



INTEGRATED OCEAN MANAGEMENT AND MARINE SPATIAL PLANNING IN THE OECS

Caribbean Regional Oceanscape Project



THINK BLUE

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PREFACE

This document is part of a **Caribbean Regional Oceanscape Project (CROP)** series designed to support the implementation of the Eastern Caribbean Regional Ocean Policy (ECROP) for the Organisation of Eastern Caribbean States (OECS).

The CROP series can be read as standalone documents or together as a complete series. They provide a briefing on five key topics essential for the delivery of integrated ocean governance within the OECS region. These are:

1. The Marine Environment
2. Ocean Threats
3. A Blue Economy
4. Integrated Ocean Governance
- 5. Integrated Ocean Management and Marine Spatial Planning.**

This document covers the following topics:

- **Delivering a Blue Economy in the OECS**
- **Marine Spatial Planning, introduction, benefits and best practice**
- **Using geographic information systems to support MSP**
- **MSP in the OECS**

The Caribbean Regional Oceanscape Project (CROP) is a project funded by the Global Environment Facility through the World Bank which aims to move the Caribbean towards a blue economy. Outputs under the CROP will include an enhanced Eastern Caribbean Regional Ocean Policy; National Ocean Policies and Strategies; National Coastal and Marine Spatial Plans; a regional Marine Spatial Plan; web-based ocean education materials and courses; and spatial tools to enhance decision making on ocean matters.

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CHAPTER ONE

The Ocean: Foundation of Life

The ocean covers more than two-thirds of our planet and is fundamental to human wellbeing across the globe. It is the foundation of life on our planet and regulates the earth's climate. It produces oxygen that we breathe and absorbs man-made emissions of carbon dioxide.

As well as being crucial to life on earth, it is also critical to the global economy. Estimates of the ocean's contribution to the world economy range from US\$1.5 trillion to US\$3 trillion a year¹. This represents about 3 to 5% of all economic activity in the world, and the figure is projected to continue increasing².

Driven by a growing global population and the need for new sources of economic growth, **the ocean is becoming an increasingly powerful economic frontier**. Existing sectors such as fisheries, shipping, tourism and coastal development continue to boom, while technology and innovation are opening new opportunities in offshore wind, tidal, and wave energy, aquaculture, seabed mining and marine biotechnology.



But there is a balance to be found: the social and cultural fabric of millions of people around the world, plus their physical and emotional wellbeing, depends on the health of the ocean. **Nowhere is this more true than the OECS, where our ocean space is our largest natural asset**. At 2.75 million square kilometres, the Caribbean Sea is a crucial resource for the people who inhabit the small island states that make up the OECS.

More than 1.4 million people in the OECS and over 100 million in the wider Caribbean region live on, or near, the coast in a complex ecosystem that contains the highest number of marine species in the Atlantic Ocean. It is therefore crucial that we manage these seas in an integrated and effective manner.

The social and cultural fabric of millions of people around the world, plus their physical and emotional wellbeing, depends on the health of the ocean

However, the promise of continued economic benefits and growth is presently accompanied by **mounting threats to our ocean environment**. These threats are being seen in the OECS region where ocean ecosystems, vital to the livelihoods of many, are changing in ways that can impact current and future generations. The **UN Environment Programme estimates the cumulative economic impact of poor ocean management practices globally is at least \$200 billion per year**.

Delivering a Blue Economy

The United Nations describes a Blue Economy as an economy that 'comprises a range of economic sectors and related policies that together determine whether the use of ocean resources is sustainable'. In other words, it is about generating wealth from our oceans and seas in a sustainable way.

A Blue Economy is generated by a range of marine sectors and related policies that together set out a path for the sustainable use of ocean resources. In a Blue Economy, the aim is for marine economic activity to be in balance with the long-term capacity of ocean ecosystems to support this activity and remain resilient and healthy. It is generally understood to be a long-term approach aimed at supporting sustainable economic growth through ocean-related sectors and activities, while at the same time improving human wellbeing and social equity and preserving the environment³.



Sustainability needs to be at the heart of a Blue Economy. This requires an integrated approach to the delivery of ocean governance, with careful consideration of the linkages between sectors and how they can be managed in an integrated way. It is essential that the management of different sectors is complementary. The sustainable management of ocean resources requires this integrated approach to managing ocean space at a national and regional level, including collaboration across borders and sectors through a variety of partnerships, and on a scale that has not been previously achieved.

Making the transition to a Blue Economy starts with good ocean governance



Making the transition to a Blue Economy starts with good ocean governance, and at regional and national levels this must start with an integrated ocean policy framework that will optimise the use of our marine space and provide direction for operational decision-making for years to come. This integrated policy framework is then delivered through Marine Spatial Planning (MSP) and integrated marine management.

Across the world, MSP is used by governments to spatially articulate their marine or maritime policy outcomes across all the policy areas represented in their National Ocean Policy. The development of MSP allows for extensive consultation with stakeholder and users of the sea to allow their interests to be represented and to develop a rational interpretation of how a nation's sea space should be used to optimise a Blue Economy, minimising conflict and nurturing the natural environment.

The structure of ocean governance in the OECS reflects this integrated approach. National Marine Spatial Plans will provide the delivery framework for national and regional ocean policy (see right).



