Baltic SCOPE
Towards coherence and cross-border solutions in Baltic Maritime Spatial Plans

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Topic paper on environment – Central Baltic Case

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Summary

The environment is one of the most important elements affecting the maritime spatial planning process, which is a fundamental and important tool for environmental protection and management. The directions of development of sea-uses shall be defined taking into account the principles of environmental protection. The Ecosystem Approach as the core concept for MSP shall be applied, entailing a holistic systems perspective on marine ecosystem and its interaction with human activities, adoption of the precautionary approach and adaptive management.

The thematic group on environment is established by the Baltic Scope project to discuss the environmental aspects of transboundary importance within the Central Baltic Case (CBC). The analysis of the environmental topic is built on its main objectives - maintenance of resilient marine ecosystem and achievement of good environmental status (GES) of marine waters. This paper has strong focus on marine protected areas (MPAs) and related issues (e.g. coherence of MPA network in CBC, protection and management requirements etc.) as one of the most spatially explicit measures for protection of marine environment, which requires international collaboration. Furthermore, several aspects important for implementation of ecosystem approach in MSP are addressed by CBC, e.g. scale in assessing environmental impacts of human activities, approaches for assessing collective pressure of all human activities on marine environment from local to transboundary level as well as criteria for applying precautionary principle and setting limitations/restrictions to sea use activities within the MSP.

1. Background

The sector of "environment" includes all inanimate and animate elements, both natural and caused by human activities occurring in a particular area and their interrelationships and interactions. One of the essential characteristics of the natural environment is a natural equilibrium, which occurs when the ebb and flow of energy and matter in nature are balanced. The natural environment is in constant interaction with human.

Protecting the environment is the one of the core-stones for spatial development policy, development strategy and the development of spatial plans. Protection of environment can be achieved through rational management of human activities and resources in accordance with the principle of sustainable development, preventing damage to natural environment, including pollution prevention, taking actions to reduce the risk of such damage as well as restoration of the damaged natural elements to the proper state.

As the Baltic Sea is one of the most polluted seas and endangered ecosystems, therefore environmental aspects are with great significance. The shallow water and slow water exchange with the North Sea make the Baltic Sea particularly sensitive to human activities. The catchment area of the Baltic Sea covers an economically developed region inhabited by approximately 90 million people of whom 15 million live in the coastal areas. Various sea-use activities, such as recreational activities, fishery, aquaculture, and shipping, directly impact the marine

environment by overfishing and/or selective removal of fish specimens, introduction of invasive species and marine litter, pollution with nutrients and hazardous substances, or physical destruction of sea bottom habitats. The human pressure on the Baltic Sea is expected to increase further with the anticipated growth of existing marine sectors as well as emerging new sea-use interests, such as offshore energy production and oil extraction.

Environment is entirely transboundary issue and therefore environmental conditions of the Baltic Sea are a shared responsibility between national states around the sea.

Several international conventions are addressing protection of marine environment, including:

- Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki Convention 1992);
- Convention "On the Law of the Sea" (UNCLOS, 1982);
- International Convention for the Prevention of Pollution from Ships (MARPOL 73/78);
- Convention "On fishing and conservation of living resources in the Baltic Sea and the Belts" (Gdansk Convention, 1973);
- Convention on biological biodiversity" (Rio de Janeiro Convention, 1992);
- Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, 1991) - the 'Espoo (EIA) Convention';
- Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, and Protocol (London Convention, 1972);
- International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention, 2004);

Furthermore the provisions for protection of marine environment are set by several EU Directives from which the most influential are:

- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive);
- Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (Birds Directive);
- Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy (Water Framework Directive);
- 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).

The environmental aspects are also integrated into the objectives 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 (MSP Directive). Maritime spatial planning provides spatial dimension in protection of marine environment. At the moment countries involved in CBC are at the initial stage of MSP process where first efforts for identifying existing and potential sea uses and at the same time assessment of tools to evaluate the extent and treats caused by human impact are made.

2. Analysis of the sector

2.1. Requirements of the sector

The main objectives of the environmental sector with regard to marine waters include:

- Achievement of good environmental status of marine waters;
- Maintenance of a resilient marine ecosystem and services it provides.

The objective to achieve good environmental status (GES) of marine waters by 2020 is set the EU Marine Strategy Framework Directive (MSFD). The MSFD defines the GES through marine waters that include ecologically diverse and dynamic oceans and seas which are clean, healthy and productive within their intrinsic conditions, and the use of the marine environment is at a level that is sustainable, thus safeguarding the potential for uses and activities by current and future generations.

For proper functioning of the ecosystem, very important is its ecological coherence. Therefore, for determining the values of marine areas both – the spatial dimension - the significance of a particular place for the individual element of environment - and the temporal dimension - requirements of individual elements of ecosystem for a specified quality marine space shall be considered. It is primarily to preserve the ability of individual elements of biota (living organisms) to access important areas in their development cycle – dedicated to breeding, resting and feeding. The network of marine protected areas (MPA) as well as spatial solutions for sea uses in the MSP are the main instruments to ensure the maintenance viable marine ecosystem and to preserve important areas for different life stages of marine organisms.

2.2. Current measures applied for protection of marine environment

2.2.1. Network of marine protected areas (MPAs)

MPAs network is one of the existing and commonly used core mechanisms for protection of marine biodiversity and ecosystem through designating suitable areas which have particular nature values and by managing human activities within those areas. There is a set of criteria that is traditionally applied for assessing marine biodiversity and identification of areas for MPA designation, including quantitative criteria: number and biomass of species (e.g. high concentration of wintering waterbirds) and species richness (biodiversity) as well as quality criteria: rarity of species / habitats (uniqueness); naturalness (degree of conservation of group / intact habitat); presence of protected species / habitat; significance of species / habitats for ecological processes.

The Natura 2000 network is formed for protection of species and habitats of the Community importance, based on the requirements of Birds and Habitats Directives. It consists of Special Protection Areas (SPAs) established for protection of the bird species listed in Annex I of the Birds Directive and, of Special Areas of Conservation (SACs) established for protection of Annex I

habitat types and Annex II species of the Habitats Directive. In 2010 the Natura 2000 network covered 44 203 km2 of the Baltic Sea, but by 2013 it had increased by 23 864 km^2. HELCOM Baltic Sea Protected Areas (BSPAs) network was formed to protect the valuable marine and coastal habitats of the Baltic Sea. By 2013 BSPAs covered 48 392 km^2 (or ca. 11.7%) of the Baltic Sea marine area - 17% of the territorial waters and 4.6% of the EEZ. By 2013 64% of Natura 2000 sites in the Baltic Sea had also been designated as HELCOM MPAs and thus forming one network, including Natura 2000 sites and BSPAs (see fig. 1).

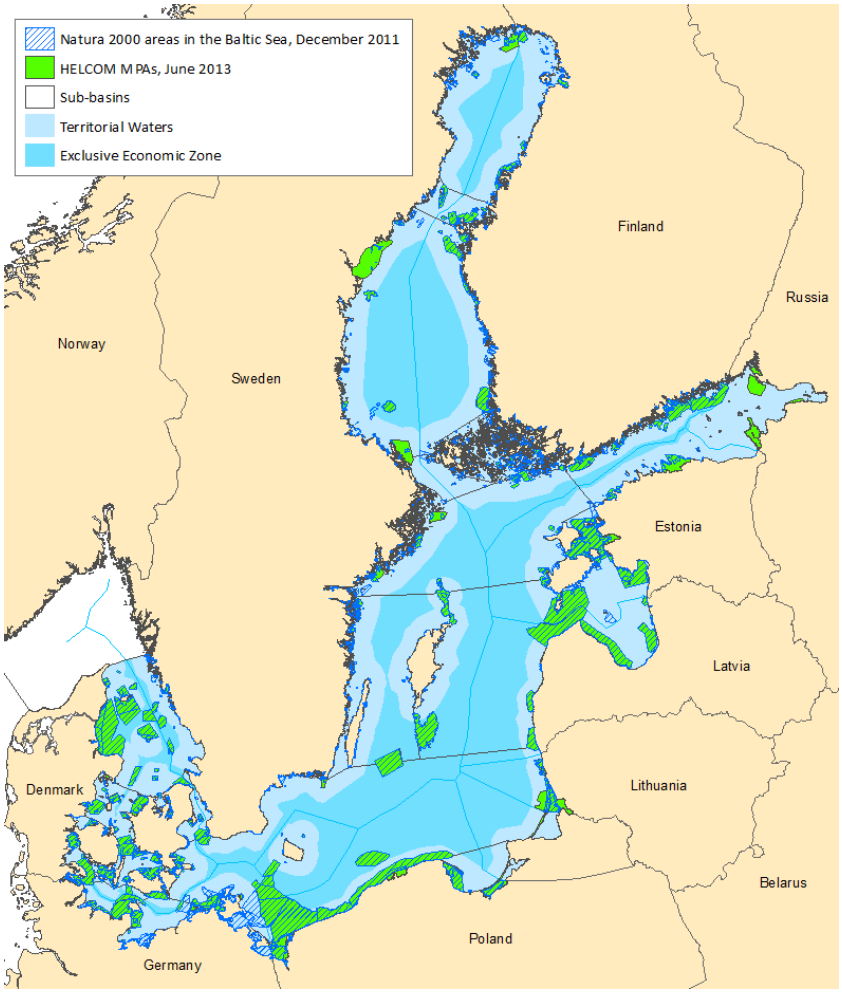


Fig. 1. MPA network in the Baltic Sea (Source: HELCOM 2013)

MPAs are essential transboundary issues as the connectivity and coherence of MPA network play an important role in the preservation of larger ecosystems. There is a need for more information on distribution of species and habitats with high value, putting emphasis on those which are threatened by various pressures, including other activities in the sea. It is important that particular management measures can contribute in conservation of those natural values. Very important is to take into account connectivity of sites and coherence of whole the Baltic MPAs.

