Federal Ministry for Economic Affairs and Climate Action

European Climate Initiative EUKI

SUSTAINABLE AND FAIR MANAGEMENT OF MARINE ENVIRONMENT, ENABLING OFFSHORE RENEWABLE ENERGY PRODUCTION IN EMERGING CEE MARKETS

Policy Brief

Key points:

- In 2023 Europe reached 32 GW of new offshore wind capacity. This is significantly less than what the EU should be building to be on track to deliver its 2030 and 2050 Climate and Energy goals.
- European countries need to dedicate 3% of their territories to offshore wind energy generation and transmission infrastructure to meet EU ambitions.
- MSPs are a crucial tool for aligning green transition, biodiversity targets and strengthening blue economy.
- MSs should apply an ecosystem-based approach to their MSPs.
- Tools and models for evidence-based assessment of cumulative effects are already being applicated thus time and resources for comprehensive stakeholder mapping and engagement could save a lot of time and improve the planning process.
- Legally binding plans with measures for conflict-resolution increase efficiency of implementation.
- MSPs are living documents which require continuous update and adaptation.

Maritime Spatial Planning (MSP) is **an analytical approach to organizing activities at sea, while preserving/restoring marine ecosystems** and maintaining their functions in support of human needs. MSP is an extension of land-based spatial planning and must undoubtedly consider the broader coastal environment. The establishment of the MSP process aims to coordinate the spatial impact of different users so that their activities are oriented towards protecting the marine environment. Developing MSPs represents a significant step forward in the **application of ecosystem management** for the marine environment.

MSPs also function as tools for European Union (EU) Member States to effectively organize and optimize their sea space, aligning its layout with national energy objectives. By **designating specific areas for offshore wind energy capacity, marked for preliminary studies, and poised for development**, the plans reduce delays in the deployment of renewable energy

infrastructure and contribute to the objectives of achieving „Good Environmental Status“[1]. To unlock the full potential of offshore wind energy as a domestic clean energy source, **it is crucial to allocate sufficient space for both offshore wind installations and the supporting electricity grid**. Meeting the EU's 2030 climate targets requires dedicating **less than 3% of European seas to offshore wind energy production**. As of 2022, EU coastal countries have made significant progress in this endeavor, endorsing spatial plans that identify areas suitable for accommodating the **construction of 220 GW of offshore wind power capacity**.[2] Unfortunately, many potential markets in the Adriatic and Black Seas have not allocated any space for this purpose yet, which hinders the attraction of investors' interest or creates potential conflicts between new market actors and existing economic operators.[3]

Experience in implementing MSP currently remains limited in Europe and around the world, with the sole exception of Australia. Some European states are more advanced in planning their coastal and offshore waters, like the Netherlands, Belgium, Germany, or Norway, while others have developed new legislation to advance MSP (e.g., the United Kingdom, Sweden, and France). Nevertheless, all countries, both in the EU and globally, continue to face numerous challenges to the sound implementation of MSP.

This paper provides guidelines for MSP authors and policy makers to ensure that all factors (economic, social, and ecological) are well-aligned. The guidelines are based on discussions with participants who attended the Capacity Building Workshop (CBW) at the topic of Maritime Spatial Planning in Dubrovnik, Croatia in September 2023, which serves as a case study. Participants were representatives from spatial planning institute, regional energy agencies and local government. The guidelines are also presented through the prism of offshore wind developments and based on recommendations provided by members of the Offshore Coalition for Energy and Nature (OCEaN) and the Black Sea Renewable Energy Coalition (BSREC).

1. Current status of MSP in Europe

The European Seas exhibit a wide spectrum of environmental traits, ranging from pristine marine reserves to regions impacted by a large variety of economic and recreational activities.

