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Guideline for the implementation of ecosystem-based approach in Maritime Spatial Planning (MSP) in the Baltic Sea area

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1. Introduction

This paper presents non-binding guidance for implementing the ecosystem-based approach¹ in the context of maritime spatial planning (MSP) in the Baltic Sea. It presents a first step towards a common understanding on how the ecosystem-based approach 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. **The aim is that this document will be tested in practice and, subsequently, amended as may be needed according to experiences gathered.**

It is also worth noting that the application of the ecosystem-based approach is wider than "establishing

¹ Except in direct quotes and references to content in existing official documents the "ecosystem-based approach", instead of "ecosystem approach", is used throughout this document as a general term covering both wordings, which is in line with the EU Marine Strategy Framework Directive and the EU MSP Directive.

the plan”, as it involves basic horizontal principles to be applied both in sectoral management and in the different steps throughout the spatial planning process.

2. Special features of spatial planning at sea

Sea areas are in many aspects different from land. Territorial waters are often owned and/or managed by a state, while land areas are mainly in-subject to private ownership. Within their exclusive economic zone (EEZ), coastal states have the right to do research and exploit the resources ~~in it~~, but they also have a duty to protect and preserve the marine environment ~~it~~. The sea is regulated by international agreements and the freedom of the seas has a strong tradition.

The sea is dynamic in nature and does not have boundaries. It functions in different dimensions simultaneously, including depth and time; this creates opportunities for multifunctional uses of certain areas. Further, the sea has no permanent human inhabitants; rather, it has economic users such as maritime industries and other stakeholders like environmental non-governmental organizations, who have an interest in its resources.

Greater activities in the Baltic Sea have led to competition for the limited marine space between sectoral interests, such as shipping and maritime transport, extraction of gravel and minerals, offshore energy, ports development, tourism, fisheries and aquaculture, in addition to environmental concerns. These activities as well as land-based pressures like eutrophication, along with climate change effects, natural hazards and shoreline dynamics such as erosion and accretion, create significant pressures on coastal and marine ecosystems which in turn affect societal benefits by potentially reducing the revenue from future use of the sea and the benefits associated with a good state of the environment.

3. Definitions of the ecosystem-based approach concept

In a Workshop on the Ecosystem Approach (Lilongwe, Malawi, 26-28 January 1998), whose report was presented at the Fourth Meeting of the Conference of the Parties to the Convention on Biological Diversity (Bratislava, Slovakia, 4-15 May 1998, UNEP/CBD/ COP/4/Inf.9), twelve principles of an ecosystem approach were identified:

- (1) Management objectives are a matter of societal choice.
- (2) Management should be decentralized to the lowest appropriate level.
- (3) Ecosystem managers should consider the effects (actual or potential) of their activities on adjacent and other ecosystems.
- (4) Recognizing potential gains from management there is a need to understand the ecosystem in an economic context. Any ecosystem management program should a) reduce those market distortions that adversely affect biological diversity; b) align incentives to promote sustainable use; c) internalize costs and benefits in the given ecosystem to the extent feasible.
- (5) A key feature of the ecosystem approach includes conservation of ecosystem structure and functioning.
- (6) Ecosystems must be managed within the limits to their functioning.
- (7) The ecosystem approach should be undertaken at the appropriate scale.
- (8) Recognizing the varying temporal scales and lag effects which characterize ecosystem processes, objectives for ecosystem management should be set for the long term.
- (9) Management must recognize that change is inevitable.
- (10) The ecosystem approach should seek the appropriate balance between conservation and use of biological diversity.
- (11) The ecosystem approach should consider all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices.
- (12) The ecosystem approach should involve all relevant sectors of society and scientific disciplines.

Resulting from these principles the Convention on Biological Diversity (CBD) (COP 5/Decision V/6) stated in May 2000 the following definition of the ecosystem approach: “The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. Thus, the application of the ecosystem approach will help to reach a balance of the three objectives of the Convention: conservation; sustainable use and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. An ecosystem approach is based on the application of appropriate scientific methodologies focused on levels of biological organization, which encompass the essential structure, processes, functions and interactions among organisms and their environment. It recognizes that humans, with their cultural diversity, are an integral component of many ecosystems.”

HELCOM and the OSPAR Commission adopted the following definition in a joint Meeting in June 2003: “The ecosystem approach can therefore be defined 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”. The application of the precautionary principle is equally a central part of the ecosystem approach.²

4. Policy context of the ecosystem-based approach—relevant aspects for MSP in the Baltic Sea

4.1. Helsinki Convention and the HELCOM Baltic Sea Action Plan (applicable to all Baltic Sea countries and the European Union)

The 1992 Helsinki Convention is an international treaty ratified by the coastal countries of the Baltic Sea and the European Commission, i.e. the Contracting Parties (CPs). Article 3 lists the fundamental principles and obligations of the CPs of relevance to an ecosystem-based approach. Paragraph 1 states that “The Contracting Parties shall individually or jointly take all appropriate legislative, administrative or other relevant measures to prevent and eliminate pollution in order to promote the ecological restoration of the Baltic Sea Area and the preservation of its ecological balance.” The same article of the Convention states that the CPs shall apply the precautionary principle, best environmental practice, best available technology and the -polluter-pays principle.

The Helsinki Commission (HELCOM) is the intergovernmental organization established to oversee the implementation of this Convention. Another duty of the Commission is to make recommendations on measures related to the purposes of this Convention³. During the joint HELCOM and OSPAR Ministerial Meeting in 2003 the CP Ministers and high officials agreed to apply and further develop the measures necessary to implement an ecosystem approach by 2010, in order to give concrete effect to our commitments and to help maintain and, when practicable, restore ecosystem health, integrity and services. In a preceding official-level session they had also adopted the statement “Towards an ecosystem approach to the management of human activities”, setting out their intentions in more detail.

² [original footnote from referred document] It is understood that, in the context of the management of fisheries, the “application of the precautionary principle” has the same result as the application of the precautionary approach as referred to in, for example Article 6 of the 1995 UN Fish Stocks Agreement.

