

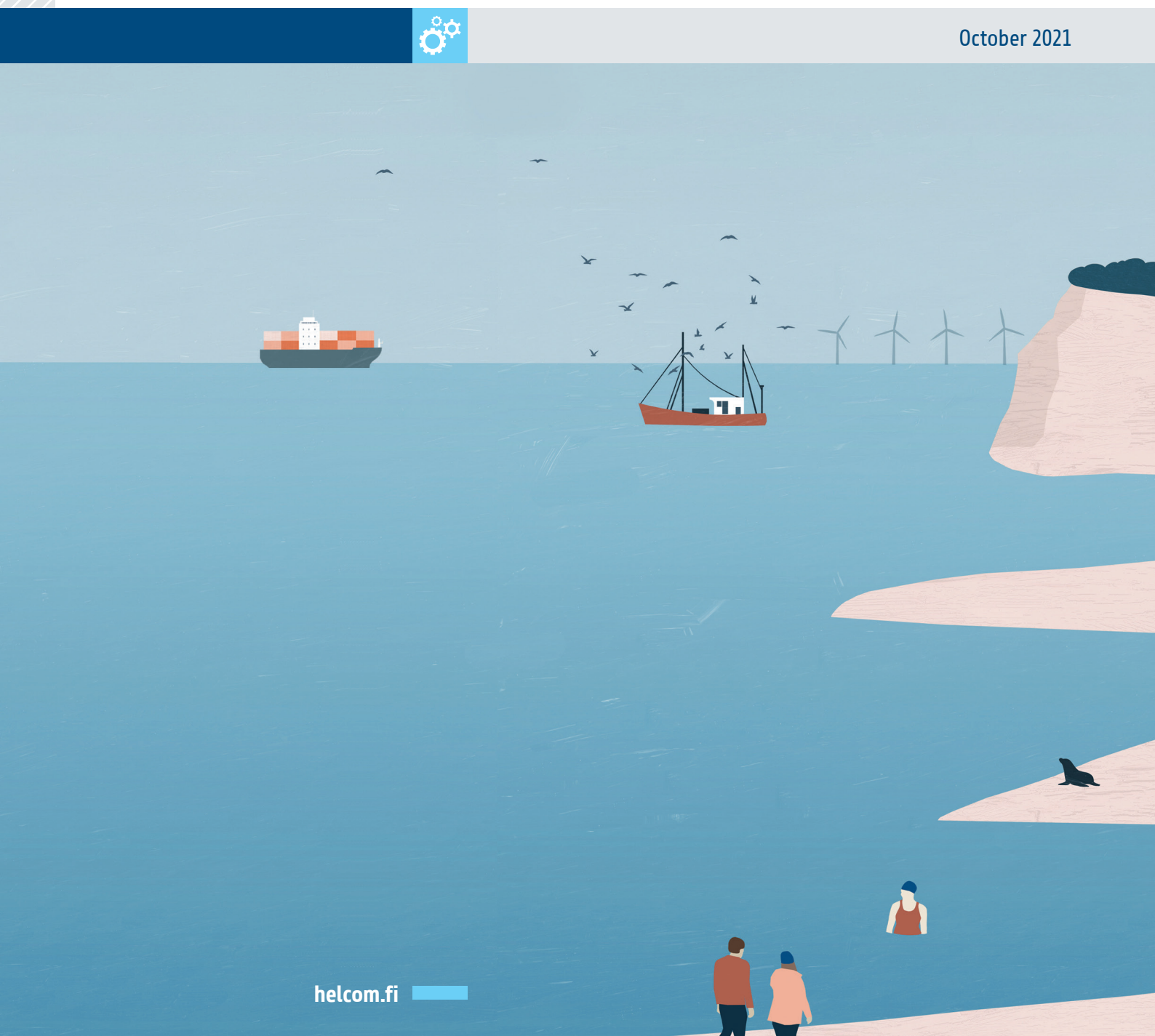


Baltic Sea Action Plan

2021 update

Baltic Marine Environment
Protection Commission

October 2021





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Preamble

1. The Commission, represented by:

- the Minister of the Environment of the Kingdom of Denmark,
- the Deputy Secretary General, Ministry of the Environment of the Republic of Estonia,
- the Minister of the Environment and Climate Change of the Republic of Finland,
- the State Secretary, Ministry for the Environment, Nature Conservation and Nuclear Safety of the Federal Republic of Germany,
- the Minister of Environmental Protection and Regional Development of the Republic of Latvia,
- the Minister of Environment of the Republic of Lithuania,
- the Deputy Minister of Infrastructure of the Republic of Poland,
- the Deputy Minister for Natural Resources and Environment of the Russian Federation,
- the Ambassador for the Ocean, Ministry for Foreign Affairs of the Kingdom of Sweden,
- and by the Commissioner of Environment, Oceans and Fisheries of the European Commission,

