NATIONAL MARINE SPATIAL PLANNING

CS — GD — MSP — SEA

Swedish Agency for Marine and Water Management

Proposal for the Direction of the Marine Spatial Planning and the Scope of the Environmental Assessment

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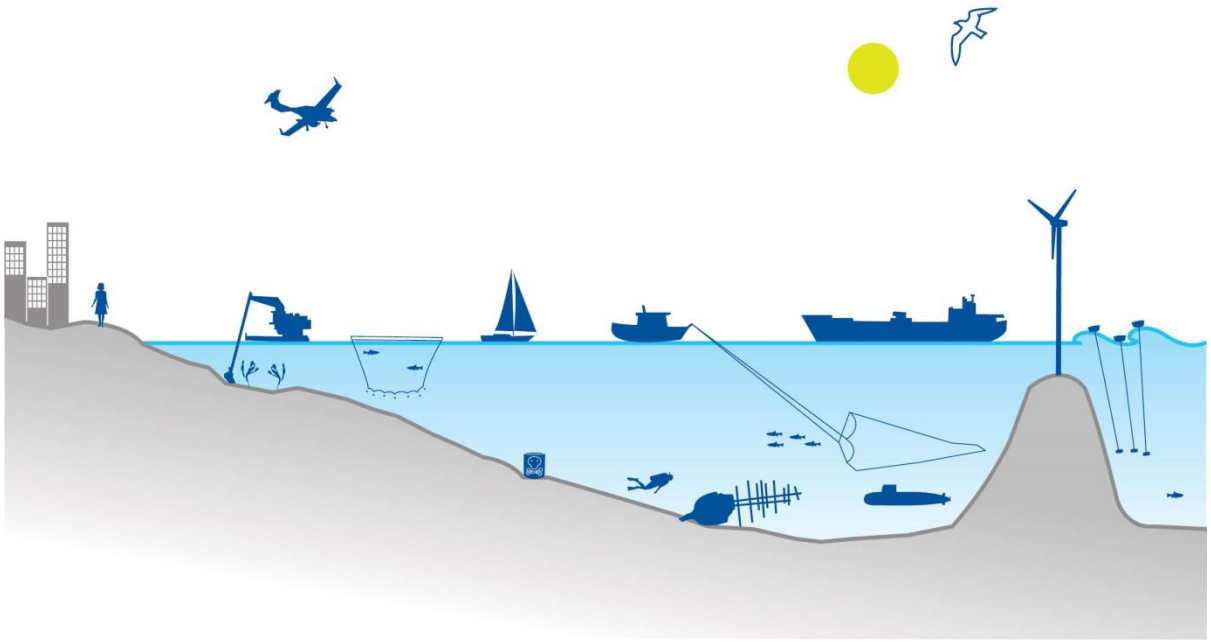

Consultation Document from the Swedish Agency for Marine and Water Management

Document series for national marine spatial planning

CS Current Status 2014 Report
GD Guidance Document
MSP Marine Spatial Plans
SEA Strategic Environment Assessment Document

The Swedish Agency for Marine and Water Management

Date: 01/09/2015

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Swedish Agency for Marine and Water Management

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Consultation on the direction of the marine spatial planning and the scope of the environmental assessment

On 1 September 2014, a provision was introduced in the Environmental Code concerning national marine spatial planning in Sweden which entails that there will be three national marine spatial plans; for the Gulf of Bothnia, the Baltic Sea and the Skagerrak/Kattegat. The plans shall cover the territorial sea and the Swedish exclusive economic zone, with the exception of the areas closest to the coastline. According to the Marine Spatial Planning Ordinance (2015:400), the Swedish Agency for Marine and Water Management (SwAM) shall produce proposals for marine spatial plans.

In order to support and guide the process of developing marine spatial plans, and with the aim of clarifying and anchoring the continued planning process, SwAM has produced a draft guidance document entitled *Proposal for the direction of the marine spatial planning and the delimitation of the environmental assessment*.

The document contains proposals for planning objectives and strategies, as well as significant issues to address within each marine spatial plan area. The document also presents the continuing process in the preparation of marine spatial plans, including the work with impact assessments. The document concludes with a proposal for the scope of the environmental assessment as required under the Environmental Code.

SwAM invites you to our consultation on the proposals. The questions we would like to focus on are as follows:

1. How do you view the proposed planning objectives and strategies as a guide in the planning process?
2. What other significant issues should be addressed within the marine spatial plan areas (the Gulf of Bothnia, the Baltic Sea and the Skagerrak/Kattegat)?
3. How do you view the proposed substantive scope as an appropriate starting point for assessing the marine spatial plans' significant environmental effects?

Viewpoints on the guidance document must be received by SwAM no later than 1 March 2016. Responses are to be sent by e-mail to havochvatten@havochvatten.se. Specify the reference number 3779-14 in the e-mail's subject line. Please submit the text of the referral response also in Word format.

Any questions during the consultation period that concern the guidance document are to be submitted to Eva Rosenhall (eva.rosenhall@havochvatten.se) or AnnaKarin Fridh (annakarin.fridh@havochvatten.se), and questions regarding the scope of the environmental assessment are to be sent to Jan Schmidtbauer Crona (jan.schmidtbauer.crona@havochvatten.se).

Sincerely,

Björn Sjöberg
Head
Department for Marine and Water Management

Appendices

Mailing list
Proposal for the direction of the marine spatial planning and the scope of the environmental assessment

Mailing list

Central authorities	County administrative boards	Municipalities
Svenska Kraftnät (Public utility) National Board of Housing, Building and Planning Swedish Energy Markets Inspectorate Public Health Agency of Sweden Swedish Fortifications Agency National Defence Radio Establishment Swedish Armed Forces Kammarkollegiet Swedish Chemicals Agency Swedish Coast Guard Lantmäteriet (Mapping, cadastral and land registration authority) Swedish Civil Contingencies Agency Swedish Environmental Protection Agency Swedish Transport Administration Swedish Post and Telecom Authority Swedish National Heritage Board Swedish Energy Agency Swedish Board of Agriculture Swedish Geotechnical Institute National Maritime Museums in Sweden Statistics Sweden Swedish Maritime Administration Swedish Meteorological and Hydrological Institute Geological Survey of Sweden Growth Analysis Swedish Agency for Economic and Regional Growth Swedish Defence Research Agency Transport Analysis Swedish Transport Agency	All county administrative boards	All municipalities

Regional bodies	Universities and colleges	Trade organisations and interest groups
Västernorrland County Council	Blekinge Institute of Technology	Baltic Sea 2020
Norrbotten County Council	Chalmers University of Technology	Coalition Clean Baltic
Region Östergötland	University of Gothenburg	Swedish Fishing Industry Association
Region Kronoberg	Swedish Institute for the Marine	Fisheries Secretariat
Region Blekinge	Environment	Friluftsfrämjandet (Outdoor association)
Region of Gävleborg County	Karlstad University	Swedish Federation of Business Owners
Region Halland	KTH Royal Institute of Technology	Greenpeace
Region of Jönköping County	Linköping University	Hallandsfiskarnas producentorganisation
Region Skåne	Linnaeus University	Jägarnas riksförbund (Hunters association)
Region Västerbotten	Luleå University of Technology	Federation of Swedish Farmers
The Regional Council in	Lund University	Swedish Society for Nature Conservation
Kalmar County	Mid Sweden University	Skärgårdarnas Riksförbund (Archipealgoes)
Sörmland Regional Council	Swedish University of Agricultural	Sportdykarförbundet (Sport Diving)
Uppsala Regional Council	Sciences	Swedish Anglers' Association
Stockholm County Council	Södertörn University	Svensk Energi (Energy)
Region Västra Götaland	Stockholm University	Swedish Shipowners' Association
	Umeå University	Swedish Wind Energy
	Uppsala University	Swedish Windpower Association
	Örebro University	Swedish Yachting Association
		Swedish Association for Hunting and Wildlife Management
		Swedish Cruising Association
		Swedish Tourist Association
		Confederation of Swedish Enterprise
		Sverige pelagiska producentorganisation Ek För (Pelagic fisheries PO)
		Swedish Renewable Energies Organization
		Swedish Fishermen's Federation
		Sveriges Fiskevattenägareförbund (Owners of private water)
		Association Ports of Sweden
		Swedish Association of Local Authorities and Regions
		Swedish Coastal and Lake Fishermen´s Federation
		Sveriges Kustfiskarförening Väst (Coastal fishers)
		Swedish Ornithological Society
		Sveriges Torskfiskare Producentorganisation (Cod fishers PO)
		Sveriges Yrkesfiskares Ekonomiska Förening (Fishers)
		Swedish Confederation of Transport Enterprises
		Vattenbrukarnas Riksförbund (Aquacutlure)
		World Wildlife Fund WWF

Proposal for the Direction of the Marine Spatial Planning and the Scope of the Environmental Assessment

Consultation Document from the Swedish Agency for Marine and Water Management

Preface

The Swedish Agency for Marine and Water Management (SwAM) has been commissioned by the Government to prepare the implementation of the Swedish national marine spatial planning. On 1 September 2014, a provision was introduced in the Environmental Code concerning national marine spatial planning in Sweden which entails that there will be three national marine spatial plans; for the Gulf of Bothnia, the Baltic Sea and the Skagerrak/Kattegat. The plans shall cover most of the territorial sea and the Swedish exclusive economic zone. In the territorial sea, the state shares planning responsibilities with the municipalities. According to the Marine Spatial Planning Ordinance (2015:400), SwAM is to produce proposals for marine spatial plans.

In order to support and guide the process of developing marine spatial plans, and with the aim of clarifying and anchoring the continued planning process, SwAM has produced this draft guidance document.

The proposal presents the conditions for the preparation of marine spatial plans along with proposals for the direction of the marine spatial planning. The proposals include planning objectives and strategies and a presentation of significant issues to address and take into account in the planning of each marine spatial plan area. The document also presents the continuing process in the preparation of marine spatial plans, including the work with impact assessments. In addition, the document contains a proposal for the scope of the forthcoming environmental assessment. This proposal regarding direction and scope is open to consultation until 1 March 2016.

The preparation of the draft guidance document has primarily been based on a status report that was produced during 2013-2014. During autumn 2014, workshops were held with coastal county administrative boards and central authorities which focused on the development of planning objectives and a process for the planning work.

Björn Sjöberg,
Head
Department for Marine and Water Management

Reading instructions

This document represents a basis for SwAM's consultation on the direction of the marine spatial planning and the scope of the environmental assessment as required under the Environmental Code. The proposals that SwAM have submitted for consultation are presented in the sections entitled *Direction* and *scope of the environmental assessment*.

Document outline

The *Introduction* section explains what is meant by marine spatial planning and the role of marine spatial planning in marine management. Furthermore, the new Swedish marine spatial planning and associated legislation is introduced; its main task and purpose, geographical scope and boundaries, and the division of responsibilities in the implementation. Preparatory work for the introduction of new Swedish marine spatial planning is also presented.

The section *Conditions* outlines the factors that the marine spatial planning work must take into account and relate to; the ecosystem approach as a basis for planning, municipal planning of the sea under the Planning and Building Act, the planning of neighbouring countries, the Law of the Sea and EU legislation, legislation on national interests, and societal goals and strategies. The section *Planning needs* provides a comprehensive picture of the current situation and the expected developments in the maritime sectors, as well as in terms of defence, nature and culture conservation and climate. The section *Planning process* presents a timetable, process and overall structure for the implementation of the marine spatial planning. This also contains a description of the division of responsibilities and various actors' participation in the work with preparing proposals for marine spatial plans.

The section *Direction* presents the actual proposals for the direction of the marine spatial planning. This includes proposals for ten planning objectives that will guide the planning process. There are also planning strategy proposals for how to approach and manage the balancing of interests, the interaction with other plans (both municipal and in neighbouring countries), and the interaction between land and sea. There are also proposals for time perspectives and geographic scales that are relevant for the marine spatial plans.

For each marine spatial plan area, there is an overview of the area's geographic, environmental and economic conditions, as well as the most important issues to be addressed by the marine spatial planning.

The document concludes with a proposal for the scope of the environmental assessment which is required under the Environmental Code.

Introduction

Marine spatial planning in marine management

We are in many ways dependent on the sea, our common resource. We need to make use of the resources of the sea, while at the same time making sure to preserve them for the future. The sea is managed through different types of regulations and measures, where marine spatial plans can be viewed as one of several tools. Other tools include permits and licensing, environmental assessment, rules for how activities may be carried out, the establishment of different kinds of protection and measures to achieve good environmental status within the context of marine environment protection.

Marine spatial planning primarily deals with the *spatial aspects* of marine management. In marine spatial plans, this involves holistically providing spatial conditions for different types of activities or protection in the sea. Marine spatial planning has several spatial dimensions; space in and on the seabed, in the water column and on the sea surface and the space above it.

Marine spatial planning can briefly be described as a process of analysing and organising activities in marine areas to achieve environmental, social and economic policy objectives. The aim, using a transparent process and a focus on the future, is to create opportunities for and prioritize between various interests in terms of use, development and conservation. The process leads to marine spatial plans that, on maps and in a plan description, present the appropriate use of the sea.

Marine spatial planning is also about creating readiness and being better equipped to face the future. The planning is based on a societal perspective and forces for development that are broader than the issues that are directly linked to the marine area.

New national marine spatial planning

On 1 September 2014, a new provision was introduced in the Environmental Code concerning national marine spatial planning in Sweden. The Marine Spatial Planning Ordinance (2015:400) regulates the process of the marine spatial planning. The Ordinance contains provisions on geographical boundaries, the content of the marine spatial plans, the responsibility for preparation, consultation and cooperation in the proposal process, and monitoring and review. According to the Ordinance, SwAM shall develop proposals for marine spatial plans with the help of relevant county administrative boards and with support from national authorities, which will assist with supporting data for the planning. The municipalities, regional planning bodies, regional coordination bodies and county councils that may be affected must be given the opportunity to participate in the proposal process so that consideration can be given to local and regional conditions and needs. The Agency shall promote cooperation with other countries and the coordination of the Swedish marine spatial plans with those of other countries.

There must be marine spatial plans for each of the following areas; the Gulf of Bothnia, the Baltic Sea and the Skagerrak/Kattegat (Figure 1). The national

spatial plans shall cover Sweden's exclusive economic zone and the Swedish territorial sea from one nautical mile (1,852 metres) outside the Swedish baseline, with the exception of privately owned water.
The municipal boundary between the municipalities of Östhammar and Norrtälje represents the demarcation of the marine area between the Gulf of Bothnia and the Baltic Sea marine spatial plan areas. The southern municipal boundary between the municipalities of Helsingborg and Höganäs represents the demarcation between the Baltic Sea and the Skagerrak/Kattegat marine spatial plan areas.

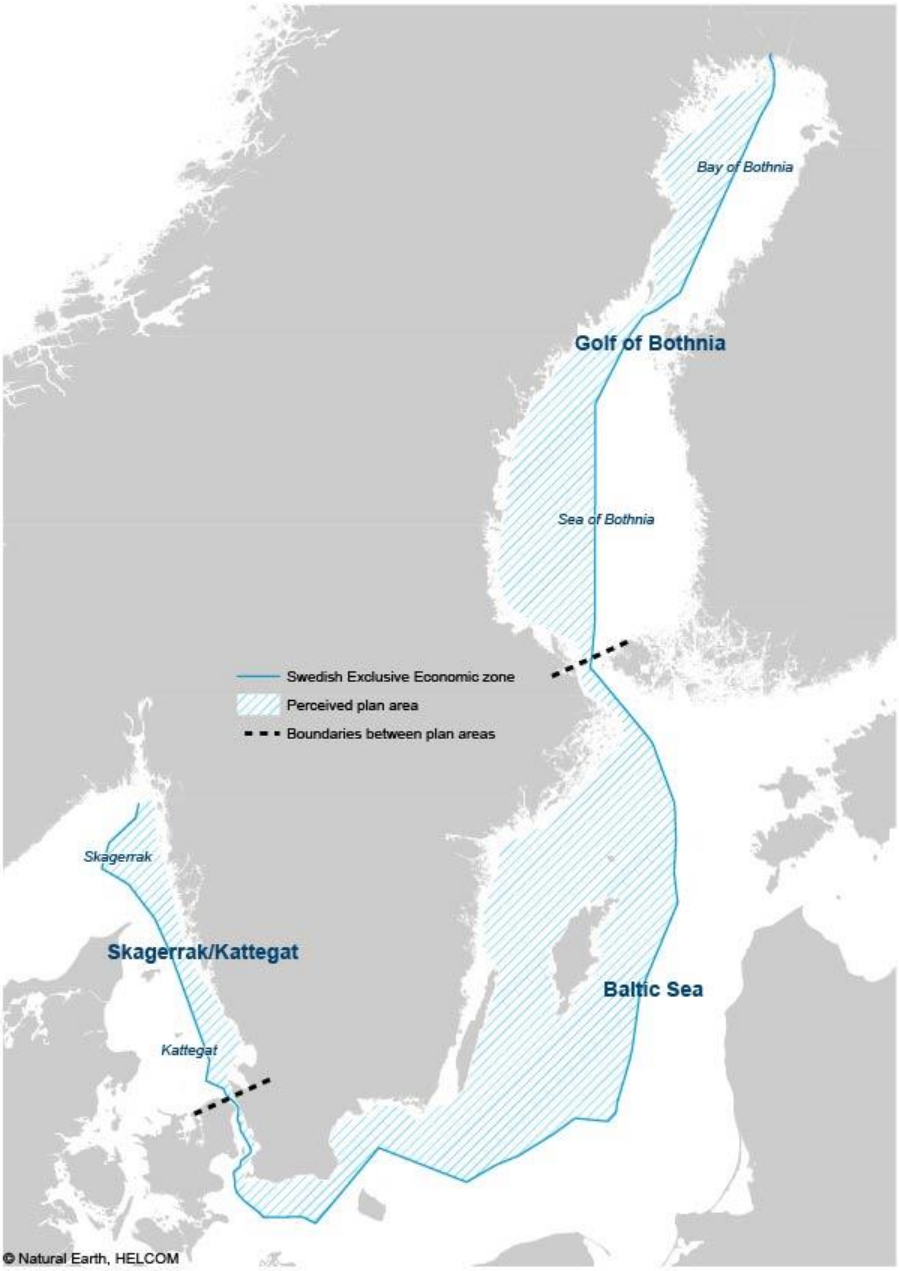

Figure 1. Marine spatial plan areas.

If necessary to achieve the purpose of a marine spatial plan, SwAM may produce proposals for regulations on prohibitions or restrictions on activities or measures within a planned area.

The marine spatial plans and any regulations are adopted by the Government.

It has been previously established that the municipalities, in accordance with the Planning and Building Act (2010:900), must have a comprehensive plan for the entire municipality, i.e., that also extends to the marine area (internal waters and territorial sea) located within the municipal boundaries. The new regulation means that the municipalities and the state have overlapping planning responsibilities in most of the territorial sea (Figure 2).

