

MARITIME SPATIAL PLAN

2030

**The Maritime Spatial Plan for the Marine Inland Waters, Territorial Sea and Exclusive Economic
Zone Waters of the Republic of Latvia**

National level long-term spatial development planning document

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Explanation of terms used

Aphotic zone	The portion of the sea which receives less than 1% of sunlight
Base line	The maximum low-water line and straight lines which connect the points of the hydrotechnical structures or other structures located on the opposite side of a specific port, which are located further towards the sea ¹
Benthic species	Species which live on or in the seabed
Benthos	A community of organisms that live on or in the seabed. According to taxonomic affiliation, it is classified into two large groups: phytobenthos, which includes macroscopic algae and aquatic plants, and zoobenthos, which includes animals associated with the seabed
Biotic community	A community of organisms (plants, animals and micro-organisms) that live together in a habitat. A historically established community of plants, animals and micro-organisms that occupies a certain section of land or water and is characterised by a mutual relationship (within the biotic community), as well as relations with the environment and other ecosystems
Biotope	A habitat or a living space for a certain assemblage of plants and animals characterised by a set of environmental conditions
Coastal fisheries	For the provision of efficient management of fishing a separate area of waters - coastal waters - are determined in the territorial waters and marine inland waters of the Republic of Latvia where the depth does not exceed 20 metres, except shallow water zones which are located further than the closest 20 metre isobath to the coastline ²
Ecosystem	A complex of plants, animals and micro-organism communities and their physical environment, interacting as a functional unit
Ecosystem services	All the benefits that ecosystems provide to humans and their welfare
Eutrophication	Deterioration of environmental conditions in water bodies caused by increase of nutrient amounts (nitrogen, phosphorus and silicon compounds) and their circulation rates leading to increased algae development and increased accumulation of organic matter in the water system
Greenhouse gases	Carbon dioxide (CO ₂), methane (CH ₄), nitrogen oxide (N ₂ O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), nitrogen trifluoride (NF ₃) and sulphur hexafluoride (SF ₆)
Inland waters	Sea waters from the coastline to the base line ³
Marine coastal waters	An aquatorium two kilometres in width from the marine coastal line ⁴ (Land Management Law)
Marine waters of Latvia	The marine inland waters, territorial sea and exclusive economic zone waters of the Republic of Latvia
Nutrients	Substances (including chemical elements) necessary to ensure the existence of living organisms

1 Law On the State Border of the Republic of Latvia (in force from 16.12.2009.)

2 Cabinet Regulation No. 296 of 2 May 2007 "Regulations Regarding Commercial Fishing in Territorial Waters and Economic Zone Waters"

3 Law On the State Border of the Republic of Latvia (in force from 16.12.2009.)

4 Land Management Law (in force from 01.01.2015.)

Offshore	Marine area starting from the coast of the sea and continuing into the deep sea
Pelagic organisms	Organisms which live in the middle and/or upper part of the water
Photic zone	The part of the sea that is exposed to sunlight.
Plankton	A cluster of free floating, mostly microscopic organisms. Plankton are divided into two large groups: phytoplankton – microscopic algae and zooplankton – microscopic animals
Sea bottom sediments	Materials deposited on seabed and formed as a result of continuous impact of waves and underwater currents

Abbreviations used

AIS	Automatic identification system
BIOR	Institute of Food Safety, Animal Health and Environment “BIOR”
B.s.l.	Below sea level
BSR	Baltic Sea Region
CAGR	Compound Annual Growth Rate
CM	CM of Ministers
EC	European Commission
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EU	European Union
EU ETS	European Union Emissions Trading System
EU funds	European Regional Development Fund, European Social Fund, Cohesion Fund, European Agricultural Fund for Rural Development, European Maritime and Fisheries Fund
EUSBSR	European Union Strategy for the Baltic Sea Region
GHG	Greenhouse gases
HELCOM	Baltic Marine Environment Protection Commission - Helsinki Commission
ICES	International Council for the Exploration of the Seas
IMO	International Maritime Organisation
IMTA	Integrated multi-trophic aquaculture
KPR	Kurzeme Planning Region
LEGMC	Latvian Environment, Geology and Meteorology Centre
LIAE	Latvian Institute of Aquatic Ecology
LNG	Liquefied natural gas
MAL	Maritime Administration of Latvia
MoA	Ministry of Agriculture
MoE	Ministry of Economics
MoEPRD	Ministry of Environmental Protection and Regional Development
VASAB	Vision and strategies around the Baltic Sea – the cooperation of 11 states in the Baltic Sea Region in the spatial planning and development. This is put forward by the ministers responsible for spatial planning and development and is led by the Baltic Sea Region’s Spatial Development and Planning Committee.
MoT	Ministry of Transport
MPA	Marine protected areas
MSP	Maritime Spatial Plan
NATO	North Atlantic Treaty Organisation
NCA	Nature Conservation Agency

NCHB	National Culture Heritage Board
NM	Nautical Mile
non-ETS	Activities not included in the European Union Emissions Trading System
RES	Renewable energy sources
Ro-Ro	Roll-on/roll-off
RPR	Riga Planning Region
TEN-T	Trans-European Transport Network
TS	Territorial sea
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
WPP	Wind power plants/wind power parks

INTRODUCTION

The Maritime Spatial Plan (hereinafter - MSP) is a national level long-term spatial development planning document that defines in writing and graphical form the use and conditions for the use of the sea for the inland waters, territorial sea and exclusive economic zone waters of the Republic of Latvia.

The MSP has been formulated in accordance with the Spatial Development Planning Law (in force from 1st December, 2011) and CM Regulation No. 740 of 30th October 2012 on the Procedures for the Development, Implementation and Monitoring of the Maritime Spatial Plan. In December 2015 and January 2016, a public consultation was conducted on Version 1⁵ of the plan and environmental report and in 2018, from 27 July to 26 August - public consultation on Version 2⁶.

The MSP has been developed for the entire part of the Baltic Sea under the jurisdiction of the Republic of Latvia up to the outer border of the exclusive economic zone. The outer borders of the MSP conform to the state border agreements and hydrographically defined sea borders under the jurisdiction of Latvia.

The aim of the MSP is to balance the interests of the environment, society and economy and to promote the sustainable development of the marine space, permitting or restricting specific actions in the sea and along the coast.

During the process of MSP elaboration, the interests of the state and local governments have been coordinated.

When determining the priority uses of the sea, the terrestrial area that is functionally interlinked with the sea has been taken into account.

The MSP comprises four sections: the explanatory note; strategic section; description of the planned use of the sea and the graphical part.

The explanatory note of the MSP contains the principles of development and methods of the MSP, the connection of the MSP with other development planning documents and legal enactments, a general overview of the existing situation and aquatorial division of the Baltic Sea, marine transport, fishery and marine aquaculture, as well as energy production, national defence interests, tourism and recreational development, the extraction of the mineral resources, environmental quality, including climate change characteristics, information regarding biological diversity and protected nature territories, ecosystem services. Besides the description of the existing uses of the sea, the explanatory note also provides an assessment on the existing condition and development trends.

The strategic section of the MSP provides the long-term vision and priorities for use of the sea.

The section describing the planned use of the sea defines the priority use areas, their functions and the restrictions in their use, as well as the strategic aims and measures of the MSP.

The graphical section of the MSP includes the following maps: a map of the planned uses of the sea on a scale of 1:250 000, as well as different thematic and schematic maps using relevant scales and the *World Geodetic System 1984* WGS 84.⁷

5 Information on the public consultation of Version 1 of the MSP is available on the MoEPRD website: http://www.varam.gov.lv/lat/darbibas_veidi/tap/lv/juras_telpiska_planosana_jaunumi/?doc=20936

6 Information on the public consultation of Version 2 of the MSP is available on the MoEPRD website: http://www.varam.gov.lv/lat/darbibas_veidi/tap/lv/?doc=26280

7 Information on the coordinate system in English is available at: http://www.unoosa.org/pdf/icg/2012/template/WGS_84.pdf

EXPLANATORY NOTE

1. European Union strategies, legal framework and Latvia's regulatory framework

The UN Convention on the Law of the Sea of 10 December 1982 ("UNCLOS") entered into force in Latvia on 22 January 2005 determines the legal regime of the TS, the adjacent zone and the EEZ, the concept of innocent passage, the rights and obligations of the coastal State, the exploitation of fishery resources, the exploration and exploitation of marine resources, the concept of the continental shelf, the rights of navigation and aircraft, as well as the protection of the marine environment, including the assessment of the potential impacts of the planned activities and marine research. UNCLOS itself reflects a zonal approach to the sea and lays down conditions not only for the various activities at sea but for the rights and obligations depending on where those activities are carried out.

The UN International Court has acknowledged that the continental shelf is a natural prolongation of the land territory of the coastal state, which exists *ipso facto* (Latin - in fact) and *ab initio* (Latin - since the beginning), on the basis of the sovereign power of a State over its land territory as a continuation of its sovereign power with a view to exploring the sea and exploiting its resources.⁸ Article 3 of UNCLOS prescribes that every coastal State has the right to establish the breadth of its territorial sea up to a limit not exceeding 12 nautical miles, measured from the "base lines".

On adoption of UNCLOS, the breadth of the TS was one of the most contentious issues. For the purposes of determining the TS boundary, the most remote permanent port buildings at sea, which are part of the port system, are considered to be part of the shore. Coastal facilities and artificial islands are not considered to be permanent port buildings.

A coastal State shall have the following rights over its TS:

1. Exclusive rights to fish and use the bottom and depths of the territorial sea;
2. Sovereign rights to use the airspace above the territorial sea (unlike ships, aircraft do not have the right of innocent passage);
3. Coastal State vessels have exclusive rights to carry goods and passengers from one part of the coastal State to another (cabotage);
4. If the coastal State is neutral during wartime, the warring States shall not initiate battle or seize merchant ships in the TS of the coastal State;
5. The coastal State has the right to adopt legally-binding rules for foreign vessels on navigation, health, customs duties and immigration;
6. In certain cases, the coastal State has the right to detain ships whose passage is not of an innocent nature, to restrict foreign shipping traffic in the TS, where necessary for national defence and training, commercial vessels enjoying the right of innocent passage, and persons on board thereof, and to expel war ships which violate the conditions of the laws and regulations of the coastal State.

Latvia has sovereign rights to the exploration of the continental shelf and the exclusive economic zone of Latvia and the exploitation of natural resources therein, as well as exclusive rights to construct buildings and artificial islands, and exclusive jurisdiction with regard to the protection and conservation of the marine environment and marine research.

⁸ North Sea Continental Shelf, Judgment of February 20, 1969: I.C.J. Reports 1969, p.3, Paragraph 19.

EU and national planning documents and regulatory framework

The European marine environment suffers from a variety of impacts which aggravate the state of the marine ecosystem, therefore the EU has adopted Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for Community action in the field of marine environment policy (hereinafter - Marine Strategy Framework Directive). It sets out a common framework and objectives for the prevention of harmful human activities and for the protection and conservation of the marine environment.

The Marine Strategy Framework Directive sets minimum requirements for all EU countries: to develop strategies to protect the marine ecosystem and ensure that activities related to the marine environment are sustainable. It allows cooperation in marine regions (northeastern Atlantic Ocean, Baltic Sea, Mediterranean and Black Sea) under regional conventions such as the Helsinki Convention for the Baltic Sea.⁹ These programmes include measures to achieve common objectives with a view to achieving a “good environmental status” by 2020. The term “good environmental status” shall apply to diverse and dynamic oceans and seas which are clean, healthy and productive.

The aim is to ensure that the marine environment is maintained for current and future generations. The Marine Strategy Framework Directive also helps to establish a single network of marine protected areas and to initiate a dialogue with countries outside the EU. EU countries shall assess the environmental status of their marine waters and the impact of human activities (including social and economic analysis). Countries working in the same marine region shall coordinate their activities. The Marine Strategy Framework Directive is transposed into Latvian law by the Marine Environment Protection and Management Law.

On 17 September 2014 Directive 2014/89/EU of the European Parliament and of the Council establishing a framework for maritime spatial planning (hereinafter - Directive 2014/89/EU) came into force. The Directive 2014/89/EU aims at harmonising maritime spatial plans, while maintaining the freedom of action of each Member State in the planning of activities carried out at sea. Directive 2014/89/EU defines the following maritime spatial planning objectives:

1) in establishing and implementing maritime spatial planning, Member States shall consider the economic, social and environmental aspects in order to support the sustainable development and growth of maritime industries, applying an ecosystem approach¹⁰ and promoting the co-existence of relevant activities and uses;

(2) with maritime spatial plans, Member States shall aim to contribute to the sustainable development of marine energy sectors, marine transport, fisheries and aquaculture industries, as well as to the conservation, protection and improvement of the environment, including the resilience to the effects of climate change. Member States may also pursue other objectives, for example promoting sustainable tourism and sustainable extraction of raw materials.

The preamble of Directive 2014/89/EU prescribes: "The main purpose of maritime spatial planning is to promote sustainable development and to identify the utilisation of maritime space for different sea uses as well as to manage spatial uses and conflicts in marine areas. Maritime spatial planning also aims at identifying and encouraging multi-purpose uses, in accordance with the relevant national policies and legislation. In order to achieve that purpose, Member States need at least to ensure that the planning process or processes result in a comprehensive plan identifying the different uses of marine space and taking into consideration long-term changes due to climate change."

In Latvia the EU Directive is transposed into the national law system with the Spatial Development Planning Law (in force from 01.12.2011) and CM Regulation No. 740 of 30 October 2012 Procedures for the Development, Implementation and Monitoring of the Maritime Spatial Plan.

⁹ The Convention for the Protection of the Marine Environment of the Baltic Sea Region (Helsinki Convention) for which information is available: http://www.varam.gov.lv/lat/likumdosana/starptautiskie_ligumi/vid/?doc=3411 and <http://www.helcom.fi/about-us/convention>

¹⁰ A comprehensive, scientifically substantiated and integrated approach to management of human activity to identify adverse impacts on the marine ecosystem and take efficient measures for the reduction of such impacts preserving integrity and sustainability of the ecosystem (source: Marine Environment Protection and Management Law)

In accordance with this, all EU Member States shall formulate an MSP by no later than 31 March 2021.

The MSP shall evaluate and define sectoral interests at sea. Its aim is to create a framework for balancing the interests of the environment and other sectors of the economy, which would contribute to sustainable decision-making, create certainty for potential investments and mitigate sectoral conflicts in the future. An ecosystem approach is one of the fundamental principles by which the best available data and information can reach solutions for the co-existence of activities of different sectors at sea. The MSP shall evaluate and provide recommendations for the use of the part of land functionally linked to the sea, taking into account not only national and sectoral interests but also those of local governments.

With its strategy "**EU 2020: the European Union Strategy for Growth and Employment**" the EU is endeavouring to become a smart, sustainable and inclusive economy by 2020. The Directive 2014/89/EU plays a key role in the EU's desire to develop the European maritime economy.

The **EUSBSR** is the first internal strategy for the European macro-region, based on an innovative and integrated long-term approach to the implementation of EU policies in the Baltic Sea region. It covers eight EU Member States in the Baltic Sea region – Denmark, Estonia, Latvia, Lithuania, Poland, Finland, Germany and Sweden.

Since 2012, the general objectives of the EUSBSR have been defined. The focus is on three main objectives: saving the sea by protecting the marine environment, connecting the region by providing interregional links, improving interconnection of the energy and transport systems of the countries and increasing prosperity by removing barriers to the domestic market of the Baltic Sea region, developing a common core of economic, cultural and tourism sectors and promoting innovation in cooperation with the Joint Baltic Sea Research and Development Programme (BONUS).

The three objectives of the EUSBSR are divided into different types of action that take the form of macro-regional action in policy areas and horizontal activities. The **horizontal activity "Spatial Planning"**, aimed at preparing and implementing coherent across borders maritime spatial plans and following an ecosystem approach, is of particular importance. Thereby, the implemented activities have an impact on areas outside the borders of the particular countries.

"EU Strategy for the Sustainable Growth in the Marine and Maritime Sectors. Blue Growth" (hereinafter - Blue Growth Strategy)¹¹ is the EU's long-term strategy for the potential use of the oceans and seas. The Blue Growth Strategy launched the implementation of the EU strategies for the maritime sector. Its adoption is the contribution of the maritime sector to achieving the objectives of the Europe 2020 Strategy for smart, sustainable and inclusive growth. The Blue Growth Strategy is based on the Commission's Integrated Maritime Policy¹², launched in 2007, and focuses on the potential of the marine and maritime sectors (marine sector economies) to contribute to sustainable economic recovery in the EU and in particular to help create new jobs and promote innovation and sustainable development. **The Blue Growth Strategy identifies five areas with high potential for job creation and growth: aquaculture (fish and mussel farming), tourism, marine biotechnology, ocean energy and marine mineral extraction.**

"Development concept of the spatial planning system" (approved by CM Order No.474 of 15 July 2009) indicates that maritime planning issues should be introduced into legislation, with a view to addressing the interests of different sectors in a coordinated manner and also potential conflicts at sea, as well as international activities and commitments, particularly those of the EU and the Baltic Sea region.

The **Sustainable Development Strategy of Latvia** until 2030 (adopted by the Saeima of the Republic of Latvia on 10 June 2010) defines the role of maritime planning in ensuring the coordinated and sustainable use of coastal areas and marine aquatorium.

The **Marine Environment Protection and Management Law** (in force from 18 November 2010) defines maritime spatial planning as the long-term process for development planning aimed at the protection of the marine environment, rational use of the sea and integrated management, as well as balancing the social welfare

11 For information on Blue Growth, available: https://ec.europa.eu/maritimeaffairs/policy/blue_growth_en

12 Information on policy available: https://ec.europa.eu/maritimeaffairs/policy_en

and economic development with the environmental protection requirements. This Law states that for the issuing of licences at sea Cabinet of Ministers will take into account the MSP.

In accordance with the **Spatial Development Planning Law**, the MSP is a national level long-term spatial development planning document, laying down the use of the sea, considering the terrestrial part that is functionally interlinked with the sea.

In order to identify the institutions to be involved in maritime spatial planning and the information to be provided, as well as the possible content and development of the MSP, an informative report was prepared on “**The division of competences between the institutions in maritime spatial planning**” (adopted on 10 April 2012).

CM Regulation No. 740 of 30 October 2012 **Procedures for the Development, Implementation and Monitoring of the Maritime Spatial Plan** was issued pursuant to the Spatial Development Planning Law and prescribe more detailed requirements for elaboration process and content of the MSP.

The competence of local governments in maritime spatial planning is prescribed by Section 15 of the **Land Management Law** (in force from 01.01.2015) which introduces the term marine coastal area. This area consists of the marine coastal waters and marine coastal land part¹³. Marine coastal waters are an aquatorium two kilometres in width from the marine coastal line. The Land Management Law determines that the local government is the possessor of the marine coastal waters adjacent to its administrative territory.

The coast of the Baltic Sea is designated as one of the areas of national interest, where the preservation of natural and cultural heritage must be balanced with the promotion of economic development. MSP is one of the tools for fulfilling the long-term vision of sea use, based on an understanding of the sea as a single space where everything is interlinked. The MSP defines the interests of the State at sea so that the State and local governments themselves have a clearer vision and more consistent decisions, for example, anticipating that shipping is a priority use of the sea and, at the same time, points to areas where new industries should be developed. This is the basis for the development of and facilitating investment in key sectors of the economy and for the comprehensibility of the legal environment.

¹³ In accordance with the Land Management Law: a territory between the marine coastal line and the place which is reached by the highest waves of the sea.

2. MSP planning principles and methods

The planning of the MSP is based on the MSP principles declared in the Spatial Development Planning Law, the EU MSP Directive (2014/89/EC) and approved by HELCOM-VASAB in 2010.

The final version of the MSP has been developed based on the following: Version 1 of the MSP¹⁴ and EU financed projects: „Towards harmonisation and cross-border solutions in the spatial planning of the Baltic Sea - BalticSCOPE”¹⁵ and „Harmonised Linear Infrastructure for Baltic Sea Spatial Planning (BalticLINES)”¹⁶.

The maritime planning process is based on the following conditions:

- The use of the marine space must ensure the non-deterioration of the environmental conditions and ecological parameters and of the ability of the ecosystem to adapt, as well as create favourable conditions for improving the environmental condition and marine resources;
- The continuation of existing, traditionally formed types of sea use must be ensured, as they already occupy a defined marine space and thereby create conditions for and impact the placement of new human activities at sea;
- The development of existing human activities must be supported and conditions created for the introduction of new types of use of the sea;
- Decisions regarding the introduction of new types of use of marine resources and space must be based on research on the technical and economic grounds for it, impact on the environment and marine ecosystems and the compliance with state policy aims and priorities.

The MSP has been developed using the latest scientific research data regarding the status of the marine environment, nature assets, economic use and new spatial data sets have been developed (for example, regarding distribution of fish species and fishing activity, seabed sediments, distribution of benthic biotopes, potential of ecosystem service supply etc.).

Based on the precautionary principle, the available spatial data sets on the distribution of nature assets were used to designate appropriate locations for human activities and avoid the ones posing risk to cause significant damage.

In the early stage of elaboration of the MSP, four alternative scenarios were developed and their impact was assessed according to the chosen environmental, social, economic, climate change and cross-border context criteria, as well as with regard to the distribution of species, biotopes and ecosystem services. The results of this assessment were used for elaborating the optimal solutions for allowed uses of the sea.

A characterisation of the ecosystem services was carried out, as well as the biophysical cartography of the ecosystem services, based on the available spatial data sets and expert knowledge. The ecosystem service maps were used for impact assessments of the alternative scenarios and optimal solutions for the use of the sea.

The impact of human activities on various components of the marine ecosystem was assessed using the impact matrix (see Annex 2). The assessment results were used for mapping spatial impact scenarios and optimal sea use solutions. The interaction of commercial activities and the environment were considered at stakeholder and expert meetings, resulting in the formulation of criteria for use of the sea.

All stakeholders were actively involved in the development of the MSP, starting with the designation of the tasks of the MSP. Meetings and consultations with various stakeholder groups were organised, involving them

14 MSP Version 1 and strategic environmental impact assessment report were co-financed by the European Economic Zone Financial Instrument for 2009-2014 National Climate Policy project “Development of proposals for the National Climate Change Adaptation Strategy, identifying scientific data and measures to ensure climate change adaptation, as well as impact and cost assessment, Activity 2.2. Development of the “Maritime spatial plan for the territorial and EEZ waters of the Republic of Latvia” project. More information: http://www.varam.gov.lv/eng/darbibas_veidi/maritime_spatial_planning/

15 Financed by the EU’s Maritime and Fisheries Fund. More information: http://www.varam.gov.lv/lat/darbibas_veidi/tap/lv/?doc=23104

16 Financed by INTERREG Baltic Sea region transnational cooperation programme. More information: http://www.varam.gov.lv/lat/darbibas_veidi/tap/lv/?doc=22660

in the configuration of the long-term vision, scenario assessment¹⁷, definition of the criteria for the planned use of the sea and commenting on the optimal solutions for uses of the sea.

Cross-border consultations¹⁸ were also carried out with stakeholder representatives from Lithuania, Estonia and Sweden. Planning solutions have been evaluated in the context of the development of the Baltic Sea region, using criteria based on the EUSBSR priority areas for the Baltic Sea region in realising the economic potential of the products and services of the marine ecosystem. The criteria offered are geared towards developing a unified approach in Baltic Sea region countries, promoting cross-border cooperation for improving the welfare of its inhabitants, which is dependent on the sustainable use of environmental resources, as well as emphasising the significant economic factors, security and the ecological state of the Baltic Sea which all are essential for growths of the region.

The suggested criteria for the unified development of the Baltic Sea region include:

- **Continuation of uses** regarding shipping routes and infrastructure corridors;
- **Ecological balance**, ensured by the protected areas network and preservation of „blue corridors” to ensure the migration of species and development opportunities of fishery policies and marine aquaculture;
- **Regional attractiveness** provided by yacht and leisure boat jetty and marina networks and sailing opportunities along the coast, as well as appealing tourism services and opportunities for exploring underwater cultural heritage;
- **Security** based on appropriate military training and operation opportunities for national defence, as well as the development of use of RESs;
- **Economic potential**, based on the development of ports and support of entrepreneurship related to maritime affairs.

The MSP of Latvia is a national level planning document and the development thereof is connected to the National long-term thematic plan for the development of the public infrastructure of the Baltic Sea coastal area up to 2030. Although local governments are entitled to plan their adjoining sea territory up to 2 km from the coast, they must take into account the planning solutions prescribed in the MSP. The MSP defined measures include the necessary studies regarding the state of the marine ecosystem, nature assets and distribution of resources, as well as opportunities for using marine resources. Criteria have been formed for the monitoring of the implementation of the MSP.

An overview of the MSP elaboration, stakeholder involvement, projects related to maritime planning and strategic environmental impact assessment progress is presented in schematic form in Figure 1.

17 An insight into the experience of Latvia working on the future scenario of the shipping and energy sectors by 2050 in the context of JP can be found in the context of the project “Harmonised linear infrastructure in the Baltic Sea spatial planning (BalticLINES)”, for which information is available in Latvian: http://www.varam.gov.lv/lat/darbibas_veidi/tap/lv/?doc=22660

18 National MSPs are developed in accordance with the requirements of EU Directive 2014/89/ES. In order for countries to be able to comply with the requirements of this Directive on cross-border cooperation consultations between EU Member States in the process of developing the national MSP, the project “Towards coherence and cross-border solutions in the Baltic Sea spatial planning (BalticSCOPE)”, Latvia’s MSP Version 1, was discussed with neighbouring countries – Sweden and Estonia. Special attention was paid to the 4 main planning sectors of JP for fisheries, energy, shipping and the environment, involving key actors and interest groups of the sectors

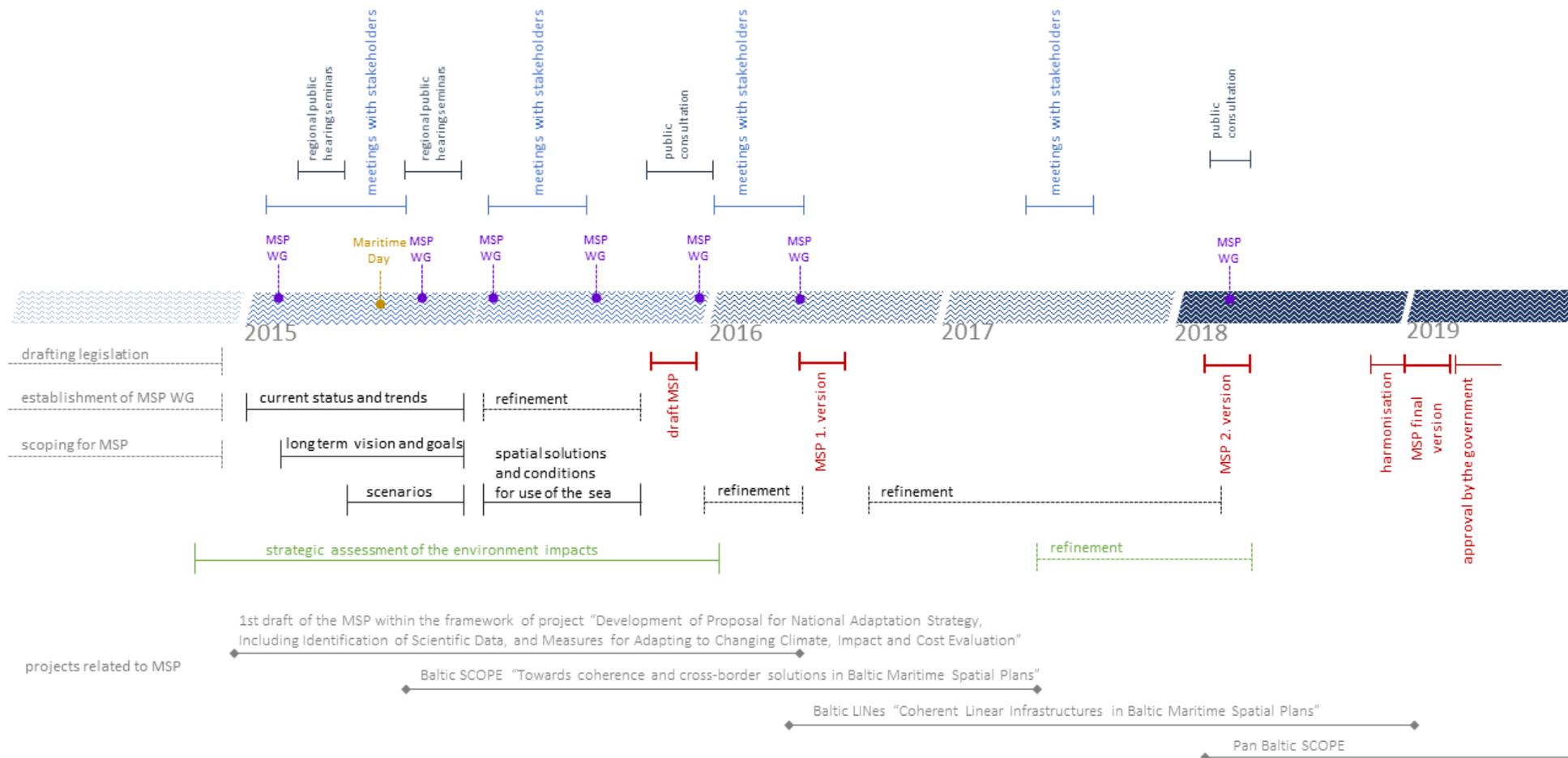


Figure 1. Progress of Latvia's MSP elaboration

3. Description of the current situation

3.1. General description of the Baltic Sea and adjoining territory

The Baltic Sea, including the TS of Latvia, is a unique asset of Latvia and the entire Baltic Sea region, where the interests of many economic sectors, nature and national defence meet.

Its ecosystem is very sensitive and in 2005 the International Maritime Organisation recognised the Baltic Sea as a particularly sensitive sea area (PSSA)¹⁹. The Baltic Sea is particularly sensitive to environmental pressures because it is closed and with relatively small biodiversity, moreover the long winter season limits its productivity and brackish water creates difficult conditions for both saltwater and freshwater organisms. Due to its limited water exchange with other seas, intake of nutrients and other substances accumulate in the Baltic Sea and decompose very slowly.²⁰ The pressures on the marine environment are caused by the activities of 85 million people²⁰ living and working in its catchment area. Typical types of pressure are eutrophication²¹, pollution, marine polluting waste, invasive species, underwater noise, fishing and habitat disappearance.²⁰ A significant proportion of Latvia's population has also concentrated on Latvia's coast - in parishes and cities bordering the sea and occupying about 6% of Latvia's territory, in early 2018 922402 inhabitants, or 43.7% of the total population of Latvia, were registered, and 41,4 % of the total population lived in four republic cities in coastal area – Riga, Liepaja, Jurmala and Ventspils²². Overall, Latvia's coastal area (most coastal parishes and cities) is experiencing a population decline and the total population has decreased by 4537 inhabitants or 0.5%, between 2013 and 2018.²³

3.2. Aquatorial division of the Baltic Sea

The regime of the TS of Latvia is regulated by the State Border Law of the Republic of Latvia.²⁴ The TS of the Republic of Latvia reaches 12 nautical miles (22,2 km) in width, counting from the base line. Its external border is an uninterrupted and complete line and the vertical surface corresponding to this line which separates the land and water territory of the Republic of Latvia, the subterranean depths and air space thereof from neighbouring countries and from the EEZ of the Republic of Latvia²⁵ (see Fig.2).

The continental shelf and EEZ in Latvia is regulated by the Marine Environment Protection and Management Law²⁶ which in Section 3 prescribes that the continental shelf of Latvia is the seabed and the subsoil in submarine areas which are a natural prolongation of the land territory of Latvia, and are located immediately beyond the boundaries of the TS of Latvia. The EEZ of Latvia is the territory of the Baltic Sea which is located immediately beyond the territorial sea boundaries of Latvia (see Fig.2). According to the Marine Environment Protection and Management Law, both territories extend to the marine borders, which Latvia has determined in international agreements with Estonia, Lithuania and Sweden. Since the renewal of Latvia's independence, maritime border agreements with Estonia and regarding the joint sea border point of Latvia, Estonia and Sweden have been ratified and are in force.

19 2005 International Maritime Organisation Resolution MEPC.136(53), available: <http://www.imo.org/en/KnowledgeCentre/IndexofIMOResolutions/Marine-Environment-Protection-Committee-%28MEPC%29/Documents/MEPC.136%2853%29.pdf>

20 Report on the state of the Baltic Sea 2011-2016, available in English: <http://stateofthebalticsea.helcom.fi/in-brief/our-baltic-sea/>

21 The importance of eutrophication is also addressed in the European Court of Auditors' report entitled "Combating eutrophication in the Baltic Sea: More Effective Future Action" https://www.eca.europa.eu/Lists/ECADocuments/SR16_03/SR_BALTIC_LV.pdf

22 According to the Citizenship and Migration Affairs Bureau's Population Register data on 01.01.2018., available: <http://www.pmlp.gov.lv/sakums/statistika/iedzivotaju-registrs/>

23 In the calculation, the number of inhabitants of the Population Register in municipalities (parish division) in January 2018 and 2013 was compared, is available in Latvian at: <https://www.pmlp.gov.lv/sakums/statistika/iedzivotaju-registrs/>

24 Law on the State Border of the Republic of Latvia (in force from 16.12.2009.)

25 Section 1, Clause 1 of the Law on the State Border of the Republic of Latvia

26 Marine Environment Protection and Management Law (in force from 18.11.2010.)

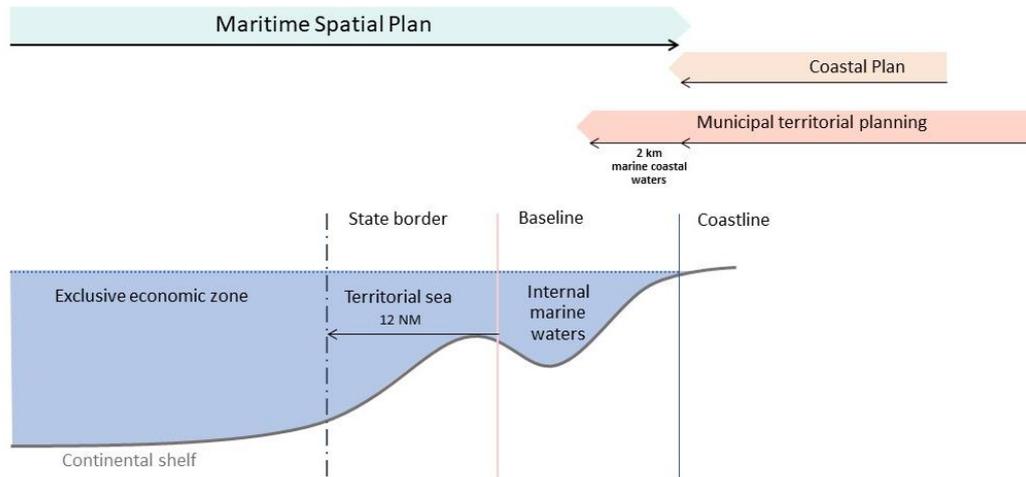


Figure 2. Breakdown of marine space of Latvia

The ground surface of the seabed of the Latvian EEZ of the Baltic Sea and the Gulf of Riga is from a few metres B.s.l. near the shores of individual stations to approximately 100-120 m B.s.l., in the local depression near Roņņu island, 160-170 m B.s.l. in the eastern slope of the Gotland Basin and even deeper westward of Liepāja.

In winter, the water temperature on its surface is close to zero. The absolute minimum water surface temperature in the Gulf of Riga is from - 0.18 °C to - 0.45 °C and at open sea from - 0.4 °C to - 0.6 °C. The water starts warming in April (sometimes even in March). The monthly average water temperature reaches the highest values in July and is + 16 °C.. +18 °C. The peak of the surface water temperature is generally reached two weeks later than the peak of the air temperature. The absolute maximum water temperature at the surface in the Gulf of Riga may reach +26 °C – +28 °C, usually in July, but in the Baltic Sea coast (Liepāja) – in August. Water cooling starts at the end of August and continues up to the first ten days of December, reaching + 1 °C – +3 °C.

Ice formation in the Gulf of Riga usually starts the most intensively in February, which facilitates the freezing of the bay and influences the functioning of the Gulf ports. In temperate winters around the end of February, the coastal waters of the Gulf of Riga and the Irbe Strait are covered with stationary ice. In harsh winters, the whole of the Riga Bay aquatorium is covered with ice by mid-January, but in mild winters the bay does not freeze. In the high seas of the Baltic Sea, usually no ice blanket develops in winter.

The salinity of the Baltic Sea water in Latvian marine waters vary in time and space, the average salinity of the surface of the water in the high seas of the Baltic Sea is 7-8 promiles²⁷ and an average of 5 promiles in the Gulf of Riga.²⁸ The prevailing wind directions are the western, southwestern and southerly winds and the longstanding average ground-level wind speed on the coast is from 3.4-4.6 m/s²⁹, the average wind speed at high seas is higher. The sediment flow at sea has been studied relatively little, but according to V. Ulsts's 1998 monograph³⁰, sand sediments flow along the coast from the west (Lithuania) to the north-east (Estonia), with the exception of the coastal section from Saulkrasti to Kurmjārgs, where these flows are in the opposite direction.

The length of the Latvian coastline is approximately 496 km on the coast of the Baltic Sea, from the Lithuanian border to the Cape Kolka, the gently sloping accumulative shores are 47% and the bluffs 33% of the length of the coastline. On the coast of the Gulf of Riga, the gently sloping accumulative shores are 58% and bluffs are 23% of the total coastline length.

27 Report on the State of the Baltic Sea 2011.-2016. available in English: <http://stateofthebalticsea.helcom.fi/in-brief/our-baltic-sea/>

28 Szaniawska A. 2018. The Gulf of Riga. In: Baltic Crustaceans. Springer, Cham https://link.springer.com/chapter/10.1007/978-3-319-56354-1_5

29 Climate Change Scenarios for Latvia Summary of Report, VSIA "Latvian Environment, Geology and Meteorology Centre", 2017. Available: <http://www2.meteo.lv/klimatariks/zinojums.pdf>

30 Ulsts, V., 1998. Latvia coastal zone of the Baltic Sea. State Geology Service, Riga. 96 p.

3.3. Marine transport

The role of marine transport in the EU, Baltic Sea Region and Latvia

Maritime transport is the **most important means of transport for EU external trade**, serving almost 90% of external trade.³¹ Latvia's ports (and also Estonia's and Lithuania's) are an important element of the international supply chains for the EU's external trade. Latvia's ports are also an important element of Russia's, Kazakhstan's and Belarus's external trade supply chains, particularly exports to the rest of the world (see Figure 3).

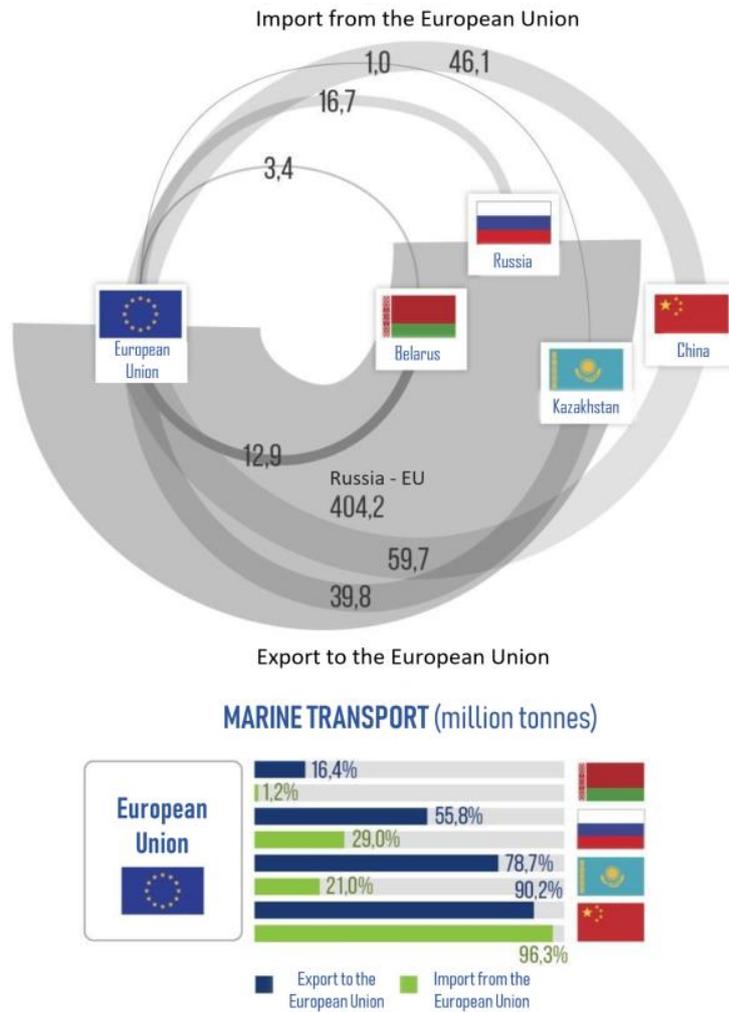


Figure 3. External trade links of major East-West transport corridor countries with the EU in 2015 in million tonnes (source: Eurostat)

The Baltic Sea is one of the most developed regions in Europe for short sea shipping, with a 22% share of the tonnage of cargo transported. Between 2006 and 2016, EU short sea freight transport has increased by 1.1% (only exceeding the amount of 2008 in 2016).³² The largest increase is expected in container transport (an annual

31 European Commission data, available: https://ec.europa.eu/transport/modes/maritime_en

32 Eurostat, available at: https://ec.europa.eu/eurostat/statistics-explained/index.php/Maritime_transport_statistics_-_short_sea_shipping_of_goods#Total_short_sea_shipping [last accessed 15.01.2019]

increase of 4.4%)³³ and the volume of short sea container transport in the EU increased by 9.8% in 2016 compared to 2015, well above the 2009 volumes, indicating an increase in the importance of container cargo.³⁴

Short sea freight transport accounts for approximately 85% of the total cargo turnover of Latvian ports (2016).³⁵ According to Eurostat data in 2016, **Latvian ports have provided a circulation of 50.1 million tonnes of goods in short sea cargo transport**, which is comparatively the steepest drop in freight transport in the EU by (-10.8%)³⁶, which is linked to Russia's transport policy: to shift Russian cargo to its ports.