2. **RECALLS** the provisions of the 1992 Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki Convention);
3. **REITERATES** the commitment of the Contracting Parties to the Helsinki Convention to restoring a thriving and resilient Baltic Sea ecosystem, as expressed in the HELCOM vision of “a healthy Baltic Sea environment, with diverse biological components functioning in balance, resulting in good environmental status and supporting a wide range of sustainable human economic and social activities”;
4. **ACKNOWLEDGES** that the work of HELCOM has led to significant environmental improvements in many areas and, specifically, that progress in implementing the 2007 Baltic Sea Action Plan has contributed to preventing further deterioration of the environment of the Baltic Sea;
5. **APPRECIATES** that HELCOM policy and work are guided by the ecosystem approach and that the Baltic Sea Action Plan is a practical reflection of that approach;
6. **NOTES** with great concern, however, that the goals of the 2007 Baltic Sea Action Plan were not achieved by 2021 as envisioned, and that the Baltic Sea is still heavily affected by multiple pressures caused by human activities;
7. **NOTES**, in particular, that: (a) eutrophication continues to significantly impact the Baltic Sea; (b) levels of hazardous substances are still elevated or unknown and a cause for concern; (c) invasive alien species are still being introduced into the Baltic Sea; (d) marine litter is a pressure of special concern; (e) around half of the sea-bed is potentially disturbed by human activity; (f) other pressures such as underwater noise disturb marine life; (g) overall the unfavourable conservation status of Baltic marine biodiversity results from human activities and is

widespread, with several species still in danger of becoming extinct, a poor status of most of the assessed habitats and various biotopes and habitats at risk of disappearing, as well as food webs showing signs of deterioration;

8. **REITERATES**, moreover, that the effects of climate change on the Baltic Sea are already evident and that climate change will continue to have an increasingly significant impact on the Baltic Sea ecosystem, necessitating even more stringent action, inter alia in the global framework established by the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement;
9. **EMPHASIZES** the need for continued research and adaptive management to mitigate the effects and strengthen the resilience of the Baltic Sea to climate change by reducing other human pressures on the ecosystems and also **UNDERScores** the need to further adapt HELCOM’s policies and Recommendations to take into account the effects of climate change;
10. **SUPPORTS** a HELCOM process to compile all climate mitigation and adaptation measures resulting from the Baltic Sea Action Plan that contribute to the Paris Agreement, for publication on the UNFCCC Global Climate Action (NAZCA) portal and the HELCOM homepage in 2024 and thereafter updated every five years as part of the contribution to the Paris Agreement;
11. **UNDERScores** the need to continue to strive for good environmental status since the current state of the Baltic Sea marine environment remains unsatisfactory as a result of pressures from land- and sea-based human activities and that recovery is not yet sufficient to achieve the goals of the Baltic Sea Action Plan;
12. **STRESSES** the continued need to safeguard the safety of navigation with a view to preventing accidents and thereby also minimize the risk of accidental pollution from ships;
13. **RECALLS** the decision by the 2018 Brussels Ministerial Meeting to update the Baltic Sea Action Plan by 2021 at the latest, with the aim of elaborating a robust action plan that will retain at least the level of ambition of the 2007 plan and will address new issues in addition to the existing commitments to be fulfilled by 2021 and will be aimed at achieving the agreed HELCOM vision of a healthy Baltic Sea marine environment;
14. **RECALLS** also the Declaration adopted by the Ministers of the Environment, Maritime Economy, Agriculture and Fisheries of the Baltic Sea Member States of the EU and of the Commissioner for Environment, Oceans and Fisheries on September 28, 2020, committing to jointly boosting efforts to achieve a good environmental status of the Baltic Sea;
15. **AFFIRMS** that, in order to address all relevant aspects of the ecosystem and the emerging challenges of marine management, the goals underpinning the updated Baltic Sea Action Plan are a “Baltic Sea unaffected by eutrophication”, a “Baltic Sea unaffected by hazardous substances and litter”, supporting “environmentally-sustainable sea-based activities”, all of which will lead to that the “Baltic Sea ecosystem is healthy and resilient”;
16. **ACKNOWLEDGES** the significant cost implications of not taking action against the varied threats to the Baltic Sea ecosystem

and **NOTES**, for example, that according to the most recent “State of the Baltic Sea” report losses in recreational values alone due to the deterioration of the marine environment are estimated at 1-2 billion euros annually and that a significant amelioration of the undesirable status regarding eutrophication is estimated to result in annual economic benefits in the order of 4 billion euros across all relevant sectors of the economy;