[1] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0056
[2] WindEurope, Offshore Wind in EU Maritime Spatial Plans, September 2022
[3] WindEurope, 2022, Maritime Spatial Planning Briefing

Managing maritime areas, with the aim of reconciling the discordant needs of protecting their ecological balance and exploiting their natural resources, requires adequate policies and the integration of differing sectoral approaches and interests in a coherent set of measures. Given the pressing need for a better coordination of maritime affairs at the European level, the European Commission (EC) adopted on 10 October 2007 the so-called "Blue Book" introducing a new Integrated Maritime Policy (IMP) for the EU, together with an accompanying Action Plan.[4]

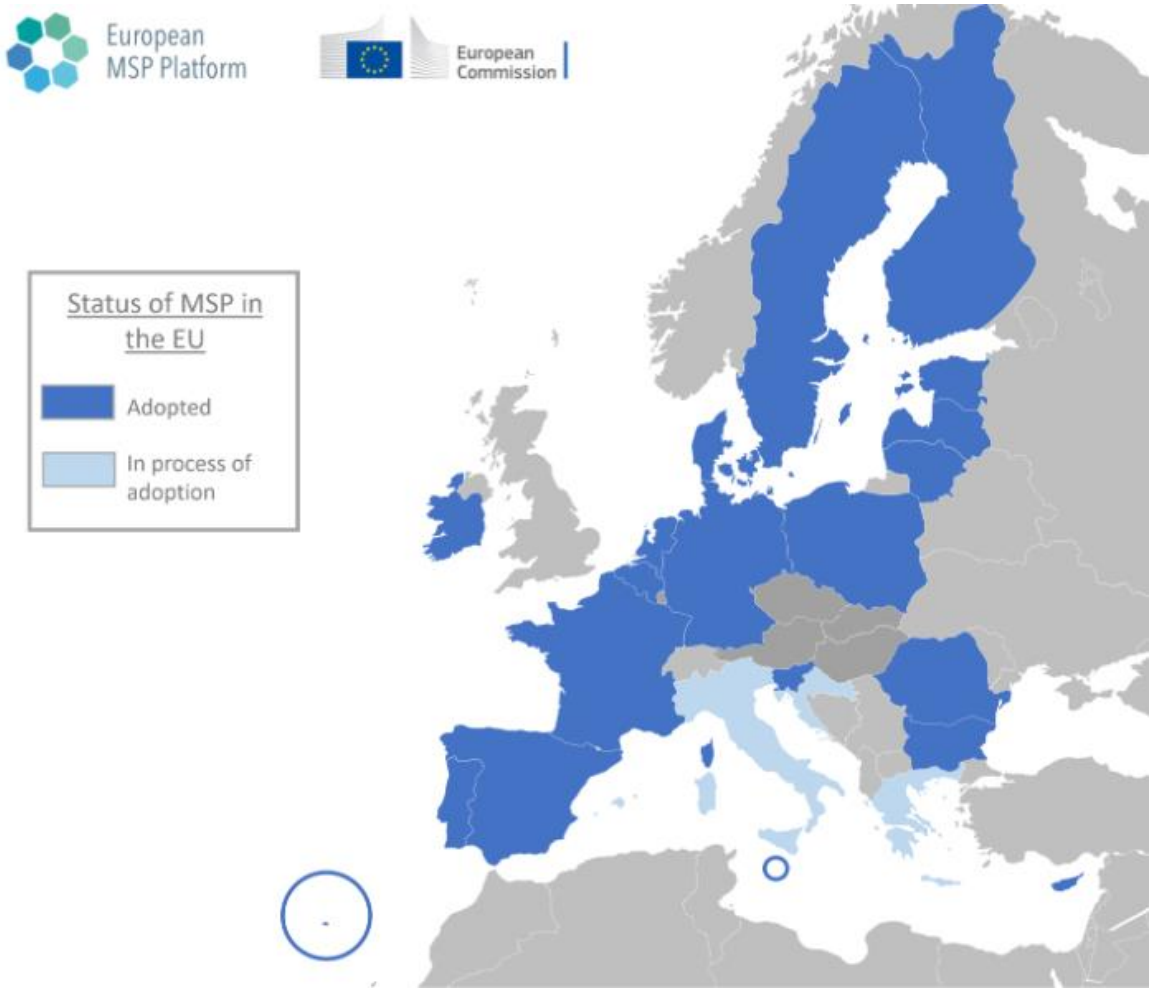


Figure 1: Status of MSP in EU

Figure 1 summarizes the status of the adoption of MSP plans in the EU[5]. Despite the MSP Directive stipulating that Member States should have published their plans by 31 March 2021, **Italy, Croatia, and Greece are still in the preparation phase.** In other countries, where MSPs have already been adopted, substantial variations exist, particularly in terms of the allocation

