Baltic SCOPE

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

EUROPEAN UNION
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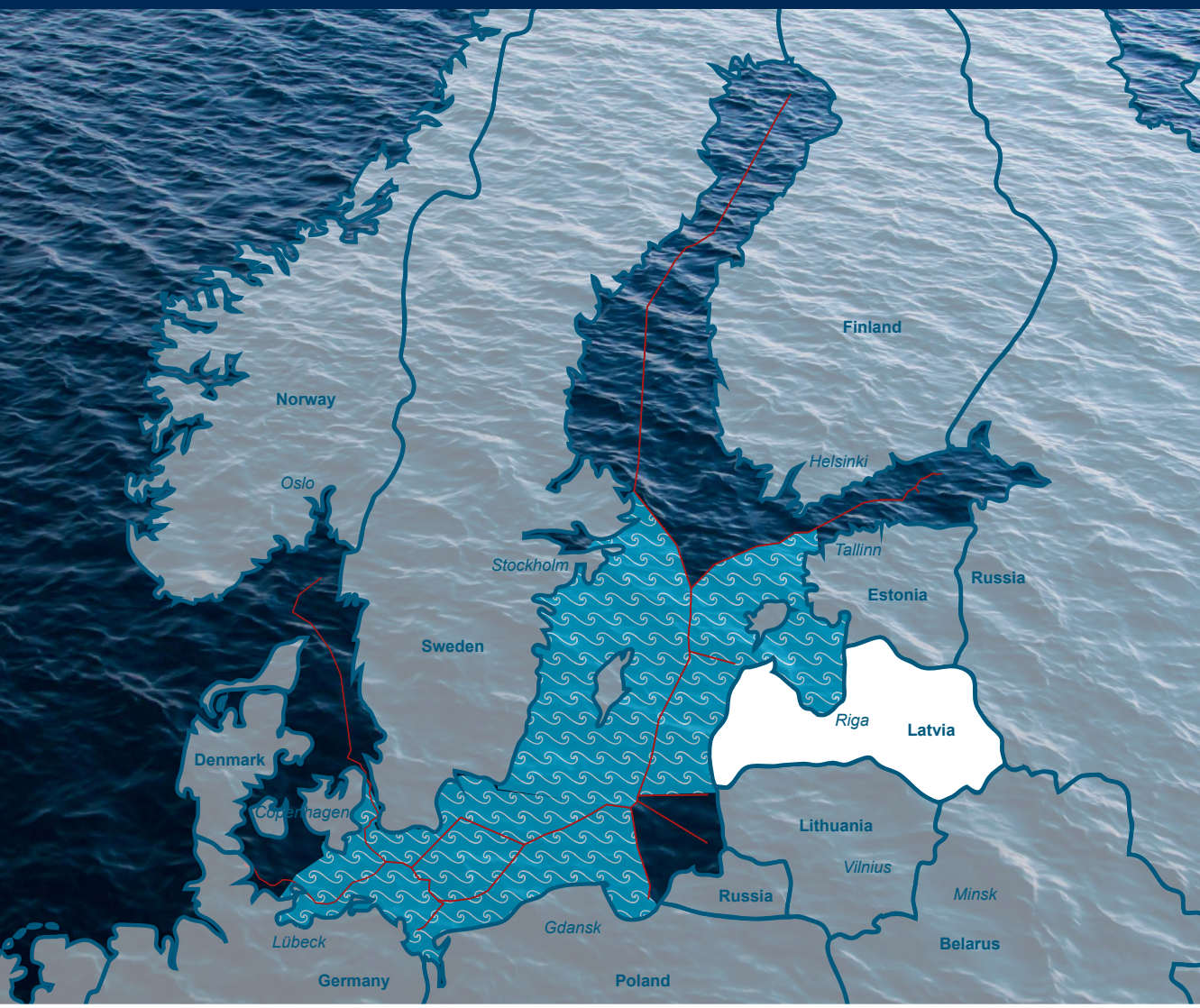
# Development of a Maritime Spatial Plan

## The Latvian Recipe



# DEVELOPMENT OF A MARITIME SPATIAL PLAN: THE LATVIAN RECIPE

MARCH 2017

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# 1 INTRODUCTION

The brochure "**Development of a Maritime Spatial Plan: The Latvian Recipe**" describes the methodology used to develop the Maritime Spatial Plan (MSP) for the internal waters, territorial waters and exclusive economic zone (EEZ) of the Republic of Latvia. The development of a planning system for the marine space was launched in 2010, in light of the Latvian Sustainable Development Strategy 2030 and the subsequent legal framework established in 2011-2012. It is remit of the Ministry of Environmental Protection and Regional Development (MoEPRD) to lead the development of the MSP.

The MSP was elaborated for the whole Baltic Sea area under the jurisdiction of Latvia including internal marine waters, territorial sea and EEZ. The boundaries of marine areas were delineated from the coastline to the outreach of the EEZ. The boundaries of the MSP were set according to the signed international agreements and hydrographically defined boundaries used by the Maritime Administration.

The principles, approaches, methods and tools applied in the development of draft Latvian MSP are described in the brochure. The brochure aims to share experiences of Latvia. Special attention is paid to issues related to an ecosystem-based approach, stakeholder involvement and transboundary consultation. The target group of the brochure is policy makers and practitioners working with development and spatial planning issues related to marine resources and space.

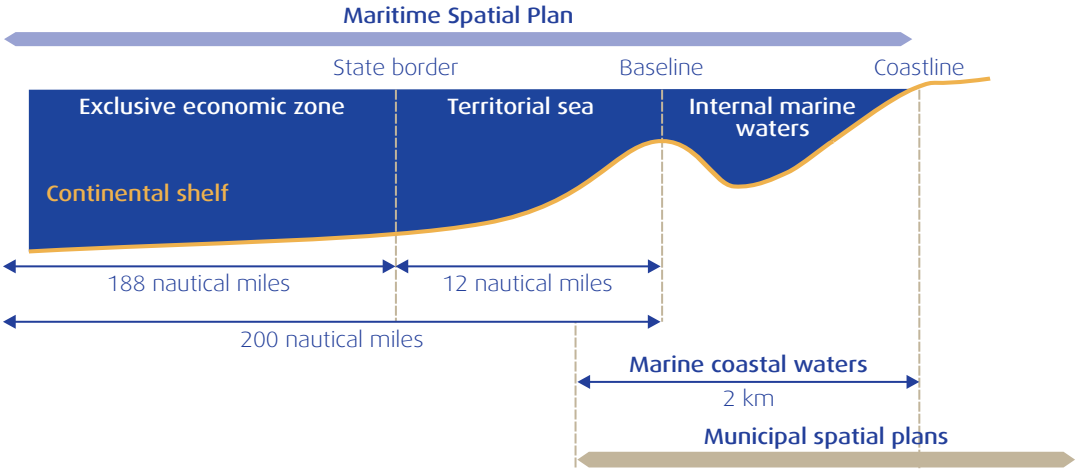



**Figure 1.** Spatial scope of MSP

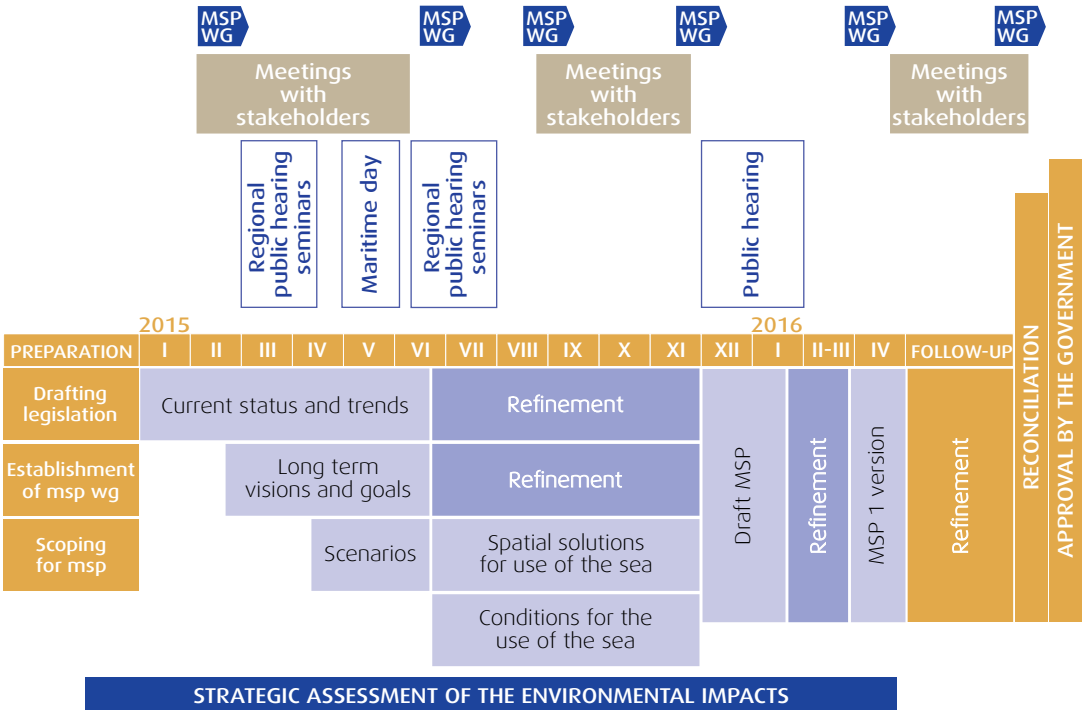



**Figure 1.2.** MSP development process

# 2 APPROACH WHEN DRAFTING THE LATVIAN MSP

MSP as a long-term planning process was defined initially in the Marine Environment Protection Law (01.01.2011). The Law transposed the requirements of the Marine Strategy Framework Directive (MSFD). The Law defines maritime spatial planning as a long-term process for development planning aimed at protection of the marine environment, rational use of the sea and integrated management, as well as balancing the social welfare and economic development with the environmental protection requirements.

The role of the MSP in the Latvian planning system was defined in the Spatial Development Planning Law and CM Regulations No. 740 of 30.10.2012 "Procedures for the Development, Implementation and Monitoring of the Maritime Spatial Plan". The Law determined that the development of an MSP should be commenced not later than by 1st January 2014. The CM Regulations set the main components and key aspects to be considered when defining the uses of the sea. The legislation was elaborated before EU MSP Directive 2014/89/EU.

When developing the Latvian MSP, stakeholders played an essential role throughout the preparation, elaboration and reconciliation of the interests in MSP. The systematic coordination and cooperation was ensured by the early establishment of a transdisciplinary MSP working group (MSP WG) with representatives from relevant ministries, public administration, regional and local coastal municipalities, as well as non-governmental organisations.

The MSP draft was produced by a consortium led by "Baltic Environmental Forum-Latvia". The consortium consisted of the Latvian Institute of Aquatic Ecology (LIAE), Maritime Administration of Latvia (MAL), Lithuanian Coastal Research and Planning Institute CORPI, Estonian environmental planning and consulting company *Hendrikson&Ko,* as well as different experts from specific fields, e.g., cultural heritage, fish resources, bird and habitat distribution. The work was carried out from January 2015 to April 2016.

Simultaneously with drafting the MSP, the SEA was developed in accordance with the Law on „Environmental Impact Assessment" and CM Regulations No. 157 „Procedures for Carrying out a Strategic Environmental Impact Assessment". SEA methodology is based on the application of an ecosystem approach in assessment of possible MSP impacts.

Drafting of the MSP was structured in main consequential and iterative steps. The diagram below presents key steps and methods applied. The brochure will present in detail the approaches taken, methods employed and data and information collected and used.

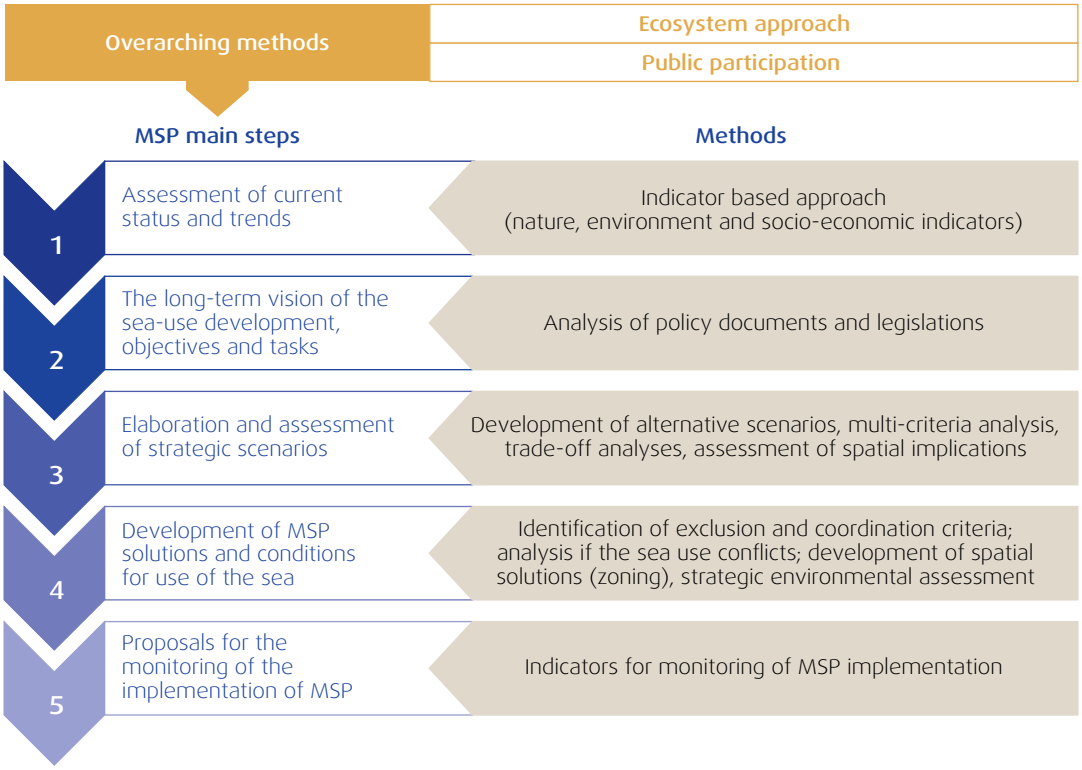



**Figure 2.1.** Steps and methods for development of the MSP

## 2.1. KEY CONSIDERATIONS FOR MSP

Key considerations for the MSP were defined respecting current legislative requirements, international examples and discussions with the stakeholders. The Marine Protection and Management Law of Latvia demands the application of an ecosystem-based approach and conformity with environmental protection and spatial development principles. As the result of debates with stakeholders the following key considerations were defined:

- Use of the marine space shall be organised according to natural conditions ensuring that the state of the environment and ecological parameters are not worsened and the resilience of the ecosystem is maintained, as well as providing preconditions for improvement of the state of the environment and marine resources.
- Existing and traditional uses of the sea that occupy definite sea space shall be maintained and their development needs set the conditions for new human activities in the sea; simultaneously preconditions for emerging new sea uses shall be set.
- Decisions on new sea uses shall be based on technological and economic feasibility test results, impacts on the environment and ecosystems as well as conformity with national policy goals and priorities.

## 2.2. INTERNATIONAL MSP PRINCIPLES

The Spatial Development Planning Law and Development Planning Law contain ultimate planning principles to be taken into account in the MSP. In the MSP, the key stakeholders defined the essential specific planning principles which were determined recognising the minimum requirements of EU MSP Directive (2014/89/EU) and HELCOM-VASAB MSP principles.

**Table 2.2.** Overview of MSP principles and requirements

| Latvian MSP | EU MSP Directive (Article 6) | VASAB-HELCOM principles |
|---|---|---|
| Sustainable use of marine space and ecosystem-based approach in management of human activities | • Take into account environmental, economic and social aspects, as well as safety aspects | • Sustainable management<br>• Ecosystem approach<br>• Precautionary Principle<br>• Planning adapted to characteristics and special conditions at different areas |
| Knowledge-based and continuous planning | • Organise the use of the best available data | • High quality data and information basis<br>• Continuous planning |
| Take into account land-sea interactions | • Take into account land-sea interactions | • Coherent terrestrial and maritime spatial planning |
| Rational use of the sea space | - | - |
| **Latvian MSP** | **EU MSP Directive (Article 6)** | **VASAB-HELCOM principles** |
| Coherent use of the marine space from cross-border and the whole Baltic perspective | • Ensure trans-boundary cooperation between MS<br>• Promote cooperation with third countries | • Transnational coordination and consultation |
| Involvement of stakeholders and public | • Ensure the involvement of stakeholders | • Participation and transparency |
| Spatial Development Planning Law | • Promote coherence between maritime spatial planning and the resulting plan or plans and other processes | • Long term perspective and objectives |

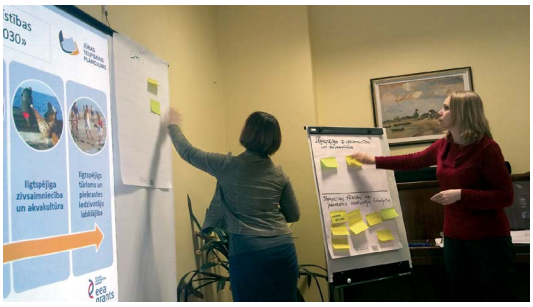
It is very important to highlight that any development planning shall ensure conformity with the principle of sustainability, meaning that economic growth and use of resources shall be enabled at the same time safeguarding the environment, natural and cultural heritage. Conceptually, the first of the Latvian MSP principles (Table 2.2.) covers several individual HELCOM-VASAB principles that are closely related to the ecosystem-based approach. The HELCOM-VASAB principle on long-term perspective and objectives is not highlighted in the MSP of Latvia as that is explicitly set by the Spatial Development Planning Law. EU MSP Directive (2014/89/EU) requires that coherence between maritime spatial planning and the resulting plan or plans and other processes shall be promoted. This requirement is also endorsed by the Latvian Spatial Development Law.

The Latvian MSP particularly emphasizes the necessity to use space effectively, thus promoting spatial co-existence of the different human activities.

