Marine Spatial Planning

Harnessing Marine Spatial Planning for Multi-Stakeholder Engagement

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Context and importance of the problem

It is estimated that more than 600 million people or around 10 per cent of the global population live in coastal areas 10 meters or less above sea level (Figure 1) and nearly 3 billion people or almost 40 per cent of the 2017 global population live within 100 km of an ocean's coastline. This drives an global ocean economy that has the potential to generate upwards of US$6 trillion per year, including over US$ 3 trillion per year in shipping, which accounts for nearly 90 per cent of international trade. A further estimated US$ 100 billion per year comes from global fisheries and aquaculture. And as human population growth increases demand for fossil fuels, many extractive industries are looking offshore. Currently offshore oil extraction accounts for 37 percent of global production and 28 per cent of global gas production takes place offshore, both of which are expected to continuing increasing over the coming decades.[1]

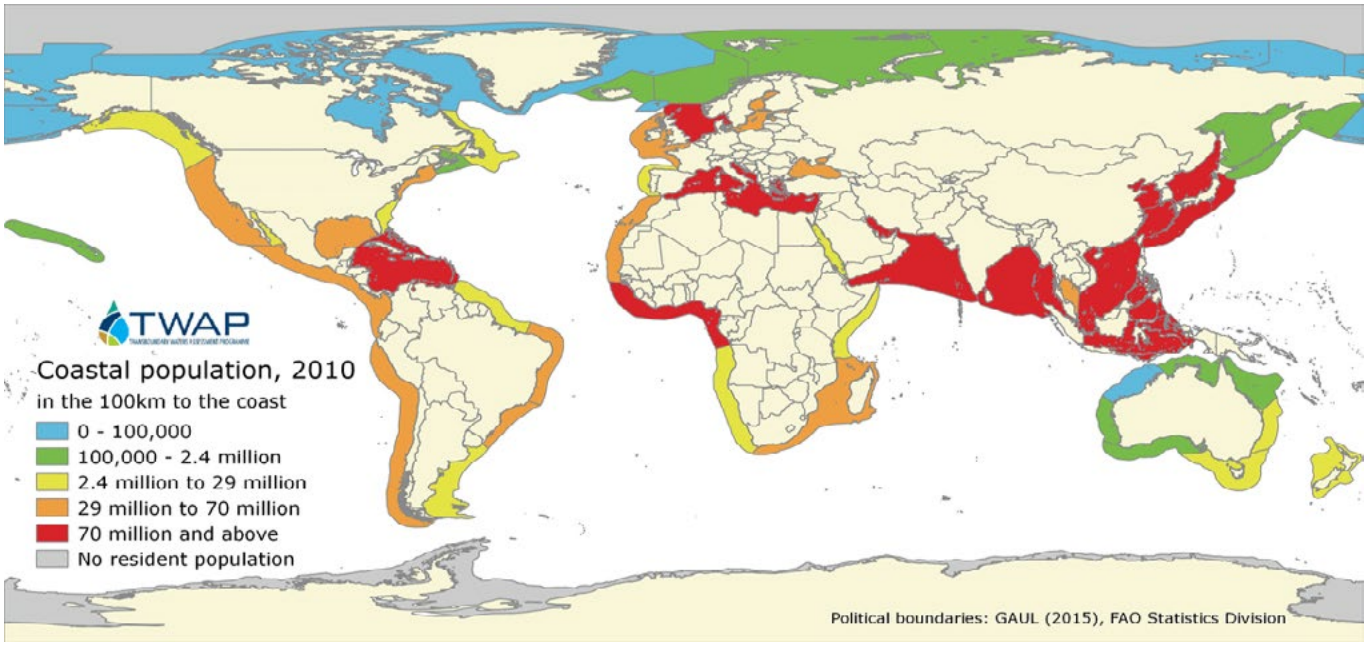

Figure 1: Coastal Population in 2010. Source: GEF UNEP Transboundary Waters Assessment Programme (TWAP)