³ Examples of HELCOM recommendations adopted so far are 35/1 “System of coastal and marine Baltic Sea protected areas (HELCOM MPAs)”, 24/10 “Implementation of integrated marine and coastal management of human activities in the Baltic Sea area, 13/6” Definition of best environmental practice, 17/3” Information and installations affecting the

Baltic Sea", 28E/9 "Development of broad-scale marine spatial planning principles in the Baltic Sea area"

As a follow-up to this 2003 commitment to implement an ecosystem approach, the CPs agreed on the HELCOM Baltic Sea Action Plan (BSAP) at the 2007 HELCOM Ministerial Meeting. The BSAP includes definitions and actions for achieving a good environmental status of the Baltic Sea by 2021. A series of indicators with explicit quantitative target levels to define a good environmental status have been developed and were agreed by 2013.

The BSAP included a specific action in relation to MSP: the commitment to jointly develop broad-scale, cross-sectoral, marine spatial planning principles based on the ecosystem approach by 2010. In addition, these principles were to be tested, applied and evaluated by 2012 in cooperation with other relevant international bodies, the intention being that all Contracting Parties and relevant HELCOM bodies had to participate cooperatively. The aim of the cooperation is to give guidance for planning processes, ensure the protection of the marine environment and nature, including habitats and seafloor integrity, and secure the sustainable use of marine resources by reducing user conflicts and adverse impacts of human activities.

4.2. Joint HELCOM–VASAB MSP Principles (applicable to all Baltic Sea countries and the European Union)

According to the joint Baltic Sea broad-scale MSP principles adopted by VASAB and HELCOM in 2010, the ecosystem-based approach, calling for a cross-sectoral and sustainable management of human activities, is an overarching principle for maritime spatial planning which aims at achieving a Baltic Sea ecosystem in good status — a healthy, productive and resilient condition so that it can provide the services humans want and need. The entire regional Baltic Sea ecosystem as well as sub-regional systems and all human activities taking place within it should be considered in this context. Maritime spatial planning must seek to protect and enhance the marine environment and thus, should contribute to achieving a good environmental status according to the EU Marine Strategy Framework Directive and the HELCOM Baltic Sea Action Plan (Principle 2).

4.3. EU Strategy for the Baltic Sea Region (applicable to EU Member States)

The European Union Strategy for the Baltic Sea Region (EUSBSR) aims to save the sea, connect the region and increase prosperity. Achieving the 'Save the Sea' objective will require direct environmental measures, along with consideration of the functions and structure of ecosystems and the limiting carrying capacity of ecosystems when developing the potential for sustainable growth in the maritime sectors.

One of the horizontal actions in the Action Plan for the EU Strategy for the Baltic Sea Region (version September 2015) is to encourage the use of maritime spatial planning in all Member States around the Baltic Sea and develop a common approach for cross-border cooperation. The implementation of this action will contribute to achieving the objectives of the Strategy.

Maritime Spatial Planning and Integrated Coastal Management (ICM)⁴ are in the EUSBSR Action Plan (p. 166) described as "...an important tool and process for improved decision making. It helps various users to balance sectoral interests that compete for marine space, and contributes to achieving sustainable use of marine areas to the benefit of economic and social development as well as the marine environment."

4.4. Marine Strategy Framework Directive (applicable to EU Member States)

The Marine Strategy Framework Directive (MSFD) aims at achieving or maintaining a good

⁴Please note that there is a European Parliament and Council Recommendation (2002/413/EC) concerning the implementation of Integrated Coastal Zone Management (ICZM) in Europe, adopted on 30 May 2002

environmental status in the marine environment by 2020 at the latest. It is the first legislative instrument in relation to the marine biodiversity policy in the European Union and contains the explicit regulatory objective that "biodiversity is maintained by 2020" as one cornerstone for achieving a good environmental status.

It enshrines in a legislative framework the ecosystem-based approach to the management of human activities, integrating the concepts of environmental protection and sustainable use. The MSFD also calls for cooperation within marine regions such as the Baltic Sea, in order to reach the objective of Good Environmental Status of the marine environment by 2020.

The Directive states, in particular, that marine strategies shall apply an ecosystem-based approach ensuring that the collective pressure of human activities is kept within levels compatible with the achievement of a good environmental status and that the capacity of marine ecosystems to respond to human-induced changes is not compromised, while enabling the sustainable use of marine goods and services by present and future generations.

Both programmes of measures and individual measures shall be based on such an ecosystem-based approach.

As a first step to achieving a good environmental status, all Member States have produced an initial assessment of the environmental status of their national parts of the Baltic Sea. The next step is for Member States to develop monitoring programmes and programmes of measures, including spatial protection measures, to achieve a good environmental status.

Spatial and temporal distribution controls, in terms of management measures that influence where and when an activity is allowed to occur, are identified among the types of measures. ~~That~~ should be considered when devising the measures which can support an ecosystem-based approach. Such measures and which can also help to identify sources of pressures and impacts, including cumulative and synergetic effects, and may include, as one example, also MSP.⁵

When MSP is included in the marine strategies and programmes of measures, it needs to be based on an ecosystem-based approach under consideration of all relevant MSFD requirements. This allows planning of human activities and uses that respects the carrying capacity of ecosystems along with maintenance and, when necessary, restoration of ecosystems.

4.5. EU Maritime Spatial Planning Framework Directive 2014 (applicable to EU Member States)

The EU Maritime Spatial Planning Framework Directive (2014/89/EU) aims to set the framework for maritime spatial planning with the objective of promoting ~~the~~ sustainable growth of maritime economies, sustainable development of marine areas and sustainable use of marine resources, applying an ecosystem-based approach, promoting the coexistence of relevant uses and activities and taking into account land-sea interactions. In this sense, the ecosystem-based approach must seek to contribute to the sustainability of development of marine areas, of activities at sea and of uses of marine and coastal resources.

Article 5 of the MSP Directive defines objectives of maritime spatial planning as follows:

"1. When establishing and implementing maritime spatial planning, Member States shall consider economic, social and environmental aspects to support sustainable development and growth in the maritime sector, applying an ecosystem-based approach, and to promote the coexistence of relevant

⁵ Annex VI of Directive 2008/56/EC in connection with Annex part A.6 of Commission Decision 2010/477/EU.

mitigative measures.

