



INTEGRATED SEASCAPE MANAGEMENT

# Marine Spatial Planning for a Resilient and Inclusive Blue Economy

Volume 1 Key Considerations to Formulate and Implement Marine Spatial Planning



**© 2022 The World Bank**

1818 H Street NW, Washington DC 20433  
Telephone: 202-473-1000;  
Internet: [www.worldbank.org](http://www.worldbank.org)

**Some rights reserved.**

This work is a product of the staff of The World Bank. The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of the Executive Directors of The World Bank or the governments they represent. The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

**Rights and Permissions**

The material in this work is subject to copyright. Because The World Bank encourages dissemination of its knowledge, this work may be reproduced, in whole or in part, for noncommercial purposes as long as full attribution to this work is given.

**Attribution—Please cite the work as follows**

"World Bank. 2022. Marine Spatial Planning for a Resilience and Inclusive Blue Economy.

**Lead Authors**

Jacqueline Alder, and Juliana Castaño-Isaza

**Technical contributors**

Simone Lee, Francisco Alpizar, Roger Madrigal,  
Anam Basnet, Anders Jansen, Johanne Nordby Fremstad.

**Cover images credits**

World Bank and Estudio Relativo.

# Acknowledgements

The Guidance Note “*Marine Spatial Planning for a Resilience and Inclusive Blue Economy*”, is the result of a World Bank’s Advisory Services and Analytics (ASA) product, led by Juliana Castaño-Isaza, and funded by PROFISH 3, under the PROBLUE Umbrella 2.0 Multi-Donor Trust Fund. This Guidance Note has two volumes: Volume 1, *Key Considerations to Formulate and Implement Marine Spatial Planning*, and Volume 2, *Integrating Cross-Cutting Themes into Marine Spatial Planning*.

The team especially wishes to thank PROBLUE for financing this product, and for the guidance and leadership provided by World Bank staff including Juergen Voegele (Vice President for Sustainable Development) Christian A. Peter (Acting Global Director, and Global Unit Practice Manager for Environment, Natural Resources and the Blue Economy Global Practice), Charlotte de Fontaubert (PROBLUE Program Manager), and Sylvia Michele Diez (PROBLUE Pillar 4 Manager, and Senior Natural Resources Management Specialist).

The team would like to recognize the support and guidance provided by the members of the Marine Spatial Planning Steering Group including Jessie F. McComb (Tourism Senior Specialist), Mark Leybourne (Offshore Wind Energy Senior Specialist), Lori Anna Conzo (Biodiversity Lead, IFC), Brenden Jongman (Disaster Risk Management Senior Specialist), Andrew Losos (Maritime Transport Senior Specialist), Nagaraja Rao Harshadeep (Data and Disruptive Technologies Global Lead), and Julien Million (Fisheries Senior Specialist).

Special thanks are extended to Glenn Marie Lange, and Aradhna Mathur for providing technical inputs on economics, and safeguards, respectively.

The development of this Global Analytical Product benefited from technical contributions provided by peer reviewers including, Idriss Deffry (Environmental Specialist); Ambroise Brenier (Natural Resources Management Senior Specialist); Sachiko Kondo (Environmental Specialist), Stefanie Onder (Environmental Senior Economist), Juan Jose Miranda (Environmental Senior Economist), Peter Kristensen (Lead Environmental Specialist), Giovanni Ruta (Lead Environmental Economist), Luis Diego Herrera (Environmental Economist), and Boris van Zanten (Disaster Risk Management Specialist). This effort also benefited from inputs from Chantal Rigaud (PROBLUE External Communications Officer), and John Burgess (Consultant).

Finally, the team would like to express gratitude to Pablo Porta, Natalia Fernández Abarca, y Laura Hidalgo from Estudio Relativo, for translating complex scientific data into clear illustrations and infographics.

# Contents

Abbreviations vi

E.S. Executive Summary vii

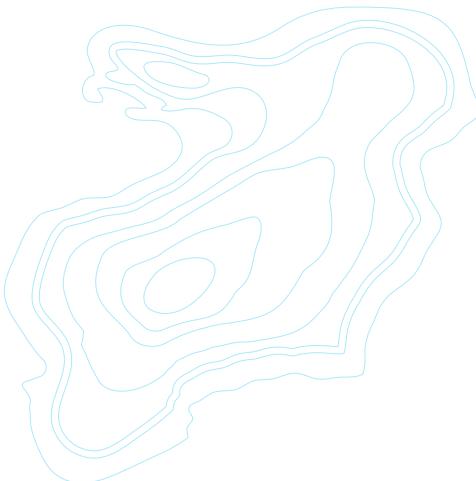
1. Marine Spatial Planning Introduction 1

3. Marine Spatial Planning Entry Points 13

— 3.1 Introduction 13  
— 3.2 Country or Local Office Role 16  
— 3.3 Economic Entry Points 16

5. Marine Spatial Planning Enabling Conditions for Effective 28

— 5.1 Introduction 28  
— 5.2 Legal Frameworks 31  
— 5.3 Institutional Frameworks 33  
— 5.4 Financial Resources 36  
— 5.5 World Bank Investment Considerations 37



2. Marine Spatial Planning Why a Guidance Note? 5

4. Marine Spatial Planning Making the Case 18

— 4.1 Introduction 18  
— 4.2 Addressing Country Concerns 19  
— 4.3 Making the Economic Case 20  
— 4.4 Making the Social Case 23  
— 4.5 Funding for Making the Case 27



# 6.

<b>Marine Spatial Planning Formulating Marine Spatial Plans</b>	<b>39</b>
—	
6.1 Introduction	39
—	
6.2 MSP Planning in World Bank Operations	42
—	
6.3 Goal and Objective Setting	48
—	
6.4 Stakeholder Engagement	54
—	
6.5 Data and Tools	55
—	
6.6 World Bank Investment Considerations in Plan Formulation	58
—	
6.7 Regulatory Instruments and Institutional and Financial Arrangements	59
—	
6.8 Delivering Public Goods and Services	60
—	
6.9 Natural Capital Accounting in Drafting an MSP Plan	61
—	
6.10 Nature-Based Solutions	63
—	

# 7.

<b>Marine Spatial Planning Integrating Sectors</b>	<b>64</b>
—	
7.1 Introduction	64
—	
7.2 Fisheries	65
—	
7.3 Aquaculture	67
—	
7.4 Tourism	68
—	
7.5 Offshore Renewable Energy	71
—	
7.6 Land Use	75
—	
7.7 Marine Transport	77
—	
7.8 The Private Sector in Plan Formulation	80
—	

# 8.

<b>Marine Spatial Planning Implementing Marine Spatial Plans</b>	<b>82</b>
—	
8.1 Introduction	82
—	
8.2 Lessons Learned – Challenges and Constraints	85
—	
8.3 Implementation Model	87
—	
8.4 Capacity Building for Implementation	91
—	
8.5 Compliance and Enforcement	93
—	
8.6 Education and Awareness	94
—	
8.7 Data and Tools for Implementation	94
—	
8.8 World Bank Investment Considerations	95
—	

# Abbreviations

---

<b>ASA</b>	Advisory Services and Analytics	<b>ICZM</b>	Integrated Coastal Zone Management
<b>BES</b>	Biodiversity and Ecosystem Services	<b>KP</b>	Knowledge Product
<b>BETF</b>	Bank Executed Trust Funds	<b>LDC</b>	Least Developed Country
<b>CBD</b>	Convention on Biological Diversity	<b>LMIC</b>	Lower Middle-Income Country
<b>CAT-DDO</b>	Catastrophe-Deferred Drawdown Option	<b>MDTF</b>	Multi-Donor Trust Fund
<b>CCAP</b>	Climate Change Action Plan	<b>MPA</b>	Marine Protected Area
<b>CIF</b>	Climate Investment Fund	<b>MSP</b>	Marine Spatial Planning
<b>CO<sub>2</sub></b>	Carbon Dioxide	<b>NBS</b>	Nature-Based Solution
<b>CPF</b>	Country Partnership Framework	<b>NCA</b>	National Capital Accounting
<b>CMU</b>	Country Management Unit	<b>NDC</b>	Nationally Determined Contribution
<b>DFO</b>	Department of Fisheries and Oceans (Canada)	<b>NRM</b>	Natural Resources Management
<b>DPL</b>	Development Policy Loan	<b>OECS</b>	Organization of Eastern Caribbean States
<b>DPO</b>	Development Policy Operations	<b>ODA</b>	Overseas Development Assistance
<b>EAFM</b>	Ecosystem Approach to Fishery Management	<b>PDO</b>	Project Development Objective
<b>EEZ</b>	Exclusive Economic Zone	<b>PER</b>	Public Expenditure Review
<b>ESF</b>	Environmental and Social Framework	<b>PforR</b>	Program-for-Results
<b>ESMAP</b>	Energy Sector Management Assistance Program	<b>RETF</b>	Recipient Executed Trust Fund
<b>ESS</b>	Environmental and Social Standards	<b>RF</b>	Results Framework
<b>EU</b>	European Union	<b>SCD</b>	Systematic Country Diagnostic
<b>FSAT</b>	Fisheries Sector Assessment Toolkit	<b>SEA</b>	Strategic Environmental Assessment
<b>GAP</b>	Gender Action Plan	<b>SGBV</b>	Sexual and Gender-Based Violence
<b>GEF</b>	Global Environment Facility	<b>SIDS</b>	Small Island Developing State
<b>GIS</b>	Geographic Information System	<b>SMART</b>	Specific, Measurable, Achievable, Relevant, and Time-Bound indicators
<b>GHG</b>	Greenhouse Gas	<b>TEEB</b>	The Economics of Ecosystems and Biodiversity
<b>GRID</b>	Green Resilient and Inclusive Development	<b>TEK</b>	Traditional Ecological Knowledge
<b>GW</b>	Gigawatts	<b>ToC</b>	Theory of Change
<b>Ha</b>	Hectare	<b>UNESCO</b>	United Nations Educational, Scientific, and Cultural Organization
<b>HLP</b>	High Level Panel for a Sustainable Ocean Economy	<b>UNESCO-IOC</b>	United Nations Educational, Scientific, and Cultural Organization – International Oceanographic Commission
<b>IAD</b>	Institutional Analysis and Development	<b>UMIC</b>	Upper Middle-Income Country
<b>IBRD</b>	International Bank for Reconstruction and Development	<b>US\$</b>	United States Dollar
<b>ICP</b>	Implementation and Coordination Plan	<b>VMS</b>	Vessel Monitoring System
<b>IDA</b>	International Development Association		
<b>IFC</b>	International Finance Corporation		
<b>InVEST</b>	Integrated Valuation of Environmental Services and Tradeoffs		
<b>IPF</b>	Investment Project Financing		
<b>IPP</b>	Independent Private Producers		

# E.S.

# Executive Summary



## Advancing the Blue Economy for the World Bank and Its Clients

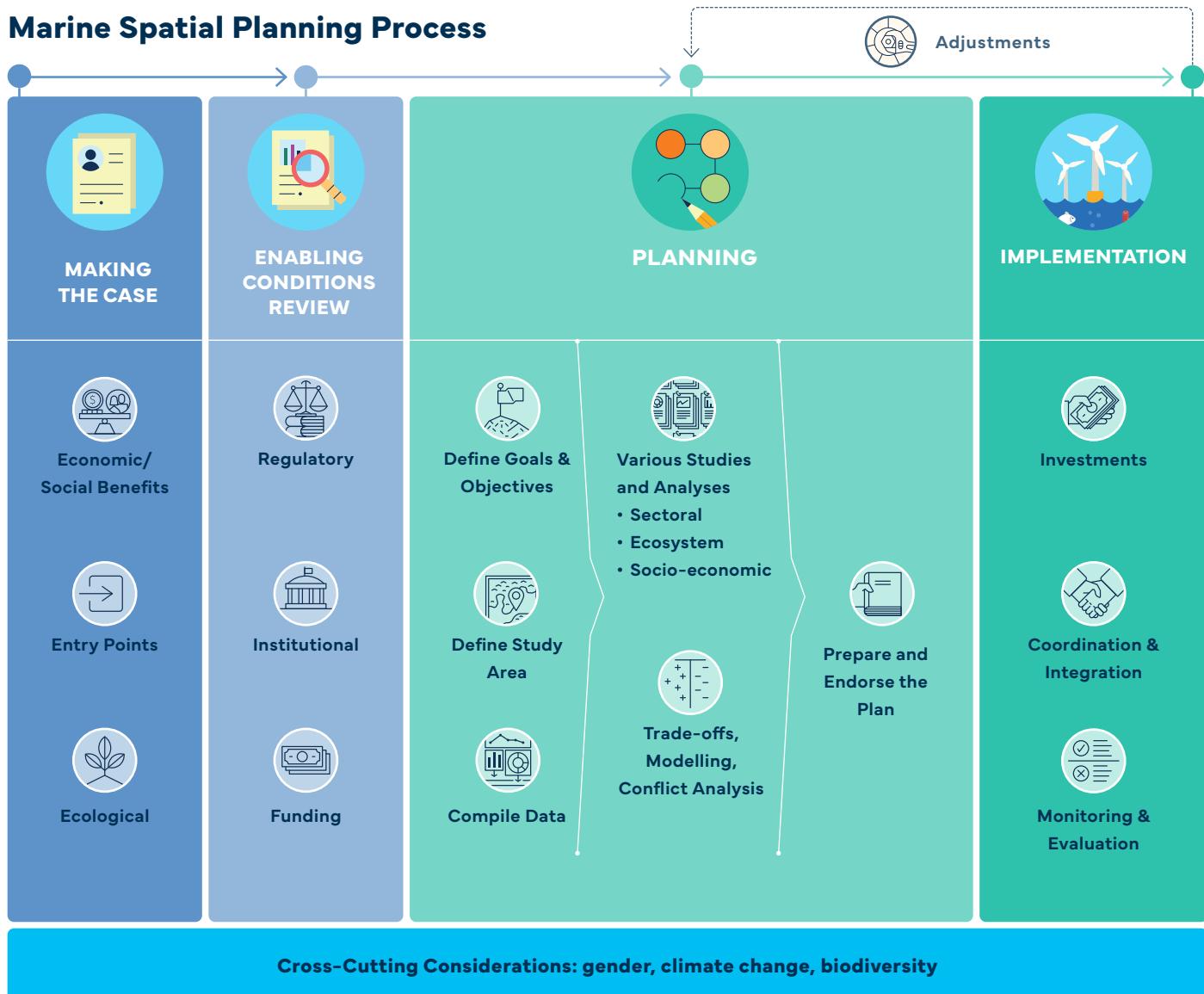
The World Bank defines the Blue Economy as the sustainable and integrated development of economic sectors in healthy oceans. It is a framework to realize the Sustainable Development Goals (SDGs), address climate change, protect biodiversity, and promote shared prosperity for all. Marine spatial planning (MSP) provides a needed comprehensive and integrated investment framework for the public and private sectors by dealing with upstream environmental and social issues and by giving certainty to investors to access areas and resources. The World Bank and many of its client countries are increasingly interested in using MSP to develop their marine sectors and are adding it to their investment portfolios. However, among staff and clients there is limited understanding of the process and how to use it as an investment framework. This guidance note seeks to close these knowledge gaps.

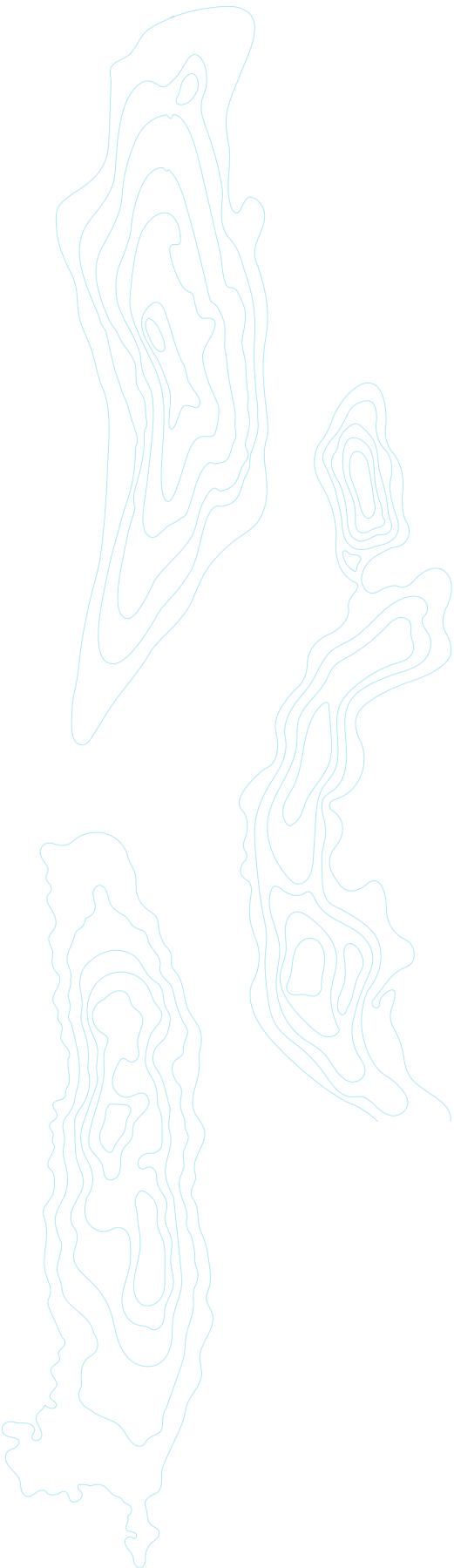
## MSP for Green Resilient and Inclusive Development (GRID)

Marine spatial planning can help public and private marine sectors should contribute to green and inclusive development (GRID). MSP has special utility in targeting financial and technical support to governments and the private sector and providing the financial and social rational for investing in the Blue Economy. MSP primarily identifies integrated investment opportunities. The World Bank is well placed to help clients take advantage of MSP investment opportunities in pursuing recovery from COVID (and other economic or climate shocks) and in the general development of marine sectors. The World Bank has a range of tools for both public and private investments: financing instruments, convening services, and technical expertise. MSP can in turn support the World Bank, clients, and partners in tracking SDG progress, ensuring that safeguards are met, and reaching corporate, climate, biodiversity, and gender goals (See Volume 2 for further details).

## MSP: Guiding Blue Economy Investing

This guidance note examines the most productive ways to integrate MSP into World Bank projects and operations, and helps client countries invest in MSP. MSP is a process, not necessarily linear, and with cross-cutting considerations at each step. The key steps are: (1) making the case, (2) creating the enabling conditions, (3) formulating the plan, and (4) implementing the plan (Figure 1).

**Figure 1. The MSP Process**



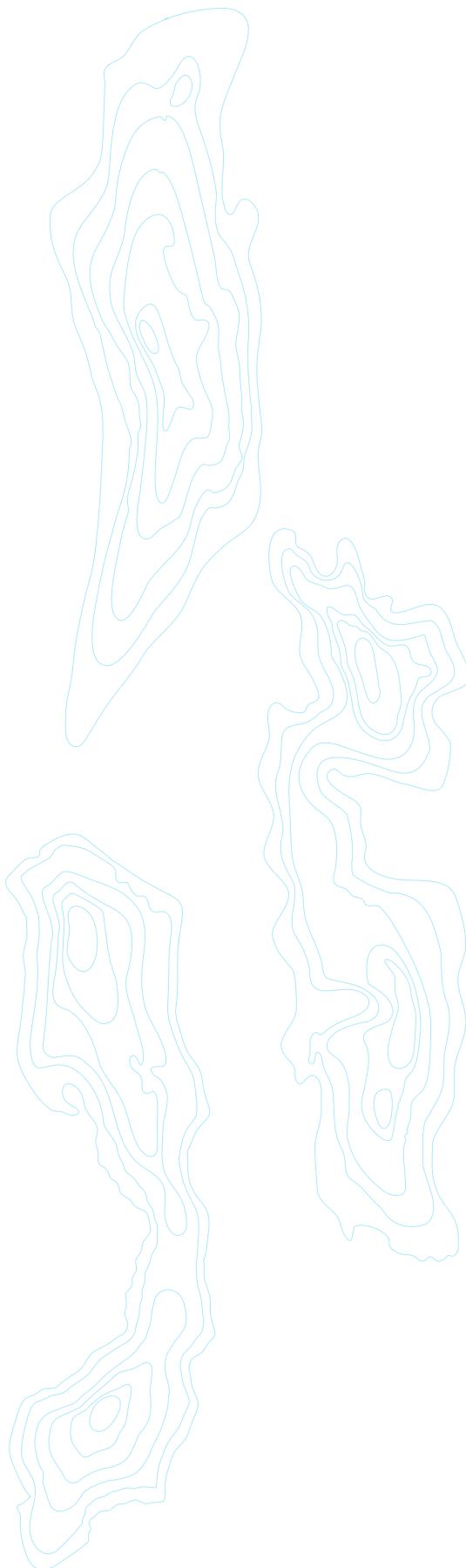
### Entry points can enable discussions on the benefits of MSP.

Benefits go beyond an increase in wealth. They can include enhanced climate resilience, biodiversity, and reduction of pollution. MSP entails a major shift from managing marine resources on a sector-by-sector basis to taking an integrated approach. This requires changes in the distribution of government financial and human resources. Governments may see the changes as too costly, while the private sector may feel MSP is too high of an investment risk. Addressing these concerns up front can create entry points to explore MSP investments that will advance a Blue Economy.

Making the economic and social case for MSP is the next step once an entry point is established. A good understanding of the economics underpinning the allocation of resources and space is a prerequisite for securing sustainable finance for MSP and its implementation. De-risking and leveraging sector-specific portfolios through integration is another powerful argument. Addressing issues and conflicts upstream of investments also makes the case, by giving investors some certainty that their projects won't be delayed by environmental and social challenges. The social case for MSP usually focuses on effective and efficient delivery of public goods and services, most of which are ecosystem services or newly created jobs. Although making the case for an MSP investment is not typically part of a World Bank project, the Bank can help in this crucial task by providing analytical and advisory services, or external funding from sources such as the Global Environment Facility.

### Establishing enabling conditions may provide the first major opportunity for the World Bank to support and invest in MSP.

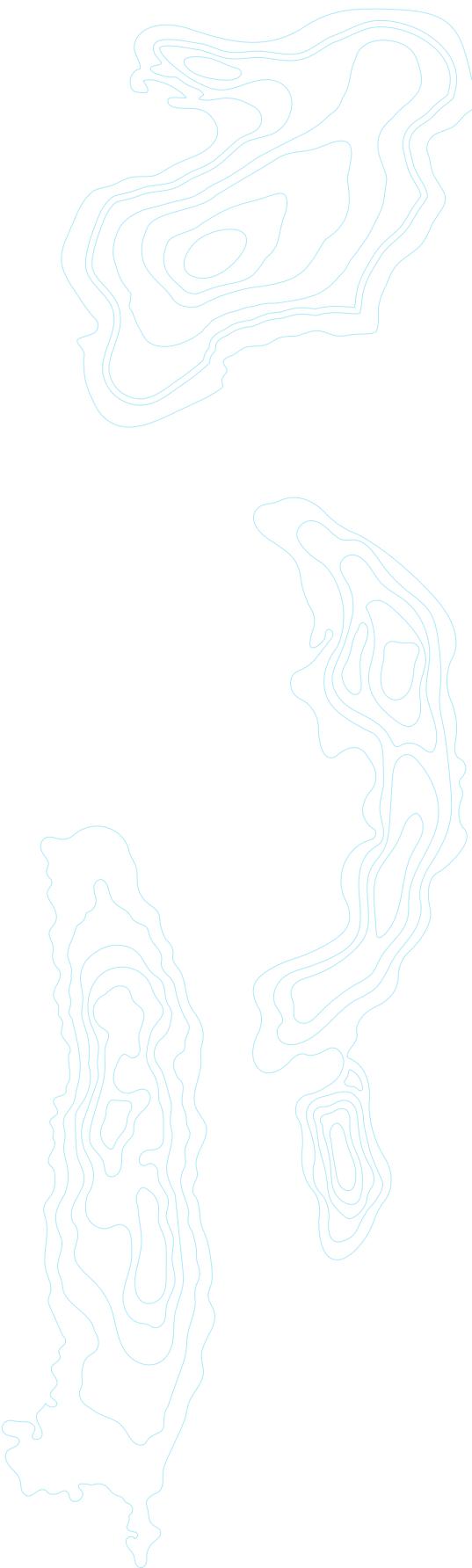
The Bank's extensive experience in investment and institution-strengthening can work well to help clients establish enabling conditions, particularly in legal, institutional, and financial capacities. By creating clear legal frameworks, this work builds certainty for investors who seek predictable decision making. It is important also to have a single agency in charge of MSP, equipped with a clear mandate for overall coordination, management, implementation, compliance, and monitoring. The Bank has a range of tools that can support establishment of these and other enabling conditions, such as investment project financing and development policy operations.



Formulating a marine spatial plan is a critical step for the development of a future investment portfolio for the World Bank. Planning identifies public and private sector investment opportunities across existing and emerging sectors by allocating marine space and establishing rules for sectors to operate within it. Experience of the past ten years-plus suggests that MSP success depends on a consultative process that engages all stakeholders, including marginalized and vulnerable communities at national and local levels. This dialogue should cover areas of use and address conflicts between users, including conservation. It can also explore climate change needs and social goals such as gender and transparency. A good plan will integrate sectors and find the right balance among existing and future uses. This may require innovative approaches such as co-location of uses, which in turn can attract investments that might otherwise be missing. The World Bank's capacities in providing institutional strengthening, convening, and technical assistance can help produce a well formulated plan that all stakeholders support. As author Stephen Keague notes, "Proper planning and preparation prevents poor performance."

Implementation is the step where the investment portfolio envisioned in the plan is realized. Transformational change such as establishing specific use areas takes effect at this stage. Yet despite the enormous potential benefits, the number of plans that are actually implemented is quite low compared to the number of plans that are devised. Many factors, including financing shortfalls, constrain implementation. But one of the most important is lack of attention during plan formulation to the challenges that will come with implementation. These issues must be considered in detail beforehand. Plan implementation is often more effective when it has a schedule that is aligned with specific sector needs and guides stakeholders and investors. The Bank has a key role to play in making sure that planned investments go forward. It can help by providing access to its range of financing options for activities and investments, by helping to mobilize other public and private sources of finance, and by offering technical advice.

This document, Volume 1, focuses on the MSP process. Important considerations that arise when sectors interact with each other are examined in Volume 2: *Integrating Cross-Cutting Themes*



into Marine Spatial Planning. They include monitoring and evaluation of project progress and data, tools to better inform MSP, stakeholder engagement, gender biodiversity, and climate change. Giving these proper attention will help ensure that the World Bank's safeguards are met and that MSP projects contribute to reaching Bank goals.

### Implications for the World Bank

MSP is gaining interest globally as a mechanism to guide countries in investing in the Blue Economy. This presents opportunities for the World Bank to support client countries throughout the MSP process. There are multiple ways that the World Bank can reduce risks and strengthen investment effectiveness to achieve social, ecological, and economic benefits.

The Bank can help make the case by supporting analytical work that formulates and strengthens arguments for MSP. The Bank's guidance note *Applying Economic Analysis to Marine Spatial Planning* can show how to use available tools to make the economic case for implementation.

The Bank can foster understanding of enabling conditions, including existing regulatory, institutional, and economic conditions, and what needs to be added to ensure MSP is a worthwhile investment.

During plan formulation, the Bank can support studies such as feasibility studies and strategic environmental and social assessments to reduce risks and strengthen certainty. It can help with capacity-building programs to enable agencies to manage specific investments including innovative financing mechanisms such as Blue Bonds.

For implementation, the World Bank can consider what investments will help see marine spatial plans through to operation. This may include additional public and private investments, action plans, M&E, and coordination and integration. Other areas in which the Bank can help include governance, institutional arrangements, marine resource management, sector integration, data collection, and information systems.



## Recommendations

Many lessons learned and best practices emerged from reviews and analyses. The following summarizes these lessons and practices into a set of recommendations for World Bank teams and client governments to consider during the MSP process.



### Entry Points

✓ **Inform and engage the country and local offices.**

Country or local offices along with technical staff from each sector can provide local context for overall decision making for MSP and for the relevant sectors. Sections 2 and 4, Context and Making the Case, provide additional information on the benefits of MSP.



### Making the Case

✓ **Use economic tools, where possible, to support and make the case for MSP.**

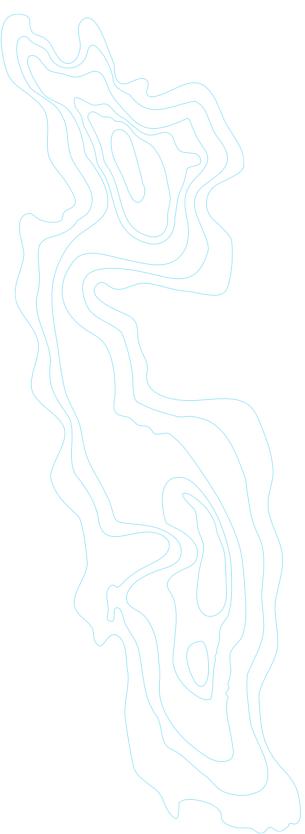
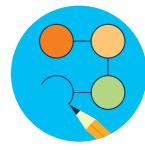
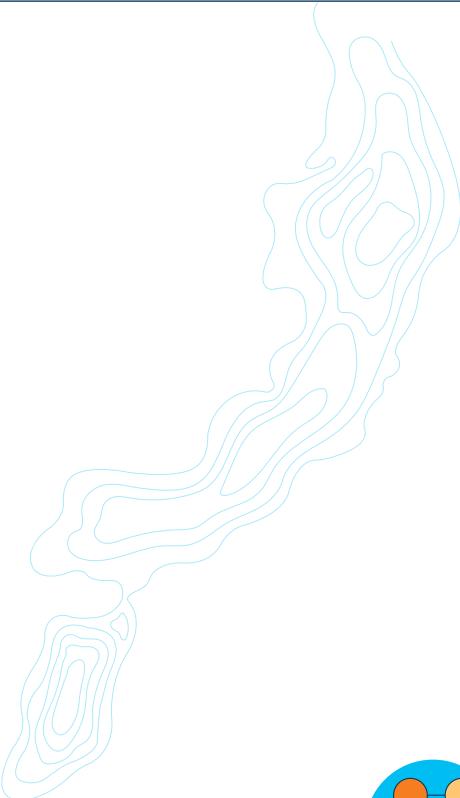
This may require improving data collection systems for effective analyses. The *Applying Economic Analysis to Marine Spatial Planning* guidance note can help in making the needed arguments.



### Enabling Conditions

✓ **Conduct a legislative review.**

The review should examine (1) possible duplication of MSP activities with sector activities and between sectors, (2) gaps that may hinder MSP planning and implementation, (3) opportunities for synergies with the MSP process and between sectors, and (4) implementation measures which may not be in MSP regulatory frameworks.



✓ **Ensure MSP and sector legislation facilitate stakeholder engagement.**

Stakeholder Engagement (Section 9), Gender Equality and Women's Empowerment (Section 11), and the annex Gender and Marginalized Groups provide guidance on engaging stakeholders at national and local levels, especially for present and future marginalized or vulnerable groups. Appropriate legislative or policy frameworks can facilitate effective engagement.

✓ **Provide the MSP process with policies for data collection, sharing, and access.**

Use the best available information that is open and transparent, and that does not impinge upon the privacy and commercial proprietary rights of the owners of the data to promote evidence-based discussion, consensus building, and decisions.

## Formulating the Plan

✓ **Perform strategic environmental assessment (SEA).**

Consider conducting a SEA to better understand and integrate socio-economic and environmental needs in marine spatial policies, sector decision-making, and MSP planning and implementation.

✓ **Engage stakeholders.**

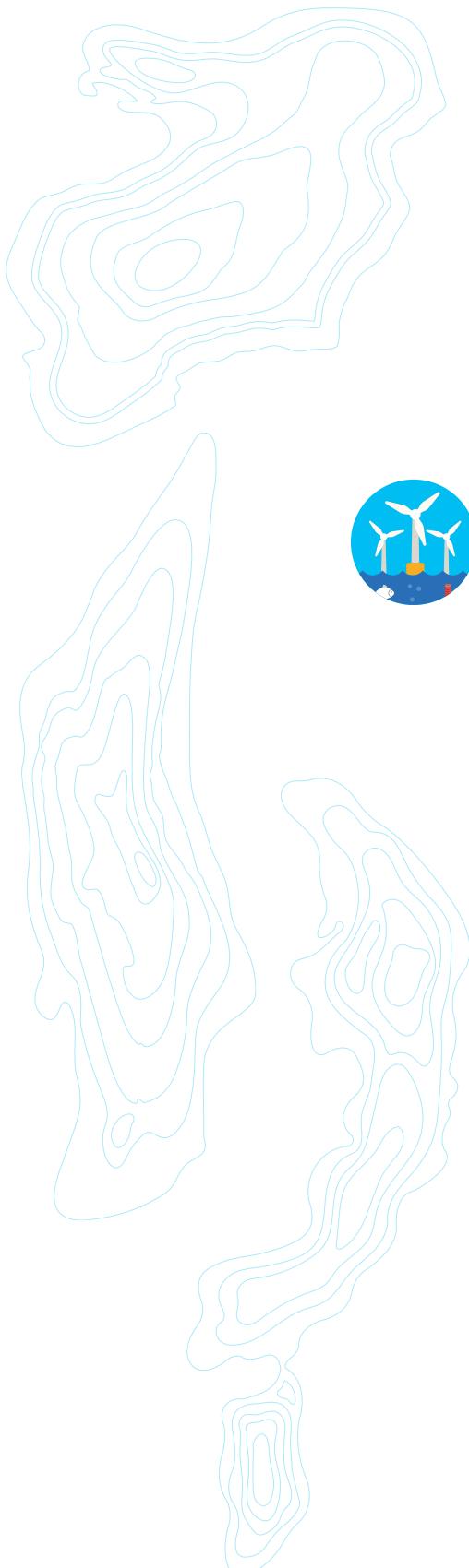
Engaging all stakeholders in drafting the plan helps to keep them informed of timelines and progress in meeting the timelines. Communicate with them consistently and frequently. For details, see the Stakeholder Engagement section and the Gender Equality and Women's Empowerment section.

✓ **Set clear goals and objectives.**

Clearly defined goals and objectives will facilitate formulating SMART indicators to measure progress. The Monitoring and Evaluation section provides further information on indicators.

✓ **Review legal and institutional frameworks.**

Review MSP and sector legal and institutional frameworks and relevant sector plans to ensure sectors can implement MSP interventions.



## Implementing the Plan

### ✓ Consider implementation early in the MSP process.

Early consideration allows stakeholders to identify and resolve administrative, political, and technical challenges sooner rather than later. This also generates stakeholder support, including government agencies with the mandate and resources to implement MSP measures.

### ✓ Ensure that enabling conditions for MSP implementation are in place.

The key conditions for effective implementation include stakeholder engagement and partnerships. See the Stakeholder Engagement and Gender Equality and Women's Empowerment sections and the annex *Gender and Disadvantaged Groups* for further discussion), legal frameworks for plan compliance, financing and human resources, and available tools and data in line with MSP managers capacities or measures to build capacity.

### ✓ Use a step-by-step approach to implementation.

This approach focuses on establishing the key structures to coordinate the proposed activities and to maintain the support of stakeholders, including political support. An implementation framework either drafted in parallel with plan formulation or soon after the plan is endorsed can identify actions to take to realize the plan and manage expectations.



### ✓ **Build capacity to implement.**

It is important to build capacity among the members of the disparate groups that are leading or supporting plan implementation. Efforts may include managing committees and meetings, resource mobilization, and compliance. Implementation (Section 8) outlines the range of capacities needed.

### ✓ **Explore innovative financing.**

Emerging new financing instruments (Making the Case, Section 4) such as Blue Bonds may help close funding gaps. In addition, World Bank financial instruments or the embedding of MSP into broader country investment programs (including sector-specific ones) may effectively provide resources for plan implementation.

### ✓ **Develop complimentary compliance and education programs.**

These programs should help each other maximize awareness and understanding of the marine spatial plans and their provisions, including access to resources and allowed uses.

### ✓ **Align monitoring and evaluation activities with plan implementation.**

This will help fill information gaps that are hampering decision making. Section 14 provides guidance on monitoring and evaluation.

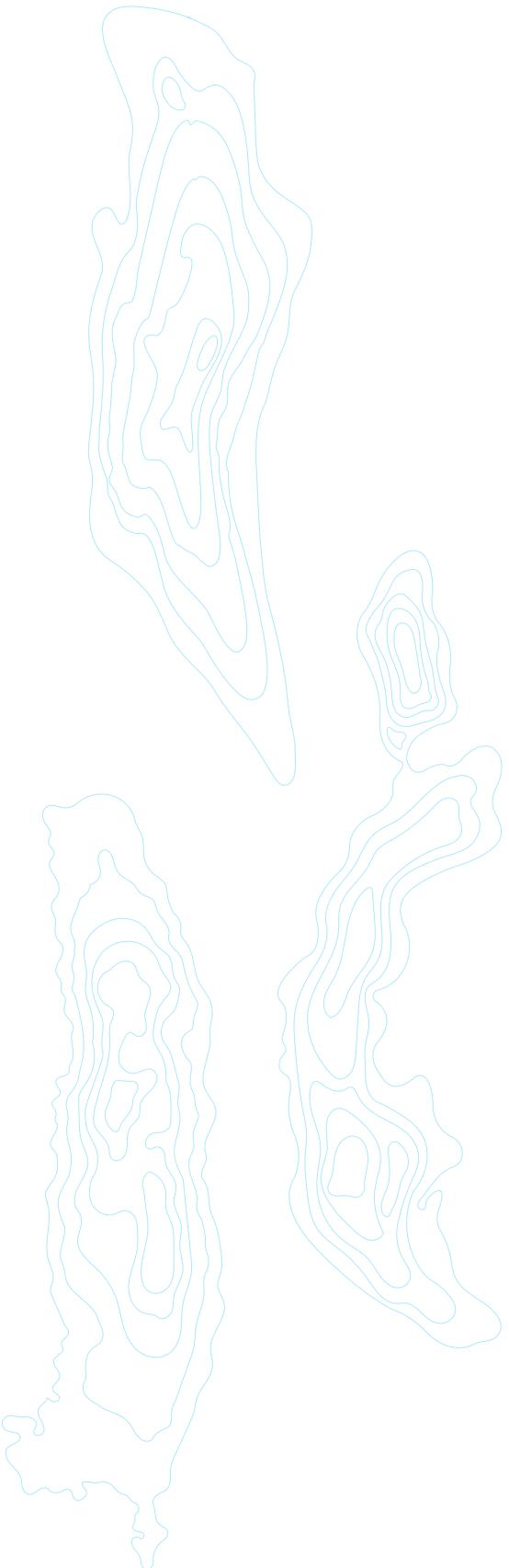
# 1.

# Marine Spatial Planning Introduction



The Blue Economy, first promoted at Rio+20 in 2012 and again at the first UN Oceans Conference, continues to gain momentum as the main approach to sustainable use of marine resources.

The World Bank defines the Blue Economy as the sustainable and integrated development of economic sectors in a healthy ocean. Among countries and communities, however, the Blue Economy can have different meanings, with different approaches taken to move toward more integrated ways of managing the ocean. One key approach is marine spatial planning (MSP), which can be seen as a roadmap of the actions and investments needed and a means to monitor progress in developing a sustainable Blue Economy and meeting specific national and international obligations.

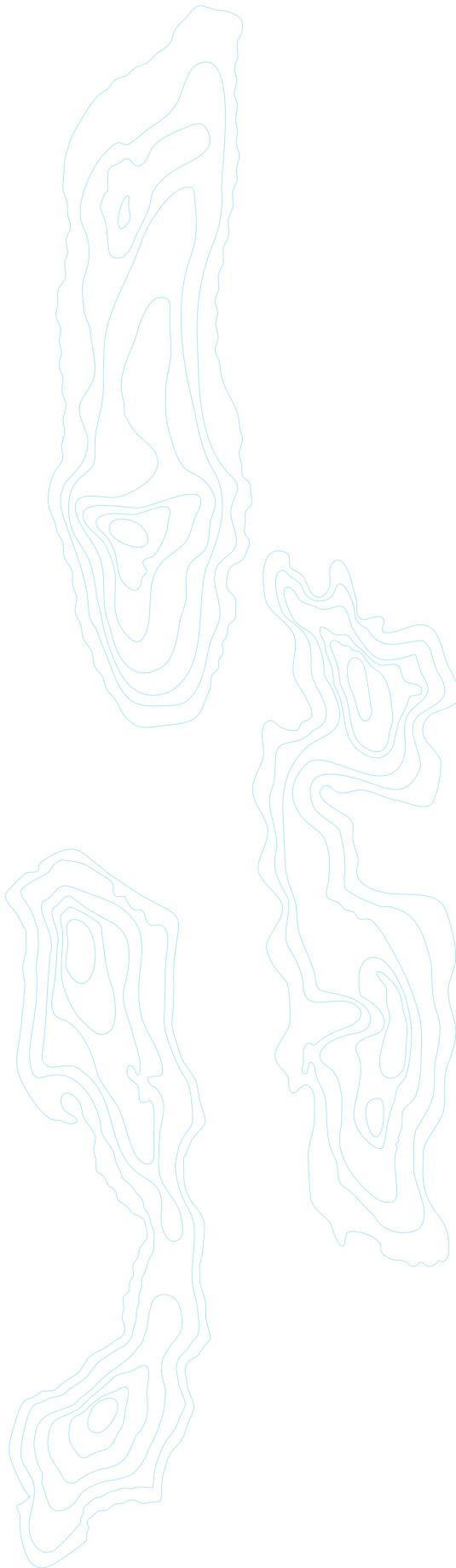


The World Bank has many financial and technical tools to support clients in reaching their Blue Economy goals. Marine spatial planning is one of the most effective. It can also help countries achieve GRID and the integrated ocean plans devised under the Ocean High Level Panel for Sustainable Ocean Economy (HLP). It has use too in integrating sector plans and area-based measures (Winther et al. 2020). Marine spatial planning can bring new perspectives and ways of doing business for the Bank and client countries that have a Blue Economy agenda. When MSP is used with an economic lens, as in this note, it can help client countries make the case and tap into the Blue Economy.

UNESCO-IOC defines MSP as “a public process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic, and social objectives that have been specified through a political process” (Ehler and Douvere 2009). The MSP concept emerged in response to a need to implement ecosystem-based management and incorporate values of the ocean not normally captured in a management plan or planning process for a common property resource. Over the last two decades, MSP has risen in prominence as a tool to manage ocean resources and contribute to the Sustainable Development Goals. More recently it has formed the foundation of Sustainable Ocean Plans (Winther et al. 2020) to support transitioning to a Blue Economy.

There are over 100 documented cases of MSP globally, at varying scales (regional to subnational) and stages of completion. Few have been fully implemented, however, and those are primarily in high-income countries such as Australia, the United States, Canada, New Zealand, and European Union nations. However, interest is increasing in MSP among World Bank client countries and regions, with planning efforts proceeding in the Eastern Caribbean States, Mozambique, Vietnam, and Indonesia, among others. These MSP cases have many similar characteristics: ecosystem-based, spatially focused, integrated across sectors, and with participatory processes that are transparent, adaptive, and inclusive.

MSP can have multiple objectives (multi-sector, conservation, shared prosperity) or just a few (conservation and poverty reduction). But in each case, integration is a key attribute.



MSP's objectives often mirror the objectives of Blue Economy strategies, especially when they encompass ocean sectors and public goods and services. Coastal states can best integrate sectors by establishing trade-offs—exploring which oceanic sector to prioritize based on accurate valuation of marine and coastal ecosystems and the services they render. None of these trade-offs are possible without a rigorous MSP approach. Finally, in determining priorities, MSP enables managers to plan for sustainable natural resources management, including adapting to climate change, while securing investments benefiting people and local economies.

As an approach, MSP is similar to the decades-old integrated coastal management (ICZM). But some MSP proponents argue that ICZM planning is narrower, focusing only on a narrow strip of coast and not extending far into the EEZ. The MSP process<sup>1</sup> uses the same principles as many other forms of spatial planning, such as landscape planning. These often proceed under the gaze of agencies that have the mandate to plan or of stakeholders that have interests in the affected area, especially present and future marginalized or vulnerable groups. However, these forms of planning provide little guidance on upstream actions such as making the economic and social (e.g. gender) case and supporting citizen engagement, climate change mitigation, and biodiversity, all important concerns in the transition to a Blue Economy.

The World Bank Group's portfolio related to the ocean exceeded US\$9 billion as of June 2021. This level of investment highlights the importance of having a suite of tools and approaches to ensure that these investments are truly transformational for clients. This portfolio provides a unique opportunity to place MSP at the heart of the World Bank Group's Blue Economy campaign by drawing on its (1) *knowledge capacity* to create and share knowledge among client countries and the international community, (2) *convening power* to connect public and private sectors, civil society, and academia and forge partnerships that work toward a more inclusive and sustainable Blue Economy, and (3) *financial and advisory and analytical instruments* to help client countries develop and implement marine spatial

1 The UNESCO "Step-by-Step" Guide gives a detailed description of the planning process (Ehler and Douve 2009).



plans that respond to societal (i.e. vulnerable communities and gender), economic (i.e. efficiency and shared prosperity), and environmental (i.e. biodiversity and ecosystem services loss and climate change) challenges. MSP also provides the Bank with a tool to sustainably use marine resources and mobilize coastal communities to Build Back Better to recover from the COVID-19 pandemic and other shocks. The World Bank and clients can use this tool in recovery programs to leverage sustainable marine sector work in an integrated way and to help Country Offices and Global Practices to increase marine investments across their portfolios. MSP can also be a framework for the International Finance Corporation (IFC) to increase private sector investment in marine sectors.