As these coastal and marine development projections grow, so do demands for marine resources and access to marine waters, making sustainable management of marine resources an increasing complex problem that must balance trade-offs and seek compromises among a multitude of stakeholders. Managing multiple, and often competing, viewpoints from key economic sectors, including energy, industry, government, conservation, tourism and recreation, and other relevant uses, can already be a prohibitive barrier for marine resource managers. Added to this complexity is the highly mobile nature of key marine living resources, such as fish and marine mammals whose life histories often inhabit vast

1 The United Nations Oceans Conference. 2017. Oceans Fact Sheet. United Nations, New York.

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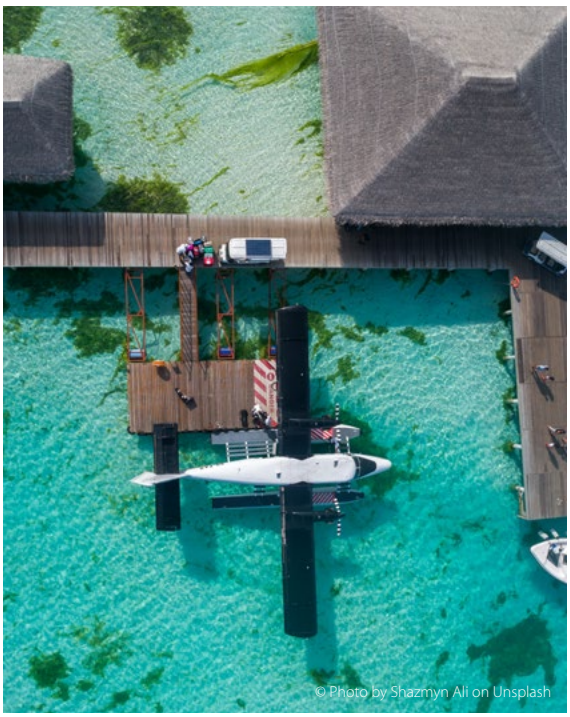
stretches of marine area. And more recently, as our understanding of the impacts of climate change improves, the existential threat of rising sea levels, warming and more acidic waters further complicates the situation.

Overlapping stakeholder demands, marine habitats, and other confounding factors in both space and over time result in highly complex situations that severely threaten marine resources management. For sustainable management of marine areas and resources, a dynamic approach is needed that can account for spatial and temporal changes across a wide range of stakeholder views.

Traditional sectoral approaches of marine resource management have often failed to account for competing interests of all stakeholders involved. Further, manually analysing complex spatial and temporal demands from multiple information sources was not possible until recent introduction of Geographical Information System (GIS) that is designed to capture, manipulate, analyse, and present spatial data. And with the rapid availability of satellite and other remotely sensed data combined with open sourced geospatial datasets and analysis tools, the barriers to making use of these resources are being lowered every year.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Defining Marine Spatial Planning:

The Intergovernmental Oceanographic Commission of UNESCO defines Marine Spatial Planning (MSP) as a process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic and social objectives.[2] Building on this, the Secretariat of the Convention on Biological Diversity views MSP as an area-based management framework that provides a means for improving decision-making as it relates to the use of marine resources and space.[3] Rooted in the concept of drawing on ecosystem connectivity to sustain natural resource management known as ecosystem-based management (EBM), ultimately MSP provides a suitable means for informing, facilitating, and overall improving decision-making as it relates to the use of marine resources and space.

DEFINING MARINE SPATIAL PLANNING

Marine Spatial Planning (MSP) is the process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic and social objectives.