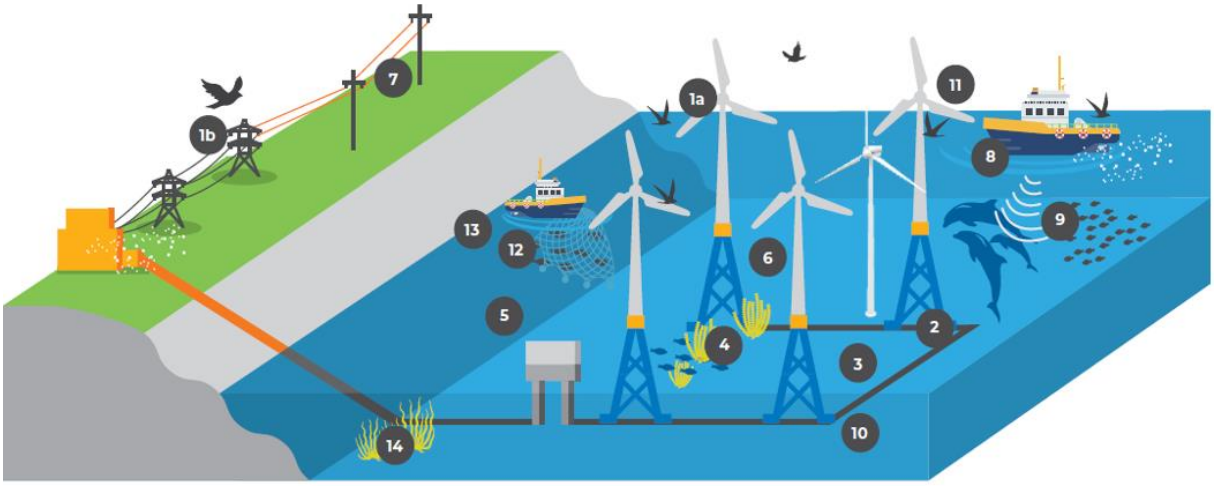
[4] https://www.europarl.europa.eu/factsheets/en/sheet/121/integrated-maritime-policy-of-the-european-union
[5] https://maritime-spatial-planning.ec.europa.eu/msp-practice/countries

of suitable areas for low-carbon energy infrastructure, as well as procedures and rules for conflict- resolution, leaving ample room for improvement.

2. Exploring the multiple dimensions of MSP

2.1. Environmental impact of offshore renewable energy sources (ORES)

The focus of MSP is placed on bottom-fixed and floating wind farms because of their possible significant impact on the marine environment, which can occur in four main phases: pre-construction, construction, operation, end-of-life activities. All project components, including wind turbines and their foundations, submarine power cables and connections to land-based energy infrastructure, are considered in MSP. It is important to note that these impacts can be positive, negative, or neutral and **require an evidence-based assessment of every project's cumulative effect**. These assessments must consider all types of interactions, not only between human activities and the environment, but also between activities themselves.



1. Bird and bat collision with, a) wind turbines and b) onshore transmission lines
2. Seabed habitat loss, degradation and transformation
3. Hydrodynamic change
4. Habitat creation
5. Trophic cascades
6. Barrier effects or displacement effects due to presence of wind farm
7. Bird mortality through electrocution on associated onshore distribution lines
8. Mortality, injury and behavioural effects associated with vessels
9. Mortality, injury and behavioural effects associated with underwater noise
10. Behavioural effects associated with electromagnetic fields of subsea cables
11. Pollution (e.g. dust, light, solid/liquid waste)
12. Indirect impacts offsite due to increased economic activity and displaced activities, such as fishing
13. Associated ecosystem service impacts
14. Introduction of invasive alien species

Figure 2: Concisely depicted environmental impact of ORES

Figure 2 shows potential impacts on biodiversity and the associated ecosystem services due to bottom-fixed offshore wind developments[6], while Table 1 lists environmental impacts that should be considered while developing MSP.