2.2.1.1. MPA network in Latvia

Nature conservation in Latvian marine waters is implemented by designation of MPAs accordingly to Law of Specially Protected Natural Territories. MPAs are established for protection of i) specially protected biotopes, ii) habitats of specially protected species and iii) important

feeding and wintering grounds for migrating birds. In total seven MPAs have been designated in 2010 within Latvian part of the Baltic Sea (covering 33% of territorial waters and 1% of EEZ) and all of them are included in Natura 2000 as well as BSPAs network (see figure 2). Additionally there are two more areas which protect marine territories, although, formally not defined as MPAs and are perceived as extension of terrestrial natural areas in the sea. Up to now Nature protection plans have been prepared for two MPAs and individual regulations for three MPAs. Regulations are adopted in the Cabinet of Ministers and define several zones of permitted uses.

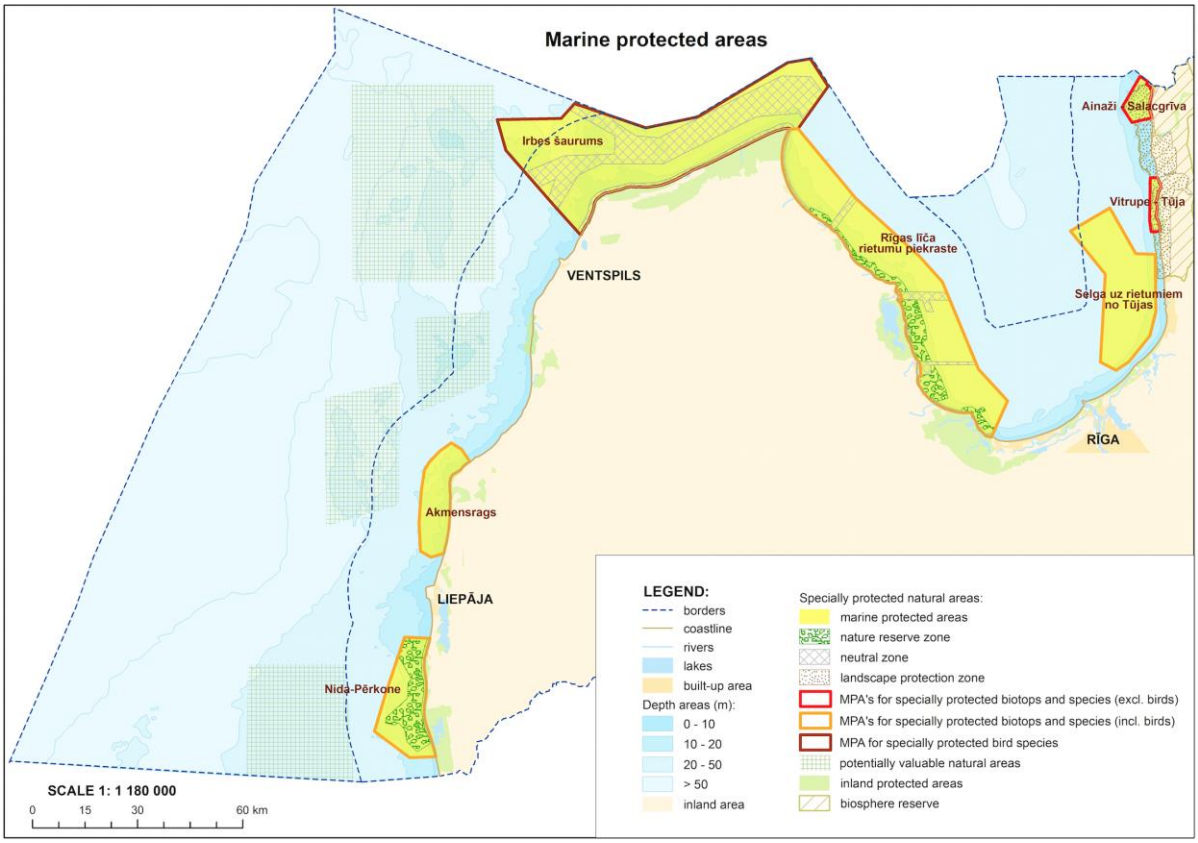


Fig.2. Existing MPAs in Latvian territorial waters and EEZ

2.2.1.2. MPA network in Estonia

Currently, the Natura 2000 network is the most important nature conservation activity in the Estonian coastal waters. Specifically, the Estonian Natura 2000 network consists at the moment of 66 SPAs and 509 SACs with the total area of 1.4 Million ha, of which 45% are marine areas. However, due to lack of data about marine species and habitats there are only few offshore sites designated in Estonia.

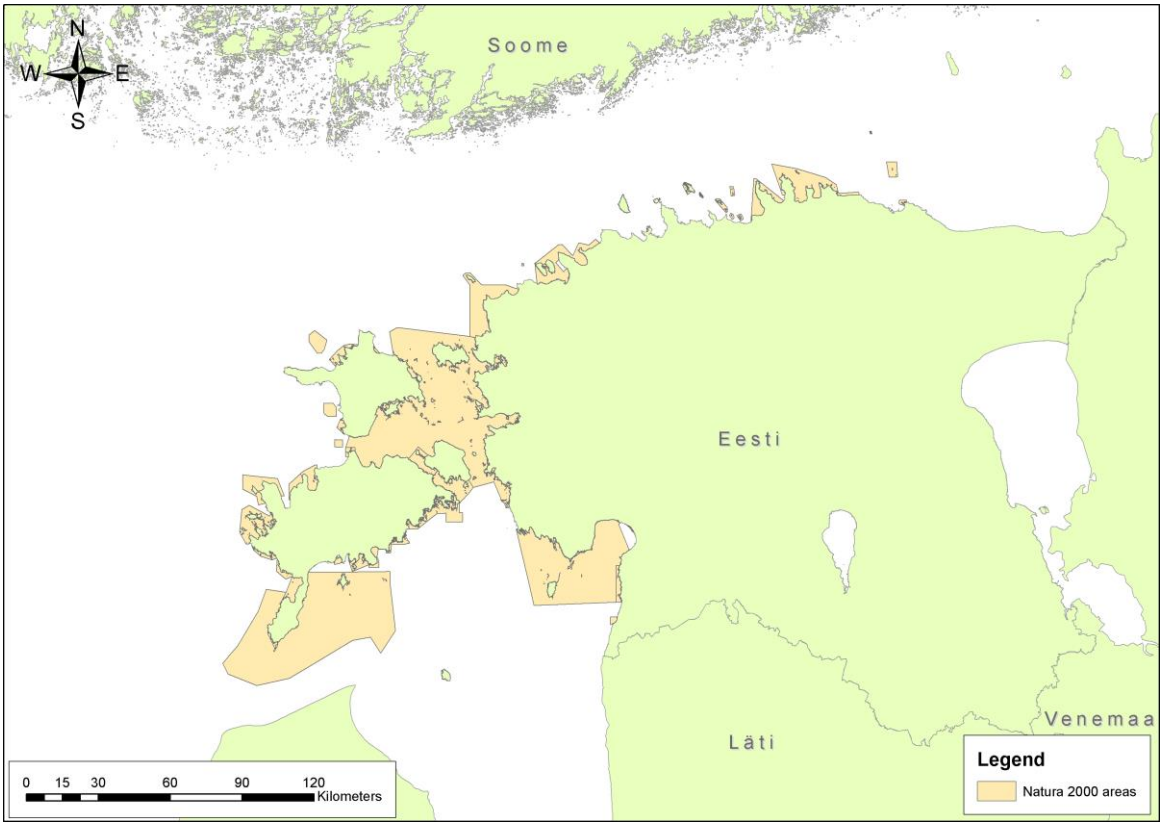


Fig.3. Existing Natura 2000 areas in the Estonian coastal waters.

2.2.1.3. MPA network in Sweden

The MPA network in Sweden includes 1 national park, 42 nature reserve and 315 Natura 2000 areas, covering in total approximately 9,900 km2, or 7.7 % of the marine area nationally. The equivalent figure for all protection areas in marine environments is 10,700 km² or 6.9 per cent of marine areas.

National parks

With the support of the Riksdag, the Government may declare an area of land or water belonging to the State a national park, in accordance with the Environmental Code. The aim of a national park is to preserve a large, interconnected area of a certain kind of landscape in its natural state. The Swedish Environmental Protection Agency may – following consultation with the relevant county administrative board, municipality and the Swedish Agency for Marine and Water Management – prescribe regulations concerning care and management, in addition to restrictions in the right to use the land or water within the national park. Examples of measures that can be prohibited include water-skiing, anchoring boats, putting down buoys and mooring boats on land. So far, the Kosterhavet national park in the Skagerrak/Kattegat is the only example of a pure marine national park. The aim is to keep a distinctive, species-rich marine and archipelago area and adjacent land areas in an essentially unaltered condition. Furthermore, there are another six national parks by the sea with marine areas of varying different sizes: Haparanda Archipelago, Skuleskogen near the High Coast, Ängsö in the Stockholm Archipelago, Gotska Sandön, Blå Jungfrun in Kalmarsund and Stenshuvud on the east coast of Skåne.

Nature reserves
A county administrative board or municipality may declare an area of land or water to be a nature reserve in accordance with the Environmental Code in order to preserve biodiversity, to care for and preserve valuable habitats, or to satisfy the need for recreational areas. An area may also be declared a nature reserve if it is needed to protect, restore or to create new valuable habitats or habitats of species warranting protection. For an area to be considered a marine nature reserve, its protection must have a marine purpose, and a description must be provided of the marine values in question and how this purpose is to be achieved.

Natura 2000 areas
Natura 2000 areas are designated in accordance with the Environmental Code pursuant to two EU directives - the Birds Directive and the Habitats Directive. The aim of Natura 2000 is to contribute to the preservation of biodiversity from a joint EU perspective. As protection for a Natura 2000 area ensues through the area being listed by the Government, the designation is a form of protection in itself. At the same time, a Natura 2000 area can be protected via other regulations in the Environmental Code and this also applies within Sweden's exclusive economic zone.