Global development trends affecting shipping

By 2016, global growth in maritime freight turnover in the shipping sector had declined and the sector is recovering after the difficulties experienced in 2016.³⁷ The global shipping industry is currently experiencing signs of fierce competition related to the **high capacity and number of vessels**. Nevertheless, the long-term forecasts anticipate a further increase in the turnover of goods in international shipping by 2050 (an average of 3.3%).³⁸ At the same time, there is a **concentration of carriers' markets, both globally and at EU level**, with a shrinking number of carriers, which reduces the possibilities for new carriers to enter these markets.³⁹ On the side of maritime shipping demand since the 1980s, the economic development of world regions has led the **transition from a bipolar world (Europe and North America) to three poles**, including East Asia. Trade relations between the EU and China, which started as import relations, are now becoming more balanced considering that over the last 15 years exports from the EU to China have increased more rapidly than imports (a ratio of five to three).⁴⁰ There is a global tendency to **load more types of cargo into containers**⁴¹, and in maritime freight, the IMO has committed to limiting shipping speeds on shipping routes in order to achieve the IMO's CO₂ reduction targets for 2030⁴² and the use of **increasingly efficient container ships** requires not only adequate concentration of cargo volume but also full integration of the transport chain, which includes, without its own transport service, services ancillary to transport and land transport from port to mainland.⁴³ **New technologies for shipping** are also being introduced more widely for economic purposes and the three main ones for the future are: ship size, unmanned vessels, and greening vessels and alternative methods of propulsion.⁴⁴ There is a **tendency to specialise cargo** between different ports, which increases the efficiency and productivity of ports. Cooperation and partnership between ports within one region (a mutually beneficial *win-win* strategy) includes cargo specialisation in order to achieve economy of scale.⁴⁵

33 COWI. 2015, Analysis of recent trends in EU shipping and analysis and policy support to improve the competitiveness of short sea shipping in the EU. <http://ec.europa.eu/transport/sites/transport/files/modes/maritime/studies/doc/2015-june-study-sss-final.pdf>

34 Eurostat, available: https://ec.europa.eu/eurostat/statistics-explained/index.php/Maritime_transport_statistics_-_short_sea_shipping_of_goods#Short_sea_shipping_by_type_of_cargo [last accessed 15.01.2019]

35 Eurostat, available: [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Share_of_Short_Sea_Shipping_\(SSS\)_of_goods_in_total_sea_transport_in_2016_\(in_%25_of_total_gross_weight_of_goods_transported\).png](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Share_of_Short_Sea_Shipping_(SSS)_of_goods_in_total_sea_transport_in_2016_(in_%25_of_total_gross_weight_of_goods_transported).png)

36 Eurostat, available at: https://ec.europa.eu/eurostat/statistics-explained/index.php/Maritime_transport_statistics_-_short_sea_shipping_of_goods#Short_sea_shipping_by_sea_region_and_country [last accessed 15.01.2019]

37 United Nations (2018). Review of Maritime Transport 2018. Available at: https://unctad.org/en/PublicationsLibrary/rmt2018_en.pdf

38 International Transport Forum (2017). ITF Transport Outlook 2017. Available at: <https://www.oecd-ilibrary.org/sites/9789282108000-en/1/2/1/2/index.html?itemId=/content/publication/9789282108000-en&csp=b3b88e288f51dfdf8e9b0d9c87f74518&itemIGO=oecd&itemContentType=book#chap00002>

39 Study on the Analysis and Evolution of International and EU Shipping. Final report. September 2015, <http://ec.europa.eu/transport/sites/transport/files/modes/maritime/studies/doc/2015-sept-study-internat-eu-shipping-final.pdf>

40 Study on the Analysis and Evolution of International and EU Shipping. Final report. September 2015, <http://ec.europa.eu/transport/sites/transport/files/modes/maritime/studies/doc/2015-sept-study-internat-eu-shipping-final.pdf>

41 Future Scenarios. Sustainable Shipping and Environment of the Baltic Sea Region - SHEBA project. 2015

42 Speed limits for box ships the best way to hit emissions target, IMO told, The Load Star, 2018 <https://theloadstar.com/speed-limits-box-ships-best-way-hit-emissions-target-imo-told/>

43 Sources: Case Study on HUB-AND-HINTERLAND DEVELOPMENT IN THE BALTIC SEA REGION. TransBaltic Project. 2012, IMO (2018). Initial IMO Strategy on reduction of GHG emissions from ships, available at: [http://www.imo.org/en/OurWork/Documents/Resolution%20MEPC.304\(72\)%20on%20Initial%20IMO%20Strategy%20on%20reduction%20of%20GHG%20emissions%20from%20ships.pdf](http://www.imo.org/en/OurWork/Documents/Resolution%20MEPC.304(72)%20on%20Initial%20IMO%20Strategy%20on%20reduction%20of%20GHG%20emissions%20from%20ships.pdf)

44 Study on the Analysis and Evolution of International and EU Shipping. Final report. September 2015, available at: <http://ec.europa.eu/transport/sites/transport/files/modes/maritime/studies/doc/2015-sept-study-internat-eu-shipping-final.pdf>

45 COWI (2015). Analysis of recent trends in EU shipping and analysis and policy support to improve the competitiveness of short sea shipping in the EU. <http://ec.europa.eu/transport/sites/transport/files/modes/maritime/studies/doc/2015-june-study-sss-final.pdf>

A regional analysis shows that maritime cargo transport in the Baltic Sea region is affected by global shipping trends, which are experiencing short - and medium-term declines. However, the long-term forecasts for both international and internal transport by 2050 show steady, albeit moderate, growth.⁴⁶

According to the forecast of the Baltic Port Organisation, total cargo throughput of ports in the Baltic Sea region will grow by 30% or 228 million tonnes in 2010-2030 (from 757.1 million tonnes in 2010 to 984.8 million tonnes in 2030). It is estimated that the most significant increase will be observed in the container segment.⁴⁷ Current statistics show that compared to 2016 there was an increase in turnover in Latvian ports by 14.6% and Ro-Ro cargo by 13.7%, while liquid cargoes experienced a drop of 13.2% and overall port turnover decreased by 2%.⁴⁸

Major components for port and shipping land infrastructure

Latvian ports, port industrial areas, roads and railways are the most important infrastructure components in the multimodal supply chain, which ensures shipping links with land transport.

Latvian ports have experienced one of the fastest rates of growth in the Baltic Sea region over the last decade (following the ports of Russia, Lithuania and Poland), reaching an average annual increase of CAGR 1,9% (see Figure 4). Latvia's largest ports – Riga, Ventspils and Liepāja – represent 98% of the total cargo turnover of Latvian ports. Freeport of Riga, Latvia's largest port by cargo circulation, has achieved significantly faster growth (CAGR 5.8%) and in 2016 was in the EU's Top 20 short-distance maritime freight ports, ranking 12th by cargo turnover and 2nd by bulk turnover.⁴⁹

46 Sustainable Shipping and Environment of the Baltic Sea Region - SHEBA project (2015). Drivers for the shipping sector. Available at: http://www.sheba-project.eu/imperia/md/content/sheba/deliverables/sheba-d1.1_final.pdf

47 Sources: Belmar, Louis (2018). 2018 Economic Review and Trend of Maritime Economy. Available at: <http://nm-maritime.com/en/march-2018-a-business-trend-of-maritime-economy/> ; New TEN-T guidelines proposal – implications for the port sector in the Baltic Sea region, TransBaltic, 2012. Available: <http://docplayer.net/43605577-New-ten-t-guidelines-proposal-implications-for-the-port-sector-in-the-baltic-sea-region.html>

48 “Statistics on the turnover of goods in Latvian ports and railways 2007-2017” compiled by the Ministry of Transport, available at: http://www.sam.gov.lv/images/modules/items/PDF/item_7177_Latvijas_ostas&dzelzcelis.2017.pdf

49 Eurostat, available at: https://ec.europa.eu/eurostat/statistics-explained/index.php/Maritime_transport_statistics_-_short_sea_shipping_of_goods#Top_EU_ports_in_short_sea_shipping

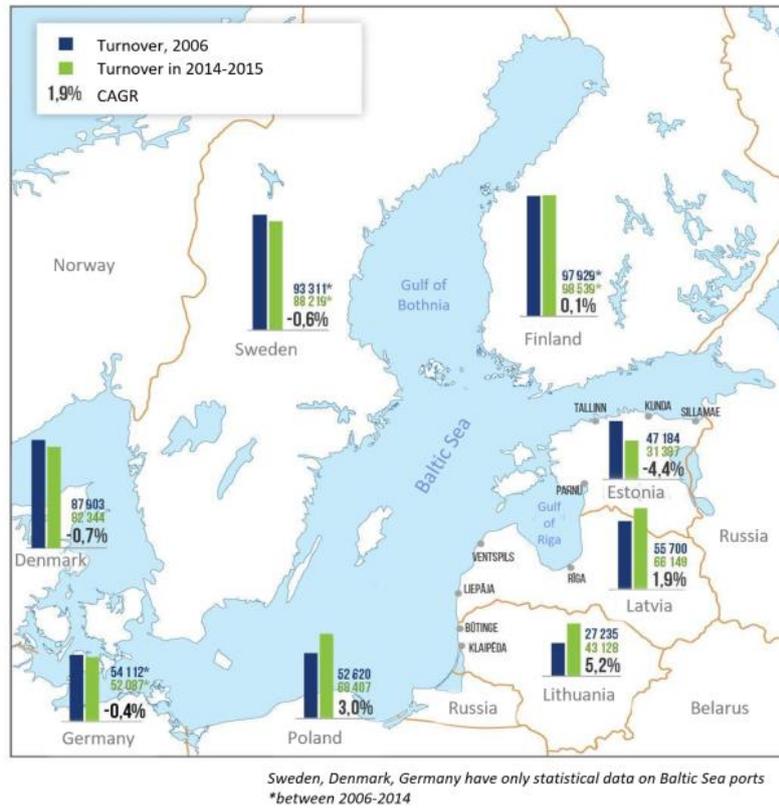


Figure 4. Turnover of ports in the Baltic Sea, in million tonnes (source: Eurostat)

Latvian ports have specialised in handling different types of cargo (see Table 1). Small ports mainly serve local shippers by promoting Latvia's exports (timber, including pulp, wood chips, peat, construction materials). Large ports, on the other hand, have specialised in operating international supply chains (bulk cargo, liquid cargo, general cargo, containers, Ro-Ro). Furthermore, small ports are important regional centres of economic activity, which handle fishery products and operate successfully as yacht ports in the summer months, facilitating the attraction of tourists to Latvia.

Table 1. Specialisation of Latvian ports⁵⁰

Port	Length of berths, km	Maximum draught of the ship at berth	Terminal capacity, million t/year	Turnover of goods 2018, million tonnes	Top 3 types of cargo or specialisation
Freeport of Riga	20.0	15.0	63.2	36.4	Coal, petroleum products, containers
Ventspils Port	11.0	15.0	80.0	20.3	Petroleum products, coal, Ro-Ro
Liepāja Port	10.0	11.0	12.0	7.53	Cereals, Ro-Ro, timber
Skulte Port	0.8	7.0	n.d.	0.99	Timber, wood chips, peat
Mērsrags Port	0.7	6.5	n.d.	0.46	Wood, other bulk cargoes, wood chips

⁵⁰ Source: Ministry of Transport, 2019 and Latvian Port Development Programme 2014-2020

Salacgrīva Port	0.6	5.6	n.d.	0.35	Timber, construction materials, peat, wood chips
Roja Port	0.8	5.0	n.d.	0.07	Timber, fish
Engure Port	0.4	1.9	n.d.	0	Yacht tourism
Pāvilosta Port	0.7	3.5	n.d.	0.0003	Fish
Jūrmala Port	0.3	3.5	0	0	Yacht tourism

The **industrial sites of Latvian ports** are an important element in cargo supply chains, providing cargo storage and ancillary activities, as well as offering industrial areas in the immediate vicinity of the maritime and mainland transport infrastructure. The largest areas for carrying out ancillary activities of transport and logistics and development of the manufacturing industry are available in Ventspils (port land area 2.4 thousand ha), Riga (1.9 thousand ha) and Liepāja (0.4 thousand ha).⁵¹

Roads and railways are elements of land transport infrastructure that ensures that ports are connected to the inland. In the light of Latvia's external trade links and transit routes, the main terrestrial connections are the TEN-T Core Network and Comprehensive Network roads and railways, which provide connections to ports and inland in Latvia and beyond (Russia, Belarus, Kazakhstan, etc.).

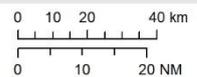
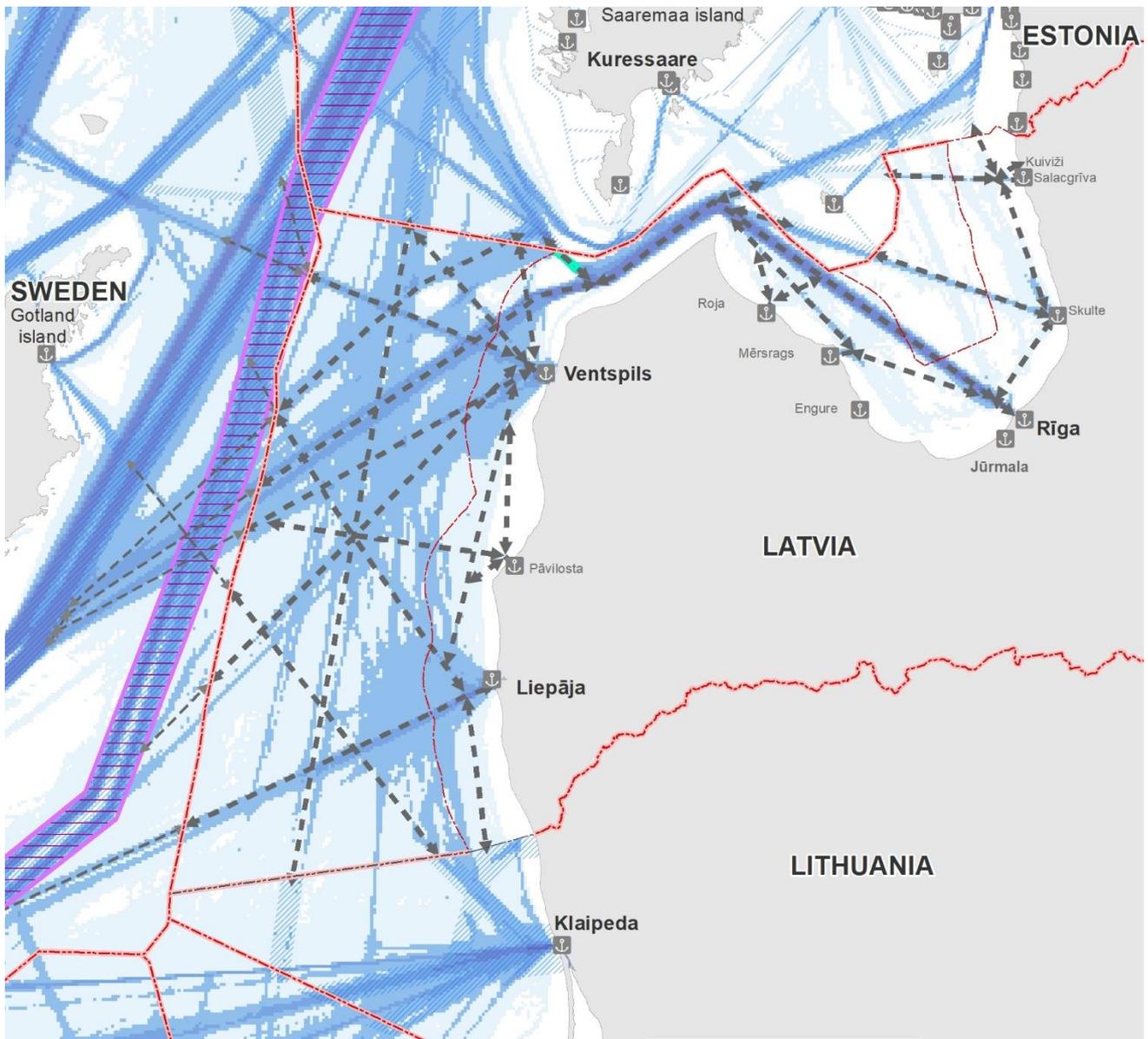
The most important means of transport for port connectivity with inland areas is rail. The role of road transport is more important in small ports not connected to the railway.⁵² The strategic directions for the operation of Latvian ports in cargo transport are mainly related to the export and import needs of resources from Russia and other Commonwealth of Independent States (CIS). Oil and coal cargo shipment is driven by fuel demands in both Europe and America. However, demand for coal in the EU is declining, with EU coal consumption falling by around 50% in 2016 compared to 1990.⁵³ Container shipment has a global nature. These consignments are therefore mainly linked to the main shipping direction of the Baltic Sea and cross Danish waters. Maritime transport of wood from Latvian ports to Scandinavian ports is also important, particularly small ports play a greater role in these cargo shipments. Regular shipping lines from three of the large ports exist for ferry traffic, and Freeport of Riga has established the status of a regular shipping line for container and Ro-Ro transport in order to facilitate the attraction of these shipments.

According to information from AIS, the most intensive shipping traffic in Latvian sea waters is on the route from the Freeport of Riga to the Irbe Strait, in the Irbe Strait, as well as in the sea waters opposite Ventspils port. In 2016, the shipping intensity outside intensive traffic routes was below 4400 vessels. During the development of the MSP, on the basis of interviews with the representatives of Latvian ports, the shipping intensity information was supplemented with the most important information on the existing and planned shipping routes for the development of Latvian ports for the transport of different goods; hence, the most significant shipping directions are spatially represented in Figure 5.

51 Source: Ministry of Transport. Latvian Port Development Programme 2014-2020

52 Except the port of Skulte, where the berths are located at a distance of ~ 3 km from the railway line with a railway cargo terminal (source: Latvian Port Development Programme 2014-2020)

53 Eurostat, available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Coal_production_and_consumption_statistics#Deliveries_of_hard_coal_and_brown_coal_to_main_activity_producers



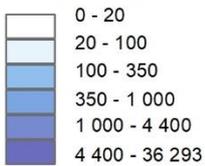
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Major shipping directions

- ◄ —► Shipping directions in Latvian marine waters
- Continuation of shipping directions in Swedish marine waters

Shipping intensity

AIS data 2016 (HELCOM)



© 2019 Ministry of Environmental Protection and Regional Development
 Data sources:
 HELCOM
 Maritime Administration of Latvia
 Latvian Geospatial Information Agency
 Ministry of Defence
 Ministry of Environmental Protection and Regional Development

Additional information

- Shipping priority in neighbouring countries (2016)
- Deep water route (for shipping)
- Recommended route (for shipping)
- Ports
- Main road
- Railway
- EEZ border and state border on land
Latvia-Lithuania maritime border treaty is not in force
- Territorial sea border
- Latvia-Lithuania maritime border treaty is not in force
- Land

Figure 5. Major shipping directions (according to the more intensive shipping directions and port recommendations)⁵⁴

⁵⁴ Sources: HELCOM AIS data, which includes all ships equipped with AIS devices; interviews with port representatives, Spring 2016

Shipping safety

According to Article 60, Clause 4 of UNCLOS, a coastal State may, where necessary, establish reasonable safety zones in the EEZ around artificial islands, installations and structures in which it may take appropriate measures to ensure both maritime safety and the safety of artificial islands, installations and structures. Clause 5 of the same Article of the UNCLOS provides that the breadth of the safety zones shall be determined taking into account the applicable international standards. Such zones shall be designed to ensure that they are reasonably related to the nature and functions of the artificial islands, installations and structures and shall not exceed a distance of 500 metres around them measured from each point of their outer edge, unless authorised by international standards or as recommended by the competent international organisation.

In 2013, the Nautical Institute and the World Ocean Council prepared guidelines on shipping and maritime spatial planning.⁵⁵ The main objective of the guidelines is to explain the MSP planning process and the need for the participation of navigation and shipping experts and the specific tasks. The document highlights manoeuvring characteristics of vessels in both normal and emergency cases.

The guidelines suggest several criteria that should be considered in the MSP:

- Standard turning circles for vessels are six times the ship's length. Since the maximum length of a vessel could be up to 400m, the diameter of the turning circle would be 2,4 km. Accordingly, the required space for smaller vessels is smaller. When performing the manoeuvre the vessel should not enter the 500 m safety zone set around stationary structures in EEZ waters.
- The crash stop distance in case of an emergency due to a steering gear failure. For large tankers this may be up to 3km.
- In view of the intensity of shipping in the North Sea, it is recommended that ship corridors should be planned, enabling vessels sailing in the same direction to be overtaken. Two shipping corridors in one direction, each 2 nautical miles wide, respectively, are scheduled.⁵⁶

The development of maritime transport and the characteristics of vessels in the Baltic Sea are affected by natural conditions which define navigation routes and opportunities under different hydrological and weather conditions. Vessels can reach the Baltic Sea via the Danish Straits or the Kiel Canal in Germany, and their characteristics are the main limiting factor for the future development of parameters for incoming vessels in the Baltic Sea.

The parameters of vessels crossing the Kiel Canal must not exceed 32,5 m in width, the length up to 235 m; the draught criteria shall be determined depending on the length of the vessel, from 7,0-9,5 m.⁵⁷ When sailing in transit in Danish waters to/from the Baltic Sea, large-size vessels shall use the deep-sea shipping route "Route T" which leads from the Skaw to the northeastern district of Gedser. The maximum possible depth on this shipping route is 17 m, however at Gedser the possible depth is 16,4 m⁵⁸ due to sand migration. Therefore, the permissible draught of vessels in the Danish straits is 15,4 m.

The maximum depth of Ventspils Port (17,5 m⁵⁹) corresponds with the maximum draught depth of large vessels (*Panamax, Baltmax vai Aframax*), which enter the Baltic Sea. Riga Free Port can service Panamax-type vessels and the maximum draught at Riga Free Port at berth is up to 15 m.⁶⁰ In Liepaja Port, the maximum draught for ships is 10.8 m.⁶¹ The length of the largest vessel that may enter any of Latvia's ports from 2019 is 300 m.⁶²

Although the indicator of the maximum draught of vessels is determined by the bathymetry of the Baltic Sea, the length and width of vessels as well as the load capacity are determined by port navigation parameters.

55 Guidelines "The Shipping industry and Marine spatial planning" available at: <http://www.nautinst.org/en/forums/msp/index.cfm>

56 NOREL group - UK Safety of Navigation Committee and the Nautical and Offshore Renewables Energy Liaison

(NOREL) Group

57 Information on Kiel Canal available at: <http://www.kiel-canal.de/kiel-canal/regulations/index.htm>

58 Publication of the Maritime Administration of Denmark 2017 "Navigation through Danish waters" available at: <https://www.dma.dk/Publikationer/Sider/default.aspx?Emne=Navigation>

59 Information on Ventspils Port website available at: <http://www.portofventspils.lv/lv/par-ostu/>

60 Information on Riga Port website, available at: <http://rop.lv/lv/par-ostu/fakti-un-skaitli.html>

61 Information on Liepaja Port website, available at: <http://www.liepaja-sez.lv/lv/port/tehniskie-parametri>

62 Riga Port regulation 1. annex, available in Latvian: http://rop.lv/lv/multimedia/downloads/doc_download/175-rigas-brivostas-noteikumi-pielikums-1.html

Shipping interests in the MSP

For safe shipping and port development, **areas reserved for shipping** are defined in the MSP. **These zones will not affect the shipping practices adopted hitherto and the national obligations of Latvia in international conventions**, for example, the freedom of shipping in the sea waters of Latvia.

The width of the area reserved for shipping is defined taking into account the most significant shipping directions for ports and long-term development plans,⁶³ shipping intensity (AIS data) and international consultations,⁶⁴ 3 zone widths have been specified:

- 1) T1 – **for providing access to large ports**, where the width of area reserved for shipping is 6 nautical miles;
- 2) T2 – **for providing access to small ports**, where the width of area reserved for shipping is 3 nautical miles;
- 3) T3 – **for providing transit of the sea waters under the jurisdiction of Latvia**, where the width of area reserved for shipping is 6 nautical miles.

⁶³ Development of future shipping and energy scenarios by 2050 under the BalticLINES project, for which information is available at: http://www.varam.gov.lv/lat/darbibas_veidi/tap/lv/?doc=22660

⁶⁴ In the Baltic Sea region, international consultations have been organised in Sweden, Poland, Finland and Estonia as part of the development of maritime spatial planning

3.4. Energy

Energy policy frameworks

In the long term, the EU is committed to reducing GHG emissions and being one of the world's leaders in the use of RESs. The use of RESs (including wind resources) is one of the options for achieving reductions in GHG emissions and increasing energy security. As part of the Energy Union Strategy⁶⁵, on 30 November 2016 the European Commission published an EU package of draft documents entitled “Clean energy for all Europeans: realising Europe's growth potential” (“Clean Energy Package”) aimed at boosting EU competitiveness by switching to clean energy and efficient energy use and achieving climate goals by 2030, by reducing EU GHG emissions by at least 40% compared to 1990.

EU „Europe 2020 – A strategy for smart, sustainable and inclusive growth”⁶⁶ has set a target of 20% reduction in GHG emissions **in 2020** compared to 1990, increasing the **share of renewable energy** in gross final energy consumption to **20%** and increasing energy efficiency by 20%. For 2030, compared to 1990, the EU sets the target of reducing GHG emissions by 40% and increasing the share of renewable energy to at least 27%⁶⁷.

Latvia has committed to achieving a 40% share of RESs in gross final energy consumption by 2020.⁶⁸ Moreover, in the 2013 informative report „Latvia's long-term energy strategy 2030 – competitive energy for society in 2030” Latvia has set a non-binding target of 50% renewable energy share in gross final energy consumption in 2030.⁶⁹ In order to reduce GHG emissions, one of the solutions is to increase renewable energy production, both on land and at sea (offshore).

In assessing the progress made towards the 2020 target of producing 40% of energy in gross final energy consumption from RESs, the share of RESs in gross final energy consumption has increased overall, reaching 38.7% in 2014 and decreasing slightly in 2015 and 2016 (see Figure 6). In implementing energy efficiency improvement measures and support measures to boost RES consumption, it is expected that the target for the share of RESs will be achieved in 2020.⁷⁰

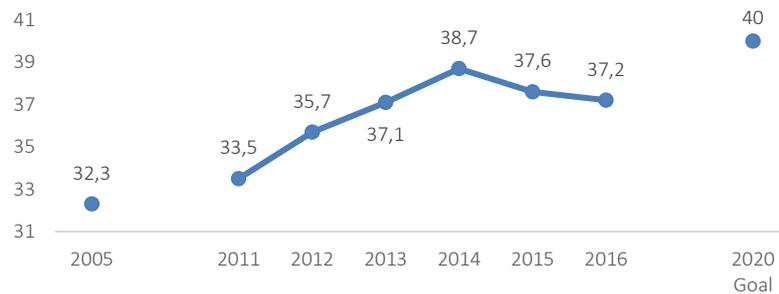


Figure 6. Target for increase in renewable energy, renewable energy share, in percent⁷¹

At the time of the development of the MSP, the National Energy and Climate Plan (hereinafter – NECP) is still being developed, and the approval thereof is planned by 31 December 2019. Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action⁷² includes the conditions for the setting up of Member States' integrated NECPs, including a mandatory NECP framework (the elements to be included), deadlines for drawing up and updating the plan, as

65 Established by the conclusions of the European Council of 19-20 March 2015 (EUCO 11/15), building on the EC communication of 25 February 2015 COM (2015) 80 final “Framework Strategy for a strong Energy Union with a forward-looking climate change policy”

66 The EU Europe 2020 Strategy is available at: <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:2020:FIN:EN:PDF>

67 The EC Communication of 22 January 2014 entitled “A climate and energy policy framework for the period 2020-2030” (COM (2014) 0015) and the Proposal for a Directive of the European Parliament and of the Council on the promotion of renewable energy use (recast), available at: [https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52016PC0767R\(01\)&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52016PC0767R(01)&from=EN)

68 Latvia's national reform programme for the implementation of the Europe 2020 strategy. Available in Latvian at: https://www.em.gov.lv/files/tautsaimniecibas_attistiba/LV_NRP_1.pdf

69 The information report entitled “Long-term Energy Strategy of Latvia 2030 – Competitive Energy for Society” is available at: https://www.em.gov.lv/lv/nozares_politika/atjaunojama_enerģija_un_kogeneracija/normatīvie_akti_un_politikas_planosanas_dokumenti/

70 Progress report on the implementation of Latvia's national reform programme in the context of the Europe 2020 strategy, 2018. Available at: http://tap.mk.gov.lv/doc/2018_04/EMzino_05042018_NRP.667.docx

71 Progress report on the implementation of Latvia's national reform programme in the context of the Europe 2020 strategy, 2018. Available at: http://tap.mk.gov.lv/doc/2018_04/EMzino_05042018_NRP.667.docx

72 Regulation available at: <https://eur-lex.europa.eu/legal-content/LV/TXT/?uri=CELEX:32018R1999>

well as reporting requirements. The issue of measures promoting the acquisition of energy from renewable sources is to be decided along with the approval of the NECP. The draft NECP project is available on the online site of the Ministry of Economics, under the heading “Sectoral Policy and National Energy and Climate Plan”.⁷³

Energy trends in the EU and Latvia

EU energy development (including thermal energy) is based on fossil energy sources, but since 2002 the share of RESs in EU energy production has been increasing significantly (see Figure 7).

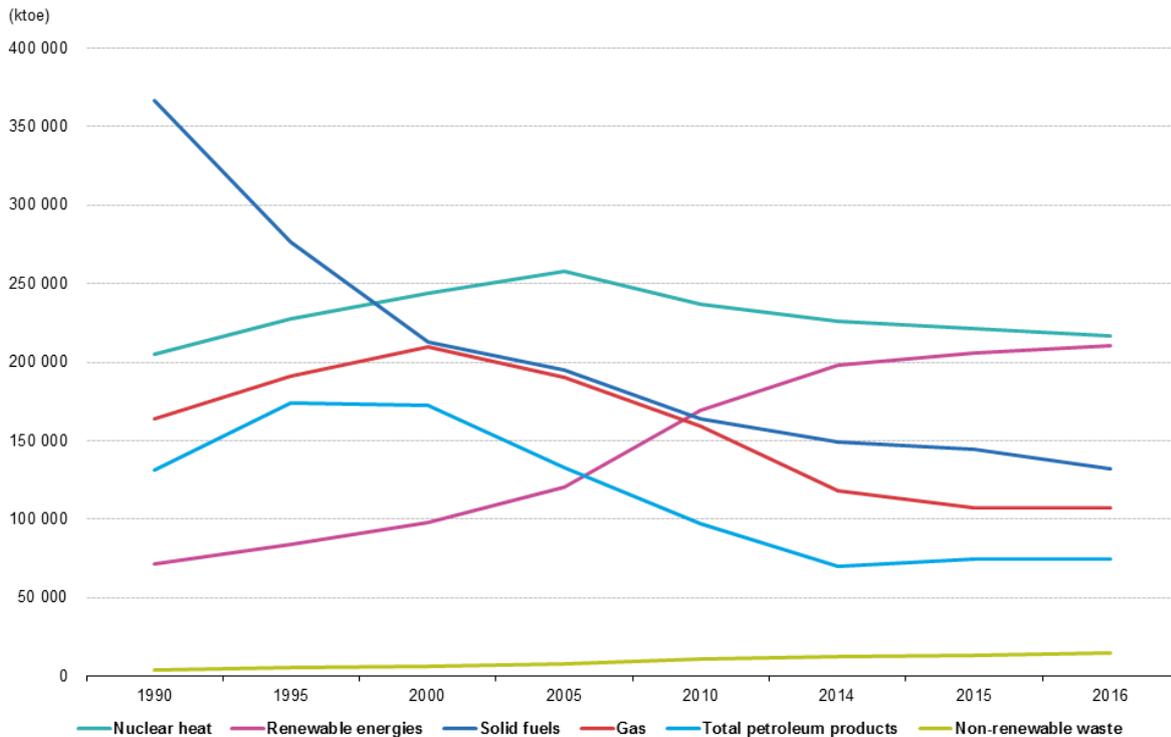


Figure 7. Primary energy production by energy sources in the EU 1990-2016⁷⁴

In the European Union, the share of renewable electricity in gross final energy consumption increased over 12 years from 14.3% in 2004 to 29.6% in 2016, including electricity from wind energy increased ~ 44 times, accounting for 31.6% of electricity generated from renewable energy sources in 2016.⁷⁵

Latvia experienced an increase in the share of renewable electricity in gross final energy consumption by 2016, but the necessary increase in the share of renewable energy has not been achieved to reach Latvia's target of 10% of RES gross final energy consumption in the transport sector (see Figure 8).

⁷³ The NECP project is available at the MoE website in the sub-section „National energy and climate plan” under section „Sector policy”: https://www.em.gov.lv/lv/nozares_politika/nacionalais_energetikas_un_klimata_plans/

⁷⁴ Eurostat, 2018, (nrg_110a) data available at: [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Primary_energy_production_by_fuel,_EU-28,_in_selected_years,_1990-2016_\(ktoe\).png](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Primary_energy_production_by_fuel,_EU-28,_in_selected_years,_1990-2016_(ktoe).png)

⁷⁵ Eurostat data (last accessed 19.12.2018.), available at: http://ec.europa.eu/eurostat/statistics-explained/index.php/Renewable_energy_statistics#30.25_of_electricity_generated_come_from_renewable_sources

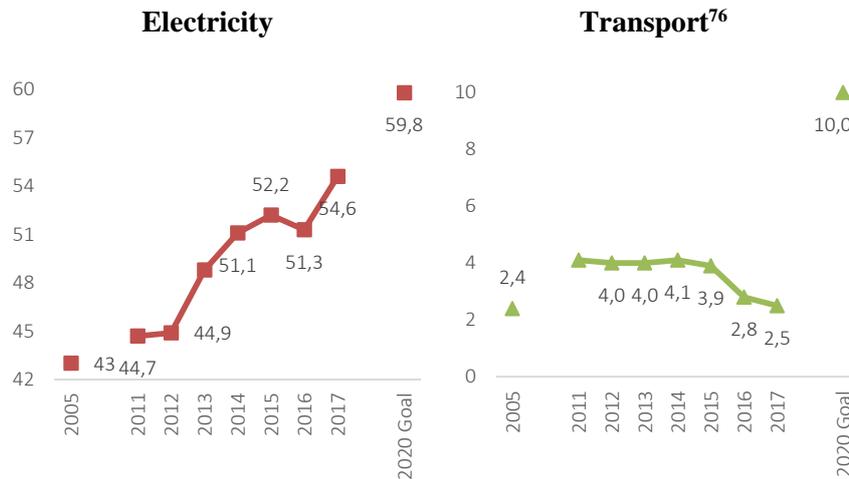


Figure 8. Share (%) of renewable energy in the sector's final energy consumption⁷⁷

Latvia's electricity consumption changes are expected to remain with a slight growth trend over the next five years, leading to a rise of 0.5-2.5%, depending on the development scenario.⁷⁸ In turn, the increase in electricity consumption is projected at ~ 5% per year following the implementation of the Latvian Railways electrification and Rail Baltica project.⁷⁹

According to the Renewables Global Futures Report⁸⁰, the use of RESs is increasing, for example, the WPP capacity installed in Europe has grown by 45% over the last five years. The development of the offshore (marine) WPPs has been the fastest, for example, in Europe in 2016, investment increased by 39% compared to 2015, investment growth decreased in 2017 and increased again by 37% in 2018, and new offshore WPP projects with a total capacity of 2.3 GW are planned to be developed in Europe in the coming years, after 2018.⁸¹

Offshore WPPs can contribute significantly to the goal of increasing the share of RESs in the future. Wind energy is currently one of the types of RES⁸² with significantly low long-term costs. In 2017, the price of electricity produced by global offshore wind power plants was EUR 0,117 per kWh and could drop to 0.05-0.084 EUR per kWh in 2020.⁸³ However, in order to achieve a competitive level of trading in electricity market on the *Nordpool (NORDIC/BALTIC)* exchange, costs should fall below 0.04 EUR per kWh.

Electricity network development

In the energy sector, the electricity transmission system plays an important role and guarantees the transport of electricity from electricity generators to consumer facilities or regions, but electricity interconnections with neighbouring countries are equally important.

The integration of the Baltic States' electricity networks into the EU energy system has been identified as one of the strategic priorities of the EU's energy policy in order to promote the establishment of a secure and reliable

76 Directive (EU) 2015/1513 of the European Parliament and of the Council amending Directive 98/70/EC relating to the quality of petrol and diesel fuels and Directive 2009/28/EC on the promotion of the use of renewable energy sources (ILUC Directive) modified the calculation methodology in the transport sector by applying multiplier factors for electricity consumed in rail and road transport.

77 Progress report on the implementation of Latvia's national reform programme in the context of the Europe 2020 strategy, 2018. Available: http://tap.mk.gov.lv/doc/2018_04/EMzino_05042018_NRP.667.docx

78 AS "High voltage network" (2018). Assessment report of the transmission system operator. Available: http://www.ast.lv/sites/default/files/editor/20181001_PSO_Zinojums_2017.pdf

79 AS "High voltage network" (2016). Electricity transmission system development plan for 2017-2026. Available: <https://www.sprk.gov.lv/uploads/doc/ASTparvadessistemasattistibasplans2016arpielikumiem.pdf>

80 REN21 Renewables Global Futures Report. Available: <http://www.ren21.net/future-of-renewables/global-futures-report/>

81 WindEurope (2019). Offshore Wind in Europe. Key trends and statistics 2018. Available: <https://windeurope.org/about-wind/statistics/offshore/european-offshore-wind-industry-key-trends-statistics-2018/>

82 The report entitled "Renewable Energy Perspectives in the European Union" is available at: <https://ec.europa.eu/energy/en/events/launch-irena-report-renewable-energy-prospects-european-union>

83 IRENA communication "Renewable Power Generation Costs in 2017". Available: <https://www.irena.org/publications/2018/Jan/Renewable-power-generation-costs-in-2017>

electricity system. By continuing to improve the functioning of the Latvian energy market, and in order to strengthen connections to the European network, the electricity transmission infrastructure in Latvia and the Baltic region is being gradually developed by increasing the capacity of the electricity network. This is also reflected in the EU's target of increasing interconnection capacity in the region to 10% by 2020. Lithuania-Sweden interconnection NordBalt (transmission capacity 700 MW) was completed at the end of 2015, which allows the price of electricity to be reduced for Latvian consumers and contributes to its equalisation in the region.⁸⁴

As part of the *NordBalt* project, work is being continued on stage 3 of the Latvian electricity infrastructure development project “Kurzeme Ring”, which is intended to develop currently missing infrastructure for the large capacity connections (for electricity producer or user) in Western part of Latvia, to ensure the development of WPPs and increase the security of electricity supply in the Kurzeme region. Work is also ongoing on Latvia – Estonia's third electricity interconnection, which will significantly improve the security of energy supply between Estonia and Latvia, as well as the electricity systems of both countries, ensuring an efficient capacity transmission corridor between the Baltic and Nordic energy systems.

Electricity cables have not been constructed in Latvian sea waters by 2018. The installation of new underwater cables will be required if WPP or wave power plants are installed at sea or a decision is taken on the development of new interconnections at sea (with Sweden or Estonia).

Wind energy resources and their use

In the assessment of joint stock company AS “Augstsprieguma tīkls”, in an optimistic future development scenario, the forecast for Latvia is relatively small offshore WPP development, reaching a total capacity of 143 MW in 2028.

According to the current data of Maritime Institute in Gdansk (MIG)⁸⁵, areas with suitable conditions for wind energy production at an average wind speed > 8 m/s at 100 m height and depth up to 50 m, not closer than 8 km from the coast⁸⁶ are located in the high sea near the coast of Kurzeme and in the northern part of the Gulf of Riga near Salacgrīva (see Figure 9).