As an area-based management framework, MSP can often be mistaken as a mapping exercise as it does use maps to create a more comprehensive picture of a marine area, identifying where and how an ocean area is being used, what natural resources and habitats exist, and how these resources could be used in the future avoiding conflicts among users. All MSP exercises rely on spatial (place-based) management processes that can vary in scale, but also add in social context. Social context could include cultural and other intrinsic value that are time invariant. MSP also accounts for temporal trends, conducting retrospective analysis and utilizing forecasting methods and fully taking into account seasonal, annual, and

2 Intergovernmental Oceanographic Commission. Marine Spatial Planning: A Step-by-Step Approach Towards Ecosystem-based Management. 2009. Intergovernmental Oceanographic Commission – United Nations Educational, Scientific and Cultural Organization. Manual and Guides No. 53, ICAM Dossier No. 6. Paris, France.

3 Secretariat of the Convention on Biological Diversity. 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, Montreal, Technical Series No. 68

longer time trends, such as local impacts that might result from the El Nino Southern Oscillation or other oceanographic phenomena.

Because the ocean does not end at the water surface, it's also important to note that MSP can also be applied to multiple levels of the ocean, including the seabed, the water column, and the surface. Incorporating this additional complexity can allow the same space to be used by multiple stakeholders for different purposes. While the complexity of a three-dimensional ocean may be challenging, a fourth dimension of time should also be taken into account. For example, prohibiting access to fishing areas during reproductive seasons or restricting shipping traffic during marine mammal migrations.

But the full process of MSP is much more than analyzing spatial data. MSP has proven effective at bringing together multiple ocean resource users, including energy, industry, government, conservation and recreation, to take informed and coordinated decisions for collective future sustainable marine resources use. As often a public and political process, MSP can be seen as an important tool to facilitate transparency to a complicated decision-making process, with spatial and temporal data to balance trade-offs and back important policy decisions.

Moreover, MSP can provide a holistic and dynamic view of a full marine system, including at the Large Marine Ecosystem scale, informing marine resource managers of cumulative effects of all industries on a marine area. This holistic view can help integrate sustainable practices in industries and proactively minimize conflicts between industries seeking to utilize the same marine area. Much more than a series of maps, the intended result of MSP is a holistic, well-coordinated, and sustainable approach towards how marine areas are to be used, ensuring that marine resources and services are utilized within clear environmental limits that prioritize marine ecosystem health. One common output of an MSP process, and an effective management tool, is the establishment of marine protected areas (MPA) and connecting MPA networks. MPAs can help limit ways marine areas and natural resources within an defined area are used.

As pressures on marine ecosystems increase, MSP is gaining international recognition as an important approach that integrates environmental, social, and economic interests to achieve multiple management objectives. Over the past decade, an increasing number of countries have begun to implement MSP frameworks, from a local to transboundary scale. Often the motivating factor to deploy MSP is to stop or even reverse negative environmental trends or address space allocation and use as new maritime industries emerge and others grow, thereby improving coordination among sectors to mitigate conflict and identify potential synergies.

Engaging in an MSP process provides a forum where stakeholders can express their given interests related to a specific maritime area. In many cases it can be the first time different stakeholder communities are brought together. This may lead to a better understanding of other stakeholders' needs, limiting the chance of conflict and potentially creating new opportunities for cooperation, including new joint business ventures. Recognition of marginalized groups and community-led organizations in a public MSP process can also advance community trust and credibility to government projects. Lastly, by building on existing committees, MSP can create opportunities for vertical and horizontal integration of government management entities, improving the likelihood for long-term management success.

MSP should be seen as a planning framework to bring together the multitude of information, views, and needs, with dynamic spatial planning requirements to sustainably consume goods and services from the marine environment indefinitely. MSP has shown promising results when combined with other management protocols such as Integrated Coastal Area Management (ICAM), building upon these management approaches as well as all policies that underlie them, for instance establishing marine protected areas (MPAs).