# 3 DETERMINING LONG-TERM VISION, OBJECTIVES AND TASKS FOR USE OF THE SEA

The long-term vision on sea use – the desired situation in 2030 - forms the strategic part of the MSP. The vision was built upon objectives and priorities that are set in relevant policy documents. Initially the proposal for the vision was discussed in the first regional workshops organised in three coastal settlements in March 2015. It was essential to facilitate the exchange of ideas, view-points and proposals of different sectors, local municipalities and civil society to be incorporated in the vision and priorities of the MSP. Four sector-based (maritime transport; fishery; tourism; production of renewable energy) and two cross-cutting (environment and state security) priorities took shape during this process.

Strategic objectives and tasks were defined and fine-tuned throughout the development of the MSP. The main challenge was to determine actions in the long-term perspective by 2030, as the existing sector-based planning documents are determined in the mid-term up to 2020.



# 4 ECOSYSTEM-BASED APPROACH IN THE MSP

## 4.1. ABOUT THE ECOSYSTEM-BASED APPROACH

The ecosystem-based approach (EBA) was applied in development of the Latvian MSP. It entails a scientifically based and integrated approach to management of human activities with the aim of maintaining the ecosystem's integrity and ensure the sustainable use of its goods and services by identifying the possible negative impacts and applying the effective measures for minimising these effects on the marine ecosystem. In order to implement this approach in the MSP, the ecologically valuable or sensitive areas shall be identified and sea uses, which could endanger these areas or even destroy the ecosystem structure and its functions (e.g. benthic habitats) and provided services should be avoided.

The development of the Latvian MSP is in accordance with the HELCOM-VASAB guideline for the implementation of an EBA in the MSP [1]. EBA was applied within all steps of the MSP's development, by assessing the possible negative impacts on nature's assets and ecologically significant areas, and thus avoiding as much as possible the negative impacts on marine ecosystem (see figure 4.1.). A comparative assessment on how the HELCOM-VASAB key elements of the EBA was applied in the Latvian MSP is presented in Table 4.1.

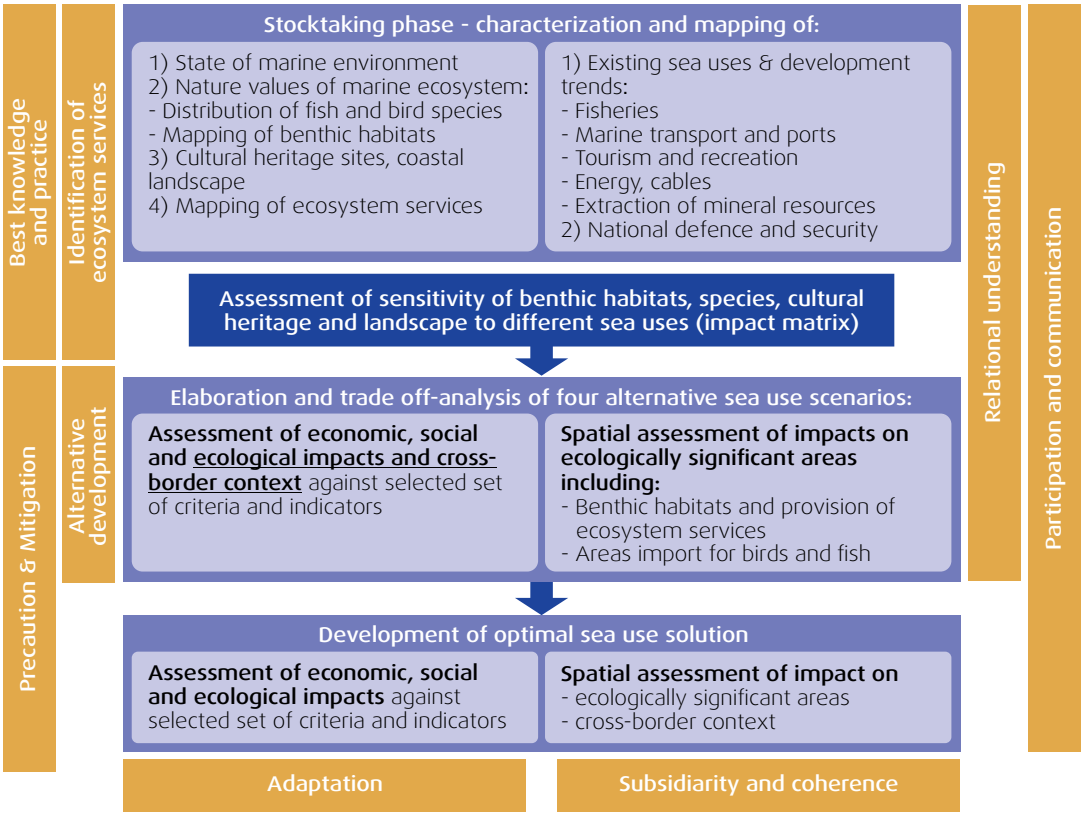



**Figure 4.1.** Implementation of the ecosystem-based approach in the Latvian MSP and integration of the HELCOM-VASAB key elements of the EBA

1 HELCOM-VASAB MSP Working Group, 2015. Guideline for the implementation of an ecosystem-based approach in maritime spatial planning (MSP) in the Baltic Sea area

## 4.2. CHARACTERISATION OF NATURAL CONDITIONS AND RESOURCES

Functioning of the marine ecosystem depends on its structure, diversity and integrity. The marine ecosystem consists of the two main sub-systems – pelagic (water column) and benthic (sea-bottom) which interact with each other. The structure of the marine ecosystem is formed by the abiotic environment – sea bottom substrate, depth, differences of the light intensity within the water column as well as the biotic or living environment – populations of plankton, benthos, fish, birds and marine mammals (seals).

During development of the Latvian MSP stocktaking was carried out to gather data on Latvian marine geological, physical and environmental conditions, as well as nature assets of the marine ecosystem. Based on best available scientific knowledge, the nature assets of the marine ecosystem are described, including plankton and benthic communities, distribution of marine mammals, birds and fish species, protection of marine biodiversity in marine and coastal terrestrial parts, coastal and marine landscapes, underwater and marine cultural heritage. In the brochure, we present the most significant components for the MSP.

### Characterisation of the geological conditions

The information on marine geology surveys since 1945 was compiled, giving an overview on data availability and their accuracy. A sea bottom sediment map for all Latvian marine waters was developed in the framework of the MSP by combining two existing spatial data sets:

- A bottom sediment map of the Gulf of Riga on a scale 1:200 000[2], produced in 1996 by the Geological Survey of Latvia in co-operation with the Geological Survey of Estonia, based on geological mapping results from 1984 to 1993.
- A bottom sediment map of the Central Baltic Sea on a scale 1:500 000[3], produced in 1998, based on a joint Lithuanian-Swedish-Latvian seismo-acoustic survey performed in 1995.

### Characterisation of the marine physico-chemical conditions

The marine waters of Latvia belong to two sub-basins of the Baltic Sea – the Gulf of Riga and the Baltic Proper. Therefore, hydrological parameters (temperature, salinity, water transparency), hydro-chemical parameters (phosphates, nitrogen, oxygen) were presented separately for both sub- basins. The following scientific information was compiled based on the long-term survey results of the Latvian Institute of Aquatic Ecology (LIAE):

- seasonal and yearly fluctuations of the water temperature (data from 1973 to 2013);
- horizontal and vertical gradient of the water salinity, including salinity distribution map for the upper water layer 0-10 m (data from 2003 to 2013);
- seasonal and yearly fluctuations of the water transparency (Secchi depth) (data from 1974 to 2014), including a spatial distribution map of the Secchi depth during spring, summer, autumn and winter in 2013;

2 Stiebriņš O. and Väling P. Bottom sediments of the Gulf of Rīga. Geological survey of Latvia. Geological survey of Estonia. Rīga, 1996, 54 p.

3 Repečka, M. & Cato, I. (Eds.), 1998. Bottom Sediment Map of the Central Baltic Sea, scale 1:500 000. LGT Series of Marine Geological Maps no. 1 / SGU Series Ba no. 54. Vilnius-Uppsala. [Repečka, M., Cato, I., Kjellin, B., Stiebrinš, O., Kovalenko, F., Lutt, J., Tammik, P., Uscinowicz, Sz.]. ISBN 9986-615-11-9

- seasonal dynamics of the oxygen concentration, including graphic illustration of oxygen concentration in the Gulf of Riga (data from 1973 to 2013);
- seasonal dynamics of nutrients (P and N compounds), including graphic illustrations of the situation in the Gulf of Riga (data from 1973 to 2013);
- characterisation of the biochemical processes in sediments and their role in carbon, nitrogen phosphorus cycles.

Information on these parameters is essential in assessment of the environmental status of the marine waters as well as the development potential of the sea uses. For example, water temperature and salinity are essential factors in defining areas for aquaculture development. Water transparency, concentration of oxygen and nutrients and their dynamics indicate the level of eutrophication, whereas the eutrophication has an impact on fish resources, tourism as well as possibilities for the aquaculture development. Biochemical processes in sediments regulate ecological conditions and pollution levels and thus impacting ecosystem functions and services.

## Distribution of bird species

Information on abundance and distribution of marine and coastal bird species was developed based on various survey results, including:

- *Wetlands International* coastal survey of wintering water birds in January (1993 -2009);
- summer coastal surveys of water birds in the framework of the biodiversity monitoring programme (1999 -2001, 2006);
- surveys from ships in the zone of 10-30 m depth (1993 -1994; 1998);
- coastal surveys and ship surveys carried out in the framework of the LIFE MPA project [4] in winter, spring and summer (2006 – 2007);
- survey from the plain in the Gulf of Riga and Irbe Strait, carried out in the framework of the GORWIND project[5] (2011 - 2012);
- coastal and ship surveys in the Gulf of Riga and Irbe Strait carried out in framework of the LIFE MARMONI project[6] (2011 - 2014).

These surveys provide information on bird distribution in the Gulf of Riga, Irbe Strait and the territorial waters of Latvia within the Baltic Proper, while the data on bird distribution in the Latvian EEZ of the Baltic Proper were not available at the time of the MSP development.

4 Project "Marine Protected Areas in the Eastern Baltic Sea" (LIFE MPAs), financed by LIFE-Nature programme, implemented from 08/2005 to 11/2009.

5 Project "Gulf Of Riga as a resource for WIND energy" (GORWIND), financed by Estonian-Latvian programme, implemented from 11/2011 to 10/2012

6 Project "Innovative approaches for marine biodiversity monitoring and assessment of conservation status of nature values in the Baltic Sea" (MARMONI), financed by LIFE- Biodiversity programme, implemented from 10/2010 to 03/2015.

The Latvian territorial waters and EEZ are crossed by the Baltic – White Sea bird migration route. The territory is used by approximately 30 marine and water bird species. The MSP provides population estimations for selected bird species found in the marine waters (long-tailed duck, velvet scoter, common eider, common goldeneye, goosander, divers, common cormorant, little gull, common gull, herring gull, common and artic tern), as well as the total number of all water birds and all gulls in the Latvian part of the Gulf of Riga (based on the GORWIND project data). For the Baltic Sea and the western part of the Irbe Strait the number estimations were only available about the divers and common cormorants (based on LIFE MPA and MARMONI data).

Based on available information the spatial and sessional character of species distribution was described, as well as maps developed for distribution of seven species (see figure 4.2.3) by combining the data sets of MARMON, GORWIND, LIFE MPAs, as well as the surveys from ships in 1992-1993.

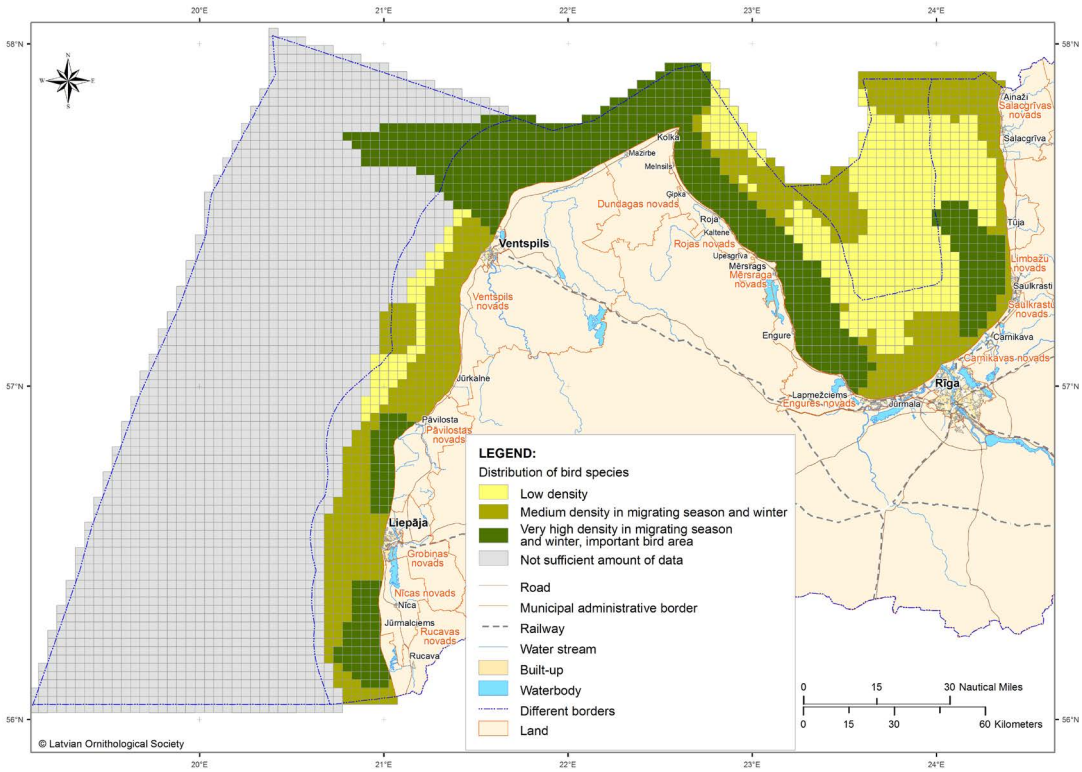



**Figure 4.2.3.** Distribution of bird species (little gull *Larus minutus*; black guillemot *Cepphus grille*; common and velvet scoter *Melanitta spp.;* long-tailed duck *Clangula hyemalis*; divers *Gavia spp;* common goldeneye *Bucephala clangula*; goosander *Mergus merganser*) in Latvian marine waters

The distribution map of the bird species was used for the strategic environmental assessment for assessing the impacts of alternative scenarios as well as the proposed optimal solution for the use of the sea. However, it was not possible to spatially assess the possible impacts of wind park construction and extraction of hydrocarbons (which based on expert opinion would have significant impact on bird migration routes as well as wintering sites of a few bird species), because these activities are mostly related to the part of the Baltic Proper outside of the territorial waters, where no data was available on distribution of bird species during development of the MSP (see figure 4.2.4).

## Distribution of fish species

In the framework of the MSP data on abundance and spatial distribution of commercially important and other fish species, fish spawning and nursery areas and trends in availability of fish resources were analysed using the scientific research data of the Institute of Food Safety, Animal Health and Environment - "BIOR" and the International Council for the Exploration of the Sea (ICES). Following the specifics of the commercial fishery and the scientific surveys, the information is presented separately for the Gulf of Riga, Baltic Proper and coastal zone (see table 4.2.1).

**Table 4.2.1.** Division of the Latvian marine waters for presenting the fishery and fish survey data

| Criteria | Spatial unit of marine waters |
|---|---|
| From coast to a 20 m depth | Coastal zone |
| Below 20 m isobath | Open sea in the Gulf of Riga |
| | Open sea in the Baltic Proper |

The MSP includes fish survey data for the period from 2004- 2013. Different methods have been used for data collection and presentation for the different parts of the Latvian marine waters (see table 4.2.2.).

**Table 4.2.2.** Methods applied for characterisation of the abundance and spatial distribution of the fish species in the different parts of the Latvian marine waters

| Spatial unit of marine waters | Abundance | Spatial distribution |
|---|---|---|
| **Coastal zone:**<br>- Gulf of Riga 0-2 m | traffic-light 37 species | Spatial distribution not mapped |
| - Gulf of Riga 3-10 m | traffic-light 28 species | |
| - Baltic Proper 0-2 m | traffic-light 28 species | |
| - Baltic Proper 3-10 m | traffic-light 37 species | |
| **Open sea in the Gulf of Riga** | traffic-light 31 species | Pelagic species (herring and sprat): spatial distribution maps developed by extrapolation of hydroacoustic survey data |
| **Open sea in the Baltic Proper** | traffic-light 25 species | Pelagic species (herring and sprat): spatial distribution maps developed by extrapolation of hydroacoustic survey data Benthic species (cod and flounder): spatial distribution illustrated based on data from surveys with benthic trawl |

Species abundance is characterised using biomass, which is calculated as the average total value of the catch per one hour of trawling. In order to show abundance and dynamics of rare species, data was logged-transformed and presented using the *traffic-light plot* method, with dark red marking a low biomass, while dark green represents a high biomass (see table 4.2.3).

**Table 4.2.3.** Abundance of fish species in scientific surveys, the Baltic Proper (March)

| Species | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|---|---|---|---|---|
| Baltic herring | | | | | | | | | | |
| Sprat | | | | | | | | | | |
| Flounder | | | | | | | | | | |
| Cod | | | | | | | | | | |
| Smelt | | | | | | | | | | |
| Bull-rout | | | | | | | | | | |
| Eelpout | | | | | | | | | | |
| Lumpsucker | | | | | | | | | | |
| Turbot | | | | | | | | | | |
| Four-bearded rockling | | | | | | | | | | |
| Plaice | | | | | | | | | | |
| Twaite shad | | | | | | | | | | |
| Three-spined stickleback | | | | | | | | | | |
| Sand goby | | | | | | | | | | |
| Greater sandeel | | | | | | | | | | |
| Nine-spined stickleback | | | | | | | | | | |
| Haddock | | | | | | | | | | |
| Four-horned sculpin | | | | | | | | | | |
| Perch | | | | | | | | | | |
| Mackerel | | | | | | | | | | |
| Snake blenny | | | | | | | | | | |

| Kg (log) |
|---|
| 0.01-0.1 |
| 0.11-0.5 |
| 0.51-1 |
| 1.01-1.5 |
| 1.51-2 |
| 2.01-2.5 |
| 2.51-3 |
| >3 |

Spatial distribution of the pelagic fish species (herring and sprat) in the open part of the Gulf of Riga and Baltic proper is presented in the maps, which were developed using the scientific research data of the "BIOR", obtained in co-operation with Latvian fisherman. The biological information and hydroacoustic data collected during the surveys allows calculating the number of fish within the spatial unit of the hydroacoustic survey (square mile) and using mathematical methods to extrapolate this information on larger spatial units. Separate maps were developed to show the spatial distribution of herring and sprat by year as well as a combined map for the period from 2004 to 2013 for the Gulf of Riga, July (see figure 4.2.4) and for the Baltic Proper, May and October (see figure 4.2.5).