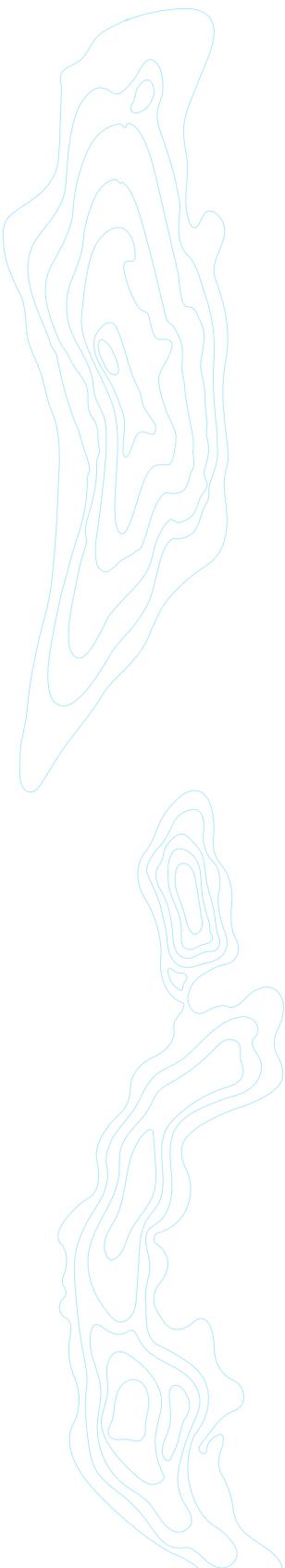
This guidance note encompasses the full marine spatial planning (MSP) process, from making the case to implementing the plan, including monitoring and evaluation. The note targets Blue Economy projects that have MSP as part of their project portfolio or that intend to include it. In a common marine area, sectors such as fisheries, offshore renewable energy, shipping and ports, and urban development need certainty for access to areas and resources. MSP balances competing interests and addresses major environmental and social issues upstream to reduce some initial private and public investment costs and promote long-term sustainability.

# 2.

# Marine Spatial Planning Why a Guidance Note?



There are two key reasons for this guidance note: (1) to improve World Bank technical and operational teams' understanding of the benefits of MSP to the World Bank and its clients, and (2) to provide guidance on specific World Bank considerations including opportunities for investments throughout the planning processes of identifying entry points, making the case, and formulating and implementing a plan including monitoring and evaluation. This will ultimately help clients transitioning to a Blue Economy to employ MSP and integrated ocean plans as described by the HLP (Winther et al. 2020).



McKinsey Capital (2013) identified 12 key benefits of MSP across economic, social and environmental considerations. Many of these, listed below, apply to the Bank or lead to additional benefits.



## Economic

- 1 Creation of greater certainty in the private sector when it plans new investments, often with a 30-year time frame; improvement of transparency in permitting and other decision making; and possible creation of opportunities for partnerships with the World Bank.
- 3 Reduction of conflicts among incompatible uses and between uses and nature, which provides more conducive conditions for World Bank investments because much of the upstream safeguards work has been done.



## Ecological

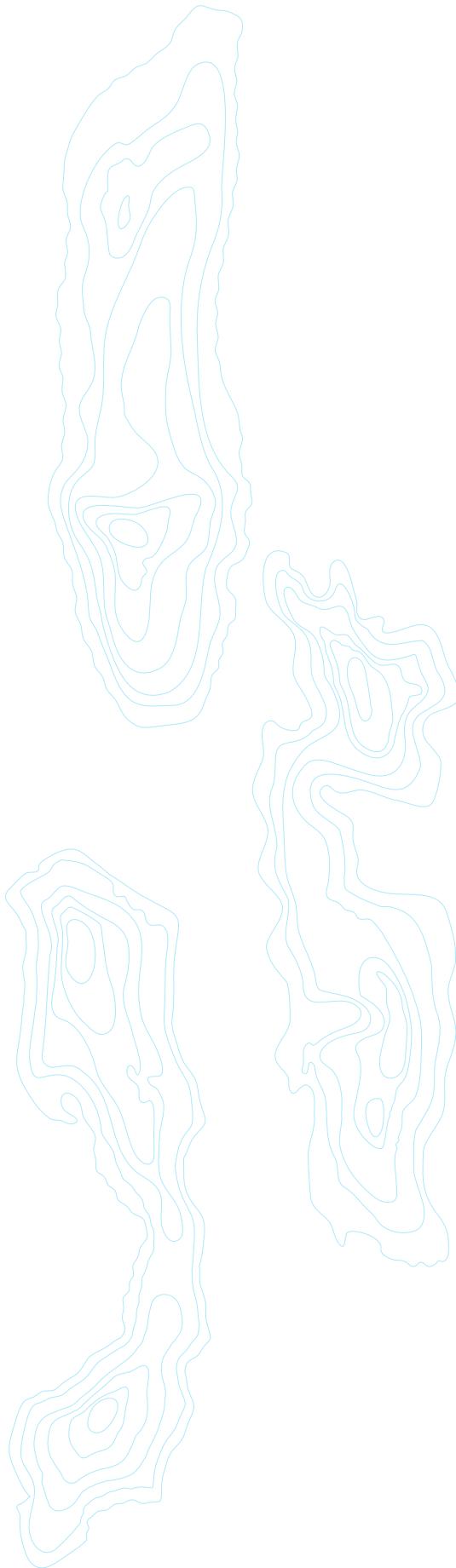
- 4 Identification of areas of biological or ecological importance and networks of marine protected areas, or buffer zones using nature-based solutions.
- 5 Incorporation of biodiversity and ecosystem services objectives at the heart of MSP and management.
- 8 Reduction of cumulative impacts of human uses on marine ecosystems.



## Social

- 9 Improvement of community and citizen participation.
- 10 Identification of potential impacts of decisions on the allocation of ocean space for certain uses (or non-uses) for coastal communities and economies.
- 12 Identification and preservation of social, cultural, and spiritual values related to ocean use.

Together, these benefits can help the World Bank and its clients achieve their biodiversity commitments and gender targets, support climate change mitigation, build climate change

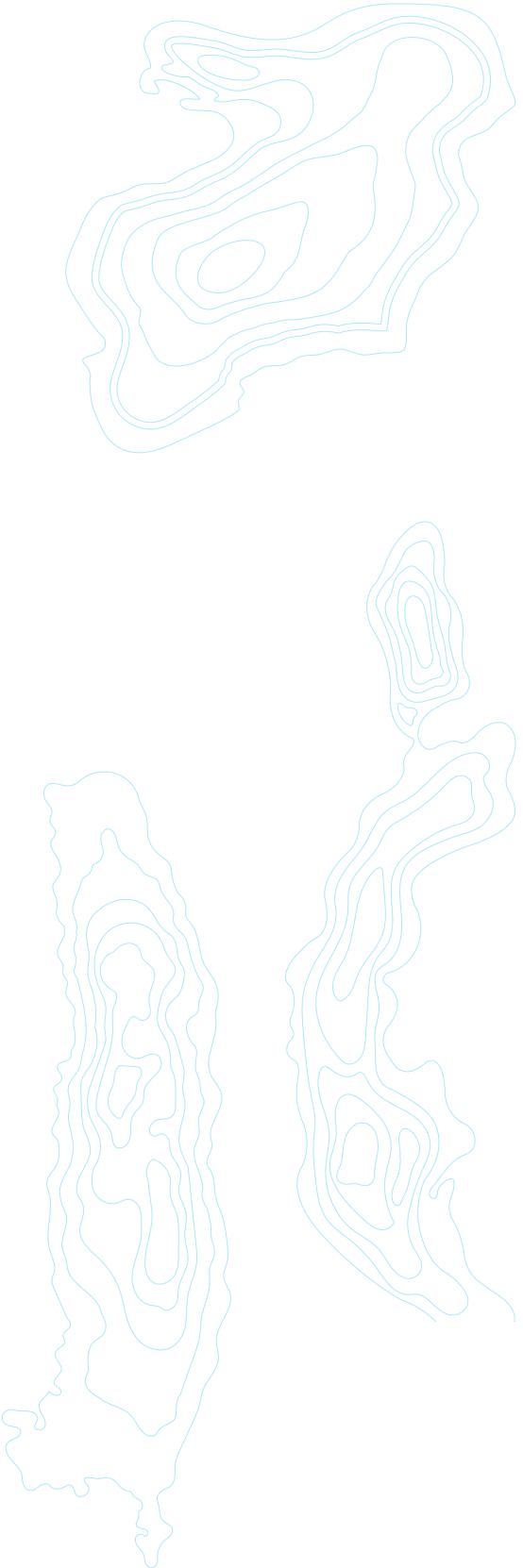


resilience, better involve vulnerable groups in investments, and ensure that projects comply with the Environmental and Social Framework (ESF) guidelines.

To realize these benefits and move towards a Blue Economy, the World Bank will need to scale up and expand the use of MSP in its investment portfolio. Several resources are available that provide detailed guidance on how to carry out an MSP process, such as the UNESCO/European Commission Guide (UNESCO-IOC/European Commission 2021) and the Step-by-Step Guide (Ehler and Douvere 2009). Much of the focus of these guides is on planning rather than implementing. They primarily targets government officers and NGOs and more recently industry (World Ocean Council 2016), to help them participate in or manage the different steps of the MSP process more effectively. Key areas for the World Bank are:

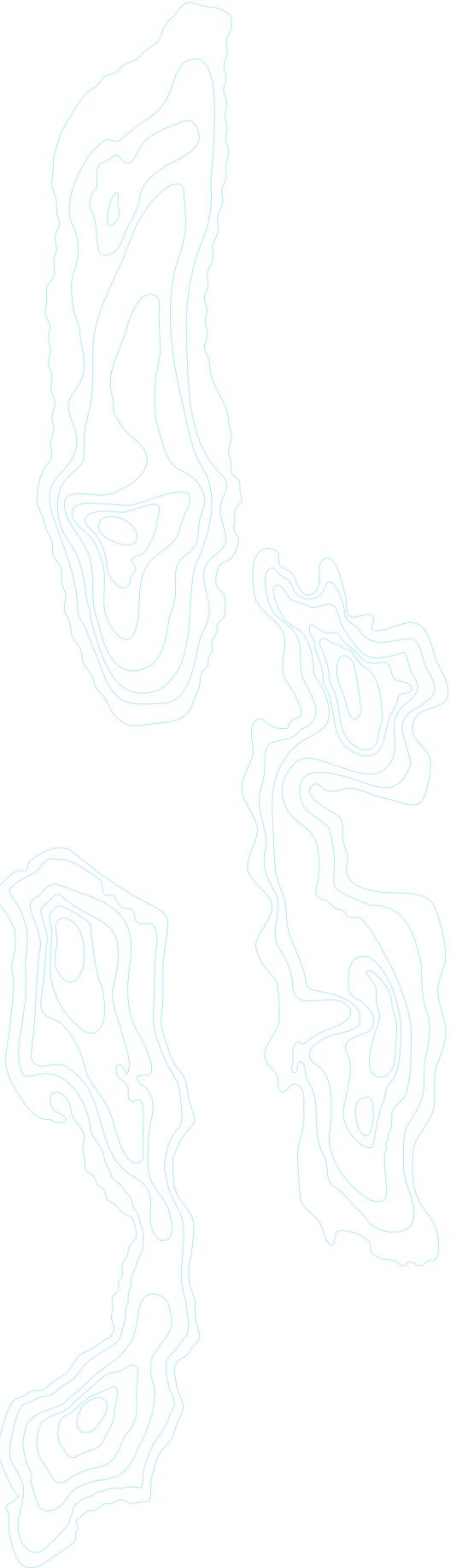
- Governance, with guidance documents covering the need for a clear legal basis for conducting MSP; engagement of stakeholders at national and local levels, especially present and future marginalized or vulnerable groups; defining of planning boundaries; and the role of zoning in the governance of marine areas (O'Connor and Oehler 2020).
- Institutions that should take part in the various steps of the MSP process and what their roles or terms of reference might be (Collie et al. 2013).
- Objective setting, with considerable guidance on noting the hierarchy of goal and scope of potential objectives, including multiple objectives (Ehler and Douvere 2009).
- Engagement of stakeholders from diverse areas of interest throughout the planning and implementation steps (Twomey and O'Mahony 2019).
- The scope and scale of data used and the issues around data access, sharing, and confidentiality, and the range of tools that can support decision making in the planning process (Beck et al. 2009).
- Conservation planning in MSP, which can help in meeting national and global biodiversity objectives (Ntona and Morgera 2018).

- Monitoring of the plan, which is critical for understanding its effectiveness, capturing lessons learned, and revising the plan and implementation as monitoring detects changes in conditions, such as climate (Ehler 2014).



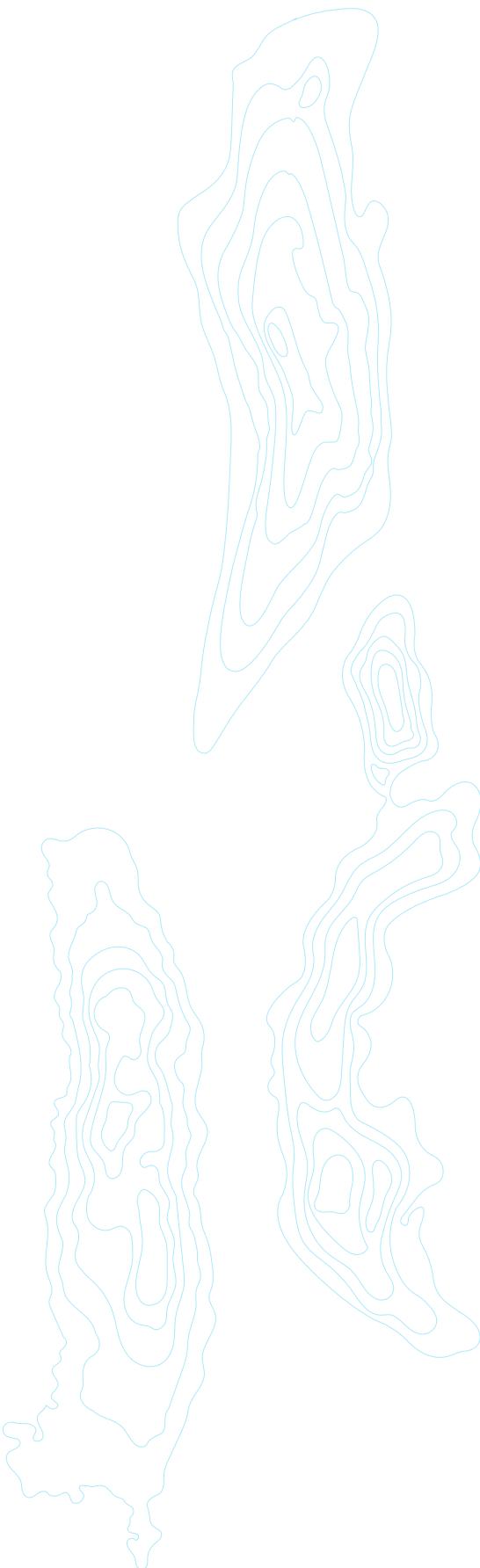
Though the information presented in these guides gives considerable help to World Bank clients in the planning and implementation processes (Figure 2.1), it does not fully meet the needs of World Bank staff, especially in realizing benefits specific to the Bank. The current guidance note capitalizes on the World Bank's convening power, as well as its financial and technical capacity across sectors, and identifies gaps in effective World Bank engagement in MSP, as summarized below:

- Making the case based on the economic and social benefits when formulating and implementing a marine spatial plan, including economic growth, jobs, wealth, climate change, resilience, and shared prosperity, and using natural capital accounting to help make the case. The OECD highlights the importance of making the economic case for MSP (OECD 2020). But there are no examples of economic analysis actually being used to do this. One related case is an EU study that looked at integrated coastal zone management (ICZM) through explicit communication of added value of ICZM (Steijen et al. 2012). A new note, *Applying Economic Analysis to Marine Spatial Planning*, is available to help fill this knowledge gap and to complement this guidance note.
- When an MSP cuts across different ocean sectors, issues, or opportunities, these can be the entry point for discussions with governments. There are lessons learned that in some cases, offshore renewable energy can be a driver of MSP, as seen in Estonia (Tafon et al. 2019), while in other areas conservation has been a driver (Smith et al. 2019). Sectors such as tourism can also be entry points. In some countries, the Blue Economy approach itself is a driver for MSP. This is demonstrated in the Eastern Caribbean States (Organization of the Eastern Caribbean States 2020). There, the World Bank's Blue Economy Development Framework (BEDF) supports development of Blue Economy roadmaps and informs MSP at the country and regional levels. BEDFs have been drafted for



Central America, Jamaica, Mozambique, and Vietnam. Revealing the benefits of MSP for governments can include de-risking investments by accounting for environmental and social benefits and avoiding or mitigating impacts. In some situations, MSP can help countries prioritize actions and approaches, as well as incorporate exposure and vulnerability. Other benefits include investment certainty through access to marine areas, resource rents, reduced conflicts, lower management and transaction costs, and improved resource management. Fortunately, the World Bank already has or is developing through PROBLUE and other multi-donor trust funds (MDTF) the needed tools to estimate these benefits and the cost of inaction. An MSP can also help countries meet their biodiversity, conservation, ecosystem restoration, and climate change commitments, and other environmental and social standards.

- Few tools are available for assessing the enabling conditions for developing countries, particularly least developed countries (LDCs), low middle-income countries (LMICs), and small island developing states (SIDS), and sometimes for upper middle-income countries (UMICs). Existing guidance that highlights the long-term success of any marine spatial plan relies on the country having the legislative, institutional, and financial resources in place for planning and implementation. A review of lessons learned shows that without a firm legal basis, or a mandated institution to lead or coordinate, the MSP process will falter and jeopardize plan implementation. Similarly, in cases where funding is insufficient or not available at all, planning or implementation will fail, sometimes both. Existing guidance does not cover how to assess these enabling conditions. Access to the tools to do this is key if World Bank teams are to determine the state of enabling conditions and ably guide the scope and scale of needed investments. Subsequent sections discuss in further detail World Bank tools that are available for this work.
- Much of the guidance on stakeholder engagement recognizes the need to engage the private sector, but there is little information on how to do this effectively and there are few examples or case studies of successful private sector engagement. The increasing use of MSP



is generating more information on the role of the private sector, especially in emerging sectors. This guidance note will help fill this gap by capturing existing guidance, lessons learned, and best practices.

- Incorporating climate change in World Bank projects so that MSP will help countries mitigate (i.e. offshore clean energy) and adapt (i.e. nature-based solutions) to climate change impacts would contribute to the World Bank's climate co-benefits and other climate change targets.
- Integrating biodiversity and ecosystem services in World Bank projects will maximize environmental enhancement, job creation, economic growth, and resilience in the face of the post-COVID recovery era, and the UN decade on ecosystem restoration.
- Including gender and other vulnerable groups will improve MSP, address climate change, environmental degradation, and other risks (e.g. natural disasters) and assure that any MSP is equitable. This will let these groups participate and benefit fully, strengthen the plan and its implementation, and help the World Bank achieve its gender goals in ocean sectors.
- Implementing marine spatial plans can be opportunities to bring to bear the World Bank's financial instruments and links to IFC and other public-private partnerships, which can be critical for the long-term success of any MSP. MSP is also a strategic instrument for mobilizing marine sectors for Green Resilient and Inclusive Development (GRID). Smooth implementation is vital for ensuring an effective transition from a plan to on-the-water action and for monitoring to capture lessons learned from the client's perspective and the Bank's. Integrating across sectors is a key benefit of MSP. However, guidance on how to realize that integration is often lacking.
- In this realm, M&E is key to informing best practices, adaptive management, and iterations of MSPs. M&E is also crucial for determining whether innovations are successful and contribute to MSP objectives.

This guidance note attempts to fill these gaps by focusing on key steps in MSP relevant to the World Bank. The document is thus structured into six sections that analyze the major steps for designing and implementing marine spatial plans (Figure 2.1):

**1**

Making the case by identifying entry points and informing on the economic and social benefits that marine planning generates

**2**

Reviewing enabling conditions of the key factors for the success of an MSP, including legal and institutional frameworks

**3**

Formulating a plan that includes goals and objectives and integrating marine sectors into marine spatial plans

**4**

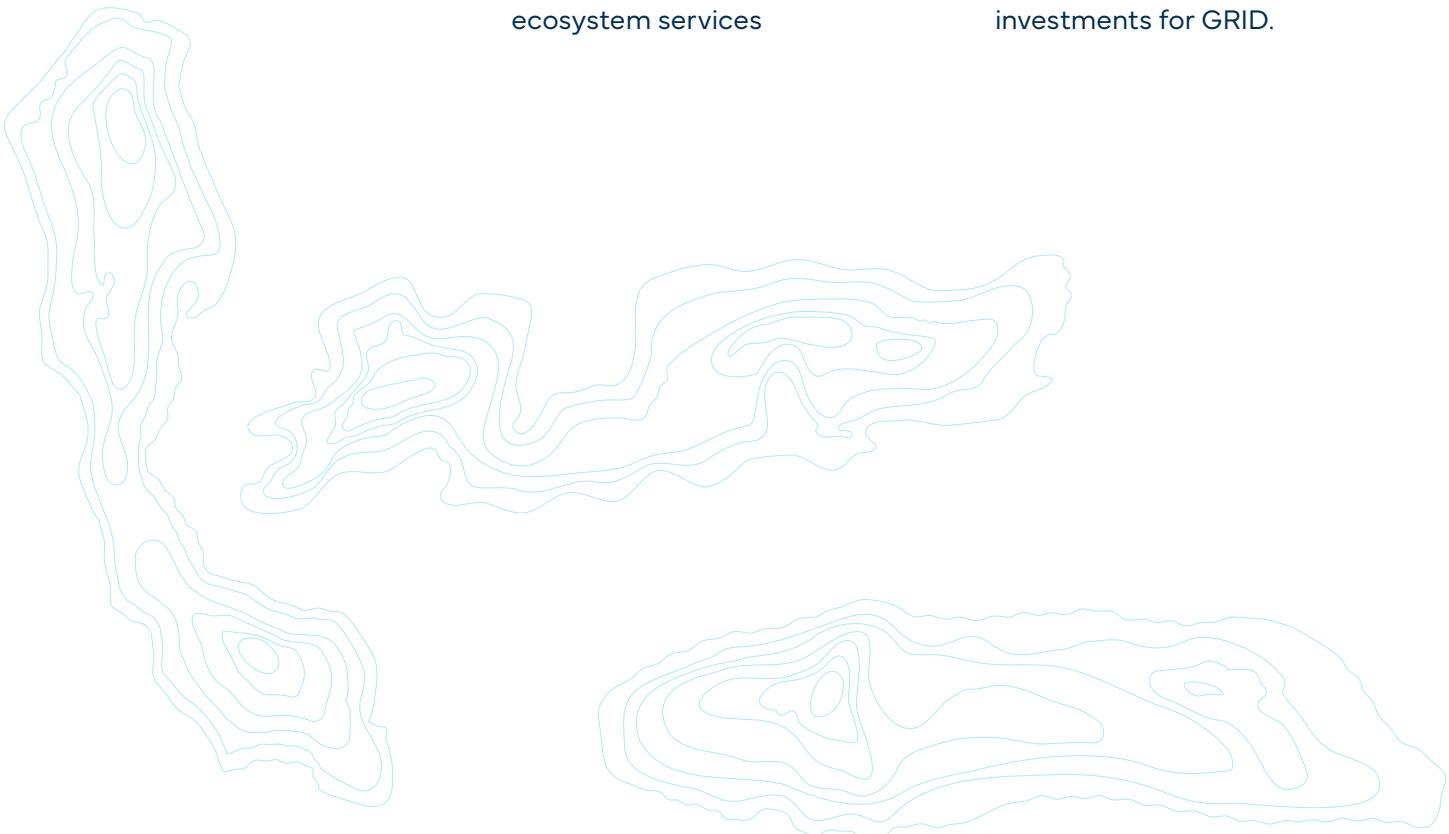
Implementing the MSP, including monitoring and evaluation.

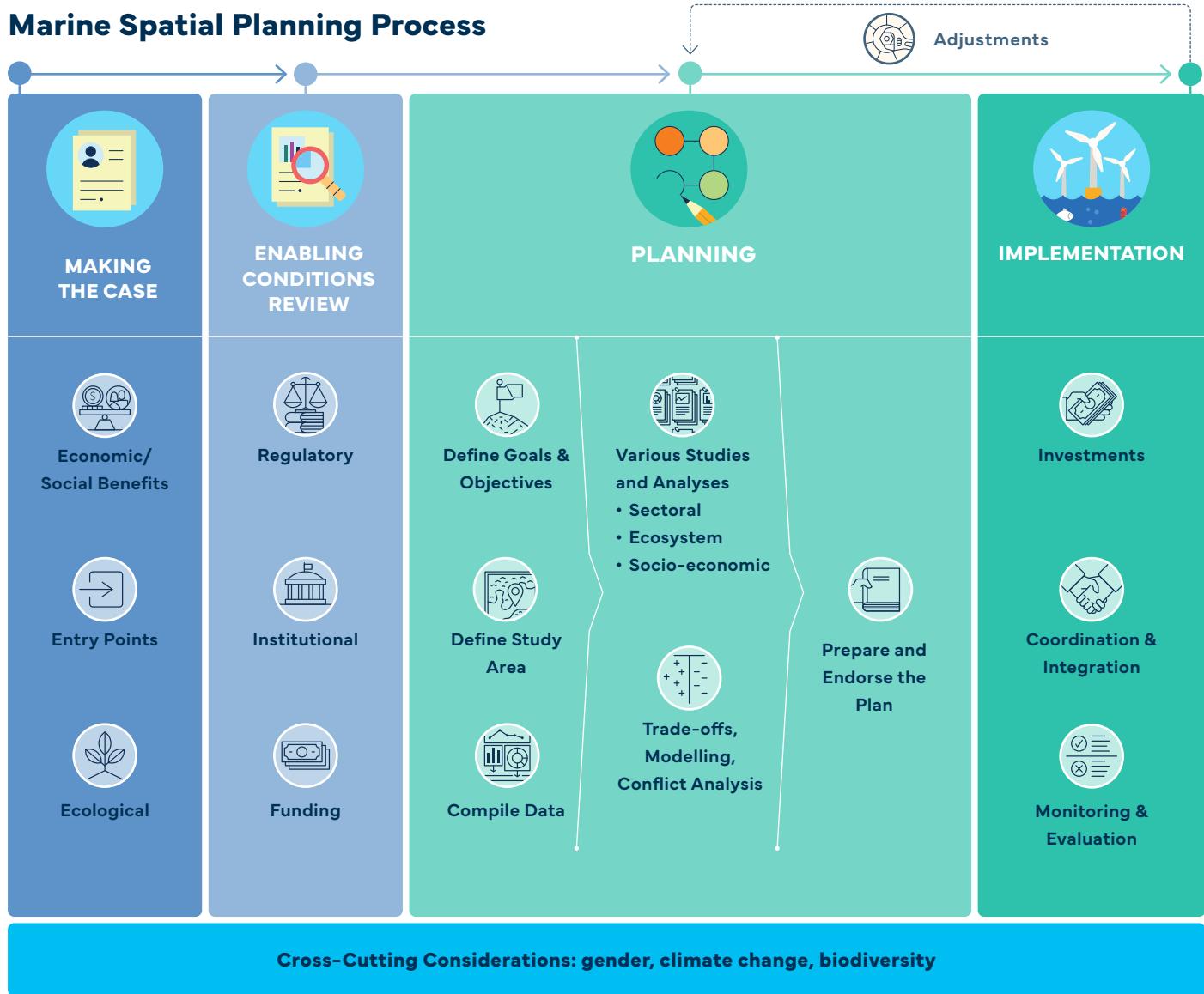
**5**

Evaluating cross-cutting considerations such as gender, climate change, biodiversity, and ecosystem services

**6**

Recommending future actions and best practices to strengthen the World Bank's MSP investments for GRID.



**Figure 2.1. Key Steps in Marine Spatial Planning in the World Bank****Marine Spatial Planning Process**

Source: Caldow 2015.

Each section focuses on the specific needs of the World Bank to undertake the needed actions and directs users to additional resources for broad or generic actions and considerations where appropriate.

# 3.

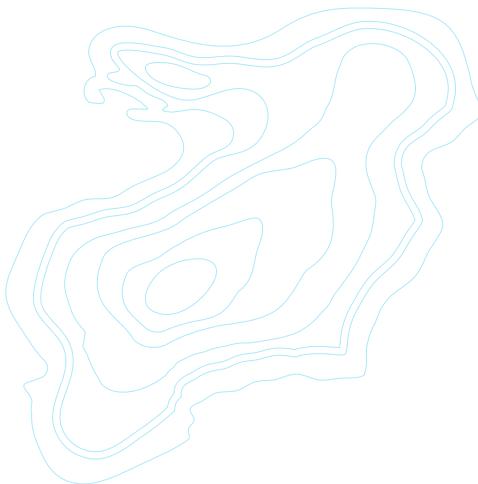
# Marine Spatial Planning Entry Points



## 3.1

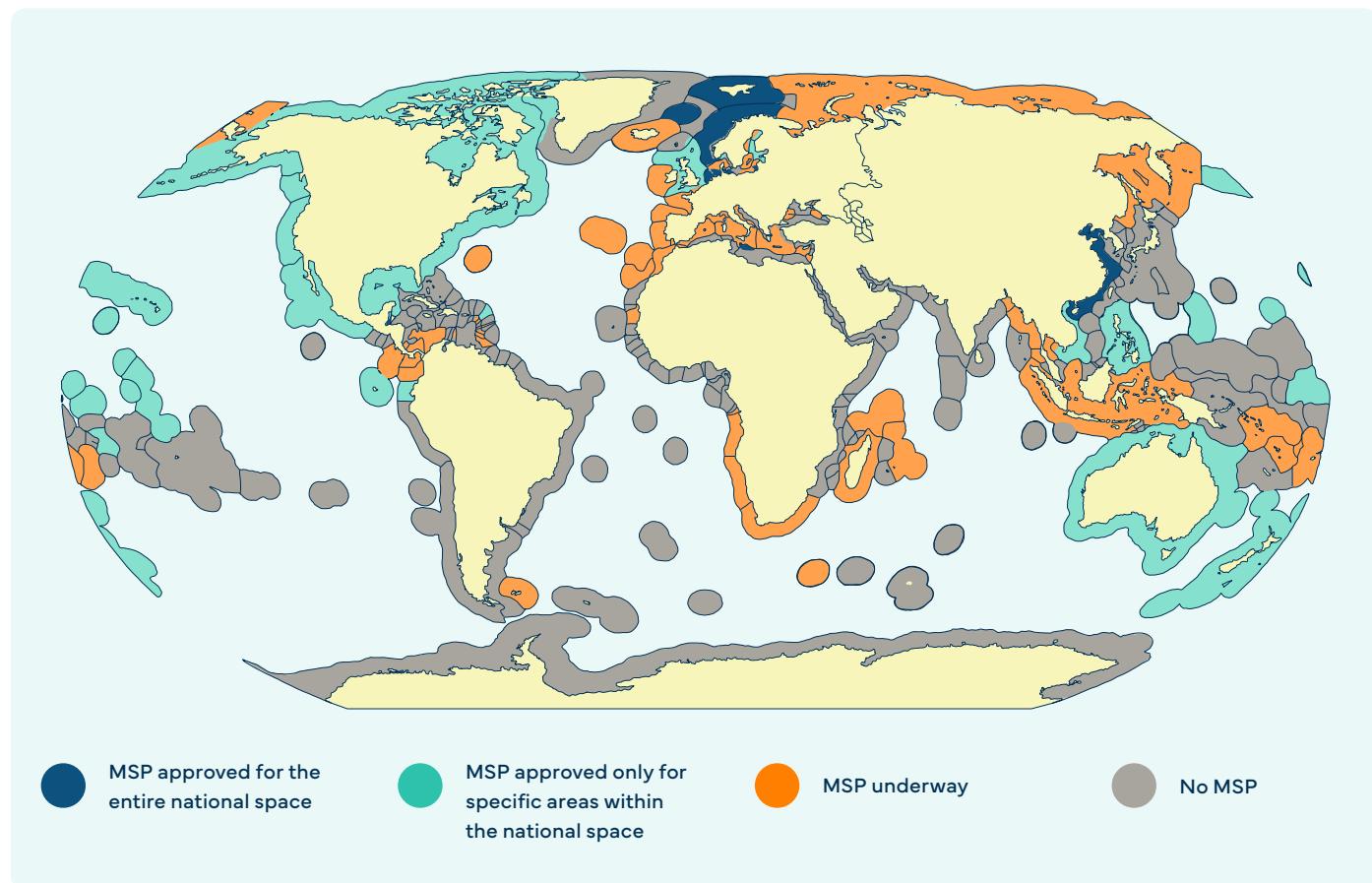
### Introduction

Marine spatial planning is increasing globally (Frazão Santos et al. 2019). Yet there remains considerable scope for introducing MSP in developing countries (Figure 3.1). This is especially true where a Blue Economy is contributing to a country's sustainable development. MSP brings a major shift from managing marine resources and areas on a sector basis to an integrated approach across sectors. It considers climate change and biodiversity.

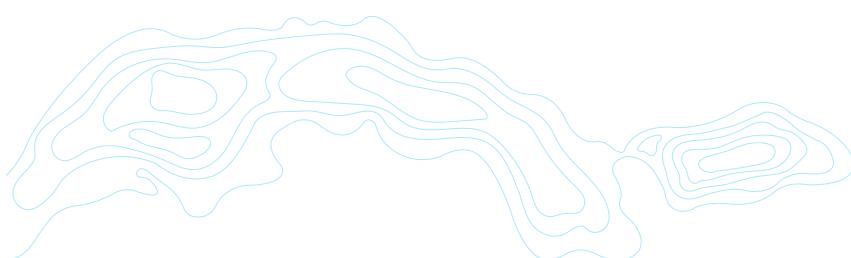


This shift often requires changes in the distribution of government financial and human resources to coordinate various sectors. Governments may perceive the changes as too costly, while the private sector may feel MSP has too much investment risk. Resistance may also come from individual ministries that perceive a loss in power and resources. There is still the need for sector management, however. Indeed, balancing each sector's needs in a limited space with finite resources is a key MSP function. Task team leaders can address these and other perceptions by finding the entry points with clients as well as obtaining key information to make the case for MSP.

**Figure 3.1. Distribution of MSP initiatives**



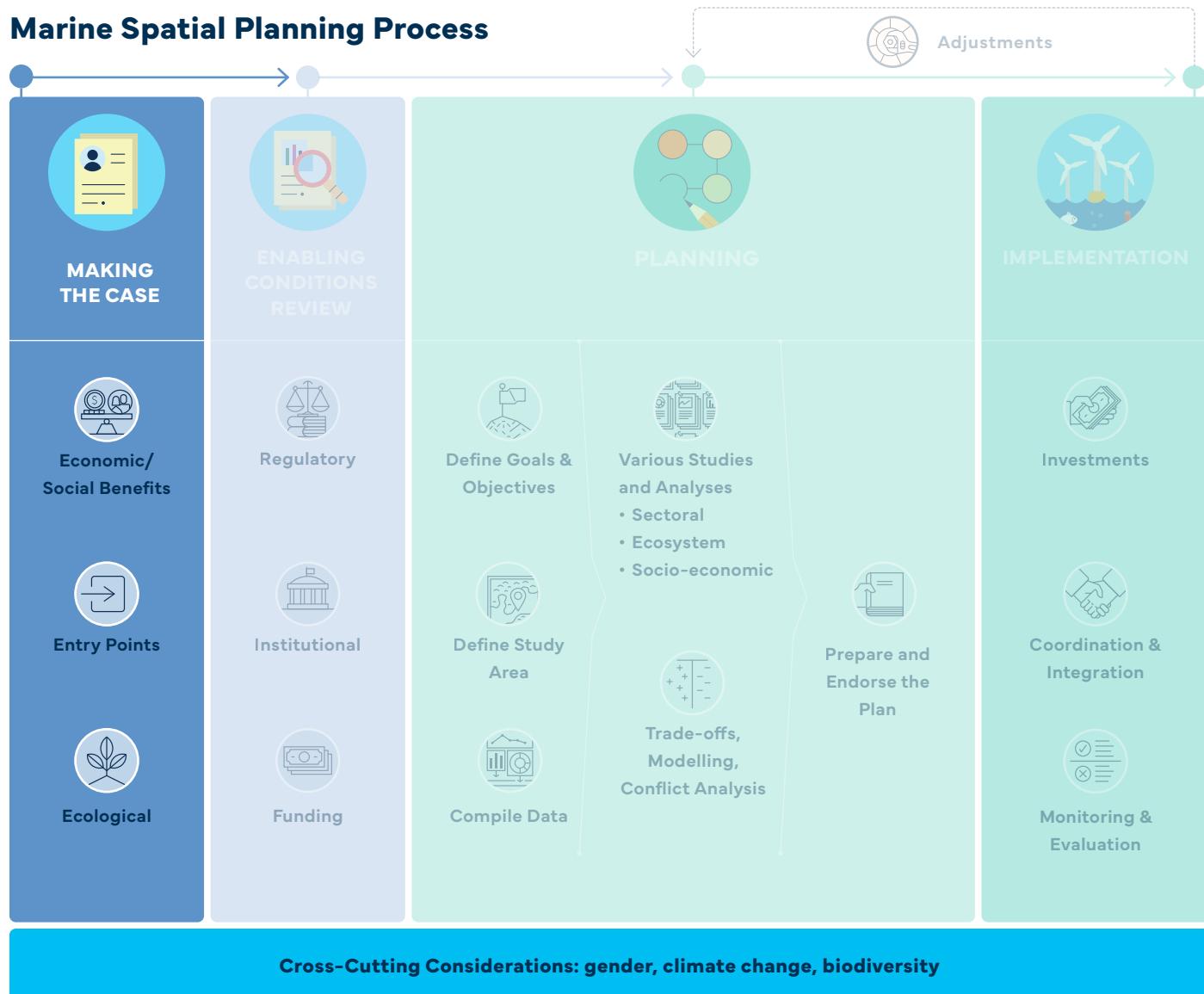
Source: Frazão Santos et al. 2019.



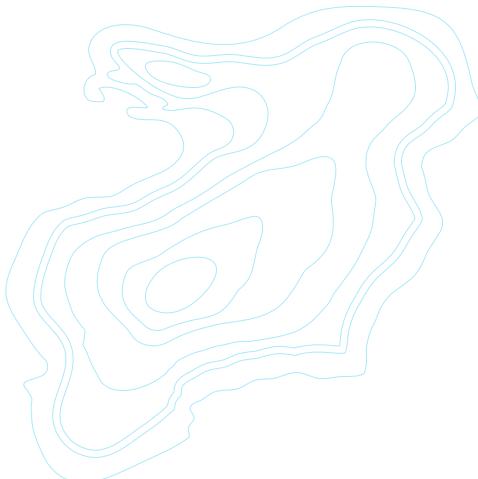
Writing a marine spatial plan often begins after much research and lobbying by various stakeholders. In some cases, finding the entry point to make the case can be a precursor to starting MSP (Figure 3.2). That is the focus of this section of the guide.

**Figure 3.2: Making the Case for MSP**

## Marine Spatial Planning Process



Source: Caldow 2015.



## 3.2

# Country or Local Office Role

The entry point for initiating an MSP dialogue with clients depends on factors unique to the country at hand. Along with technical staff from each sector, the country or local office can provide specific information, including the local context for overall MSP decision making and the relevant sectors. A diagnostic overview of existing information on the key marine sectors can help identify entry points. The goal is to understand how to increase the value or benefits to the sectors using a marine spatial plan. These benefits can be more than increased wealth. They can include climate resilience, improved biodiversity, and lower pollution. This information can also advance understanding of the losses that may result from inaction—from not using MSP. Overall, understanding the pathways or mechanisms will help inform clients on how MSP can be an efficient and effective tool to realize these benefits.

## 3.3

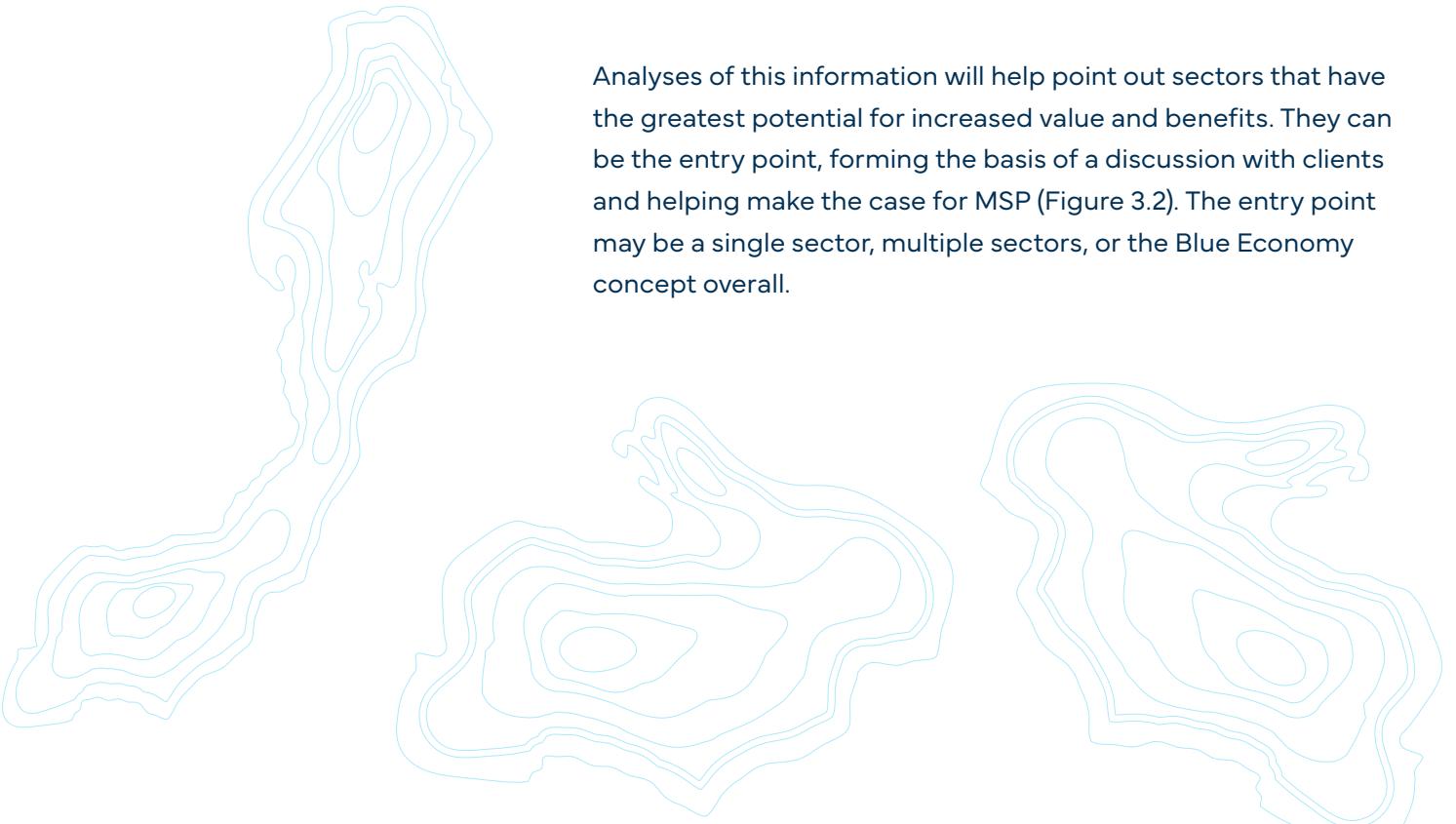
# Economic Entry Points

There are economic tools and concepts that can support identifying key entry points for MSP, which in turn can support advancing the Blue Economy (Table 3.1).

**Table 3.1: Economic Tools and Concepts for Identifying Entry Points for MSP**

 Key Economic Question(s)	 Economic Tools & Concepts	 What it tells you	 Data Sources
<ul style="list-style-type: none"> <li>• What is the value of the marine sector currently and given potential growth – what is the value of that growth? Is it sustainable?</li> <li>• How is this value distributed?</li> <li>• Is the business-as-usual relationship with the ocean sustainable?</li> <li>• What is the potential for the MSP to improve climate change mitigation and adaptation outcomes?</li> <li>• What is the potential to improve biodiversity and ecosystem services' outcomes?</li> </ul>	<ul style="list-style-type: none"> <li>• Make non-market valuation assessments.</li> <li>• Identify externalities using a systemic approach to MSP, with particular focus on land-sea interactions.</li> <li>• Create an impact pathway to identify mechanism affecting the achievement of MSP goals, and leverage points and associated interventions.</li> <li>• Identify key economic actors.</li> </ul>	<ul style="list-style-type: none"> <li>• Highlights the importance of the ocean as an engine of economic growth and development: contribution to GDP, social outcomes.</li> <li>• Emphasizes that oceans are more than fish stocks: untapped wealth and multiple ES.</li> <li>• Shows the importance of traditional sectors and business opportunities for emergent sectors.</li> <li>• Changes needed in business-as-usual relationship with oceans for sustainable development growth.</li> </ul>	<ul style="list-style-type: none"> <li>• Standard system of national accounts (SNA)</li> <li>• Disaggregated data by sector</li> <li>• Economic reports/studies for the area of intervention</li> <li>• Global datasets on social, ecological, and economic indicators</li> </ul>

Source: Applying Economic Analysis to Marine Spatial Planning.



