biodiversity in India is governed by a framework that constitutes a combination of different laws. The primary legislation on conservation of biodiversity, the “Wildlife (Protection) Act, 1972”, also protects the marine species and provides for the “Marine Protection Areas.” Further, the “Environment (Protection) Act, 1986” is a general legislation of environmental protection, but it makes no special mention of aquatic ecosystems. Furthermore, although the “Biological Diversity Act, 2002” does not explicitly address the aquatic ecosystem, it does encourage biodiversity conservation and benefit-sharing. The other legislations, like the “Marine Fisheries Regulation Acts” and “Coastal Regulation Zone notifications,” also overlook issues related to marine biodiversity.³²

The other legislation, like the “Water (Prevention and Control of Pollution) Act, 1974” and the “Air (Prevention and Control of Pollution) Act, 1981,” also provides no specific provision to restore biodiversity. This legislation has also proved to be ineffective in protecting the environment. For instance, in 2011-2012, the report by the “Controller and Auditor General” mentioned that the sanctions issued by the former legislation were insufficient in compelling adherence. The marine legislations, like the “Marine Zone Act, 1976,” have also failed to provide explicit provisions for the conservation of biodiversity. When it comes to the marine environment and freshwaters, the legal framework in India for the protection of aquatic biodiversity is quite fragmented.³³

Although the legislations like the “Environment (Protection) Act” and the “Wildlife (Protection) Act” has been expanded to include the marine area, but their primary focus remains with terrestrial ecosystem. Due to this bias, aquatic biodiversity receives little or no attention. Further, the “Marine Fisheries Regulation Act” has also failed to address the marine ecosystem challenges.³⁴

The absence of specific legislation on aquatic diversity makes the situation worse, which in turn acts as an obstacle in framing a comprehensive conservation plan for the protection of aquatic

³² “Divya Soni, The Scope and Limits of Environmental Laws and International Treaties in India (Manupatra) <<https://www.manupatra.com/roundup/318/Articles/The%20Scope%20and%20limits.pdf>> accessed 23 April 2025.”

³³ “Legal Framework Environment and Biodiversity Laws- an Interactive Application (IBBI, 25 January 2017) accessed 23 April 2025.”

³⁴ “Maliha Kabir, Threats, challenges and sustainable conservation strategies for freshwater biodiversity (2022) Vol. 214, Part 1.”

areas. The institutions like “Forest Departments and the Pollution Control Boards” has also proved to be ineffective in protection of ecosystem due to issues like technological know-how, lack of manpower, and lack of proper funding. Due to the lack of cooperation between institutions like Fisheries Departments, coastal guards and the forest departments, the protection of aquatic ecosystem has been ineffective. The lack of attention to freshwater area like wetlands and rivers, is another example of the need of specific law for the protection of aquatic ecosystem.³⁵

V. RECOMMENDATIONS

One of the most basic recommendations for the protection of aquatic biodiversity in India is the enactment of a specific law on this subject matter. This is because currently the environmental laws in India are not that efficient or protective as they should be to cover the aspect of aquatic biodiversity. The current legal framework does contain certain provisions regarding aquatic ecosystem. However, they are scattered over various legislations and thus, a dedicated legislation on this subject matter would serve the purpose in a better manner.³⁶

Such an attempt would help the government to deal with the specific challenges which are there in the protection of aquatic biodiversity in India. Further, the limitations in existence of various laws relation to environment, primarily focuses upon the issues related to land and air majorly, however, not much attention is paid to aquatic biodiversity. Such a legislation would ensure that such species remain protected, proper attempt for the rehabilitation, and managing the population of aquatic species and the entire habitats which primarily includes “wetlands, rivers, mangroves, coral reefs, estuaries, and many more.”³⁷

It is utmost necessary that the current legal framework should include a greater focus on ensuring the international standards regarding the conservation of aquatic biodiversity in India as well as effective collaboration with other nations regarding the same. Additionally, it is important that some of the terms related to aquatic biodiversity should be defined in a specific sense so that the adjudication and protection of the same could be done in an efficient manner. Also, it would bring new protective measures, provisions for prohibiting pollution as well as sustainable fisheries management.³⁸

³⁵ “Divya Soni, The Scope and Limits of Environmental Laws and International Treaties in India (Manupatra) <<https://www.manupatra.com/roundup/318/Articles/The%20Scope%20and%20limits.pdf>> accessed 23 April 2025.”

³⁶ “Kritish De, Bridging gaps in the Indian freshwater biodiversity conservation through science-based and policy-backed recommendations (January 2024) Vol. 24, Issue 1.”