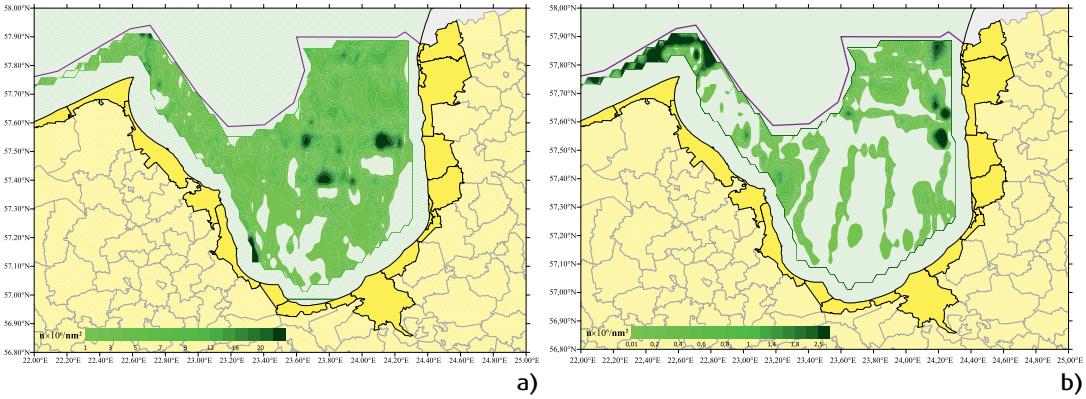



**Figure 4.2.4.** Spatial distribution of herring (a) and sprat (b) in the Gulf of Riga, 2004 - 2013 (July)

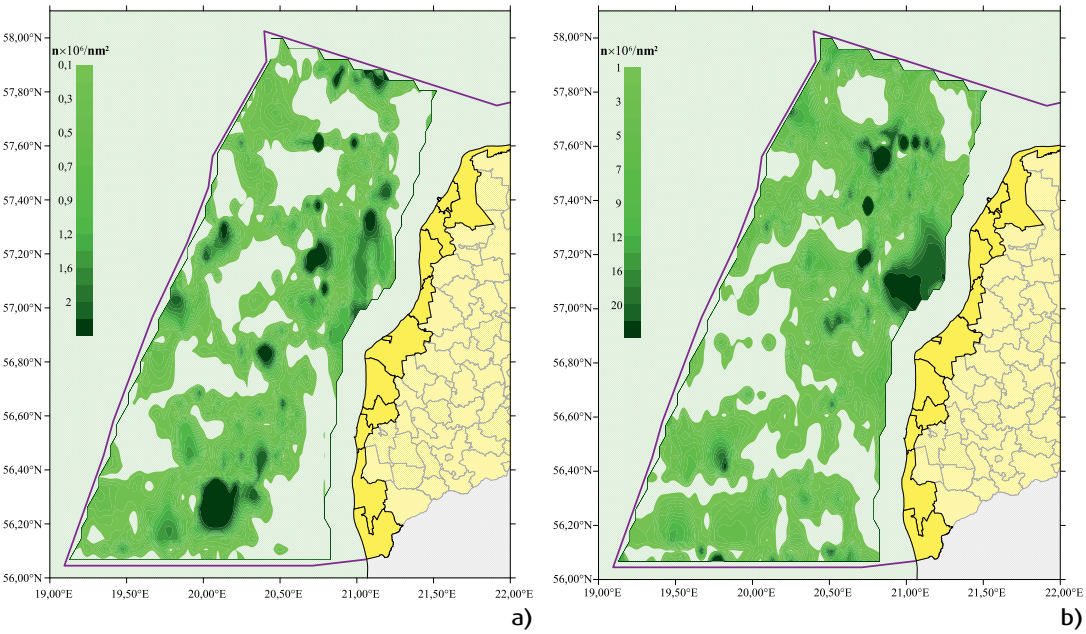



**Figure 4.2.5.** Spatial distribution of herring (a) and sprat (b) in the Baltic Proper, 2004.-2013 (October)

Spatial distribution of benthic fish species (cod and flounder) in the Baltic Proper is presented in the maps using the survey data of the "BIOR", which were collected from the scientific research vessel, using benthic trawl (a standardised method for all countries around the Baltic Sea) in preselected trawling positions. Fishing with benthic trawl depends on the sea bottom structure and therefore is possible only in certain regions. The annual trawling positions are selected randomly for different depth zones within the regions suitable for trawling. The survey results from each trawling positions provide the total volume of fish caught, which is standardised and related to a fixed time unit (hour). The developed maps assemble the survey results on cod and flounder distribution between 2004 and 2013, March and December, showing the amount of fish caught in each trawling position (see figure 4.2.6).

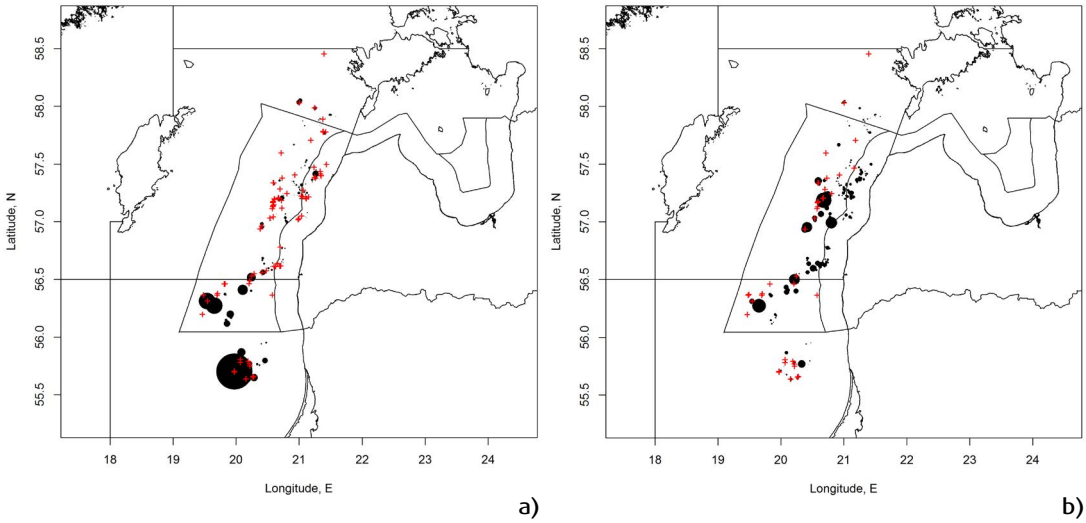



**Figure 4.2.6.** Spatial distribution of cod (a) and flounder (b) in the Baltic Proper, 2004 - 2013 (March) The black spots of varying sizes proportionally show the amount of fish caught in each trawling position. Red crosses indicates the trawling positions where the species were not detected

## Characterisation of the fish spawning and nursery area

For characterisation of sprat spawn production spatial distribution maps were developed based on scientific research data of the "BIOR", collected in the Baltic Proper (May, June, 2004 - 2013) in cooperation with Latvian fisherman or from the German research vessel "ALKOR". The survey data allows estimating the daily spawn production in the survey stations (spawn/m2) and with mathematical methods to extrapolate this information to larger spatial units, taking into account vertical distribution of spawn and hydrological parameters of the water column. The maps were developed separately for each year to assess the potential temporal differences as well as by combining the data from the whole period (2004-2013).

The spawning areas of herring, cod and flounder were described and illustrated based on literature data of the whole Baltic Sea.

## Distribution of marine mammals

Since there is no monitoring of marine mammals performed by the Latvian institutions, the HELCOM data[7] was used to illustrate the spatial distribution of the two seal species found in the Latvian marine waters – grey seal *Halichoerus grypus* and ringed seal *Phoca hispida.* The "BIOR" data on by-catch seals in the fishery gears, reported by fisherman, was presented for 2015.

7 Distribution of Baltic seals. HELCOM core indicator report. Online. [30.11.2015], http://helcom.fi/baltic-sea-trends/indicators/distribution-of-baltic-seals/.

## Distribution of marine benthic habitats

Structuring of the ecosystem of Latvian marine waters was performed according to the HELCOM Underwater Biotope and Habitat (HELCOM HUB) classification system (HELCOM, 2013[8]). All Latvian marine waters were classified as HUB benthic habitats (see figure 4.2.2.) based on monitoring of coastal survey data of the LIAE as well as the sediment map of the sea bottom produced for the MSP. The habitats were detected at different levels of the classification system, depending on the density of biological sampling stations within the different parts of marine waters. The maximum depth where macro-vegetation can be found – 21m at the coast of the open Baltic Sea and 10m in the Gulf of Riga, was defined as the border between photic and aphotic zones. The benthic habitat map was used for mapping and assessment of the ecosystem services as well as for assessing impacts of the alternative sea use scenarios and solutions for the use of the sea proposed by the MSP.

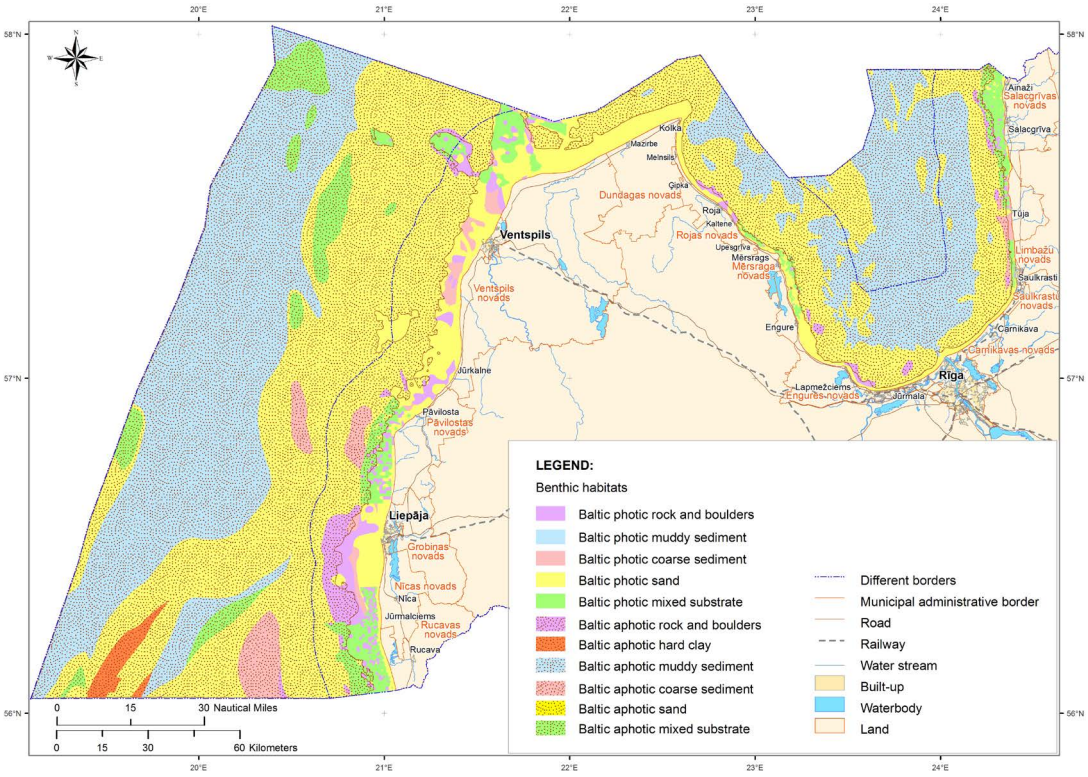



**Figure 4.2.2.** Benthic habitat map (source: LIAE, 2015)

8 HELCOM (2013): HELCOM HUB – Technical Report on the HELCOM Underwater Biotope and habitat classifi cation. Balt. Sea Environ. Proc. No. 139.

## 4.3. ASSESSMENT OF THE STATE OF THE MARINE ENVIRONMENT

HELCOM and the EC MSFD (2008/56/EK) the particular contribution of the MSP in the achievement of common environmental goals in the Baltic Sea. Two approaches have been applied in characterisation and assessment of the marine environmental status within the MSP.

First, marine monitoring and survey data was compiled, to gain a comprehensive understanding of the geological, physical and environmental conditions in the Baltic Sea. The marine waters of Latvia belong to two sub-basins of the Baltic Sea – the Gulf of Riga and the Baltic Proper. The parameters described in the chapter 4.2 reveal the differences between the two sub-basins, which also results in different environmental objectives for each sub-basin.

Secondly, an indicator approach was used to assess the environmental status of marine waters. According to the MSFD, transposed into the legal acts of Latvia, the status of the marine environment is characterised and the significance of human pressure assessed using 11 descriptors, established by the Directive as well as a more precise list of criteria and indicators defined by the Commission Decision 2010/477/EU[9]. During development of the MSP, the descriptors as well as the relevant criteria and indicators of the Commission Decision were identified that have relevance to the use of the sea space and the MSP.

The indicators characterising the status of Latvian marine waters that have been assessed in relation to the MSP are provided in Table 4.3.1. The main criteria for selection of the MSP's relevant indicators were, connection to the use of the sea space, data availability and feasibility to perform assessment. A number of different indicators have been developed for the characterisation of the environmental status in the sub-basins of the Baltic Sea, which might be contradictory to each other, therefore appropriate interpretation of each indicator is essential.

The indicators of the marine environmental status were used in several steps of the Latvian MSP:

- Characterisation of the existing situation;
- Assessment of trends;
- Assessment of the strategic scenarios for the use of the sea;
- Strategic environmental assessment.

One of the descriptors – **non-indigenous species** (D2) was referred to only in the Explanatory note (i.e. description of the existing situation and trends). The data included in the MSP describes the situation of the whole Baltic Sea as well as mentioning the main causes for introducing the non-indigenous species - ship ballast waters, aquaculture and replenishing of fish stocks. Descriptor 2 in future could also be included in the list of indicators for assessment of the MSP impacts.

The Latvian MSP did not include descriptor 11 – **"Introduction of energy, including underwater novice",** due to the lack of such sea use activity in Latvian marine waters. If construction work is initiated, including offshore wind farms or projects on exploration and extraction of hydrocarbons, then descriptor 11 should also be included in the MSP for assessment of the marine environmental status.

Descriptor 10 – "**Marine litter**" was not addressed during development of the MSP, since it mostly refers to the product and waste management. Although tourism is one of the main sources of marine litter, the MSP does not include mechanisms for solving this problem. It is addressed by waste management

9 The Commission Decision on criteria and methodological standards on good environmental status of marine waters (2010/477/EU). Available online: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:232:0014:0024:EN:PDF

plans, municipality regulations, as well as the Programme of Measures for achievement of a good environmental status[10]. The rest of the descriptors (D7-D9) are not directly related to the use of the sea space and therefore not included in the MSP for assessment of the environmental status.

**Table 4.3.1.** MSFD indicators characterising the status of Latvian marine waters

| Descriptors | Indicators | 2004 | 2008 | The present value (year, source) | Trend | Target value (year, source) |
|---|---|---|---|---|---|---|
| Biodiversity (D1) | Share of marine protected areas from all marine waters (%) | 0 | 0 | 15% (2015, MoEPRD) | ↗ | No |
| | Conservation status of protected habitat types | No data | | Bad (2013, NCA) | No data | Good (EU BS2020) |
| | Benthic Quality Index BQI: Gulf of Riga (GoR) and Baltic Proper (BP) | 3.31 (GoR) 3.72 (BP) (source: LIAE) | 3.24 (GoR) 4.12 (BP) (source: LIAE) | 3,55 (GoR) 3,80 (BP) (source: LIAE, 2014) | → | Reference value 5,4 (GoR) 7,0 (BP) (2020, LIAE) |
| Population of commercial fish and shellfish (D3) | Spawning stock biomass (Bpa) – Gulf of Riga, herring (thousand tonnes per year) | 90.4 | 85.9 | 103,4 (2014, ICES WGBFAS) | → Stock is in good status since the late 1980s | Good status 60.0 (2020, LIAE) |
| Elements of marine food webs (D4) | Zooplankton mean size vs. total stock (GoR) | Size=0.0029 (mg/ind) Stock=143187 (ind/$m^3$) (source LIAE) | Size=0.0048 (mg/ind) Stock.=62529 (ind/$m^3$) (source LIAE) | Size=0.0038 (mg/ind) Stock=54930 (ind/$m^3$) (source LIAE, 2014) | No trend | Good status Size=>0.0027 (mg/ind) Stock=>91722 (ind/$m^3$) (MARMONI, 2014) |
| Eutrophication (D5) | Nutrient (N, P) loads in surface waters from point sources (tonnes per year) | | 334(P) 3608(N) | 241 (P) 1818 (N) (2013, LEGMC) | ↘ | No |
| | Summer chlorophyll a concentration in GoR and BP | 6.1 (GoR) 3.89 (BP) (source LIAE) | 5.8 (GoR) 3.67 (BP) (source LIAE) | 3.90 (GoR) 2.46 (BP) (source LIAE, 2014) | ↘ | Reference value 1.8 mg $m^{-3}$ (GoR) 1.2 mg $m^{-3}$ (BP) (2020, LIAE) |
| | Depth distribution of Fucus vesiculosus (GoR) and Furcellaria lumbricalis (BP) | No data | 14.8 m (BP, 2006) 5 m (GoR, 2007) (source LIAE) | 14.8 m (BP, 2013) 4.7 m (GoR, 2013) (source LIAE) | → | Reference value 7 m (GoR) 20 m (BP) |
| Sea floor integrity (D6) | Population structure of Macoma balthica (GoR) | No data | No data | | | Good status 11.44 mm (GoR) (MARMONI, 2014) |

10 http://likumi.lv/ta/id/283518-par-planu-pasakumu-programma-laba-juras-vides-stavokla-panaksanai-2016-2020-gada

## 4.4. MAPPING AND ASSESSMENT OF ECOSYSTEM SERVICES

### 4.4.1. Ecosystem services concept and its role in the MSP

The concept of the ecosystem services (ES) started to develop in the last decades of the 20th century, while it has gained wider popularity and significance for decision-making since 2005, when the United Nations published the *Millennium Ecosystem Assessment (MEA),* followed by another international initiative "*The Economics of Ecosystems and Biodiversity"* (TEEB), aiming to assess the economic value of biodiversity. The implementation of the ES approach at national level in the EU Member States started with adoption of the EU Biodiversity Strategy 2020, which envisaged mapping and assessment of the state of ecosystems and their services in their national territory by 2014, as well as assessment of the economic value of such services, and promote the integration of these values into accounting and reporting systems at EU and national level by 2020. For implementation of this task, the European Commission has set a working group *"Mapping and Assessment of Ecosystems and their Services"* (MAES), which has developed a methodological framework and indicators for assessment of the ES[11].