Environmental impacts analysis for developing MSP should consider	
protected areas of nature	scientific research
NATURA 2000 areas	aquaculture areas
marine habitats	fishing areas
marine fauna (fish, marine mammals, sea turtles, birds, bats)	facilities and infrastructure for research, exploitation and extraction of oil, gas and other energy resources, minerals, and aggregates
marine traffic	
landscape and seascape	military training areas
underwater cultural heritage	tourism
air traffic	submarine cables and pipelines
special purpose areas	
areas of discarded ammunition and weapons	

Table 1: List of environmental impacts that should be taken into account while developing MSP

2.2. Integration of nature restoration targets and measures

To foster a coordinated strategy, it is essential to plan and implement nature restoration and the energy transition concurrently, allowing for mutual support in attaining the EU's climate, biodiversity, and energy objectives. **The simultaneous identification of Marine Protected Areas (MPAs) and energy generation sites is vital to avoid adverse cross-effects.**

A recommended best practice involves establishing a cohesive network of protected areas through collaborative efforts and alignment with neighboring countries. For example, the first step could be to identify key areas that are ecologically significant or vulnerable. That involves assessing biodiversity, habitat types, and ecological processes. Critical areas may include breeding or feeding grounds for marine species, critical habitats such as coral reefs or seagrass

[6] https://oie.hr/wp-content/uploads/2023/05/Action-Plan-for-the-uptake-of-Offshore-Renewable-5.pdf

beds, and areas with unique geological or oceanographic features. Once key areas are identified, they can be designated as protected areas through national or international legislation, such as marine reserves, or sanctuaries. Designation criteria should consider ecological significance, vulnerability, and connectivity with other protected areas. Each protected area should have a management plan that outlines specific conservation objectives, zoning regulations, and guidelines for activities within the area. Regular monitoring of protected areas is essential to assess their effectiveness and identify any changes or threats to biodiversity and ecosystem health. Adaptive management involves using monitoring data to adjust management strategies and conservation measures as needed.

2.3. Management, networking, and other interactions with key stakeholders for MSP implementation

Stakeholder engagement is vital throughout the MSP process, including through **transparent justifications of decisions** on space allocation and resolution of conflicting interests following consultations. Utilizing **tools for transparent, quantitative data analysis** can demonstrate to stakeholders how spatial and temporal allocations were developed. To foster effective participation, stakeholders need awareness of MSP's purpose, functionality, and outcomes, **requiring dedicated time and resources**. Successful MSP implementation relies on **stakeholders' ability to apply MSP principles**, with specific key stakeholders varying by country. For example, in Croatia, they include counties, local offices of the State Geodetic Administration, Land registry offices, Ministry of Economy and Sustainable Development, Ministry of Physical Planning, Construction and State Assets, Croatian Energy Regulatory Agency (HERA), Croatian Energy Market Operator (HROTE), Croatian Transmission System Operator (HOPS), HEP-Distribution System Operator (HEP DSO), NGOs representing local businesses and citizens.

Given the limited expanse of European seas, it is crucial for all Member States to incorporate the concept of **multi-use practices within offshore wind parks** during stakeholder consultations. This approach allows for two or more activities to take place in the same area at the same time. The implementation of multi-use strategies within offshore wind parks represents an initiative-taking measure to enhance space efficiency and reduce the collective environmental footprint of human activities in these confined marine environments.

2.4. Alignment of the MSP plan with other interrelated EU documents

The development of MSP should be viewed within the **context of the EU Green Deal** (Strategy on Adaption to Climate Change, etc.) and be aligned with the following strategies at the implementation level:

Sustainable Blue Economy encompasses an economic transformation role by leveraging marine resources in a manner that promotes long-term prosperity while preserving marine ecosystems. It aims to balance conservation and development efforts, fostering cross-border collaborations to ensure sustainable use of ocean resources and achieve decarbonization targets for a resilient and environmentally responsible maritime sector.

EU strategy on Offshore Renewable Energy focuses on supporting sustainable development. It emphasizes the inclusion of offshore renewable energy projects within MSPs to ensure coordinated and environmentally responsible deployment across EU maritime regions.

EU's Biodiversity Strategy for 2030 prioritizes nature protection and ecosystem restoration. It emphasizes the establishment and management of marine protected areas within MSPs to safeguard biodiversity and promote sustainable use of marine resources.

