ESTONIAN MARITIME SPATIAL PLAN

DRAFT PLAN

Maritime spatial planning is a tool for the ***long-term planning of the use of the sea*** in order to ensure **economic benefits** resulting from the exploitation of marine resources as well as the value of the sea and coastal areas as **socially and culturally important** areas. Upon maritime spatial planning, it has to be kept in mind that any human activity is based on the achievement and maintenance of the **good status of marine environment**.

2019

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1. INTRODUCTION

The aim of the maritime spatial plan (MSP) is to agree on the *long-term* principles of Estonian marine area use *in order to* attain and maintain a good status of the *marine environment* and promote the *maritime economy*. The areas and conditions in which activities can be carried out will be defined by the plan. During the preparation of MSP, *synergy* between the existing marine uses and the planned activities will be addressed. The impact of these activities on the marine environment and economy as well as their socio-cultural impacts will also be assessed. In the future, the adopted MSP will serve as *a basis for decision-making processes for ministries and other authorities to allow different uses of the marine area*. It will also serve as a guide for the activities of businesses, investors, local authorities and coastal communities. The MSP must be taken into account in the preparation of subsequent plans, in admission of permits for different uses and in composing of national and local government's strategic development documents, including comprehensive plans.

This document is the *draft plan* of the maritime spatial plan. The draft plan consists of the description of marine uses (ch. 5). In the examination of different marine uses, the reflection of the current situation is deemed important to create an understanding of the spatial requirements of the uses. The planning solution presents the priorities of spatial development, guidelines (general instructions given with the plan) and requirements (which are obligatory) by areas of activity. In the next phase of the plan, the main planning solution will focus on the future uses of the marine area and the structure of the document is changed accordingly.

The draft plan reflects the combined use of the Estonian marine area*, including the future trends, vision* and *spatial development principles* of the marine area (ch 3). In the preparation of the draft plan, *primary environmental considerations have been taken into account (sub-chapter 4.2). The input of the Impact Assessment Task Group to the draft plan is presented by areas of activities where the most important associated impacts are brought out (ch 5). Associated impacts are analysed more thoroughly within the framework of the main solution with a separate impact assessment report (incl. SEA report) created.*

After the publication of the draft plan (in spring 2019), the solution will be refined, taking into consideration additional analyses[1], impact assessments and feedback from the public. The *main planning solution* will be completed in the fall of 2019.

[1]In March 2019, MTÜ ProMare compiled an analysis on seals and Birdlife Estonia will present an analysis of bird stopover locations in July. To increase the depth of marine habitats and ecosystem services, ecosystem service map layers are created in February-April (services that are important and of which we have enough data to model them).

2. STARTING POINTS

When compiling the Estonian MSP, both European and Estonian framework documents and planning guides were used as basis (see diagram 2.1). The requirement to establish a plan to regulate the intensifying use of marine areas is stipulated by the Directive 2014/89/EU of the European Parliament and of the Council which establishes the framework for the maritime spatial planning. In the Estonian jurisdiction, the guidance on maritime spatial planning is provided by the Planning Act which enforced on 1 July 2015. The effective and sustainable use of the marine area and Estonia's openness to the sea is stressed by the nationwide plan "Estonia 2030+".

Spatial planning of marine area is conducted simultaneously in many countries. In the European Union, the basis for the long term use of the marine area consists of the integration of the maritime policy and its improvements[2] and the guidelines created on the basis of it, e.g. the report by the European Commission on the development opportunities of the blue economy.[3] Joint principles have been developed for the integrated and well-balanced planning of the Baltic Sea[4]. Also, the guidelines for the implementation of ecosystem-based approach in the Baltic Sea region can be used in the planning process[5]. The principles agreed in 2010 help to achieve the good environmental status of the Baltic Sea and thereby enable the use of ecosystem services provided by the marine area.

In the preparation of the Estonian MSP, the experience of Hiiu and Pärnu County of preparing maritime spatial plans is used. The established solutions of the maritime spatial plans of Hiiu and Pärnu marine areas, including areas and requirements for various uses, will be taken into account. Hiiu and Pärnu maritime spatial plans will stay valid even when the nation-wide maritime plan is enforced. With the decision of the Supreme Court of 8 August 2018, the Hiiu maritime spatial plan was abolished with regard to sections covering offshore wind energy (case 3-16-1472). With regard to other topics, the Hiiu maritime spatial plan remains valid.

The Estonian MSP covers the entire Estonian marine area: both the internal sea, territorial sea as well as the exclusive economic zone (see diagram 2.2). In the MSP, land area is defined through the functional interactions (so-called land-sea interactions)[6]. The MSP provides guidance on the planning of land areas for national designated spatial plans, comprehensive and designated spatial plans of local governments and detailed spatial plans. Land-sea interactions are specified in the main planning solution.

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[2] https://eur-lex.europa.eu/legal-content/ET/TXT/PDF/?uri=OJ:L:2011:321:FULL&from=EN

[3] https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52012DC0494

[4] http://www.helcom.fi/action-areas/maritime-spatial-planning/msp-principles

[5] http://www.helcom.fi/action-areas/maritime-spatial-planning/msp-guidelines/

[6] Here and henceforth, land-sea interactions are considered as activities carried out either on sea or land, but which support activities carried out on land or sea, respectively. For example, fishing activities require a fishing port or landing place, sea rescue requires access to sea from land, maritime transport requires harbours.

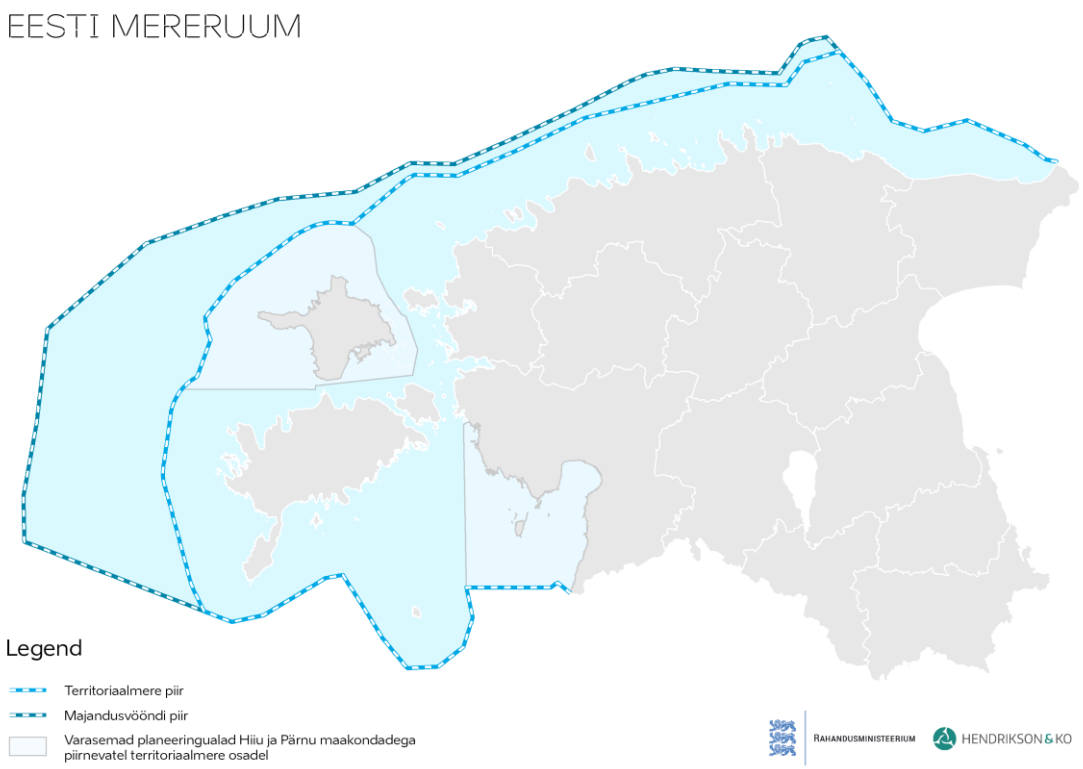


Diagram 2.2. Estonian marine space as an area of the MSP.

The Estonian MSP is a strategical spatial development document at the state level. By virtue of the level of abstraction, the aim of this plan is not to guide further developments at the level of local governments nor at the detailed level. Environmental considerations and the best available knowledge were used as basis for the preparation of the planning solution[7]. Use of the best knowledge is ensured by a broad-based group of specialists, cooperation with other countries, agencies and interest groups, as well as additional analyses.

As the rules for the traditional marine uses have been developed (e.g. fishing, maritime transport), the primary focus of the plan is the combined use and new uses of the marine area. Guidance is provided to all areas of activity to accommodate all different uses of the marine area.

A more thorough description of the starting points of the MSP can be found from the document Initial Outline for the Estonian MSP and The Memorandum of Intention to Conduct Impact Assessment.

[7] The approach is based on the Directive 2014/89/EU which established a framework for maritime spatial planning.

3. TRENDS, VISION AND PRINCIPLES OF SPATIAL DEVELOPMENT OF THE MARINE AREA

The Estonian marine area is characterised by the following long-term *trends*:

- Use of the marine area is intensifying
- The improvement of the status of the marine environment requires acute attention from Baltic Sea countries
- New uses are emerging: renewable energy, aquaculture, infrastructure networks
- Traditional uses of the marine environment are diversifying. Cargo transport increases, passenger traffic is influenced by potential permanent connections. Hobby fishing and sailing is on the rise. The fishing industry is not an important employer, but operates as an industry that values local resources. Recreational use is growing.

According to the ecosystem-based approach, the planning must take into account the risk factors for the marine area and cumulative effects.[8]
The most significant negative anthropogenic effects on the Baltic sea are eutrophication, chemical contamination, overfishing of marine biological resources and spread of non-native species. Climate change related circumstances may have a big impact. A poor environmental status results in significant negative economic impact, for example, to the economic sector related to marine tourism, fishing aquaculture, and human health and welfare may decline.

The long term vision for the Estonian *marine area* is:

Estonian marine area has a good environmental status, diverse and balanced use and promotes the growth of blue economy.

To achieve this vision, an ecosystem-based approach has to be taken with regard to all traditional and new activities taking place in the Estonian marine area. The following spatial development *principles* **ought to be followed:**

- Estonian marine area is characterised by a synergistic combined use
- Use of the marine area has to be diverse, with regionally appropriate activities favoured
- The marine area is used as a public good, including through ecosystem services
- Decisions concerning the marine area are evidence-based
- Decisions related to the marine area involve cooperation and communication between states, agencies and interest groups

[8] *Guideline for the implementation of ecosystem-based approach in MSP in the Baltic Sea area*

4. METHODOLOGICAL FRAMEWORK

4.1 Broad-based planning process

The draft plan of the MSP was developed based on the generalised diagram shown below.

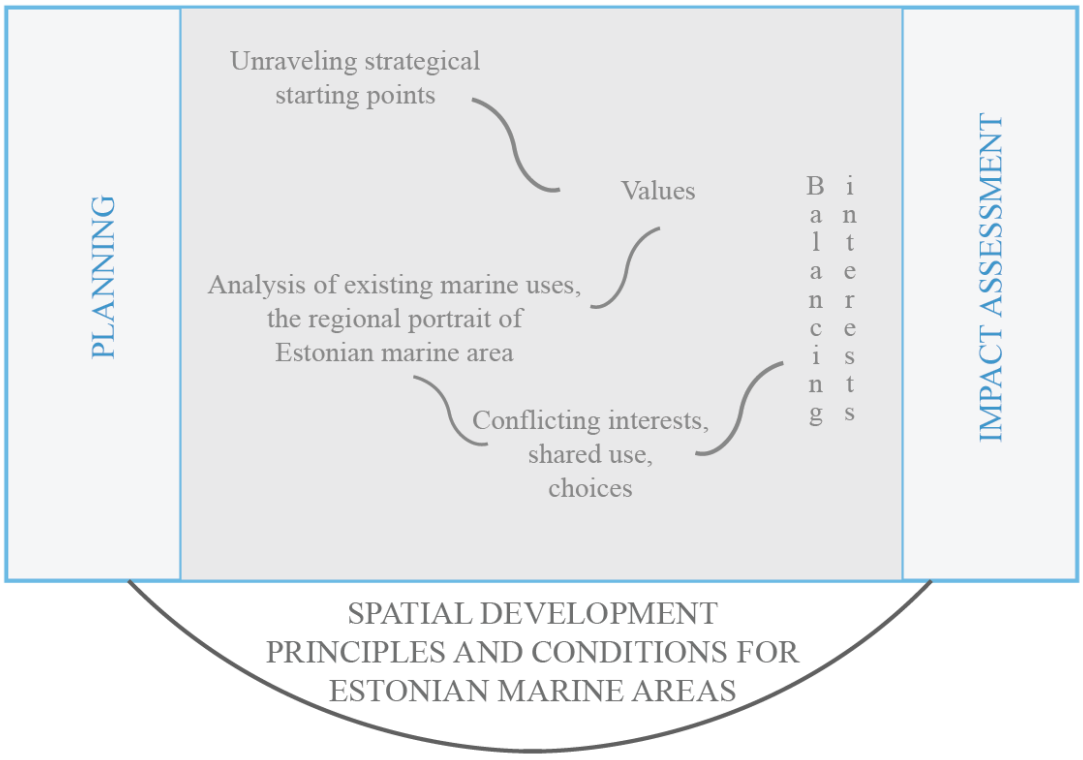


Diagram 4.1. The methodological framework of the Estonian MSP.

In addition to the source documents described in the previous chapter, the basis for the development of the solution also included the marine values mapped during the public discussions that took place in the coastal counties of 2018. Values and interests, including use so far and new trends were included in the draft plan and discussed with interest groups and impact assessment specialists.

The maximum possible positive combined effect was sought after during the planning of the combined use of the marine area. Upon the emergence of conflicts and negative impacts, efforts were made to avoid incompatible uses. Measures mitigating the associated impacts are developed during the preparation of the main solution and IA report.

4. 2. Environmental considerations

4.2.1 The focus of the assessment of relevant impacts of the MSP

In addition to the compatibility of different uses of the marine area, it is important to take into account broad-based environmental considerations already during the early stages of planning. The basis for sustainable use of the marine environment is the direction of different uses through the consideration of their nature and the natural conditions of the sea. Therefore, *the potential impacts of the marine uses were analysed* as part of the development of the draft plan. The analysis of the impacts has enabled to address activities both spatially as well as through the use of the guidelines and requirements provided in the plan with the aim of achieving and maintaining a good environmental status.

The draft plan gives an overview of the uses of the marine area and provides guidelines and requirements for development that is sustainable and considerate of other uses. In case of many uses (fishing, maritime transport, sea rescue, pollution response, border patrol, seabed infrastructure, maritime tourism and recreation, conservation of nature, marine culture, national defence, natural resources and dumping), the MSP does not foresee considerable spatial changes. With regard to these uses, the legislation and practice of sea use is already in place. After the implementation of the plan, the current situation continues in relation to these uses, including with regard to environmental impact.

The focus of the MSP is directed primarily towards new marine uses, in the case of which the interest for development is already there or predictable due to reliable assumptions: **aquaculture and energy production**. To develop these fields of activities, the plan determines both the guidelines as well as requirements, and with regard to wind energy, also the spatial development areas. With new fields of activities, the plan can be considered as a document that creates new opportunities, which may also have an impact on the environment.

In the draft plan, the fields of activities (ch. 5) have been accompanied with the summaries of associated impacts (subsections "Associated impacts"). The most important environmental aspects, which will be analysed more thoroughly during the elaboration of the draft plan and in the impact assessment report, have been provided primarily for new fields of activities. The aspects that have to be addressed in the implementation are also pointed out.

The initial assessment of impacts performed already in the draft plan stage helped to develop the best possible solution at the strategical level. The following is an overview of what kind of environmental aspects were considered in the development of the draft plan and how the environmental impact was thereby prevented and/or mitigated.

4.2.2 The environmental considerations on which the draft plan was based

To achieve and maintain a good environmental status of the sea, a network of both nationally as well as internationally protected natural areas (incl. areas under planning) was taken into account in the development of the planning solution. New uses that could have an adverse impact on the environment have not been spatially planned for these areas. The principal locations of the cable corridors of offshore wind farms, which are addressed in the main planning solution, may be an exception to this. The possible impacts on the social and cultural environment (for example, the limitation to place wind mills closer than 10 km of the coast; the maintenance of aquaculture facilities by fishermen to promote the synergy of fields of activity) have also been considered.

One of the most important new use of the marine area **is wind energy** and, in addition to guidelines and requirements, the plan also determines the development areas. In determining the areas for wind energy development, first the suitable conditions for wind energy were considered (wind, depth of sea, formation of ice, etc.) and on the basis of these, the areas in principle suitable for the construction of wind farms were selected (see subsection 5.5.2). These areas were specified by excluding the overlap with known environmentally valuable areas (incl. protected areas; most important known migration corridors of birds and bats). The areas suitable for wind energy development have also been reviewed by seal specialists and an additional report on seals[9] is taken into account in the assessment of impacts in the main planning solution. To mitigate impacts (visual impact, noise, shadowing, etc.) on people, areas nearer than 10 km (including permanently inhabited islands) were excluded. To prevent conflict, the wind energy development areas were excluded from areas specific to national defence and other areas unsuitable for other reasons of national defence. This is how the best possible solution for wind energy development areas was found to a degree of accuracy appropriate for a nationwide MSP and on the basis of existing information. In addition, to achieve a positive socio-cultural and economic combined effect, the development of aquaculture, primarily shellfish farming, is preferred in the wind energy development areas.

The second new marine use in the Estonian MSP is **aquaculture.** No specific areas are specified for this use in the MSP, but guidelines and requirements are provided for the development of the field. The more specific areas of aquaculture are determined within the framework of the permit proceeding (incl. assessment of environmental impacts) during which the guidelines and requirements provided in the MSP must be taken into account. For example, the draft plan prohibits the establishment of fish farms in the areas of protected natural objects. This requirement minimises the impacts of fish farming on naturally valuable areas. The most significant impacts of fish farming are related to change of water quality and destruction of seabed habitats near the farm. The guidelines provided in the draft plan promote cluster solutions, i.e. simultaneous development of several different uses, for example the impact of nutrients from the fish farms is mitigated by shellfish and seaweed farms created together with the farms.

[9]Estonian Maritime Spatial Plan: Assessment of seal distribution and use of marine areas Report of the applied research contract No. 1.9-1/404-1. MTÜ Pro Mare, March 2019.

With the draft plan, the relevant cumulative impacts were mapped within the context of the Estonian MSP and these are assessed within the framework of the assessment of strategic impacts. In the preparation of the main planning solution and impact assessment (IA) report, the impacts on economic areas are analysed in greater detail, for example the impact of wind energy and combined effects from other uses (e.g. trawl fishery), by using the economic benefit model of the marine area[10].

4.3 Superficies licence applications in the marine area

Several applications for superficies licences have been submitted in the area covered by the MSP. In the case of some applications, the decision to initiate or refuse the proceeding of the superficies licence has not been made yet.

The Maritime Spatial Plan was initiated with the order No. 157 of the Government of Estonia on 25 May 2017. An Act to Implement the Building Code and the Planning Act prescribes a special regulation for the superficies licence applications submitted before the enforcement of the law (1 July 2015), stipulating that the proceeding of the superficies licence application submitted before the enforcement of the law is completed according to the effective legislation at the time of the submission.

The requirements for the proceeding of superficies licences (incl. initiation) are stipulated in the Water Act. The effective Water Act prescribes that the initiation of the proceeding of the superficies licence is refused if the drawing up of a spatial plan of the area has been initiated and the planning proceedings have not been completed (clause 22^8 (2) 2)). The above shall not apply if the applicant agrees that the superficies licence is issued for the period of validity of one year after the adoption of the plan.

As several applications for superficies licenses have been submitted before the initiation of the MSP, the current Water Act does not apply to them. In consideration of the stipulations of the Act to Implement the Building Code and the Planning Act, the Water Act that was effective at the time of the submission of requests needs to be taken as basis with regard to these cases. The Water Act that was valid until 30 June 2015 stipulated that the initiation of the commencement of proceedings on superficies license is refused if a county plan has been initiated on the area under consideration and the planning proceedings have not been completed. Therefore, with regard to the applications for superficies licenses that were submitted before 1 July 2015, the grounds for refusal from the initiation of commencement of proceedings arise from the fact that a county plan has been initiated and the preparation thereof has not been completed. The preparation of the MSP does not affect the initiation of the commencement of proceedings of superficies licenses. In addition, the decisions to give the issue of superficies licence on the basis of superficies licence applications

[10] The main planning solution is inserted into the economic benefit model of the marine area, after which the statistical analysis of the model's output is performed. The methodology of economic benefits found with the model is provided in the document compiled by Praxis (2016) "Basic research of the Maritime Spatial Plan: Model of Economic Benefits Received From the Resources of the Marine Environment" (http://mereala.hendrikson.ee/uuringud.html)

submitted before 1 July 2015 must be based on the legislation effective at the time. The aforementioned regulation prescribed, inter alia, that the superficies licence is not granted if the requirements of the requested superficies license are contradictory to the effective county plan. A contradiction with the MSP was not something that the regulation in force at the time prescribed as grounds for refusal.

Therefore, the commencement of proceedings, including the decision, of superficies license applications submitted before 1 July 2015 is carried out according to the requirements of the legislation, primarily the Water Act, effective at the time of the submission of the superficies license application. These have no relation to the MSP, i.e. the proceedings thereof do not have to take into account the stipulations of the MSP. In the commencement of proceedings and deciding of the superficies license requests submitted after 1 July 2015, the principles, guidelines and requirements stipulated in the MSP need to be taken into account. Additionally, specifications apply to applications that were submitted after 1 July 2015, but for which the decision on initiation was made before 25 May 2017 or before the initiation of the MSP. With regard to those, the initiation of the commencement of proceedings cannot be refused on the basis that drawing up of a spatial plan of the area has been initiated and the planning proceedings have not been completed (clause 22^8 (2) 2)). However, the provisions of the MSP have to be considered in the decision to grant a superficies license if the marine plan has been enforced at the time of the decision.

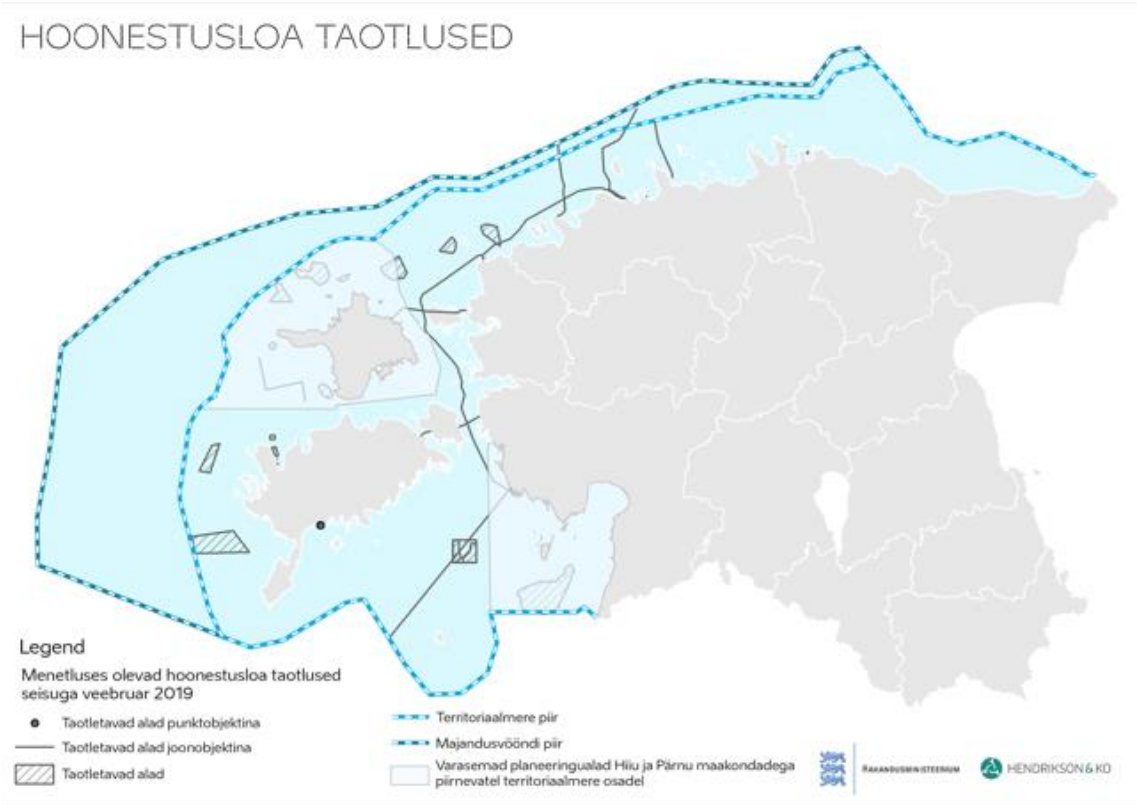


Figure 1. Applications for superficies licences

5. USE OF THE MARINE AREA

In the following chapters, the current situation of marine uses is briefly described and the draft plan presented. The planning solution presents the priorities of spatial development, guidelines (general instructions given with the plan) and requirements (which are obligatory) by areas of activity.