The importance of the ES approach in the MSP is also highlighted by the MSP Directive (2014/89/EU) and the "Guidelines for the implementation of an ecosystem-based approach in the MSP" developed by the joint HELCOM-VASAB MSP working group.

Biophysical, social, as well as economic methods can be applied in the assessment of ES. Economic and social methods can provide essential support in decision-making on land use change or projects, which can impact the status of ecosystems and their services, while biophysical methods are applied in ES mapping and provide input data for nature conservation or spatial planning.

### 4.4.2. Identification of marine ecosystem services

The *MEA* defines ES as all goods that humans gain from ecosystems. During recent years this definition has been used to refer to ES as the contributions of ecosystem structure and function - in combination with other inputs - to human well-being[12]. This definition highlights the importance of the ecosystem structure and related biochemical processes, which lay the basis for the existence of ecosystems, their functions and services provided. The structure, functions and status of ecosystems by interaction with human inputs (economic activities and pressures) are determining the potential of ecosystems to provide services, whereas the actual use of the ecosystems services or ecosystem service flow serves as the basis for human well-being (see Figure 4.4.1).

11 European Union (2014). Mapping and Assessment of Ecosystems and their Services. Indicators for ecosystem assessments under Action 5 of the EU Biodiversity Strategy to 2020. 2nd Report – Final, February 2014. pp.80

12 Burkhard, B., Kroll, F., Nedkov, S., Müller, F. (2012a): Mapping supply, demand and budgets of ecosystem services. Ecological Indicators 21: 17-29.

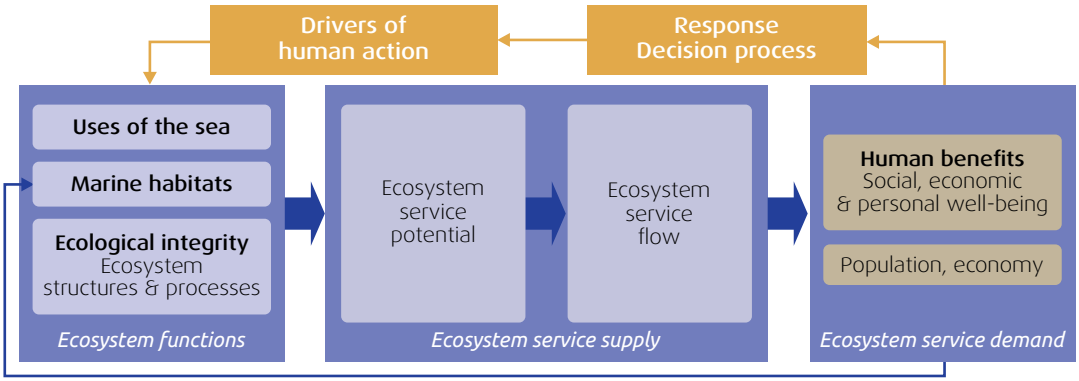



**Figure 4.4.1** Conceptual model of ecosystem functions, services and benefits relations (adapted from Burkhard et al, 2014[13])

In the Latvian MSP the ES concept was approached through: i) mapping and assessment of the ecosystem structure and its different components, ii) characterisation of the functions and services as well as iii) biophysical mapping of the ecosystem potential to deliver a service based on the distribution of the benthic habitats and the ecosystem service flow, illustrated by the landing of commercial fish and use of the coastal areas for tourism and recreation. The MSP did not include the economic and social methods for the direct assessment of human benefits and monetary values of the ecosystem services, but instead provided spatially explicit information on distribution of the ecosystem service, which was essential for assessing the potential impacts of the proposed solutions for the use of the sea.

Characterisation of the ES within the Latvian MSP was based on the CICES v4.3 (2013) classification system, suggested by the EC MAES working group. CICES is a hierarchical classification system that divides ES into three main categories – *provisioning services, regulating and maintenance services and cultural services*. This classification does not include the supporting services or ecosystem functions, since their contribution to human wellbeing is not assessed directly, but through the ES. CICES includes 39 marine-related ES classes. The MSP includes characterisation of the supply of these ES in Latvian marine waters, as well as nine maps on ES distribution which refers to eight ES classes according to the CICES classification system (see figure 4.4.2).

13 Burkhard, B., M. Kandziora, Y, Hou & F. Müller (2014): Ecosystem Service Potentials, Flows and Demands - Concepts for Spatial Localisation, Indication and Quantification. Landscape online 34: 1-32

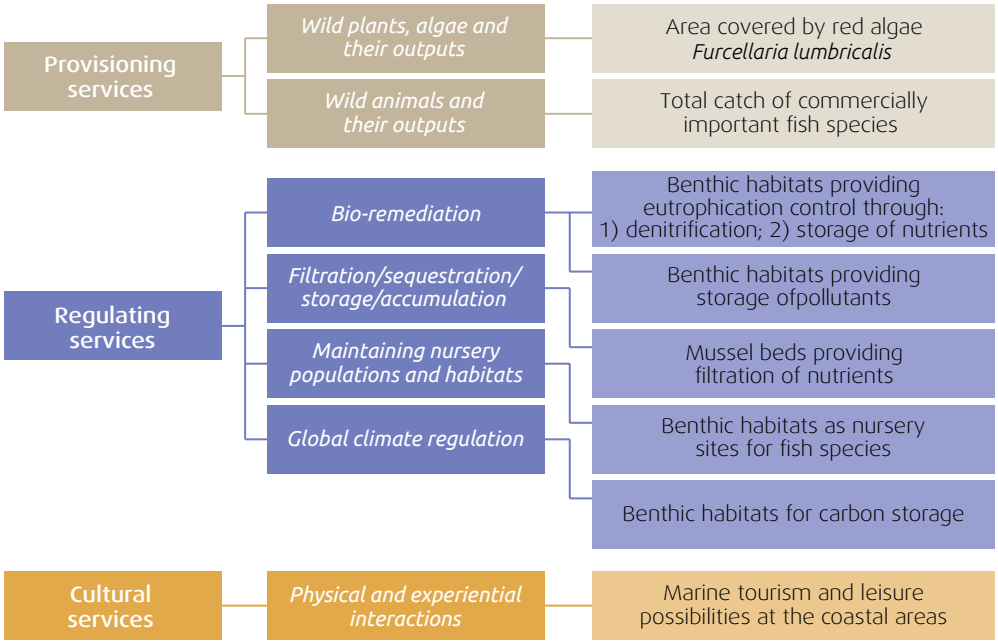



**Figure 4.4.2.** Ecosystem services mapped in the Latvian MSP and indicators used for mapping

### 4.4.3. Results of mapping and assessing marine ecosystem services

The ES mapping was based on available spatial data on supply of the ES, as well as hypothetical assessment using expert knowledge on biophysical processes and type of services provided.

*Provisioning service – fish for food* was mapped using the data of the research institute "BIOR" on the total landing of commercially important fish species (sprat, herring, cod and flounder) in the open sea (>20 m depth) within a 10 year period (2004 – 2013). The data was visualised on a scale 1-5, where 1 is a very low landing and 5 – a very large landing (see figure 4.4.3 a). The fish resources of coastal areas could not be mapped in the same spatially explicit manner, since the information of coastal fishery landings is collected on the level of administrative units. A separate map was developed for the coastal areas, showing the distribution of the total fish catch by the administrative units (see Figure 4.4.3 b).

In the category of *provisioning service – algae and their outputs* - the red algae *Furcellaria lumbricalis* beds were mapped as a potential resource, which can be used in the food industry, pharmacy, microbiology, etc. The expert knowledge was used to identify the benthic habitats that are related to distribution of the Furcellaria lumbricalis and this information was combined with data from field surveys, which partly cover the possible species' distribution area and provides information on coverage of algae beds within defined spatial units. The assessment results are presented on a scale from 1 to 3, where 1 refers to habitats suitable for distribution of the species, but no occurrence so far not detected; 2 – low occurrence detected; 3 – high occurrence detected (see figure 4.4.4).

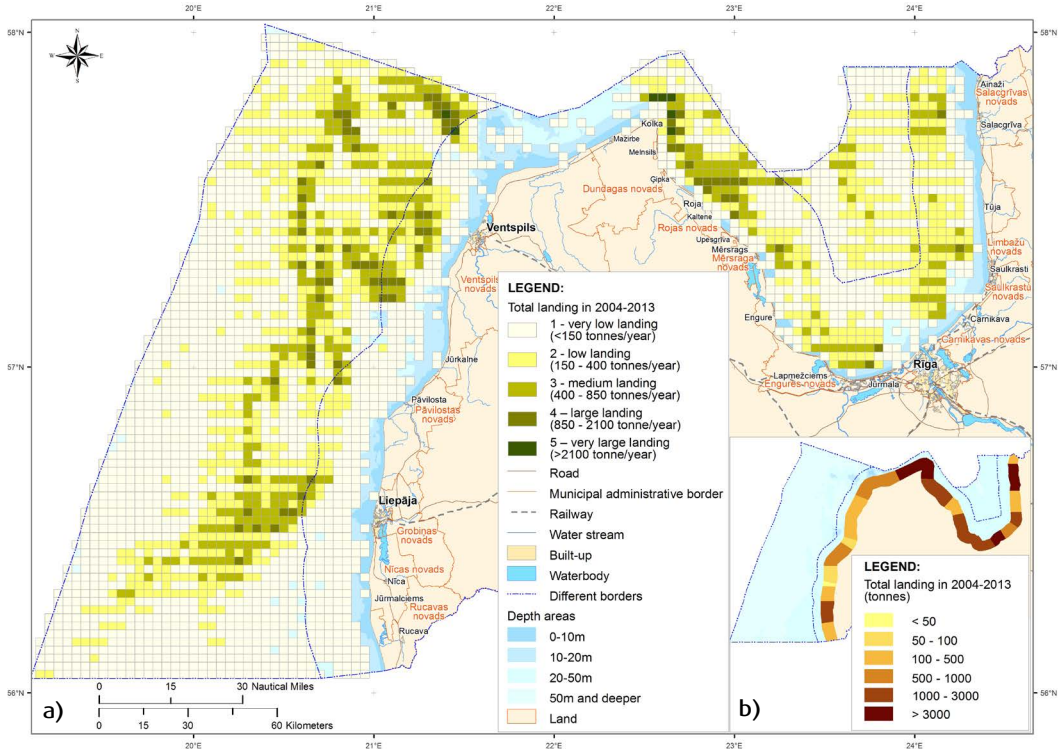



**Figure 4.4.3.** Provisioning service – fish for food – total landing of commercially important fish species: a) Open sea in the Gulf of Riga and Baltic proper (>20 m depth); b) total landing of coastal fishery

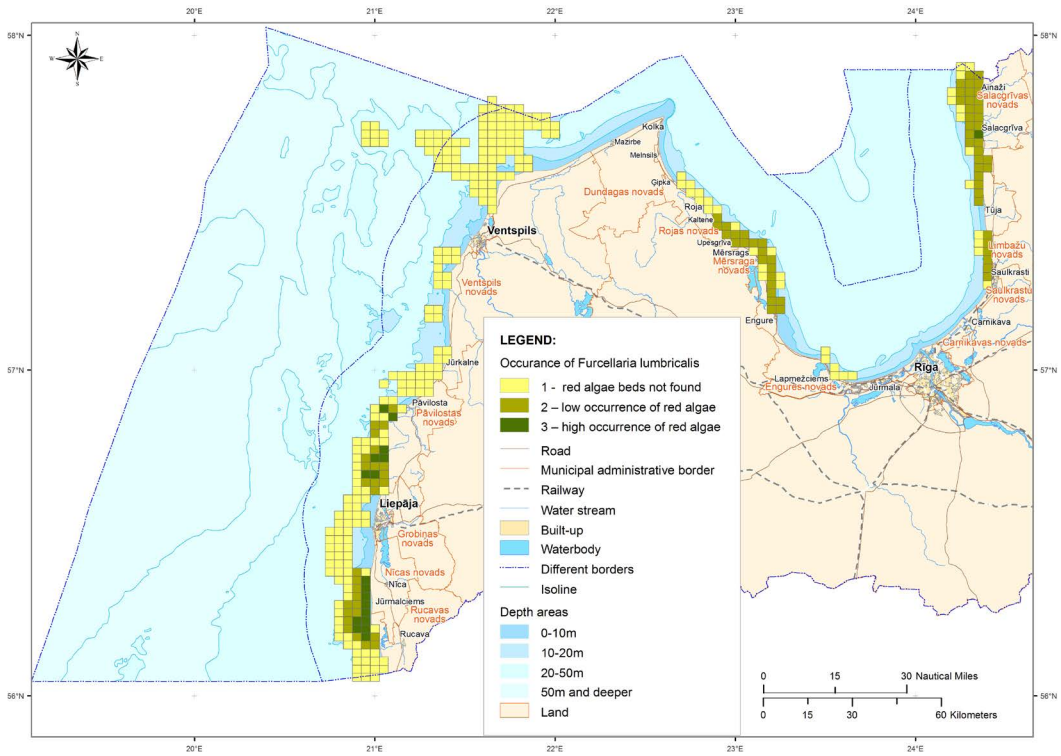



**Figure 4.4.4.** Provisioning service – algae and their outputs – potential supply of red algae *Furcellaria lumbricalis*

*The regulating and maintenance services* were mapped using the benthic habitat map - the ecosystem services within each habitat type were assessed based on expert knowledge (binary assessment: does the particular habitat type provide the particular service – yes/no) thus using the habitat types as proxy for distribution of the ES. Assessment in relative scale at this stage was not possible due to a lack of relevant research data from Latvian marine waters. Based on results of expert assessment, six maps of single services were prepared, based on the selected indicator for mapping (see figure 4.4.2) as well as a summary map, with the number of identified services in each grid cell (see figure 4.4.5).

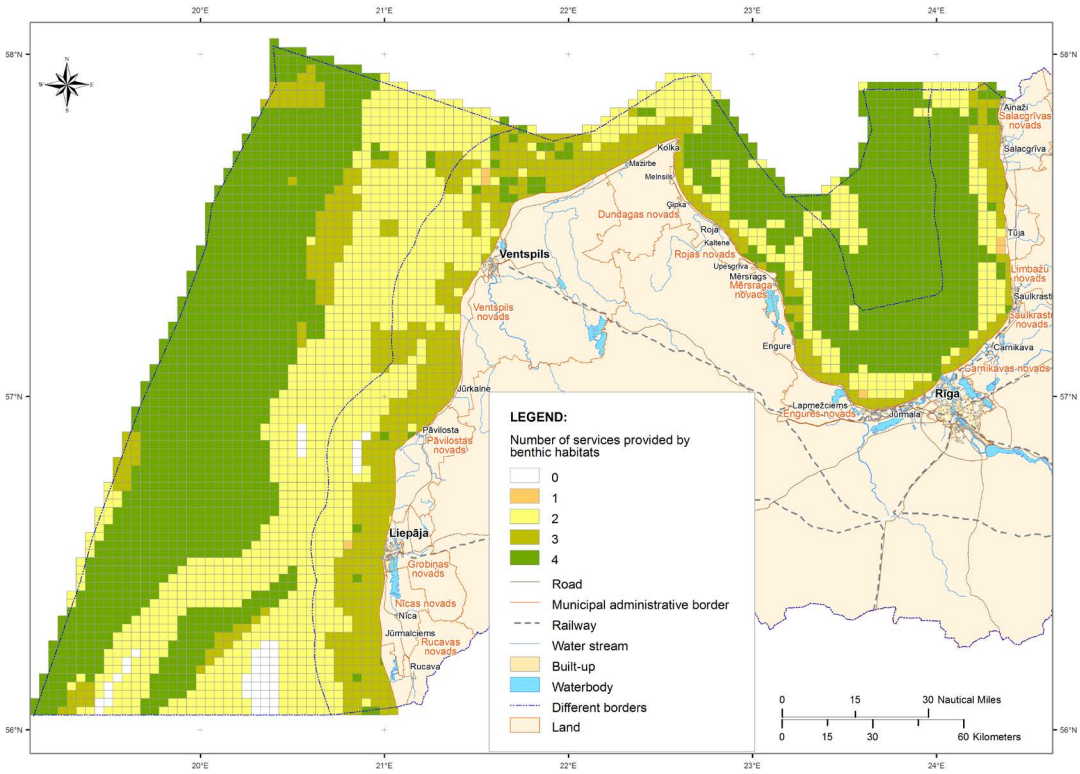



**Figure 4.4.5.** Number of regulating and maintenance services provided by benthic habitats

In the category of *cultural services - the physical and experiential interactions* were assessed in relation to possibilities for marine tourism and leisure activities at the Latvian coast. The assessment value of each grid cell was obtained by a combination of several criteria: number of visitors; suitability of the area (or best place) for particular tourism or leisure activity; and accessibility – presence of parking lots and public access roads near the coast. The scale 1 to 5 was used for presenting the results, where 1 means very low suitability for tourism and leisure activities and 5 – very high suitability (see figure 4.4.6).