Biotope protection areas in marine environments
The Government can prescribe regulations that all easily recognisable areas of a certain type in the country, or part of the country, constitute biotope protection areas. In marine environments, this protection refers to small aquatic areas that due to their particular qualities are valuable habitats for threatened animal or plant species, or are otherwise particularly worthy of protection. According to common practice, biotope protection areas can extend up to approximately 20 hectares. A government agency or municipality may decide that an area is to constitute a biotope protection area. The county administrative board may, according to the Area Protection Act, establish biotope protection areas in order to protect, for example, eelgrass meadows, reefs of the cold-water coral Lophelia pertusa, shallow bays and biogenic reefs. Protection areas through regional marine environment conventions Sweden has committed itself to protecting the marine areas highlighted as part of the HELCOM Convention, the Baltic Sea Protected Areas (BSPA/HELCOM MPA) and the Marine Protected Areas (MPA) defined in the OSPAR Convention for the North-East Atlantic. These areas have no legal protection as such, but Sweden has chosen areas that, in the majority of cases, are protected as Natura 2000 areas.

2.2.2. Measures for achievement of good environmental status (GES) of marine waters

The marine Strategy Framework Directive (MSFD) is presently the most influential policy document for the protection of the marine environment, aiming to achieve good environmental status (GES) of the European seas by 2020. This is also the first attempt of the EU to implement the ecosystem-based management of human activities in the marine environment to ensure balanced protection and use of European seas. The MSFD stipulates EU Member States to develop the national marine strategies, including development of a programme of measures (PoM) designed to achieve or maintain GES. The PoM shall be linked to environmental indicators chosen by national authorities to evaluate the implementation of MSFD.

The Article 1(3) of the MSFD states that *"Marine strategies shall apply an **ecosystem-based approach** to the management of human activities, ensuring that the collective pressure of such*

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 enabling the sustainable use of marine goods and services by present and future generations".

MSP is considered as an essential instrument for the programme of measures for achieving GES. Annex VI of the MSFD, which lists the types of measures to be applied, includes "the spatial and temporal control measures that influence where and when an activity is allowed to occur". The role of MSP in the implementation of the MSFD is also acknowledged by the MSP Directive, stating that maritime spatial planning should contribute inter alia to achieving the aims of the MSFD and that it should apply the ecosystem-based approach as referred to in Article 1(3) of the MSFD. Thus MSP and environment are mutually related through the PoM, or as in Sweden directly between the MSFD and GES to MSP.

The basic principle of spatial policy is to provide spatial orderliness and conditions for sustainable development, i.e. the spatial organization that would eliminate conflicts between environmental protection and economic development and activities to improve the living conditions of residents. Planning documents should therefore establish conditions for implementation of projects, which can produce optimal results in terms of environmental protection maintaining the natural balance and resilience of the ecosystem, and ensuring rational use of environmental resources. In order to meet the above conditions one should take such action, which through its implementation will achieve GES not only in the regional and national level but also, as it is for instance in relation to maritime spatial planning, in the transnational level.

***The Ecosystem Approach* in MSP** entails a holistic systems perspective on marine ecosystem and its interaction with human activities, adoption of the precautionary approach and adaptive management. It shall focus on providing spatial solutions for:

- preserving/restoring structure and functioning of marine ecosystems (including establishment of coherent MPA network);
- maintaining ecosystem services to support human needs;
- management of human activities in a way that is compatible with achievement of good environmental status and the capacity of marine ecosystem to respond to human-induced changes.

The key elements for operationalization of the ecosystem approach involves:

- Using the best available knowledge and practice for assessment of the status of marine ecosystem and its features and identification of areas of high ecological value;
- Identification, mapping and assessment of ecosystem services;
- Applying precautionary principle through assessing of potential environmental risks and impacts to marine environment caused by human activities;
- Development of reasonable alternatives to find solutions for avoiding or reducing negative impacts to marine environment or ecosystem services;
- Applying mitigation measures to prevent, reduce and as fully as possible offset any significant adverse effects on the environment;
- Creating of relational understanding/ holistic systems perspective - to consider interactions between human activities and the ecosystem, as well as among various human activities, including direct/indirect, cumulative, short/long-term,

permanent/temporary and positive/negative effects, as well as interrelations including sea-land interaction;

- Ensuring participation and involvement of all relevant authorities and stakeholders as well as a wider public in the planning process at an early stage;
- Ensuring subsidiarity and coherence – to carry out MSP at the most appropriate level and in coherence between the different planning levels, including transnational planning perspective;
- Adaptation – ensuring the sustainable use of the ecosystem by applying an iterative process including monitoring and reviewing.

A special subgroup (the Ecosystem Approach Task Force) have in the Central Baltic case dealt with the Ecosystem Approach in MSP including agreeing on a principle definition and developing three possible checklists for easier application of the Ecosystem Approach in MSP.

2.2.2.1. Integration of MSFD objective and implementation of ecosystem based approach in Latvian MSP

The work on Programme of Measures (PoM) for implementation of MSFD in Latvia is still ongoing. So far proposed measures are related mostly on three descriptors – alien species (D2), eutrophication (D5) and marine litter (D10). The possible spatial measures could be foreseen for descriptor D1 – biological diversity. As described above substantial areas of Latvia territorial waters as MPAs are already receiving protection status and should be managed in frame of other legal obligations. Additional spatial protection measures could be identified based on the Baltic wide MPA coherence and connectivity analysis as well as field surveys and assessment of the potential MPAs in Latvian EEZ.

Implementation of the ecosystem based approach within the Latvian MSP is illustrated in the Figure 4. This involves establishing link to objectives and indicators of GES and compiling the latest research data and knowledge as well as developing of new data sets (e.g. on distribution of fish species and fishery activity, map on sea bottom sediments, benthic habitat mapping and assessment of the potential of ecosystem service supply) during the stock taking phase. The impact matrix was developed for assessment of sensitivity of important components of marine ecosystem against different sea uses. The matrix was applied for mapping and assessment of possible impacts of alternative sea use scenarios as well as optimum sea use solution, thus ensuring precaution principle and mitigation of the adverse effects on the environment. The sea use alternatives and solutions were assessed with regard to their impacts on provision of ecosystem services as well as achievement of good environmental status.

All relevant authorities and stakeholders were actively involved in the Latvian MSP process from very early stage, starting already with development of terms of reference for MSP. More than 30 meetings and consultations with different stakeholder groups including also trans-boundary consultations was organised during stocktaking phase, formulation of strategic vision and objectives, assessment of alternative scenarios, defining criteria for permitted sea uses and reflection on proposed optimum sea use solutions.

Also the subsidiarity and coherence is followed in the planning process. Latvian MSP is elaborated at national level and co-ordinated with development interests and conditions set by other national as well as regional and local planning documents. Since 2015 also local municipalities have a right to plan the marine part of the coastal areas up to 2km from shore. Spatial solutions of MSP shall be respected in municipality thematic planning documents.

To ensure the adaptation principle indicators for evaluation of MSP performance are elaborated, which shall allow assessing the changes in environmental and socioeconomic conditions as well as impacts of MSP solutions, thus providing basis for decision making on changing or adjustment of MSP solutions, set objectives or tasks in the next planning cycle.

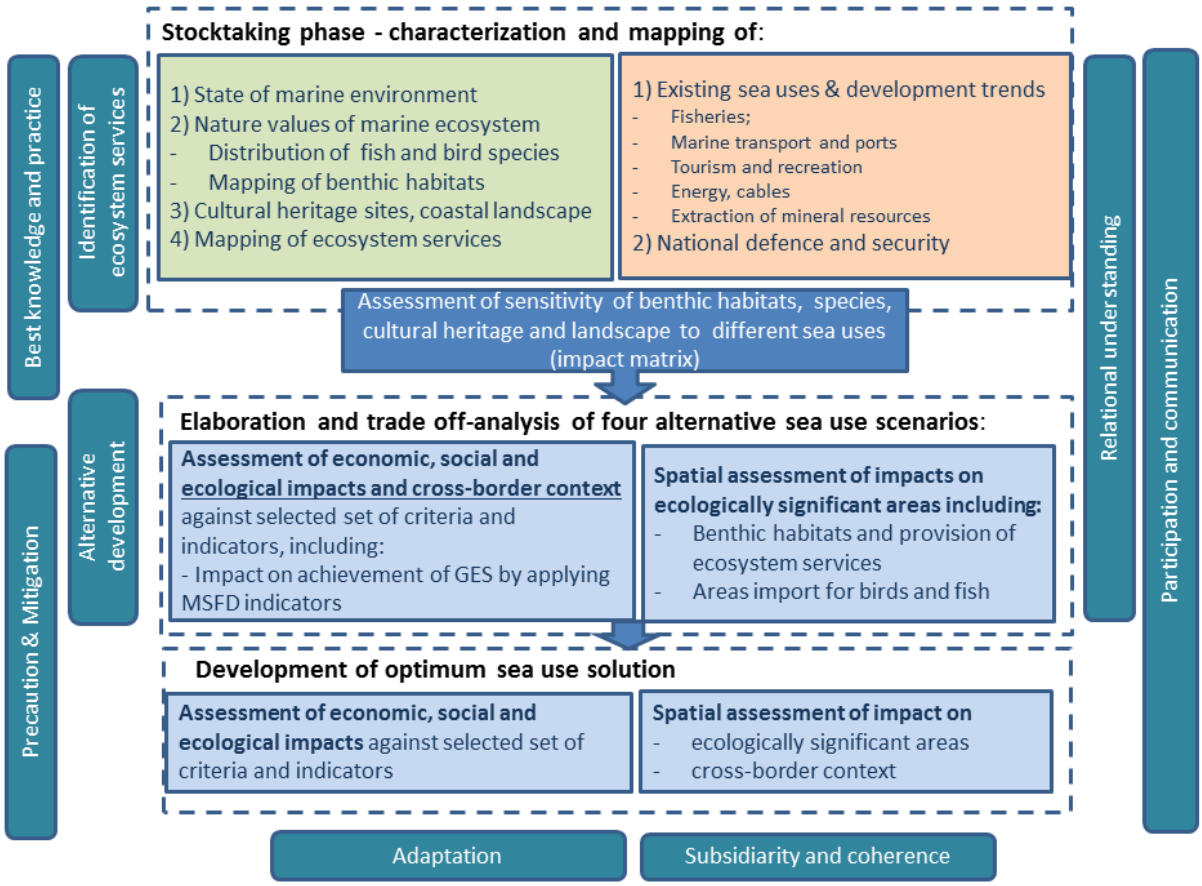


Fig.4. Application of Ecosystem based approach in Latvian MSP and integration of the HELCOM/VASAB key elements for operationalization of the EBA

2.2.2.2. Integration of MSFD objective and implementation of ecosystem based approach in Swedish MSP

Achievement of GES is included in the Swedish Environmental objective "A Balanced Marine Environment, Flourishing Coastal Areas and Archipelagos" which lays the basis for MSP. It is also specifically included in the 4th paragraph of the Swedish MSP-ordinance that the plans should be outlined so that good environmental status in the marine environment is reached and attained. Criteria and indicators for assessing the impacts of the plans in relation to GES will be developed.