Analyses of this information will help point out sectors that have the greatest potential for increased value and benefits. They can be the entry point, forming the basis of a discussion with clients and helping make the case for MSP (Figure 3.2). The entry point may be a single sector, multiple sectors, or the Blue Economy concept overall.

# 4.

# Marine Spatial Planning Making the Case



## 4.1

### Introduction

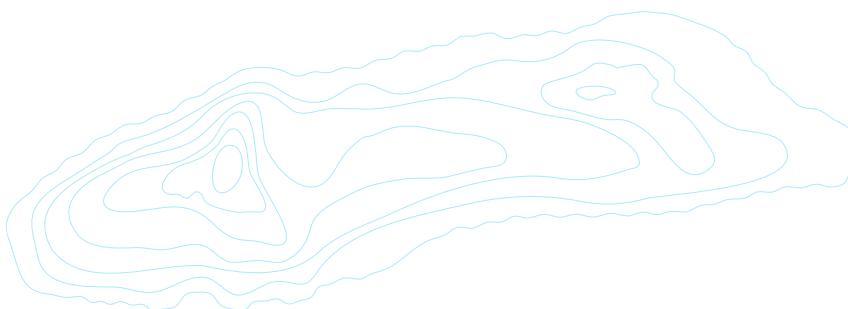
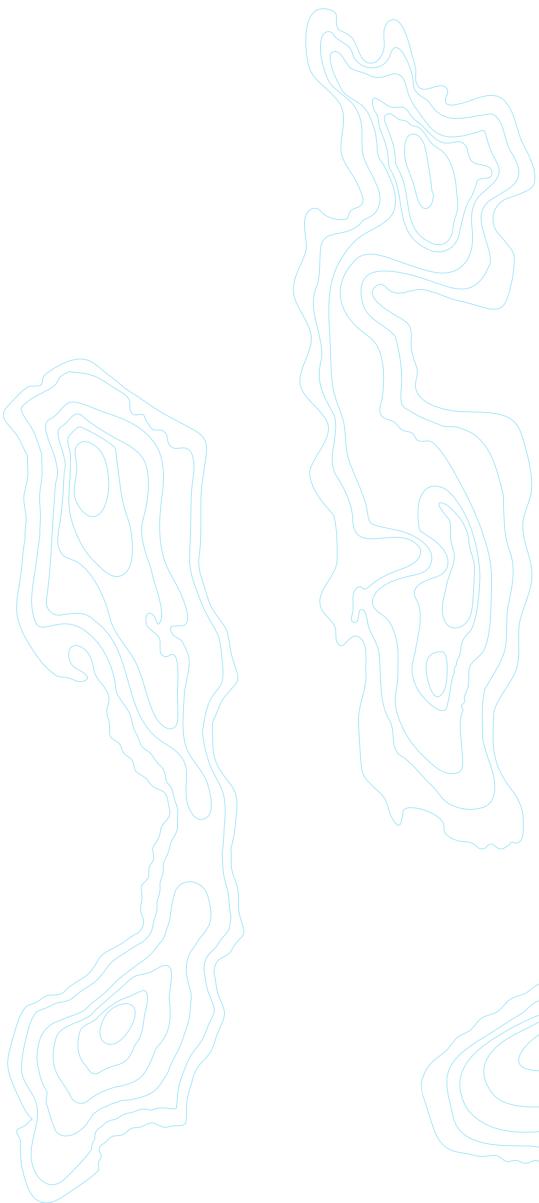
Many countries made commitments at the first UN Oceans Conference to advance the Blue Economy and to use MSP to achieve this objective. Increasingly, World Bank clients are approaching the Bank for assistance in the two endeavors. In these situations, the entry point for making the case and further development of marine spatial plans is clear. For other clients and countries, establishment of the entry points must happen before making the case and is the first key step to initiating the MSP. This is the focus of this section (Figure 3.2).

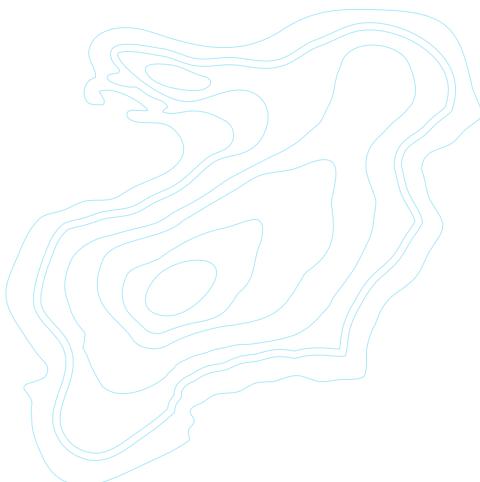


## 4.2

# Addressing Country Concerns

The key argument to clients for using MSP is its strategic value in de-risking and leveraging sector-specific portfolios. An MSP can resolve conflict issues and environmental and social development concerns well upstream from major public and private investments. In an MSP process, stakeholder engagement at national and local levels and especially for present and future marginalized or vulnerable groups assures that all voices are heard. Stakeholders are engaged from the beginning of a process that brings to light conflicts over access to marine resources and the need for biodiversity conservation (Biodiversity and Ecosystem Services Section 13) and building climate resilience (Climate-Informed MSP Section 12). The MSP process uses a range of tools to address conflicts. It finds a balance between stakeholder needs while ensuring sustainable use of marine resources and the wide distribution of benefits. This upstream MSP work includes analyzing multiple sectors together to prepare for downstream investments in existing and emerging sectors. An endorsed marine spatial plan deals up front with most potential conflicts and the main environmental and social issues and allocates areas for sector-specific development. The plan gives private investors and public sector agencies a welcome degree of certainty for access to resources and for infrastructure investments.





## 4.3

# Making the Economic Case

Making the economic case is a powerful argument for clients to invest in the MSP process and plan implementation, as was seen recently in Georgia (Box 4.1). Indeed, a solid understanding of the economics underpinning the allocation of resources is a prerequisite for sustainable finance for MSP and implementation. An economic case highlights the tangible and quantifiable benefits, demonstrates the effectiveness of MSP to improve economic and environmental outcomes, enhances transparency and accounting for how marine ecosystems benefit human well-being, and increases financial flows into marine spatial plans and their implementation.

### Box 4.1:

#### Making the Case for MSP in Georgia

The World Bank recognized that tourism in Georgia had remained a development priority for years even as governments changed. The importance of this sector is clear – it is one of the biggest employers in the country, creates considerable and steadily increasing revenue for the government, and is a big area of investment both domestic and foreign. The World Bank used tourism to demonstrate to Georgian decision-makers how MSP could increase the economic return from tourism while improving the sustainability of the sector over the long term.

Georgia's tourism industry is vulnerable – the short coastline and small marine area are the focus of high numbers of tourists year-round, and the demand is growing. Growth

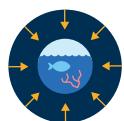
in the sector is also vulnerable to climate change and environmental degradation.

This was the entry point for the World Bank to discuss the Blue Economy and use of MSP to realize the country's aspirations in tourism and other fields. The coastal and marine areas of Georgia also host other economic activities such as agriculture, shipping and ports, and oil transit terminals. Marine areas also have specific sites of conservation, which, if well managed, could be used for low-impact tourism. The risks of one sector undermining the economic success of another was pointed out, along with the role of MSP in avoiding that risk. Georgia is reducing this risk by formulating a marine spatial plan.

There are gaps to close in making a compelling economic case:



**GAP 1:** Trade-offs between competing uses are seldom subjected to an economic analysis as part of MSP design. The distributive impacts on key stakeholders (e.g. income, gender, and indigenous groups and migrants) are not properly accounted for.



**GAP 2:** The value of externalities is not properly accounted in the MSP process. Negative externalities, especially those generated in decisions about coastal land, are not explicitly included in MSP, though they have welfare implications for vulnerable groups of society (e.g. small-scale fishers or tourism entrepreneurs). In addition, positive externalities are typically undervalued, leading to underinvestment in ocean natural capital.



**GAP 3:** Long-term consequences, risk, and uncertainty are an intrinsic component of MSP design and implementation, yet there is insufficient scenario analysis and risk assessment.



**GAP 4:** MSP implementation often has inadequate monitoring and evaluation.



**GAP 5:** Decision makers may lack behavioral insights to understand compliance with MSP regulations and perverse incentives.



**GAP 6:** Innovative financial mechanisms to encourage transformation of traditional sectors and emergence of new ones are often in short supply.

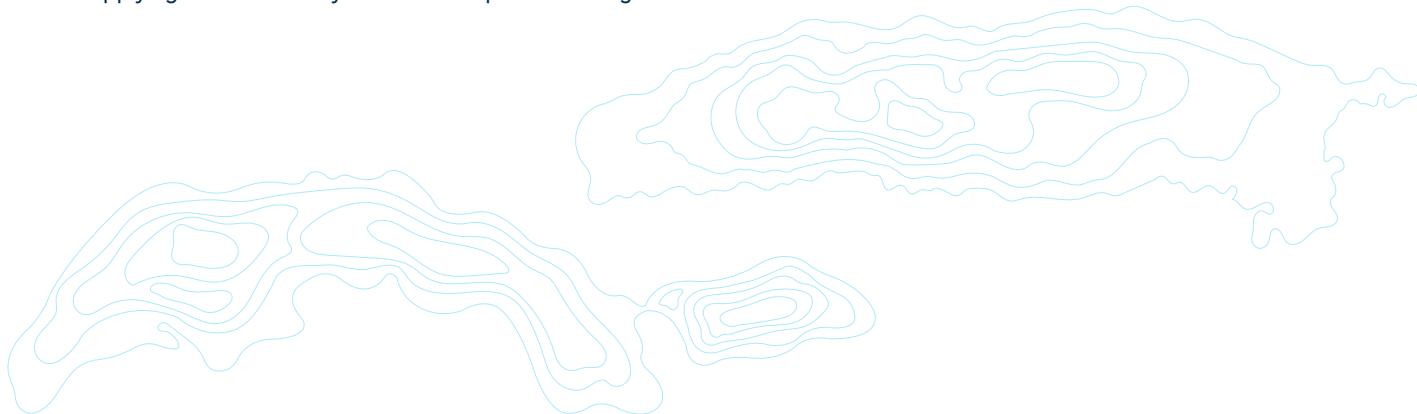
For this step of MSP, there are economic tools that can support making the case (Table 4.1).

The World Bank note “Applying Economic Analysis to Marine Spatial Planning” provides a detailed discussion of these gaps and the economic instruments that can close them to strengthen the economic case for MSP.

**Table 4.1: Economic Tools and Concepts for Making the Case for MSP**

 Key Economic Question(s)	 Economic Tools & Concepts	 What it tells you	 Data Sources
<ul style="list-style-type: none"> <li>● Do the proposed MSP investments offer benefits that exceed the implementation costs?</li> <li>● Who will be the winners and losers?</li> <li>● What is the cost of inaction?</li> <li>● What are the most important trade-offs in economic terms?</li> <li>● What are the business opportunities offered by MSP?</li> <li>● What are the economic benefits for government and society from MSP investments?</li> </ul>	<ul style="list-style-type: none"> <li>● Identify potential win-win situations and inevitable trade-offs and analyze them using cost-benefit analysis from a social perspective with prices that reflect both private and external costs, and discount future costs and benefits using a social discount rate.</li> <li>● Account for all sources of value, including indirect values, intrinsic values, and social goals that go beyond pure efficiency concern.</li> <li>● Analyze the distributive impact of alternative MSP designs to identify who benefits and who bears the cost under alternative scenarios.</li> <li>● Complement with qualitative insights and participatory assessments.</li> <li>● Conduct cost-effectiveness analyses.</li> </ul>	<ul style="list-style-type: none"> <li>● How to determine the societal and private desirability of intended investments and regulations.</li> <li>● How to build business cases to booster MSP finance.</li> <li>● The best spatial and temporal allocation of resources, with attention to the existing economic tradeoffs, as well as environmental and social goals.</li> <li>● How to Increase engagement of stakeholders through a transparent decision-making based on robust economic data.</li> <li>● How to help identify vulnerable groups affected negatively by planning scenarios and to propose options to mitigate these impacts.</li> </ul>	<ul style="list-style-type: none"> <li>● Costs of proposed interventions (e.g. budget for enforcing MPAs, monitoring systems to deter illegal fishing)</li> <li>● Ecological and social data to estimate baseline scenarios</li> <li>● Characterization of beneficiaries (e.g. economic activities), avoided costs on potentially damaged civil infrastructure</li> <li>● Living Standards Measurement Studies</li> </ul>

Source: Applying Economic Analysis to Marine Spatial Planning.

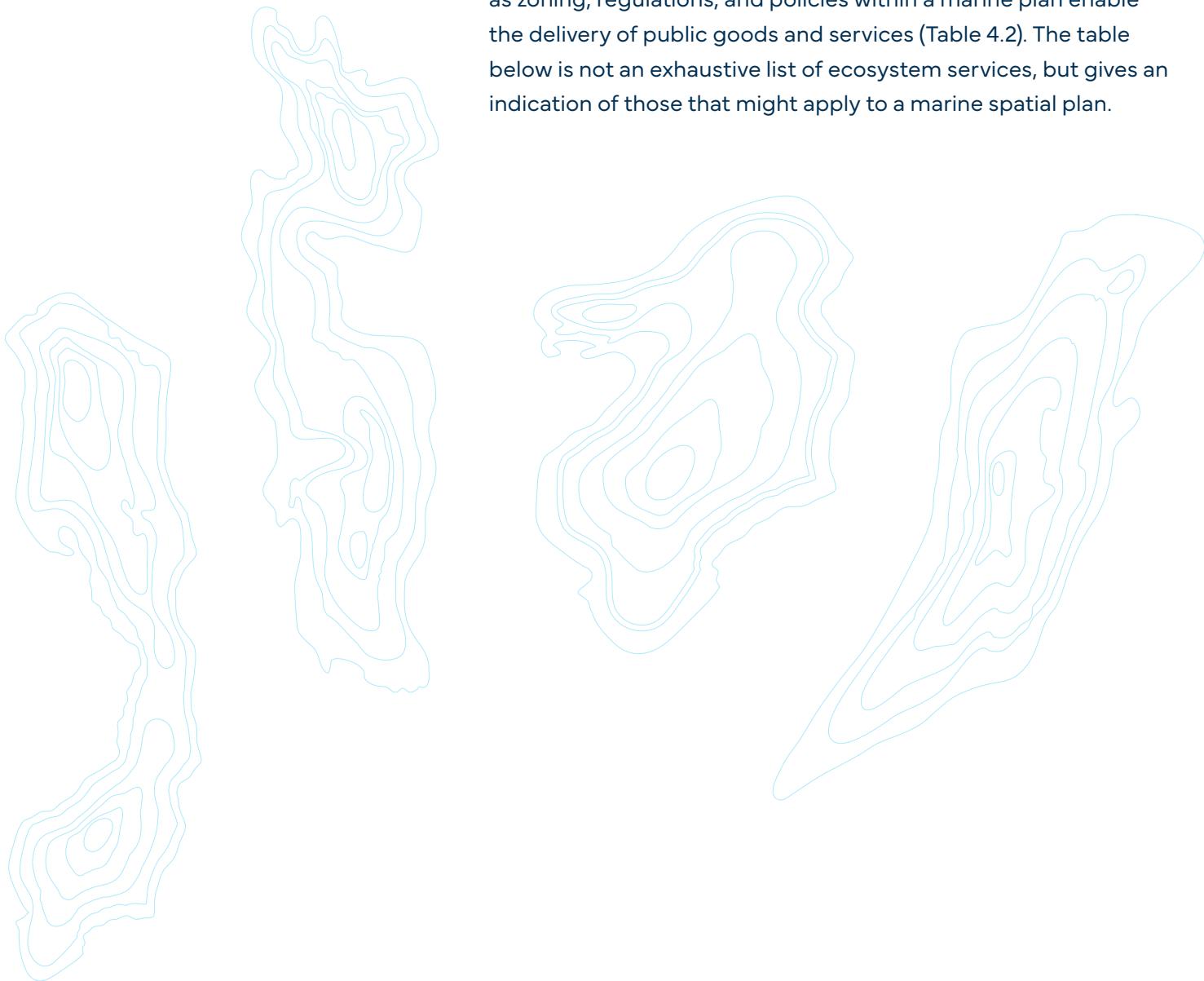




## 4.4

# Making the Social Case

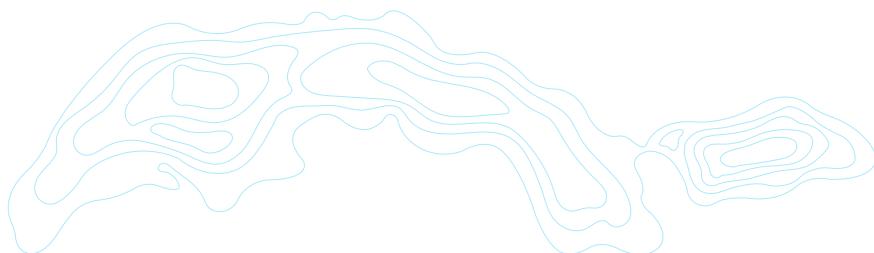
Marine spatial planning can help deliver effectively and efficiently a range of public goods and services, most of which qualify as ecosystem services. The major ecosystem services—provisioning, regulating, and cultural (Böhnke-Henrichs et al. 2013)—are accounted for in a marine spatial plan that integrates the various sectors and includes key elements such as biodiversity conservation and climate change resilience. Other elements such as zoning, regulations, and policies within a marine plan enable the delivery of public goods and services (Table 4.2). The table below is not an exhaustive list of ecosystem services, but gives an indication of those that might apply to a marine spatial plan.

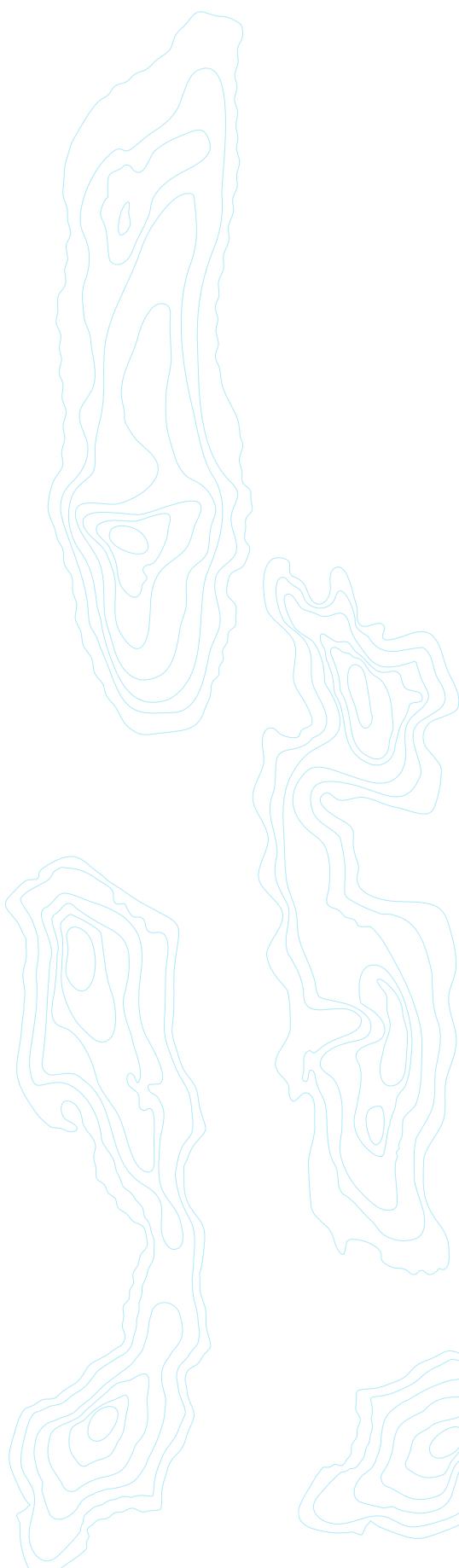


**Table 4.2: Key Elements of a Marine Spatial Plan to Support Public Goods and Services Delivery**

Goods / Service	Key Elements in MSP			
	Zoning	Regulation	Permit	Policy
<b>Provisioning</b>				
 Food Security	✓	✓	✓	
 Ports/landings	✓			
 Shipping Lanes	✓			
 Genetic/Medicinal Resources		✓	✓	
 Renewable Energy	✓	✓	✓	✓
<b>Regulating</b>				
 Climate Change		✓		✓
 Erosion Control		✓		✓
<b>Cultural</b>				
 Recreation	✓		✓	
 Heritage	✓	✓		✓
 Educational	✓			✓
<b>Supporting</b>				
 Biological Diversity Maintenance	✓	✓	✓	✓

Source: Kay and Alder 2005; Böhnke-Henrichs et al. 2013.





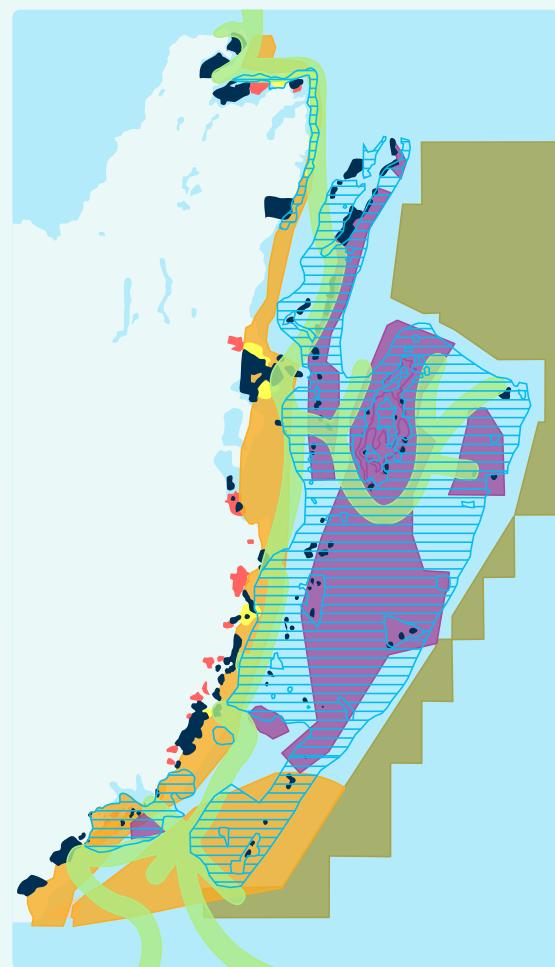
*Provisioning services*, such as access to fishing for small-scale fishers, construction of ports and landing facilities, and allocation of space for shipping routes and wind turbines, are often best accomplished through zoning and regulations. Many sectors which are geographically focused already have regulatory frameworks and permitting or licensing systems and are used to complement the zoning plan (Box 4.2). Legislative or regulatory reforms are often made early in implementation when regulations are missing. Generally, regulations are the most appropriate mechanisms to ensure *regulating services*, which include climate change, mitigation and adaptation, and erosion control. Zoning is less effective for these services because climate change and erosion are geographically widespread. Including provisions in each zone is expensive and less effective than plan-wide regulations or policies, especially if they already exist. Where they are lacking, there is a need for new instruments either within the sector or within the MSP. Recreation, heritage, and education are site- or geographically-focused, resulting in these cultural services often being delivered through zoning mechanisms. Biological diversity maintenance, which is a cross-cutting *support service* for the above three services, encompasses all elements of a marine spatial plan. All the above instruments are used to preserve biodiversity.

**Box 4.2:****Belize Coastal Plan Based on Ecosystem Services**

Belize, with the second-longest unbroken reef system in the world, is renowned for its marine tourism. The tourism sector drives construction of new coastal developments, airports, urban areas, and cruise ship ports. The coastal ecosystems also support a number of commercial, recreational, and subsistence fisheries.

In 2010, work began on an ecosystem-based plan intended to sustainably develop coastal resources for the current and future benefit of all Belizeans. The planning process used Integrated Valuation of Environmental Services and Tradeoffs (InVEST) to formulate a management plan that was scientifically and economically sound. Ecosystem service modeling and mapping were employed to identify the location, extent, and intensity of human activities that could be adjusted to improve ecosystem service outcomes (Figure 4.1).

**Figure 4.1. Informed Management Scenario in Belize that Blends Conservation Goals with Current and Future Development Needs and Marine Uses**



Source: Rosenthal et al. 2013.



## 4.5

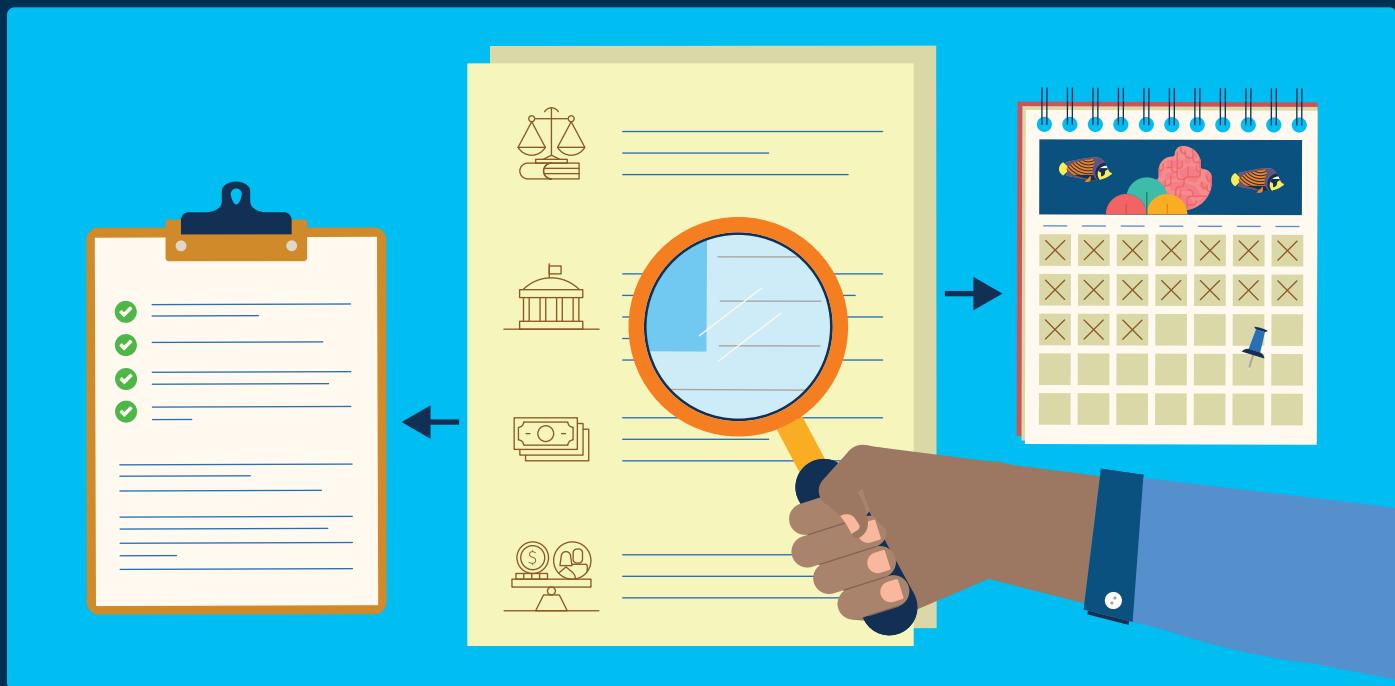
# Funding for Making the Case

Funding for upstream analytical work may come from sources such as non-government programs, impact investments, and government grants. Bank sources include trust funds such as PROBLUE or resources as an Analytics and Advisory Service (ASA) at the country or regional level. Other possible sources include Investment Project Financing (IPFs), GEF, Green Climate Fund, partnerships with other institutions, and international donors.



# 5.

# Marine Spatial Planning Enabling Conditions for Effective MSP



## 5.1

### Introduction

Marine spatial planning is a process made up of several actions and elements (e.g. objectives, resources, zoning plan) that together result in an effective management plan. When key elements—the enabling conditions—are present, they can facilitate plan formulation and effective implementation

(Erickson, Caldwell, and Koehn 2014). Establishing the enabling conditions for MSP can also support the enabling conditions for a Blue Economy. For example, regulatory changes that help MSP may also facilitate other Blue Economy actions. It is not necessary that all enabling conditions be in place to begin plan formulation. Some can be established during plan formulation or implementation (Figure 5.1).

**Figure 5.1. Enabling Conditions in the Context of MSP**



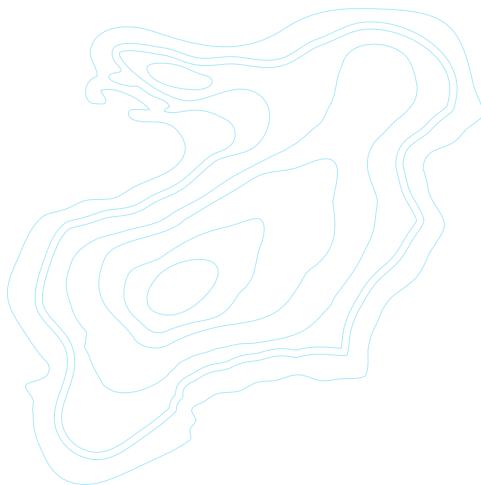
Source: Caldow 2015.

Reviews and studies of MSP have highlighted what the authors consider to be the key enabling conditions (Table 5.1). The five that are highlighted in the table are the most relevant for the World Bank.

**Table 5.1: MSP Enabling Conditions identified in Each Study or Tool Kit (Shaded Rows Indicate Most Frequently Identified Enabling Conditions)**

Enabling Condition	Convention on Biological Diversity (2014)	Erickson et al (2014)	UNESCO-IOC/European Commission (2021)	UN Environment (2018)	FSAT Tool
 Legal Framework	✓	✓	✓	✓	
 Institutional Framework	✓	✓	✓	✓	Public Sector Functional Review; Functional Role Matrix
 Political Engagement		✓			
 Stakeholder Participation	✓	✓	✓		Stakeholder Mapping:NetMap
 Financial Resources	✓	✓	✓	✓	Public Expenditure Review
 Human Capacity	✓	✓	✓	✓	Survey of Public Employees
 Firm Deadlines		✓			
 Trust				✓	
 Good Data & Tools	✓				

Source: CBD 2014; Erikson et al. 2017; UNESCO-IOC/European Commission 2021; UN Environment 2018.



This section looks at legal and institutional frameworks and financial enabling conditions, while the cross-cutting sections in Volume 2 examine stakeholder engagement (Section 9) and data and tools (Section 10). The previous section, Making the Case, discusses social enabling conditions and political support. There are also tools in the Fisheries Sector Assessment Toolkit (FSAT) that can help World Bank staff evaluate some of these enabling conditions (Table 5.1).

If one or more of these enabling conditions are not present, the investment may still advance. However, early interventions and investments can establish or strengthen these conditions by the time project approval occurs, to ensure a solid foundation for MSP planning and implementation.

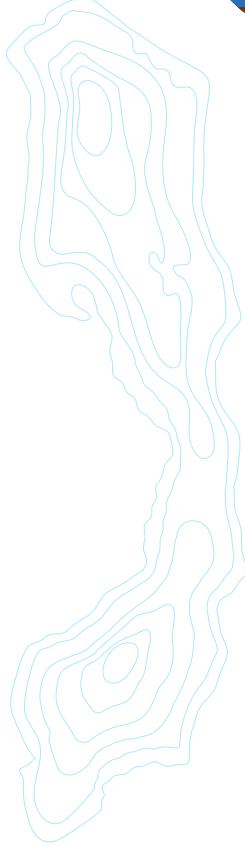


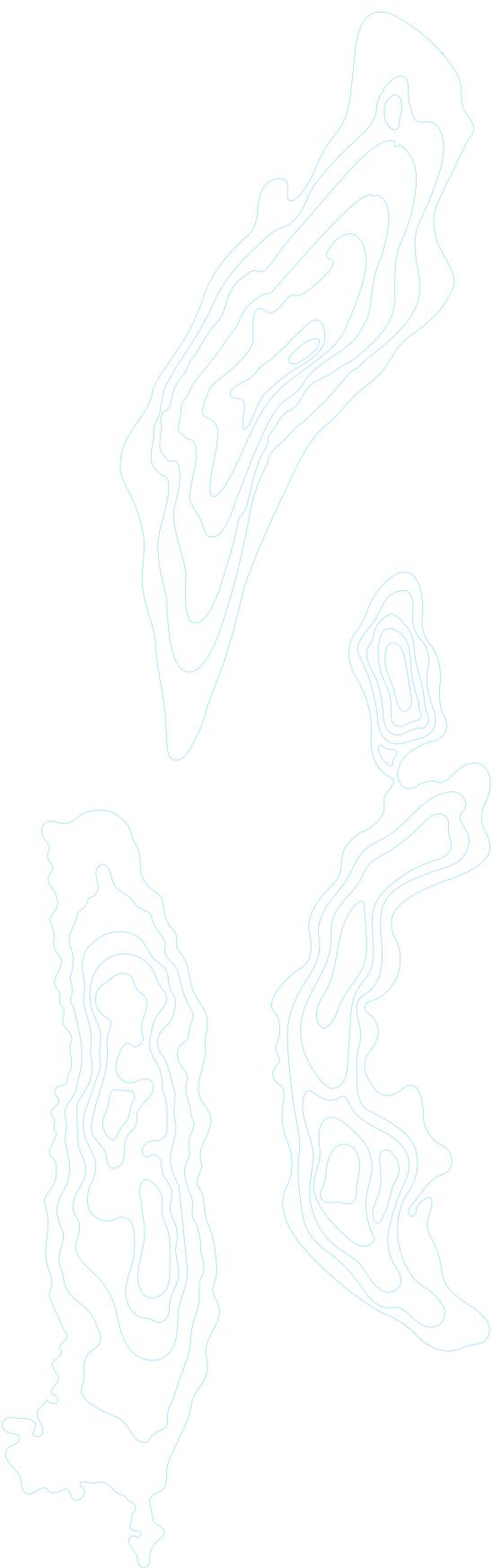
## — 5.2 Legal Frameworks —

An effective legal framework for MSP should accomplish as many of the following elements as possible (Erickson et al. 2014):

- 1 Clarify and mandate the roles of appropriate institutions and jurisdictions to plan, implement, enforce, and monitor a marine spatial plan.
- 2 Articulate an enforceable accountability mechanism to ensure appointed parties meet their legal mandates.
- 3 Unite the common goals, priorities, and objectives of the marine spatial plan to give a clear rationale for the MSP process.
- 4 Specify the use of best available and emerging scientific information to guide and inform plan formulation and subsequent revisions.
- 5 Identify mechanisms for conflict reduction and resolution, decision grievances, and management coordination.

A clear legal mandate can also specify the scope and scale of plans and planning processes, time frames for planning to take place, and the duration of a plan. Legal frameworks often facilitate formation





of other enabling conditions such as stakeholder engagement. They can also identify and secure the funding mechanism needed for development and implementation of the plan (Table 5.1).

A legal review is suggested early in the MSP process to determine the legal basis for undertaking the process and to identify key sectors and their legal frameworks that can assist in planning and implementation (Box 5.1). The legal review can also help inform work on the valuation of marine resources and sectors (see Making the Case, Section 4) and highlight the challenges to private sector investments (Box 5.2). If clients already have regulatory frameworks for MSP, the above checklist can inform the review of the legislation and regulations. If no regulatory framework exists, there is a need to support development or strengthening of the regulatory framework as an early project activity. Publications such as *Planning Legislation for Implementation: A Guide for Legal Drafters* (O'Connor and Oehler 2020) provide detailed help on drafting the appropriate legal instruments for effective marine spatial planning.

#### Box 5.1:

#### **South Africa: Operation Phakisa**

South Africa's Operation Phakisa, established in 2014, included oceans as part of the country's national development plan to 2030. The Operation also committed to undertake MSP to ensure sustainable marine use and provide guidance on trade-offs between competing users (Republic of South Africa 2014). However, the government could not advance MSP until a legislative framework was created (Findlay 2018), which happened in 2019.

The Marine Spatial Planning Act 16 of 2018 provides for:

- a framework for marine spatial planning in South Africa.
- the development of marine spatial plans.
- institutional arrangements for implementing marine spatial plans and governance of the use of the ocean by multiple sectors.
- other related matters.

The Cabinet has designated the Department of Environmental Affairs (DEA) as the coordinating department for MSP in South Africa. A National Working Group comprises representatives from government departments and will develop and implement marine spatial plans (South Africa 2019). Details of the Marine Spatial Planning Act can be found at <https://www.gov.za/documents/marine-spatial-planning-act-16-2018-6-may-2019-0000-0>

 Box 5.2:

### Facilitating Offshore Renewable Energy in the Seychelles

Opening up electricity generation, including offshore wind turbines, in the Seychelles to Independent Private Producers (IPPs) required an amendment of the electricity market regulations (Ministry of Home Affairs, Environment, Transport, and Energy 2011). In 2010, the government established the Seychelles Energy Commission, which manages IPPS and removed tariff regulations on all imports of renewable energy technology (Seychelles Energy Commission 2014). These changes facilitated the construction of an offshore wind farm with an installed capacity of 6 MW. Operated by a private company, the facility supplies 2,100 households with electricity and avoids 5,845 tons of CO<sub>2</sub> emissions per annum (IRENA 2016).

## 5.3

# Institutional Frameworks

In MSP, the institutional component encompasses the human behavior and relationships that exist in the marine community, which comprises government, non-government, and academic institutions. These institutions have different mandates and different responsibilities. Without a coherent plan, it is impossible to coordinate or manage all of them (Yatim et al. 2018). Therefore, an effective MSP process and plan needs to lay out who handles what aspects of managing ocean use, including existing and emerging sectors. It is also important too to establish which agency has the mandate for overall coordination, management, implementation, and monitoring of MSP.

Some client countries may already have mandated an institution to coordinate and manage the MSP process. Or the legal framework for MSP may provide for the needed institution. In other situations, however, there may be a need to identify the institution. Tools such as Public Sector Functional Review and Functional Role Matrix (Table 5.1) can help in this task. Other tools, such as the Institutional Analysis and Development (IAD)

Frameworks (Table 5.2), may aid in understanding connections among institutions in order to propose a lead agency for MSP and identify other agencies that should participate in the process (Yatim et al. 2018). The institutional review should not exclude the private sector, especially representative industry groups and financial or investment institutions. These are key to implementation.

**Table 5.2. Institutional Analysis and Development (IAD) Rules with Explanations**

Rules	Explanation
	Set of positions or roles, which are held by different types of participants in an action situation.
	Specify how the actors are chosen to enter or leave these positions, thus influencing the number, attributes, and resources of the participants.
	Specify what actions assigned to an actor in a position are allowed, obliged, and prohibited. In this way, these rules directly determine responsibilities, rights, and freedom.
	Determine how decisions are made in an action situation. Specifies who will be involved in the choice and how much each actor's decision could contribute to the transformation function from actions to intermediate or final outcomes.
	Specify the potential outcomes that can be affected and, working backward, the actions linked to specific outcomes.
	Specify what information is available to each position; these rules affect the channels of communication among the participants.
	Affect the benefits and costs that will be assigned to particular combinations of actions and outcomes, and they establish the incentives and deterrents for action.

Source: Yatim et al. 2018.

The institutional review may also consider the capacity of each institution to participate in each step of the MSP process. Having legal and institutional frameworks in place is key to effective MSP. Otherwise, important risks emerge (Box 5.3). These include lack of ownership of the marine spatial plan, lack of implementation once the planning ends, and sub-optimal decision making for sustainable use of marine resources.

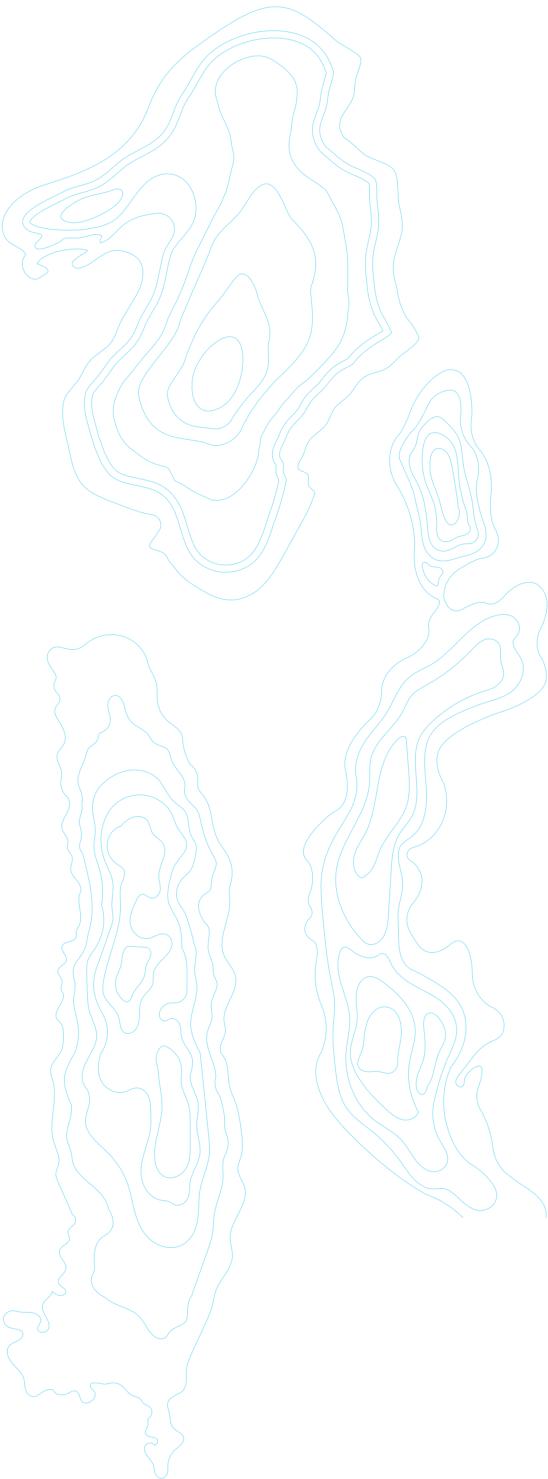


Box 5.3:

### Institutional and Legal Analyses of 3 Atlantic Tropical Countries

	Brazil	Senegal	Cape Verde
Institutional Framework (main institution)	Interministerial Commission (CIRM) responsible for the coordination of maritime policies and MSP. Includes 13 ministries and the navy headed by the President of Republic with mandate to develop MSP legal basis.	Ministry of Fisheries and Maritime Economy	Ministry of Maritime Economy, Directorate General for Maritime Economy (DGEM) with a mandate to develop MSP
Legal framework	Legal and political base grounds on maritime policies with a sectorial approach including ICZM and maritime conservation.	Political base grounded on maritime policies with a sectorial approach. Spatial planning legal framework including MPAs. No decision or mandate attributed to develop MSP.	Legal and political base grounds on maritime policies and blue economy with an intersectoral approach. Spatial planning legal framework include ICZM and MPAs.
UNCLOS ratification	25 October 2007	25 October 1984	10 August 1987

Source: Guerreiro et al. 2021.



## 5.4

# Financial Resources

Financing of some aspects of MSP, including enabling conditions, may be possible using instruments such as investment projects, impact investments, specific budget allocations and grants from government departments, and assistance from nongovernment sources. Some countries may want to consider World Bank instruments such as ASAs, development policy operations (DPOs), and IPFs. Many countries will need to invest public funds to complete the MSP process, especially implementation of the plan. One tool for identifying possible public sector funds is a Public Expenditure Review<sup>2</sup>, which yields details and insights into how government allocates funds to various marine-related programs and agencies. Reliable financial information is important to the design of the MSP process and to inform interventions, especially public investments, as part of implementation of the plan.

Private sector financing is also important in putting enabling conditions for MSP in place. Instruments such as blue bonds, impact investing, and insurance schemes can contribute. However, enabling conditions for financial instruments are context-specific and require decisive support from various government entities. Moreover, to access investment in traditional and emergent sectors in the Blue Economy, the conditions need to be permanent. Reports from Friends of Ocean Action (Friends of Ocean Action 2020) and the High Level Panel for a Sustainable Ocean Economy (Sumaila et al. 2020) provide a comprehensive description of the enabling conditions for financing the transition towards a sustainable Blue Economy. The main elements of these reports are illustrated in Figure 5.2. The World Bank note *Applying Economic Analysis to Marine Spatial Planning* summarizes these elements.

2 Public Expenditure Review Guidance Note:  
<https://documents1.worldbank.org/curated/en/78949163997748921/pdf/Blue-Public-Expenditure-Review-Guidance-Note.pdf>

**Figure 5.2. Enabling Conditions for MSP Finance**

Source: Sumaila et al. 2020, Ocean Fox Advisory, and Friends of Ocean Action 2020.



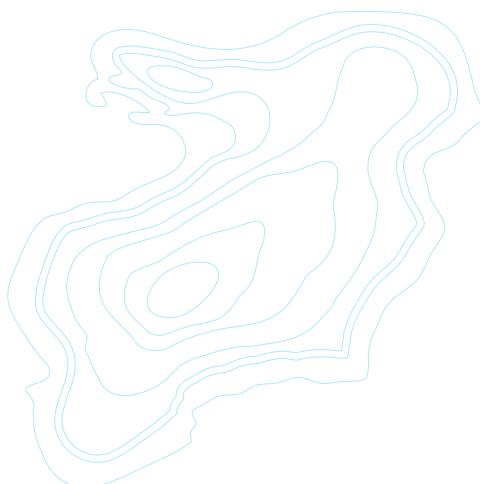
## 5.5 World Bank Investment Considerations

Understanding the status of enabling conditions (Table 5.1) is of prime importance to the World Bank. It is vital to grasp economic conditions at the start and what will need to be put in place before or during planning. There are tools and concepts that can sharpen understanding of current and future economic conditions at the MSP enabling step (Table 5.3).