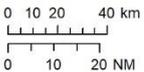
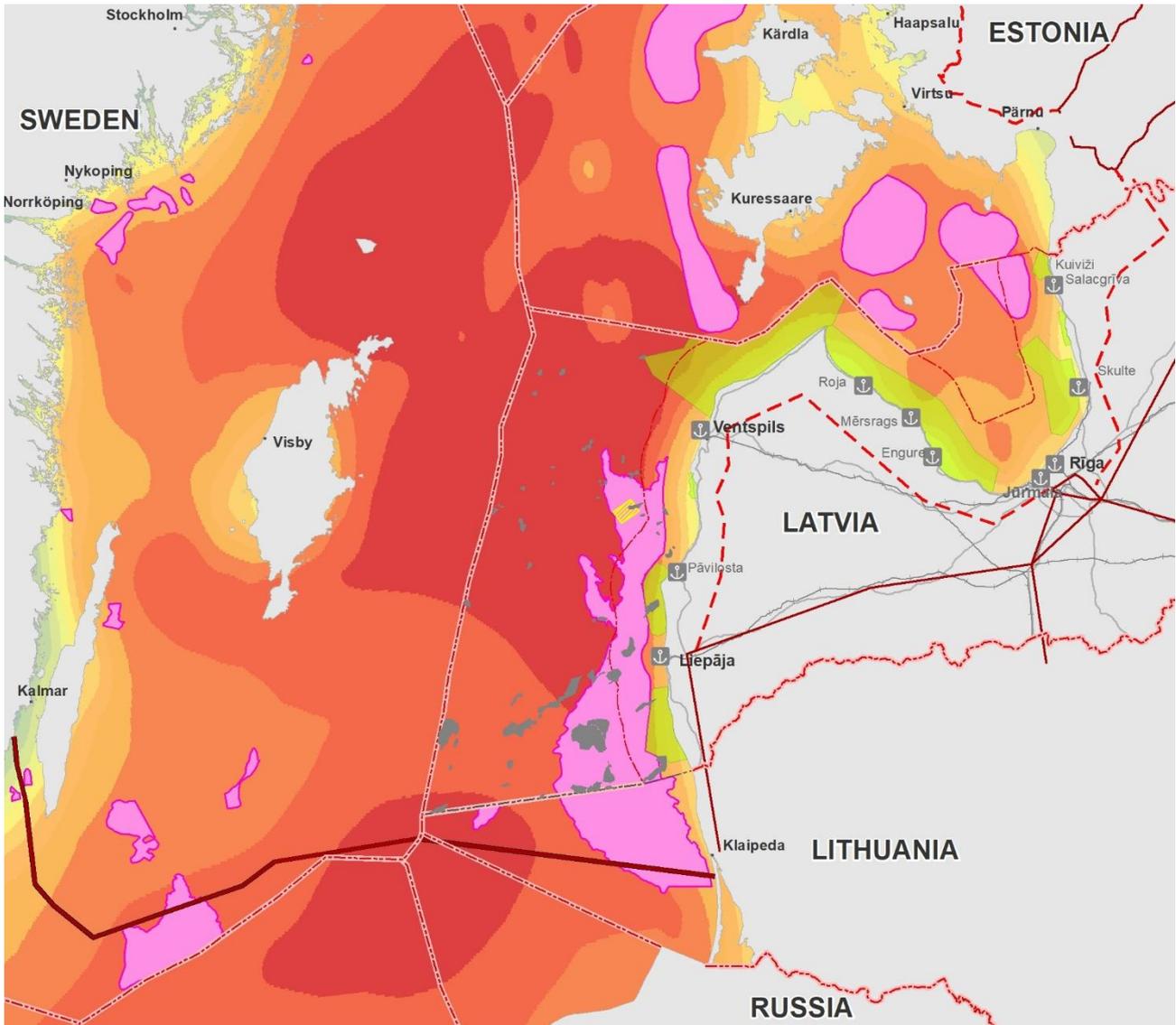
According to the joint stock company „Augstsprieguma tīkls” development plans for the electricity transmission infrastructure and the “Kurzeme Ring” network, it will be possible to transfer up to 800 MW of electricity produced in the electricity network, so in theory for WPPs, according to modern technologies and safety conditions (positioning 8 MW wind turbines at least a distance of 4 to 6 rotor diameters⁸⁷ from each other in a 10x10 grid) the minimum required area shall be at least ~ 61,4 km², represented according to the scale in Figure 9.

84 Progress report on the implementation of Latvia's national reform programme in the context of the Europe 2020 strategy, 2018. Available at: http://tap.mk.gov.lv/doc/2018_04/EMzino_05042018_NRP.667.docx

85 Modelling results of the Polish Gdansk Maritime Institute (MIG) wind speed in the Sea 2007-2013 at 100 m height.

86 Minimum distance according to Kristina Weidemann's promotion work “Changes to the landscape of Latvia at the turn of the 20 th-21 st century and modern challenges”, available at: https://dspace.lu.lv/dspace/bitstream/handle/7/4796/30118-Kristina_Veidemane_2013.pdf?sequence=1 and assessment carried out in Scotland «Scott, K.E., Anderson, C., Dunsford, H., Benson, J.F. and MacFarlane, R. (2005). An assessment of the sensitivity and capacity of the Scottish seascape in relation to offshore windfarms. Scottish Natural Heritage Commissioned Report No.103 (ROAME No. F03AA06)» pg. 23., available at: http://www.snh.org.uk/pdfs/publications/commissioned_reports/F03AA06.pdf

87 According to the UK guidelines on the distances between wind turbines available at: https://www.planningni.gov.uk/de/index/policy/planning_statements_and_supplementary_planning_guidance/pps18/pps18_annex1/pps18_annex1_wind/pps18_annex1_technology/pps18_annex1_spacing.htm

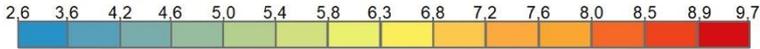


LEGEND

Potential energy resources in Baltic sea

- Areas suitable for wind par development (SE, EE, LT, LV), not taking into account other sector interests
- Potential hydrocarbon deposit areas (LV)

Average windspeed data on 100m for 1998-2007, m/s*



*modelling data based on ICM data (University of Warsaw) and prepared by Maritime Institute in Gdansk, Poland

Development of potential energy transmission infrastructure

- Planned power transmission network development until 2020 (LV; EE)

Potential area for 800 MW offshore wind park

- Schematic possible placement of theoretical area (~61,4 km²) necessary for developing 800 MW off-shore wind park (LV; EE)

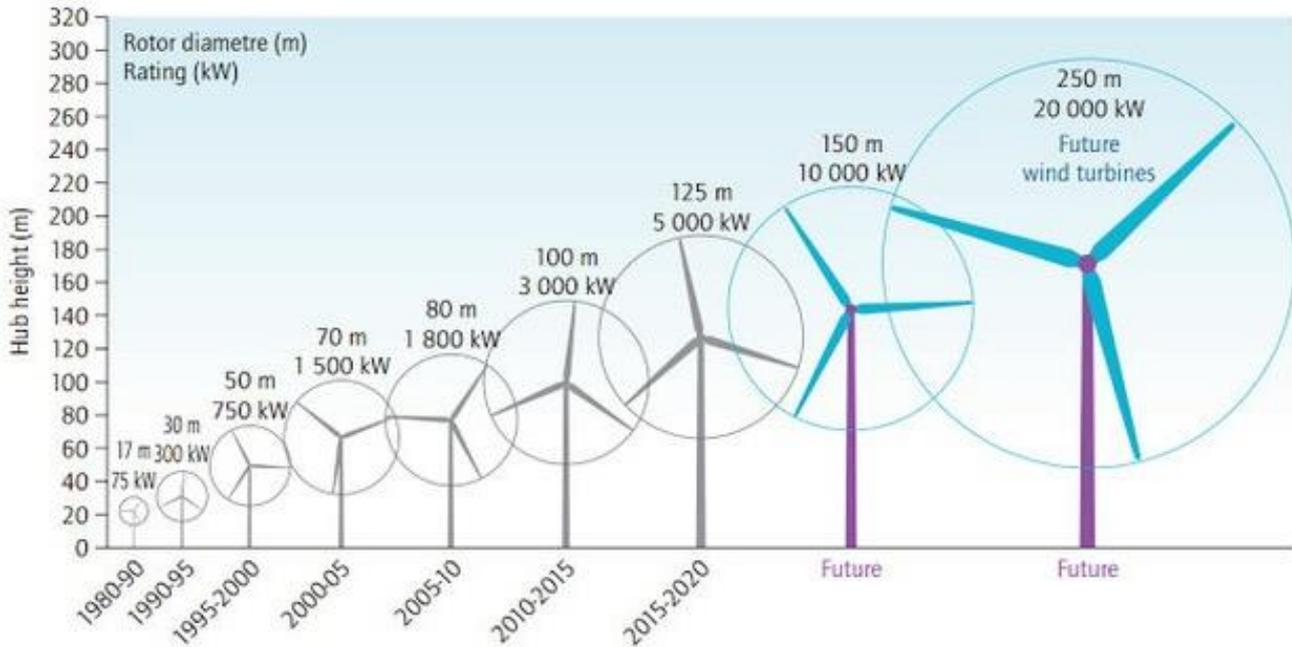
Additional information

- Existing 330 kV powerline scheme
- NordBalt (Sweden-Lithuania) electricity cable in the sea
- Nature protection areas in Latvian marine waters (Natura 2000)
- Ports
- Main road
- Railway
- EEZ border and state border on land
Latvia-Lithuania maritime border treaty is not in force
- Territorial sea border
Latvia-Lithuania maritime border treaty is not in force
- Land

© 2019 Ministry of Environmental Protection and Regional Development
 Data sources:
 HELCOM, Natural Earth
 SE: Svenska kraftnät, Swedish energy agency
 EE: Estonian Marine Institute, University of Tartu, Estonian Land Board
 LV: Ministry of Environmental Protection and Regional Development
 Wind speed: Maritime Institute in Gdansk (MIG)

Figure 9. Areas at sea with conditions suitable for the production of wind energy

The growing size of offshore WPPs, including the increased rotor diameter, makes it possible to produce more energy in a smaller area, currently reaching 8 MW for a single wind turbine and exceeding 10 MW in the future (see Figure 10).



Source: adapted from EWEA, 2009.

Figure 10. WPP rotor diameter, height and capacity growth trends ⁸⁸

Wave energy resources and their use

The use of wave energy is at the early development stage.⁸⁹ Several initiatives and support mechanisms seek to make wave and tidal technologies cost-competitive.⁹⁰ The 2014 EU Communication “Blue energy: Action needed to deliver on the potential of ocean energy in European seas and oceans by 2020 and beyond” mentions that rapid growth is expected in the wave and tidal stream energy production.⁹¹ A promising solution to reduce costs is combining a wave power plant with offshore wind parks using a single infrastructure.⁹²

In Europe, the largest wave energy use project connected to the grid has been carried out on the shores of Sweden (Kungshamn city).⁹³ Construction of the first major commercial 100 MW power wave power park was launched on the coast of Ghana in 2018.⁹⁴ In the Baltic Sea near the coast of Denmark (Lolland), testing of a wave power plant is underway.⁹⁵

88 Padmanathan. K.,*, Uma . Govindarajan, Vigna K. Ramachandaramurthy Varunraj. P., Sudar Oli Selvi. T., T.Tamizharasan, 2017. Conceptual Framework of Antecedents to Trends on Permanent Magnet Synchronous Generators for Wind Energy Conversion System. ResearchGate. Available at:

https://www.researchgate.net/publication/320867742_Conceptual_Framework_of_Antecedents_to_Trends_on_Permanent_Magnet_Synchronous_Generators_for_Wind_Energy_Conversion_System

89 Rusu E., Onea F. (2018) A review of the technologies for wave energy extraction. Clean Energy 2 (1), 2018, 10.-19. lpp., available at: <https://academic.oup.com/ce/article/2/1/10/4924611>

90 Magagna, D., Uihlein M. (2015) Ocean energy development in Europe: Current status and future perspectives. International Journal of Marine Energy 11, 2015 84-104. lpp., available at: <https://www.sciencedirect.com/science/article/pii/S2214166915000181>

91 Available at: <https://eur-lex.europa.eu/legal-content/LV/TXT/PDF/?uri=CELEX:52014DC0008&qid=1545221829747&from=EN>

92 Rusu E., Onea F. (2018) A review of the technologies for wave energy extraction. Clean Energy 2 (1), 2018, 10.-19. lpp., available at: <https://academic.oup.com/ce/article/2/1/10/4924611>

93 Information on the Sotena Project available at: <https://www.seabased.com/sotenaes> and <https://tethys.pnnl.gov/annex-iv-sites/soten%C3%A4s-project>

94 Ghanaweb website article “First sea wave electric plant to be constructed in Ada”, available at: <https://www.ghanaweb.com/GhanaHomePage/business/First-sea-wave-electric-plant-to-be-constructed-in-Ada-647247>

95 Marine and hydro-kinetic technology database available: https://openei.org/wiki/Marine_and_Hydrokinetic_Technology_Database

In Latvia to date, scientists have conducted laboratory experiments on the potential use of wave energy and obtained patents⁹⁶ for their inventions. Experimental wave energy equipment has also been produced by joint stock company “Rīgas kuģu būvētava”, in cooperation with the Finnish company “Wello”, creating a pilot-plant for a „Penguin” wave energy converter of 0.5 MW capacity.⁹⁷ However, no industrial prototype has yet been developed to test the performance of the wave energy converter.

Potential for the production of thermal energy and its use

Marine heat can also be used for heating buildings. In 2010, a project for the development of a heating system for a secondary school building, a kindergarten and the stadium was implemented in Salacgrīva, installing a marine heat pump.⁹⁸ The use of heat is a local heating solution to be planned in marine coastal waters. Its further development depends on the initiative of local governments and entrepreneurs (in accordance with the Land Management Law - in coastal water area up to 2 km from the sea coastline).

Representation of energy interests in the MSP

In order to promote the development of WPPs at sea, **research area for wind park development** which are suitable for the development of WPPs are defined in the MSP. Theoretically, it is possible to situate at least one WPP up to 800 MW capacity in each of the research area for wind park development transmitting the produced electricity to the electricity transmission system on shore. The research area for wind park development have been determined according to the following criteria:

- 1) the sea depth is up to 60 m;
- 2) the distance from the coast is not closer than 8 km;
- 3) they do not overlap the existing Natura 2000 territories, military training polygons, areas licenced for hydrocarbon research and extraction and dumped explosive sites;
- 4) the average wind speed at 100 m height is from 8m/s.

In the interests of safety, the research area for wind park development are situated outside **dumped explosive sites and military polygons**. As defined by international regulations, a safety zone of 500 m should be established around stationary objects at sea in EEZ waters. In cases where the most suitable place is however located in a zone reserved for shipping, coordination is required with the responsible authorities, as well as creating spatial solutions, in order to ensure shipping safety, changing the priority use of the area in question.

In order to ensure the connectivity of potential WPPs or wave energy at sea with the electricity grid on land and interconnections with neighbouring countries, the **potential electricity cable corridors** are defined in the MSP. The potential electricity cable corridors at sea, whose development may be initiated until 2030, are interconnections between Sweden and Latvia and between Estonia and Latvia, as well as the potential WPP connections to the onshore electricity grid.

The construction of an energy generation or transmission infrastructure at sea shall be performed in accordance with the conditions of the regulatory framework regarding the protection of the marine environment and construction at sea, including CM Regulation No. 631 of 14 October 2014 „Construction Regulations for Structures in the Internal Waters, Territorial Waters and Exclusive Economic Zone of the Republic of Latvia” which prescribes the procedure by which a licence area at sea shall be determined and the procedure for issuing a licence, and the procedure by which a tender shall be organised regarding the right to use areas in the sea as well as the procedure for construction processes at sea.

96 The Patent Office of the Republic of Latvia. 2014. Inventions, Trade Marks and Designs. Patent “Water Wave Energy Usage Facility”, pg. 456.

97 Information on the “Penguin” project available at: <http://www.riga-shipyard.com/lv/project/penguin/>

98 The project “Use of marine heat as renewable energy in the budget institutions of the City of Salacgrīva”, available at: http://www.salacgriva.lv/lat/salacgrivas_novads/projekti/juras_siltums/

3.5. Development of telecommunication infrastructure

Political frameworks

The concept of the development of next-generation broadband electronic telecommunication networks for the period 2013-2020 sets out the development of electronic telecommunication networks, including international connections with neighbouring countries, as increasing data flows require more data throughput.⁹⁹

Development of electronic telecommunication networks

Latvian waters are an important space for the engineering networks of international electronic communications. They are crossed by 6 communication cables located in the high seas of the Baltic Sea. An optical cable connects Ventspils to Sweden (Gotland Island). Lithuanian cables also cross Latvian waters, and a Danish-Russian cable crosses a small EEZ. There are no cables built in the Gulf of Riga aquatorium.

In 2015, a new international authorisation procedure for the construction of an “Eastern light” optical cable was launched. The project foresees the interconnection of North Germany (Rostock) and Finland (Helsinki). It will cross along the shores of Germany, Poland, Latvia and Estonia. At the Latvian phase, the cable is expected to have several connections to land – in Liepaja, Pāvilosta and Ventspils.

Protection Zone Law Section 14 prescribes that in the sea telecommunication cable lines and a protection zone for each telecommunication cable 0.25 nautical miles around the sea telecommunication cable (on each side) shall be determined. In this protection zone it is prohibited to carry out any construction, installation and blasting works; to carry out geological and geodetic exploration works connected with drillings, gathering sediment samples and other similar works; to arrange quaysides for ships, barges and floating cranes; to perform loading, unloading, dredging works and drawing of sediment material; to cast anchors, to travel with cast anchors, chains, sea-gauges, towed nets and trawls, to determine fishing areas, to fish, to collect plants using deepwater tools.

Telecommunication cable representation in the MSP

The MSP does not define corridors for the installation of telecommunication cables. The installation of new cables should be carried out in accordance with that prescribed in laws and regulations. However, in order to facilitate the installation of new telecommunication cables, the MSP includes recommendations for the coordination of cables with other uses.

⁹⁹ The concept of the development of next-generation broadband electronic communications networks for the period 2013-2020 is available at: <http://polsis.mk.gov.lv/documents/4164>

3.6. National defence interests

Political frameworks

The national defence policy is closely linked to the implementation of NATO and EU security policies. At national level, the framework for national defence is determined by the concept of national security¹⁰⁰ and the State defence concept.¹⁰¹

The interests of national defence on the coast are related to the surveillance of coastal waters from the coast, for national and civil security purposes, as well as to the performance of military training on coastal land and sea areas.

The national preparedness plan for cases of oil, hazardous or harmful pollution at sea¹⁰² determines the procedures by which the State and local government authorities referred to in the Maritime Administration and Maritime Safety Law and in this plan will act in the event of accidental spillage of oil, hazardous or harmful substances at sea.

Marine surveillance system

The purpose of the marine surveillance system is to ensure the control, protection and integrity of TS and EEZ waters under the jurisdiction of the Republic of Latvia. The maritime surveillance system consists of military maritime surveillance technical means (surveillance towers), the list of which and the protection zones are prescribed by CM Regulation No.264 of 20 May 2014 „Regulations regarding the list of technical means of navigation and technical means of military maritime surveillance intended for State defence purposes, around which protection zones, the width of protection zones and the construction restrictions to be determined therein shall be determined” (hereinafter – CM Regulation No. 246).

CM Regulation No. 246 provides for restrictions on construction of structures in the protection zones of technical means of marine observation. The marine surveillance towers, as well as their protection zones, are displayed in the map section of the MSP and in Figure 37. Protection zones shall be determined in accordance with Section 21, Paragraph four and Section 50, Paragraph two of the Protection Zone Law. In general, the system includes 13 military maritime surveillance technical means (or surveillance towers) and one surveillance technical means “Čalas” intended for the purposes of state defence.

In accordance with Section 50 of the Protection Zone Law, it is prohibited to build buildings and structures which interfere with the operation thereof in the protection zones around the technical means of navigation intended for State protection purposes and the technical means of military maritime surveillance. CM Regulation No. 246 provides that it is prohibited, without coordination with the Ministry of Defence, to start construction of structures located in the protection zone of technical means of military maritime surveillance in the sea.

Unexploded munitions and mine neutralisation

Regular operations to neutralise unexploded munitions and sea mines take place in the Baltic Sea, including Latvia’s TS. There are approximately 80 000 units of marine and other unexploded munitions, however only approximately 200 are destroyed each year. Therefore, any activities at sea, including research related to ground works, should also be investigated in relation to the possible presence of unexploded munitions and mines in the area concerned. Information on explosive ranges is essential for navigation safety and is therefore maintained and updated by the LMA, publishing it in the publication “Notices to the mariners”,¹⁰³ along with other information related to shipping safety restrictions.

The ranges associated with explosives are classified in the following categories:

100 The Concept of national security is available at: <https://likumi.lv/ta/id/278107-par-nacionalas-drosibas-koncepcijas-apstiprinasanu>

101 The State defence concept is available at:

http://www.mod.gov.lv/~media/AM/Par_aizsardzibas_nozari/Plani,%20koncepcijas/2016/AIMVAK_260516.ashx

102 Approved by Cabinet Order No. 283 of 21 May 2010, On the National Readiness Plan for Oil, Dangerous or Hazardous Substances at Sea, available at: <https://likumi.lv/doc.php?id=210704>

103 Notices to mariners available online: <https://www.lhd.lv/ATONLV/notices> and these are monthly expenses for proofreading maritime navigation maps and publications

- Former mined areas in which shipping is allowed – the areas are not recommended for anchoring, fishing with a demersal trawl, sailing with an unraised anchor and carrying out other works in the vicinity of the seabed, as the possible presence of mines and other unexploded munitions should be taken into account.
- Former mining training polygons – shipping in the polygons is not recommended, fishing with nets and anchoring is prohibited.
- Areas closed to shipping – shipping is prohibited due to factors which may affect shipping safety. Vessels are not allowed to enter and fish in areas closed to shipping. There is one such area in this category, situated on the western coast of the Baltic Sea, to the south of Jurmalciems.
- Areas of sunken explosives including wartime chemical munitions – in these areas it is prohibited to drop anchor, fish with a demersal trawl, carry out underwater work and underwater explosions. These sites are in line with the report published by HELCOM in 2013 on chemical munitions dumped in the Baltic Sea and identified areas in Latvian marine waters.¹⁰⁴

Military training polygons

Three military training sites have been defined in Latvian marine waters (see Figure 11):

- 1) The central part of the Gulf of Riga (M1);
- 2) In Šķēde - on the coast of the open part of the Baltic Sea north of Liepaja (M2);
- 3) On the coast of the open part of the Baltic Sea to the south of Liepaja - Jūrmalciems military aviation polygon (M3).

In military training areas at sea, the borders of which are indicated on navigational charts and in short-term military training areas not indicated on navigational charts, on application by the National Armed Forces in accordance with the procedure laid down in CM Regulation No. 1171 of 21 December 2010 „Regulations Regarding the Procedures for Using Latvian Waters and Navigation Regime Therein” the MAL may restrict or prohibit shipping for a period of time and announce the decision taken in accordance with the procedures laid down by laws and regulations. Information regarding training is announced to all marine traffic participants and fishermen using the MAL’s monthly edition „Notices to the mariners”, as well as by way of navigational text messages on the NAVTEX system and in the transmission of the maritime safety and navigation information in ultra-short-wave range, announced by the Naval Coast Guard Service Search and Rescue Coordination Centre (MRCC) in Riga.

During the active phase of military training, temporary and limited time legal restrictions are imposed on a military aviation polygon and other areas of military activity - a demarcated zone in the airspace and restrictions on the shipping regime. But at a time of no military training, the polygon is open to civilian shipping. Such flexible airspace and sea use mechanisms ensure that the military polygon does not create permanent shipping or flight restrictions on its territory and a negative impact on air traffic or shipping, while at the same time highlighting both the training needs of the National Armed Forces and the interests of civilian ports and airport users.

In the case of military training outside the designated military polygons, the MAL and the port concerned plotting a limited area with coordinates where training will take place, such as mine search training, SAR training¹⁰⁵ etc.in Latvian waters.

The procedures for the use of territory in these territories are governed by a series of laws and regulations, such as:

- Maritime Administration and Marine Safety Law.
- CM Regulation No. 1171 of 21 December 2010 „Regulations Regarding the Procedures for Using Latvian Waters and Navigation Regime Therein”. The MAL may determine shipping regime restrictions at sea.
- CM Regulation No. 507 of 28 June 2011 ” Regulations Regarding Airspace Management, its Structure and the Procedures for Change Thereof”. Sub-clause 6.5.prescribes that special conditions may be

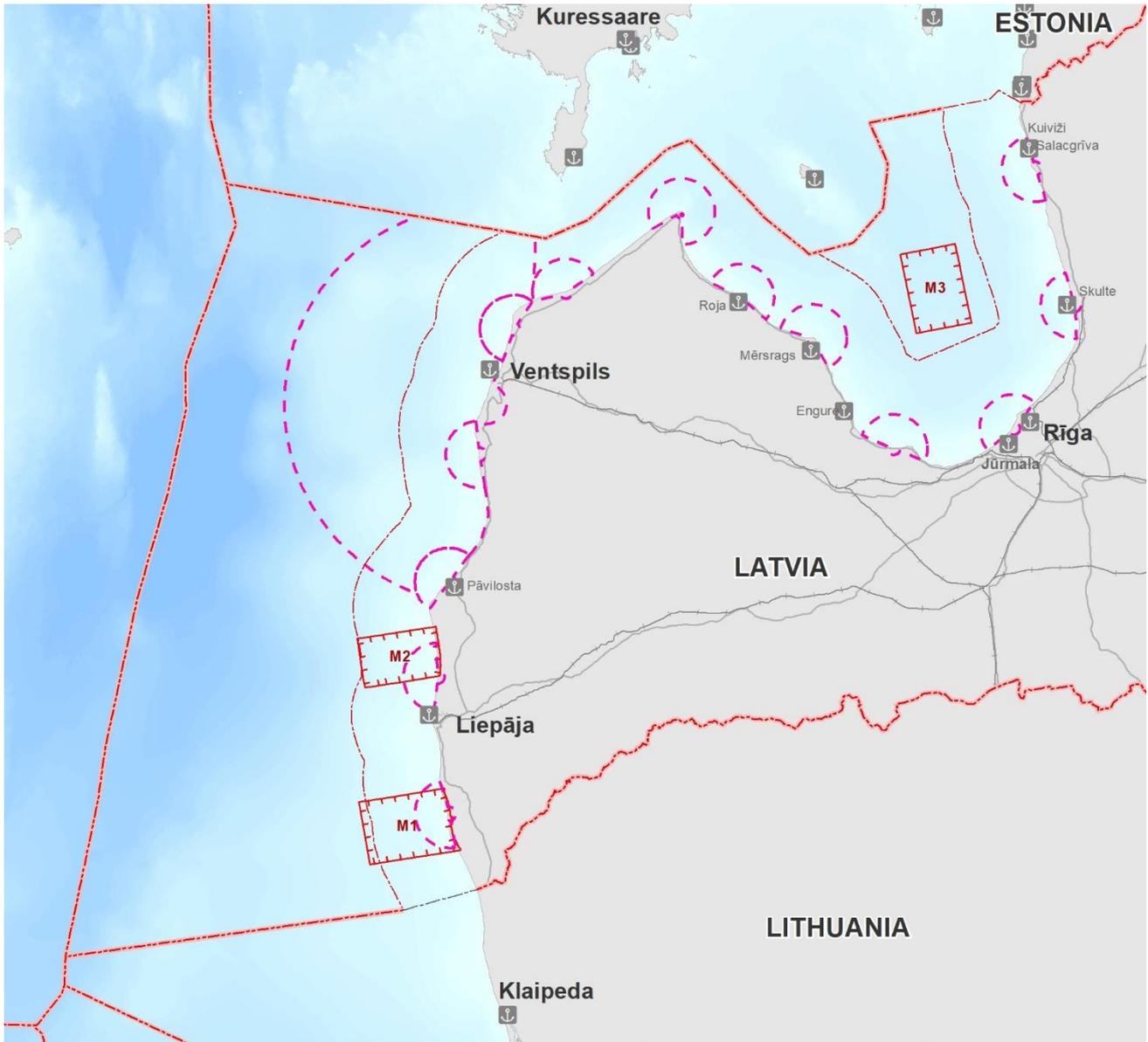
104 HELCOM 2013 report available: <http://www.helcom.fi/Lists/Publications/BSEP142.pdf#search=chemical%20weapon>

105 Emergency Plan for Search and Rescue

created for flight zones – a defined volume of airspace above terrestrial land or territorial waters within which aircraft flights are limited by special conditions.

- CM Regulation No. 487 of 19 August 2014 „Procedures for the Preparation and Distribution of Aeronautical Information” determines the procedure by which aeronautical information shall be prepared and published in the informative edition „Aeronautical information publication” (AIP), where restricted flight areas in the vicinity of the Skede and Adazi military aviation polygons are published (including their width and the lowest permitted flight heights of military aircraft), activated during the active phase of training.

Although training polygons are used a few times a year, permanent buildings in this area are not desirable, since the use of coastal and marine airspace near these polygons for military training can take place; shooting from shore to sea may occur, naval mining training and shooting from ships or helicopters to targets in the sea.



LEGEND

Defence interest areas

- Military training area
- Buffer zone of surveillance tower

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 Data sources:
 Maritime Administration of Latvia
 Ministry of Defence
 Ministry of Environmental Protection and Regional Development

Additional information

- Ports
- Main road
- Railway
- EEZ border and state border on land
 Latvia-Lithuania maritime border treaty is not in force
- Territorial sea border
 Latvia-Lithuania maritime border treaty is not in force
- Land

Figure 11. Areas of national defence interests

National defence interests in the MSP

The MSP anticipates that when carrying out economic activities in the sea, the interests of national defence and defence are respected. In order to ensure uninterrupted military training activities, an effective information system regarding the times of military operations (incl. clearance of unexploded mines) is in place, thereby ensuring the free movement through military training polygons at a time when these are not being used for military purposes. Similarly, the **national defence areas** are defined in the MSP, which, in addition to the

restrictions in the military polygon areas, specified in regulatory enactments, prescribe the conditions for the coordination of new types of marine uses with the Ministry of Defence.

3.7. Fishery

3.7.1. Preconditions and regulatory framework of fishery

Political frameworks

The aim of the EU's Common Fisheries Policy¹⁰⁶ is to restore fish stocks to sustainable levels, end wasteful fishing practices and create new opportunities for growth and jobs in coastal regions. By 2020, catch limits should correspond to the maximum sustainable yield for all fish stocks.

Due to the fact that the impact of fishing on marine ecosystems has not been fully established, EU fisheries are regulated in accordance with the precautionary principle. The precautionary principle has also been observed in the MSP.

Nature of fishery and description of fish stocks

Fishery has a significant role in the economy of coastal local governments. In 2018, only 639 workers were employed in fishery (1 621 in 2008), including 311 full-time employees.¹⁰⁷ The number of employees in the sector has a tendency to drop.

Main fish species: cod, sprat and herring. Vessels using pelagic trawls in the Baltic Sea mainly engage in sprat fishing. Smaller pelagic trawl vessels meanwhile fish for herring in the Gulf of Riga. Fishing vessels using demersal trawls mainly fish for cod and flounder in the high seas of the Baltic Sea.

In Latvia, fishermen use nine ports, six of which are small ports – Skulte, Mersrags, Salacgriva, Roja, Engure, Pavilosta, and three large ports – Ventspils, Riga and Liepaja. Major fish landings are carried out in Ventspils, Liepaja and Roja ports, where 76% of the catch is landed. The largest number of fishing vessels (boats) is registered in the ports of Roja and Engure, however, some of those registered here are coastal boats which land their catches outside the port area directly on the coast.

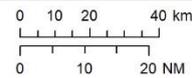
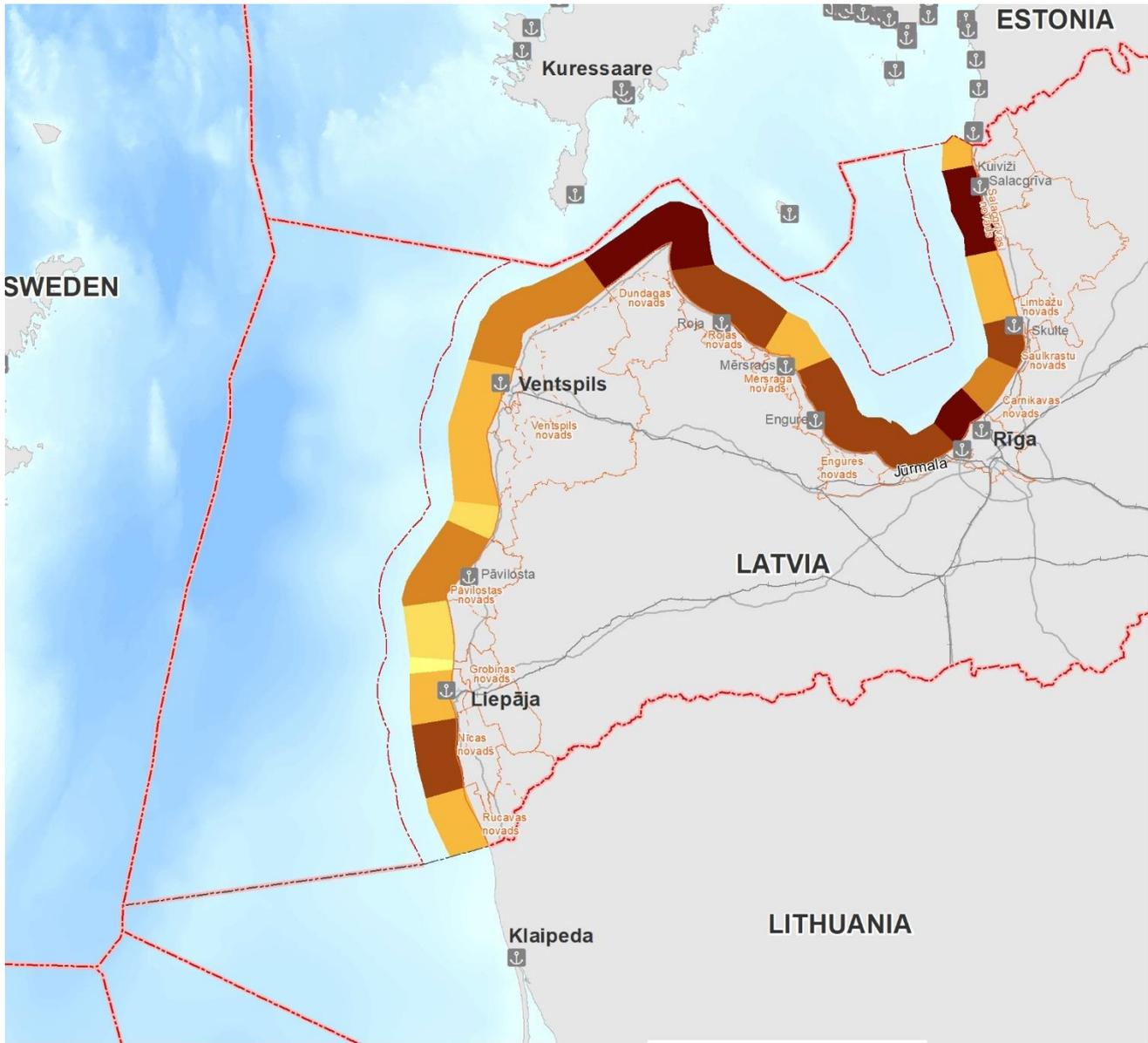
Coastal fishery

In the coastal fishery fleet of the Baltic Sea and the Gulf of Riga, which includes vessels with a total length of the largest vessel up to 12 m, there were only 610 fishing boats at the end of 2016 (including boats belonging to fishermen fishing for their own consumption).

Coastal fishing mainly uses stationary fishing tools – different types of nets and pots, as well as risers for catching herring. The largest catch on the coast of the Baltic Sea and the Gulf of Riga consists of herring, round goby, flounder, cod, vimba bream, eelpout and perch. The total catch in the coastal waters of the Baltic Sea and the Gulf of Riga in 2017 was 3 498.9 tonnes, representing 5.2% of Latvia's total catch. The share of coastal catches has increased in recent years due to limited fishing opportunities for individual fish in the high seas and increased catches in the coastal zone. Areas with the highest coastal catches are located on the coast of the Gulf of Riga (see Figure 12). **The most fished species on the coast is herring** (in 2017 accounted for 53.2% of the total coastal catch). The spatial distribution of herring catches is determined by hydrological and biological conditions, therefore the highest catches in the coastal zone of the gulf are variable each year.

106 Information on the EU Common Fisheries Policy is available at: https://ec.europa.eu/fisheries/cfp_lv

107 The 2018 Annual Economic Report on the EU Fishing Fleet (STECF 18-07), p. 402-412
https://stecf.jrc.ec.europa.eu/reports/economic/-/asset_publisher/d7Ie/document/id/2262395?inheritRedirect=false&redirect=https%3A%2F%2Fstecf.jrc.ec.europa.eu%3A443%2Freports%2Feconomic%3Fp_p_id%3D101_INSTANCE_d7Ie%26p_p_lifecycle%3D0%26p_p_state%3Dnormal%26p_p_mode%3Dview%26p_p_col_id%3Dcolumn-2%26p_p_col_pos%3D1%26p_p_col_count%3D2



LEGEND

Breakdown of total catch of all species (2004-2013)

tonnes

- 40 - 50
- 50 - 100
- 100 - 500
- 500 - 1000
- 1000 - 3000
- 3000 - 4758

Additional information

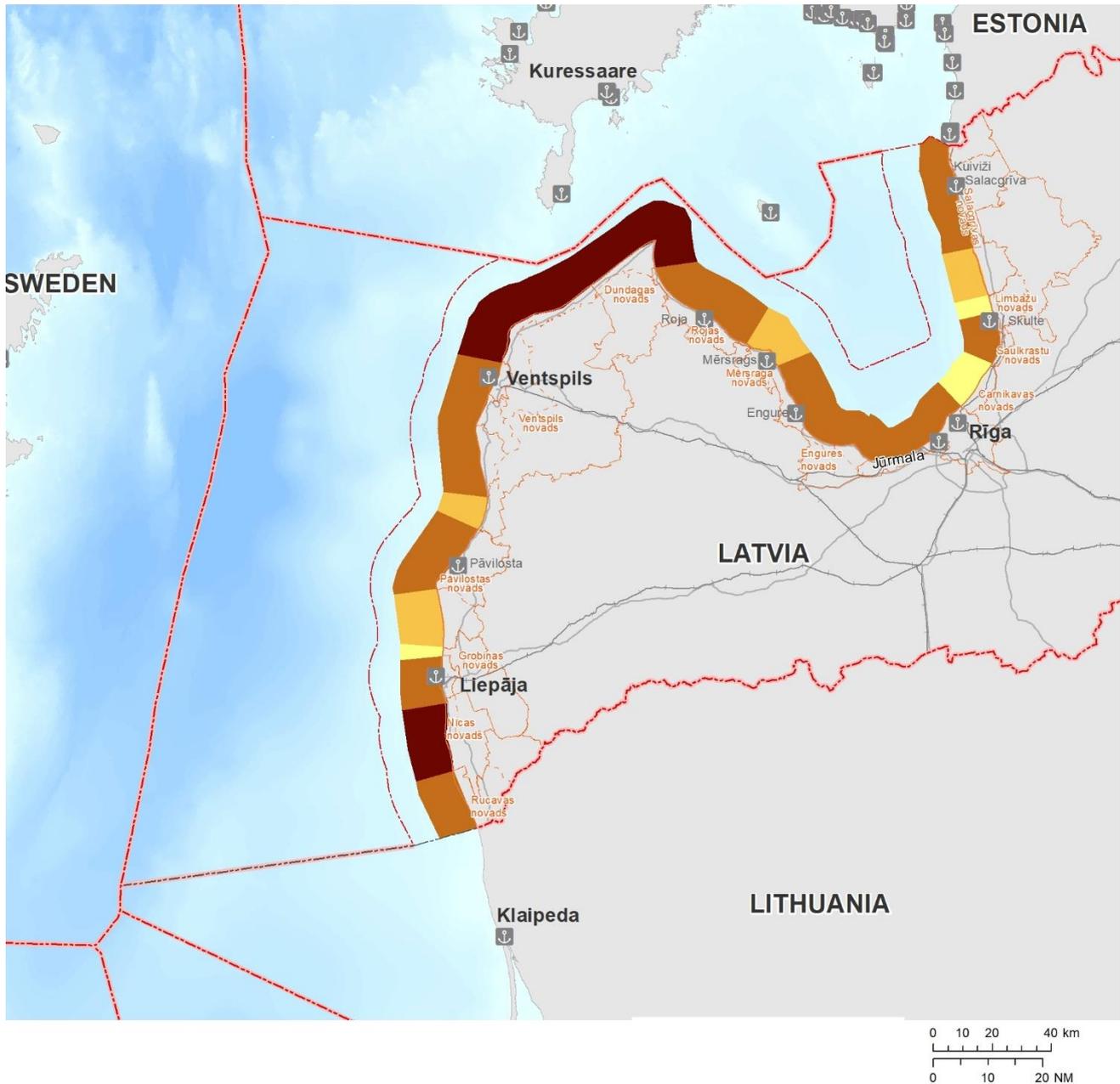
- Ports
- Main road
- Railway
- EEZ border and state border on land
Latvia-Lithuania maritime border treaty is not in force
- Territorial sea border
Latvia-Lithuania maritime border treaty is not in force
- Land
- Coastal municipality administrative border and coastline
- Coastal parishes and towns

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 Data sources:
 Institute of Food safety, Animal Health and Environment "BIOR"
 State Land Service of Latvia

Figure 12. Breakdown of total catches of all species on the coast of Latvia by parishes bordering the sea in 2004-2013 (BIOR data)

In 2004-2013, the distribution of the total catch of other fish species (excluding herring) to the coast was evenly distributed along the whole coast with a small catch on the coast of the municipalities of Grobina, Carnikava and Limbazi (see Figure 13). **In recent years, however, catches of a non-native species of round goby have**

grown rapidly (in 2017 it was 809 tonnes in the coastal zone, the second highest after herring). The highest catch volumes of the round goby were in coastal areas south of Liepāja and the eastern districts of the Gulf of Riga. According to the total catch, the third significant fish species on the coast is flounder, which is mainly fished at sea on the coast of Kurzeme.