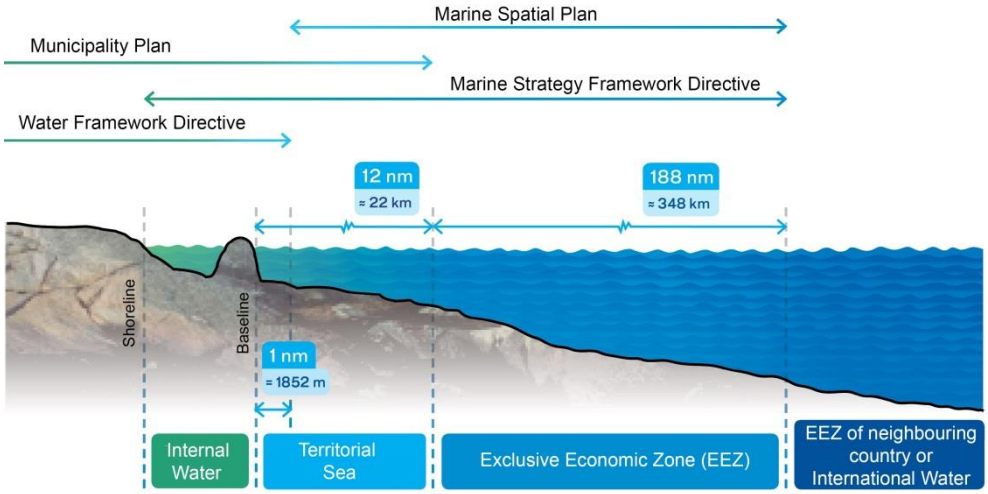

Figure 2. Planning responsibility and environmental legislation for the sea.

The main purpose of the planning is to clarify how the various marine and coastal areas can be used. This will make it easier for those actors that operate or intend to operate in these areas. The marine spatial plan shall provide guidance to public authorities and municipalities in the planning and review of claims for the use of the areas covered by the plans. The marine spatial plan shall reflect the state's overall view of how the marine areas are to be managed, and the plans involve taking a position on how different public interests should be taken into account. The marine spatial plan shall specify areas of national interest in accordance with Chapter 3 of the Environmental Code, i.e., prioritize between interests and other public interests of material significance. SwAM shall apply an ecosystem approach in its work.

Marine spatial planning is a cross-sectoral spatial planning where trade-offs are made between different interests and areas of utilisation based on policy objectives and the given conditions. The plans become an important instrument for the development of maritime industries, not least by increasing the level of predictability for actors that intend to operate offshore. Marine spatial planning improves the opportunities to consider the ecosystems' conditions and safeguard the values that form the basis for industries such as tourism.

The EU Framework Directive on maritime spatial planning

In July 2014, the EU adopted a Framework Directive on maritime spatial planning (2014/89/EU) which shall be transposed into Member States' legislation by 18 September 2016. The Directive entails that the Member States shall have established marine spatial plans by 31 March 2021. The Directive is a framework that contains minimum requirements for the Member States' planning, concerning the interaction between land and sea, cross-border cooperation, organisation and exchange of information and public participation in the marine spatial planning process.

The Directive requires marine spatial planning to support growth and the sustainable development of ocean-based energy, maritime transport, fisheries, aquaculture and the preservation, protection and improvement of the environment. An ecosystem approach should be applied in the planning so that the maritime activities' load on the environment is consistent with a good environmental status under the EU's Marine Strategy Framework Directive. Through the provision on marine spatial planning in the Environmental Code and the related Marine Spatial Planning Ordinance, Sweden has transposed the Directive into Swedish legislation.

Preparations for marine spatial planning

During 2012-2014, SwAM and coastal county administrative boards were commissioned by the Government to prepare the national marine spatial planning. The county administrative boards of Västernorrland, Kalmar and Västra Götaland have, through this commission, had a coordinating role with regard to the county administrative boards within each marine spatial plan area. The County Administrative Board in Västra Götaland has also been commissioned to develop the joint work with IT systems, data collection and processing for marine spatial planning.

As part of the execution of the government commission, SwAM has prepared a status report (*Marine spatial planning - Current status 2014*) that provides a picture and analysis of the marine ecosystems and functions, and different sectors' use and claims on the sea. The status report is based on data primarily from central authorities, county administrative boards and municipalities, but interest groups and research institutions were also invited to provide input. On request, SwAM received sector reports from central authorities, as well as regional reports for each marine spatial plan area from the county administrative board. In order to gather viewpoints and assure the quality of the status report, SwAM and the county administrative boards organised a large number of meetings and workshops around Sweden. For a period, SwAM also offered the opportunity to provide online feedback on the preliminary status report. Based on the comments received, the final report was revised and adopted in March 2015. In parallel, a number of supporting reports have been produced which cover aspects such as tools and methodology in marine spatial planning, experiences from international projects, stakeholder analysis for marine spatial planning, socio-economic impact analysis, the application of the ecosystem approach, and the management and planning of the sea from a historical perspective.

SwAM has developed contacts with Sweden's neighbouring countries through bilateral meetings, formal partnerships and joint projects.

This draft guidance document was developed during 2014–15 as a further addition to the preparatory work.

Conditions

Planning based on the ecosystem approach

The ecosystem approach is the basis of the EU's Directive on maritime spatial planning, and the Swedish Marine Spatial Planning Ordinance (2015:400) states that SwAM shall apply an ecosystem approach in the work with preparing marine spatial plans. An ecosystem approach is also applied with the EU's marine environment protection initiatives and the Common Fisheries Policy.

The ecosystem approach is an international strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. The goal is to ensure that ecosystems are used without compromising their long-term survival in terms of their structure, dynamics and function.

Application of the ecosystem approach in Swedish marine spatial planning involves, *inter alia*, regularly referring back to the environmental strategic objective of good environmental status, as provided within the framework for the Marine Environment Ordinance (2010:1341). According to the Swedish Marine Spatial Planning Ordinance, the marine spatial planning should contribute to achieving and maintaining good environmental status in Sweden's marine areas. Marine spatial planning therefore needs to take into account aspects that are required so that the environmental quality standards can be followed. The marine spatial planning process must involve a concretisation of what good environmental status means in a spatial perspective, and the impact of various activities on the marine environment must be analysed. One main element of the environmental assessment performed in the planning is to highlight opportunities to contribute to good environmental status and to assess the significant effects resulting from different ways of using of the sea. The environmental assessment leads on to SEA-documents (environmental reports) of the proposals for the marine spatial plans. An early stage in the environmental assessment involves the scoping of its content and focus. The section *Scope of the environmental assessment* contains proposals for the scope and also presents other relevant environmental aspects and objectives as grounds for the evaluation.

Another aspect in the application of the ecosystem approach is to use economic analysis to evaluate the marine ecosystem services. The analyses constitute an important basis for the trade-offs between interests that must be made. In the marine spatial planning, consideration must be given to the dependence and impact of different activities on ecosystem services.

In addition to performing an environmental assessment and economic analysis in an integrated manner, an application of the ecosystem approach involves capturing the following perspectives in the planning process:

- **Holistic perspective**
  Marine spatial planning should strive for a cross-sectoral systemic perspective which includes direct and indirect, cumulative (accumulating), short- and long-term, positive and negative effects, including the links between land and sea.

- **Subsidarity and coherence**
  Planning should be decentralised to the lowest applicable level while, at the same time, coordination between the planning levels should be sought.
- **Participation and communication**
  Marine spatial planning should be conducted with an open and consultative planning process involving links between municipal, regional, national and international perspectives, including the Regional Seas Conventions HELCOM and OSPAR.
- **Alternative development**
  The marine spatial planning should present reasonable alternatives that outline possibilities and choices of direction. Global scenarios, such as a climate scenario and a Business As Usual scenario (BAU/zero alternative) or future scenarios for different sectors, describe what the planning needs to relate to.
- **Best knowledge and practice**
  The marine spatial planning should be based on the best available knowledge on marine activities and ecosystems.
- **Mitigation**
  The marine spatial planning should identify opportunities to avoid and limit negative environmental effects and highlight opportunities to contribute to the restoration of marine ecosystems.
- **Precaution**
  The marine spatial planning should anticipate and prevent damage to the structure and function of ecosystems. The prioritization between interests in the marine spatial plans should be based on sufficient relevant knowledge.
- **Adaptation**

  The marine spatial planning should address the issue of environmental monitoring and follow-up in order to enable adaptable (adaptive) management.

SwAM report *Application of the ecosystem approach in marine spatial planning (2012:14)* in Swedish provides a broader picture of how the Agency interprets the ecosystem approach in relation to marine spatial planning and how it can be expressed in the work.

Municipal planning of the sea

According to the Planning and Building Act, PBA, the municipalities have planning responsibility for Sweden's territory, which also includes internal waters and territorial sea. In 65 municipalities, there is overlapping responsibility between the municipality and the state in terms of the territorial sea. Some 20 additional municipalities border the sea, but not marine areas that are included in the national marine spatial plan areas.

At present, there are few municipal comprehensive plans that contain clear standpoints with regard to the marine area. Areas near land and in the coastal zone are addressed more often in the plans than areas further out in the territo-

rial sea. Standpoints on interests are sometimes adopted, but consequences are not investigated until the project is to be commenced. Some municipalities have made thematic additions to their comprehensive plans for offshore wind farms. In northern Bohuslän, efforts are underway to produce a joint blue comprehensive plan for four municipalities. In Stockholm County, there is regional planning in accordance with the PBA that has standpoints concerning the archipelago environments. Stockholm County Council has produced the regional plan. The Göteborg Region Association of Local Authorities, a regional planning body under the PBA appointed by the Government, has produced a preliminary study on inter-municipal coastal planning.

In the comprehensive plans, the municipalities present how they intend to promote long-term positive development in terms of buildings and land and water use in general. The comprehensive plan is the basis for the municipalities' right to decide on detail planning and to interpret the substance of public interests. The comprehensive plan should be both strategic and guiding for everyday decisions in planning and building matters. It therefore serves as the municipality's tool in the internal processing and coordination as well as in dialogue with other actors in urban development. The comprehensive plan is also an important basis for appeals and for operators looking for a suitable location for their business.

Neighbouring countries' marine spatial planning

Sweden's neighbouring countries are at different stages when it comes to the planning of marine areas. In the Helsinki Commission, HELCOM, there is an agreement stipulating that there should be coherent planning in the Baltic Sea in place by 2020, while the EU Directive on maritime spatial planning specifies March 2021.

Since 2003, there have been several cross-border projects for the Gulf of Bothnia, Norra Kvarken, the Baltic Sea, the North Sea, Skagerrak and Kattegat in preparation for the introduction of marine spatial planning. SwAM's reports *Experiences from Plan Bothnia and the BaltSeaPlan (2013:3)* and *Lessons from completed projects of relevance to marine spatial planning (2014:24)* summarise, analyse and assess projects of relevance to the Swedish national marine spatial planning.

In Poland and Latvia, planning processes are underway. Preparations have begun in Estonia. Denmark shall begin planning after the EU Directive on maritime spatial planning has been transposed into the national legislation. Russia has made some preparations for marine spatial planning legislation.

Since 2013 Norway has management plans for all its marine areas. The management plans also include environmental issues which, as in Sweden and the EU, are included in the Marine Strategy Framework Directive. Since 2009 Germany has marine spatial plans for all marine areas and intends to conduct a review of these plans. Finland has established regional planning for the territorial sea and is preparing new legislation based on the requirements of the EU Directive on maritime spatial planning. In Lithuania, marine spatial plans have been adopted recently.

The section on each marine spatial plan area outlines cross-border issues that need to be addressed and taken into account in the Swedish marine spatial planning.

Law of the Sea and EU legislation

In the planning of the marine areas, Sweden must relate to both international law and EU law, which provides possibilities and limitations for Sweden's planning of the various uses of the sea. A marine spatial plan cannot restrict an activity or an interest beyond the rules of the Law of the Sea.

The United Nations Convention on the Law of the Sea, UNCLOS (SUN: 2000:1) governs the demarcation between the countries' maritime zones (internal waters, territorial sea, contiguous zone and exclusive economic zone), as well as the rights and obligations of countries in the different zones. The territorial sea extends a maximum of 12 nautical miles from the so-called baselines and the exclusive economic zone represents the area outside, but no more than 200 nautical miles from the baselines. One nautical mile is equivalent to 1,852 metres. The Swedish maritime areas are smaller and vary in extension depending on where they meet other countries' boundaries or zones.

It is possible to establish a contiguous zone extending up to 24 nautical miles from the baselines. Sweden has not yet established such a zone. In February 2015, a Government Official Report of the maritime boundary inquiry proposed the establishment of a contiguous zone. The inquiry's proposal is being scrutinized at the Government Offices.

In the territorial sea, Sweden has sovereignty, which entails the uncurtailed right to regulate various activities, with the exception of other states' right of innocent passage with vessels. In the exclusive economic zone, Sweden has a sovereign right to explore, utilise and manage natural resources in the water and on the seabed and subsoil. Sweden also has jurisdiction in respect of the protection and preservation of the marine environment, the establishment and use of artificial islands and other structures, and scientific research. Through Sweden's membership in the EU, the regulation of fisheries has been transferred to the EU under the EU Common Fisheries Policy.

In the Swedish exclusive economic zone, other states have freedom of navigation and overflight and the right to lay submarine cables and pipelines. If Sweden establishes a contiguous zone in the exclusive economic zone, we have, among other things, the right to protect archaeological and historical findings.

Sweden has a sovereign right to the continental shelf in terms of natural resources, i.e., the right to extract minerals and non-living material.

EU legislation on the environment and different sectors also impacts the marine spatial planning. In matters related to the sea, the rights and obligations arising under the Law of the Sea represent the departure point. The Marine Strategy Framework Directive, the Habitats Directive, the Birds Directive, the Water Framework Directive and the two directives that regulate environmental assessments and environmental impact statements are the most important EU directives in the environmental field. When it comes to the maritime sectors, the EU Transport and Maritime Policy, Energy Policy and the Common Fisheries Policy are essential. The various EU laws are the starting point for the EU Directive on maritime spatial planning.

Public interests in marine spatial planning

Legislation (Chapter 4, Section 10 of the Environmental Code) states that the purpose of the marine spatial plans is to contribute to long-term sustainable development. Areas of land and water are to be used for the purpose or purposes for which the areas are most suited, with consideration to their character, situation and existing needs. Preference shall be given to such uses which, from a public viewpoint, involve good conservation as viewed from an ecological, social, cultural and economic perspective. According to the preparatory works to the marine spatial planning legislation, the weighing of public interests is the primary task of the marine spatial planning.

The Planning and Building Act describes what counts as public interests in municipal planning. Public interests in municipal planning include natural and cultural aspects, consideration for the surroundings and certain provisions of the Environmental Code.

Some of the public interests are also national interests under the Environmental Code. National interest can apply both to areas that require protection due to their special natural and cultural values, and to areas and structures that are of importance for a particular use, such as areas for shipping, energy, commercial fishing, defence and communication. Public interests that may not constitute national interests, such as areas for aquaculture, can be important in marine spatial planning.

National interests

The areas/structures that may be covered by claims of national interest or are of national interest are presented in Chapters 3 and 4 of the Environmental Code. A national interest outweighs other public interests when deliberating the physical planning. Also the national interest's value or importance shall not be significantly damaged.

Chapter 3 of the Environmental Code includes the basic principles concerning the management of land and water areas. According to the Ordinance (1998:896) on Land and Water Management, a number of authorities are responsible for designating areas they consider to be of national interest. At present, there are national interest claims in the sea designated for commercial fisheries, communication (shipping), total defence facilities, energy, nature conservation and outdoor recreation. In many areas there are overlapping national interest claims and different uses can be in conflict with each other. In marine spatial planning, a careful balance must be found in what the areas are best suited for, and an assessment needs to be done in each individual case. A national interest claim does not always entail a ban on other measures in or around the area, but means that its value shall be protected in the planning. If there are conflicting national interest claims, the marine spatial plan must contain a consideration and prioritisation of the use that best promotes sustainable management of the sea. According to the Environmental Code, the national interests of total defence always have priority over other national interests.

According to the Marine Spatial Planning Ordinance (2015:400), the marine spatial plans shall present areas within the marine area that *are* of national interest under Chapter 3 of the Environmental Code, i.e., prioritized interests and other public interests of material significance. This presentation may devi-

ate from the national interest claims that have been communicated by the authorities. Refer also to the section on Balancing of interests. The governmental authorities charged with designating areas that are considered to be of national interest each has the responsibility to oversee the management of land and water areas within their respective operational area. Within the county, the county administrative board oversees the management of land and water areas.

Chapter 4 of the Environmental Code contains special provisions concerning the management of land and water areas. Areas of particularly great value in terms of nature and culture preservation, tourism and outdoor recreation are geographically defined in Chapter 4, and these areas are of national interest in their entirety.

This includes major coastal and archipelago areas that may not be subjected to exploitation that significantly damages their values. At the same time, the provisions do not hinder the construction of facilities for total defence purposes and the development of existing urban areas or local industry in these areas, if there are no other viable alternatives. It may also be allowed to extract deposits of substances or materials.

The Swedish National Board of Housing, Building and Planning oversees the areas covered by Chapter 4, Sections 1-7 of the Environmental Code.

Goals and strategies

The marine spatial plans shall contribute to sustainable development. The plans shall be based on goals and strategies at the local, regional, national and international level, including the EU.

In August 2015, the Government adopted a Swedish national maritime strategy. The strategy contains the Government's vision for the development of the maritime sector: *Competitive, innovative and sustainable maritime industries that can contribute to increased employment, reduced environmental pressure and an attractive living environment*. The vision is based on three equal perspectives: *A balanced marine environment, Competitive maritime industries* and *Attractive coastal areas*. The forthcoming marine spatial plans are highlighted as an important instrument in guiding the development of the Swedish marine areas. The strategy encompasses and integrates many policy areas; for example industrial policies, policies for regional growth, sectoral policies relating to the sea and its use, and environmental policies. The strategy therefore constitutes an instrument for implementing a Swedish integrated maritime policy.

The overall objective of Swedish industrial policy is to strengthen Sweden's competitiveness and create conditions for more jobs in a greater number of growing companies. The policy shall help achieve the goals of the EU strategy for growth and employment, Europe 2020.

The Swedish regional growth efforts include developing and implementing regional development strategies which contain the visions, goals and long-term development priorities in each county. The development strategies are prepared by actors responsible for regional development which, depending on the county, comprise county administrative boards, county councils ('Region'), municipalities or coordination bodies. Within the policies of climate and ener-

gy, transport, fisheries, outdoor recreation, and security and defence, there are specific objectives relevant to the marine spatial planning.

At the EU level, the European Commission has developed a strategy for blue growth with the aim of strengthening growth within the sectors that, in varying ways, utilise marine resources. The strategy focuses particularly on the development of aquaculture, renewable ocean-based energy, coastal tourism, marine biotechnology and seabed mining.

Of the 16 Swedish environmental quality objectives, it is primarily *A Balanced Marine Environment, Flourishing Coastal Areas and Archipelagos, Reduced Climate Impact, A Non-Toxic Environment, Zero Eutrophication* and *A Rich Diversity of Plant and Animal Life* that are central to marine spatial planning. The objective of *A Balanced Marine Environment, Flourishing Coastal Areas and Archipelagos* means that the Skagerrak/Kattegat and the Baltic Sea (including the Gulf of Bothnia) shall have a long-term sustainable production capacity and that biodiversity is to be preserved. Coasts and archipelagos are to have a high degree of biological diversity, high adventure values, and high natural and cultural values. Industry, recreation and other utilisation of the sea, coast and archipelago are to be conducted in a manner that promotes sustainable development. Especially valuable areas shall be protected against interference and negative exploitation. Bringing about sustainable utilisation of the marine environment and its resources is central to this environmental objective.

The environmental quality objectives are described by a number of specifications. Some specifications are particularly relevant to marine spatial planning. This applies to, for example, preserved ecosystem services, favourable conservation status, endangered species, functional green infrastructure, the safeguarding of outdoor recreation and preserved cultural and natural values, but also specifications of good environmental status under the Marine Environment Ordinance (2010:1341) and good chemical and ecological status according to the Water Management Ordinance (2004:660).

The Marine Environment Ordinance aims to achieve good environmental status in the marine areas of the EU by 2020. As regards Sweden's marine areas, SwAM has, through Regulation HVMFS 2012:18, determined the characteristics of good environmental status and established environmental quality standards and indicators. The Agency has also established an environmental monitoring programme. An action programme focusing on achieving good environmental status shall be decided upon in 2015 and implemented in 2016.