Sweden is coordinating the national MSFD process with the MSP – both are carried out by Swedish Agency for Marine and Water Management (SwAM). Important coordination topics are MPA development, data management, assessment of pressures from human activities. Mapping of marine green infrastructure and identification of areas with high ecological values is in addition an important step to develop the best knowledge and practice in MSP. For implementation of the precaution principle Sweden is developing a spatial cumulative assessment tool called Symphony to be used in MSP for understanding the current and future pressures on the marine environment. It includes gathering of maps for all marine activities and weighting and linking their pressures to mapped ecosystem components.

The precautionary principle will be considered when the cumulative impacts from activities is high and alternative uses of the sea considered as means to reduce high cumulative impacts as well as for mitigation of other adverse effects on environment. MSP in Sweden shall also involve other key elements of the ecosystem bases approach, including development of alternative planning solutions, identification of ecosystem services as part of impact assessment, organisation of multi-level stakeholder involvement process and adaptation - SwAM shall follow the development in the marine areas and to develop new plans when needed or at least every eighth year in order to keep the plans up to date. Also the subsidiarity principle is ensured - Swedish MSP can be carried out both at national level, by SwAM and with decision by government, and at local Municipal level, by about 60 coastal Municipalities.

2.2.2.3. Integration of MSFD objective and implementation of ecosystem based approach in Estonian MSP

Based on the requirement of the MSD Directive on application of the ecosystem-based approach to management of human activities, as it is defined by MSFD, the Estonian approach in Estonian MSP involves assessment of potential sea use options (scenarios) with regard to their impacts on the environment. To date, an integrated marine monitoring programme targeting the reporting recommendations on MSFD Article 11 has been compiled and relevant indicators of all descriptors have been established[1]. The MSFD indicators provide knowledge on the environmental status in the MSP area as well as they indicate environmental changes attributed to the MSP process. The latter feedback can guide the MSP process in order to achieve effective spatial planning for sustainable development. To date, however, no official document exists that explicitly targets the ecosystem based approach within the Estonian MSP.

2.3. The main environmental issues and concerns identified during national consultation process for MSP and the Baltic Scope project

2.3.1. Latvia

[1] http://www.envir.ee/sites/default/files/mereseire_programm_10092014.pdf

National consultations were organised as a part of the official MSP consultation process with main sectors concerned. During the meeting with representatives of the nature conservation sector (involving Ministry of Environmental and Regional Development, Nature conservation Agency, Latvian Institute of Aquatic Ecology, Latvian Ornithological Society as well as developed of the MSP – Baltic Environmental Forum) the following issues of the transboundary relevance were proposed for discussions at the Baltic Scope project:

- Latvia is planning to identify the potential sites for enlargement of the MPA network in EEZ. Therefore essential questions for Latvia is criteria for assessing representativeness and coherence and connectivity of MPA network within, including such aspects as functional interconnection between sites, conditions for spreading of species, viability of populations etc;
- The co-ordination of transboundary MPAs management is another issues, which could be addressed by the Baltic Scope project - how current and planned MPAs around the Irbe Strait interact with other sectors, are any possible conflicts related to sea use activities (e.g. the shipping route crossing those areas with significant importance for Latvia and Estonia) and can the potential conflicts be solved with management tools. Information exchange between the countries for co-ordination of MPA designation and management measures is needed.
- Other nature conservation issues of transboundary relevance that could be addressed by the Baltic Scope project includes:
    a. Management of spawning and nursery areas for maintenance of viable fish population
    b. Management of fishery impact on marine ecosystem
    c. Transboundary co-ordination of bird protection measurers (e.g. migratory corridors, wintering and feeding areas)

During MSP consultations with representatives of other sea use sectors the following conflicts in relation to environment and possible solutions have been identified:

<u>Fisheries:</u>

- Benthic trawling has a negative impact on all types of benthic habitats. Furthermore benthic trawling is going on in areas where explosives were dumped after II World War, thus causing direct danger to fisherman as well as pollution risks marine environment. According to current regulation benthic trawling is not allowed in coastal waters until 20 m depth. This zone covers the distribution area of ecologically most valuable habitat types (e.g. reefs) as well as spawning grounds of herring. MSP solution is to reserve zones for benthic trawling, which are the most valuable for the catch of cod and flounder, avoiding ecologically sensitive areas and conflicts with other sea uses.

<u>Aquaculture:</u>

- So far no marine aquaculture farms (except small-scale experimental projects) have been set up in Latvian marine waters. Environmental conditions along the Latvian coast are not very suitable for aquaculture and also significant negative impacts on marine ecosystem are possible. The most negative impact is expected from fish aquaculture, which can increase the nutrient loads, therefore it is not permissible in the Gulf of Riga, which is partly closed system with already high eutrophication level. Furthermore all aquaculture types can have significant negative impact on benthic habitats of the photic zone. MSP solution is to propose areas that

are the most suitable for aquaculture from perspective of environmental conditions, with least negative impacts on marine ecosystem and no conflicts with other sea uses.

Offshore wind parks:

- No projects have been approved yet in Latvian territorial waters and EEZ, however there is interest from potential developers and offshore wind energy is also essential for increasing the share of renewable energy sources and ensuring national energy security. The wind parks can cause destruction of benthic habitats as well as have negative impacts on bird migration and feeding areas. MSP solution is to propose areas that are the most suitable for offshore wind park development outside of the territorial waters, Gulf of Riga and Irbe strait, thus avoiding ecologically the most sensitive areas and bird migration routes.

Furthermore a discussion with experts from Latvian Institute of Aquatic Ecology was organised to identify issues related to MSP and MSFD interrelation. The following discussion topics were proposed:

1) Possible ways for ensuring links to MSFD objectives for achievement of GES and co-ordination/integration with Programme of measures
    a. Identification and possible harmonisation of indicators and GES threshold values having relation to MSP. Measure shall be applied for integrating these indicators in EIA procedure for development projects in marine waters.
    b. Approaches for assessing collective pressure of all human activities on marine environment at local, national as well as transboundary level; issues of scale in assessing environmental impacts of human activities
2) Criteria for applying precautionary principle and setting limitations/restrictions to sea use activities within the MSP.

2.3.2. Estonia

National consultation process was organised in Estonia during autumn 2015 as part of the Baltic Scope project with aim to gather input for the elaboration of national topic papers as well as to promote MSP. During the meetings with sector representative the following environmental issues have been addressed:

Critical assessment of the current MPA network:

- Large fraction of the existing MPAs is “paper parks” and knowledge on separate and interactive effects of various human-induced pressures on the environment is far from being well understood. They may also fail due to insufficient management of the MPA, or because of degradation of the surrounding unprotected areas. However, many gaps of knowledge are currently being filled and can be filled by performing targeted (modelling) studies aiming this ambition.
- There is an utmost need to collect seamless data on the spatio-temporal patterns of key environmental variables (biotic and abiotic; inside and outside of MPAs) and sea uses as well as to assess how existing pressures such as eutrophication, pollution, underwater construction, climate change etc. either separately or interactively influence the marine

environment. This target can be filled by combining field mapping studies with spatial predictive modelling.

- International approach is needed to resolve some information knowledge gaps e.g. ascertain important bird routes.
- In multi-stressed environments like the Baltic Sea, a key factor is to integrate the planning of MPA networks into the spatial planning of larger areas including terrestrial planning. MPA planning should also include a social and economic assessment.

Potential conflicts between various sea uses and the environment and how to minimize these conflicts:

There exist multiple potential conflicts between various sea uses and the environment. However, due to the current lack of knowledge about the separate and interactive effects of various sea uses on the environment, it is currently very difficult to propose the most rewarding/environmental-friendly solutions to these conflicts. There is a strategic need for a research programme that (1) generate knowledge about effective spatial planning for sustainable development and (2) analyses how planning system and its applications can lead into reduced environmental impact. Only then the environmental quality objectives can be attained.

To date, conflicts exist concerning quality of habitats and biodiversity mainly with fishing, aquaculture, renewable energy development, mining, dredging, dumping, maritime tourism, technical infrastructure and maritime transport.

- One of the key challenges is lack of precise definitions and international agreement on some basic terms in some of EU directives (e.g. “Good environmental status” in MSFD or “Favourable conservation status” in HD) and HELCOM documents.
- Thus, MSP must have information on main important habitats and necessary blue corridors between them. In Estonia such data is available for the MSP areas but is mostly missing from elsewhere. As such information is missing then the relevant investigations should be encouraged.
- MSP must have information about sea space, which is of less ecological importance but suitable for other sea users (in line with their specific needs) to offer reasonable compensation options. In Estonia this can be resolved using the existing modelled layers of benthic habitats and their diversity.
- MSP must find ways for minimising conflict areas between blue corridors, infrastructure corridors and transport corridors using three dimensional spatial approach and time as the fourth dimension. The research on blue corridors should be continued leading to a network of such corridors agreed at Baltic level.
- MSP should encourage terrestrial planning to diminish anthropogenic pressure produced in coastal land area and to plan coastal development in relation to sea space available.

