BirdLife INTERNATIONAL
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Position Paper

# How to apply the ecosystem-based approach in Marine Spatial Planning

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## CONTACT

Anouk Puymartin, Marine Policy Officer,  BirdLife Europe & Central Asia
anouk.puymartin@birdlife.org

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# Introduction

The ecosystem-based approach (EBA) is the bedrock of Marine Spatial Planning (MSP) to achieve a sustainable use of the marine environment, and ultimately contribute to healthy seas across Europe. While the EBA is a well-established concept, its precise application to MSP varies considerably between EU Member States. This paper aims to inform the assessment of the marine spatial plans that Member States are required to deliver according to the Maritime Spatial Planning Directive[1]. Furthermore, the paper highlights how MSP should be conducted to avoid damaging sensitive marine environments or processes, and to strengthen ocean resilience, especially in the context of climate change. Ultimately, each national Marine Spatial Plan should contribute to achieving Good Environmental Status (GES) across European seas.

# Legislative background

From the "Malawi Principles" of the Convention on Biological Diversity (CBD) to the Marine Strategy Framework Directive (MSFD) (2008/56/EU) in Europe – the principle of the EBA is firmly ingrained in international and EU legislation and its implementation. In the EU, both the Maritime Spatial Planning Directive and the MSFD mandate Member States to allocate and manage their marine areas following an EBA[2], not least to achieve Good Environmental Status in European waters and ensure that their marine spatial plans are compatible with the Birds and Habitats Directives. In its report on the implementation of the MSFD from June 2020, the European Commission states: "*The Maritime Spatial Planning Directive requires Member States to develop maritime spatial plans with the aim of promoting the coexistence and sustainability of relevant activities and uses. It makes explicit reference to the MSFD within its legal text, stipulating that maritime spatial planning should apply an ecosystem-based approach and help to achieve the aims of good environmental status and coordinate timelines with the MSFD to the extent possible.*

1. Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning
2. article 1 of the Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) and article 5 of the Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning

*Several studies have defined or put into practice the ecosystem-based approach or land-sea interactions for maritime spatial planning, but still there is no agreed methodology across Europe.[...] Since the Maritime Spatial Planning Directive process integrates all the blue economy sectors and activities, it should enforce management measures that help to achieve good environmental status[3]."*

It is worth noting that for some individual sectors, EU legislation elaborates on the application of the EBA. For example, the Common Fisheries Policy specifies that the EBA to fisheries management "*means an integrated approach to managing fisheries within ecologically meaningful boundaries which seeks to manage the use of natural resources, taking account of fishing and other human activities, while preserving both the biological wealth and the biological processes necessary to safeguard the composition, structure and functioning of the habitats of the ecosystem affected, by taking into account the knowledge and uncertainties regarding biotic, abiotic and human components of ecosystems.*"

Across European regional seas, the application of the EBA must be coherent and implemented in close synergy with the relevant international and regional policy provisions (e.g. ACCOBAMS, ASCOBANS, Barcelona Convention, CBD, HELCOM and OSPAR). HELCOM, for example, has developed a "Guideline for the implementation of ecosystem-based approach in Maritime Spatial Planning (MSP) in the Baltic Sea area" in which twelve key principles of the EBA are identified[4]. These guidelines are currently being updated to further strengthen effective implementation.

Spatial planning of future marine-related activities is important to determine their compatibility with each other and the marine environment. It can determine the scale of future and emerging pressures on marine ecosystems and contribute to the sustainability of sectors. Therefore, planning should direct activities away from highly sensitive/protected areas by identifying areas of highest and least environmental constraint. Spatial planning should also ensure the allocation of areas suitable for habitat and species recovery.

Fishing net, Mljet island ©Biljana Aljinovic

3. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0259&from=EN
4. https://helcom.fi/media/documents/Guideline-for-the-implementation-of-ecosystem-based-approach-in-MSP-in-the-Baltic-Sea-area_June-2016.pdf

# The ecosystem-based approach in the context of Marine Spatial Planning

MSP follows a cyclical development process, whereby stakeholder and public involvement build the foundation for a democratic, balanced and transparent process (see Figure 1). In essence, an MSP is never finalised - instead it is a process which is continuously being adapted to a changing environment, scientific advances and technological innovation.