17. **UNDERScores**, the socio-economic benefits of good environmental status of the Baltic Sea and therefore the need to implement the measures and actions contained in the Baltic Sea Action Plan with a view to achieving good environmental status;
18. **STRESSES** that the achievement of good environmental status for the Baltic Sea will require major efforts and transformational change in all sectors of the economy affecting the sea, including agriculture, aquaculture, fisheries, wind energy production, tourism, logistics, maritime transportation and manufacturing, and that it necessitates, among other things, an increase in efficiency in the use of resources and a transition to a clean and sustainable circular economy and carbon neutrality;
19. **UNDERScores** the need to integrate environmental objectives with socio-economic goals in order to advance sustainable development and **STRESSES** the need for coherent spatial planning of human activities at sea across the region, applying the ecosystem-based approach;
20. **STRESSES** the continued need for strong regional and cross-sectoral cooperation in working towards achieving good environmental status, involving relevant international, European and national organizations, public financing institutions, scientific and research institutions, civil society and the private sector, including banks and insurance companies;
21. **ACKNOWLEDGES** the positive contributions made by intergovernmental organisations and non-governmental organisations towards preserving and protecting the Baltic Sea and working towards a prudent utilisation of its marine goods and services;
22. **NOTES** with gratification that the updated Baltic Sea Action Plan was developed in a participatory and transparent way, involving all appropriate stakeholders;
23. **WELCOMES** that the updated Baltic Sea Action Plan is based on the precautionary principle and relevant scientific research; enables knowledge sharing between science and policy across all levels and gives due consideration to economic and social impacts of the measures that need to be taken to meet its objectives;
24. **REITERATES** the determination of HELCOM Contracting Parties to implement the 2030 Agenda for Sustainable Development as well as the post-2020 Global Biodiversity Framework adopted under the Convention on Biodiversity and to engage with other relevant regional and global processes and **STRESSES** the role of HELCOM in leading the regional efforts to this effect and as an important and recognized contributor in the context of international ocean governance;
25. **REITERATES** the need to coordinate and harmonize the work in the context of the Baltic Sea Action Plan with various political

instruments and ongoing initiatives at the international, European, regional and national levels, including in particular the EU Marine Strategy Framework Directive and the European Green Deal and all other pertinent EU legislation and programmes, as well as all pertinent legislation and policies of the Russian Federation, such as the Maritime Doctrine and the Strategy for Development of Maritime Activities until 2030 of the Russian Federation;

26. **REAFFIRMS** that the implementation of the actions in the updated Baltic Sea Action Plan will be kept track of regularly and the effectiveness of measures will be evaluated by using appropriate indicators to demonstrate progress towards the targets and to adjust measures if needed to achieve the objectives;
27. **ACKNOWLEDGES** that the environmental targets in the various segments of the present Baltic Sea Action Plan are based on best available knowledge at the time of elaboration and that, in line with the principles of adaptive management, the targets should be periodically reviewed and revised using a harmonised approach and the most up-to-date information;
28. **AGREES** on the amendment of Annex III part II Prevention of pollution from Agriculture of the Convention and to this end adopts HELCOM Recommendation 42-43/2;
29. **ACKNOWLEDGES** that, if deemed necessary, the contents of all Annexes to the Convention, including Annex III, should be kept under review in line with provisions of the Convention using the best available scientific knowledge and the most up-to-date information;
30. **AGREES** on the update of the Regional Action Plan on Marine Litter and to this end adopts HELCOM Recommendation 42-43/3;
31. **AGREES** to adopt the following documents:
 - the Baltic Sea Regional Nutrient Recycling Strategy;
 - the Regional Maritime Spatial Planning Roadmap 2021-2030;
 - the HELCOM Science Agenda;
 - the HELCOM Guidelines for sea-based measures to manage internal nutrient reserves;
32. **STRESSES** the continued validity of existing HELCOM Recommendations also after adoption of the present Baltic Sea Action Plan;
33. **AGREES** to implement all actions and commitments in the updated Baltic Sea Action Plan by the dates specified in the plan, with a view to finalizing implementation of the Baltic Sea Action Plan as a whole by 2030 at the latest;
34. **WITHOUT PREJUDICE TO**, and seeking synergies with, national legislation, international agreements and the legislation of the European Union, as well as the legislation of the Russian Federation;
35. **ADOPTS THE FOLLOWING UPDATED BALTIC SEA ACTION PLAN, AIMED AT ACHIEVING GOOD ENVIRONMENTAL STATUS IN THE BALTIC SEA.**

Lübeck, Germany, 20 October 2021

About



The Baltic Sea Action Plan (BSAP) is HELCOM's strategic programme of measures and actions for achieving good environmental status of the sea, ultimately leading to a Baltic Sea in a healthy state.

Initially adopted by the HELCOM Contracting Parties – the nine Baltic Sea countries plus the European Union – during the HELCOM Ministerial Meeting held in Krakow, Poland on 15 November 2007, the original BSAP had set 2021 as the target year for achieving good ecological status of the sea. However, the results of the State of the Baltic Sea report, covering the years from 2011 to 2016, indicated already in 2018 that this target would not be met.

