

# Conservation and Effective Implementation of the Marine Protected Areas in Bangladesh

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Marine Protected Areas (MPAs) are marine regions where human interference is restricted by law. MPAs are one of the possible policy tools that could potentially address a number of pressures on marine biodiversity, including overfishing, exploitation, and habitat destruction. MPAs can assist in ensuring the sustainable provision of numerous ecosystem services that are essential for human well-being, such as fisheries, coastal protection, tourism, recreation, and protecting rare and threatened species and their habitats. While there is no single universally agreed definition, the IUCN defines MPAs as "a clearly defined geographical space, recognized, dedicated, and managed, through legal or other effective means, to

achieve the long-term conservation of nature with associated ecosystem services and cultural values." There are now more than 5,000 MPAs around the globe. They account for only 0.8% of the total ocean area. According to the Sustainable Development Goals and the Convention on Biological Diversity (CBD), Aichi Biodiversity Target 11, at least 17% of terrestrial and inland water, 10% of coastal and marine areas-in particular regions of key importance for biodiversity and ecosystem services must be effectively and equitably conserved by 2020.

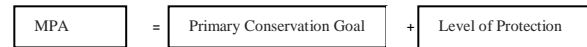
The MPAs are categorized based on the range of activities allowed within the defined protected area. Multiple-Use MPAs, for instance, include a variety of restrictions

on extractive and touristic activities like fishing, coral or boulder collection, surfing, snorkeling, etc. This type of MPAs allows a variety of human activities that are managed comprehensively to support compatible uses while protecting key habitats and resources.

On the contrary, No-Take areas are the protected areas that prohibit the extraction or destruction of natural or cultural resources like all kinds of fishing, mining, and oil drilling within the MPA boundaries. Some may also restrict access and/or other activities that may adversely impact resources, processes, and qualities. The oceanic equivalent of these is called a marine reserve. Only 0.59% of the 3.41% of global MPA coverage in 2014 were designated as no-take MPAs. No-Impact MPAs, however, authorize exploitation of the area but prohibit extraction, the dumping of potential pollutants, the installation of materials, and any other form of environmental disruption. No-Access MPAs are the protected areas that prevent any sort of human presence at all. Additionally, this kind of MPA is quite unusual and restricted to academic study. MPAs can also vary in terms of how long the area will be protected either permanent, temporary, or conditional-which plays a significant role in the effectiveness of MPAS.

To this end, the proposed MPA definitions combine two key characteristics that best reflect and most influence the design, management and impacts of any MPA.

- Primary Conservation Goal - why the MPA was created and what it seeks to achieve
- Level of Protection - the types of human activity the MPA restricts and the nature of the protection afforded to its natural and cultural resources