Similarly, MSP should never be seen as the only tool to bring about all solutions to management challenges in a given marine space. In many cases, conflicts may be less about finding the appropriate location or allocation of use for an activity, and more concerned with how a maritime activity is conducted. For example, shipping noise can impact marine mammal behavior or fishing gear damaging habitat. In some difficult circumstances, the discussion can even focus on whether a maritime activity should be allowed at all. While conducting an MSP process may raise some of these issues and offer partial solutions, determining if an activity should be conducted at all may go far beyond the mandate of the exercise. In such circumstances, it is best to be prepared with alternative arbitration methods that are typically implemented by separate regulatory authorities based on national legislation and structures.

Once baseline data is collected and properly managed, it is important to remember that MSP is only successful when used adaptively. As an iterative process, MSP-informed decisions should be revisited and reconsidered frequently to adjust as new information, or impacts, and emerging issues become known.

Critique of policy options

MSP has the potential to transform the way the oceans are managed by using spatial management tools as a means to protect marine and coastal biodiversity while at the same time addressing human needs across coasts, around estuaries and deltas, in near shore environments, and on open oceans.

When initiating an MSP process, a good starting place can be to build from a generic planning process that involves establishing a vision, setting goals, and determining measurable objectives to monitor progress. Goal-setting should be a critical first step for all MSP processes. Experience has shown that plans developed in response to specific objectives are most successful (Figure 2).

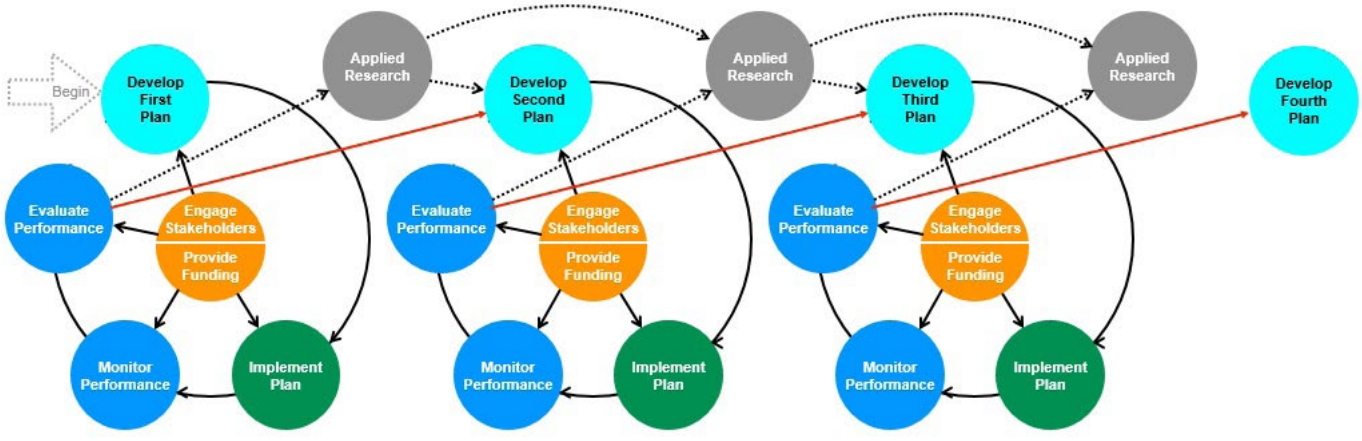

Figure 2: UNESCO MSP Process. Source: http://msp.ioc-unesco.org/about/marine-spatial-planning

Quality data is essential for successful MSP results. Geospatial data informs nearly all aspects of a quality MSP process. The type of data will vary significantly from location to location but may include environmental characteristics such as species and habitat distributions, ecosystem goods, services and vulnerabilities. Data should also include ways humans use marine and coastal spaces, including human

activities and pressures, and their cumulative impact are data demanding. Lastly, and often most important, data often includes maritime economic activities, such as shipping, fisheries and aquaculture, oil and gas and other extractives, and tourism and recreation.