**Table 5.3: Economic Tools and Concept for MSP Enabling Conditions**

 Key Economic Question(s)	 Economic Tools & Concepts	 What it tells you	 Minimum Data Needs
<ul style="list-style-type: none"> <li>• What type of property rights needs to be created and enforced?</li> <li>• What is the cost of enforcing property rights?</li> <li>• How to increase investors' confidence in Blue Economy projects by mitigating risks?</li> <li>• Are there perverse subsidies promoting unsustainable practices?</li> <li>• Is public expenditure insufficient to achieve MSP goals?</li> <li>• Do opportunities to generate public revenues or to correct negative externalities via fees or taxes exist?</li> </ul>	<ul style="list-style-type: none"> <li>• Make accessible and efficient insurance products part of the MSP design itself whenever risk cannot be addressed by other means at a viable cost.</li> <li>• Deploy blended capital alternatives if they can make investments in high-risk emerging industries more attractive for the private sector.</li> <li>• Use existing tools (e.g. a Public Expenditure Review) to diagnose and increase the efficiency of governmental expenditures.</li> </ul>	<ul style="list-style-type: none"> <li>• Provides information on the transaction costs for implementing MSP.</li> <li>• Creates enabling conditions for redirecting governmental funding and attracting private investors to sustain the transformation of traditional sectors and the emergence of new ones. Traditional governmental sources of funding are likely insufficient for implementing all ambitious activities embedded in most MSP processes.</li> </ul>	<ul style="list-style-type: none"> <li>• Public and private sources of funding for marine activities</li> <li>• Institutional arrangements and technical and human capacity</li> <li>• Regulatory information on public services</li> </ul>

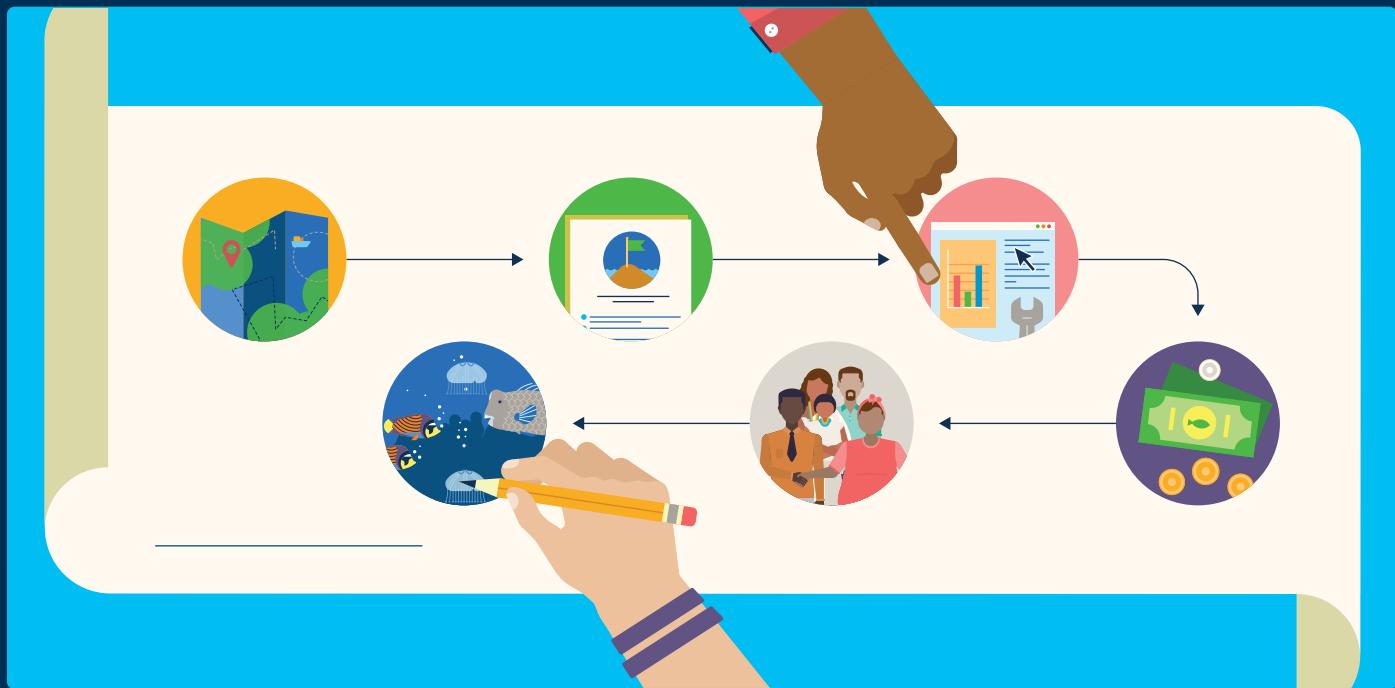
Source: Applying Economic Analysis to Marine Spatial Planning.



As noted above, if these conditions already exist or are established early in the MSP process, the likelihood of transformational change is higher. There is the added benefit of reducing risks for private investments mobilized by the IFC. This ensures that the World Bank's and clients' investments in marine sectors will be more successful for GRID and contribute to improved prosperity for coastal communities. Effective investments will also enable clients to meet biodiversity and climate change commitments and improve gender outcomes in their sustainable development initiatives.

# 6.

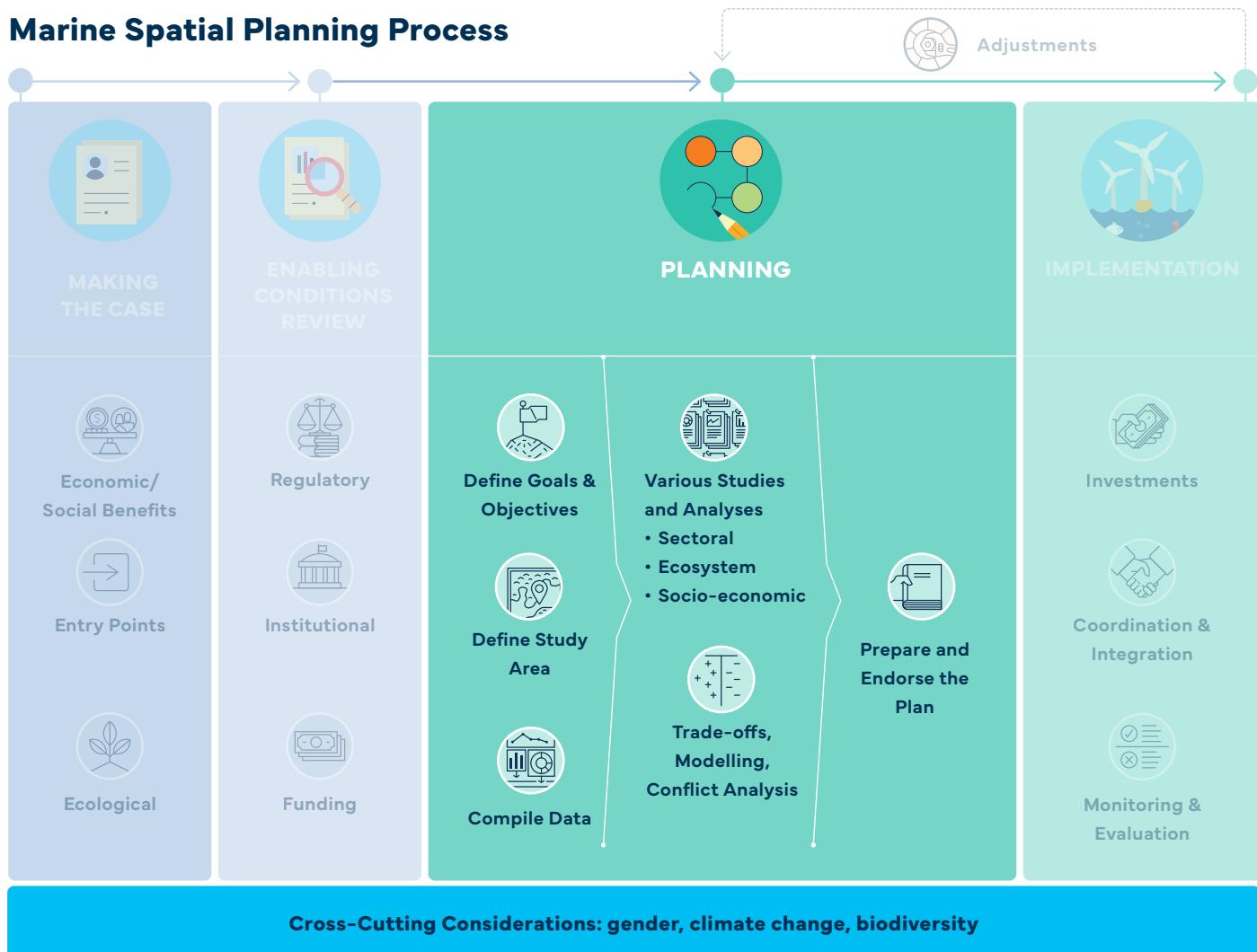
# Marine Spatial Planning Formulating Marine Spatial Plans



## 6.1

### Introduction

The previous sections have provided guidance on identifying entry points, making the case, and ensuring that enabling conditions are in place for writing and implementing a marine spatial plan (Figure 6.1). Planning can also support delivering Blue Economy objectives in one or more sectors. Potential Blue Economy investments may also be identified during plan formulation.

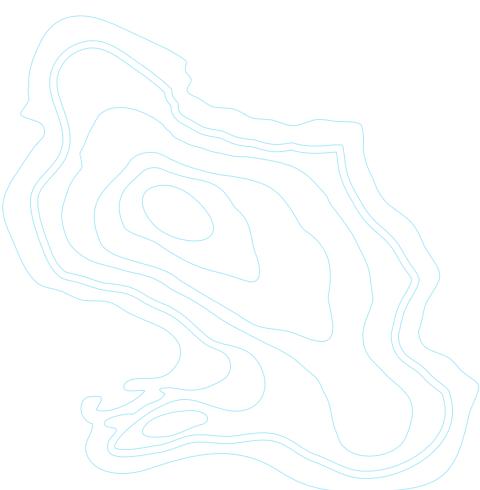
**Figure 6.1: Planning Activities in MSP****Marine Spatial Planning Process**

Source: Caldow 2015.

Digital platforms such as <https://www.openchannels.org> and publications such as the UNESCO Step-by-Step Approach (UNESCO-IOC/European Commission 2021) are often cited by people working on MSP projects as comprehensively detailing the steps to produce a marine spatial plan. Planning approaches follow the general rational model for spatial planning used in other sectors, such as regional and urban planning (Buhl-Mortensen et al. 2017) and integrated coastal zone planning (Figure 6.2). Rather than providing detailed descriptions from other publications for each step in developing a plan, this section will focus on good practices and lessons learned in planning and their relevance in World Bank operations, especially for investments.

**Figure 6.2: Rational Planning Process**

Source: Alexander 1998.



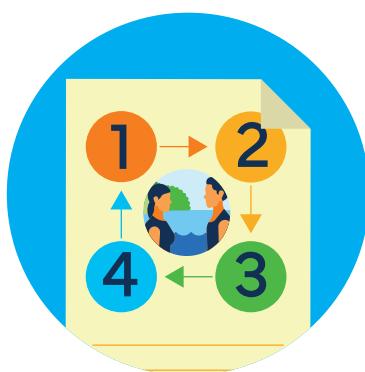
This guidance note targets World Bank staff and clients involved in MSP. It assumes they are familiar with the World Bank's Project Management Cycle, including the results framework, monitoring and evaluation, and relevant terminology. Readers can refer to these platforms and publications for detailed descriptions of each step of the MSP process, links to data, specific tools, best practices, and other resources. For further information on the World Bank's Project Management Cycle, see the *World Bank Project Website*<sup>3</sup>.

3 <https://www.worldbank.org/en/projects-operations/products-and-services/brief/projectcycle>

Formulating the plan, identifying the problems, setting goals and objectives, and analyzing existing and future alternatives require effective stakeholder engagement at national and local levels, especially for present and future marginalized or vulnerable groups. It also needs sound data, information, and tools. It is worth re-iterating a statement from the Secretariat of the Convention on Biological Diversity and the Scientific and Technical Advisory Panel 2012:

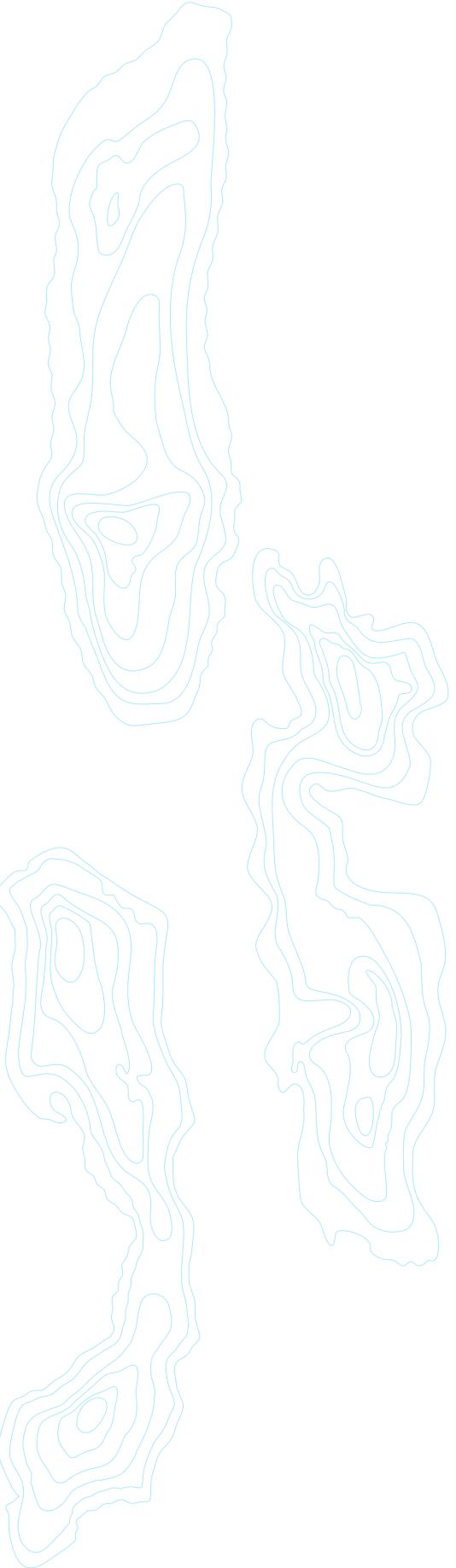
**“Strategic goals, that define needs to achieve the vision of marine spatial planning, are somewhat more general than objectives in MSP processes. The most effective plans are those developed in response to very clearly stated, very specific objectives, derived to the maximum extent possible from stakeholders through participatory planning. Measurable success occurs when objectives have metrics associated with them, with agreed upon indicators and targets.”**

Section 14 of this note, Monitoring and Evaluation, provides information on indicators.



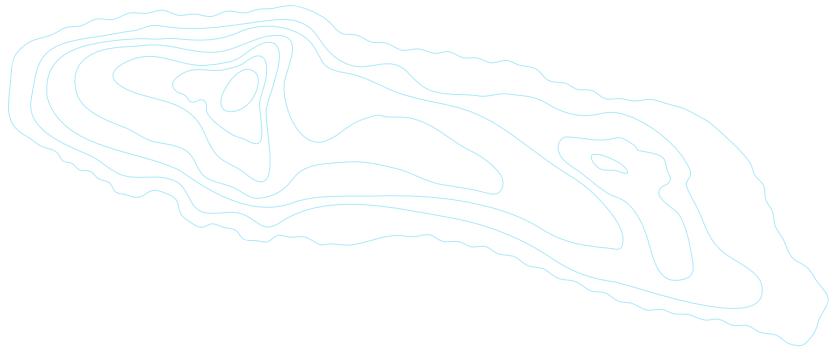
## 6.2 MSP Planning in World Bank Operations

The guidance mentioned above provide detailed descriptions of the actions needed in these steps. Volume 2 of the current note provides more detail on stakeholder engagement (Section 9), data and tools (Section 10), and monitoring and evaluation (Section 14).

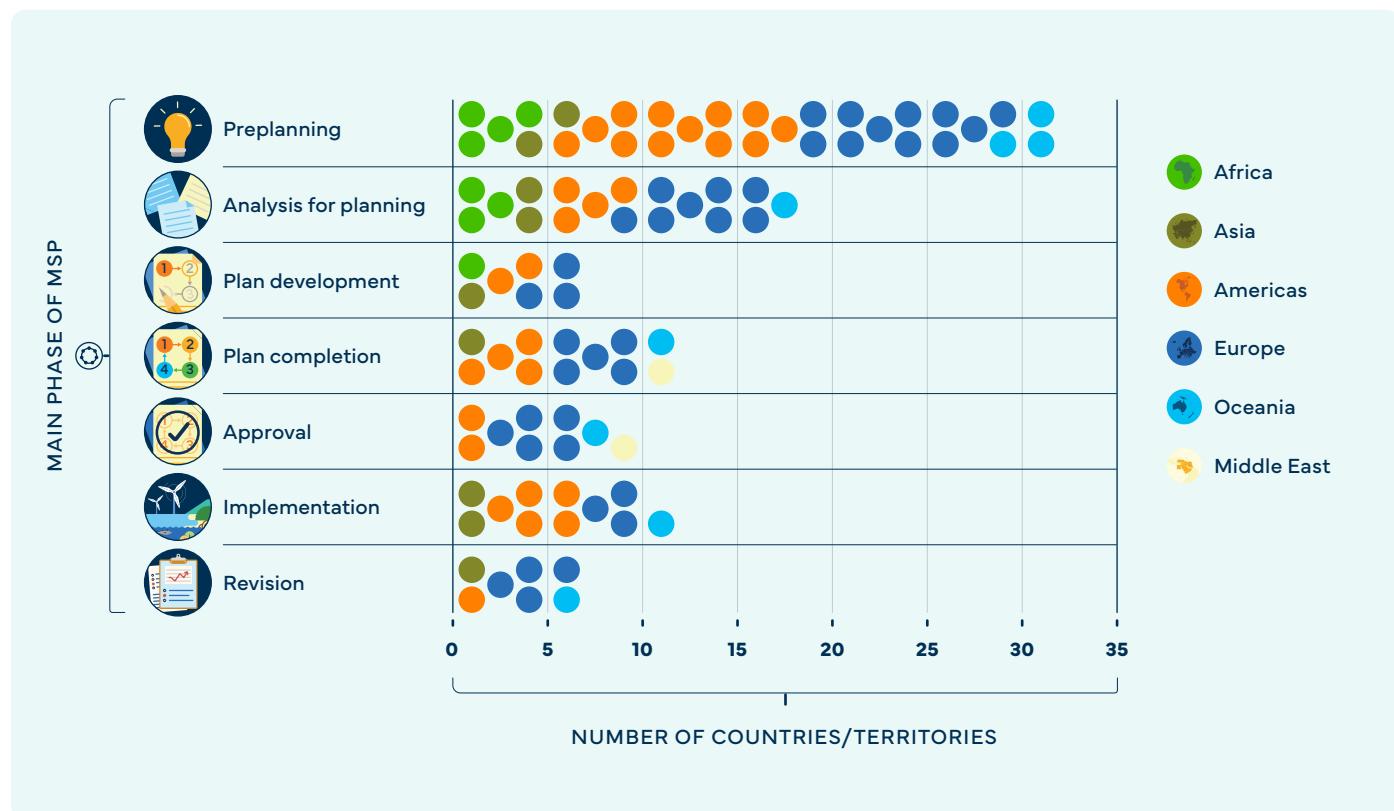


that are specific to World Bank operations. Problem identification, goal setting, and analysis of current and future conditions are usually not part of World Bank operations. But they are of interest since the Bank can provide information, especially economic, on current and future situations from its various data portals. The Bank can also deliver technical assistance in using certain tools to analyze current situations and alternative futures.

The planning process is the most advanced stage that many MSP projects have reached. Planning experience and lessons learned are therefore richer compared to implementation (Figure 6.3). A review of more than 15 peer-reviewed articles spanning the years 2008 to 2020 revealed several lessons for plan formulation. An important one is to conduct an early strategic environment assessment (SEA<sup>4</sup>) before beginning plan formulation, as demonstrated in Portugal (Frazão Santos et al. 2015) and the Caribbean (Jessamy 2018). The assessment can improve the socio-economic and environmental requirements of the process even before planning starts. These improvements can strengthen baseline information, decision making, and proposed solutions and development scenarios (H. Calado et al. 2010). Many of the documented experiences and lessons learned in these articles concern regulatory and institutional frameworks, goal and objective setting, stakeholder engagement, and data and tools.



4 Further detailed guidance for SEA is available at <https://www.oecd.org/environment/environment-development/37353858.pdf>

**Figure 6.3: Number of Countries at Different Steps of Marine Spatial Planning in 2017**

Source: Frazão Santos et al. 2019.

### Box 6.1:

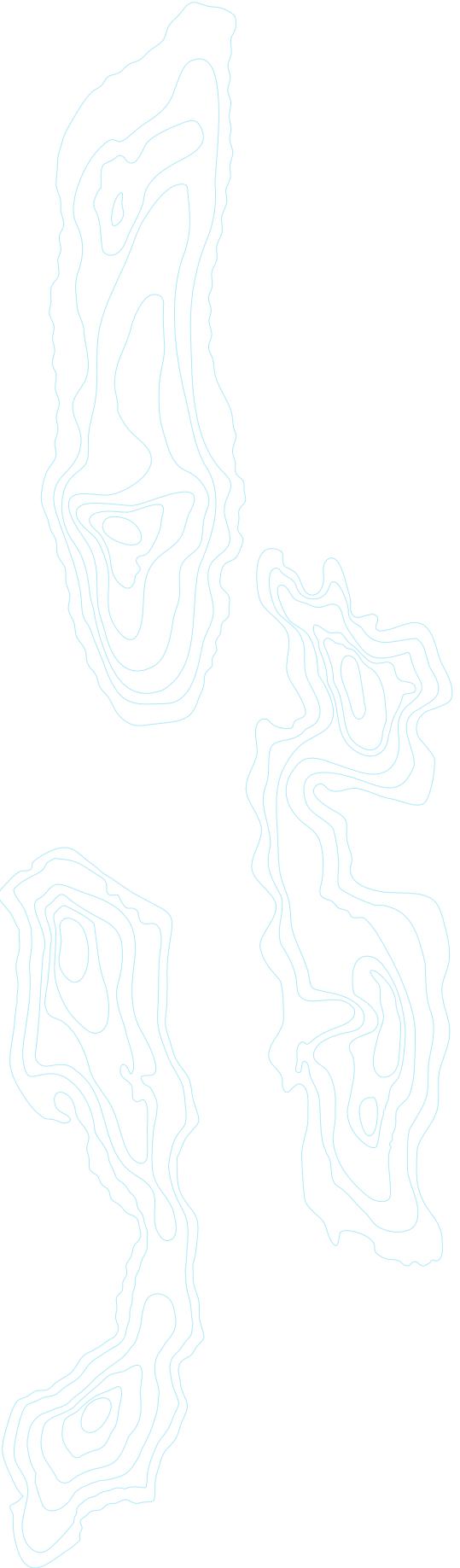
#### **Missing a Clear Legal Framework: Challenges in Indonesia**

The Ministry of Marine Affairs and Fisheries administered spatial planning in Indonesia until 2015. There was little legislative guidance on stakeholder engagement and the associated permit system. This resulted in ad hoc engagement of stakeholders, especially other ministries, creating long delays in plan endorsement and reluctance to implement plans. MSP legislation revisions in 2017 provided more structure and guidance. This included provisions for public participation and guidance on how to collect data, identify zones, and implement the plan (UN Environment 2018).

Many of the lessons learned over the last 10-plus years underline that a well-defined legal or regulatory framework and process are key to keeping MSP moving forward. Experiences from developing countries such as Indonesia (UN Environment 2018) and high-income countries such as Canada (Flannery and Ó Cinnéide 2012) demonstrated that without clear legal frameworks, ministries and the private sector are reluctant to engage in integrated planning and implementation (Boxes 6.1 and 6.2). This reluctance confirms that the institutional framework needs to facilitate inter-agency coordination (Soriani et al. 2015).

 **Box 6.2:****Incomplete Legal Framework Impedes Implementation:  
Scotian Shelf (Canada)**

Canada's Ocean Act of 1997 mandates the Department of Fisheries and Oceans (DFO) to develop and implement integrated ocean management plans. However, the act does not mandate DFO to regulate related activities. Rather, it expects other regulatory authorities to support implementation by ensuring decision making is consistent with plan objectives and strategies. A key lesson is the need for policy measures that oblige participants in MSP processes to implement the plans. Another lesson is the need for lead agencies to have the appropriate regulatory competencies (Flannery and Ó Cinnéide 2012).

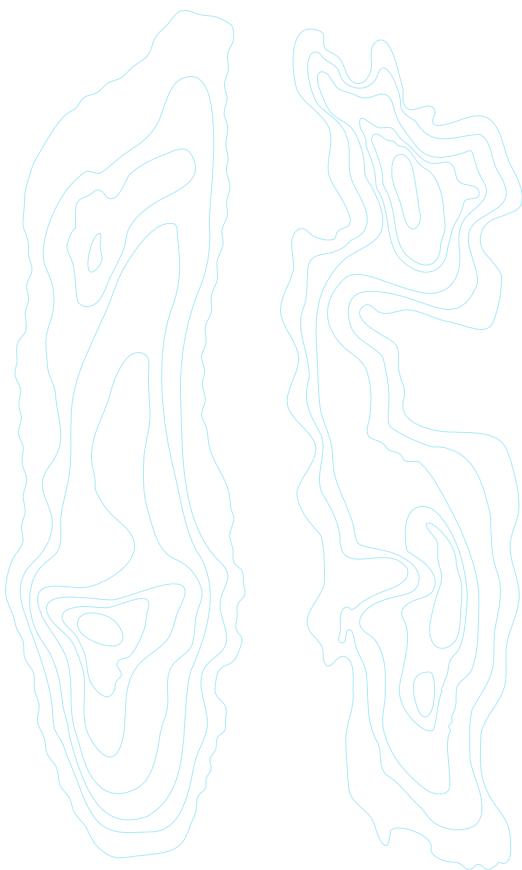


Policy integration consists of making strategic and administrative decisions aimed at solving complex problems, which is distinct from policy coordination and coherence (Cejudo and Michel 2017). Vince and Day (2020) provide a framework for effective integration in MSP using 12 principles (Table 6.1) and note that emphasis on different principles of the framework will vary with the conditions and needs of each planning area and process. The authors, however, considered integrative capacity as the key principle for successful integration in MSP. They describe integrative capacity this way: "institutions and government agencies have the policy coordination and policy capacity to be integrated, anticipate policy demands and develop effective solutions." According to Cejudo and Michel (2017), integrative capacity occurs on three levels: (1) capacity is limited, (2) capacity exists to design and modify the operation, including reallocating responsibilities and resources and (3) power exists to use and change existing instruments.

**Table 6.1: Principles for Effective Integration**

Consideration	Description
1. Cross-sectoral	MSP needs to be cross-sectoral and specified: Cross-sectoral coordination requires an open and consultation between all the multiple sectors, which can bring innovative solutions to issues and increase the exchange of knowledge.
2. Cross-cultural	Free, prior, and informed consent is needed for recognized rights-holders and others with tenure or traditional use relationships within or next to the planning area, before taking any planning or management actions. When traditional knowledge and Indigenous perspectives integrate with Western science, both can contribute substantially to the latest scientific understanding.
3. Intra-agency (within relevant agencies)	There is a need for effective integration ( <i>'the left hand knowing what the right hand is doing'</i> ) especially for very large government agencies. This leads to increased coordination/cooperation, improved service, greater efficiency, less duplication, and lower costs.
4. Intra-governmental (between-agencies within same government)	Calibration meetings with all potential management agencies can clarify management mandate of each agency.
5. Cross-jurisdictional/ inter-governmental	Cross jurisdictional and inter-governmental relationships can contribute to integrative success in MSP.
6. Inter-generational	Integrated policies need to consider that decisions made today will have consequences for future generations, e.g. the continued depletion of natural resources that continues today, will probably be a burden for future generations.
7. Cross disciplinary/ interdisciplinary	There is a need for people to work together, integrating knowledge and methods from different disciplines, using a real synthesis of approaches. Integrative or socially inclusive approaches are more complex but are more pragmatic and therefore likely to be more effective.
8. Broad scale	Managing entire ecosystems, seascapes and ocean corridors requires integration and can lead to resilience. This is accomplished by protecting a wide range of habitat types that are geographically widespread.
9. Social capital	There is a need to understand the ecosystem in an economic and social context, while promoting sustainable use, and internalizing costs and benefits. Resilient communities can strategically use their social networks to gain access to resources beyond the community.
10. Include place-based values	Integrating the cultural and spiritual values, and the raw materials that are the foundation of humanity's well-being, provides important links to wider social issues.
11. Consider cumulative impacts	Cumulative impacts include direct impacts, indirect impacts, and consequential impacts. Understanding cumulative effects improves the information on the degree of pressure or impact that is sustainable and will meet conservation objectives.
12. Integrative capacity	Institutions and government agencies have the policy coordination and policy capacity to be integrated, anticipate policy demands and develop effective solutions.

Source: Vince and Day 2020.



Comprehensive guidelines for formulating the needed regulatory framework are offered in the recent publication *Designing Marine Spatial Planning Legislation for Implementation: A Guide for Legal Drafters* (O'Connor and Oehler 2020). It lays out details of a potential structure for MSP legislation and how to specify the planning area, activities, zones, stakeholder engagement, financing, enforcement, and compliance, among other issues (Figure 6.4). Similarly, the report *Policy Options for a Bermuda Nearshore Marine Spatial Planning Process* is a comprehensive discussion on relevant legal and institutional frameworks options for the government (Porter 2016). The study suggested the government consider two main policy options for development of a marine spatial plan in Bermuda. Option 1 was an interdepartmental approach and without enacting new legislation and potentially a first step towards MSP. Option 2 was legislative and would build on Bermuda's existing planning framework, assigning overall authority for MSP to the Department of Planning (Option 2A) or to the Department of Environment and Natural Resources (Option 2B). Both are in the Ministry of the Environment. The study also suggested amendments to key Bermuda legal frameworks (e.g. protected species, maritime cultural heritage, energy, and aquaculture) to better support MSP implementation (Porter 2016).

**Figure 6.4: Example of Structure and Scope of Potential MSP Legislation (part 1)**



**Figure 6.4: Example of Structure and Scope of Potential MSP Legislation (part 2)**

Source: O'Connor and Oehler 2020.



## 6.3 Goal and Objective Setting

Integrated plans should address multiple objectives. Therefore they need to be clear, consider social and cultural factors (Beck et al. 2009, Flower et al. 2020), and be positioned strategically to ensure they resonate with stakeholders to instill long-term planning and implementation support (McCann et al. 2014). Objectives can include multi-sectoral coordination or integration as illustrated in Mozambique (Box 6.3). Goals and objectives should also consider the socio-political factor. Failure to do so can derail the planning process, as seen in Portugal's first attempt

at MSP (Box 6.4). Grasping the socioeconomic considerations also facilitates a better understanding of the planning area, which helps to define goals and objectives (UNESCO-IOC/European Commission 2021).


**Box 6.3:**

### Mozambique's Multi-Sector Coordination Objectives as Part of Its Marine Spatial Plan

Mozambique's proposed marine spatial plan includes a specific objective for multisectoral coordination (Table 6.2). The plan leverages the role of the national government in facilitating

development of emerging industries such as offshore energy. At the same time, local governments and communities can benefit from the development of marine sectors.

**Table 6.2: Strategic Objectives of the Mozambique Marine Spatial Plan**



#### Strategic Objective

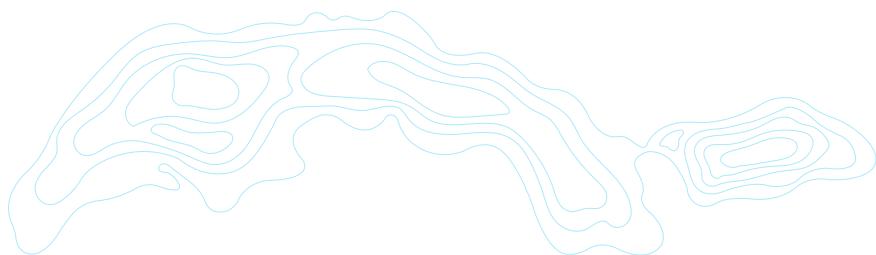
**SO I.3 Multisectoral Coordination** Take advantage of central government approaches and strategies for local development and support of NGOs and emerging industries in the sea (focus on energy) to establish new marine conservation areas and increase efficient protection of existing and other coastal and deep sea habitats and to minimize conflicts between users in coastal communities and other activities that exploit resources in the same region, valuing and promoting traditional activities (agriculture and fishing), small and medium scale industries and access to local energy resources for the development of activities in urban and industrial district coastlines.

(o) Specific Objectives	(o) Target	(>) Actions	(o) Responsible Actors	(✓) Indicator	(L) Time
Develop alternative and complementary activities that contribute to local protection of existing coastal habitats and deep-sea areas to minimize conflicts between users in coastal communities and other activities that intensively exploit resources in the same region.	Establish new dynamics of use of coastal space and maritime	Establish new marine conservation areas	MTA. MIMAIP, MICULTUR, Bodies of representation of State provincials, District Governments, Municipalities, CSO	Increment of Programs, projects, and interventions diversified in support to local development	2022-2040

**Box 6.3 (Cont.):**

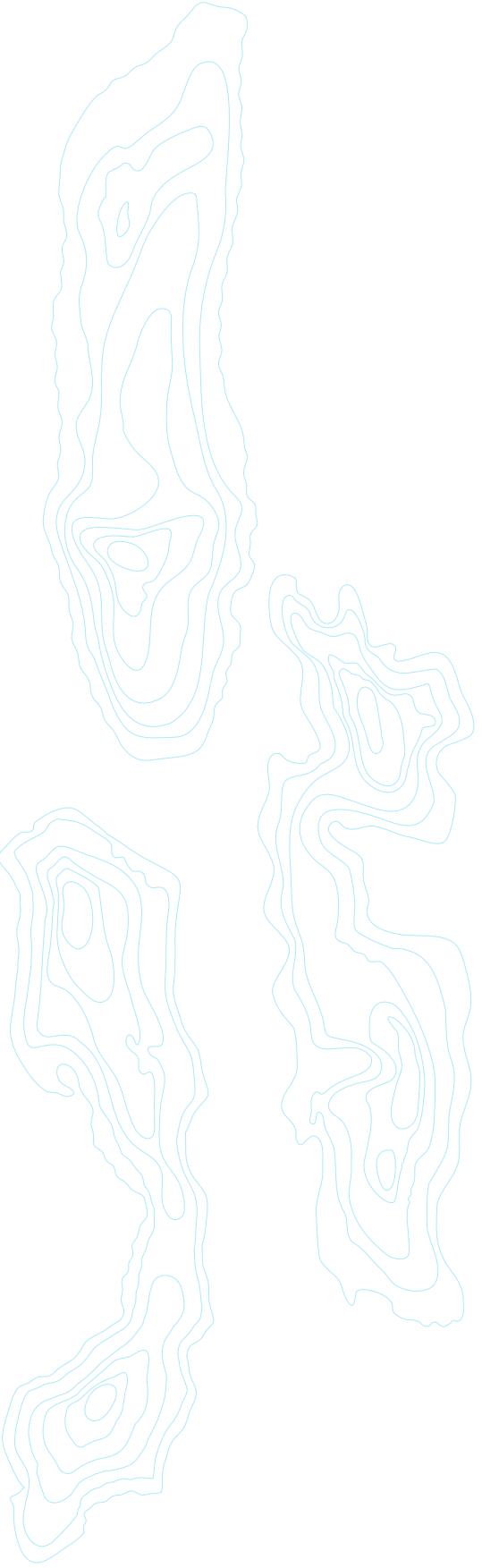
						Time
		Establish Programs and Projects oriented towards increasing habitat protection efficiency in coastal and deep-sea areas	MTA. MIMAIP, Bodies of representation of provincial states, District Governments, Municipalities, CSO			2022-2026
		Promote traditional agriculture and fishing activities to strengthen food security	MIMAIP. MADER, Organs of representation of provincial states, District Governments, Municipalities, CSO			2022-2040
		Promote, in coastal districts, the use of energy resources for the development of activities small and medium urban industrial scale	MIREME. MIC, MIMAIP, Organs of representation of provincial states, District Governments, Municipalities			2022-2040

Source: Ministério do Mar, Águas Interiores e Pescas (MIMAIP) Mozambique 2021.



 **Box 6.4:****Portugal's MSP Struggles**

In 2012 the government of Portugal changed course on MSP after four years of work by an inter-ministerial commission to develop the first national MSP initiative. The marine spatial plan was acknowledged only as a “baseline study” and the start of a process to establish an MSP framework law. That law was passed in 2014, but to date there is no marine spatial plan for all or part of Portugal’s EEZ. The politically based changes in the MSP process in 2012 led to several problems. These include delay of the entire planning process, lack of credibility of responsible entities, disengagement of stakeholders, and ultimately, absence of essential MSP management actions and marine spatial plans (Santos Frazão 2016).

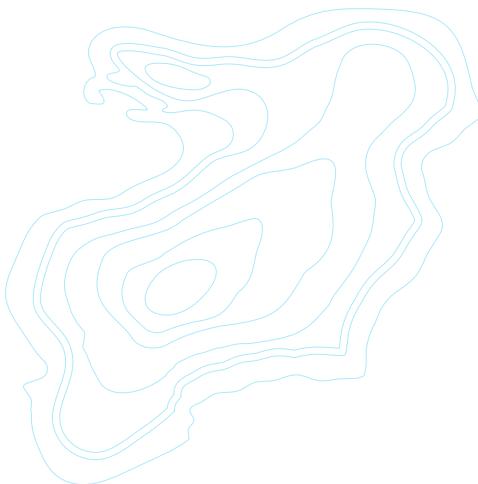


Well-defined goals and objectives also lead to effective indicators to measure success, as noted above (Secretariat of the Convention on Biological Diversity and the Scientific and Technical Advisory Panel 2012). The UNESCO-IOC/European Commission (2021) guide described a goal as a statement of general direction or broad aspirations, a high-level statement of the desired outcome (Table 6.2). They also note that MSP objectives, described as a statement of desired outcomes or observable behavioral changes representing the achievement of a goal (See Monitoring and Evaluation Section 14), should be specific, measurable, achievable, relevant, and time-bound (SMART). In addition, an objective may have more than one outcome. For example, in Table 6.3, the objective “implement a representative system of marine protected areas (MPA) by 2012” may have an outcome of a specified area of mangrove habitat gazetted as a MPA by 2010 and another outcome may be another area of seagrass gazetted as MPA by 2011. Consequently, each outcome will have its own SMART indicator such as area of mangrove declared MPA.

**Table 6.3: Examples of Goal and Objective Statements**

 <b>Goal Statements</b>	 <b>Objective Statements</b>
Conserve or protect marine resources	Protect 90% of essential habitat for diving birds by 2012
Conserve ecological structure—at all levels of biological organization—to maintain biodiversity and natural resilience of the marine area	Ensure that adequate marine space is available to produce 25% of energy needs from offshore sources by the year 2020
Protect ecologically valuable areas	Ensure that a minimum of 10% of marine space is available for offshore aquaculture by 2015
Restore degraded areas	Implement a representative system of marine protected areas (MPA) by 2012
Ensure sustainability of economic uses of marine space	Reduce the time required to make decisions on marine construction permits by 50% by 2010
Promote appropriate uses of marine space	
Reduce and resolve conflicts among current and future human	

Source: Ehler and Douvere 2009.



It is easier to set and manage user expectations when participants agree on and set clear goals and objectives using transparent communications early on (Smythe and McCann 2018) and avoid misunderstandings (Almodovar et al. 2014). In addition, clear and measurable objectives integrated across sectors explicitly allow process participants to consider sector plans and related objectives (Box 6.5) and adjacent plans such as land use plans and catchment plans (Ehler 2008). Early recognition of the strategic plans of different stakeholders and sectors and management bodies is also essential. This provides the adaptive capacity needed for management actions (Buhl-Mortensen et al. 2017). When drafting goals and objectives, participants should also consider potential negative impacts and the range of trade-offs needed to minimize them (Beck et al. 2009).

**Box 6.5:****Belize ICZM Vision, Objectives, and Indicator**

The Belize ICZM integrates multiple marine sectors, including fisheries, aquaculture, tourism, and marine traffic, into four visions:

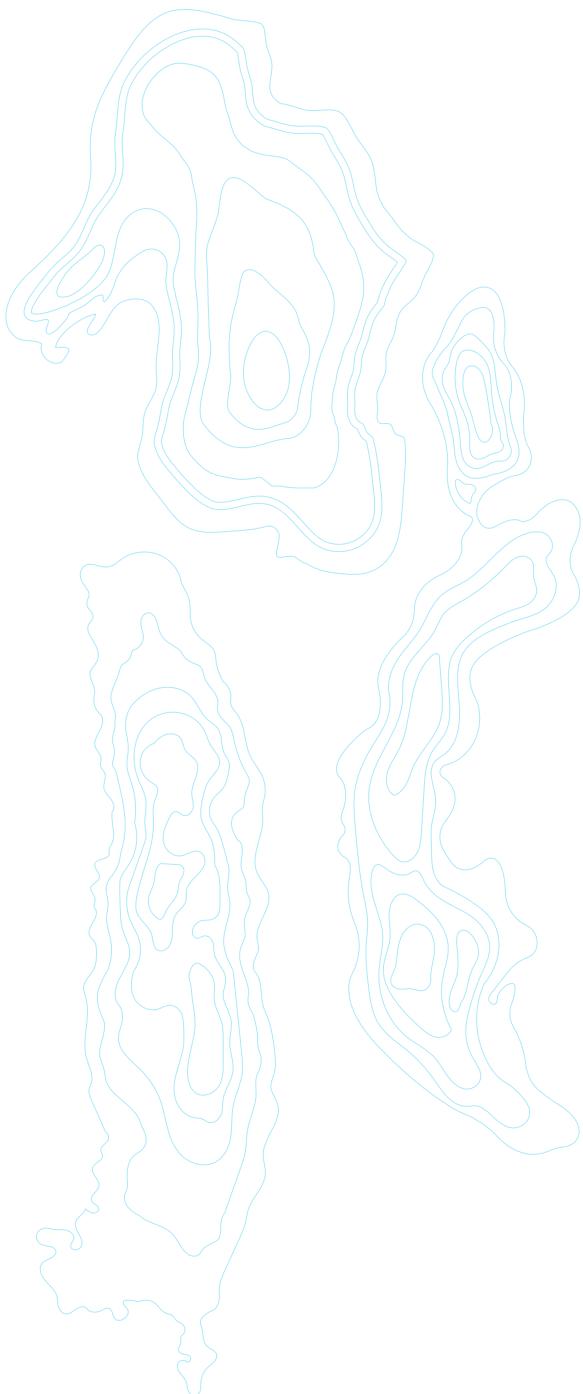
1. Encouraging sustainable coastal resource use.
2. Supporting integrated development planning.
3. Building alliances to benefit Belizeans.
4. Adapting to climate change.

One of these four visions includes a marine sector through a set of "Actions" (objectives). The plan's Monitoring Protocol for Periodic Evaluation of Implementation and Coordination Plan (ICP) reflects the visions and objectives. These are clear, providing at least one measurable indicator for each objective. Table 6.4 below illustrates clear objectives with linked measurable indicators for marine traffic in Belize's Integrated Coastal Zone Management Plan.

**Table 6.4: Marine Traffic Objectives of Belize's Coastal Zone Management Plan and Indicators**

Actions Required (Objective)	Indicator/Target(s)	Metric(s)
1. Develop a national policy on marine transportation in support of the Informed Management zoning scheme to minimize user-conflicts	<ul style="list-style-type: none"> <li>● National Policy developed by June 2018</li> <li>● Prepare and submit Cabinet Paper by September 2018</li> </ul>	<ul style="list-style-type: none"> <li>● Number of consultations held</li> <li>● Number of stakeholders consulted</li> <li>● Number of recommendations and suggestions to develop policy</li> <li>● Date by when Cabinet Paper is submitted</li> </ul>
2. Develop and implement a national policy and supporting standards for the safe transport of hazardous chemicals in the sea	<ul style="list-style-type: none"> <li>● National Policy developed by June 2018</li> <li>● Prepare and submit Cabinet Paper by September 2018</li> </ul>	<ul style="list-style-type: none"> <li>● Number of consultations held</li> <li>● Number of stakeholders consulted</li> <li>● Number of recommendations and suggestions to develop policy</li> <li>● Date by when Cabinet Paper is submitted</li> </ul>
3. Conduct hydrographic surveys/mapping of the seabed to better inform marine transportation routes.	<ul style="list-style-type: none"> <li>● Develop proposed methodology, timeline, and implementation plan for hydrographic mapping by June 2017</li> <li>● Develop MOU with at least two (2) competent hydrographic agencies to implement proposal by December 2017, and initiate implementation by March 2018</li> <li>● Update navigational charts by March 2019</li> </ul>	<ul style="list-style-type: none"> <li>● Bathymetric profile of sea floor in meters</li> <li>● Number of channels</li> <li>● Number of shoals</li> <li>● Direction and strength of current patterns in feet per second</li> <li>● Number of partnerships</li> <li>● Number of charts updated</li> </ul>
4. Update navigational charts for Belize to improve boating safety.	<ul style="list-style-type: none"> <li>● At least three (3) new navigational charts produced by March 2019</li> </ul>	<ul style="list-style-type: none"> <li>● Number of new charts produced</li> </ul>

Source: Coastal Zone Management Authority and Institute (CZMAI) 2016.



