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Background

This document contains selected research findings of two research and development projects carried out by Leibniz Institute of Ecological Urban and Regional Development and Leibniz Institute of Baltic Sea Research Warnemuende together with various research partners and supported by the Federal Agency for Nature Conservation with funds of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. These projects aim at finding ways to translate requirements of an EBA into concrete marine spatial planning measures.

In this way the projects evaluated concrete options of how to consider ecological demands and nature conservation aspects through spatial planning tools and present crucial components focusing on strengthening the ecological content during the planning process.

It should be noted that the following remarks and research findings reflect the opinion of the researchers.

Action requested

The Meeting is invited to take note of the research findings of the presented projects.

1. Introduction

Main task of spatial planning is to spatially arrange and develop current and future uses while minimizing conflicts through coordination of uses and safeguarding of free space. General principle in German planning is a sustainable spatial development which harmonizes the social and economic demands on the region with its ecological functions. For sustainable spatial development the use of marine areas must not endanger the basis of existence of marine biodiversity and has to be limited to an extent the carrying capacity of the ecosystem allows for.

Marine and coastal waters are under high pressure of multiple uses not only in Germany but also in the Baltic Sea Region. Additionally the marine environment is characterized by an endless number of complex and extensive ecological interactions, such as large scale migrations and food webs, also across administrative borders. These developments call for overarching and comprehensive solutions to protect ecological functions and features in MSP. The development of such solutions is also supported by the consideration of an ecosystem-based approach in planning regulations.

However, the question for planners remains how to deal with the new requirements set by the introduction of EBA with regard to the planning process as well as the content of marine spatial plans. Which steps are necessary to provide profound argumentation for the consideration of ecological demands in planning and to handle those in planning process? In what follows, we like to present a proposal on how to implement the EBA in MSP based on selected findings of our research projects

2. Ecosystem-based approach in MSP – Research and Development Projects

In this context two research and development projects were carried out by Leibniz Institute of Ecological Urban and Regional Development and Leibniz Institute of Baltic Sea Research Warnemuende together with various research partner and supported by the Federal Agency for Nature Conservation with funds of the Federal Ministry for the Environment, Nature Conservation and Nuclear, aiming at finding ways to translate requirements of an EBA into concrete marine spatial planning measures. In this way the projects evaluated concrete options of how to consider ecological demands and nature conservation aspects through spatial planning tools. As all riparian states of the Baltic Sea have their own legal system and therefore also differences in the respective planning systems the projects especially focused on the legal system of Germany.

The first project is called MSP-INT ("Developing scientific basis for the consideration of the environmental concerns in the maritime spatial planning, with a special regard to the international requirements"). The project investigated among other issues the role of MSP in marine nature conservation, the levels planning and marine space, legal aspects of the consideration of environmental concerns in MSP, the management of different uses under consideration of an EBA and a the development of a concept for the implementation of an EBA in MSP. In the context of this concept design for the implementation of the EBA the „HELCOM – VASAB Guideline for the implementation of ecosystem-based approach in Maritime Spatial Planning (MSP) in the Baltic Sea area” plays a significant role. The project developed specific recommendations for the implementation of the EBA on the basis of a comparison between the “key elements for applying the ecosystem-based approach in MSP” (HELCOM-VASAB Guideline) and their status of implementation in German MSP.

The second project is called MSP-FABENA ("Contribution to conservation in Maritime Spatial Planning"). Its task was to determine and compile information and a scientific basis of measurement for the integration of environmental concerns in marine spatial planning processes. It also developed a version of a planning contribution to the German EEZ from the viewpoint of nature conservation. Focus of this project was the

identification of spatial claims and the sensitivity towards marine uses of endangered and representative species and habitats (in particular habitats according to § 30 BNatSchG, Habitat and Bird Directive and Red List species) to translate those into concrete planning options for the German EEZ.