The updated BSAP is based on the original BSAP and maintains the same level of ambition. It also retains all actions previously agreed on that are still to be implemented and includes, in addition, new actions to strengthen the existing efforts and tackle emerging concerns.

Guided by the HELCOM vision of “a healthy Baltic Sea environment with diverse biological components functioning in balance, resulting in a good ecological status and supporting a wide range of sustainable economic and social activities”, the updated BSAP is divided into four segments with specific goals (Figure 1):

- **Biodiversity**, with its goal of a “Baltic Sea ecosystem is healthy and resilient”;
- **Eutrophication**, with its goal of a “Baltic Sea unaffected by eutrophication”
- **Hazardous substances and litter**, with its goal of a “Baltic Sea unaffected by hazardous substances and litter”, and
- **Sea-based activities**, with its goal of “Environmentally sustainable sea-based activities”.

Each of the four segments is structured around the updated HELCOM ecological and management objectives and contains concrete measures and actions to be implemented by 2030 at the latest.

The division of the segments seeks to reflect the pressures stemming from land (“Eutrophication”, and “Hazardous substances and litter”) and from the activities at sea (“Sea-based activities”), as well as the state of the environment (“Biodiversity”).

These segments are interconnected: attaining the goal under the biodiversity segment also relies on the successful implementation of the actions included under the other three segments.

In addition, the section on horizontal topics addresses cross-cutting issues including climate change, monitoring, maritime spatial planning, economic and social analysis, knowledge exchange and awareness raising, hot spots, and financing.

Furthermore, measures within all segments are designed to strengthen the overall resilience of the Baltic Sea, consequently improving its ability to respond to the effects of climate change.

Implementation of the BSAP

The implementation of the actions in the updated BSAP will be tracked through the HELCOM Explorer online tool. The first reporting on the implementation of actions will take place in 2025 and the second reporting in 2029. The HELCOM Explorer also includes information as to which actions contribute to achieving which management objective.

To monitor the change in the state of the marine environment and to measure progress towards the goals, objectives and targets under the BSAP, HELCOM will continue to conduct regular monitoring and assessments.

HELCOM Ministerial Meetings serve to review the progress of implementing the BSAP actions and reaching the goals, objectives and targets under the BSAP. In addition, the Ministerial Declarations, stemming from the Ministerial Meetings, may complement the BSAP actions to ensure that the implementation of the BSAP remains up-to-date and relevant throughout its lifespan.