Marine spatial planning is a tool for adapting the utilisation of the sea so that developmental needs are met at the same time as environmental objectives are reached and maintained, including good environmental status under the Marine Environmental Ordinance. Marine spatial planning shall support the implementation of marine environment management by taking into account the objectives of good environmental status and through spatial planning that promotes good environmental status (Figure 3). The proposed programme of measures contains measures where marine spatial planning plays an important role, such as measures to increase area protection, to contribute to the favourable conservation status of species and habitats, and to produce guidelines for marine-related environmental impact statements.

Within the framework for the Water Management Ordinance there are corresponding goals relating to freshwater and the coastal area. Sweden's five water authorities shall decide on new management plans, environmental quality standards and programmes of measures in 2015.

International environmental objectives that affect marine spatial planning include those agreed through Regional Sea Conventions, such as HELCOM *Baltic Sea Action Plan*, and objectives developed within OSPAR for the North-East Atlantic. The EU Strategy for the Baltic Sea Region has established the overall goals of *Save the sea, Connect the region* and *Increase prosperity*, which in various ways relate to marine spatial planning. In support of these goals, there is a specific action plan that supports the implementation of a decision within HELCOM stipulating that there shall be marine spatial plans in place in the Baltic Sea region by 2020 at the latest.

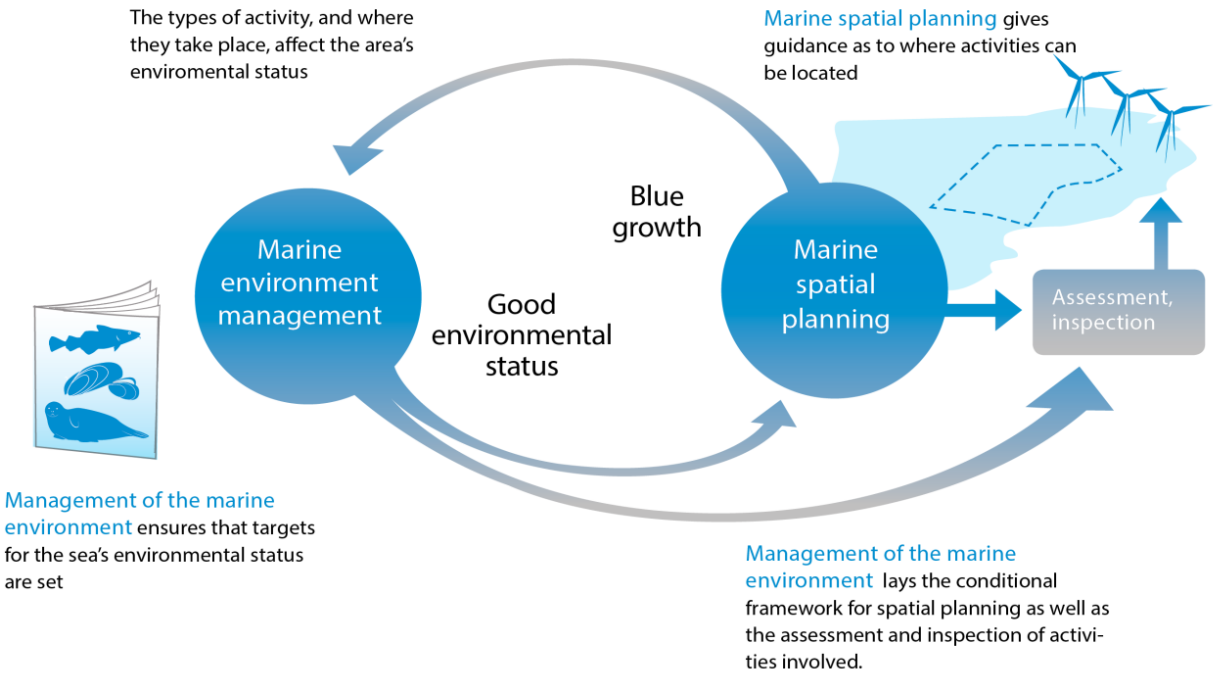

Figure 3. How marine environment management and marine spatial planning work together.

Planning needs

The demand on the utilisation of our marine areas is increasing and is expected to increase further in the future. At the same time, we have a number of environmental challenges in the sea such as the management of eutrophication, the impact of environmentally damaging and hazardous substances, and altered biodiversity.

The predicted development in various sectors will lead to increased pressure on both the sea as a resource and its availability. This in turn increases the risk of conflicts of interest. The sectoral interests must be viewed from a holistic perspective and the cumulative effects and consequences of development, both in Sweden and in our neighbouring countries, must be considered and viewed from a long-term perspective.

Marine spatial planning is an important tool for illustrating the predicted and planned development from a holistic perspective and for showing possible consequences for the sea. Through the work with developing the first marine spatial plans, a cross-sectoral knowledge-building process is initiated while a greater understanding is achieved of the conditions and consequences for the use of the sea.

To give a more detailed picture of what is to be managed in the marine spatial planning, the following is a summary of planning needs based on the current situation and anticipated developments in the maritime sectors, as well as in terms of defence, nature and culture conservation and climate.

For a more detailed description and analysis, please refer to *Marine spatial planning – Current status 2014*.

Shipping

Sweden is dependent on shipping, which accounts for the majority of transports within Swedish foreign trade – about 90 per cent by volume or about 180 million tonnes per year is transported by vessel at some point in the transport chain. In addition to this, approximately 30 million passengers are transported per year by ferry to and from Sweden's neighbouring countries. Trade and industry is dependent on an efficient transport system where different modes of transport (shipping, road and rail) interact. As part of efforts to achieve the climate objectives, long-distance freight shipments may increasingly be shifted from road to water.

The vessels are the most important component of the actual maritime transport system. Traffic is dynamic and is guided primarily by market conditions. The ports are important locations for the reloading of goods. The shipping infrastructure also includes channels and shipping thoroughfares, where the channels often go within the archipelago to and from a port, and the shipping thoroughfares go outside the archipelago where there is no lateral demarcation. The national interests indicated by the Swedish Transport Administration comprise strategic ports, channels and important shipping thoroughfares.

Maritime transports at sea, as measured in tonne-kilometres, are expected to more than double by 2050. In the case of Swedish maritime transports within the Swedish territorial sea, a corresponding increase of almost 80 per cent is expected. At the same time, the size of the ships calling at Swedish ports has increased continuously over many years. The increase in marine transports can increase the risk of accidents and unwanted discharge into the sea. Although the depth in water has increased, it is mainly the length and width of vessels that have grown the fastest. In addition to higher safety requirements, larger vessels also call for greater demands on the channels. The vessels are approaching, or have reached, the sizes that the channels can accommodate without broadening or deepening the channels.

Infrastructure

In the future, new fixed links across the sea may be established. Some initial inquiries and investigations have been made into additional links in the Öresund region (underground line Malmö–Copenhagen and rail and road tunnel Helsingborg–Helsingör), as well as in Norra Kvarken (bridge Umeå–Vaasa). A fixed link between Sweden–Åland–mainland Finland has also been discussed.

There are fibre optic cables for electronic communications laid on the seabed, which connects Sweden with our neighbouring countries. Radio links are also included in the communication structure, for example, between Sweden and Denmark over the Öresund and between the Swedish mainland and the island of Gotland. Radio links require a clear-view corridor between transmitter and receiver.

Nord Stream is a natural gas pipeline (two parallel pipes) between Russia and Germany which passes through Sweden's exclusive economic zone. There are plans for additional pipelines. There is also a natural gas pipeline between Denmark and Sweden.

Energy

Electricity is vital for societal development, and this presupposes a robust and operationally secure transfer network and an increasingly integrated European electricity market. The requirement for good access to energy is of central importance to industry, especially for energy-intensive industries. Dependency on electricity means that extended power failures are not acceptable.

At present, the production from off-shore wind farms only represents a small proportion of the Swedish electricity production and in 2013 amounted to around 0.6 TWh, which was approximately 0.4 per cent of the total production. However, there are several permits for the installation of offshore wind farms that have not been used due to inadequate market conditions. These permits correspond to a total annual electricity production of around 8.8 TWh, which should be set against a parliament approved planning framework of 10 TWh by 2020. In addition, there are ongoing permit applications corresponding to several TWh of installed power. When it comes to wind power technology, the trend is bigger turbines, higher towers and larger wingspan. Technology is also being developed for placement at greater depths than is possible today. Floating wind turbines may be available within a decade. The Swedish Energy Agency has reported national interests in offshore wind farms based on criteria such as average annual wind, depth and size of area. These national interests largely correspond to existing and
planned wind power projects.

A larger pilot plant for wave power is under construction on the west coast. The plant is being built in stages and is expected to be completed by 2020. There has been no comprehensive mapping of suitable areas for wave power and it is uncertain whether wave power will take hold and expand in Swedish waters. The technology is expected to primarily be commercialised abroad.

Developed offshore electricity production may become an important factor in the ability to achieve the climate objectives established by both the EU and Sweden. The EU has decided that the proportion of renewable energy shall increase by 2030. This goal may mean increased claims on the sea area regard-

ing renewable energy, which is reflected in the fact that, in 2014, the Government commissioned the Swedish Energy Agency to investigate improved support mechanisms for offshore wind power.
There is also an ambition in place to enhance the European integration of electricity grids. Such an energy transfer includes the installation, operation and maintenance of submarine cable connections. There is an established electricity link in the form of submarine cable connected to Finland, Denmark, Germany and Poland. Furthermore, a new link is being built with Lithuania and an additional link is being planned with Germany.

In the energy context, it may also be mentioned that the Swedish nuclear power plants use sea water for cooling, but this takes place directly adjacent to the coast and not in the areas subject to marine spatial planning.

Extraction and storage of materials

The Geological Survey of Sweden, SGU, has produced data on the identified deposits of minerals, oil, natural gas and shale gas, as well as areas of sand and gravel on the Swedish continental shelf. Currently, there is very limited extraction from the Swedish continental shelf, nor have national interests been notified for areas with deposits of substances or materials in the sea.

At present, there is a permit for marine sand, gravel and stone extraction. This is at Sandhammar bank south of Ystad. The sand is used to counteract the ongoing coastal erosion in the vicinity. Marine sand and gravel can be an alternative to natural gravel on land, and there is commercial interest in the increased extraction of sand and gravel. One initiative of the Swedish maritime strategy is to review whether, and under what conditions, the extraction of marine sand and gravel can take place on the Swedish continental shelf for the purpose of contributing to a sustainable material supply.

In the case of oil prospecting, 2009 saw the Government reject a request for the extension of an exploration permit in the south-eastern Baltic Sea. Nor has Swedish legislation incorporated those parts of the EU Safety of Offshore Oil and Gas Operations Directive (2013/30/EU) required to allow gas and oil extraction in the Swedish territorial sea or exclusive economic zone. In the immediate area, however, there is extraction of oil on the Polish and Russian continental shelf, as well as surveys being conducted on the Latvian shelf. There is shale gas found in the Baltic Sea, but the assessment is that, in the foreseeable future, there will not be any extraction from the Swedish continental shelf.

Geological storage of carbon dioxide may only take place in the Swedish exclusive economic zone and in public waters of the territorial sea from one nautical mile outside the baseline, i.e., corresponding to the area designated for marine spatial planning. The Geological Survey of Sweden has identified two areas in the Baltic Sea and one in the Kattegat where geological conditions exist for potential carbon dioxide storage. There are ongoing cross-border projects to develop a storage atlas and review the storage potential in the Baltic Sea.

Commercial fishing

Commercial fishing is important both regionally and locally and contributes to the identity and vitality of coastal communities. Fishing is pursued more or less intensively in all of Sweden's marine areas, but there is a dynamic involved

which entails that the pressure from fishing varies geographically and over time. Small-scale fishing is normally conducted within limited areas and sometimes on a stationary basis, while other forms of fishing are more flexible and are conducted over large areas. Where fishing is conducted varies seasonally, but there is also variation in the fishing opportunities, i.e., fish stocks and the regulation of these.
A prerequisite for commercial fishing is access to good fish stocks, which in turn depend on different habitats during their life stages. The coastal areas in particular represent the spawning and nursery areas for many marine organisms, although there are also spawning areas further out from the coast. There is a need to protect t habitats that are subjected to heavy pressure. The national interest related to commercial fishing mainly comprises catch areas, but also includes ports, fish migration areas and a few spawning and recruitment areas.

Fisheries management is undergoing continuous development. Currently there are negotiations within the EU for a long-term multi-species management plan for herring, sprat and cod in the Baltic Sea. There is also ongoing development of more selective fishing equipment in order to reduce the amount of unwanted bycatch. As part of a reformed common fisheries policy within the EU, as adopted in 2013, more decisions regarding this management will be taken at the regional level for the Baltic Sea and North Sea.

At the same time, there has been a long period of rationalisation in the Swedish fisheries sector which means fewer commercial fishermen and fishing vessels.

Aquaculture and blue biotechnology

Aquaculture is located almost exclusively near the coast and not within marine spatial plan area. There is no comprehensive mapping of the development areas for aquaculture activities in the marine spatial plan areas. However, within the maritime and fisheries programme, financial support may be given to municipalities to include the placement of aquaculture in their municipal comprehensive plans.

The future may involve aquaculture projects in the open sea. There is ongoing research and technology development, both in terms of species and farming methods. Among other things, there are experiments underway with the cultivation of macroalgae and other marine organisms in the Skagerrak/Kattegat. Different algae can be used in processes such as food production and the production of biofuel. Through increased knowledge and development of blue biotechnology, the future may see the extraction of genetic resources for other industrial uses or as drugs.

Defence

The task of the Swedish Armed Forces is to maintain and develop a military defence with the capability for armed combat. To achieve and maintain this armed combat capability on and under the water, naval exercise areas and artillery ranges have been established around the Swedish coast. The National Defence Radio Establishment engages in signals intelligence which is sensitive to disruption and requires protection against interference from other operations in the vicinity, and in some cases over long distances.

The Swedish Armed Forces have designated national interests (Chapter 3, Section 9, second paragraph of the Environmental Code) and their areas of influence, as well as other areas of importance to the military defence (Chapter 3, Section 9, first paragraph of the Environmental Code). The national interests relate to operations involving shooting and blasting, port and aviation activities, radars, sensors, communications systems, and more.

Outdoor recreation (incl. recreational fishing) and tourism

Outdoor recreation and the tourism industry cover many different activities and policy areas. Marine outdoor recreation involves many diverse activities such as boating, kayaking, skating, swimming, diving, bird watching and other nature pursuits. There are approximately 800,000 pleasure boats in Sweden. There are also good opportunities for recreational fishing in Sweden, and it is estimated that about 800,000 people living on the coast engaged in recreational fishing in 2013.
The proximity to the sea makes the coastal landscape attractive for living, recreation and tourism. The coastal tourism industry, which is significant and growing, can be seen as a basic industry in many municipalities and is important for regional and local development.

Outdoor recreation and tourism can both conflict with and collaborate with each other. For example, the exploitation of scenic locations for tourism activities and boating may conflict with outdoor recreation endeavours.

Outdoor recreation and tourism activities are mainly pursued near the coast and to a lesser extent in the marine spatial plan areas. Designated national interests relating to nature conservation and outdoor recreation (including recreational fishing) under Chapter 3, Section 6 of the Environmental Code, as well as the areas referred to in Chapter 4, Section 2 of the same law, where the interests of tourism and outdoor recreation, mostly active outdoor recreation, are to be taken into account, extend into the marine spatial plan areas.

Cultural heritage

Sweden has important cultural heritage in the coastal and archipelago landscape, including fishing villages, seaside resorts, harbours, fortifications, lighthouse and pilot stations, and coast-related industry. These sites are not geographically located within the national marine spatial plan area, but the marine spatial planning can have an indirect impact on these environments, for example by affecting the landscape or through altering the conditions for commercial fishing. The marine spatial plans are more directly affected by the extensive cultural heritage that is found under water and which mostly consists of shipwrecks and submarine landscapes, sunken settlements and remnants from different eras. However, there is a lack of knowledge, both in terms of details and in terms of overviews and compilations of the cultural values in the sea.

The Swedish National Heritage Board has begun work to develop selection criteria in order to identify areas of national interest for cultural heritage environment protection at sea. The work will be carried out in dialogue with bodies such as the county administrative board and National Maritime Museums in Sweden. A planning document in the form of a description of
the values that represent national interests at sea can be used as the basis for a

proposal on protected areas to be considered during the marine spatial planning. The cultural cultural heritage also contributes to cultural tourism which is estimated to have the potential to increase.

Nature protection

Existing nature reserves, Natura 2000 sites and national parks in the sea cover about 9,900 km², or 6.3 per cent of Swedish internal waters, territorial sea and exclusive economic zone. Sweden has as an intermediate goal in the environmental objectives to increase the percentage to at least 10 per cent by 2020. At the same time, the protected areas must be geographically representative and ecologically well-connected, which they are not in the current situation. Bird and seal protection areas, Natura 2000 sites under the EU Birds Directive and some other categories of areas are not included in the percentage target, but are important in marine spatial planning. Some of the areas are also so-called HELCOM or OSPAR MPA areas. MPA stands for “marine protected area”.

The marine protected areas are part of the green infrastructure in the marine areas. The marine green infrastructure, which is only partially protected, is comprised of habitats for different species, pathways, and resettlement and migration routes for birds, fish and other animal species. As yet there is no unified and comprehensive knowledge on the green infrastructure of the marine area, that is, on how important marine habitats and processes are linked in time and space.

The marine area is currently being monitored and surveyed, in terms of oceanographic conditions and with regard to marine geology, depth and biodiversity, including fish stocks. There are specific areas and habitats in the marine spatial plan area for the monitoring of sediment, specifically metals and organic pollutants to be considered in the marine spatial planning.

Safety and risks

The Baltic Sea is a heavily trafficked sea and accounts for about 15 per cent of the world's maritime transports. Today, it is estimated that about 2,000 ships are on the Baltic Sea at any given time, giving 3,500-5,000 vessels per month. Increased maritime transport leads to an increased risk of maritime accidents, especially grounding and collision.

As the situation stands, a major accident (300-500 tonnes) is estimated to occur every four years in the Baltic Sea or the Skagerrak/Kattegat, although the risk varies between areas. The greatest risk of a major oil spill is in the Öresund and Kattegat. Very big accidents (5,000-150,000 tonnes) are estimated to occur with 26-year intervals in the same areas.

Accidents can cause pollution of the sea by oil, chemicals or other substances which have negative consequences for humans and the environment. Nuclear power and petrochemical industry can also be affected if the discharge of oil or other harmful substances takes place in the vicinity of the cooling water intake. Production stoppages can have major financial consequences. Nuclear power generation is also, in itself, an activity subject to stringent safety requirements, and there are maritime transports of nuclear waste.

In addition to shipping, other activities at sea lead to accidents, such as wind power generation.

There is also the risk of leakages from wrecks and emissions from materials dumped or deposited in the sea, for example, from ammunition, chemical weapons and/or sediment banks with accumulations of environmentally harmful substances.

Disruptions resulting from accidents at sea can impact the capacity to maintain vital societal functions. Marine spatial planning has to take into account risks, but can also represent a tool for reducing said risks, for example by contributing to the development of traffic regulation at sea in time and space.

Climate

The EU Directive on maritime spatial planning points to the importance of taking due account of the effects of climate change when marine spatial plans are being drawn up. The Member States should ensure that the planning processes lead to a comprehensive plan which specifies the different uses of the seas and takes into account long-term changes resulting from climate change.