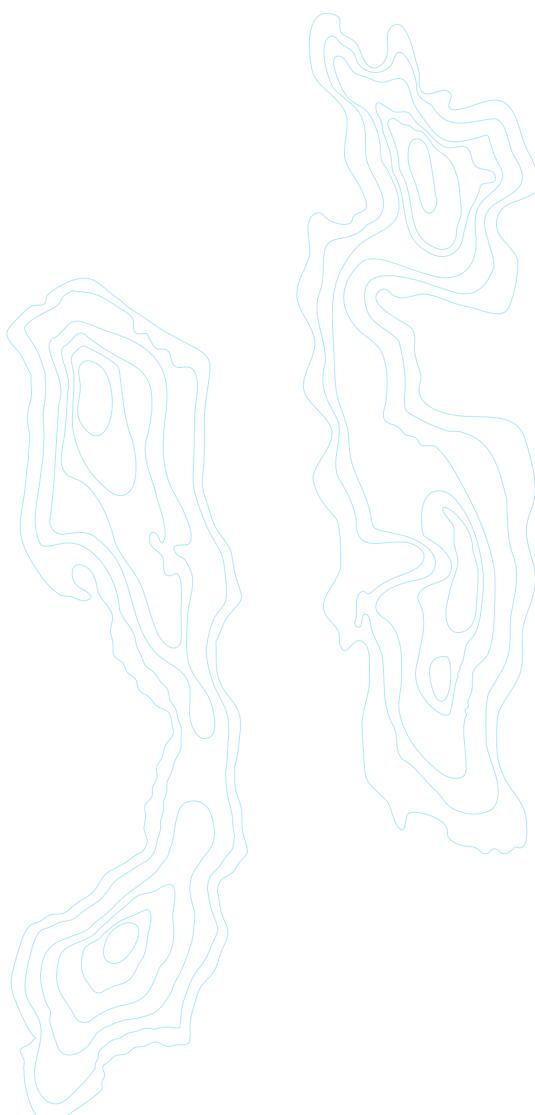
## 6.4

# Stakeholder Engagement

Almost every article in the 15 lesson-learned publications on MSP highlight stakeholder engagement as a key to acceptance and adoption of marine spatial plans (Convention on Biological Diversity 2014, Winther et al. 2020, Frazão Santos et al. 2018).

Many other papers that discuss MSP processes recognize that a sustainable plan requires a high level of stakeholder understanding and support (Buhl-Mortensen et al. 2017). Given the importance of stakeholder engagement, the cross-cutting sections of this note, including Stakeholder Engagement (Section 9), provide detailed lessons learned and best practices for stakeholders. Gender Equality and Women's Empowerment (Section 11) discusses engagement with vulnerable groups.

The following are major lessons learned in reviewing various articles related to stakeholder engagement, including the private sector. Early and continuous stakeholder engagement engenders trust and a sense of ownership of the planning process and plan, improving the likelihood of long-term success (Ehler 2008). Interaction with key stakeholders at every step of the process is crucial. It ensures transparency and supports a more effective approach towards adaptive management (Buhl-Mortensen et al. 2017). Also, when scientists and practitioners work together, they can better understand the critical role that ecosystems play in development goals (Arkema and Ruckelshaus 2017). Smythe and McCann (2018) note that in the United States it was more effective to use both formal and informal methods for stakeholder engagement and to build on existing relationships where possible. Informally engaging stakeholders and building strong working relationships often result in plan commitment and legitimacy (Anon. 2016) but these outcomes take time (Almodovar et al. 2014). Approaches for stakeholder engagement need to meet the needs of participants, especially for indigenous groups (McCann et al. 2014), and local cultural norms, as demonstrated in the Mediterranean and Black Sea areas (Soriani et al. 2015). Documenting stakeholder and expert perspectives also built political will in Barbuda (Johnson et al. 2020).



## 6.5

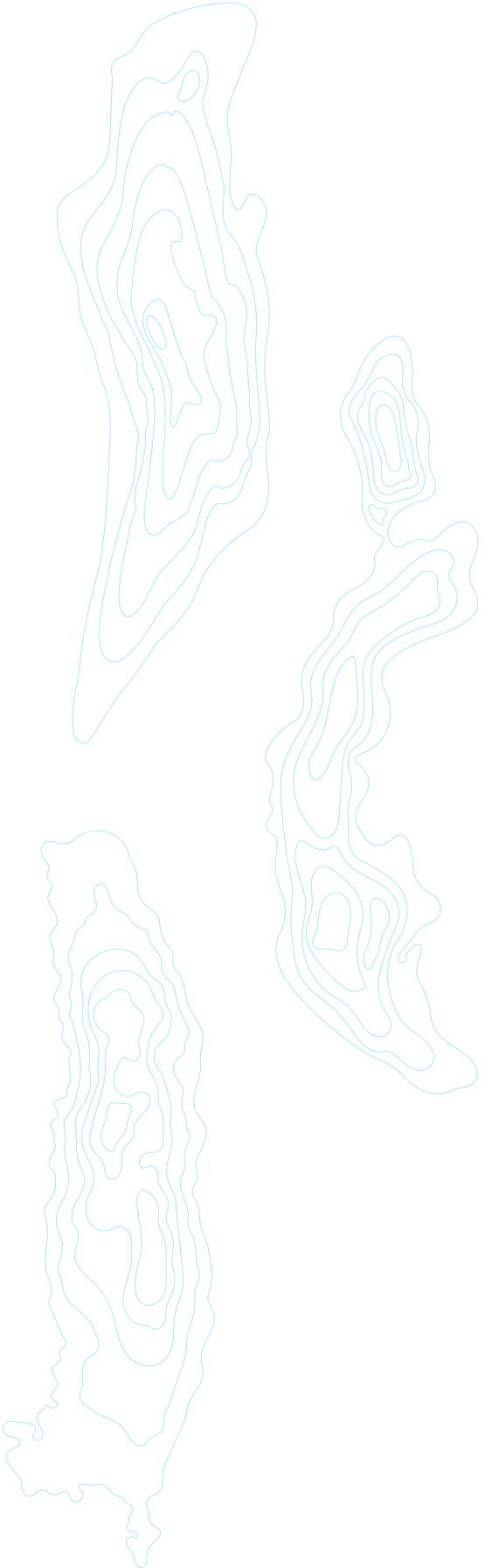
# Data and Tools

The likelihood of long-term sustainability of a marine spatial plan is higher if it uses robust and reliable evidence. This evidence results from a combination of best available data used with the relevant tools for management choices (Flynn et al. 2020). Decision making improves when there is a common system for information and storage with transparent access. Data need continuous updating and improving (Beck et al. 2009, Almodovar et al. 2014, Johnson et al. 2020). Efficient and effective data systems also need criteria for data acceptance and protocols for data exchanges.

The Barbuda MSP planning process collected 67 GIS layers, but used only five of them extensively. This suggests that while extensive data sets are ideal, some data are more useful than others (Johnson et al. 2020). Integrating the human dimension based on a sound socio-economic information base is also important for planning and decision making, as detailed in Data and Geospatial Support, Section 10 (Ehler 2008). Winther et al. (2020) found that social networks for data sharing and capacity building accelerated integration. Easy and transparent access to relevant tools such as decision support tools also improves planning and decision making (McCann et al. 2014).

Other planning lessons and experiences:

- Planners should create comprehensive and flexible planning frameworks so that participants have a good perspective on the context of the plan and the goal, objectives, and activities.
- Retro-fitting climate change adaptation into MSP after the plan is completed is difficult and resource-intensive.
- Providing training upgrades for those leading and taking part in MSP will create a better understanding of the process and ultimately more effective plans.
- Building a broad MSP leadership base can sustain engagement and support for the process (Anon. 2016).

- 
- The institutional framework should facilitate inter-agency coordination to strengthen the needed integration (Soriani et al. 2015).
  - Communicating the value of MSP increases participants' commitment to the plan and builds their capacity to participate effectively in the planning process (McCann et al. 2014).

This last point reinforces the need to make the economic case for MSP. Information on ocean accounting, including TEEB<sup>5</sup> for oceans and coasts studies, and the socio-economic benefits of MPAs and NBS is key to decision making.<sup>6</sup> It is also important to communicate the values of marine resources and their services, and where possible to include economic information in other tools (e.g. scenarios) and approaches (e.g. adaptive management). Better communication results in better informed discussions, trade-offs, and decisions.

In planning, economic studies and information enable stakeholders to use various tools to find the balance between uses, as well as meeting conservation and climate change objectives. They also enable stakeholders to ask key questions:

- What is the best spatial and temporal allocation of marine scarce resources?
- How are actors in the marine space likely to react to the new regulations?
- Where and how to expand protected areas to maximize ecological and economic outcomes?
- What are the likely distributive impacts (e.g. on income, gender, migration) of alternative MSP designs?
- How to address land-sea interactions?

A range of tools and concepts is available to help answer these questions. They require an understanding of when to use the tools, the information the analysis provides, and the minimum data needs (Table 6.5).

5 The Economics of Ecosystems and Biodiversity (TEEB). See UNEP 2013.

6 See World Bank note *Applying Economic Analysis to Marine Spatial Planning* for detailed discussions.

**Table 6.5: Economic Tools and Concepts for MSP**

 Key Question	 Tools and Concepts	 What it tells you	 Data Sources
<ul style="list-style-type: none"> <li>• What is the best spatial and temporal allocation of marine scarce resources?</li> <li>• What are the most likely reactions of actors in the marine space to the new regulations?</li> <li>• Where and how should protected areas be expanded to maximize ecological and economic outcomes?</li> <li>• What are the likely distributive impacts (e.g. income, gender, migration) of alternative MSP designs?</li> <li>• How should land-sea interactions be addressed?</li> <li>• How can climate change events be predicted, mitigated, and adapted to?</li> </ul>	<ul style="list-style-type: none"> <li>• Economic valuation of externalities, a key tool to design policies that internalize negative or positive externalities.</li> <li>• Probabilistic risk assessment, aiding cost-benefit analysis, including sensitivity analysis, switching values, and simulation techniques.</li> <li>• Participatory scenario analysis that allows a better understanding of uncertainty by stakeholders in an MSP process.</li> <li>• Cost-effectiveness, measuring impact evaluation analysis.</li> <li>• Scenario analysis using InVEST, ARIES, or similar spatial tools.</li> <li>• Behavioral economics methods to anticipate perverse incentives.</li> <li>• Bio-economic models to capture the interrelation between productive and extractive sectors and the condition of the resource.</li> </ul>	<ul style="list-style-type: none"> <li>• Provides information on the best spatial and temporal allocation of resources with attention to the existing economic tradeoffs.</li> <li>• Determines the types of incentives needed for motivating higher compliance of regulations.</li> <li>• Provides feasible strategies to deal with negative externalities such as plastic pollution and contamination by agrochemicals (e.g. direct regulation, market-based). These strategies include welfare implications of such externalities on vulnerable groups, such as small-scale fishers or tourism entrepreneurs.</li> </ul>	<p>Multiple sources based on the industries included in the planning process. For instance, for the tourism industry: yearly number of tourists, tourism contribution to gross regional domestic product (GRDP), jobs linked to tourism disaggregated by age and gender, expenditure on food and lodging, pollutant discharge from tourists, social and ecological data relevant to the tourism trade.</p>

Source: Applying Economic Analysis to Marine Spatial Planning.

The World Bank note *Applying Economic Analysis to Marine Spatial Planning* provides comprehensive guidance on tools and approaches for marine spatial planning.



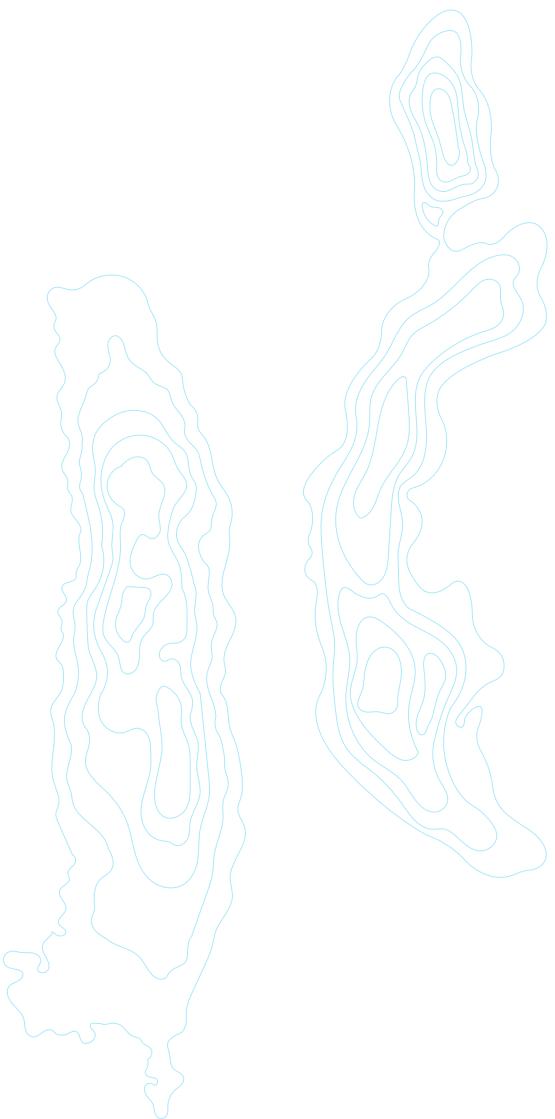
## 6.6

# World Bank Investment Considerations in Plan Formulation

 If you fail to plan, you are planning to fail. 

Benjamin Franklin

Because MSP can be an effective tool in helping clients transition to a Blue Economy, the World Bank is increasing its investments in this approach. A successful Blue Economy transition is best guided by a plan. A good plan does not guarantee successful implementation, but a poor plan will certainly threaten a plan's success. For the World Bank and its clients, success includes planning for and realizing investments to support plan implementation. The World Bank client leads and prepares the plan and its implementation. However, ensuring success implies that the Bank may need to give particular attention to elements in plan formulation that significantly influence plan outcomes. Where possible, these elements need to be aligned with the World Bank's ESF, including provisions for handling grievances. The previous section discussed the enabling conditions for effective MSP, including regulatory and institutional frameworks, capacity, financing, and other issues. In planning, the World Bank may closely consider some of those conditions.





## 6.7

# Regulatory Instruments and Institutional and Financial Arrangements

Regulations and institutional arrangements may be considered in the design and formulation of marine spatial plans to ensure that integration of sector plans or actions in implementing plans is practical (see the earlier World Bank Operations discussion). The previous section on Enabling Conditions discussed the need to have legislation in place to draft and implement a plan and to ensure one or more appropriate institutions have mandate(s) to coordinate and lead the MSP process, as well as enabling conditions for financing MSP. The Enabling Conditions section pointed to actions and tools to help assess institutions and legislation, such as the Public Sector Review<sup>7</sup> and legislation appraisals. If these tools are used, the results can help inform discussions and decision making. The World Bank's PROBLUE Program has a suite of fisheries assessment tools (FSAT) that may apply, with or without modifications, to specific MSP programs, such as:

- Fisheries Functional Role Matrix
- Blue Public Expenditure Review
- Survey of Public Employees
- Public Sector Functional Review
- Stakeholder Mapping
- Local Economy-Wide Impact Evaluation
- Impact Evaluation

<sup>7</sup> See <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/78949163997748921/blue-public-expenditure-review-guidance-note-for-the-Public-Expenditure-Review-and-the-Blue-Economy>



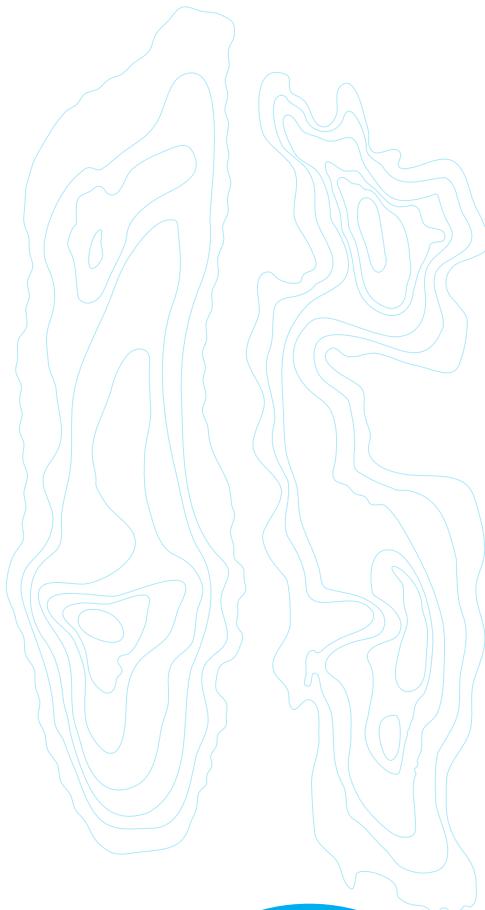
Similarly, plan formulation should ensure that the enabling conditions for financing MSP are in place as much as possible during plan formulation (see Section 5 and the World Bank note *Applying Economic Analysis to Marine Spatial Planning*).

In drafting plans, participants should consider the legal frameworks of the sectors and related institutional mandates. This ensures that relevant agencies can implement any proposed MSP interventions or investments. Successful planning requires that the agency has the legal basis, the institutional mandate, and the capacity for the job. If the sector legislation or institutional mandate is lacking but is key to effective implementation of the plan, then actions to strengthen these conditions need to be part of the suite of interventions prior to investing in sector activities. Otherwise, the plan risks not meeting its objectives.



## 6.8 Delivering Public Goods and Services

There are multiple demands (e.g. fishing, transport, tourism, energy) for marine resources and space to provide a range of market-based goods and services. In addition, marine ecosystems through MSP can support delivery of non-market services, which have no direct monetary value, such as biodiversity and ecosystem services, and climate change resilience. These services are usually not valued in the private sector, leaving the public sector to manage them (Ehler 2020). A key public sector task is ensuring the conservation of these non-market services while maintaining the resources for market-based goods and services. Demand for access to marine resources and space often exceeds supply. In most sectors, such as fisheries and shipping, systems are in place that allocate access and manage use of resources. However, a system that balances access and use across all the different sectors while maintaining public goods and services is often lacking. Drafting a marine spatial plan is therefore a key



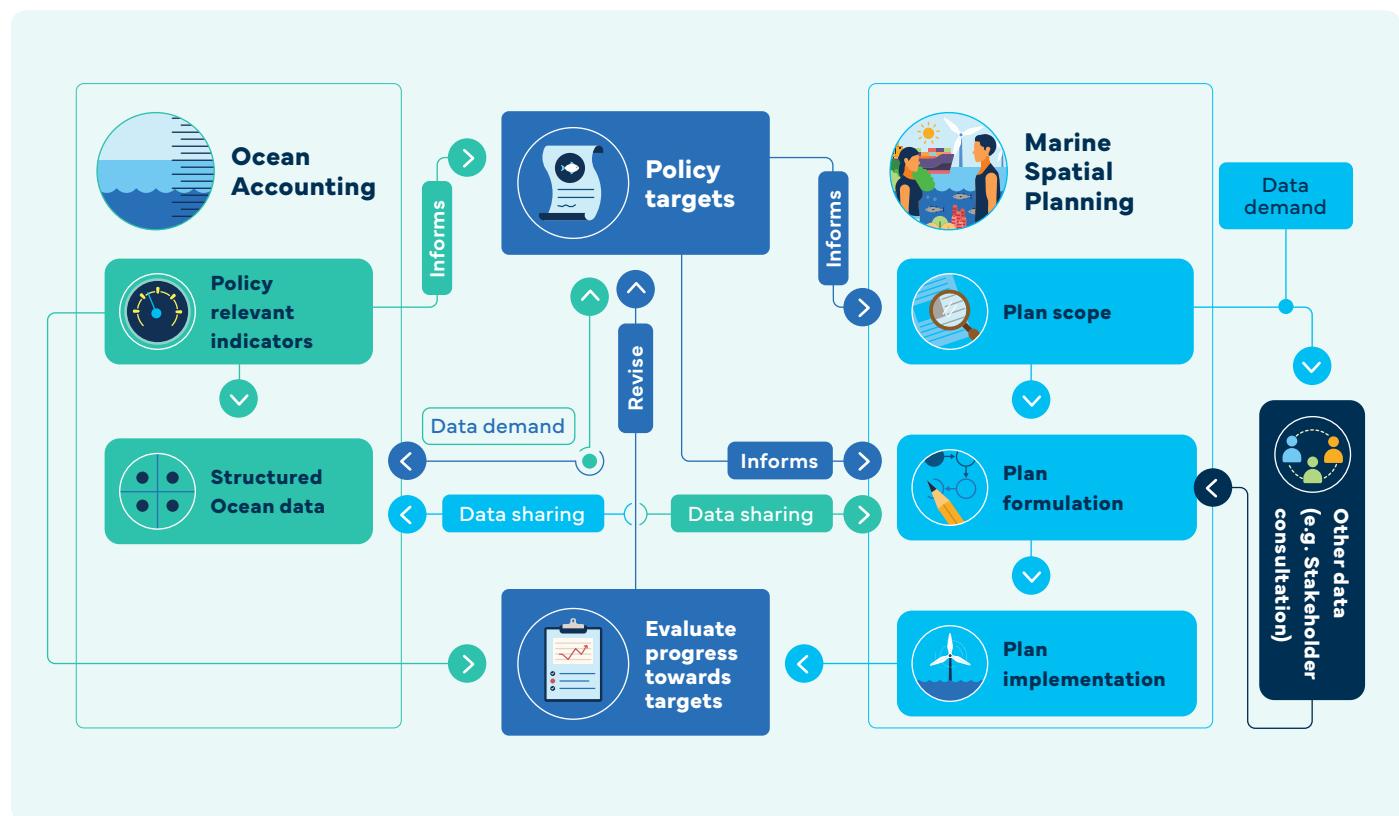
process to finding this balance. The World Bank can assist clients with this process (Ehler 2020).

The Bank has a comparative advantage in balancing non-market- and market-based marine goods and services. This is accomplished by helping clients maintain these goods and services through regulatory and policy support, environmental and social compliance standards, technical assistance to clients, and potential financing instruments and partnerships with the private sector. The Bank can also help by assessing the economic value of marine goods and services to inform decision making. Assistance may include support in data gathering; analysis; facilitating (ex-ante and ex-post) stakeholder engagement; capacity building; convening partners and stakeholders; facilitating workshops or dialogues to apply models and approaches to resolve conflicts; and exploring trade-offs under different development scenarios within and across sectors. Section 10, Data and Geospatial Support, of this guidance note describes the scope and nature of MSP data and the relevant tools.

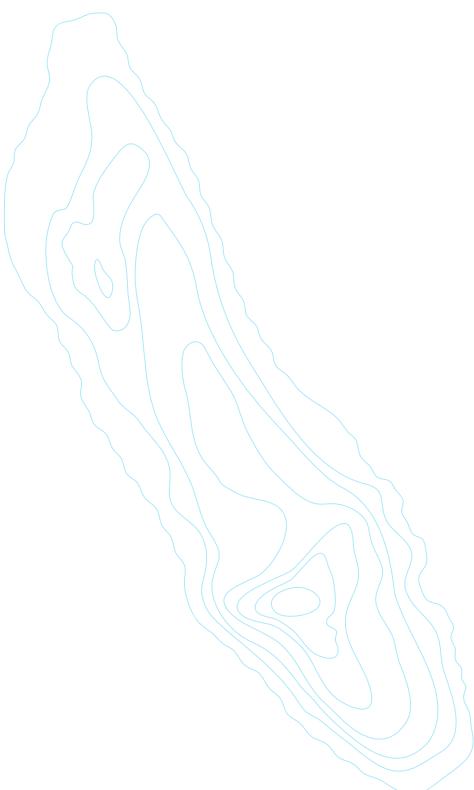
## 6.9 Natural Capital Accounting in Drafting an MSP Plan

A national capital accounting (NCA) framework, specifically an ocean accounting framework, can allow MSP to reach its full potential (Figure 6.5). It provides a way to organize and standardize information, and to support the formation and evaluation of plans (Gacutan et al. 2022). In an MSP context, requests often arise for information on the contribution to the economy of a particular sector (e.g. wind energy) or a given resource (e.g. the marine space). In particular, an ocean accounting framework provides a standardized, systematic method for measuring MSP outcomes over time.

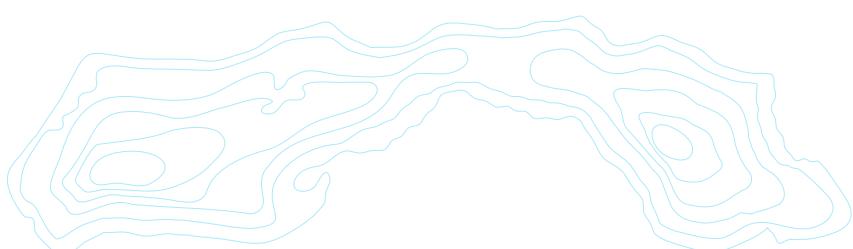
**Figure 6.5. Conceptual Links between Ocean Accounting and Marine Spatial Planning**



Source: Gacutan et al. 2022.



Ocean accounts can provide huge amounts of data that policy makers can use to justify developing planning schemes such as MSP, as well as for executing and monitoring those schemes. Ocean accounting must be seen as a tool that accounts for the real contribution of oceans to economies and conserves the ecosystems that keep oceans healthy while ensuring sustainability. The World Bank note *Applying Economic Analysis to Marine Spatial Planning* provides a more detailed description of Ocean Accounting.





## 6.10

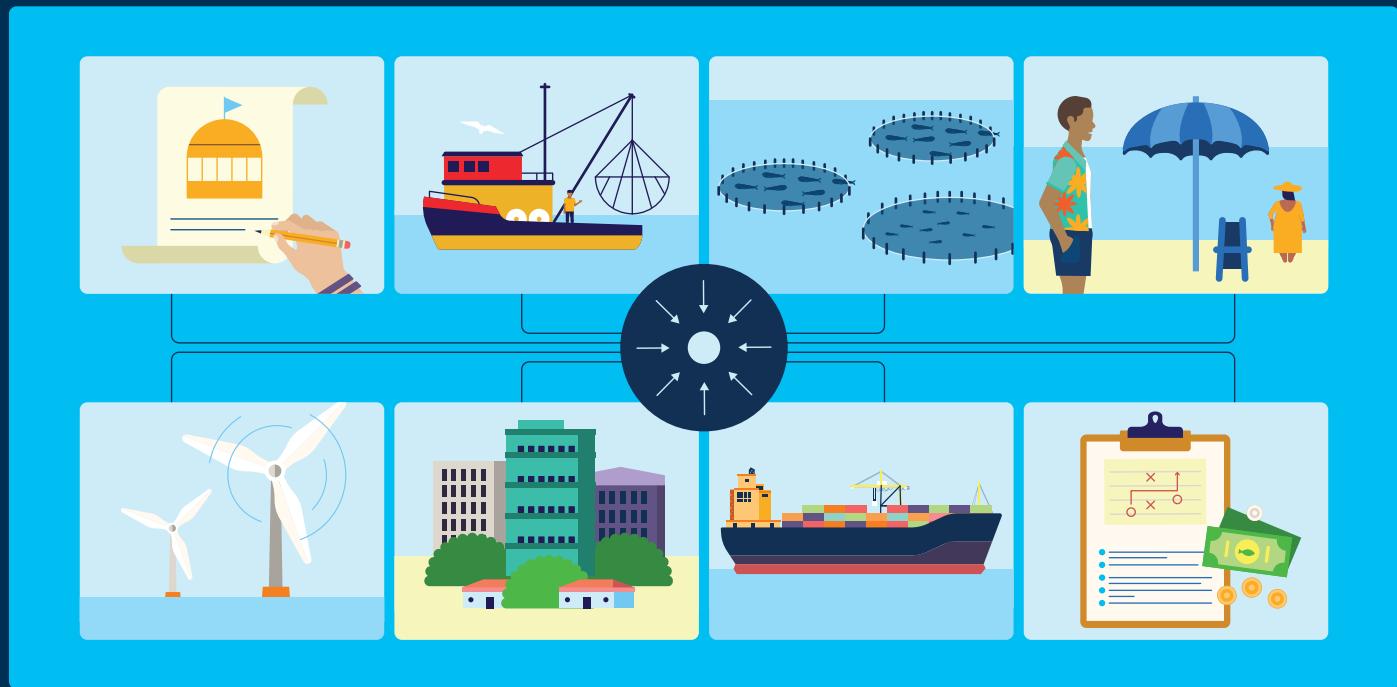
# Nature-Based Solutions

A key benefit of MSP is the protection and enhancement of biodiversity and ecosystem services. Through the right allocation of space and resources, countries can identify critical areas for nature-based solutions that contribute to ecosystem restoration and delivery of diverse services, such as erosion control, flood protection, and carbon sequestration. However, delivery needs to be complemented by a commitment to an appropriate financing model to implement and maintain nature-based solutions. The World Bank note *Applying Economic Analysis to Marine Spatial Planning* describes various models for financing nature-based solutions within an MSP context.



# 7.

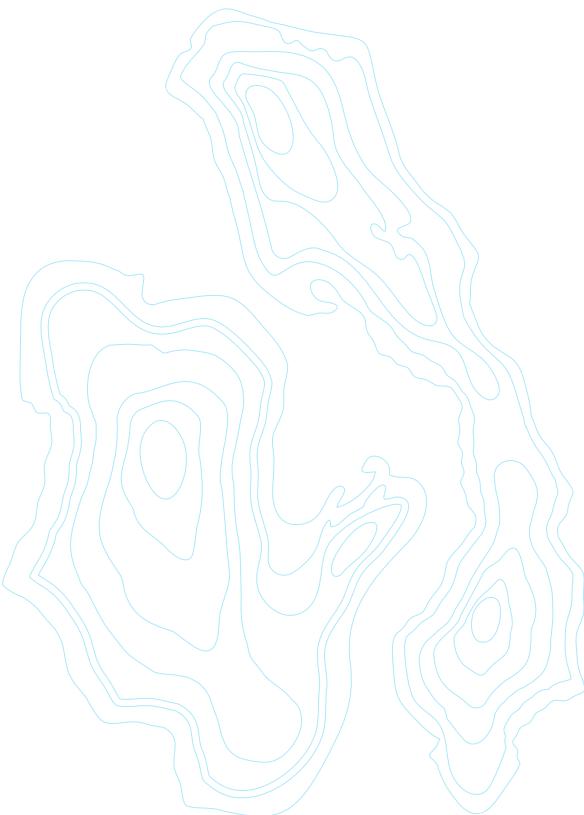
# Marine Spatial Planning Integrating Sectors



## 7.1

### Introduction

It is important to understand the marine sector policies and plans linked to marine spatial plans. This will facilitate more effective integration. It will also establish enabling conditions for public and private sector investment in the sectors and further support reaching a country's Blue Economy objectives. In their report, the HLP also highlights the link between sector planning and MSP and the need to integrate sectors in ocean planning as part of the Blue



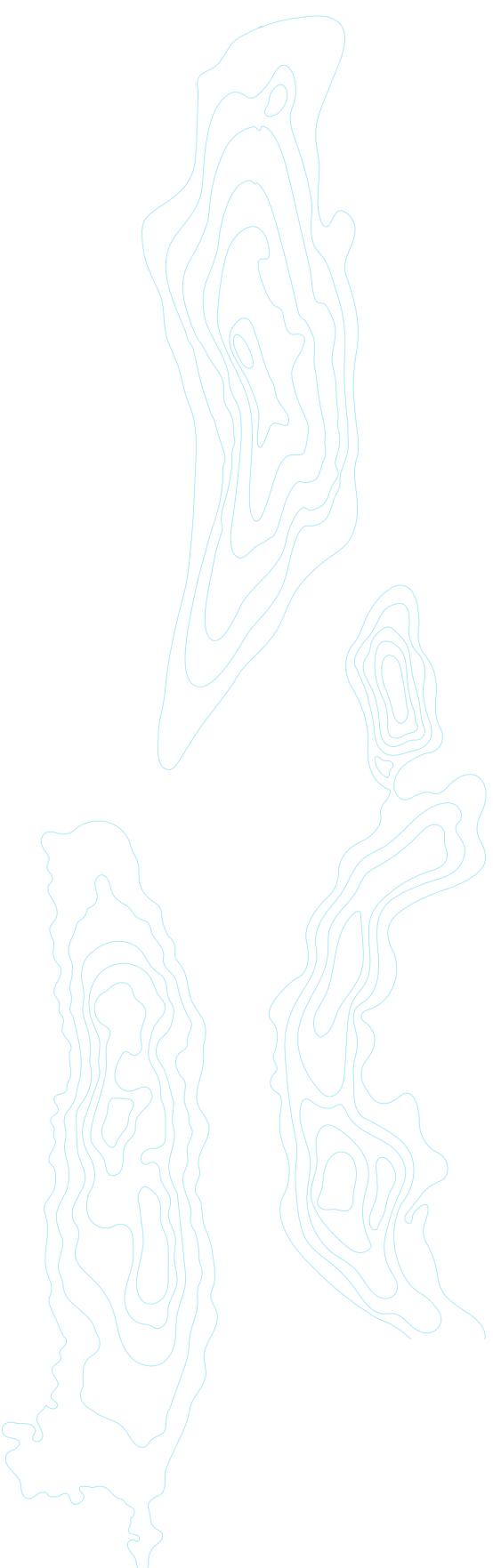
Economy (Winther et al. 2020). This understanding is important for stakeholders and sector representatives' engagement at national and local levels, especially for present and future marginalized or vulnerable groups.

Each sector has its unique needs for each place and time in the planning space. Most if not all sectors also have a strategic or management plan for consideration while drafting the marine spatial plan. World Bank participation in marine spatial plan formulation provides an opportunity to identify or influence potential downstream sector investments that have already met environmental and social standards upstream during MSP. Two factors are important in realizing this potential: effective engagement of the sectors (see Stakeholder Engagement, Section 9) and understanding of the interface between sectors and MSP. This interface is well established in some sectors' economies, such as conservation planning, and is limited in others, but is strengthening as knowledge and experience with emerging sectors such as offshore renewable energy grows. The World Bank's Global Practices (GP) have a comparative advantage with their specialized support, both technical and financial. The GP's sector work can support sector plan development, which can then be integrated into marine spatial plans. Below we discuss considerations for the interface of various sectors in MSP.



## 7.2 Fisheries

**Fisheries** is a major user of the marine space. But some authors (Stelzenmüller et al. 2016, Janßen et al. 2018, Trouillet 2019) suggest that fisheries management is under-represented in MSP. When a marine spatial plan includes fisheries management measures, social and cultural aspects may be overlooked because the sector's economic needs drive the needs for inclusion in the plan (Janßen et al. 2018). For example, planners often miss important areas for small-scale fishing (Said and Trouillet 2020), resulting in zoning that puts at risk food security for this group of stakeholders.



The lack of fisheries sector representation results from:

- The complexity of the sector in terms of scale, mobility, differing gear, and associated impacts. This reflects the diversity of fishers and challenges in representing all interests in MSP (Stelzenmüller et al. 2016).
- A lack of information suitable for MSP decision making, which can limit the visibility of under-represented groups despite the availability of fishery data applicable to the various planning steps. Data such as vessel monitoring systems (VMS) readings, logbooks, and sales may not be easy to access, while some tools require advanced modelling skills (Janßen et al. 2018).

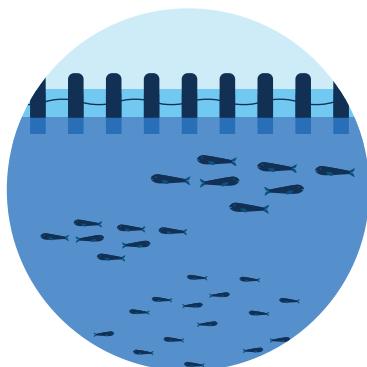
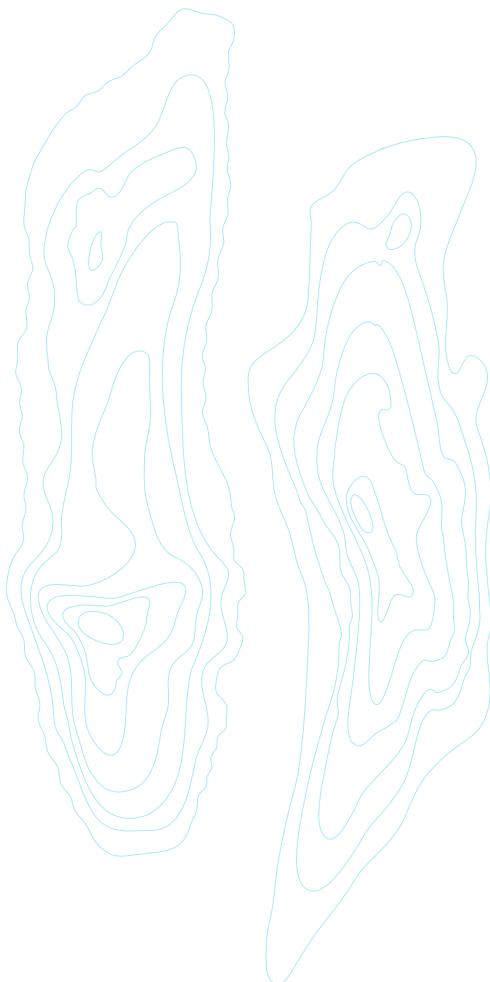
MSP needs to account for changes in fish distributions due to climate change or environmental degradation<sup>8</sup> (see Climate-Informed MSP, Section 12). But the information that MSP practitioners need to address the changes is often lacking. Most modelling is at a scale too coarse, while fisheries bio-economic models may lack spatial data (e.g. distribution of stocks). A review found that, besides these data challenges, MSP methods and models that integrated fisheries management were generally still academic proof of concepts and not directly useable by MSP practitioners.

Given these limitations, protecting spawning grounds or restricting access to sensitive habitats are the spatial aspects of fisheries management that are often included in an MSP (Noble et al. 2019). However, other aspects of fisheries management (e.g. effort reductions) rely on sector plans. The English East Inshore and East Offshore Marine Plans sought to integrate fisheries, but ultimately they did not specify any spatial designations, leaving the issue to be addressed by licensing procedures (Janßen et al. 2018).

These challenges highlight that broader objectives of the MSP may require investment in sector plans to complement the MSP

—

8 See PROBLUE Climate-Informed MSP fact sheet: <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/448511636704037044/problue-climate-informed-marine-spatial-planning-supporting-mitigation-and-resilience>



and ensure sustainability of marine resources. Despite these challenges, it is important to include the fisheries sector in MSP since MSP can improve fisheries management by more than just establishing zones to control fishing. Most fisheries use, or are transitioning to, the ecosystem approach to fishery management (EAFM). An MSP process can provide essential information for the development of an EAFM plan (Ehler 2013).

Agencies routinely collect and map spatial and temporal information on areas that are ecologically and biologically important for fisheries management. Some fisheries agencies also collect information on fleet movements using satellite technologies such as an automatic information system (AIS) or a vessel monitoring system (VMS). Planners can use these data in MSP analysis and planning (Pomeroy, Baldwin, and McConney 2014). St. Kitts and Nevis used an MSP zoning plan as the basis for consultations with fisheries stakeholders concerning introduction of the EAF. Similarly, in Barbuda, the MSP process collected various ecosystem-based information. A highly participatory approach used the information to develop a marine zoning design that would minimize harm to fishing and coastal livelihoods (Ruttenberg et al. 2013).

## 7.3 Aquaculture

Commercial-scale aquaculture development requires a large investment and needs long-term planning and defined allocation of space (European Commission 2016). MSP allows sustainable aquaculture activities to be maximized while considering other users of marine spaces. It can also meet the need to site these developments without compromising coastal ecosystems. The benefits of aquaculture development in MSP are many: higher productivity and returns for investors, and more effective mitigation of environmental, economic, and social risks (Aguilar-Manjarrez et al. 2017).



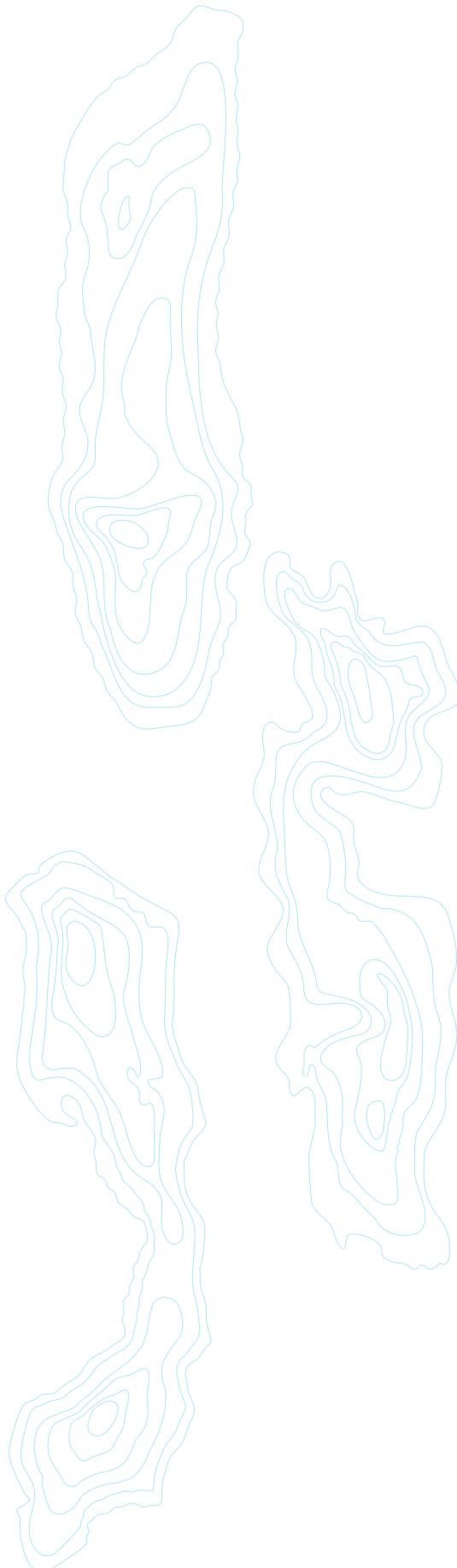
Successful aquaculture development needs sites that allow sustainable production, including good water quality, easy access to infrastructure such as energy and transport, and other factors depending on the species being farmed. Although aquaculture activities use relatively small amounts of marine space, assigning them to the wrong sites can cause conflicts and have unwelcome environment, social, and economic impacts. These factors highlight the importance of the industry taking part in developing a plan, articulating its needs for space (e.g. for cages) and supporting infrastructure (e.g. transportation, ports, energy, and ice). Aquaculture linkages with supporting infrastructure highlights the role MSP can play in multisectoral development planning. Overall, marine spatial plans can greatly facilitate the projected expansion of aquaculture, which now contributes more than 52 percent of fish consumed globally (FAO 2020).

Co-locating aquaculture facilities with other uses such as offshore wind farms can accommodate some of this expansion (Stelzenmüller et al. 2016). This option is further discussed below. Because MSP addresses upstream environmental and social issues, it gives a degree of certainty for access to marine spaces and resources. World Bank participation in upstream planning provides opportunities to identify sustainable aquaculture investments downstream. The FAO and World Bank<sup>9</sup> handbook on aquaculture zoning, siting, and management, based on the ecosystem approach, provides further details on incorporating aquaculture in marine spatial plans (Aguilar-Manjarrez et al. 2017).