For many MSP processes, collecting quality data is a key barrier for success, but should never be seen as insurmountable. One of the most important first steps of MSP is understanding what is and is not known about the marine area of interest. Conducting a first survey of available information is often one of the most valuable contributions from an MSP exercise to highlight data and information gaps, prioritize data needs, and inform an overall MSP plan.

An MSP plan should contain maps and other spatial analytics that inform decision making. For many MSP plans, this often includes areas designated for current uses and indicate possible and planned areas for future uses. Complementing this should be detailed plans to mitigate current and future conflicts among resource uses while minimizing impact on the environment and creating opportunities for synergies among users. MSP plans should be forward looking, with goals and objectives for a sustainable future integrating all resource users' perspectives.

Nearly any spatial management planning process, including MSP, will inevitably face decisions about trade-offs, where one or more stakeholders will have to accept a cost to allow another stakeholder to share marine resource access. These types of compromise are natural to all decision-making processes, but MSP often must balance stakeholders with highly conflicting views. Examining trade-offs and fully investigating consequences and communicating potential decisions regarding marine resource access is key to a successful MSP approach. Anticipating and evaluating trade-offs, either through trade-off analysis, scenario development, or by simple stakeholder discussions on possible outcomes, should be transparent and accessible to all interested parties to ensure transparency and promote long-term adoption.

Currently MSP has been most successfully deployed at national and subnational levels. The application of MSP is absolutely scalable to larger areas, to ensure coherence when the spatial extent cross jurisdictional borders, either to another municipality, state, or country. Understanding institutional barriers, environmental or ecological considerations, social constraints, and economic limitations, are key to navigating the additional complexity that can arise in transboundary and/or cross border context. To mobilize MSP at larger scales, multilateral institutions such as those that support Regional Seas and Large Marine Ecosystems (LMEs) are key platforms for the implementation of transboundary MSP. For LMEs that have followed the Transboundary Diagnostic Analysis and Strategic Action Programme (TDA-SAP) methodology, MSP can be a useful tool to translate a TDA into a SAP and a critical tool for implementation.

Policy Recommendations

MSP can be a successful framework to engage with multiple stakeholders over shared environmental resources and has increasingly become an attractive investment opportunity for both public and private financing. This is especially true given the use of MSP to assess blue economy opportunities. Many multilateral finance institutions also appreciate that MSP offers opportunities to invest in technical and leadership capacity building, institutional and policy reforms, monitoring and data analysis, and facilitating

collaboration across stakeholders. Consider the following MSP recommendations to maximize stakeholder engagement and long-term adoption:

- Employ MSP approaches that not only analyze potential areas of conflicts between maritime uses, but also model future areas of concern based on emerging spatial and temporal trends, such as impacts of climate change and oceanographic phenomena such as El Nino Southern Oscillation.
- View MSP as an ongoing tool to facilitate transboundary cooperation across a range of stakeholders on marine and maritime issues, with resulting spatial products as documents for continued discussion and further iteration as new information or emerging issues become available.
- Embrace the transparency of MSP to significantly improving the likelihood of policy adoption and compliance by invested parties over the long-term.
- Rely on MSP frameworks to highlight information gaps, prioritize data collection, and help improve overall knowledge of marine region through shared information and data management that allows adaptive and proactive management.

Case Study: Benguela Current LME, Namibia MSP

The Republic of Angola, Republic of Namibia and Republic of South Africa are members of the Benguela Current Convention that manages the Benguela Current Large Marine Ecosystem. The Government of Namibia was an early adopter of MSP to facilitate integrated management of human uses in the ocean through the Marine Spatial Management and Governance Programme (MARISMA). MARISMA promotes sustainable ocean use in the Benguela Current, focusing on implementing MSP to guide when and where human activities in the ocean and reveal spatial conflicts and synergies between uses, to encourage shared use of marine areas to benefit as many industries as possible.