5.1 Fishing

5.1.1 Current situation

Fishing in the Estonian marine area is an industry that values the local resource, provides a healthy food supply, helps to balance foreign trade and creates jobs.

Due to changes in the economy, the number of people employed in the fishing industry has decreased considerably over the last ten years. Most coastal fishermen do not earn their main income from fishing, instead they are also employed in forestry, tourism or other industries. However, the number of coast fishermen has increased slightly in the last decade (2009 — 1,671 coastal fishermen, 2016 —1,952 coastal fishermen). Fishing is still an important industry in the dispersed settlements of the Estonian coastal regions and islands and will continue to be in the future.

1,010 employed in the fishing and aquaculture industry

2,220 employed in the fishing industry

80% of fishing on the high seas of the fishing in the Estonian part of the Baltic Sea

20% of coast fishing of the fishing in the Estonian part of the Baltic Sea

Hereinafter the numerical data is presented as of 2017, if not specified otherwise

According to "Fishing Strategy 2014–2020", the main aim of Estonian fishing is the sustainable development of the industry and increase of the competitive power of fish production on domestic and foreign markets. The consumption of fish products is on the rise in Estonia, although it remains modest compared with other coastal countries. Most of the production is exported. Most of the catch from Estonian marine areas consists of Baltic herring and sprat, which are mainly processed for human consumption. A large percentage of the fish stocks have been assessed to be sustainable.

Fishing is probably the oldest use of the marine area with the longest traditions. Best fishing locations for passive gear and good trawl routes are of limited numbers. Although according to legislation, the fisherman may place a net to a large area of sea, the selection of the specific location is mostly regulated by agreements between fishermen, and nets are not placed where another fisherman has placed theirs.

5.1.2 Spatial layout

The intensity of pelagic trawling in the Estonian marine area is higher in the western part of the Gulf of Finland, the exclusive economic zone west of Saaremaa and east of Ruhnu island. Trawling is not allowed in Väinemeri Sea, Pärnu Bay and other marine areas that are shallower than 20 m. The Estonian fleet of trawlers and total catch of trawling has decreased in the last decade. Catch of trawling has primarily decreased due to the decrease of the quota on sprat.

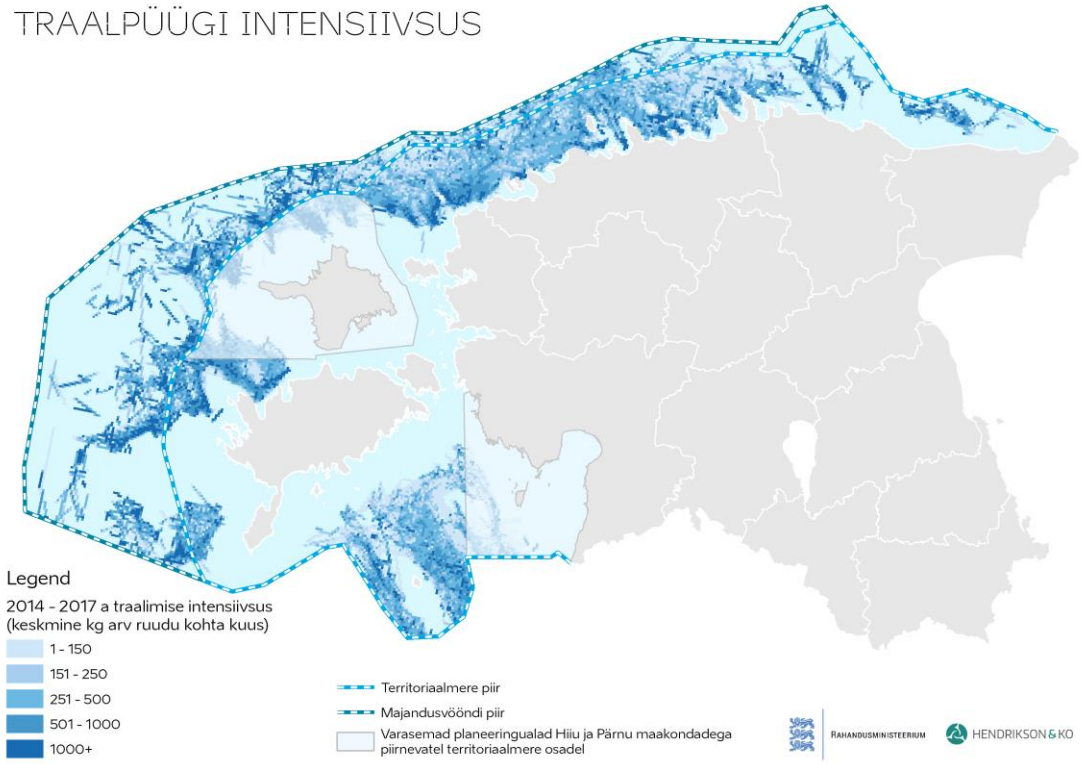


Figure 2. Intensity of trawling

Of coastal fishing areas, the most important in terms of catch volume and income is Pärnu Bay. Locations with above average catches are Suur strait, southern coast of Saaremaa near Sõrve peninsula and a few areas in the eastern part of the Gulf of Finland. These are all areas where Baltic herring is caught with basket traps in the spring. This fishing method and species enable high levels of catch. The size of the catch does not reflect the intensity of use of the marine area by fishermen. Fishermen also use areas where catches are smaller intensively, but the species there are more expensive than Baltic herring. The use of marine areas for fishing also depends on the population of the coastal region.

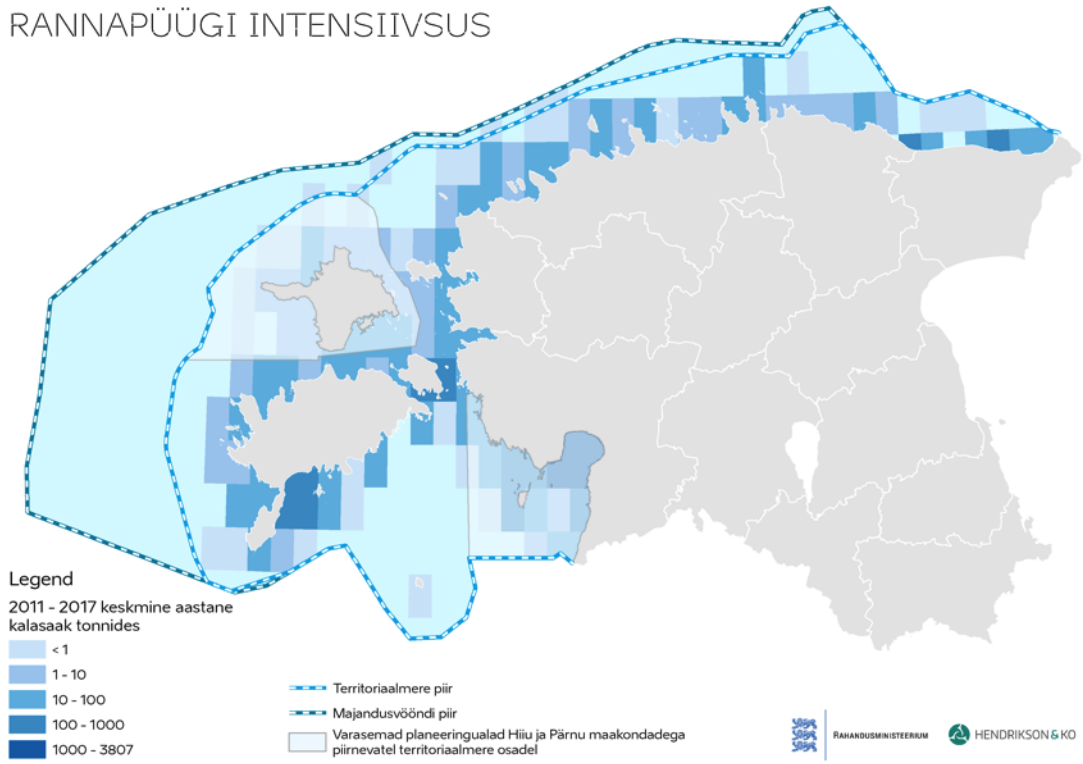


Figure 3. Intensity of coastal fishing.

Fishing is totally prohibited only in a few limited areas of the Estonian marine area and this is to protect the fish. In most cases, fish is not caught in the water areas of harbours nor on fairways. For the rest of the marine area, fishing is carried out with varying intensity depending on the region and period.

5.1.3 Planning solution

Fishing takes place throughout the Estonian marine area, except for the areas where fishing is restricted by legislation. The MSP provides guidelines and requirements on the basis of combined use of the Estonian marine area.

The spatial priorities of fishing in the Estonian marine area are:

- Preservation of spawning grounds for the natural recovery of fish stocks.
- Free access to fishing areas (coastal fishing, trawling), fishing ports and landing sites for the effective use of fish stocks

Guidelines:

1. Coastal and hobby fishing is more active in the coastal and shallower waters.
2. Preserve important spawning areas in different areas of the sea. The spawning areas are more sheltered areas in the coastal waters, especially in the Väinameri sea, but also ends of peninsulas (flounder), off-shore shallows (autumn Baltic herring, flounder).

Requirements:

1. Trawling used for catching bulk fish (Baltic herring and sprat) is allowed in Estonian marine areas that are deeper than 20 m. In shallower areas, trawling would damage the seabed and therefore the biodiversity.
2. In the proceedings of permits for ports and bridge construction, aquaculture development, establishment of pipelines, wind turbines, dams and thermal pumps, and underwater cables, it must be ensured that spawning areas are not negatively affected.

5.1.4 Preliminary impact assessment

Natural environment

With regard to fishing, the MSP does not stipulate a spatial use that is considerably different from the current use, which is why the implementation of the plan brings about no additional impact on the natural environment. With regard to the natural environment, the plan provides general supportive guidelines: continued depth limit for trawling, which saves marine habitats and biota, especially in the more diverse shallower marine areas (less than 20 m of depth). The plan stipulates the need to preserve spawning grounds, which helps to ensure the sustainability of fish stocks.
The combined effects of other marine uses with fishing are addressed in the IA report, in which it is important to focus on, for example, the associated impacts of the planned wind energy and aquaculture development on fishing.

Social and cultural environment

In terms of fishing, the MSP does not prescribe a spatial use that is considerably different from the current use, which is why the implementation of the plan brings about no additional impact on the social and cultural environment. The plan prescribes supportive guidelines for both fishing and traditional marine uses, which enable a sustainable development of the field. For fishermen, neither the size of the catch nor the income from fishing should decrease due to the more diverse use of the marine area.

Economic environment

With regard to fishing, the MSP does not prescribe a spatial use that is considerably different from the current use, which is why there are no direct economic impacts. However, it is important to preserve the spawning grounds and fishing areas to ensure the competitiveness of the Estonian fishing sector and its contribution to the Estonian economy. Fishing is an important business area and employer in the Estonian economy.
Generally, the marine areas suitable for fishing do not hinder the activities of other economic areas. The fishing sector promotes the coastal culture and the preservation of associated economic activities, which in turn contributes to the development of business of the coastal areas and to the existence and creation of jobs. Fishing has great potential for development and export, and considerable potential for foreign investments.

Impact on health

Fishing provides an opportunity to diversify people's diets with fish and fish products, which include components beneficial to health and thereby help reduce the risk of diseases (e.g. cardio-vascular). However, it is known that pollutants (dioxins, etc.) accumulate in the fat tissue of fish and these can also have a negative impact on health in certain conditions. To avoid this, the quantities used can be reduced and less fatty and younger fish could be favoured.

5.2. Aquaculture: fish, seaweed and shellfish farms

5.2.1 Current situation

Aquaculture is an area of the blue economy with great potential, the development of which strengthens the competitiveness of the economy and helps to improve the environmental conditions of the sea.

50% of the production of fish, crayfish and shellfish is obtained by way of aquaculture in the world

65,000 people work in aquaculture in Europe

Aquaculture or the farming of fish, shellfish, crayfish and water plants (e.g. seaweed) is one of the fastest growing blue economy sectors in the world[11]. Thus far, only fish has been farmed in Estonia and this has been mainly done in inland waters and closed fish farming systems, but the technologies for offshore farming are currently in development. Of the sold aquaculture products, rainbow trout is the most prevalent in Estonia and its proportion has been growing with each year (81% in 2017). Other fish species are also farmed and sold: Arctic char, eel, African sharptooth, catfish, carp, sheatfish, Sturgeon (Siberian and Russian sturgeon) and grass carp. The European crayfish makes up 0.1% of the aquaculture production. In recent years, the level of know-how of the seaweed and shellfish farming opportunities in the Baltic Sea region has grown considerably and in the following years, operational seaweed and shellfish farms are expected to be established in the Estonian coastal waters. Red algae and edible shellfish farming attempts have already been made in the Väinameri sea, Gulf of Riga and open sea areas of the Baltic Sea; hopes are set on finding the production technology suitable for the Estonian conditions. In seaweed farming, the first pilot projects have been launched to develop farming technologies. The development of shellfish farming has been initiated by the private sector. In other countries around the Baltic Sea, seaweed and shellfish farming has shown great potential in reducing the eutrophication of the marine environment.

"Fishing strategy 2014-2020" provides a guideline to focus on farming those aquaculture species that have a clear competitive edge on the Estonian as well as European markets.

[11] FAO 2018 http://www.fao.org/3/i9540en/I9540EN.pdf

There is great potential to farm edible shellfish in the Estonian marine area. According to current knowledge and upon the use of the best regional technologies, the yield of shellfish in the Estonian off-shore areas is in the same magnitude as Danish straits and the cost of production is presumably economically competitive for large-scale farms.

5.2.2 Spatial layout

To identify suitable areas for the aquaculture of invertebrates and seaweeds, and the growth potential of shellfish, the best information available was used concerning the physicochemical characteristics of the examined marine area, the biota and habitats of the seabed. In specifying the areas suitable for aquaculture, the maps of modelled growth potential of the most important invertebrates and macroalgae in aquaculture were used as input. According to the basic research of the MSP, the areas suitable for shellfish farming are mostly located in marine areas west of Saaremaa and Hiiumaa. Seaweed farming is also viable in the western part of Väinameri sea and Gulf of Finland. The maps were made with support from the project "Compiling regional aquaculture plans to manage possible environmental pressures" of the European Maritime and Fisheries Fund.

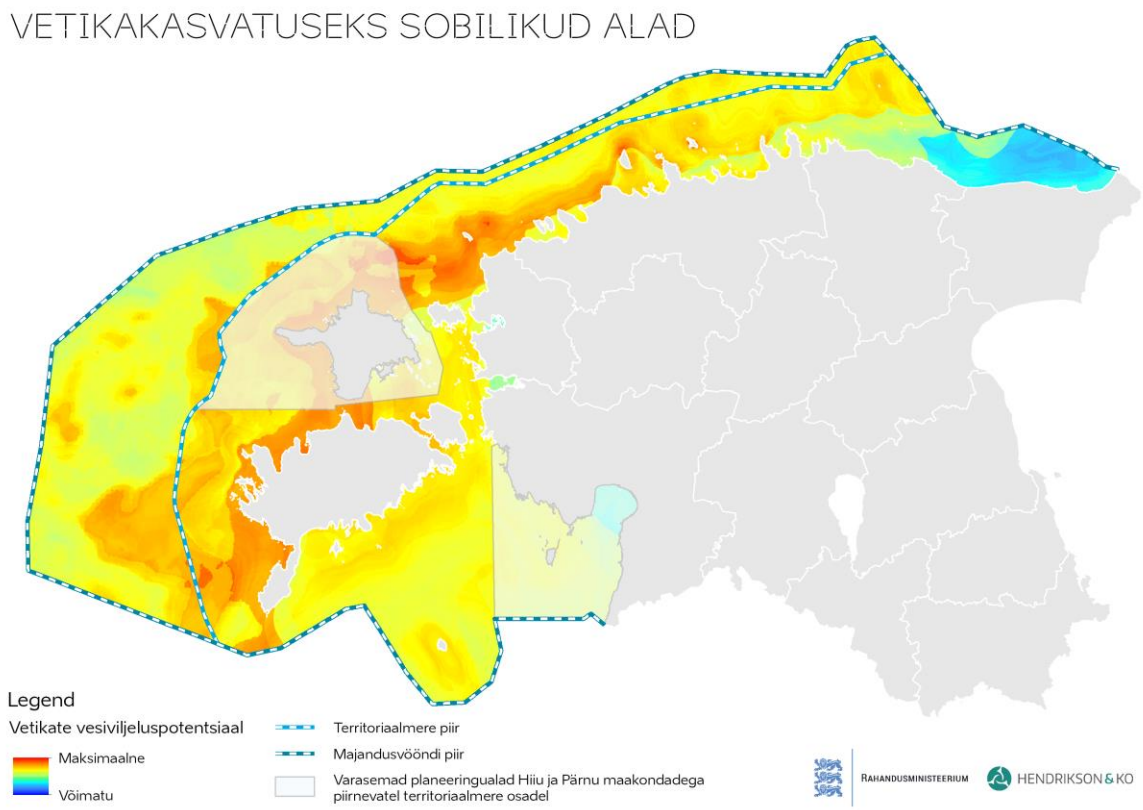


Figure 4. Areas suitable for seaweed farming

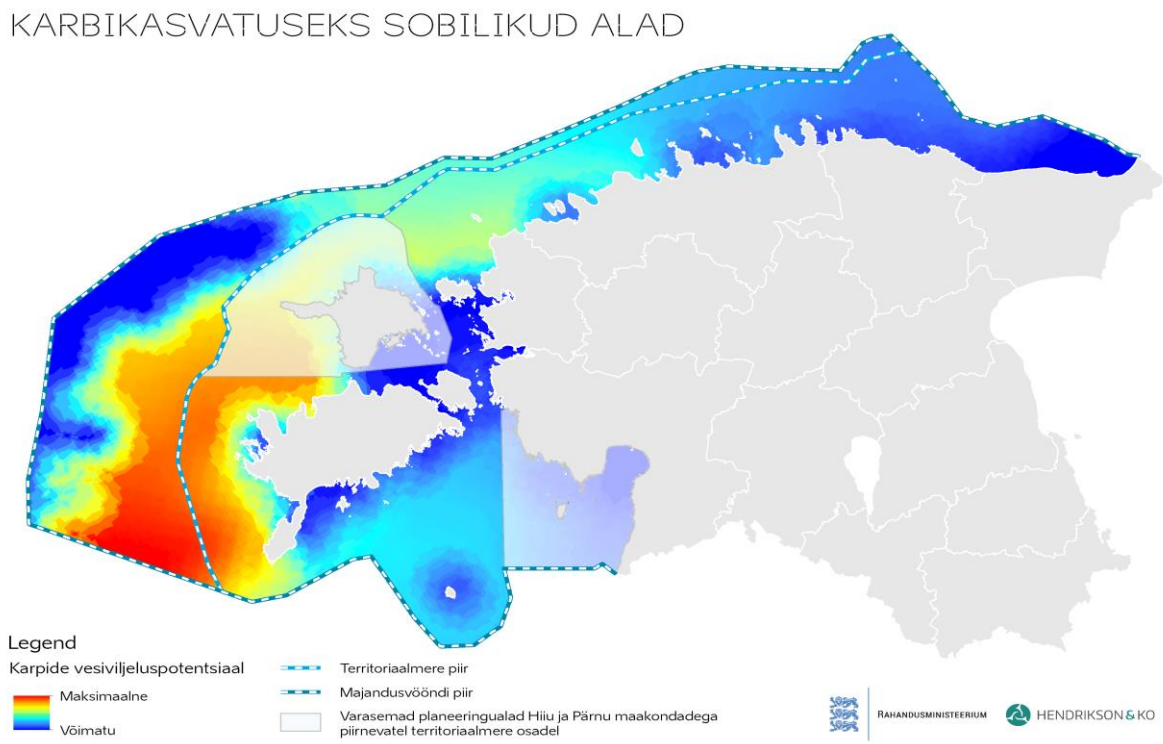


Figure 5. Areas suitable for shellfish farming

There is a lot of interest in developing the field. As of February 2019, the situation of superficies license applications is the following.

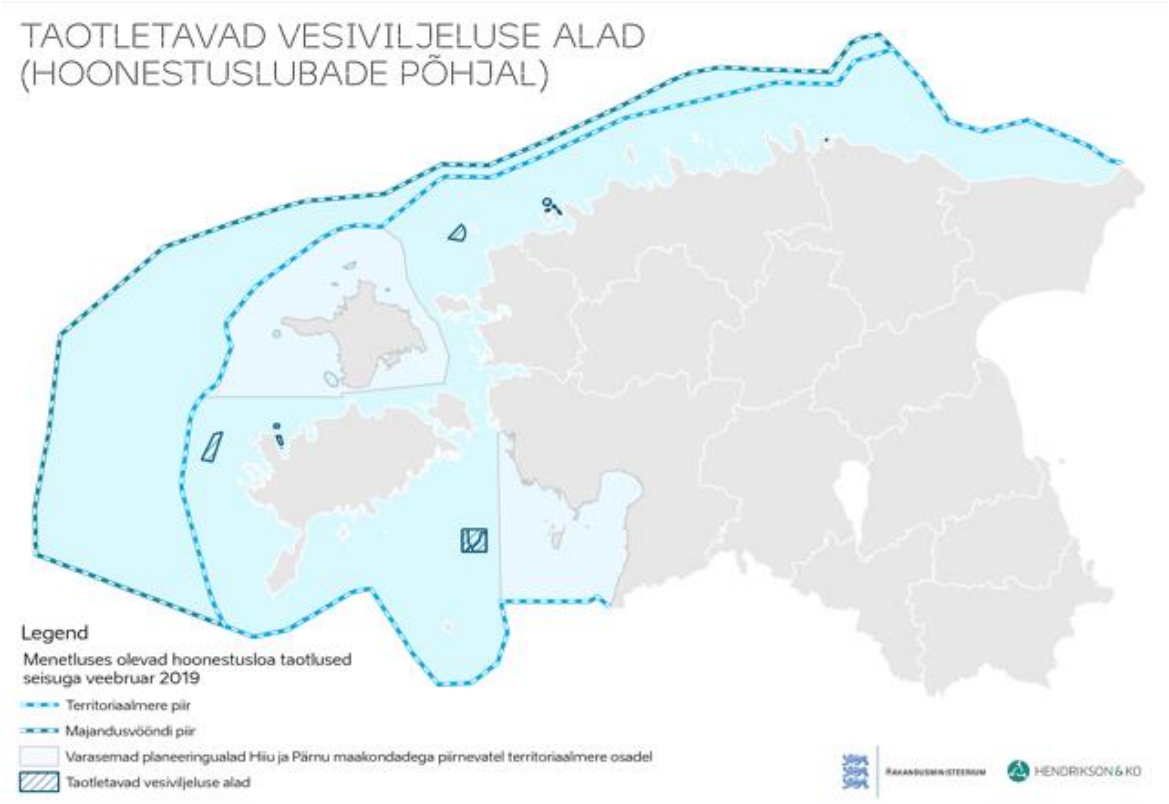


Figure 6. Aquaculture areas currently applied for (on the basis of superficies licenses)

Aquaculture, primarily shellfish farming, is expected to have positive combined effect with the construction of wind farms. The foundations of wind turbines make for a suitable growth environment for shellfish and provide great options for attaching farming lines.