See the ebook *Ocean Governance in the OECS*, for more on this

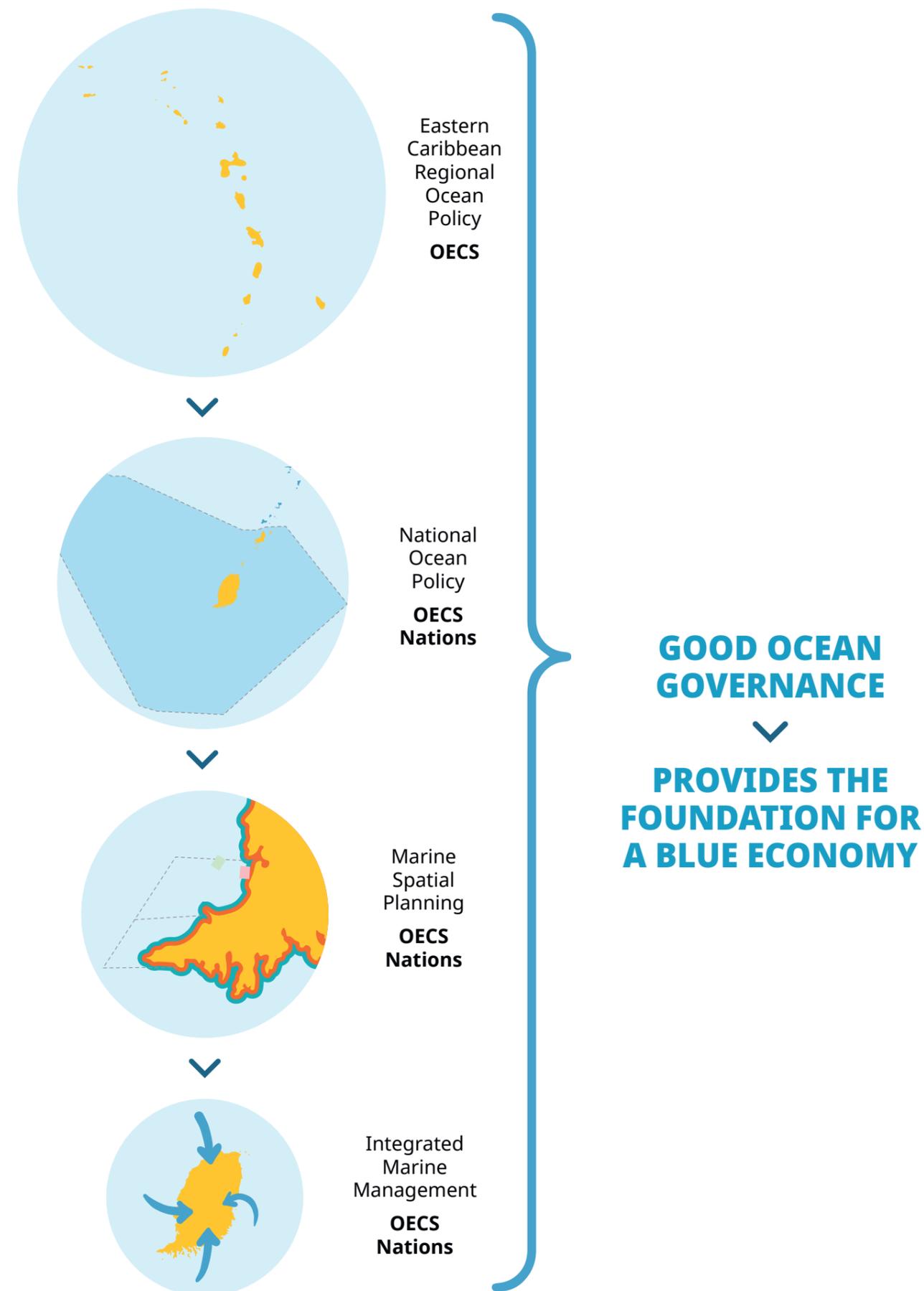


Fig 1. Integrated ocean governance in the OECS

CHAPTER TWO

Marine Spatial Planning

Marine Spatial Planning (MSP) is spreading across the globe as a new way of achieving sustainable development of the world's seas and oceans. But what does MSP actually mean? How does it work?

Marine spatial planning (MSP) is a practical way to:

- Create and establish a more rational organization of the use of marine space and the interactions between its uses
- Balance demands for development with the need to protect marine ecosystems
- Achieve social and economic objectives in an open and planned way
- Alleviate pressures on ocean resources, often from competing demands.

Marine resources have traditionally often been 'common property' – that is, users of the sea have had open or free access. This free access can, however, lead to excessive use of those resources (such as over-fishing), and eventually complete depletion. Demand for goods and services such as food and energy usually exceed the capacity of marine areas to meet all of the demands simultaneously. This has led to increasing control of access to marine resources by national bodies, often through regulation, that has happened in a sector specific manner.



Watch This
[Marine Spatial Planning in a Nutshell](#)

Marine Spatial Planning - in a nutshell

Marine Spatial Planning – in a nutshell is a five-minute film that explains MSP simply and dynamically. It is suitable for everyone: from local communities to planners and policy makers.

Marine spatial planning (MSP) is a way to map the ocean's health and its wealth, and is particularly important in guiding decision-making for reduced conflicts over multiple uses such as marine tourism, recreation, biodiversity conservation, fisheries, oil and gas, mining and transport. MSP also brings a spatial dimension to the regulation of marine activities by helping to establish more effective geographical patterns of sea uses within a given area.

It is important to remember that we can only plan and manage human activities and the impact of those activities on the natural environment. It is not possible to directly manage marine ecosystems or components of ecosystems in isolation. We can allocate human activities to specific marine areas through objectives (such as the development or preservation of specific areas or resources), or by specific uses (such as wind farms, offshore aquaculture, or sand and gravel mining).

Marine spatial planning is a way to map the ocean's health and its wealth, and is particularly important in guiding decision-making for reduced conflicts over multiple uses



Most countries in the OECS are already applying some aspects of MSP through area-based management tools, such as designating shipping lanes, allocating fishing areas, and implementing locally managed marine areas or marine protected areas. Such integrated planning is likely to result in a balanced approach and is an essential tool for maximizing sustainable growth in a Blue Economy.

Marine Spatial Planning is not⁴

Marine spatial planning is not ocean zoning.

Zoning is one way to implement the goals of a marine plan and has been used to manage individual sectors for decades. Examples of this include fisheries areas, shipping lanes, mineral exploration leases and marine protected areas. However, these zones and others have usually been planned on a single-sector basis without comprehensive, integrated planning.

Marine spatial planning is not a substitute for single-sector planning and management.

Strategic and operational plans for ocean sectors will continue to be needed even when integrated MSP is put into practice.

MSP can provide guidance to increase compatibilities and reduce conflicts across sectors, balance development and conservation interests, increase management effectiveness and efficiency, and address the cumulative effects of multiple human uses of the same marine space.