## 7.4 Tourism

The tourism sector is a complex network of different interests and activities that operate at different spatial ranges, times, scales,

<sup>9</sup> Available at <http://documents1.worldbank.org/curated/en/412061490106923079/pdf/ACSI8071-REVISED-v1-75pgs-a-i6834e.pdf>

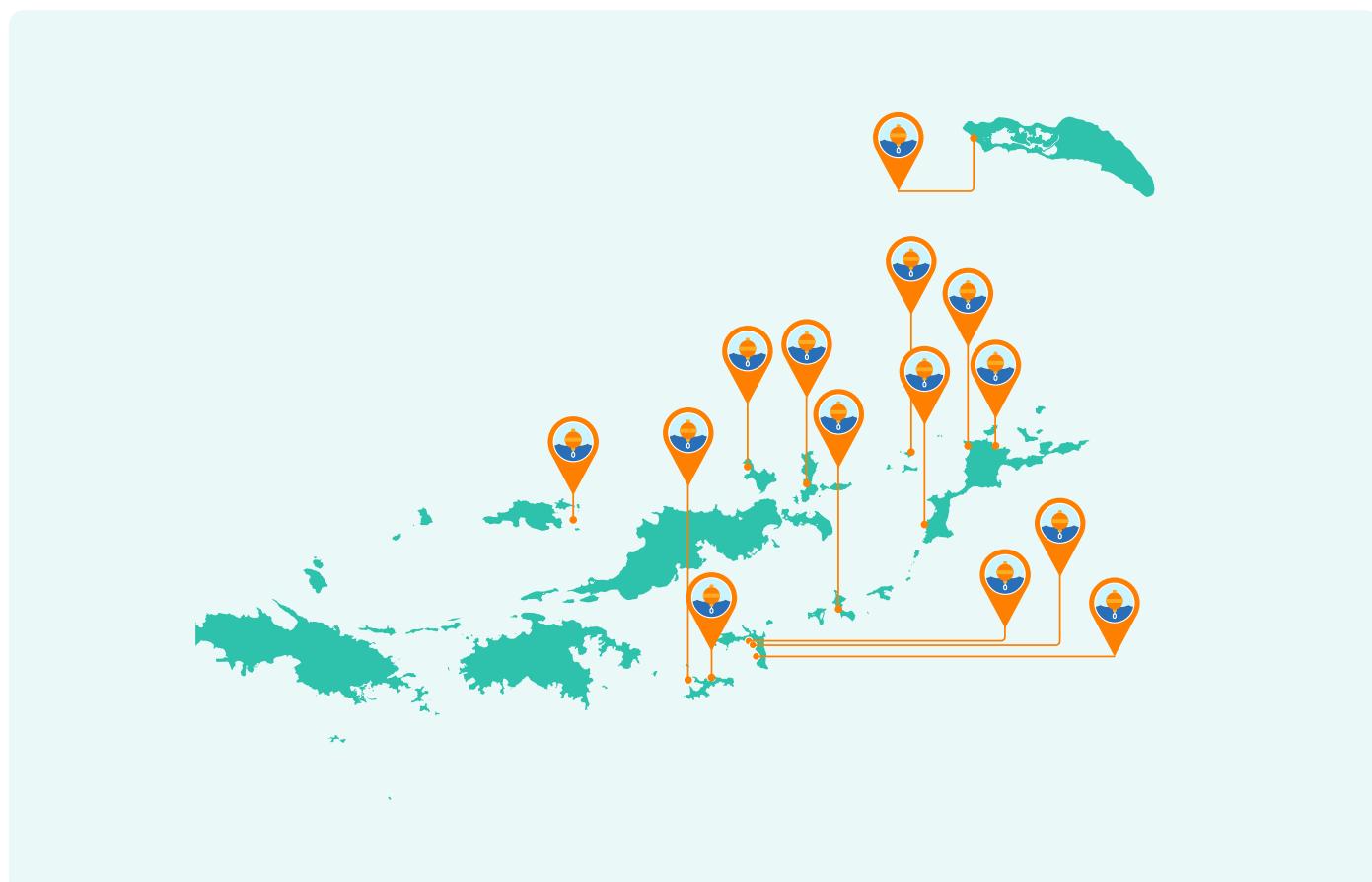


and intensities (Munro et al. 2019). Therefore its engagement in the MSP process is more complicated (Luhtala et al. 2020). The sector is growing rapidly, as is planning for meeting future demand. When linked to MSP, tourism planning enables the sector to integrate into the broader Blue Economy. Tourism plans typically focus on zoning, sites, tourist densities, tourist features, and infrastructure, but more recently practitioners are including environmental and socio-cultural considerations (Hall 2001). MSP can help marine tourism management by:

- providing spatial regulations to manage the growth of tourist facilities and activities without impeding the environmental quality and economic growth of other users.
- allocating human uses, including those with cultural and social values, and the value of place and tourism value chains.
- optimizing the use of spaces that are in high demand from multiple users while considering environmental and cultural needs.

In the absence of tourist regulations from mandated agencies, a marine spatial plan can provide the needed rules. However, practitioners should introduce efficiencies and avoid duplicating or complicating the permit systems. For example, yachting has increased during the COVID pandemic (Froehlich et al. 2020) yet mechanisms to regulate vessel anchoring (where and for how long) are limited in many locations. Weak agencies with different tourism management mandates make anchorage siting and management difficult. At the same time, some countries have enacted new anchoring protocols as part of their responses to the COVID pandemic, which may bring changes in management of anchorages (Figure 7.1).

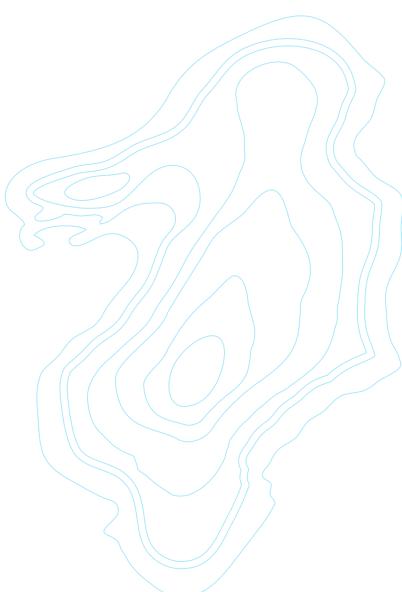
**Figure 7.1: Virgin Islands-Approved Mooring Sites, Keeping Vessels 30 Meters Apart, as Part of Visitor Protocols.**

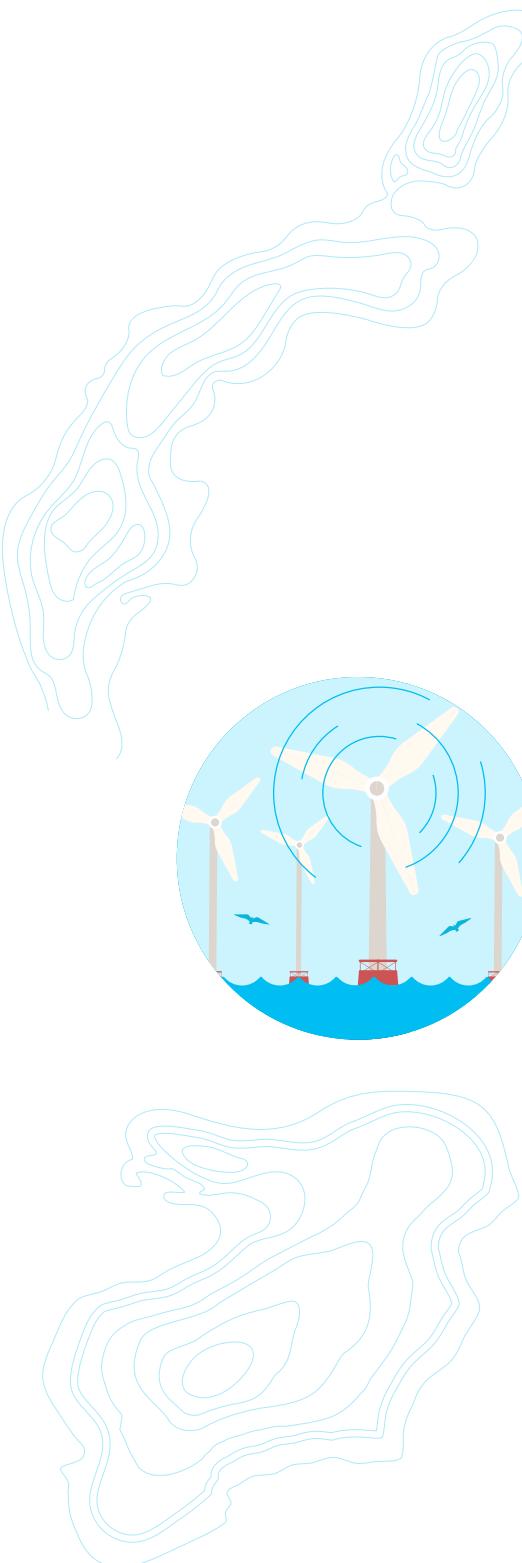


Source: Government of the Virgin Islands 2020.

The tourism sector also offers many opportunities to use nature-based solutions. For example, mangroves can provide a safe anchorage for yachts during storms. Mangroves that are officially certified are being protected by new insurance schemes, which incentivize maintaining these ecosystems (Beck et al. 2020).

The experience of San Andres Island in Colombia offers further signs of the utility of nature-based solutions. Tourists report that the main reason they go there is for the beaches. But those beaches are under threat from erosion, which a study has shown could cause annual economic damage of US\$73 million to the island's tourism sector. Tourists have expressed willingness to pay a total of US\$1 million annually to protect the island's beaches,





beyond what they pay for their vacations. Thus, beach erosion gives the tourism sector an incentive to get involved in broad conservation and restoration activities. Protecting beaches could be an “umbrella” conservation plan using nature-based solutions, because healthy ecosystems naturally help to maintain beaches. Coral reef, mangrove, and sea-grass ecosystems contribute to sand production and buffer beaches and coastal communities and assets from waves and storms. A beach conservation plan would, by extension, encompass these other ecosystems to ensure coastal stability, secure livelihoods, and coastal economies, tourism among them (Castano-Isaza et al. 2015).

Marine spatial plans that include tourism, with siting and infrastructure, constitute promising future investment opportunities for the World Bank. Plan formulation can resolve issues such as allocating sites for development and balancing environmental and social aspects of tourism with other sectors. Experience shows that once marine spatial plan implementation is underway, investing in tourism sites and infrastructure quickly proceeds.

## 7.5

# Offshore Renewable Energy



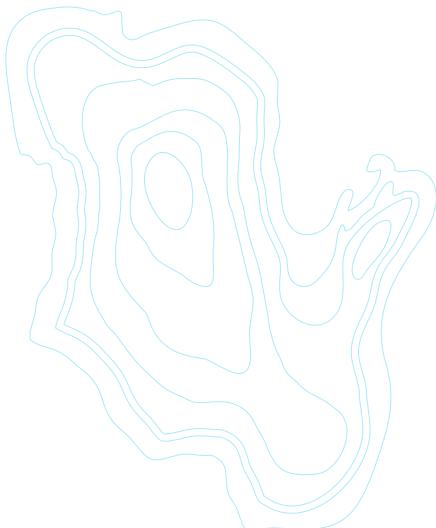
Offshore renewable energy is a rapidly emerging marine sector as countries seek to meet their climate change targets and reduce fossil fuel consumption. Much of this development is offshore wind farms but other forms such as floating solar are gaining interest (Box 7.1). While management of land-based wind energy is often under local or regional planning systems, offshore has a different regulatory regime (Jay 2010). Management is often under control of the central government, which may lack offshore plans. Going forward, these countries will need plans that consider unique issues, such as common property access, tenure, and international obligations such as those for navigation.

Despite these challenges, MSP includes offshore energy in most EU waters, and in the United States, United Kingdom, and Australia.

### Box 7.1

#### Tidal Energy: Larantuka Strait, Indonesia

Dividing Flores and Adonara islands, Larantuka Strait has one of the strongest tidal currents in Indonesia. A bridge 810 meters long is being built to span the strait. Work on the US\$20 million Palmerah Tidal Bridge project began in 2019. The technology used in this venture is generating controversy since it is the first combined tidal energy/bridge project in the world. By combining installation of turbines with bridge construction, the project should achieve certain cost economies and provide electricity to 100,000 people in the region (Firdaus, Housby, and Adcock 2020).



Construction of offshore wind facilities has raised several concerns among stakeholders, including harm to attractive ocean views. Water pollution is generally not an issue for offshore wind energy, but there may be other environmental impacts. These include bird collisions, underwater noise, and electromagnetic disturbances that can disrupt fish and marine mammal behaviors (Andrulewicz, Otremba, and Kamińska 2010). On the other hand, these facilities may promote biodiversity because their hard structures are suitable habitat for marine invertebrates and macro-algae. A study (Griffin, Buck, and Krause 2015) found increased biodiversity and restoration of degraded seabed habitats for commercially important species at a wind farm site in the UK. However, fishers considered their access to these stocks to be limited, and they perceived the structures to be navigation hazards if their engines failed. The siting of offshore energy facilities may also conflict with commercial transport. Yet the facilities can create employment opportunities in coastal communities. A study of the social impact of an offshore wind farm in the UK found that the local community perceived the sector positively. For fishers who transitioned to jobs servicing the energy facility, it provided steady and less dangerous employment (Hattam, Hooper, and Papathanasopoulou 2015, Schupp et al. 2021).

In the MSP process, the wind sector can provide information on spatial and temporal patterns of animal migration and residency. This information can help inform the allocation of space for future uses (Bates 2017). MSP can also support the development of offshore wind energy, including markets (Box 7.2) by providing a degree of certainty on access to marine spaces and resources. The report *Key Factors for Successful Development of Offshore Wind in Emerging Markets* highlights how MSP can support this development (World Bank 2021).

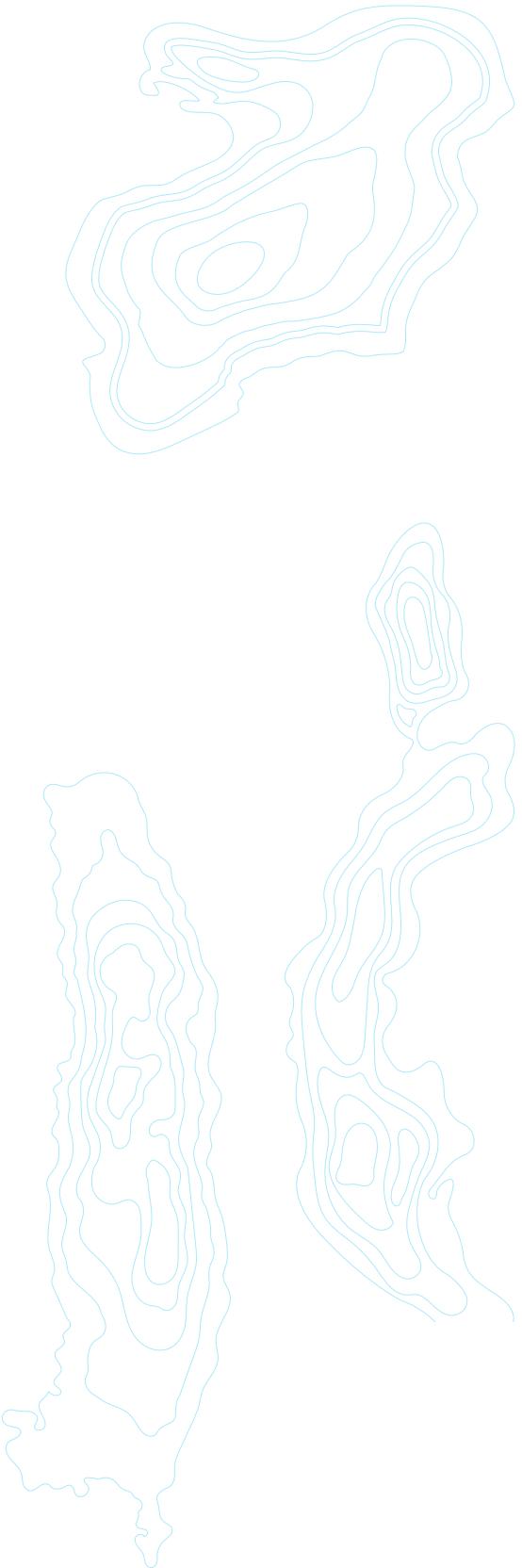
**Box 7.2:****The Role of Marine Spatial Planning in Developing Offshore Wind Markets**

The World Bank's ESMAP Group identified key factors for successful development of offshore wind markets, which fall under four pillars: strategy, policy, frameworks, and delivery (World Bank 2021). MSP plays an influential role in each of the

pillars (Figure 7.2), highlighting the importance of including MSP early and throughout the process of developing the emerging offshore wind market.

**Figure 7.2: The Role of MSP in Offshore Wind Markets**





Engaging stakeholders early on in formulating a marine spatial plan to address these concerns, especially environmental and social, helps to de-risk future investments. It can also identify sites that stakeholders will accept for future wind farms. This can avoid costly delays and negative media coverage during the decision-making process and in permitting construction of the facilities. Offshore wind facilities are large infrastructure investments appropriate for private sector investing. A key role for the World Bank is to facilitate financing discussions with IFC and others to ensure they make their investments early in the implementation process.

Section 10, Data and Geospatial Support, of this guidance note provides further information on good practices, lessons learned, and tools. Many tools exist to assess such challenges as the economics of siting offshore wind facilities (e.g. the Spatially Continuous Resource Economic Analysis Model) and identification of conflicting or overlapping uses (Bates 2017).

With the development of offshore wind energy facilities has come the concept of co-location of such facilities as mussel culturing and micro-algae farms.<sup>10</sup> However, effective co-location strategies need either a) more results-oriented activities with deeper technological integration or b) more process-oriented actions with new links between distinct user groups (Di Tullio et al. 2018). Tools exist to facilitate these decisions, such as the Sustainability Index.

It has been suggested that co-locating helps to optimize marine resources and reduce conflicts with wind farms and other uses. Other potential benefits include shared supporting infrastructure and shared costs to service the facilities, such as moorings and monitoring of possible environmental impacts. Some problems with co-location include sectors having different approval processes, which could limit integration (Spijkerboer et al. 2020), and fishers' fear of entanglement of gear on seabed infrastructure, and vessel breakdowns (Stelzenmüller et al. 2016).

Nonetheless, interest in co-locating fisheries and aquaculture activities in windfarms is increasing or being piloted. In countries

<sup>10</sup> Co-location refers to the locating (two or more uses) together



such as Denmark, where marine space is becoming limited, co-locating in wind farms can provide long-term tenure possibilities (Di Tullio et al. 2018). In Belgium, co-location of mussel culturing and wind farms has been found to be technically viable, but production costs were higher (Moreau 2020). A study of fisheries using passive fishing gear such as gill nets, traps, and pots noted that fishing could occur within a wind farm in the North Sea if appropriately sited so as not to interfere with farm operations (Stelzenmüller et al. 2016). Indeed, if proposed co-located fish farms displaced the gillnet fishery, that sector would lose significant income. In some countries space may currently not be as limited, but it could be in the future if both sectors expand as predicted and compete for space. Co-location can also take place for fishing and tourism, with diving activities taking place during the day and low-impact fishing at night (Said and Trouillet 2020).

## 7.6 Land Use

Marine spatial planning has a strong link to various forms of land-use planning, including urban, catchment, coastal, and landscape, because the impacts of land use are ultimately felt in the ocean (Maragno et al. 2020). Inappropriate siting of coastal infrastructure such as ports, roads, and industrial plants can affect marine environments through erosion and pollution, putting at risk coastal communities' safety and climate adaptation efforts. Similarly, catchment management that does not consider the downstream influx of fresh water into marine areas can disrupt various ecological processes, harming marine-based sectors such as fisheries and tourism.

An emerging land use issue that can have impacts distant from the upstream source is raw materials extraction, in particular sand extraction (United Nations Environment Programme 2019). Increasing demand for sand for land reclamation, the construction of transportation infrastructure and urban developments, results



**Box 7.3**

### Costs of sand mining in Southeast Asia and India (Fabinyi et al. 2022)

Sand for land reclamation in Singapore initially came from Indonesia or Malaysia, and then Cambodia, Vietnam and Myanmar. Sand mining has led to river bank and coastal erosion, and habitat disruption in both source and receiving areas (Marschke et al. 2021). These include loss of fish species, coral reef mortality, noise pollution and a damaged environment (Lamb, Marschke, and Rigg 2019). Coastal households, fishers and eco-tourist operators reliant on sandy beach see no benefits to these sand exports, only the ecological and livelihood impacts. Sand mining produces few jobs which are short-term, low-paid and transient (Marschke et al. 2021). In India, sand miners drown each year despite sand mining being illegal and, therefore, with no workplace safety regulations (Srivastava 2017).

in reduced inputs of sand to coastal and marine areas causing erosion. In some areas, such as small islands sandy beaches along the coast may be the only affordable source of sand (Baker et al. 2016). In either situation, extraction exacerbates coastal erosion and climate change vulnerability for downstream marine and coastal ecosystems and ultimately coastal communities (Box 7.3).

Collectively these impacts can reduce the resilience of marine ecosystems to various threats, including climate change. Understanding how land-based plans may affect marine activities helps MSP practitioners work with planners on the coast and upstream. Their participation in plan formulation provides an opportunity to address land-based sources of pollution and other issues.

Yet despite the enormous potential effects of land-based activities, integrating land-based planning into MSP is limited worldwide. Notable exceptions are in the EU, where the Marine Directive can link to national coastal management efforts (O'Hagan, Paterson, and Tissier 2020), in the Great Barrier Reef Marine Park of Australia (Day et al. 2019), and in Indonesia (Box 7.4). This limited integration is due to:

- Lack of comparable local information systems.
- Inaccurate forecasting systems.
- Lack of integrated governance between land and sea systems.
- Multilevel governance organization.
- Inertia of public administrations in the adoption of medium- to long-term knowledge systems.
- Absence of guiding regulations (Maragno et al. 2020).

It is important for the World Bank to remain well informed on other operations or government efforts in land-use planning, identify the implications for MSP investments, and find synergies where possible. In transboundary situations, regional agreements or protocols such as the Barcelona Convention's ICZM Protocol (Trop 2017) may also inform appropriate actions to address these issues, including sand mining.

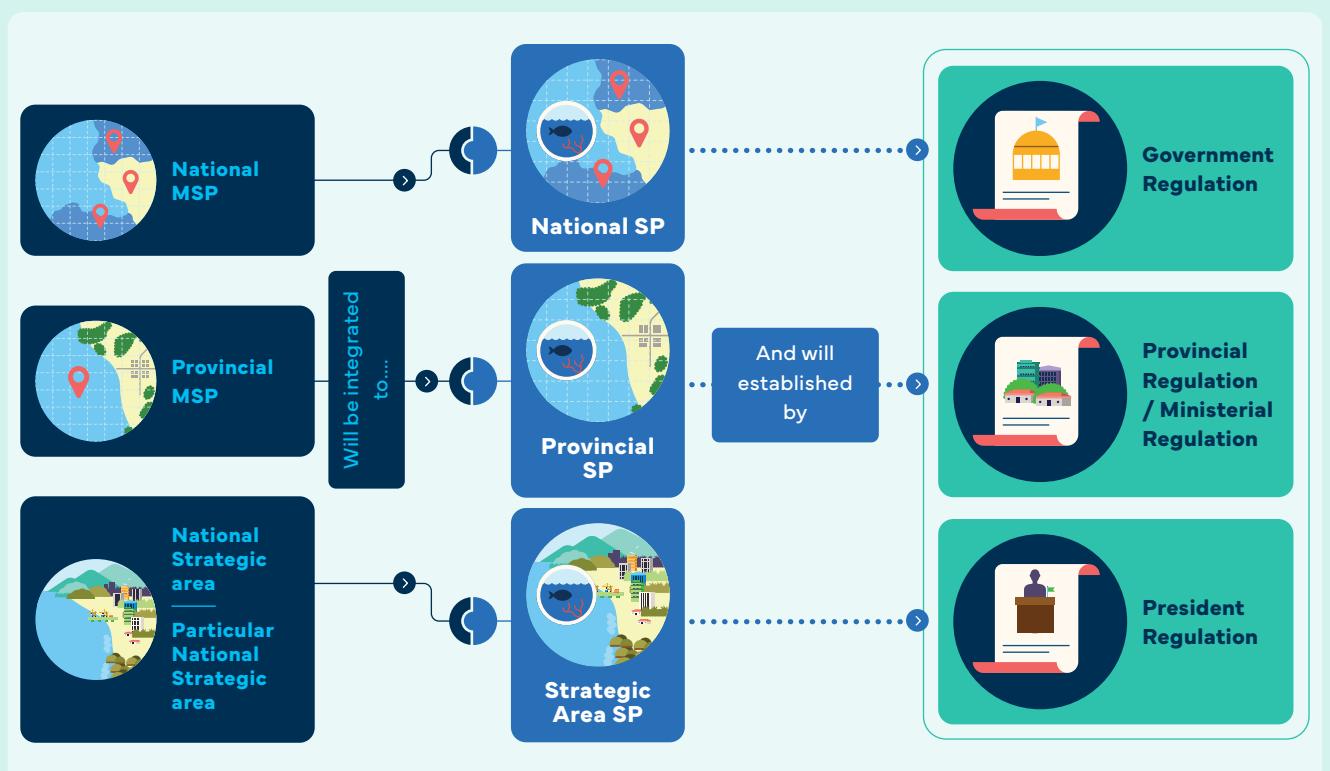
 **Box 7.4:**

### Integrating MSP into National Spatial Planning

Through the recent Act 11/2020 concerning job creation, Indonesia will use a single regulation for spatial planning

documents. This will result in MSP at different administration levels being integrated into broader or detailed spatial plans.

**Figure 7.3: Integration of MSP into Indonesia's Overall Spatial Planning System**

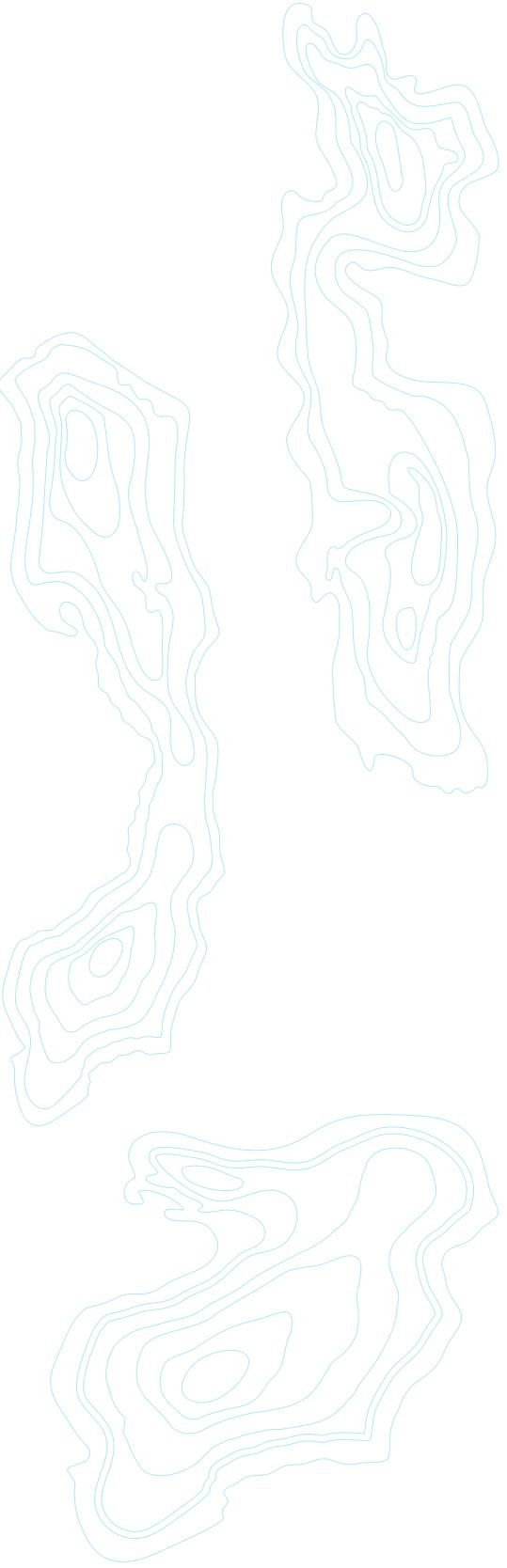


Source: Surharyanto 2021.



## 7.7 Marine Transport

The footprint of shipping and ports may be small relative to other marine sectors, but it is important that the sector takes part in MSP formulation. If the voice of the shipping industry is



absent, MSP will likely not give full consideration to existing and potential economic activities in the planning process. The sector is expecting several key developments in coming years: increasing freight volume, vessel size, and short-sea shipping, improved bunkering technologies and general services, and autonomous vessels. Climate change is an additional consideration because predicted impacts such as increased storm frequency and intensity will affect shipping and port operations (European Commission 2020). These anticipated developments all underline that a marine spatial plan should incorporate the sector's requirements.

Participation by the shipping sector in MSP may have benefits for the planning as a whole. For example, maritime transport operators often have scientific data on physical aspects of the marine environment (e.g. bathymetry), resources, and ecological systems that planners may lack (European Commission 2020). Unlike many other sectors, shipping needs to consider international obligations in MSP, including the freedom to navigate, artificial installations in EEZs, and existing IMO shipping routes (Ross and Giannelos 2018). Within the framework of these obligations, marine spatial planning should keep as much free space as possible for future shipping activities and consider shipping in three dimensions—ship trajectories, width, and depth.

The Nautical Institute, a shipping industry body, identified two other issues to consider in an MSP plan: environmental and commercial impacts and navigation. Environmental impacts include coastal erosion from poor siting of port facilities, the dredging of shipping channels to accommodate large-draft vessels, and the wakes from passing vessels (Zaggia et al. 2017). Nature-based solutions offer an opportunity to reduce these impacts. As in fisheries, the World Bank may need to consider investment in shipping sector plans to complement a marine spatial plan. This will help reduce pressure on ocean resources, such as marine mammals. Planning will also need to consider climate change impacts such as increased storm frequency and changes to currents. Yet another consideration is the location of ports and supporting facilities, which are often part of an integrated coastal management plan and closely linked to shipping channels (Box 7.5).

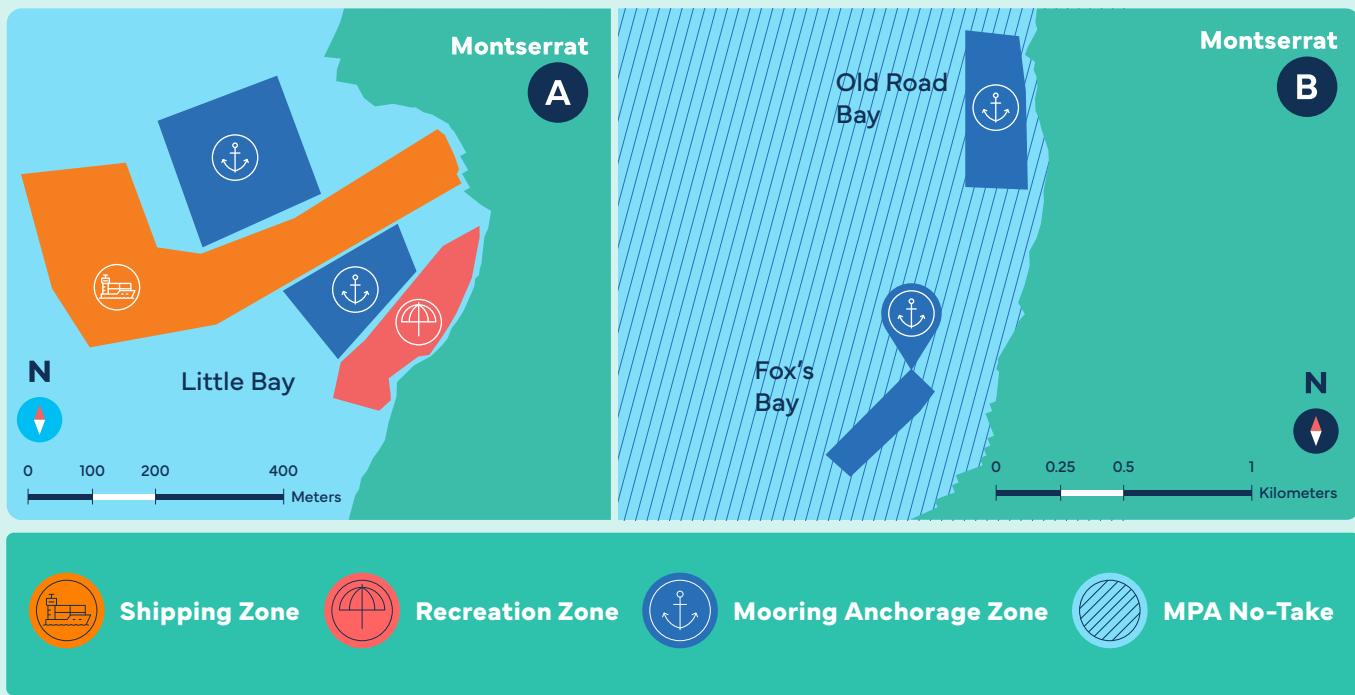
 **Box 7.5:**

### Incorporating Marine Transport Needs: Montserrat

In Montserrat, the MSP Steering Committee proposed to create zones for specific activities such as shipping and mooring. Zoning of Little Bay (A), the most heavily used coastal area and the site of the island's only port facilities, was a priority. Representative from the Port Authority, with input from the rest of the committee, suggested a shipping zone and two mooring anchorage zones in the bay (Figure 7.4). The proposal,

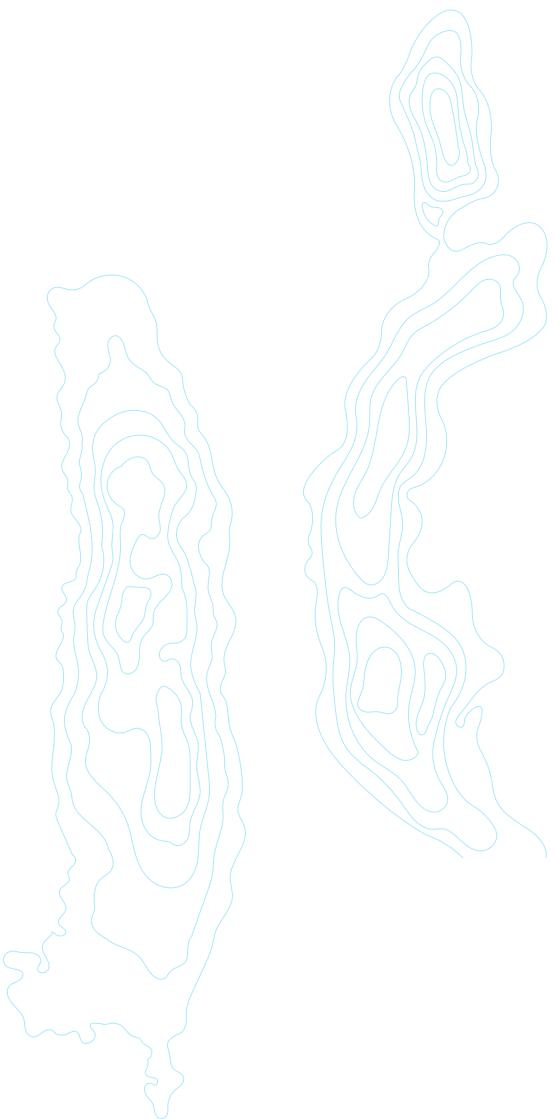
was accepted, and also included two additional mooring zones at Old Road Bay and Fox's Bay (B) to provide designated anchorages for visiting yachts that were already mooring in those areas on an ad hoc basis (Figure 7.4). Compared to the decision process for the MPAs, the committee reached consensus on these "utility" zones relatively quickly (Flower et al. 2020).

**Figure 7.4: Marine Zoning in Montserrat**



Source: Flower et al. 2020





## 7.8

# The Private Sector in Plan Formulation

Private sector investment is key to a successful MSP.

Implementation of marine spatial plans and ultimately long-term sustainable resource use require budgets that far exceed the financial and human resources of the public sector. The World Bank's participation in the formulation of a plan helps to ensure that planners will consider the enabling conditions for private sector investments. It can also identify possible World Bank financial instruments that will facilitate that participation by the private sector.

The previous section described the importance of enabling conditions being in place so that MSP has a clear legal basis and a mandated institution in charge. The same holds for the private sector, which needs to have appropriate enabling conditions in place to invest efficiently once implementation starts. Without authority from the relevant legislative body or conformity with other regulatory processes, any subsequent regulations would invite significant legal risk and uncertainty (World Ocean Council 2016). For example, if the plan will allocate space for renewable energy, one enabling condition to consider is the legal authority for installing the structures on the seabed (Lange, Page, and Cummins 2018). A review of relevant legislation as it relates to spatial planning, along with institutional analyses, will provide much of the information needed to assess the enabling conditions.

In MSP, there are two aspects of finance: financing the MSP process itself, and financing implementation of the plan. Many marine spatial plans never make it to implementation, with lack of funding often getting the blame. There are many explanations for this funding gap, ranging from lack of government will to shift spending priorities to lack of private sector interest in investing in the marine sector. The above discussions have touched on these



points, highlighting the need to consider during plan formulation how to finance public or private activities that are proposed, rather than waiting for endorsement and implementation of the plan to start the funding discussions.

Through its various instruments, the World Bank has a competitive advantage in financing activities that will de-risk investments for implementation activities. In the plan drafting stage, for example, the Bank can support various studies (e.g. feasibility studies and strategic environmental assessments) to reduce risks and strengthen certainty. Its capacity-building programs can give agencies the know-how to manage specific investments including innovative financing mechanisms (e.g. Blue Bonds). Also, the Bank can initiate discussions on possible investment and investment support by the Bank and IFC.

# 8.

# Marine Spatial Planning Implementing Marine Spatial Plans



## 8.1

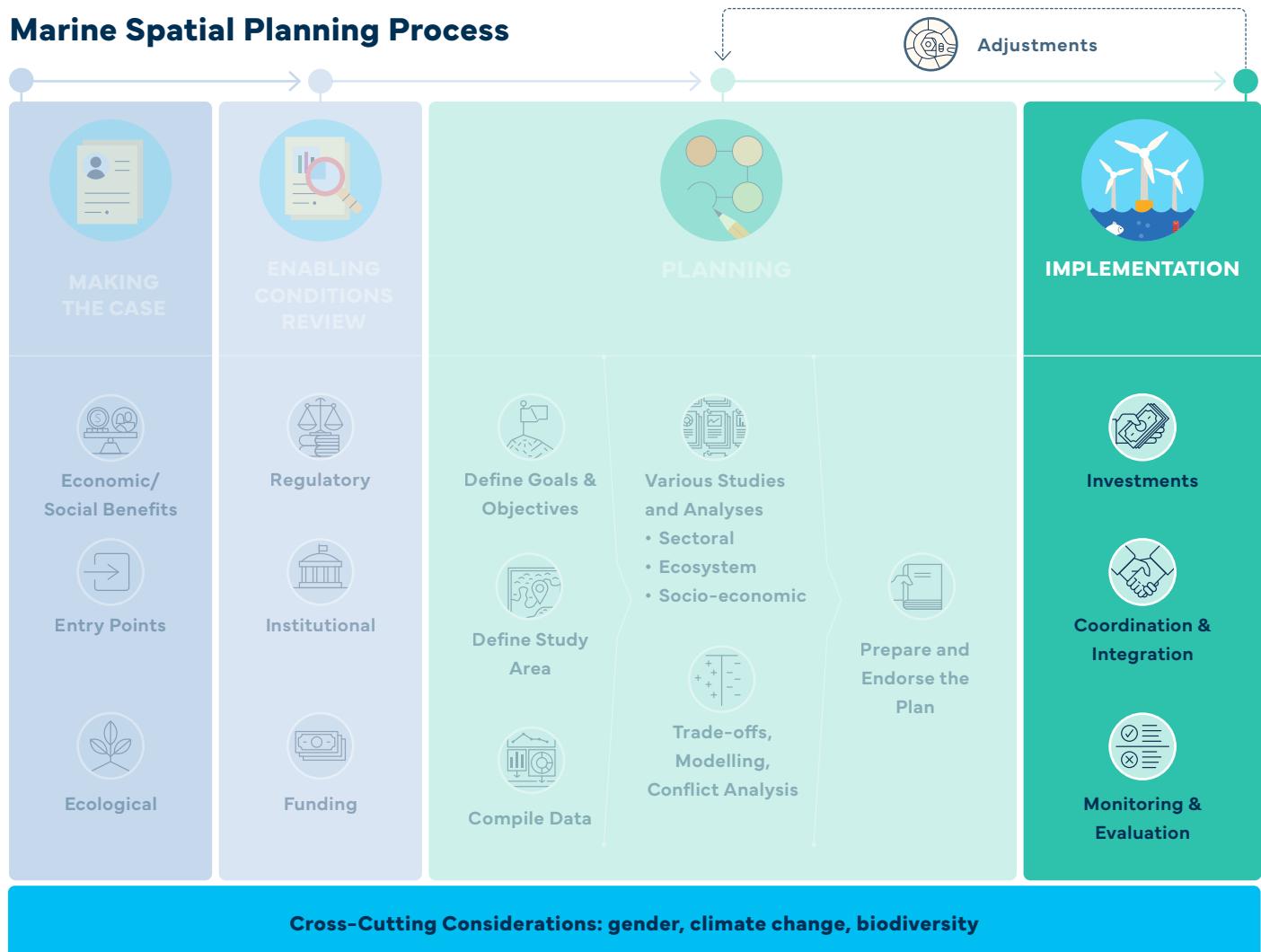
### Introduction

Implementing a marine spatial plan helps to operationalize the Blue Economy. Investments and other actions identified in formulation of the plan are realized in this step. Capitalizing on the potential of MSP requires implementation financing, institutions, and approaches that use an economic lens throughout MSP processes.

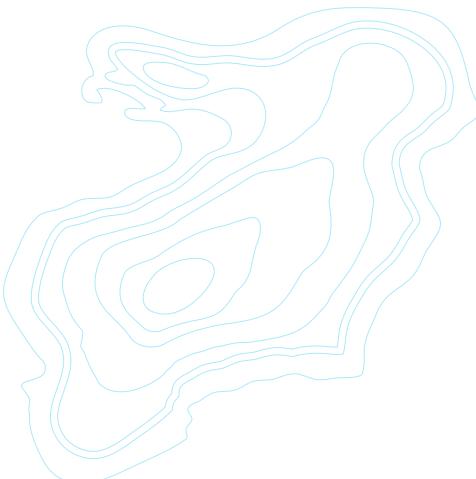


The UNESCO-IOC Step-by-Step Approach (Ehler and Douvere 2009) notes that implementing a plan requires the “clear identification of actions required to implement, ensure compliance with, and enforce the spatial management plan.” The document also describes what those actions might be for governments and other stakeholder at national and local levels, especially for present and future marginalized or vulnerable groups. Initial implementation actions include establishing an inter-ministerial/cross-sectoral coordinating body (or a similar form) with one agency tasked with leading the MSP while working with other agencies and stakeholders to implement the proposed activities.

Implementation is the most important part of MSP. It is the step where transformational change takes place. Actions described in a plan can start once the relevant authorities endorse the plan, as discussed in the previous section. These actions also include compliance and enforcement that are best supported by a science- and data-driven monitoring plan (Figure 8.1). Investments to strengthen regulatory frameworks and institutions and engage stakeholders in this step of MSP deliver economic, social, and environmental benefits to a range of stakeholders (see Stakeholder Engagement, Section 9 and Gender Equality and Women’s Empowerment, Section 11). Other actions, such as compliance and enforcement, are also part of implementation.

**Figure 8.1: Implementation Activities in MSP****Marine Spatial Planning Process**

Source: Caldow 2015.



The World Bank has a comparative advantage at the implementation step. It can support making the economic case for implementation. It can mobilize investments that address social (vulnerable people and gender), environmental (avoiding or mitigating ecosystem and biodiversity loss), and climate matters (investments that adapt to climate change and reduce GHG emissions). The convening power of the Bank can also facilitate multi-sector and multi-agency coordination to enable more sustainable efforts and reduce conflicts.



## 8.2

# Lessons Learned – Challenges and Constraints

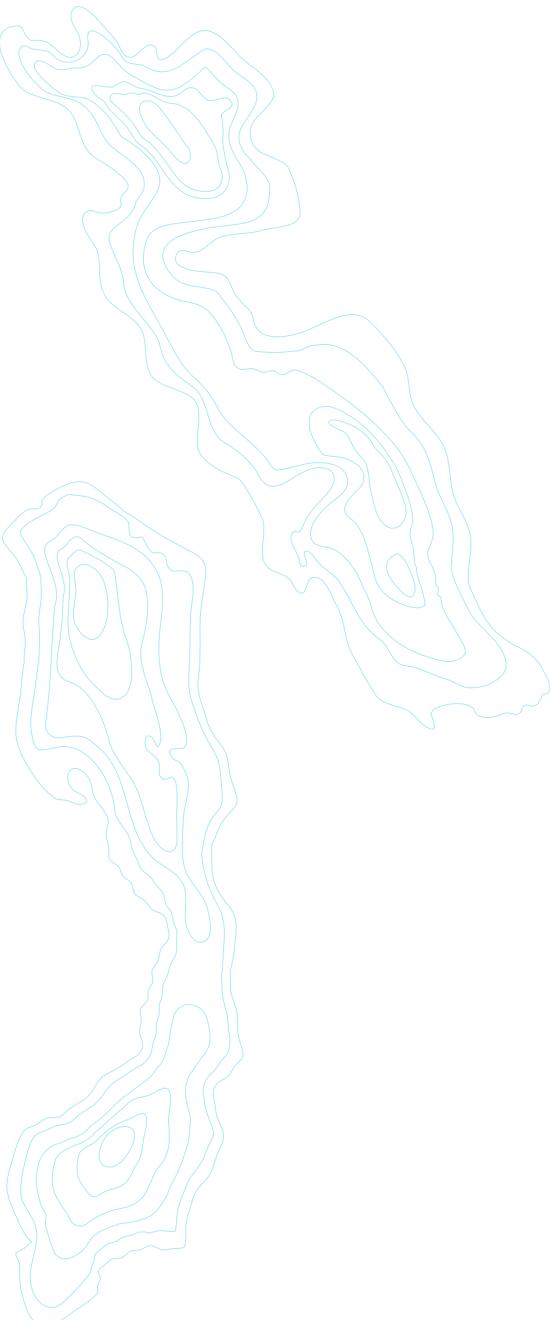
Despite the importance of this step in MSP, the number of plans implemented is quite low compared to the number of plans drafted and approved. The UNESCO-IOC database<sup>11</sup> and other MSP portals<sup>12,13</sup> show the proportion of plans actually implemented at either national or subnational levels is less than 25 percent. They also demonstrate that much of that implementation is in high-income countries. A recent study of implementation of ecosystem-based management of marine areas in Asia noted that only 7 percent of coastal countries in the region had implemented MSP in their entire EEZ or territorial waters (Nakornchai et al. 2019).