5.2.3 Planning solution

The MSP does not specify the areas suitable for fish farming because offshore fish farming technology is under development and therefore the specification of these areas would be premature. The development of fish farms is regulated with guidelines and requirements. The MSP maps the areas suitable for seaweed and shellfish farming (diagrams above). The development of seaweed and shellfish farming is also possible outside the suitable areas, but it might not be viable there. The MSP provides guidelines and requirements for the development of seaweed and shellfish farming.

The spatial priorities of aquaculture in the Estonian marine area are:

- Balanced development of aquaculture in naturally suitable areas.

Fish farming

Guidelines:

1. The so-called cluster solutions are supported in aquaculture: combination of nutrient supplementing fish farming with nutrient consuming seaweed and/or shellfish farming. However, different types of aquaculture may be developed separately, but with fish farming, compensatory measures for the removal of additional nutrients shall be used.
2. Deeper and more open marine areas are preferred for fish farms, in order to reduce the local impact of the pollution. In the open sea area, the nutrients disperse better due to more active movement of the water and there is also less biota that can be impacted in deeper marine areas (seabed habitats, spawning grounds, etc.).
3. It is important to involve fishermen in the maintenance works of the aquaculture facilities to mitigate the seasonality of employment in the fishing sector.

Requirements:

1. In the establishment of fish farms, compensatory measures must be used to remove nutrients, including catching the economically less valuable fish, seaweed and shellfish farming.
2. An aquaculture area cannot overlap an area that serves national defence purposes.
3. An aquaculture area cannot overlap with fairways.
4. An aquaculture area cannot overlap with ship-to-ship areas.
5. Fish farms cannot overlap with environmentally protected areas.

6. At the level of license proceeding/environmental impact assessment, the decisions on the locations and used technologies of the aquaculture facilities shall:
    a. evaluate the impact on spawning areas and specify the needed mitigating environmental measures.
    b. cooperate with the Ministry of Defence to ascertain the likelihood of historic explosives and other dangerous objects in the area of interest.
    c. upon overlap with water traffic areas, specify the combined operation in cooperation with the Maritime Administration.
    d. upon overlap with cultural monuments, specify the combined operation in cooperation with the National Heritage Board.
    e. upon overlap with a mineral deposit, specify the combined operation in cooperation with the Land Board.
    f. upon overlap with a dumping area, specify the combined operation in cooperation with the Environment Agency.

Seaweed and shellfish farming

Guidelines:

1. The so-called cluster solutions are supported in aquaculture: combination of nutrient producing from fish farming with nutrient consuming seaweed and/or shellfish farming. Seaweed and shellfish farming can be established separately from fish farming.
2. Shellfish and seaweed farming is preferred in wind energy development areas to achieve a positive combined effect.
3. It is important to involve fishermen in the maintenance works of the aquaculture facilities to mitigate the seasonality of employment in the fishing sector.

Requirements

1. An aquaculture area cannot overlap with an area that serves national defence purposes.
2. An aquaculture area cannot overlap with fairways.
3. An aquaculture area cannot overlap with ship-to-ship areas.
4. In planning shellfish and seaweed farming in protected areas, the combined effect is specified with the Environment Agency.
5. At the level of license proceeding/environmental impact assessment, the decisions on the locations and used technologies of the aquaculture facilities shall:
    a. evaluate the impact on spawning areas and specify the needed mitigating environmental measures.
    b. cooperate with the Ministry of Defence to ascertain the likelihood of historic explosives and other dangerous objects in the area of interest.
    c. upon overlap with water traffic areas, specify the combined operation in cooperation with the Maritime Administration.
    d. upon overlap with cultural monuments, specify the combined operation in cooperation with the National Heritage Board.
    e. upon overlap with a mineral deposit, specify the combined operation in cooperation with the Land Board.

f. upon overlap with a dumping area, specify the combined operation in cooperation with the Environment Agency.

5.2.4 Preliminary impact assessment

Natural environment

In recent years, the interest to develop aquaculture for various species has grown in the Estonian marine area. Although the plan does not spatially prescribe preferred areas for aquaculture, it points out favourable areas for the development of seaweed and shellfish farming and guidelines/requirements which, inter alia, minimise the impact on the natural environment. With regard to impact on the natural environment, fish farming must be distinguished from shellfish and seaweed farming.

Many environmental aspects related to aquaculture development can be addressed and mitigated at the project level, and in consideration of the generalisation level of the MSP, these are not focused on in this work. In the assessment of the impact of specific permits, aside from the specific treatment of the aforementioned impacts, the scale and intensity of the aquaculture project, introduction of non-native species, parasites and spread of disease, etc. must also be paid attention to.

The most important impact of **fish farming** on the marine environment is related to nutrient release and promotion of eutrophication, which disturbs the natural balance and may even destroy the biota and habitats near the farm. The impact of fish farming can be mitigated with the selection of a suitable location and scale and intensity of the farming. The MSP does direct fish farming outside protected natural areas as well as to deeper and more open marine areas with better nutrients dispersion and less impact on protected areas and the environment. The plan also promotes cluster solutions for which the impact of nutrients from the fish farms are mitigated by shellfish and seaweed farms created together with the farms.

The development of **seaweed and shellfish farming** may facilitate achieving and preserving a good status of the marine environment since this helps to remove nutrients from the marine environment. However, it should be kept in mind that negative consequences may follow from shellfish and seaweed farming such as local eutrophication of the seabed. Therefore, the plan encourages seaweed and shellfish farming as a mitigatory measure (so-called cluster solutions) of other fields of activity (e.g. fish farming) and does not preclude establishment thereof on protected natural areas where aquaculture may help to improve the environmental status of the marine area. The development of aquaculture in protected areas must primarily be based on the protection objectives of the protected areas and the legislation enforced there, and therefore the plan stipulates the requirement to specify the impact in cooperation with the Environment Agency.

Social and cultural environment

Aquaculture enables the formation of coastal culture related with the new area of activity and also promotes traditional activities (visiting farms, development of food culture and restaurants, construction of boats and accessories needed for shellfish and seaweed farming).

However, the extent of traditional fishing areas may decrease by the new aquaculture areas. As the surface area of possible aquaculture areas is still rather small (ca 1 hectare per farm), this is not a significant factor. The risk is mitigated by established guidelines, which indirectly support the good water quality of the swimming places on the coast. The established conditions ensure a good condition and visibility of the cultural values located on the seabed.

Economic environment

The MSP does not specify aquaculture areas, which is why the plan does not stipulate direct economic impacts on the field. However, mapping the suitable aquaculture areas and working out the requirements for development helps to incite business interest and therefore to support the development of the entire field.
The contribution of the sea-aquaculture field to the Estonian economy is modest at the moment, but the potential for development and jobs in the field as well as for foreign investments and export is significant.
The marine areas suitable for aquaculture generally do not hinder the activities of other economic activities but the economic activity may be hindered by the limitations and additional environmental requirements established for shellfish and seaweed farming in protected areas.

Impact on health

Aquaculture provides an opportunity to diversify the diet with fish and sea food, which include various components beneficial to health and thereby help reduce the risk of diseases (e.g. cardio-vascular). The consumption of farmed fish may also pose a health risk because the fatty tissue of the fish may contain accumulated pollutants (dioxins, etc.). The amount of pollutants in the fish depends on the farming conditions and primarily on the quality of the feed. Food safety is monitored and relevant nutritional recommendations given by the Veterinary and Food Board.

5.3 Maritime transport

5.3.1 Current situation

Maritime transport enables accessible, safe and sustainable movement of people and goods.

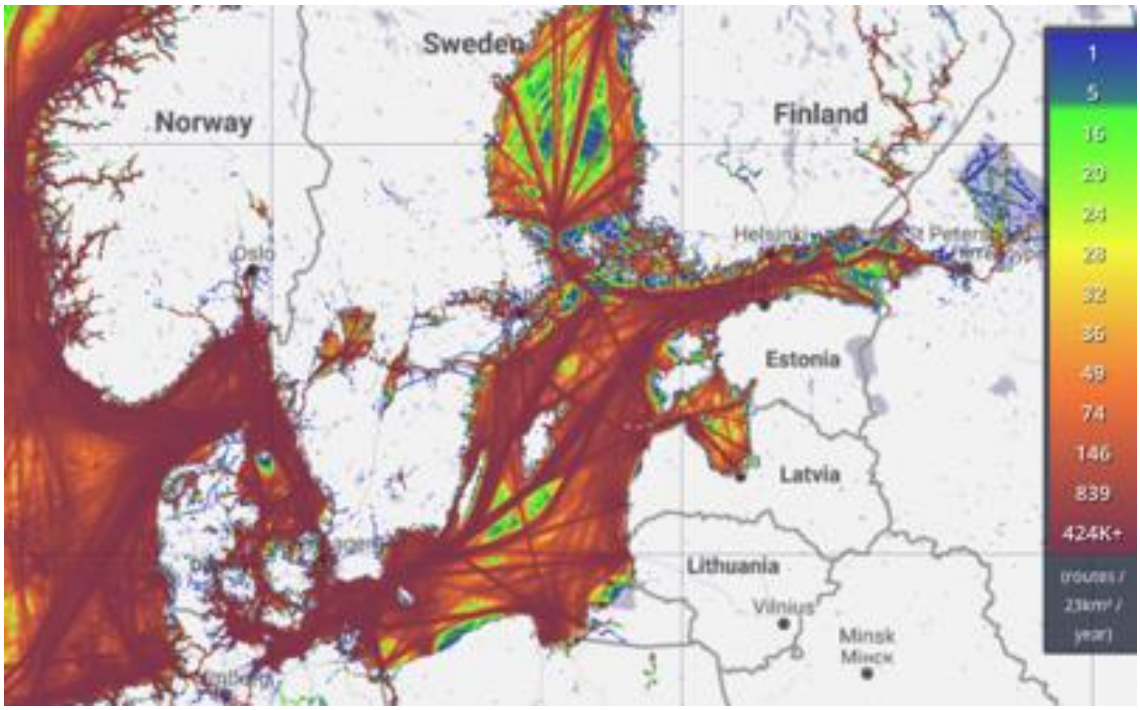
It is hard to overestimate the importance of maritime transport — 90% of the international transport is marine.
In addition, many other areas of activity, from ship construction and repair, ports and logistics to maritime education, and research and development, are directly related with maritime transport both on land and sea. Over 20,000 people are employed in maritime positions (about 3.6% of the total employment) and the maritime economy provides over 5% of the added value created by companies.

60% of the goods are transported by sea
35 M t is the total tonnage of goods that passes through Estonian ports
10 M passengers on international routes per year
2 M passengers between the mainland and large islands

When companies that are only partially related to maritime (e.g. logistics companies that operate in both maritime and land transport), the figures are even higher. The "Transport Development Plan 2014–2020" highlights the need to prioritise the development maritime transport for long-distance transport of goods. The Transport Development Plan also emphasises the role of sea ports as logistics centres, which shall have effective connections with the inland. The Estonian Maritime Policy 2012–2020 stipulates as objectives the international competitiveness of Estonian shipping and increased streams of goods and passengers through Estonian ports.

5.3.2 Spatial layout

Most of the marine traffic has focused on the international fairway across the open sea area of the Baltic Sea and along the Gulf of Finland, an important part of which passes Estonian waters. The traffic across the Gulf of Finland is characterised to a large degree by the passenger marine traffic between Tallinn and Helsinki with about 6,000 trips per year.



Excerpt from the portal MarineTraffic: Global Ship Tracking Intelligence | AIS Marine Traffic

The volume of passenger marine traffic is also influenced by the air traffic between Helsinki and cities of other countries (for example the percentage of Asian tourists is growing on Tallinn-Helsinki passenger ships). A completely different situation would arise with the creation of the Tallinn-Helsinki tunnel. The volume of freight transport is expected to grow together with the global trend. Due to the natural limitations of the Baltic Sea, the dimensions of ships do not increase significantly, however, the intensity of the traffic will.

A considerable part of the traffic in the marine area is due to fishing boats. Aside from the coastal fishing in shallow coastal waters and with boats, the traffic of trawlers

takes place primarily between the recipient ports and fishing areas and movement in fishing areas follows the characteristic curve trajectory (see the figure on trawling intensity in ch 5.1.2).

Ports

The largest cargo port is Muuga (1,157 visitations of foreign ships in 2017), followed by Paldiski Northern Port (993), Paldiski Southern Port (844), Sillamäe (703), Pärnu (521) and Kunda (405). Various commodity groups are handled in these ports. To some extent there has been specialization and all ports have plans for expansion and/or diversification.
Seasonally, commercial transport is supplemented by hobby seafaring: recreational crafts primarily increase the intensity of traffic in our marine areas from May to September. Of the small harbours, Old City Harbour of Tallinn and Naissaare Harbour have the highest number of visiting vessels. The marine area with the biggest traffic of recreational crafts is Tallinn Bay and its vicinity up to Lohusalu in the west and Prangli in the east. Kuivastu, Dirhami, Ringsu, Pärnu, Haapsalu and Kuressaare harbour take more visitors than others and the traffic of recreational crafts is naturally more intense between these regions.

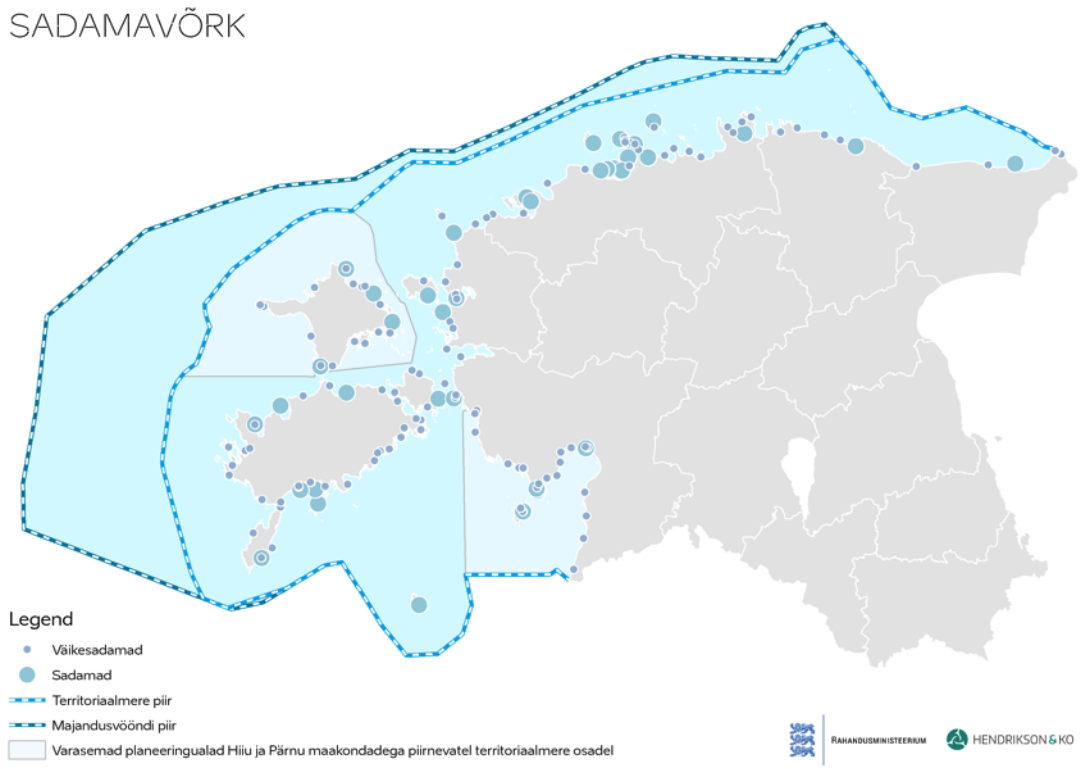


Figure 7. Network of harbours

About half of all visits by recreational crafts in Estonian harbours are made by recreational crafts flying the flag of Finland with the Estonian recreational crafts making up a third of the visitations. The local traffic is concentrated between neighbouring harbours instead and the recreational crafts from foreign countries tend to move along the coast and visit different harbours in a row. Sailing regattas create unusual traffic situations with many small vessels competing on the same route and trajectories may vary depending on the wind conditions, etc.

In contrast to the deep waters of the Baltic Sea and Gulf of Finland, the Estonian coastal waters are mostly shallow and full of dangers and this requires the appropriate marking of the fairways and also creates limitations for the construction of harbours. The most suitable coastal locations for harbours are already in use for this purpose. The network of Estonian cargo and passenger ports has for the most part been developed and the establishment of new large ports is not expected, with the exception of special harbours, for example the possible LNG terminal at Pakrineeme. However, the network of small harbours is in rapid development: old harbours are renovated and new ones built. A naturally unfavourable location for a harbour primarily means large costs (e.g. repeated dredging to maintain the required depth, need for increased navigational marks).

5.3.3 Ice roads

Upon suitable weather conditions, ice roads are created in the Estonian marine area that facilitate transport for local people on the islands and peninsulas and are also a tourism attraction. There are 6 official ice roads in the marine area (Heltermaa–Rohuküla, Kuivastu–Virtsu, Tärkma–Triigi, Rohuküla–Sviby, Lao–Kihnu, Haapsalu–Noarootsi). As soon as signs of the formation of an ice sheet suitable for ice roads are observed, the Maritime Administration stops the marine traffic at the request of the Road Administration.

The formation of suitable ice to create the roads depends on many other conditions beside a cold winter (quality of ice, thickness of snow on the ice, fluctuation of water level, etc.). Considering the rise of winter temperatures due to climate change, the occurrence of conditions suitable for ice roads is becoming rarer.

80 km is the total length of Estonian ice roads under suitable weather conditions

25 km is the length of ice road between Hiiumaa and the mainland**; this is the longest ice road in Europe**

10 times has the travel time been reduced by the Haapsalu-Noarootsi ice road

5.3.4 Planning solution

The MSP indicates the *fairways* [12] shown in the navigational information and determines the *water traffic areas*[13] on the basis of the traffic intensity and primary

[12] Fairways that have international importance and where large ships travel and marine traffic is intense, the width W of the area is calculated with the formula W = Ws + 2 (Wr + Wc) where Ws is the width of the lane (4 x the length of ship), Wc is the extra safety distance needed for a full turn to avoid collision (6 x the length of ship) and Wr is the extra distance needed to do a manoeuvre to avoid collision 0.3 M.* The length of the ships has been analysed on the basis of AIS data and the length of ship is 98.5% of the maximum length of ships moving on the fairway. In the case of fairways, the navigational information of which includes the area of the fairway in addition to the axis, the width of the area is the width of the fairway area without an extra safety distance. In the case of fairways, the

routes. The marine traffic is dispersed and rare in other parts of the marine area. Marine traffic is also allowed outside fairways and water traffic areas when natural circumstances and dimensions of the ship enable this and a corresponding need exists. A new water traffic area is created with an additional plan.

Water traffic areas have been determined taking into account the need to enable other marine uses as well. This is why water traffic areas may overlap with wind energy development areas, for example. The combined operation of marine transport and energy production is specified at the level of permit proceeding when the location of the wind turbines and the technology has been determined.

In exceptional cases, a fairway may overlap with other marine uses as well, but in these cases the priority of use is the preservation of the fairway.

Historically, the main use of marine areas has been shipping and, by navigational logic, the areas used for traffic are of wide range — the selection of route depends on the size of ship, dangers in the water area, wind, waves, etc. At the same time, this gives more options to change the route upon limitations. New uses of the marine area may be the limitations in many places, and on the basis of this the movement of ships has to be changed, limited or redirected. It is reasonable to do this by taking into account the specificity of the location of each case, the current traffic pattern and requirements of the new marine use of interest and not limit or direct marine traffic into narrower corridors where there are no competing interests. In situations where the location of the fairway is determined by natural limitations, a planned, demarcated and mapped fairway usually already exists. These may cover a relatively narrower area, but it is complicated or impossible to change their location. The relatively wide buffer zones at the sides of water traffic areas (shown in the map application in the maritime portal at http://mereala.hendrikson.ee/en.html) give more freedom to provide room for other activities yet also allowing enough room for marine traffic.

navigational information of which includes only the axis, an area with a width of 200 m or 400 m has been created on the axis of the fairway based on the largest ships on the fairway.

[13] Water traffic areas have been determined in cooperation with the Maritime Administration on the basis of the following methodology. The axes of water traffic areas have been based on AIS' ship trajectories. Water traffic areas of local importance and where shorter ships travel (e.g. fishing boats, ferries and recreational crafts), the width of the area is 400 m or 200 m. For important harbours that lack a fairway in the navigational information, the width of the water traffic area is 400 m according to AIS' ship trajectories (e.g. Saaremaa, Veere harbour). In locations where the water traffic area crosses over shallow waters or a protected zone, the width of the area has been reduced according to the size of the ships traveling in the area. The water traffic area ends in locations where the AIS' trajectories disperse and are not in line anymore.

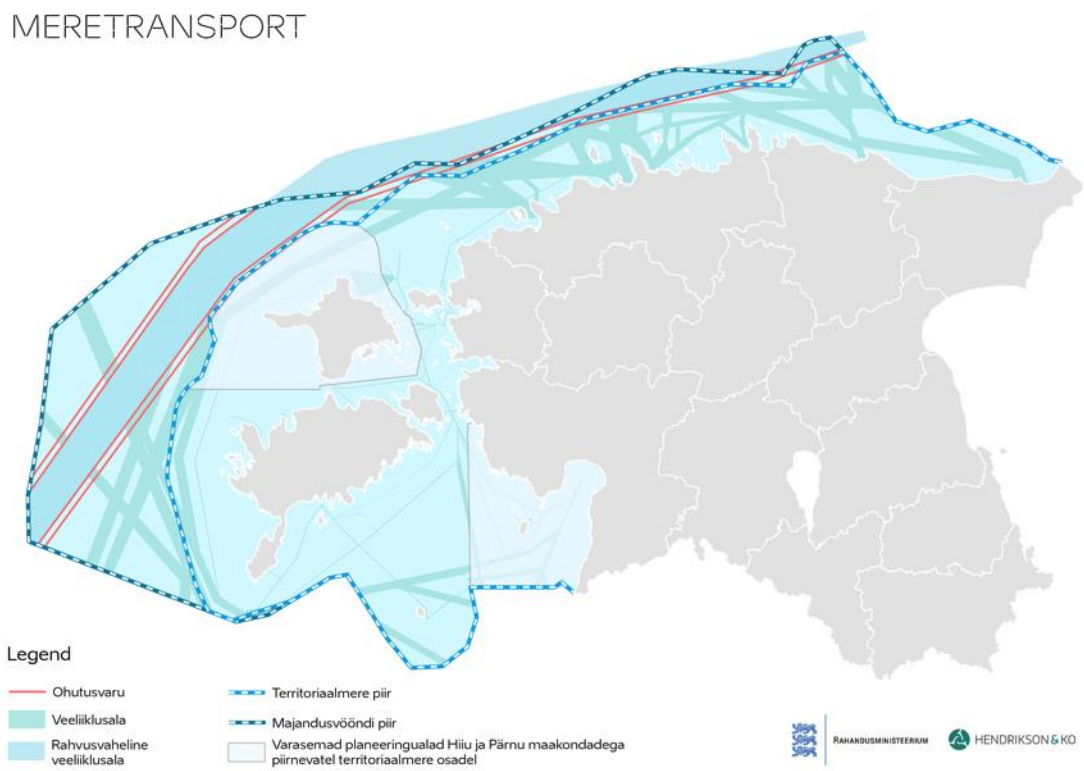


Figure 8. Maritime transport

The spatial priorities of marine transport in the Estonian marine area are:

- International fairways
- Connections with large and small islands
- Operational transport infrastructure: developed network of harbours with potential new small harbours in naturally suitable places

Guidelines:

1. Water traffic areas may overlap with wind energy development areas, aquaculture and other marine uses. The combined operation is specified at the level of permit proceeding.
2. New small harbours are built to naturally suitable places with a suitable depth to avoid unreasonably large environmental impact and cost on dredging, protection from waves, etc.
3. Aside from natural suitability, the development of the network of harbours shall ensure that safe mooring is possible upon an optimal distance (average distance of sailing yacht is ca 30 miles, that is 6 hours of sailing with an average speed of 5 knots) and refuelling option after sufficient distances for motorboats.