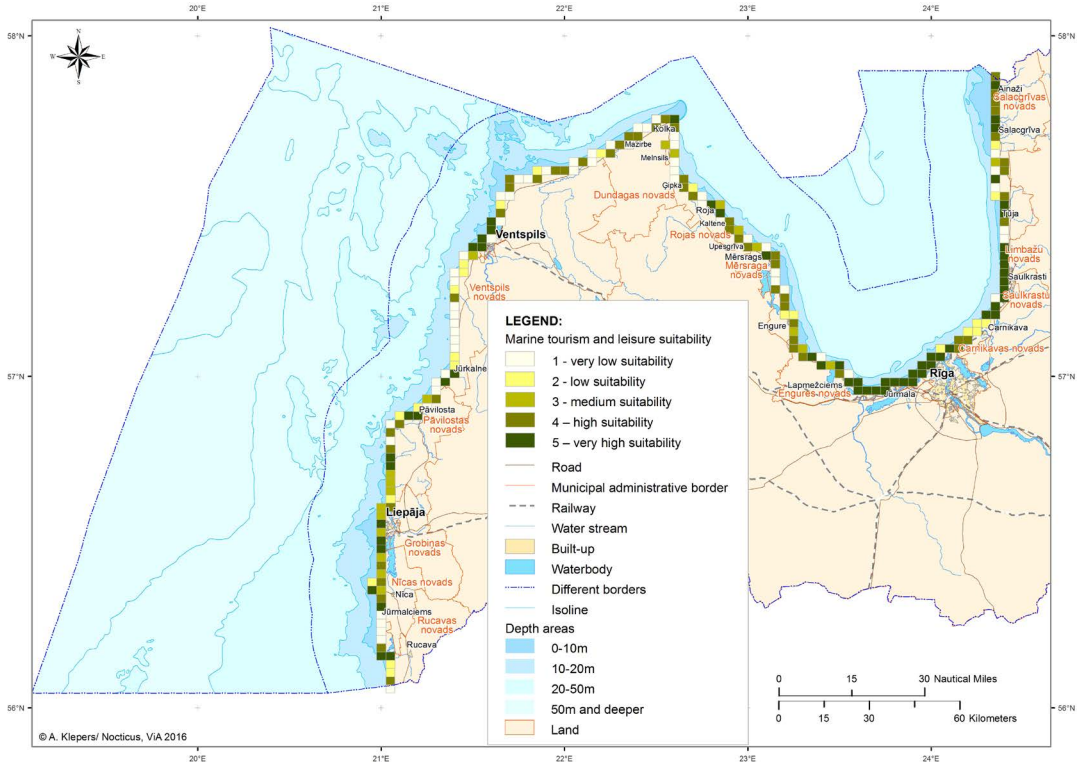



**Figure 4.4.6**. Cultural services – physical and experiential interaction – marine tourism and leisure possibilities at the coast

Results of the ES mapping were used in the strategic environmental assessment for assessing the impacts of alternative scenarios, as well as the proposed optimal solution for the use of the sea (see chapter 4.6). However, the present results only give an indicative picture of the ES supply in Latvian marine waters. In order to have more complete information on the provisioning services, an integrated map of the fish resources of all marine waters would have to be developed, based on scientific survey data (not only statistics on fishery effort). Additionally, the algae resources, which can be used for bioenergy production, could be mapped as well as the abiotic energy resources (wind and wave energy). In the category of regulating services, the more precise mapping of the bio-remediation, filtration and storage of pollutants, mass stabilisation (e.g. erosion control) as well as maintenance of physical, chemical, biological conditions (e.g. maintenance of nursery populations and habitats, climate regulation etc.) shall be performed by using empiric data and geospatial models. In the category of cultural services more spatially explicit information on tourism and the recreational value of the marine waters would be needed, supplemented with mapping and assessment of the scientific, educational, cultural heritage and landscape value.

## 4.6. STRATEGIC ENVIRONMENTAL ASSESSMENT

Strategic Environmental Assessment (SEA) is developed in accordance with the law „Environmental impact assessment" and CM Regulations No. 157 „Procedures for Carrying out a Strategic Environmental Impact Assessment" (adopted on 23.03.2004.). The legislation transposes the EU SEA Directive 2001/42/EC. SEA methodology was based on application of an ecosystem approach in assessment of possible MSP impacts. SEA process involved several generally accepted methods: review of literature and publications; gathering and compiling environmental information (environmental monitoring and statistical data); public participation (stakeholder workshops and public hearing events). The environmental information and data collected throughout drafting of the MSP was also used for SEA.

Major steps in SEA:

- Scoping consultations with competent authorities (State Environmental Bureau and Nature Conservation Agency); transboundary aspects were also addressed.
- Initial state of marine environment assessment, identification of key environmental problems;
- Four MSP scenarios assessed for environmental impacts according to defined criteria and indicators;
- Proposed MSP solution on permitted use of the sea assessed and possible mitigation measures proposed;
- Improvement of Environmental Report by integrating comments during the consultations.

The initial state of the marine environment was characterised and assessed according to the descriptors, criteria and indicators given by MSFD and EC decision 2010/477. During the characterisation, relevant descriptors and indicators were selected for which data and information are available: biological diversity (D1); population of commercially exploited fish (D3), eutrophication (D5) and sea-floor integrity (D6). Additionally, information on existing marine protection measures to protect species and habitats was compiled and presented. Furthermore, the HELCOM Baltic Action Plan (2007), HELCOM Reports on the eutrophication (2014) and climate change (2013) were providing supporting information. A major source of information was the LIAE with their research and annual monitoring results.

The impact on the environment of the alternative four MSP scenarios was assessed qualitatively applying the multi-criteria analysis method. The scenarios were assessed against multiple criteria: economic, social and environmental context; policy relevance, etc. With regard to environmental impacts the following criteria were applied:

- Reduction of pollution load on the marine ecosystem and achievement of good environmental status;
- Safeguarding of biodiversity and ecosystem resilience;
- A share of renewable energy in the total energy consumption;
- Reduction of greenhouse gas emissions.

Each scenario was also assessed spatially against the impact on the ecosystem components (benthic habitats; birds; main commercial fish species) as well as on ES provisioning. The assessment included the following steps:

- Development of the impact matrices on environmental components by human activities on a relative scale (-2: significant adverse effects; -1: slight negative effect; 0: no effect; 1: slight positive

effect; 2: substantial positive effect). The expert judgement (hydrobiologists, ornithologists, ihtiologists) was used to assign impact values to each type of the sea use and respective nature assets.

- Development of the assessment maps in ArcGIS software by overlaying nature assets and ES data layers with planned sea uses as defined by scenarios. The areas where significant negative impact on marine nature assets and ES provisioning is likely to be caused were identified spatially.
- Interpretation of spatial data on possible environmental impacts and drawing up MSP solutions.

The iterative process was implemented to assess the proposed MSP solution on the permitted use of the sea. The created maps illustrate the expected impact of human activities on important areas for benthic habitats, birds, seals, commercial fish species and ecosystem service supply. Furthermore, the indicators of the MFSD (see Table 4.3.1) were also used to assess the potential impact.

Active public participation was ensured during MSP and SEA. The stakeholders were introduced with the initial assessment results and identified key environmental problems at the early stage of the MSP's development. The stakeholders were actively involved in assessment of the scenarios and proposed solutions. The public hearing of the draft Environmental Report was organised jointly with consultation on the draft MSP.

# 5 DETERMINING THE PERMITTED USE OF THE SEA

The permitted use of the sea was developed considering the results of the following analysis:

1) Assessment of the current status and trends;
2) Strategic positions – long-term vision, goals and objectives;
3) Four alternative scenarios on the maritime development and spatial sea uses;
4) Exclusion and coordination criteria for use of the sea.

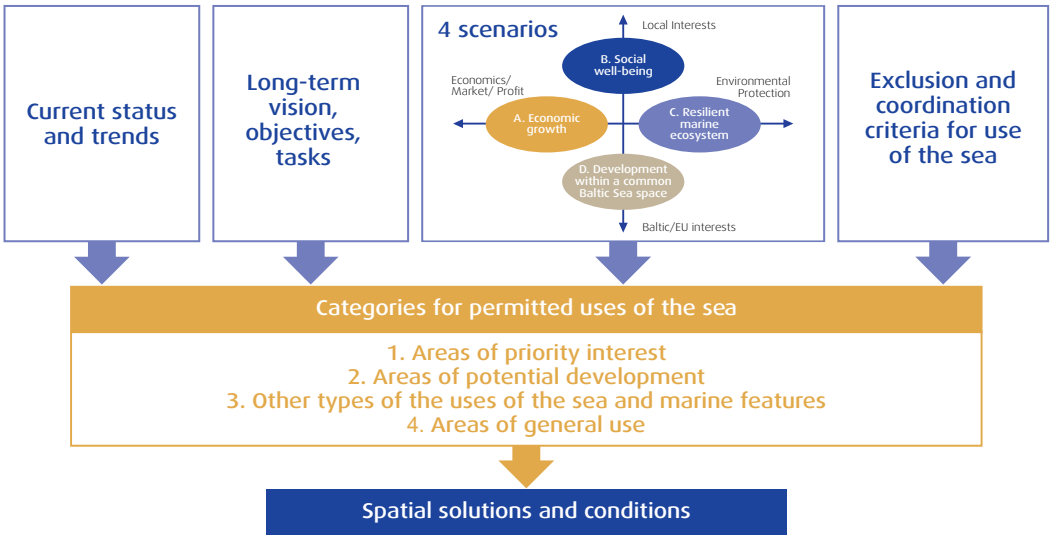



**Figure 5.1.** Conceptual frame to determine the permitted use of the sea

## 5.1. SCENARIO DEVELOPMENT AND ASSESSMENT

Scenario is one of the widely-used methods in development planning to support planners and decision-makers in assessment of different alternatives. Additionally, SEA also requires to the evaluation of alternatives. The scenarios for the Latvian MSP were built to support the formulation of strategic goals, priorities and objectives, as well as to demonstrate the positive and negative effects of the proposed scenarios. The scenarios were a particularly important method in discussion with stakeholders.

Scenario-building is based on identification of possible development directions (axes) according to the determining factors (driving forces) that affect the marine resources and spatial use, and the situation in maritime sectors. Different policy and societal priorities are confronting choices for the development. On the vertical axis the development is confronted by accounting for local interests and the Baltic and/or EU interests while the economic (free trade market, profit, competition) and environmental (state of environment, climate change) interests are confronted on the horizontal axis. Depending on the evolution of the determining factors in connection with the policy and societal choices (priorities) four distinct by-priorities (radical) development scenarios are identified (see Figure 5.2):

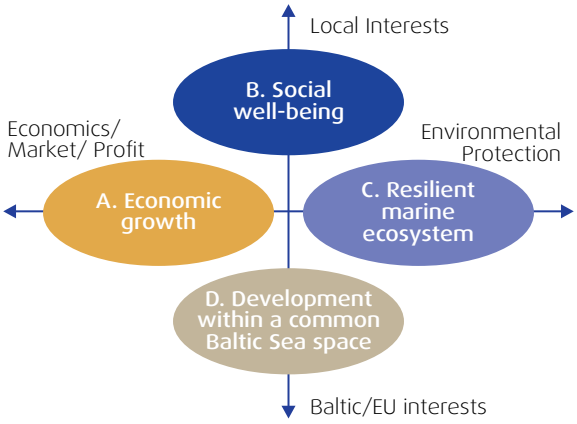



**Figure 5.2.** Framework of Latvian MSP alternative scenarios

Each of the four scenarios included the following components: i) a narrative story which describes the policy, economic, technological, social and demographic as well as environmental and climate driving forces; ii) semi-quantitative assessment of trends based on selected indicators; iii) spatial solutions.

### Analysis of Strengths, Weaknesses, Opportunities and Threats (SWOT)

The strategic assessment of the scenarios by SWOT analysis was carried out during three coastal regional workshops in July, 2015 with engagement of stakeholders. By following the *"world café"* method that allowed everybody to express their views on all four scenarios, the participants provided input for the SWOT analysis of each scenario. Four mixed groups with different representation of sectors were setup to promote varied discussions including how to identify the shortcomings of the developed MSP solutions.

**Figure 5.3.** Stakeholder engagement in SWOT analysis of scenarios

### Multi-criteria analysis

The economic, social, environmental, climate and transboundary impacts of scenarios were assessed semi-quantitatively. The scenarios were assessed against the strategic long-term vision and priorities. Subsequently, each scenario was assessed against 3-5 criteria for each of the type of impacts. The transboundary impact assessment was carried out in cooperation with Estonian and Lithuanian spatial planning experts.

The relative scale was defined and expert judgement was applied to assess the impact in relation to the criteria and selected indicators. A unified scale for the impact assessment was created: (-2: significant adverse effects; -1: slight negative effect; 0: no effect; 1: slight positive effect; 2: substantial positive effect).

## 5.2. CRITERIA FOR DEFINING THE USE OF THE SEA

The criteria for defining use of the sea include conditions that should be taken into account when allocating space for the particular use of the sea and setting limitations for other uses, in order to avoid conflicts between the sea use sectors, to ensure compliance with the regulatory framework, nature conditions and availability of resources, as well as to minimise the negative impact on marine ecosystem.

Two categories of criteria for defining the use of the sea are proposed by the MSP:

1. **Exclusion criteria for use of the sea** – mandatory conditions, that shall be respected when allocating space for a particular sea use:
    a. compliance with the regulatory framework: areas for the particular uses defined by the legal acts; areas where the particular uses are prohibited.

b. setting apart spatially incompatible sea uses.

c. other sea use limiting factors:

- Nature conditions (e.g. suitable depth for shipping or installation of wind turbines.);
- Availability of resources (e.g. fish resources, wind/wave energy, hydrocarbons etc.);
- Preservation of ecologically sensitive areas or areas with a high cultural heritage value;
- Technological capabilities (e.g. wind park location and power capacity depends on possibilities for connection to inland electricity transmission network.
- Measures and limitations important for national defence and security.

2. **Coordination criteria for use of the sea** – conditions that shall be taken into account to ensure the application of the ecosystem-based approach in the MSP process, as well as sustainable use of the marine space and resources:

a. Maintaining the ecosystem integrity – the connectivity of the functionally related areas, and respecting the Baltic Sea as one, functionally interrelated ecosystem:

- as far as possible to avoid fragmentation of benthic habitats;
- to ensure maintenance of areas important for preservation of species' diversity and their distribution possibilities, respecting their lifecycle and areas important in different development stages;
- to maintain the „blue corridors" for ensuring the possibilities for species' migration;

b. Rational use of the sea space and minimising the sea use conflicts:

- to ensure sufficient space for the existing sea uses as well as allocate space for new, economically reasonable sea use interests;
- to consider possibilities of combined uses with similar demands for environmental conditions and infrastructure, without disturbing each other;
- in case of compatible sea uses, to define the priority for the use of the sea and conditions for other uses within this area (preference should be given to existing or non-movable sea uses);

c. Promoting synergies between different uses:

- Encouraging coexistence of the complementary or interdependent (functionally related) sea uses.

## 5.3. MATRICES FOR ANALYSING POSSIBLE CONFLICTS AND SYNERGIES

The prepared conflict matrices of the sea uses (Table 5.3.) helps to identify the incompatible sea uses, as well as uses that can coexist under certain conditions or legal regulations. In some cases, the existing legal framework already defines conditions or prohibitions that exclude spatially incompatible sea uses. However, in some cases the existing regulatory framework is not sufficient to avoid conflicts in use of the sea space.

