Article

# Exploring the Marine Conservation Potentials and Challenges of the Swatch of No Ground Marine Protected Area

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## Introductory Background

Marine conservation concerns the science and art of conserving physical and biological marine resources and ecosystems. It functions through planned management and governance while encountering over-exploitation of living and non-living marine resources, destructive fishing, habitat degradation, species loss, and marine pollution to protect the marine environment. Marine Protected Areas (MPAs) are fundamental marine conservation tools that provide legal protection and management measures to conserve biodiversity, maintain ecological processes, and promote sustainable resource use. It reduces anthropogenic damage to marine ecosystem and restores damaged ecosystems, including habitats, biodiversity, and threatened species. On the contrary, overfishing and poaching, illegal equipment usage, including small mesh nets, and destructive fishing by the Illegal Unreported and Unregulated (IUU) fishers pose offshore challenges to the marine conservation of Bangladesh. The former Ministry of Environment and Forest of Bangladesh declared part of the Swatch of the No Ground (SoNG) area of the Bay of Bengal (BoB) as Bangladesh's first MPA on 27 October 2014 under the Wildlife Conservation and Security Act, 2012. It is instrumental and holds immense potential in conserving marine ecosystems, including threatened species.

## Swatch of No Ground MPA

Swatch of No Ground (SoNG), a deep sea canyon, is located south of Sundarban and the Dublar Char Island in the BoB. With an average depth of 900 meters covering approximately

1,836 sq km of marine area, it is known as a hotspot and a critical habitat for endangered cetaceans. It is also a significant marine biodiversity hotspot that offers unique conservation opportunities in the BoB. The SoNG MPA is the first significant marine conservation initiative of the Government of Bangladesh aimed at conserving and protecting unique marine ecosystems, including rich biodiversity and fragile habitats off Dublar Char Island. It also holds immense potential for blue economic activities like marine fisheries, renewable energy, and ecotourism amidst sustainable marine conservation of the BoB. According to the International Union for Conservation of Nature (IUCN), the SoNG MPA falls into category IV (habitats and species management area), which is managed mainly for conservation to maintain, conserve and restore species and habitats of endangered marine ecosystems. It offers a sanctuary and has been an essential breeding and spawning ground for endangered marine species like cetaceans, whales, dolphins, turtles, sharks, rays, birds, and other globally endangered marine species. However, the SoNG MPA contributes to climate resilience through carbon sequestration services that mitigate climate change effects.

## Conservation Potentials of SoNG MPA

The SoNG MPA presents a myriad of opportunities for marine conservation through the ecosystem, biodiversity, endangered species, and habitat protection. Despite threats such as overfishing and habitat destruction, the SoNG MPA remains a critical area for marine species, illustrating its transboundary conservation potential, including marine conservation research. However, the marine conservation potential of SoNG MPA is depicted below:

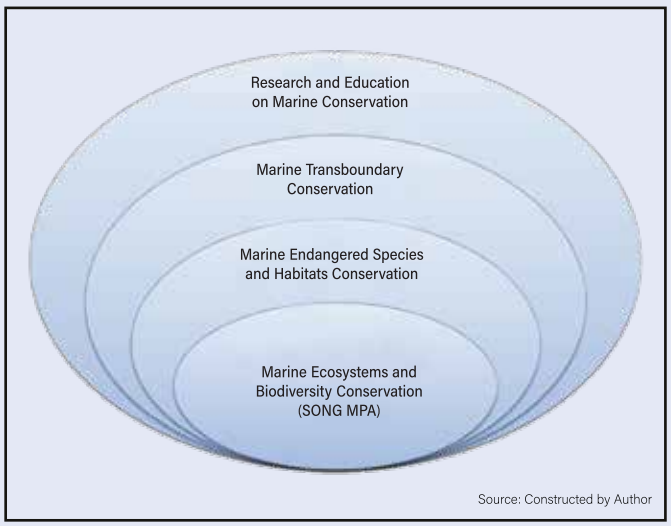


Figure 2: Conservation Potential of SoNG MPA

**Preservation and Restoration of Marine Ecosystems and Biodiversity.** The SoNG MPA is acknowledged for its rich biodiversity and unique ecological characteristics. It plays a significant role in maintaining the overall health and balance of the marine ecosystems of BoB. Overfishing and destructive fishing practices, including bycatch, pose significant risks to the populations of various species, including sharks, turtles, and cetaceans. The escalating anthropogenic activities and environmental changes have endangered many marine species, which warrants preservation and restoration efforts. Implementing protective measures like marine pollution control, sustainable fishing practices, and effective governance of SoNG MPA is critical for the conservation of endangered species, ecosystems, biodiversity, and the resilience of the marine environment of the BoB.