Requirements:

1. Changing the locations of fairways and significant limitations to maritime traffic should generally be avoided in planning other marine uses. The possibility of an inevitable change depends on the specific location and needs the permission of the Maritime Administration.

2. To ensure safe water traffic and protect objects, anthropogenic objects (incl. nets, diving) shall be demarked according to applicable legislation.
3. The objects established in the sea should not make it more difficult to distinguish navigational marks or lights by users of the sea and shall be demarked according to applicable legislation.
4. In the establishment of a new protected natural object, fairways must be taken into account and the spatial shape of the protectable object shall be adjusted according to the existing fairway.
5. The installation of new navigational marks shall first be coordinated with the Maritime Administration who verifies the suitability of the planned navigational marks and sufficiency to ensure the safety of maritime traffic. The agency also coordinates the construction activity in the sphere of influence of the navigational marks where, for example, high objects, added lightning may reduce the distinctness of fixed marks and their lights from the sea. On the basis of this, limitations can be set on land as well, if needed.
6. Upon overlap of the water traffic area with wind energy development area the combined operation shall be specified in cooperation with the Maritime Administration. The aim is to use the marine area in diverse ways, i.e. find opportunities for both energy production as well as marine transport.
7. Upon overlap of water traffic area with existing protected objects, combined operation prioritises the protection. Deepening of fairways is allowed and the requirements for this are established with the permit for the special use of water.
8. Upon overlap of an aquaculture area with a water traffic area the combined operation shall be specified in cooperation with the Maritime Administration. The aim is to use the marine area in diverse ways, i.e. find opportunities for both the development of aquaculture as well as marine transport.
9. The development area of aquaculture shall not be planned on a fairway to avoid damages to both the farms and ships.
10. Upon overlap of water traffic areas with ship wrecks, they are regarded as culturally valuable discoveries and the terms of use are specified in cooperation with the National Heritage Board.
11. Upon overlap with a recreational area, cooperation is conducted with the Maritime Administration in the preparation of the local government's comprehensive plan to ensure that both the maritime transport as well as recreational needs are taken into consideration.

Proposal:

The MSP proposes the use of the following *functional classification of harbours*. The proposed classification enables to assess the effectiveness of the network of harbours and regional balance, creates better grounds for the distribution of resources needed for the operation of harbours. The current classification does not reflect the harbours' areas of activity or dimensions, which have environmental impacts and spatial requirements on both land and sea that need to be taken into account.

Recommended functional classification	Classification used on the map of the Maritime Spatial Plan
Harbour with national defence functions *Only for mooring and servicing warships and naval auxiliaries carrier*	
Harbour with public administrative functions *Only for mooring and servicing ships performing public administrative duties; the chapter on security requirements of the Ports Act does not apply*	Port
Cargo port *including large fishing port, repair port*	
Passenger port *including ferry port*	
Port connecting to small islands *Important in terms of regional policy, the need for rescue capability and pollution control to be considered. Can simultaneously operate as a guest harbour*	
Fishing port *In essence a small-craft harbour, may be connected with trawling*	Small-craft harbour
Small-craft harbour *including guest harbours, home harbours, boat harbours*	
Family dock *Registered in the sailing directions, usually a former landing place with a small landing-stage*	Not indicated in the Maritime Spatial Plan

One harbour can have several functions. Exceptions to this are harbours with national defence or public administration duties the function of which is stipulated with legislation.

In the preparation of the plan, the classifications of existing harbours are not specified – each harbour can do this on their own in the future with reference to its actual activity, vessels serviced and services provided. The aim of this motion is to ensure that the treatment of harbours follows uniform principles.

5.3.6 Preliminary impact assessment

Natural environment

With regard to maritime transport, the Maritime Spatial Plan does not prescribe a spatial use that is in general different from the current use, which is why the implementation of the plan brings about no additional impact on the natural environment. In addition to official fairways and existing harbours, the plan indicates

the water traffic areas that have been determined on the basis of actual intensity of use. The specification of water traffic areas does not have adverse impact on the natural environment because these reflect the current situation and natural protection objectives are prioritised in the areas of protected natural objects.
With regard to the natural environment, the suggestion of the plan for the functional classification of harbours may be considered positive since this helps to better understand the activities conducted in harbours and the character thereof and thereby increase awareness of associated environmental impacts and plan the resources needed to alleviate these.

Many environmental aspects related to marine transport may be addressed and mitigated at the project level. The aspects to be paid attention to in the performance of activities are, for example, deepening of fairways and harbours, impact of bow waves to habitats and species, coastal erosion (specific topic in the Tallinn Bay area), risk of spreading non-native species, marine and air pollution topics, marine transport noise.

Social and cultural environment

With regard to maritime transport, the MSP does not prescribe a spatial use that is considerably different from the current spatial use of the sea, which is why the implementation of the plan brings about no additional impact on the social and cultural environment. The plan makes more efficient the cooperation of agencies to ensure the preservation of both the cultural objects on the seabed as well as recreational areas. It is possible that managers of ships do not accept the new uses of the marine areas, which on one hand can cause economic damage but also increase the risks in navigation. Development of a new marine culture (e.g. aquaculture, wind energy) also requires continuous communication.

Economic environment

With regard to marine transport, the MSP does not prescribe a spatial use that is considerably different from the current use, which is why there are no direct economic impacts on the field. The designation of water traffic areas in the plan also has no direct impact on the economic activity of the marine transport field since the designation of the areas was based on the current situation and near-time outlook (i.e. on the basis of intensity of use).

For Estonia, marine transport (incl. shipping and operation of harbours) is an important economic activity and also a major employer. Generally, the marine areas suitable for marine transport do not hinder the activities of other economic areas. Protected areas may pose limitations to shipping with possible additional environmental requirements for shipping. There may be disagreements where fairways and aquaculture areas overlap, but the requirements set for aquaculture (exclusion from fairways) avoid the occurrence of conflicts. The same applies to wind energy. Marine transport (incl. the development of small-craft harbours) has a positive impact on marine tourism and recreation-related economic activities. The activity of harbours supports the activity of other activities in the marine area (incl. fishing, marine tourism, recreation, electricity production, sea rescue, border guard, pollution response and national defence related activities).
Marine transport has great potential for development and innovation.

Impact on health

The implementation of the planning solution does not entail significant changes on marine transport (intensification, etc.), which is why there will be no adverse impacts on health.

5.4 Sea rescue, pollution response and border guard

5.4.1 Current situation

In the light of increasing use of the marine area and rapid development of marine transport, sea rescue and pollution response and border guard have great importance.

In Estonian waters, organised rescue activity began at the end of the 19th century. At the moment, sea rescue is in the area of responsibility of the Police and Border Guard Board. In Estonia, volunteer sea rescue has developed quickly with a fourfold increase in the number of volunteer sea rescuers in four years. In 2017, the average time with which public and volunteer units reached a person in need was 36 minutes on sea and 32 minutes on transboundary waters.

The were **over 500** certified volunteer sea rescuers in Estonia in 2018.

There were **over 70** volunteer sea rescue response points in Estonia in 2018.

In the last five years, sea pollution response capability has continuously been improved by purchasing equipment (oil containment booms, Police and Border Guard Board's new patrol vessel Raju with pollution response capability) and stipulating the requirement on the existence of a pollution response plan for harbours (respective decree of 2016; as of the beginning of 2017, 32 harbours have a pollution response plan, the other 71 harbours with a potential risk of pollution accident had no plan). Pollution response capability is converging to the Tallinn region where most of the equipment, recycling and cleaning factories and the fleet of the Police and Border Guard Board is located.

5.4.2 Planning solution

The Maritime Spatial Plan determines the Ship to Ship or STS area for border guard related to shipping of cargo. The Maritime Spatial Plan does not set additional requirements for sea rescue and pollution response.

The spatial priorities of sea rescue, pollution response and boarder guard in the Estonian marine area are:

- Improvement of pollution response capacity
- Functioning of marine surveillance radars
- Option to launch water crafts for sea rescue
- Ship-to-ship areas for the performance of boarder guard (anchorage areas near Tallinn)

Guideline:

1. National border guard takes place in STS areas, which are anchorage areas near Tallinn. National border guard may take place in other development areas upon justified exceptions.

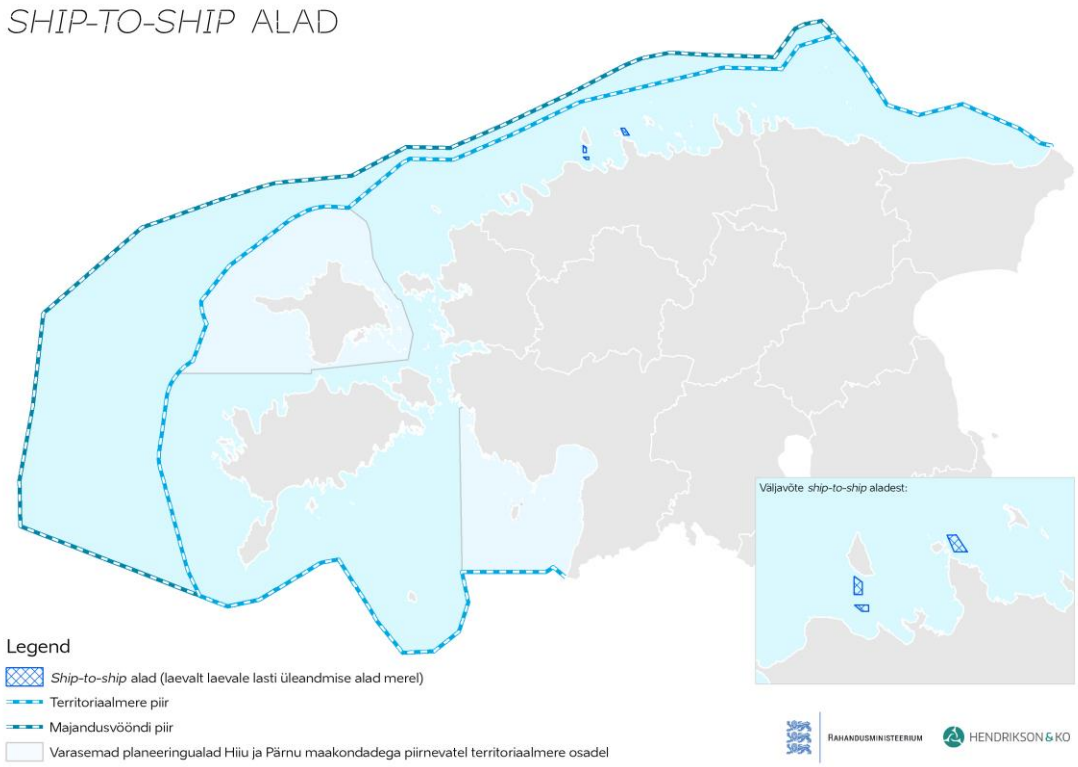


Figure 9. Ship-to-Ship areas

5.4.3 Preliminary impact assessment

Natural environment

The MSP does not prescribe any changes to sea rescue and border guard that would affect the natural environment. The natural environment is affected positively by the fact that the plan prioritises the improvement of pollution response capabilities.

Social and cultural environment

Expansion of sea rescue capability improves maritime safety. Improving the pollution response capability has a positive impact on the status of both recreational areas and cultural objects (through quality of water).

Economic environment

Compared to the current spatial distribution, the Maritime Plan does not prescribe changes in the areas of sea rescue, pollution response or border guard, which is why the plan has no direct economic impacts. The activities related to sea rescue, pollution response and border guard generally do not hinder other economic activities but may impose additional requirements. At the same time, the activities related to sea rescue, pollution response and border guard are directly related to the activity of harbours since uninhibited access to sea is needed.

Impact on health

The development of sea rescue and pollution response has a positive effect on health.

5.5 Energy production

5.5.1 Current situation

The increase of renewable energy's importance helps to minimise the environmental impacts of the energy sector, reinforces energy security and improves sustainability and economic competitiveness.

In the Estonian marine area, the main possible source of energy is wind. Attention should be paid to the use of coastal waters for cooling and heating in densely populated coastal regions. For a long time, a hydro accumulation power plant has been planned to various locations (Muuga and Paldiski) which would produce electricity from the energy released with upwards and downwards motion of sea water.
"Principles of Climate Policy Until 2050" sets the goal to gradually increase the end consumption of renewable energy sources in all sectors. According to the "Energy Management Development Plan 2030", electricity production from renewable energy (both land and sea) sources will make up 50% of the domestic end consumption by 2030. By 2030, 80% of the heat energy produced in Estonia will come from renewable energy sources. Wind energy may cover a third of the nation's electricity demand by 2050 with the projected volume of 1,700 MW.

4,149 offshore wind turbines in total in 94 offshore wind farms in the waters of 11 European countries

15,780 MW is the total power of offshore wind farms in Europe

91% of the energy of offshore wind farms is produced in Europe

5.9 MW is the average output power of offshore wind turbines in Europe

27.5 m is the average depth of sea in wind farms

16.8% of the electric energy generated in Estonia comes from renewable sources

The establishment of offshore wind farms is on the rise globally and the output power of wind turbines has also increased rapidly (34% in 2016)[14]. In Europe, most offshore wind farms are in the waters of the United Kingdom, Germany, Denmark, Netherlands and Belgium with also the first offshore wind parks currently being developed in Finland.

5.5.2 Spatial layout. Determining possible areas for wind energy production.

At the moment of the preparation of the plan, there are no offshore wind farms in Estonia, but there is great interest towards the development of the field. Thus far, planned locations for offshore wind farms have been North-eastern Estonia near Hiiumaa and the Gulf of Riga, but areas west of Saaremaa and west of Soela strait between Saaremaa and Hiiumaa have also been suggested as potential locations, and there has been interest towards Neugrundi and Krassi shallow in North-eastern Estonia and the shallower marine area around Vaindloo-Uhtju-Sala islands as well. All superficies license applications related to wind energy have been submitted prior to 1 July 2015 (see also ch 4.3)

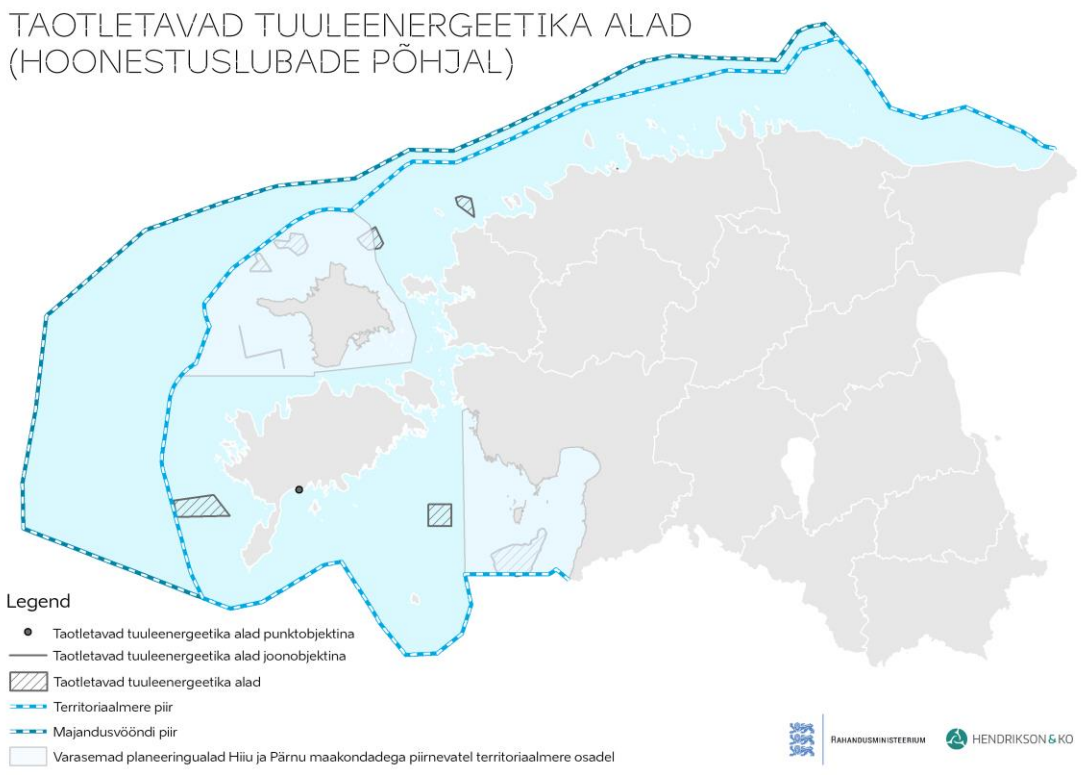


Figure 10. Wind energy areas currently applied for (on the basis of superficies licenses)

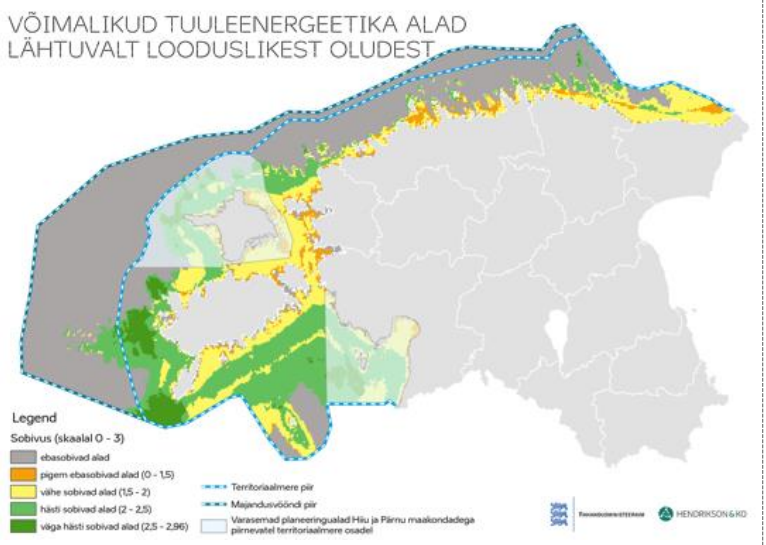
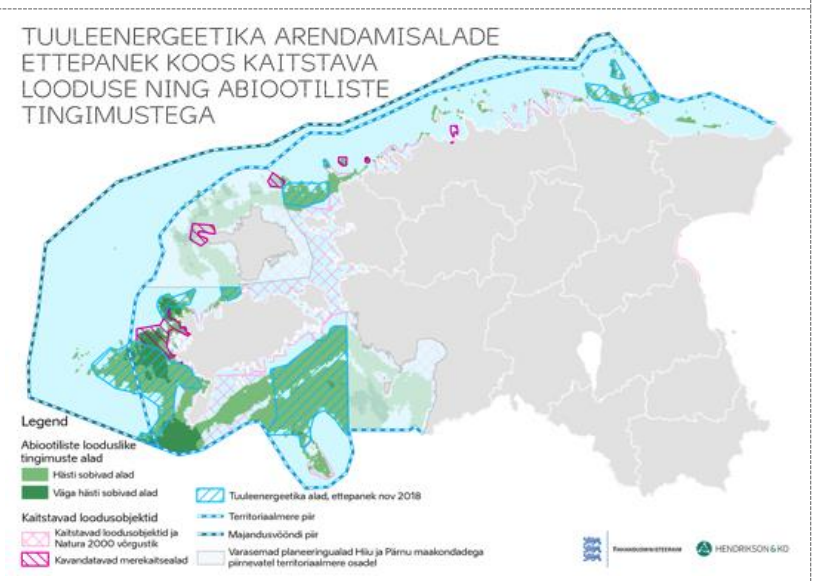
[14] http://www.tuuleenergia.ee/en/2018/02/offshore-wind-in-europe-grew-25-in-2017/#more-21771

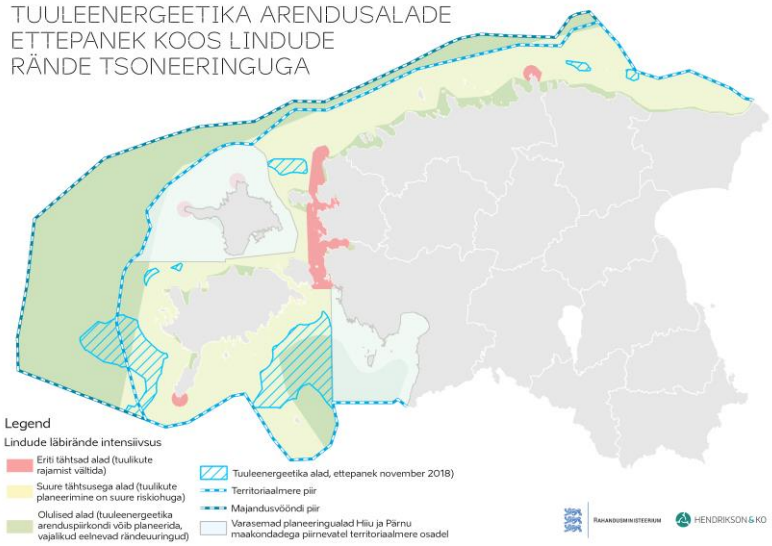
Currently, no solar or wave power plants are known to be planned in the Estonian marine area. Furthermore, interest toward the production of heat energy from sea water with heat-pumps has been modest.

In the preparation of the draft of the Maritime Spatial Plan *the suitability of the Estonian marine area for wind energy production was analysed* (overview of the methodology in maps).

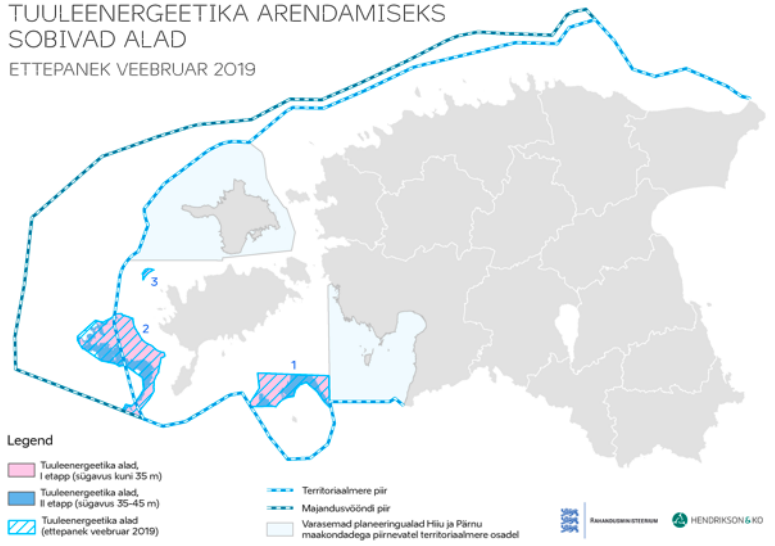
The most suitable areas for wind energy development have been specified in the draft plan. Relationships between areas naturally suitable for wind energy and other areas of activity and known limitations were created by analysing the environmental aspects and using the reasonably required information (see the following diagram and thematic maps). Therefore, areas were determined where there are no possible conflicts with other activities or where these are the smallest.