- **Alternative development:** Reasonable alternatives shall be developed to find solutions to avoid or reduce negative environmental impacts. The planning process shall in a transparent manner account for trade-offs among users and interests in different planning alternatives.
- **Identification of ecosystem services:** An ecosystem service approach (mapping, assessment, and consideration of ecosystem services) shall be applied to provide a holistic view on the relationship between marine ecosystem and social-economic systems. It shall include identification and assessment of spatial distribution of ecosystem services' supply as well as valuation of their economic, social and cultural impacts on society/human well-being and use of this information in analyzing trade-offs among different planning solutions/alternatives
- **Mitigation:** The measures are envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan. To achieve this, planning needs to take consideration to, environmental objectives, existing network of marine protected areas, key ecological values and ecosystem services.
- **Relational Understanding:** It is necessary to consider various effects on the ecosystem caused by human activities and interactions between ecosystem and social-economic systems. This includes direct/indirect, cumulative, short/long-term, permanent/temporary and positive/negative effects, as well as interrelations including sea- land interaction. Relational understanding on functioning of marine ecosystem and its contribution to human well being can be also supported by mapping of marine green infrastructure, which highlights contribution of the marine ecosystem components, structures and functions to maintenance of ecosystems' health and resilience as well as delivery of multiple ecosystem services.

- **Participation and Communication:** All relevant authorities and stakeholders as well as a wider public shall be involved in the planning process at an early stage. Participatory processes need to take into account existing power structures, resources and differing needs and understandings of stakeholder groups. The aim, process and results shall be communicated. Integrated Coastal Management (also known as ICM), as an informal and flexible instrument, can support the process of participation and communication.
- **Subsidiarity and Coherence:** Maritime ~~spatial~~ Spatial planning ~~Planning with an ecosystem~~ Ecosystem-based approach ~~Approach~~ as an overarching principle shall be carried out at the most appropriate level and shall seek coherence between the different levels. All relevant levels of management included in the planning process need to communicate and integrate their planning efforts to ensure that the ecosystem-based approach is coherently understood and applied on all levels.
- **Adaptation:** Change is inevitable in nature, society and the management of ecosystems. ~~management. Both new information and changing circumstances affect management options.~~ The sustainable use of the ecosystem should apply an iterative process including monitoring, reviewing and evaluation of both the process and the outcome, as changing circumstances and new knowledge may need adaptive management. ~~management options.~~

The key elements of the ecosystem-based approach are integrated into the planning process in a general way and some of them are integrated more specifically into strategic environmental assessment (SEA) as part of the planning process. Some of the key elements such as public participation and communication, subsidiarity and coherence, identification, mapping and valuation of ecosystem services, adaptation and the precautionary principle are applicable to the general planning process. The identification of ecosystem services can provide a new approach to the management of the sea and should contribute to the planning of sea areas as well.

6. Available knowledge on ecosystems of the Baltic Sea

It is crucial to identify existing marine ecosystems and their structures and functions to be able to protect them and to benefit from the ecosystem services they provide.

A major challenge to implementing the ecosystem-based approach is to gather system-based knowledge on the structures and functions of ecosystems, as well as on the direct and indirect impacts on these structures and functions from various human uses and the interactions among them.

Since 1974, HELCOM has collected regional Baltic Sea monitoring data and, based on these, published reports on a wide range of issues. A series of reports have been published regularly, including assessments of environmental status (e.g. eutrophication, hazardous substances, radioactivity, climate change, status of biodiversity, including fish) and of human activities (e.g. ship traffic, ship accidents, pollution from ships and pollution load from land). More condensed products, such as shorter indicator reports, have been published as well. A set of databases contain the underlying raw data and GIS information; these databases are available via the regional HELCOM GIS. In an attempt to integrate such information into a single product, in 2010 HELCOM published an Initial Holistic Assessment of "Ecosystem Health of the Baltic Sea", including a compilation of human pressures (Box 1).

In addition to HELCOM's work, all the EU Member States have made initial assessments of the overall environmental status of their sea areas, including economic and social assessments as part of the implementation of the Marine Strategy Framework Directive (MSFD). Additionally, the International Council for the Exploration of the Sea (ICES), some United Nations agencies and European services have various databases with relevance to implementing the ecosystem-based approach in maritime spatial planning.

The second HELCOM holistic assessment 2011-2016, indicated that although progress had been

made, the objectives of the BSAP will not be reached by 2021. Many of the habitats in the Baltic Sea are still not in a healthy state and different parts of the food web have a deteriorated status. The impact is likely to affect the ecosystems' functioning as well as the resilience of the food web. The key priority areas for reaching a healthy Baltic Sea identified in the assessment were: achieving nutrient reduction targets and ending pollution, enhancing cross-sectorial approaches, and adapting to climate change. A key aim for the future, according to the assessment, is to incorporate the knowledge provided by the assessment in the ecosystem-based management of the Baltic Sea.

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Box 1: Information on ecosystem impacts in the Baltic Sea region and main results of the 2010 HELCOM Initial Holistic Assessment.⁶

⁶The HELCOM Initial Holistic Assessment (2010, next foreseen 2018) is an overall assessment of the Baltic Sea. The 2010 results produced with the HOLAS tool and the Baltic Sea Pressure/Impact Indices (BSPI/BSII) were considered as preliminary and subject to further elaboration and improvement. The same is valid for the status classifications, especially as far as they concern the indicators used in assessing eutrophication (HEAT), biodiversity (BEAT) and hazardous

1. A map of Ecosystem Impacts in the Baltic Sea

Blue = Low level of impact on the ecosystem from human activities; Red = High level of impact on the ecosystem from human activities. Based on information from a large number of human activities and on ecosystem components.

2. A summary of the main results of the HELCOM Assessment of Ecosystem Health 2010

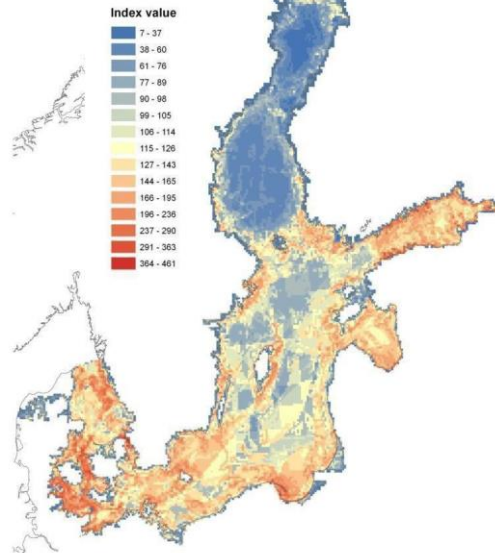
The assessment of the ecosystem health of most of the areas indicates that the status is impaired.