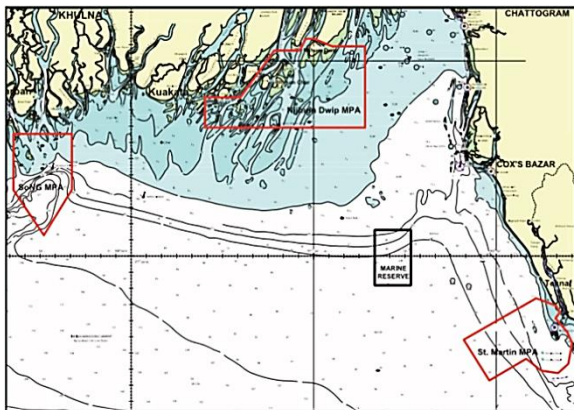


The main focus of many MPAs is to protect marine habitats and the variety of life that they support. For example, the Galápagos Marine Reserve, which lies about 1,000 kilometers off the west coast of South America, protects a series of small islands and the surrounding water. This reserve includes a tremendous variety of habitats, from coral reefs to cold ocean currents to mangrove swamps. The waters around the Galápagos are home to 3,000 different plant and animal species, including unusual and indigenous species such as the marine iguana, the world's only seagoing lizard. One of the biggest MPAs in the world is located on the Great Barrier Reef in Australia. All of Laughing Bird Caye National Park, which preserves a tiny island 18 kilometers off the coast of Belize in Central America, is an example of a no-take MPA. National governments and state, local, and tribal governments also establish MPAs. Sometimes, national governments work together to establish an MPA that crosses country borders and is spread among different countries. For instance, Italy, France, and Monaco together established the Pelagos Sanctuary for Mediterranean Marine Mammals. At some MPAs, the level of protection differs with the seasons, particularly when vital species are breeding. For example, in the Irish Sea, fishing is controlled during the cod spawning season, when the fish produce and fertilize eggs. This helps to conserve the cod population.

MPAs can offer a wide range of advantages, including the preservation of vast areas that are home to important biodiversity, acting as the nursery grounds for fisheries and enhancing fish stocks, safeguarding habitats that mitigate the effects of storms and waves, and removing additional nutrients and pollutants from the water. MPAs benefit not only ocean animals but also the human

community. They can also promote other spiritual and aesthetic values, including cultural and heritage values, and provide more sustainable tourism and recreational benefits. Over the period of 2015-2050, it has been anticipated that 10% coverage of MPAs will produce benefits for ecosystem services totaling USD 622-923 billion. Hence, protecting just 4-7% of the ocean isn't enough. Scientists predict that we need to protect at least 30% of the sea to restore an abundant and healthy oceanic ecosystem. With that, we can simultaneously conserve marine life and maximize how much fish we can sustainably catch.

Under the Marine Fisheries Ordinance (1983), the government of Bangladesh has declared total MPAs of 7,367 square kilometers, which cover about 8.8% of the total exclusive economic zone of Bangladesh. The first MPA in Bangladesh was established in a deep submarine canyon, Swatch of No Ground, which is located near the southernmost point of the Sundarbans and about 40 kilometers away from the Dublar Char Island. In connection with this, another MPA was established in Nijhum Dwip, which is located at the mouth of the Meghna Estuary and the southern tip of Hatiya upazilla; and finally, St. Martin's Island was designated as an MPA in 2022 under the Wildlife Conservation and Security Act 2012, with an area of 1743



square kilometers. Meanwhile, an area of 698 square kilometers in the Middle Ground and South Patches of the Bay of Bengal has been announced as a Marine Reserve Area.

The first MPA of Bangladesh, the Swatch of No Ground covers 1738 km<sup>2</sup> of marine area. The area is comparable to approximately 1.46% of the total maritime area of Bangladesh. According to Section 13 of the Wildlife Act 2012, "MPA or Sanctuary" is defined as 'an area where capturing, killing, shooting, or trapping of wildlife is prohibited and managed for the conservation of all-natural resources, such as vegetation, soil and water, mainly for the undisturbed breeding of wildlife! Hence, the Swatch-of-No-Ground MPA was established in order to protect different types of Cetaceans like numerous whales, dolphin, and shark populations. The endangered Cetaceans found in this MPA include the Irrawaddy, pink river, bottlenose, spinner, and spotted dolphins; finless porpoises; Bryde's, fin, humpback, sperm, dwarf sperm, orca, and false killer whales; and hammerhead, blue whale, tiger, and sawfish sharks.

The Ministry of Fisheries and Livestock Bangladesh declared the Nijhum Dwip Marine Reserve in 2019, and the declared protected area covers 3,188 km<sup>2</sup> of estuarine waters at the mouth of the third largest river system in the world. The island began to form in the 1950s, and the island is bordered by Meghna on all four sides, with the mighty Bay of Bengal to the north and the other three sides being completely uninhabited. The island lies to the west of Char Damar, to the east of Manpura, and to the south of Hatiya Mainland. This MPA was established to safeguard the spawning and migrating grounds of Hilsa fish. Hilsa, or *Tenualosa ilisha*, is a popular commercial fish and the most valuable fish species harvested in Bangladesh, which provides

income, nutrition, and employment for millions of people. Indeed, the fishery in Hilsa employs more than 2.5 million people, generating an income of 1.3 billion USD, which represents a significant part of the national economy. This MPA protects not just the single-most valuable species, Hilsa, but also one of the world's greatest populations of endangered dolphins, porpoises, sharks, rays, and marine turtles.