**Protection of Endangered Marine Species and Habitats.** The SoNG MPA is a critical marine ecosystem supporting habitat for several endangered and threatened species. Unsustainable human activities, such as overfishing, habitat destruction, and pollution, pose significant risks to the survival of these species. As such, many of these species are endangered and about to be extinct due to various human activities. Implementing sustainable fishing practices, such as size and catch limits, gear restrictions, and seasonal closures, can prevent overfishing and ensure the long-term viability of fish populations. It is imperative to prioritize the protection and conservation of these species by implementing various strategies, including sustainable fishing practices, pollution control measures, public awareness campaigns, and effective governance of SoNG MPA.

**Marine Transboundary Conservation Potential.** The SoNG MPA is characterized by rich marine biodiversity, valuable ecosystems, and globally endangered and threatened species that transcend national maritime borders. It shares a border with Indian territorial waters. The SoNG MPA holds significant potential for establishing transboundary MPA with India amidst common global challenges like marine pollution, over-exploitation of fish, and climate change. By harnessing the potential of transboundary MPA, Bangladesh can enhance the protection and sustainable management of the marine resources in the SoNG area of BoB and foster regional cooperation with India.

**Education and Research on Marine Conservation.** Education and research on marine conservation are critical components in understanding the ecological processes, identifying threats, and addressing the challenges faced by the ecosystems for their sustainability. Marine conservation education is crucial for fostering a sense of stewardship and understanding the ecological importance, biodiversity, and vulnerability of the SoNG area. Research, a cornerstone of effective marine conservation, helps identify and comprehend the ecological processes, biodiversity patterns, and sustainable ecosystem services in the BoB. It raises awareness and provides scientific knowledge for evidence-based decision-making. Education and research are the fundamental pillars of marine conservation in the SoNG area of the BoB. By prioritizing education and research, the SoNG ecosystem's conservation efforts will be sustainably enhanced.

## Marine Conservation Challenges of SoNG MPA

The marine environment of the BoB is susceptible to threats like global warming and ocean acidification induced by climate change. Anthropogenic interferences like marine pollution, destructive and IUU fishing due to rampant commercial exploitation of marine resources, including an inadequate understanding of marine conservation, rising in the BoB. The significant anthropogenic damages arising from the extensive exploitation of living and non-living marine resources, destructive fishing practices, habitat degradation, species loss, and the prevalence of marine pollution pose substantial challenges to the conservation of marine ecosystems of SoNG MPA. Bridging knowledge gaps, promoting mass communication, and increasing public awareness through research and education are essential for the conservation and management of the SoNG MPA. Moreover, electronic and print media are also essential in fostering stewardship and promoting responsible behavior towards marine ecosystems. However, the critical challenges of marine conservation of SoNG MPA are summarized below:

- Global warming, ocean acidification, and marine Pollution
- Illegal, unreported, and unregulated fishing and unsustainable fisheries
- Unsustainable or destructive fishing practices
- Preserving ecological integrity and protecting marine ecosystems
- Protecting vulnerable marine habitats
- Promoting a healthy and resilient marine environment
- Engaging local communities and stakeholders
- Implementing education initiatives, including marine research
- Bridging knowledge gaps and public awareness
- Sustainable legal and policy frameworks
- Effective management and governance

## Concluding Remarks

The SoNG MPA is a unique and ecologically significant marine ecosystem that warrants sustainable conservation through effective management and governance. The conservation efforts of SoNG MPA must be supported by scientific data, appropriate policy promulgation, and active community participation in achieving adequate protection of the marine environment of the BoB and its invaluable marine biodiversity. Significant threats to the marine environment of the BoB include destructive fishing, marine pollution, climate change, and other unsustainable economic activities at sea. Besides, most blue economic activities like fisheries, transportation, tourism, and exploration of living and non-leaving resources often conflict with marine conservation. SoNG MPA has the potential to facilitate the protection and preservation of endangered species, including their habitats and the biodiversity of marine ecosystems in the BoB. Effective marine spatial planning, MPA governance, monitoring, and stakeholder engagement are essential for maximizing its potential for sustainable marine conservation. SoNG MPA needs specific policy guidelines on protection, management, and governance. It requires effective management plans and governance frameworks to safeguard its biodiversity, ecological integrity, and conservation goals. Ensuring a healthy marine environment in the declared MPAs through effective conservation measures, management, and governance will thus contribute directly towards the sustainable blue growth of Bangladesh. Hence, it is imperative to facilitate a healthy marine environment through effective conservation of SoNG MPA to foster sustainable blue growth and the socio-economic development of Bangladesh.

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