Bothnian Bay: Regarding biodiversity, it seems that the status is good in Swedish coastal waters and only the open parts of the Bothnian Bay and Finnish coastal waters are likely to have an unfavorable status.

Bothnian Sea: One assessed area in the Swedish coastal waters is classified as good. The biodiversity of the Bothnian Sea in general is good, for both the open parts and most of the coastal waters.

Gulf of Finland: Eutrophication and hazardous substances are the major and most widespread problems. Biodiversity generally has an unfavorable status in both open and coastal waters. However, results indicate that isolated coastal waters along the Estonian coast might have a favorable conservation status.

Baltic Sea Impact Index



Gulf of Riga: The Gulf is affected by eutrophication, especially in the northern and central parts. Regarding the status of hazardous substances, the Gulf is impaired and the same is true for the conservation status of biodiversity.

Baltic Proper: The assessment and classification of the ecosystem health of open parts of the Northern, Western and Eastern Baltic Proper indicate that these areas have the lowest overall status in the Baltic Sea. Eutrophication is a significant problem, as are also hazardous substances and a decline in biodiversity. No positive signals were encountered.

Gulf of Gdansk: Eutrophication is a major problem, biodiversity is under significant pressure and the status of hazardous substances is disturbed. These are consequences of discharges from the large, highly populated catchment area.

Bornholm and Arkona Basins: Eutrophication and contamination by hazardous substances are significant issues and in combination with the pressures from fishing, biodiversity status has become significantly impaired. The Arkona Basin is in a slightly better condition than the Bornholm Basin.

Kattegat and Belt Sea: Hazardous substances have elevated levels and biodiversity has an impaired status, while eutrophication is a problem mainly in the southern Kattegat and the Belt Sea.

Kiel Bight and Mecklenburg Bight: Eutrophication, degraded biodiversity and contamination with hazardous substances are all significant issues.

substances (CHASE). Discrepancies between HELCOM status classifications and national WFD assessments arise due to differences in spatial and temporal scaling as well as due to the use of different parameters.

7. EBA in a broader planning and management context

7.1. Background

The key elements of EBA described in section 5 lay the principle basis for EBA-implementation in MSP. In this section additional aspects related to a broader systems perspective are addressed, while EBA implementation as part of the MSP-process is dealt with in section 8.

6.1.7.2. Organizational- and sector EBA integration

MSP-environment management integration

Linkages and communication between the responsible MSP-authority and the authority responsible for marine environmental management is essential for EBA-implementation. A common understanding of EBA and the role of MSP in relation to environmental objectives and the current system of marine protected areas (MPAs) contributes to such integration. A direct way of addressing this is to ensure the involvement of the environmental management authority/ies even before the planning starts.

EBA in sector planning

A legislative framework is in place for planning and management of the different sectors included in MSP such as transportation, offshore windpower, fisheries, oil-and gas extraction. Even though MSP is a holistic multi-sectoral form of spatial planning, it will to some extent rely on decisions taken by the sectors.

6.2.7.3. An EBA-framework and EBA-tools

Implementation of the ecosystem-based approach requires that the relationships between marine ecosystems and socio-economic systems are acknowledged in assessment and management. A shared framework for analyzing these interlinkages may improve the coherence in how data and methods are applied in relation to different policy contexts and serve to increase coherence in their management outcomes

Figure X suggests key aspects for enabling a systemic, holistic analysis. The framework should enable analyses of human impacts, the long-term sustainability of marine uses, and the resulting ability of the ecosystem to provide goods and benefits in the long term. Different planning or management options can be compared with respect to how well they align with criteria for sustainable use and in relation to what aspects within each of the compartments are benefitted.

Tools to support the ecosystem-based approach in MSP

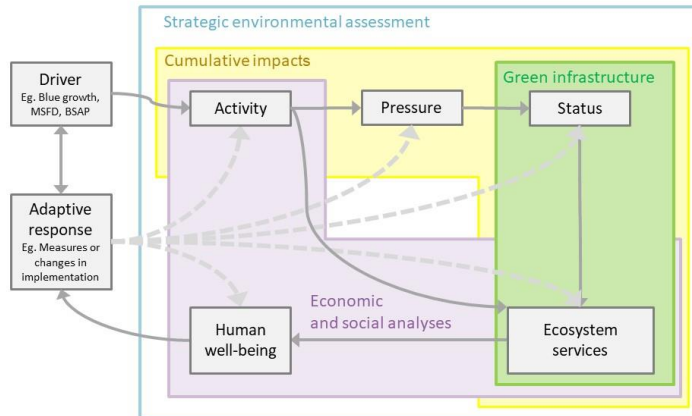


Figure 1 Overview of an analytical EBA-framework with linkages to different policy instruments and approaches to support the move towards an ecosystem-based approach, including the Strategic environmental assessment, Cumulative impacts on the environment and Economic- and social analysis, Pan Baltic Scope - project 2019

6.3.7.4. Transnational impact assessments

A number of potential environmental impacts arising from activities dealt with in MSP may have a transnational scale. Examples of such are offshore windpower, fisheries, and shipping. Potential nature values which may be affected include marine mammals, birds and fish representing mobile species. Benthic environments may also be affected by cumulative impacts in a transboundary scale e.g. essential fish habitats.

Transboundary environmental impacts are formally dealt with as part of ESPOO-consultations. Transboundary SEAs or specific assessments may be needed to fully address the cumulative effects from two or more countries MSP-plans.

7.8. Description of the maritime spatial planning process

7.1.8.1. Background Planning and the ecosystem-based approach

Spatial planning (town and country planning/zoning) has long traditions. Each country has developed its own planning procedures and planning systems according to its own needs. The planning culture, levels, goals, content and legal effects may vary from country to country and case by case. Different planning levels usually have different tasks. General plans can guide more detailed planning on a lower level. Spatial planning has been implemented mostly on land, but, in many cases, has also been extended into sea areas through the addition of MSP-requirements.