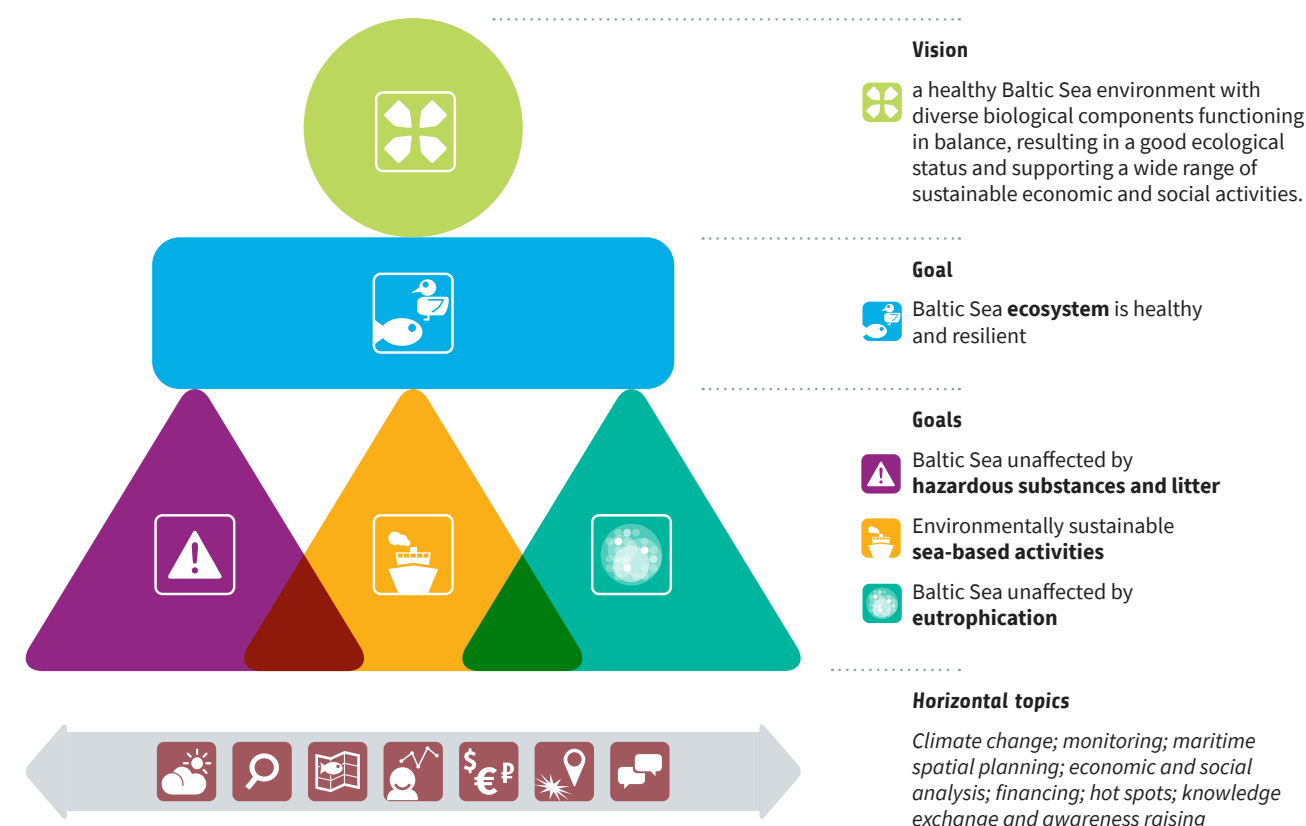


Figure 1: The structure of the updated BSAP including its vision and goals

How to read the BSAP?

Each segment includes a text box with the following information:

Effects of climate change – Each of the four segments includes a figure which depicts physicochemical parameters that are directly affected by climate change. The changes in these parameters in turn impact the themes and topics covered by the segment. More information on the parameters and the impacts of climate change on the Baltic Sea ecosystem and society is available in the “Climate Change in the Baltic Sea 2021 Fact Sheet”.

United Nations Sustainable Development Goal (SDG) targets addressed – Each segment contains a list of the SDG targets that are relevant for the themes and topics covered by the segment.

Pressures addressed – The main pressures addressed by the BSAP actions are visualized under each segment (Figure 2).

Activities addressed – The main human activities causing pressures or directly affecting the state of the Baltic Sea addressed by the BSAP actions are visualized under each segment (Figure 2).

Objectives

Ecological objectives reflect the desired state of the environment in broad terms.

Management objectives describe the desired change in pressure or conservation status as a result of actions and measures.

Progress towards reaching the objectives will be monitored by the HELCOM indicators and assessments or pressure targets where available.

Actions

Code - All actions in the BSAP are coded to ease referencing to the actions.

Cross-reference to actions in other segments - Actions that are linked have been cross-referenced across the segments, with each action displaying the codes of the ones it is relevant to, if applicable.

Additional information on actions can be found in a separate supporting document. Some of the actions are existing HELCOM commitments originating from the 2007 BSAP or subsequent Ministerial Declarations. The HELCOM Explorer provides information on the origin of the actions.

References

The information presented is based on HELCOM assessments and reports which are listed at the end of this document.

Main pressures

-  Species disturbance
-  Extraction and by-catch of fish
-  Physical disturbance to seabed
-  By-catch of mammals and birds
-  Physical loss of seabed
-  Targeted extraction, mortality or injury of birds and mammals
-  Input of nutrients
-  Input of hazardous substances
-  Input of litter
-  Input of anthropogenic noise
-  Input or spread of non-indigenous species

Main activities

-  Fish and shellfish harvesting
-  Transport – shipping
-  Tourism and leisure activities
-  Hunting and population control
-  Offshore structures
-  Extraction of oil and gas
-  Marine and coastal construction
-  Restructuring of seabed morphology
-  Extraction of minerals
-  Agriculture
-  Waste waters
-  Transport – land
-  Aquaculture
-  Solid waste
-  Transport infrastructure – shipping
-  Historical munitions and haz. submerged objects
-  Piling and explosions for civilian purposes

Figure 2: Main pressures (left column) and activities (right column) addressed by the Baltic Sea Action Plan

Policies and legislation of the European Union supporting the implementation of the Baltic Sea Action Plan

The objectives and actions of the BSAP are in line with the main European policies and in particular the European Green Deal, which includes notably the EU Biodiversity Strategy, the EU Farm to Fork Strategy, the Zero Pollution Action Plan, the EU Offshore energy strategy, the Circular Economy Action Plan and the EU Sustainable and Smart Mobility package.

More concretely, the main supporting tool is the Marine Strategy Framework Directive (MSFD) in which Regional cooperation is recognized and encouraged. Similarly to the Helsinki Convention and the BSAP, the MSFD is based on an integrated approach based on ecosystems with the aim to reach the ‘Good Environmental Status’ of the marine waters. The other EU legislation supporting the implementation of the BSAP are listed below:

- Water Framework Directive
- Nitrates Directive
- Urban Wastewater Directive
- Industrial Emissions Directive
- Single Use Plastic Directive
- Birds and Habitats Directives
- Action Plan of the EU Strategy for the Baltic Sea Region
- Maritime Spatial Planning Directive
- Waste Framework Directive
- Directive on port reception facility
- Sulphur directive
- Common Fisheries Policy
- Common Agriculture Policy

Policies and legislation of the Russian Federation supporting the implementation of the Baltic Sea Action Plan

The Russian legislation complies with the international commitments and follows common strategies, including the BSAP. This is a significant element of fundamental documents of the Russian Federation. These include the Federal Law on Environment Protection, the Water Code, Basis of State Policy in the Field of Environmental Development of the Russian Federation for the period up to 2030 and the Strategy for the Development of Maritime Activities of the Russian Federation until 2030.