**Table 5.3.** Matrices for analysing possible conflicts in the use of the sea (for the sea uses marked in blue, suitable areas are defined by the MSP)

Compatible sea uses, that do not disturb or promote each other

Sea uses that are compatible under certain conditions

Conflicting sea uses

\- Sea uses that spatially do not overlap

| | Shipping | Maintaining of shipping routes | Port areas | Dumping sites | Military training polygons | Coastal observation system | Areas of dumped explosives | Former mined areas | Coastal fishery | Pelagic trawling in open sea | Benthic trawling in open sea | Fish aquaculture | Algae and mussel aquaculture | Exploration of hydrocarbons | Extraction if hydrocarbons | Extraction of mineral resources | Wind energy production | Wave energy production | Underwater cables | Marine sports activities | Diving | Bathing areas | Areas for fish regeneration | Protection of benthic habitats | Protection of birds | Protection of coastal landscape | Protection of cultural heritage |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shipping | | | | | | | | | | | | | | | | | | | | | | - | | | | | |
| Maintaining of shipping routes | | | | | | | | | | | | | | | | | | | | | | - | | | | | |
| Port areas | | | | | | | - | | | | | | | | | | | | | | | | | | | | |
| Dumping sites | | | | | | | - | | | | | | | | | | | | | | | | | | | | |
| Military training polygons | | | | | | | - | | | | | | | | | | | | | | | | | | | | |
| Coastal observation system | | | | | | | - | | | | | | | | | | | | | | | | | | | | |
| Areas of dumped explosives | | | - | - | - | - | | | - | | | - | - | | | | | | | - | | - | - | - | - | - | - |
| Former mined areas | | | | | | | | | | | | | | | | | | | | | | | | | | - | |
| Coastal fishery | | | | | | | - | | | - | - | | | | | | | | | | | | | | | | |
| Pelagic trawling in open sea | | | | | | | | | - | | | | | | | | | | | - | | - | | | | | |
| Benthic trawling in open sea | | | | | | | | | - | | | | | | | | | | | - | | - | | | | | |
| Fish aquaculture | | | | | | | - | | | | | | | | | | | | | | | | | | | | |
| Algae and mussel aquaculture | | | | | | | - | | | | | | | | | | | | | | | | | | | | |
| Exploration of hydrocarbons | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Extraction of hydrocarbons | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Extraction of mineral resources | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Wind energy production | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Wave energy production | | | | | | | | | | | | | | | | | | | | - | | - | | | | - | |
| Underwater cables | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Marine sports activities | | | | | | | - | | | - | - | | | | | | | - | | | | | | | | | |
| Diving | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bathing areas | - | - | | | | | - | | | - | - | | | | | | | - | | | | | | | | | |
| Areas for fish regeneration | | | | | | | - | | | | | | | | | | | | | | | | | | | | |
| Protection of benthic habitats | | | | | | | - | | | | | | | | | | | | | | | | | | | | |
| Protection of birds | | | | | | | - | | | | | | | | | | | | | | | | | | | | |
| Protection of coastal landscape | | | | | | | - | - | | | | | | | | | | - | | | | | | | | | |
| Protection of cultural heritage | | | | | | | - | | | | | | | | | | | | | | | | | | | | |

## 5.4. CATEGORIES AND TYPES OF PERMITTED USE OF THE SEA

The four main categories for permitted uses of the sea are proposed based on the discussion results with stakeholders representing the maritime economy sectors and public interests, the vision for long-term maritime development and related priorities, goals and objectives, as well as defined spatial criteria for permitted uses of the sea:

- **Areas of priority interest –** the category includes the existing and potential uses of the sea essential to ensure the achievement of the priorities as defined in the Strategic Part (healthy marine environment and stable ecosystem; national security; developed maritime affairs and safe navigation; sustainable fishery and tourism). The areas are established for these types of uses of the sea by excluding or setting restrictions to activities which can cause disturbances or damage to their existence or development.
- **Areas of potential development** – the category includes the potential uses of the sea (renewable energy; maritime tourism and aquaculture) for which the suitable areas are identified, taking into account limiting natural conditions, possible impact to marine ecosystem, as well as potential conflicts with other sea uses. In order to start projects on the use of renewable energy resources or establishment of an aquaculture farm, a developer shall obey existing legal procedures on proposing an area of interest, receive a licence for investigation, to perform Environmental Impact Assessment (EIA) and receive a licence for utilisation of buildings. The EIA procedure and related permits are also necessary for developing new yacht ports.
- **Other types of uses of the sea and marine features** that have an informative character or its location and uses are defined by the existing regulation.
- **Areas of general use,** where all sea uses are allowed, including fishery, shipping, tourism and leisure, research, etc., as long as they are in line with exiting legal requirements and not causing significant negative impact to the marine environment. In order to start new sea use projects the developer shall obey existing legal procedures on proposing an area of interest, receive a licence for investigation, to perform EIA and to receive a licence for utilisation of buildings or use of earth subterranean depths in the sea according to requirements set in CM Regulations.

# 6 ASSESSMENT OF SEA USES AND ELABORATION OF SOLUTIONS

This chapter presents the methodology of the planning and determining of permitted sea uses per individual maritime sector as follows:

- Status and trends;
- Criteria and conditions for defining spatial use of the sea;
- Proposed solutions of the MSP.

## 6.1. MARITIME TRANSPORT AND PORTS

### Status and trends

Information and data held by the Maritime Administration of Latvia (MAL) was used to collate evidence on current spatial sea uses in terms of navigation safety. A comprehensive overview of shipping regulations is published annually in the MAL journal "Notices to Mariners". The journal constitutes information on recommended shipping routes, anchorage areas closed or restricted areas and other essential information.

Information on shipping intensity is not stored nationally. The information on traffic and its intensity can be obtained from the Automatic Identification System (AIS). The information from AIS was processed and maps generated by HELCOM in the framework of the Baltic SCOPE project. These outputs were used by Latvian MPS.

Statistics on port activities are available from the Central Statistical Bureau (CSB) of Latvia as well as from port authorities.

| Used data/indicators | Source |
|---|---|
| **Statistics** | |
| Cargoes loaded and unloaded at Latvia's ports | CSB |
| Cargo loaded and unloaded at ports by kind of cargo | |
| Cargo turnover | |
| Ferry passenger departures and arrivals at Latvia's ports | |
| Number of passengers at Riga port | |
| Number of vessels served | Port authorities |
| Port navigation data (maximum depth; maximum tonnage; maximum permissible vessel draft by the berth; maximum length of vessel). | Port authorities |
| Volumes of extracted and disposed port dredged material at the sea disposal sites | State Environmental Service |
| **Spatial data** | |
| Shipping intensity (total, excluding fishery; fishery; passengers) | AIS HELCOM, Prepared by Baltic SCOPE project |
| Navigation data | MAL |
| Disposal sites of dredged material | MAL |
| Priority shipping directions& routes | Port authorities |
| Regular shipping lines | Port authorities |
| Boundaries of port areas<br>Area covered by ports | Regulations of Cabinet of Ministers |
| Survey of shipping routes and zones | HELCOM Survey Plan |

## Criteria for defining the spatial use of the sea

(EC – Exclusion criteria for use of the sea; CC – Compliance/coordination criteria for use of the sea)

| Criteria for determining priority shipping zones | EC | CC |
|---|---|---|
| ● Existing regulations state that shipping in Latvian territorial waters and EEZ is not restricted except for areas with risks for navigation safety. | X | |
| ● Limiting criteria for human activities:<br>– Required depth to ensure navigation safety: the depth depends on each port's characteristic (from 6-17m); the maximum depth is determined by Danish straits (~15.4m) as entrance into the Baltic Sea. | X | |
| – Width of shipping zones depend on:<br>○ Traffic intensity and the size of vessels (data based on AIS);<br>○ Safety distance from sand banks;<br>○ Safe navigation in icy conditions when ships shall look for ice-free routes to ensure manoeuvring needs;<br>○ Size of the shipping zones defined by neighbouring countries;<br>○ Strategic shipping routes as set by the port authorities.<br>6 nautical miles (nm) wide zone constituting of 2nm direct shipping zone and 2 nm outward as safety zone were determined as maximum widths of the priority shipping zones for main shipping directions | | X |
| ● Strategically important shipping directions (e.g., ferry lines, large regular cargo routes) as defined by port development programmes and plans | | X |

## MSP solutions for the use of the sea

| Category | Type | Conditions |
|---|---|---|
| Areas of priority interest | Priority shipping zones | Permanent stationary constructions (wind parks, wave power stations, platform of hydrocarbon extraction, aquaculture farms) may not be erected due to a need to ensure safe navigation, except for cases where the proposed location, which is within the priority areas for shipping, is accepted by all competent authorities and appropriate spatial solution found to guarantee shipping safety. |
| | Port roadstead | CM Regulations defining the border of the ports.<br>Regulations of the local municipalities on ports. |
| Other types of the sea use and marine features | Navigation and port information (navigation line; recommended shipping route; recommended two-way route; deep water route; anchorage areas) | The MSP shows relevant navigation information maintained by MAL. |
| | Technical means of navigation (lighthouse; beacon; reception safe water buoy; lateral buoy; isolated danger buoy; cardinal buoy; navigation sign) | The conditions for establishing and maintaining navigation means are set by Maritime Administration and Marine Safety Law and Law on Protection Zones. |
| | Disposal site of dredged material | CM Regulations on procedure of dredging and deepening of surface waterbodies and port aquatorium |

## 6.2. FISHERY

### Status and trends

Similar to assessment of the fish species distribution and condition, the fishery and its activity is presented spatially by i) fish landing from open part of the Baltic Proper and the Gulf of Riga; ii) fish landing from coastal waters of the Baltic Proper and the Gulf of Riga. This type of division is set by the procedure on fishing licencing.

#### Fish landing from open part of the Baltic Proper and the Gulf of Riga

The Institute of Food Safety, Animal Health and Environment "BIOR" compiled data of fish landing from fishing log-books. Initially the log-books of EEZ were reviewed. Several software programmes were run for the MSP's needs: *R* package *mapplots* (*Gerritsen*, 2014[14]), *maptools* (2014[15]) and *shapefiles* (Stabler, 2013[16]). The boundaries were set according to ICES (http://geo.ices.dk/) ESRI shp files. A map frame for data visualisation was constructed by squares - 0.05°x 0.025 °, equal to 2.8 km and 3 km. The total value of each square was calculated per fish species, year, total landing, fishing efforts, etc. The scale for visualisation was determined based on gradual classes where the highest class value was determined by *mapplots* default option (*Gerritsen*, 2014) that excluded 2.5% of the highest records in order to define a threshold value for the highest class. This criterion allows the visualisation of more squares with higher fish landing values.

Maps were produced for single years to assess the annual spatial change as well as the whole assessed period (2004-2013). The produced maps show the most important fishing areas in the open Baltic Sea and estimate the overall distribution of fish resources. A separate map was also produced to show the fishing effort per square that allows identification of the most active fishery areas.

Time period: 2004-2013 (annual period, total).

Fish species: all species; herring, sprat, cod, flounder.

Fishing gear: active; passive; bottom trawling.

#### Fish landing from coastal waters of the Baltic Proper and the Gulf of Riga (up to 20m depth)

The "BIOR" compiled data of fish landing from coastal fishing log-books. This information is available at local administrative units (parishes) and their boundaries are defined in a map in definite distance from the coast. The total landing according to defined variables calculated for each segment in a map is:

Time period: 2004-2013 (annual period, total).

Fish species: all species; herring, sprat, cod, flounder.

Statistics on fishery activities are available from the Central Statistical Bureau (CSB) and the Latvian Fisheries Yearbooks published annually by the Latvian Rural Advisory and Training Centre. The data are available on landing of commercial fish species in the open part and coastal waters of the Baltic Proper and the Gulf of Riga by Latvian fisherman. The "BIOR" compiles data on the number of fishing vessels larger and smaller than 12m.

14 Hans Gerritsen. 2014. mapplots: Data Visualisation on Maps. R package version 1.5. http://CRAN.R-project.org/package=mapplots

15 2014. maptools: Tools for reading and handling spatial objects. R package version 0.8-30. http://CRAN.R-project.org/package=maptools

16 Ben Stabler. 2013. shapefiles: Read and Write ESRI Shapefiles. R package version 0.7. http://CRAN.R-project.org/package=shapefiles

## Criteria for defining the spatial use of the sea

| Criteria for determining areas important for fishing | EC | CC |
|---|---|---|
| ● Existing regulations state certain prohibitions for fishery:<br>– fishing with trawls at locations where the depth does not exceed 20 m;<br>– fishing with trawls with a groundrope attached in the Gulf of Riga;<br>– fishing in the Irbe Strait and other areas according to the boundaries delineated by the regulations on fishery;<br>– human activities which can cause mechanical damage to coastal benthic habitats in the MPAs is not allowed;<br>– rules of the port do not allow fishing in certain areas. | X | |
| ● Limiting criteria for human activities:<br>– Available resources: spatial distribution and landing volumes of cod and flounder<br>– Unfavourable sea-bottom for benthic fish trawling<br>– Explosive dumping grounds and sites (here bottom trawling has a high environmental and safety risk) | X | |
| Areas important for sea-bottom trawling are those which provide most essential volumes of cod and flounder landing, except those areas where sea-bottom trawling may cause potentially significant damage to benthic habitats or may case other safety concerns. | | X |

## MSP solutions for the use of the sea

| Category | Type | Conditions |
|---|---|---|
| Areas of priority interest | Areas in open sea important for sea-bottom trawling | Permanent stationary constructions (wind parks, wave power stations, platform of hydrocarbon extraction, aquaculture farms) may not be erected due to a need to ensure safe navigation and bottom trawling. |
| Other types of the sea use and marine features | Fish landing sites | CM Regulations Regarding Commercial Fishing in Territorial Waters and Economic Zone Waters. |
| Areas of general use | All marine waters are used for open sea fishing with pelagic trawls | |

# 6.3. MARINE AND COASTAL TOURISM

## Status and trends

Evidence on coastal tourism was obtained from the data and information collected in the framework of development of the national long-term thematic plan on "Development of Public Infrastructure in the Baltic Sea Coastal Zone of Latvia". Additionally, different data sources were used to describe various aspects of marine and coastal tourism in the country.

| Used data/indicators | Source |
|---|---|
| Number of visitors in coastal zone | National long-term thematic plan on "Development of Public Infrastructure in the Baltic Sea Coastal Zone of Latvia" |
| Infrastructure (watchtowers, parking lots) | |
| Kiteboarding | |
| Marine canoeing routes | |
| Sport fishing | |
| Recreational fishing for tourists | |
| Diving | |
| Bird watching | |
| Location of accommodation sites | |
| Number of yacht piers/marinas/clubs | Internet research |
| Blue flag yachting ports/marinas | Foundation for Environmental Education of Latvia |
| Bathing waters | Health Inspectorate; EIONENT data base |
| Blue flag bathing waters | Foundation for Environmental Education of Latvia |
| Ports with ferry lines and cruise shipping | Port authorities |
| – Restricted area for diving<br>– Forbidden area for diving | CM Regulations regarding the Procedures for the Regime of Navigation in Latvian Waters |
| Ferry passenger departures and arrivals at Latvia's ports | Central Statistical Bureau |
| Number of passengers at Riga port | |
| Offers for entertainment trips & excursions | Municipalities, tourism information centres |
| Number of registered yachts in Latvia | Registers of ships of Latvia, MAL |

## Criteria for defining the spatial use of the sea

| Criteria for defining important areas for coastal and marine tourism | EC | CC |
|---|---|---|
| ● Existing regulations set different rules:<br>– A neutral regime zone has been determined in the MPAs for enabling port development, the economic potential of coastal municipalities and enhancing the tourism infrastructure. Such zones are constituted in ports and along the shoreline.<br>– The regulations of ports set the conditions for use of berths, navigation routes and canals for tourism and recreation.<br>– Special regulations for MPA "West coast of the Gulf of Riga" restricts the use of water motorbikes, kiteboarding, wakeboarding and water skiing in the period when water birds are resting, breeding and feeding.<br>– Sport fishing rules do not allow angling on the navigation routes in the port areas. | X | |
| ● Compliance criteria to identify a coastal area important for marine tourism and recreation:<br>– Easy access to water: roads, parking lots, pathways to the beach;<br>– Available infrastructure for marine tourism activities: marinas; slips; piers, etc.;<br>– Visiting intensity is high or moderate;<br>– Potential sites to be designated bathing waters are identified;<br>– Sites for niche tourism and leisure (e.g., bird watching, diving, water sports, etc.) | | X |

### MSP solutions for the use of the sea

| Category | Type | Conditions |
|---|---|---|
| Areas of priority interest | Important areas for coastal marine tourism | • The local governments shall take the areas into account when developing local spatial development planning documents (including the 2km marine coastal zone) |
| | Ports important for cruise tourism (Rīga, Ventspils, Liepāja) | • Regulations (rules) of the local municipalities on ports define the development and maintenance perspectives<br>• The role of the ports shall be taken into account in preparation of the municipality development and spatial planning documents, as well as in strategic planning of the tourism sector. |
| Areas for potential development | Potential piers for yachts (2 piers) | • CM Regulations define the requirements for construction of the hydro-technical structures.<br>• Local spatial planning documents define specific conditions for development of piers |
| Other types of the sea use and marine features | Sites for coastal tourism and recreation:<br>– Bathing waters<br>– Blue flag bathing waters<br>– Yachting clubs<br>– Blue flag yachting clubs | • CM Regulations designate the bathing water sites along the Baltic Sea and the Gulf of Riga<br>• CM Order approves "Commission of the compliance assessment for bathing waters and yachting ports" (Blue flag certification)<br>• Local spatial planning documents define specific conditions for maintenance of the sites. |
| | – Restricted area for diving<br>– Forbidden area for diving | • Marine Environment Protection and Management Law sets the conditions and restrictions for diving in the sea.<br>• CM Regulations define areas, including boundaries with restrictions for diving and forbidden area for diving. |

## 6.4. RENEWABLE ENERGY RESOURCES

### Status and trends

The statistical data was the main source for describing the renewable energy sector and its targets. Scientific literature and different publicly available research and other types of report were used to analyse and assess the potential of the offshore energy production in Latvian waters.

When the MSP was drafted, the offshore wind park licence issued by the Ministry of Economy to the Baltic Wind Park Ltd for the possibility of generating 200MW/year electricity in 8 areas was valid.

| Used data & indicators | Source |
|---|---|
| **Statistical data** | |
| Share of renewable energy sources in total gross energy consumption (%) | Eurostat |
| Electricity production and consumption (GWh/ year) | |
| **Spatial** | |
| Licenced areas for installing new electricity generation facility issued to Baltic Wind Park Ltd | Ministry of Economy |
| Sea bathymetry – depth and isolines | MAL |

## Criteria for defining the spatial use of the sea

| Criteria for defining suitable areas for wind park development | EC | CC |
|---|---|---|
| ● Existing regulations set limitations:<br>– Law on Protection Zones and related CM Regulations define the protection zone around the technical means of navigation and technical means of military marine surveillance. In general, buildings causing disturbances are not allowed in these zones | X | |
| – Special Regulations on Protection and Use of the MPAs "Nida–Pērkone" and "West coast of the Gulf of Riga" do not allow the building of a wind park in the nature reserve zone, while the construction of wind parks in the whole territory of the MPA "Irbe strait" is not permitted | X | |
| – CM Regulations set the procedure for assigning the specific areas for licencing offshore energy production | | X |
| ● Limiting criteria for human activities:<br>– Resource availability – the wind turbine efficiency is achieved if the mean wind speed is 9m/s at a height of 100m<br>– Technological constraints – maximum depth of the used technologies in Europe (average in Europe – 22m; maximum where farms are constructed – 40m; licenced areas are up to 50m in depth)<br>– Required space per produced power: 5-6MW turbines need on average 1 km$^2$, 500-600 MW farm needs about 100 km$^2$ space | X | X<br>X |
| – Access to grid and cables as well as access to the land grid system (its capacity to take in the produced volumes) | X | |
| – Safety zone around the wind energy generation facilities: 500m as a minimum zone[19]. Recommended safety zone for intensive traffic routes: 2 nm on each side from the shipping line[20] | X | |
| – Wind farms shall be sited outside territorial waters to reduce disturbance to the marine observation systems important for national defence and security | | X |

| Criteria for defining suitable area for exploring the wave energy technologies | EC | CC |
|---|---|---|
| ● CM Regulations set the procedure on assigning the specific areas for licencing offshore energy production | | X |
| ● Limiting criteria for human activities:<br>– Resource availability – environmental conditions to generate wave energy;<br>– Technological constraints are linked to the type of the selected device/equipment.<br>The draft MSP has identified areas deeper than 25m, up to 250m for the smaller size of devices that are connected to generate higher electricity volumes. | X | X |
| – Access to the electric grid and cables. | X | |
| – Safety zone around the wave energy generation facilities: 500m as a minimum zone. Recommended safety zone for intensive traffic routes: 2 nm on each side from the shipping line. | X | |

17 UNCLOS, Part V – Exclusive Economic Zone, article 60.5.

18 Shipping Advisory Board North Sea and Ministry of Transport for the Netherlands

| Criteria for defining potential cabling areas | EC | CC |
|---|---|---|
| ● Existing regulations set:<br>– the protection zone around the electric cables - 0.25 nm on each side from the cable line from water surface to sea-bottom (Law on Protection Zones). | X | |
| ● Limiting criteria for human activities:<br>– Technological constraints: access possibility to terrestrial grid. | X | |

### MSP solutions for the use of the sea

| Category | Type | Conditions |
|---|---|---|
| Areas for potential development | Suitable areas for offshore wind park development | If a developer wishes to start any commercial activity in the sea requiring building activities, he/she shall comply with the CM Regulation which defines the procedure for proposing an area of interest, receiving a licence for investigation and for erection of buildings. |
| | Area for exploring the wind energy technologies | |
| | Perspective electricity cables and their protection zone | If a developer would like to start any commercial activity in the sea requiring building activities, he/she shall comply with the CM Regulation which defines the procedure for proposing an area of interest, receiving a licence for investigation and for erection of buildings. |
| | | Ministry of Economy and JSC *„Augstsprieguma tīkls"* shall consider the connection of the grid system with the neighbouring countries. |

## 6.5. MARINE AQUACULTURE

### Status and trends

Latvia has little experience in marine aquaculture as its geographic and climatic conditions are not very favourable. The draft MSP describes the potential for development of marine aquaculture based on limiting factors for this sector. The spatial solutions also include suitable areas for aquaculture; nevertheless, other alternatives might also be relevant, if new evidence is collected.