One of the main goals of spatial planning is to safeguard a good living environment and biodiversity. During the planning process, several planning options are considered and official consultations are held with the general public and stakeholders. However, unofficial consultations are also carried out

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during the whole planning procedure.

Traditionally, management decisions have rarely been coordinated among the different sectors involved in planning processes, or between states. Hence, conflicts between human activities and environmental protection and/or nature conservation needs have often not been mitigated. This has led to adverse impacts on the marine and coastal environment and nature (incl. ecosystem services).

In order to ensure the sustainability of the various uses and the environmental health of marine areas, maritime spatial planning and integrated coastal management will have to employ an ecosystem-based approach that ensures the sustainable use and protection of the natural resources that provide the basis for carrying out the various activities. The aim is to ensure that the collective pressure of all human activities is kept within levels compatible with a good environmental status and that the capacity of the ecosystem to respond to human-induced changes is not compromised while enabling the use of marine goods and services by present and future generations.

The assessment of the environmental impacts of each planning option provides information to the public, stakeholders and decision-makers on how to choose the option with the least environmental impacts. Assessing the full array of interactions between ecosystems and human activities is a key element of the planning procedure and a prerequisite for sustainable solutions.

~~In order to ensure the sustainability of the various uses and the environmental health of marine areas, maritime spatial planning and integrated coastal management will have to employ an ecosystem-based approach that ensures the sustainable use and protection of the natural resources that provide the basis for carrying out the various activities. The aim is to ensure that the collective pressure of all human activities is kept within levels compatible with a good environmental status and that the capacity of the ecosystem to respond to human-induced changes is not compromised while enabling the use of marine goods and services by present and future generations.~~

Taking into account the interrelationship between land and sea, there is a need to reconcile terrestrial spatial planning processes with maritime spatial planning processes. ~~In some of the Baltic Sea countries, spatial planning legislation is already implemented in the sea areas. In some cases, this has been done via an extension of terrestrial planning regimes, while other countries have adopted separate MSP systems.~~

Therefore, it is reasonable to examine how the ecosystem-based approach can be implemented in the existing spatial planning processes. The inclusion of the ecosystem-based approach in the main phases of the planning process is outlined in the table at the end of this section.

~~An important point is that the formulation of plans is the outcome of a wider planning process following different operational steps, including a needs assessment, the setting of objectives, public and stakeholder consultations, the underpinning of the knowledge base, and so on.~~

A formal planning process is usually started only when there is a need for a legally binding agreement. However, many aspects of planning processes are done in other — partly informal — ways; for example, surveys, strategies or agreements with the aim of arranging uses and functions of areas.

Developing a Maritime Spatial Plan based on the ecosystem-based approach requires a vision. ~~Such a on the use of the maritime area in question. This vision must incorporate both environmental factors, and human uses, and it needs to be in line with the regional marine strategy.~~ In the case of the Baltic Sea, ~~this~~ the BSAP.

The ecosystem-based approach has a broad perspective on the management of sea areas, while spatial planning can provide a good tool for arranging and integrating different uses of the sea. The

planning procedure is a negotiation process where a plan is the final outcome. It is also worth noting that the planning process is an iterative procedure. It starts with general-level discussions on, for example, goals, costs and impacts, and moves to more in-depth discussions as the knowledge increases. Impact assessments might require further investigations during the planning process and these are performed throughout the planning procedure to facilitate sustainable decisions.

So far Traditionally, management decisions are have rarely been coordinated among the different sectors involved in planning processes, or and neither between states. Hence, conflicts between human activities and environmental protection and/or nature conservation needs are have often not been mitigated. This has led to adverse impacts and consequently have impacts on the marine and coastal environment and nature (incl. ecosystem services).

A cross-sectoral MSP applying the ecosystem-based approach has needs to integrate, organize, allocate and create opportunities for human activities and demands in marine areas in such a way that the ecosystems, including all its their components, dynamics, limits and ecological functions, are safeguarded and a good environmental status (GES) is not compromised, while Nevertheless, the different social and economic demands on maritime resources are need also to be recognized and trade-offs between different interests evaluated. When implemented successfully, MSP applying the ecosystem-based approach

MSP applying the ecosystem-based approach protects these ecosystem functions, while enabling sustainable use through an integrated approach, where all activities must be carried out in a way that enables the sustainable use of marine goods and services by present and future generations through an integrated approach. This may include the designation of zones with priority for marine nature and/or zones with restricted or no uses. In particular, the ecosystem-based approach requires that the collective effects of pressures from human activities are considered. This includes pressures and discharges from land and air emissions that affect the maritime zone. These collective impacts must be kept within such limits that the capacity of marine ecosystems to recover and a good environmental status are not compromised.

Thus, the ecosystem-based approach provides prescribes that the ecological, social and economic facts information (via ecosystem services), guiding principles, targets and limits should to be considered in the MSP process, according to their spatial relevance, and to be transformed into spatial planning options (regulations and designations). In addition, MSP must comply with mandatory regulations of sectoral environmental law (e.g. prohibitions according to the species conservation regulations; no negative effects on the goals of marine protected areas including NATURA 2000 and HELCOM MPAs and the implementation of the Common Fisheries Policy).

8.2. Maritime spatial planning process and the ecosystem-based approach Strategic environmental assessment (SEA)

Strategic environmental assessment (SEA) is an important tool for implementing the ecosystem-based approach in maritime spatial planning as it facilitates identifies ecation, describes eption and assessments of the likely significant effects on the ecosystem. According to EU law (Directive 2001/42/EC) a SEA has to be carried out before a maritime spatial plan can be approved by the responsible authority in accordance with the criteria set out in this Directive and as required by the MSP Directive. This includes the preparation of an environmental report, the carrying out of public consultations, the taking into account of the environmental report and the results of the consultations in decision-making and the provision of information on the decision. In addition, for

EU Member States, impact assessments of habitats and species (Art. 6 of the Habitats Directive 92/43/EEC) and of bird sanctuaries (Birds Directive 2009/147/EC) are obligatory.