There is a growing range of industries making use of or interested in using the 540,000 km^2 of Namibian ocean area. The focus of the government's first efforts were in the Central Namibian Sea, bound northwards by Cape Cross and southwards by Conception Bay and extending from the coastline to Namibia 200 nautical miles Exclusive Economic Zone (EEZ) (Figure 3). The Government of Namibia relied on MSP to manage its ocean resources in a coordinated way and avoid conflicts between marine uses and conflicts with the environment. The MSP process was initiated through a political process to analyze and allocate spatial and temporal distribution of human activities to achieve ecological, economic, and social objectives.

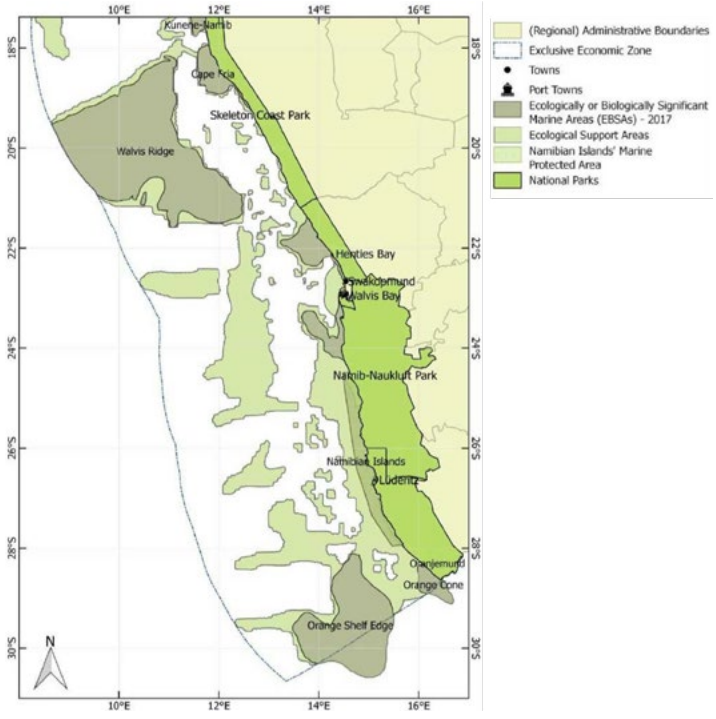

Figure 3: Namibian EBSAs, ESAs, NIMPA, and coastal terrestrial National Parks. Source: National Overview for Marine Spatial Planning and Knowledge Baseline for Namibia's First Marine Spatial Plan.

The Government of Namibia recognized that, to achieve broad acceptance, MSP decisions must rely on transparent information and good quality data from as many knowledgeable

sources as possible. To accomplish this task, mechanisms were created to share knowledge from experts and practitioners, but also other stakeholders in a collective process. Throughout the MSP planning cycle, progress was communicated with stakeholders through traditional meetings and workshops, but also by text message, post, email, social media, newspaper articles, radio and TV broadcasts, and a dedicated website. The Namibian Ministry of Fisheries and Marine Resources (MFMR) coordinated the MSP process through a National MSP Working Group (MSP-NWG), an inter-ministerial working group consisting of representatives from the thirteen ministries and institutions. One of the outcomes of the Namibian MSP process was the establishment and connection of MPAs along the Namibian coastline.

Namibian use of MSP focused on specific mechanisms to maintain stakeholder support, including: a) appropriate stakeholder engagement and communication; b) identifying data and information required for MSP; c) equitable access to data and information throughout the planning process, and; d) ensuring data and information of high quality and outputs and products available.

Case Study: Marine Spatial Planning in the Baltic Sea

The Baltic Sea spans 415,000 km^2 and contains the coastline of nine countries and the European Union. Organized under the 1974 Helsinki Convention (HELCOM), the countries endeavored to develop a Regional Baltic Maritime Spatial Planning Roadmap for 2013-2020. The MSP process engaged nine countries, including Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia, Sweden, as well as the European Union. Through an ongoing and collaborative MSP process, the nations mapped key maritime stakeholder's needs and analyzed current and future maritime trends in order to establish proactive integrated management of living and non-living maritime resources, and shared multiple uses of marine areas.