Marine spatial planning is not only conservation planning.

While a network of marine protected areas might be one outcome of MSP, it seeks to balance economic development and environmental conservation, and not focus on only on the goals of conservation or protection.

MSP does not lead to a one-time plan It is a continuing, iterative process that learns and adapts over time to accommodate change in priorities and emerging issues.



Fig 2. Marine spatial planning is not

MSP – The Benefits

As discussed, MSP is a process that enables integrated ocean governance of a nation's maritime space to occur in way that promotes cohesion and coordination between sectors, and between different areas of government. In this way it provides enormous benefits to those responsible for management of human activity in making their work more effective and efficient, as well as providing greater certainty and a reduction in regulatory process for those being managed. In addition to this governance aspect, the following environmental, economic and social benefits have been identified:

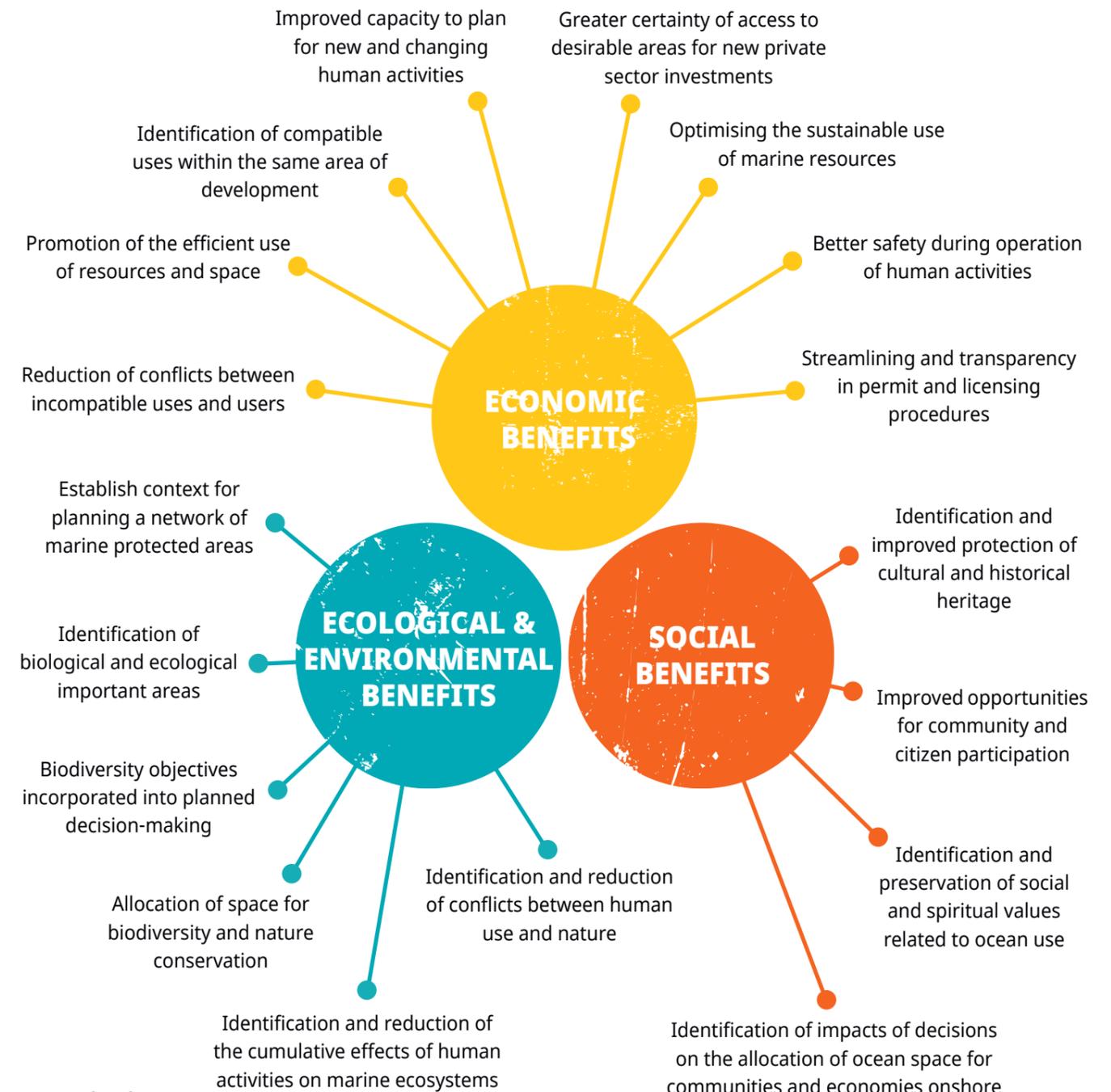
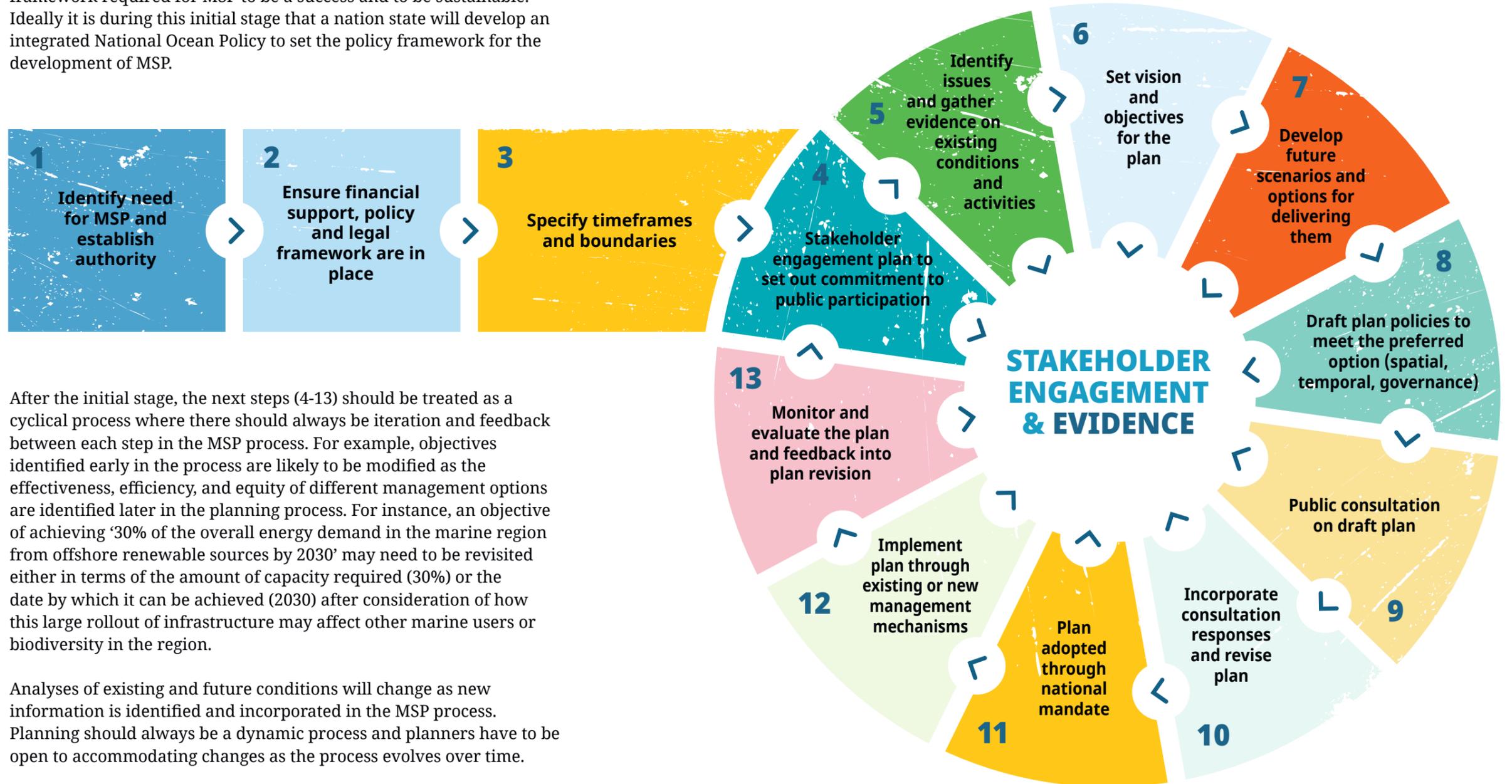