LEGEND

Breakdown of total catch of all species excluding herring (2004-2013)

tonnes

- 24,6 - 50
- 50 - 100
- 100 - 500
- 500 - 830,7

Additional information

- Ports
- Main road
- Railway
- EEZ border and state border on land
Latvia-Lithuania maritime border treaty is not in force
- Territorial sea border
Latvia-Lithuania maritime border treaty is not in force
- Land
- Coastal municipality administrative border and coastline
- Coastal parishes and towns

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 Data sources:
 Institute of Food safety, Animal Health and Environment "BIOR"
 State Land Service of Latvia

Figure 13. Breakdown of total catch of all species (excluding herring) along the coast of Latvia by parishes bordering the sea in 2004-2013 (BIOR data)

Trawl vessels fishing behind the coastal zone mainly fish for sprat, herring and cod. Fishing with anchored gillnets which was used to fish for cod has been practically suspended in recent years due to the reduction of the fishing fleet.

In recent years, pelagic fish – sprat and herring – have dominated the catch of Latvian fishermen – representing an average of 92.8% of the catch of Latvian fishermen this century (see Figure 14). Cod and flounder comprise relatively small catches.

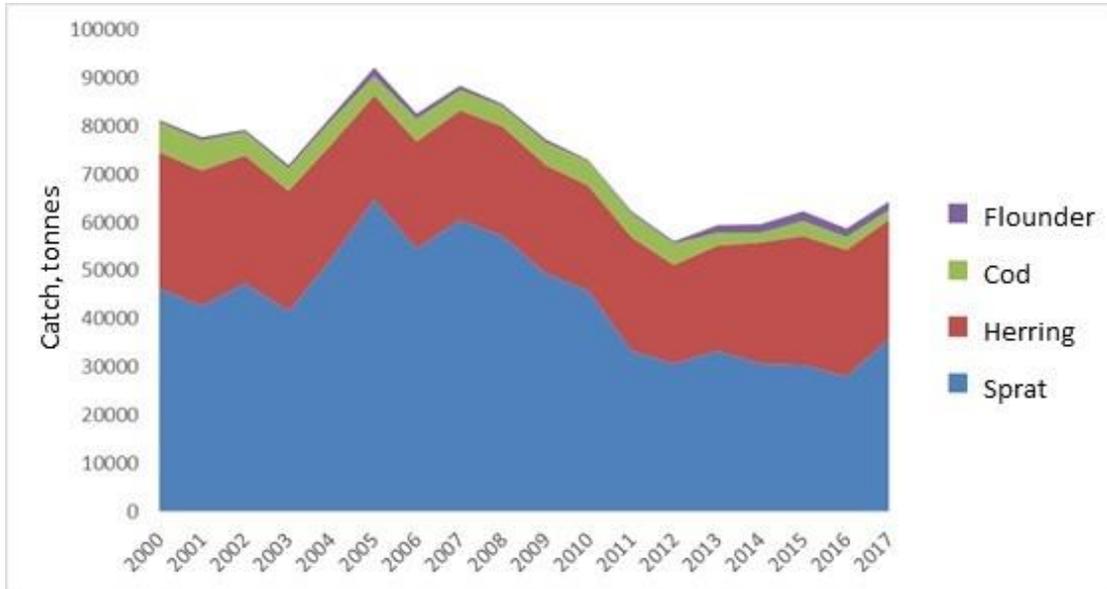


Figure 14. Catch of Latvian fishermen in the high seas from 2000 to 2017 (BIOR data)

Two scenarios have historically been observed in the Baltic Sea. The ecosystem and catches (see Figure 15) are dominated by cod (e.g. the 1980s) or the ecosystem is dominated by sprat (from 1995 onwards). The fishery data reviewed in the MSP can be described by the second scenario where sprat and herring dominate the Baltic Sea.

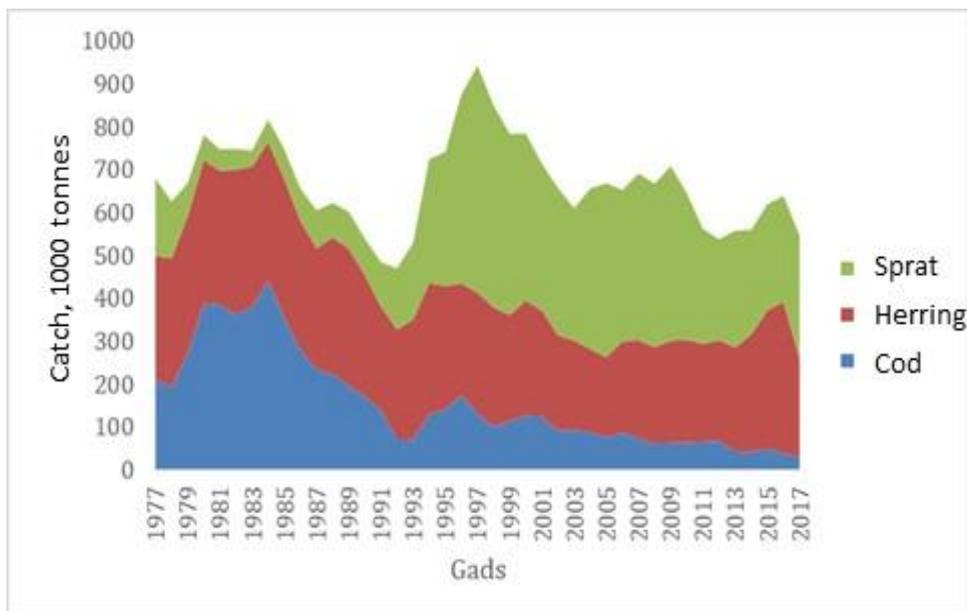


Figure 15. Total historical catch of the Baltic Sea (all countries) from 1974 to 2015 (BIOR data)

The main fish species in the Baltic Sea and the Gulf of Riga, which produce the highest economic value, are sprat, herring and cod, with catches of 60 728 tonnes in 2017, representing 95.6% of the total volume of catches in the Baltic Sea. In the Baltic Sea and the Gulf of Riga, fishing is also carried out behind the coastal zone for

non-limited fish species – flounder, European smelt, round goby, northern bullrout, eelpout etc. In 2017, catches of non-limited species were 2820 tonnes, representing 4.4% of the total catch in the Baltic Sea and the Gulf of Riga behind the coastal zone. The total catch behind the coastal zone in the Baltic Sea in 2017 was 63 548 tonnes.

Spatial distribution of catch activities

Fishermen mostly fish for sprat in the EEZ of Latvia (see Figure 16) – total catches are slightly higher in the north-east. The size and distribution of catches depends mainly on the number of fishing vessels and distance from port. In the Gulf of Riga, sprats stay in smaller quantities and catches are higher in the years when the total size of sprat stock in the central sea increases. Important sprat fishing areas are also located in Estonian waters. It is not possible to define the best fishing areas for sprat in pelagic fishing, because when the hydrological and fishing conditions change, sprat fishing is carried out throughout the high seas of the Baltic Sea. Pelagic trawl fishing is not linked to seabed characteristics, so it is possible for fishermen to carry out fishing throughout the entire sea area.

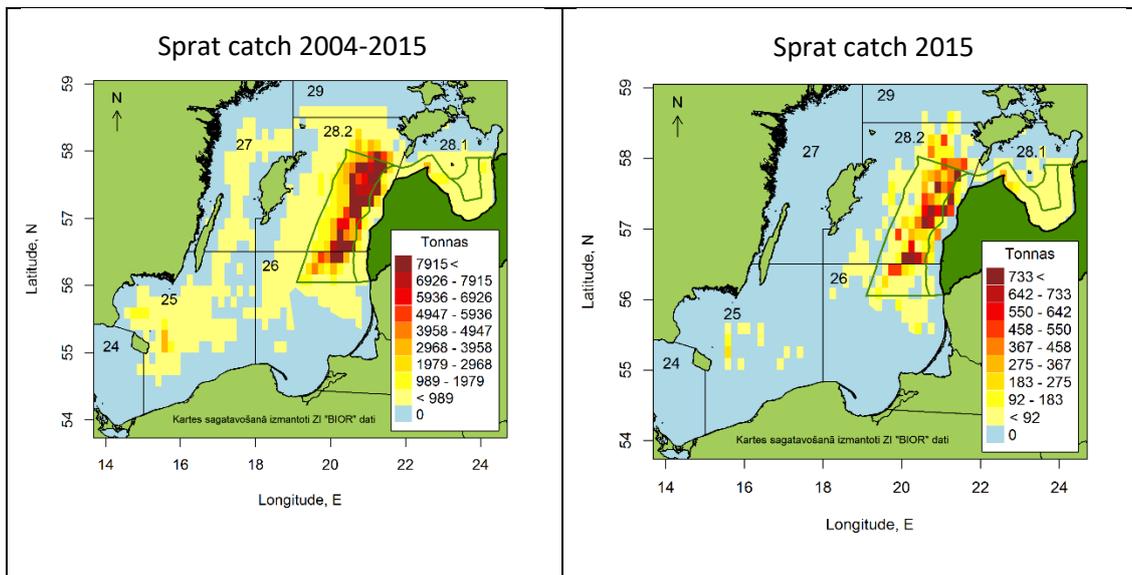


Figure 16. Spatial breakdown of Latvian sprat catches in the high seas of the Baltic Sea 2004-2015 (BIOR data)¹⁰⁸

The figure on the right summarises the fishing intensity for the 10-year period, while the figure on the left is one-year data. This helps illustrate that neither demersal nor pelagic fish can be broken down into certain significant areas, since the success of fishing is determined annually by a diverse set of factors.

The breakdown of **herring** catch depends on the activity of the fishing fleet and the allocation of quota. Latvian fishermen catch two units of stock – herring of the Gulf of Riga (together with Estonian fishermen) and herring in the central part of the Baltic Sea (along with fishermen from other countries). An average of 96% of the total catch of herring is attributable to the EEZ of Latvia. The main fishing areas for herring for Latvian fishermen are located in the Gulf of Riga (see Figure 17).

¹⁰⁸ A green line at sea marks the boundaries of the Latvian EEZ and TS (in this and other maps of this section). Other marine zoning corresponds to ICES subdivisions (24 to 29), based on <http://geo.ices.dk/> information

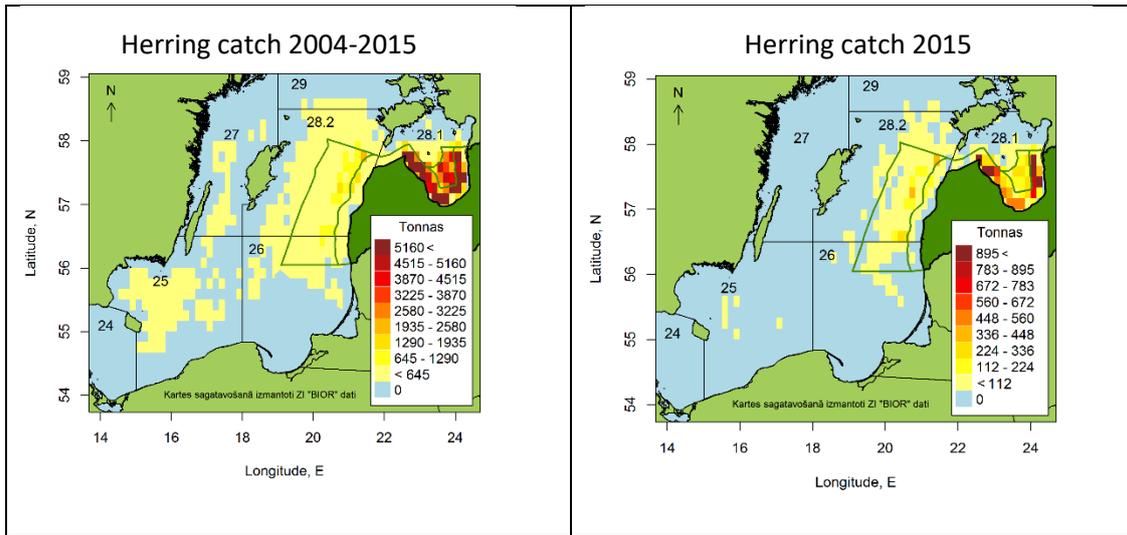


Figure 17. Spatial breakdown of herring catches in the high seas of the Baltic Sea 2004-2015 (BIOR data)

The cod stocks are at a low level nowadays and the main catch areas are located in the southern part of the Baltic Sea, outside the Latvian EEZ. Cod is mainly fished in the southern part of the sea (see Figure 18) to the east of the island of Borholm, which is determined by the distribution of cod and the available fishing opportunities.

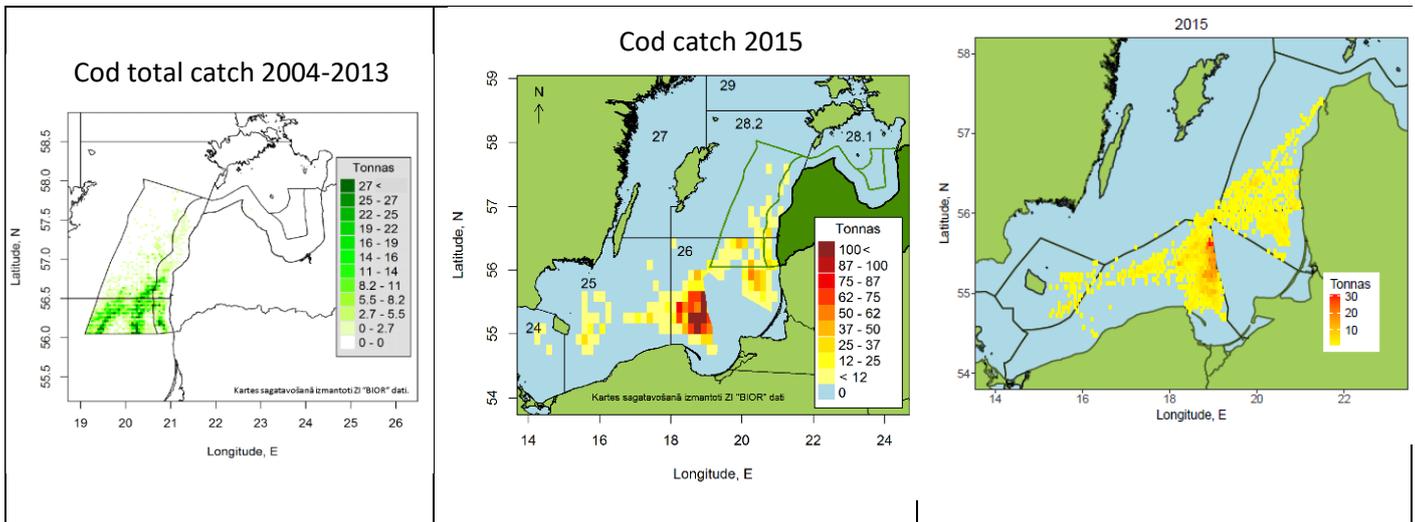


Figure 18. Spatial distribution of cod catches in the high seas of the Baltic Sea from 2004 to 2015 (BIOR data)

The main areas of **flounder** catch are located in the EEZ of Latvia and in the northern part of the Lithuanian EEZ (see Figure 19). The largest catches per square over the total period exceed 1.7 tonnes. In recent years, 77% of the total catch of flounder is caught in Latvian waters. The best areas for fishing flounder are relatively stable over the years and also coincide with the observed prevalence of flounder during periods of scientific recording, depending on both the seabed composition (the possibility of fishing with demersal trawl) and the distribution of flounder.

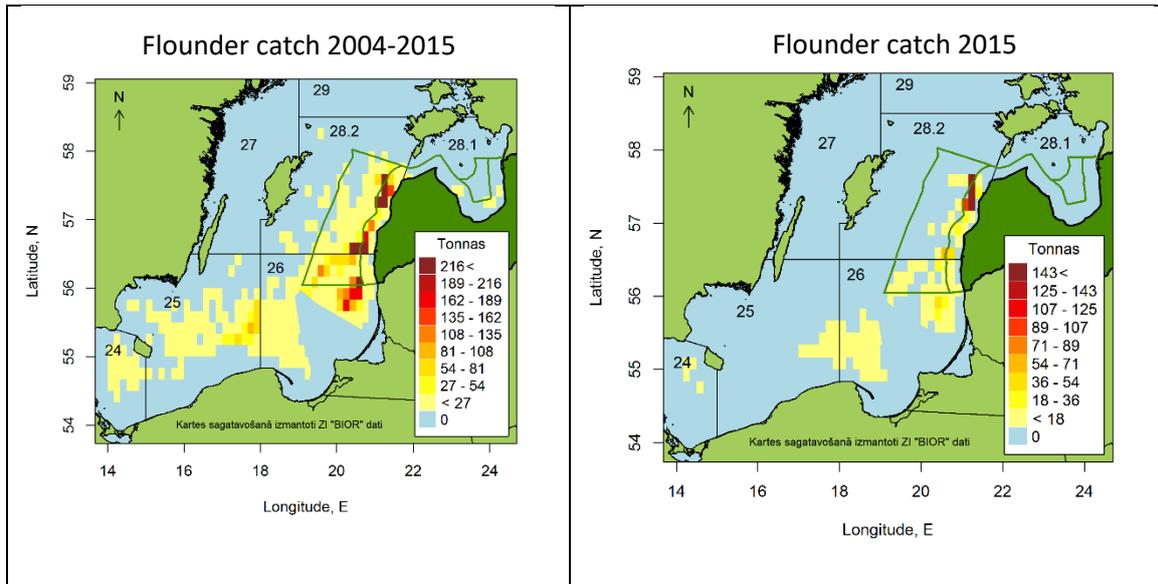


Figure 19. Spatial breakdown of flounder catches in the high seas of the Baltic Sea from 2004 to 2015 and separately in 2015 (BIOR data)

In the high seas of the Baltic Sea there has been a significant decrease in fishing efforts over the last decade, linked to the policies implemented to balance fishing stocks and fishing capacity, resulting in some of the fishing vessels being scrapped. In view of the limited fishery resources and the Common Fisheries Policy implemented in Europe, no increase in the number of fishing vessels and consequently the intensity and load is expected.

3.7.2. Development of marine aquaculture

Latvia has little practical experience in marine aquaculture, related to geographical location and the characteristics of a moderate climate. Our country's coast is far less suitable for offshore aquaculture than Sweden and Norway. However, it could also be developed through innovative solutions under the climatic conditions of Latvia.

Marine aquaculture facilities on the coast of Latvia are limited by natural conditions - the impact of waves and winds, the fluctuating temperature and oxygen concentration regime, as well as relatively low salinity of water. However, considering the growing interest in development opportunities for aquaculture in the Baltic region, studies are required on the suitability of environmental conditions for the cultivation of various aquaculture species off the coast of Latvia and to develop environmentally friendly technologies that are suitable for Latvia's conditions.

Environmental conditions determining the development of marine aquaculture

For the successful growth of any living organism in aquaculture conditions, the adequacy of the environmental factors of the complex must be assessed for each species in the water layer up to a depth of 30-40 m and the physico-chemical parameters of the semi-pelagic layer must be taken into account, since these waters in the coastal zone periodically rise to the surface as a result of upwelling. According to the opinions of BIOR experts, aquaculture of salmon-type fish would be the best suited to the conditions of Latvia. The most suitable areas for this are in the high seas of the Baltic Sea, which provides a relatively stable temperature and oxygen concentration regime and a salinity of water of not less than 8 promiles. Meanwhile, the temperature and oxygen concentration regime appropriate for growing algae and shellfish is both in the Gulf of Riga and in the high seas of the Baltic Sea, but the southern part of the Gulf of Riga is not appropriate, where the salinity of water is below the physiological resistance limits of the species suitable for aquaculture.

In 2017, LIAE began to explore the possibilities for the aquaculture production of molluscs within the framework of project “Baltic Blue Growth”¹⁰⁹ by setting up a mollusc farming research farm (pilot-farm) in the high seas in the marine protected area „Akmensrags” near Pavilosta.

Fishery interests in the MSP

The MSP does not regulate coastal fisheries, fishing in the Baltic Sea and the Gulf of Riga, and the interests of fishery are depicted in the MSP section regarding existing uses of the sea. In turn, the existing information regarding the most significant fishing areas has been assessed, determining other areas for the use of the sea.

The MSP does not determine specific places for the development of aquaculture in the sea. Each development opportunity is regarded individually, depending on the technology to be used and observing the recommendations in the MSP for the compatibility of aquaculture with other types of marine use. Construction of infrastructure for aquaculture at sea shall be performed in accordance with CM Regulation No.631 of 14 October 2014 „Construction Regulations for Structures in the Internal Waters, Territorial Waters and Exclusive Economic Zone of the Republic of Latvia”, which prescribes the procedure by which a licence area at sea shall be determined and the procedure for issuing a licence, and the procedure by which a tender shall be organised regarding the right to use areas in the sea as well as the procedure for construction processes at sea.

Further analysis and mapping of fish-relevant habitats and major fishing areas should be carried out, taking into account their variability, but consultation of stakeholders is needed before taking decisions on the launch of new uses or the expansion of existing ones.

¹⁰⁹ Information on the project co-financed by the INTERREG Baltic Sea Region transnational cooperation programme 2014-2020, “Growth of the Baltic Sea – Development of large scale shellfish farming in the Baltic Sea” (Baltic Blue Growth): [http://www.kurzemesregions.lv/userfiles/files/1_BBG_prezentacija_Z_Gaile\(2\).pdf](http://www.kurzemesregions.lv/userfiles/files/1_BBG_prezentacija_Z_Gaile(2).pdf) and <https://www.submariner-network.eu/projects/balticbluegrowth>

3.8. Tourism and recreation

Policy frameworks for tourism

The development of maritime and coastal tourism is identified in a number of EU strategic documents, including the EC communication “Europe, the world's No 1 tourist destination – a new political framework for tourism in Europe” (COM/2010/0352)¹¹⁰, the Blue Growth Strategy¹¹¹ and EUSBSR.

Investments from the European Regional Development Fund between 2014-2020¹¹² support tourism development and the use of local natural and cultural heritage.

In Latvia the main tourism policy planning document is Latvia’s Guidelines for Tourism Development for the period 2014.–2020,¹¹³ in which the entire Baltic Sea coast is included in the most competitive areas of Latvian tourism exports. The Baltic Sea and Gulf of Riga are important tourism resources for Latvia, the potential of which is not yet fully exploited.

The long-term needs of cooperation, coastal public infrastructure network and coastal natural and cultural heritage for the development of tourism are identified in the long-term National Thematic Plan for the Development of the Public Infrastructure of the Baltic Sea Coast (2030) (hereinafter – Coastal Plan).¹¹⁴ The Coastal Plan determines 60 complex development sites to be developed (see Figure 20), where infrastructure is to be established and where investment in tourism and coastal natural and cultural heritage sites is needed.

Tourism development resources and trends

Cruise and yacht tourism

In recent years, air transport has become a key factor in the growth of tourism exports in Latvia, but ports (Riga, Ventspils, Liepaja) continue to play a significant part (7% in 1999, 9% in 2012¹¹⁵) of incoming tourism volume, with further development potential. The large passenger ports in Riga, Liepaja and Ventspils (for passenger ferries, cruise services in the tourism context) and yacht berths in ports (Pavilosta, Roja, Mersrags, Engure, Jurmala, Skulte, Salacgriva, including Kuivizi, Liepaja, Ventspils and Riga) are the **gates of Latvia's export tourism flow**.

Important ports for ferry traffic are Riga, Ventspils and Liepaja. Freeport of Riga is an important part of the global and regional passenger traffic network of the Baltic Sea region. Regular passenger services on the Riga – Stockholm route have been provided since 2006 (operator – *AS Tallink*).

Currently, the potential for cruise shipping in the Baltic Sea is not fully exploited in Latvia, which is the second most important cruise shipping region in the world after the Caribbean. This is provided by shipping safety, traditions and the diversity of the great cultural heritage with a convenient port network and large cities of different countries along the coast. For the Baltic Sea region, the history of the sea paths of the ancient Hanseatic League is particularly prominent.

Freeport of Riga is the **most competitive in attracting cruise ships** in Latvia (see Figure 20).

Tour ships are also engaged in sea passenger transport. They connect international destinations (e.g. Roja-Ronu Island) or provide transfers in the vicinity of the coast, including links with the mainland (Riga-Jurmala, Ventspils port, Liepaja port, Kuivizu port, etc.).

Yacht tourism in the Baltic Sea has a growing potential, strategically strengthened by the Blue Growth Strategy, with particular emphasis on the wider and more coordinated involvement of the private sector.

In Latvia, compared to neighbouring countries Estonia and Sweden, the opportunities for boat tourism have not yet been fully developed. In order to ensure this, the network of yacht ports and berths need improving by ensuring a sufficient distance between ports that may be reached within one day and thereby supporting safe and

110 EC communication available: <https://eur-lex.europa.eu/legal-content/LV/ALL/?uri=celex%3A52010DC0352>

111 Information on Blue Growth available: https://ec.europa.eu/maritimeaffairs/policy/blue_growth_lv

112 Information available: http://ec.europa.eu/regional_policy/en/policy/themes/tourism/

113 Latvian tourism development guidelines for 2014 – 2020 are available at: <https://likumi.lv/doc.php?id=267332>

114 The long-term national thematic plan for the development of the public infrastructure of the Baltic Sea coast and the working materials thereof are available at: http://www.varam.gov.lv/lat/darbibas_veidi/tap/lv/?doc=18794

115 Central Statistical Bureau, 2014

convenient sailing. The establishment of new yacht ports/berths in the coming years are to be supported in Kolka and Pape.¹¹⁶

The total number of registered yachts in Latvia increased in 2017, numbering 643 yachts, with a tendency to grow steadily.¹¹⁷ The increase in the number of yachts in Latvia opens up more opportunities for the use of yacht ports in local tourism.

Currently, Latvia does not fully exploit the potential offered by the inclusion of Latvian yacht ports on the tourist routes of Germany and other countries. As part of various cooperation projects, Latvian yacht port services are being improved and marketing activities of the associated tourism products carried out. Activities have been implemented in the Estonia – Latvia cross-border cooperation programme project “Improved yacht port infrastructure and port network development in Estonia and Latvia”¹¹⁸ to create a network of small ports with high quality services on the east coast of the Baltic Sea and the Gulf of Riga in Estonia and Latvia and promote it as an attractive destination. In 2017-2020, marketing initiatives are planned to attract the yachtsmen of Finland, Sweden, Poland and Germany, as well as significant improvements to improve the quality of yacht port infrastructure and services. Moreover, Latvia together with Estonia are developing a joint yachting destination – “East Baltic Coast”.

Potential of coastal tourism

The beaches of the Baltic Sea and the Gulf of Riga are a very important tourism resource, attracting tourists from the Baltic Sea region and other countries during the summer season. The total number of visits to the beach according to the 2015 summer survey is estimated at ~ **4.7 million** per year¹¹⁹.

There are many important cultural tourism sites in the coastal area, including 261 architecturally valuable buildings, 182 churches, 123 museums, 206 monuments or 36 hillforts and 14 stadiums. Similarly, a large proportion of natural sites are concentrated on the coast, which together makes the coast a picturesque and noteworthy tourist destination with a solid concentration of tourism sites. The appeal of the sea coastal landscape forms natural „backdrops” for popular events “Positivus”, “Summer Sound”, sea festivals, fishermen’s festivals, Night of ancient fire etc., whose visitor numbers have fluctuated in recent years up to several tens of thousands of visitors at the same time.

In the last decade, tourism activities have become more popular in the coastal waters of the Baltic Sea, such as bird-watching, boating (kayaking) at sea, kiteboarding, fishing and diving (see Figure 20).

In 2018, the long-distance hiking path “Jurtaka”¹²⁰ was created along the Latvian coast, which is part of the European long-distance hiking network for tourists, route E9.

116 The long-term national thematic plan for the development of the public infrastructure of the Baltic Sea coast and the working materials thereof are available at: http://www.varam.gov.lv/lat/darbibas_veidi/tap/lv/?doc=18794

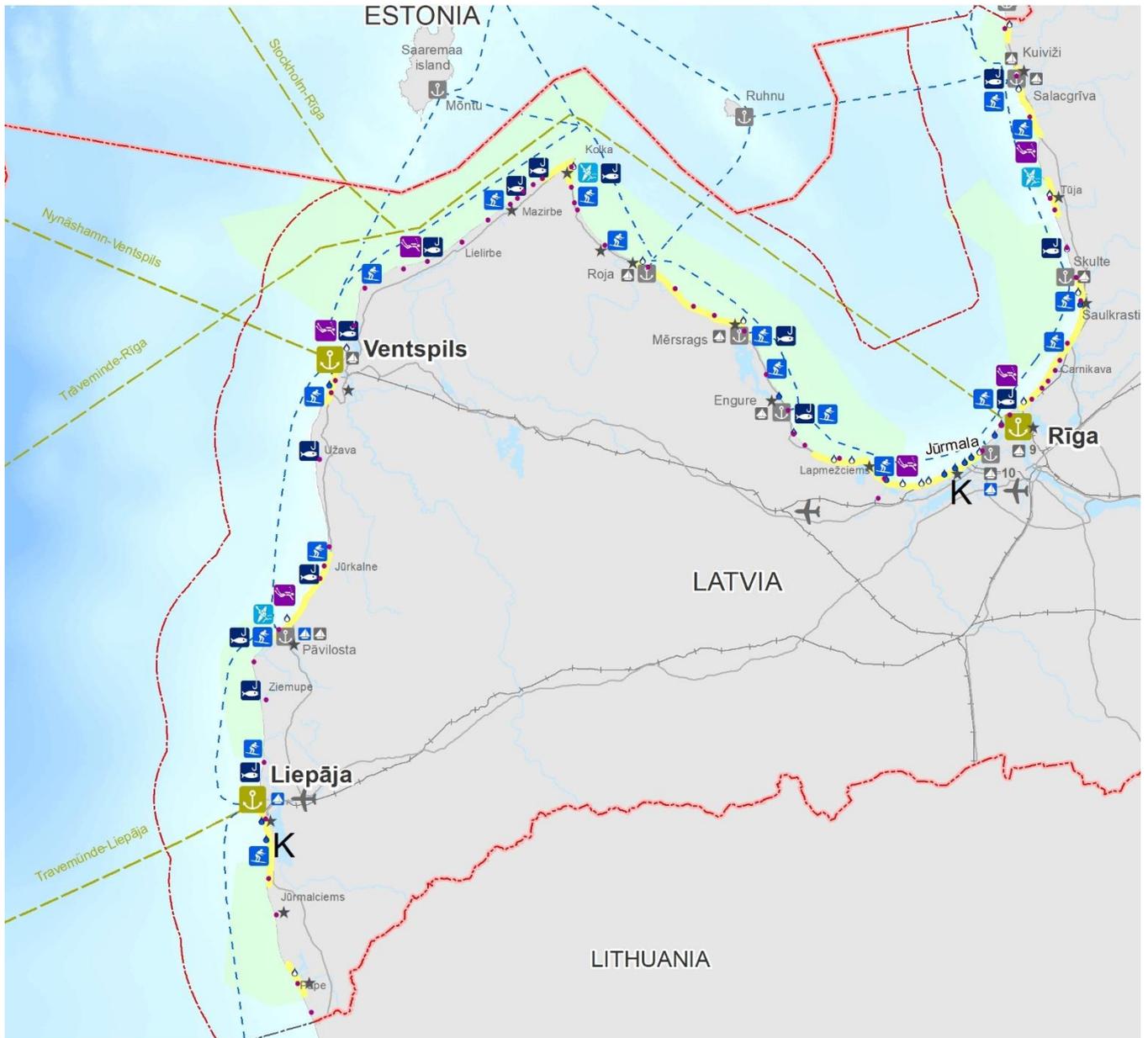
117 Information source: <https://www.lja.lv/index.php/news/latvijas-kugu-registra-pieaudzis-solas-konvencijas-kugu-skaitis>

118 Information on the programme in Latvian is available at:

http://www.varam.gov.lv/lat/fondi/ets_1420/igaunijas_latvijas_parrobezu_sadarbibas_programma/?doc=18275

119 4. Working material '4. Assessment of coastal traffic and anthropogenic load by municipalities' data, available at: http://www.varam.gov.lv/lat/darbibas_veidi/tap/lv/?doc=22027

120 Estonia – Latvia's cross-border cooperation programme under the “Hiking route along the Baltic Sea coast in Latvia and Estonia” project. Information on the coastal hiking route is available at: <http://coastalhiking.eu>



LEGEND

Coastal activities important for tourism

- Kiteboarding and windsurfing
- Marine kayaking, boating
- Fishing at the seashore
- Diving
- Sea related events

Links important for marine tourism

- Yachting route
- Important ferry/cruise vessel shipping direction

Facilities important for tourism

- Resort
- Bathing site
- "Blue flag" bathing site (2016)
- Jahtklubs
- Blue flag Yacht port (2016)
- Port important for cruise tourism and ferry traffic
- Airport
- Coastal complex development site
- Most visited beaches (2015)

Additional information

- Ports
- Main road
- Railway
- EEZ border and state border on land
- Latvia-Lithuania maritime border treaty is not in force
- Territorial sea border
- Latvia-Lithuania maritime border treaty is not in force
- Land
- Marine protected area

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 Data sources:
 Dr. geogr. Andris Klepers / SIA "Nocticus"
 Ministry of Environmental Protection and Regional Development

Figure 20. Schematic representation of tourism and recreational activities associated with the use of the sea

Tourism and recreational interests in the MSP

The MSP does not anticipate conditions for the development of tourism and recreation, as the development of tourism primarily affects local governments and businesses providing tourism services. Therefore, the development of coastal tourism should be concentrated in the development areas specified in the Coastal Plan; in turn the planned use of the coastal marine waters, incl. development of WPPs, must be assessed in terms of the potential impact of these activities on coastal and yachting tourism.

3.9. Potential deposits and extraction of mineral resources

Political guidelines

The concept of improving the legal framework for the use of subterranean depths to attract potential investments¹²¹ provides for the promotion of exploration of subterranean depths and the acquisition of new, up-to-date information on the structure and properties of subterranean depths, as well as the improvement of the legal framework for the use of subterranean depths to attract potential investments. The concept does not apply to hydrocarbons and minerals currently traditionally produced in Latvia (raw materials of construction materials, peat, sapropel).

Within the MSP, a number of mineral resources are associated with seabed sediments, mainly hydrocarbons, but also several others - iron-manganese concretions, titanium-zircon ore deposits, therapeutic mud, sand and/or sand-gravel.

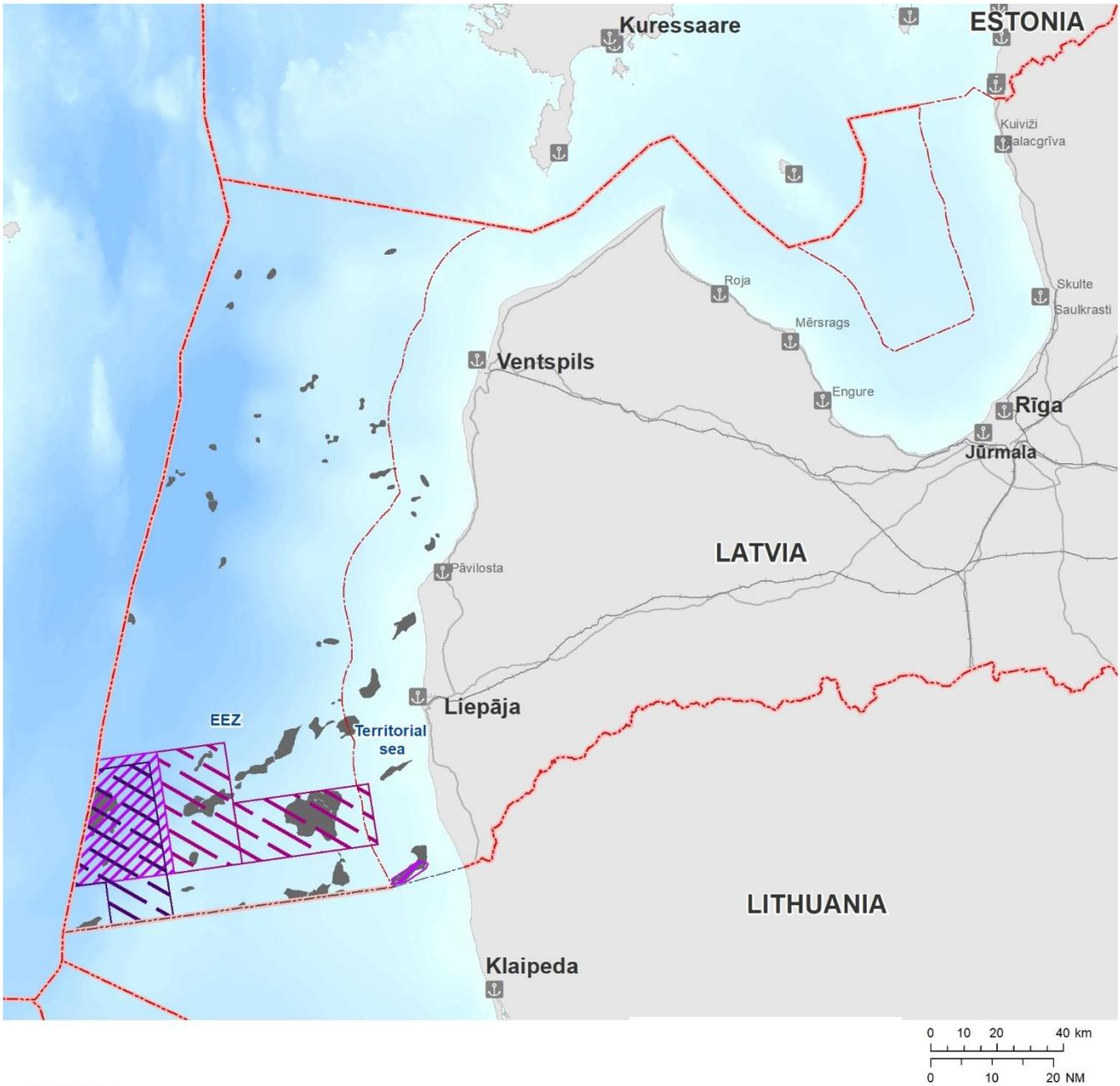
Hydrocarbons

In an area of approximately 21.5 thousand km² in Latvia's sea waters, there are oil deposits, amounting to approximately 360 million barrels. The largest deposits are concentrated in the south-western part of the continental shelf of Latvia. Around 50 local elevations have been detected in the shelf – oil deposits, of which 20 have been recognised as prospects for oil extraction. Oil-containing rock layers are located at a depth of 650 to 1900 m, the most productive horizon lying at 1200-1900 m below sea level. Geological and economic estimates show that oil extraction could be economically viable in a number of large oil deposits, the absorption of the remainder could commence after the creation of an appropriate infrastructure at the large deposits. The potentially extractable oil resources in Latvian marine waters are estimated to be 40-60 million m³.

The prospection, exploration, experimental extraction and extraction of hydrocarbons (untreated petroleum (crude oil), natural gas and gas condensates) is regulated by the Law On Subterranean Depths and CM Regulation No.805 of 22 December 2015 “Regulations Regarding the Prospection, Exploration and Production of Hydrocarbons”. In accordance with the aforementioned law the MoE in accordance with the procedure specified by the CM shall issue licences for the prospection, exploration and extraction of hydrocarbons in the licence areas specified by the CM, as well as perform the administrative supervision of the prospection, exploration and extraction of hydrocarbons.

Currently, several entrepreneurs have been granted licences for the exploration and extraction of hydrocarbons in the Baltic Sea in Latvia's TS and EEZ and Figure 21 shows the existing licence areas.