3. Ecosystem-based approach in relevant regulations

In recent years the importance of considering marine environment in spatial planning has strongly increased by introducing an ecosystem-based approach (EBA) to MSP through different regulations and guidance documents. Research findings of the mentioned projects have shown, that these regulations set new requirements on European, regional as well as national level for developing marine spatial plans, not only in terms of the content of the plan but also regarding the planning process. The following selection of relevant regulations is orientated towards the intent and purpose of the upcoming meeting of the HELCOM – VASAB MSP WG.

3.1 EU MSP Directive (2014/89/EU)

The EU MSP-Directive (MSPD) obliges the Member States for the first time to establish and implement maritime spatial planning while applying an ecosystem-based approach. The MSPD links to the Marine Strategy Framework Directive (MSFD 2008/56/EC) for defining criteria of an EBA and takes guidelines etc. developed in conventions for the protection of marine environment into account.

The framework character of the MSPD leaves latitude on the way the Member States implement the EBA. However, as stated above with reference to the MSFD concrete criteria have to be fulfilled while applying an EBA: “...ensuring that the collective pressure of all activities is kept within levels compatible with the achievement of good environmental status and that the capacity of marine ecosystems to respond to human-induced changes is not compromised, while contributing to the sustainable use of marine goods and services by present and future generations. In addition, an ecosystem-based approach should be applied in a way that is adapted to the specific ecosystems and other specificities of the different marine regions and that takes into consideration the ongoing work in the Regional Sea Conventions, building on existing knowledge and experience. The approach will also allow for an adaptive management which ensures refinement and further development as experience and knowledge increase, taking into account the availability of data and information at sea basin level to implement that approach. Member States should take into account the precautionary principle and the principle that preventive action should be taken...” (Recital 14 of Directive 2014/89/EU).

These new requirements for MSP show the need for appropriate concepts and tools of actually implementing an EBA while drawing up marine spatial plans. In the view of above the MSPD introduces a balance of marine conservation and different uses with the aim to support blue development but only within green borders.

3.2 Federal Regional Planning Act (ROG)

The legal requirements of the MSPD do not impose a significant adaption in the German law position, because there have already been legal regulations to MSP. However, the opportunity of the legislative amendments has not been used sufficiently to reform the Federal Regional Planning Act (ROG) according to an appropriate attention to marine conservation and to specify implementation of the EBA. Although the transposition of the EBA in the principles of the Federal Regional Planning Act (Section 2 para 2) strengthen the position of nature conservation as well as the interpretation of the *Leitbild* of a sustainable development in spatial planning .

The following figure (figure 1) shows the *Leitbild* of a sustainable development in spatial planning in the sense of Section 1 para. 2 Federal Regional Planning Act. Social and economic demands on areas shall be reconciled

with its ecological functions. “To reconcile” these conflicting demands means **at least** to stay within limits of carrying capacity of an ecosystem and to maintain its ecological functions. That does not mean that ecological functions have an absolute priority to economic and social demands in the weighting. But uses can only be realized within the limit of carrying capacity that’s given by an ecosystem. Therefore weighting criteria have to be defined, such as the “Limit of carrying capacity”, which is closely linked to GES (Good Environmental Status) of the MSFD and the MSPD.