Fig 3. Benefits of MSP

The Development of MSP

There are **three initial steps** that are important for a nation to set in place to provide the institutional, financial, legal and policy framework required for MSP to be a success and to be sustainable. Ideally it is during this initial stage that a nation state will develop an integrated National Ocean Policy to set the policy framework for the development of MSP.



After the initial stage, the next steps (4-13) should be treated as a cyclical process where there should always be iteration and feedback between each step in the MSP process. For example, objectives identified early in the process are likely to be modified as the effectiveness, efficiency, and equity of different management options are identified later in the planning process. For instance, an objective of achieving ‘30% of the overall energy demand in the marine region from offshore renewable sources by 2030’ may need to be revisited either in terms of the amount of capacity required (30%) or the date by which it can be achieved (2030) after consideration of how this large rollout of infrastructure may affect other marine users or biodiversity in the region.

Analyses of existing and future conditions will change as new information is identified and incorporated in the MSP process. Planning should always be a dynamic process and planners have to be open to accommodating changes as the process evolves over time.

It is worth noting that, although monitoring and evaluation comes later on in the process (step 13), it is wise to consider how emerging policies (from steps 7 and 8) can be monitored, so you don’t reach step 13 and discover that some policies are difficult or impossible to monitor.

Stakeholder participation and a solid evidence base sit at the heart of the MSP process and are crucial to every step.

Fig 4. The marine spatial planning process

Who Needs to be Involved in MSP?

Planning for Blue Growth and MSP involves everyone. We all have a stake in how the ocean's wealth and resources are used. MSP needs coastal communities, fishers, tourism organisations, divers, snorkellers, shippers, the private sector, academia and government authorities to come together and agree on a common vision for our shared ocean space and our Blue Economy. We all have to decide how, where, and when we will be part of this new Blue Future.

Stakeholders play an essential role in the ownership and delivery of some of the policies in the Plan. It is important to engage early in the process (step 4) and keep the engagement going all the way through. **The needs and wants of stakeholders should be established early on** and adopted into the plan where there is the opportunity to do so. Experience has shown the more that one group of stakeholders understands the needs of another group, the more accepting they will be of the needs of others and middle ground is more easily found.

MSP needs coastal communities, fishers, tourism organisations, divers, snorkellers, shippers, the private sector, academia and government authorities to come together and agree on a common vision for our shared ocean space and our Blue Economy



There are **significant gaps in the evidence base for our seas** and it is often expensive to fill the gaps. Where evidence gap filling is essential to ensure a precautionary approach is taken, the plan should identify this. For example, if there is a plan objective to deliver 30% of the overall energy demand in the marine region from offshore renewable sources by 2030, but no evidence on how this large infrastructure roll out may affect biodiversity, then it is difficult to make a judgement on the impact of delivering this objective.

It may be that policies can be developed which are non-prescriptive due to a gap in evidence, but with an ambition to strengthen the evidence over time and revisit the policies later on to see if they should be amended to be more prescriptive.

What makes good MSP?