Climate change will impact the seas and the opportunity for human kind to use the sea as a resource in many different ways, which is something that the marine spatial plans must relate to. Climate change will very likely alter the ecosystems, ice cover patterns, currents and oxygenation, and wind and wave patterns. Man-made emissions of carbon dioxide also entail an increased acidification of the seas, with potentially far-reaching consequences for organisms and ecosystems. The climatological conditions and their expected change over time, both in terms of average values and variability, are therefore important parameters for the planning process. The planning therefore needs to be based on the best up-to-date knowledge on the current and projected climate in the marine spatial plan areas and regularly needs to incorporate new knowledge on climate change in the update cycles.

The climate also has a number of more indirect connections to marine spatial planning. The EU Directive on maritime spatial planning highlights the fact that healthy marine ecosystems and their various services, if they are integrated in the planning decisions, provide significant benefits in terms of food production, recreation and tourism, mitigation of and adaptation to climate change, control of coastal changes and disaster prevention.

Climate change is also linked to the actual demands made on the use of the sea. Considering the urgent need to reduce greenhouse gas emissions in a relatively short time, it is likely that demands on the use of marine areas for the production of various forms of fossil-free energy will increase, for example, offshore wind or wave power. The mitigation of climate change may also involve changing transport patterns, e.g., a transfer from road to sea, provided that shipping can make use of fossil-free fuels or efficient low-emission propulsion. Marine spatial planning thus needs to be viewed in the light of existing national and international climate policy and its likely changes, such as the tightening of emissions targets or more concrete emissions trajectories that are probably needed if the world is to reach the goal of limiting global warming to two degrees.

Also, from a climate adaptation perspective, there may be demands that need to be considered in the marine spatial planning. Coastal erosion adaptation measures, for example, in Swedish coastal municipalities, already rebuild

beaches. An increase in rebuilding beaches entails an increased need for sand as well as a likely increase in demand for the excavation of sand from the ocean floor.

The climate is thus connected to marine spatial planning through direct effects on certain forms of use, through influencing ecosystems' status and services for the mitigation of and adaptation to climate change, but also through influencing the actual claims on how the sea should be utilised. How marine spatial planning can address the climate is therefore a very complex question, which is why transnational cooperation is necessary.

Planning process

Planning in cycles

Marine spatial planning is a process that takes several years. The planning can be described in cycles, where one goes from information retrieval and analysis of the current situation to planning, and where the marine spatial plans are the result of the planning processes. The plans are subsequently implemented and monitored regularly. According to the Swedish Marine Spatial Planning Ordinance, new proposals for marine spatial plans shall be prepared when necessary or at least every eight years.

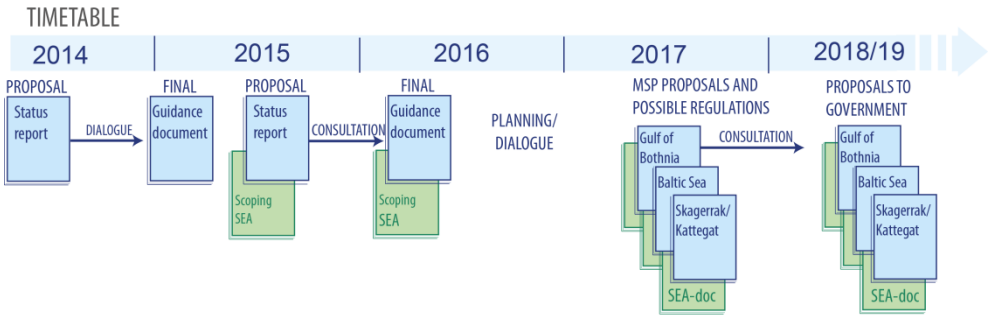

Figure 4. Planning cycle.

Marine spatial planning is a learning process that harnesses knowledge, new planning claims and interests for use in forthcoming cycles.

Participation and dialogue

To ensure a holistic perspective in each marine spatial plan and thus create the possibility of informed trade-offs, relevant parties need to be given various opportunities to contribute and participate in the work. The ambition is for broad participation, to benefit the participants themselves through taking part in the work with the plans, and for them to share the responsibility for implementing the plans in the next phase.

The marine spatial planning should be a transparent process and allow for the participation of those concerned at the national, regional and municipal level. Trade organisations and interest groups, as well as research institutions, should also be given the opportunity to contribute in various ways. The work will also involve collaboration with neighbouring countries and international organisations. The form of participation in the process will be different for different participants, both over time in the process and the capacity in which they participate. Formal consultation will be pursued regarding the guidance document, the environmental assessment work and proposals for the marine spatial plans. In addition to the formal consultation, SwAM maintains a continuous dialogue and pursues avenues of collaboration throughout the marine spatial planning process.

Participation and dialogue will help to

- establish the marine spatial plans as a joint enterprise and as great value to the development of the utilisation and conservation of the Swedish seas,
- achieve understanding and acceptance so that proposed plans can be adopted by the Government and serve as a guiding
- instrument for utilisation and conservation,
- focus the marine spatial plans on the most relevant issues and foster long-term knowledge and understanding on the utilisation of the sea, and
- create predictability for actors, including commercial operators.

Timetable and process for the preparation of marine spatial plans

The goal of SwAM is to submit proposals for marine spatial plans to the Government in 2018/19. The exact date for the submission of proposals to the Government depends on the feedback received in the consultation on the plan proposals. The relatively tight timetable is justified by the fact that it may be an advantage to produce the first planning cycle's marine spatial plans relatively soon so that they can support and facilitate the municipal planning process, that the process itself will accelerate efforts to develop better supporting data for future planning cycles, and that there will be greater potential to influence and contribute to coordination with our neighbouring countries' marine spatial planning.

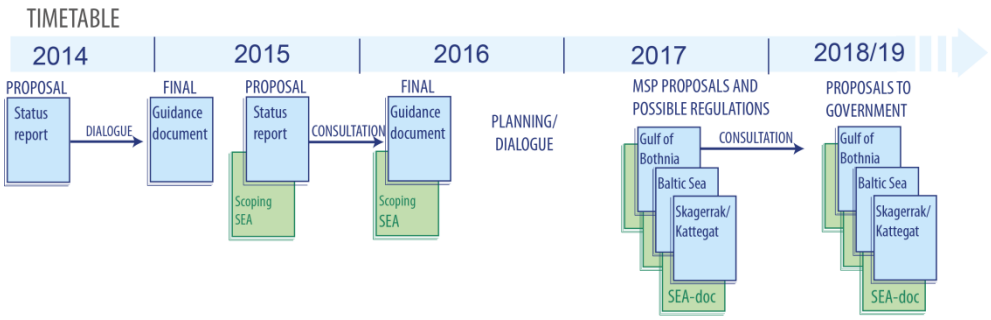

Figure 5. Timetable.

It is proposed that the development of the Swedish marine spatial plans be carried out in a phased planning process. This proposal for a guidance document and the scope of the environmental assessment constitute a part of the first phase.

Phase 1. Assessment of the current situation and determining the direction for 2013–2016 (ongoing phase)

The first phase in the planning process involves preparations for planning, where a status report is prepared and where the direction of the marine spatial

planning is set out in a guidance document. A scope is established for the SEA-documents.
The status report provides a clear picture of conditions in respect of the utilisation of the marine areas' resources, the demands currently been made of these resources and the parties interested in utilising them, in addition to anticipated future developments. The report has been prepared in dialogue, where concerned parties have participated in meetings and have had opportunities to comment on the content.

The guidance document specifies the direction of the marine spatial planning and will support and guide the process of developing marine spatial plans. It will also create transparency for the parties concerned with regard to the continuing planning process. In order to establish broad support for the direction of the marine spatial planning, consultation on the document is pursued. Following consultation, SwAM will approve the document, which will guide the ongoing process. *The guidance document* also includes the scope of the environmental assessment work.

In connection with the national consultation on the guidance document, Sweden will notify our neighbouring countries in accordance with the notification requirements of the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention). The Swedish Environmental Protection Agency is responsible for this notification.

Phase 2. Preparation of proposals for marine spatial plans and possible regulations, 2015/17

The second phase involves the actual planning work, i.e., *proposals for marine spatial plans and possible regulations* are prepared. *Preliminary impact assessments* are also produced. The work is carried out according to the organisational setup described briefly below and takes place in cooperation and dialogue with stakeholders. During the autumn of 2015, an in-depth thematic analysis will commence. Then follows the work of developing draft plan proposals and regulations which, on various occasions, will be discussed with stakeholders in cross-sector meetings and in a hearing. Proposals for marine spatial plans will then be submitted for consultation in accordance with Phase 3 below.

Phase 3. Consultation on proposals for marine spatial plans, possible regulations and impact statements, 2017/18

Proposals for marine spatial plans comprising plan documents with plan maps and plan descriptions, as well as possible *proposals for regulations,* are submitted for consultation. Enclosed with the proposals will be reports on the deliberations and balancing of interests that form the basis for the proposals, as well as *preliminary environmental impact statements and socio-economic analyses*.

Phase 4. Proposals for marine spatial plans and possible regulations are finalised and submitted to the Government, 2018/19

SwAM processes the feedback received and then prepares the *final proposals for marine spatial plans and possible regulations*. The plans are submitted to

the Government together with a *report on feedback received* and other documents of importance to the assessment of the proposals and which are required under the Swedish Marine Spatial Planning Ordinance. Included with the proposals will be the *SEA-document (environmental report)* which presents the environmental impacts of each plan proposal, along with the underlying environmental aspects that have been considered.

Overall approach to the work

SwAM is responsible for leading and coordinating the planning, as well as formulating proposals for marine spatial plans. The Agency is also responsible for ensuring that a strategic environmental assessment and socio-economic impact analyses are carried out.

In the work with marine spatial planning, SwAM plays an cross-sectoral role. The Agency has a planning function which is the hub for the work with developing the marine spatial plans. The task is to ensure that planning objectives and strategies have an impact in the planning and that different thematic areas are viewed as a whole, where both synergies and conflicts are taken into account. The planning function is also responsible for coordinating, managing and communicating the overall process so that the three marine spatial plans are developed with a national perspective and coordinated both nationally and internationally.

To support this work, SwAM is establishing different working groups. An overall approach to the work is proposed below, along with possible group formations.

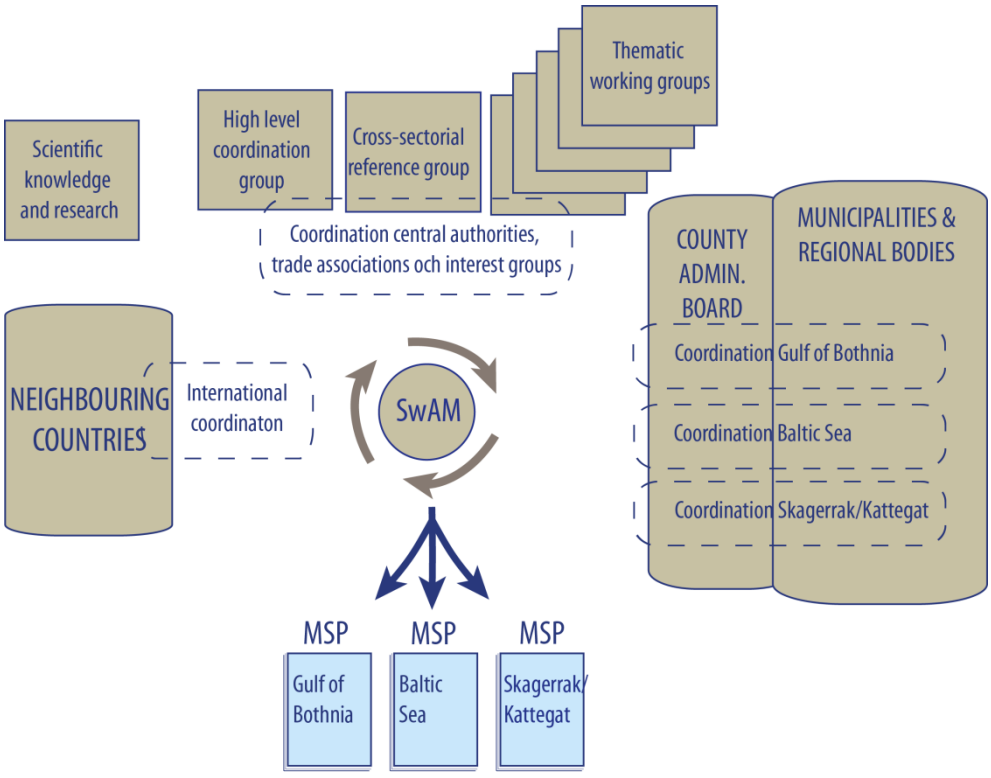

Figure 6. Overall approach.

Planning group

A planning group within SwAM coordinates and manages the planning process, as well as manages the work with preparing plan proposals. The work includes commissioning and collecting supporting data and feedback from working groups at the national and regional level.

National and thematic collaboration

High-level cross-sectoral coordination group

The group involves the participation of agency directors from the central authorities of relevance to the work with marine spatial planning, along with heads from coordinating county administrative boards. The municipalities are represented by the Swedish Association of Local Authorities and Regions, SALAR. The purpose of the management group is to confirm the coordination between the authorities throughout the entire planning process and discuss comprehensive strategic planning issues. SwAM will make use of existing forms of coordination, such as SamHav (the Coordinating Group for Marine and Aquatic Environment Issues), in order to fulfil the purpose of the group.

Cross-sectoral reference group

SwAM leads the reference group, which is composed of representatives at the senior level, primarily from central agencies and coordinating county administrative boards. The municipalities are represented in the working group by the Swedish Association of Local Authorities and Regions, SALAR. The reference group will have an important function with regard to checking the holistic perspective, impact assessments, support and acceptance throughout the planning process.

Thematic working groups

Thematic working groups are established to collectively discuss and produce sectoral data and perspectives, as a contribution to the development of the plans. The thematic groups are led by SwAM and consist mainly of representatives from central authorities and coastal county administrative boards. The thematic groups have a national perspective but shall, where necessary, focus on each plan's specific conditions. Thematic groups are being set up for shipping, energy, fisheries, regional growth, nature conservation and defence and security.

Trade associations and interest groups

The planning process requires knowledge and viewpoints from non-governmental organizations such as trade associations and interest groups. Proposals for marine spatial plans also need the support of concerned stakeholders. The organisations will be invited to joint meetings with the thematic working groups and the cross-sectoral reference group. In addition, ongoing thematic discussions are anticipated with relevant trade organisations and interest groups with regard to different problems, suggestions for planning solutions, etc. Before the plan proposals are finalised for formal consultation, a hearing will also be held.

Coordination between the marine spatial plan areas

The preparation of marine spatial plans requires coordination between the marine spatial plan areas. SwAM manages this coordination with support from coordinating county administrative boards. Coordination will take place at both the executive and administrative level.

Regional work and cooperation with the municipalities

Marine spatial planning is complex and conditions differ between the different plan areas, partly the natural conditions and planning needs, but also the number of affected stakeholders to involve and collaborate with in each area. The organisation of work within each marine spatial plan area may therefore differ. The following describes the principal approach to the regional work.

Coordinating county administrative boards

Coordinating county administrative boards in Kalmar, Västernorrland and Västra Götaland are responsible for regional collaborative processes within each plan area, and coordinate the work of the relevant coastal county administrative boards. The County Administrative Board in Västra Götaland is also responsible for developing the joint work with IT systems, data collection and the preparation of supporting data for marine spatial planning. The coordinating county administrative boards are involved in thecross-sectoral reference group and the thematic working groups.

Coastal county administrative boards

The county administrative boards have an important role in the coordination between central and municipal planning, as well as in terms of the linking land and sea. The 14 coastal county administrative boards actively participate in SwAM's efforts to ensure municipal participation, as well as in other supporting initiatives aimed at the municipalities. Where necessary, the county administrative boards also prepare complementary regional planning data, for example, from municipalities and actors responsible for development, or internally from the county administrative board, pertaining to issues that fall within the board's normal sphere of responsibility. Representatives from the coastal county administrative boards participate in thematic working groups. Since 2012, the coastal county administrative board receives funding for marine spatial planning.

Cooperation with regional bodies

Actors with responsibility for regional development in each county manage and develop the work with promoting regional growth. Depending on the county, the regional development responsibility is held by a county council/ municipality, a regional coordination body or a county administrative board. There is also a regional planning body for the Göteborg region, and regional planning carried out by Stockholm County Council that needs to be coordinated with the national marine spatial planning.

The regional actors should be given the opportunity to participate in the plan proposal work. The coastal county administrative boards will support SwAM in the work on collaboration with the regional actors.

Cooperation with municipalities

Concerned municipalities should be given the opportunity to participate in the plan proposal work.
The municipalities play an important role in the marine spatial planning since the national and municipal planning overlaps in the majority of the territorial sea. The municipalities are also responsible for the planning of the marine area closest to the coast and on land, which affects the national marine spatial planning. In order to coordinate local conditions and the national perspective, it is necessary for the state and municipalities to cooperate.

In addition to the municipalities being expected to contribute information and standpoints during the preparation of the marine spatial plans, the cooperation aims to create preparedness for future consultation on the plan proposals.

The coastal county administrative boards actively participate in SwAM's efforts to ensure municipal participation, as well as in other supporting and coordinating initiatives aimed at the municipalities.

Representatives of municipalities and regions that represent different conditions and parts of the country are invited to join the thematic working group for regional growth. At the national level, the Swedish Association of Local Authorities and Regions, SALAR, will be given the opportunity to participate in the crosa-sectoral reference group. Collaboration will otherwise occur within both existing cooperation forums (e.g. planning meetings within the counties) and through targeted workshops and meetings where marine spatial planning is the focus.

International support

International support and coordination will mainly be achieved through existing organisations and forms of cooperation. Support and coordination is ongoing through contacts with neighbouring countries, cooperation within the Joint HELCOM-VASAB Maritime Spatial Planning Working Group (with a focus on strategic issues) and through cross-border projects. SwAM is the lead partner of the Baltic SCOPE project which focuses on marine spatial planning in the Baltic Sea area. The implementation of the project involves six neighbouring countries. Espoo notification and consultation will also contribute to international support and an opportunity for neighbouring countries to submit comments on plan proposals and environmental impact assessments. SwAM is responsible for the international coordination, but national authorities are expected to assist SwAM with expertise in the international work. The Swedish Environmental Protection Agency is responsible for consultation under the Espoo Convention.

Scientific knowledge and research

SwAM will in various ways develop cooperation with universities and other higher education institutions, both directly and through research-related marine spatial planning projects. Marine spatial planning requires in-depth knowledge and needs to gain access to new research findings within many fields. The research may also provide methods and contribute to quality assurance in marine spatial planning. In addition to collaboration on specific issues,

research institutions are invited to participate in the ongoing dialogue process that takes place when proposals for marine spatial plans are being developed.

Impact assessments

The impact assessment work will be integrated into the planning process. Each marine spatial plan shall undergo environmental assessment. Alsosocio-economic analyses shall be performed. The work with environmental assessment is managed and conducted by SwAM, but consultation will be pursued with the regional level and with other central authorities concerned. The work with socio-economic analysis will include an ecosystem service analysis, which is a link to the environmental assessment.

Work on the impact assessment is ongoing throughout the planning process, but it can be expected to increase in intensity in conjunction with the preparation of drafts and proposals for marine spatial plans.

Direction

Planning objectives

According to the Swedish Marine Spatial Planning Ordinance, industrial policy, social and environmental goals are to be integrated in the marine spatial plans. The main focus of the planning is that marine resources should be used in a way that allows maritime industries to develop and grow while preserving and restoring ecosystems. The marine spatial plans shall contribute to achieving and maintaining a good marine environment. According to the Environmental Code, marine spatial plans shall contribute to long-term sustainable development.

Planning objectives are proposed based on existing legislation, societal goals and supporting data presented in connection with the status report (Figure 7). The previous section *Conditions* briefly presented the main legislative requirements and societal goals on which the planning objectives are based.

