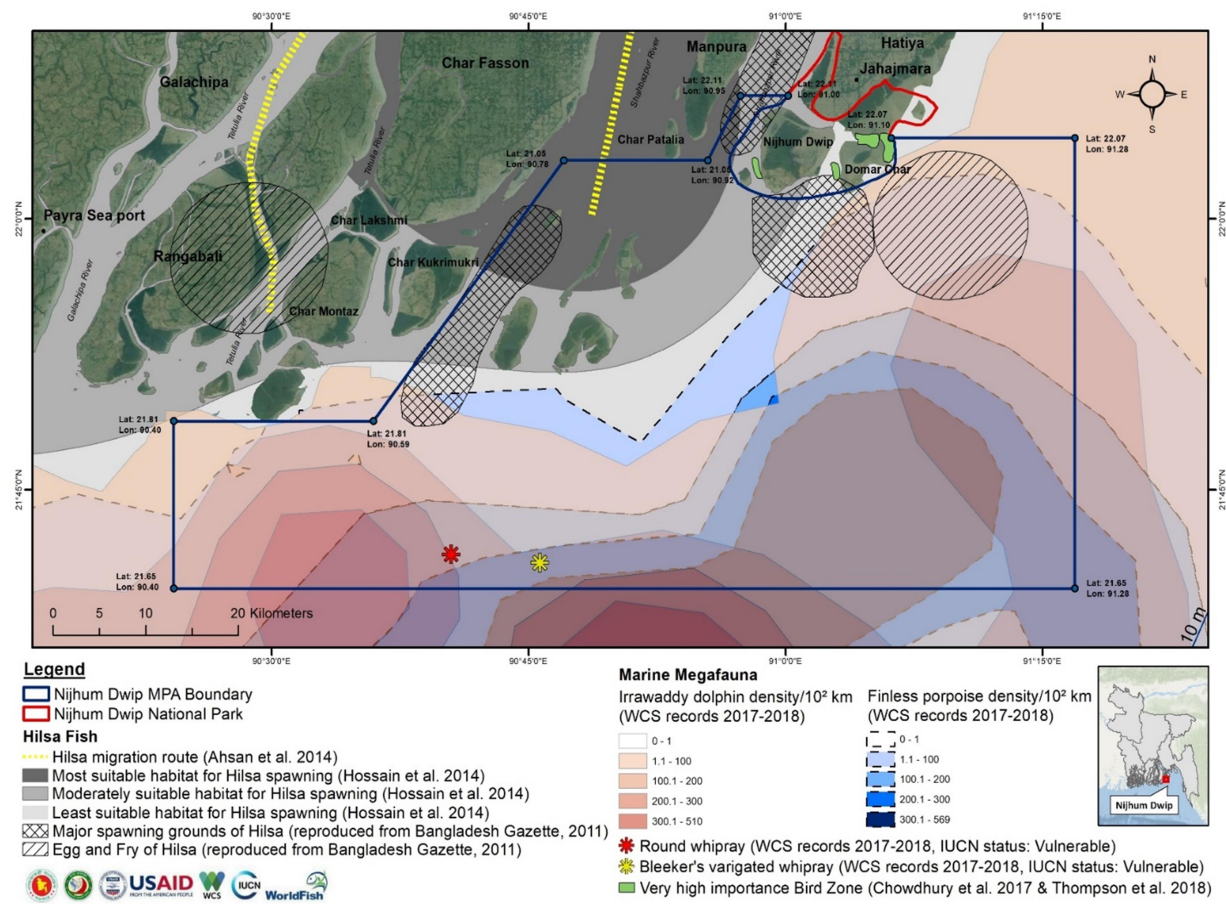


Nijhum Dwip MPA for Balancing Biodiversity Conservation and Livelihoods

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Introduction

As per IUCN, a Marine Protected Area (MPA) is considered as "any area of intertidal or sub-tidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or the entire enclosed environment." Marine Protected Area (MPA) is widely used around the world as a tool of sustainable management of the marine resources. It is assumed that MPAs can enhance ecosystem resilience, conserve biodiversity,

enhance fisheries and secure the human wellbeing.

Bangladesh has an area of 1,18,813 sq. km of the Exclusive Economic Zone (EEZ) under the provisions of UNCLOS and the recent verdicts of international courts over the maritime zones in the Bay of Bengal. Bangladesh is committed to declare 10% of the EEZ as Marine Protected Areas (MPA) by 2020 to achieve the targets under the Convention on Biodiversity Target 11 and United Nations Sustainable Development Goal SDG 14. Bangladesh

so far reached 4.7% of its EEZ and still need additional 5% of EEZ to be declared as the marine protected area to meet the international commitments.