A good Marine Spatial Plan should consist of the following components, all of which have benefit to stakeholders, marine managers and decision makers:

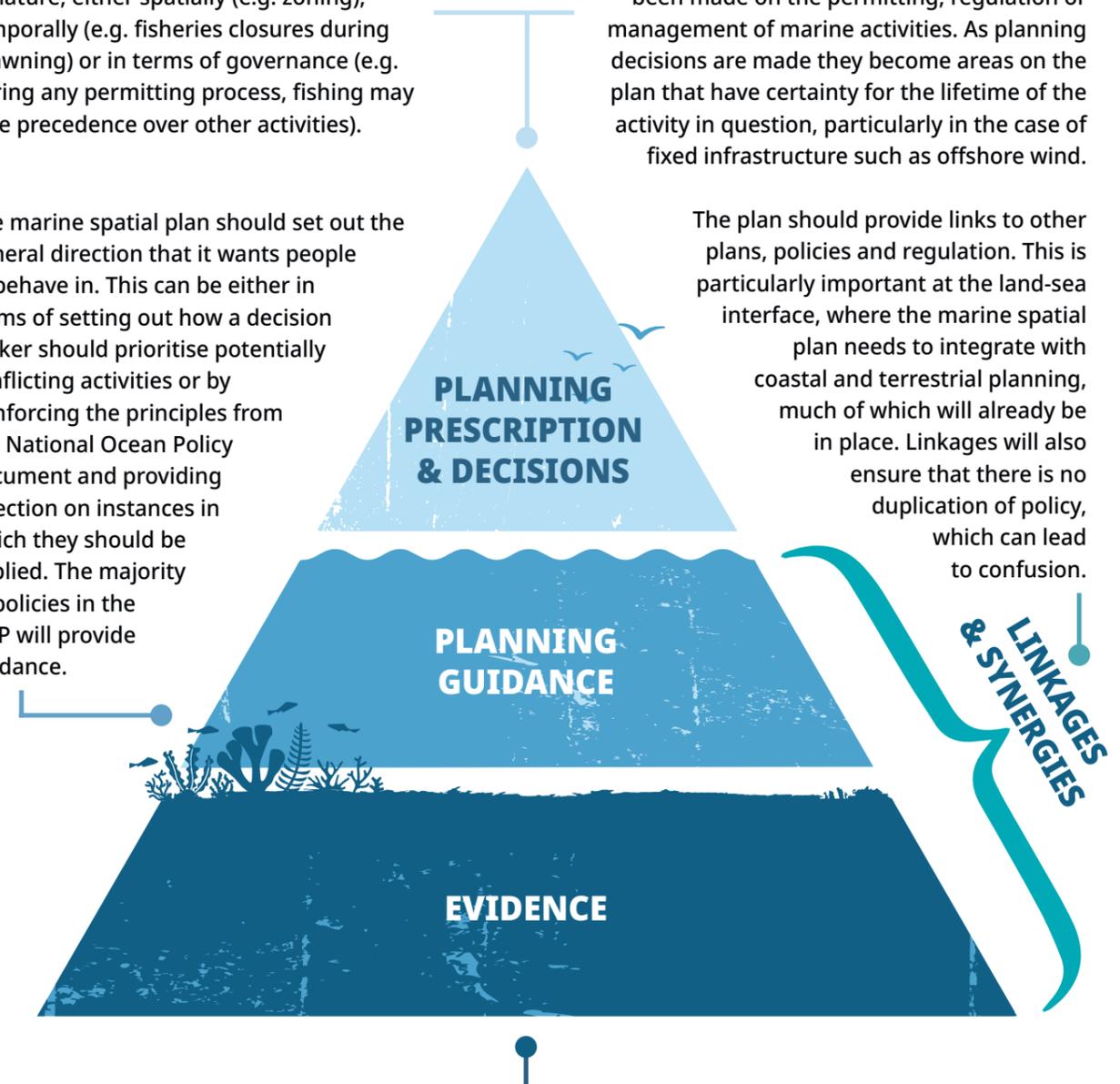
Planning prescription is made up of two main categories:

Planning policies which are prescriptive in nature, either spatially (e.g. zoning), temporally (e.g. fisheries closures during spawning) or in terms of governance (e.g. during any permitting process, fishing may take precedence over other activities).

Planning decisions are decisions that have been made on the permitting, regulation or management of marine activities. As planning decisions are made they become areas on the plan that have certainty for the lifetime of the activity in question, particularly in the case of fixed infrastructure such as offshore wind.

The marine spatial plan should set out the general direction that it wants people to behave in. This can be either in terms of setting out how a decision maker should prioritise potentially conflicting activities or by reinforcing the principles from the National Ocean Policy document and providing direction on instances in which they should be applied. The majority of policies in the MSP will provide guidance.

The plan should provide links to other plans, policies and regulation. This is particularly important at the land-sea interface, where the marine spatial plan needs to integrate with coastal and terrestrial planning, much of which will already be in place. Linkages will also ensure that there is no duplication of policy, which can lead to confusion.



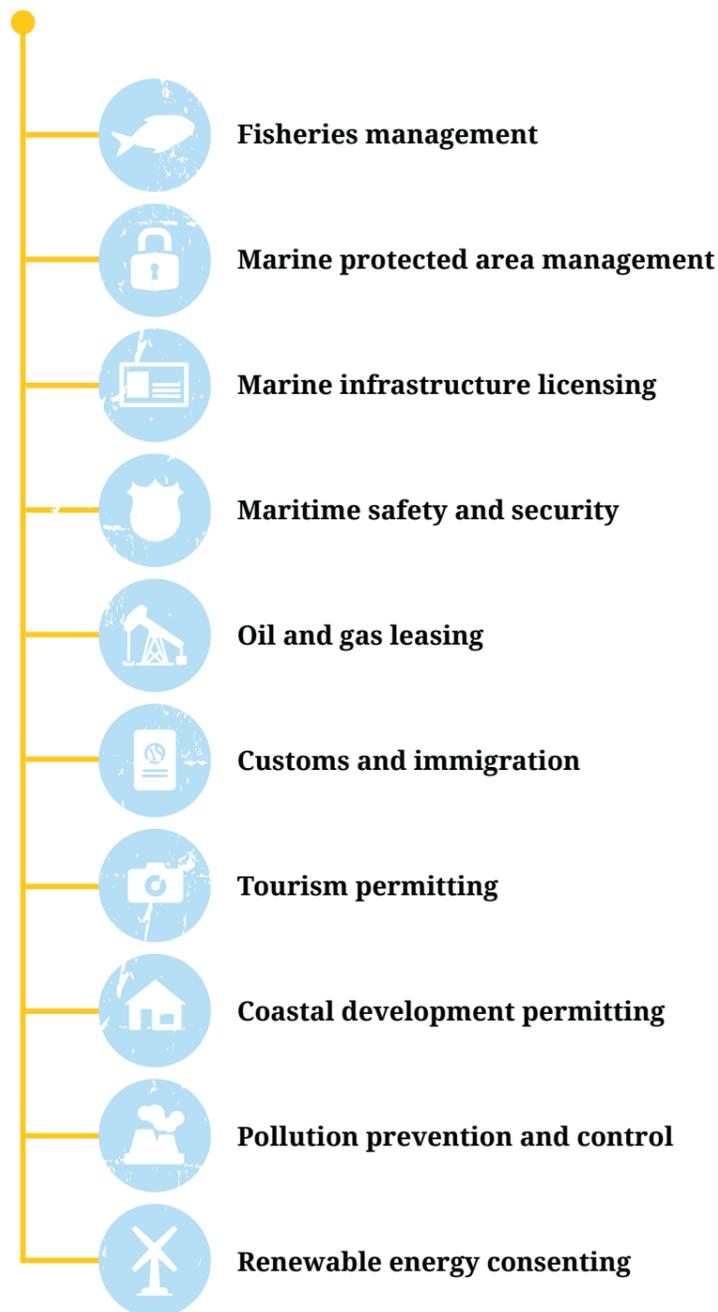
The process of MSP should result in the collation of a holistic evidence base about the marine space being planned. This evidence base should consist of data and information about the natural environment, human activity and if possible, the social, economic and natural capital associated with the marine area. This evidence can be scientific, economic or social and either quantitative or qualitative. The exercise of bringing together all the evidence about a particular marine space is an incredibly valuable process in itself and should underpin both the MSP process and all future decision making in a nation's marine space. Evidence and analysis forms the foundation for the MSP.

