



Research Paper

Conservation of Ocean Resource of High Sea: A Study of Sustainability of Biodiversity in Area Beyond National Jurisdiction

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ABSTRACT

Oceans are essential ecosystem of Earth's ecology since it covers more than 70 percent of the planet's surface and offers important nutrients for human survival. The oceans or the high seas outside of any country's jurisdictional waters, is home to rich biodiversity and valuable resources. The long-term survival of marine life and ecosystems is in serious jeopardy due to overfishing, pollution, climate change, and other human activities. The long-term viability of marine life and the preservation of maritime resources is a matter to be investigated. By evaluating relevant literature and collecting data from numerous sources, this study investigates the current condition of high seas conservation, the challenges of conserving high seas biodiversity, and the effectiveness of existing conservation initiatives. The research stresses the importance of better governance, stricter enforcement of conservation measures, and the creation of marine protected areas as part of a comprehensive and integrated plan for protecting the oceans.

Insights into the future of conservation on the oceans beyond national jurisdiction and recommendations for improving current efforts are provided in this study. The establishment of a legally obligatory instrument for the protection and equitable utilisation of natural resources in regions outside national borders having the conservation programs, and enhanced scientific understanding and data exchange are the need of the present day globalized world. There is a need for addressing the issues influencing the protection of the high seas and supporting the maintainable governance of ocean flora and fauna, conserving the long-term health and vitality of the ocean and its biodiversity and safeguarding the welfare of future generations.

Keywords: conservation, ocean resources, high seas, biodiversity, sustainability

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I. INTRODUCTION

The wellbeing of the oceans is crucial to the continued existence of life on Earth and its human inhabitants. The high seas are home to a significant amount of the ocean's biodiversity and marine resources, but they are currently in jeopardy. Exploitation, pollution, and climate change are leading causes of marine species loss on the high seas, which might have disastrous effects on the environment. The scientific community, conservationists, and policymakers need to move quickly to preserve marine life on the high seas. Conservation efforts have been hampered by the complex and fragmented governance of the oceans beyond national jurisdiction and by a want of political will and a scarcity of scientific understanding and data¹.

The paper's goal is to find solutions to problems connected with protecting marine life on the high seas by assessing various methods of long-term resource management. Analysing the current state of conservation at sea and the possibilities and obstacles of protecting biodiversity in international waters. As an added bonus, it

¹ "5 Reasons You Should Care about Our Ocean" (United Nations 2022) <<https://www.un.org/en/desa/5-reasons-you-should-care-about-our-ocean>> accessed April 18, 2023

will assess the performance of existing conservation methods like marine protected areas and highlight places where advancements can be made. To maintain the ocean's complexity and over time sustainability and to guarantee the welfare of future generations, we must promote the sustainable management of ocean resources and find solutions to the difficulties related with conservation on the high seas².

RESEARCH QUESTIONS:

- What is the current status of high seas conservation, and what are the challenges faced in managing high seas biodiversity?
- What are the current conservation measures, and how effective are they in promoting biodiversity conservation?
- What are the potential solutions to improve high seas conservation, and how can sustainable management of ocean resources be achieved?

RESEARCH OBJECTIVE:

The central objective of the research is to analyse the sustainability of biodiversity in the areas beyond national jurisdiction of the ocean and to identify strategies for the conservation of ocean resources. The study aims to provide insights into the current status of high seas conservation and the challenges and opportunities for sustainable management of ocean resources.

RESEARCH METHODOLOGY:

The study employs a literature review approach to analyze existing literature on high seas conservation, ocean resources, and biodiversity conservation. Academic publications, official reports, and other appropriate sources will all be examined. In addition, this investigation will employ a qualitative approach to research to examine information from a variety of sources to evaluate the effectiveness of current conservation measures and to identify potential solutions for improving high seas conservation.