Port development and maritime transport development conflicts with nature protection activities: key challenge comes from UNCLOS e.g. securing and designating shipping lanes is an IMO task, MSP can only depict the ways that ships predominantly use.

- In order to minimize these impacts MSP must have spatial information on intensity of maritime transport and ecological values.
- MSP must have an access to reliable model of maritime risk management including first of all dynamism of spread out of oil spills.

- MSP must have information on maritime transport forecasts and planned investments in port capacities. Based on the collected data, MSP must reserve space for port development and for transport corridors development including intelligent transport corridors if necessary to minimize ecological risk from transport. The network of such corridors should be agreed at Baltic level.

Fishery and aquaculture may also conflict with environmental priorities.

- In order to minimize these impacts MSP must have information on important spawning areas, fish migration and fish harvesting areas.
- MSP must have a clear link with terrestrial planning to ensure proper conditions for the marine environment including fish populations e.g. keeping rivers accessible for fish when going to the spawning areas as well as to limit land based pollution to the marine environment.

Energy sector may also have conflicts with nature protection.

- In order to minimize such conflicts MSP must have information on areas suitable for renewable energy development and possible impacts on the environment.
- The maximum target on the share of the sea space used for energy production should be agreed.
- The network of international corridors for technical infrastructure should be agreed at Baltic level.

The following questions are proposed for discussions at the Baltic Scope project:

- Representativeness and coherence of MPA network within CBC and criteria for connectivity of MPA network: functional interconnection between sites, conditions for spreading of species, viability of populations, considering using the potential of the existing mapping studies including the recently established EBHAB classification systematics.
- Co-ordination of the management practices within transboundary MPAs (e.g. Irbe Strait).
- Other nature conservation issues of transboundary relevance, including:
    a. Management of spawning and nursery areas
    b. Management of fishery impact on marine ecosystem
    c. Transboundary co-ordination of bird protection measurers
    d. Better connection of terrestrial and marine spatial planning e.g. how current and future management of land based riverine and municipal pollution (e.g. Daugava River and Riga) to marine environment prevent attaining GRS in the MSFD context or Favourable conservation status in the HD context.
- Blue growth potential within CBC: The Directive 2014/89/EU of the European Parliament and of the Council has specifically stressed the importance of “Blue Growth: opportunities for marine and maritime sustainable growth” which could be supported by greater confidence and certainty for investors provided through maritime spatial planning. There is a need to analyse both roles and potential of these blue growth initiatives in the CBC area and provide suggestions on the spatial allocation of marine areas intended for the blue growth development (e.g. mussel or algal farms).
- Ecosystem based approach in Estonian MSP and interrelation to MSFD objectives:
    a. Establish links of the MSP process to MSFD objectives for achievement of GES and co-ordination/integration with Programme of measures.

b. Identification and possible harmonisation of indicators and GES threshold values having relation to MSP objectives.
c. Approaches for assessing interactive pressure of all human activities on marine environment at local, national as well as transboundary level; issues of scale in assessing environmental impacts of human activities.

2.3.3. Sweden

Sweden initiated its Marine Spatial Planning Process by starting up thematic groups with focus on Environment, Fisheries, Energy, Shipping, Defence/security and Regional development (coastal blue growth). The aim was to start discussions in three meetings with thematic groups providing input to the continuing planning in an cross-sectoral group.
The Environment group consisted of representatives from:

- SwAM – MSP, marine environment, green infrastructure and MPA expertise
- The Swedish Environmental Protection Agency – Birds and marine environment expertise
- The Geological Survey – marine geological expertise
- The Swedish Agricultural University – fisheries expertise
- County Administrative Boards – Stockholm, Halland, Västerbotten, Västra Götaland – marine environment and GIS- expertise

The environmental group has discussed the challenge of MSP and how it relates to other relevant management processes like the Green Infrastructure -process and the MPA-process:

- Green Infrastructure- process: The Government has pushed the development of green infrastructure for terrestrial, aquatic and marine environment. A number of governmental assignments have focused on how to develop green infrastructure and how to increase its importance in spatial planning.
- MPA- process: Sweden has set the goal to increase its MPA-network from 6.7 % to 10 % of its marine areas by 2020. With the ambition to create a coherent representative network of MPAs. Development of MPAs requires close cooperation between the national and regional levels as most MPAs are designated at the regional/county level.

Another focus has been on conflicts and synergies, data needs, future scenarios and long term objectives:

- Conflict and synergies:
    - Sand and gravel extraction: Little interest in extraction so far but likely increased in the future. Need for to identify areas where extraction may be possible with minimal negative environmental effects.
    - Fisheries: Historically significant negative environmental impact from fisheries. Need for an ecosystem approach and sustainable management. Include MSP in the overall fisheries management.
    - Shipping: The Baltic is a so called Particular Sensitive Sea Area which not only may lead to Areas to be avoided but stronger regulations of shipping. Underwater noise is an issue but still need to increase knowledge on the specific sensitivity of different species. MSP may provide for seasonal regulations depending on species sensitivity to pressures. Specific areas may be designated with special requirements like double hull to minimize risk of oil spills

- Birds: There is need to address bird protection at an overarching level in MSP. A HELCOM-recommendation on birds at sensitive marine banks is in place.
- Energy: Wind power may conflict with environmental objectives when they are designated in shallow offshore banks. Research and development may lead to floating constructions with reduced impacts. Wave power is developed as a pilot project with potential as future export industry. Need to in MSP identify areas where wind power may be acceptable regarding possible negative impacts.

- General solutions for ensuring environmental/nature conservation interests in MSP:
  - Buffer zones around from different activities may be possible to develop in MSP.
  - Regulations for protection of habitats (Habitats directive) have potential by combining it with green infrastructure and including buffer zones.
  - There is a need to develop a practical approach to connectivity in MSP.

- Data needs: A mapping plan is being developed by SwAM with the ambition to feed into both the MSP- and the MPA-processes. This includes:
  - Mapping of seafloor substrates and habitats
  - Mapping of environmental
  - Mapping of ecosystem services
- Future scenarios: A consultant report on future scenarios by WSP gives a view of future sector scenarios.
- Lack of long-term objectives: The goal for development of the MPA network is to increase it to 10 % by 2020. No further goal exists. EU strategy for biological diversity goal for 15 % restoration of damaged ecosystems by 2020. Which would be an appropriate goal for a pan-Baltic MPA-network in 2035/2050?
- The thematic group has also commented on a draft national map of marine green infrastructure (aggregated and divided in benthic habitats, fish, marine mammals and birds). The objective was to provide an input to the cross-sectorial group on which marine areas need protection or considerations in MSP and where areas for other uses are possible to identify. The MPA-process will also involve the county administrative boards on a marine spatial plan level in the process of developing new MPAs.
- The final meeting of the environmental group focused on synergies and conflicts with other sectors. A map exercise was carried out identifying such spots of synergy or conflict as issues to be dealt with in the following planning stage.

3. Future developments and needs

The important challenges for achieving environmental objectives in MSP are:

1. Improving the knowledge and information basis on marine environment, species and habitat distribution, ecosystem functions and services, including:
   - Assessing coherence and sufficiency of the MPA network at national and Baltic scale as well as the comparison of protection objectives and management measures in the neighbouring cross-border protected areas; laying down the conditions to maintain or restore a favourable conservation status of objects of protection in protected areas.

- Mapping of marine ecosystem services at national and Baltic Sea level and assessing the contribution of the MPA network for maintenance of ecosystem services.
- Identification of existing and potential threats to the natural values of the analysed area, and to preservation of favourable conservation status of natural habitats and species (e.g. anthropogenic pressure, discharges of sewage and geothermal brines, extraction of aggregates, post-war warfare agents).

2. Analysis of existing and proposed activities/project at sea and in the coastal zone, the implementation of which may have an impact on the marine environment in a trans-boundary context (e.g. development of offshore wind parks, port and tourism infrastructure and measures related to the coastal protection);
3. Drawing attention to climate issues, because climate change is expected to strongly modify the whole marine ecosystem, especially in interaction with other human mediated stressors such as discharges and changes in physico-chemical parameters of water) and thereby have serious consequences for the environment, economy and society.

There is need for more information on distribution of species and habitats with high value, putting emphasis on those which are threatened by various pressures, including other activities in the sea. It is important that particular management measures can contribute in conservation of those natural values. Very important is to take into account connectivity of sites and coherence of whole Baltic MPAs.

In order to ensure consistency of cross-border procedures, during environmental proceedings in relation to the activities in marine areas, one should identify the sites posing potential or existing conflicts with environmental background. Any action that may have an impact on the environment should be analysed in a broader sense, inter alia taking into account the location, because the sea area contains no barriers and boundaries that could inhibit the spread of influence.

The main focus of the CBC Topic Paper on environment is on issues of trans-boundary importance/implications that can be addressed by MSP and targeted at achievement of GES and maintenance of resilient marine ecosystem and services it provides. This includes:

- **Assessing coherence of MPA-network** within the CBC and identification of solutions that can be provided by MSP for improving coherence of MPA network.
- **Developing approaches for assessment of pressures to marine environment**, that can be applied within the MSP process in order to ensure that sea use developments are not in contradiction with goals for achievement of GES, by:
    - establishing links to MSFD objectives and GES indicators, co-ordination with Programme of measures;
    - developing methods for assessing collective pressure of all human activities on marine environment at local, national as well as trans-boundary level;
    - defining criteria for applying precautionary principle and setting limitations/restrictions to sea use activities within the MSP.

3.1. Improving coherence MPA network within the territory of CBC

All three countries of the CBC have plans for enlarging the existing MPA network in order to achieve internationally and nationally set objectives for protection of marine biodiversity. Investigations of potential sites are at different stages of development, mostly based on rather limited existing data, which still have to be verified by field works. An overview map with existing and proposed MPAs and related areas of nature values is presented in **Annex I**.