As part of the aforementioned gradual weighing process, schematic thematic maps were created:

1. *Possible areas for wind energy on the basis of natural circumstances*. As the first step, the areas principally suitable for wind energy development were determined. This was determined on the basis of wind energy potential (with a weight of 0.55), depth (0.25), distance from nearest high-voltage substation (0.1), likelihood of ice formation (0.06) and height of wave (0.04). *Suitable areas are marked in green.*	
2. *Proposal for wind energy areas together with natural protection and abiotic conditions*. As the second step, the overlaps of principally suitable areas with protected natural objects were analysed. Overlapping areas were cut out. *Existing protected natural objects and Natura 2000 areas have been marked with pink diagonal grid, planned marine protected areas with pink diagonal lines.*	

3. *Areas suitable for wind energy development (mainly good/very good abiotic conditions + overlap with protected natural objects is prevented)*. After removing the protected areas from the principally suitable areas, the initial proposal for wind energy areas was obtained. *Wind energy areas have been denoted with blue diagonal lines.*	
4. *Areas suitable for wind energy development (mainly good/very good abiotic conditions + overlap with protected natural objects is prevented)*. A visual buffer was cut off of the initial wind energy development areas, 10 km from the coast. *Wind energy areas have been denoted with blue diagonal lines.*	
5. *Proposal for wind energy areas together with migratory zones for birds*. Overlap of wind energy areas with main migration corridors of birds was analysed. The planned wind energy areas do not significantly overlap with important migratory areas. Overlap with areas with great importance is taken into account in the development of guidelines and requirements of use of the areas. *Red marks extremely important areas for bird migration, yellow very important areas, and green important areas.*	

6. As an interim decision, it was found that in the time scale of the plan, development of wind energy is not practical in the Gulf of Finland due to natural conditions.

7. *Areas suitable for wind energy development (mainly good/very good abiotic conditions + overlap with protected natural objects is prevented).* Possible wind energy areas were analysed from the perspective of national defence. To ensure the operation of air surveillance radars, the areas no 4, 5, 6 and 7 and the northern part of area no 1 were excluded (in agreement with the decision to exclude the Gulf of Finland from the plan).	
8. *Areas suitable for wind energy development*. In wind energy development areas, 2 stages were distinguished by depth: areas with a depth of up to 35 m (I stage) and areas with a depth of 35–45 m (II stage). On the basis of the current timeline of the plan, deeper marine areas (> 35 m) are less favourable due to winter ice conditions as there is no suitable technology. *pink marks the I stage, blue – II stage.*	

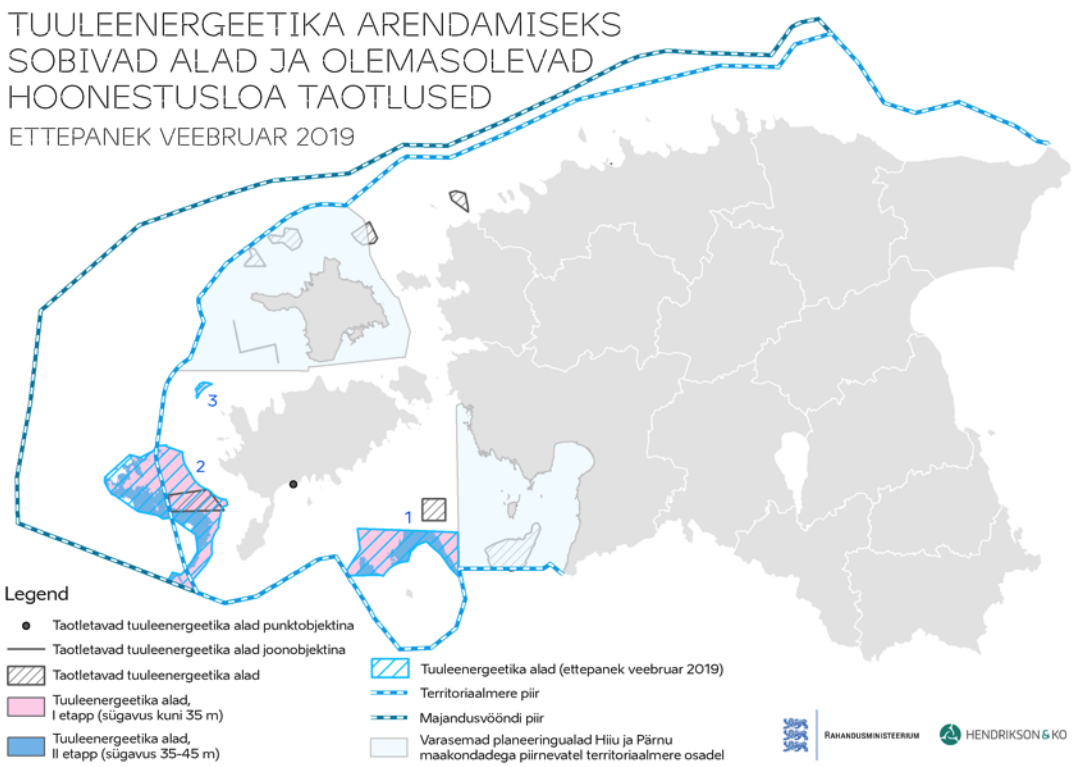


Figure 11. Areas suitable for wind energy development and existing applications for superficies licenses

To separate the wind energy area stages by the 35 m limit, the depth of the initially suitable areas (the result of the 1st step in the above table) and the need for the formation of more compact areas has been considered. With the application of the 35 m limit, bigger areas are created in the I stage as well where there are more opportunities for practical placement of the wind turbines that also take into account other factors. For the next decades, 35 m is the critical limit within which the establishment of gravity-based structure in a freezing marine area with occasional drift ice may be economically viable. This limit is also the limit in which developers may have economic interest to consider alternative structural solutions.

The development of the areas does not have to strictly abide by the stages, i.e. development in the II stage areas may begin even if the I stage has not yet fully realised.

In the preparation of the main planning solution of the Maritime Spatial Plan, recommended cable corridors from the wind energy areas to the land are designated. In the designation of the recommended corridors, the protected objects, shortest possible distance and existing electrical power network are used as basis.

5.5.3 Planning solution

The MSP designates the areas suitable for wind energy development and the requirements for offshore wind energy development. The development of wind energy shall abide by the established plan. Technological solutions may specify the

borders of the areas but wind turbines are not to be planned closer to the coast than 10 km.

The spatial priorities of wind energy production in the Estonian marine area are:

- Development of wind energy in suitable areas and possibly in synergy with other areas of activity.
- The use of sea heat in coastal waters near densely populated areas to produce heat energy with heat pumps.

Guidelines:

1. To increase the proportion of the energy production based on renewable resources, suitable marine areas shall be used for the production of wind energy.
2. Open sea nature protected areas are not planned on wind energy development areas.
3. It is practical to use the same cable corridors for wind farms established near to each other.

Requirements:

1. To minimise visual impact, the wind turbines shall be grouped compactly together in consideration of the requirements from technological solutions of the wind turbines (e.g. take into account the dispersion of wind turbines required for maximum production of energy and life-span). The horizon shall be partitioned (i.e. not blanketed with the wind farm).
2. To minimise the visual impact, the wind turbines are not placed closer to the coast and islands with permanent settlement than 6 nautical miles (ca 10 km).
3. To ensure maritime transport safety, the wind turbines are not placed on fairways.
4. The wind turbines shall not reduce the function of national defence air and maritime surveillance systems with compensation mechanism developed, if necessary.
5. Aquaculture is encouraged in wind energy development areas, especially shellfish and seaweed farming.
6. At the level of license proceeding/environmental impact assessment, when making decisions concerning the locations and used technologies of the wind turbines, it is necessary to:
    a. evaluate the impact on the habitat of fish and other marine animals and specify the needed mitigating environmental measures.
    b. evaluate the local impact on birds and specify the needed mitigating environmental measures.
    c. cooperation should be conducted with the Police and Border Guard Board to ensure the operability of marine surveillance radars and marine radio communication and to protect the national border. If necessary, research shall be conducted to specify the impact on surveillance radars and specify the mitigating measures.
    d. cooperation shall be conducted with the Defence Ministry to ensure the operability of national defence air surveillance.

e. cooperation shall be conducted with the Civil Aviation Administration to avoid the disturbance of civil aviation radars.
f. upon overlap with water traffic areas, specify the combined use in cooperation with the Maritime Administration.
g. upon overlap with culturally valuable objects, specify the combined operation in cooperation with the National Heritage Board.
h. cooperate with the Ministry of Defence to ascertain the likelihood of existence of historic explosives and other dangerous objects in the area.

5.5.4 Preliminary impact assessment

Natural environment

The plan specifies the areas suitable for wind energy development and thereby simplifies and promotes the development of wind energy and thus potentially reduces the proportion of the environmentally unfavourable oil shale in the production of electricity in Estonia. In particular, unlike the use of fossil fuels (oil shale), production of energy from renewable energy sources (incl. wind) does not promote climate changes. Transition to renewable energy sources has an opposite effect on climate change.

The basis for the selection of wind energy development areas shown in the draft of the plan was partially the use of the best available information on various components of the natural environment, and specialists of different fields were also involved (marine habitats, fish, birds, bats, seals, etc.). To avoid significant impacts on the natural environment, the wind energy development areas are located outside the protected natural objects (incl. the protected areas being planned) and known migration corridors of birds and bats. In addition, the need to assess the impact on different groups of the biota and implement mitigating measures is stipulated in the requirements. As a result of the development of the spatial solution and the requirements, the best solution with regard to the plan's strategic level has been found and the **wind energy development areas are located in regions where the possible impact on the natural environment of the entire Estonian marine area is minimal** (see subchapter 4.2) in relation to the economic reasonableness.

A more specific treatment of various environmental aspects is presented in the IA report where the effects are analysed by groups of biota and by topics. The establishment of wind farms causes physical changes the seabed and the habitats located there; the wind turbines pose a potential threat to birds and bats as an obstacle in their flight path; wind farms may also affect the habitats and spawning grounds of fish, and the feeding, resting and breeding areas of seals and the migration between these. In the IA report, the suitability of wind energy development areas is evaluated in the light of the relevant aspects. To achieve the best results, specialists of various fields are involved in the process. The topic of cables is also addressed in the IA report.

A more precise location-based impact assessment can be performed in the permit proceeding and environmental impact assessment process where all possible relevant impacts of the development of a specific wind farm have to be addressed. In addition to the abovementioned impacts, it is also important to focus on other positive and negative environmental aspects in the project design, e.g. the adverse impact on the marine biota from noise, vibration and electromagnetic fields, and mitigate these, if necessary. At the same time, prohibition of fishing in the wind farm area may offer habitats and spawning grounds for fish which may promote the renewal of fish stocks, etc.

Social and cultural environment

The stipulation of priorities for wind energy development areas and requirements helps to alleviate climate changes.

The plan creates diverse marine areas with combined functions (energy production and aquaculture), which support seafaring safety due to convergence of functions. Placement of wind turbines at least 10 km[15] from the coast leaves enough space between the coast and the wind turbines that view to the sea from the land would be preserved. Visual disturbance has also been mitigated with the requirements. In addition, the required minimum distance from the coast ensures that the wind energy areas do not overlap with the areas used for surfing and other coastal water sport activities.

The replacement of a natural marine landscape with a more technogenic one, may reduce the perceived cultural value of the coastal area and the desire of people to visit the recreational areas or places. However, there might be groups of people (albeit smaller) who find wind turbines an interesting visual sight.

The possible change of the seabed and trophic patterns may have an indirect impact on the preservation of the cultural objects of the seabed.

Economic environment

Energy production in marine areas is a promising industry and therefore the designation of areas suitable for wind energy development in the Maritime Spatial Plan encourages economic interest.

[15]As the basis for determining the 10 km distance, the prior plans of Hiiu and Pärnu county and the experience of other European countries in determining the distance of wind turbines from the coast and the GorWind project were used. According to the data of the European Wind Energy Association, the distances of wind turbines of the coast range significantly between Western and Northern Europe l (http://www.ewea.org/fileadmin/files/library/publications/statistics/EWEA-European-Offshore-Statistics-2014.pdf). The distance depends on local conditions, the size of the wind farm, the relevant legislation of the specific country, etc. For wind farms under construction in 2014, the distance from coast is between less than 10 km to about 85 km. Of the Baltic Sea countries, marine wind farms are near the coast in Denmark, Sweden and Finland (usually less than 10 km). In analysing the experience of different countries, it is important to keep in mind that the conditions for the development of wind energy are different between the North Sea (where most of the European marine wind energy comes from) and the Baltic Sea. The shallower marine area (up to ca 40 m) of the southern part of the North Sea (incl. German waters) is more suitable and extensive for the development of wind energy and further away from the coast than the same area in the Baltic Sea, including Estonia. As part of the GorWind project (2010–2012), the extent of visual disturbance was analysed with the use of composite photographs. According to the survey, wind farms 10 km away from the coast are acceptable for 40.9% of the respondents and 38% were indecisive.

The areas planned for wind farms generally do not pose restrictions on other economic activities, except trawling, which may be limited due to cables on the seabed between the wind turbines. Energy production with marine wind farms has potential to attract foreign investments.
In the preparation of the main planning solution and IA report, the economic impact of wind energy and combined effects from other uses (e.g. trawl fishery) is analysed by using the economic benefit model of the marine area[16].

Impact on health

Wider use of wind energy enables to reduce energy production from oil shale and the associated negative impacts on health. The draft of the Marine Spatial Plan has been developed in a way that direct impact on human health is ruled out. In particular, the wind farm areas have been planned at least 10 km away from land and islands with permanent settlement, thereby avoiding noise, overshadowing and infrasound which may have an impact on health. However, wind turbines planned on this distance are still visible and may sometimes cause stress or discomfort, which is related to people's prior negative experiences and/or opinions on wind turbines. To a degree, the visual impact is minimised by the requirement to concentrate the wind turbines in compact groups. A more detailed analysis of the aspects of the visual impact can be found from the IA report.

5.6 Infrastructure on the seabed

5.6.1 Current situation

The infrastructure on the seabed improves Estonia's connection with common transmission networks and ensures energy supply to large islands.

219 km of Estlink 1+2 electrical cables on the seabed

77 km long gas pipe Baltic Connector between Estonia and Finland

Estonian seabed is actively used for cables and pipes. The connections between the electricity networks of the mainland and islands are located in the internal sea. International connections, Estlink 1 (power 350 MW) and Estlink2 (power 650 MW), which connect Estonian with the electrical system of Nordic Countries, are in the area of high seas. The gas pipe Balticconnector (77 km) is being built between Estonia and Finland. Proceedings of superficies licence applications to establish communications cables (Easternlight, Lilaco) are underway. At the moment, there are no known large-scale international connections. The planned terminals on the Pakri

[16] The wind energy development areas obtained with the Maritime Spatial Plan are inserted into the economic benefit model of the marine area, after which the statistical analysis of the model's output is performed. The methodology of economic benefit found with the model is provided in the document compiled by Praxis (2016) "Mereala planeeringu alusuuring: merekeskkonna ressursside kasutamisest saadava majandusliku kasu mudel" (http://www.praxis.ee/wp-content/uploads/2016/09/Mereala-majanduslik-kasu_011216_loplk.pdf).

peninsula and in the ports of Muuga and Sillamäe will also form a part of the energy infrastructure.

5.6.2 Planning solution

Due to abstraction and the plan's legal duties, the Maritime Spatial Plan does not determine the locations of cables and infrastructures. The possible connections of planned wind energy development areas are shown as principal locations in the main solution of the plan.

The spatial priorities of seabed infrastructure of the Estonian marine area are:

- Functional connections with the electricity market of Nordic Countries
- Functional connections with the islands

Guidelines:

1. It is practical for local governments to consider adding a guideline to comprehensive plans according to which the marine infrastructure projects (e.g. cable connections of wind farms) are planned on land through a public process.

5.6.3 Preliminary impact assessment

Natural environment

The draft plan does not prescribe new seabed infrastructure locations nor change the current practice, which is why the implementation of the plan does not create an additional impact on the natural environment. The main planning solution determines the principal locations of the cable corridors of wind farms the associated impacts of which are addressed in the IA report. Depending on the nature of the infrastructure and technology used for installation, the installation of infrastructure (cables, pipes, etc.) may physically change seabed, habitats and thereby the biota (possible impact on spawning grounds). The magnetic field generated by electrical cables may impede the migration of fish, etc.

The impact on the natural environment can be minimised by planning the infrastructure outside of sensitive areas (e.g. protected areas, spawning grounds, valuable habitats) by scheduling the works outside the sensitive period (e.g. spawning period) and find the suitable technical solutions (burying cables in seabed sediments to minimise the magnetic field).

The IA report gives recommendations on locations for cables of wind farms that are suitable in relation to the natural environment. Other environmental aspects can be assessed and measures implemented as part of the permit proceeding of the specific project and the environmental impact assessment.

Social and cultural environment

The placement of marine cables ensures the energy supply of large islands and is needed for day-to-day life. The placement of cables may have negative effects on the culturally valuable objects under water. The National Heritage Board shall be cooperated with in the selection for the location of cables, and it is useful to add a corresponding clause.

Economic environment

Compared to the current situation, the draft plan of the Maritime Spatial Plan does not prescribe changes in the location of infrastructures in the seabed, which is why the plan has no direct economic impacts. However, the seabed infrastructure is important for all economic activities because the feasibility of economic activities is largely dependent on the operation of electrical and gas and communication cables. As a result, it is important that in planning activities near seabed infrastructures, the local restrictions are taken into account.

Impact on health

Establishment of new infrastructures (cables, pipes, etc.) generally does not pose significant risks on health. Indirect impact may be created if during construction pollutants are released into the water from the bottom sediments from where these reach people through the consumption of fish. The impact is assessable in the permit proceeding of the specific project and in the environmental impact assessment in which mitigating measure can be found, if necessary.

5.7 Maritime tourism and recreation

5.7.1 Current situation

The marine area has great value from the perspective of leisure industry both as a place for water-based activities (hobby seafaring, water motor sport, sailing) and recreational activities on the coast.

The importance of tourism in the GDP of Estonia and employment is around 7%, when taking indirect impact into account, and tourism forms an important part of export earnings.[17]

[17]MINISTRY OF ECONOMIC AFFAIRS AND COMMUNICATIONS, 2018

According to "Estonian Maritime Policy" (2012), small-craft tourism has the most potential to increase the number of tourists that visit Estonia. During summertime, approximately 200,000 yachts sail the Baltic Sea and the total amount of international overnight stays is estimated at 2 million [18] . National Tourism Development Plan 2014–2020 sees the entire coast of Estonia as an attractive marine tourism area with active traffic. Seen as the main activities to increase marine tourism are: the development of tourism products and services necessary to extend the duration cruise ships spend in Tallinn, and expansion of the route of international cruise ships to other coastal areas and islands of Estonia (e.g. Kunda, Sillamäe, Saaremaa). The regulation of sea-related tourism activities is mainly the responsibility of local governments. After the administrative reform, local governments have the right to temporarily limit the use of publicly used water bodies, incl. in relation to water sport or moving on water (section 7 (4) of the Water Act).

3,800 km is the length of the Estonian coast

2,000 is the number of islands and islets in the Estonian marine area

In the coastal areas of Estonia (according to basic research from 2016) there are:

90 areas of cultural and environmental value (500 m from the coastline)

363 spots with beautiful views on the Estonian coastline

51 spas

500 accommodation facilities

114 museums/galleries

55 surfing areas

10 surf clubs/sailboard clubs

5.7.2 Spatial layout

The largest marine tourism and recreational areas are located in Harju County, Saaremaa and Pärnu County. In Ida-Viru and Lääne Viru County, marine tourism is less prevalent due to lack of passenger ports and less favourable natural environment. According to the basic research of the Maritime Spatial Plan [19], a large part of beaches are located in Saaremaa, where there are 81 of them, while there are 54 in Harju County, 34 in Pärnu County, 28 in Lääne County, 24 in Hiiu County, 12 in Lääne-Viru County and 9 in Ida-Viru County. According to the data of Maritime Administration, cruise ships from foreign countries visited Harju County the most (850), followed by Saaremaa (143) and Hiiumaa (50) in 2017. Water sport opportunities largely rely on the characteristic of the coast and therefore are more widespread on the islands and in the Lääne and Harju County.

[18]Environmental status of the Estonian marine area, 2018

[19]Collection and analysis of source data to assess social and cultural impacts. Hendrikson&Ko 2017, see http://mereala.hendrikson.ee/uuringud.html.

5.7.3 Planning solution

By virtue of the level of abstraction, the Maritime Spatial Plan does not determine the development areas for marine tourism and recreation. This requires a location-specific approach and a discussion at the local level. The MSP provides guidelines and requirements on the basis of combined marine uses for the spatial development of the field.

The spatial priorities of marine tourism and recreation in the Estonian marine area are:

- Functional network of small-craft harbours
- Expansion of international cruise ship to suitable regions (Kunda, Sillamäe, Saaremaa)
- Taking into account the tourism value of the sea
- The development of the coast for swimming and other water-based activities in suitable places
- Promoting the development of sea-related leisure and sport activities (e.g. surfing, SUP, coastal and offshore rowing) in suitable places

Guidelines:

1. In the development of new marine uses — aquaculture, wind energy — the potential tourism value is also taken into account (e.g. visitation of wind farms or aquaculture farms).
2. Publicly used coastal areas and swimming locations, sailing and motor sport locations and public accesses to the sea and important recreational areas and places are determined at the local level, beach-based activities in the comprehensive plan.
3. To provide more diverse and suitable conditions for the selection of routes and mooring of yachts for sailing tourists, stopping options are planned after every 30 nautical miles (ca 56 km, the preferred daily distance).
4. In determining the water motor sport and jet ski areas at the local level, the leisure needs of the wider public and the impact on fish during spawning period must be taken into account. The practice of water motor sport must not endanger the nature protection objectives. As an exception, the use of jets is allowed without restrictions for the police, lifeguards and sea rescue.

5.7.4 Preliminary impact assessment

Natural environment

With regard to marine tourism and recreation, the Maritime Spatial Plan does not prescribe a spatial use of the sea that is considerably different from the current use, which is why the implementation of the plan brings about no additional impact on the natural environment. A good status of the marine environment is supported by locally established conditions for the definition of water motor sports the practice of which shall not impede the nature protection objectives.

The activities associated with marine tourism and recreation are specified in the plans at the local level and therefore it is appropriate that the environmental impact would be specified in the impact assessment processes of the relevant plans, as necessary. In

addition, new type of marine tourism may come with new marine uses (e.g. visitation of aquaculture areas) the associated impacts of which should be evaluated more precisely in the permit proceeding process.

Social and cultural environment

The planning solution encourages more diverse leisure opportunities both on land and sea. The conditions prescribed with the plan promote a safer coexistence of various recreational uses of the marine environment.
It is important to understand the need for combined uses and create rules for the uses either through the establishment of temporal use limitations, preferred use areas or other rules.
The possible impact on the cultural heritage of the seabed: as not all wrecks and underwater cultural objects are protected, recreational diving may have a negative impact on the condition of these. Increase of awareness is needed to ensure the protection of the objects. The principle that in the development of marine tourism and recreation the peculiarity of coastal counties used as basis, should be considered to be added to the plan.

Economic environment

With regard to marine tourism and recreation, the Maritime Spatial Plan does not prescribe a spatial use that is considerably different from the current use, which is why there are no direct economic impacts on the field. However, as marine tourism and recreation is an important sector of the Estonian economy (incl. as an economic activity and employer), it is necessary that an access to locations related to marine tourism and recreation is ensured (incl. ports, visited protected areas and cultural heritages) in order to maintain the competitiveness and growth potential of the field.

Impact on health

The plan supports the development of marine tourism and recreation, which in turn promotes exercise, which has a very important effect on the prevention of chronic diseases. As a negative impact related to the development of the field, the increase in the risk of accidents (drowning, injuries, etc.) may be mentioned. Water motor sport also generates noise, which may disturb local inhabitants.

5.8 Protected natural objects

5.8.1 Current situation

The basis for a balanced marine use is the preservation of the diversity of the marine biota and economical use of natural resources.