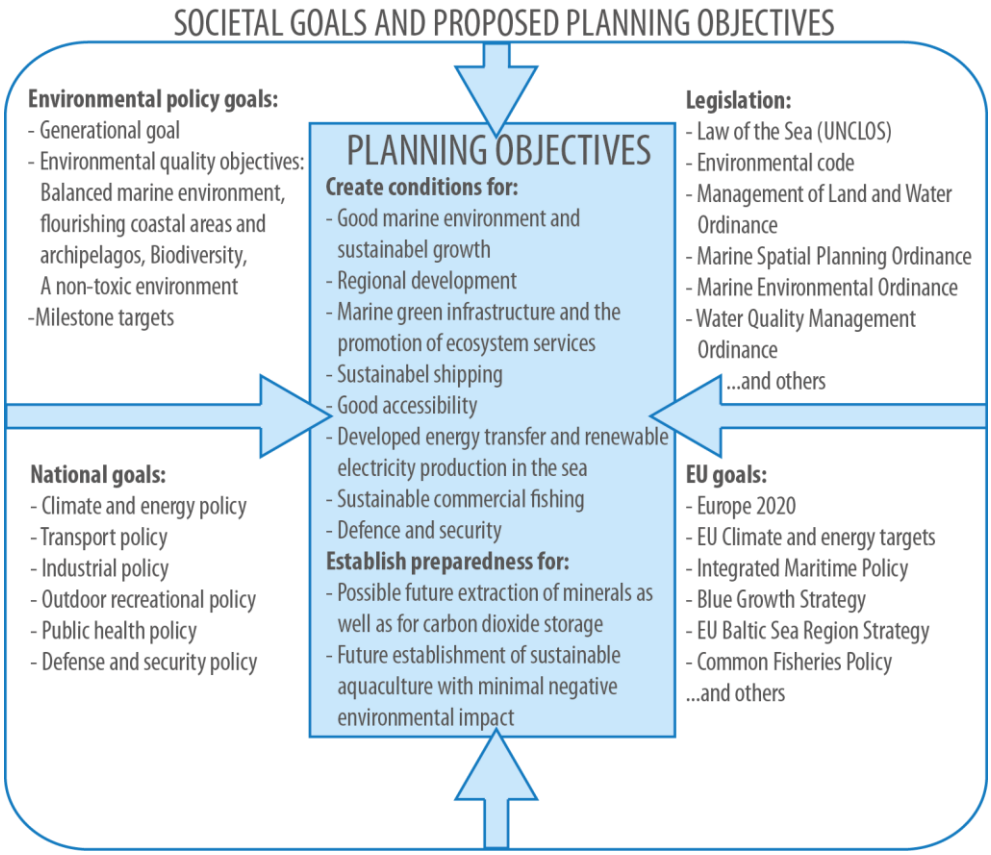

Figure 7. Societal goals and proposed planning objectives for the marine spatial planning.

The marine spatial planning must strive to fulfil the planning objectives which are both general and more specific. The objectives are related to different types of utilisation, the need for protection in the sea or other issues. They are the concretisation of the marine spatial planning's purpose, and they provide integrated guidance to ensure the national perspective in the development of the marine spatial plans for the areas.

It is proposed that the planning objectives be common to the three plans. However, as the conditions vary, different objectives may have different importance in the planning of each area. The sections for each marine spatial plan area identify important issues at the marine spatial plan area which relate to the planning objectives.
The planning objectives provide direction for the planning, but other issues deemed relevant may also be covered by the plans. Relevant societal goals and existing legislation should always be considered in the planning.

The proposed planning objectives are as follows:

Overall objective: Create conditions for a good marine environment and sustainable growth

The marine spatial plans should generally provide spatial conditions for meeting development needs and objectives regarding sustainable growth, while also contributing to the achievement and maintenance of a good marine environment.

Good marine environment is primarily described in the environmental quality objective *A Balanced Marine Environment, Flourishing Coastal Areas and Archipelagos* and its specifications, although other environmental quality objectives are also relevant, for example, *Zero Eutrophication, A Non-Toxic Environment and A Rich Diversity of Plant and Animal Life*. According to the Marine Environmental Ordinance, good environmental status constitutes one of the specifications.

Sustainable growth relates, *inter alia*, to Europe 2020 and includes both blue growth, i.e., growth related to maritime activities, and economic growth in the broad sense. Growth is considered sustainable when we can economically, environmentally and socially satisfy our current needs, while at the same time creating the conditions for future generations to meet their own needs.

An important starting point for marine spatial planning is that sustainable growth requires well-functioning ecosystems.

Objective: Create conditions for regional development

The marine spatial plans should provide the spatial conditions for sustainable development, a good quality of life and attractive environments both regionally and locally.

The marine spatial planning should contribute to the preservation of significant natural and cultural values, take into account the landscape and support opportunities for outdoor recreation. Cultural values are important for the experience of the landscape, people's identity and to create attractive environments in which to live. Recreation and outdoor activities, including recreational fishing, are of great importance to quality of life and human health. Natural and cultural values along the coast and at sea also represent a base for the development of the tourism industry in coastal communities. Other maritime activities that contribute to development and blue growth in the coastal area should also be provided opportunities in the marine spatial planning.

Objective: Create conditions for marine green infrastructure and the promotion of ecosystem services

Green infrastructure is the natural areas, biotopes, structures and elements in the landscape (including seas and coasts) that create an ecological context in the landscape and which constitute the prerequisite for maintaining the landscape's biodiversity, thereby promoting ecosystem services.

Ecosystem services are what the ecosystem provides humans in terms of products and services that contribute to human well-being. The services are also important to the curtailing of climate change and for adapting society to resist its effects.

Through a combination of protection, restoration and sustainable use, a green infrastructure shall be maintained in and around the sea. This prevents fragmentation of populations and habitats, and encourages the preservation and development of biodiversity in and around the sea.

The marine spatial plans shall contribute to:

- Supporting the establishment of new marine protected areas so that at least ten per cent of Sweden's marine areas enjoy formal protection by 2020, as well as a level of preparedness with regard to further protected areas being established thereafter. A geographical expansion in protective measures may be required to assure that the level of marine area protection is representative and contributes to the preservation and strengthening of ecological links, structures and functions in the ecosystems. Representativeness entails that the protected areas as a whole will encapsulate all types of habitats and species. The marine spatial planning should also contribute to favourable conservation status being maintained for those species and habitat covered by the protection.
- Sufficiently secure biologically valuable habitats (regardless of whether there is formal marine area protection), such as spawning and nursery areas for fish, areas with marine mammals and important nesting, foraging, resting and wintering areas for birds.
- Sufficiently secure migration routes, for example, for fish, birds and bats.
- Providing conditions for scientific studies and long-term monitoring of the marine environment. This may involve individual measuring points or reference areas. Such areas may entail a need to prevent future disruptions in some undisturbed areas.

Objective: Create conditions for sustainable shipping

The marine spatial plans should provide conditions for ecologically, socially and economically sustainable shipping. Shipping is given enough space to grow, while at the same time the marine spatial plans contribute to improving safety at sea, resulting in fewer accidents and a minimising of the risks of spillage of oil or other substances, as well as other disturbances. Marine spatial plans should provide conditions for efficient transport routes with low fuel consumption and for minimising the environmental impact of shipping, especially in ecologically sensitive areas. Consideration should be given to the fact that

the Baltic Sea has been designated a PSSA (Particularly Sensitive Sea Area) by the International Maritime Organization.

Objective: Create conditions for good accessibility

Conditions should be provided so that there is good availability in the transport system at sea, that the transport infrastructure remains integrated and is developed, and that the transfer of freight transports between road and sea is facilitated. There should be a level of preparedness for physical infrastructure, such as future tunnels or bridges.

Spatial conditions shall be provided for use of the sea for electronic communications infrastructure in the form of submarine cables and radio systems.

Conditions should also be created to ensure people's access to the sea for outdoor activities and recreation.

Objective: Create conditions for developed energy transfer and renewable electricity production in the sea

The marine spatial plans should support the work for integration and connection to the European electricity grid and establish opportunities for the submarine cables for energy transfer that already exist, are planned or may be installed, within Sweden or between Sweden and other countries, as well as for cables related to energy transfer from offshore electricity production.

The marine spatial plans should help to create conditions for Sweden's future extraction needs regarding renewable energy. This planning should support Sweden's national target for renewable energy and support the national planning framework for offshore wind power, which amounts to a potential annual production of 10 TWh of electricity from offshore wind power by 2020, and also establish preparedness for further subsequent developments with 2030 in mind, i.e., the EU's new target year for energy adaptation.

A level of preparedness should be established for other types of offshore electricity production from renewable sources, and the marine spatial plans should provide a platform for testing new technologies in the area.

Objective: Create conditions for sustainable commercial fishing

The marine spatial plans should provide conditions for an environmentally sustainable, resource-efficient, innovative, competitive and knowledge-based fishing industry within the framework of ecosystem-based management, which includes the consideration of important habitats for fish as well as other species.

Integration with the planning of coastal areas is particularly important as many important fish habitats are found there (spawning and nursery areas).

Objective: Create conditions for defence and security

The military defence is provided opportunities to conduct its operations, including military exercises under various conditions, and signals intelligence.

The marine spatial plans should also take into account the need for strategic provision in Sweden during pressure situations, including ensuring transports' freedom to operate during situations of emergency preparedness.

Objective: Establish preparedness for the possible future extraction of minerals as well as for carbon dioxide storage

Consideration should be given to the fact that the future may involve the increased extraction of sand and gravel, the extraction of minerals, and carbon dioxide storage. However, the extraction of oil and gas in Sweden's territorial sea or exclusive economic zone is not expected in the foreseeable future.

Objective: Establish preparedness for the future establishment of sustainable aquaculture with minimal negative environmental impact

Consideration should be given to the fact that the future may involve aquaculture in the marine spatial plan areas. Currently, aquaculture is almost exclusively found outside the plan area near the coast. The future may involve aquaculture further out at sea.

Planning strategies

Legal prerequisites

Marine spatial planning has its basis in international and national law which regulates the use of the sea. International conventions and regulations must be adhered to, such as the Convention on the Law of the Sea (UNCLOS), as well as EU legislation and related Swedish legislation relating to the sea.

The Swedish Marine Spatial Planning Ordinance dictates how marine spatial planning shall be conducted in Sweden. A proposal for a marine spatial plan, as prepared by SwAM, shall consist of a map and a plan description.

The map shall present

- the main outlines for the use of the marine area
- the areas of national interest in accordance with Chapter 3 of the Environmental Code, and other public interests of material significance

The plan description shall

- specify the aim and direction for the use of the marine area
- specify and describe any areas of national interest in accordance with Chapter 3 of the Environmental Code
- account for other public interests of material significance,
  the current use of the marine area, and the general planning conditions that the plan takes into account
- present the considerations that formed the basis for the plan
- indicate how issues regarding incompatible purposes should be resolved

- clearly present the implications and consequences of the utilisation of the marine area as stipulated in the plan

Regulations on the prohibition or restriction of activities and measures may be developed if necessary to achieve the aim of the plan.

Planning principles

The principles formulated in this section relate to how SwAM intends to carry out the marine spatial planning.

The following principles shall be applied:

- Marine spatial plans will be drawn up using the best available knowledge base, with full awareness that there are deficiencies in the available supporting data. The application of the precautionary principle imposes requirements on supporting documentation in planning and may involve specific requirements regarding monitoring and follow-up.
- The marine spatial planning shall take into account local and regional conditions and needs, and support local and regional physical planning.
- Good coordination with our neighbouring countries' marine spatial planning shall be achieved.
- The marine spatial planning shall consider the combined impact of different activities.
- The coexistence of different activities in one area shall be promoted. Synergies between different activities shall be sought.
- Consideration shall be given to existing activities and obtained permits.
- The prioritisation between national interests is based on the provisions of the Environmental Code, e.g., the defence interest should be given priority if an area or part of an area is required for a defence facility, and that major water areas that are only to a small extent, affected by development projects or other environmental intrusion shall, to the extent possible, be protected against measures that may significantly affect their character.
- Shipping shall be conducted in accordance with the regulatory framework of the Law of the Sea.

Thematic focus

In this first planning cycle, the marine spatial planning will place particular focus on planning issues related to nature protection (including the protection of fish habitats), energy, shipping and commercial fishing. According to the EU Directive on maritime spatial planning, the Member States should aim to contribute to the sustainable development of these sectors (including aquaculture) as well as environmental improvement through conservation and protection. Nature conservation, energy and shipping also represent increasing claims on the sea.

Prioritisation between interests

Interests and activities related to the sea differ in character, some relate to exploitation and others to conservation and protection. The marine spatial plans

should be prepared based on a holistic view of the sea, and should indicate the most appropriate use from a national perspective based on situation, character and needs. In the event of conflicts of interest, one interest is given priority over another or an appropriate way of managing the conflict of interest is indicated.

The prioritisation between interests will be based on the site-specific interests that are relevant for the area in question, but also on the overall landscape of utilisation and needs in the entire marine area, both in the short and long term. The order of priority between interests will therefore vary from case to case.

The proposals for marine spatial plans will involve adopting positions with regard to how various public interests (including national interests) are to be weighed against each other. The marine spatial plan shall reflect the state's overall view of how the marine areas are to be managed, and proposals may therefore deviate from the claims and the information obtained from the various national authorities in the form of national interest claims or other public interest claims. Refer to the section on national interests for more information.

Geographical focus areas

Focus areas are the geographical areas that are considered to potentially benefit most and have the greatest need of planning. This applies to areas that are or are expected to be highly utilised and areas of great vulnerability or high risk, or where there are existing or potential conflicts of interest.

The production of planning evidence may need to be prioritised when it comes to the geographical focus areas and these areas may also require more detailed planning than other parts of the sea. Areas that are primarily considered to benefit greatly from the planning are the 13 areas presented in *Marine spatial planning – Current status 2014*. The focus areas are briefly presented in the sections on the respective marine spatial plan area.

The ongoing planning process will reveal which of the proposed focus areas will require more detailed planning.

Plan alternatives

The Environmental Code's regulation of environmental assessment requires that reasonable plan alternatives are presented. These can help to demonstrate the different possibilities in terms of the utilisation of marine areas, and can therefore be important to develop and highlight in the planning process. In the process, it is important to document the viable alternatives and justify choices and trade-offs between them, for example, by presenting impact assessments.

If the planning process indicates that alternative plan proposals are relevant, in the plan's entirety or in specific areas, these may be developed as part of the production of SwAM's final proposals for marine spatial plans. This may, for example, be the case for the planning that takes place within the focus areas.

Interaction with other plans

The marine spatial planning should interact with other countries' as well as municipalities' planning in Sweden. For this reason the plans' area of investigation is extends the formal plan area. The planning of the Skagerrak/Kattegat,

the Baltic Sea and the Gulf of Bothnia also need to be coordinated with each other.

International plans

In the international perspective, common solutions must be sought with neighbouring countries, and efforts should be made to establish coordinated forms of presentations of the marine spatial plans. It is also desirable that neighbouring countries have a common view on the current situation and a shared vision of the future as a basis for planning. As regards the offshore banks Southern Middle Bank and Krieger's flak, we shall seek coordination with Poland and with Germany and Denmark, respectively. In the Öresund and Kattegat, the objective is to coordinate with Denmark, and in the Gulf of Bothnia, with Finland and Åland.

Municipality plans

The marine spatial planning needs to take into account the existing municipal comprehensive plans. Aside from in the planning of the overlapping area between the municipal and national planning, it is important that the municipal planning on the coast and in coastal waters is taken into account in the national marine spatial planning, even though the area does not formally constitute part of the national marine spatial plans. Many activities take place near the coast, where there are also valuable habitats that may be affected by planning further out.

Data produced during the planning process which may facilitate municipal comprehensive planning should be made available to the municipalities. When the three national marine spatial plans have been adopted, they will be used to support municipal marine spatial planning.

Between the marine spatial plans

The three marine spatial plans are to have a coherent national perspective that makes it possible to assess the overall impact of the individual plans. The reporting method in the plans is to be similar.

Interaction between land and sea

Developments in the sea are dependent on activities on land, and the marine spatial plans must therefore be placed in this context. Population and industry on the coast, transportation systems and ports, etc., are important reference points for marine spatial planning. Urban and rural development is another important factor as well as regional development strategies linked to the land. Emission sources on land also impact the sea to a high degree, an additional factor which the marine spatial planning needs to relate to.

The municipalities are responsible for coastal zone management and, like the state, have planning responsibilities in the territorial sea. Good collaboration between the state, regions and municipalities is necessary to coordinate local and regional conditions and perspectives with the national issues in the national planning.

Time perspective of the planning

Creating conditions for development requires long-term thinking. Changes in ecosystems are large-scale processes that require a long-term perspective with regard to aims and measures. A marine spatial plan is future-oriented and should have a long-term planning horizon. In order to facilitate the understanding of the planning's long-term perspective and focus on the future, 2050 is proposed as the horizon year and 2035 as the reference year.

Planning objectives

Planning objectives indicate the aim and direction of the marine spatial planning. Conflicts between objectives may arise in different areas where multiple interests overlap. The integrated impact assessments will be helpful in the planning process to identify, document, and if possible, to find resolutions to such conflicts between objectives.

Geographical scales

A marine spatial plan will be used by both professionals and private individuals. It is important that the plan is understandable and clear, and that it is possible to distinguish between standpoints and data. Sweden has a relatively large marine area to present in the plans which poses a challenge in finding the right relationship between a manageable scale of maps and sufficient clarity.

For the overall level, it is suitable to have a presentation within the scale range 1:800,000 to 1:600,000, based on the degree of coverage, level of detail between map strata, geography, and boundaries of the plan areas and focus areas. This scale range gives 10–12 map sheets.

For the focus area e presentation within the scale range 1:400,000–1:100,000 is recommended.

Planning evidence

The planning will be based on various types of information, such as national interest claims, SwAM's status report, the authorities' sector reports, regional reports from the county administrative boards, regional development strategies, municipal comprehensive plans, regional plans, and reports and studies within different thematic areas. The content of the environmental assessment and the work with socio-economic impact analysis also form part of the supporting data.

There is a need for additional planning evidence to be gathered e.g., assessment of natural values, areas important for fish reproduction, scenarios for different sectors and for climate issues. Designated national interest areas in have different levels of accuracy and data requirements, which is why supplementary data will be needed in the marine spatial planning. The needs for additional planning evidence will be reviewed by thematic working groups.

The Gulf of Bothnia

Characteristics

The Gulf of Bothnia plan area includes the counties of Uppsala, Gävleborg, Västernorrland, Västerbotten and Norrbotten. The area comprises 20 coastal municipalities with a total of 780,000 inhabitants. The marine spatial plan area is bordering Finland in the east.
The border goes from Haparanda in the north to Södra Kvarken by Åland in the south.