¹²¹ Concept approved by Cabinet Order No. 752 of 8 December 2016, available: <https://likumi.lv/doc.php?id=287196>



LEGEND

Hydrocarbons

- Hydrocarbon exploration and extraction licence blocks
- Hydrocarbon exploration and extraction licence area
- Hydrocarbon exploration licence area
- Hydrocarbon deposits

Additional information

- Ports
- Main road
- Railway
- EEZ border and state border on land
Latvia-Lithuania maritime border treaty is not in force
- Territorial sea border
Latvia-Lithuania maritime border treaty is not in force
- Land

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 Data sources:
 State Geological Fund
 Ministry of Economics
 Maritime Administration of Latvia
 Ministry of Environmental Protection and Regional Development

Figure 21. Potential hydrocarbon deposit areas in the Baltic Sea (according to the materials of the State Geological Fund (LEGMC)) and areas and blocks for the prospection, exploration and extraction of hydrocarbons (data source: Ministry of Economics)

Other minerals

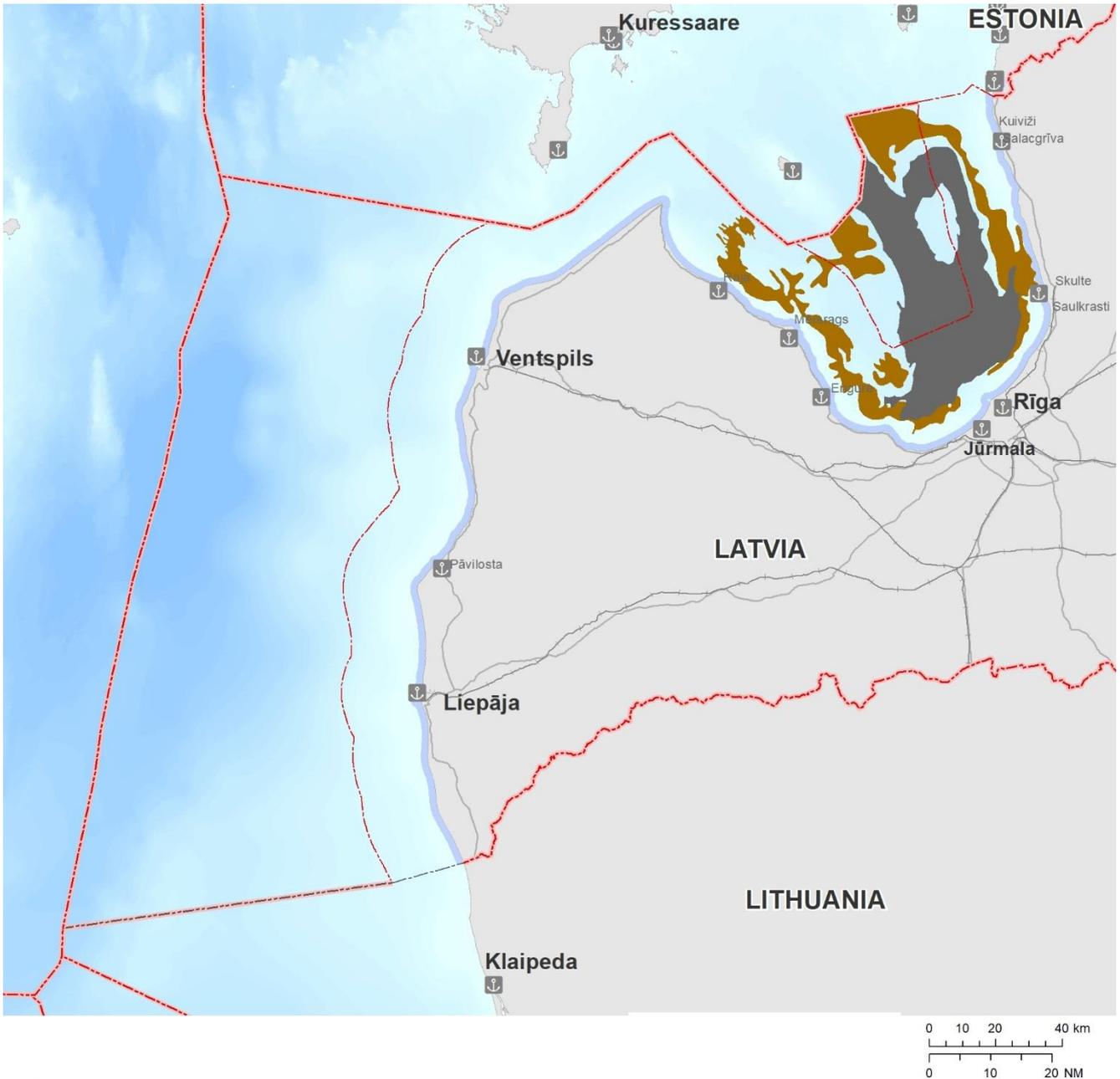
In accordance with Section 8, Paragraph one, Sub-clause 5 of the Law On Subterranean Depths, the subterranean depths of the TS of the Republic of Latvia shall be used by a person who has been issued the licence for the use of subterranean depths. In addition, CM Regulation No.633 of 18 September 2012 „Procedures for the Use of Subterranean Depths in Internal Public Waters and Sea” prescribes the procedure by which this licence may be received.

Iron-manganese concretions are distributed in the Baltic Sea (Gulf of Riga) at the lower edge of the sub-sea slope (see Figure 22), which is a unique ore reserve). Concretion distribution fields 1 – 6, less frequently in a band up to 10 km in width, stretch almost along the entire coast. Concretions contain between 6.3 and 29.3 (average – around 19.3)% iron and between 0.3 and 26.4 (average – 8.4)% manganese. Extraction is not currently technologically and economically viable.

Titanium – zircon mineral deposits develop in the Baltic Sea coastal areas in districts with a pronounced reduction in the flow rate of coastal sediments. Deposits are mobile structures that move around, and the concentration of heavy minerals is also highly volatile. Heavy mineral concentrations have also been identified in the underwater slope of the Baltic Sea coast. The largest of these lie between Pape and Liepaja at a depth of 3-3.5 to 7-8 km as 400-700 m long and 1-1.5 m wide bands. The content of heavy minerals in them reaches 50 – 250 kg/m³. Smaller-size deposits are also found in the Liepaja – Ventspils and Venstpils – Kolka phase. Common stocks have not currently been identified. Extraction is not currently technologically and economically viable.

Mud — small dispersive plasticising liquid, water-saturated sediments, on the seabed, with uniformly dispersed plant detrite, a hydrogen sulphide odour, and an organic content of up to 4-5% and a sulphide (H₂S) content of between 0.005 and 0.02% (Limnetic mud) and between 0.03 and 0.1% (post-Limnetic or modern-day mud) has been identified in the central part of the Gulf of Riga and in depressions along the west coast of the Gulf, where the sea depth reaches 40-55 m, as well as in the central part of the Baltic Sea (see Figure 24). Mud contains elevated concentrations of V, Mo, Ni, Ga and Ba. Given that mud thickness can exceed 10 metres, the estimated resources in the Gulf of Riga alone exceed 1 billion m³. Extraction is not currently technologically and economically viable.

The aquatorium of the EEZ of Latvia and the Gulf of Riga is rich in **marine sand and gravel deposits** which are concentrated in the coastal underwater slope and the relatively narrow belt of coastal marine waters. According to the size of the stock, the most important sand or sand – gravel deposits are in the Gulf of Riga opposite Vecāķi to the north and northwest of Ovišrags, and in the Baltic Sea – opposite Liepaja. The sand deposit “Vecdaugava” in the aquatorium of the Gulf of Riga, opposite Vecaki, has in its time (in the 1980s) been analysed in detail; the sand deposits having been assessed as both Category A and Category N. The area of the deposit is just over 6,3 km². The total Category A deposits are 62.7 million m³, and the Category N deposits – 143.6 million m³. Extraction of sand resources could be economically beneficial, but sustainable extraction of sand resources needs a survey of the sediment flow to prevent an increase in coastal erosion. Experimental sand extraction in the amount of 100 000 m³ has taken place at the Vecdaugava deposit, which has not significantly affected the balance of the coastal and underwater slopes.



LEGEND

Potential raw materials from the earth in Gulf of Riga

- Mud
- Iron and manganese concretions

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 Data sources:
 State Geological Fund
 Ministry of Economics
 Maritime Administration of Latvia
 Ministry of Environmental Protection and Regional Development

Additional information

- Ports
- Main road
- Railway
- EEZ border and state border on land
Latvia-Lithuania maritime border treaty is not in force
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- Land

Figure 22. Range of iron-manganese concretions in the Gulf of Riga (according to the materials of the Latvian Environment, Geology and Meteorology Centre (LEGMC) and area of resources of therapeutic mud in the Gulf of Riga (according to LEGMC materials)

Interests of extraction of mineral resources in the MSP

The extraction of mineral resources in the sea waters of Latvia is not currently taking place.

To date, several licences have been issued for the exploration or research and extraction of mineral resources, which partly confirms the interest regarding hydrocarbon deposits in the EEZ (mostly in the area near the Lithuanian border) and TS of the western coast of Kurzeme.¹²²

The extraction of other mineral resources is not anticipated in the planning period.

3.10. Environmental quality

Political frameworks

The EU political framework is determined by Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive). The HELCOM Strategy for the Baltic Sea Region (2007)¹²³ (hereinafter – HELCOM SBSR), has an important role in the Baltic Sea region determining the necessary action at regional, international and national level to achieve a good environmental status of the sea by 2021 in key areas of the Baltic Sea environment. The 2013 HELCOM ministerial declaration prescribes renewed measures to achieve the good status of the sea specified in the HELCOM SBSR including prescribing specific measures for reducing eutrophication for each HELCOM member state. The HELCOM 2018 ministerial declaration¹²⁴ sets a target of adjusting the Baltic Sea action plan by 2021, taking into account the latest scientific findings and new challenges, including polluting litter, underwater noise, climate changes, loss and damage to the seabed, pollution with pharmaceutical substances, invasive species. In order to solve the eutrophication problem the HELCOM member states undertake to formulate a regional strategy for the recycling and recovery of nutrients (phosphorus, nitrogen).

In Latvia, the environmental policy up to 2020 is specified in the Environmental Policy Guidelines for 2014–2020 and measures for achieving a good environmental status of the sea specified in the plan „Programme of measures for achieving a good environmental status of the sea for 2016-2020”.

Characteristics of the Baltic Sea environment

The Baltic Sea is one of the world's smallest seas, but at the same time one of the largest brackish water seas. The Baltic Sea is one of the most sensitive marine ecosystems in the world due to specific climate conditions and geographical location.

The quality of the Baltic Sea, including the Gulf of Riga, is not currently compliant with a good environmental status. In order to achieve this, Latvia, similarly to other countries around the Baltic Sea, must reduce the total load of nitrogen and phosphorus in the Gulf of Riga and the Baltic Sea, reduce the spread of alien species and reduce marine pollution with harmful chemical compositions and solid waste as well as ensure the protection of biological diversity.

Latvia is determined to achieve a good environmental status of the sea by 2020. At the same time, however, based on the results of scientific studies that changes in the Baltic Sea take place with a major time lag, determined by the internal biogeochemical processes of the Baltic Sea, including a clause that the implementation of measures to improve the status of the sea environment may take a very long time – at least 30 to 50 years – and until the desired position is achieved, Latvia has specified a clause with regard to the target year, in the field of eutrophication.

At present, only certain indicators of the status of the marine environment show a positive trend of improvement, with most indicators showing that a good environmental status of the sea has not been achieved at present (Assessment of the status of the sea environment, 2018). There is a consensus among the Baltic Sea member states that eutrophication has been the main problem of the Baltic Sea for decades.

122 Information prepared by MoE, available at: https://www.em.gov.lv/lv/nozares_politika/zemes_dzilu_izpete/ (accessed 12.02.2018.)

123 HELCOM Baltic Sea Action Plan available at:

http://www.varam.gov.lv/in_site/tools/download.php?file=files/text/Darb_jomas/udens/lv_HELCOM_BaltijasJurasRicibasPlans.pdf

124 Declaration available at: <http://www.helcom.fi/helcom-at-work/ministerial-declarations/2018-brussels>

Eutrophication, enrichment of the ecosystem with nutrients, has been observed at least from the early 20th century, with nitrogen and phosphorus loads reaching peak values around 1980.¹²⁵ In subsequent years, a reduction in loads has been observed in the Baltic Sea, mainly due to a reduction in the point source loads, as river loads only dropped by less than 10%.⁸⁶

Nitrogen and phosphorus loads are linked greatly to the assessment of the flowrates of rivers entering the Baltic Sea in the year concerned (see Figure 23). Comparing the environmental status of Latvia's marine waters over two assessment periods 2007-2011 and 2012-2016, during the first assessment period the river flowrate was significantly higher, representing higher nitrogen and phosphorus loads on the Gulf of Riga and the Baltic Sea than in the next assessment period. (Assessment of the status of the sea environment, 2018). Furthermore, in the case of Latvia, the total load on the Gulf of Riga and the Baltic Sea is also affected by cross-border transfers from other countries, which are also located in the catchment area of the respective rivers and thus affect the quality of the environment of the respective Baltic Sea basin. Overall, nitrogen and phosphorus loads in the Baltic Sea show a slight decline trend.

Latvia uses a number of indicators to assess eutrophication – dissolved inorganic nitrogen and dissolved inorganic phosphorus representing the winter season (January-March), when biological activity is low and virtually all nitrogen and phosphorus used to grow microscopic algae is in the form of inorganic compounds dissolved in the water column. In turn, other indicators, such as total nitrogen and total phosphorus, are representative throughout the year and include both inorganic and organic forms of nitrogen compounds. Thus, these indicators describe the overall enrichment of the marine ecosystem with nutrients, both from river and point sources and from atmospheric deposition and from the assimilation of atmospheric nitrogen. The importance of these indicators has increased significantly in recent years, as climate change has resulted in a change in the seasonal pattern of river runoff.

125 Gustafsson, B.G., F. Schenk, T. Blenckner, K. Eilola, H.E.M. Meier, B. Müller-Karulis, T. Neumann, T. Ruoho-Airola, O.P. Savchuk & E. Zorita (2012): Reconstructing the Development of Baltic Sea Eutrophication 1850–2006. *Ambio*, 41(6), 534–548. DOI 10.1007/s13280-012-0318-x

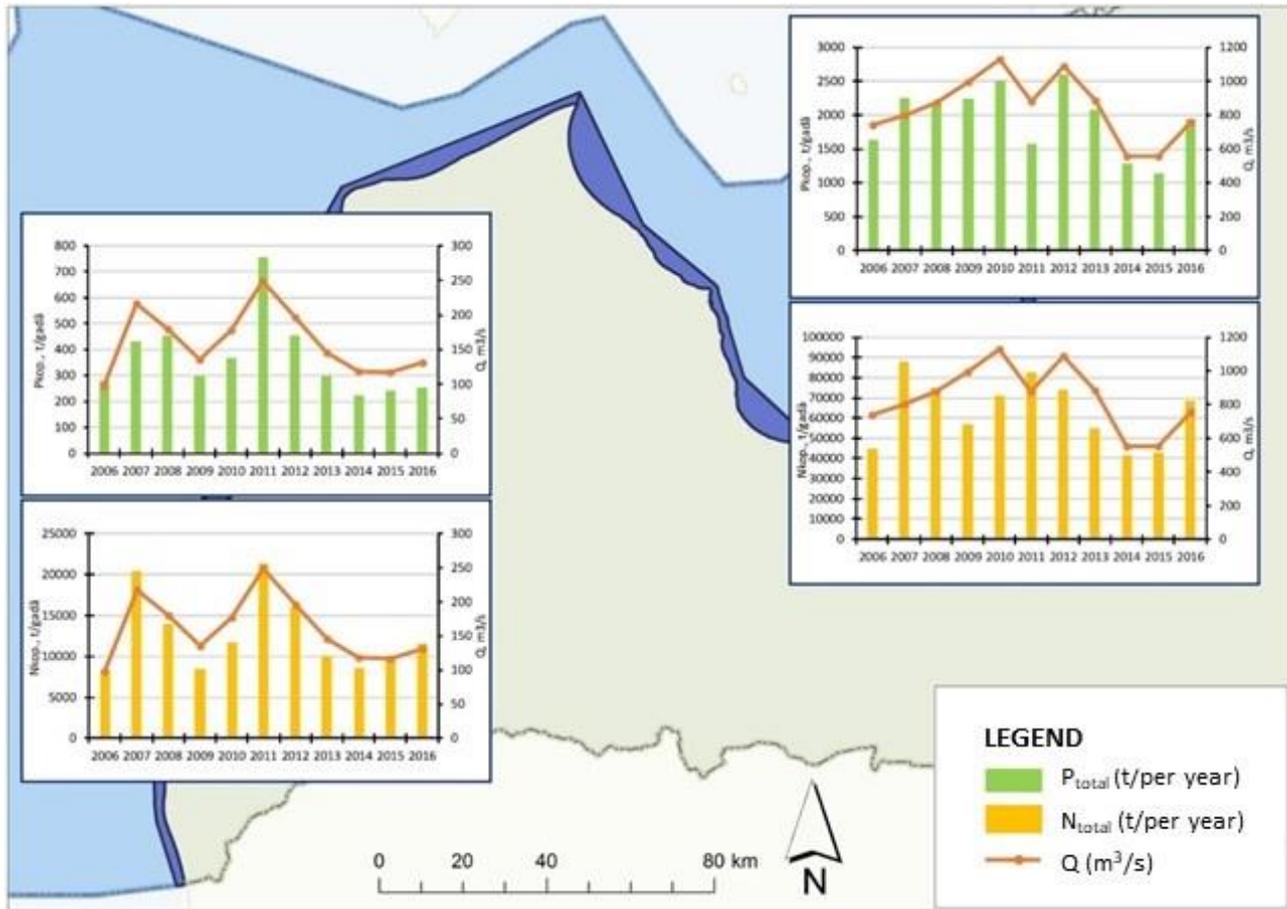


Figure 23. The dynamics of river flowrates, nitrogen (N) and phosphorus (P) loads to the Gulf of Riga and the Baltic Sea. The displayed loads are the sum of the loads resulting from the transboundary transfer, which have not been normalised against the river flowrate. (data source: Assessment of the status of the sea environment, 2018)

The total average annual load of nitrogen in rivers entering the Gulf of Riga from 2012 to 2016, compared to 1977 to 1995, has decreased in total from 94500 to 37167 tonnes per year. Phosphorus loads in the Gulf of Riga have decreased from 1700 to 1038 tonnes per year¹²⁶ during this period (see Figure 23).

The effect of the increase in nitrogen and phosphorus loads is the increase in the productivity of microscopic algae (phytoplankton) and biomass, usually expressed as concentrations of chlorophyll A, in the Baltic Sea. As the biomass of microscopic algae increases, water transparency reduces, resulting in a decrease in the penetration depth of sunlight. The results of summer observations on water transparency (measured as Secchi depth) are available from 1963 in the high waters of the Gulf of Riga, in transition waters from 1983, in the coastal waters of the Gulf of Riga from 1991 and in the coastal waters of the Baltic Sea from 1999. In the high waters of the Gulf of Riga, water transparency from the beginning of the observations to the early 1990s has decreased by about 1 m. Since the 1990s, the level of water transparency has remained virtually unchanged, although there are relatively large interannual fluctuations in the level of water transparency (Assessment of the status of the sea environment, 2018). A similar situation was observed for the central region of the Baltic Sea (HELCOM HOLAS II¹²⁷).

In the coastal area, the reduction in water transparency (the depth to which sunlight can penetrate) will also reduce the depth to which the conditions for growth of perennial macroalgae are appropriate. Perennial macroalgae are an essential group of biotope-forming species, providing spawning grounds for a number of fish species, a hiding place and feeding environments for juvenile fish, a dwelling for other species of invertebrates and algae associated with this biotope, and thus high biodiversity is developed in coastal zones. As a result of

¹²⁶ Assessment of the state of the marine environment, 2018

http://www.lhei.lv/attachments/article/573/Juras_vides_novertejums_2018.pdf

¹²⁷ Information about the project available: <http://www.helcom.fi/helcom-at-work/projects/completed-projects/holas-ii>

reduced water transparency, the maximum growth depth of the perennial red algae *Furcellaria lumbricalis* currently dominant in the open coast of the Baltic Sea along the coast of Latvia is only 8-12 m, although it was previously present at a depth of up to 18 m. Similarly, the growth depth of the perennial brown algae *Fucus vesiculosus* dominant in the Gulf of Riga has also reduced – currently it may only be found at a depth of 5 m, where previously its spread was up to 7-8 m in depth. Eutrophication also changes the composition of macroalgae species, replacing the valuable perennial species with fast-growing annuals, for which low oxygen concentrations can be observed after they die in certain coastal areas.

In the deep water zone of the Baltic Sea, the negative effects of eutrophication are related to the oxygen depletion resulting from the breakdown of algae biomass, leading to the development of oxygen-free zones, the area reduction or growth of which is closely linked to the oxygen-rich intake of saltwater from the North Sea. In the long-term, due to a reduction in the frequency and intensity of salt water intake in the Baltic Sea, the area of oxygen-free semi-pelagic layer in the Baltic Sea has increased. The area of oxygen-free semi-pelagic layer in the Baltic Sea was partly reduced in December 2014 by a massive intake of saltwater from the North Sea, however a significant reduction in the oxygen-free area might be observed if the frequency of saltwater was to increase.

An unfavourable oxygen regime affects the number of organisms inhabiting the seabed and the composition of the species. In the Gulf of Riga, as eutrophication increased, the number of organisms living on the surface of the seabed decreased by more than three times compared to 1980 during the peak period from 1985 to 1992. The number of organisms living on the seabed re-stocked with an improvement in the oxygen regime, but there were significant changes in the composition of the species - by rapidly breeding the alien species red bristle-worm in the mid-1990s, it is currently the dominant species of polychaetes in the sandy-muddy areas of the Gulf of Riga.

The plan „Programme of measures for achieving a good environmental status of the sea for 2016-2020" approved by CM Order No. 393 of 18 July 2016 defines the MSP as a tool for ensuring the good environmental status of the sea. However, the MSP does not anticipate specific actions which may affect the eutrophication process.

3.11. Biological diversity and nature protection

Political framework

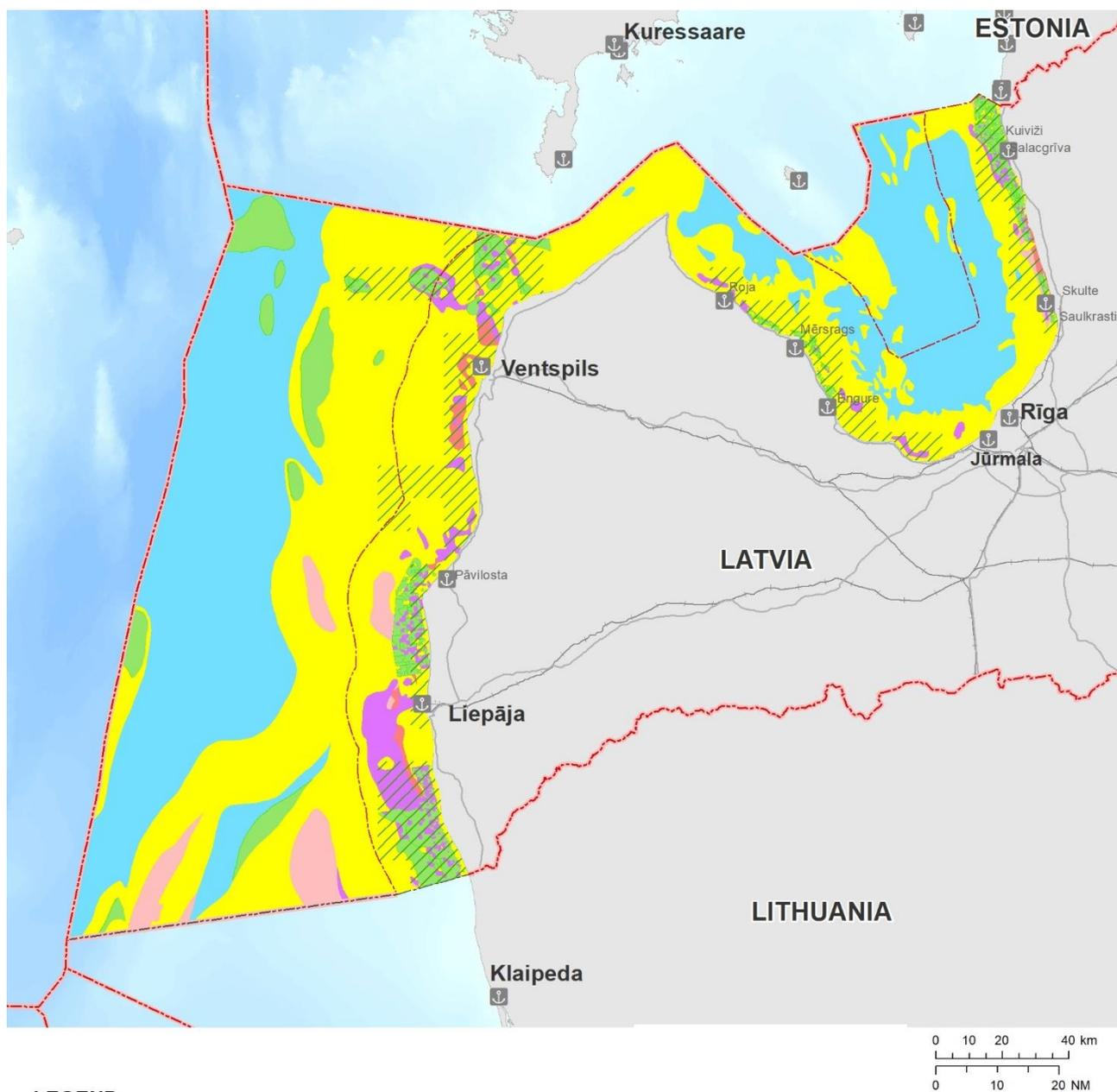
The basis for the conservation of biodiversity and nature protection is the Rio de Janeiro Convention on Biological Diversity of 5 June 1992. The EU's main legal acts are Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (Bird directive) and Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Biotope directive), which prescribes the facilitation of the conservation of biodiversity.

Biodiversity and biotopes in the Baltic Sea

The Baltic Sea has a unique diversity of species, biotopes and landscapes. Around 200 fish species have been identified in the Baltic Sea, 450 macroalgae species, 1500 zoobenthos species, 3,000 plankton species and many unknown bacteria and viruses that constitute biodiversity in the Baltic Sea.

The seabed of the south-eastern part of the Baltic Sea (high seas of the Baltic Sea near the coasts of Latvia) is characterised by a particularly different and diverse underwater topography which is formed by the specific hydrological conditions of the district Klaipeda – Ventspils plateau or elevation in the direction towards Saareema island along Latvia's coast and the Kursi – Sambija elevation along the coast of Lithuania, the Russian Federation (Kaliningrad region) and Poland, (freshwater intake to the coast of the high seas of the Baltic Sea from the Neman River of the Curonian Lagoon, the open coastal part exposed to powerful wave action) and the varied composition of seabed sediment), which comprises sand of varying grains, gravel, pebbles and boulders. The mosaic-type spread of seabed sediments in combination with a deep zone, which can conditionally be divided into three parts – a) the coastal zone with a depth of less than 10-20m, b) the seabed with an underwater slope whose upper part is between 10-20m and 30-35m, c) the seabed with an underwater slope whose lower part, which is greater than 30-35 m, form unique conditions for marine organisms – plants and animals, which inhabit them and are known as benthic biotopes or benthic habitats. When carrying out classification of benthic habitats, all organisms inhabiting the seabed sediment are divided into two broad groups – organisms which live in the soft seabed sand of varying grains, mud) and organisms which live in the hard seabed (coarse sand, pebbles, boulders). It should be noted that the classification of benthic habitats in the Baltic Sea is more complex and detailed. For example, over 20 benthic habitat types on the hard seabed have been identified on the coastal part of Latvia alone, but throughout the Baltic Sea there are over 100, moreover the classification of soft seabed benthic habitats is still in the development stage.

In accordance with the classification of the protected biotopes of EU importance which combines the most detailed types of habitats on hard beds, one biotope can be found in the Latvian TS of the Baltic Sea and EEZ waters – 1170 *Reefs* (see Fig.24). Its current conservation status is evaluated as unfavourable – poor.



LEGEND

Seabed sediments

- Mixed substrate
- Mud
- Rock and boulders
- Coarse gravel sediments
- Sand

EU protected biotopes

- Potential biotope reef (*1170), rocky shallow waters

Additional information

- Ports
- Main road
- Railway
- EEZ border and state border on land
Latvia-Lithuania maritime border treaty is not in force
- Territorial sea border
Latvia-Lithuania maritime border treaty is not in force
- Land

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Data sources:
Latvian Institute of Aquatic Ecology
Ministry of Environmental Protection and Regional Development

Figure 24. Seabed sediments and map of the distribution of protected biotopes of EU importance

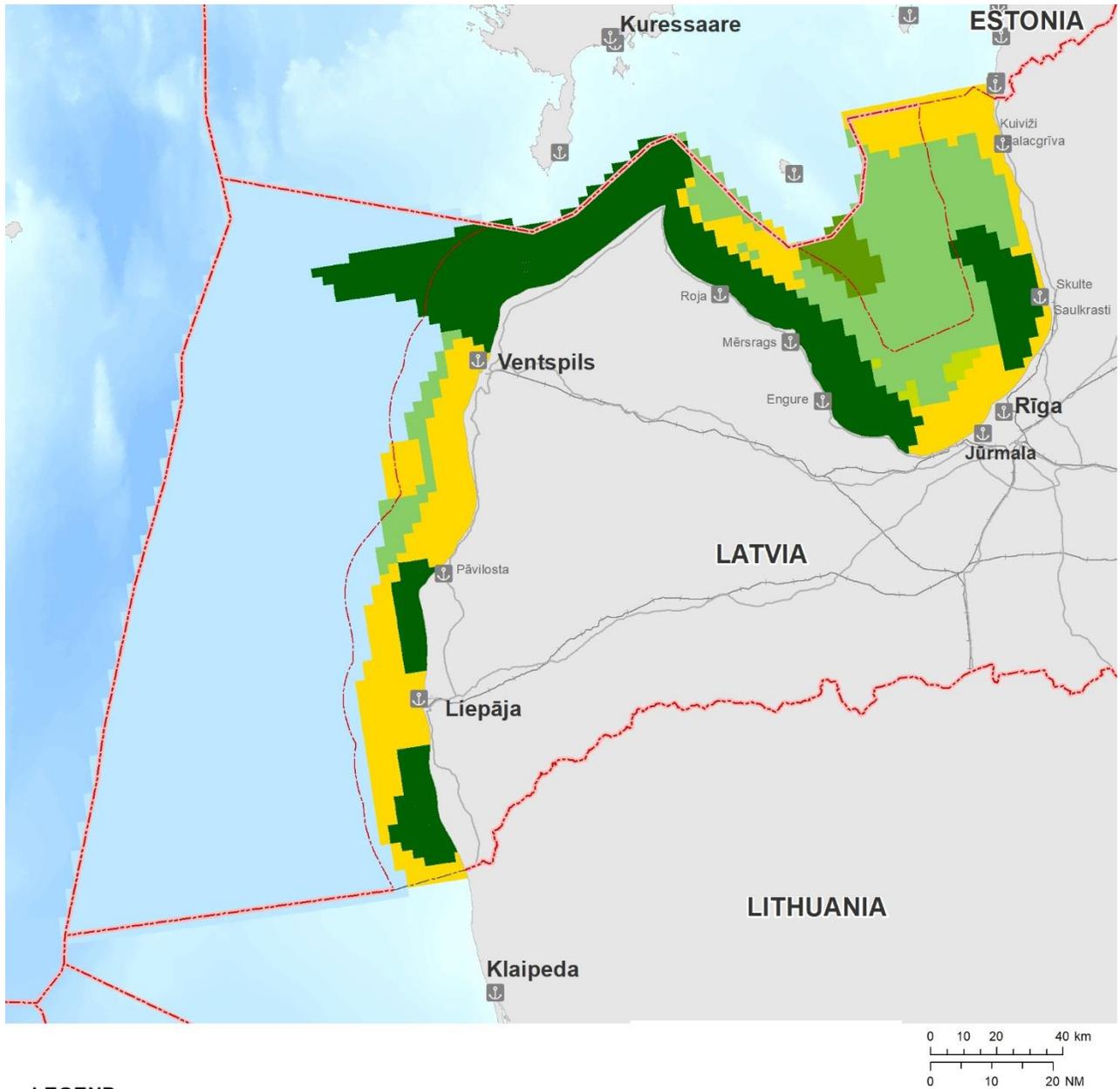
Protected biotope of EU importance – 1170 Reefs – overall occupies at least 64 900 ha in the territorial waters of Latvia. It can be found in the Baltic Sea and the Irbe Strait, from a depth of 5 m, and in the Gulf of Riga, from a depth of 1 m.¹²⁸ The main type of threat for this biotope is environmental changes caused by eutrophication. The increase in the amount of nutrients in water causes changes in the composition of habitat species: the perennial plants in the seabed layer are overpowered by fast-growing annual plants, whereas the increase in the content of organic substances in water reduces the transmission of light in the water, thereby reducing the available deep zone for reef habitats..

In turn, in accordance with the latest research results and data obtained by LIAE, the protected biotope of EU importance – 1110 Sandbanks which are slightly covered by sea water all the time – information is lacking to characterise the distribution of the biotopes in the marine waters of Latvia, including the high seas of part of the Baltic Sea and the Gulf of Riga.

Protection of species

The TS of Latvia and the EEZ waters are located on the bird migratory path of White– Baltic sea, and during the annual cycle, most of the typical bird migrant species in Latvia are present here, including the sparrow-like birds, which traverse the sea during their migration period. The area is used directly by 30 species of aquatic birds and marine birds. Despite the great mobility and seasonal changes, the bird flocking sites are stable from year to year. A change in the overall size of the population may change the number of birds observed, but the significance of the area is retained (see Figure 25).

128 European Union protected biotopes in Latvia. Specification manual. Edition 2 (2013) A.Auniņa red., Riga, Latvian Nature Fund, Ministry of Environmental Protection and Regional Development, p. 320, available in Latvian on the website of the Nature Conservation Board: https://daba.gov.lv/upload/File/Publikacijas/ROKASGR_biotopi_LV.pdf



LEGEND

Total distribution of birds in the Latvian marine waters

- Very high density of birds, PNV
- High density of birds in autumn
- High density of birds in summer
- High density of birds during migration and in winter (GORWIND and MARMONI data)
- Density of birds relatively low, mainly seagulls
- Insufficient data

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 Data sources:
 Latvian Ornithological Society
 Ministry of Environmental Protection and Regional Development

Additional information

- Ports
- Main road
- Railway
- EEZ border and state border on land
- Latvia-Lithuania maritime border treaty is not in force
- Territorial sea border
- Latvia-Lithuania maritime border treaty is not in force
- Land

Figure 25. Distribution of birds in the sea waters of Latvia (Little gull *Larus minutus*; Black guillemot *Cephus grille*; Black and dark scoters *Melanitta spp.*; Long-tailed duck *Clangula hyemalis*; Loons *Gavia spp.*; Common goldeneye *Bucephala clangula*; Goosander *Mergus merganser*)

Three species of seal can be found in the Baltic Sea – the grey seal (*Halichoerus grypus*), the ringed seal (*Phoca hispida*) and the common seal (*Phoca vitulina*). In the sea waters of Latvia, the grey seal is seen more frequently, the ringed seal less frequently (See Figure 26). The common seal has been sighted on the coast of Latvia only a few times. The population of ringed seals is not in a good state, as their occurrence is much rarer compared to the times when human activity had less of an impact (100 years ago). The grey seal population is in good condition because of favourable feeding conditions.

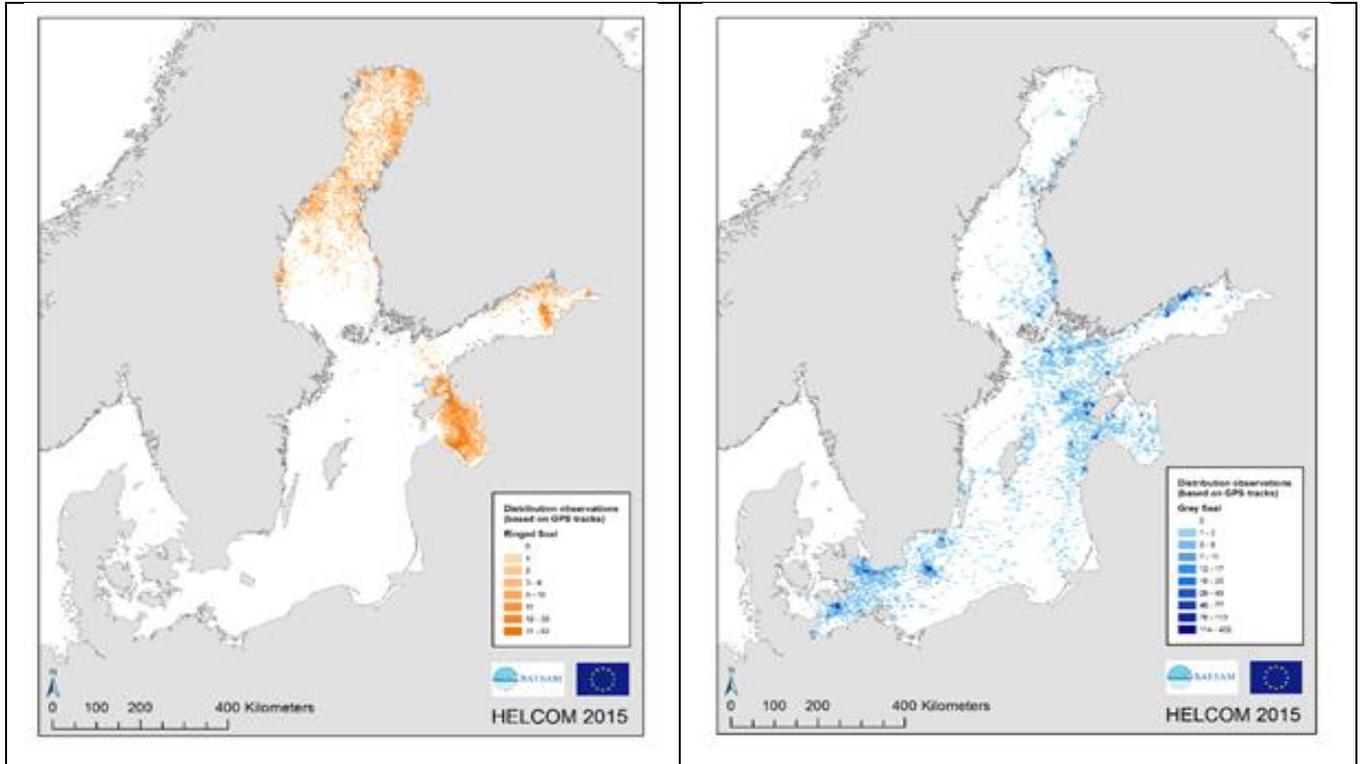


Figure 26. Spatial distribution of seals: left image – ringed seal; right – grey seal¹²⁹

Similarly to specially protected biotopes, including specially protected species identified in the Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, a report shall be drawn up in accordance with Article 17 every six years. The reporting applies to salmon (*Salmo salar*), freshwater whitefish (*Coregonus lavaretus*), brook lamprey (*Lampetra planieri*), river lamprey (*Lampetra fluviatilis*). These are species that live and feed mainly at sea, but when spawning go to freshwater water bodies (rivers and lakes).

The assessment provided in the report submitted to the EU by Latvia¹³⁰ with regard to freshwater whitefish and salmon is that its conservation status is unfavourable-poor, and this situation is unchanging. The status of river lamprey is evaluated as unfavourable, but with a tendency to improve. The population of brook lamprey has been assessed as having a favourable status.

One of the most serious hazards, the effects of which have not yet been sufficiently studied are invasive species. In the Baltic Sea, the round goby whose native habitat is the Black Sea and the Caspian Sea is rapidly spreading degrading the quality and functionality of reefs (biotope 1170 Reefs), by intensively feeding on the molluscs present there. In the aforementioned report regarding the state of the biotope it is noted that one of the reasons for a poor assessment is due to the distribution of the round goby and its impact on the mollusc population. There is a lack of research on the significant adverse effects of other species.

¹²⁹ HELCOM seal database, Distribution data (2015), data available: <http://www.helcom.fi/baltic-sea-trends/data-maps/biodiversity/seals>

¹³⁰ Summary of report: <https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp>

Areas significant to the lifecycle of fish

There are currently no specific areas created for the recovery of fish stocks at EU level in Latvia. The marine territory between the deepwater section of the Baltic Sea in the central part and the coastal belt, is considered to be an important site for cod and flounder stocks, where the spawning of these species takes place in favourable hydrological conditions. A sensitive and important site in Latvia for fish stocks is considered to be the coastal belt until the 10 m isobaths (see Figure 27) providing spawning ground for herring, turbot and flounder. In accordance with the national laws and regulations, trawling is prohibited in the coastal zone up to 20 m, and other fishing restrictions are determined in order to protect certain fish populations, their nursery grounds and significant habitats.

