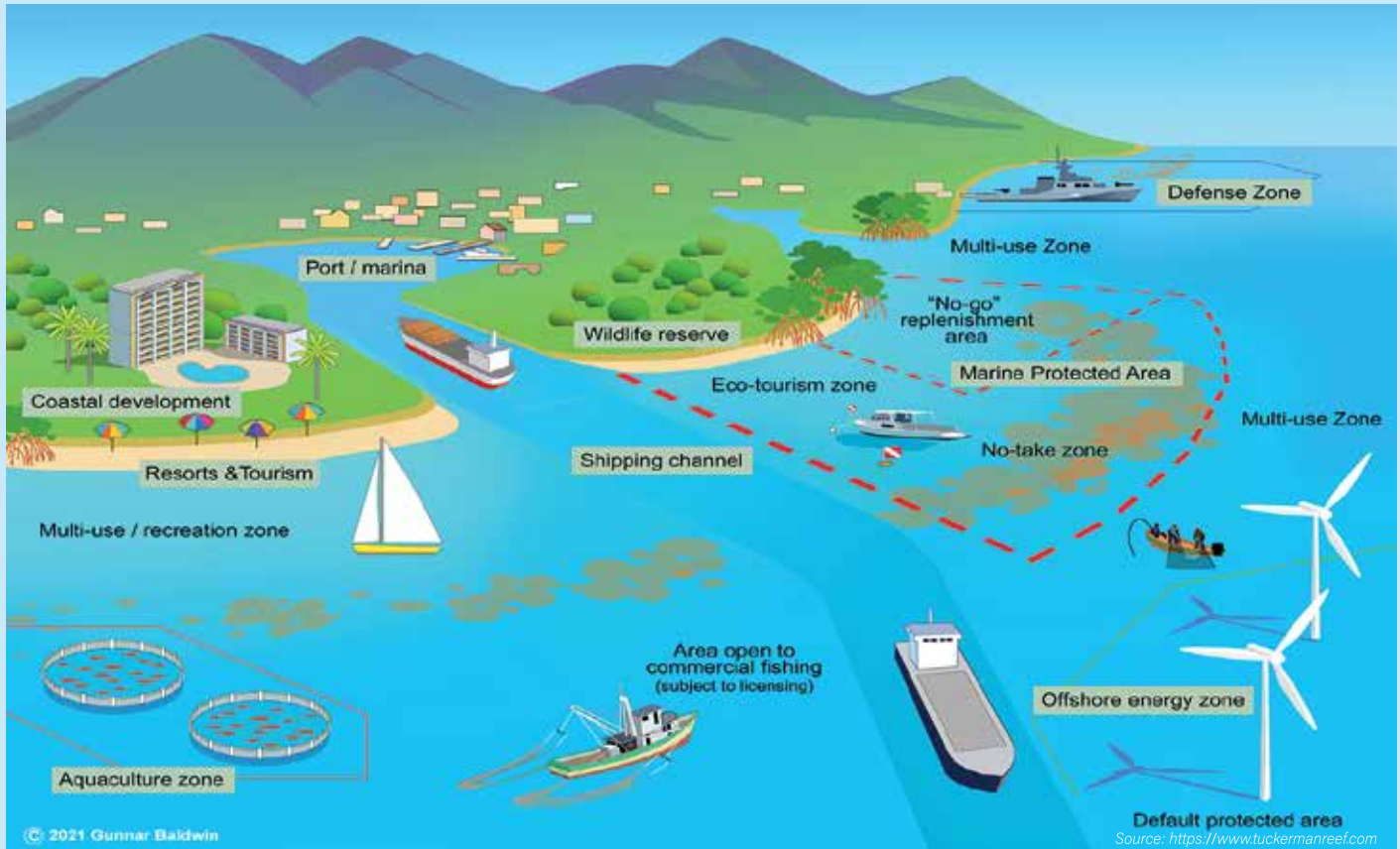


# Marine Spatial Planning for Bangladesh

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Marine Spatial Planning (MSP) is a useful technique for creating a framework for analyzing and allocating the temporal and spatial distribution of human activity in maritime zones (IOC-UNESCO). Its goal is to realize predetermined social, economic, and ecological goals using political means. MSP manages how people use ocean space and how they interact with the marine ecosystem as well as with other human uses (such as shipping, tourism, aquaculture, and the creation of renewable energy). More than 66 countries (44% of the countries having marine waters) are presently developing MSPs, and interest in MSP is increasing continuously. Most of the countries are still in the early phases of their MSP activities, whereas some countries have long since adopted, implemented, or even changed their plans. Bangladesh has to develop MSP because of its large coastal area and reliance on marine resources for economic activity, environmental stability, and sustenance. However, a substantial coastal region of Bangladesh is vulnerable to natural disasters like cyclones and sea level rise. For example, one of the promising sectors of MSP is the fishing industry; the sustainability of this industry is threatened by overfishing, marine pollution, habitat deterioration, and climate change, among other factors.

## Main Phases of MSP (Ehler & Douvère, 2009)

### Phase 1 Pre-Planning

- Step 1. Finding a need and developing authority
- Step 2. Getting financial assistance
- Step 3. Planning the steps by means of advance planning
  - Forming the MSP group (task 1)
  - Preparing a work plan (task 2)
  - Outlining parameters and a timeline (task 3)
  - Outlining guidelines, objectives, and goals (tasks 4 and 5)
  - Determining risks and determining backup strategies (task 6)
- Step 4. Coordinating the involvement of stakeholders  
(*who, when, how*)

### Phase 2 Analysis for Planning

- Step 5. Identifying and evaluating the current circumstances
- Step 6. Determining and evaluating future circumstances (scenarios)

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### Phase 3 Plan Development

Step 7. Putting together and approving the spatial management plan

- Determining alternate institutional arrangements, incentives, and spatial/temporal management strategies (task 1)
- Outlining standards for choosing spatial management initiatives (task 2)
- Developing a zoning plan (task 3)
- Assessing the plan for spatial management (task 4)

### Phase 4 Plan Completion

Step 8. The period during which the MSP plan is completed but not yet approved