Municipalities in the Gulf of Bothnia plan area	
Gävle	Robertsfors
Haparanda	Skellefteå
Hudiksvall	Sundsvall
Härnösand	Söderhamn
Kalix	Tierp
Kramfors	Timrå
Luleå	Umeå
Nordanstig	Älvkarleby
Nordmaling	Örnsköldsvik
Piteå	Östhammar

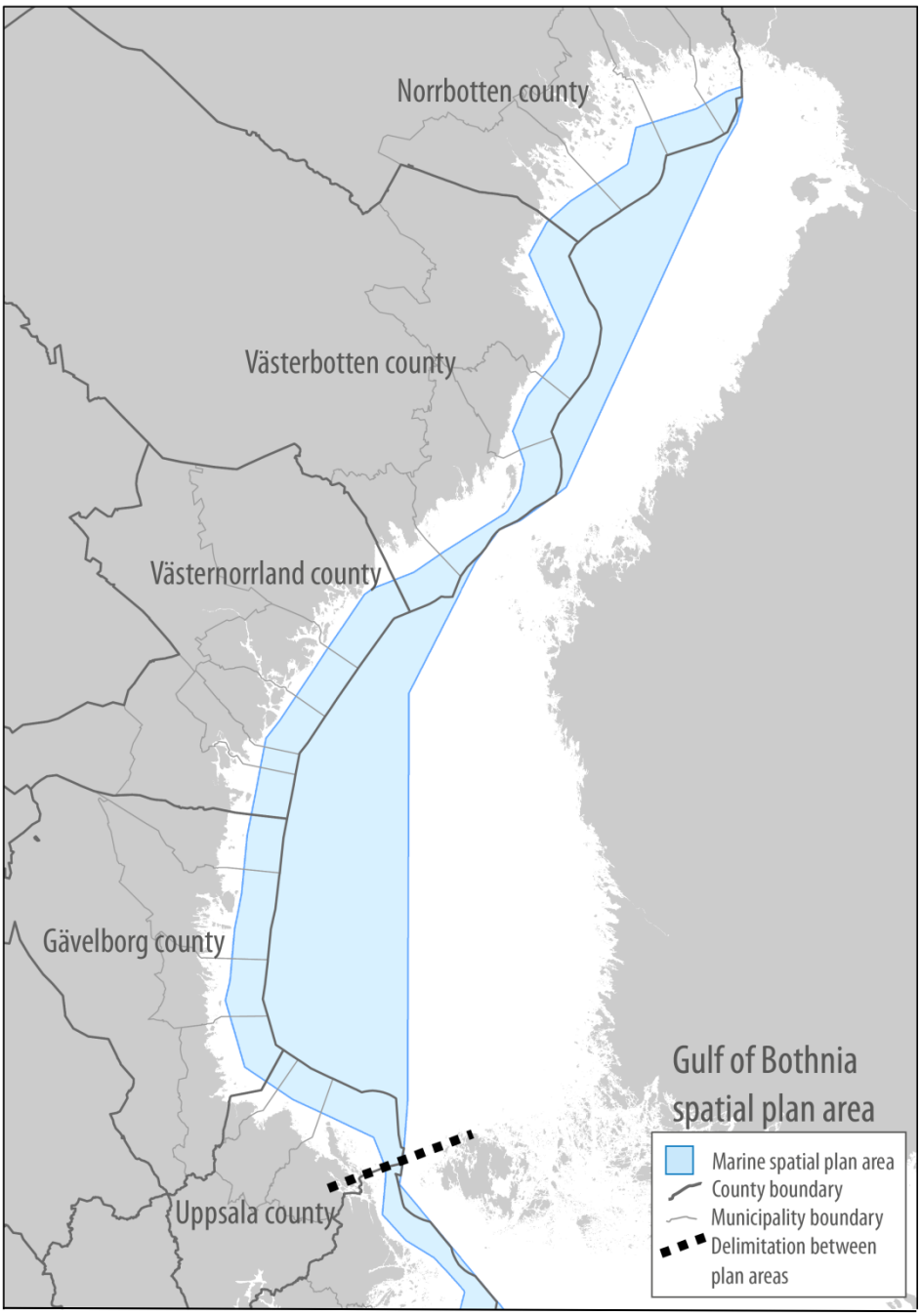

Figure 8. The Gulf of Bothnia plan area.

The Gulf of Bothnia is divided by two shallow thresholds, Södra Kvarken and Norra Kvarken, which entails a long water turnover time, an estimated 30 years. The confined geographical location means that the water quality here is almost completely characterised by water from rivers and bodies of freshwater, resulting in a low level of salinity in the gulf. This has an impact on the Gulf of Bothnia's ecosystem and the species found here. The most southerly and salty parts have a greater occurrence of marine species than the more northern

parts. The number of marine species decreases the further north one goes. Various freshwater species, such as angiosperms, as well as mosses and fern plants, form the species-rich habitats in the northern part of the area.
During a normal winter, the maximum distribution of ice covers the whole Gulf of Bothnia and the northern parts of the Baltic Sea. In the Gulf of Bothnia's coastal areas, the ice cover remains at most between 100-190 days a year. Among other things, the ice cover affects the turnover of water, and fixed structures can be subjected to very severe stress by sea ice, which for example, affects wind farms and other structures. Wave power is not an option because of the ice, and shipping is affected due to the ships having to follow the icebreakers' routes. In marine spatial planning, it becomes important to consider the fact that summer and winter conditions can entail two completely different environments and conditions. The ice cover also creates opportunities in several respects, for example, through ice roads in the Norrbotten archipelago and winter tourism, such as hunting and long distance ice skating.

The land uplift is greatest in Västerbotten (around one cm per year) but impacts the entire Gulf of Bothnia. This has meant that the Gulf of Bothnia, apart from ship remains, lacks cultural heritage remains under water, which are found along other coasts in Sweden. Earlier coastal settlements can instead be found further inland. The dredging of channels is a condition that becomes a necessity over time in this already shallow sea. The land uplift itself contributes to a great diversity of biotopes and species in marine habitats.

The Gulf of Bothnia is an area with high natural values. Environments with particularly high values include areas with meadows of stoneworts and vascular plants, small islands and islets, shallow offshore areas and areas with a high incidence of bladderwrack/Fucus radicans. There are a number of different endangered species. There are also a number of species that are only found here, as well as some species that have their propagation boundaries within the area. The Gulf of Bothnia's nature and the high natural values represent a source of a number of opportunities, not least for the tourism industry and outdoor recreation. Bottenviken archipelago, the High Coast (Höga kusten) and Roslagen constitute national interests for outdoor recreation (Chapter 4, Section 2 of the Environmental Code). The High Coast is a national interest with regard to its unbroken coastline (Chapter 4, Section 3 of the Environmental Code).

Two national parks, about seven marine nature reserves and more than 100 Natura 2000 sites are located in the Gulf of Bothnia. Finngrundet's banks constitute Natura 2000 sites and are located mostly in the exclusive economic zone. There are also two HELCOM MPA areas, the High Coast and Haparanda archipelago, within the plan area that are not nature reserves or Natura 2000. The High Coast is a World Heritage Site designated by UNESCO as an area with a unique cultural and historical natural environment which stands as a testimony to the history of man and the earth. There are a number of protected areas for fish in the plan area.

The Gulf of Bothnia's long tradition of industries has resulted in many polluted areas with high levels of toxic pollutants along the coast. Current and historical emissions from industry, sewage and agricultural industries impact the marine environment and illustrate the link between land and sea.

The Gulf of Bothnia houses ports of importance for the transport of, forest products, petroleum, fuel, iron ore, steel and other products, which are important to ensure the long-term industrial needs of cost-effective transport solutions. Basic industries such as mining and forestry are currently dependent on efficient shipping.

Ferry services within the inner water which benefit tourism and local residents on the islands are found in municipalities with archipelagos, such Östhammar, Luleå and Haparanda. Passenger traffic in the territorial sea is found in Umeå, across Norra Kvarken between Umeå and Vaasa in Finland. Umeå Municipality's comprehensive plan includes a vision of a future fixed link across Norra Kvarken.

The Gulf of Bothnia offers a varied coastal landscape. There is everything from flat archipelago to the High Coast's unique nature, creating good opportunities for tourism and recreation. There is great potential in developing the tourism industry as the area's natural environments can attract both visitors and new businesses.

There is municipal interest in offshore wind power in the Gulf of Bothnia, which is reflected in several coastal municipalities' comprehensive plans. At Storgrunden outside Gävleborg, there is, for example, a permit for a major offshore wind farm.

Commercial fishing within the Gulf of Bothnia is small-scale vendace fishing for roe has the greatest economic importance in the northern part of the Gulf of Bothnia, and herring fishing dominates in the southern part. Salmon fishing is practised throughout the area. The demand for locally caught fish and processed fish is good. There are great opportunities to develop this industry. Open sea fishing in the Swedish territorial sea and Exclusive Economic Zone is mainly practised by Finnish fishing vessels.

Maritime transport is growing. This leads to increasing risks of accidents at sea that may have negative effects on the marine environment.

At Forsmark in Östhammar municipality, in the plan area's most southern part, there is a nuclear power plant.

The Gulf of Bothnia contains key areas for military defence. There is an area for marine exercises located along the coast in Västernorrland, and a number of areas on land also include risk areas over water.

Significant issues

The planning objectives formulated in an earlier section in this document relate to all three plan areas and hence also represent overall objectives for the Gulf of Bothnia marine spatial plan. Presented here are the issues that are deemed particularly important to address for the Gulf of Bothnia:

- Creating conditions for environmentally adapted, safe and expanded shipping while maintaining navigability
- The expansion and establishment of protected areas to safeguard biodiversity with regard to habitats, migration corridors and the interconnecting of areas, especially in the exclusive economic zone where there are presently few protected areas
- Regional development, including the development of the main ports within the plan area, as well as improved conditions for tourism

- Infrastructure development between Umeå-Vaasa
- The consequences of ice formation; with opportunities and challenges for, e.g., shipping, off-shore energy, outdoor recreation etc.
- The consequences of land uplift; with opportunities and challenges for, e.g., cultural heritage and shipping
- The consequences of the slow water turnover; with opportunities and challenges for, e.g., toxic pollutants and aquaculture
- The consequences of the low salinity; with opportunities and challenges for, e.g., natural values

Cooperation with neighbouring countries

Collaboration and coordination with neighbouring countries will be important throughout the planning process. In Finland, work is underway to develop a regulatory framework for the transposition of the EU Directive on maritime spatial planning.

Specific issues to consider include the need for:

- Sweden and Finland, including Åland, to coordinate their marine spatial planning as far as possible
- the planning of linear objects (shipping thoroughfares/routes, cable laying, cable connections, etc.) to be coordinated between the countries
- the fisheries management to be based on mutual understanding and consensus between Sweden and Finland
- shipping-related issues in Södra Kvarken to be coordinated with the Baltic Sea marine spatial plan.

Focus areas

Within the Gulf of Bothnia marine spatial plan area there are five potential focus areas:

- Södra Kvarken. The area is an important passage for all shipping north of Åland, and is also of importance for outdoor recreation and cruise shipping. Other interests in the area relate to cultural heritage, military defence, energy and nature protection.
- Finngrundet and Storgrundet. Natural values and interest in offshore wind power are important interests here. Other interests include commercial fishing, cultural heritage and extraction of materials.
- The High Coast and Vänta litets grund. Cultural heritage, outdoor recreation and tourism are very important here, along with commercial fishing, shipping and defence. At the same time there is a risk area with environmentally hazardous objects.
- Norra kvarken and Rata storgrund. Shipping is of great importance here, while outdoor recreation and tourism, commercial fishing, cultural heriatage, wind power, infrastructure and nature protection also have major values.
- Bottenviken archipelago. Shipping is important here, while consideration should be given to cultural heritage, outdoor recreation and tourism, mili-

tary defence, offshore wind power, the extraction of materials and nature protection.

The Baltic Sea

Characteristics

The Baltic Sea marine spatial plan area is the largest of the three plan areas and stretches from the Sea of Åland, around Skåne's coast and up through the Öresund to the municipal boundary between Helsingborg and Höganäs. It encompasses the metropolitan regions of Stockholm and Malmö, Sweden's largest islands Gotland and Öland, unique archipelago environments and areas of great importance for holiday homes and outdoor recreation. The area is administratively complex and the planning conditions are different within different parts of the plan area. For example, needs and conditions for planning differ considerably between the Öresund and the open sea off Gotland. The area is also geopolitically important and the Swedish Armed Forces are a key actor within this plan area.

Municipalities in the Baltic Sea plan area	
Borgholm	Oskarshamn
Haninge	Oxelösund
Helsingborg	Gotland
Karlshamn	Ronneby
Karlskrona	Simrishamn
Kristianstad	Skurup
Kävlinge	Söderköping
Landskrona	Sölvesborg
Lomma	Trelleborg
Malmö	Trosa
Mörbylånga	Valdemarsvik
Norrköping	Vellinge
Norrtälje	Värmdö
Nyköping	Västervik
Nynäshamn	Ystad

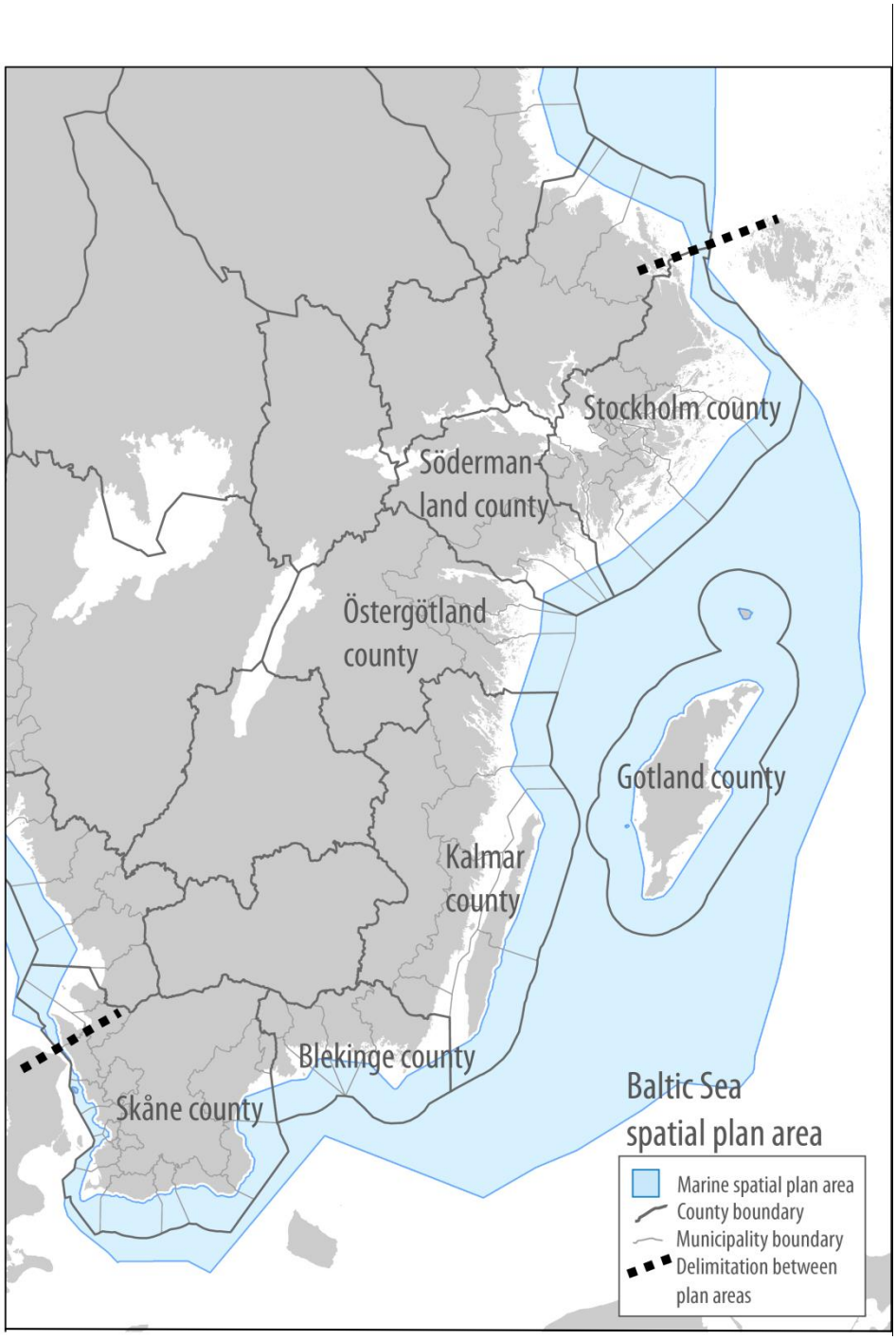

Figure 9. The Baltic Sea plan area.

The Baltic Sea plan area has the planning ambitions of seven neighbouring states to relate to. The international and cross-border aspect will therefore be of great importance in the planning. Not least, the need for consensus between the countries on the current situation, ecosystems and the development potential, as well as a coordination of the presentation of plan maps, is of great importance to achieving an overall picture of the situation and the planned development of the Baltic Sea. Within the plan area there are seven county administrative boards and 30 municipalities with overlapping planning responsibility

shared between government and the municipalities, as well as a number of regional bodies and actors responsible for development with which to cooperate and communicate. This complexity requires a well-coordinated marine spatial planning process.

The Baltic Sea is currently a heavily used inland sea with many stakeholders, both nationally and internationally. The coast around the Baltic Sea is subject to great development pressure. The expected development will further increase the level of utilisation within both existing areas of operation and interest and within new areas. There is intensive shipping activity which is expected to increase sharply, and interest in the extraction of various types of ocean-based energy, especially offshore wind power, is growing in pace with technological developments, changing energy prices and climate change adaptation. Increased shipping means that the already high risk of accidents will increase along with the risk of adverse effects to the environment. There are currently a number of nuclear reactors in the Baltic Sea area and transports of radioactive material are commonplace. The extraction of natural resources such as oil, gas and sand is ongoing and is planned in the vicinity of the Swedish marine spatial plan area. The area is important for Sweden's total defence, and commercial fishing is practised in large parts of the area.

At present, the marine spatial plan area contains physical infrastructure that, in many cases, connects Sweden to individual neighbouring countries, such as cables, pipelines and the Öresund Bridge. The fixed infrastructure is expected to increase within the planning horizon's timeframe. The Baltic Sea's unique ability to preserve ship remains, as well as the rise in sea level, means that there is a unique cultural treasure to explore and maintain. Within the plan area there are many unique environments and natural values that provide good opportunities to engage in active outdoor recreation and which should be preserved and developed. Tourism is already an important industry in the municipalities covered by the plan area, and it is expected to grow further. The possibility of outdoor recreation and access to attractive natural environments are important prerequisites for the development of local industry.

Ecosystems within the plan area are under extreme stress and must be managed through joint commitments at the intergovernmental level. Responsibility for Sweden's commitment to improving the Baltic Sea environment, , through the Baltic Sea Action Plan, is divided up in the Action plan for marine environment between a number of actors, both nationally and within the marine spatial plan area, including municipalities and business operators.

Knowledge on the ecosystems and the green infrastructure is poor. There are a number of protected areas under the Environmental Code, for example Natura 2000 sites, but there are also protected areas in the form of HELCOM and OSPAR MPA areas and different types of temporary protection for nature conservation and fisheries. However, the scope of protected areas is not sufficient, especially in the open sea parts of the plan area. Nor are the marine protected areas ecologically coherent and representative.

Significant issues

The planning objectives formulated in an earlier section of this document relate to all three plan areas and also represent overall objective for the Baltic Sea

marine spatial plan. Presented here are the issues that are deemed particularly important to address for the Baltic Sea in the first planning cycle:

- Creating conditions for environmentally adapted, safe and expanded shipping while maintaining navigability.
- The expansion and establishment of protected areas to safeguard habitats and biodiversity, taking into account migration corridors and the interconnecting of areas, especially in the Exclusive Economic Zone where there are presently few protected areas
- The opportunity for the Swedish Armed Forces to carry out their mission in a politically important area for strategic defence
- The utilisation and conservation of the many offshore banks in the area. This primarily involves a balance between wind power/shipping and natural values, and agreements with neighbouring countries
- Plans for the expansion of large-scale offshore wind power with connections to land, both in the marine spatial plan area and in the neighbouring countries' zones
- Regional development, including the development of the main ports within the plan area, as well as improved conditions for the tourism industry
- Development in the Öresund region, with the Öresund already being a crowded area with many stakeholders
- Fixed infrastructure, such as cables, pipelines and tunnels which are being planned or discussed.
- International coordination with seven neighbouring countries and attempts to establish common perspectives on the environment, conservation and development

Cooperation with neighbouring countries

Collaboration and coordination with neighbouring countries will be important throughout the planning process. All EU Member States around the Baltic Sea are expected to develop marine spatial plans by 2021 at the latest. At present, there are first generation marine spatial plans prepared in Germany and Lithuania. Other countries have begun or will soon begin their planning processes. The Swedish process is in phase with the Polish and Latvian planning, while other countries are expected to begin their planning processes somewhat later.