THE CURRENT STATUS OF HIGH SEAS CONSERVATION, AND WHAT ARE THE CHALLENGES FACED IN MANAGING high seas BIODIVERSITY

The current conservation situation in the high seas is alarming because of the enormous threats to the ocean's biodiversity and resources. A major influence has been caused by human activities including climate change, exploitation and pollution on the biodiversity and ecosystems of the high seas and constitute a threat to the long-term stability of these systems. One of the main obstacles to managing the marine ecosystem on the world's oceans is a lack of an effective governance framework. The area beyond territorial jurisdiction forming the part of oceans are managed by a web of international treaties and organizations, but they often lack the resources and power to effectively implement conservation measures. Because of the difficulty of centrally coordinating efforts, environmental protection on the high seas may be patchy at best³. The momentum protection circumstance in the high oceans is disturbing a direct result of the tremendous dangers to the sea's biodiversity and assets. Human exercises like double-dealing, contamination, and environmental change essentially affect the biodiversity and biological systems of the great oceans and comprise a danger to the drawn out steadiness of these frameworks. Absence of a productive administration structure is quite possibly of the greatest test that should be conquered to oversee marine biodiversity on the high oceans. The high oceans are overseen by a trap of worldwide settlements and associations, however they frequently come up short on assets and ability to really carry out protection measures. Due to the trouble of halfway planning endeavors, ecological insurance on the high oceans might be sketchy, best case scenario.

Another obstacle to progress in this area is the dearth of data and actual understanding concerning the flora and fauna of the oceans. The expanse of the ocean makes doing research on the open seas a time-consuming and costly endeavor. This prevents us from developing comprehensive policies for protecting marine life since we know so little about the ecosystems and biodiversity of the open ocean. The political will to prioritize conservation activities at sea is sometimes lacking as well. The popular view that the oceans constitute a global common provides support for the idea that all nations have a stake in their protection and management. Due to a lack of political will, high seas conservation efforts have been underfunded and understaffed. The goal of these efforts is to ensure the survival of critically endangered animals. Concerningly, the status of conservation in the high seas is exacerbated by issues with governance, a lack of scientific understanding, and a

² "OECD Work in Support of a Sustainable Ocean" (June 2020) <<https://www.oecd.org/ocean/OECD-work-in-support-of-a-sustainable-ocean.pdf>> accessed April 18, 2023

³ Sinha A, "The "high seas" Treaty: Key Provisions, and the Challenges It Faces" (*The Indian Express* March 24, 2023) <<https://indianexpress.com/article/explained/explained-climate/the-high-seas-treaty-key-provisions-and-the-challenges-it-faces-8513426/>> accessed April 18, 2023

lack of political will, all of which make it harder to implement effective conservation measures. The political will to focus on protection exercises adrift is in some cases lacking also. The well-known view that the seas comprise a worldwide commons, offers help for the possibility that all countries have a stake in their security and the executives. Because of an absence of political will, high oceans protection endeavors have been underfunded and understaffed. The objective of these endeavors is to guarantee the survivability of fundamentally jeopardized creatures. Concerningly, the situation with preservation in the high oceans is exacerbated by issues with administration, an absence of logical comprehension, and an absence of political will, all of which make it harder to carry out compelling protection measures. The creation of MPA⁴ and the adoption of new international agreements and legal frameworks are two examples of how conservation efforts may be bolstered so that marine biodiversity can be maintained and used sustainably⁵.

These are two ways in which we might enhance our conservation efforts. One occurrence that helped establish the challenges of conservation on the high seas was unlawful Patagonian toothfish fishing in the Southern Sea. Toothfish, as commonly called Chilean sea bass, are a commercially important species that thrives in the high seas around Antarctica. However, unrestricted fishing caused major decreases in toothfish populations and harmed other species in the environment.

The CCAMLR⁶ was established in 1982 to monitor and safeguard the Southern Ocean's marine ecosystems. Since then, CCAMLR has established marine protected zones and catch limitations on toothfish in order to ensure long-term viability and safeguard the environment of the toothfish fishery. Hydrothermal vents in the ocean's depths host rare and threatened organisms, making their management an important issue. The ecosystems around these vents in the high seas have been exploited and degraded due to poor management. As a result, in 2015, the UNGA passed a resolution demanding the formation of a lawful obligatory framework for the protection and responsible use of marine flora and fauna in international waters.