One of the most important pillars of EU marine policy is the Marine Strategy Framework Directive (MSFD)[20], the main aim of which is the protection and sustainable use of marine ecosystems.

[20]Directive 2008/56/EC of the European Parliament and of the Council establishing a framework for community action in the field of marine environmental policy

19% or 6,800 km^2 of the Estonian marine area is covered with protected natural objects

According to MSFD, the management of human activity needs an ecosystem-based approach, which enables the sustainable use of marine ecosystem services and prioritises that a good environmental status is achieved and maintained and further decline in the status is prevented. The directive directly prescribes the obligation to implement spatial protection measures or create a coherent network for the protection of marine areas.

Currently, European seas are protected through the formation of three types of marine protected areas: Natura 2000 marine areas, marine protected areas designated within the framework of regional marine conventions (e.g. Baltic Sea HELCOM) and separate national marine protected areas. The three mentioned types of protected areas may overlap. Currently, the network of Natura 2000 marine areas makes up the largest part of the protected marine area. At this time, there is no EU-wide method to assess the coherence of the protected marine areas, but various researches [21] have pointed out that the networks of protected marine areas in the Baltic Sea region have yet to achieve ecological coherence.[22] [23]

The network of protected areas in the Estonian marine network includes:

- the international network of protected areas Natura 2000 bird and nature areas the basis for the creation of which has been the so-called Habitats Directive [24] and Wild Birds Directive[25];
- nationally protected areas which have been formed on the basis of the Nature Conservation Act;
- HELCOM protected marine areas.

The areas of the Natura 2000 network overlap with nationally protected objects and also with the HELCOM protected marine areas. The network of protected areas mainly includes coastal areas and the habitats there. Lately, the focus has been on the protection of offshore shallow water marine environments with natural value. The Natural Protection Development Plan[26] prescribes continuing with marine inventory taking, including in the exclusive economic zone, which has been studied little thus far. As a result of the inventory taking, the specific activities are specified to ensure favourable condition of marine habitats, including to create additional marine protected areas, if necessary.

[21] Wolters H. A., et al. (2014), „Proposal for an assessment method of the ecological coherence of networks of marine protected areas in Europe"
[22] Boedeker D., et al. (2010) „Towards an ecologically coherent network of well-managed Marine Protected Areas – Implementation report on the status and ecological coherence of the HELCOM BSPA network", Baltic Sea Environment Proceedings Nr 124A.
[23]Report from the Commission to the European Parliament and the Council on the progress in establishing marine protected areas, Brussels, 1.10.2015.
http://ec.europa.eu/transparency/regdoc/rep/1/2015/ET/1-2015-481-ET-F1-1.PDF
[24]Nature directive. Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora
[25]Wild Birds Directive. Council Directive 79/409/EEC on the conservation of wild birds
[26] Natural Protection Development Plan until 2020. Ministry of the Environment, 2012.
https://www.envir.ee/sites/default/files/lak_lop_0.pdf

HELCOM has set as objective to designate at least 10% of the marine area of each sub-basin as a coastal or marine protected area. Of the marine areas around Estonia, this objective has not been met in the open sea area of the Baltic Sea; Estonia has no protected areas in the exclusive economic zone.[27] Thus, in addition to the measure already implemented with the MSFD (completion of the development of the network of protected areas in the coastal and territorial sea of the Baltic Sea), the establishment of a network of marine protected areas in the Estonian exclusive economic zone has been proposed.

At the moment, it is known that the protected marine area will expand about 500 km^2 in the coming years since new areas are going to be protected, which would include marine areas with natural value, incl. the open sea shallow areas in the Estonian exclusive economic zone.

5.8.2 Spatial layout

The protected part of the Estonian marine area mainly includes coastal and shallower areas and fewer open sea areas. The more extensive marine protected areas of the planned marine area, which are defined as part of the Natura 2000 network, include a large part of the coastal waters of Western-Estonia and the islands there, covering, for example, the entire Väinameri sea and extensive parts around the Sõrve peninsula. In the coastal waters of the Gulf of Finland, the areas of the Natura network are less extensive and cover, for example, the surrounding waters of Osmussaar, Pakri islands and the islands of Kolga Bay and the marine area of the Lahemaa National Park.

There are six marine related types of habitats listed in the Annex I of the Natura Directive[28]:

- sandbanks which are slightly covered by sea water all the time (1,110),
- estuaries (1,130),
- mudflats and sandflats not covered by seawater at low tide (1,140),
- coastal lagoons (1,150*)[29],
- large shallow inlets and bays (1,160),
- reefs (1,170).

The status of all the named habitats has been named favourable.[30] [31]

[27]Estonian Marine Strategy Action Plan, 2016 Tallinn.https://www.envir.ee/sites/default/files/meetmekava_032017_f.pdf

[28]The codes of types of habitat provided in the Annex I of the Habitats Directive have been shown after the name:

[29]The following have not been regarded as marine areas in the Natura reports

[30] National Summary for Article 17 (2007–2012) – Estonia https://circabc.europa.eu/sd/a/966f7d8f-d12f-4cac-8cbe-a1f3e71d34ef/EE_20140528.pdf

[31]In 2009, a seminar of the Baltic Sea region took place where the sufficiency of Natura areas with regard to marine habitats and species was assessed. As a result of the seminar, one additional area for the protection of sandbanks and reefs was expected from Estonia.

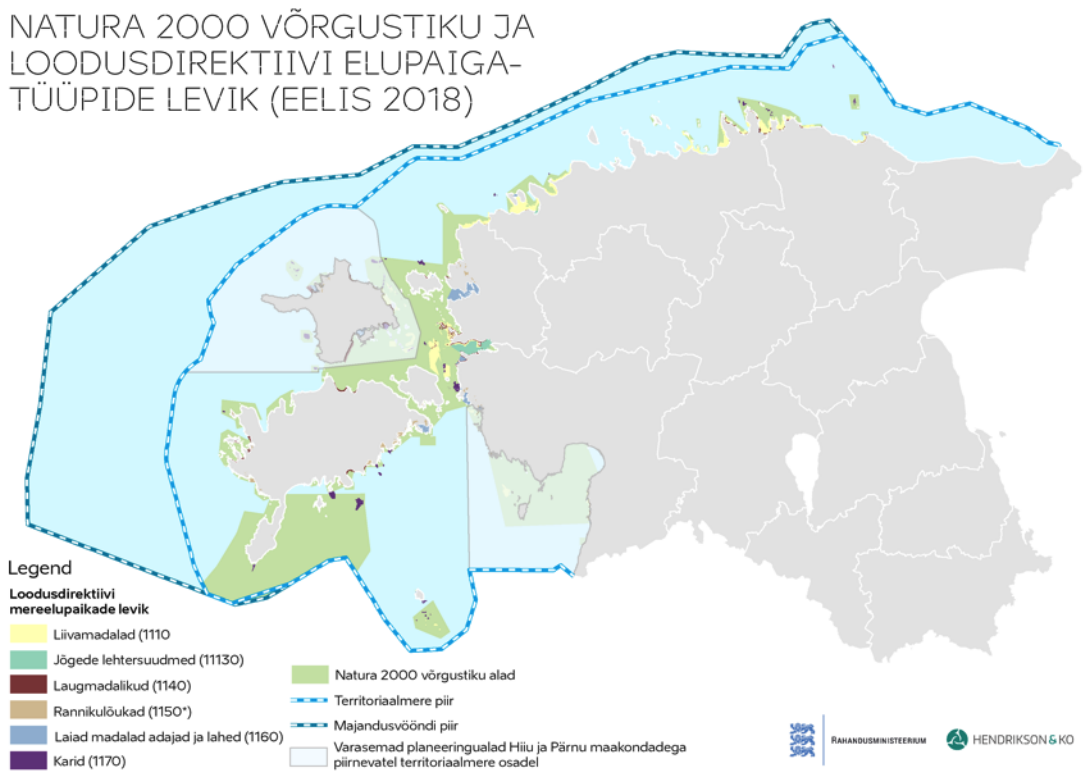


Figure 12. Distribution of habitat types on the basis of the Natura 2000 network and the Habitats Directive

5.8.3 Planning solution

The MSP takes into account the protected natural objects[32]. No additional protected natural objects are planned with the MSP. The establishment of new objects follows the procedure stipulated in legislation and takes into account the guidelines provided by the MSP. The establishment of protected natural objects by following the guidelines is not considered as an amendment to the MSP.

The spatial priorities of protected natural objects in the Estonian marine area are:

- Appreciation of the protection objectives of protected natural objects
- Coherent network of protected areas to achieve a good environmental condition of the marine area.

Guidelines:

1. In the protected areas, the use of the marine area follows the protection objectives of the protected areas and applicable restrictions.

[32] Both the existing and planned protected natural objects as of the beginning of 2019 have been taken into account. The Maritime Spatial Plan does not take into account the potentially planned open sea marine protected areas as their nature and location is not clear yet.

2. In the use of the marine area outside the network of the protected areas, the principle that a good status and health of the ecosystem shall be preserved to ensure the sustainability of the ecosystem services is adhered to. To promote the marine economy, natural resources shall be simultaneously used as well as preserved.
3. In using the results of the research on natural values performed for the planning of new developments, the principle is used that if analogous protection objectives for natural values can also be achieved in marine areas where there are no alternative interests (e.g. related to national defence, energy security or economic interests), then the planning and implementation of the developments is not restricted.
4. In the establishment of open sea protection areas, the principle of combined use of marine areas is followed, as well as the need to use marine resources for energy production, aquaculture, national defence and other uses.
5. In the establishment of a new protected natural object, fairways must be taken into account and the spatial shape of the protectable object shall be adjusted according to the existing fairway.
6. In the establishment of a new protected natural object, the associated socio-economic impact must be evaluated.
7. Upon overlap of areas of activity with the protected natural object, the natural protection values and the protection mode of the specific area are used as guidance.

5.8.4 Preliminary impact assessment

Natural environment

According to the latest analyses, in the Estonian marine area, the environmental status of seabed habitats stipulated in the Wild Birds Directive and Habitats Directive is good, but the status of the habitats of mammals and fishes and pelagic habitats is unfavourable, which is why the status of the biological diversity has also been assessed to be unfavourable.[33] Some of the aspects that affect the good environmental status cannot be verified or guided in the planning of the marine area. For example, the reason for marine eutrophication comes largely from agricultural or even urban waste water.

In the development of the planning solution and guidelines/requirements, the MSP has taken into account the existing and planned protected natural objects. The protected natural objects have been put on the map of the plan and other marine uses have been regulated with respect to these, thereby supporting the biodiversity and achievement of the good environmental status objectives. The latter is extremely important to ensure a sustainable marine economy and thereby the benefits offered to humans by the marine environment. With regard to the requirements to protect the natural environment, the plan does not add new activities to the areas of natural objects (e.g. fish farms, wind farms), but at the same time does not prohibit activities that do not have a negative impact or even contribute to the protection of the natural

[33] The Environmental Status of the Estonian Marine Area 2018, Ministry of the Environment 2018 https://www.envir.ee/sites/default/files/koondaruanne_mereala_seisund_2018.pdf

object (e.g. shellfish and seaweed farms on certain conditions). Additionally, the plan sets guidelines for the preservation of natural protection values and prioritises the protection objectives of the natural objects.

In the IA report, the impact of relevant fields and associated activities thereof is analysed across the protected natural objects, i.e. a Natura assessment is carried out to a degree of precision that corresponds to the strategic planning document.

Social and cultural environment

Restrictions for the protection of nature usually prohibit the use of marine areas for other purposes, which on one hand limits certain activities, while at the other enables other recreational activities (e.g. natural protection does not enable sailing in the Matsalu Bay, but encourages birdwatching tourism). Restrictions for the protection of nature and the resulting low usage help to maintain a good status (water quality, etc.) for the cultural objects on the seabed.

Economic environment

The Maritime Spatial Plan does not prescribe any changes in the locations of the protected natural objects, which is why the plan has no direct economic impact. Nature reserves generally do not inhibit other economic activities but may pose restrictions and additional environmental requirements to marine use. However, a diverse nature is one of the pillars of the economy and therefore it is economically important that natural objects are taken into account in the planning of the marine area.

Impact on health

Due consideration towards protected marine areas helps to create and maintain a biodiverse environment, which in turn supports the increase of well-being of people, creates opportunities for movement in the natural environment and decreases stress.

5.9 Marine culture

5.9.1 Current situation

Estonian marine culture is reflected both in the material and mental cultural heritage, which helps to give meaning to and enrich the daily life.

Estonian marine culture is created by the users of the marine area and coast: fishermen, ship builders, vacationers, surfers, divers, etc., as well as by the material cultural heritage within the marine area. All users have certain interest towards the marine area, in their eyes, the sea has certain cultural values, for example, recreational, aesthetic and identity value, historic and cultural value, etc. Thus separate marine culture communities are formed within the coastal inhabitants who use the marine area and coast.

The communities of the marine culture of Estonia are diverse: new communities have emerged in addition to traditional seafaring, fishing and coastal dwelling, who have as big of an interest towards the marine area and coast.

The results of the cultural mapping of the Estonian coast and marine area[34] show that in one way or the other, the entire coast of Estonia is valuable: low density coastal areas are either naturally and/or culturally valuable and the coastal villages and towns provide both recreational services and the social infrastructures, which carry the local marine culture. The coastal waters include both valuable landscapes (e.g. Neugrund shallow), wreck-abundant areas as well as marine areas used for water sports.

80% of the coastal line is within the borders of valuable landscapes

1,985 professional coastal fishermen are active in the Estonian marine area

278 beaches are on the Estonian coast (500 m from the coastline) (2016)

13 maritime schools are in the Estonian coastal area (2016)

71 village squares are in the Estonian coastal area (2016)

Due to the natural and other peculiarities of the Estonian sea and coast, regional marine cultures are somewhat different: for example, surf culture is mostly found in Harju, Saare, Lääne and Lääne-Viru County and therefore the plan of marine use shall take into account the needs of the surf community as well. There are less surf areas in Ida-Viru County where more emphasis is put on the culturally valuable coast, incl. the limestone bluffs, which can be viewed from both land and sea. Therefore, in the context of Ida-Viru County, it is important to take into account the visual impact the activity planned in the marine area has. The activities planned in the seabed and water column may through currents also affect Narva-Jõesuu, the most important holiday resort in Ida-Viru County.

The coastal areas that carry the local marine culture are often the areas where recreational services are provided — established coastal villages with their community houses, ship building sites and other infrastructural, cultural and environmental values are attractive places to stop and rest. In making decisions about marine and coastal uses, it is important to weigh how the decisions affect the local community, whose well-being, income and identity depends on the coast and sea more than, for example, the vacationer who visits the coast once per year.

[34]As a preparation to the Estonian MSP, the mapping of culturally and socially important objects was carried out. Due to the abundance of information, the areas/objects were grouped into five topics: recreational services, natural leisure areas, water sport areas, social infrastructure that carries local marine culture (e.g. villages squares, ship construction sites) and culturally valuable areas. The figures are generalised: in addition to the areas with the largest concentrations, services, areas of natural beauty, etc. can occasionally be found in other areas of the Estonian coast as well.

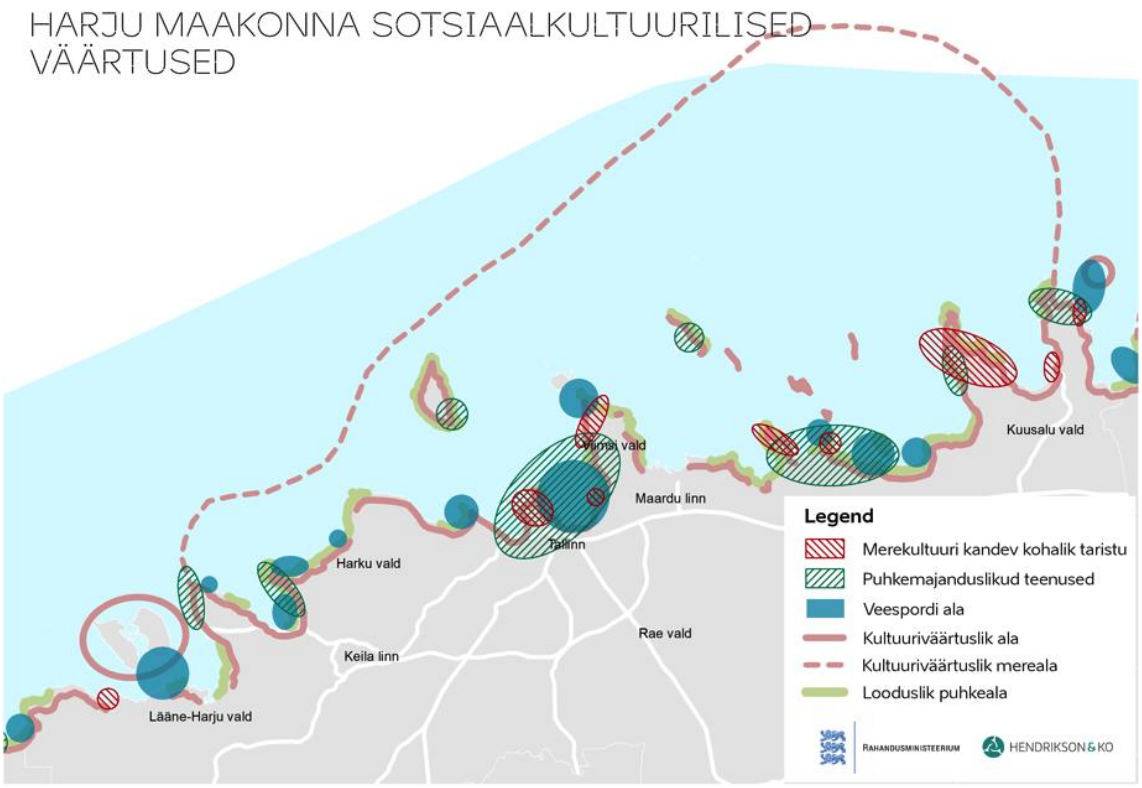


Diagram 5.9.1 The sea-related socio-cultural values of Harju County (the generalised results of the social and cultural mapping of the Estonian coastal and marine area carried out as part of the basic research of the MSP of 2016)

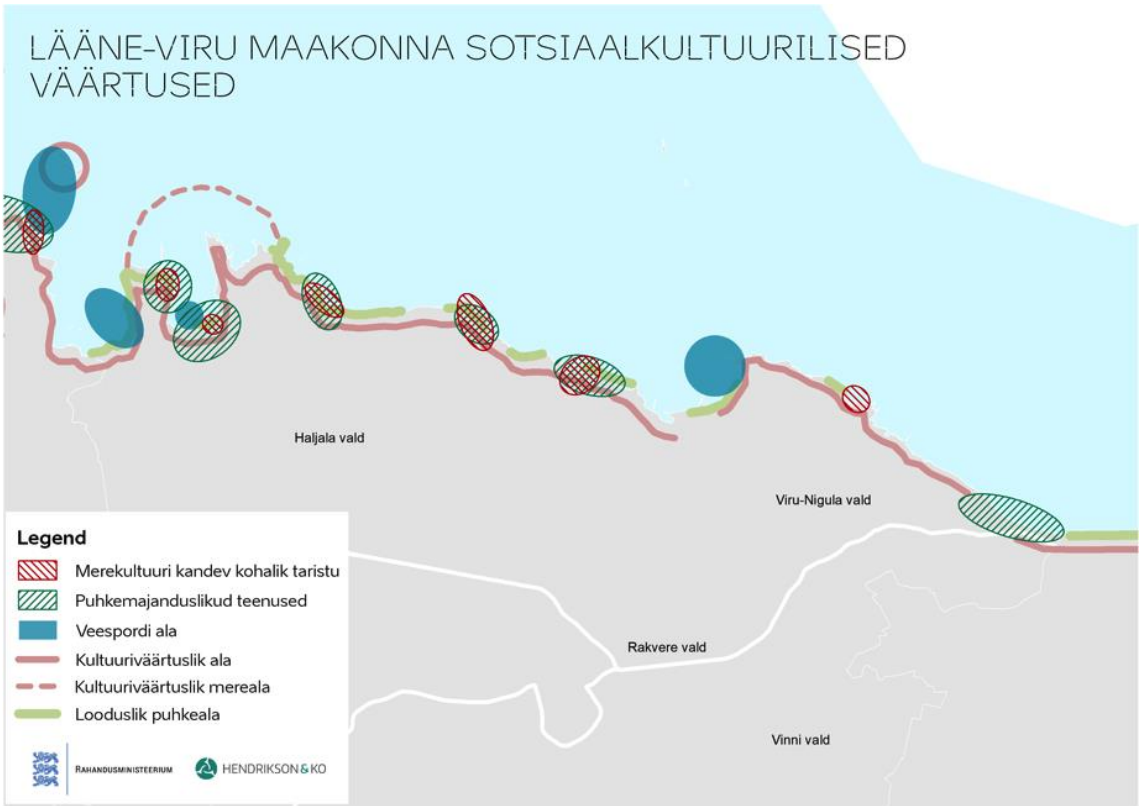


Diagram 5.9.2 The sea-related socio-cultural values of Lääne-Viru County (the generalised results of the social and cultural mapping of the Estonian coastal and marine area carried out as part of the basic research of the MSP of 2016).

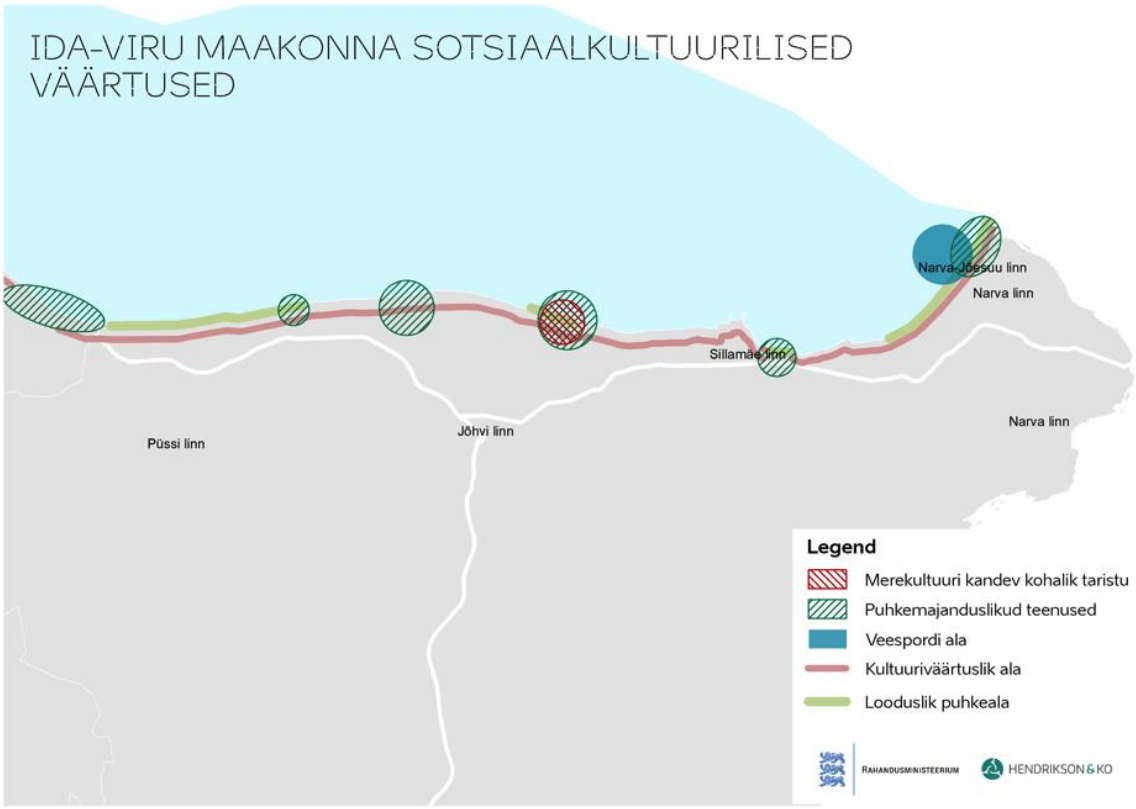


Diagram 5.9.3 The sea-related socio-cultural values of Ida-Viru County (the generalised results of the social and cultural mapping of the Estonian coastal and marine area carried out as part of the basic research of the MSP of 2016).