Specific issues to consider include:

- The fact that Sweden does not have an agreement with Latvia on the demarcation line between the countries' exclusive economic zones
- The planning of the Öresund, where we will seek coordination with Denmark
- The need for the utilisation/conservation of the offshore banks Södra Midsjöbanken (shared between Sweden and Poland) and Krieger's flak (where the zones of Germany, Denmark and Sweden meet) to be planned in close cooperation with the countries concerned.
- The need for coordinating the management of linear objects (shipping routes, cable laying, cable connections, etc.) between the countries

- That shipping-related issues in Södra Kvarken need to be coordinated between the plans for the Gulf of Bothnia and the Baltic Sea
- That the planning should be based on consensus between neighbouring countries with regard to the current situation and the future of the Baltic Sea, including the interpretation of the ecosystem approach and the need for an improved environmental permit

Focus areas

There are several focus areas within the plan area. The continued planning process and an in-depth analysis of the identified areas will show which of these areas will be prioritised:

- The Öresund area (high development pressure) including Krieger's flak (wind power plans from Germany and Denmark)
- Southwestern Gotland Sea (among other things, nature protection in conflict with shipping) with the Midsjö banks (where there is interest in wind power establishment, both on the Swedish and Polish part of the south bank) and Hoburgs Bank (nature protection and shipping)
- Hanöbukten with Skåne's east coast, Blekinge's south coast and Bornholmsgattet (shipping, defence, commercial shipping, outdoor recreation)
- Northwest Gotland Sea (outdoor recreation, nature conservation, wind power, defence, fisheries and shipping, including the area with the entrance to Norrköping and Stockholm (shipping, nature and outdoor recreation)
- Södra Kvarken (shipping, culture and nature conservation), which also includes the Gulf of Bothnia plan area

The Skagerrak/Kattegat

Characteristics

The Skagerrak/Kattegat plan area covers from Kullen in the south to the Norwegian border and it borders on Denmark and Norway. The area of land adjacent to the Skagerrak/Kattegat consists of Västra Götaland, Halland and a small part of Skåne. The plan area comprises 15 coastal municipalities.

Municipalities in the Skagerrak/Kattegat plan area	
Båstad	Orust
Falkenberg	Sotenäs
Göteborg	Strömstad
Halmstad	Tanum
Höganäs	Tjörn
Kungsbacka	Varberg
Kungälv	Öckerö
Lysekil	

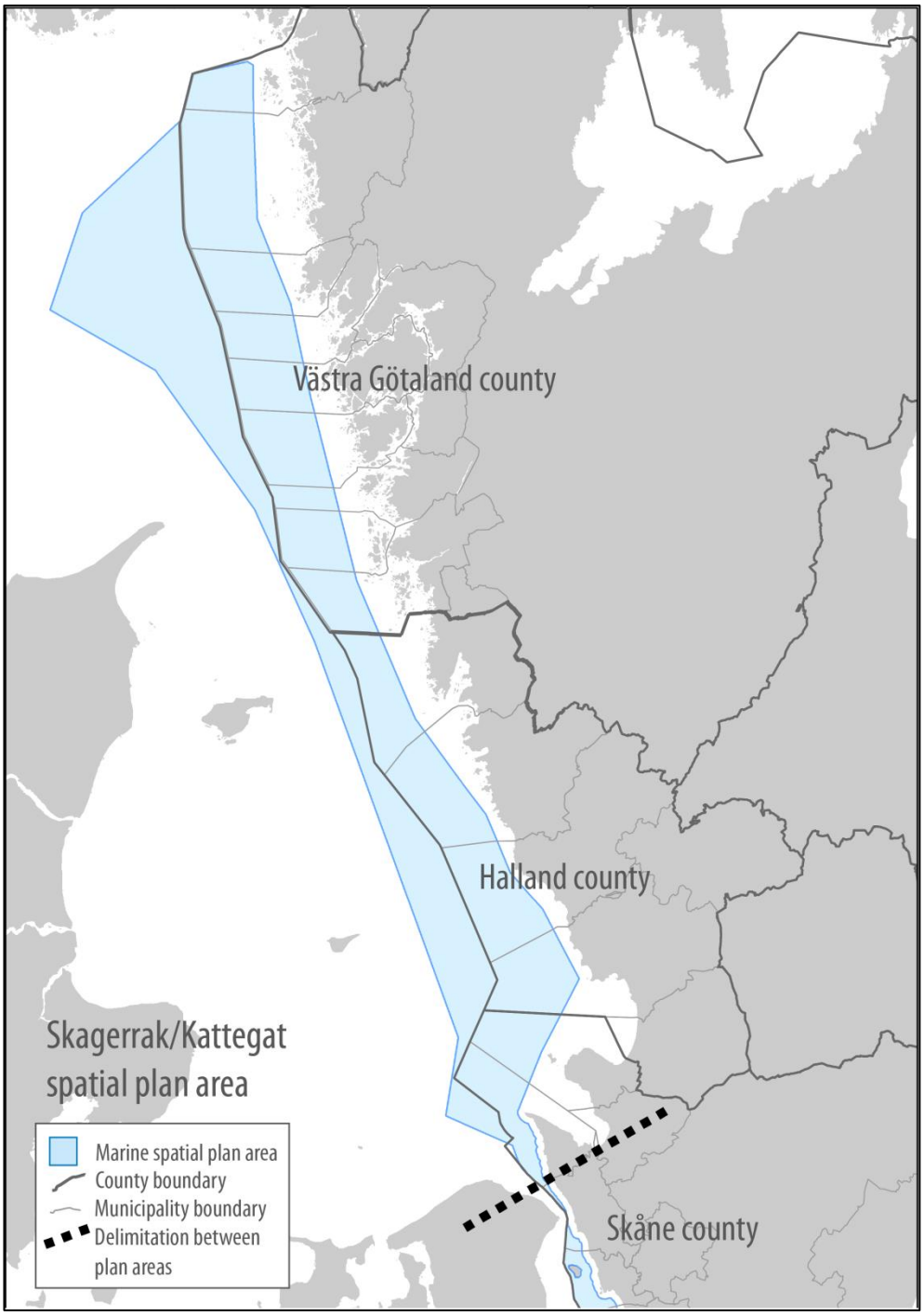

Figure 10. The Skagerrak/Kattegat plan area.

A total of 1.1 million people live in the coastal municipalities along the Skagerrak/Kattegat, and here one can find expansive areas with a high growth of population and holiday homes. For residents along the Skagerrak/Kattegat and especially in Bohuslän, the sea has always been an important resource. The sea has produced employment through fishing, shipping and the fish processing industry. Today, the significance of the traditional maritime industries has diminished and been replaced by industries of the future, such as outdoor recreation and tourism. Tourism is increasing and development pressure is consider-

able in the coastal zone. The population in northern Bohuslän (apart from Strömstad) is falling, while at the same time there is great development pressure in respect of holiday homes. In an international perspective, Bohuslän's unique natural and cultural environment qualities contribute to tourism and recreation being a growing industry that employs many people.

Aspects specific to the west coast and the Skagerrak/Kattegat include: the almost oceanic conditions that provide a great variety of species, especially in the Skagerrak; the high pressure on outdoor recreation and tourism; the region has nearly half of Sweden's maritime employees; the concentration of large processing businesses and an extensive trade in fish and shellfish; intensive shipping that is expected to increase substantially; Sweden's two largest ports are found here; the major risks of oil spills that quickly reach land; and the problem of marine litter due to winds and currents. The conditions in the Skagerrak/Kattegat are suitable for testing new technologies for the extraction of marine energy. Between them, the Skagerrak and Kattegat have different conditions regarding ecosystems, environmental problems, weather, fishing and shipping.

There is a rich and diverse biodiversity across the Skagerrak/Kattegat area containing a large share of Sweden's marine flora and fauna. Just over ten per cent of the marine environment is covered by marine area protection. However, the representativeness of different marine habitats is weak. Particularly important natural values in the Skagerrak/Kattegat include the offshore area Bratten, Kosterhavet (Koster sea) with Säcken/Singlefjorden and the deep parts of Kosterrännan and Gullmarsfjorden. Other species-rich areas to protect are the shallow offshore areas: Grisbådarna, Persgrunden and Svabergsgrunden in the Skagerrak, and Fladen, Stora Middelgrund, Lilla Middelgrund, Röde bank, Morups bank and Vanguards grund in the Kattegat. The Swedish Armed Forces have areas for marine exercises in Bohuslän and by Göteborg, as well as an artillery range by Halmstad with an environmental impact within the marine area.

Shipping is important in the Skagerrak/Kattegat, and the Port of Göteborg is by far Scandinavia's largest transport and logistics node.

The intensive shipping activity entails a risk of collisions, and the Kattegat is generally a high risk area. Oil transports in particular constitute a risk in the Skagerrak/Kattegat. Extensive oil transports are made to the major Swedish ports, but perhaps mainly via oil tankers passing on the way out to the North Sea, primarily from Russia. This is also a common route for cargo ships with large volumes of fuel in the form of bunker oil. The transfer of bunker oil from one ship to another, lightering, occurs at Skagen. The channels' proximity to land, the predominant wind direction and the direction of the ocean currents entail that an oil spill will reach the shore very fast on the west coast. Very hazardous goods entering the ports and the transports which take place in close proximity to the coast along the Skagerrak/Kattegat involve major risks. Ringhals nuclear power plant is located in Halland and transports of radioactive material are common in the Skagerrak/Kattegat.

Significant issues

The regions and the county administrative boards along the Skagerrak/Kattegat have developed regional goals and strategies/programmes that in part relate to the marine spatial planning. Energy supply and the transition to a fossil fuel-free society is an important issue in the regional growth and development strategies as well as in the specifications of environmental objectives, with a focus on reducing the use of fossil energy and investing in the development of renewable energy extraction. Another important issue is that the marine areas with high natural values must be protected. It includes the development of networks with good representativeness, and maintaining the productivity and functionality of shallow marine ecosystems. Strengthening the tourism industry is included in the regional strategies in order to contribute to regional growth, with the sea as a key factor.

The importance of the municipal comprehensive plan is emphasised in order to achieve a long-term and sustainable utilisation of coast and sea. Climate adaptation and the climate proofing of the coastal environment are primarily matters for the coastal zone planning, but can also affect the marine spatial planning in the form of impact on port operations and in terms of appropriate areas for sand extraction in the sea.

The planning objectives formulated in an earlier section in the guidance document relate to all three plan areas and also represent overall objectives for the Skagerrak/Kattegat marine spatial plan. Here are presented the issues that are deemed particularly important to address for the Skagerrak/Kattegat in the first planning cycle:

- Creating conditions for environmentally adapted, safe and expanded shipping while maintaining navigability. Increasing shipping activity will influence other use in the Skagerrak/Kattegat's relatively confined sea area.
- It is essential to develop protection initiatives in the area so as to form a representative network of protected areas. The need to preserve the unique biodiversity of the offshore banks in the Skagerrak/Kattegat is deemed particularly important.
- The planning must address the conflict of interest between energy extraction and the high biological values of the offshore banks. Test beds for the extraction of marine energy also require space.
- The needs of outdoor recreation and the development of the tourism industry along the Skagerrak/Kattegat is an important issue from a regional and local perspective.
- The fishing industry's needs of both habitats for fish and shellfish and space for fishing, as well as its impact.
- Requirements regarding space and localisation for future growing maritime industries and aquaculture.

Cooperation with neighbouring countries

Since 2013, Norway has comprehensive management plans in place for all its marine areas, where the most recently adopted plan covers the North Sea and the Skagerrak. The management plans include environmental issues, which in

Sweden and other EU countries are handled within the framework of the Marine Strategy Framework Directive. The Norwegian marine areas are used intensively for the country's key industries of fishing, shipping, aquaculture and oil. Between them, the Norwegian marine areas are characterised by different conditions.

Among the countries in the Baltic Sea area, Denmark is engaged in the most intensive utilisation of the sea, and the main areas of use are shipping, fishing and energy extraction.

The country is currently working to implement the EU Directive on maritime spatial planning into Danish legislation. The marine spatial planning will lead to a comprehensive marine spatial plan which will regulate state authorities' management and licensing. The focus of the first planning phase will be the current sectoral plans.

Specific issues to consider include:

- Shipping, site protection and fishing are deemed to be the matters that primarily need to be coordinated with Norway and Denmark.
- Linear objects (shipping thoroughfares, cable laying, cable connections) need to be coordinated between the countries.
- In the case of the Kattegat, Denmark's interest in extracting sand/gravel may need to be addressed within the marine spatial planning.
- Between the Skagerrak/Kattegat and Baltic Sea marine spatial plans, shipping-related issues in the Öresund need to be coordinated, as well as fishing in the border zone.

Focus areas

Three areas have been identified as probable focus areas in the Skagerrak/Kattegat;

- Svabergsgrunden, which has a large variety of different bottom types at different depths and is characterised by very high biodiversity. It is also of interest for the development of both wave and wind power.
- The Göteborg area, where there is intensive traffic in the waters by Göteborg in combination with the intensive utilisation of the coast. Increased shipping in the future may create more conflicts of interest in the area.
- The offshore banks of Lilla Middelgrund, Fladen and Stora Middelgrund, which have high natural values and are also of interest for wind power establishment.

  Denmark is interested in extracting gravel. The banks attract interests relating to commercial fishing and outdoor recreation, and there is shipping traffic on either side of them.

Scope of the strategic environmental assessment

Context

This section describes the scope of the strategic environmental assessment (SEA) and screening according to Chapter 6, Sections 11-18 of the Environmental Code. The implementation of the environmental assessment is part of the application of the ecosystem approach. At the same time, the scope is wider as the environmental assessment must capture potentially significant negative environmental effects from activities and operations.

The work with the environmental assessment creates a knowledge base for producing proposals for marine spatial plans, and it can also contribute to resolving conflicts between objectives at the strategic level. Another aspect is the marine spatial planning's link to municipal physical planning. Municipal planning also includes environmental assessments. The overlap between national and municipal physical planning in the territorial sea means that environmental assessments are produced with different levels of detail for national and municipal marine spatial planning respectively.

Terminology
Environmental assessment of plans and programmes is the *process* that contains certain steps that public authorities and municipalities must carry out when establishing or amending certain plans or programmes whose implementation is likely to have significant environmental effects (Chapter 6 of the Environmental Code).

Screening: The process which determines whether an environmental assessment is required.

Environmental impact statement (EIS): The written report which, inter alia, identifies, describes and assesses the likely significant environmental effects of implementing the plan, programme or amendment.

Source: Swedish Environmental Protection Agency Manual

Screening

According to the Swedish Marine Spatial Planning Ordinance, proposals for marine spatial plans are assumed to entail such significant environmental effects as are referred to in Chapter 6, Section 11 of the Environmental Code. There are therefore requirements relating to the implementation of an environmental assessment under Chapter 6, Sections 11-18 and 22 of the Environmental Code. The work with environmental assessment will be documented in an environmental impact statement (EIS) in the form of an EIS document for each marine spatial plan. The environmental assessment also constitutes the strategic environmental assessment as required in cross-border contexts within the framework of the Espoo Convention.

Scope of the environmental assessment

Scoping of the environmental assessment shall take place in an early stage of the planning process.

The purpose of scoping is to focus the environmental assessment on the environmental issues that are most relevant for the plan in question. The focus is on the positive and negative significant environmental effects that will likely result from implementing the plan. There is no definition of what “significant” environmental effects means, but it can be inferred from the Environmental Protection Agency's guidelines for environmental assessment of plans and programmes that the evaluation of significant environmental effects is site and situation specific. This means that the assessment of significant environmental effects, among other things, depends on the natural values affected and the degree of impact. Consultation on the scope is pursued pursuant to the requirements of the Environmental Code.

Consultation on the scope of the environmental assessment

National

The authority establishing or modifying a plan shall consult on the environmental impact statement's scope and level of detail (Chapter 6, Section 13, second paragraph of the Environmental Code). The marine spatial plans are national level plans since together they cover the majority of Sweden's seas. According to the Environmental Code, the formal sphere of consultation thus includes the Environmental Protection Agency and other relevant central governmental agencies.

The Aarhus Convention (Article 6) provides that, in environmental decision-making processes, the parties shall ensure that public participation takes place at an early stage, when all options are possible and the public can participate in a meaningful way. Article 6 of the SEA Protocol states that each party, to the extent appropriate, shall endeavour to provide the interested public an opportunity to participate in the consultation. The Protocol's requirements are considered to be fulfilled within the framework of Chapter 6, Section 13 of the Environmental Code. Authorities and municipalities are free to, as far as is appropriate, consult with the interested public on these issues (Govt. Bill 2003/04:116 p. 52).

It is SwAM's assessment that the municipalities represent an important consultative body in the environmental assessment. The coastal county administrative boards have an important role in providing the municipalities with information about the draft guidance document, including the scope of the environmental assessment, during the consultation. SwAM also sees a general need to pursue wide consultation with the aim of giving all interested parties, including non-governmental organizations, an opportunity to review supporting documentation and submit comments.

In the event of significant environmental effects in another country

The Espoo Convention, with associated SEA Protocol, and the SEA Directive (2001/42/EC) regulate consultation on significant transboundary environmental effects. These have been implemented in Swedish law through incorporation in Chapter 6 of the Environmental Code and the EIA Ordinance (1998:905). The general requirements are to inform the relevant countries about the current planning and to pursue consultation when plan proposals and the SEA documents have been produced.

At present, responsibility for consultation with another country under the EIA Ordinance falls to the Environmental Protection Agency. SwAM has therefore informed the Environmental Protection Agency that the marine spatial planning has been assessed as potentially causing significant transboundary effects. SwAM will also enclose English documentation about the guidance document and the scope of the environmental assessment during the notification. Inviting the relevant countries to provide feedback at this stage is not a formal requirement. However, SwAM intends to offer this opportunity.

Mandate of the marine spatial planning and assumptions regarding content

Determining the scope of the environmental assessment requires an overview of the type of activities that the marine spatial planning could affect and how. A basic departure point in marine spatial planning is to weigh up different interests and determine the appropriate use of the marine area for various purposes. The breadth of interests is reflected in the proposed planning objectives. In the environmental assessment, the significant environmental effects that may potentially result from the plan are evaluated based on the appropriate use specified for different areas. The direct, indirect, cumulative, short-term and long-term overall effects should be described.

The level of detail of the marine spatial planning and current knowledge connected to the environmental assessment

According to Chapter 6, Section 13 of the Environmental Code, an SEA-document the Environmental Reportmust contain appropriate information relating to:

1. *Assessment methods and current knowledge*
   Comment for the marine spatial planning: In the first place, existing knowledge will be used, but additional studies may be needed. It is necessary to have broad knowledge development to contribute to better planning data. Here there are links to knowledge-oriented measures within the programme of measures, in accordance with the Marine Strategy Framework Directive. The methods applied in the environmental assessment will be described and the criteria and assumptions used are to be presented.

2. *The plan's content and degree of detail*
   Comment for the marine spatial planning: Environmental assessments on plans often addresse the effects of major structures and systems at an overall level, i.e., assessments are made with a lower level of detail than is customary in an EIA for projects. The environmental assessment for a marine spatial plan focuses on aggregate and overall implications.
3. *Where the plan is located in the decision-making process*
   Comment for the marine spatial planning: The marine spatial plans are at a strategic level and represent guidelines for municipalities and authorities. The marine spatial planning takes place early in a process with decisions taken at various levels, ranging from decisions on the overall development to decisions on individual projects.
4. *That some issues can be better assessed in conjunction with the examination of other plans and programmes, or during permit consideration pertaining to activities or measures*
   Comment for the marine spatial planning: It is particularly important to highlight the national marine spatial planning's relation to municipal comprehensive and detailed planning based on the Planning and Building Act, which runs parallel to the marine spatial planning process. It is important that the scope for the national level is applied so that significant issues are not pushed further to the permit consideration stage at the project level and are only addressed at a detailed level where the overarching structures that cause environmental problems cannot be changed.