The main limiting factors for development are as follows:

- fish species: temperature, salinity, oxygen content, nutrient availability;
- plant species (algae): depth of light penetration;
- mussels: salinity and availability of plankton biomass.

The natural preconditions for the aquaculture were assessed based on the information and knowledge of scientists at "BIOR".

## Criteria for defining the spatial use of the sea

| Criteria for defining suitable areas for aquaculture | EC | CC |
|---|---|---|
| ● CM Regulations set the procedure for assigning the specific areas for aquaculture licencing | | X |
| ● Limiting criteria for human activities:<br>– Environmental conditions impacting on fish species' growth<br>Researchers of "BIOR" recommend salmonids as the most suitable species for fish aquaculture. The most suitable areas are located in the open Baltic Sea where salinity is above 8‰ and salinity and oxygen content is stable.<br>– Environmental conditions impacting algae and mussel farming<br>Researchers of "BIOR" conclude that temperature and oxygen content is optimal in the Baltic Sea and the Gulf of Riga; however, due to low salinity in the south part of the Gulf of Riga that area is not suitable for these species.<br>– Technological constraints – intensive wave and wind energy negatively impacts on aquaculture farms. The farms within a reasonable distance from the port. | X<br><br><br><br><br>X | <br><br><br><br><br>X |

## MSP solutions for the use of the sea

| Category | Type | Conditions |
|---|---|---|
| Areas for potential development | Suitable areas for marine aquaculture (algae and mussels) | If a developer would like to start any commercial activity in the sea requiring building activities, he/she shall comply with the CM Regulation which defines the procedure for proposing an area of interest, receiving a licence for investigation and for erection of buildings. |
| | Suitable areas for marine aquaculture (algae, mussels, fish) | |

# 6.6. NATURE CONSERVATION

## Status and trends

The draft MSP presents information on protected marine habitats and species, marine protected areas (MPA) that are included in the *Natura 2000* network. The assessment of the status of species and habitats are based on the Report of Latvia to the European Commission in accordance with the Habitat Directive, Article 17. The Report concludes that the marine habitat – reefs (117) that is currently the only protected marine habitat in Latvian waters, is assessed to be in *unfavourable* status. The trend for the change in conservation status is *unknown.*[19] The conservation status of the wintering birds is stable or fluctuating. The status of protected fish species (salmon and whitefish) is *unfavourable-bad,* for river lamprey is *unfavourable-inadequate,* but the conservation status of the brook lamprey population is assessed as *favourable*.

The draft MSP considers the existing seven MPAs established in 2010 by CM Regulations No. 17. These areas cover 15% of the Latvian marine waters, mainly territorial waters. Marine Management plans and special regulations have been adopted for three areas - CM Regulations on Protection and Use of the MPAs: "Nida–Pērkone", "West coast of the Gulf of Riga" and "Irbe strait". The Regulations include zoning of the MPAs that was also considered when drafting the MSP.

19 Nature Conservation Agency. Report to the European Commission regarding the status of the protection of biotopes (habitats) and species in Latvia. Assessment of the period between 2007-2012. http://www.daba.gov.lv/public/lat/dati1/zinojumi_eiropas_komisijai/

| Used data & indicators | Source |
|---|---|
| **Environmental data** | |
| Assessment of status of habitats and species (*Natura* 2000 assessment) | Nature Conservation Agency, monitoring data |
| **Spatial data** | |
| Border of MPA | Nature Conservation Agency, data base "Ozols" |
| Zoning of MPA | |

## Criteria for defining the spatial use of the sea

Five investigation areas of nature values in EEZ of Latvian waters were defined during the MSP development. The areas were defined based on sea-bottom and bathymetric data, as the information on occurrence and status of benthic habitats and distribution of bird species in these territories were not available during the MSP development process. The five identified areas could be designated as MPA if the field works deliver scientific evidence and compliance with the criteria for establishing a Natura 2000 site.

| Criteria for defining the investigation areas of nature values important for protection of benthic habitats: | EC | CC |
|---|---|---|
| 28.05.2002 CM Regulations No. 199 "Criteria for establishing a nature protection area of European importance (*Natura 2000*) in Latvia". | X | |
| Suitable natural conditions for occurrence of the habitats of EU importance<br>• reefs (1170) can be distributed to a 20m depth; | X | |
| • sandbanks which are slightly covered by sea water continuously (1110) – might occur on elevated areas of the seabed, to a depth of 30m, up till a 50m depth including a slope | X | |

## MSP solutions for the use of the sea

| Category | Type | Conditions |
|---|---|---|
| Areas of priority interest | Marine Protected Areas | Existing regulation:<br>• Law on Specially Protected Nature Areas<br>• 05.01.2010 CM Regulations No. 17 "Regulations on Marine Protected Areas"<br>• Special Regulations on Protection and Use of the MPAs: "Nida–Pērkone", "West coast of the Gulf of Riga" and "Irbe strait" |
| | Investigation areas of nature values | The issuing of licences for sea use activities, which could potentially endanger the protected marine habitats and species, are not allowed before completion of the investigations. This includes wind parks, wave power stations, extraction of the hydrocarbons, aquaculture farms. |

# 7 LAND - SEA INTERACTIONS

Management of terrestrial and marine space is closely interlinked, as the obtained traditional marine resources are used for human activities on land, or the marine space provides connections between different regions and countries in the world. Therefore, land-sea interactions (LSI) play an important role and shall be taken into account during development of the MSP. The recognition of LSI's was an important principle for development of the Latvian MSP to ensure a coherent and consistent planning outcome.

During the scoping, planners identified potential LSI's resulting from maritime activities. Similarly, to the matrices of conflicts, a look-up table was constructed to identify, assess and analyse the LSI's. Due to limited resources for the planning process, LSI's were analysed strategically. As result the following LSI's were assessed as significant to be considered in the maritime and terrestrial planning:

- Shipping (maritime transport) and established conditions for navigation are dependent on the port characteristics (depth and width of entrance canals, berth, available railway and road infrastructures to handle the cargo flows).
- Fishery is bound to ports for open sea fishing and smaller scale infrastructure (access roads to the shore, piers) for coastal and recreational fishing. The fishery sector shall also have established sufficient capacities for the handling and processing of catches.
- Maritime tourism and recreation – these activities vary along the coastline depending on natural conditions, landscape and cultural heritage values, and available services. The sector is highly dependent on the land-based infrastructure (marinas, slipways, access roads and pathways, etc.).
- Defence and national security in marine areas (such as training areas, observation networks, mine sweeping and other military operations) are closely linked to infrastructure and technical means on the land.
- Telecommunication cabling needs access to the land and connection to the terrestrial grid networks.
- New sea uses (mainly energy production) need access to the electricity grid infrastructure and port infrastructure to build and maintain the energy infrastructure.

# 8 STAKEHOLDER INVOLVEMENT AND PUBLIC PARTICIPATION IN THE MSP

## 8.1. SCOPE OF STAKEHOLDER INVOLVEMENT AND PUBLIC PARTICIPATION

As the Latvian MSP is a national spatial development planning document, public participation shall be conducted according to the established governmental regulations which set the definitions and overall procedure to be followed by planners. The regulations on SEA also contain specific conditions for public participation, e.g., duration of the public consultation.

A Public Participation Strategy was drawn up to outline communication (information and consultation) and involvement activities. The Strategy was built upon the principle that effective, transparent, inclusive and early stage public participation in the planning process ensures better quality of the MSP and compliance with the needs and interests of society. The strategy was structured according to three main public participation forms: 1) information supply to the public on important aspects of the MSP

and opportunities to participate; 2) consultation with stakeholders on different MSP aspects and their perspectives, arrangements for public participation; 3) active involvement of stakeholders in data, information and knowledge-sharing; involvement in evaluations and assessments of different issues. A bunch of social participatory methods were applied to ensure effective public participation.

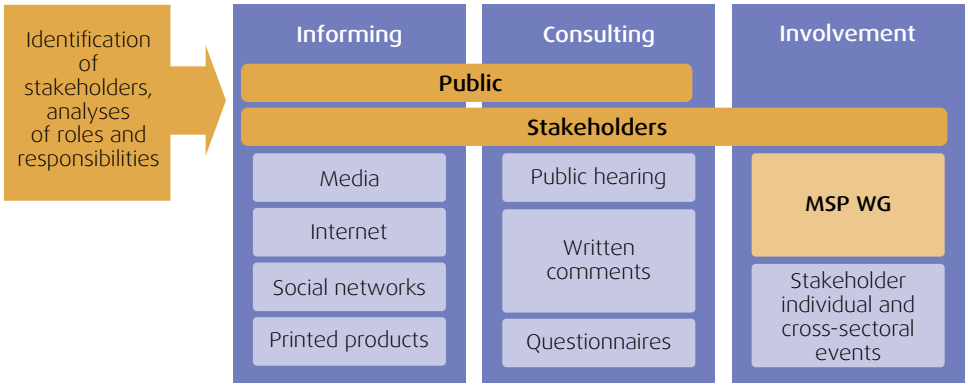



**Figure 8.1.** Public participation forms and methods employed in the development of the Latvian MSP

## 8.2. MARINE PLANNING WORKING GROUP – MSP COOPERATION MECHANISM

The MSP WG was established by the MoEPRD in 2014 and consists of more than 30 members and a chairperson. It is composed of relevant ministries and public bodies, planning regions and coastal municipalities, as well as non-governmental organisations. During the preparation of the first MSP draft, the WG met five times to reflect on the major planning steps and outcomes.

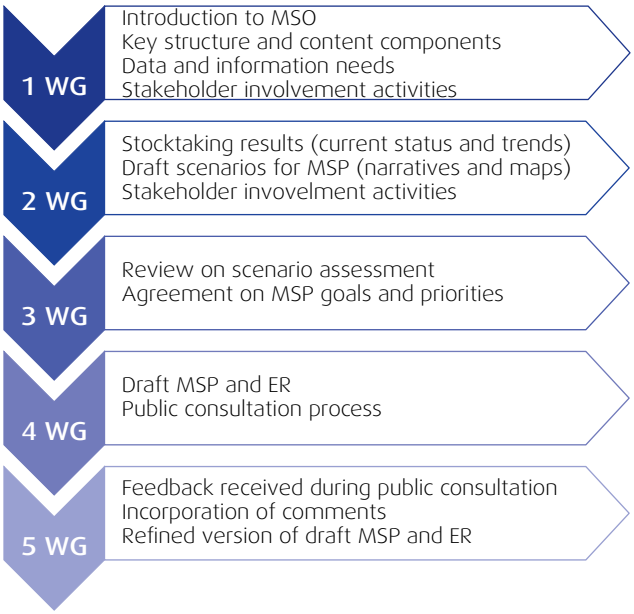



**Figure 8.2.** Issues addressed in the MSP WG meetings

## 8.3. MSP STAKEHOLDERS: SECTORS AND INTERESTS

The consortium and the MoEPRD had already established cooperation and good contacts with key stakeholders in the preparatory phase. However, expanded cooperation was required during the MSP development, therefore stakeholder analysis was conducted to streamline the stakeholder involvement and public participation activities. The analysis focused on the following aspects:

- representation of all major sea uses and interests: maritime transport, fishery, tourism, energy, cultural heritage, environment and nature;
- roles and responsibilities institutionally within the MSP;
- administrative scale: national, regional, local.

A stakeholder database was created and regularly updated to support communications throughout the planning. The database contains information on sector, issue, organisation or institution, contact persons and contact information (e-mail, phone). When sending out initial information on the Latvian MSP, addresses were requested to share the information further and encourage other relevant colleagues to take part in the MSP. As a result of the so-called "snowball" effect, over one year more than 440 entries (persons or organisations) were added to the database.

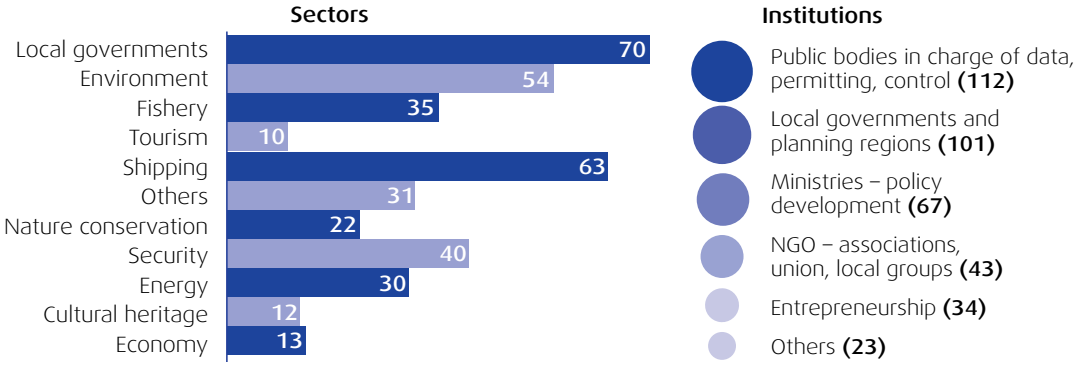



**Figure 8.3.** Stakeholder involvement – number of participants of the MSP events

## 8.4. PUBLIC CONSULTATION IN MSP AND SEA

In Latvia, the procedure of public participation is well-established by national regulations. Specific requirements for public consultation are also given by regulations on SEA. Good practices among the planners are to organise the public consultation for both documents – draft plan or programme and a draft of the Environmental Report (ER). This was also followed for development of the MSP and its ER as this approach facilitates greater consideration of all aspects and allows planners and SEA experts to have interactions with stakeholders simultaneously.

The public consultation on the draft documents took place between 18.12.2015.-31.01.2016. Public hearing events on the draft MSP and ER were organised jointly in the regions (Ventspils, Liepaja, Saulkrasti) and Riga in January 2016. In total, 137 participants attended the events.

Written comments and feedback were submitted in the same period. In total, 27 state institutions, municipalities, planning regions, as well as individual persons submitted their comments on the prepared draft MSP and ER.

## 8.5. INFORMATION SUPPLY

The information dissemination was one of the key components of the public participation strategy for development of the Latvian MSP. A set of various products was created to attract attention and to inform about the MSP process and outputs. They all have the same visual identity featured with the Latvian MSP logo.

The website www.jurasplanojums.net was created in early 2015 with separate section in English - "*MSP in English*". All produced papers and information materials, announcements of events, reports and photos were published on the site. The website of the MoEPRD also published all prepared materials in the dedicated section for MSP: http://www.varam.gov.lv/lat/darbibas_veidi/tap/lv/?doc=13487. Since May 2016, this website has been the key tool for informing the public of ongoing MSP activities in Latvia.

To explain the MSP process in a brief and comprehensible way, an animated film (in Latvian) was created and published before the launch of the official public consultation process. It is available at: https://www.youtube.com/watch?v=dj26vkR_kew

Several printed materials were prepared to raise the public's awareness of the ongoing MSP. A leaflet on the MSP aims to inform about the goals of the planning, key principles, key steps and possibilities for becoming involved. Four fact sheets on the MSP's priorities – shipping, fishery, tourism and new emerging sectors were issued with the use of infographics to illustrate the current status and trends and proposed spatial solutions.

A contact list of national, regional and local media was compiled at the beginning of the project and press-releases sent to them about organised events. Good cooperation was established with local coastal municipalities that publish announcements on their websites. Tweets were posted regularly at @jurasplanojums and used to promote events and raise awareness for stakeholders to take part in the MSP's activities.

# 9 TRANSBOUNDARY COOPERATION AND CONSULTATION

## 9.1. LEGAL FRAMEWORK

The transboundary consultation was carried out in accordance with the requirements specified in these documents:

- Espoo Convention on Environmental Impact Assessment in a Transboundary Context;
- Directive 2001/42/EC The Assessment of the Effects of Certain Plans and Programmes on the Environment;
- Directive 2014/89/EU Establishing a Framework for Maritime Spatial Planning (Article 11 and 12);
- CM Regulations No. 740 "Procedure for Development, Implementation and Supervision of Maritime Spatial Plan" (30.10.2012.);
- CM Regulations No. 157 "Procedure for Strategic Environmental Impact Assessment" (SEA) (23.03.2004.).