Reasons for the low rate of implementation range from insufficient funds, poor governance and political support, and lack of human capacity. Governance issues include lack of or weakening political will, as seen in Australia (Ehler 2020); lack of a legal basis to implement, as seen in Shetlands (Kelly, Gray, and Shucksmith 2013), Portugal (Frazão Santos et al. 2015), China's MFZ, and Poland (Jay et al. 2013); and low capacity to implement, including enforcement, compliance, and monitoring (Convention on Biological Diversity 2014). Other governance challenges include failure to establish strong coordination across different institutional entities or sectors (Box 8.1) and generally weak governance arrangements, as seen in Australia (Ehler 2020). Other issues include inconsistent decision making and corruption (Convention on Biological Diversity 2014), weak enabling conditions, conflicting spatial claims as seen in the Netherlands

11 <http://msp.ioc-unesco.org/>

12 <https://www.msp-platform.eu/>

13 <https://marineplanning.org/>



**Box 8.1:**

### Plan of Implementation: Hauraki Gulf New Zealand

The New Zealand government released *Sea Change – Tai Timu Tai Pari*, the marine spatial plan for the Hauraki Gulf in 2016 after a successful stakeholder-driven process. However, the plan presented limited guidance on implementation and required legislative changes and uptake and increased spending by implementing agencies. These challenges were not considered during the drafting of the recommendations. Some changes needed the support of some stakeholder groups and proved to be a challenge. A 2018 study by the Auditor General of New Zealand noted several lessons to learn from the lack of plan implementation after two years:

- Provide more planning for implementation early in the project, not after the plan endorsement.
- Continue Working Groups and the MSP Steering Committee after plan endorsement. This allows time for the groups and committee to discuss implementation.
- Involve implementing agencies earlier in the planning process, and consider how they would implement the plan.
- Consider drafting an implementation plan during the planning step.
- Consider mandating an agency to coordinate and lead plan implementation.

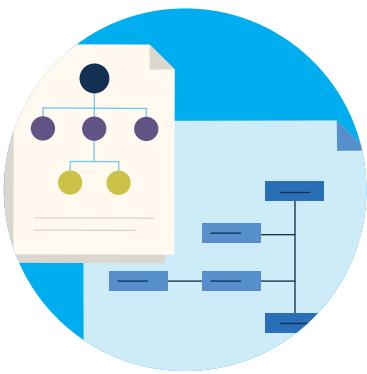
Source: New Zealand and Office of the Auditor-General 2018

(Ehler 2020) and unmanaged expectations among stakeholders (Convention on Biological Diversity 2014).

Most MSP implementation has taken place in OECD countries such as Australia, New Zealand, the United States, and European Union members (Convention on Biological Diversity 2014). It has occurred or is underway in only a few developing countries, such as China, Seychelles, and Mozambique. The CBD study cited the following conditions as needed for MSP implementation:

- Government-supported stakeholder engagement that is transparent, builds trust, and is credible, such as the Fisheries Transparency Initiative in Mauritania and the Seychelles (Fisheries Transparency Initiative 2021).
- A legal framework, created or already in place, that includes enforcement, compliance, and monitoring.
- Sufficient financial and human resources and capacity.
- Effective partnerships formed with cooperation among agencies, stakeholder sectors, and government institutions.
- Relevant data and tools (see Section 10).

Because developing countries have a low rate of implementation, there are few examples and lessons learned specific to them. Still, information on the challenges they face is starting to emerge in places such as Indonesia, the Seychelles, and the Caribbean. The challenges are often the same as in the developed world, especially limited funds and human capacity. Developing countries are putting together solutions and tools such as innovative financing (e.g. the Blue Bond in Seychelles) and using widely available online tools and portals (e.g. zoning tools and others described in Data and Geospatial Support Section 10). The MSPglobal International Guide on Marine/Maritime Spatial Planning (UNESCO-IOC/European Commission 2021) provides some insights into the overall approach to implementing an MSP. It covers enforcement and monitoring, but offers few detailed descriptions or lessons learned.

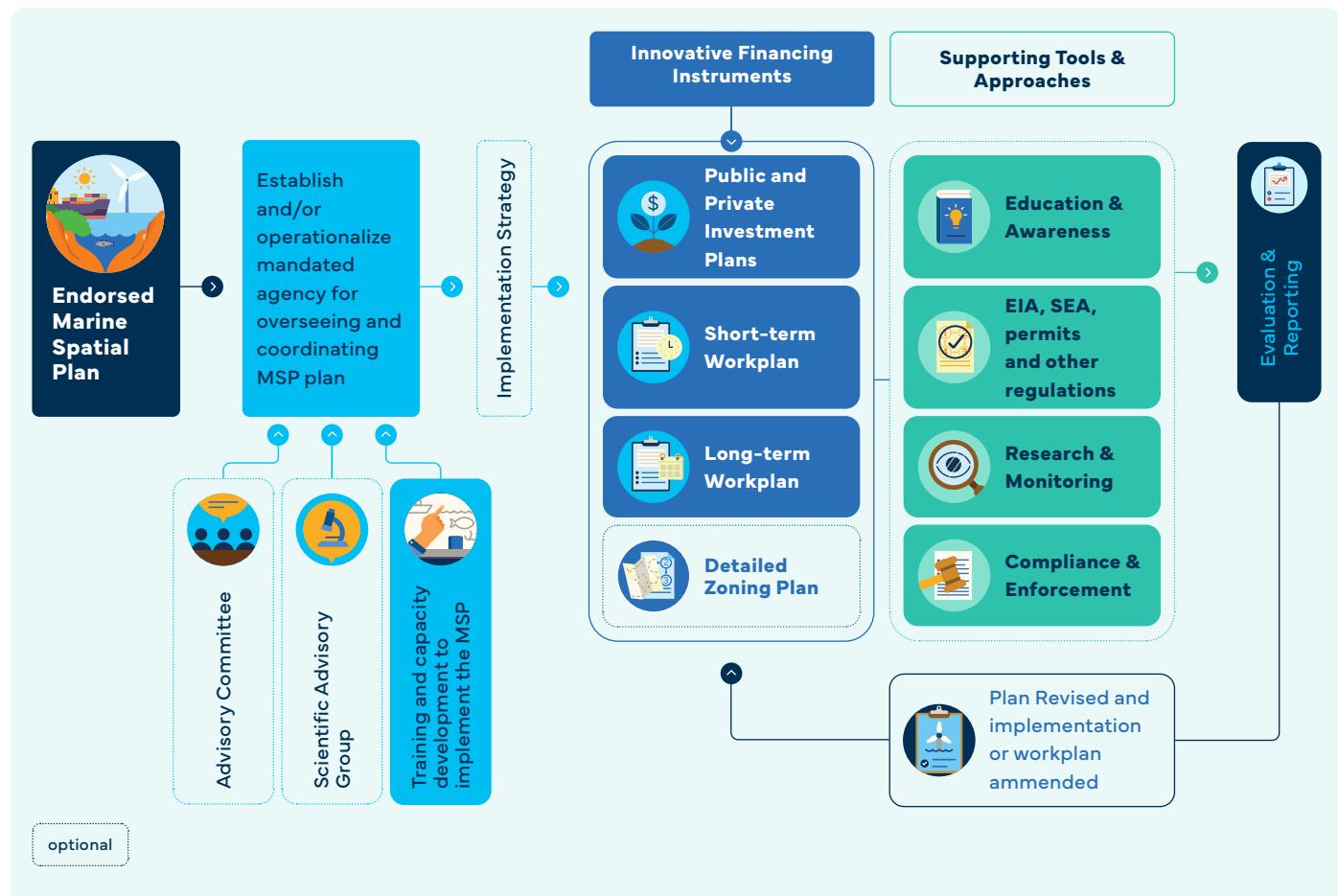


## 8.3

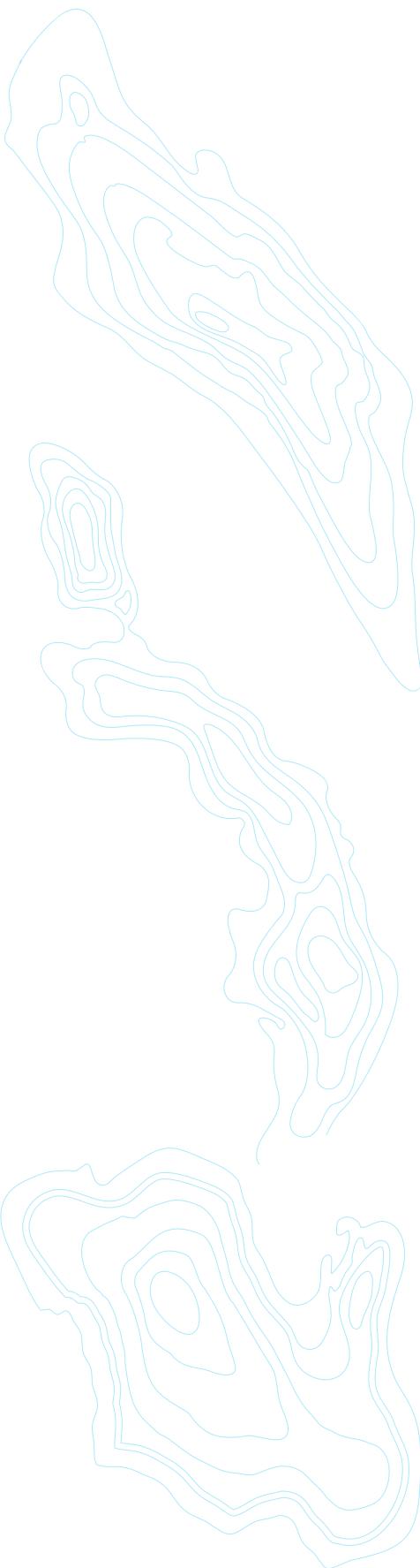
# Implementation Model

Kay and Alder (2005) provide a model for implementing ICZM that is general enough to provide practical steps to implementing MSP, subject to some modifications (Figure 8.2). In their model, several activities, in addition to those that are sector-focused, take place simultaneously or sequentially to implement the plan. These are used to meet management objectives including education, research, monitoring, compliance, and enforcement, as well as operationalizing integration across sectors.

**Figure 8.2: Implementation Model**



Source: Kay and Alder 2005.



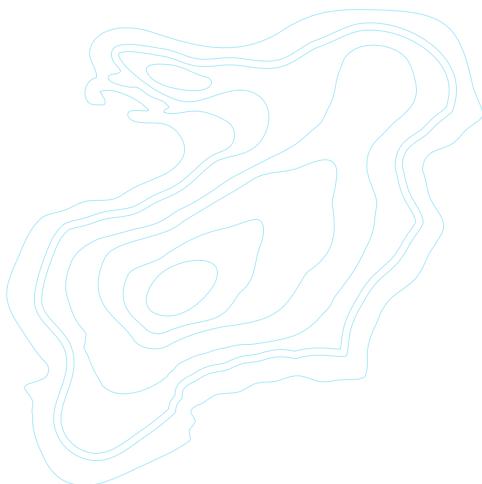
Implementation usually begins by establishing the entity mandated for coordination and programming. This entity may be an existing government agency or a new agency legislated to implement the plan. Whatever the form of the agency, it must have a legal mandate to implement the plan. To guide decision-making, the agency may have an advisory committee that is multi-sectoral with diverse stakeholders represented. It may have a scientific advisory group to support evidence-based decision making. If the agency uses these groups, it is important to develop the terms of reference (TORs) early in their establishment. The TORs should specify group structure and composition with well-defined roles, membership criteria, expectations, frequency of meetings, term length, and, if applicable, remuneration.

The UNESCO-IOC Step-by-Step Approach (Ehler and Douvere 2009) provides three options for establishing an agency mandated to implement an MSP:

- A single authority through a legislative process (e.g. Great Barrier Reef Marine Park Act or Seychelles)
- An authority using existing legislation, either by re-interpreting it or by slightly modifying it, as seen in Vietnam with the Elaboration on the Law on Planning (Government of Vietnam). The revised legislation provides a basis for MSP based on existing land-based spatial planning.
- Modification of legislation that is already in force or that is being considered for development of an agency in the near future, as seen in Bermuda (Porter 2016).

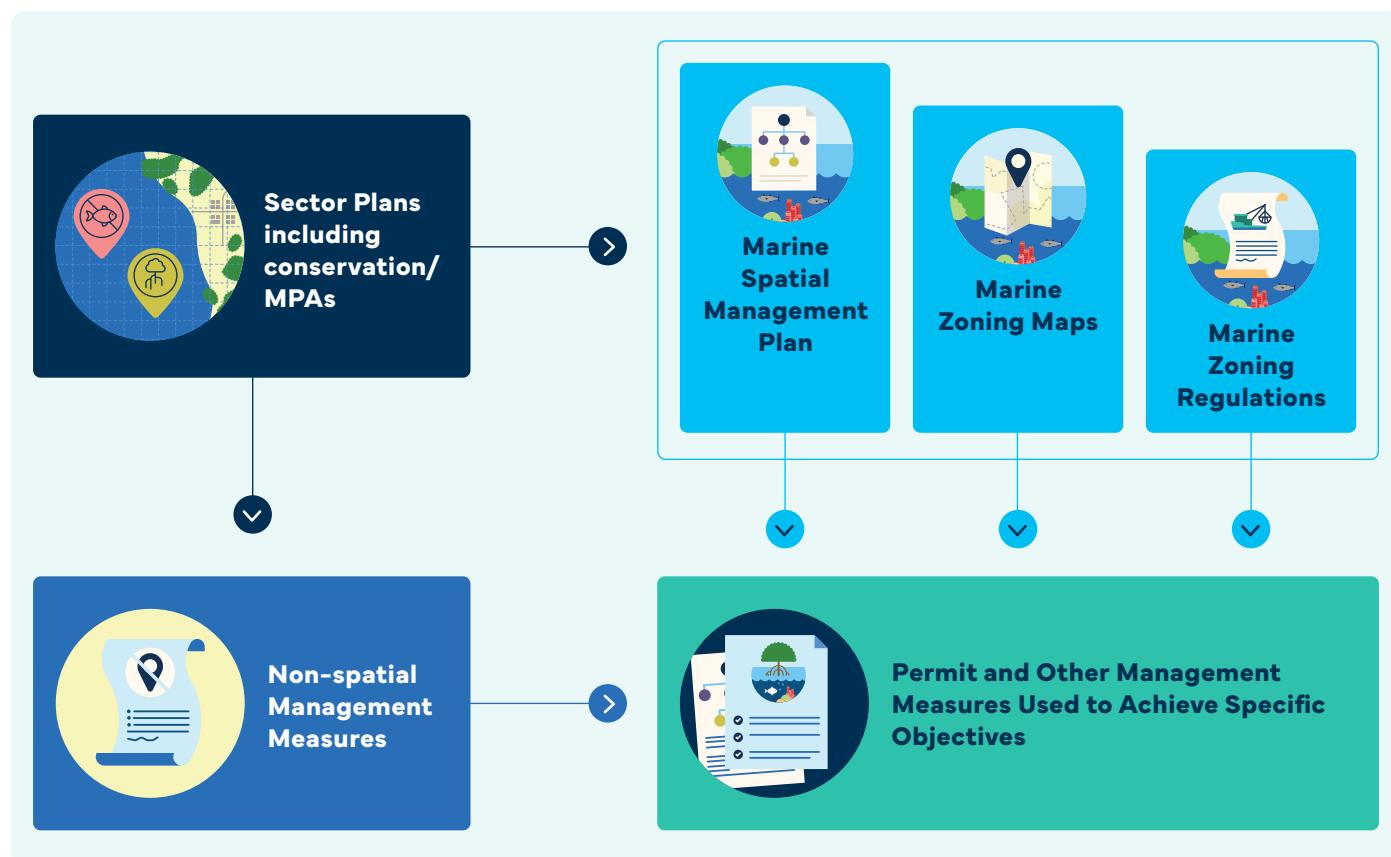
In this step of MSP, implementation primarily focuses on the establishment and management of day-to-day activities and projects and continuing integration across sectors. Implementation also needs to account for managing grievances or appeals of decisions. MPA legislation often provides for this, as seen in Ghana's spatial planning law,<sup>14</sup> which includes marine areas, and tasks the Planning Authority to consider grievances at the different stages of the plan (Republic of Ghana 2016).

14 [http://vepg.vn/wp-content/uploads/2019/07/Decree-37\\_2019\\_ND\\_CP-on-Implementation-of-the-Planning-Law\\_EN-compressed.pdf](http://vepg.vn/wp-content/uploads/2019/07/Decree-37_2019_ND_CP-on-Implementation-of-the-Planning-Law_EN-compressed.pdf)



Sometimes the formal implementation plan may guide short- and long-term activities. In other cases, managers might use a detailed work plan or a combination of a long-term/strategic implementation and a short-term work plan (Figure 8.3). Whatever form they take, these implementation plans and programs should closely link to sector activities and plans as outlined in MSP (Table 8.1). The focus and scale of the plan drives the management agency and the nature of the activities. At the national level, activities will be more strategic and large scale, while site-level plans will focus on tangible activities with communication and coordination between sectors more prevalent.

Figure 8.3: Marine Spatial Planning Outputs



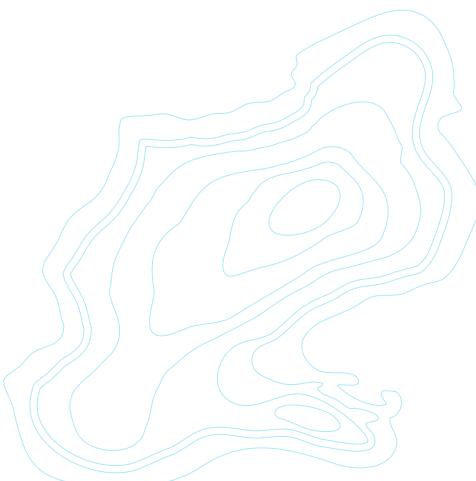
Source: Ehler 2016.

**Table 8.1: Sample Section of the Implementation Plan from Belize ICZM**

TOPIC: 1.8 AQUACULTURE

Actions Required	Key Activities	Implementing Agency(ies)	Timeframe (Year)				Budget Estimate (BZD)	Political Input
			1	2	3	4		
<b>1. Update aquaculture policy and regulations to reflect Aquaculture Stewardship Council Guidelines</b>	<ul style="list-style-type: none"> <li>● Develop proposed updates.</li> <li>● Conduct sector consultations.</li> <li>● Prepare and submit Cabinet Paper.</li> </ul>	Lead: Cabinet with Ministry of Agriculture, Fisheries, Forestry, the Environment, and Sustainable Development					30,000	Executive leadership and political will are in support of this action.  Aquaculture Sector gives support.
<b>2. Report on the status and performance of both aquaculture and mariculture developments annually.</b>	<ul style="list-style-type: none"> <li>● Conduct field data collection, analysis, and interpretation.</li> <li>● Prepare and publish Report.</li> </ul>	Lead: Cabinet with Ministry of Agriculture, Fisheries, Forestry, the Environment, and Sustainable Development					25,000	Executive and management leadership see value in annual reporting.
<b>3. Formulate an Aquaculture Steering Committee comprised of government, non-government, and private sector representatives.</b>	<ul style="list-style-type: none"> <li>● Prepare Terms of Reference and Member Profiles for the Steering Committee.</li> </ul>	Lead: Fisheries Department					20,000	Fisheries Department agrees to need/value of this committee and secures executive support for its creation.

Source: Coastal Zone Management Authority and Institute (CZMAI) 2016.



The short- and long-term work programs drive the development and implementation of plans for public and private investments, sector-specific plans, and in some cases detailed zoning plans. These plans are implemented through a range of tools, including EIA, SEA, permitting, and other regulatory tools that support compliance and enforcement, research and monitoring, and education and awareness raising.



## 8.4

# Capacity Building for Implementation

A strong sense of ownership emerges when stakeholders, including staff involved in developing the plan, remain engaged as the program moves into the implementation stage. This ensures that all parties know well the reasons for the various planning outcomes and activities needed to meet day-to-day responsibilities. However, many people may need special training and job preparation in the early days of implementation, since capacity is often limited. Capacity development may be needed not just in planning agencies but among developers, NGOs, and the wider community (Ansorg, Calado, and Gilliland 2018). In short, human capacity development builds an effective implementation team. No one person has all the skills and expertise required to realize a plan, but with a common goal, a diverse and skilled team can move implementation forward. This is one area where the World Bank can support countries through technical assistance such as ASAs.

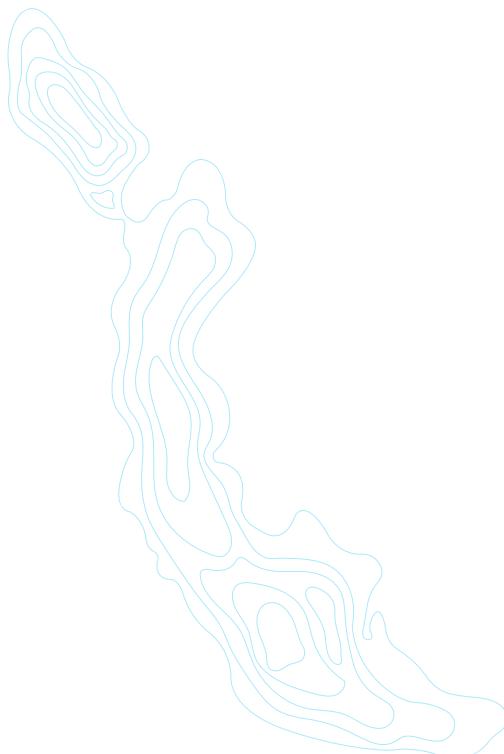
The range of skills and expertise (Table 8.2) needed for implementation are summarized by Calado et al. (2019):



**Table 8.2: Skills and Expertise for Implementation**

MSP Processes and Activities	Skills and Knowledge	Background and Expertise
 <b>Plan implementation</b>  ● Ensuring coordination, compliance, and enforcement of measures and policies defined by the plan	Project/organizational management	Sectoral interests and agencies
 <b>Monitoring and evaluation</b>  ● Reporting and monitoring the progress of the plan and necessary planning reviews	Understanding a "logic model" and indicators, existing monitoring programmes	Statistical and reporting experts, social scientists
 ● Management of the planning process/other competences  ● Coordination and organisation of the various activities and processes	Programme/project management, systems thinking, and management processes	Terrestrial planning, project managers, social scientists

Source: Calado et al. 2019.



Other important and overall skills for MSP practitioners that Calado et al. (2019) identified include:

- Ability to navigate politics, such as understanding processes of law, policy, decision-making, and the legislative framework of MSP and its constraints.
- Spatial-planning skills, a set of skills including some of the above.
- Understanding of social and natural sciences, and ability to take a holistic view.
- Capacity to deal with neighboring countries and cultures.
- Ability to be neutral and assertive.
- Presentation skills and the ability to write clearly, particularly about policies.



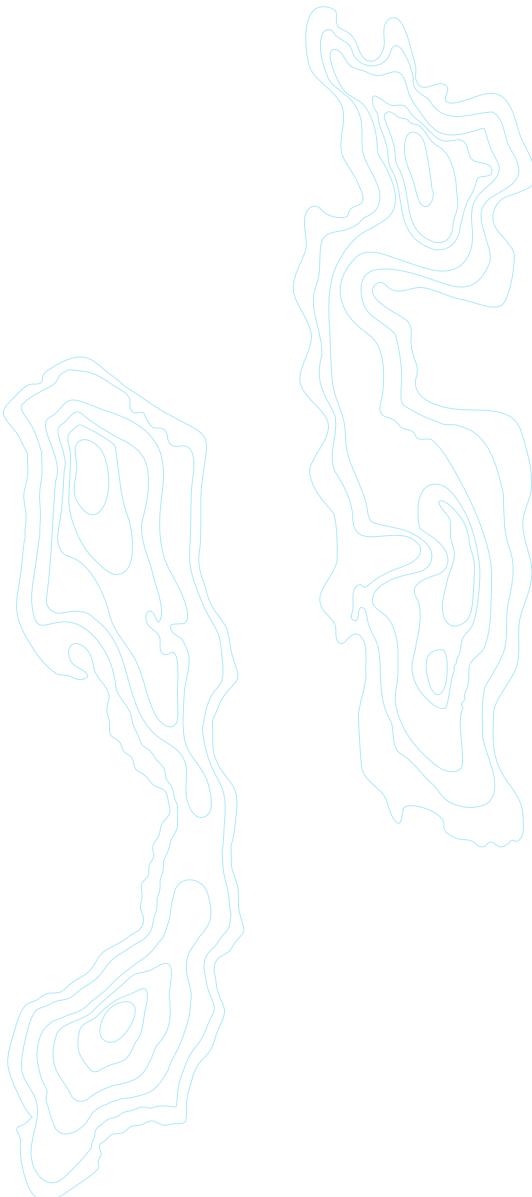
## 8.5

# Compliance and Enforcement

Compliance and enforcement requirements for implementing a plan are generally based on its objectives and priorities (Formulating Plans, Section 6), the needs of various monitoring programs (Monitoring and Evaluation, Section 14), and resources. They involve tracking and auditing of processes, decisions, and other actions across sectors specified in the MSP. Compliance not only detects and deters infringers—it can also gather information for monitoring, plan adaptation, and research purposes. Enforcement programs usually aim to improve users' compliance with rules and regulations and are often sector-focused. Education and communication programs seek the same objective, meaning that enforcement programs should complement education programs to maximize their effectiveness.

## Research, Monitoring, and Evaluation

Two important tools in assessing the effectiveness of a plan or program are program monitoring and evaluation (see Monitoring and Evaluation, Section 14, for detailed discussion). Within a plan implementation framework, research programs should fill in the information gaps identified in the planning process and provide input into any ongoing adaptive capacities that are built into planning processes and monitoring programs. Research activities outside of the implementation program, such as university programs, should coordinate with MSP implementation monitoring where appropriate and maximize staff and financial resources dedicated to plan implementation, while being scientifically rigorous. Research and monitoring also provide input into the MSP evaluation that generates recommendations for further actions or changes to activities and the plan itself.



Sufficient time has passed for the evaluation of certain marine spatial plans. Some of these, such as in Portugal, are in the second planning cycle (Quero García, Chica Ruiz, and García Sanabria 2020) or even the third, such as Massachusetts (Government of Massachusetts 2021), offering lessons learned and adjustments for changing conditions and improved information.



## 8.6

# Education and Awareness

Education should be an ongoing program of activities throughout the life of the MSP to raise awareness of issues, alter user behavior, and facilitate implementation. The focus of education will change as stakeholders' understanding of issues and solutions improves, and evaluation programs report the impact of the MSP. Stakeholders' needs and available resources should drive education and awareness activities that support implementation.



## 8.7

# Data and Tools for Implementation

The collation and maintenance of data continue past the planning step to support monitoring of indicators, progress reporting against these indicators, and capturing lessons learned. Continuity of data and information is also important for stakeholder engagement and transparency since various parties may want access to explore possible implementation activities (Box 8.2), for example, to look at the impact of sea level rise or how natural capital was used for implementation, or to confirm

findings of progress reporting and evaluations. Section 10, Data and Geospatial Support, and Section 14, Monitoring and Evaluation, discuss data and tools in further detail.

 **Box 8.2:****Atlas of Ocean Wealth (GEF LME:LEARN 2018)**

Atlas of Ocean Wealth is an online tool that provides scientific information in a clear and useful way to help decision makers at the local, national, and international levels better understand the true value of the ocean environments. It provides maps and data needed to make better, evidence-based ocean-use decisions. High-resolution models illustrate the value of oceans at broad scales for decision-making at the national and international levels. Detailed maps and models inform local planning and management.

## 8.8

# World Bank Investment Considerations



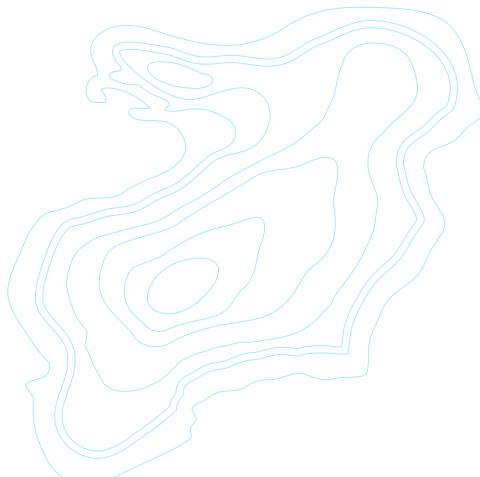
The World Bank's role in MSP does not end with the endorsement of a plan but continues with implementation. Operationalizing the plan includes support for making the economic case for implementation, action plans, additional public and private investments, M&E (see Section 14) and coordination and integration.

Economic tools described in the previous sections can also be used for making the case for implementation, but the questions may be different and therefore require different data (Table 8.3).

**Table 8.3: Economic Tools and Concepts for Marine Spatial Plan Implementation**

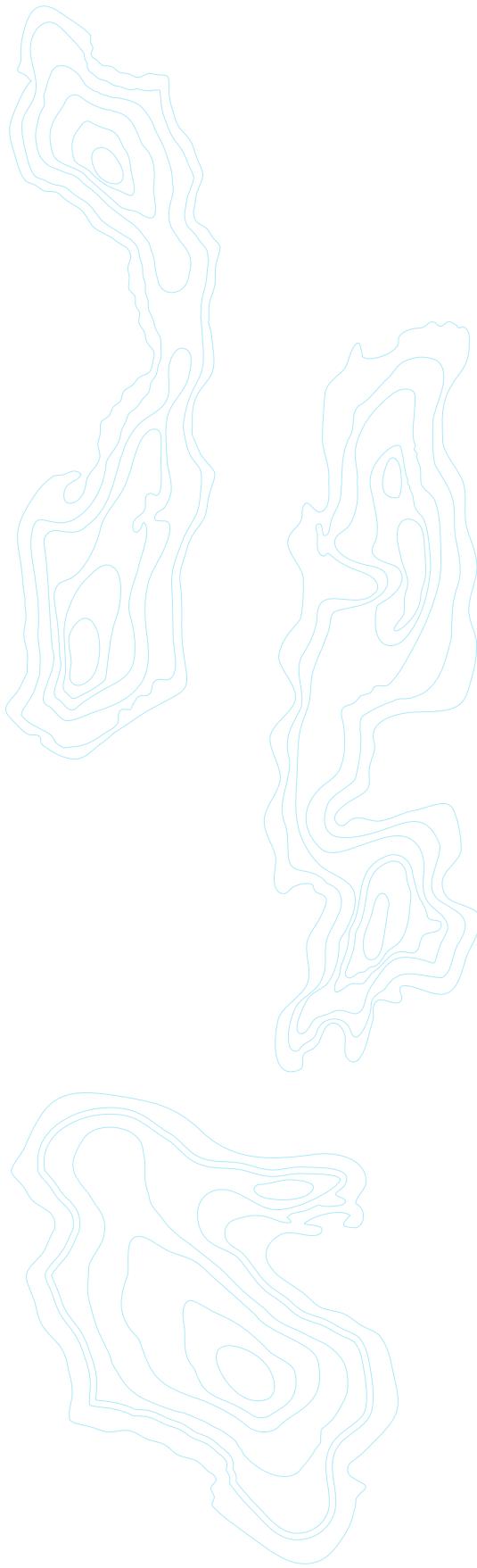
 Key Question	 Tools and Concepts	 What it tells you	 Minimum Data Needs
<ul style="list-style-type: none"> <li>• What economic indicators should be used in monitoring and how will they best be measured?</li> <li>• What are the measurable impacts attributable to MSP on ecological, social, and economic outcomes?</li> <li>• What is the evidence on improving economic outcomes for women and other marginalized groups?</li> </ul>	<ul style="list-style-type: none"> <li>• Ocean accounting and digital dashboards</li> <li>• Impact evaluation methods (ex-post) to establish causal links</li> <li>• Behavioral economics tools to anticipate perverse incentives</li> <li>• Bio-economic models to capture the interrelation between productive and extractive sectors and the condition of the resource</li> <li>• Sustainability standards in existing sectors to attract new capital</li> <li>• Devising of packages of investable projects with scale, risk, and returns adjusted to different types of investors</li> <li>• Adaptive management allowing marine spatial planners to learn by doing, adjust actions as information becomes available, and adapt to uncertain future condition models</li> </ul>	<ul style="list-style-type: none"> <li>• The importance of gaining political support, increasing the engagement of relevant stakeholders, and making necessary adjustments to improve the achievement of desired goals through science-based evidence of impact on a multidimensional basis</li> <li>• How to use proper ocean accounts to help MSP move towards its full potential. Both tools (ocean accounting and MSP) must be brought together as a guide for the sustainable development of oceans.</li> </ul>	<ul style="list-style-type: none"> <li>• Data of baseline information, with developed consistency in the definition and collection of outcome indicators</li> <li>• For impact evaluation: catch (e.g., catch per unit of effort); economic impacts (e.g., income growth); perceptions of ecological and socio-economic change; wages and employment</li> <li>• Ocean accounts: natural assets; flows of goods and services from the ocean; waste to the ocean environment; ocean economy satellite accounts</li> </ul>

Source: Applying Economic Analysis to Marine Spatial Planning.



The World Bank note *Applying Economic Analysis to Marine Spatial Planning* provides comprehensive guidance on tools and approaches for marine spatial planning.

As noted earlier, the planning process enables World Bank and IFC teams to identify and realize viable investment opportunities across sectors once the government endorses the plan. These



investment opportunities are more likely to be realized if the Bank considers and where appropriate supports:

- Governance including institutional arrangements, compliance and enforcement with the implementation program as described above. Support may include investment in establishing and strengthening institutions and human capacity to implement MSP. Other investments may support the ecosystem approach, climate change mitigation, and adaptation actions. Regulatory instruments such as EIA to facilitate compliance and enforcement may be established to meet international obligations for biodiversity, climate change, and the SDGs. This support applies not only to the agency mandated to coordinate and integrate the MSP, but also to sector agencies. Some governance reforms may need to look at finance reforms to simplify private sector investing and to facilitate innovative financing mechanisms, as seen with the Seychelles' Blue Bond program.
- Integration, especially policy and sector integration, is a key feature of MSP and the realization of the Blue Economy. However, it is difficult to achieve given the potential competing agendas of sectors and the need sometimes to share power. Integration in the context of implementation operationalizes the trade-offs reached in the planning process. Some of these trade-offs include creating opportunities for new and emerging sectors that the World Bank and the IFC may have an interest in advancing. Researchers noted that MSP integration looks easy on paper or in a planning meeting discussion but in fact is quite difficult (Vince and Day 2020, Gee et al. 2019).
- Implementation challenges include overlapping jurisdiction, conflicting regulations, poorly defined boundaries, vague institutional mandates, roles, and responsibilities, incompatible data and transmission formats, and general resistance to new approaches in managing marine resources (Weig and Schultz-Zehden 2019). Despite the many challenges, there are cases of successful integration, such as in Belgium as seen in Box 8.3 (Olsen et al. 2014) and the Great Barrier Reef Marine Park (Vince and Day 2020).

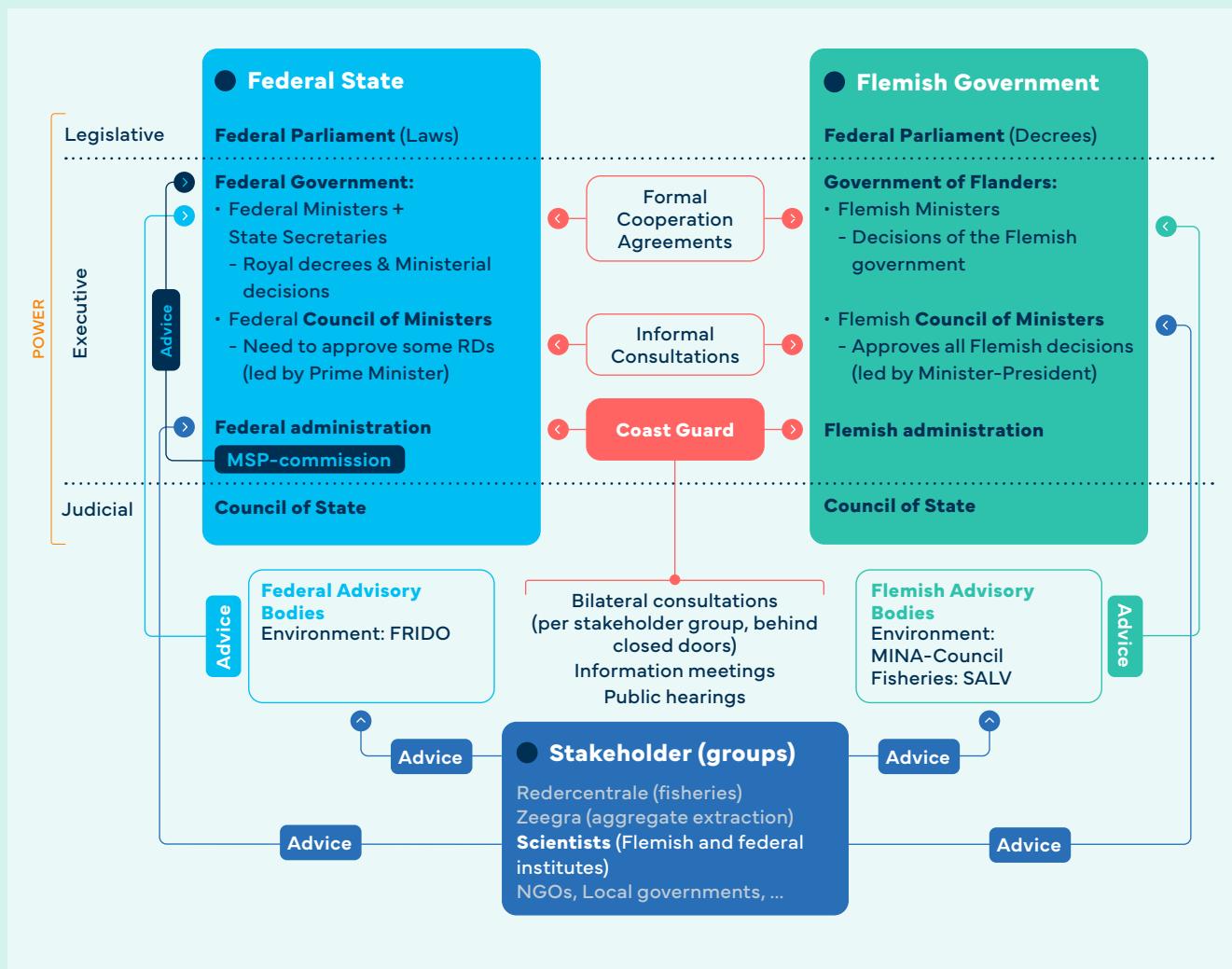
### Box 8.3:

#### Belgium Sector Integration

Belgium has strong vertical integration between ministries involved in the marine sector. Each government level has its own advisory bodies representing sector ministries. Each body in turn has its own mandate and responsibilities. However, there are cooperation agreements among the ministries (Figure 8.4).

In 2012, a Royal Decree embedded in MSP legislation an Advisory Committee that facilitates integration between federal government departments and the participation, by invitation, of relevant Flemish authorities (Olsen et al. 2014).

Figure 8.4: Institutional and Stakeholder Integration in Belgium

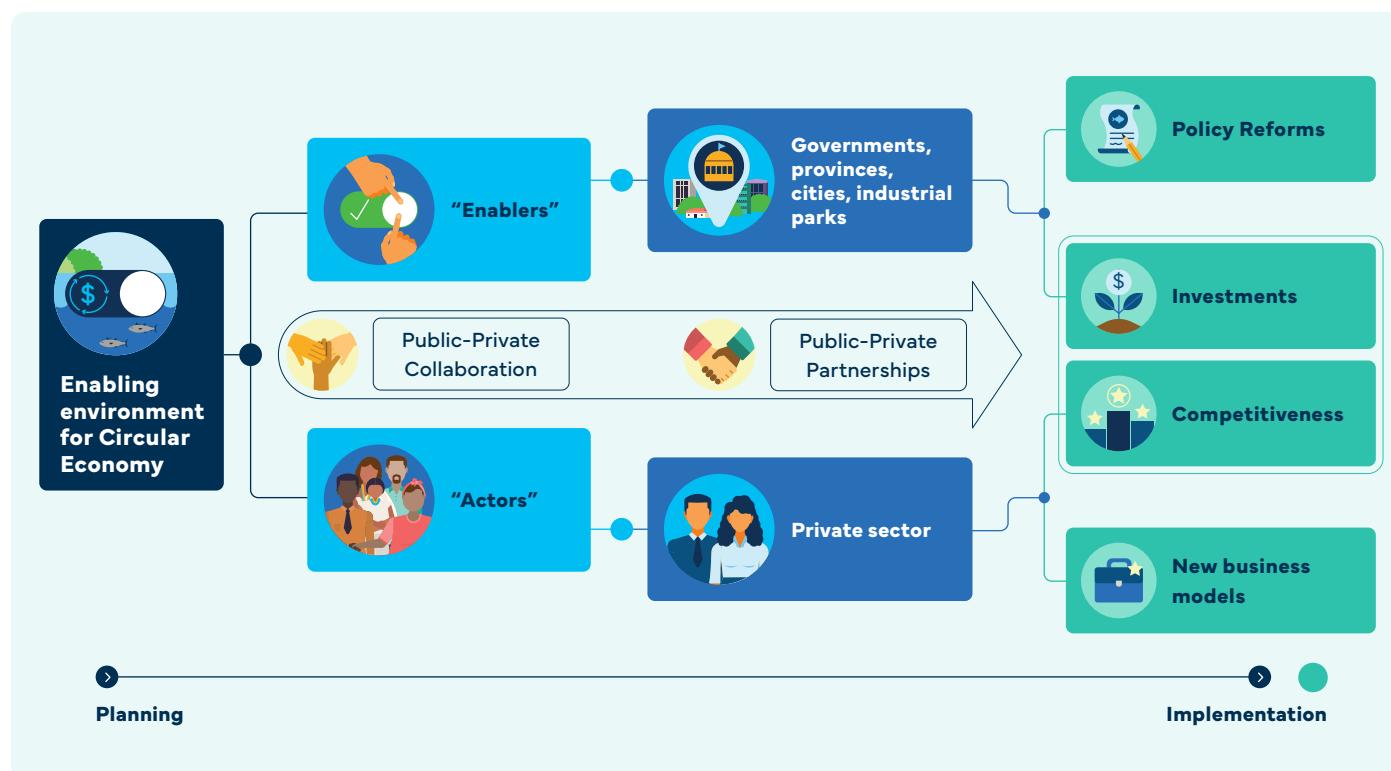


Source: Olsen et al. 2014.



- Financing for implementation of a marine spatial plan, especially investments, should ideally be part of an implementation strategy or any short- or long-term plan. Activities should start after plan endorsement, in order to provide a level of certainty for public and private investments. A Public Expenditure Review (World Bank 2021) as described in the Enabling Conditions (Section 5) is also critical to implementation, because it provides information on the levels of funding that may be mobilized to make public investments in MSP. The World Bank note *Applying Economic Analysis to Marine Spatial Planning* provides guidance on how to finance MSP, and the types of capital available for implementation. There are various kinds of capital providers, depending on intended use, financial returns, and associated risks. Public Private Partnerships (Figure 8.5) are another way of financing implementation.

**Figure 8.5: Possible Entry Points for Public and Private Investments**



Source: internal World Bank source- PROBLUE's Pillar 2

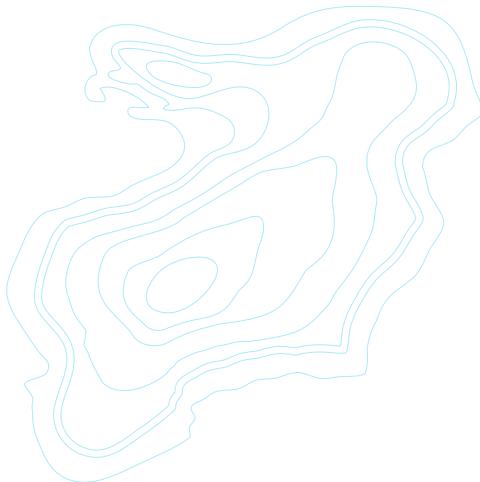
- An exhaustive list of the many types of capital is beyond the scope of this note. However, in Table 8.4 we present a summary of the most salient types according to the Ocean Finance Handbook (Friends of Ocean Action, 2020).

**Table 8.4: Capital Types for Blue Economy**

<b>Capital Type</b>	<b>Description</b>	
<b>IMPACT ONLY:</b> <b>It is the largest category of non-return-seeking capital. It is long-term and small-scale.</b>	Public financing	Provided by national and subnational governmental bodies.
	Official development assistance (ODA)	Public funding allocated to other countries and often key for blended finance
	Philanthropic grants	Provided by non-governmental actors such as foundations, charities, and large companies through social responsibility programs. Like ODAs, it plays a crucial role in financing sustainable development.
<b>DEBT:</b> <b>Low-risk and low-reward type of capital. Opportunities for scale are substantial, such as the expansion of the climate and green bond markets.</b>	Loans	Variable in scale, collaterals, and interest rates
	Bonds	They can be issued by both the private sector (large corporations) and the public sector (through sovereign/government bonds).
<b>EQUITY:</b> <b>It is based on buying a share of an asset, which can be sold by the owner to raise capital. It is much more variable than debt in both scale and tolerance for risk.</b>	Public equity	Open to be traded through stock markets. These are highly liquid and open to scrutiny, as companies are obliged to release information on their financial performance. Many environmental standards and principles are geared towards this direction.
	Equity investment	Are much less liquid than the public equity, as shares, once acquired, are not as easily sold. These are usually investment funds and venture capitals. These represent most investments taking place for a sustainable Blue Economy.

Source: Ocean Fox Advisory and Friends of Ocean Action 2020.