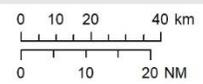
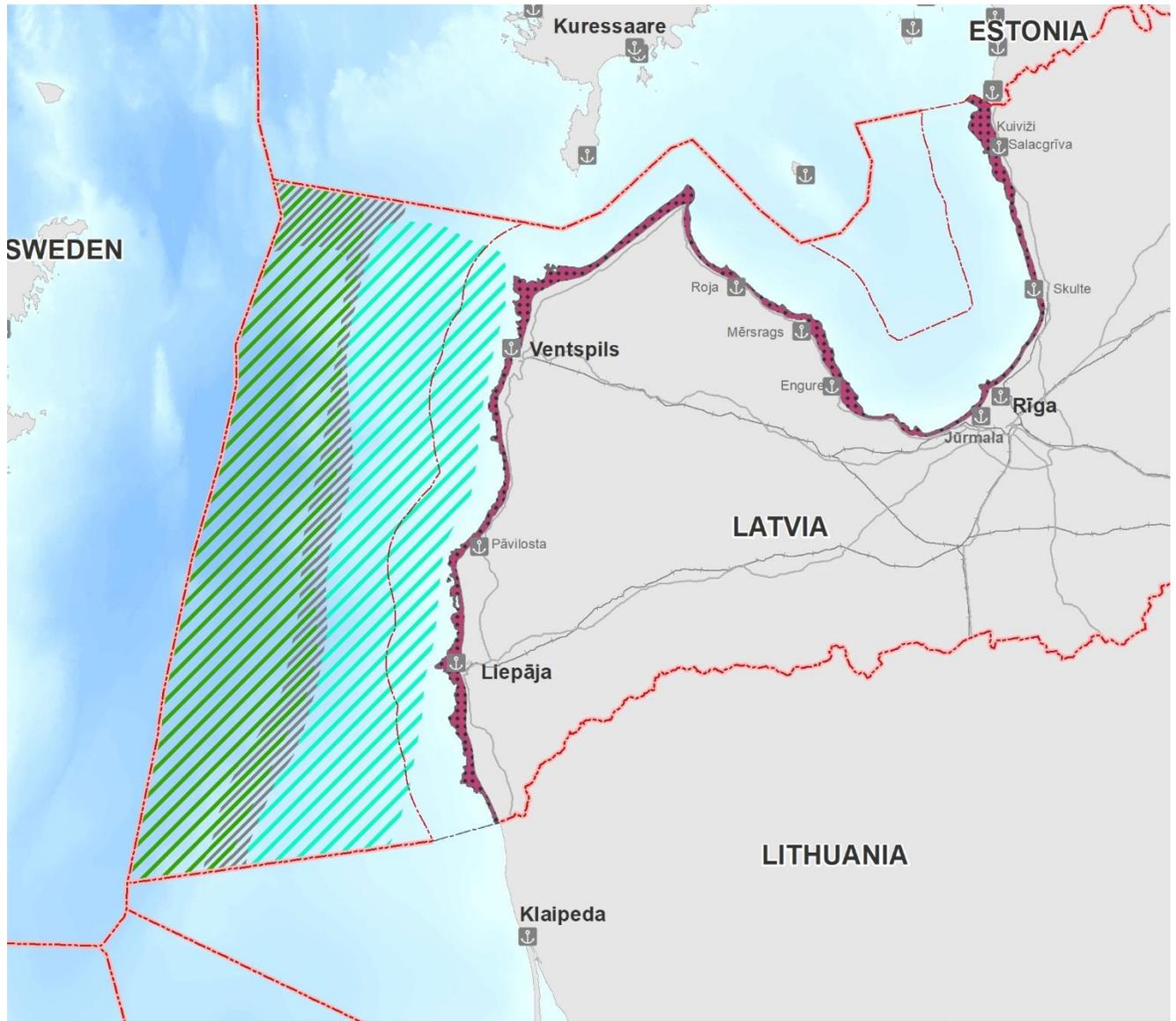
The entire coastal zone of the Baltic Sea and Gulf of Riga has significant nursery grounds for many species of fish. The coast of the Gulf of Riga is the most significant nursery area for herring, and the high sea area is the most significant nursery area for flounder and turbot.

BIOR studies have shown a significant impact on zoobenthos organisms, particularly the northern common mussel (*Mytilus* spp.). In areas where there is a high concentration of round goby, their feed consumption may exceed the production of northern common mussels, leading to a long-term decline in the biomass of molluscs. The northern common mussel is a significant component of the Baltic Sea's ecosystem. They filter water and feed on phytoplankton and micro-organisms contained therein. Declining numbers of northern common mussels may lead to increased eutrophication and a decrease in water quality.¹³¹ Consequently, the round goby may negatively impact upon the populations and spawning of other fish species. Since coastal areas, due to their high productivity and diversity of biotopes, are important habitats for many fish species and their young, it is possible that the round goby may compete with local species by consuming a significant proportion of the feed resources available on the coast and, as a result, have a significant impact on the functioning of the coastal ecosystem. Studies carried out previously concluded that due to the infestation of the round goby, the ecology of feeding of the flatfish young on the coast of Latvia has changed and competition for feed resources has increased.¹³² However, the round goby may have a positive impact on the populations of certain predatory fish species, for example, it is an important source of feed for cod, turbot and perch in the Baltic Sea.¹³³

131 Source of information: website of the Scientific Institute for Food Safety, Animal Health and the Environment "Bior" <https://www.bior.lv/lv/par-mums/jaunumi/zinatniska-instituta-bior-petnieki-piedalas-valsts-petijumu-programmas-latvijas-ekosistemu-vertiba-un-tas-dinamika-klimata-ietekme-evident-zinatniskaja-konference>

132 Putnis I., Briekmane L., Jermakovs V., Knospiņa E., Krūze Ē., Strāķe S., Ustups D.. 2016. Impacts of the round goby on the coastal ecosystem of the Baltic Sea. Riga: 75th Scientific Conference of the University of Latvia. Research and protection of the Latvian aquatic environment. Collection of articles pgs. 41-47 https://www.bior.lv/sites/default/files/publikacijas/M_42_LU_75_konf_Hidrobiologijas_sekcija.pdf

133 Almqvist, G., Strandmark, A.K. & Appelberg, M. 2010. Has the invasive round goby caused new links in Baltic food webs? *Environmental Biology of Fishes*. 2010, Volume 89, Issue 1, pp 79–93 <https://doi.org/10.1007/s10641-010-9692-z>



LEGEND

Spawning areas

-  Cod
-  Flounder
-  Herring, flounder, turbot

Nursery areas

-  Cod
-  Herring, flounder, turbot

Additional information

-  Ports
-  Main road
-  Railway
-  EEZ border and state border on land
-  Latvia-Lithuania maritime border treaty is not in force
-  Territorial sea border
-  Latvia-Lithuania maritime border treaty is not in force
-  Land

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 Data sources:
 Institute of Food safety, Animal Health and Environment "BIOR"
 Latvian Institute of Aquatic Ecology,
 Ministry of Environmental Protection and Regional Development

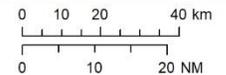
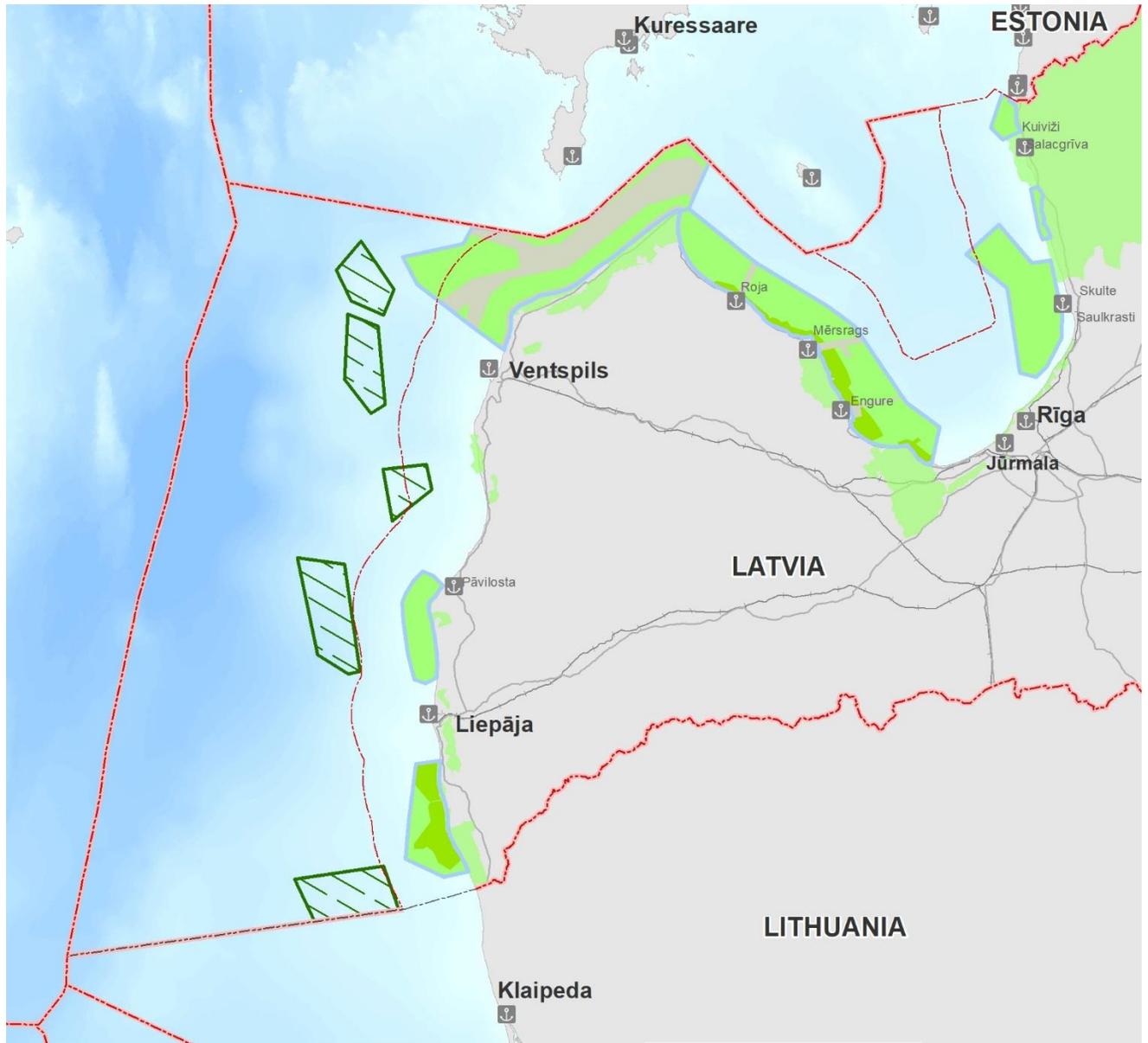
Figure 27. Schematic representation of fish spawning and nursery areas in Latvian marine waters

CM Regulation No. 17 of 5 January 2010 „Regulations on Protected Sea Territories” created seven MPAs (see Table 2 and Figure 28). Individual rules for protection and utilisation have been adopted for the three territories. MPAs currently account for 15% of the marine waters under the management of Latvia and are mostly situated in the TS of Latvia.

Table 2. Marine Protected Areas

	Name of MPA and CM Regulation	Area occupied (ha)	Zoning	Rules for utilisation
1.	MPA "Nida-Pērkone" (CM Regulation No. 652 of 23.08.2011)	36 703	Nature reserve area	In a nature reserve zone it is prohibited to: <ul style="list-style-type: none"> - perform activities that cause mechanical damage to a specially protected biotope – a rocky seabed – including the installation of a WPP and extraction of mineral resources; - install new disposal sites; - perform industrial extraction of algae and mussels.
			Neutral area	The area is designed to ensure the sustainable economic performance of coastal populated areas and the development of tourism infrastructure.
			Throughout the area	It is prohibited to use shells containing lead in the hunting of water birds.
2.	The West Coast of the Gulf of Riga (CM Regulation No.653 of 23.08.2011)	132 173	Nature reserve area	In a nature reserve area it is prohibited to: <ul style="list-style-type: none"> - perform activities that cause mechanical damage to a specially protected biotope – a rocky seabed – including the installation of a WPP and extraction of mineral resources; - install new disposal sites; - perform industrial extraction of algae and mussels.
			Neutral area	The area is designed to ensure the sustainable development of the area, the functioning of the ports and the necessary infrastructure, as well as to ensure the economic activity of coastal populated areas and the development of tourism infrastructure.

	Name of MPA and CM Regulation	Area occupied (ha)	Zoning	Rules for utilisation
			A site for water birds, feeding and gathering important to birds during summer.	From 1st June to 15th August it is prohibited to travel by motorboats, engage in kiteboarding or water skiing.
3.	Irbe Strait (CM Regulation No.807 of 19 October 2011)	172 412	Neutral area	In order to ensure shipping traffic, as well as coastal sustainable economic development and development of tourism infrastructure
			Throughout the area	It is prohibited to install WPPs, use shells containing lead in the hunting of water birds.
4.	Akmeņrags	25 878	Not defined	Conditions in accordance with the Law On Specially Protected Nature Territories and CM Regulation No. 17 of 5 January 2010 Regulations Regarding Protected Sea Territories
5.	Selga to the west of Tūja	58 600	Not defined	
6.	Vitrupe - Tūja	3 577	Not defined	
7.	Ainaži - Salacgrīva	7 239	Not defined	



LEGEND

Investigation areas of nature values and protected areas

- Investigation area of nature values
- Marine protected area (MPA)
- MPA nature reserve zone
- MPA neutral zone
- Specially protected natural area in coastal area

© 2019, Ministry of Environmental Protection and Regional Development
 Data sources:
 Latvian Institute of Aquatic Ecology
 Nature Conservation Agency
 Ministry of Environmental Protection and Regional Development

Additional information

- Port
- Main Road
- Railway
- Border of exclusive economic zone and state (on land)
The Maritime border agreement of Latvia-Lithuania is not in force
- Border of territorial sea
The Maritime border agreement of Latvia-Lithuania is not in force
- Land

Figure 28. Protected nature areas and potential investigation areas of nature values

Reflection of the biological diversity in the MSP

Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora prescribes that MPA shall be created for specially protected biotopes or species. In the case of Latvia an MPA has been created for biotope 1170 Reefs and for several of the bird species listed in the Annex to the Directive. All created MPAs are located in the territorial waters of Latvia and only one small part of the Irbe Strait's territory is located in the EEZ waters. By gaining new knowledge of the deeper layers of the Baltic Sea, it is understood that their role in improving the environmental status of the Baltic Sea is much more important than it was previously considered. The MSP does not change the conditions of use and regulations in respect of the requirements for the protection of bird species. Therefore, the MSP specifies the **investigation areas of nature values** (biological diversity research areas) in the EEZ of Latvia, in order to determine the existing natural values in these areas. The MSP does not change the conditions of use and regulations in respect of the requirements for the protection of biotopes and bird species. The information compiled in the MSP regarding the distribution of biotopes and species shall be taken into account when taking decisions regarding new uses of the sea.

3.12. Cultural historical heritage

Political framework

The general framework of the EU for the conservation of cultural and historical heritage is prescribed by the Framework Convention of the Council of Europe on the Value of Cultural Heritage for Society¹³⁴. The main cultural policy document in Latvia is the Culture Policy Guidelines for 2014-2020 „Creative Latvia”¹³⁵, where the sea use is associated with the task of “ensuring the preservation and transfer of tangible and intangible cultural heritage”.

Currently known cultural heritage underwater and associated with the sea

Cultural and historical evidence of the Baltic Sea¹³⁶ reflects the development of both population and cultural contacts from the Stone Age to the 20th century, moreover, the cultural and historical evidence of the TS of various countries is very diverse, both in terms of the volume identified and in terms of its functional nature. On the coast, traditional fishery tangible and intangible heritage is also closely linked to the sea, Ainazi Marine School and the lighthouse, of which part is also included in the List of State Protected Cultural Heritage as industrial heritage.

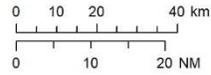
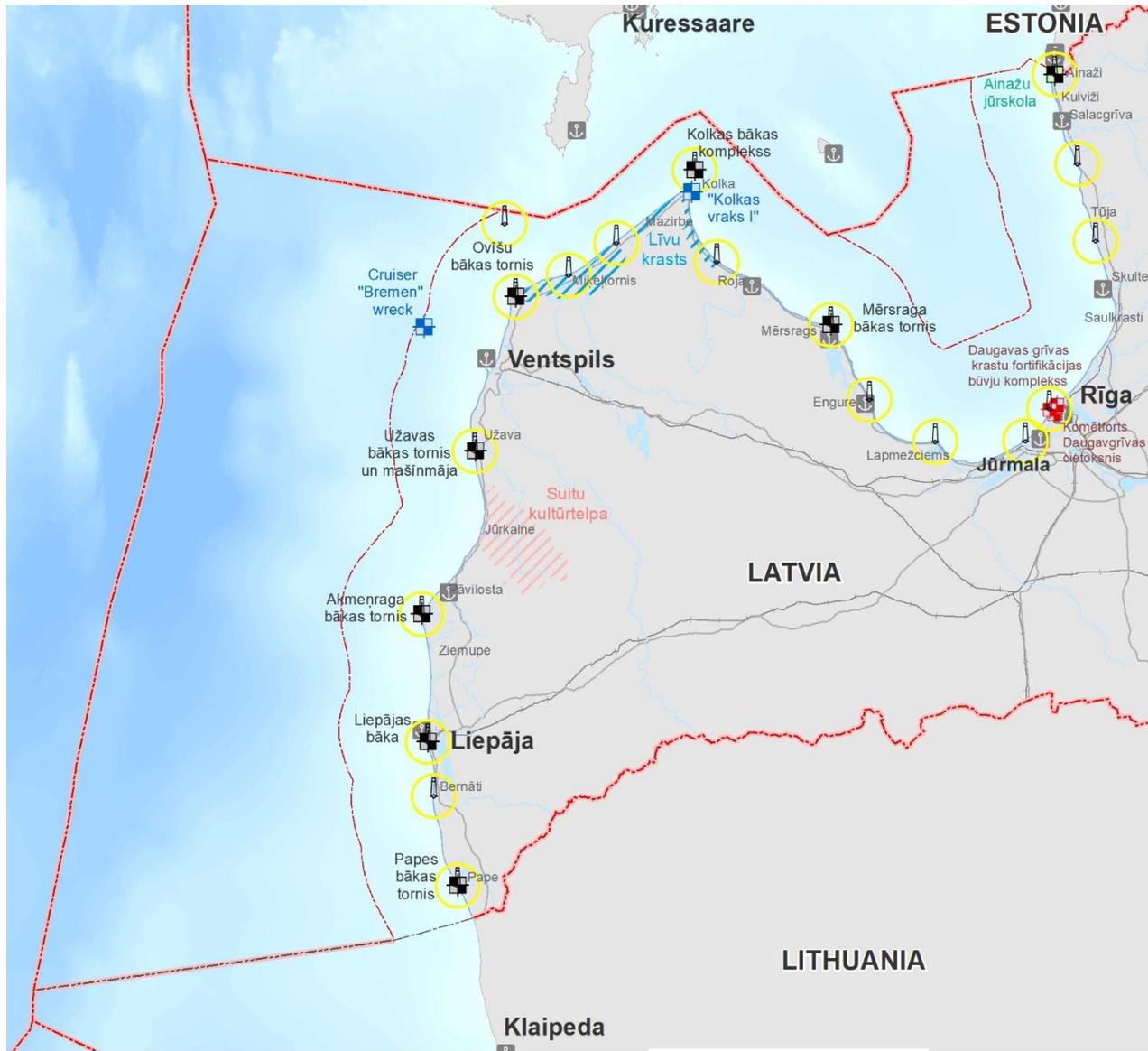
The underwater cultural heritage in Latvia has not yet been sufficiently identified or extensively studied, with more focus being placed on the cultural and historical evidence of inland waters. On 6 August 2012 the first wreck – „Kolka wreck I” – was entered into the List of State Protected Cultural Heritage – an archaeological monument of national significance (State protection No. 8874), a shipwreck in the Gulf of Riga opposite the Evangelical Church of Kolka. In addition, approximately 20 km from the shore in a northwesterly direction from Ventspils is the “Bremen” wreck, which on 30 August 2016 was included in the List of State Protected Cultural Heritage (State protection No. 9176). State protected cultural heritage monuments closely associated with the sea¹³⁷ are reflected in Figure 29.

134 General Convention of the Council of Europe on the value of cultural heritage for society: <https://likumi.lv/doc.php?id=130436>

135 Cultural Policy Guidelines 2014-2020 Creative Latvia available: <https://likumi.lv/doc.php?id=267970>

136 For more information on cultural and historical heritage on the coast, see the Coastal Planning Work Materials on the MOEPRD website. (http://www.varam.gov.lv/lat/darbibas_veidi/tap/lv/?doc=22027), as well as the NCHB website (t.sk. <http://mantojums.lv/lv/piemineklu-saraksts/> un <http://mantojums.lv/lv/jaunumi/solis-jurniecibas-mantojuma-apzinasana-kolkas-baka/>)

137 Excluding State protected fishery heritage (fishermen homesteads, fishing village structures etc.)



LEGEND

Lighthouses



Sea-related cultural monuments on the coast and at sea

- Lighthouse
- Military structures
- Ainaži marine school
- Wreck, cultural monument at sea

Sea-related intangible culture heritage

- Livonian coast (Līvu krasts)
- Suitu cultural space

Additional information

- Ports
- Main road
- Railway
- EEZ border and state border on land
Latvia-Lithuania maritime border treaty is not in force
- Territorial sea border
Latvia-Lithuania maritime border treaty is not in force
- Land
- Water courses and water bodies

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 Data sources:
 National Culture Heritage Board
 Maritime Administration of Latvia
 Ministry of Environmental Protection and Regional Development

Figure 29. Cultural historical heritage associated with the sea

Cultural heritage in the MSP

An important task within the MSP is to preserve the existing underwater cultural historical heritage values (incl. wrecks). When performing research on a new use of the sea or construction, the cultural historical heritage values at sea shall be identified and activities planned so that there is no adverse impact on them.

3.13. Landscape values

Political framework

The EU landscape policy is determined in the European landscape convention, whose aim is to promote the protection, management and planning of landscapes, as well as to organise cooperation on landscape issues in Europe¹³⁸. The aim of the landscape policy of Latvia is **multifunctional and qualitative landscapes**, which improve the quality of life for people throughout Latvia, promote the economic activity and visibility of places, regions and the State, as well as ensuring biological diversity.¹³⁹ Moreover, the priority task is to see both natural and cultural heritage in a unified way. Within the MSP the underwater landscapes and coastal landscapes are examined.

Underwater landscapes

The types of Baltic Sea underwater landscapes in Latvia are defined taking into account the geographical parameters; the topographical parameters of the seabed; the physicochemical parameters in the benthic sea landscape (see Figure 30). The classification has not incorporated pelagic sea landscapes. Spatially, in Latvia aphotic landscapes dominate Latvia – territories where the light no longer penetrates and which have mud in their sedimentary composition.



Figure 30. Examples of Latvia's underwater landscapes. Reefs with bladderwrack *Fucus vesiculosus* groves (Photo - D.Daunys); a cluster formed by marine molluscs (Photo – J. Aigars); reefs with red algae groves (Photo – J. Aigars)¹⁴⁰

138 On 20 October 2000, the Council of Europe adopted the European Landscape Convention. Available: <https://m.likumi.lv/doc.php?id=220778>

139 Landscape Policy Guidelines 2013.-2019. Available on MoEPRD website: http://www.varam.gov.lv/lat/darbibas_veidi/tap/ain_pol/?doc=12902

140 LHEI (2012). Initial assessment of the state of the marine environment of Latvia. Available on MoEPRD website: http://www.varam.gov.lv/lat/publ/publikacijas/vides_aizsardzibas_joma/?doc=16468

Coastal landscapes

In Latvia, forest landscapes dominate a 10 km-wide coastal belt, which forms approximately 63,6 % of the coastal territory. Forests of coniferous trees (40% of forest land) and mixed coniferous and leafy forests (39% of forest land) comprise most of Latvia's coastal forest landscape.¹⁴¹

Latvia's beach landscape is diverse and relatively natural, with a great deal of protected marine and sub-saline grassland biotopes of EU importance. At the same time, the beach landscape has a high cultural and historical value (see Figure 31).

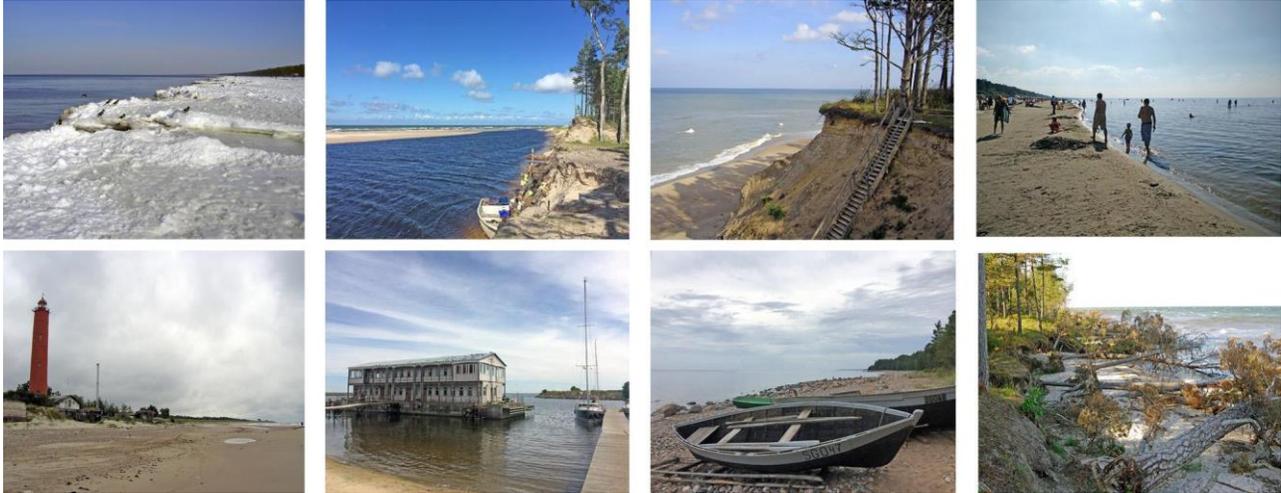


Figure 31. Diversity of the Latvian coastal landscape (Photo – M. Vološina)

Population surveys show that coastal residents and tourists place high value on the sea landscape to the horizon and the placement of vertical objects in this area is considered undesirable.¹⁴²

Landscape values in the MSP

The MSP does not regulate landscape protection, management or planning but the MSP takes into account landscape values in specific sectors. The identification of the potential values of underwater landscapes should be linked to further biodiversity research in a number of marine areas. The identification of the values of potential underwater landscapes should be linked to further biodiversity research in a number of marine areas. In turn, in order to define the values of coastal landscapes and the potential impacts of different uses of the sea (mainly offshore installations and their visibility from the coast), detailed landscape studies should be carried out at the level of coastal municipalities.

3.14. Climate changes

Political framework

The United Nations Framework Convention on Climate Change (hereinafter – UNFCCC), its Kyoto protocol and the Paris Agreement are binding to Latvia.¹⁴³

With the European Council conclusions of 8-9 March 2007, EU Member States committed to reducing GHG emissions by 20%, compared to 1990. The 2030 Climate and Energy Policy Framework aims to further reduce this by at least 40% in 2030, compared to 1990. On 28 November 2018, the European Commission published a

141 Weideman, K. (2013). Changes in Latvia's coastal landscape at the turn of the 20 th-21 st century and modern challenges. Promotion work. Riga: University of Latvia, 2013. 179 pgs.

142 More information: results of the sociological survey of the Gorwind project <http://www.modlab.lv/lv/gorwind/Policy2012-IJ.pdf> un Veidemane, K. (2013). Changes in Latvia's coastal landscape at the turn of the 20 th-21 st century and modern challenges. Promotion work.

143 UNFCCC, The Kyoto Protocol and the Paris Agreement are available at: <https://likumi.lv>

communication entitled “A Clean Planet for all - A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy” (strategy), outlines the European Commission's vision for a climate neutral Europe by 2050. The strategy aims to demonstrate Europe's leading role in tackling climate change and to reflect the vision of the EU achieving GHG neutrality (net-zero GHG emissions) in a socially equitable and cost-effective way by 2050. In 2019, extensive discussions and political debates on the long-term development of the EU by 2050 have already taken place on the basis of a proposal from the European Commission. As a result, by 2020, the EU intends to endorse and present the EU carbon-intensive development strategy by 2050 to the Secretariat of the United Nations Framework Convention on Climate Change, in line with the Paris Agreement.

Maritime transport currently accounts for ~ 2,5% of all GHG emissions from human activity. In the absence of any additional measures to reduce GHG emissions, a significant increase in these GHG emissions (50-250% by 2050) is expected, EU Member States are actively involved in reducing GHG emissions from maritime transport in line with the approach developed by the IMO.

The European Commission's 2011 Transport White Paper states that the EU must reduce CO₂ emissions from maritime transport by at least 40% from 2005 levels by 2050 and, if possible, by 50%.

On 28 June 2013, the European Commission circulated a communication „Integrating maritime transport emissions in the EU's greenhouse gas reduction policies”. Monitoring, reporting and verification of CO₂ emissions from large ships using EU ports has commenced in accordance with this strategic document. This obligation has been imposed with Regulation (EU) 2015/757 of the European Parliament and of the Council of 29 April 2015 on the monitoring, reporting and verification of carbon dioxide emissions from maritime transport, and amending Directive 2009/16/EC (in Latvia this Regulation is transposed with CM Regulation No. 430 of 17 July 2018 „Procedure by Which a Report Regarding Carbon Dioxide Emissions from Maritime Transport shall be Prepared, Verified and Submitted”).

Furthermore, international energy efficiency standards are being implemented for the production of new vessels, such as the EEDI - *The Energy Efficiency Design Index*, and the SEEMP - *The Ship Energy Efficiency Management Plan*, concerning the reduction of GHG emissions in the operation of existing vessels, e.g. by more frequent cleaning of propellers, recovery of heat from ventilation systems, etc..

The EU GHG reduction target is divided into two parts: the activities incorporated into the EU Emissions Trading System (hereinafter – EU ETS) and the activities not incorporated in EU ETS (hereinafter – non-ETS).

The Effort Sharing Decision¹⁴⁴ requires that it is necessary for Latvia to ensure a reduction in non-ETS activity GHG emissions to at least a reduction of 6% in the period from 2021 to 2030, compared with the volume of Latvia's non-ETS activity GHG emissions in 2005.

In turn, the EU Climate Change Adaptation Strategy¹⁴⁵ aims to increase the climate resilience of EU territory, at all levels of public administration, by improving preparedness and ability to respond to the impacts of climate change.

Latvia's climate change policy is set out in the Environmental Policy Guidelines for 2014-2020, which set out the following climate policy objectives:

- 1) to ensure Latvia's contribution to global climate change reduction, taking into account Latvia's environmental, social and economic interests;
- 2) to promote Latvia's readiness to adapt to climate change and the impact it causes.

144 Regulation available: <https://eur-lex.europa.eu/legal-content/LV/TXT/HTML/?uri=CELEX:32018R0842&from=EN>

145 Strategy available: <http://eur-lex.europa.eu/legal-content/LV/TXT/?uri=CELEX:52013DC0216>

The Environmental Policy Guidelines for 2014-2020 also set specific targets for the period up to 2020, which should be achieved by Latvia, i.e.:

- restricted or stabilised total national GHG emissions, in 2020 – 12,16 Mt CO₂ equivalents;
- ensuring the objective of CO₂ capture in the forestry sector.¹⁴⁶

In order for Latvia's climate change policy to happen in the period following 2020, in parallel with the MSP, three policy planning documents in the climate field are being developed - Strategy for the low-carbon development of Latvia by 2050, Latvia's Adaptation to climate change plan for 2030, and Latvia's National energy and climate plan 2021-2030.

Trends in impacts of climate change and potential risks

Climate change is already affecting and will continue to affect the following parameters and processes:

- increase in average air temperature,
- decrease in the duration of an ice cover,
- increase in days of rain and total rainfall
- decrease in salinity of water,
- increase in water levels and increased coastal erosion.

During the period 1961-2010, steady increases in air temperature have been observed in Latvia as a result of the current climate change, expressed in both average and minimum air temperature values and maximum values. The average annual minimum air temperature has increased in Latvia by 1.9 °C over the past 50 years, while peak air temperature values have increased by an average of 0.7 °C.¹⁴⁷

2018 in Latvia was the driest year in observation history, and together with 2000 and 2008 became the 3rd warmest with an average air temperature of +7.6°C (1.9°C above normal for the period 1961-1990).

Regardless of the climate change mitigation measures introduced, the average annual air temperature will continue to rise in Latvia and will be 1.5-2.5 °C higher between 2011-2040 than between 1971-2000.¹⁴⁸

During the period 1901-2015, the sea level has risen globally by an average of 13-20 cm, i.e. an average of 1.2-1.7 mm/year, varied over decades. Globally, the average sea level rose most in 2016 (3.4 mm/year).¹⁴⁹ Future forecasts for sea-level changes are with relatively high uncertainty.

In recent decades, the wind rate in Latvia has generally decreased, the number of days with no wind has increased, and the number of windy days has decreased. Projections of climate models show similar trends in the future. At Ainazi and Riga meteorological observation stations, the maximum wind gusts nowadays are 0.8-1.1 m/s stronger than during the reference period. Analysis of trends for permanent changes dismisses the presence of significant changes in the magnitude of peak wind gusts in the largest part of the country, however, it confirms that there is a significant to very significant reduction in the magnitude of the maximum wind gusts in the most extreme southern areas of the country – in Liepaja, Bauska and Daugavpils. In turn, a significant increase in wind gusts has been observed at Ainazi and Riga surveillance stations, which could be linked to changes in storm pathways over the period reviewed.¹⁵⁰

146 The reference level for forest management for the period 2013-2020 -16 302 ktCO₂ on the basis of point 2/CMP .7 15 of the Decision approved by the Conference of the Parties, but will be recalculated in the framework of technical adjustments after 2020, so its final value will change

147 Climate Change Scenarios for Latvia Summary of Report, VSIA "Latvian Environment, Geology and Meteorology Centre", 2017. Available at: <http://www2.meteo.lv/klimatariks/kopsavilkums.pdf>

148 The "Climate Change Scenarios for Latvia" report, 2017. LEGMC, available: <http://www2.meteo.lv/klimatariks/zinojums.pdf>

149 Willis, J. K., Kemp, A., Strauss, B.H. (2018) Sea level Rise, Ocean Portal. Available: <https://ocean.si.edu/through-time/ancient-seas/sea-level-rise>

150 Report "Climate Change Scenarios for Latvia", 2017 LEGMC, available at: <http://www2.meteo.lv/klimatariks/zinojums.pdf>

According to the findings of the concluding report of the State research programme “KALME”¹⁵¹ it is expected that the total annual rainfall will increase in Latvia's territory and thus the leakage of nutrient elements in the Baltic Sea catchment area will increase in Latvia, depending on the scenario adopted to determine the forecast. The latest data available shows that the average rainfall will grow by 13-16%.¹⁵² Consequently, in the long term more nutrients will enter the sea and eutrophication is expected to rise.

Climate changes, especially temperature increases and changes in nutrient intake, may affect changes and increases in the composition of microscopic algae and phytoplankton species. The summer period with no wind, and a warm, surface layer of water is encountered earlier, in 2018 already in May, and lasts longer, until late September, early October. Such weather conditions are particularly favourable for the development of potentially toxic blue-green algae (cyanobacteria).

Cyanobacterias are capable of detecting atmospheric oxygen which may affect the nitrogen-phosphorus compound ratio in sea water. Toxins released by them, or products of cellular metabolism, can cause a variety of skin diseases, damage to the organism's internal organs and are particularly harmful to small children, sensitive, allergic people, domestic animals and aquatic organisms.

Climate change has an impact on the physical, chemical and biological properties of the Baltic Sea. Calculations performed by Finnish Environment Institute project “Maritime spatial planning in a changing climate” (MARISPLAN)¹⁵³ show that in the next 50 – 100 years, the surface temperature of the sea will fall by 1 – 4°C, salinity will also decrease, and the ice-covered areas will decrease. Increasing levels of marine-soluble carbon dioxide (CO₂) will contribute to marine acidification. There will be other conditions for aquaculture production, fisheries, maritime traffic, buildings, recreation and energy production. All these changes will bring huge changes to the geographical distribution of plant and animal species and communities.

Climate change also undeniably affects the spread of invasive species, or alien species, i.e. their movement from their natural territory to new distribution areas, which can happen in a natural way, both by species migrating and adapting and which is enhanced by climate change, and by human activity, when a deliberate introduction or transport of species has been carried out. Many of the alien species currently identified were imported, for example, together with ship ballast waters, and the risk of importing new species with ballast waters and sediments has decreased significantly, but not excluded following Latvia's accession to the 2004 International Convention for the Control and Management of Ships' Ballast Water and Sediments (Ballast Water Management Conventions).¹⁵⁴ However, it is possible that individual species may enter the Baltic Sea by way of the marine organisms that grow in clusters on the hull of vessels.

The period of frost in the winter period has fallen, as a result of which the beach does not freeze and an increase in the erosion process and abrasion of bluffs is expected.

In order to provide theoretical and practical support to coastal municipalities and land owners in decision-making, spatial management and development planning and to minimise the impact of the erosion of the sea coast along the Baltic Sea and the Gulf of Riga, guidelines have been developed to mitigate the effects of coastal erosion.¹⁵⁵ As part of the guidelines, the coastal sections with a higher and lower probability of erosion have been identified,

151 Andrušaitis, Kļaviņš 2010 final report on the State research programme “Impact of climate change on Latvian aquatic environment” Part I, p. 121, available: https://www.daba.gov.lv/upload/File/Publikacijas/ZIN_P_Klimats_H2O.pdf

152 Avotniece Z., Aņiskeviča S., Maļinovskis E. (2017) Climate change scenarios for Latvia. Summary of the report, VSIA “Latvian Environment, Geology and Meteorology Centre”. Available: <http://www2.meteo.lv/klimatariks/kopsavilkums.pdf>

153 The project studies use the IPCC Report 4 information (where there are different scenarios for hydrometeorological conditions compared to Report 5). Project Details “Marine Spatial Planning in a Changing Climate” (MARISPLAN), available: <http://www.syke.fi/projects/marisplan>

154 Ballast Water Management Convention available: <https://m.likumi.lv/doc.php?id=300135>

155 Guidelines to mitigate the effects of coastal erosion, 2014, available at: http://www.kurzemesregions.lv/projekti/Igaunijas_Latvijas_parrobezu_sadarbibas_programma/Piekrastes_un_juras_planosana_Pernavas_licu_Igaunija_un_Latvijas_piekrastes_pasvaldibas

Climate changes in the MSP

Although there is currently insufficient information on the distribution of habitats and marine species and the impact of climate change on them, changes in biogeochemical processes can also lead to changes in habitats and the food chain. Climate change by 2030 in general could have a relatively small but negative impact as the impacts of the change will result in a reduction in the stability of the marine ecosystem, as well as potential changes in the distribution of species and habitats, which may necessitate a reassessment of the existing and planned network of marine protected areas. Furthermore, in order to minimise the risks of coastal erosion when planning construction in coastal waters, the potential impact of the structures on coastal processes and also the impact of coastal processes (erosion) on the construction need to be assessed. In order to minimise the impact of the shipping sector on the climate, the reduction of GHG emissions from the operation of vessels should be encouraged, promoting the use of more energy-efficient vessels for example, by offering privileges (price tools, etc.) to such vessels at berths, as well as promoting the use of environmentally friendly energy resources in ports, for example, by setting up stationary electrical connections at port berths, thereby enabling vessels to use electricity in ports.

3.15. Ecosystem services

Political frameworks

The aim of the EU Biodiversity Strategy¹⁵⁷ is to stop the loss of biodiversity and ecosystem services. The EU Strategy on Green Infrastructure,¹⁵⁸ is closely linked with the strategy and preservation of ecosystem services and the preservation and research of ecosystems and provides support for green infrastructure projects (including the protection of biologically valuable areas at sea).

Use of ecosystem services in maritime planning

Multisectoral planning and management practices show that the pressure on the functioning of the ecosystem is increasing and more diverse, than planning activities for only one sector. Each planning sector, including the ecosystem as an environmental sector, provides a variety of services and requires new methods and a good coverage of marine environmental and biological data to be identified and evaluated.

In the maritime spatial planning perspective, it is necessary to apply a concept that would assess both the impact of new economic activities or measures on the marine ecosystem and the quality of the environment in general, while at the same, the use of ecosystem values to ensure human wellbeing. At present, the evaluation of ecosystem services has been introduced as an ecosystem approach in the maritime spatial planning process to facilitate the analysis of diverse uses, impacts and conflicts and compromises.

Evaluating ecosystem services helps to overcome the conceptual divide between natural and social sciences by bringing together the relationship between the state of the ecosystem and human wellbeing and activities in a single framework. This concept of ecosystem services is particularly important at a time when there is a tendency to ignore social welfare changes in decision-making, which are not directly quantifiable by market measures, at the same time relying solely on well-functioning ecosystems. This concept is the first attempt to assess ecosystem services in Latvian marine waters and due to insufficient data and information, based mainly on a theoretical (expert knowledge) assessment of the ecosystem potential.