~~7.2.5.1. Maritime spatial planning process and the ecosystem-based approach~~

Spatial planning (town and country planning/zoning) has long traditions. Each country has developed its own planning procedures and planning systems according to its own needs. The planning culture, levels, goals, content and legal effects may vary from country to country and case by case. Different planning levels usually have different tasks. ~~More general plans can guide more detailed planning on a lower level. Spatial planning has been implemented mostly on land, but, in many cases, has also been extended into sea areas.~~

~~In the table below, it is assumed that the spatial planning system is simply extended as such to the sea area. The ecosystem-based approach has a broader perspective in on the management of sea areas, but while spatial planning can provide a good tool for arranging and integrating different uses of the sea. The planning procedure is a negotiation process and where the plan is the final outcome of it. It is also worth noting that the planning process is an iterative procedure. It starts with general level discussions on of, for example, goals, costs and impacts, and moves into to more deeper level in depth discussions as the knowledge increases. Impact assessments might demand more require further investigations during the planning process and these are done performed throughout the planning procedure to be able to make facilitate sustainable decisions.~~

Spatial planning has its own goals while each planning level has its own goals as well. One of the main goals of spatial planning is the requirement to safeguard a good living environment and biodiversity. During the planning process, several planning options are considered and official consultations are held with the general public and stakeholders. ~~However,~~ but unofficial consultations are also carried out during the whole planning procedure. The assessment of the environmental impacts of each planning option provides information to the public, stakeholders and decision-makers on how to choose the option with the least environmental impacts. Assessing the full array of interactions between ecosystems and human activities is a key element of the planning procedure and a prerequisite for sustainable solutions.

In some planning systems SEA⁷ is fully integrated into the planning process, and participation and environmental impact assessment are key elements of it, which are also reported in the planning documents. In other planning systems, SEA seems to be a separate procedure and the SEA report is produced separately. However, the planning procedure has some common features in all countries and can be applied in maritime spatial planning as well. In maritime spatial planning SEA should be fully integrated into the planning procedure, for EU Member States, as required by the EUMSP Directive.

In Table 1, an overview of implementing the ecosystem-based approach in maritime spatial planning is presented. The left column shows the main phases of the maritime spatial planning process, which can also be seen as a SEA procedure in planning cases where SEA is not fully integrated into the planning system. ~~In accordance to that,~~ The right column shows how the corresponding integration of the ecosystems and their functioning and other relevant aspects of the ecosystem-based approach are taken into account in the different phases of the planning process.

⁷ In the Russian Federation the Federal Legal Act on Environmental Impact Assessment and its sub-ordinate acts cover also spatial plans on land.

Table 1: Implementation of the ecosystem-based approach in the maritime spatial planning process

The left column details the steps of the general planning procedure in MSP. The right column highlights those aspects of the planning procedure which require specific attention when applying an ecosystem-based approach, gives additional advice on how to implement those aspects, and lists additional aspects to be taken into account during the planning procedure in order to optimally apply the ecosystem-based approach as required by HELCOM–VASAB.

Spatial planning procedure / MSP PLANNING PROCEDURE— general steps	ECOSYSTEM-BASED APPROACH (EBA) as part of the planning procedure
1. STARTING	
1.1 Decisions taken when starting the preparatory process for a maritime spatial plan	
<ul style="list-style-type: none"> — Politicians make the decision on <u>decide to</u> the start of the planning process based on an identification of the problems (problem definition) — Politicians approve the necessary resources for supporting the planning process — Planning authorities are in charge of drafting plans in accordance with the national legislation; they will lead the planning process — For a cross-border planning process, a public authority or authorities have to be determined for drafting the plan and a public authority for accepting or ratifying it — The planning authority drafts and approves the work plan, and establishes the participation procedure and the environmental impact assessment procedure — Inform the public of the start of the planning process and what it is for 	<ul style="list-style-type: none"> — Identify all relevant environmental and other authorities and stakeholders that should be involved in applying the ecosystem-based approach — <u>Communicate between the identified authorities on the meaning of EBA in MSP and hold a workshop where responsible MSP-personnel including environmental managers go through the key elements and the process outline for EBA in MSP.</u> — Identify the different steps to be carried out for the Strategic Environment Assessment (SEA) to implement the ecosystem-based approach in MSP- <u>Outline the linkages between the MSP- and the SEA-process.</u> — <u>Identify appropriate level of management as well as geographic scale for planning – define plan area.</u>
1.2 Starting points	

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<ul style="list-style-type: none"> — Define the planning area — Identify the starting point and goals on a general level — Identify and analyse the current and potential resources, activities and uses, in the planning area — Identify sustainability criteria 	<ul style="list-style-type: none"> — Identify the ecological conditions (temporal and spatial) in the planning area and as a part of a larger entity — Identify ecologically important areas including those with high biodiversity, valuable habitats, Natura 2000 sites, HELCOMMPAs and other Marine Protected Areas <u>as well as areas as identified as EBSAs or other areas forming marine green infrastructure areas.</u> — Identify the marine ecosystem structures and functions of the marine ecosystems and <u>underpinning</u> marine ecosystem goods and services in the planning area and surroundings and their links to ongoing and future maritime activities — Identify strategic goals and ecological objectives (according to the BSAP) as well as recognise economic and social objectives
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1.3 Content of the plan	
<ul style="list-style-type: none"> — Define preliminary planning options concerning the content of the plan. <u>Develop different planning scenarios highlighting potential development routes.</u> 	<ul style="list-style-type: none"> — Develop preliminary planning options/ strategies based on the ecological status, important areas, MPAs as priority areas, ecosystem services, strategic goals and ecological objectives, as well as economic and social objectives — <u>Identify alternative planning options/strategies and motivate the why the main scenario is chosen.</u>
1.4 Identification of issues and impact assessment	
<ul style="list-style-type: none"> — Identify the existing knowledge base and also gaps in knowledge — Identify the impact area and potential impacts, both positive and negative — Establish the impact assessment procedure 	<ul style="list-style-type: none"> — Scoping of the environmental assessment, i.e. identify potential significant environmental parameters and human activities, determining the SEA process^a <ul style="list-style-type: none"> ○ Identify knowledge and knowledge gaps related to the marine ecosystem, natural values and their relation to human activities based on available sources such as HELCOM assessments ○ Identify actual and potential threats and impacts on the marine ecosystems in the planning area and in the impact area including cumulative effects ○ Identify the most probable future changes in ecosystems and human activities ○ Identify, describe and assess the significant environmental effects of the maritime spatial plan. EU MS base their SEA on DIRECTIVE 2001/42/EC -where according to Article 4 (1) the environmental assessment referred to in Article 3 shall be carried out during the preparation of a plan or programme and before its adoption or submission to the legislative procedure. - <u>Scoping of other impact assessments eg sustainability assessments including economic, social, cultural, ecosystem services, environmental aspects</u>
1.5 Participation and interaction	