### Phase 5 Approval

Step 9. Preparing and approving the spatial management plan

- Approving the spatial management plan (task 5)

### Phase 6 Implementation

Step 10. Carrying out and upholding the spatial management strategy

Step 11. Observing and evaluating output

### Phase 7 Revision

Step 12. Modifying the procedure for maritime spatial management

**Stakeholders:** Government Agencies, including local, regional, and national agencies, are responsible for marine and coastal management (Calado H. et al., 2012; Pomeroy & Douvere, 2008). Industry representatives in the fishing, shipping, tourism, renewable energy, and other marine industries sectors are stakeholders. Environmental groups like NGOs (WorldFish) and community organizations focused on marine conservation. Coastal residents and indigenous peoples with traditional marine uses. Academia and Researchers are also stakeholders of MSP. Universities (Dhaka University, Khulna University, Chittagong University, etc.) and research institutions (BORI, BIMRAD, BFRI, etc.) with expertise in marine sciences are also stakeholders.

**Cross-Cutting Issues:** Marine Spatial Planning (MSP) is an essential tool for the sustainable management of marine environments, aiming to balance ecological, economic, and social objectives. Cross-cutting issues are those that span multiple sectors and influence the effectiveness of MSP. Here are some key cross-cutting issues in marine spatial planning:

- a. Climate Change
- b. Biodiversity Conservation
- c. Economic Development
- d. Social Equity and Stakeholder Engagement
- e. Governance and Policy Integration
- f. Data and Knowledge Management Research

g. Technology and Innovation

h. Cultural Heritage

i. Transboundary Issues

**Monitoring and Evaluation of MSP:** Monitoring and evaluation of MSP is about more than the MSP preparation as it requires sufficient skills and resources for both the evaluators and the stakeholders who might be involved. Monitoring is a continual evaluation with the goal of informing all parties involved as soon as possible about any changes or status updates of the ongoing activity (Burg S.W.K. et al., 2023; De Vo. et al., 2008). An evaluation is a methodical, objective assessment of the applicability, efficacy, efficiency, and impact of an activity in relation to predetermined goals. The key idea of MSP is to provide a guiding principle of marine resource use and its conservation to serve the purpose of anthropogenic needs without any negative stress on the marine biodiversity and ecosystem. Some important components of the MSP monitoring are briefly explained below:

#### Monitoring Agency:

a. Department of Marine Fisheries, Bangladesh Navy and Coast Guard Jointly monitor the VMS (Vessel Monitoring System). They can jointly work to collect data to measure fishing intensity in a specific habitat. The collected data can be categorized based on habitat and can be used for MSP.

b. Bangladesh Navy works tirelessly to monitor the oceanographic data.

c. Ministry of Power, Energy, and Mineral Resources, Blue Economy Cell, and General Economic Division, Planning Commission coordinate the activities related to the blue economy. They can work together to develop a strategic plan to sustainably utilize marine resources.

d. The Department of Environment, Department of Fisheries, and Department of Forest can continuously monitor the biodiversity, habitat integrity, water quality, and pollutant levels, which are essential to demonstrate the functioning of the marine ecosystem.

e. The Department of Fisheries monitors the fish landing center and the number of fish per boat. A holistic approach can be taken to monitor the regular species. Acoustic surveys are a must to gather data on underwater fisheries and mammals.

f. Department of Fisheries (BFDC): Registration and categorization of small to large fishing vessels based on gear usage and fishing regions. Identify potential mariculture (Fish, Shrimp, Seaweed, Oyster, etc.) area.

g. Ministry of Environment, Forest & Climate Change: Assessment of plastics, chemicals, heavy metals, and nutrient loads are equally important for environmental monitoring in MSP.

h. Department of Fisheries: It can be beneficial to establish need-based guidelines for managing Marine Protected Areas (MPAs) and MSPs to attain maximum economic benefit while safeguarding biodiversity and ecosystem quality.

i. The Ministry of Foreign Affairs and the Department of Fisheries can adjust the fishing ban period with neighboring countries.

The Marine Spatial Planning (MSP) initiative in Bangladesh represents a transformative step towards the sustainable management of marine resources, with a particular emphasis on the fisheries sector. The MSP framework promotes inclusivity by addressing the diverse needs of fisheries, maritime transport, tourism, energy extraction, environmental protection, and research institutions. Utilizing a comprehensive database facilitates informed decision-making through effective spatial data management. Tailored for the coastal region and the Bay of Bengal, the framework aligns with SDGs and Integrated Coastal Zone Management (ICZM) principles, incorporating an Environmental and Social Management Framework (ESMF) for holistic marine resource governance. The fisheries sector, a cornerstone of Bangladesh's economy and a vital source of livelihood for millions is given special attention in the MSP initiative, including: i) habitat protection and restoration, ii) sustainable fishing practices, iii) monitoring and enforcement, and iv) community involvement achievement, providing stakeholders with accessible and up-to-date information. The MSP framework promotes inclusivity by addressing the diverse needs of fisheries, maritime transport, tourism, energy extraction, environmental protection, and research institutions. With the use of an extensive database, it enables well-informed decision-making by means of efficient geographical data management. The MSP endeavor has paid particular attention to the fisheries sector, which is a critical source of income for millions of people and a cornerstone of Bangladesh's economy. It includes i) habitat protection and restoration, ii) sustainable fishing practices, iii) monitoring and enforcement, and iv) community involvement. The monitoring plan incorporates ongoing assessment mechanisms supported by governmental initiatives. Looking ahead, the enduring success of MSP in Bangladesh will hinge on sustained stakeholder involvement, cross-sector integration, and adherence to national and international objectives. To ensure the enduring success of the MSP framework, it is essential to i) strengthen institutional capacity,

ii) promote research and innovation, and iii) enhance collaboration and investment. Hopefully, Bangladesh will set a successful MSP framework with the proper implementation of these steps.

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