More concretely, key Russian laws and legislative documents which include statements for supporting actions of BSAP implementation are listed below:

- Federal Law on Environment Protection
- Federal Law on Ecological Examination. Requirements to Materials of Environmental Impact Assessment
- Federal Law on Wastes of Production and Consumption
- Federal Law on Fisheries and Conservation of Aquatic Biological Resources Federal Law on Air Protection
- Federal Law on Limiting Greenhouse Gas Emissions
- Federal Law on Nature Protected Areas
- Federal Law on Internal Waters, Territorial Sea and Contiguous Zone of the Russian Federation
- Federal Law on Continental Shelf of the Russian Federation
- Federal Law on Subsoil (mineral resources) Exploitation
- Water Code of the Russian Federation
- Forest Code of the Russian Federation
- Strategy on Ecological Safety of the Russian Federation until 2025
- Basis of State Policy in the Field of Environmental Development in Russia for the period up to 2030
- Water Strategy until 2020
- Strategy for the Conservation of Rare and Endangered Species of Animals, Plants and Fungi up to 2030
- Strategy for the Development of Maritime Activities of the Russian Federation until 2030
- Industrial Development Strategy for Processing, Recycling and Neutralization of Production and Consumption Wastes until 2030
- Strategy for the Development of the Fisheries Complex of the Russian Federation for the period up to 2030
- Climate Doctrine of the Russian Federation