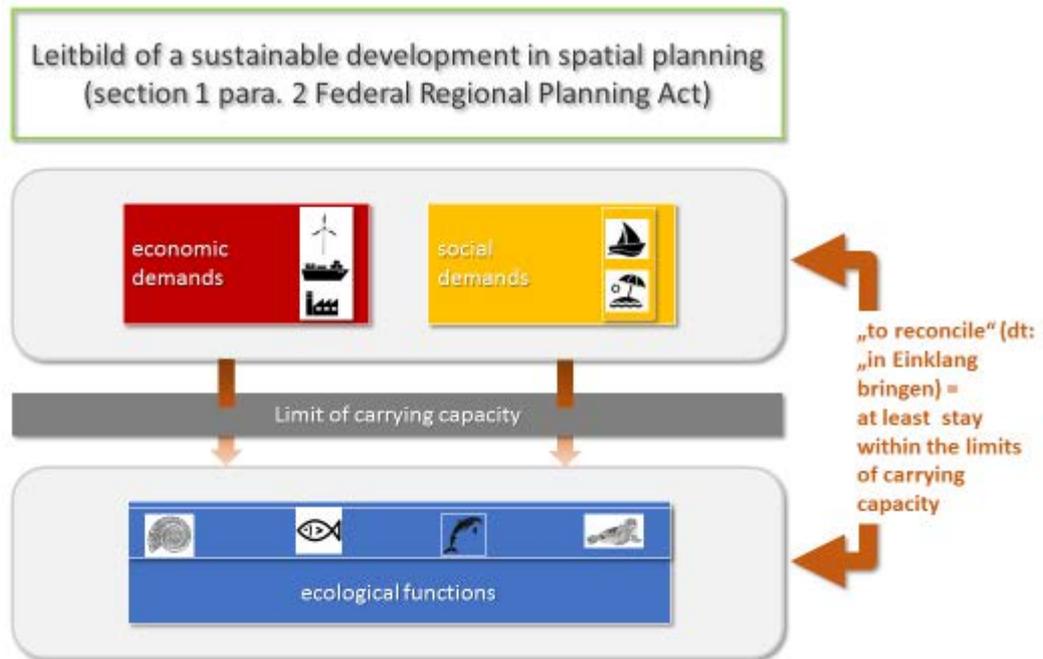


Figure 1: Leitbild of a sustainable development in spatial planning

The central task of spatial planning is to receive and coordinate the content of sectoral planning. According to section 7 para. 4 Federal Regional Planning Act (ROG), the regulations on spatially significant plans and measures by private law authorities and persons are to be included in the spatial planning plans, which are suitable for spatial classification plans and for the coordination of space requirements necessary and which can be secured by spatial planning objectives or principles. These include specifications of the water law measures according to section 45h WHG and the Natura 2000 management plans according to section 32 para. 5 Federal Nature Conservation Act (BNatSchG). The latter can also be an integral part of a spatial plan (Section 32 para. 5 second alternative Federal Nature Conservation Act).

The content of sectoral plans contained in spatial plans is to be treated as objectives or principles and priority or reserve area of spatial planning. Therefore, these are direct components of the spatial plans and stress the need of sectoral planning for nature conservation in marine waters to strengthen ecological components in planning.

3.3 HELCOM

HELCOM and OSPAR define the EBA as: “the comprehensive integrated management of human activities based on the best available scientific knowledge about the ecosystem and its dynamics, in order to identify and take action on influences which are critical to the health of marine ecosystems, thereby achieving sustainable use of ecosystem goods and services and maintenance of ecosystem integrity” (HELCOM OSPAR 2003).

For the Baltic Sea Region the „Regional Baltic Maritime Spatial Planning Roadmap“ (2013-2020) was developed with the goal to make every effort to draw up and apply maritime spatial plans throughout the Baltic Sea Region by 2020 which are coherent across borders and apply the ecosystem approach. To meet the Roadmap’s obligations HELCOM and VASAB developed the „Guideline for the implementation of ecosystem-based approach in Maritime Spatial Planning (MSP) in the Baltic Sea area“. This guideline with its key elements for applying the EBA in MSP (Best available Knowledge and Practice, Precaution, Alternative development, Identification of ecosystem services, Mitigation, Relational Understanding, Participation and Communication, Subsidiarity and Coherence and Adaptation) works in the sense of a common understanding on how the EBA can be applied in drawing up a spatial plan for a sea area in accordance with spatial planning legislation in force in the Baltic Sea countries. This importance is also underlined by the MSPD, when stating that EBA should be applied in a way that takes the ongoing work in the Regional Sea Conventions into account (Recital 14).

4. Ecosystem-based approach in marine spatial planning

The relevant regulations show the need to implement an EBA in MSP. Against this background it is important to make clear, that an implementation of an EBA can effect two aspects of planning: the planning process itself and the content of plan. Therefore an implementation of an EBA should result in changes of both of these aspects. This requires a need for modification in the different aspects of MSP, that will be shortly described in the following.