The MSP planners followed the procedure on transboundary consultations as laid down in the legislation on SEA. During the MSP development process, planners and environmental specialists of competent bodies cooperated closely to ensure the integration of all aspects and concerns.

**Competent authorities:**
MSP – MoEPRD, Spatial Planning Department
Espoo contact point – MoEPRD, Environmental Protection Department
Transboundary consultation on SEA – State Environmental Bureau

## 9.2. CONSULTATION

Latvia has its sea borders with Lithuania, Sweden and Estonia who were consulted with regard to development of the MSP and SEA.

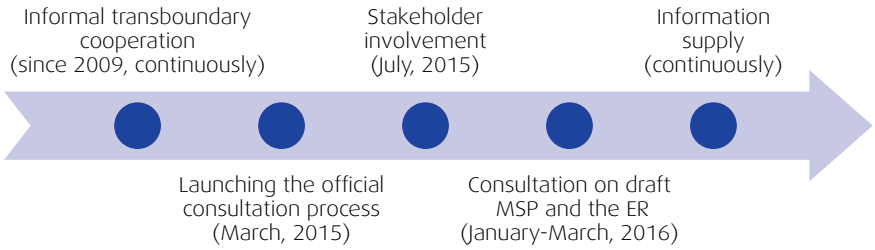



**Figure 10.** Transboundary consultation process

### Informal transboundary cooperation processes

Latvia commenced cooperation with the MSP experts and stakeholders from the neighbouring Baltic States even before they established a legal basis. Baltic Sea cooperation project BaltSeaPlan[20] was among one of the first projects with active involvement of Latvian stakeholders for testing MSP methods in a pilot area between 2009-2012.

The Baltic Sea regional cooperation project PartiSeapate (2012-2014)[21] promoted the multi-level and multiple cooperation models focusing on the key MSP issues – shipping, wind energy, environment, cultural heritage. The stakeholders of these sectors were approached to communicate on their needs and interests in the MSP in a pan-Baltic context. The cooperation at new level is being achieved by the EU project Baltic SCOPE. Competent authorities in charge of the MSP and the key stakeholders exchanged information and communicated on selected cross-border topics – shipping, fishery, energy and environment. The implementation of the Baltic SCOPE activities was implemented in parallel to the drafting of the Latvian MSP. The issues addressed by the project also positively contributed to the coherence of the Latvian MSP solutions.

In 2010, a VASAB-HELCOM MSP working group was established, aiming towards coherent regional MSP processes in the Baltic Sea region. Amongst others, this working group functions as a platform for information exchange and dialogue between the countries. Latvia uses the meetings to inform the neighbouring countries on the MSP process in the country.

### Launching the official consultation process

In the early stage (March, 2015), the State Environmental Bureau (SEB) sent a notification letter to the contact points for the Espoo Convention in neighbouring countries - Estonia, Lithuania and Sweden- with a request to indicate their potential concerns and to express a wish to participate in consultations. Within a month, the responses were received confirming their intention to participate.

20 BaltSeaPlan - "Development of Maritime spatial planning in the Baltic Sea"

21 PartiSeapate - "Multi-level Governance in Maritime Spatial Planning throughout the Baltic Sea Region"

### Stakeholder involvement

Meetings with relevant stakeholders were held in Estonia and Lithuania to inform about the Latvian MSP process, present the maritime status and trends and to discuss potential development scenarios in July 2015. These meetings had a mutually beneficial purpose – the MSP developers could get to know the concerns of the neighbouring countries at the early stages of the development of the MSP and stakeholders learned about the Latvian goals and priorities for spatial use of the sea and what the impacts on their waters might be.

### Consultation on the draft MSP and the Environment Report (ER)

The SEB sent an informative letter to the contact points in the neighbouring countries in November 2015. The letter informed on the progress of the elaboration of the MSP and ER and indicated the expected period of the consultation on the draft papers in January-March 2016. Simultaneously, the authorities were asked to express their willingness to arrange a meeting on the draft papers with their stakeholders. The Lithuanian Ministry of the Environment expressed the need for a public meeting, thus it was arranged in Vilnius on 29 January 2016. The Estonian Ministry of the Environment preferred to respond with written comments.

The summary of the draft MSP, including maps on MSP solutions and the full draft ER in English and a summary on ER in the national language was sent to the contact points in neighbouring countries on January 13, 2016. Written comments from the three neighbouring countries' competent authorities', including the stakeholders' opinions of neighbouring countries were received in March 2016. The feedback was taken into account by integrating the received comments into the MSP as far as possible.

## 9.3. LATVIAN MSP AND HELCOM-VASAB GUIDELINES ON TRANSBOUNDARY CONSULTATION AND COOPERATION

The HELCOM-VASAB guidelines on transboundary consultation and cooperation[22] were adopted on 24-25 February, 2016, being available only after the major drafting efforts and public consultation process on the Latvian MSP. Therefore, this chapter assesses how far the work on the Latvian MSP conforms with the HELCOM-VASAB guidelines.

The guidelines include a glossary of the terms and defines the transboundary consultation and public participation. The cooperation is understood as the process of information and knowledge exchange as well as development of a common understanding on significant issues of the MSP, which involves a larger number of competent authorities and stakeholders. The consultation is described as activities that have taken place formally to discuss topics arising in the course of the elaboration of maritime spatial plans. A number of other terms and definitions are provided including on public participation, stakeholder involvement, etc.

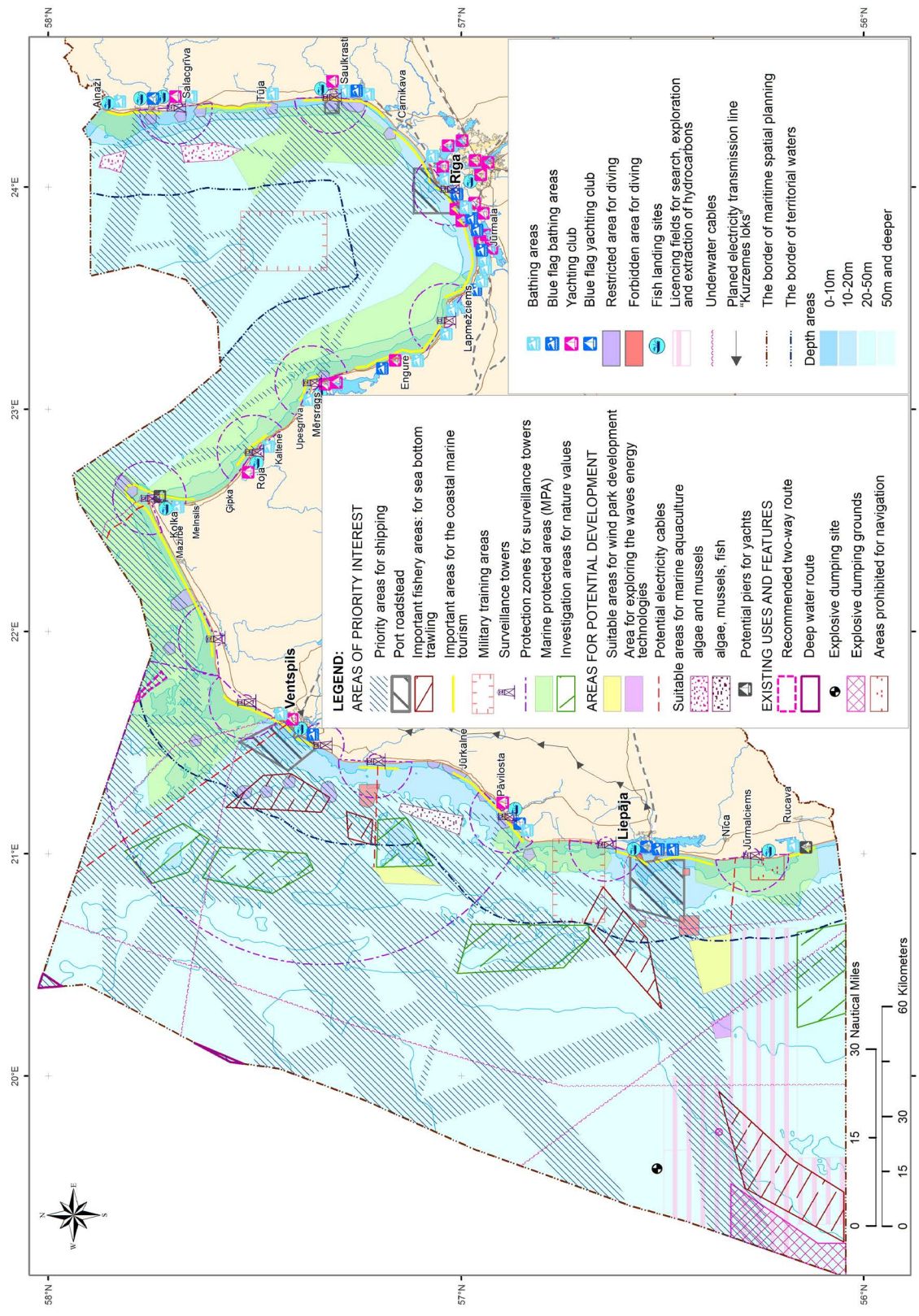
The guidelines contain the recommendations for transboundary consultation to ensure that MSPs are coherent across the Baltic Sea-basin scale to avoid costly miscalculations and negative environmental impacts, as well as promoting efficiency gains and synergies. The document highlights the role of the national competent authority (CA) for the MSP. In the case of Latvia, the same institution – the MoEPRD - fulfils the roles of CA for the MSP and for the Espoo convention. The single departments in charge of the environment and spatial planning have close cooperation and information exchange.

22 http://www.helcom.fi/action-areas/maritime-spatial-planning/msp-guidelines/

| HELCOM-VASAB Guidelines | Latvian MSP | Assessment |
|---|---|---|
| **Broadening the scope of transboundary dialogue: Building on the Espoo Convention while strengthening the scope of consultations** | | |
| Consultations should deal with a broader range of MSP issues, in particular socio-economic ones. | A wide range of issues was addressed during the transboundary stakeholder events in July 2015. Environmental, socioeconomic aspects as well as alternative development scenarios were presented and debated. | Implemented |
| Consultations and co-operation should be started earlier than is required by the Kiev Protocol referring to the Espoo (EIA) Convention. | Letters on the MSP and SEA process were sent in the early stage for encouraging the interest of the neighbouring countries in cooperation and consultation. The first stakeholder events addressed a wide range of the issues including strategic development goals and priorities. | Implemented |
| **Establishing a formal process of transboundary information exchange and consultation early in the MSP process** | | |
| In order to give neighbouring countries a chance to understand the essence of the envisaged plan, it is necessary to start consultations before the maritime spatial plan is fully drafted. | Letters on the MSP and SEA process were sent in the early stage for encouraging the interest of the neighbouring countries in cooperation and consultation. The first stakeholder event was organised when the stocktaking on the status and past trends was carried out and the future goals and priorities debated. The scope of the discussion included all MSP issues including enabling blue growth. | Implemented partially |
| If the impact of the plan is of a pan-Baltic nature, all BSR countries and the relevant pan-Baltic organisations should be informed. | CM Regulations No. 740, Article 5 contains an obligation for the MoEPRD to cooperate with the countries having a sea border with Latvia. Therefore, the consultation covered Estonia, Lithuania and Sweden. | Not implemented |
| The competent authorities should inform their neighbouring counterparts of their intention to start an MSP process, in the form of a formal letter/e-mail. The information should be sent to the countries affected, as well as to the relevant pan-Baltic organisations. | All official letters were sent via CA on environmental issues (Espoo contact points). | Implemented partially |
| The competent authorities clearly state the intention and the nature of the maritime spatial plan, so other countries can understand the possible influence and the impacts of the plan. | The initial letter contained a brief description on the MSP process and structure. As the letter was sent at the beginning of the process the expected MSP goals, tasks and conditions were not yet outlined. The second letter inviting to the stakeholder meetings enclosed a brief summary on the MSP and SEA (7 pages). | Implemented partially |
| The competent authorities ask for relevant documents and any other information from the neighbouring countries. The requested documents and information should have an impact on the development of the envisaged plan. | Latvian CA's used the publicly available information as well as cooperating with relevant ministries and institutions to exchange the information informally. The Baltic SCOPE project was one of the ways to ensure efficient information exchange of the key issues. | Implemented partially |

| | | |
|---|---|---|
| The competent authorities also inform the neighbouring countries, once the stakeholder process begins in order to give the neighbouring country the option of installing a parallel domestic stakeholder process on issues of cross-border significance. | Taking into account the available resources and the status of the MSP in the neighbouring countries, stakeholder meetings were arranged twice in Lithuania and once in Estonia. | Implemented partially |
| **Organising stakeholder involvement in the transboundary consultation process** | | |
| When requested by the competent authorities from a country which started elaboration of the maritime spatial plan - initiate and run a stakeholder involvement process within the territory of their state immediately after obtaining the request and in line with information received. | The consortium partners from Estonia and Lithuania being contracted for the Latvian MSP communicated with the respective "home" country's CA on arranging stakeholder and public events with Latvian representatives. This initiative was a voluntary action depending on the expressed interest of Estonian and Lithuanian CAs. | Implemented partially |
| **Developing a transboundary consultation strategy** | | |
| Appropriate consultation and communication formats have to be found within a transboundary consultation process | MoEPRD and other sector experts actively participated and continue to take part in various cross-border consultation processes organised by different parties. | Implemented |
| Direct communication at the level of the competent authorities is essential for building up a capital of trust, so networking between the competent authorities and MSP practitioners should be encouraged. | MoEPRD as a CA actively participated in different regional forums, working groups and international projects. | Implemented |
| The competent authorities should be prepared to travel to the neighbouring countries in the early stages of elaboration of a maritime spatial plan and explain their plans and intentions.<br>The outcomes of bilateral and multilateral discussions should be distributed to all neighbouring countries by the competent authorities. | Latvian party initiated and organised bilateral meetings with stakeholders (held in Pärnu, Estonia and Klaipeda, Lithuania). The summary reports from the events, presentations and agenda were published on the websites. | Implemented |
| The MSP technical language needs to be explained. The respective aims, outputs and tools need to be clearly explained. | The main outputs were translated in English to ensure smooth communication with neighbouring countries. The information was also published on websites including that of the CA. | Implemented |
| The competent authorities should be ready to make the relevant information available in English. As a minimum, a translation should be provided of the non-technical summary of the draft MSP and maps with legends. | | |
| **Strengthening informal transboundary cooperation processes** | | |
| Informal routes of communication (information and experience exchange) should be established between the relevant authorities before a maritime spatial plan is drafted. | MoEPRD as the CA participates in different Baltic Sea regional and EU-wide projects aiming at networking and information exchange with colleagues from other countries. | Implemented |

# A MAP OF THE PROPOSED MSP SOLUTIONS FOR THE USE OF THE SEA



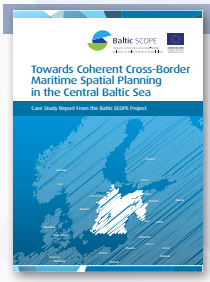
# ABBREVIATIONS

| | |
|---|---|
| Baltic SCOPE | Towards coherence and cross-border solutions in Baltic Maritime Spatial Plans |
| "BIOR" | Institute of Food Safety, Animal Health and Environment - "BIOR" |
| CICES | Common International Classification of Ecosystem Services |
| CM | Cabinet of Ministers |
| CSB | Central Statistical Bureau |
| EEZ | Exclusive Economic Zone |
| ER | Environmental Report |
| EC | European Commission |
| EU | European Union |
| HELCOM | Helsinki Commission |
| HELCOM HUB | Helsinki Commission Underwater Biotope and Habitat classification system |
| ICES | International Council for the Exploration of the Sea |
| LIAE | Latvian Institute of Aquatic Ecology |
| LSI | Land-sea interactions |
| MoEPRD | Ministry of the Environmental Protection and Regional Development |
| MPA | Marine protected area |
| MSFD | Marine Strategy Framework Directive |
| MSP | Maritime Spatial Plan |
| MSP WG | Maritime Spatial Planning Working Group |
| MAES | Mapping and Assessment of Ecosystems and their Services |
| MAL | Maritime Administration of Latvia |
| SEA | Strategic Environmental Assessment |
| SEB | State Environmental Bureau |
| VASAB | Vision and Strategies around the Baltic Sea |

# LIST OF THE PRODUCTS PREPARED DURING THE BALTIC SCOPE COLLABORATION:


**Recommendations**
on Maritime Spatial Planning Across Borders

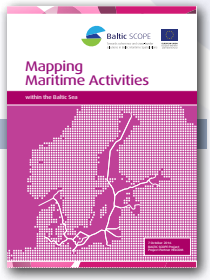

**Coherent Cross-border Maritime Spatial Planning for the Southwest Baltic Sea -**
Results from Baltic SCOPE




**Towards Coherent Cross-Border Maritime Spatial Planning in the Central Baltic Sea -** Case Study Report From the Baltic SCOPE Project


**Lessons Learned: Obstacles and Enablers** When Tackling the Challenges of Cross-Border Maritime Spatial Planning - Experiences from Baltic SCOPE


**The Ecosystem Approach** in Maritime Spatial Planning - A Checklist Toolbox




**Mapping Maritime Activities**
within the Baltic Sea


**Evaluation and Monitoring of Transboundary Aspects of Maritime Spatial Planning -**
a Methodological Guidance


**Development of a Maritime Spatial Plan**
The Latvian Recipe

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Joint results achieved by cooperation between the authorities responsible for Maritime Spatial Planning in the Baltic Sea Region with support of regional and research organizations.

Swedish Agency for Marine and Water Management

Nordregio

BSH Bundesamt für Seeschiffahrt und Hydrographie

SYKE

Ministry of Environmental Protection and Regional Development Republic of Latvia

VASAB Vision & Strategies around the Baltic Sea

HELCOM

Maritime Office in Gdynia

Danish Maritime Authority

Republic of Estonia Ministry of Finance

# Baltic SCOPE

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

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EU Strategy for the Baltic Sea Region Flagship