5. *Public interest*
   Comment for the marine spatial planning: During the consultation period, comments are welcome from all interested parties. Comments and the degree of expressed interest from the general public can influence the content and structure of the ongoing planning process.

Geographical scope

The geographical area covered by the marine spatial plans is presented in Figure 1. The environmental assessment shall describe the significant environmental effects that may arise as a result of the marine spatial plans, both within and outside the marine spatial plan areas. The link between the marine areas and the coastal zone is important from an environmental perspective. In addition, there will be a special investigation into significant transboundary environmental effects in relation to our neighbouring countries.

Time perspective

In the environmental assessment, the main focus should be on long-term sustainability and environmental effects. Short-term environmental effects will be included if they are expected to cause significant consequences in a larger context.

Methodological scope

The environmental assessment will be chiefly based on existing knowledge and implemented on an overall level as large marine areas are concerned. At the same time, it is important to address the spatial link and impact in a local/regional context. SwAM will be working with a method to analyse different sectors' impact on different marine areas and to assess this on the basis of the environmental values in the areas. The analysis lays a foundation for the future perspective on where various activities are most suitable.

Substantive scope

Chapter 6, Section 12, point 6 of the Environmental Code contains a list of various environmental aspects against which the plan's significant negative and positive environmental effects will be assessed.

The marine spatial planning is primarily assessed as potentially causing significant environmental effects related to following environmental aspects:

- biodiversity, fauna,flora
- human health
- water
- air
- soil
- climatic factors
- material assets (link to socio-economic analysis)
- landscape
- cultural heritage

SwAM assesses that it is not likely that significant effects will arise in relation to population and settlements.

In the environmental assessment, the interrelationship between the environmental aspects shall be described, such as indirect and cumulative effects, and whether these are permanent or temporary. Cumulative effects refer to additive, synergistic and antagonistic effects of concurrent disruptions.

The description of significant environmental effects for these environmental aspects will be grouped under the headings listed in the following table.

Table 1: Presentation of environmental aspects in the SEA-document

Presentation in the SEA-document	**Environmental aspects under Chapter 6, Section 12 of the Environmental Code**
Marine ecology	Biodiversity, wildlife, plant life
Water, air and climate	Water, air and climate
Geology	Soil/seabed
Cultural environment	Cultural heritage, landscape
Human well-being (with an ecosystem service perspective)	Human health, landscape
Other resource management	Material assets

Based on the proposed planning tobjectives, SwAM's view is that the environmental assessment should primarily focus on the environmental effects of shipping, fixed installations (such as offshore wind power, cables and pipelines), commercial fishing, sand/gravel extraction and military operations. The impact of other activities may, however, also be addressed if they are later assessed as having significant effects on the environment. See the table in the appendix.

Environmental quality objectives

The following environmental quality objectives are deemed most relevant for the marine spatial planning:

- A Balanced Marine Environment, Flourishing Coastal Areas and Archipelagos; represents the central thematic objective for the sea and coastal zone, contains specifications.
- A Rich Diversity of Plant and Animal Life; concerns marine plant and animal life, including birds and bats
- A Non-Toxic Environment; concerns the emission and dispersion of pollutants.
- Reduced Climate Impact; concerns emissions of greenhouse gases from e.g. shipping, and the conversion to renewable energy sources.
- Zero Eutrophication; concerns emissions of nitrogen compounds and phosphorus compounds into the air and water.

The Government has established ten milestone targets for biodiversity and ecosystem services. Of particular relevance is the goal to expand protection measures so that at least 10 per cent of Sweden's internal waters, territorial sea and exclusive economic zone are under formal protection by 2020. The preservation work should be pursued with ecologically representative and well-connected systems that include reserves, other effective area-based protective measures or environmentally adapted use. Achieving this milestone target requires current protective measures to be expanded to encompass at least a further 570,000 hectares.

The objective of “A Balanced Marine Environment and Sustainable Coastal Areas and Archipelagos” has been developed with eleven specifications of which the following are considered relevant for the marine spatial planning:

- Specification 1 – Good environmental status
  Coastal and marine waters have a good environmental status with regard to physical,
  chemical and biological conditions, in accordance with the Marine Environment Ordinance (2010:1341)/Marine Strategy Framework Directive.
- Specification 2 – Good ecological and chemical status
  Coastal water has at least a good ecological status or potential and a good chemical status, in accordance with the Water Management Ordinance (2004:660)/Water Framework Directive.

- Specification 3 – Ecosystem services
  The coasts' and the seas' important ecosystem services are maintained.
- Specification 4 – Shallow coastal areas
  Shallow coastal areas are characterised by rich biodiversity and a natural recruitment of fish, and they provide habitats and pathways for plant and animal species as part of a green infrastructure.
- Specification 5 – Favourable conservation status and genetic variation
  Habitat types and indigenous species linked to the coast and sea have favourable conservation status and sufficient genetic variation within and between populations, and naturally occurring fish species and other marine species thrive in viable populations.
- Specification 6 – Threatened species and restored habitats
  Threatened species have recovered and habitats have been restored in valuable coastal and marine waters.
- Specification 9 – Preserved natural and cultural heritage values
  The natural and cultural values of the marine, coastal and archipelago landscape are preserved and conditions exist for the continued preservation and development of these values.
- Specification 10 – Cultural heritage remains under water
  The condition is unchanged for cultural heritage remains under the water.
- Specification 11 – Outdoor recreation and noise
  The marine, coastal and archipelago landscape values for recreational fishing, bathing, boating and other outdoor activities are safeguarded and preserved and the impact from noise is minimised.

The follow specifications are assessed as having less relevance for the marine spatial planning:

- Specification 7 – Alien species and genotypes
  Alien species and genotypes do not threaten the biodiversity and cultural heritage.
- Specification 8 – Genetically modified organisms
  Genetically modified organisms that can threaten the biodiversity are not introduced. Justification: The marine spatial planning is considered to have limited opportunities to influence the introduction of genetically modified organisms.

The objective *A Rich Diversity of Plant and Animal Life* has been developed with specifications, some of which coincide with those mentioned above. However, there is a specification on green infrastructure not included in the specification of A Balanced Marine Environment, Flourishing Coastal Areas and Archipelagos:

- Specification – Green infrastructure
  There is a functional green infrastructure, which is maintained through a combination of protection, restoration and sustainable use within sectors so as to avoid the fragmentation of populations and habitats and preserve the biodiversity in the landscape.

The Marine Environment Ordinance/Marine Strategy Framework Directive

Good environmental status under the Marine Environment Ordinance is defined in SwAM's Regulation HVMFS 2012:18 under eleven areas (known as descriptors in the Marine Strategy Framework Directive).

It is assessed that significant environmental effects could primarily arise in relation to the following areas:

Descriptor 1 Biodiversity is preserved.

Descriptor 3 Commercial exploitation permits stocks of fish and shellfish to be within safe biological limits.

Descriptor 4 All elements of the marine food webs occur at normal abundance and their reproductive capacity is retained.

Descriptor 6 The seabed's characteristics are not adversely affected.

Descriptor 7 Human changes to the hydrographical conditions do not adversely affect ecosystems.

Descriptor 11 Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment.

It is assessed that certain environmental effects could arise in relation to the following areas:

Descriptor 2 Non-indigenous species do not adversely alter the ecosystems.

Descriptor 5 The negative effects of eutrophication are reduced to a minimum.

Descriptor 8 Contaminants are at a level not giving rise to pollution effects.

Descriptor 9 Contaminants in fish and other seafood for human consumption do not exceed established levels.

The following areas are not expected to be affected significantly by marine spatial planning:

Descriptor 10 Marine litter does not cause harm to the marine environment. Justification: Marine litter is a growing environmental problem that requires coordinated efforts. The programme of measures for the Marine Environment Ordinance will employ several measures to combat marine litter. However, marine spatial planning is deemed to have limited possibilities with regard to preventing the spread and negative impact of marine litter.

Environmental quality standards

Sweden applies a system of legally binding environmental quality standards (EQS) for achieving good environmental status (GES) in Swedish seas. According to the Environmental Code, authorities and municipalities shall be responsible for assuring compliance with environmental quality standards. Maintaining or achieving good environmental status in itself constitutes an environmental quality standard under Section 17 of the Marine Environment Ordinance.

Pursuant to Section 18 of the Marine Environment Ordinance, SwAM has established Regulations (HVMFS 2012:18) that outline what characterises good environmental status. Furthermore, pursuant to Section 19, SwAM has developed additional environmental quality standards and indicators. The table below presents the relevance of each environmental quality standard for the marine spatial planning in a three-grade scale: low, medium, high. Relevance has been assessed based on the marine spatial planning's potential to use guiding spatial plans to influence the ability to comply with the environmental quality standards (both negative and positive effects).

Table 2: Relevance of Environmental Quality Standards of marine spatial planning

Environmental quality standards Marine Environment Ordinance **Link EQS Descriptors**	**Environmental quality standards Marine Environment Ordinance** **EQS descriptions**	**Relevance of marine spatial planning**
A. Introduction of nutrients and organic material Contributes to GES for: D5. Eutrophication D1. Biodiversity D4. Marine food webs D6. Sea-floor integrity	A1. EQS Concentrations of nitrogen and phosphorus in the marine environment caused by the introduction of nutrients from human activities do not negatively impact biodiversity and ecosystems.	**Medium relevance** since loads from the introduction of nutritive salts are often linked to activities on land. However, in some areas ocean-based aquaculture contributes to significant emissions, which is why potential load in the marine spatial plan area should be addressed in the marine spatial planning and included in the environmental assessment. Nitrogen is also released into the water from passing vessels.
B. Introduction of hazardous substances Contributes to GES for: D8. Contaminants D1. Biodiversity D4. Marine food webs D6. Sea-floor integrity	B.1 EQS. Concentrations of hazardous substances in the marine environment shall not exceed the values set out in Directive 2008/105/EC on environmental quality standards in the field of water policy. B.2 EQS. Hazardous substances in the marine environment that are introduced through human activities must not negatively impact biodiversity and ecosystems.	**Medium relevance** since loads from hazardous substances are often linked to activities on land. However, issues regarding emissions and the risk of emissions in the marine spatial plan area should be addressed in the marine spatial planning and included in the environmental assessment.
C. Biological disturbance Contributes to GES for: D2. Non-indigenous species D1. Biodiversity	C.1 EQS. The marine environment shall be free from newly released or relocated non-indigenous species and strains, or genetically modified organisms (GMOs) or organisms whose genetic characteristics have been changed in another way, that risk seriously threatening the genetic and biological diversity and ecosystem function. C.2 EQS. The marine environment shall, as far as possible, be free from new non-indigenous species spread through shipping.	**Medium relevance** since marine spatial planning can create conditions for changes in the seabed substrate (fixed installations) which can impact the spread of non-indigenous species. In time, aquaculture in the open sea may come to be significant. At the same time, there is established international cooperation regarding the management of ballast water in order to minimise the risk of spreading non-indigenous species. International collaboration with the intent of implementing the Ballast Water Management Convention has been developed. Work is carried out jointly between HELCOM and OSPAR, and the marine spatial planning has not been deemed to be the most appropriate tool to develop regulations on non-indigenous species. However, such regulations may need to be taken into account in the marine spatial planning.

	C.3 EQS. The populations of all indigenous species of fish and shellfish that are affected by fishing have an age and size structure and stock size that ensure their long-term sustainability.	**Medium relevance** since the marine spatial planning and spatial cross-sectoral instruments have the potential to include the impact of fishing, while the connection to existing fisheries management must be clarified.
	C4. EQS. The existence, species composition and size distribution of the fish community shall enable the maintenance of important functions in the food web. (HVMFS 2012:29).	
D. Physical disturbance Contributes to GES for: D6. Sea-floor integrity D1. Biodiversity	D1. EQS. The seabed area that is undisturbed by human activity shall, per substrate type, provide conditions to maintain the seabeds' structure and function in the North Sea and the Baltic Sea. D2. EQS. The area of biogenic substrates shall be maintained or increased.	**High relevance** since marine spatial planning shall guide the location of activities and therefore, for example, can steer potentially damaging activities away from sensitive seabed habitats.
	D3. EQS. Permanent changes in hydrographic conditions due to large-scale activities, individual or collaborative, must not adversely impact biodiversity and ecosystems.	**High relevance** since marine spatial planning shall guide the location of activities and therefore, for example, can steer away activities with a potentially negative impact on hydrographic conditions, in cases where such impact may be negative for biodiversity and ecosystems.
	D4. EQS. The marine environment shall, to the extent possible, be free of waste.	**Low relevance** since marine spatial planning is not deemed capable of impacting the sources of marine litter to any significant extent. These are often found on land, but sea-related activities such as fishing give rise to litter such as ghost nets and the loss of other equipment.

Ecosystem services

SwAM will use ecosystem service analyses, including a description and assessment of effects on ecosystem services, both in the environmental assessment and in the socio-economic impact analyses. In the environmental assessment, an ecosystem service perspective will also be included in the assessment of the impact on human well-being.

All ecosystem services are relevant to marine spatial planning. The ecosystem services highlighted below are, however, judged to be especially relevant from a marine spatial planning perspective:

- Supportive: **biogeochemical cycles, primary production, food web dynamics, biodiversity, habitat** and resilience.
- Regulatory: climate regulation, **sediment preservation,** reduced eutrophication, **biological purification** and the regulation of pollutants.
- Provisioning**: food, raw materials**, genetic resources, chemicals, ornamentation and **energy.**
- Cultural: **recreation**, aesthetic values, science and education, **cultural heritage**, inspiration and natural heritage.

Alternative scope

According to Chapter 6, Section 12, first paragraph of the Environmental Code, the SEA shall identify, describe and assess reasonable alternatives, taking into account the purpose and geographical scope of the plan or programme. After the plan or programme has been adopted, the reasons why the plan or programme has been adopted, instead of the considered alternatives, shall be presented (Chapter 6, Sections 12 and 16 of the Environmental Code) in a separate compilation.

"Reasonable alternatives" refers to various alternative ways to achieve the objectives of the plan or programme (Govt. Bill 2003/04:116). In the initial phase of the marine spatial planning, various sector perspectives will be described as spatial claims/alternatives. In the coordination of these claims, there may be a need to account for additional alternatives. The marine spatial planning shall also include documentation of the main choices in order to contribute to transparency in the planning process. The analytical method applied in the environmental assessment will also contribute to transparency and a justification of trade-offs between environmental and sectoral interests.

Zero alternative

Aside from at least one investigative alternative, a so-called zero alternative is to be presented. The zero alternative shall describe the environmental conditions and the environment's likely development if the plan, programme or amendment is not implemented (Chapter 6, Section 12, second paragraph of the Environmental Code). In the marine spatial planning, 2050 will represent a horizon year for the planning. In a shorter-term perspective, the marine spatial planning will also relate to 2035 as a reference year. 2020 is also relevant for the marine spatial planning as, among other things, the environmental quality objectives relate to this year. The zero alternative is described for the horizon year 2050 and has been developed in coordination with the work for the action programmes in accordance with the Marine Environment Ordinance.
Scenarios for different sectors' development by 2050 have been developed and an assessment of their load in relation to the EQS has been conducted.

Appendix

Environmental effects of maritime activities

The table describes an assessment of the potential impact/pressure caused by different sectors and activities in relation to relevant environmental aspects. An x marks where there is deemed to be a potential impact (e.g. physical loss) on the environmental aspect (e.g. biodiversity). The actual impact depends on the local context, and the presence of marine environmental values in most cases influences how significant an impact/pressure is.

Table: Environmental effects of maritime activities

Sector/activity theme	Activity	Type of potential impact/pressure	Theme areas/descriptors according to the Marine Strategy Framework Directive*	Environmental quality objectives**	Biodiversity, fauna, flora	Water, air and climate	Soil/seabed	Cultural heritage, landscape	Human health, landscape	Material assets
Renewable energy	Wind power	Physical loss, biological disturbance, underwater noise	D1, D6, D11	BMEF-CA, RCI, RDPA	X	X	X		X	X
	Wave power	Physical loss, physical disturbance, underwater noise	D1, D6, D7, D11	BMEF-CA, RCI, RDPA	X	X	X			
Extraction	Sand, gravel, shell	Physical loss, physical disturbance	D1, D6, D7	BMEF-CA, RDPA	X	X	X			X
Fishing	Benthic trawling (bottom trawling)	Selective extraction of species, physical damage (seabed)	D1, D3, D4, D6	BMEF-CA, RDPA	X	X	X	X		
	Pelagic trawling (trawling in the open water)	Selective extraction of species	D1, D3, D4	BMEF-CA, RDPA	X	X		X		
	Other fishing	Selective extraction of species, marine litter (ghost nets)	D1, D3, D4, D10	BMEF-CA, RDPA	X					
Shipping	Maritime transport	Underwater noise, introduction of pollutants and organic material, introduction and relocation of non-indigenous species	D1, D2, D5, D8, D11	BMEF-CA, RDPA, NAO, RCI,	X	X			X	X

				ZE, NE						
	Dredging	Physical damage	D1, D6, D7	BMEF-CA, RDPA	X	X	X	X		
	Disposal of dredging spoils	Physical damage	D1, D6, D7	BMEF-CA, RDPA	X	X	X	X		
Linear infrastructure Pipelines/cables	Pipelines/cables	Physical damage (seabed), electromagnetic fields	D6, D11	BMEF-CA, RDPA	X	X	X	X		X
Recreation and tourism	Recreational fishing	Selective extraction of species, marine litter	D1, D10	BMEF-CA, RDPA	X					
	Cruise traffic	Air emissions of acidifying substances, introduction of nutrients, underwater noise, introduction of pollutants, introduction and relocation of non-indigenous species	D1, D2, D5, D8, D11	BMEF-CA, RDPA, NAO RCI, ZE, NE	X	X				
	Ferry traffic	Air emissions of acidifying substances, underwater noise, introduction of pollutants	D1, D2, D5, D8, D11	BMEF-CA, RDPA, NAO RCI, NE	X	X			X	
Defence operations	Artillery range/exercise grounds	Underwater noise and impact on aquatic environments	D1, D8, D10, D11	BMEF-CA, RDPA NE	X	X			X	
	Dumped munitions (existing)	Introduction of hazardous substances,	D1, D8	NE BMEF-CA, RDPA		X			X	

**Theme areas/descriptors according to the Marine Strategy Framework Directive*

D*1. Biodiversity*
D2. Non-indigenous species
D3. Commercial fish and shellfish
D4. Marine food webs
D5. Eutrophication
D6. Sea-floor integrity
D7. Hydrographical conditions
D8. Contaminants
D9. Contaminants in seafood
D10. Marine litter
D11. Introduction of energy

***Abbreviated environmental quality objectives:*

BMEFCA - A Balanced Marine Environment, Flourishing Coastal Areas and Archipelagos
RCI- Reduced Climate Impact
NAO- Natural Acidification Only
RDPA - A Rich Diversity of Plant and Animal Life
ZE - Zero Eutrophication
NE - A Non-Toxic Environment

The table's starting point has been the proposed objectives where the marine spatial planning aims to “Create conditions for” the development and not the lower priority level “Establish preparedness for”. This means, for example, that aquaculture is not included in the table. In the event that the issue of aquaculture in the open sea arises during the planning process, the environmental assessment will also address its environmental effects.