Although more complex, the possibility of cross-border offshore hybrid projects should be considered (a novel approach identified by the EC), which could be jointly developed with a neighboring country. In response to the REPowerEU plan, the EU Council[7] has proposed **changes to the EU Renewable Energy Directive (RED III)**, which will require increased collaboration and coordinated planning among littoral countries in Central and Eastern Europe. These proposals aim to establish joint offshore energy planning, integrated grid development, and cross-border sharing of offshore wind projects among Member States sharing a sea basin. However, the implementation of these commitments is contingent upon the approval of the updated RED III[8] by all Member States and synchronization of their spatial plans for the sea.

Facilitating transboundary cooperation through regional sea conventions and agreements between states is vital for mitigating the environmental impact of activities beyond Economic Exclusive Zones, for example through shared infrastructure. An effective approach to transboundary planning involves **sharing essential data between countries**. This necessitates

[7] Council of the European Union, Proposal for a Directive of the European Parliament and of the Council, July 2021

[8] European Commission, European Green Deal: EU agrees stronger legislation to accelerate the rollout of renewable energy, Press Release 30 March 2023

the collection and coordinated management of data, encompassing seabed mapping, marine species populations, habitats, and human activities. Collaborative data sharing enables joint analysis and planning across borders.

In instances where data is deficient, invoking the **precautionary principle** serves as a foundation for decision-making within relevant MSP provisions. This principal advocates for evidence-based impact assessments even in the absence of concrete information. Additionally, designating **'precaution areas'** highlights regions where activities should be planned with heightened caution due to knowledge gaps in the understanding of the marine environment.

3. Legal nature of the national MSP

Member States ought to establish MSPs as a legally binding framework governing all marine activities, thereby providing regulatory clarity. Presently, many MSP in the EU primarily serve as declarations of intent or inventories of maritime activities, leaving decisions on conflicting claims for future consideration. To enhance harmonization across sectors, MSPs must incorporate clear conflict resolution mechanisms, be legally binding, and be led by the state. While maintaining flexibility for adaptive management, it is crucial to keep decision-making and management of the MSP at the same regulatory level. This ensures coherence between various sub-plans and mitigates uncertainty, delays, and potential legal disputes.

4. Conclusion

Taking these considerations into account, it is imperative for all EU maritime countries to prioritize certain key steps in enhancing their Maritime Spatial Planning (MSP) frameworks. Firstly, they should adopt an ecosystem-based approach to their MSPs, ensuring that ecological considerations are central to decision-making processes. Additionally, implementing tools and models for evidence-based assessment of cumulative effects is essential for informed planning and management. Investing time and resources in comprehensive stakeholder mapping and engagement early in the planning process can significantly expedite decision-making and enhance the inclusivity of MSPs. Moreover, establishing legally binding plans with measures for conflict resolution can streamline implementation and enforcement processes. Finally, recognizing that MSPs are living documents necessitates continuous updates and adaptations to reflect evolving marine ecosystems and socio-economic dynamics.

These principles also include the Black Sea and the Baltic Sea, similar approaches should be applied to enhance their respective MSP frameworks. By adopting ecosystem-based approaches, employing evidence-based assessment tools, prioritizing stakeholder engagement, and implementing legally binding plans, countries in these regions can effectively improve their MSP. Additionally, recognizing the dynamic nature of MSPs as living documents underscores the need for ongoing updates and adaptations to ensure their continued relevance and effectiveness in sustainable marine resource management.

In conclusion, the Table 2 summarizes the benefits of implementing a national Maritime Spatial Plan (MSP) alongside the drawbacks associated with its absence, underscoring the critical importance of comprehensive spatial planning for effective marine resource management and conservation.

Advantages	Disadvantages
Recovery of benthic habitats that have been degraded by this branch of fishing	Excessive and unsustainable fishing - Mediterranean Sea (including Adriatic Sea) is the most overexploited sea in the world.
Increasing biodiversity	Poor management of protected areas - 22% of marine species are in an unfavorable state of conservation; marine habitats show favorable status in only 63% of case
Recovery of the fish stock	Rise in population of invasive species- only 1,27% of the Mediterranean Sea is effectively protected
Creation of artificial reefs, which increases the possibility of settling marine organisms on a solid surface and increases biological diversity	
Development of certain branches of tourism: artificial reefs diving, big game fishing etc.	

Table 2: Advantages and disadvantages of having a national MSP