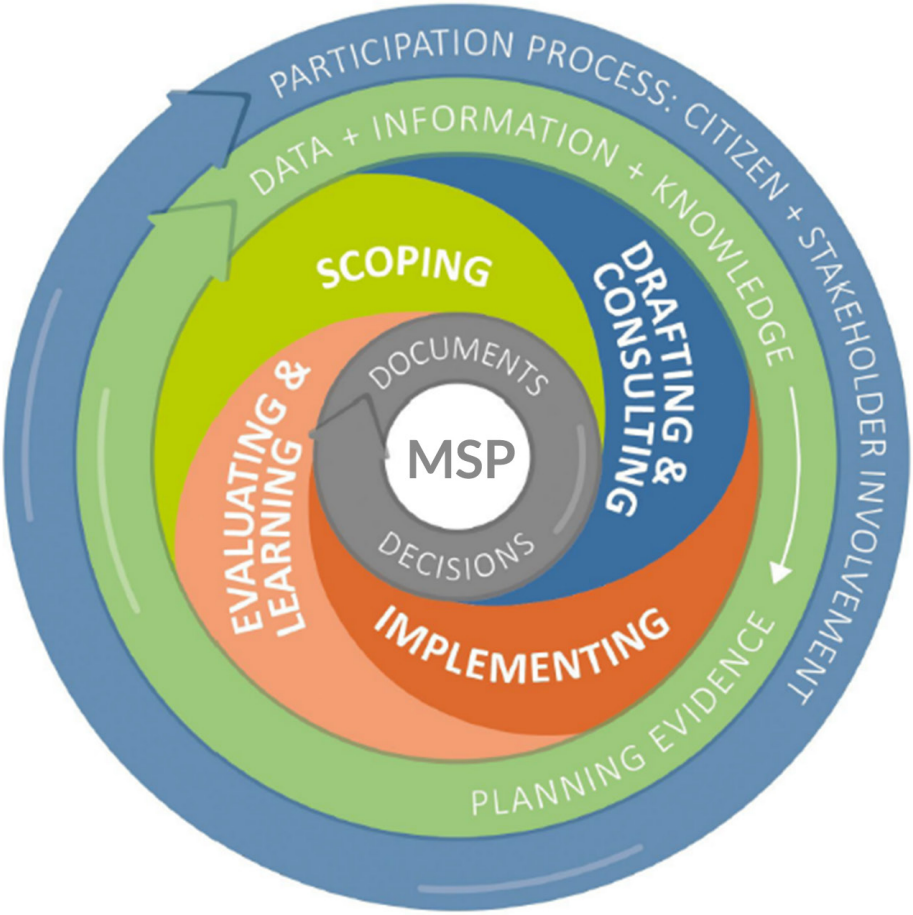


**Figure 1:** Illustration of the cyclical and adaptive MSP planning process, which is also suitable for Integrated Coastal Zone Management (ICZM). Developed by A. Morf and co-authors (taken from Giacometti et al. 2020).

**The following key principles highlight how the ecosystem-based approach should be applied throughout the MSP process:**

**1. Best available knowledge and practice:** the allocation of human activities in the ocean shall be based on the best-available knowledge regarding biotic, abiotic and human components of ecosystems, as well as their interactions. Marine spatial plans should be developed on the basis of comprehensive data and adequate modelling of habitats and species and include a programme for collecting additional data to fill knowledge gaps. Spatial and temporal data should be collected specifically on the population dynamics of species and habitats and on the important areas for species covering all life stages (e.g. feeding, staging/stopover, and breeding congregations for seabirds). Migratory and other frequently used routes should be identified and included in the plans, as well as species-specific information to determine sensitivity to specific human activities (e.g. for seabirds: information on flight distances and other changes in foraging; reproductive and other behaviour in response to infrastructure installation).

**2. Sensitivity mapping (see box 1 below):** ecological sensitivity maps of at-sea threats should be developed based on the best available data and modelling in order to guide zonation during the planning process. Sensitivity maps should incorporate the sensitivity of individual ecosystem components (e.g. the sensitivity of individual bird and bat species).