Notable historical cases highlight the difficulties conservationists have faced at sea, such as the uncontrolled harvesting of Patagonian toothfish and the exploitation of deep-sea hydrothermal vents. New international agreements and legal frameworks for the sustainable use and conservation of biodiversity in the high seas present capacity to improve conservation efforts.

THE CURRENT CONSERVATION MEASURES, AND HOW EFFECTIVE ARE THEY IN PROMOTING BIODIVERSITY CONSERVATION

At present a numerous conservation programs are there to aid in the promotion of the preservation of marine biodiversity; however, the success of these initiatives is influenced by the context in which they are implemented and the strategy that is used to put them into action. The creation of marine protected areas (MPAs) is one of the most effective conservation measures taken to date. Within marine protected zones, human activities like mining and fishing are restricted or outright banned to conserve the ecosystems and biodiversity of the area. UNCLOS⁷ permits MPAs to exist in international waters⁸.

Research shows that protecting marine ecosystems and habitats through the establishment of MPAs helps to preserve biodiversity. There are a number of factors, such as MPA size, location, and enforcement, that might render them ineffective. MPAs may fail to safeguard the ecosystems or species within them if they are either small or located too far from human activity, and weak enforcement may encourage humans to continue their activities within protected areas. Sustainable fishing practices, such as catch limits and selective fishing gear, can reduce overfishing and protect species that aren't the major target of the fishing effort, which is a great conservation strategy. The agreement^{9,10} are two examples of international accords that oversee the conservationist activities of catch relating to fishes of the oceans.

⁴Marine Protected Areas

⁵ ““high seas” Treaty: Challenges and Opportunities” (*Sinay* March 22, 2023) <<https://sinay.ai/en/high-seas-treaty-challenges-and-opportunities/>> accessed April 18, 2023

⁶Commission for the Conservation of Antarctic Marine Living Resources

⁷United Nations Convention on the Law of the Sea

⁸ “Conservation and Sustainable Use of Biodiversity” (*UNESCO.org* December 20, 2022) <<https://www.unesco.org/en/biodiversity/conservation>> accessed April 18, 2023

⁹United Nations Fish Stocks Agreement

¹⁰Agreement on the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks

Whether not or whether sustainable fishing techniques are successful in limiting the loss of biodiversity on the high seas can be affected by the degree to which rules are adhered to and policed. The effectiveness of such procedures, however, may also depend on other aspects. The persistence of illegal, covert, and IUU fishing points a major threat to fisheries management and the protection of marine biodiversity. In compliance with the UNCLOS, initiatives are being implemented to encourage the sustainable use of marine genetic resources. A legally enforceable international agreement is being drafted to facilitate these efforts¹¹.

Conservation efforts on the high seas have the potential to protect biodiversity around the world, but their effectiveness depends on a variety of factors, including the strict enforcement of existing laws and regulations. The adoption of environmentally sound fishing practices and establishment of marine reserves are two such steps. More work is needed to boost conservation efforts at sea and guarantee the ocean's biodiversity and riches for future generations.

Not only have the measures already mentioned above been taken to combat marine pollution on the high seas, but others have been implemented as well. Pollution, in the form of oil spills, plastic pollution, and other types, poses a significant danger to the high seas' biodiversity and ecosystems. The London Convention and its subsequent Protocol lay out a plan of action for reducing marine pollution in the world's oceans and seas. This involves limiting land-based activities that contribute to pollution in the ocean. It's also worth noting that advancements in technology may help conservation efforts at sea by making it easier to keep tabs on things like protected areas and penalize people who break the rules. This category of technology includes, for instance, DNA barcoding and satellite surveillance. DNA barcoding is a technique that can be used to identify species in the open ocean and get a general estimate of the biodiversity there. The use of satellite surveillance to detect illegal fishing could be a useful tool¹².