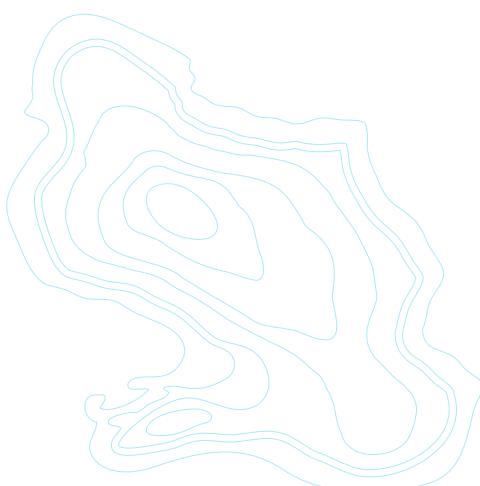


- The World Bank has multiple instruments that can support public and private investments: DPFs, IPFs, DPOs, PforR, for example. It has different entry points for investing (Table 8.5). Some implementation activities may be eligible for IFC financing as a “blue project”<sup>15</sup> with the eligibility criteria based on Blue Economy Principles. There are other innovative financing instruments that are part of the Blue Economy suite of tools: blended finance, impact investing, insurance schemes, Blue Bond, and micro-finance. These can also apply to MSP implementation, as outlined in the FAO Blue Finance Guidance Notes Series.<sup>16</sup>

**Table 8.5: World Bank Group Financing Instruments**

World Bank Instrument	Description	Support to MSP Steps
Development Policy Financing	<a href="https://www.worldbank.org/en/what-we-do/products-and-services/financing-instruments/development-policy-financing">https://www.worldbank.org/en/what-we-do/products-and-services/financing-instruments/development-policy-financing</a>	Policies and regulations for MSP planning and implementation, institutional actions for MSP planning and implementation
Investment Policy Financing	<a href="https://www.worldbank.org/en/what-we-do/products-and-services/financing-instruments/investment-project-financing">https://www.worldbank.org/en/what-we-do/products-and-services/financing-instruments/investment-project-financing</a>	Policy development, institutional arrangements, feasibility studies, capacity building, sector specific investments, overall MSP investment plan
Program for Results	<a href="https://www.worldbank.org/en/programs/program-for-results-financing">https://www.worldbank.org/en/programs/program-for-results-financing</a>	Ex post payments for implementation of sectorial investments, or full MSPs.
Advisory Services and Analytics	<a href="https://www.worldbank.org/en/what-we-do/products-and-services/advisory-services">https://www.worldbank.org/en/what-we-do/products-and-services/advisory-services</a>	Preparatory assessments, technical support for institutional arrangements, capacity building, outreach and education, evaluations.

Source: Not applicable.



- The private sector has access to a range of public and private funding (grants and loans, for example). However, private sector investment is influenced by the nature and scope of risk for the investors, and their ability to understand and manage the risks. The IUCN Blue Natural Capital (BNC+) Framework provides guidance on how to manage such risks when investing in the Blue Economy, with a focus on natural capital (IUCN 2019).

<sup>15</sup> [https://www.ifc.org/wps/wcm/connect/industry\\_ext\\_content/ifc\\_external\\_corporate\\_site/financial+institutions/resources/guidelines-for-blue-finance](https://www.ifc.org/wps/wcm/connect/industry_ext_content/ifc_external_corporate_site/financial+institutions/resources/guidelines-for-blue-finance)

<sup>16</sup> <http://www.fao.org/3/ca8825en/CA8825EN.pdf>

# References

- Aguilar-Manjarrez, José, Doris Soto, Randall E Brummett, Food and Agriculture Organization of the United Nations, and World Bank. 2017a. *Aquaculture Zoning, Site Selection and Area Management under the Ecosystem Approach to Aquaculture: A Handbook*.  
..
- . 2017b. *Aquaculture Zoning, Site Selection and Area Management under the Ecosystem Approach to Aquaculture: A Handbook*.  
..
- Almodovar, Margarida, Demetrio De Armas, Fátima Lopes Alves, Luis Bentes, Catarina Fonseca, Jordi Galofré, Kira Gee, et al. 2014. "TPEA Good Practice Guide: Lessons for Cross-Border MSP from Transboundary Planning in the European Atlantic." <https://doi.org/10.13140/2.1.2915.1045>.  
..
- Andrulewicz, Eugeniusz, Zbigniew Otremba, and Katarzyna Kamińska. 2010. "Ongoing Technical Activities and Conservation Measures in Maritime Spatial Planning within Polish Marine Areas." *Polish J. of Environ. Stud.* 19 (3): 553–63.  
..
- Anon. 2016. "Marine Spatial Planning: Advice from the Field." The University of Rhode Island.  
[https://www.crc.uri.edu/download/MSP\\_Themes.pdf](https://www.crc.uri.edu/download/MSP_Themes.pdf).  
..
- Ansong, J., H. Calado, and P.M. Gilliland. 2018. "A Multifaceted Approach to Building Capacity for Marine/Maritime Spatial Planning Based on European Experience." *Marine Policy*, 103422.  
<https://doi.org/10.1016/j.marpol.2019.01.011>.  
..
- Arkema, Katie K., and Mary Ruckelshaus. 2017. "Transdisciplinary Research for Conservation and Sustainable Development Planning in the Caribbean." In *Conservation for the Anthropocene Ocean*, 333–57. Elsevier.  
<https://doi.org/10.1016/B978-0-12-805375-1.00016-7>.  
..

- Baker, Elaine, Françoise Gaill, Aristomenis P. Karageorgis, Geoffroy Lamarche, Bhavani Narayanaswamy, Joanna Parr, Clodette Raharimanana, Ricardo Santos, Rahul Sharma, and Joshua Tuhumwire. 2016. "Chapter 23: Offshore Mining Industries." In *First World Ocean Assessment*, 34. New York: United Nations.  
..
- Bates, Alison W. 2017. "Revisiting Approaches to Marine Spatial Planning: Perspectives on and Implications for the United States." *Agricultural and Resource Economics Review* 46 (2): 206–23. <https://doi.org/10.1017/age.2017.11>.  
..
- Beck, Michael, Zach Fernanda, J. Kachmar, K. K. Morrisson, P. Taylor, and others. 2009a. "Best Practices for Marine Spatial Planning." The Nature Conservancy, Arlington VA.  
..
- . 2009b. "Best Practices for Marine Spatial Planning." The Nature Conservancy, Arlington VA.  
..
- Beck, Michael, N. Heck, S. Narayan, P. Menédez, S. Torres-Ortega, I. J. Losada, M. Way, M. Rogers, and L. McFarlane-Connelly. 2020. "Reducing Caribbean Risk: Opportunities for Cost-Effective Mangrove Restoration and Insurance." Arlington, VA.: The Nature Conservancy.  
..
- Böhnke-Henrichs, Anne, Corinne Baulcomb, Rebecca Koss, S. Salman Hussain, and Rudolf S. de Groot. 2013. "Typology and Indicators of Ecosystem Services for Marine Spatial Planning and Management." *Journal of Environmental Management* 130 (November): 135–45.  
<https://doi.org/10.1016/j.jenvman.2013.08.027>.  
..
- Buhl-Mortensen, Lene, Ibon Galparsoro, Tomás Vega Fernández, Kate Johnson, Giovanni D'Anna, Fabio Badalamenti, Germana Garofalo, et al. 2017. "Maritime Ecosystem-Based Management in Practice: Lessons Learned from the Application of a Generic Spatial Planning Framework in Europe." *Marine Policy* 75 (January): 174–86.  
<https://doi.org/10.1016/j.marpol.2016.01.024>.  
..

- Calado, H., K. Ng, D. Johnson, L. Sousa, M. Phillips, and F. Alves. 2010. "Marine Spatial Planning: Lessons Learned from the Portuguese Debate." *Marine Policy* 34 (6): 1341–49. <https://doi.org/10.1016/j.marpol.2010.06.007>.  
..
- Calado, Helena, Catarina Fonseca, Joseph Ansong, Manuel Frias, and Marta Vergílio. 2019. "Education and Training for Maritime Spatial Planners." In *Maritime Spatial Planning Past, Present and Future*, 442–68. Cham, Switzerland: Palgrave Macmillan.  
..
- Caldow, Chris. 2015. "Biogeographic Assessments\_A Framework for Information Synthesis in Marine Spatial Planning." *Marine Policy*, 11.
- ..
- Cejudo, Guillermo M., and Cynthia L. Michel. 2017. "Addressing Fragmented Government Action: Coordination, Coherence, and Integration." *Policy Sciences* 50 (4): 745–67. <https://doi.org/10.1007/s11077-017-9281-5>.  
..
- Coastal Zone Management Authority and Institute (CZMAI). 2016a. "Belize Integrated Coastal Zone Management Plan." Belize City: Coastal Zone Management Authority and Institute.  
..
- . 2016b. "Belize Integrated Coastal Zone Management Plan." Belize City: Coastal Zone Management Authority and Institute.  
..
- Collie, Jeremy S., W.L. (Vic) Adamowicz, Michael W. Beck, Bethany Craig, Timothy E. Essington, David Fluharty, Jake Rice, and James N. Sanchirico. 2013. "Marine Spatial Planning in Practice." *Estuarine, Coastal and Shelf Science* 117 (January): 1–11. <https://doi.org/10.1016/j.ecss.2012.11.010>.  
..
- Convention on Biological Diversity. 2014a. "MARINE SPATIAL PLANNING IN PRACTICE—TRANSITIONING FROM PLANNING TO IMPLEMENTATION." UNEP/CBD/SBSTTA/18/INF/23. Montreal Canada: CBD2016.  
..
- . 2014b. "MARINE SPATIAL PLANNING IN PRACTICE—TRANSITIONING FROM PLANNING TO IMPLEMENTATION." UNEP/CBD/SBSTTA/18/INF/23. Montreal Canada: CBD2016.  
..
- Day, Jon C., Richard A. Kenchington, John M. Tanzer, and Darren S. Cameron. 2019. "Marine Zoning Revisited: How Decades of Zoning the Great Barrier Reef Has Evolved as an Effective Spatial Planning Approach for Marine Ecosystem-based Management." *Aquatic Conservation: Marine and Freshwater Ecosystems* 29 (S2): 9–32. <https://doi.org/10.1002/aqc.3115>.  
..
- Di Tullio, Giacomo R., Patrizio Mariani, Guido Benassai, Diana Di Luccio, and Luisa Grieco. 2018. "Sustainable Use of Marine Resources through Offshore Wind and Mussel Farm Co-Location." *Ecological Modelling* 367 (January): 34–41. <https://doi.org/10.1016/j.ecolmodel.2017.10.012>.  
..
- Ehler, Charles. 2008. "Conclusions: Benefits, Lessons Learned, and Future Challenges of Marine Spatial Planning." *Marine Policy* 32 (5): 840–43. <https://doi.org/10.1016/j.marpol.2008.03.014>.  
..
- . 2013. "CORAL TRIANGLE INITIATIVE: AN INTRODUCTION TO MARINE SPATIAL PLANNING." Jakarta, Indonesia: Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security (CTI-CFF).  
..
- . 2014. "A Guide to Evaluating Marine Spcial Plans." UNESCO-IOC.  
..
- . 2016. "Marine Spatial Plannng In The Arctic: A First Step toward Ecosystem-Based Management (Part 2)." Aspen Institute's Dialogue and Commission on Arctic Climate Change. <https://assets.aspeninstitute.org/content/uploads/2016/06/Part-II-Marine-Spatial-Planning.pdf>.  
..
- . 2020a. "Two Decades of Progress in Marine Spatial Planning." *Marine Policy*, November, 104134. <https://doi.org/10.1016/j.marpol.2020.104134>.  
..
- . 2020b. "Two Decades of Progress in Marine Spatial Planning." *Marine Policy*, November, 104134. <https://doi.org/10.1016/j.marpol.2020.104134>.  
..
- Ehler, Charles, and Fanny Douvere. 2009a. "Marine Spatial Planning A Step By-Step Approach." UNESCO-IOC. <https://unesdoc.unesco.org/ark:/48223/pf0000186559>.  
..

- . 2009b. "Marine Spatial Planning A Step[by-Step Approach." UNESCO-IOC.  
[https://unesdoc.unesco.org/ark:/48223/pf0000186559.](https://unesdoc.unesco.org/ark:/48223/pf0000186559)
- ..
- Erickson, Ashley L, Margaret R Caldwell, and J Zachary Koehn. 2014. "Smart Ocean Planning: Drivers, Enabling Conditions, and Global Examples," 71.
- ..
- European Commission. 2016. "Summary of the 27 Multiannual National Aquaculture Plans." Brussels: European Commission. [http://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/27-multiannual-national-aquaculture-plans-summary\\_en.pdf](http://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/27-multiannual-national-aquaculture-plans-summary_en.pdf).
- ..
- . 2020. "The EU Blue Economy Report 2020." Luxembourg: Publications Office of the European Union.
- ..
- Fabinyi, Michael, Ben Belton, Wolfram H. Dressler, Magne Knudsen, Dedi S. Adhuri, Ammar Abdul Aziz, Md. Ali Akber, et al. 2022. "Coastal Transitions: Small-Scale Fisheries, Livelihoods, and Maritime Zone Developments in Southeast Asia." *Journal of Rural Studies* 91 (April): 184–94.  
[https://doi.org/10.1016/j.jrurstud.2022.02.006.](https://doi.org/10.1016/j.jrurstud.2022.02.006)
- ..
- FAO. 2020. "State of World Fisheries and Aquaculture 2020. Sustainability in Action." Rome, Italy: FAO.  
[https://doi.org/10.4060/ca9229en.](https://doi.org/10.4060/ca9229en)
- ..
- Findlay, Ken. 2018. "Operation Phakisa and Unlocking South Africa's Ocean Economy." *Journal of the Indian Ocean Region* 14 (2): 248–54.  
[https://doi.org/10.1080/19480881.2018.1475857.](https://doi.org/10.1080/19480881.2018.1475857)
- ..
- Firdaus, Ahmad M., Guy T. Housby, and Thomas A. A. Adcock. 2020. "Tidal Energy Resource in Larantuka Strait, Indonesia." *Proceedings of the Institution of Civil Engineers - Energy* 173 (2): 81–92.  
[https://doi.org/10.1680/jener.19.00042.](https://doi.org/10.1680/jener.19.00042)
- ..
- Flannery, Wesley, and Micheál Ó Cinnéide. 2012. "Deriving Lessons Relating to Marine Spatial Planning from Canada's Eastern Scotian Shelf Integrated Management Initiative." *Journal of Environmental Policy & Planning* 14 (1): 97–117.  
[https://doi.org/10.1080/1523908X.2012.662384.](https://doi.org/10.1080/1523908X.2012.662384)
- ..
- Flower, Jason, Robin Ramdeen, Andy Estep, Lennon R. Thomas, Sarita Francis, Grace Goldberg, Ayana E. Johnson, et al. 2020. "Marine Spatial Planning on the Caribbean Island of Montserrat: Lessons for Data-limited Small Islands." *Conservation Science and Practice* 2 (4).  
[https://doi.org/10.1111/csp2.158.](https://doi.org/10.1111/csp2.158)
- ..
- Flynn, Sarah, Will Meaney, Adam M. Leadbetter, Jeffrey P. Fisher, and Caitriona Nic Aonghusa. 2020. "Lessons from a Marine Spatial Planning Data Management Process for Ireland." *International Journal of Digital Earth*, August, 1–19.  
[https://doi.org/10.1080/17538947.2020.1808720.](https://doi.org/10.1080/17538947.2020.1808720)
- ..
- Frazão Santos, Catarina, Tundi Agardy, Francisco Andrade, Larry B. Crowder, Charles N. Ehler, and Michael K. Orbach. 2018. "Major Challenges in Developing Marine Spatial Planning." *Marine Policy*, September, S0308597X18306213.  
[https://doi.org/10.1016/j.marpol.2018.08.032.](https://doi.org/10.1016/j.marpol.2018.08.032)
- ..
- Frazão Santos, Catarina, Charles N. Ehler, Tundi Agardy, Francisco Andrade, Michael K. Orbach, and Larry B. Crowder. 2019a. "Marine Spatial Planning." In *World Seas: An Environmental Evaluation*, 571–92. Elsevier.  
[https://doi.org/10.1016/B978-0-12-805052-1.00033-4.](https://doi.org/10.1016/B978-0-12-805052-1.00033-4)
- ..
- . 2019b. "Marine Spatial Planning." In *World Seas: An Environmental Evaluation*, 571–92. Elsevier.  
[https://doi.org/10.1016/B978-0-12-805052-1.00033-4.](https://doi.org/10.1016/B978-0-12-805052-1.00033-4)
- ..
- Frazão Santos, Catarina, Michael Orbach, Helena Calado, and Francisco Andrade. 2015a. "Challenges in Implementing Sustainable Marine Spatial Planning: The New Portuguese Legal Framework Case." *Marine Policy* 61 (November): 196–206. [https://doi.org/10.1016/j.marpol.2015.08.010.](https://doi.org/10.1016/j.marpol.2015.08.010)
- ..
- . 2015b. "Challenges in Implementing Sustainable Marine Spatial Planning: The New Portuguese Legal Framework Case." *Marine Policy* 61 (November): 196–206.  
[https://doi.org/10.1016/j.marpol.2015.08.010.](https://doi.org/10.1016/j.marpol.2015.08.010)
- ..
- Froehlich, Halley E, Jessica Couture, Lynne Falconer, Gesche Krause, James A Morris, Montse Perez, Grant D Stentiford, Harri Vehviläinen, and Benjamin S Halpern. 2020. "Mind the Gap between ICES Nations' Future Seafood Consumption and Aquaculture Production." Edited by Carrie Byron. *ICES Journal of Marine Science*, May, fsaa066.  
[https://doi.org/10.1093/icesjms/fsaa066.](https://doi.org/10.1093/icesjms/fsaa066)
- ..
- Gacutan, Jordan, Ibon Galparsoro, Kemal Pınarbaşı, Arantza Murillas, Ibukun J. Adewumi, Teerapong Praphotjanaporn, Emma L. Johnston, Ken P. Findlay, and Ben M. Milligan. 2022. "Marine Spatial Planning and Ocean Accounting: Synergistic Tools Enhancing Integration in Ocean Governance." *Marine Policy* 136 (February): 104936.  
[https://doi.org/10.1016/j.marpol.2021.104936.](https://doi.org/10.1016/j.marpol.2021.104936)
- ..

- Gee, Kira, Nerijus Blazauskas, Karsten Dahl, Cordula Göke, Björn Hassler, Andreas Kannen, Neva Leposa, et al. 2019. "Can Tools Contribute to Integration in MSP? A Comparative Review of Selected Tools and Approaches." *Ocean & Coastal Management* 179 (September): 104834. [https://doi.org/10.1016/j.ocecoaman.2019.104834.](https://doi.org/10.1016/j.ocecoaman.2019.104834)
- ..
- GEF LME:LEARN. 2018. "LARGE MARINE ECOSYSTEMS MARINE SPATIAL PLANNING (MSP) TOOLKIT." Paris, France: UNESCO-IOC. [www.iwlearn.net/marine](http://www.iwlearn.net/marine).
- ..
- Government of Massachusetts. 2021. "Massachusetts Ocean Management Plan." Massachusetts Office of Coastal Zone Management. 2021. <https://www.mass.gov/service-details/massachusetts-ocean-management-plan>.
- ..
- Government of the Virgin Islands. 2020. "BVI Visitor/Resident Protocols: A Comprehensive Guide." Government of the Virgin Islands. <https://www.bvitourism.com/sites/default/files>Welcome-Brochure-Covid-Brochure.pdf>.
- ..
- Griffin, Robert, Bela Buck, and Gesche Krause. 2015. "Private Incentives for the Emergence of Co-Production of Offshore Wind Energy and Mussel Aquaculture." *Aquaculture* 436 (January): 80–89. <https://doi.org/10.1016/j.aquaculture.2014.10.035>.
- ..
- Hall, C. Michael. 2001. "Trends in Ocean and Coastal Tourism: The End of the Last Frontier?" *Ocean & Coastal Management* 44 (9–10): 601–18. [https://doi.org/10.1016/S0964-5691\(01\)00071-0](https://doi.org/10.1016/S0964-5691(01)00071-0).
- ..
- Hattam, C, T Hooper, and E. Papathanasopoulou. 2015. "Understanding the Impacts of Offshore Wind Farms on Well-Being," 88.
- ..
- IRENA. 2016. "A Path to Prosperity: Renewable Energy for IslandS Third Edition." IRENA. <https://www.irena.org/publications/2016/Nov/A-Path-to-Prosperity-Renewable-Energy-for-Islands-3rd-Edition>.
- ..
- IUCN. 2019. "BNC+ Framework: Blue Natural Capital Positive Impacts Framework." Gland, Switzerland: IUCN.
- ..

- Janßen, Holger, Francois Bastardie, Margit Eero, Katell G. Hamon, Hans-Harald Hinrichsen, Paul Marchal, J. Rasmus Nielsen, et al. 2018. "Integration of Fisheries into Marine Spatial Planning: Quo Vadis?" *Estuarine, Coastal and Shelf Science* 201 (February): 105–13. <https://doi.org/10.1016/j.ecss.2017.01.003>.
- ..
- Jay, Stephen. 2010. "Planners to the Rescue: Spatial Planning Facilitating the Development of Offshore Wind Energy." *Marine Pollution Bulletin* 60 (4): 493–99. <https://doi.org/10.1016/j.marpolbul.2009.11.010>.
- ..
- Jay, Stephen, Wesley Flannery, Joanna Vince, Wen-Hong Liu, Julia Guifang Xue, Magdalena Matczak, Jacek Zaucha, et al. 2013. "International Progress in Marine Spatial Planning." *Ocean Yearbook Online* 27 (1): 171–212. <https://doi.org/10.1163/22116001-90000159>.
- ..
- Jessamy, Valma. 2018. "Regional Strategic Environmental and Social Assessment." OECS CROP.
- ..
- Johnson, Ayana Elizabeth, William James McClintock, Ogden Burton, Wayde Burton, Andrew Estep, Kathryn Mengerink, Read Porter, and Stephanie Tate. 2020. "Marine Spatial Planning in Barbuda: A Social, Ecological, Geographic, and Legal Case Study." *Marine Policy* 113 (March): 103793. <https://doi.org/10.1016/j.marpol.2019.103793>.
- ..
- Kay, Robert, and Jacqueline Alder. 2005. *Coastal Planning and Management*. 2nd ed. Oxon UK: Wiley and Sons.
- ..
- Kelly, Christina, Lorraine Gray, and Rachel Shucksmith. 2013. "Lessons Learned in Marine Spatial Planning (MSP): The Shetland Experience." ICES CM 2013/I:15.
- ..
- Lamb, Vanessa, Melissa Marschke, and Jonathan Rigg. 2019. "Trading Sand, Undermining Lives: Omitted Livelihoods in the Global Trade in Sand." *Annals of the American Association of Geographers* 109 (5): 1511–28. <https://doi.org/10.1080/24694452.2018.1541401>.
- ..
- Lange, Marcus, Glenn Page, and Valerie Cummins. 2018. "Governance Challenges of Marine Renewable Energy Developments in the U.S. – Creating the Enabling Conditions for Successful Project Development." *Marine Policy* 90 (April): 37–46. <https://doi.org/10.1016/j.marpol.2018.01.008>.
- ..

Luhtala, Hanna, Anne Erkkilä-Välimäki, Søren Qvist Eliasen, and Harri Tolvanen. 2020. "Business Sector Involvement in Maritime Spatial Planning – Experiences from the Baltic Sea Region." *Marine Policy* 123: 104301.

<https://doi.org/10.1016/j.marpol.2020.104301>.

..

Maragno, Denis, Carlo Federico dall'Omo, Gianfranco Pozzer, Niccolò Bassan, and Francesco Musco. 2020. "Land-Sea Interaction: Integrating Climate Adaptation Planning and Maritime Spatial Planning in the North Adriatic Basin." *Sustainability* 12 (13): 5319.

<https://doi.org/10.3390/su12135319>.

..

Marschke, M., J.F. Rousseau, L Beckwith, and L. Van Arragon. 2021. "Displaced Sand, Displaced People: Examining the Livelihood Impacts of Sand Mining in Cambodia." Research Paper No. 205. Paris, France: AFD.

..

McCann, Jennifer, Tiffany Smythe, Grover Fugate, Kate Mulvaney, and Danielle Turek. 2014. "Identifying Marine Spatial Planning Gaps, Opportunities, and Partners: An Assessment" Jennifer McCann, Tiffany Smythe, Grover Fugate, Kate Mulvaney, and Danielle Turek." University Rhode Island.

[https://www.crc.uri.edu/download/MSPassessmentreport\\_1105.pdf](https://www.crc.uri.edu/download/MSPassessmentreport_1105.pdf).

..

McKinney Capital. 2013. "The Benefits of Marine Spatial Planning." McKinney Capital.

..

Ministry of Home Affairs, Environment, Transport and Energy Government of Seychelles. 2011. "Seychelles' Second National Communication Under the United Nations Framework Convention on Climate Change." Mahe, Seychelles: Ministry of Home Affairs, Environment, Transport and Energy Government of Seychelles.

..

Ministério do Mar, Águas Interiores e Pescas (MIMAIP) (Mozambique). 2021. "Elaboração Do Plano de Ordenamento Do Espaço Marítimo (POEM) Relatório Final." Volume 1 - Proposta de Plano de Ordenamento Do Espaço Marítimo. Maputo, Mozambique: Consórcio TPF Consultores & Biodesign.

..

Moreau, Kelle. 2020. "Wind Farms as Suppliers of Energy and Mussels." Museum, Royal Belgium Institute of Natural Sciences. 2020.

<https://www.naturalsciences.be/en/news/item/19630>.

..

Munro, Jennifer, Halina Kobryn, David Palmer, Sam Bayley, and Susan A. Moore. 2019. "Charting the Coast: Spatial Planning for Tourism Using Public Participation GIS." *Current Issues in Tourism* 22 (4): 486–504.

<https://doi.org/10.1080/13683500.2017.1346589>.

..

Nakornchai, Piyapat, Michael Bordt, Natacha Pitaksereekul, and Teerapong Praphotjanaporn. 2019. "Asia-Pacific Marine Spatial Planning Snapshot," 20.

..

New Zealand Office of the Auditor-General. 2018. *Sea Change = Tai Timu Tai Pari: Creating a Marine Spatial Plan for the Hauraki Gulf*.

..

Noble, Mae M., David Harasti, Jamie Pittock, and Bruce Doran. 2019. "Understanding the Spatial Diversity of Social Uses, Dynamics, and Conflicts in Marine Spatial Planning." *Journal of Environmental Management* 246 (September): 929–40. <https://doi.org/10.1016/j.jenvman.2019.06.048>.

..

Ntona, Mara, and Elisa Morgera. 2018. "Connecting SDG 14 with the Other Sustainable Development Goals through Marine Spatial Planning." *Marine Policy* 93 (July): 214–22.

<https://doi.org/10.1016/j.marpol.2017.06.020>.

..

O'Connor, Sofia, and Stephanie Oehler. 2020a. "Designing Marine Spatial Planning Legislation for Implementation: A Guide for Legal Drafters." Blue Prosperity Coalition.

[https://www.iucn.org/sites/dev/files/content/documents/msp\\_law\\_workshop\\_report\\_11may20\\_final-compressed.pdf](https://www.iucn.org/sites/dev/files/content/documents/msp_law_workshop_report_11may20_final-compressed.pdf).

..

———. 2020b. "Designing Marine Spatial Planning Legislation for Implementation: A Guide for Legal Drafters." Blue Prosperity Coalition.

[https://www.iucn.org/sites/dev/files/content/documents/msp\\_law\\_workshop\\_report\\_11may20\\_final-compressed.pdf](https://www.iucn.org/sites/dev/files/content/documents/msp_law_workshop_report_11may20_final-compressed.pdf).

..

OECD. 2020. *Sustainable Ocean for All: Harnessing the Benefits for Developing Countries. The Development Dimension*. OECD. <https://doi.org/10.1787/be6e6513-en>.

..

O'Hagan, Anne Marie, Shona Paterson, and Martin Le Tissier. 2020. "Addressing the Tangled Web of Governance Mechanisms for Land-Sea Interactions: Assessing Implementation Challenges across Scales." *Marine Policy* 112 (February): 103715.

<https://doi.org/10.1016/j.marpol.2019.103715>.

..

- Olsen, Erik, David Fluharty, Alf Håkon Hoel, Kristian Hostens, Frank Maes, and Ellen Pecceu. 2014. "Integration at the Round Table: Marine Spatial Planning in Multi-Stakeholder Settings." Edited by Judi Hewitt. *PLoS ONE* 9 (10): e109964. <https://doi.org/10.1371/journal.pone.0109964>.  
..
- Organization of the Eastern Caribbean States. 2020. "'We Are Large Ocean States': Blue Economy and Ocean Governance in the Eastern Caribbean." OECS Commission,.  
..
- Patraiko, David, and Paul Holthus. 2013. "The Shipping Industry and Marine Spatial Planning; A Professional Approach." Hawaii, USA: World Ocean Council.  
..
- Pomeroy, Robert S., Kimberly Baldwin, and Patrick McConney. 2014a. "Marine Spatial Planning in Asia and the Caribbean: Application and Implications for Fisheries and Marine Resource Management." *Desenvolvimento e Meio Ambiente* 32 (December). <https://doi.org/10.5380/dma.v32i0.35627>.  
..
- . 2014b. "Marine Spatial Planning in Asia and the Caribbean: Application and Implications for Fisheries and Marine Resource Management." *Desenvolvimento e Meio Ambiente* 32 (December). <https://doi.org/10.5380/dma.v32i0.35627>.
- Porter, Read. 2016a. "Policy Options for a Bermuda Nearshore Marine Spatial Planning Process." Washington DC: Environmental Law Institute. <http://eli-ocean.org/wp-content/uploads/2019/04/eli-bermuda-msp-policy-options-final-december-2016-2.pdf>.  
..
- . 2016b. "Policy Options for a Bermuda Nearshore Marine Spatial Planning Process." Washington DC: Environmental Law Institute. <http://eli-ocean.org/wp-content/uploads/2019/04/eli-bermuda-msp-policy-options-final-december-2016-2.pdf>.  
..
- Quero García, Pablo, Juan Adolfo Chica Ruiz, and Javier García Sanabria. 2020. "Blue Energy and Marine Spatial Planning in Southern Europe." *Energy Policy* 140 (May): 111421. <https://doi.org/10.1016/j.enpol.2020.111421>.  
..
- Republic of Ghana. 2016. *Land Use and Spatial Planning Act 2016*.  
..
- Republic of South Africa. 2014. "Operation Phikasa: Unlocking the Potential of South Africa's Oceans." Pretoria: Marine Protection Services and Governance Lab.  
..
- Rosenthal, Amy, Gregory Verutes, Katie Arkema, Chantelle Clarke, Maritza Canto, Samir Rosado, and Spencer A Wood. 2013. "InVEST Scenarios Case Study: Coastal Belize." [https://naturalcapitalproject.stanford.edu/sites/g/files/sbiybj9321/f/publications/belize\\_invest\\_scenarios\\_case\\_study.pdf](https://naturalcapitalproject.stanford.edu/sites/g/files/sbiybj9321/f/publications/belize_invest_scenarios_case_study.pdf).  
..
- Ross, Antje, and Ioannis Giannelos. 2018. "Sector Fiche: Shipping and Ports." European Commission. [https://www.msp-platform.eu/sites/default/files/mspforbluegrowth\\_sectorfiche\\_shippingports.pdf](https://www.msp-platform.eu/sites/default/files/mspforbluegrowth_sectorfiche_shippingports.pdf).  
..
- Ruttenberg, Benjamin, Ayana Elizabeth Johnson, Jennifer Caselle, Andrew Estep, David Grenda, Kristen Marhaver, Ashley Nee, et al. 2013. "Ecological Assessment of Barbuda's Marine Ecosystems: Science Supporting the Barbuda Blue Halo Initiative." Waitt Institute. [https://e06374b0-e5af-4aa9-9a7c-99c0f287dff7.filesusr.com/ugd/47d1fd\\_aa21f234d7e54012b9a7e629bf6efb3f.pdf](https://e06374b0-e5af-4aa9-9a7c-99c0f287dff7.filesusr.com/ugd/47d1fd_aa21f234d7e54012b9a7e629bf6efb3f.pdf).  
..
- Said, Alicia, and Brice Trouillet. 2020. "Bringing 'Deep Knowledge' of Fisheries into Marine Spatial Planning." *Maritime Studies* 19 (3): 347–57. <https://doi.org/10.1007/s40152-020-00178-y>.  
..
- Santos Frazão, Catarina. 2016. "Marine Spatial Planning in Portugal: An Ocean Policy Analysis." Lisbon: University of Lisbon. [https://repositorio.ul.pt/bitstream/10451/24858/1/ulsd729867\\_td\\_Catarina\\_Santos.pdf](https://repositorio.ul.pt/bitstream/10451/24858/1/ulsd729867_td_Catarina_Santos.pdf).  
..
- Schupp, Maximilian Felix, Andronikos Kafas, Bela H. Buck, Gesche Krause, Vincent Onyango, Vanessa Stelzenmüller, Ian Davies, and Beth E. Scott. 2021. "Fishing within Offshore Wind Farms in the North Sea: Stakeholder Perspectives for Multi-Use from Scotland and Germany." *Journal of Environmental Management* 279 (February): 111762. <https://doi.org/10.1016/j.jenvman.2020.111762>.  
..
- Secretariat of the Convention on Biological Diversity and the Scientific and Technical Advisory Panel. 2012. "Marine Spatial Planning in the Context of the Convention on Biological Diversity: A Study Carried out in Response to CBD COP 10 Decision X/29." CBD, Montreal Canada. <https://www.stapgef.org/sites/default/files/stap/wp-content/uploads/2013/05/STAP-CBD-TS68-MSP-F2-WEB.pdf>.  
..
- Seychelles Energy Commission. 2014. "Technical Specifications for Grid Connected Photovoltaic Power Systems." Mahe, Seychelles: Seychelles Energy Commission.  
..

- Smith, Joanna L., Helena E. Sims, Alain de Cosgrow, Wills Agricole, and Richard Tingey. 2019. "Seychelles Marine Spatial Plan Initiative - an Update on Milestones and Implementation Planning." *Seychelles Research Journal* 1 (2): 157–61.
- ..
- Smythe, Tiffany C., and Jennifer McCann. 2018. "Lessons Learned in Marine Governance: Case Studies of Marine Spatial Planning Practice in the U.S." *Marine Policy* 94 (August): 227–37. <https://doi.org/10.1016/j.marpol.2018.04.019>.
- ..
- Soriani, Stefano, Fabrizia Buono, Marco Tonino, and Monica Camuffo. 2015. "Participation in ICZM Initiatives: Critical Aspects and Lessons Learnt from the Mediterranean and Black Sea Experiences." *Marine Pollution Bulletin* 92 (1–2): 143–48. <https://doi.org/10.1016/j.marpolbul.2014.12.045>.
- ..
- South Africa. 2019. The Marine Spatial Planning Act. [https://www.gov.za/sites/default/files/gcis\\_document/201905/42444gon641marinespatialplanningact16of2018.pdf](https://www.gov.za/sites/default/files/gcis_document/201905/42444gon641marinespatialplanningact16of2018.pdf).
- ..
- Spijkерboer, R.C., C. Zuidema, T. Busscher, and J. Arts. 2020. "The Performance of Marine Spatial Planning in Coordinating Offshore Wind Energy with Other Sea-Uses: The Case of the Dutch North Sea." *Marine Policy* 115 (May): 103860. <https://doi.org/10.1016/j.marpol.2020.103860>.
- ..
- Srivastava, Roli. 2017. "Drowning for Sand: Miners Risk All for India's Building Boom." Reuters, July 17, 2017. <https://www.reuters.com/article/us-india-slavery-sand-miners/drowning-for-sand-miners-risk-all-for-indias-building-boom-idUSKBN1A3005>.
- ..
- Steijen, Europen, Patrycja Czerniak, Annemie Volckaert, Maria Ferreira, Erik Devilee, Tanya Huizer, and Remment ter Hofstade, eds. 2012. "Integrated Coastal Zone Management Outcomes and Lessons Learned." European Commission.
- ..
- Stelzenmüller, V., R. Diekmann, F. Bastardie, T. Schulze, J. Berkenhagen, M. Kloppmann, G. Krause, B. Pogoda, B.H. Buck, and G. Kraus. 2016a. "Co-Location of Passive Gear Fisheries in Offshore Wind Farms in the German EEZ of the North Sea: A First Socio-Economic Scoping." *Journal of Environmental Management* 183 (December): 794–805. <https://doi.org/10.1016/j.jenvman.2016.08.027>.
- ..
- . 2016b. "Co-Location of Passive Gear Fisheries in Offshore Wind Farms in the German EEZ of the North Sea: A First Socio-Economic Scoping." *Journal of Environmental Management* 183 (December): 794–805. <https://doi.org/10.1016/j.jenvman.2016.08.027>.
- ..
- Surharyanto. 2021. "Sharing National MSP Practices Worldwide: Indonesia." Powerpoint, Paris, February 11. [https://www.mspglobal2030.org/wp-content/uploads/2021/02/MSPglobal\\_Seminar\\_MSPpractices\\_Indonesia\\_EN.pdf](https://www.mspglobal2030.org/wp-content/uploads/2021/02/MSPglobal_Seminar_MSPpractices_Indonesia_EN.pdf).
- ..
- Tafon, Ralph Voma, Michael Gilek, Fred P Saunders, Wesley Flannery, Environmental Studies, Södertörns högskola, and miljö och teknik Institutionen för naturvetenskap. 2019. *The "Dark Side" of Marine Spatial Planning A Study of Domination, Empowerment and Freedom through Theories of Discourse and Power*. <http://urn.kb.se/resolve?urn=urn:nbn:se:sh:diva-38051>.
- ..
- Trop, Tamar. 2017. "An Overview of the Management Policy for Marine Sand Mining in Israeli Mediterranean Shallow Waters." *Ocean & Coastal Management* 146 (September): 77–88. <https://doi.org/10.1016/j.ocecoaman.2017.06.013>.
- ..
- Trouillet, Brice. 2019. "Aligning with Dominant Interests: The Role Played by Geo-Technologies in the Place given to Fisheries in Marine Spatial Planning." *Geoforum* 107 (December): 54–65. <https://doi.org/10.1016/j.geoforum.2019.10.012>.
- ..
- Twomey, Sarah, and Cathal O'Mahony. 2019. "Stakeholder Processes in Marine Spatial Planning: Ambitious and Realities from the European Atlantic Experiences." In *Marine Spatial Planning Past, Present, Future*, edited by Jacek Zaucha and Kira Gee, 295–326. Cham, Switzerland: Palgrave Macmillan.
- ..
- UN Environment. 2018. "Marine Spatial Planning and Integrated Coastal Zone Management Approaches to Support the Achievement of Sustainable Development Goal Targets 14.1 and 14.2: Conceptual Guidelines." 2017. UN ENVIRONMENT REGIONAL SEAS REPORTS AND STUDIES. UN Environment.
- ..
- UNEP. 2013. "TEEB for Oceans and Coasts." Nairobi, Kenya.
- ..
- UNESCO-IOC/European Commission. 2021. "MSPglobal International Guide on Marine/ Maritime Spatial Planning." Paris: UNESCO.
- ..

United Nations Environment Programme. 2019. "Sand and Sustainability: Finding New Solutions for Environmental Governance of Global Sand Resources." <https://wedocs.unep.org/20.500.11822/28163>.

..

Vince, Joanna, and Jon C. Day. 2020a. "Effective Integration and Integrative Capacity in Marine Spatial Planning." *Maritime Studies* 19 (3): 317–32. <https://doi.org/10.1007/s40152-020-00167-1>.

..

———. 2020b. "Effective Integration and Integrative Capacity in Marine Spatial Planning." *Maritime Studies* 19 (3): 317–32. <https://doi.org/10.1007/s40152-020-00167-1>.

..

Weig, Barbara, and Angela Schultz-Zehden. 2019. "Spatial Economic Benefit Analysis: Facing Integration Challenges in Maritime Spatial Planning." *Ocean & Coastal Management* 173 (May): 65–76.

<https://doi.org/10.1016/j.ocecoaman.2019.02.012>.

..

Winther, Jan-Gunnar, Minhan Dai, Fanny Douvere, Leanne Fernandes, Patrick Halpin, Antonette Juinio-Meñez, Yangfan Li, et al. 2020a. "Integrated Ocean Management." HighLevel Panel for A Sustainable Ocean Economy. [oceanpanel.org](http://oceanpanel.org).

..

———. 2020b. "Integrated Ocean Management." HighLevel Panel for A Sustainable Ocean Economy. [oceanpanel.org](http://oceanpanel.org).

..

World Bank. 2021. "Blue Public Expenditure Review Guidance Note." Washington DC: World Bank. <https://documents1.worldbank.org/curated/en/78949163997748921/pdf/Blue-Public-Expenditure-Review-Guidance-Note.pdf>.

..

World Ocean Council. 2016a. "Ocean Industries and Marine Planning." World Ocean Council.

..

———. 2016b. "Ocean Industries and Marine Planning." World Ocean Council.

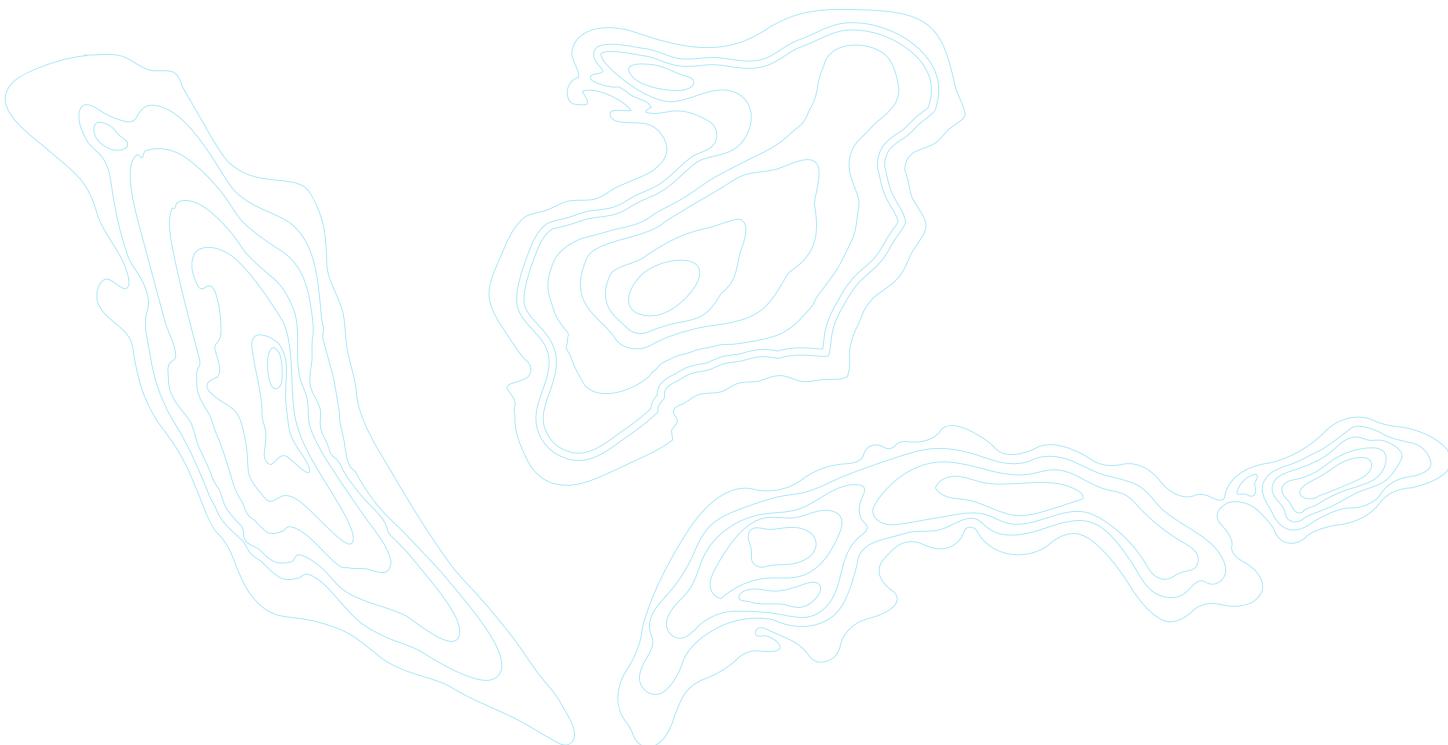
..

Yatim, M H M, A H Omar, N M Abdullah, and A Sarip. 2018. "Extending the Concept of Institutional Analysis to the Marine Spatial Planning Practice." *IOP Conference Series: Earth and Environmental Science* 169 (July): 012010. <https://doi.org/10.1088/1755-1315/169/1/012010>.

..

Zaggia, Luca, Giuliano Lorenzetti, Giorgia Manf , Gian Marco Scarpa, Emanuela Molinaroli, Kevin Ellis Parnell, John Paul Rapaglia, Maria Gionta, and Tarmo Soomere. 2017. "Fast Shoreline Erosion Induced by Ship Wakes in a Coastal Lagoon: Field Evidence and Remote Sensing Analysis." Edited by Jo o Miguel Dias. *PLOS ONE* 12 (10): e0187210. <https://doi.org/10.1371/journal.pone.0187210>.

..





# Marine Spatial Planning for a Resilient and Inclusive Blue Economy

Volume **1**

**Key Considerations to Formulate and Implement  
Marine Spatial Planning**

2022

---

**More information:**

[www.worldbank.org/problue](http://www.worldbank.org/problue)  
[problue@worldbank.org](mailto:problue@worldbank.org)

This publication is intended to support Bank staff and its clients involved in the MSP process.

PROBLUE is an umbrella multi-donor trust fund, administered by the World Bank, that supports the sustainable and integrated development of marine and coastal resources in healthy oceans.