Scopoli's shearwater, *Calonectris diomedea* ©BirdLife Europe & Central Asia

Mljet National Park ©Biljana Aljinovic

**3. Cumulative impact assessments:** it is vital to assess all pressures on the marine ecosystem in synergy and to estimate overall pressure of all impacts on the marine environment and its resources, including an assessment of areas-based carrying capacities and relational understanding. Member States should analyse the cumulative, direct/indirect, short/long-term, permanent/temporary and positive/negative effect of human activities and uses across all areas covered by the MSP in order to ultimately avoid exceeding the carrying capacity of the marine environment. The plan should consider various effects on the ecosystem caused by human activities and interactions between human activities and the ecosystem, as well as among various human activities. This includes interrelations such as sea-land interaction.

**4. Strategic Environmental Assessment (SEA)[5]:** in parallel to the MSP process, the SEA ensures that all the available and relevant scientific knowledge have been collated. Other relevant assessments should further inform the SEA (e.g. Environmental Impact Assessments). Overall, the SEA should further facilitate synergies with assessments of GES in the marine environment and include all relevant information. The process of how the collated information feeds into the MSP process (including sensitivity mapping and cumulative impact assessments mentioned above) should be clearly explained. Projects falling within the MSP process should only be allowed after Appropriate Assessments[6] (for Natura 2000 sites) or Environmental Impact Assessments[7] (for other MPAs) have been undertaken and where those assessments determine that these projects will not have a significant effect on the conservation objectives of the species and habitats (i.e. site integrity).

5. Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment
6. Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora
7. Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment Text with EEA relevance

**5. Precautionary principle:** when the impacts of certain human activities are unclear and it is not known whether negative impacts on the marine environment can be avoided, the precautionary principle must be applied.

**6. Ecological coherence:** both the coherence of the network of protected areas and the general ecological connectivity outside of protected areas should be strengthened, including migration corridors. All ecologically important areas, including those with high biodiversity, valuable habitats, Natura 2000 sites, and other nationally designated MPAs, are identified in the marine spatial plan. Together, possibly with supplementary corridors and reduction of barrier effects through the MSP, these should allow for a coherent, well-connected and representative network of marine protected areas. Gaps in the existing MPA network are identified and the plan includes flexibility that allows for expansion of the current protected area network, taking into account existing and currently planned projects and other infrastructure. Temporal aspects should be managed within the MSP, for example to ensure that for annual bird, fish or cetacean migration; potential barrier effects and disturbances are reduced to a minimum through temporal measures in the MSP.

**7. Alternative development, mitigation and restoration:** alternative MSP options should be developed and made available for stakeholder assessment throughout the MSP negotiation process. These alternatives should be assessed on the basis of their relative impacts on the marine ecosystems and biodiversity. Overall, the MSP should identify measures to avoid, mitigate or compensate negative impacts on the marine ecosystems and protect natural resources, respecting the capacity of ecosystems to respond to human-induced changes. The plan provides for long-term appropriate measures to restore the habitats and species in the areas; and avoid damaging activities that could significantly disturb these species, deteriorate protected habitats, protected species or their habitats. The plan also supports adaptive conservation strategies to cater for spatial changes in ecosystems.

**8. Assessment of ecosystem services:** firstly, the MSP should identify the benefits that the natural environment supplies to human beings, not least to allow for a socio-economic evaluation of effects and potentials. In a second crucial step, the impacts of the spatial and temporal allocation foreseen by the MSP should be assessed for the ecosystem services within each area. Detailed matrices of stressors and ecosystem services for individual areas can then inform the MSP process.

**9. Stakeholder process:** the successful development and ultimate implementation of the MSP are critically dependent upon effective public participation, transparent communication, and democratic stakeholder ownership. An ongoing comprehensive public consultation process prior and throughout the entire MSP development is a first step in the right direction. It is critical that MSP plans are not managed sector-by-sector, but in synergy, in balance, transparently, and ultimately, democratically. When conflicts between stakeholders are identified, these stakeholders should also be the ones engaged in developing a compromise. MSP is fundamentally a cyclical and adaptive process, therefore stakeholder involvement is continuous and does not come to an end.

**10. International cooperation and consultations:** activities within the marine areas of neighbouring EU Member States and other countries, or within the marine region, can have important effects on a Member State's marine biodiversity, therefore bilateral and regional cooperation are vital to ensure the coherence of Marine Spatial Plans.