There are still many obstacles to overcome, thus it is important to preserve the abundant marine life present in the open ocean. Major issues comprise of the lack of effective governance and coordination among nations because individual states do not have power over the high seas. This leads to gaps in management and conservation as well as competing priorities among different groups with an interest in the issue.

In addition, the underlying factors that are hastening the decline of marine life must be addressed. The escalating impacts of climate change are one of these causes, along with the widespread prevalence of unsustainable consuming practices. The SDG¹³ by the United Nations' 2030 Agenda is just one of many international initiatives whose overarching goal is to address this root cause and improve sustainable development around the world, especially in maritime settings. Many other global efforts also revolve around these fundamental justifications.

Current conservation measures on the high seas, such as the institution of MPA, the implementation of environmentally friendly fishing activities, and the prevention of pollution, may help to ensure the survival of diverse species. Moreover, the fundamental factors that are rushing the downfall of marine life should be tended to. The raising effects of environmental change are one of these causes, alongside the inescapable commonness of impractical consuming practices. The United Nations' 2030 Plan for Feasible Advancement is only one of numerous global drives whose all-encompassing objective is to address this underlying driver and work on reasonable improvement all over the planet, particularly in oceanic settings. Numerous other worldwide endeavors likewise spin around these central supports. Momentum preservation estimates on the high oceans, for example, the foundation of marine safeguarded regions, the execution of harmless to the ecosystem fishing rehearses, and the avoidance of contamination, may assist with guaranteeing the endurance of different species. However, more effort is needed to improve governance and coordination, address the root causes of biodiversity loss, and strengthen monitoring and enforcement. All of these places require immediate improvement in some way.

¹¹ "Stopping Illegal Fishing on the "high seas" - OECD" (*Final report of the Ministerially-led Task Force on IUU Fishing on the "high seas"* March 2006) <<https://www.oecd.org/sd-roundtable/papersandpublications/39375316.pdf>> accessed April 18, 2023

¹²Schäli J, "The Protection of the Marine Environment from Land-Based Sources of Plastic Pollution in International Law," *The Mitigation of Marine Plastic Pollution in International Law*, vol 8 (Brill | Nijhoff 2022)

¹³Sustainable Development Goals, UN

THE POTENTIAL SOLUTIONS TO IMPROVE HIGH SEAS CONSERVATION, AND HOW CAN SUSTAINABLE MANAGEMENT OF OCEAN RESOURCES BE ACHIEVED

There are several potential solutions that can be implemented to improve high seas conservation and achieve sustainable management of ocean resources:

- The lack of a well-defined legal framework for controlling biodiversity on the high seas has been a major impediment to effective conservation. By improving governance and coordination across governments and stakeholders including the corporate, civil, and scientific communities, we can ensure that the biodiversity of the high seas is maintained efficiently and sustainably.
- Improvements in Enforcement and Procedures Some areas have had trouble implementing and enforcing conservation measures like fisheries quotas and marine protected zones. We can better protect biodiversity on the high seas by applying and enforcing existing conservation measures.
- Reduce biodiversity loss by addressing its root causes For ocean resources to be managed in a sustainable manner, underlying factors like climate change and ocean acidification must be addressed. By encouraging sustainable land use, lowering greenhouse gas emissions, and bolstering the resilience of marine ecosystems, we can lessen the impact of these factors on biodiversity in the high seas.
- To better manage ocean resources in a sustainable manner, it is important to increase both transparency and stakeholder participation. The success, fairness, and longevity of conservation efforts depend on the participation of all parties interested in the issue.
- Boost resources and strengthen capabilities. Adequate financing and capacity development are needed for effective maritime resource management. The ability of governments and stakeholders to manage high seas biodiversity can be improved by boosting financing for conservation efforts and strengthening capacity-building programs.
- To encourage conservation on the high seas and environmentally responsible ocean resource management, one can use blue bonds, an innovative funding tool. "Blue bonds" can be issued by governments or non-profits to support ocean sustainability and conservation efforts¹⁴.
- Encourage fishers to behave ethically: Conservation of marine life at sea can be aided by promoting sustainable fishing practices and cutting down on bycatch. Additionally, reducing the detrimental effects of illegal fishing on marine ecosystems can be accomplished through the promotion of traceability in seafood supply chains.
- Encourage ecotourism, which has the potential to both boost the economy and aid in the protection of marine life. Sustainable tourism methods help conserve natural resources while also benefiting local economies.
- Boost scientific study and observational efforts: Understanding how human activity affects the biodiversity of the high seas and implementing successful conservation programs requires monitoring and scientific investigation. We can better understand the conservation concerns in the high seas and offer solutions based on solid facts if we increase funding for scientific research and monitoring programs.
- Create and implement treaties on a global scale Conservation of the ocean resources and acceptable management of ocean flora and fauna can be aided by the development and implementation of international treaties like the CBD¹⁵ and the UNCLOS¹⁶. By following and cooperating with these agreements, governments and stakeholders can generate more successful conservation outcomes.