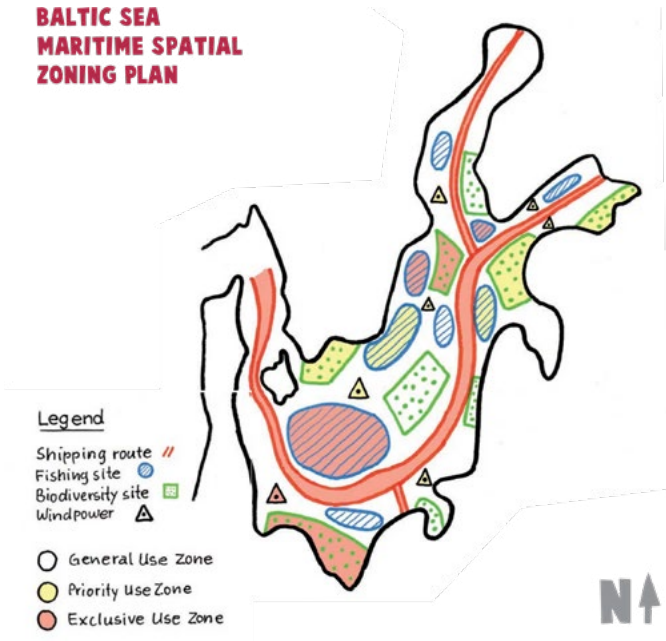

Figure 4: Baltic Sea MSP Cartoon. Source: WWF Germany. 2010. Maritime Spatial Planning in the Baltic Sea. WWF Germany, Baltic Sea Project Office

The Baltic Sea countries have banded together under 10 MSP principles to guide their the MSP process and long-term management. These principles include: 1) Sustainable management; 2) Ecosystem approach; 3) Long term perspective and objectives; 4) Precautionary Principle; 5) Participation and Transparency; 6) High quality data and information basis; 7) Transnational coordination and consultation; 8) Coherent terrestrial and maritime spatial planning; 9) Planning adapted to characteristics and special conditions at different areas, and; 10) Continuous planning.

Key for a successful MSP process at the regional level was to ensure that Marine Protected Area (MPA) networks in the Baltic were properly documented. From here, other management tools were horizontally integrated into MSP analysis, including national coastal management plans, ecologically or biologically significant areas (EBSAs) and other regimes. This allowed Baltic countries to have the necessary initial baseline data to take key marine management decisions.

The Baltic Sea MSP efforts are part of an larger the EU Marine Spatial Planning Framework Directive (MSPFD). Adopted in 2014, the EU MSPFD aims to work across borders and sectors to ensure human activities at sea take place in an efficient, safe and sustainable way.

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GEF LME:LEARN

GEF LME: LEARN is a program to improve global ecosystem-based governance of Large Marine Ecosystems and their coasts by generating knowledge, building capacity, harnessing public and private partners and supporting south-to-south learning and north-to-south learning. A key element of this improved governance is main-streaming cooperation between LME, MPA, and ICM projects in overlapping areas, both for GEF projects and for non-GEF projects. This Full-scale project plans to achieve a multiplier effect using demonstrations of learning tools and toolboxes, to aid practitioners and other key stakeholders, in conducting and learning from GEF projects.

This global project is funded by the Global Environmental Facility (GEF), implemented by the United Nations Development Programme (UNDP), and executed by the Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational, Scientific and Cultural Organization. The GEF LME:LEARN's Project Coordination Unit (PCU) is headquartered at UNESCO-IOC's offices in Paris.

For any further information, please contact:
Ivica Trumbic i.trumbic@unesco.org or Mish Hamid, mish@iwlearn.org
www.iwlearn.net/marine

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