4.1 Ecosystem-based approach in planning process

To consider an EBA in planning procedural aspects are to be applied before and during the process of developing spatial plans.

- First, these include strengthening knowledge of a holistic view on ecosystems which considers processes, functions and interactions of ecosystem components as well as connectivity and functional networks. Taking into account of cumulative effects as well as the precautionary principle when ecological knowledge seems not sufficient are key elements.
- Second, for an holistic planning process the development of planning alternatives and the examination of their effects on the environment as well as national and international cooperation for cross border issues are essential.
- In the third place competent authorities and stakeholders have to be involved timely.
- Finally, to apply an EBA in planning ecological functions and components have to be strengthened in spatial plans. This can be done through a variety of options:
 - The establishment of priority areas for nature conservation can keep areas which are of ecological importance to ecosystem components and their functions free of conflicting uses. These areas can represent existing MPAs but can also be located outside of MPAs and thereby support coherent networks. Buffer zones can also be used depending on the sensitivity of protected goods.
 - Use related determinations in spatial plans can steer development in marine areas in a way which is compatible with nature. These determinations can include the use of best available techniques, temporal regulations of uses as well as regulations of operation of anthropogenic structures.
 - To keep marine areas free of human uses and thereby protect ecological processes spatial plans can also define free spaces.

4.2 Ecosystem-based approach in content of plans

Despite being closely interlinked with the planning process, the EBA is also to be applied in terms of the scientific content of plans. Using best available data to introduce sectoral planning for nature conservation can provide profound argumentation for the weighting of maritime uses and activities during the planning process in such a way, that requirements of EBA are met. Therefore three essential steps should be followed to consider ecological knowledge in MSP (see figure 2).

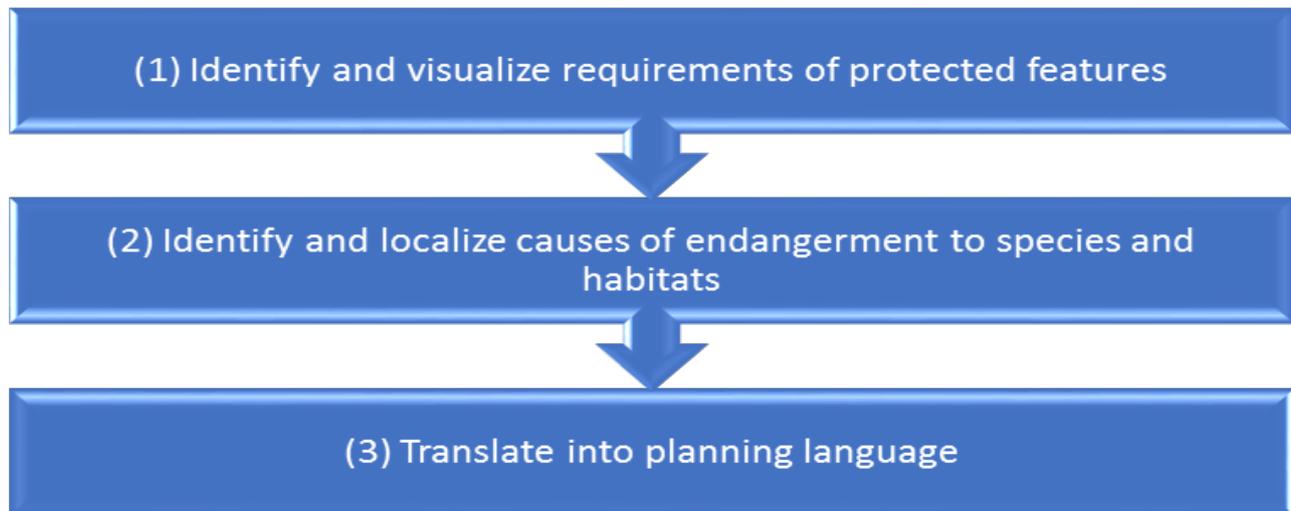


Figure 2: Three essential steps of considering ecological aspects in MSP.