Fig 5. What makes good MSP?

Marine Spatial Planning Implementation and Plan Led Management

Marine Spatial Planning provides a framework for the delivery of integrated marine management. It has to be relevant to the many different decision-making regimes that are delivering front line management, for example:

A Marine Spatial Plan itself cannot substitute for the detail required within these different consenting, regulatory or management regimes, but it should provide a framework within which they can co-exist



It's important to note that a Marine Spatial Plan itself cannot substitute for the detail required within these different consenting, regulatory or management regimes, but it should provide a framework within which they can co-exist.

A system of marine management should include the following components:

- **Policy** – a government-led national policy statement setting out the aspirations for the nation within a particular sector. This is normally owned by a government department who is accountable for ensuring that it is delivered.
- **Policy Delivery** – this can be divided into broad areas:
 - **Management** – the management of human activity through voluntary or statutory management systems that set the constraints within which activity should be carried out. This normally involves the issuing of some type of consent or permit
 - **Compliance** – ensuring that someone who is being managed in some way, either directly or indirectly, is compliant with the management regime. If they are not compliant then a system of enforcement is normally put in place.
- **Knowledge** to underpin all decision making.

As set out below, the MSP process provides guidance and direction at a macro level to management decisions and articulates relevant national policy outcomes spatially, but does not replace the micro-level decision-making that is needed within each management regime. In this way, plan-led decision making is as important a component of the MSP process as plan development. Without it, the marine spatial plan will never be fully implemented.

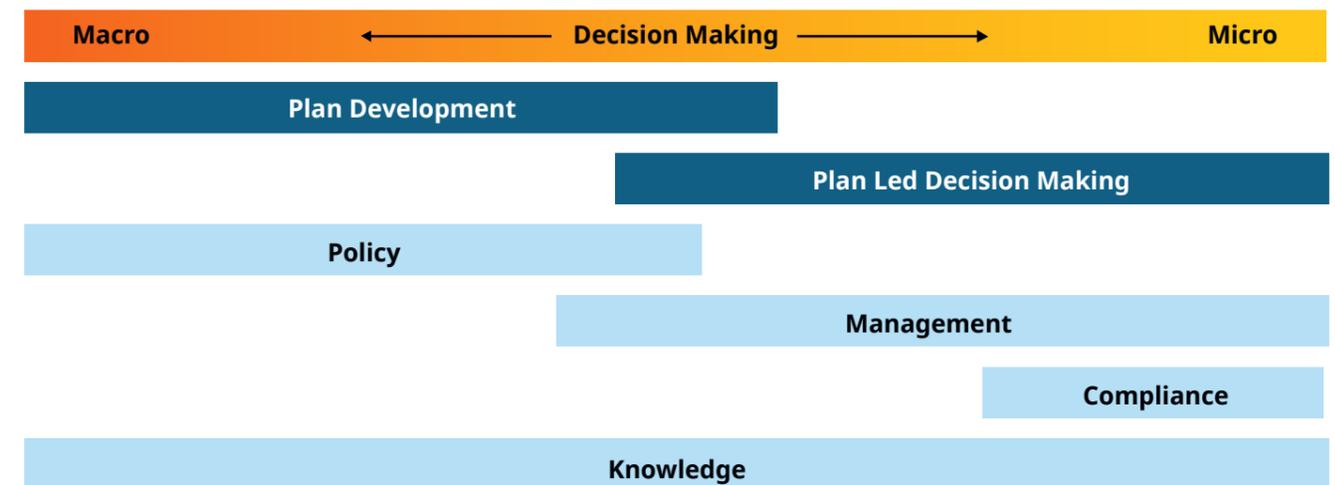


Fig 6. Integrated marine decision making

The prescriptive policies at the top of the MSP pyramid (Fig. 2) is where plan development and plan-led decision making overlap. It means there may be a degree of micro-management, but further micro-management may be involved in the issue. For example, prescriptive policies to protect precious fish spawning or nursery grounds lean towards micro-management, but there will need to be more micro-management in the shape of plan-led decision making when it comes to management of the fish stock as a whole.

CHAPTER THREE

Using Geographic Information Systems to Support MSP



Watch This
[What is GIS?](#)

A **Geographic Information System (GIS)** is a framework for gathering, managing, and analyzing data. Rooted in the science of geography, GIS integrates many types of data. It analyzes spatial location and organizes layers of information into visualizations using maps and 3D scenes. With this unique capability, GIS reveals deeper insights into data, such as patterns, relationships, and situations – helping users make smarter decisions⁵.