Bangladesh has three marine protected areas to conserve aquatic biodiversity. First one, the Ministry of Fisheries and Livestock under Marine Fisheries Ordinance, 1983 declared 698 sq. km area as the Marine Reserve (now Marine Protected Area) in 2020 in the middle ground of South Patches in the Bay of Bengal to protect and preserve the breeding grounds of fauna. Second one, the Ministry of Environment, Forest and Climate Change announced a 1,738 sq. km. area in the Swatch of No-Ground as protected under the Wildlife (Conservation and Security) Act, 2012, which would restrict fishing and other offshore commercial activities. The area located in the southern side of the Dublachar Island in the Bay of Bengal, is a key breeding and spawning ground of dolphins, whales, sharks and turtles. Third one, the Ministry of Fisheries and Livestock declared 3188 sq. km. area of Nijhum Dwip seascape as MPA under the Marine Fisheries Ordinance, 1983 in 2019.

Why Nijhum Dwip was Declared as MPA?

The Nijhum Dwip Marine Protected Area (MPA) covers a 3,188 sq. km. area in the western portion of the Meghna River mouth in the Hatiya Upazila to the Rabnabad Channel that includes the Rangabali, Manpura, Char fasson and Galachipa upazilas under Noakhali, Bhola and Patuakhali districts. The Nijhum Dwip MPA is a biological hotspot for productive fisheries, including Hilsa which provides direct employment for 0.5 million fishers in Bangladesh. In addition to that hilsa provides livelihood supports to 2.5 million people who are

involved in the hilsa value chain. There is a major Hilsa spawning ground below Nijhum Dwip and a nursery ground near Domar char. The area of major spawning ground is about 153 sq. km. and the nursing area is about 345 sq. km. It is evident that other fishes also breed in this shallow area of Hilsa spawning and nursing grounds due to its wide range of habitat diversity including mangrove channels, mudflats, sandy beaches, large river mouths and open estuary. Moreover, the area is considered as one of the major migration routes of hilsa through Shabajpur and Ramnabad channels. ECOFISH research showed that one of the major genetically distinct ecotypes of hilsa found in brackish-saline (Southern Estuarine-Marine) waters. So, hilsa is the central focus of the Nijhum Dwip MPA with focus on conservation of megafauna biodiversity.

Nijhum Dwip MPA ecosystems offer a biodiversity "hotspot" supporting a large variety of iconic marine megafauna including 15 species of globally threatened or near threatened dolphins, porpoise, sharks, rays and marine turtles. During a survey in December 2017 to January 2018, WCS observed 69 sightings of 102 finless porpoises, 59 sightings of 93 Irrawaddy dolphins and 4 sightings of 46 Indo-Pacific humpback dolphins. Both dolphin species were not evenly distributed in the waters in and around the Nijhum Dwip MPA with a large portion of Irrawaddy dolphin and finless porpoise sightings occurred outside of its southern or offshore boundary. Ganges river dolphin or Ganges dolphin also known as the South Asian fresh water river dolphin (*Platanista gangetica*) considered 'Critically Endangered' has been

encountered in the Hatiya channel near the Nijhum Dwip.

The Nijhum Dwip MPA covers 3,188 sq. km. (dark blue) and excludes Nijhum Dwip National Park (dark red), showing priority hilsa migration routes, suitability of hilsa spawning habitat, major spawning grounds and egg and fry of hilsa from the Bangladesh Gazette (2011); high density and low-density areas of Irrawaddy dolphin occurrence, and high density and low-density areas of finless porpoise occurrence (map prepared using ArcGIS 10.4) (source: WorldFish, IUCN, WCS).

Nijhum Dwip Island is one of the key shorebird sites in the East-Asia-Australasian Flyways. The islands supports threatened species like Indian Skimmer (*Rynchops albicollis*) considered 'Critically Endangered', Spoon-billed Sandpiper (*Calidris pygmaea*) considered 'Critically Endangered', Normann's Greenshank (*Tringa guttifer*) considered 'Critically Endangered', Black-bellied Tern (*Sterna acuticauda*) considered 'Critically Endangered', Great Knot (*Calidris tenuirostris*) considered 'Endangered', Black-headed Ibis (*Threskiornis melanocephalus*) considered 'Vulnerable'. Besides, Eurasian Curlew (*Numenius arquata*) considered 'Near Threatened', Black-Tailed Godwit (*Limosa limosa*) considered 'Near Threatened', Bar-tailed Godwit (*Limosa lapponica*) considered 'Near Threatened', and River tern (*Sterna aurantia*) considered 'Near Threatened' are also recorded from the Nijhum Dwip clusters.