European shag, *Phalacrocorax aristotelis* ©Clive Timmons

**11. Subsidiarity and coherence:** MSP must be coherent with the relevant policies and legislation, from local to EU and international levels. Synergy with marine policies others must be sought within the timelines of monitoring and evaluation cycles. In particular, the MSP should be aligned with Birds and Habitats Directive, the MSFD, the CFP and the EU 2030 Biodiversity Strategy. The Netherlands and Latvia have, for example, aligned their MSP cycle with the MSFD evaluation cycle. Given that MSP touches upon almost all activities in the sea, it is vital to build a coherent policy and implementation setup. Last but not least, care needs to be taken in identifying the appropriate national level for MSP development, ensuring that planning across and beyond sectors is feasible, to ultimately resolve conflicts and ensure that a Good Environmental Status can be achieved.

**12. Adaptation:** MSP is intended to be a cyclical and ultimately adaptive process (see Figure 1), taking into account the latest scientific and technological knowledge and developments, as well as political decisions. Therefore, an iterative process including monitoring, reviewing and evaluation of both the process and the outcome is required. Where there are shortcomings in the current plan (e.g. sensitivity mapping lacking), then as soon as data and analyses become available to resolve the matter, an evaluation and partial update of the MSP well-ahead of the 10-year standard evaluation target should be accomplished. To better align with the MSFD and to ensure timely adaptation, several EU Member States have already shortened their evaluation cycle of their MSPs (e.g. Sweden: 8-year cycle, Netherlands and Latvia: 6-year cycle). There should be a process defined for periodic revisions/updates to the plan to incorporate new data and improved knowledge, as well as for updating sensitivity maps when new data become available, to ensure that the allocation and development of human uses are based on the latest state of knowledge of the ecosystems and the practice of safeguarding the marine ecosystem in the best possible way.

## BOX 1 – WILDLIFE SENSITIVITY PLANNING: A KEY COMPONENT IN ORDER TO APPLY THE ECOSYSTEM-BASED APPROACH

While Marine Protected Areas can be designated to protect species and habitats, the impact of activities on species and habitats cannot be mitigated only within those areas. Species protected under the Birds Directive, Habitats Directives and the Marine Strategy Framework Directive are strictly protected across the entire marine environment. Therefore, mapping species' or habitats' sensitivities relative to human activities helps identify the best sites for allocating these activities and should ultimately contribute to the ecological coherence of the wider ecosystem. For example, for seabirds, Marine Protected Areas are often located where there are high congregations of the same species, which use these areas for feeding and/or rafting. However, migratory and foraging trips are not considered. In such cases, mapping seabirds' sensitivity to different human activities provide an understanding of the impact (level of threat) that the activities might have on a population of seabirds that is not only breeding or rafting/feeding in an area, but also traveling through specific routes or areas. An ecosystem-based marine spatial plan should then propose areas for different human activities to be allocated where ecological impacts for habitats and species can be minimised, while accounting for the needs of human activities.

Sensitivity mapping is typically used to identify areas containing an ecological community sensitive to a specific activity at an early stage in the planning process. In other words, sensitivity mapping is used to determine how sensitive a species or habitat is to a human activity. Once an activity has been identified, sensitivity mapping is achieved by first identifying the species and/or habitats that are likely to be affected by it. Then, it is necessary to assess the distributions of those species/habitats and to develop species/habitat sensitivity scores based on characteristics that influence their vulnerability to the planned activity (e.g. species behaviour, habitat fragility, conservation status). The sensitivity scores are then placed on a map according to the distribution of the habitats/species affected. Where different sensitivity scores overlap, they are added up to generate the overall sensitivity score for that particular location on the map. This type of information helps decision-makers identify the optimal areas to allocate and/or ban specific human activities. At the same time, suitable sites for restoration activities can already be identified within the same process, which can later be useful in the context of cumulative impact assessments and compensation.

Sensitivity maps cover the entire MSP region, not only protected areas. It therefore ensures ecological coherence across the entire system, as well as connectivity between and beyond protected areas. For migratory species and populations which are currently not well-covered through the Natura-2000 network, sensitivity mapping is particularly important to ensure that they are managed adequately within one system, in order to ultimately achieve GES.

References: Giacometti, A., Morf, A., Gee, K., Kull, M., Luhtala, H., Eliasen, S. Q., Cedergren, E. Handbook: Process, Methods and Tools for Stakeholder Involvement in MSP. BONUS BASMATI Deliverable 2.3, February 2020, www.bonusbasmati.eu