- (1) The spatial distribution and ecological spatial requirements of protected features should be identified and visualized. Protected features thereby can include species and habitats according to Habitats and Birds Directive as well as MSFD or HELCOM and national red lists. It is important to consider that not only species can be relevant but also interactions between ecosystem components – such as birds and benthic communities they use for feeding – and ecosystem functions like migration routes.

Example: Bird migration

Migrating birds need large areas for migration between i.e. wintering and breeding grounds, although this migration is often limited to certain times of the year and has different intensities. In the German Baltic Sea two areas of special importance can be defined: Fehmarn Belt as the shortest connection between land masses in western Baltic Sea presents an important hub for bird migration. In addition, the area between Sweden and Germany north of the Isle of Ruegen is highly important for bird migration, as especially crane populations of Sweden and Norway cross this area twice a year.

- (2) Second step is to identify and localize causes of endangerment to these species and habitats.

Example: Bird migration

Offshore wind parks can cause collision of migrating birds and present a barrier for birds during migration over the sea. However, the reaction of migrating birds towards offshore wind parks differs between species and varies from large scale avoidance to attraction. Additionally, sensitivity of migrating birds towards offshore wind parks is also related to weather conditions during migration

- (3) Finally, building on this knowledge spatial protection requirements should be defined for the species and habitats as well as ecosystem functions and finally translated into planning language. These

concrete formulations can follow the options mentioned under 4.3 and be – depending on the availability on data – defined either as planning objectives or principles.

Example: Bird migration

If the need is shown to keep migration routes free of offshore wind parks the following planning principle can be defined: “Areas of special importance for bird migration are to be kept free of effects impairing the bird migration, especially in order to preserve continuous migratory corridors.”

However, as already mentioned above, also determinations can be defined which regulate wind park operation to ensure the function of bird migration. Possible planning determinations could be: “For the protection of bird migration wind power plants in areas of special importance for bird migration have to be shut down in events of high migration” and “Best available techniques / concepts are to be used. Adequate lighting of power plants has to be used. “

5. Implementation of the ecosystem-based approach – Crucial components

The research and development projects (above) have shown, that the implementation of requirements of the EBA sets new challenges for competent authorities and stakeholders regarding the planning process and the content of marine spatial plans. Still concrete implementation concepts remain vague. Therefore explicit guidelines (e.g. HELCOM-VASAB Guideline for the implementation of ecosystem-based approach in MSP in the Baltic Sea area) are very important for the implementation process. As already shown (see section 2 and 3.3), this Guideline provides relevant information especially on the planning process towards ecosystem based spatial plans.

As a contribution to a further development of the implementation of an EBA in MSP the presented research projects aimed at presenting a proposal on how planners and stakeholders can handle new requirements for an ecosystem-based spatial planning. Therefore a simplified version of selected research findings will follow to show the most crucial components focusing on aspects for strengthening the ecological content during the planning process:

Strengthening knowledge and common understanding of EBA

- specify and write down the interpretation of the EBA (e.g. in the marine spatial plans)
- increase understanding of ecosystems: holistic view
- Effects of uses on the ecosystem: identify stress limits/critical loads, consider cumulative effects
- In case of uncertainties: apply precautionary principle

Planning Process

- establish subject planning for nature conservation
- EBA as guidance for SEA
- define EBA as a guiding principle and as an objective of spatial plans
- use available guidelines such as HELCOM-VASAB Guideline on implementing the ecosystem-based approach

Methods of implementation - Translation of ecological demands into MSP

Step 1. Describe spatial requirements of species and habitats as well as ecological functions based on best available data

Step 2. Identify and localize causes of endangerment to these species and habitats as well as ecological functions

Step 3. Pull together actions for nature protection and tap further potential by using the instruments of spatial planning, i.e.:

- priority / reservation areas
- use related determinations
- planning open space

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