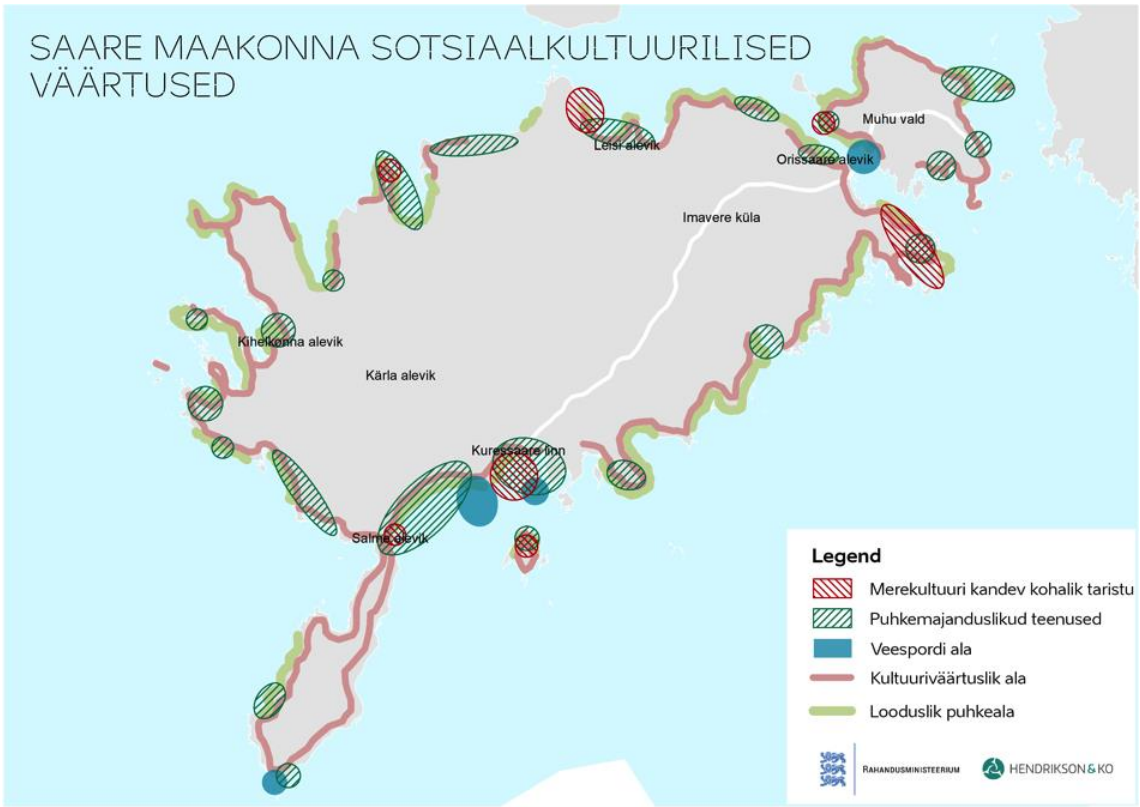


Diagram 5.9.4 The generalised sea-related socio-cultural values of Saare County (the generalised results of the social and cultural mapping of the Estonian coastal and marine area carried out as part of the basic research of the MSP of 2016).

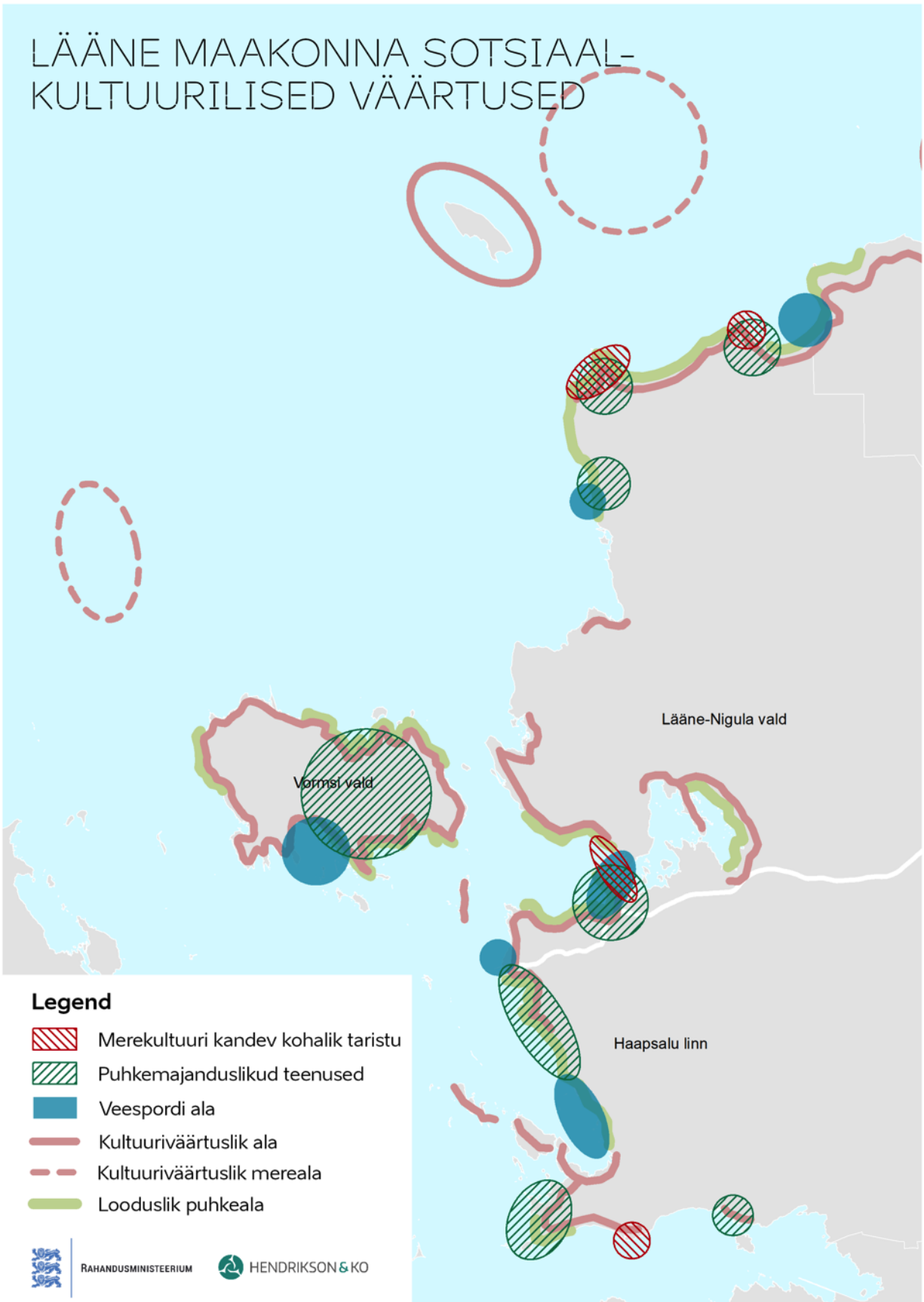


Diagram 5.9.5 The generalised sea-related socio-cultural values of Lääne County (the generalised results of the social and cultural mapping of the Estonian coastal and marine area carried out as part of the basic research of the MSP of 2016).

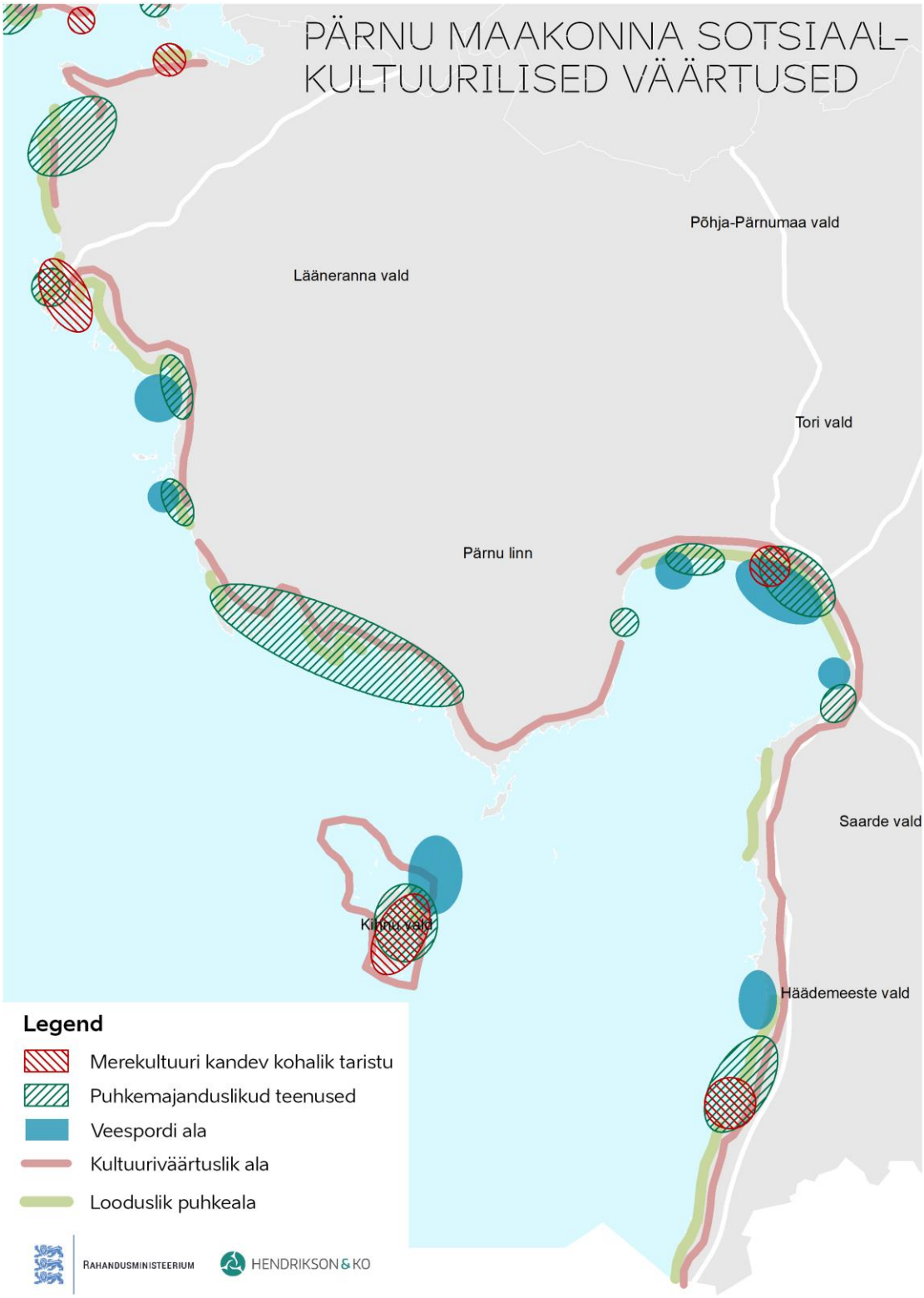


Diagram 5.9.6 The generalised sea-related socio-cultural values of Pärnu County (the generalised results of the social and cultural mapping of the Estonian coastal and marine area carried out as part of the basic research of the MSP of 2016).

5.9.2 Cultural monuments

Ship wrecks make up the largest part of the material cultural heritage in the marine area and the Baltic Sea offers unique preservation conditions for them. Interest towards Estonian underwater cultural heritage is increasing, diving clubs receive visitors from Finland, Latvia, Russia and Germany.

380 wrecks in the territorial sea of Estonia, of which 41 are cultural monuments.

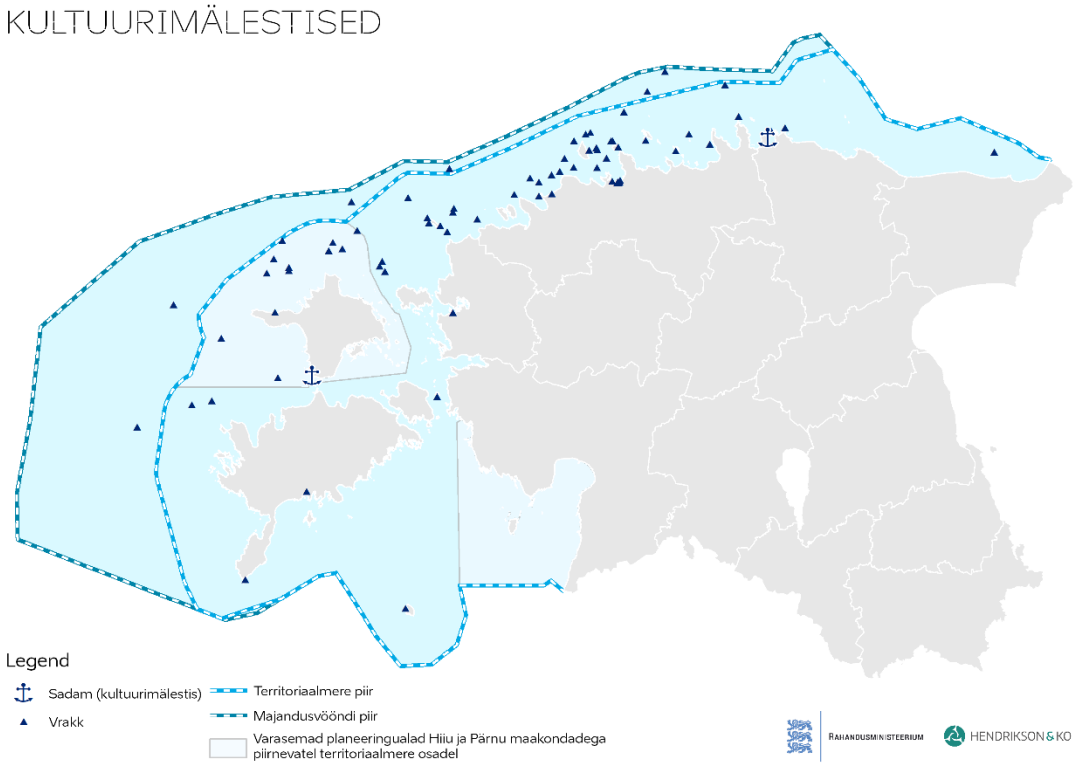


Figure 13. Cultural monuments

5.9.3 Planning solution

By virtue of the level of abstraction, the MSP does not stipulate specific areas related to the marine culture. The plan values both the cultural and material marine culture through the establishment of priorities, guidelines and requirements. The protection of new cultural heritage objects and changes in the protection mode are not considered to be amendments of the Maritime Spatial Plan.

The spatial priorities of marine culture in the Estonian marine area are:

- The coexistence of traditional and new marine cultures
- The reinforcement of traditional marine cultures through harbours operating in naturally suitable places and functional fishing regulations
- Planning of "Diving parks" to simplify the visitation of wrecks in areas with good visibility and many cultural objects

Guidelines:

1. In the preparation of land plans, take into account the uses of the marine area that are appropriate for the natural and cultural peculiarity of the region.
2. When using the results of the research on protected cultural heritage performed in the course of the planning of new developments, the principle is used that if analogous protection objectives for cultural heritage can also be achieved in marine areas where there are no alternative interests (e.g. related to national defence, energy security or economic interests), then the implementation of the developments is not restricted.
3. As communities that carry the marine culture assume that the values that carry the marine culture are preserved in the area of the coast and coastal waters, it is important to agree on the combined function of an area at the local level, for example within the framework of the comprehensive planning processes.

Requirements

1. In areas of cultural monuments (the object together with the protected zone), anchorage, trawling, deepening and dumping of solid material is prohibited. Other activities (e.g. fishing, diving) are allowed only if they do not damage the cultural heritage.
2. The main objective of the protection of underwater monuments is to ensure their preservation at their initial location. It is important to reduce the negative impact caused by human activity and avoid activities on and around the underwater monument which would directly endanger its preservation. If the preservation of the underwater monument is not possible at its initial location, the preservation areas for wrecks are determined under the following criteria:
    a. The area is at a depth of 20–30 metres
    b. The area does not overlap with fairways and water traffic areas
    c. The area does not overlap with wind energy areas
    d. The area does not overlap with dumping areas

5.9.4 Preliminary impact assessment

Natural environment

With regard to cultural heritage, the MSP does not prescribe a spatial use of the sea or principles of use that are considerably different from the current use, which is why the implementation of the plan brings about no additional impact on the natural environment. The aspects related to marine culture that impact the natural environment can be addressed and mitigated in lower level planning or at the project level.

Social and cultural environment

The establishment of diving parks enables more extensive introduction of the underwater cultural heritage and creates a new interesting underwater sight. It should be weighed in the preparation of the main solution and the IA report, whether the expansion of valuable landscapes bordering the coast is needed. The aim of the expansion would be the preservation of the integrity of the landscapes and views to the marine area.

Economic environment

The MSP does not specify specific areas related to marine culture and therefore the plan has no direct economic impact on the field. Areas of cultural heritage generally do not hinder other economic activities but may impose additional requirements. However, the marine culture has a direct influence on marine education and workforce sustainability, which is one of the fundamentals of the economy. Therefore, the areas related to the field have direct correlations with the preservation of economic competitiveness.

Impact on health

Appreciation of the marine culture and cultural heritage increases the well-being of people and creates new opportunities for physical activity and sports, which reduce stress. Of unfavourable consequences, possible leaks of harmful substances from ships protected as cultural monuments as well as increase of the risk of accidents (e.g. during diving) may be pointed out.

5.10 National defence

5.10.1 Current situation

Consideration of national defence interests is needed to ensure the defence capability of the nation.

According to the "National Defence Development Plan 2017–2026", the strategic objective of the nation is to prevent and mitigate national defence related risks and tensions, increased deterrence against military aggression, faster development of independent national defence capability, ability to stand against an attack with the activities of the entire society, ability to quickly solve national defence related conflicts, increasing the cohesion of the Estonian society, and preparedness to withstand an information war. National defence interests on the sea consist of specification of special areas and preservation of operability of air surveillance radars. The special areas of national defence have been established to carry out air defence, artillery and navy exercises.

5.10.2 Spatial layout

Special areas of national defence are in the Gulf of Finland with a special area being planned south of the Kõpu peninsula (within the area of the maritime spatial plan of Hiiu County).

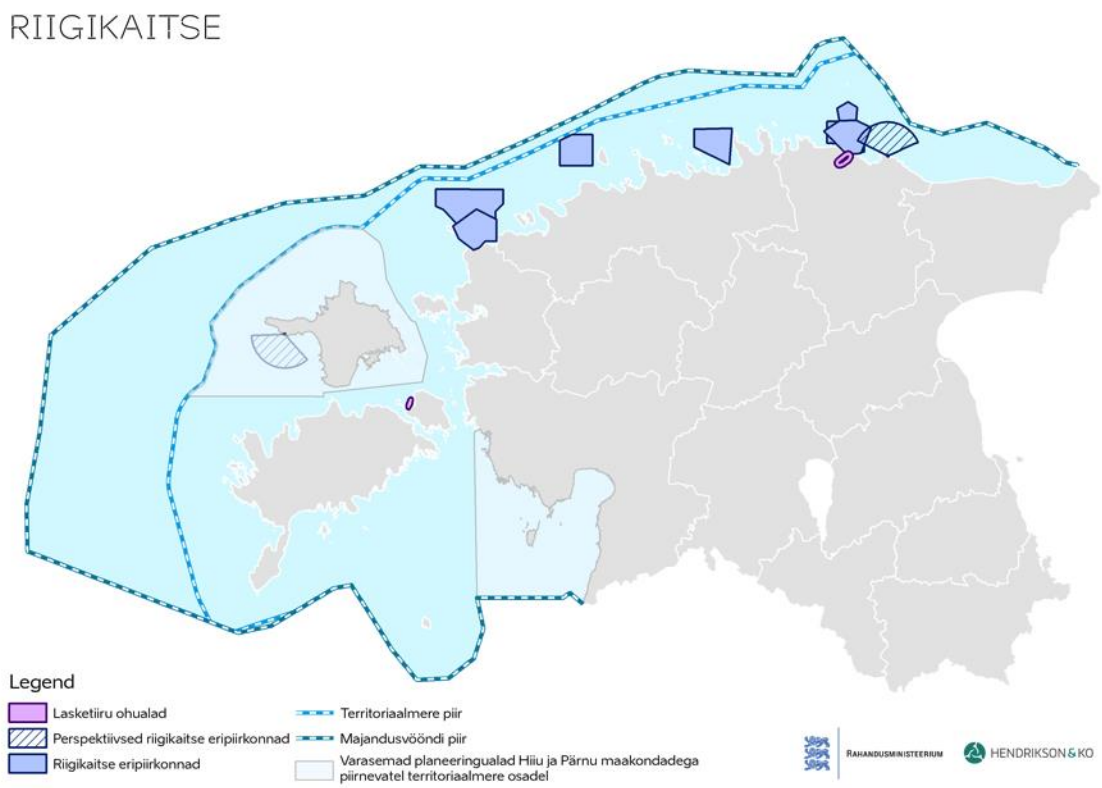


Figure 14. National defence

5.10.3 Planning solution

The MSP takes into account the spatial requirements of national defence. The establishment of new objects follows the procedure stipulated in legislation and takes into account the guidelines provided by the MSP. The establishment of special area of national defence and the specification of their borders following the guidelines is not considered as an amendment to the Maritime Spatial Plan.

The spatial priorities of national defence in the Estonian marine area are:

- Training infrastructure that is safe and efficient
- Preservation of the operability of air surveillance radars

Guidelines:

1. The borders of the special areas may be specified when armament, training methods and other factors change.
2. In the implementation of national defence activities, other marine uses and the interests of the local marine communities must be taken into account as much as possible.
3. Special areas of national defence are opened to navigation all year around except during periods when they are closed for training exercises.
4. To ensure safety, training exercises are disclosed in the navigational information, and, if necessary, in mass media, websites of local governments and local information points.

5.10.4 Preliminary impact assessment

Natural environment

With regard to marine national defence, the MSP does not prescribe a spatial use of the sea that is considerably different from the current use, which is why the implementation of the plan brings about no additional impact on the natural environment.

National defence activities (mine clearance, training exercises) may disturb various species. Detonations may damage or even kill fish, birds and mammals. Also, ammunition and hazardous substances may get into the marine environment. The aspects related to national defence that impact the natural environment can be addressed in more detail and mitigated at the project level. For example, the impact of noise can be minimised by timing the detonations or driving animals away before the detonation.

Social and cultural environment

National defence activity in the marine area is generally needed to ensure the safety and well-being of the country's population.

Economic environment

The MSP does not specify changes in spatial arrangement of national defence areas, which is why the plan does not foresee direct economic impacts. However, national defence areas generally do not hinder other economic activities but may impose additional requirements for them (e.g. during training exercises).

Impact on health

National defence activities, for example, exercises carried out on the beach, may cause noise, which may disturb the local population and cause stress.

5.11 Natural resources

5.11.1 Current situation

The natural resources located in the Estonian marine area help to ensure the security of supply and mitigate the burden on subsoil natural resources.

0.1% of the area of the territorial sea of Estonia has mineral deposits

The Integrated Marine Policy of the European Commission treats the extraction of natural resources from the seabed as an important part of the blue economy.

Until 2030, the extraction of natural resources will continue as it has been carried out to this day, however, in the long run, the estimated[35] impact of extraction on the environment will grow due to pressure to utilise more resources.

[35]Marine Strategy - Marine Area Environmental Status Assessment Report 2018

5.10.2 Spatial layout

As of 31 December 2017, there are 731.8 ha of deposits and 115.08 ha of mining claims according to the consolidated balance sheet of natural resources. The Gulf of Finland, Gulf of Riga (southern coast of Saaremaa) and the Baltic Sea have sand deposits and Väinameri sea has sea mud deposits.