3.1.1. Plans for enlargement of MPA network in Latvia

Although MPAs in total covers 15 % of Latvian marine waters, this includes 33% of territorial waters and only 1 % of EEZ. In so called Biogeographical seminars, organised by the European Commission, it was assessed that Latvia has not designated sufficient amount of Natura 2000 sites within EEZ to fulfil the provisions of Bird and Habitat Directives and additional investigations of potentially valuable marine areas are needed. The need for expansion of Natura 2000 network is also identified in the National Environmental Policy Guidelines 2014-2020. Latvian Institute of Aquatic Ecology have identified four areas based on bathymetry data where nature values potentially can be found (see figure 5.a), however at the moment there is no information of when detailed survey of these areas can be done.

The ecological information and management conditions for the established MPAs are taken into account within development of Latvian MSP. Also the areas of the potential MPAs shall be identified and reflected in the zoning proposal, in order to avoid planning of such sea-uses within these areas that could pose a negative impact on nature values for protection of which nature values shall be established (e.g. when defining potential sites for wind park development.

When defining potential areas for MPA designation within the MSP, potential conflicts between different sectors were recognised. The risk areas for conflicts with energy sector are the shallow waters, as those areas are with the highest potential of natural values. Whereas the southernmost potentially valuable natural area is under the risk of having a conflict related to the hydrocarbon extraction, because the highest possibility of oil extraction is in the south of the Latvian part of the Baltic Sea. Potential conflict can arise also with shipping sector, but taking into consideration the previous experience, it could be solved by employing specific management measures. Concerns are also expressed from the side of fishery sector about the possible fishing restrictions within the new MPAs (e.g. restrictions on trawling).

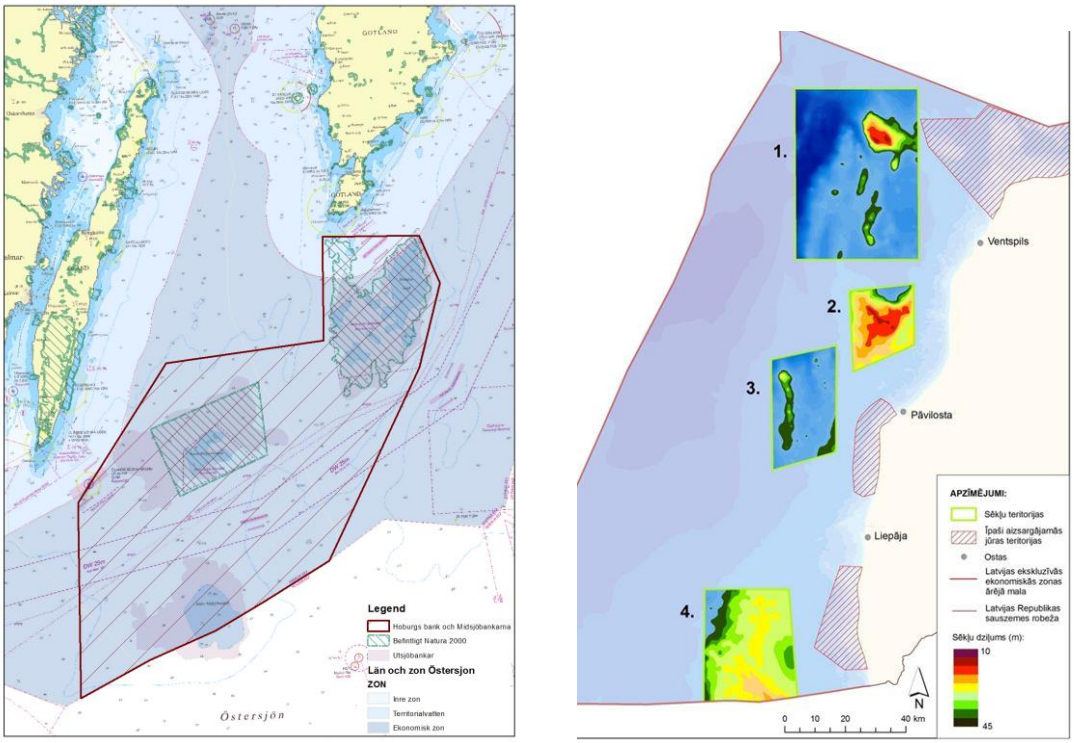
3.1.2. Plans for enlargement of MPA network in Sweden

Sweden has set the goal to increase the MPAs to 10 % of its marine areas by 2020 with the ambition to create a coherent representative network of MPAs. More MPAs shall be designated in the Baltic Proper and Bothnia Sea. The regional level (County Administrative Boards) has an important role in designation of MPAs. At the moment one potential N2000 area is suggested in the banks south from Gotland for protection of the Harbour Porpoise (se Figure 5.b). It is on consultation until the 7th of June, 2016 and afterwards the proposal may then be sent to the Swedish Environmental Protection Agency (responsible for MPAs) and finally decided upon by

the Government. SwAM is carrying out a Government Assignment delivering a national plan for the Swedish MPA-network. The assignment should be reported to the Government in June.

3.1.3. Plans for enlargement of MPA network in Estonia

Estonian Program of measures (PoM) for implementation of the MSFD states that one measure under D1 is to review the existing MPA network and establish new MPAs in EEZ. In Estonia preliminary investigations have been carried out and two possible areas are currently being considered as potential MPAs in EEZ with the aim to protect Reef habitats. However, no official maps so far have been released.



a) b)

Fig.5. Areas proposed of considered for enlargement of the MPA network in the CBC area: a) Suggested Natura 2000 site for protection of the Harbour Porpoise on the banks south from Gotland, Swedish EEZ; b) Investigation areas of benthic habitats for potential establishment of Natura 2000 sites in Latvian EEZ.

3.1.4. Assessing coherence of MPA-network within the CBC

A coherent MPA network is one key measures for and maintenance of resilient marine ecosystem and protection of its biodiversity. The following criteria for assessment of connectivity of MPA network can be applied:

- **Repetitiveness** - habitat/species coverage within the MPA network to ensure viability of endangered species populations;
- **Connectivity** - concept of “Blue corridors”, involving functional interconnection between the sites and conditions for spreading of species.

The assessment of representativeness of MPA network requires very detailed information on habitat and species distribution, which countries at the moment are lacking, while connectivity issue can be addressed by the Baltic Scope project. The overall coherence and connectivity of the Natura 2000 and BSPA network should be assessed from trans-boundary perspective. For that purpose a standardised map of ecological values shall be developed, preferably for the whole Baltic Sea. Such map could provide evidence base for selecting areas to be included in MPA network, forming of "blue corridors" within MSP as well as for identification of the conflict areas with various sea uses and the best locations for specific development projects (e.g. wind parks, cables, mineral extraction, aquaculture farms, etc.) to avoid adverse impact on the most sensitive areas of marine ecosystem.

CBC Environmental topic group of the Baltic Scope project has produced an indicative overview map of ecological values (**see Annex II**).

The map includes data on the following environmental features:

- Habitat mapping (using EBHAB / HELCOM HUB classification systematic) – all countries
- Distribution of bird species – all countries
- Distribution of fish species (or total fish catch) – LV, SE
- Distribution of marine mammals – SE, EE.

However this draft version of the map is using already aggregated data layers on ecological value or sensitivity of the marine areas, assessed by using different methodologies. Also the included data sets are not harmonised. In order to develop methodologically harmonised map, the initial data sets on distribution of significant ecological features (habitats, birds, fish, marine mammals) have to be compiled and common methodology for assessing ecological values of the area have to be developed.

3.2. Increasing knowledge and understanding of interactions between marine ecosystem and human activities

Separate and interactive effects of various human-induced pressures on the environment is far from being well understood, resulting in insufficient or ineffective management measures of MPAs as well as in difficulties to identify appropriate measures under MSFD for achievement of GES in marine waters. There is an utmost need to collect seamless data on the spatio-temporal patterns of key environmental variables (biotic and abiotic; inside and outside of MPAs) and sea uses as well as to assess how existing pressures such as eutrophication, pollution, underwater construction, climate change etc. either separately or interactively influence the marine environment. This target can be filled by combining field mapping studies with spatial predictive modelling. International approach is needed to resolve some information knowledge gaps e.g. ascertain important bird routes, habitats important for different life stages of fish species, protection and management of seal population etc.

Essential precondition for achievement of GES is co-ordination and integration MSP solutions with MSFD objectives and Programmes of Measures.

The CBC Environmental Topic Group has proposed to focus the work into following directions:

1) **Identification and possible harmonisation of indicators and GES threshold values having relation to MSP**.

The indicators of the MSFD descriptors can be applied for spatial assessment of impacts on marine environment within the MSP and related SEA as well as in the EIA procedure, when assessing impacts of particular sea use projects. For the MSP purpose the most applicable are indicators defined for descriptors biodiversity (D1), sea floor integrity (D6) as well as introduction of energy, including underwater noise (D11). The eutrophication indicators are mostly related to impacts from land, therefore not applicable for assessment of the sea use impacts (however they could be important for assessment of the impacts of potential marine aquaculture project, e.g. fish aquaculture cannot be permitted in the Gulf of Riga where eutrophication level is already high).

The Baltic Scope CBC environmental group has screened available GES indicators in Estonia, Latvia and Sweden identified the ones that, which could be used for assessment of sea use impacts in MSP and EIA process. The relevant biodiversity indicators cover the following criteria (according to EC Decision): for D1 – habitat range, habitat quality, ecosystem structure; D6 – physical damage and community state; D 11 - Distribution in time and place of loud, low and mid frequency impulsive sounds and Continuous low frequency sound. The relevant indicators were assessed for the CBC countries regarding data availability, are they included within the Initial assessment for MSFD and in national monitoring programmes and are the GES values defined.