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<ul style="list-style-type: none"> — Establish the participation and interaction procedures — Identify authorities, NGOs and other interested parties whom the plan may concern — Discuss with authorities, NGOs and other actors who are interested in being involved — Inform the public of the start of the planning process and of the participation and interaction procedures 	<ul style="list-style-type: none"> — Facilitate the participation of authorities responsible for nature protection and ecosystems, and relevant authorities, researches NGOs and other stakeholders that should be involved in applying the ecosystem-based approach in the planning process
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⁸ In Russian Federation the SEA -type of approach is under consideration now. Thus at this stage the actions described in this paragraph in relation to Russian Federation should be interpreted as aiming at the similar objective and purpose as SEA in EU but run according the legal base of the Russian Federation (including also possibility of strengthening the legal bases in Russian Federation in order to take into consideration the need of determining consequences of maritime spatial plans in Russian Federation on the marine environment).

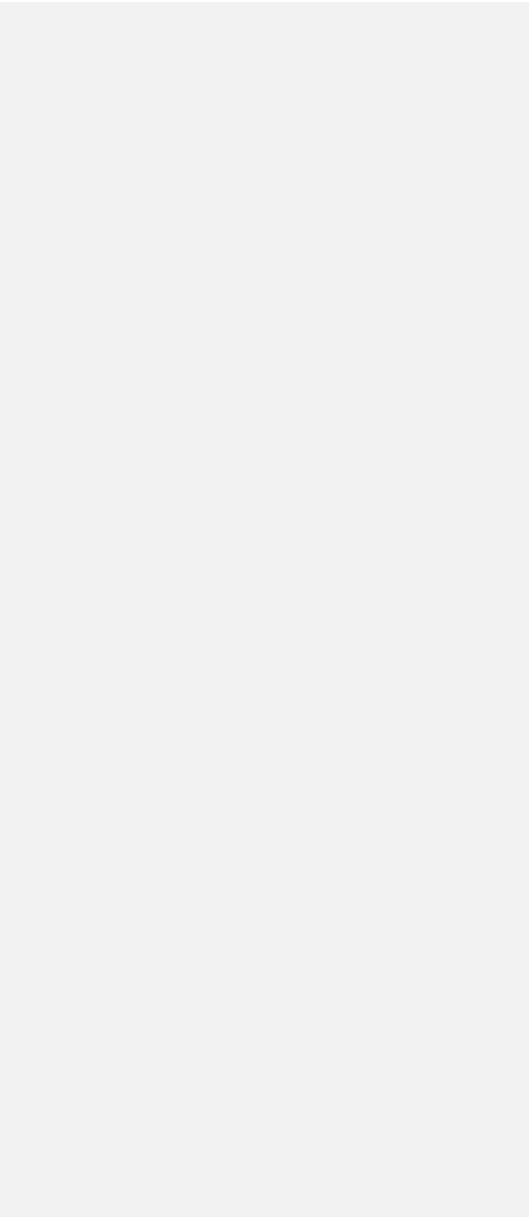
2. SETTING GOALS	
2.1 Defining goals	
<ul style="list-style-type: none"> — Take into account existing legislation, general and sectoral strategies, programmes and plans — Identify sectoral goals for the planned area (in addition to the overall goals) at different geographical levels: EU, Baltic Sea, national, regional and local — Identify and decide on short- and long-term goals 	<ul style="list-style-type: none"> — Take into account relevant legislation and strategies concerning ecosystems, environmental and environmentally relevant programs, plans and agreements as well as CBD, EU, HELCOM and national targets <ul style="list-style-type: none"> ○ For the identification of environmental goals, follow the definition of good environmental status under the MSFD (2008/56/EC) and BSAP (2007) and good ecological status under the WFD (2000/60/EC). This ensures that implementation of the maritime spatial plan will be compatible with the achievement of good environmental status under these directives and under the BSAP. ○ <u>Identify and take into consideration short- and long-term strategic goals and ecological objectives (according to the BSAP, EU biodiversity Strategy), particularly for areas worth protecting with regard to the capability and capacity of their ecosystems to recover from human-induced changes and deviations from Good Environmental Status</u> ○ <u>Analyze and identify alternative scenarios and trade-offs between goals. Why are certain goals promoted over others, and potential effects of prioritizations?</u> ○ <u>Include relevant stakeholders and environmental authorities in the identification and setting of goals.</u>
2.2 Content of the plan	
<ul style="list-style-type: none"> — Clarify the feasibility of the preliminary planning options; clarify how to integrate various goals — Prepare future scenarios for the planning process 	<ul style="list-style-type: none"> — Clarify the feasibility of preliminary planning options for nature protection and an ecosystem-based approach to ensure that consideration of ecosystem-based goals is taken in all preliminary planning options — <u>Clarify the ecological and social aspects of planning options on a short- and long-term.</u>
2.3 Identification of issues, investigations and impact assessment	

- Consider interactions between interests
- Identify existing problems
- Identify existing and potential threats
- Add to the existing knowledge and update databases
- Take into account the precautionary principle

- Identify and define existing problems in the marine ecosystems, threats to the ecosystems and potential uses of ecosystems and their services
- Ensure the identification, mapping and valuation of ecosystem services
- Update the existing knowledge of the marine ecosystems and natural values and related databases
- Include stakeholders and relevant authorities in the identification of issues.
- Highlight trade-offs and alternatives in planning.