Biodiversity



Biodiversity
goal

*“Baltic Sea ecosystem is
healthy and resilient”*



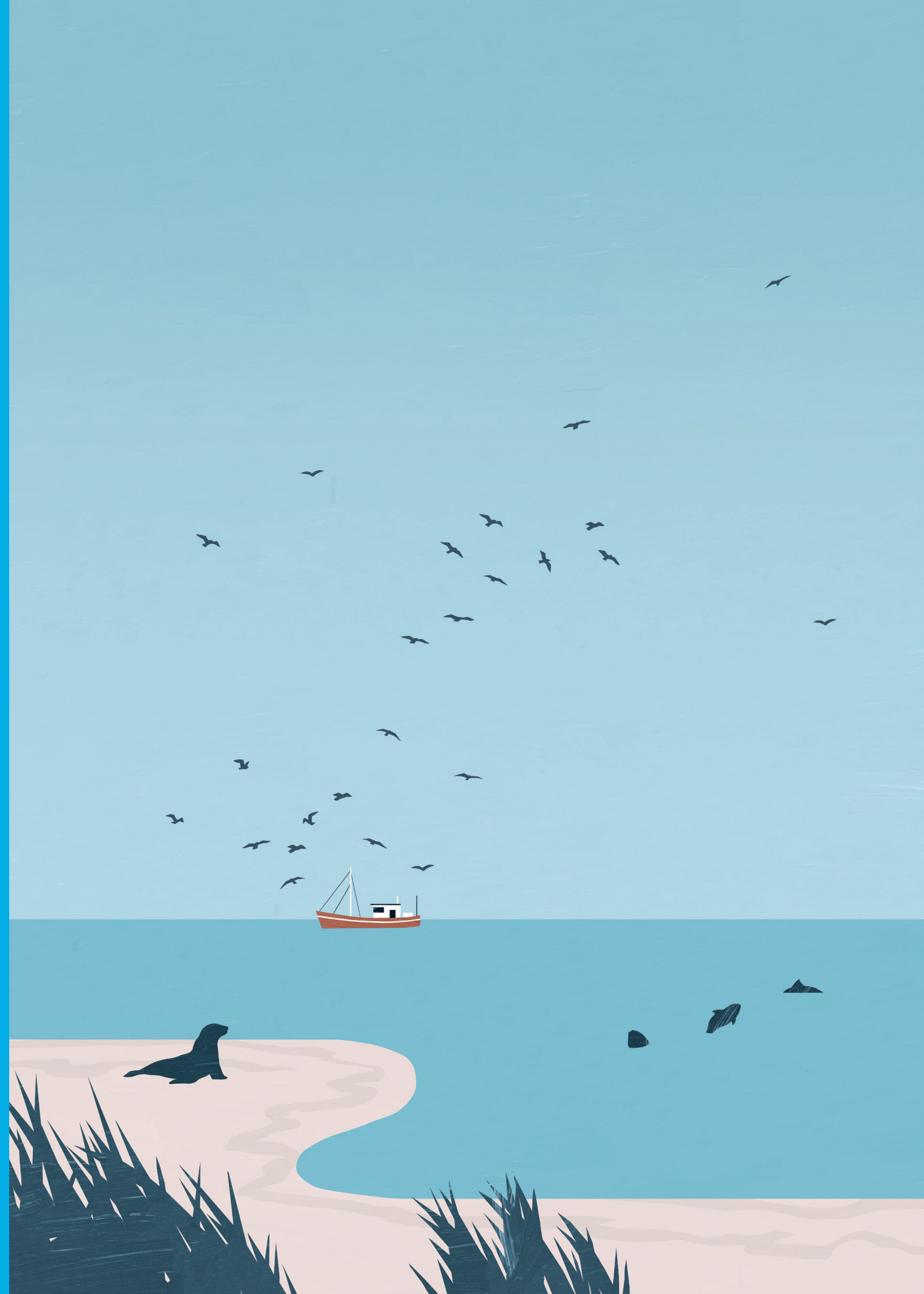
Ecological
objectives

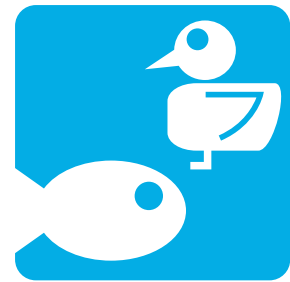
- Viable populations of all native species
- Natural distribution, occurrence and quality of habitats and associated communities
- Functional, healthy and resilient food webs



Management
objectives

- Effectively managed and ecologically coherent network of marine protected areas
- Minimize disturbance of species, their habitats and migration routes from human activities
- Human induced mortality, including hunting, fishing, and incidental bycatch, does not threaten the viability of marine life
- Effective and coordinated conservation plans and measures for threatened species, habitats, biotopes, and biotope complexes
- Reduce or prevent human pressures that lead to imbalance in the foodweb





Biodiversity segment

The Baltic Sea ecosystem is healthy and resilient

Current state

Biodiversity in the Baltic Sea is deteriorating as a result of pressures from various human activities, the effects of which are further exacerbated by climate change. Most species of fish, birds and marine mammals as well as benthic and pelagic habitats in the Baltic Sea are currently not in a healthy state. Almost 100 macro-species (species visible to the naked eye) in the Baltic Sea – approximately 3.5 percent of all Baltic Sea macro-species – are regarded as being in danger of becoming regionally extinct, and signs of deterioration at the food web and ecosystem levels are becoming more widespread and frequent. An incremental degradation of various near-shore habitats, which are important to most Baltic Sea species during at least some part of the life cycle, and the wide distribution of areas with low oxygen conditions close to the seabed are of particular concern. The impacts on biodiversity also limit the potential socioeconomic benefits we can derive from the Baltic Sea ecosystem.

Many widely distributed or long-lasting pressures have far-reaching impacts on both individual species and ecosystems. Although recently implemented measures may lead to an improvement in the coming years, continued and intensified efforts to improve the status of biodiversity are of key importance. All actions targeting sea-based activities (including fishing), eutrophication, and hazardous substances and litter are critical for improving the state of biodiversity in the Baltic Sea. Given the increasing overall pressures and legacy effects of many human activities affecting the Baltic Sea, many species and habitats are in urgent need of protection, and enhanced conservation actions are necessary alongside the reduction of pressures. In this

regard, a central overarching aspect is applying the ecosystem approach to the management of these multiple pressures and their cumulative impact.

Desired state

The ultimate goal of the Baltic Sea Action Plan (BSAP) with respect to biodiversity and ecosystems is that the Baltic Sea ecosystem is healthy and resilient. This is supported by ecosystem-based management of human activities. This is described through the mutually supportive and interlinked ecological objectives of attaining:

- Viable populations of all native species;
- Natural distribution, occurrence and quality of habitats and associated communities;
- Functional, healthy and resilient food webs.

A healthy and resilient ecosystem is one which can maintain its species and communities over time, despite external stress. This includes populations with age and spatial distributions corresponding to their natural limits, and key ecosystem functions and processes that are naturally upheld, in an interacting network of species and habitats. A prerequisite to securing the vitality and long-term survival of species and populations is ensuring an adequate quality, distribution and occurrence of natural habitats that are able to support the communities they host. Each of these key elements strengthen the functionality, health and resilience of the food webs, ultimately safeguarding the integrity and long-term sustainability of the ecosystem as a whole.

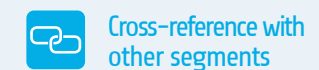


“Baltic Sea ecosystem is healthy and resilient”



- **14.2** By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans
- **14.5** By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information

Further information on connection to other treaties related to biodiversity can be found on page 17.