How GIS can help MSP

GIS can be applied in several ways in the MSP process⁶:

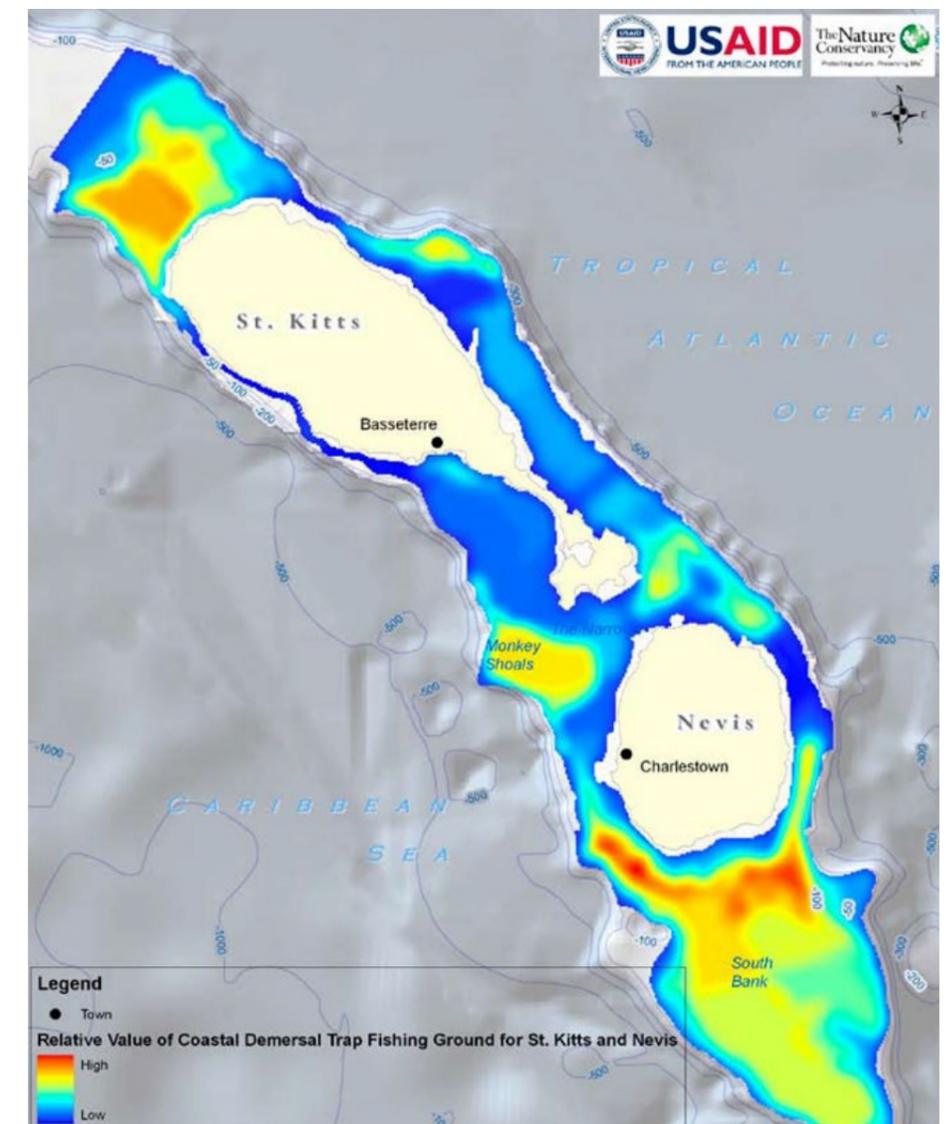
1. GIS tools can be used for outlining features. The state of a marine area (environmental, hydrographical, socio-economical and governance) is essential knowledge for informing the MSP process, and GIS can be an efficient tool for identifying, locating and visualizing the cover and spatial distribution of resources and uses in the form of maps.
2. GIS tools can combine several types of spatial data to inform both options analysis within the MSP process and operational, plan-led decision making. For example, spatial data sets showing the extent of a sensitive habitat can be overlaid with fishing intensity to show where conflict may arise. Both the marine planners and managers from the sectors can benefit from this facility.
3. GIS tools are an excellent stakeholder engagement tool, both for explaining to stakeholders the issues that are under discussion and for ground truthing the evidence base.

Examples of GIS being used in MSP can be found at:

- **England** <https://explore-marine-plans.marineservices.org.uk/>
- **Australia** <http://maps.ga.gov.au/interactive-maps/#/theme/amsis>
- **Scotland** <https://marinescotland.atkinsgeospatial.com/nmpi/>
- **Baltic Sea** <http://maps.helcom.fi/website/mapservice/>
- **Massachusetts** http://maps.massgis.state.ma.us/map_ol/moris.php
- **Fiji** <http://macbio-pacific.info/Resources/fiji-interactive-atlas/>

Sample fisheries uses and values in St Kitts and Nevis map,

taken from: Marine Zoning in Saint Kitts and Nevis: A Path Towards Sustainable Management of Marine Resources, Report by: Vera N. Agostini, Shawn W. Margles, Steven R. Schill, John E. Knowles, Ruth J. Blyther



MSP in the Caribbean Regional Oceanscape Project



Further Reading

[OECS CROP](#)

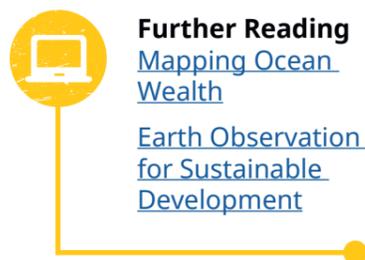
In response to the outcomes of the Eastern Caribbean Regional Oceanscape Policy (ECROP), the Organisation of Eastern Caribbean States (OECS) with the World Bank have prepared the Caribbean Regional Oceanscape Project (CROP) that responds to the demand for spatial planning initiatives, through the adoption of coastal and marine spatial plans (CMSP) to coordinate management across sectors and resources and integrate environmental management directly with economic development.