³⁷ “Sufia Irfan, Aquatic Ecosystem and Biodiversity: A Review (SR, January 2019) <<https://www.scirp.org/journal/paperinformation?paperid=90305>> Vol. 9 No. 1.”

³⁸ “Kritish De, Bridging gaps in the Indian freshwater biodiversity conservation through science-based and policy-

The protection of endangered aquatic species is another concern which should be addressed on an immediate basis. One efficient way to ensure this is to involve the knowledge of the local communities for the work of conservation and legislative consultation for aquatic biodiversity. By defining appropriate penalties and naming a specific authority for enforcement, the legislation would also enhance enforcement.³⁹

Further, efforts should be made to fulfill the ambitious goal of the **“New Global Biodiversity Framework 30x30 target.”** This basically provides that 30% of the global land area as well as the marine environment should come under “Protected Area and other area-based conservation measures.”⁴⁰ Many a times legislations are enacted and within them regulator bodies are also established, however, the effective enforcement and regulation of the same remains unattempted due to lack of proper funding.

Additionally, it is to be understood that mere enactment of legislation and policies would not serve the purpose of protecting aquatic biodiversity. It is important that people living with and around the aquatic life should also understand their responsibility towards the same. Public participation is the key to ensure the success of any target and the same applies for the protection of aquatic biodiversity as well. Also, it should be ensured that the guidelines of the courts are implemented in an effective manner and that too swiftly to ensure that protection of aquatic biodiversity could be ensured.⁴¹

Along with this it is important that collaboration of “Regional organisations for instance Biodiversity Management Committees” are increased for ensuring better results. Regulatory bodies should ensure that breach of the provisions of environmental legislations does not occur and in case it does than strict action as well as stringent punishment should be imposed against the violators.⁴²

Government should mandate that any development project, especially those around the coastal region or which affective marine environment, are initiated only after Environmental Impact Assessments.” This would minimise the harm to environment and would ensure sustainable

backed recommendations (January 2024) Vol. 24, Issue 1.”

³⁹ “Free flowing and biodiversity rich Rivers: Most Endangered species in India (SANDRP, October 2012) <https://sandrp.in/wp-content/uploads/2018/03/endangered_riverine_biodiversity_india_nov2012.pdf> accessed 26 April 2025.”

⁴⁰ “Veronica Lo and Nicole Jang, The Global Biodiversity Framework's "30x30" Target: Catchy slogan or effective conservation goal? (IISF, 6 December 2022) <<https://www.iisd.org/articles/insight/global-biodiversity-framework-30x30-target>> accessed 26 April 2025.”

⁴¹ “Maliha Kabir, Threats, challenges and sustainable conservation strategies for freshwater biodiversity (2022) Vol. 214, Part 1.”

⁴² “Sufia Irfan, Aquatic Ecosystem and Biodiversity: A Review (SR, January 2019) <<https://www.scirp.org/journal/paperinformation?paperid=90305>> Vol. 9 No. 1.”

development required for the economic growth of the country. An effective coordination between all the primary agencies like “Central Pollution Control Board, The State Pollution Control Boards, and National Green Tribunal” is necessary to ensure that the adjudication of any violation or harm to aquatic biodiversity is resolved in an effective manner. are some important agencies involved in the protection of aquatic biodiversity.⁴³

VI. CONCLUSION

The role of judiciary always remains significant for the protection of environment especially with regard to the aquatic biodiversity. The Indian courts have acted in a proactive manner by ensuring that merely because of lack of dedicated legislation for aquatic biodiversity or actions from the government should not hamper the necessary protection required to the same. Using the constitutional powers provided to these courts they have recognised the crucial and sensitive status of many “rivers, lakes, wetlands, and coastal ecosystems.”

Here the concept of ‘Blue Economy’ holds significance as with the growing economy culture in our country, new possibilities are being explored in the field. Rivers in our country have been provided the status of living person this is due to the fact that many religious festivals are organised and celebrated around the rivers. Thus, it can be said that aquatic ecosystem holds prime importance for India, both from the ecological perspective as well as economic perspective. It can be conclusively said that Aquatic Biodiversity is not only valuable from the perspective of environment as it acts as a power hub for production of oxygen and helps in reducing carbon from the nature but also have great economic significance as it supports many people relying upon these ecosystem as well as acts as a source of food for them.

⁴³ “Swathu Satish, Environmental Laws in India (Clear IAS, 2 April 2024) <<https://www.clearias.com/environmental-laws-india/>> accessed 26 April 2025.”