157 Information on EU Biodiversity Strategy until 2020 is available at: http://ec.europa.eu/environment/nature/biodiversity/strategy/index_en.htm

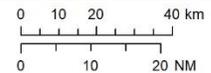
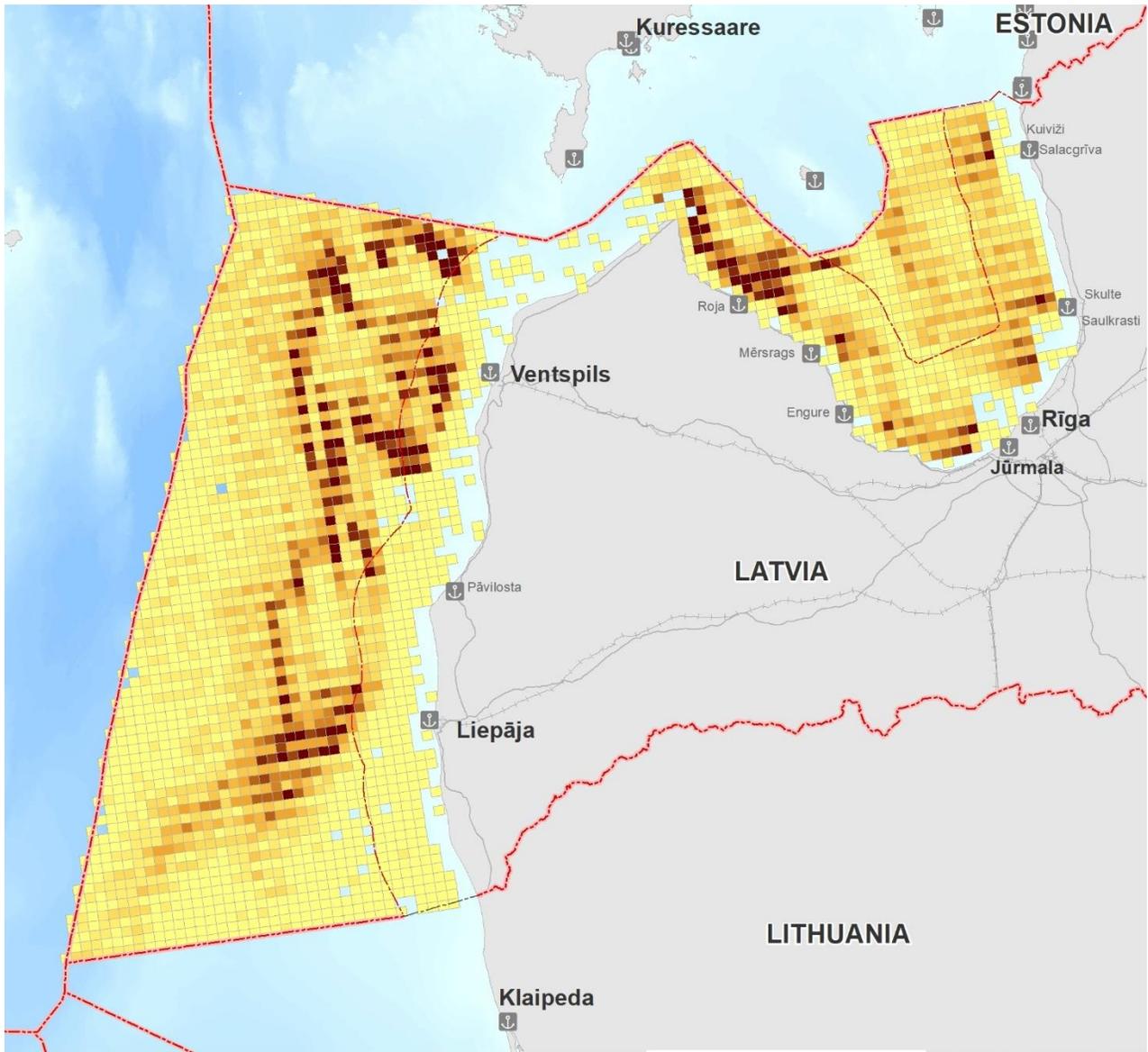
158 Information on Green Infrastructure strategy available at: http://ec.europa.eu/environment/nature/ecosystems/strategy/index_en.htm, the strategy, Communication “Green Infrastructure (GI) — Enhancing Europe’s Natural Capital”, is available: <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52013DC0249&from=EN>

Evaluation of ecosystem services

The nature of ecosystem services is based on the common international classification of ecosystem services CICES v4.3 (2013) recommended by the EC MAES working group, thus ensuring the international comparability of results and consistency with the EU's ongoing process for mapping ecosystem services through the implementation of Objective 5 of the EU Biological Diversity Strategy 2020. CICE is a hierarchically formed classification system that categorises ecosystem services into three main categories: supply services, environmental services and cultural services (support services, or ecosystem functions, are not included in this classification system because human society benefits from them, not directly, but through other types of services).

According to the CICE classification, supply services include raw materials provided by the ecosystem for human food and livestock feed, various raw materials, as well as energy resources. In the context of MSP, the identified **supply service**, which is currently being used for commercial and measurable quantities, is fish for food consumption. Algae could also be used in small quantities as a fertiliser in agriculture, but there are no reliable observations or records available. In order to present the service - fish for food consumption (see Figure 33), - BIOR data on total catches of commercially significant fish species (sprat, herring, cod and flounder) over a 10-year period (2004-2013) has been used.

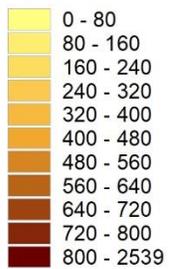
In accordance with the requirements of the Marine Strategy Framework Directive (2008/56/EC) and Marine Environment Protection and Management Law, economic and social analysis (project, 2018) is carried out in the development of an assessment of the state of the marine environment (marine assessment), containing an economic and social analysis of the use of marine waters and an analysis of the costs of degradation of the marine environment. As part of this analysis, a “baseline scenario” is also developed, which provides an assessment of developments in marine use and allows for a description of the expected changes in loads on the year of achieving the target “good marine environment”. An analysis of the benefits of marine ecosystem services is also carried out as part of the marine assessment.



LEGEND

Total catch 2004-2013

tonnes



Additional information

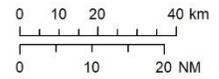
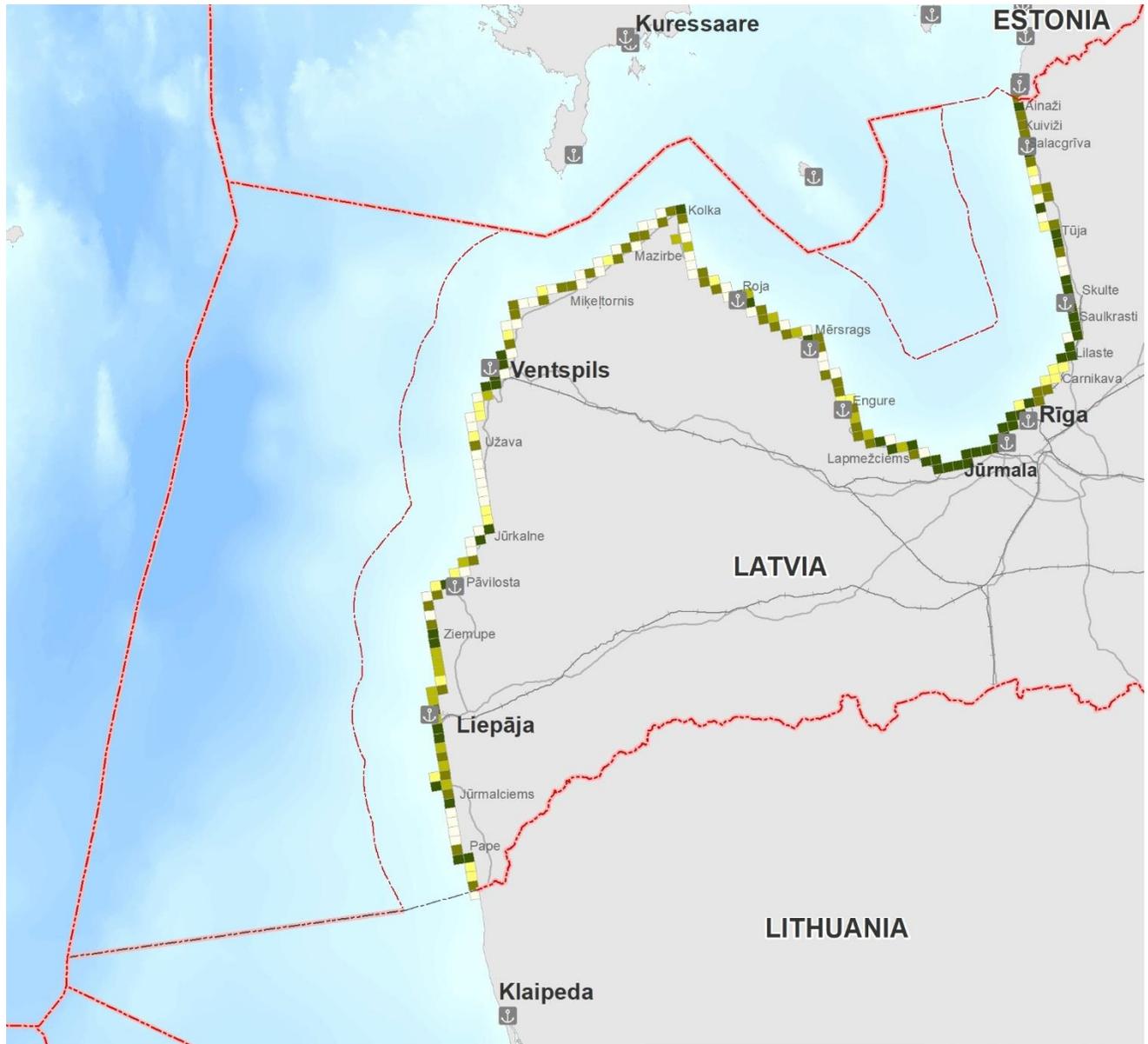
- Ports
- Main road
- Railway
- EEZ border and state border on land
Latvia-Lithuania maritime border treaty is not in force
- Territorial sea border
Latvia-Lithuania maritime border treaty is not in force
- Land

© 2019 Ministry of Environmental Protection and Regional Development
Data sources:
Institute of Food safety, Animal Health and Environment "BIOR"
Ministry of Environmental Protection and Regional Development

Figure 33. Supply service — fish for food consumption — total catch on the high seas (excluding coastal waters)

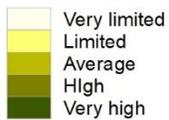
Based on available data from the LIAE field study and expert knowledge, an attempt was made to assess the potential of the collateral for another supply service – algae and their products for human consumption or as pharmaceutical and microbiological materials. As an available resource the areas of the groves of the red algae, *Furcellaria lumbricalis*, was assessed, using both its theoretically possible maximum area of coverage, taking into account the seabed surface suitable for its growth, as well as the follow-up survey of underwater biotopes showing the areas where the red algae can currently be found. **Environmental regulating services** cover the benefits of the self-regulation of the ecosystem to society, such as water purification, flow management, and the maintenance of various natural processes and conditions, including the role of climate stabilisation. In cooperation with the experts of the LIAE, the first attempt is to identify the types of environmental and maintenance services, the provision of which is linked to benthic biotopes, thereby allowing spatial representation of the distribution of ecosystem services. For example, these could be water filtration using mussels, erosion control, maintenance of spawning sites and habitats, etc.

Cultural services include the intangible benefits derived from the ecosystem by people, resting in nature, birdwatching or enjoying the landscape, exploring the natural values, or cultural and historical heritage, inspiring creative manifestations, and using natural elements in symbols or cultural traditions. Under the cultural services section, the physical experiences and interaction of marine tourism and recreation along the Baltic Sea coast can be assessed (see Figure 34), which includes opportunities for enjoying the natural and marine landscapes, as well as physical wellbeing (opportunities for active water sports and recreation on the coast). The assessment is based on a combination of several criteria determined mainly by the number of users of existing ecosystem services, the extent to which the site is publicly available and suitable for the corresponding activities. However, a quantitative number of service users cannot be decisive in all cases. As a high security, it is also assessed in those situations where, compared to other coastal areas of the sea, certain areas are best suited for certain activities (fishing, bird-watching, kiteboarding, etc.). The presence of parking areas or public routes in the immediate vicinity of the sea is greatly affected and also potentially affected by access.



LEGEND

Marine tourism and recreational opportunities



Additional information



© 2019 Ministry of Environmental Protection and Regional Development
 Data sources:
 Dr. geogr. A. Klepers / SIA "Nocticus", Vidzeme University of Applied Sciences (2016)
 Ministry of Environmental Protection and Regional Development

Figure 34. Cultural services – physical experience and provision of interaction – Offshore maritime tourism and recreational facilities (data source: A. Klepers, Nocticus Ltd, Vidzeme University of Applied Sciences, 2016)

Ecosystem services in the MSP

In the context of maritime spatial planning and ecosystem approaches, the relationship between ecosystem processes, functions, services, societal benefits and their value must be clearly visible, which is particularly important in order to facilitate the analysis of benefits and losses in human activities and environmental management strategies. This is the first attempt to apply this method not only to the marine waters of Latvia, but also at the level of the Baltic Sea as a whole. As a result, work on the ecosystem services approach in the MSP will continue intensively in cooperation with other Baltic Sea countries in the framework of various international projects and should be continued as part of new projects. In order to allow this cooperation to continue successfully, it is necessary to complement the knowledge base on the state of the marine environment and biodiversity by implementing the MSP measures to preserve the healthy marine environment and a stable ecosystem (see Table 6).

STRATEGIC SECTION

4. Marine space priorities

The long-term vision is based on the recognition of the sea as a common space where everything (structures, processes and activities) is interlinked. The marine ecosystem provides the resources and conditions needed for the economy and for the welfare of the population. On the other hand, the pressures created by economic activity have an impact on the state of the marine ecosystem and thus on its ability to provide vital resources for society, including recreational facilities. In the same way, the economic sectors and their potential for development at sea are interlinked: they can be united by a common infrastructure, such as ports and electricity transmission networks, as well as an area where different economic interests can co-exist.

Long-term vision for the use of the sea

The **long-term vision** for the use of the sea outlines the desired situation for 2030 (see Figure 35), reflecting the sustainable use of marine space and without endangering the existence of the marine ecosystem. The main priorities are a **healthy marine environment** and a **stable ecosystem**, as well as **national defence**. **Maritime development** and **safe shipping, sustainable fisheries** and **tourism**, as well as the **use of RESs** at sea have been identified as priorities in the sectors of the economy.

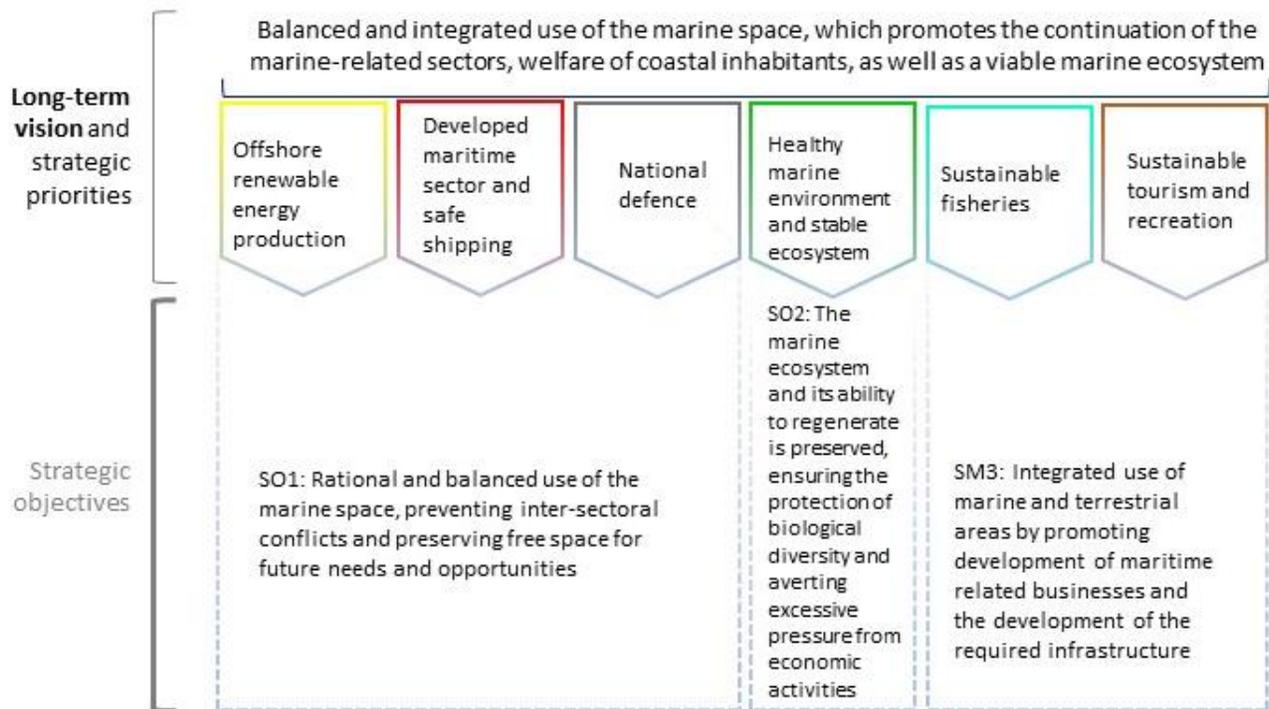


Figure 35. Priorities and strategic objectives set under the long-term vision

A healthy marine environment and resilient ecosystem

A resilient and renewable ecosystem of the Baltic Sea and Gulf of Riga will allow the provision of quality and diverse products and other ecosystem services, which serve for the welfare of people and form the basis of a sustainable economy. The ecologically most valuable areas are included in the network of marine protected areas, thereby ensuring the stability and viability of the marine ecosystem as well as retaining the biological diversity. The identified and preserved marine and underwater cultural heritage and the typical and unique coastal landscapes maintain the historical evidence and identity of the sea coast of Latvia.

National defence

The interests of national defence and protection are completely respected when carrying out economic activities at sea while ensuring the uninterrupted defence infrastructure and military training activities. An effective information system regarding the time of military operations (incl. neutralisation of mines) ensures free movement through military training polygons at times when they are not being used for military purposes. In order to prevent damage to the biological diversity of the sea, when planning military operations, the seasonal aspects of distribution of species are taken into account and activities are coordinated with ornithologists and other nature protection specialists.

A developed maritime sector and safe shipping

The large and small ports of Latvia serve a significant part of the cargo flow in the Baltic region and serve as a transport network, forming a coastal region and local scale economic centres. Regional/local scale shipping is developing. Shipping is organised effectively in the time and space along safe and economically viable routes, using modern and environmentally friendly technology, automated identification systems (AIS) and marine surveillance systems, thereby ensuring safe traffic and reducing/preventing the negative impact on the marine ecosystem. There are no obstructive structures in the most intensively used and strategically significant shipping zones; fishing and other types of use of the sea are regulated. The shipping zones are coordinated as much as possible across the borders, taking into account the use of the marine space in the neighbouring states.

Sustainable fisheries

The use of fish stocks is sustainable. Fishery management is flexible – takes into consideration the changes in fish stocks, and is able to adapt. Traditionally important fishing sites are maintained and areas for infrastructure of importance for fisheries are provided, as well as areas important for the recovery of fish stocks are conserved, avoiding as far as possible the effects of other economic activities. An integrated fish, mussel and algae aquaculture is developed, in areas where it does not pose a risk to the environment, and which helps to improve the quality of the marine environment.

Sustainable tourism and recreation

Tourism is a sector with high export potential, providing employment and income to the coastal areas. The sector complies with environmental quality standards for the Baltic Sea (incl. clean water, equipped swimming areas and suitable infrastructure), adapts to climate change and does not pose a threat to the coastal ecosystem, cause coastal erosion or interfere with coastal fishery. A varied offer of tourism products aimed at a higher added value in marine and coastal tourism is promoted. It reduces the seasonal negative impact and more effectively uses the nature assets and cultural heritage resources of areas. There is a unified approach towards the overall aim and a precise segmentation of offer for different lifestyles, both for the Baltic Sea region space and with regard to the Mediterranean. Yachting trips are supported by a unified network of ports and marinas; there is an increase in cruise ship traffic. The infrastructure, which has been developed for tourism, also raises the quality of life in local municipalities.

Use of marine RESs supporting the energy security of the country

Latvia reasonably uses the renewable energy sources available in the sea, supporting the energy security of the country, while causing no damage to the environment, marine ecosystem or significant losses to other users of maritime resources and space. Latvia is integrated in the unified energy market and electricity grid of the Baltic Sea region. When issuing licences and permits for the use of renewable energy resources, the cumulative impact thereof is also evaluated and an incommensurable burden on the marine ecosystem and landscape or the cultural heritage is not allowed, nor does it interfere significantly with the navigational and coastal surveillance system operations.

In order to promote the implementation of the long-term vision and strategic priorities, three strategic objectives have been set:

SO1: Rational and balanced use of the marine space, preventing inter-sectoral conflicts and preserving free space for future needs and opportunities;

SO2: The marine ecosystem and its ability to regenerate is preserved, ensuring the protection of biological diversity and averting excessive pressure from economic activities;

SO3: Integrated use of marine and terrestrial areas by promoting development of maritime related businesses and the development of the required infrastructure.

Several measures are anticipated for the implementation of the objectives, which are described in the section on MSP implementation (6.1.).

USE OF THE SEA

5. MSP solutions

The MSP must be considered when taking decisions regarding future use of the sea. In order to ease the coordination of sectoral interests, general conditions and principles are included in the MSP which must be considered when planning development in the marine space.

Main conditions when planning the marine space development:

1. The use of the marine space must be organised in accordance with the natural conditions, ensuring the preservation of the environmental conditions, ecological parameters and the ability of the ecosystem to adapt to changes; furthermore, creation of favourable conditions for improving the quality of the environmental conditions and marine resources must be ensured;
2. The continuation of the existing, traditionally developed marine uses, which already occupy a specific areas of the marine space and thereby affect and produce conditions for new economic activities in the sea, must be ensured;
3. The development of existing economic activities must be supported and conditions for introducing new activities must be created;
4. Decisions regarding the introduction of new uses incl. the exploration of resources shall be based on research regarding the technological and economic justification, the impact on the environment and the marine ecosystem, as well as assessment of the coherence with the national policies and priorities.

5.1. Conceptual framework

Based on the outcomes of discussions with the stakeholders, the long-term development vision and the priorities, and, taking into account the criteria for defining the priority uses of the marine space (see Appendix 2), and the priorities and objectives set for the achievement of these as well as the criteria for determining the **spatial priorities for the use of the marine space** (see Appendix 2), the **MSP defines three categories of marine space use:**

- 1. Priority uses** – includes existing and planned uses of the marine space, which are essential for ensuring the spatial interests of the priorities defined in the strategic section.
- 2. Existing uses and objects**, which are connected to the use of the marine space and whose location and management is determined by regulatory enactments.
- 3. General use**, where all sea uses are allowed (incl. fishery, shipping, tourism and leisure, scientific research etc.) which do not contravene the restrictions defined in regulatory enactments and do not cause significant negative impact to the marine environment. In order to initiate new uses of the sea, it is necessary to apply for a licence area, obtain a licence for exploration, carry out the EIA procedure and obtain a licence for the construction works or/and exploitation of resources.

5.1.1. Priority uses of the marine space

The priority uses of the marine space (see Fig. 36) are defined by excluding or setting restrictions to other activities which may cause disturbances or damage the existence or development of the prioritised use. The areas of potential offshore wind energy development (RES) are also included in this category - suitable areas are identified, taking into account the natural conditions, possible impact to the marine ecosystem, as well as potential conflicts with other sea uses. The conditions for each type of use of the marine space are included in Table 3.

Table 3. Types of use of the marine space and conditions for use

Type of marine space use	Conditions of use
Area reserved for shipping (T1, T2, T3)	Stationary structures or constructions that are not related to the ensuring of safe navigation or not involved in the provision of shipping services are not allowed (incl. WPPs, wave power plants, hydrocarbon exploration and experimental extraction platforms, aquaculture fields). If the optimal position for construction identified during the exploration of wind parks overlaps the areas reserved for shipping, by agreeing on the spatial solutions for ensuring shipping safety, a displacement of the areas reserved for shipping is possible.
Area of interest for national defence (M1, M2, M3)	Stationary structures or constructions that are not related to ensuring safe navigation (incl. WPPs, wave energy stations, hydrocarbon extraction platforms, aquaculture fields) are not allowed, without the consent of the Ministry of Defence.
Investigation area of nature values (B1, B2, B3, B4, B5)	Until the exploration of respective zones, the issuance of licences for new uses of the sea that could potentially endanger protected underwater biotopes and species, (incl. WPPs, wave power plants, hydrocarbon extraction platforms, aquaculture areas) is not allowed. If the survey does not identify conservation nature values, the areas explored or parts thereof may be anticipated for issuing licences for new uses of the sea.
Research area for wind park development (E1, E2, E3, E4, E5)	New licences for the installation of a WPP and research required for it shall only be issued in these zones by the Ministry of Economics. Prior to the construction of a WPP all procedures specified in regulatory enactments shall be performed, incl. an Environmental Impact Assessment.
Potential electricity cable corridor (K1, K2, K3, K4, K5)	When planning the transnational interconnections and/or WPP connection to the onshore grid, planned directions should be investigated first.

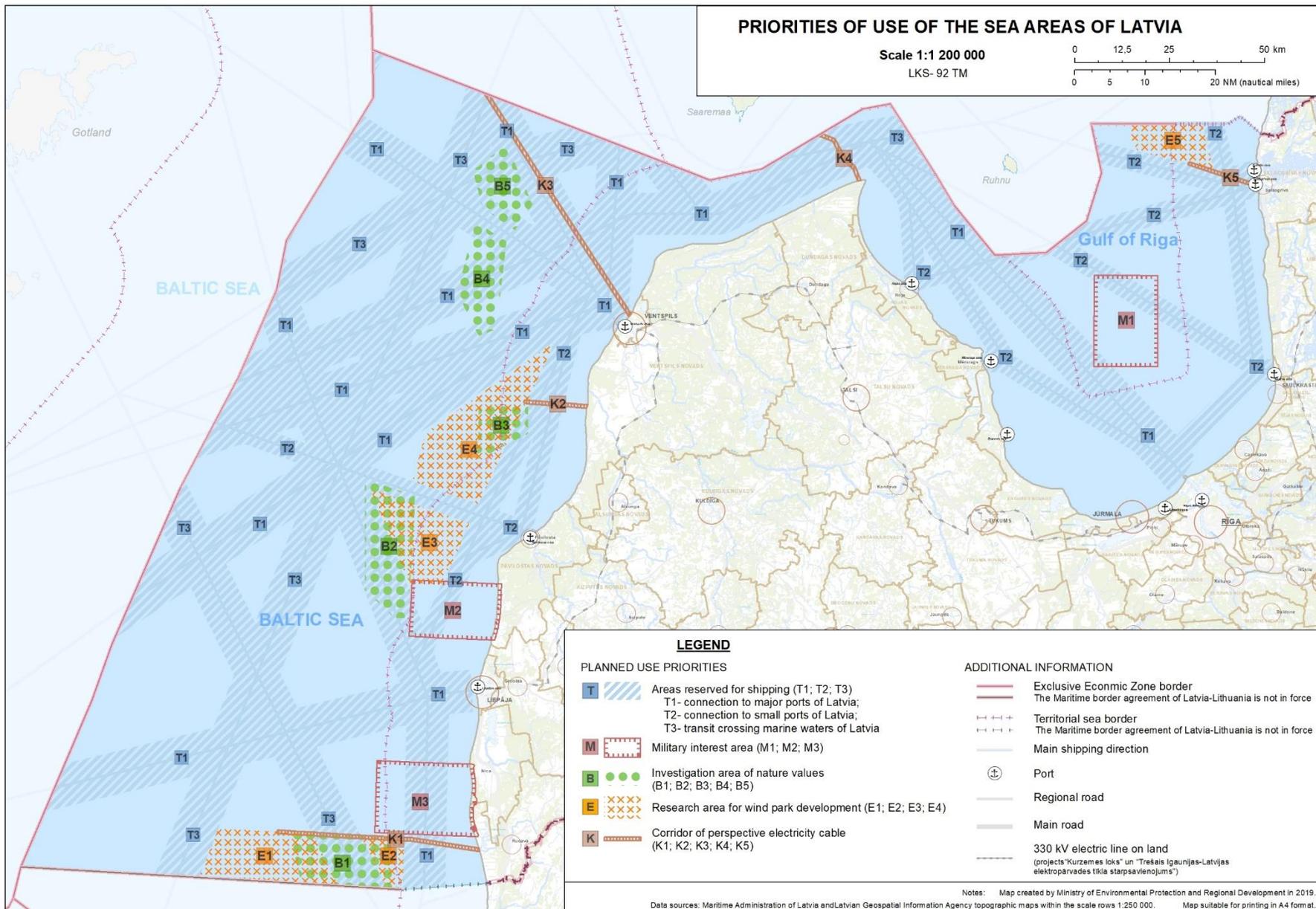


Figure 36. Priority uses of the marine space (source: MoEPRD)

In order to mitigate conflicts between offshore wind parks, other industries and existing uses, for example, shipping, fishing, extraction of mineral resources, tourism, landscape quality, as well as bird and bat migration, on issuing a licence in a research area for wind park development, the following aspects shall be considered:

- It is important to evaluate the impact of a WPP on the coastal landscape. In particular, a negative impact is anticipated in places with a natural landscape or places that have been altered little by human activity, as well as places of cultural significance. WPPs that are visible from the shore may reduce the touristic attractiveness, therefore it is recommended to situate WPPs at least 8 km from the coast, but in areas next to bluffs (for example, Jūrkalne) it would be more because the visibility increases from a higher viewpoint and a separate studies on optimal distance should be carried out.
- The installation of a wind turbine may cause damage to or destroy underwater biotopes, in particular, the biotopes formed in the rocky bottoms (limestone and boulders, as well as mixed bottoms). Therefore, WPPs are not allowed in areas designated for the protection of underwater biotopes or areas where protected biotopes are found.
- Where possible, WPPs should also be located outside the wintering grounds of migratory birds (loons, long-tailed ducks, common scoters, velvet scoters, black guillemots, little gulls), their migration routes, as well as their resting and feeding places during migration.
- When selecting a specific site for the installation of a WPP, the impact on shipping traffic shall be evaluated. In order to prevent risks to shipping, the WPP shall be installed outside areas reserved for shipping and the distance thereof from the areas reserved for shipping evaluated separately. In exceptional cases, there must be reasoned grounds for why the most suitable place for installing a WPP is in an area reserved for shipping. In such a case, the responsible authorities shall find spatial solutions, in order to ensure shipping safety and, where necessary, shift the areas reserved for shipping.
- In areas where WPPs are installed, fishing and the extraction of mineral resources shall be restricted, therefore, when determining the most suitable place, the interests of these sectors shall also be taken into account, where possible excluding areas which are important for fishery or that might potentially be used for the extraction of mineral resources. If it is not possible to agree on a mutually convenient solution, potential losses shall be evaluated and the existing practice of compensation shall be used.
- When selecting a site for the installation of a WPP, the opportunities for cooperating with Lithuania or Estonia, by involving co-financing to develop joint wind park development projects, should be assessed.
- In areas for which a licence has already been issued for the exploration and extraction of hydrocarbons, or other economic activities incl. aquaculture production, the issuance of a WPP licence is not possible.
- In areas for which licences for the use of wind energy have been issued, provisions may be made for the possibility to combine wind energy production with wave energy, aquaculture production or other production, if technically feasible.

5.1.2. Current types of use and objects at sea

The procedures for the general use of the sea in Latvia are determined by the Marine Environment Protection and Management Law, which states that the sea is used in conformity with the laws and regulations regulating the relevant type of activity and this Law, having regard to its objectives, the principles of environmental protection, public interest and maritime spatial planning. According to this Law, a permit or a licence for the use of the sea

shall be issued by the CM, which by special order shall determine the area of the permit or licence in the sea for the following activities:

- 1) exploration of natural resources, except subterranean depths, including for the purpose of scientific research, as well as exploration of underwater cultural and historical heritage, ship wrecks and other submerged property in compliance with the laws and regulations regarding fishery and procedures for use of Latvian waters;
- 2) use of subterranean depths in compliance with the laws and regulations regarding subterranean depths;
- 3) fishing in compliance with laws and regulations regarding fishery;
- 4) construction, establishment of artificial islands, structures and installations, including platforms and installations necessary for energy production (hereinafter - the structures), also exploration related thereto and operation of structures, except for construction of structures necessary for operation of ports, as well as establishment and maintenance of navigation means and systems, in accordance with the requirements of this Law and of laws and regulations governing construction;
- 5) cleaning and deepening of surface water bodies and port aquatoria, and placement of soil taken out during the cleaning and deepening in soil stands in the sea in compliance with the laws and regulations regarding water management;
- 6) construction of hydrotechnical structures necessary for the operation of ports in accordance with the laws and regulations regarding construction;
- 7) installation of sea cable lines of electronic communications networks, cable lines of electronic networks, submarine power cable lines and submarine pipelines, including gas, oil and petroleum product pipelines.

In turn, the procedures for determining the licensing area and the institutions involved at sea are regulated by several CM regulations: 1) CM Regulation No. 633 of 18 September 2012 “Procedures for the Use of Subterranean Depths in Internal Public Waters and Sea”; 2) CM Regulation No. 631 of 14 October 2014 “Construction Regulations for Structures in the Internal Waters, Territorial Waters and Exclusive Economic Zone of the Republic of Latvia”; 3) CM Regulation No. 632 of 14 October 2014 “Regulations Regarding the Annual State Fee for the Utilisation of a Permit or Licence Area in the Sea” and 4) CM Regulation No. 805 of 22 December 2015 “Regulations Regarding the Prospection, Exploration and Production of Hydrocarbons”. In accordance with Paragraph 42 of CM Regulation No. 1171 of 21 December 2010 “Regulations Regarding the Procedures for Using Latvian Waters and Navigation Regime Therein”, a permit for the exploration of shipwrecks and other property sunken in Latvian waters shall be issued by the National Culture Heritage Board (previously - State Inspection for Heritage Protection). The State Environmental Service shall issue a fishing permit (licence) for fishing for special purposes (pisciculture, acclimatisation, monitoring fishery, ameliorative and other fishing type) and for the purpose of scientific research in accordance with Section 11, Paragraph three of the Fishery Law.

Prior the elaboration and approval of the MSP, a number of sea uses have been identified and the use of marine space is already partially regulated (see Table 4). It is possible to distinguish between two types of areas defined by the regulatory framework – areas for which conditions or restrictions of use are specified in relation to other uses of the marine space and objects for which the actual location has been determined.

Table 4. Regulatory framework for the use of the marine space

Type of use of the marine space	Regulatory enactments that determine the procedures for use
Marine Protected Areas, incl. reserves and neutral areas	<ul style="list-style-type: none"> • Law On Specially Protected Nature Territories. • CM Regulation of 5 January 2010 No.17 “Regulations Regarding Marine Protected Areas”.

	<ul style="list-style-type: none"> • MPA "Nida–Pērkone" (CM Regulation of 23 August 2011 No. 652), "The west coast of the Gulf of Riga" (CM Regulation No. 653 of 23 August 2011) and "The Irbe Strait" (CM Regulation No. 807 of 19 October 2011).
Archaeological monuments and areas of State significance incl. environmental and nature asset preservation	<ul style="list-style-type: none"> • Law On Protection of Cultural Monuments. • CM Regulation No.474 of 26 August 2003 "Regulations Regarding the Registration, Protection, Utilisation and Restoration of Cultural Monuments and the Granting of the Status of an Environmentally Damaging Feature"; • Marine Environment Protection and Management Law Section 19, Paragraph 2 prescribes the rights of public persons and private persons to use the sea determines the need to receive a licence for the exploration of wrecks and other submerged property.
Telecommunication cable lines and their protection zones	<ul style="list-style-type: none"> • Protection Zone Law Section 14, Paragraph two, Clause 2 determines that around/along sea telecommunication cable lines a protection zone is set 0.25 nautical miles in width on both sides of the telecommunication lines, in which it is prohibited to carry out any building, installation or blasting works; to perform geological and geodetic research which involves drilling, taking of earth samples and other similar activities; to arrange quaysides and floating jetties for ships and barges, to perform loading, unloading, dredging works and deepening of the seabed, to cast anchors, travel with cast anchors, chains, sea-gauges, towed nets and trawls, to determine fishing areas, to fish, or to collect plants using deepwater tools.
Surveillance towers and their protection zones	<ul style="list-style-type: none"> • Law On Protection Zones Section 21, Paragraph one defines the protection zones around the technical means of navigation and Section 21, Paragraph two defines the protection zones around the technical means of military marine surveillance. • Law On Protection Zones Section 50 Paragraph two prohibits the erection of buildings/constructions within the protection zones around the technical means of navigation and technical means of military marine surveillance, which can disturb their functioning. • CM regulations No 246 of 20 May 2014 "Regulations Regarding the List of the Technical Means of Navigation and Technical Means of Military Marine Surveillance for the Purpose of the State Security, which Requires the Establishment of the Protection Zones, the Width of the Protection Zones and the Restrictions for the Building Activities Therein" prescribes that within these protection zones no construction of buildings is possible without acceptance from the Ministry of Defence. • CM Regulation No. 508 of 27 July 2006 "Regulations Regarding the Protection Zones around State Defence Facilities and the Widths of These Protection Zones" prescribe the State defence facilities around which protection zones shall be established and the width of these protection zones.

Military training areas and their protection zones	<ul style="list-style-type: none"> • Maritime Administration and Marine Safety Law • CM Regulation No.1171 of 21 December 2010 “Regarding the Procedures for Using Latvian Waters and Navigation Regime Therein” determines that MAL may prescribe navigation regime restrictions at sea.
Port areas, incl. port outer roadsteads	<ul style="list-style-type: none"> • CM Regulation No. 253 of 9 May 2017 “Regulations Regarding the Construction of Individual Engineering Structures” prescribes the procedure for the construction process of engineering structures. Issued pursuant to the Construction Law. • Port borders incl. Port outer roadsteads shall be defined by CM Regulations regulating the respective port outer roadsteads. • Local government area planning documents and related regulations.
Technical means of navigation and protection zones for their operation	<ul style="list-style-type: none"> • CM Regulation No. 385 of 5 June 2012 “Regulations Regarding the Method for Determining the Operational Protection Zone Around the Technical Means of Navigation Intended for Shipping Safety” prescribes the territory of the operational protection zone around the technical means of navigation intended for shipping safety (around lighthouses and around other means of navigation) (coastal signs, coastal flares, pier lights, guiding signs etc.)). The economic activity of any kind in the area of the protection zone of the navigation means shall be coordinated prior to the commencement thereof. In order to ensure the operation and safety of marine navigation means, the landowners or users shall observe the limitations specified in Sections 35 and 50 of the Protection Zone Law, as well as the Maritime Administration and Marine Safety Law and laws and regulations on ensuring the functioning of means of navigation.
Restricted and forbidden areas for diving	<ul style="list-style-type: none"> • Marine Environment Protection and Management Law: On 1st March 2016 new amendments to the Marine Environment Protection and Management Law came into force and the law was supplemented with Section 19.¹ “Restrictions and Prohibitions Laid Down for Diving in the Sea”. The amendments prescribe that, at places where shipwrecks or submerged objects are located in the sea, which endanger or may endanger the marine environment or cultural and historical values, restricted areas for diving shall be established. To dive in the restricted area a natural person shall need a permit from the Coast Guard Service of the Naval Forces Flotilla of the National Armed Forces. In accordance with CM Regulation No.133 of 1st March Regarding Diving in Restricted Areas of the Sea the permit is issued for 30 days and it shall indicate the specific restricted area, the diving time and conditions. • CM Regulation No. 1171 of 21 December 2010 “Regarding the Procedures for Using Latvian Waters and Navigation Regime Therein” prescribes the restricted and prohibited areas for diving.

Licence areas and licence blocks for the exploration, research and extraction of hydrocarbons	<ul style="list-style-type: none"> • CM Order No. 377 of 1 July 2010 amends CM Order No. 272 of 7 June 2000 „On spatial units for the exploration, research and extraction of hydrocarbons to be included in the announcement of the first round of the tender”. • CM Order No. 594 of 21 September 2007 “On allocation of licensing fields for exploration and extraction of hydrocarbons in the EEZ in the Republic of Latvia”. • CM Order No.600 of 26 September 2007 „On allocation of licensing fields for search of hydrocarbons in the EEZ in the Republic of Latvia”.
Area of dumped explosives	The shipping regime is published in the publication issued by MAL “Notices to the mariners” in the first issue of each year, and is updated, as required, in the monthly issue of „Notices to the mariners”: in these areas it is prohibited to drop anchor, fish using demersal equipment, carry out underwater activities and underwater blasting.
Disposal sites	<ul style="list-style-type: none"> • Marine Environment Protection and Management Law Section 19 “Rights of Public Persons and Private Persons to Use the Sea”. • MPA "Nida–Pērkone" (CM Regulation of 23 August 2011 No. 652), "The west coast of the Gulf of Riga” (CM Regulation No. 653 of 23 August 2011) and "The Irbe Strait" (CM Regulation No. 807 of 19 October 2011). • CM Regulation No.475 of 13 June 2006 “Procedures Regarding the Cleaning and Deepening of Surface Water Bodies and Port Basins”.