2.4 Participation and interaction	
<ul style="list-style-type: none"> — Clarify the goals of other authorities and NGOs 	<ul style="list-style-type: none"> — Communicate and promote goals concerning the marine ecosystem: biodiversity, natural values and the sustainable use and preservation of ecosystem goods and services — <u>Ensure participation has clear objectives is meaningful and reaches all relevant stakeholders.</u>
3. PREPARATION	
3.1 Revision of the goals	
<ul style="list-style-type: none"> — 	<ul style="list-style-type: none"> — Revise the goals of the plan with regard to the assessed impacts on marine ecosystems and the sustainable use of the ecosystem services <u>in relation to human benefits</u>
3.2 Content of the plan	
<ul style="list-style-type: none"> — Draw up planning options in line with previously considered scenarios and the precautionary principle — Outline the plan (regulations, spatial designation of uses) 	<ul style="list-style-type: none"> — Prepare the plan while taking the functioning and identified limited carrying capacity of the marine ecosystems into account (according to the HELCOM-OSPAR 2003 Statement on the Ecosystem Approach)
3.3 Evaluation and impact assessment	
<ul style="list-style-type: none"> — More precise investigations of planning options if needed — Identify and assess the impacts of the planning options and compare the planning alternatives 	<ul style="list-style-type: none"> — More precise investigations and assessments of marine ecosystems, including planned/proposed uses and activities as well as relations to terrestrial ecosystems, when needed. - <u>Assess trade-offs among the planning alternatives in relations to ecosystem service supply</u>
3.4 Participation and interaction	
<ul style="list-style-type: none"> — Cooperation with authorities and stakeholders 	<ul style="list-style-type: none"> — Authorities responsible for ecosystems and nature protection as well as other authorities responsible for applying the ecosystem based approach in the planning process, as well as stakeholders take part
<ul style="list-style-type: none"> — Present planning options and their impacts and submission of opinions 	<ul style="list-style-type: none"> — <u>Clarify trade-offs between interests/uses as well as alternative scenarios</u>

4. PROPOSAL
4.1 Revision of the goals and/or the planning options
4.2 Content of the plan



<ul style="list-style-type: none"> — Prepare the planning proposal, which is selected as a result of the evaluation process of the planning options — Assess the feasibility of the plan and take the precautionary principle into account 	<ul style="list-style-type: none"> — Consider the potential impacts of all proposals on ecosystem goods and services — <u>Consider impacts on stakeholder interests and uses, and impacts on human benefits now and in the long term see</u> — <u>Apply the precautionary principle when considering impacts.</u>
4.3 Investigations and impact assessment	
<ul style="list-style-type: none"> — Assess the impacts of the planning proposal — Assess how the goals are likely to be achieved — Resolve how to reduce the negative impacts — Elaborate a monitoring programme according to the expected impacts and the planning procedure — Negotiate content proposals with sectoral interests /actors if necessary 	<ul style="list-style-type: none"> — Assess how the ecosystem preservation goals set in the plan will be achieved in relation to the planned development activities — Look for solutions to avoid, mitigate or compensate negative impacts on the marine ecosystems and ensure sustainability in uses of natural resources, respecting the capacity of ecosystems to respond to human-induced changes in the achievement of the strategic goals and environmental objectives (according to the BSAP); — Set up a system for monitoring the interactions between human activities and marine ecosystems, including impacts on the marine ecosystem <u>services</u> in order to ensure an adaptive management approach (under consideration of the existing HELCOM monitoring) — Prepare the Environmental Report, according to Article 5 of the SEA Directive, when applicable, including in particular the following aspects: <ul style="list-style-type: none"> — Potential impacts of the plan, including cumulative impacts under consideration of the precautionary- approach — Options and alternatives (including clarification of their compatibility with the ecosystem-based approach) — Achievement of strategic goals and environmental objectives — Mitigation measures
<ul style="list-style-type: none"> — 	<ul style="list-style-type: none"> — Monitoring — Information on gaps in data and proposal for closing knowledge gaps — Draft Environmental Report — Draft of the assessments regarding Natura2000 sites
4.4 Participation and interaction	

- Present the submitted opinions on the planning options
- Public display of the planning proposal
- Discussion with authorities

- Authorities responsible for ecosystems and nature protection take part in the formal consultation process
- Include stakeholder groups and NGOs in both formal and informal consultation processes

5. APPROVAL	
5.1 Decision on how to take into account the statements received and the results of the discussions and approval of the plan	
—	— Public acknowledgement of statements received and dissemination of that information.
5.2 Content of the plan	
— Plan is finalised	— <u>SEA and other assessments are finalized.</u>
— Evaluation of the plan and the planning process and impact assessment is finalised	—
5.3 Participation and interaction	
<ul style="list-style-type: none"> — Opinions and statements are integrated into the proposal — Discussions with other authorities — Inform the public of the plan approval 	<ul style="list-style-type: none"> — Authorities responsible for ecosystems and nature protection and other authorities responsible for applying the ecosystem-based approach in the planning process as well as stakeholders take part. — In accordance with Article 9 of the SEA Directive, when applicable, make available: <ul style="list-style-type: none"> ○ the plan or programme as adopted ○ a statement on how environmental considerations have been integrated into the plan and the reasons for choosing the plan in the light of the other reasonable alternatives
—	— the measures decided concerning monitoring
6. MONITORING AND EVALUATION	
6.1 Achievement of the goals	
6.2 Content of the plan	
<ul style="list-style-type: none"> — Evaluate the time period of the plan — Plan is taken into account in other plans and projects 	—

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6.3 Evaluation and impact assessment	
<p>— Implement and apply the plan; monitor the <u>cause and effect relationships in the implementation/application of the plan. Monitor and evaluate impacts both with regard to sector development and environmental status in relation to objectives.</u></p>	<p>— Monitor and audit the impacts on the marine ecosystems according to the monitoring programme, in order to ensure an adaptive management</p> <p>— Evaluate the appropriate balance between conservation and use of biodiversity</p> <p>— <u>Evaluate the SEA-process and other impact assessments carried out</u></p> <p>—</p>
7. REVISION OF THE PLAN	
<p>— Plans shall be reviewed on a regular basis in order to implement adaptive management.</p>	<p>— Revise the plan as required by the directive in case of negative impacts on ecosystems, particularly their:</p> <p>—</p> <p>—_structure, processes, functions, interactions</p> <p>—</p> <p>—_interconnectivity</p> <p>—</p>
	<p>—</p>

Commented [F5]: Possible to linke to the MSFD?