Sand

The extraction volumes of construction sand depend, to a large degree, on construction activities, especially the development of large-scale infrastructure objects (e.g. ports)[36]. In relation to the construction of the Port of Tallinn, large quantities of sand were extracted from the sea (in total M 4.667 m^3 of construction sand) in 2003–2004 and 2008–2010, but in recent years, the extraction of sand from marine deposits has been quite low.

Curative sea-mud

First mud health resorts were established in Estonia at the beginning of 19th century and curative sea-mud has been used in medicine for over 200 years. During this time, the effect and usages of sea-mud has been studied and today this is also used in the production of cosmetics and for curative massages. According to the explanatory letter of the consolidated balance sheet of natural resources of 2017[37], there were three sea-mud deposits in Estonia as at 31 December 2017, of which only one was used for extraction (Haapsalu deposit Tagalahe mining claim – 210 tonnes).

[36]Estonian Institute of Economic Research. Prediction of the Demand of Estonian Natural Resources for 2012–2020. Tallinn, 2011.
[37]Consolidated Balance Sheet of the Sea-mud Reserve of the Republic of Estonia 2017 (as at 31 December 2017). Explanatory letter. Land Board, 2018

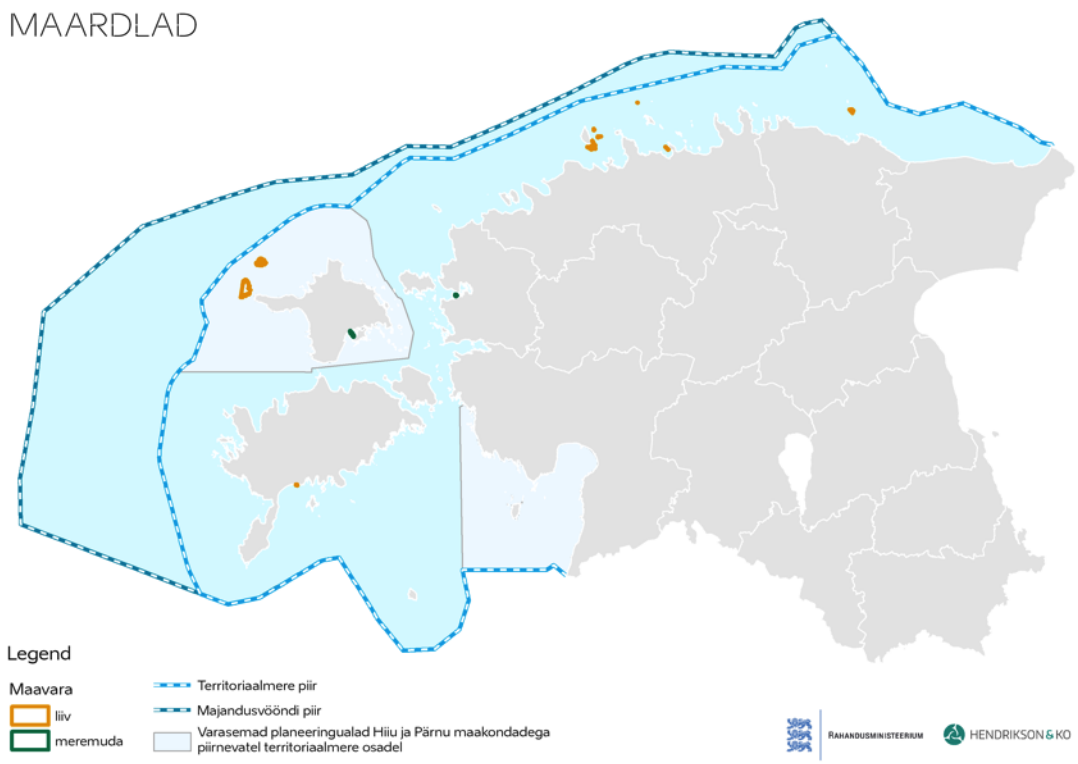


Figure 15. Mineral deposits

5.11.3 Planning solution

No new deposits are specified with the Maritime Spatial Plan but it is important to maintain the existing reserve of natural resources as extraction worthy. The specification of new mining claims or deposits is not considered as an amendment to the Maritime Spatial Plan.

The priority of natural resource extraction in the Estonian marine area is:

- To maintain the reserve of natural resources as extraction worthy and maintain the access thereto.

Guideline:

1. Extraction is generally prohibited in important spawning grounds if this has long-lasting effects on the spawning ground.

Requirements

1. Upon the overlap of a deposit with a water traffic area, the access to the deposit shall be guaranteed with the ship traffic redirected in cooperation with the Maritime Administration, if necessary.
2. Upon extraction of natural resources, the National Heritage Board shall be cooperated with so that the extraction operation would not affect the status of the cultural objects on the seabed.
3. Upon overlap of a deposit with a natural protected area, the requirements set for the protection of natural objects shall be considered with, but with new protected objects, the socio-economic impact from restrictions must be assessed upon imposing restrictions of the deposit.

5.11.4 Preliminary impact assessment

Natural environment

With regard to natural resources, the MSP does not prescribe a spatial use of the sea that is considerably different from the current use, which is why the implementation of the plan brings about no additional impact on the natural environment. The plan sets guidelines for achieving and maintaining a good marine environmental status. For example, upon extraction within protected natural objects, the protected objects and the preservation thereof shall be considered with, and spawning grounds must not also be affected long-term.

In general it can be said that the associated impacts of natural resource extraction is the following: destruction of the biota, seabed habitats and spawning grounds, also similar consequences for deepening works and release of pollutants from the sediments, cloudiness of the water, etc., which has an additional negative impact on the marine ecosystem.[38] As natural resources are extracted within the boundaries of existing deposits and the operation is performed according to the impact assessment process of the extraction permit proceeding, the aspects that affect the natural environment can be addressed and mitigated at the project level.

Social and cultural environment

Extraction of mud continues the Estonian curative mud traditions and therefore has a positive effect. As the activity is primarily short-term, there is no significant visual disturbance.

Economic environment

With regard to natural resources, the MSP does not prescribe a spatial use of the sea that is considerably different from the current use, which is why there are no direct economic impacts. Extraction of natural resources generally does not hinder other economic activities but may impose additional requirements (e.g. during active extraction period). The extraction of natural resources from the marine environment has a modest impact on the Estonian economy.

Impact on health

The MSP does not alter the hitherto use of the marine area with regard to natural resource extraction. The use of deposits and extraction of natural resources in the marine area is not related to significant positive or negative impacts on health.

[38]Collection "Läänemeri. Meie ühine ja kordumatu aare" 2009. Toim Ruskule et al. http://www.visitbalticsea.net/download/Book_EE.pdf

5.12 Dumping

5.12.1 Current situation

The controlled use of the marine area for dumping of materials or burying thereof into the seabed is necessary for depositing the sediments and other materials that result from the deepening of harbours.

17 is the number of dumping areas in the Estonian marine area

The main deepening performed in the Estonian waters is maintenance deepening of harbours where the material extracted is primarily sand or fine-grained sediments.
The volume of dumping varies significantly on a yearly basis and depends mainly on deepening works of performed in largest harbours. The total dumping area is 31.6 km^2, almost half of which is in the Gulf of Finland.

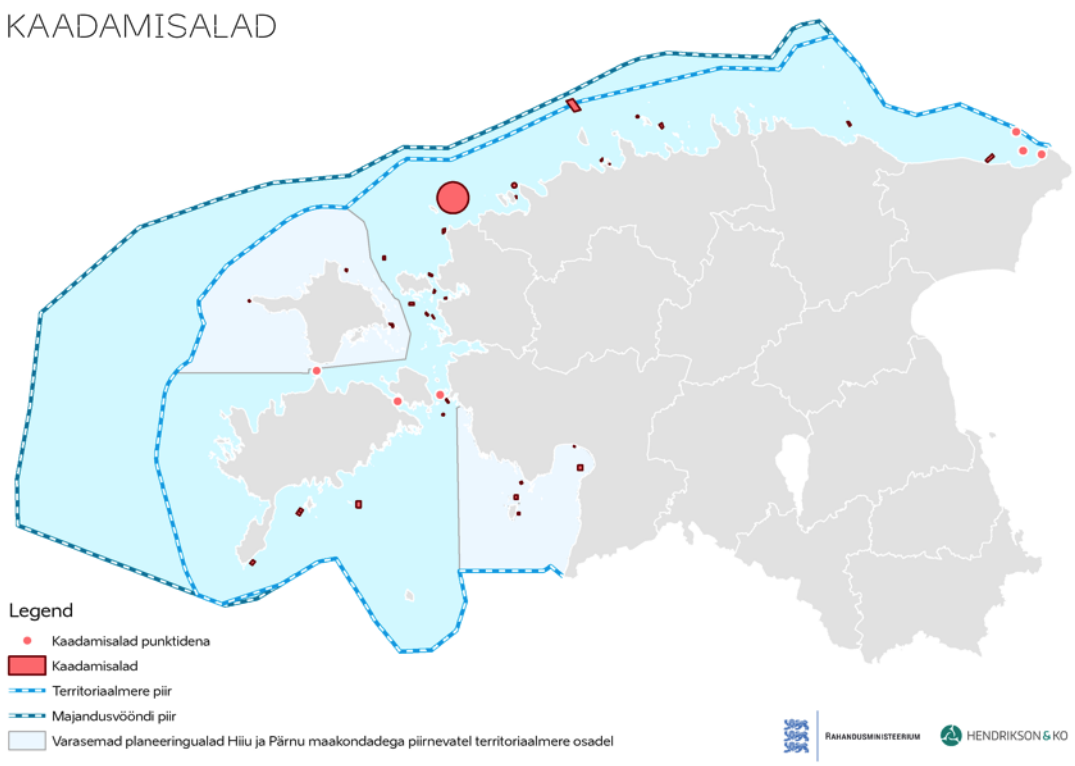


Figure 16. Dumping areas

5.12.2 Planning solution

No new dumping grounds are planned with the MSP. The designation of new dumping grounds is not considered as an amendment to the MSP, if the spatial priorities, guidelines and requirements imposed with the MSP are followed.

The spatial priorities of dumping in the Estonian marine area are:

- The use of existing dumping areas
- Upon designation of new dumping areas, it is necessary to rule out very shallow marine areas and significant impact on spawning grounds

Guidelines:

1. As a general principle, dumping should be avoided during an ecologically sensitive period (e.g. spawning period), if this is possible technologically and economically.

Requirements:

1. The continued use of existing dumping grounds and use of new ones is specified in the proceeding of permits for deepening of water bodies and dumping on the seabed. The requirements specified in the permit for special use of water form the basis for the selection of a dumping location.
2. In the selection of the dumping location (incl. depth), time (e.g. outside the spawning periods and critical periods for young fish) and technology (e.g. measures that limit the formation and dispersion of suspension), the wider impact on the marine biota and the narrower impact on fish and thereby the fishing industry must be taken into account with all of their socio-economic aspects.
3. In the use of new dumping grounds, the indirect impact to used beaches must be taken into account. The material suspended upon dumping must not reduce the quality of water in swimming areas.
4. In the use of new dumping grounds, the existence of possible cultural objects in the area shall be verified with either an independent study or complex research that involved a specialist with national heritage related activity licence.
5. Upon the use of new dumping areas, the Ministry of Defence shall be consulted with on the topic of possible naval mine risk and, if necessary, additional surveys shall be performed with regard to safety of the area.
6. Upon the use of new duping areas, the operation shall be coordinated with the Maritime Administration.
7. The material used in dumping shall be safe to human health.

5.12.3 Preliminary impact assessment

Natural environment

With regard to dumping, the MSP does not prescribe a spatial use of the sea that is different from the current use, which is why the implementation of the plan brings about no additional impact on the natural environment. However, the plan does provide guidelines for achieving and maintaining a good marine environmental status. For example, the plan recommends to time the dumping outside an ecologically sensitive period (spawning periods) and select locations and depths in consideration of the biota.

In general, the possible associated impacts of dumping are, for example, the destruction of bottom habitats, spawning areas as well as cloudiness of the water, which has a further negative impact on the marine ecosystem. As dumping is performed in strictly specified areas and the proceeding of permit involves the impact assessment process, the aspects which impact the natural environment can be addressed and mitigated at the project level.

Social and cultural environment

If requirements imposed with legislation and the plan are followed, there is no significant impact on the social and cultural environment.

Economic environment

With regard to dumping, the MSP does not prescribe a spatial use of the sea that is different from the current use, which is why there are no direct economic impacts. Dumping areas generally do not hinder other economic activities but may impose additional requirements (mainly temporary restrictions during dumping). Dumping has a modest impact on the Estonian economy.

Impact on health

If requirements imposed with legislation and the plan are followed, dumping has no significant impact on human health.

5.13 Permanent connections

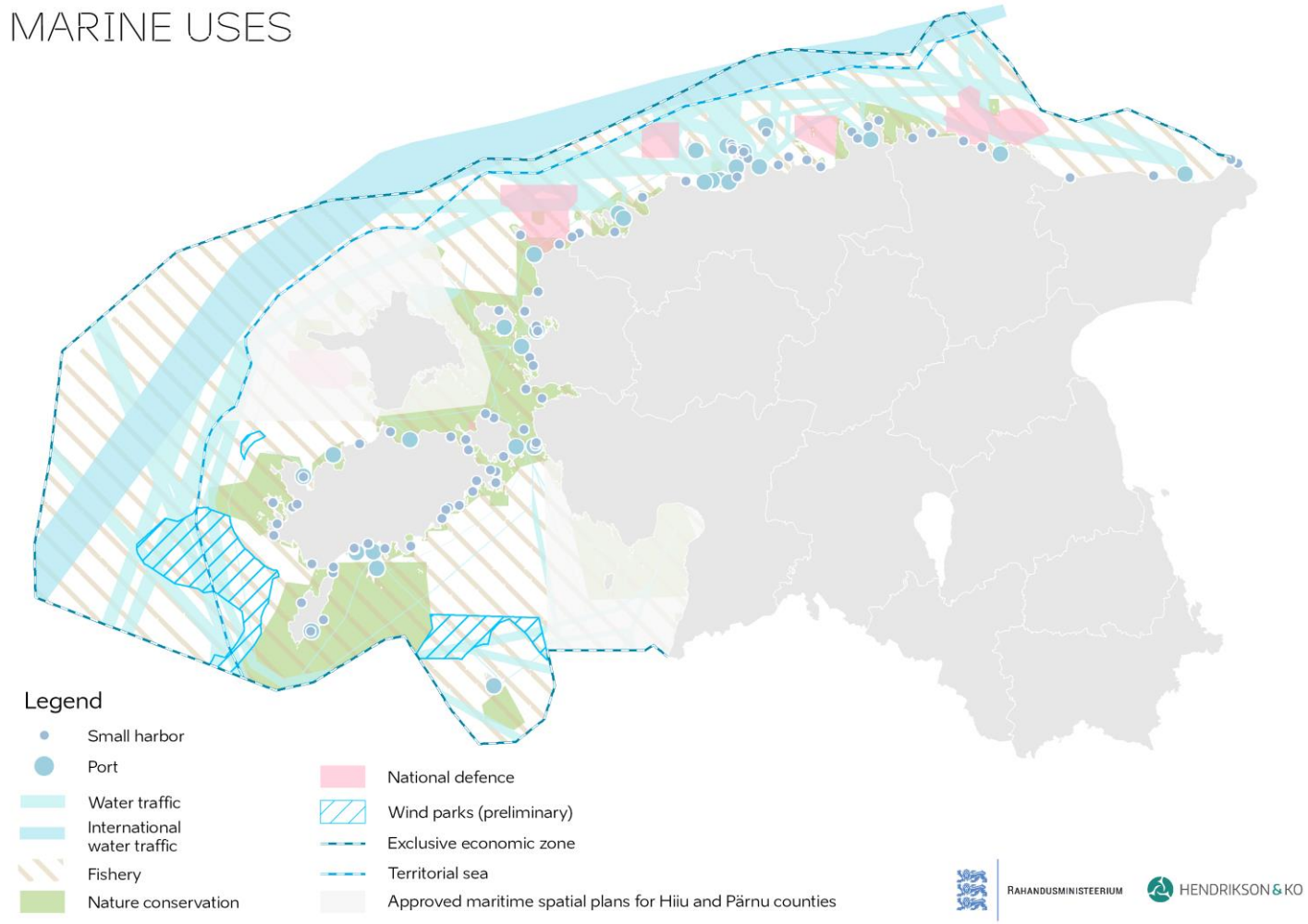
The National Plan "Estonia 2030+" emphasises the importance of integrated structure for the settlement system: the accessibility of services, educational institution and jobs. In addition to better integration of areas of activity, the goal is to have faster and more convenient connections with other countries. A functioning transport infrastructure is key in achieving the objectives.

In the area of transport infrastructure, the largest potential development projects of the following decades are the permanent connections between Tallinn-Helsinki and Saaremaa-mainland. These are extensive projects the implementation of which has a significant impact on the living and natural environment. The impact depends largely on the detailed solution of these permanent connections (bridge or tunnel, specific location, etc.). Both development projects need a thorough analysis, location-based surveys with analysis of feasibility and viability. It is also important to have a public planning process to reach a societal agreement.

The Saare County Plan and the Lääne County Plan, which address the mainland-related questions of the connection, are used as basis for planning the permanent connection between Saaremaa and the mainland. The basis for planning the permanent connection between Tallinn and Helsinki is the Harju County Plan, which addresses the mainland-related questions of the link. In the preparations of local government comprehensive plans, the stipulations of the county plans on the permanent connections shall be taken into account.

The permanent connections are planned with the decision of the Government of Estonia with separate detailed national level plans. Upon links with a neighbouring country, the preparation of respective plans is based on the agreement between the governments. Impact assessment shall be performed as the plans are prepared. In addition to the sea, the planning area shall include the land in the required extent.

5.14 Combined use of the marine area, map of the draft plan



6. Suggestions to develop best practices and improve the legal framework

1. To advance the field of seaweed and shellfish farming, the legal regulation for establishing seaweed and shellfish farms must be analysed thoroughly. The current regulation, which uses the superficies license, is not justified since aquaculture is more of an anchorage than construction of fixed structures as with wind turbines.
2. The concept of small-craft harbours network 2014–2020 needs to be renewed because:
    a. The current conception regards harbours only as destinations for marine tourism and providers of services. Chapters addressing the **engineering** side would have to be added: good construction practices, recommendations for planning and design, etc., and the need to **take natural environment into account** — recommendations and restrictions due to the peculiarity of the coastline. In the case of support measures, for example, this should make possible to establish a different required depth in different areas, help avoid the use of public money for the construction of unreasonably sized and badly designed harbours.
    b. The current approach to harbours is very rigid, however, the reality is diverse. Greater **flexibility** in classifications, requirements, etc. would enable to develop a wider and more versatile network of harbours for a larger user base. On one hand, the establishment of a minimum level of quality is necessary, on the other, regional differences must be taken into account more — it is unreasonable to demand the same number and level of service in the capital and in small islands, but both locations need a guest harbour.
    c. The **list of harbours** in the network should be periodically reviewed, and being part of it should be a desirable and falling out of it an actual risk. It should be specified what opportunities being in the list entails and how is the list renewed.
    d. In addition, **statistics** for marine tourism, which are currently interpreted arbitrarily, need to be more precise. It would be good to add a description of the logic small-craft users and traffic follow and to what degree the changes and growth can be trusted.

    A development document that is analysed more thoroughly and described better is an informative basis for both planning the use of the marine area, planning the financing of the field, organising the preservation of the environment, etc. It should incorporate the proposed classification of harbours.

3. It is practical to create pamphlets/webpages about the marine uses. The goal is to share information on the legal and economic use of the marine area and thereby promote the use of the Estonian marine environment. It is also important to increase the general awareness of the varied uses of the marine area.

7. Definitions and abbreviations

The definitions chapter is supplemented during the preparation of the main planning solution.

Relevant impacts – all associated impacts of the implementation of a specific plan (incl. both significant and regular effects) that need assessment.

Access – a road, which provides an access to a destination (harbour, public beach or other object) and which can be used with a car, bicycle or on foot. Access may be provided only via an existing road or street. The MSP specifies the requirement for accesses. The location of the access road is specified with the local government's comprehensive plan or detailed plan.

Dumping – any intentional disposal of waste or other material or things into the sea or burying thereof in the seabed from a ship, aircraft, platform or other marine construction[39].

Environmental impact assessment – in a narrower sense, environmental impact assessment is the impact assessment performed in the planning of a specific activity (construction project, superficies license, permit for the special use of water).

SEA – strategic environmental assessment is used in the impact assessment of planned activities at the more general level (strategic development documents, e.g. plans, development plans). Strategic environmental assessment is more general and less specific than the environmental impact assessment.

Fairway – part of waterway, which is most suitable for water traffic, published in the navigational information and physically demarcated, if necessary. The location of fairways is mostly dependent on natural circumstances, which is why the changing these would disturb the ship traffic significantly. Traffic separation schemes are regarded as part of the fairway.

Exclusive economic zone (EEZ) – an area outside of and adjacent to the territorial sea the borders of which have been specified with agreements between the Republic of Estonia and neighbouring countries. In the exclusive economic zone, the country it belongs to has the priority to living stocks and the exclusive right to use the natural resources in the seabed and create artificial islands. Exclusive economic zones are regulated by the United Nations Convention on the Law of the Sea.

Terms of use of the marine area – the prerequisites and requirements for the use of the marine area by functions and areas the purpose of which is to ensure the sustainable and balanced use of the marine area.

[39] Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (LC), 1972 (and the 1996 London Protocol); Water Act

Implementation of the Maritime Spatial Plan (MSP) – the permission to use the marine area and the use thereof in accordance with the guidelines and requirements agreed upon in the effective plan.

Nautical mile – unit of length. One nautical mile equals the length of one minute of a degree of latitude. In the plan, the distance used for the length of a nautical mile is 1,852 metres.

Permanent connection – part of the transport infrastructure, which enables a permanent connection across the sea.

Blue growth – sustainable marine economy, which includes all areas related to the sea: tourism, renewable energy, aquaculture, fishing, biotechnology, use of natural resources in the seabed, etc.

Internal sea – part of the marine area that is located between the baseline of territorial sea and the coast. Baseline of the territorial sea is a conceptual line that connects the points of land, islands, islets, cliffs and individual protruding rocks most distant from the coast.

Guideline – general guideline provided in the plan that is based on the long-term vision of the marine area and requirements for combined use. Adherence to guidelines is the responsibility of the authority responsible for the area of activity. Upon divergence from a guideline, cooperation with other related or affected parties is needed to ensure the implementation of the planning solution.

Beach or swimming location – water body or part thereof that is used for swimming and the adjacent land, which is are demarcated clearly.

Requirement – obligatory requirement established with the plan.

Territorial sea – part of the marine area adjacent to the internal sea with a width of 12 nautical miles. The jurisdiction of Estonia is applicable in the territorial sea. The outer border of the territorial sea is the national border of Estonia. The average depth of the territorial sea is about 30 m. The territorial sea and internal sea make up the territorial waters.

Water traffic area – area used intensively for water traffic and not published in the navigational information. The areas have been determined in cooperation with the Maritime Administration (see ch 5.3.4 for the methodology) and in consideration of the need to enable other marine uses as well.

Aquaculture – the farming of water organisms (fish, shellfish, crayfish and water plants (e.g. seaweed)) with a technology that is designed to produce a higher yield than natural environmental conditions would allow.

Small-craft harbour – a harbour where services are provided to vessels under 24 metres of total length.

Ecosystem service – merits of ecosystems that people can use, e.g. food, recreation, climate regulation. Ecosystem services are valued but generally not sold (no market value).

Ecosystem approach – according to the Convention on Biological Diversity, ecosystem approach is the management strategy of land, water and biological resources and is focused equally on protection and economic use.

Abbreviations

SEA – strategic environmental assessment is part of impact assessment, which complies with the Environmental Impact Assessment and Environmental Management System Act.
IA – impact assessment; broad-based analysis of associated impacts performed simultaneously with the development of the planning solution