2) **Approaches for assessing collective pressure of all human activities on marine environment at local, national as well as transboundary level**;

Assessment of interactive or cumulative pressures from different sea uses activities is still a challenge within the MSP process. Cumulative presses shall be looked also at trans-boundary perspective taking into account developments at the different parts of the Baltic Sea and their overall impact to marine biodiversity (e.g. location of wind parks within marine waters of different countries can have cumulative impact on bird migration patterns across the Baltic Sea). Therefore a common/standardised methodology is needed, which would allow to assess the cumulative pressures at national as well as trans-national perspective. Assessment of cumulative pressures can be supported by GIS based tools.

Sweden has started a project, aiming to develop an analytical tool (Symphony) for assessment of cumulative effects in MSP (see Figure 6). Symphony project implemented by Swedish Agency for Marine and Water Management (SwAM). It will be based on current practice (Harmony and Halpern- models) and available software (see Figure 7). The tool will be used in the Strategic Environmental Assessment of Swedish MPA to assess spatial ecological risks from different planning alternatives. Applying Symphony in an interactive way in the planning process is part of implementation of the Ecosystem Approach. The draft tool shall be available in 2016, but fully functioning and used in Swedish MSP in 2017/2018.

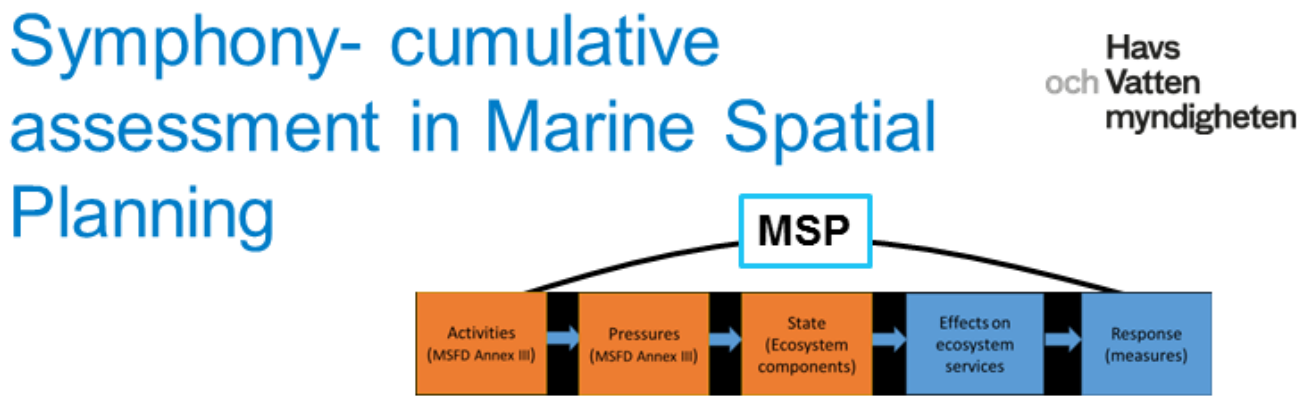


Figure 6. Conceptual frame of the Symphony tool

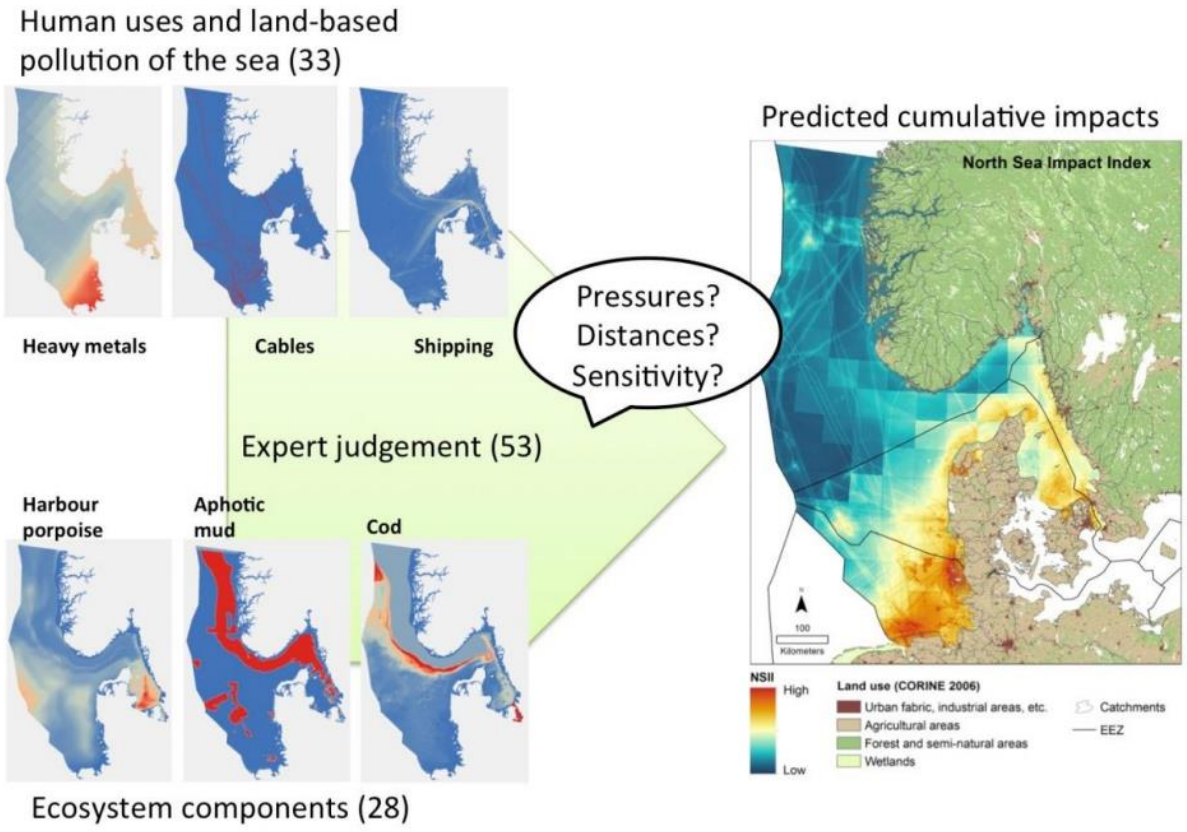


Figure 7. Example from the Harmony project showing the principle method

3) Criteria for applying precautionary principle and setting limitations/restrictions to sea use activities within the MSP.

The precautionary principle is one of the key elements for implementation of the ecosystem based approach, as defined by the HELCOM-VASAB guidelines. However, the very limited knowledge on effects of various sea uses on different marine features as well as overall resilience of marine ecosystem makes identification of appropriate sites for sea use development projects very difficult. The general assessment of impacts of particular sea uses can be misleading, because the actual level of impact would depend on extend of the activity as well as particular

technologies applied. Therefore along with elaboration of methods or tool for assessment of cumulative pressures, more precise criteria or procedures for application of the precautionary principle shall be developed.

4. Potential conflicts and Synergies between various sea uses and environment

The marine environment is influenced by many anthropogenic factors. Their effects can include changes in ecosystems (including those relating to habitats and populations of species), degradation or loss of biodiversity and water contamination. Among the factors that may in the future cause these transformations in the marine environment are:

- pollution (causing changes in species composition) from the land, from ships or which result from deliberate dumping of materials, and noise (including sonar devices);
- intentional or accidental introduction of alien, invasive species (e.g. species transferred from ballast water or so called „fugitives from breeding");
- prospecting and exploration of mineral deposits of subsea oil and gas; the adverse impacts on the marine environment may include noise, discharge of waste into the sea, causing oil spills disasters by platforms;
- dredging of shipping lanes and sand and gravel extraction causes the degradation of seabed habitat;
- fisheries (including aquaculture) - leading to changes in food chains and habitats (e.g caused by fishing with bottom trawls); excessive overfishing of certain species that can impact population size and distribution or may lead to their extinction at the local level; selective removal of fish that leads in deviation in fish body size or age class structure from that expected in a healthy population.
- military activity - most reservations concerns the impact of sonar on marine mammals and protected fish and their behaviour;
- offshore energy production (wind farms, tidal power, etc.) the construction phase especially of wind power plants may adversely affect the landscape, disrupt migration routes of animals; the objects themselves cause noise and electromagnetic fields
- tourism (recreational shipping, diving and other water sports and leisure activities) - excessive tourist traffic causes the degradation of coastal zones, noise frightens animals, due to trampling or misalignment eggs and chicks of nesting birds may be destroyed directly on the sand. The state of preservation and integrity of Natura 2000 areas in the coastal zone could be affected also by development of residential areas, touristim and leassures infrastructure and measures for protection of the coast against erosion.

At the cross-sectoral discussion during the 2nd CBC Thematic meeting of the Baltic Scope Project, held on 9-10 February, 2016 in Tallinn the following main conflicts, synergies and possible solutions were identified.

4.1. Environment vs. Fisheries

Synergies:

- Fish species are part of marine ecosystem – maintenance of fish habitats is important for environment (ensuring good environmental status (GES) of marine waters) as well as for fishery sector to ensure viable fish stocks.
- Directing of fishing activities on catch of invasive species would help reduce the negative impact of invasive species (e.g. round goby) on marine ecosystem, including benthic habitats.
- Marine protected areas can create synergies as well as potential conflicts with fisheries sector, depending on protection objectives and measures applied (e.g. protection measures can improve fishing grounds and spawning areas, creating splitover of fish species to adjacent areas etc.) – in order to avoid the conflicts the measures shall be strictly targeted to protection objectives and appropriate zoning shall be applied.
- Sustainable use of the fish stocks is reducing the negative impacts of the fishing activity on marine environment

Conflicts:

- By catch of seals, harbour porpoise, birds
- Protected species (especially seals) are causing damage to fishing gears
- Demersal trawling cause negative impacts to benthic habitats – shall be subject of SEA and targeted monitoring action

Solutions/ way forward:

- A common knowledge shall be established on areas of high ecological value and their sensitivity to different activities, which would help to apply spatial solutions (zoning) for mitigation of the fishery pressure on marine ecosystem.
- Exchange on knowledge and guidance needed on impacts of different gears on benthic habitats (Swedish experience in relation to Natura 2000 site management could be used as example).
- Conflict between protection of seals and fishery can be managed by regular monitoring, collection of data from fisherman and data exchange.
- Recommendations needed for management of top-predators and reducing negative impact from invasive species.
- More interaction needed between the both sectors for planning the use and protection of the sea space.