Sunset over a pier, Dominica
© Brendon Tyree

These plans will build upon early national marine planning efforts and will help Eastern Caribbean countries better understand and then reform governance of the diversity of ocean uses and economic activities, resulting in a more secure framework for sustained investment in a blue economy. CROP is being implemented in five participating OECS Member States (MS): Dominica, Grenada, St. Kitts and Nevis, Saint Lucia, St Vincent and the Grenadines.

This work started in 2017 and is due to finish in 2021. Alongside the CMSP component, supporting work is being undertaken on mapping ocean wealth, deriving information from satellite data to inform the spatial planning exercise and the development of virtual learning materials to help raise awareness and support education on the importance of the marine environment and a Blue Economy.



Further Reading

[Mapping Ocean Wealth](#)

[Earth Observation for Sustainable Development](#)

Further Reading on MSP

For more detailed guidelines and practical steps, check:

- **Ceccarelli D, Davey K and L Fernandes (2018). Developing a Marine Spatial Plan: a toolkit for the Pacific. MACBIO (SPREP/ IUCN/BMU): MACBIO.**
http://macbio-pacific.info/wp-content/uploads/2019/01/MSP-toolkit_finalversion_24.10.19-digital.pdf
- **Ehler, C. and Douvère, F. (2009) Marine Spatial Planning: a step-by-step approach toward ecosystem-based management, Intergovernmental Oceanographic Commission and Man and the Biosphere Programme. IOC Manual and Guides No. 53, ICAM Dossier No. 6. UNESCO.**
<https://unesdoc.unesco.org/ark:/48223/pf0000186559>
- **UN Environment (2018). Conceptual guidelines for the application of Marine Spatial Planning and Integrated Coastal Zone Management approaches to support the achievement of Sustainable Development Goal Targets 14.1 and 14.2**
https://www.unep-wcmc.org/system/dataset_file_fields/files/000/000/548/original/Final_ConceptualGuidelines_240918.pdf?1538124788
- **Marine Spatial Planning Global**
<http://www.mspglobal2030.org>
- **IOC Marine Spatial Planning Programme**
<http://msp.ioc-unesco.org>
- **Marine Spatial Planning in a nutshell**
<https://youtu.be/HZu4QSRis7U>
- **European MSP Platform**
<https://www.msp-platform.eu>



Houses and shops along the waterfront at St John's, Antigua and Barbuda
© NAPA74

MSP in the OECS – St. Kitts and Nevis

The coastal waters around **St. Kitts and Nevis** are used for a wide range of activities. Tourism is the major economic driver, and stretches of the coast are dominated by coastal tourism development, private yachts, cruise ships, and associated water activities. Additionally, as elsewhere in the Caribbean, commercial and artisanal fisheries form a significant part of the local economy. Fisheries involve vessels of varying sizes and capacities, using a variety of gear types and fishing strategies and covering a large part of the coastal waters. Combined with the inter- and intra-island transportation needs of a small coastal state – including ferries, cruise ships, personal recreation vessels, and large industry vessels – within the limited shelf area of St. Kitts and Nevis, the result is a congested marine environment with mounting conflicts⁷.

In 2010, the Maritime Administration of St. Kitts and Nevis (SKN), in collaboration with The Nature Conservancy, conducted an MSP exercise and drafted a marine zoning design for St. Kitts and Nevis under the Marine and Coastal Biodiversity Threat Abatement in the Eastern Caribbean (BioTA) project. Like many island nations in the Caribbean, SKN's residents rely heavily on marine resources for their livelihoods; however, marine habitats and biodiversity are being threatened by rapid coastal development, overfishing, and other pressures⁸.

Extensive stakeholder engagement took place via targeted meetings with appropriate government ministries and departments, as well as through a series of workshops to reach out to varied government and community groups. Through these workshops, the team was able to engage with a variety of stakeholders, including high-level government officials, community groups, the private business sector, and fishers' associations. As part of the process, stakeholders provided data on a variety of human uses, supplementing existing databases with local knowledge. Additionally, scientists added to existing data by conducting work to map the habitats on the seabed and reaching out to local fishers via a survey to map locations of fish landings.

This pilot project was used as the basis to declare the Saint Kitts and Nevis Marine Management Area in 2016. This work will be built on through further MSP being conducted under the CROP.

The Marine Management Area is defined as the two miles radius of sea water around the St. Kitts and Nevis' coastline. Multiple Use Zones are proposed within the area with the following priority focuses:

- Transportation priority Zone
- Fishing priority Zone
- Recreation priority Zone
- Conservation priority Zone



Further Reading
[St Kitts & Nevis Marine Management Area](#)



References

- 1, 2 Patil, P.G., Viridin, J., Diez, S.M., Roberts, J., Singh, A. (2016). Toward A Blue Economy: A Promise for Sustainable Growth in the Caribbean; An Overview. The World Bank, Washington D.C.
- 3 UNEP (United Nations Environment Programme). 2013. Green Economy Definition. Nairobi.
- 4 <http://msp.ioc-unesco.org/about/marine-spatial-planning/>
- 5 <https://www.esri.com/en-us/what-is-gis/overview>
- 6 <https://www.msp-platform.eu/practices/gis-tools-msp-and-management>
- 7 <http://msp.ioc-unesco.org/world-applications/americas/st-kitts-nevis/>
- 8 <https://marineplanning.org/projects/caribbean/st-kitts-nevis/>

Further Reading & Watch This URLs

- Pg. 9: **Marine Spatial Planning in a Nutshell** - <https://vimeo.com/219515087>
- Pg. 18: **What is GIS?** - <https://youtu.be/LHDCRjAxpI0>
- Pg. 20: **OECS CROP** - <https://www.oecs.org/en/crop-about>
- Mapping Ocean Wealth** - <https://oceanwealth.org/project-areas/caribbean/>
- Earth Observation for Sustainable Development** - <http://eo4sd.esa.int>
- Pg. 22: **St Kitts and Nevis Marine Management Area** - <https://dmrskn.com/declaration-of-st-kitts-nevis-marine-management-area/>

The CROP Series

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