Nijhum Dwip MPA Declaration and Its Objectives

Nijhum Dwip MPA is based on results from studies on biodiversity, ecology, socio-economy and fisheries conducted by IUCN under the USAID funded ECOFISH project in collaboration with the DoF and WorldFish Bangladesh. The research findings from marine mega-fauna surveys conducted by the Wildlife Conservation Society were also taken into consideration for this declaration. The government of Bangladesh also considered the best available scientific data on threatened biodiversity, fisheries and marine ecosystem and consulted at various level with different stakeholders including academicians, researchers, managers, policymakers, practitioners and community people. Based on the scientific data and a series of consultation, the Department of Fisheries (DOF) under the Ministry of Fisheries and Livestock (MoFL) declared Nijhum Dwip MPA for enhancing biodiversity protection, increasing fisheries production and safeguarding threatened species and their priority habitats in coastal and marine waters.

The main objectives of declaring the Nijhum Dwip MPA are: (1) Protect Hilsa brood stock and juveniles, habitat and migration routes through improved fisheries management and protecting priority habitat, (2) Sustain productive fisheries and fishers livelihoods and provide economic benefits for local communities, (3) Conserve marine biodiversity, including threatened fish, dolphins, porpoises, sharks, rays, turtle and sea/shore birds, and priority marine habitats for these species' groups and (4) Support the national blue economy initiatives focusing on marine living resources and ecotourism for the benefit

of the local communities and the nation as a whole.

The Benefits of MPA

The Nijhum Dwip MPA is a multiple-use protected area and there will be mix of extractive and non-extractive usage zones. The MPA will be divided into multiple zones considering the priority habitats for hilsa spawning and migration, threatened rays, and the distribution of threatened dolphins and porpoises and other economic activities. These zones will be managed by initiating a data-driven and stakeholder-inclusive Marine Spatial Plan (MSP). Moreover, Nijhum Dwip MPA Marine Spatial Plan will be prepared considering the local context, economic activities, conservation priorities and marine resource use pattern. Through the proper management of the MPA, the priority hilsa spawning, nursery grounds and its migratory routes will be protected. About 73 fish species including at least six threatened fish species, along with at least 30 species of globally threatened or near-threatened cetaceans, sharks, rays, marine turtles, endangered mammals and avifauna will be protected. The marine protected area can maximize fisheries yield and safeguard marine resources, improve livelihoods through different economic activities and improve ecosystem resilience in the face of climate change.

Nijhum Dwip MPA Governance

The Department of Fisheries has developed the Nijhum Dwip management plan to effectively manage the MPA with its stakeholders. The goal of the management plan for the Nijhum Dwip MPA is to provide a sustainable, practical and accountable framework for

protecting marine biodiversity, sustaining productive fisheries and improving local livelihoods. The management plan adopts an ecosystem-based, people-oriented, adaptive co-management and participatory governance approach that includes rigorous monitoring to ensure sustainable management for achieving the objectives of the MPA. A Marine Spatial Planning (MSP) has been drafted to designate specific management zones according to the distribution of biodiversity and foreseeable human activities in the MPA.

The Ministry of Fisheries and Livestock (MoFL) through the Department of Fisheries (DOF) will lead management in the MPA. The existing Hilsa governance system will be adopted by the DoF in MPA management with local level conservation and economic activities viewpoint. A four tiers co-management structure is proposed in the management plan in light of the existing Hilsa management. Bangladesh has experience in hilsa fisheries governance through the Hilsa Fisheries Management Action Plan (HFMAP). Recently, the ECOFISH project of the Department of Fisheries and WorldFish has introduced and piloted the first-ever riverine adaptive co-management in 6 hilsa sanctuaries in coastal rivers. The data shows that the hilsa production and fisher's income have been increased through this coordinated and integrated hilsa governance approach. So, the lessons learned from the hilsa co-management system could be utilized for the effective governance of Nijhum Dwip through an ecosystem approach with multi-disciplinary stakeholders' engagement.

Livelihood Consideration

During the implementation of the Nijhum Dwip Management plan, the livelihood of the fishing communities should be considered with due importance. Otherwise, there will be a challenge in implementing this MPA management plan. The IUCN and WorldFish under the ECOFISH project identified a Direct Impact Area (DIA) in the adjacent districts of the MPA boundary. The assessment found that the Nijhum Dwip MPA has a direct impact on the lives and livelihoods of the people living in 28 unions geographically covering five upazilas (Hatiya, Manpura, Char Fasson, Galachipa and Rangabali). Therefore, the MPA management should consider compensating the fishers for their anticipated loss of income. The government initially can provide both food and cash assistance to the poor fishers of the DIA. In addition to that, massive awareness-building programs can be initiated to make the resource users responsive to the MPA

management for harnessing the maximum benefits.

Conclusion

Implementation of the Nijhum Dwip MPA management plan will ensure the sustainable utilization of the fisheries resources, conservation of the megafaunas, improvement of fisher's livelihood, and conservation of the ecosystem. It should be a process of 'trial and error' considering research data acquisition and building the relationship with government and partners, identifying the best possible engagement processes, institutional structures and management strategies associated with this MPA to optimize both fishers livelihood and ecosystem resilience. For doing that, sustainable financing is required for achieving the MPA goal and objectives of the management plan.

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