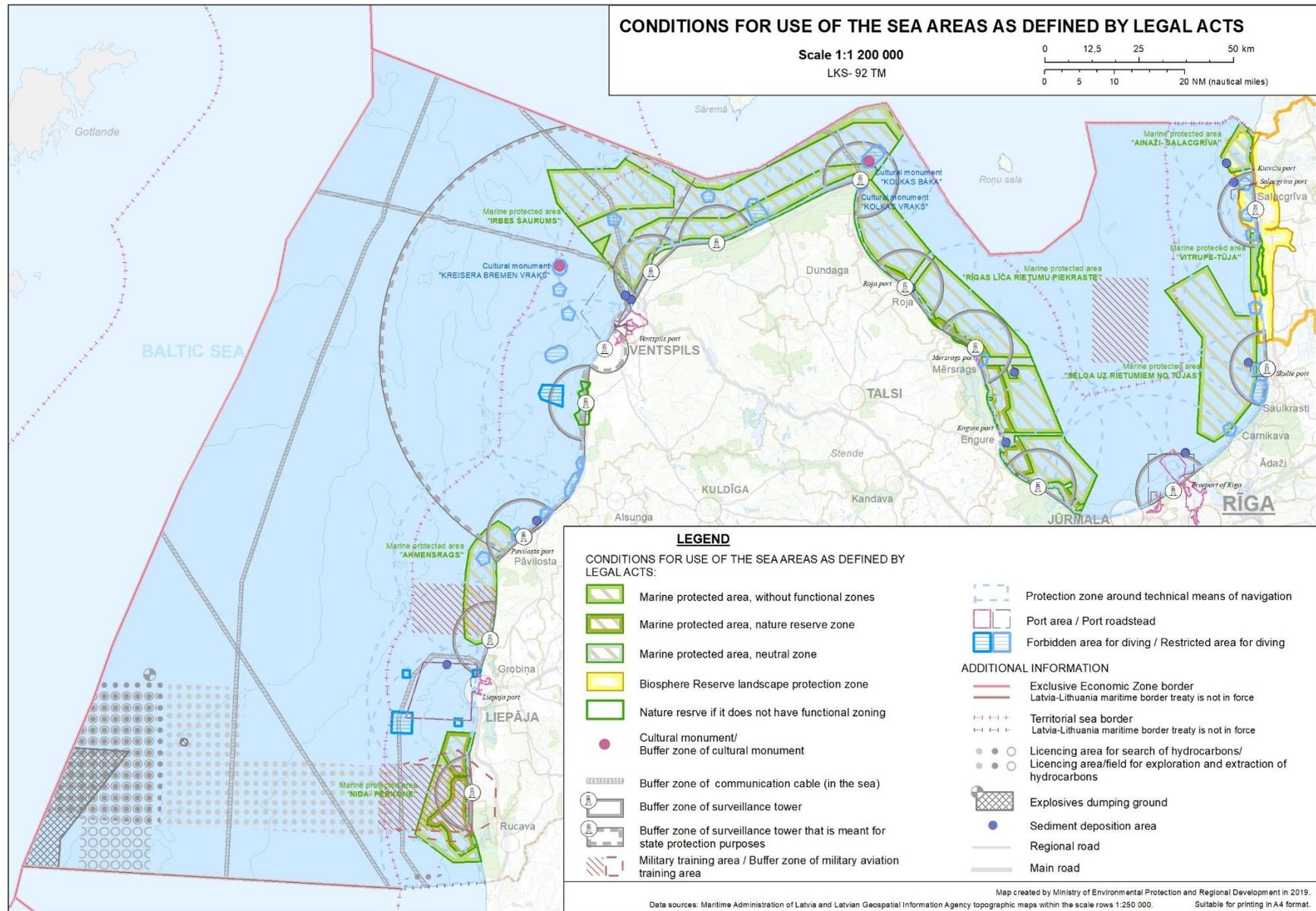


Figure 37. Conditions for the use of the sea specified by legal acts (source: MoEPRD)

The MSP map of planned uses of the sea (see Annex 1) also describes the navigation and port activities, coastal tourism, telecommunication, coastal erosion risks and other information that describes the actual use of the marine space and does not create new conditions for the use of the marine space. These thematic data are shown in Table 5.

Table 5. Additional information on the use of the marine space

Information on navigation and port activities
Navigation information: <ul style="list-style-type: none"> - Navigation lines - Recommended shipping routes - Recommended two-way routes (Traffic separation schemes) - Anchorage areas - Obstructions for navigation
Technical means of navigation: <ul style="list-style-type: none"> - Lighthouses
Navigation safety information: <ul style="list-style-type: none"> - Former mined areas, opened for shipping - Former mine exercise polygons - Areas prohibited for navigation
Ports
Fishery
Fish landing sites
Wrecks
<ul style="list-style-type: none"> - Wrecks - not dangerous for navigation - Wrecks - danger for navigation - Remains of wrecks - Wreck showing any portion of hull
Risk zones
<ul style="list-style-type: none"> - Coastal erosion risk areas (Coastal erosion risk Classes 4 and 5)¹⁵⁹

The thematic data of the existing situation also include the information scoped during the development of the MSP regarding economic activities at sea and information regarding the biologically valuable areas. This information is not reflected in the map of planned use of the sea, however it should be used for specifying new uses of the sea:

Fishing activity¹⁵⁹:

- Total catch on the coast of Latvia according to coastal parishes between 2004.-2013
- Total catch of all species (excluding herring) on the coast of Latvia according to coastal parishes between 2004.-2013
- The spatial distribution of catch of sprats in the open Baltic Sea between 2004.-2015.
- The spatial distribution of catch of herring in the open Baltic Sea between 2004.-2015.
- The spatial distribution of catch of cod in the open Baltic Sea between 2004.-2015.
- The spatial distribution of catch of cod in the open Baltic Sea between 2004.-2015 and separately in 2015.

Preservation of the biological diversity¹⁶⁰:

- Distribution of biotopes, incl. EU protected biotope – *1170 Reefs.
- Fish spawning and nursery grounds.

¹⁵⁹ Schematic map available in sub-section 3.7 of the plan

¹⁶⁰ Schematic map available in sub-section 3.11 of the plan

5.1.3. General use

All types of sea use are allowed in the general use areas (see Annex 1) (incl. fishing, shipping, tourism and leisure, scientific research etc.), as long as they do not contravene the restrictions prescribed by regulatory enactments and do not cause damage to the marine environment.

In order to commence new types of sea use, application for a licence according to the procedures prescribed by regulatory enactments is necessary - to receive a licence for area research, perform the EIA procedure and receive a licence for utilisation of buildings or use of subterranean depths at sea. In turn, in order to ensure the balanced and coordinated use of the marine space, recommendations are included in the MSP for the designation of new types of use. Therefore, when determining the most suitable areas for sea use, along with availability of resources, it is also important to assess the impact on the environment, national defence, navigation and other interests of marine use, as well as take into account the various limiting factors.

5.1.3.1. Recommendations for the installation of wave power plants

MSP supports use of various energy resources available at sea. However, at the same time, the use of renewable energy resources must not cause irreversible damage to the marine ecosystem or significant losses to other users of the marine resources and space.

The impact of wave energy production on the environment, cultural heritage and the coastal landscape

The impact of wave power plants on the environment has currently not been investigated sufficiently. Wave energy power plants installed in the coastal area (up to 10 m depth), reducing the wave energy at shore, could affect the sediment flows, as well as coastal erosion and accumulation processes, thereby also affecting the underwater biotopes and fish spawning and nursery grounds at the coast. The level of impact must be assessed according to the chosen place and technology.

In order to assess the impact of each wave power plant project on the environment, coastal landscape and cultural and historical heritage and environmental impact assessment is also required, according to the procedures specified by regulatory enactments. This procedure should also include the cumulative impact assessment, taking into account already existing pressures on the marine ecosystem and best available scientific research.

The impact of wave power production on other marine use interests

One of the most important factors that shall be taken into account, when choosing an offshore site for the installation of a wave power plant, is the impact on shipping. In order to prevent the risk of shipping accidents, the wave power plants shall be installed outside the areas reserved for shipping, as well as port areas except for cases where there are grounds for the most suitable installation site to be located in a zone reserved for shipping. In such a case, the responsible authorities shall need to find spatial solutions, in order to ensure shipping safety and, where necessary, change the priority use of the site in question.

For safety reasons, wave power plants are not allowed in areas of dumped explosives. Former mined areas require additional investigation of the seabed in cooperation with the National Armed Forces (NAF). In areas where wave power plants are installed, fishery and extraction of mineral resources are restricted, therefore, when determining the most appropriate site, the interests of these sectors must also be taken into account and areas which provide significant quantities of fish catches or could potentially be used for the extraction of mineral resources must be avoided where possible.

It is not allowed to establish wave power plant areas in areas which already have licences issued for the exploration and extraction of hydrocarbons, as well as structures, incl. WPP, except cases where the conditions of the issued licence allow it.

5.1.3.2. Recommendations for the installation of underwater cables

Impact of underwater cables on the environment and cultural heritage

When installing underwater cables, where possible, damage to the marine ecosystem and cultural and historical heritage must be prevented. An environmental impact assessment must therefore be performed, assessing the risks related to protected underwater biotopes and the damage (and its extent) to fish spawning grounds. Areas with wrecks and/or other features of cultural and historical significance should exclude cable placement.

Impact of underwater cables on other marine use interests

Underwater cables may be endangered by the deepening and maintenance of shipping routes, anchorage, benthic trawling, as well as the extraction of mineral resources. Therefore, when planning cable paths, where possible, shipping routes that require deepening and maintenance must be avoided, anchorage sites, disposal sites, important areas for benthic trawling, as well as areas that could be potentially significant for the extraction of mineral resources.

For safety reasons the installation of cables is not be allowed in areas of dumped explosives. The placement of cables in military training polygons and former mined areas should be very carefully considered in cooperation with the Ministry of Defence and the National Armed Forces, after all necessary safety procedures and investigations.

5.1.3.3. Recommendations for the installation of marine aquaculture

Considering the growing interest in developing aquaculture in the Baltic region and the significance of this sector in the context of the EU's "Blue Growth Strategy"¹⁶¹ as well as the rapid development of technology in this sector, studies should be performed on the suitability of the environmental conditions for the cultivation of different aquaculture species. Scientific institutions of Latvia with longstanding experience of scientific work in the field of marine and aquaculture research should be involved in the studies. To avoid potential environmental risks, as well as conflicts with other sea use interests, when determining the areas appropriate for the development of aquaculture, the findings of the latest studies in the Baltic Sea region (preferably also carried out in Latvia) must be used.

Impact of the marine aquaculture on the environment

Fish farming in open cages has a significant negative impact on the environment, as the unused nutrients and other cultivation related products increase the sea eutrophication process and affect the natural populations. Therefore, because of the existing level of eutrophication, fish farming is not allowed in the Gulf of Riga. However, algae and mussel aquaculture may even have a positive impact on the environment, as the growth process absorbs nutrients and filters the water.

Fish farming in open cages may have a negative impact on all types of benthic biotopes, whereas more sensitive to algae and mussel aquaculture (or IMTA) will be photic zone biotopes and aphotic zone biotopes, which form on rocks, boulders or moraine. Aphotic zones with sandy and/or mud sediments would be more suitable for aquaculture. A significant negative impact would be expected on fish spawning grounds and nurseries. Considering the potential environmental impact, aquaculture farms are not recommended in coastal waters up to 20 m depth.

Impact of marine aquaculture on other marine use interests

In order to avoid the risks of shipping accidents, aquaculture farms shall be located outside the areas reserved for shipping and port territories, except for cases where there are grounds for the most suitable site for installing an aquaculture farm being a area reserved for shipping. In such a case, the responsible authorities shall need to find spatial solutions, in order to ensure shipping safety and, where necessary, change the priority use of the site in question.

¹⁶¹ Growth of the marine sector, information available at: https://ec.europa.eu/maritimeaffairs/policy/blue_growth_lv

Aquaculture farms are also not allowed in military training polygons. Possibility for establishing aquaculture areas in former military training polygons shall be evaluated in cooperation with the Ministry of Defence and National Armed Forces, as well as performing enhanced investigation of the seabed. In order to avoid losses to other sectors, aquaculture areas must not be established in areas of intensive fishing, or in areas that could potentially be significant for the extraction of mineral resources.

In turn, the positioning of aquaculture farms is not allowed in areas which already have licences issued for the exploration and extraction of hydrocarbons, as well as structures incl. WPP, except for cases where the conditions of the issued licence allow it.

5.1.3.4. Recommendations for the exploration and extraction of hydrocarbons

Studies available in the State Geological Fund have shown that the amount of potential oil resources to be extracted in the Baltic Sea deposits could be between 0,2 and 10 million tonnes.¹⁶² The largest deposits are concentrated in the southwestern part of the sea waters of Latvia. In total, approximately 50 local oil deposit sites have been discovered, of which 20 have been identified to be potential oil extraction sites. Calculations show that it could be beneficial to extract hydrocarbons from several of the larger oil sites, but the extraction in other sites could begin after the establishment of an appropriate infrastructure by greatest deposit sites.

Impact of hydrocarbon extraction on the environment

The extraction of hydrocarbons results in emissions of GHG and air pollutants from the following processes: controlled leaks, safety flare-burning, exploration, manufacturing, upgrading and transportation. These actions may negatively affect Latvia's compliance with the GHG emission reduction targets and air pollutant targets set out in EU legislation.

When installing oil drilling sites, there is a chance that hydrocarbons may enter the environment, thereby causing a threat to the marine ecosystem. Pollution caused by petroleum may negatively impact marine biotopes, fish spawning and nursery sites, as well as cause damage to fish resources. Petroleum pollution may be especially dangerous to birds – when swimming in polluted water, their feathers become clogged, thereby causing a loss in insulation and thermo-regulating abilities, as a result of which the birds are unable to dive, and die, either by freezing, overheating, dehydration or starvation. The death of birds may also be caused by poisoning, having swallowed the petroleum. Therefore, extraction of petroleum would not be permissible in areas developed for the protection of birds and underwater biotopes (especially the wintering sites of loons, long-tailed ducks, common scoters, velvet scoters, black guillemots, little gulls), in the biological diversity research zones until the research is carried out, as well as fish spawning and nursery grounds (especially in the coastal areas up to 10 m in depth). Moreover, the extraction of petroleum on the coastal belt would also negatively impact on leisure activities on the beach, incl. a risk of polluting the bathing waters, thereby incurring losses to the tourism sector.

Impact of hydrocarbon extraction on other marine use interests

In order to prevent the risk of shipping accidents, the extraction of hydrocarbons should not be allowed in the areas reserved for shipping and in port areas. However, if commercially significant petroleum deposits are found in these areas, spatial solutions are required, in cooperation with the Latvian Maritime Administration and other responsible authorities, in order to ensure safe shipping and to change the priority use of the places in question. For safety reasons petroleum extraction would also not be permissible in military training areas. If commercially usable petroleum deposits are discovered in the protection zones of surveillance towers, equipment shall be installed on the petroleum drilling platforms that ensures coastal surveillance system operations. In order to commence extraction of hydrocarbons in areas of dumped explosives and former mine sites, the enhanced research of the seabed and neutralisation of mines is required, in cooperation with the Ministry of Defence and National Armed Forces. In places where dumped chemical weapons are found,

¹⁶² Latvijas zemes dzīļu resursi, Rīga: Valsts ģeoloģijas dienests, 1996, 17 p. (only in Latvian)
https://www.lu.lv/fileadmin/user_upload/lu_portal/projekti/vpp/mali_latvija/visp_geol/LATVIJAS_ZEMES_DZILU_RES_1998_pdf.pdf

extraction would not be permissible, until technological solutions are found for isolating or liquidating this source of pollution.

5.1.3.5. Recommendations for the extraction of mineral resources

Considering the relatively low interest regarding the extraction of mineral resources at sea, as well as the negative impact of the extraction equipment available on the marine ecosystem, there are no planned sites for the extraction of mineral resources until 2030. However, if any particular merchant shows an interest regarding the extraction of these resources, an environmental impact assessment would be required for the proposed activities, also considering the cumulative effect and preventing a decrease in the condition of protected underwater biotopes.

Impact of the extraction of mineral resources on the environment and cultural heritage

Extraction of mineral resources results in the mechanical destruction of underwater biotopes, therefore it is not permissible in marine protected areas, which have been created for the protection of biotopes and birds, as well as natural value research areas, which could potentially be assigned the protected status. Extraction of mineral resources should be avoided as much as possible in fish spawning and nursery sites, in the coastal zone up to depth of 10 m, as well as places where underwater cultural heritage assets have been identified.

Impact of the extraction of mineral resources on other marine use interests

In the interests of safety, as well as to prevent damage to the environment, extraction of mineral resources is not permissible in areas of dumped explosives whereas a thorough investigation of the seabed in former mine areas would be required, in cooperation with the Ministry of Defence and National Armed Forces. Extraction of mineral resources will not be possible in areas where a licence has been issued for the installation of a WPP or wave power plant, aquaculture or extraction of hydrocarbons.

Extraction of mineral resources would not be permissible in intensively used shipping routes, or in port areas except from sand that has been acquired due to the deepening or maintenance of a ship route.

5.1.3.6. Recommendations for the installation of new disposal sites

The sediment material obtained as a result of dredging, deepening and maintaining ports and shipping routes is traditionally used for construction processes or deposited at sea at officially designated disposal sites. Disposal sites are designated for all ports of Latvia. Currently the formation of a new disposal site is only anticipated at Freeport of Riga.

Impact of disposal sites on the environment

Disposal sites may cause significant damage to underwater biotopes, in particular, the biotopes that have formed on rocky bottoms (limestone and boulders), as well as biotopes that have formed on mixed bottoms, which are also included in the European protected biotope – reefs. Therefore, when determining a location for a disposal site, it must be ensured that it is located at a sufficient distance away from the protected biotopes, taking into account the hydrophysical parameters and nature of sediment flow. Similarly, the impact on fish spawning grounds and nurseries must be prevented, as well as places where underwater cultural heritage assets have been identified.

Impact of disposal sites on other marine use interests

In order to prevent the risk of shipping accidents, disposal sites must be installed at a sufficient distance from intensively used shipping areas and they are also not permissible in corridors of existing or planned underwater cables. When determining a location for disposal sites, the impact on fishing in the high sea and coastal fishing grounds must also be assessed. Disposal sites would not be permissible in priority areas for demersal trawling. The installation of disposal sites in military training polygons must be thoroughly assessed, coordinating it with the Ministry of Defence and National Armed Forces.

However, the dumping of sediment acquired through deepening works into disposal sites at sea, is considered as a wasteful use of natural resources. Depending on the granulometric composition of the seabed and the level of pollution, firstly, the opportunities for using these resources in construction and port development should

be assessed, and also if quality requirements are being ensured for the increase in sediment transport patterns and beach nourishment, thereby reducing the risks of coastal erosion.

In cases where existing disposal sites are full and new ones are required, these shall be determined in accordance with the national laws and regulations and international requirements. The “Guidelines for disposal of dredged material at sea”,¹⁶³ encourage states to use the *good environmental practice* both during the deepening of shipping routes and dumping. The guidelines incorporate the HELCOM requirements to assess the quality of the dredged material and recommendations to assess the opportunities for its use. The guidelines also indicate the environmental parameters which should be assessed when searching for a new location for the installation of a new disposal site for dredged material and evaluating the anticipated environmental impact.

163 HELCOM Guidelines for the Disposal of Dredged Material at Sea, 2007
<http://www.helcom.fi/Documents/Action%20areas/Monitoring%20and%20assessment/Manuals%20and%20Guidelines/Guidelines%20for%20the%20Disposal%20of%20Dredged%20Material%20at%20Sea.pdf>

6. Implementation and updating of the MSP

6.1. MSP implementation

MSP is a tool for decision-makers – for national and local government institutions during the coordination process and final decision-making on the issuance of licences – as prescribed by the **Marine Environment Protection and Management Law**. The MSP creates a framework for decision-making regarding the further use of the sea waters of Latvia, using the best available knowledge and based on the ecosystem approach.

The MSP recommends the strategic and spatial development priorities with an outlook until 2030, as well as providing data and information regarding the marine environment status, ecosystem services and existing sea uses, incl. fishing interests. In order to balance marine space development, after the approval of the MSP, at the initial stage of the process of granting a new licence area, the strategic and spatial priorities specified in the MSP and recommendations for the establishment of new types of sea use shall be taken into account. Strategic objectives and measures have been defined for the implementation of the MSP strategic and spatial priorities (see Fig.38 and Table 6), which may be implemented within the budget framework of the involved institutions, or by attracting foreign financial aid.

The main instrument for the coordination of sectoral interests for the implementation of maritime planning is the Maritime Planning Working Group established by the MoEPRD, which shall ensure the exchange of the most up-to-date information and data for the purposes of the implementation of the maritime plan at least once a year, by organising a face-to-face meeting.

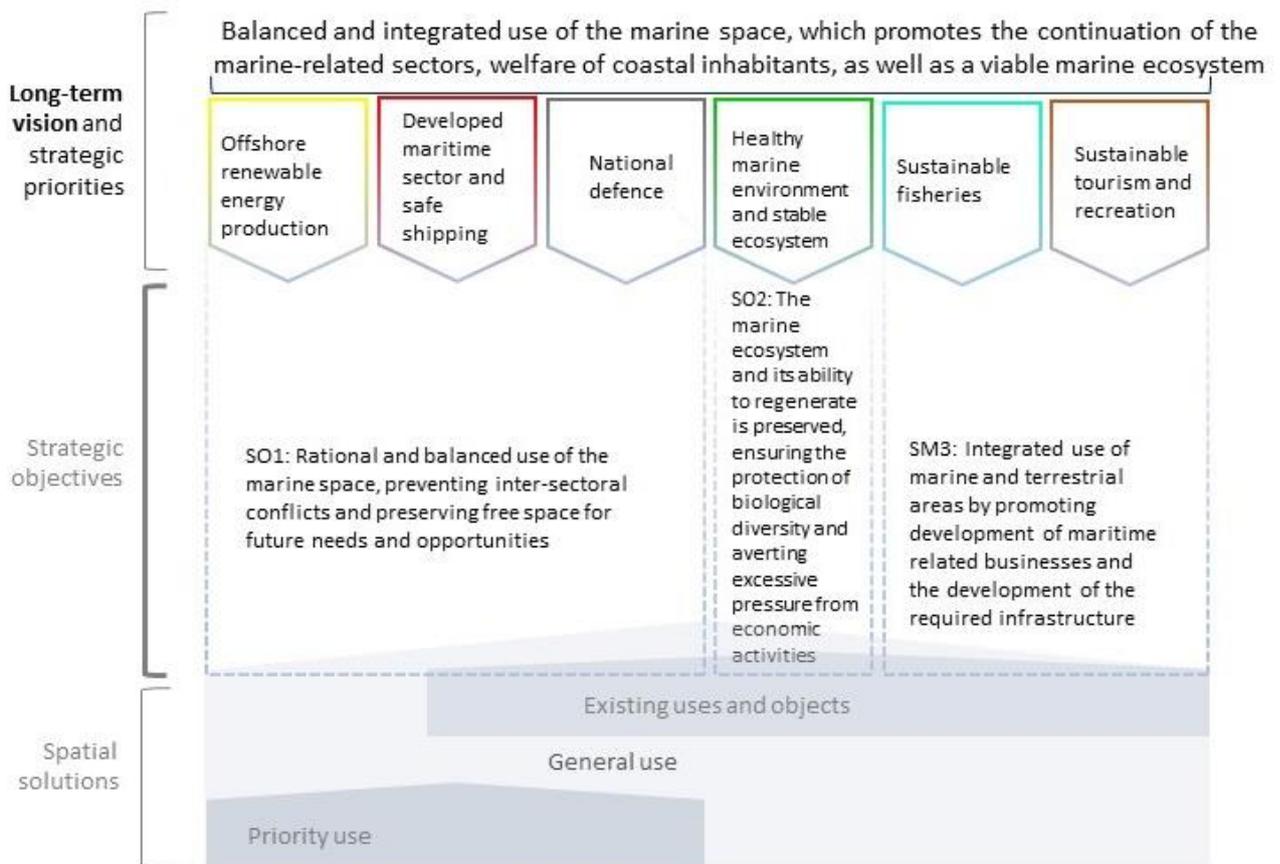


Figure 38. Interlinkage of the “Strategic section” and the “Use of the sea”

Table 6. Plan of measures for the implementation of MSP

SO1: Rational and balanced use of the marine space, preventing inter-sectoral conflicts and preserving free space for future needs and opportunities					
<i>Measure</i>	<i>Result indicator</i>	<i>Assessment of measure implementation (Qualitatively/quantitatively)</i>	<i>Responsible authorities</i>	<i>Deadlines</i>	<i>Source of financing</i>
1.1. Update data on fishing intensity in the Baltic Sea	<ul style="list-style-type: none"> Regularly updated information on fishing activities of Latvian fishermen 	Qualitatively	BIOR	Regularly	State budget (within the current budget)
1.2. To carry out scientific research regarding the suitability of environmental conditions for the cultivation of different aquaculture species in the sea, assessing potential environmental risks and developing environmentally friendly technology suitable for Latvia's conditions.	<ul style="list-style-type: none"> Number of scientific studies that offer aquaculture manufacturing technology suitable for the marine conditions of the sea waters of Latvia. 	Quantitatively Base value (2018):0	MoA in cooperation with BIOR, MoEPRD in cooperation with LIAE	Regularly	EU funds, State and local government budgets
1.3. To perform studies regarding the accessibility of marine subterranean depths resources in the sea waters of Latvia and the technology for the extraction thereof, which would not cause significant damage to the marine ecosystem.	<ul style="list-style-type: none"> The number of research studies that offer an assessment of marine subterranean depths resources and environmentally friendly technology for the extraction. 	Quantitatively <u>Base value</u> (2018):0	MoEPRD	Regularly	EU funds, State budget
1.4. To support the development of a public infrastructure for the growth of marine tourism in significant places in the territorial sea waters of Latvia and on the coast, to promote a more varied coastal tourism offer.	<ul style="list-style-type: none"> An investment programme for the coast has been prepared. 	Qualitatively	MoEPRD, MoE, KPR, RPR	By 2024	EU funds, State budget
1.5. To identify the underwater and marine cultural heritage assets of Latvia and develop guidelines for the management thereof.	<ul style="list-style-type: none"> Research has been carried out and guidelines developed for the management of the underwater and marine cultural heritage assets. 	Qualitatively	NCHB	By 2030	EU funds, State budget
1.6. To support renewable energy demonstration projects in the sea by raising eligible funds from foreign financial aid or State budgets	<ul style="list-style-type: none"> Number of (wind, wave) energy facilities installed in the sea 	Qualitatively <u>Base value</u> (2018):0	MoE, MoF	2030	EU funds, State budget

SO2: The marine ecosystem and its ability to regenerate is preserved, ensuring the protection of biological diversity and averting excessive pressure from economic activities					
<i>Measure</i>	<i>Result indicator</i>	<i>Assessment of measure implementation (Qualitatively/quantitatively)</i>	<i>Responsible authorities</i>	<i>Deadline</i>	<i>Source of financing</i>
2.1. To update information regarding ecologically significant areas and distribution and condition of biotopes/species, based on the latest studies and monitoring data.	<ul style="list-style-type: none"> Report prepared on the distribution and conservation status of protected biotopes and species and identified potential marine protected areas identified. 	Qualitatively	MoEPRD, LHEI, DAP	2030	State budget (within the existing budget), EU funds
2.2. To assess the distribution and supply of marine ecosystem services according to internationally approved methods.	<ul style="list-style-type: none"> Assessment prepared on the services provided by the marine ecosystem. 	Qualitatively	LHEI	2024	EU funds, State budget
2.3. To analyse and assess spatial distribution of significant fish spawning grounds and nursery grounds.	<ul style="list-style-type: none"> Report prepared on the spatial distribution of fish spawning and fish nursery grounds. 	Qualitatively	BIOR	2024	EU funds, State budget
2.4. To regularly observe and assess the status of the seal population and the areas important for them, as well as prepare a species protection and management plan.	<ul style="list-style-type: none"> A species protection and management plan has been developed. 	Qualitatively	NCA in cooperation with BIOR	2020	EU funds, State budget
2.5. To create a maritime information system to ensure efficient and timely exchange of data on the marine ecosystem.	<ul style="list-style-type: none"> A marine data system is developed and regularly updated. 	Qualitatively	MoEPRD	2020	EU funds, State budget
2.6. To develop methodology for evaluation of spatial cumulative impacts from the use of the sea using good environmental status indicators and to ensure application of the methodology within the EIA process.	<ul style="list-style-type: none"> A methodology has been developed. 	Qualitatively	MoEPRD	2020	EU funds, State budget

SO3: Integrated use of marine and terrestrial areas by promoting development of maritime related businesses and the development of the required infrastructure					
<i>Measure</i>	<i>Result indicator</i>	<i>Assessment of measure implementation (Qualitatively/quantitatively)</i>	<i>Responsible authorities</i>	<i>Deadline</i>	<i>Source of financing</i>
3.3. To develop a network of marinas and jetties by ensuring an appropriate range of services, safe navigation and positioning in the context of the Baltic Sea yachting routes and tourism destinations.	<ul style="list-style-type: none"> Increased number of yachts served in ports 	Quantitatively <u>Base value</u> (2018): 2262 ¹⁶⁴	MoEPRD, MoT, KPR, RPR	2030	EU funds, State budget
3.2. By planing investments within port development programmes, to take into account the risks posed by climate change, the need to adapt infrastructure or port activities to mitigate climate change risks or to adapt to new conditions, and assess options for improving energy efficiency, building infrastructure and innovative solutions that reduce GHG emissions.	<ul style="list-style-type: none"> Risks due to climate change are evaluated within the port development programmes and appropriate adaptation measures are included, and opportunities to reduce GHG emissions are evaluated 	Qualitatively	MoT, port authorities	2024	EU funds, State budget
3.3. To create a model for determining the impact of economic activities on long-shore sediment flow, assessing the process of coastal erosion and accumulation.	<ul style="list-style-type: none"> Study performed and model created 	Qualitatively	MoEPRD	2030	State budget
3.4. To develop spatial solutions (measures) for minimising erosion effects, including identifying sites suitable for extraction of sand for beach nourishment, as well as places that require beach nourishment, without posing a risk of negative impact on the marine ecosystem.	<ul style="list-style-type: none"> Spatial solutions (measures) developed for minimising coastal erosion in places with the highest risk of coastal erosion have been developed. 	Qualitatively	MoEPRD	2030	State budget

The indicative amount of additional State budget financing for the implementation of the measures cannot be determined as it depends on the long-term variable factors (including the opportunities for raising funding from various foreign financial aid sources). Consequently, the amount of additional State budget financing needed to implement the measures should be determined during the implementation of the MSP. If it is possible to calculate the amount of the State budget needed for the individual measures in the first interim evaluation of the MSP, a request for funds for priority measures under the mid-term budget shall be submitted in accordance with the procedures specified in laws and regulations.

¹⁶⁴ Sources: Data provided by the administration of Kurzeme planning region and Riga planning region regarding the number of yachts served in 2018

6.2. The role of local governments in implementing the MSP

Pursuant to the coming into force of the Land Management Law, the local government is the possessor of marine coastal waters in the marine coastal area, and carries out the planning of the area in the aquatorium within the possession thereof at a distance of 2 km from the coastline.

According to scale, the MSP also incorporates the use of marine coastal waters in the possession of local governments. Although the recommendations and interests of the local governments regarding the use of the coastal area in the possession thereof were evaluated during the elaboration of the MSP and Coastal Plan, considering the definitive scale and potential detail of this document, local governments should assess the need to develop more detailed thematic plans for the coastal area up to 2 km in distance from the coast.

The authorities responsible for the MSP – the MoEPRD, MAL and LIAE, as well as experts of the BIOR should be involved in the development of such thematic plans.

In turn, any type of building activity at sea at a distance of up to 2 km from the coastline, where the initiator of the work is a state or private stakeholder, should be coordinated with the adjoining local government.¹⁶⁵ This is required in order to avoid locating any features disturbing the development of tourism in significant coastal areas, either visually or impacting the environment, such as the quality of bathing water. Examples of such features might be WPPs or fish aquaculture.

6.3. Cross-border cooperation in implementation of the MSP

EU MSP Directive (2014/89/ES) prescribes that, as part of the planning and management process, Member States bordering marine waters shall cooperate with the aim of ensuring that maritime spatial plans are coherent and coordinated across the marine region concerned. Such cooperation shall take into account, in particular, issues of a transnational nature. The Baltic Sea of Latvia borders with Lithuania, Estonia and Sweden, and the MSP must harmonise the interests of Latvia with these states (see Annex 3) in all areas affecting maritime spatial planning.

An increasingly intense use of the sea means increasing pressure on the marine environment. The cumulative assessment of this impact and decision-making regarding the spatial distribution of economic activities and the interaction thereof, are some of the main aspects in cross-border cooperation. For example, an increase in fishing intensity endangers fish reproduction, a loss in fish nurseries and pollution endangers the ability of fish populations to reproduce etc. Bycatch poses risks to marine animals, various species of fish, diving birds and other organism communities, so cooperation at Baltic Sea region level would help find solutions for improving fishing gears and the use of innovative methods. The impact of benthic trawling on seabed biotopes is controversial. Similarly, increased construction work at sea, the dumping of sediment dredged during the deepening of ports, the impact of noise and vibration caused by ships on living organisms, various different types of pollution – these are the most significant impacts caused due to human activity.

In turn, MSP cross-border consultations are not limited solely to environmental aspects; the most important issues are the harmonisation of significant shipping directions between states, areas reserved for WPPs and extraction of mineral resources, the most significant fishing areas of Latvia and the neighbouring states in the waters of other EU countries, national defence interests, the construction of cables and pipelines, as well as aquaculture development and the technologies used for it.

The production of wind energy at sea, due to its relatively competitive costs, as well as in perspective of the creation of a new electricity transmission interconnection between Sweden and Latvia and Latvia and Estonia, may become pertinent in the MSP implementation phase until 2030. Important issues in the cross-border context for the development of WPPs are the reservation of the potential area, creation of connections onshore and existing and planned international electricity transmission interconnections offshore.

Fishery is a sector with long traditions; however, it is currently experiencing a downturn due to an insufficient amount of fish stocks. Fish stocks are managed with the aid of the national quota, however, all EU states have the rights to fish in the EEZ waters of EU states. Fishermen from Sweden, Denmark, Estonia and Lithuania fish in the waters of Latvia, and similarly fishermen from Latvia use these rights in the waters of the

¹⁶⁵ In compliance with Section 15, Paragraph two of the Land Management Law

neighbouring states. Therefore, the accessibility of important fishing areas both in the waters of Latvia, and outside them, is the interest of the fishery sector of Latvia.

The competition between ports for cargo, both domestically, and internationally, makes this sector sensitive with regard to the restriction of free movement of shipping with the MSP. However, the neighbouring states must be able to cooperate in order to achieve appropriate planned or potential shipping corridor (reservation) zones, especially considering the development of the autonomous shipping technology. The criteria for defining these zones and their connectivity are the most important issues in the shipping sector.

It is anticipated that in future the number of ships and their carrying capacity will increase. However, there are limiting factors – the depth of the Danish straits (approx. 17 m), which limits the maximum size of the ships that may enter the Baltic Sea.

The most significant issues in the shipping and energy sectors have been identified within the MSP (see Table 7), which may be resolved in the long-term, by cooperating with the Baltic Sea region states.

Table 7. The most significant issues identified during the stakeholder consultation process, for the subsequent resolution at BSR level (source: BalticLINES project¹⁶⁶)

In the shipping sector	In the energy sector
<p>Future shipping intensity in the Baltic Sea The future shipping intensity, development and use of ships and shipping technology, changes in the types of cargo must be described for future forecasts and scenarios.</p>	<p>Development of offshore WPPs in neighbouring states What are the plans of the neighbouring states with respect to the marine (offshore) WPPs, and is mutual coordination possible and necessary? What are the examples of best practice?</p>
<p>Coordination of the LNG development plan with the BSR The LNG development plans and ship bunkering opportunities should be developed in a coordinated and mutually enhancing way, especially where development is being implemented by attracting public funding.</p>	<p>The role of marine WPPs in the decarbonisation of the transport sector What are the BSR country experiences for the development of a sustainable and effective transport system in the long-term, creating decarbonisation opportunities for all transport types, changing to new and innovative transport technologies with a low carbon emission? What are the opportunities and role in this process for marine WPPs? What are the examples of best practice?</p>
<p>The adapting of the Danish straits to allow for the passage of larger ships Clearer long-term signals are required for the shipping sector whether the deepening and adapting of the Danish straits or other shipping access opportunities in the Baltic Sea may become a regular agenda item. And, if so, whether this is an issue before or after 2050?</p>	<p>Marine WPP support policy The role of the public sector to ensure the investigation and data publishing of marine WPP construction sites. What are the balancing opportunities and conditions for marine WPPs (for ensuring energy production during periods of no wind)? State support in the development of WPPs (connection infrastructure, WPPs) especially in the development of those WPPs that have less impact on the environment, have a higher coefficient of performance and longer life cycle.</p>

166 Project information available on MoEPRD website: http://www.varam.gov.lv/lat/darbibas_veidi/tap/lv/?doc=22660

In the shipping sector	In the energy sector
<p>Adaptation to climate change Planning and implementation of shipping sector experience and best practice adaptation measures.</p>	<p>Marine current studies Marine current studies and models about the potential creation of sediment, which may be caused by the foundations of new structures (wind turbines) in the seabed, and how this affects shipping routes.</p>

6.4. Monitoring of the implementation and updating of the MSP

In accordance with Directive 2014/89/EU of the European Parliament and of the Council establishing a framework for maritime spatial planning (adopted 23rd July 2014, came into force on 18th September) based on the monitoring of the implementation of the MSP, the review or updating thereof must be performed.

The MSP is maintained in electronic form to be user friendly and easily accessible. Once a year, the MoEPRD reviews the actual use of the sea and updates the geospatial data and maps of the MSP as required. In compliance with regulatory framework, once every six years, the MoEPRD prepares an informative report regarding the implementation of the MSP and submits it to the CM for reviewing.

Monitoring of the implementation of the MSP comprises two main concepts:

- MSP implementation;
- The impact of the activities defined by the MSP on the environment, economy and social aspects.

The implementation indicators of the MSP are as follows:

(A) Input indicators:

- The authority responsible for the MSP has been defined, it coordinates the development of the MSP and monitoring of its implementation and review or updating;
- The authorities that are involved in the MSP process and simultaneously ensure the implementation thereof have been defined;
- The necessary financing is ensured for the development, monitoring, review and updating of the MSP;
- The MSP process is assured with qualified specialists and experts.

(B) Process indicators:

- An MSP development and monitoring working group has been established;
- The stakeholders have been defined and are involved in the MSP process;
- The stakeholders are satisfied with their participation in the MSP process;
- A scientific consultation committee has been established for the MSP process.

(C) Output indicators:

- A policy and legal framework ensures the implementation of the MSP and intersectoral integration;
- Information and data are regularly collated and supplemented, ensuring the implementation, review and updating of the MSP;
- The issuance of permits and licences is straightforward, mutually coordinated and open;
- The objectives and priorities of various sectors for the use of the sea are harmonised during the MSP process;
- Cross-border cooperation is ensured in the planning and use of the marine space.

The interim assessment of the implementation of the MSP includes a qualitative assessment of the MSP implementation indicators and a description of the implementation of the MSP programme of measures (see Table 6). The indicators of measure implementation are assessed qualitatively, describing how the implementation of a specific measure affects the sustainable use of the marine space and quantitatively, describing the changes in the quantitative indicator against the base value defined in 2018.

MSP Indicators for the impact of the sea use activities on the environment, economy and social aspects

The marine environment monitoring programme for the implementation of sea use is implemented in accordance with the Environmental Monitoring Programme for 2014.-2020, arising from the European Parliament and Council Directive 2008/56/EC „Marine Strategy Framework Directive”. In order to improve the monitoring programme after 2020, LIAE plans to obtain and analyse new environmental information by 2022, as well as prepare proposals for marine environmental indicators¹⁶⁷.

The economic and social aspect of the MSP impact is assessed, based on the economic and social analysis that is included in the marine assessment as required by the Marine Strategy Framework Directive.

In addition to the aforementioned monitoring and assessments, the MSP envisages regular coastal process monitoring in accordance with the State monitoring programme.

Minister for Environmental Protection and Regional Development

J. Pūce

167 EU's European Maritime and Fisheries Fund Action Plan for the development of fisheries for 2014-2020 priority "Promoting the implementation of an Integrated Maritime Policy" supported measure "Improving knowledge of the marine environment" under project No 17-00-F06803-000001