Coupled with the existing MPAs at Swatch-of-No-Ground and Nijhum Dwip, the newly established MPA at St. Martin's Island puts Bangladesh one step closer to meet our national objectives and international duty under the Convention on Biodiversity and United Nations Sustainable Development Goals to safeguard 10 percent of our marine waterways. Saint Martin's Island is home to the only coral reef in the country and includes over 230 different kinds of finfish. Locals refer to it as "Coconut Island," and 7,000 people call it home during the tourist season. To prevent further damage from the island's burgeoning tourism economy, the seas surrounding it have been designated as an MPA. Whale sharks, green turtles, loggerhead turtles, olive ridley turtles, and Indo-Pacific humpback dolphins are just some of the migratory species that will benefit from the newly established MPA.

At least 10% of maritime areas ought to be designated as protected areas by 2020 in order to meet Aichi Biodiversity Target 11. So far, the established MPAs cover about 8.8% of the total exclusive economic zone of Bangladesh. Nevertheless, there are still potential constraints regarding the management, maintenance, and policy implementation of these MPAs. For instance, an appropriate agency may prepare a management plan according to Section 16 of the Wildlife Act 2012; nonetheless, the Swatch-of-No-Ground MPA lacks such a

strategy. A variety of government agencies, each with a specific responsibility under the applicable laws of the nation, will need to work together to effectively administer the MPAs. To reach the eventual goal of declaring the Swatch-of-No-Ground MPA, it is crucial that marine pollution in other sections of the Bay of Bengal, particularly in the regions bordering the Swatch-of-No-Ground MPA, is prevented. Similarly, even its bathymetry is unstable because it is at the edge of the submarine canyon, and it also transports approximately 1 billion tons of sediment. In addition, as more than 0.45 million families rely on Hilsa for their income, protecting the marine resources and ecosystems of the Nijhum Dwip MPA is crucial to ensure sustainable fishing. Furthermore, the marine biodiversity surrounding St. Martin's Island has suffered a serious hit due to the overexploitation of corals, fisheries, and unmanaged trash and pollution, despite significant attempts to ameliorate the negative effects of the burgeoning tourism economy.

Located quite far from human habitat, the MPAs, or the sanctuary of marine biodiversity, however, are still vulnerable. Various activities and pollutants are destroying and threatening marine biodiversity in these MPAs. In addition to this, there is unplanned extraction of fisheries resources and destruction of natural habitats of sea turtles and other animals. Control over fishing activity is necessary in these areas, as trawling nets cause more damage to fish classes than normal vessels. The conservation status of the areas surrounding the MPAs should be up to date. Because updated data always shows a better resolution of the present condition, the data on biodiversity richness also indicates how healthy the surrounding area is. The Swatch-of-No-Ground area should be surveyed more prominently as it's the only deep-water

MPA, and abundant Cetaceans are located in this area. Preserving fish stocks and internationally imperiled marine species requires protecting the seas surrounding the Saint Martin's Island. Otherwise, the Bay of Bengal will face the threat of ecological imbalance and degraded ocean health. This will also affect other ecosystems and consequently, human lives as well. Also, to maintain the balance of the ecosystem in the MPAs, government intervention concerning the collection and management of fisheries resources is needed. Only then the invaluable biodiversity of the Bay of Bengal

will sustain and thrive. Hence, apart from these three MPAs, there should be more MPAs declared around the bays and the coast in the future to make the Bay of Bengal a role model as a sustainable maritime hub both ecologically and economically.

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