By combining governance, enforcement, sustainable practices, research, and community participation, we may achieve sustainable management of ocean resources and safeguard biodiversity in the high seas.

II. CONCLUSION

Protection of the high seas and promotion of biodiversity in regions outside of state borders are complex issues requiring a diversified approach. Despite the fact that some of the current conservation strategies, such as marine protected areas, sustainable fishing methods, and pollution prevention, have been effective in promoting biodiversity conservation, there are still many obstacles to surmount. These include governance and coordination issues, competing stakeholder interests, and the root causes of biodiversity loss.

To achieve sustainable management of ocean resources and improve high seas conservation, a number of solutions must be implemented, including improved governance and coordination, better implementation and

¹⁴ Karen L, "Towards a Global Solution for "high seas" Conservation" (*The Pew Charitable Trusts* March 27, 2017) <<https://www.pewtrusts.org/en/research-and-analysis/fact-sheets/2017/03/towards-a-global-solution-for-high-seas-conservation>> accessed April 18, 2023

¹⁵ Convention on Biological Diversity

¹⁶ United Nations Convention on the Law of the Sea

enforcement of current conservation measures, addressing the root causes of biodiversity loss, promoting transparency and stakeholder participation, and increasing funding and capacity. These solutions require global collaboration, cooperation, and a commitment to advancing sustainable development on land, at sea, and elsewhere.

The long-term sustainability of the planet's ecosystems and the welfare of future generations will ultimately depend on implementing sustainable management of ocean resources and promoting biodiversity conservation in the high seas.

III. SUGGESTIONS

1. Strengthen scientific research and data collection to better understand high seas biodiversity and the effect of activities by humans.
2. Facilitate the adoption of environmentally friendly practises and technology that lessen the negative effects of human activity on the high seas, including low-impact fishing equipment and alternative sources of energy for ships.
3. Promote education and awareness-raising campaigns to engage the public in high seas conservation efforts and encourage sustainable consumption and production patterns.
4. Support the establishment of partnerships and collaborations among stakeholders, including governments, civil society organizations, and industry stakeholders, to promote shared responsibility and effective management of high seas biodiversity.
5. Advocate for increased funding for high seas conservation and sustainable management of ocean resources, both from public and private sector sources.
6. Develop and implement innovative financing mechanisms, such as blue bonds, to support high seas sustainability and conservation of oceans flora and fauna.
7. Address the problem of the oceans illegally fishing, which presents a serious danger to the preservation of biodiversity and the sustainable management of ocean resources. This may be accomplished by stepping up monitoring and enforcement, encouraging ethical fishing methods, and improving the traceability of seafood supply networks.
8. Encourage the development of a circular economy for the ocean, which seeks to reduce waste and promote sustainable use of ocean resources.
9. Improve the capacity of developing countries to participate in high seas governance and conservation efforts, through developing capacity and transferring knowledge and skills.
10. Address the issue of ocean acidification, which poses a significant threat to marine biodiversity in the high seas, via international initiatives to lower emissions of greenhouse gases and encourage sustainable land use methods.

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