4.2. Environment vs. Energy

Synergies:

- Offshore wind/wave energy (OWE) production contributes to the national objective to increase the share of renewable energy sources in the total gross energy consumption. Important aspect to ensure the synergy is the scale of the OWE production – influence on overall energy production (potential for replacement of fossil fuels) in relation to area of marine space occupied and its impacts to marine ecosystem.

- OWE production can have positive impact on marine biodiversity, e.g. creating sanctuaries for fish populations or artificial reefs, thus creating habitat for benthic communities, in case appropriate locations and technologies are chosen.

Conflicts:

- Offshore wind parks can destroy habitats of certain benthic species as well as to create obstacles for migration/access to feeding grounds of birds, seals and bats.
- Construction (especially pile driving), maintenance works and dismantling of offshore wind parks can cause disturbance effects on certain species.
- Construction of cables can have impact in benthic habitats
- Placement of the offshore wind parks can create favourable conditions for the large scale range expansion of the invasive species and replacement of native populations.
- Potential impacts negative impacts to coastal landscape, especially in areas of high nature and touristic value.

Solutions/ way forward:

- Location of the OWE production shall be transnationally co-ordinated taking into account the energy consumption and possibilities for interconnections between the countries of the electricity transmission grid as well as the ecologically sensitive areas and species migration patterns.
- Reefs, which are essential habitats and food bases for many species, are considered as very sensitive to construction of wind parks (precautionary principle requires to avoid these areas). However the significance of the potential impacts shall be assessed based on particular technologies of construction. Nevertheless the reef area shall be avoided as much as possible – preferably soft bottoms shall be chosen, when selecting sites for OWE production.

4. 3. Environment vs. Shipping

Synergies:

- The shipping safety is the common interest of the both sectors. The measures for improving shipping safety are essential for avoiding damage to marine ecosystem, caused by the shipping accidents and oil spills.

Conflicts:

- Intensively used shipping routes can have negative impacts (disturbance, oil spills etc.) on areas of high ecological value (e.g. Swedish case) – possibilities for reallocation of shipping routes because of environmental concerns shall be considered.

Solutions/ way forward:

- Common Baltic map on areas of high ecological vales are essential for planning of the shipping routes and minimising of impacts caused by shipping accidents and oil spills,
- The contingency plans shall take into account the ecologically sensitive areas in targeting of the actions and allocation of the technique for rescue operations.

5. Trans-boundary issues

The following issues of transboundary relevance were identified for the CBC in the field of environment:

- Co-ordination of MPA designation, goals for a pan-Baltic MPA-network in 2035/2050;
- Co-ordination of MPAs management/sea use conditions (case of the LAT-EST cross-border protected are in the Irbe Strait):
    - On both sides of the border the MPA is established for protection of birds. The main sea use activity in the area is shipping, which does not have significant negative impact on bird migration and concentration areas.
    - The main risks to bird species are related to ship collisions and oil spills. Therefore the shipping safety shall be the main priority in this area, which shall be also taken into account in the MSP process. A trans-boundary co-operation issue could be organisation of the emergency operations for combating of oil spills.
- Management of fishery impact on marine ecosystem and how to integrate it in MSP
- Management of shipping impact on marine ecosystem and role of MSP
- Management of spawning and nursery areas for maintenance of viable fish population
- Co-ordination of bird protection measurers (e.g. migratory corridors, wintering and feeding areas, HRLCOM-recommendation on birds at sensitive marine banks).

6. Planning evidence

As it has been stated in HELCOM 2015 activities report, efficient exchange of geographical data is a prerequisite for effective maritime spatial planning (MSP). However there are still challenges in the availability, compatibility, usability and spread of data that is useful – or necessary – for MSP.

For ensuring environmental interests in the MSP process the following data sets can be used:

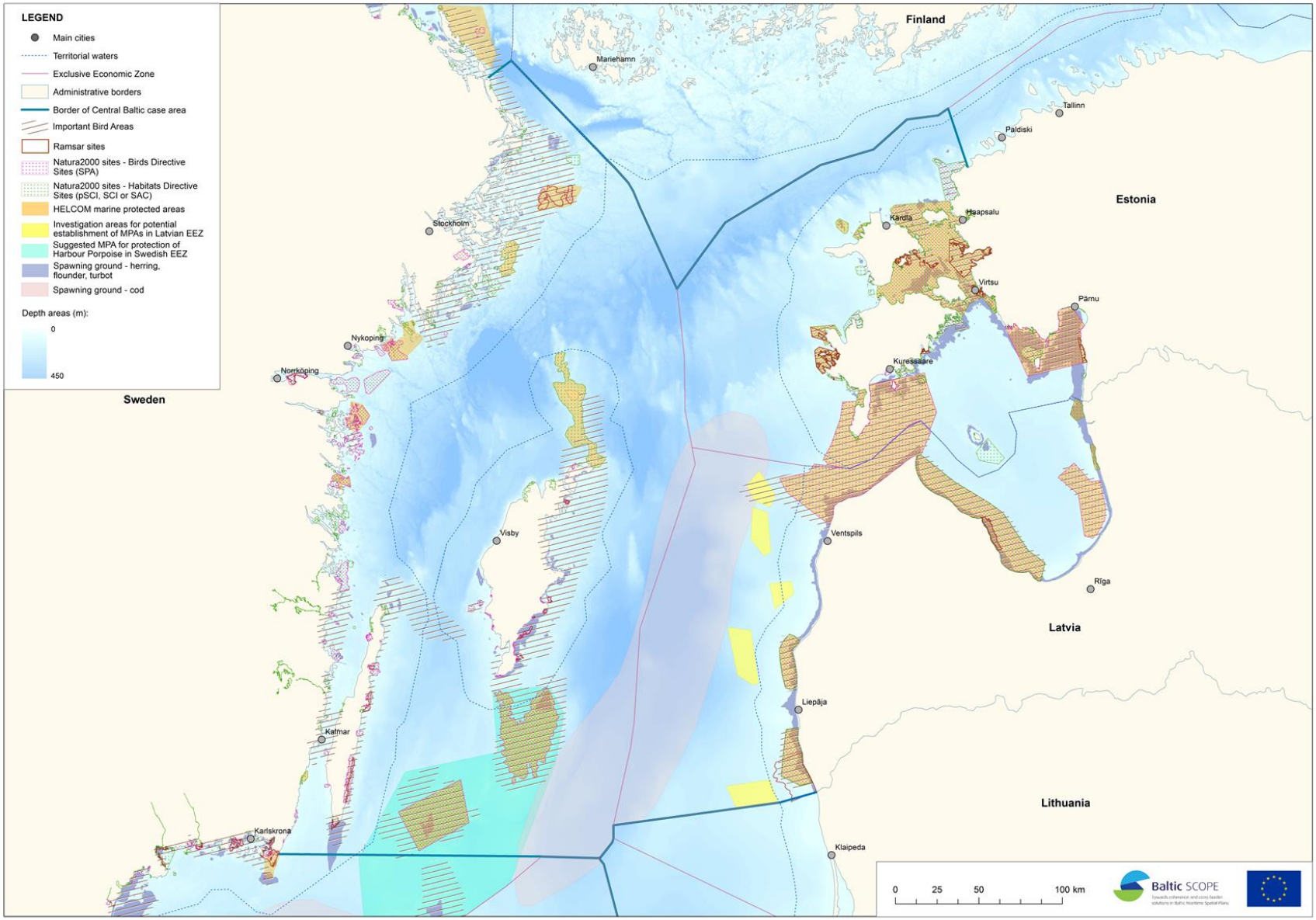
- MPA borders and zoning (if applied), including categories of protected areas (available at HELCOM); areas proposed or to be investigated for MPA designation.
- Important Bird Areas – defined by internationally agreed criteria, data available for EE, LV and SE
- Information on bird distribution based on data from surveys and regular monitoring.
- Information on distribution of fish species based on data from scientific surveys and monitoring or catches of commercially important species (fishery log books).
- Fish spawning and nursery areas - different accuracy data available for EE, LV and SE.
- Benthic habitat maps – mapping based on field survey data cover only some parts of marine waters. Different approaches for modelling or identification of benthic habitat types based on bathymetry and geology data exist. Possibilities of application of the HELCOM HUB classification system for mapping of benthic habitats shall be discussed.
- Mapping of ecologically valuable/sensitive areas – different approaches for calculation of the ecological value/sensitivity exist. Possibilities for harmonised approaches shall be discussed.
- Mapping of ecosystem services - different approaches (depending on data availability) and classification systems can be applied. Suggestion to use The Common International Classification of Ecosystem Services (CICES) (see www.cices.eu) for ensuring internationally comparative approach.

Benthic habitat mapping provides the core data set for identification of the ecologically valuable areas, mapping of ecosystem services and spatial impact assessment of the sea uses. Transboundary co-operation action would be needed for harmonisation of benthic habitat mapping approaches, including exchange of geological maps, joint identification of the habitat types and addressing of the connectivity issue. Synchronized data sets and common benthic habitat maps would lead to well-founded decisions in MSP and support transboundary co-ordination and impact assessment.

Ecosystem service mapping is an important step in implementation of the ecosystem based approach in MSP, helping to assess the trade-offs between ecological and socio-economic benefits and helps in decision making on allocation of space for different sea uses. The possible approaches for ecosystem service mapping shall be further discussed. Latvian example could be used as a starting point, but needs to be further developed.

Standardized map on ecologically value areas would help for implementation of the “Blue corridor principle”, assessment of MPA connectivity and impacts of sea uses on marine ecosystem.

Annex I: Existing and proposed MPAs and related areas of nature values within CBC



Annex II: Overview map of ecologically valuable areas in CBC