- A healthy and resilient Baltic Sea ecosystem is the ultimate objective of the Baltic Sea Action Plan against which its entire performance is measured;
- Achieving the goal of a “Baltic Sea ecosystem is healthy and resilient” requires that the goals of all other segments are met.

Reaching the desired state: management objectives

In order to reach the desired state, the following management objectives have been identified for biodiversity:

- Effectively managed and ecologically coherent network of marine protected areas;
- Minimize disturbance of species, their habitats and migration routes from human activities;
- Human induced mortality, including hunting, fishing, and incidental by-catch, does not threaten the viability of marine life;
- Effective and coordinated conservation plans and measures for threatened species, habitats, biotopes, and biotope complexes;
- Reduce or prevent human pressures that lead to imbalance in the food web.

The management objectives of the biodiversity segment target both conservation and restoration. Restored and properly protected marine ecosystems bring substantial health, social and

economic benefits to coastal communities and the region as a whole. However, achieving the goal and objectives under the biodiversity segment requires management of human activities and the resulting pressures. Thus, an achievement of the goals and objectives of the biodiversity segment is strongly linked to the successful implementation of actions under all other segments.

Ecosystem-based and adaptive management, with their integrated perspective to the management of human activities, are therefore important approaches to ensure successful outcomes of the commitments under the biodiversity segment. Towards this end, HELCOM will, throughout the implementation of the BSAP, strive to specify how it can contribute to the operationalization of ecosystem-based management.

In addition, adaptive management will be incorporated through the review and amendment of existing HELCOM commitments closely linked to the management objectives of the biodiversity segment, to ensure their content is aligned with new regional actions and global initiatives, and to further strengthen the objectives and level of ambition. This includes, but is not limited to, the review and possible amendment of Recommendation 35/1 by 2023, and the HELCOM guidance on planning and designating HELCOM marine protected areas (MPAs) by 2025.

Actions on biodiversity

Reaching the goals and objectives for biodiversity is enabled by implementing the following actions:

Code	Action
Theme: Spatial conservation measures	
B1	By 2030 at the latest, establish a resilient, regionally coherent, effectively and equitably managed, ecologically representative and well-connected system of HELCOM marine protected areas (MPAs), supported by those other spatial conservation measures, under alternative regimes for marine protection, which can contribute to the coherence of the network. Where scientifically justified, special attention should be given to offshore areas beyond territorial waters. The network of marine protected areas will: — cover at least 30% of the marine area of the Baltic Sea, of which at least 1/3 will be strictly protected. Other Effective Area-based Conservation Measures (OECMs) could be counted towards the 30% targets only if they, as a minimum, comply with the OECM criteria agreed by the Convention on Biological Diversity (CBD). — where scientifically justified, consider including no-use zones within marine protected areas, which can also serve as scientific reference areas. — expand conservation efforts to actively include areas of particular importance for biodiversity and ecosystem resilience, including important ecosystem elements such as species or areas recognized to be ecologically significant based on function for the ecosystem/provisioning of ecosystem services and broad habitat types, but which may not necessarily be rare or threatened. Cross-reference to actions in other segments HT13 HT14
B2	By 2022 come to a common understanding of the Other Effective Area-based Conservation Measures (OECMs) criteria and their use in HELCOM, based on definitions agreed in the Convention on Biological Diversity (CBD) and the EU, and define how OECMs can support the coherence of the Baltic Sea marine protected area (MPA) network. By 2025 identification of OECMs in the Baltic Sea region.
Topic: Spatial conservation management	
	By 2030 strengthen the management of the Baltic Sea marine protected area (MPA) network by introducing key elements into management efforts, including but not limited to those highlighted here, to increase effectiveness of protection, including by providing support to Baltic Sea MPA managers through capacity building e.g., through annual workshops.
B3	By 2023 update, and by 2025, apply HELCOM MPA management guidelines with focus on: - Assessments and evaluation methodology and structures for management effectiveness; - Setting quantitative conservation objectives; - Effective conservation measures that reduce pressures; - Establishment of indicators to monitor management performance and status of conservation features; - Establishment of a common monitoring strategy and evaluation of conservation features and pressures; - Adaptive management. Cross-reference to actions in other segments S42 S47 S54 S57 S64
B4	By 2026 nationally ensure that marine protected area (MPA) management plans and/or measures are legally binding and ensure appropriate structures are in place to enforce compliance in order to achieve their conservation objectives.
B5	Develop, implement and share information on effective management measures, including measures to ensure compliance/control measures, to reduce the impact of fisheries inside marine protected areas (MPAs) in order to contribute to achieving their conservation objectives. Cross-reference to actions in other segments S42 S47 S54

Topic: Coherence of the marine protected area (MPA) network

- B6

The coherence of the marine protected area (MPA) network will be periodically assessed at least every ten years, with the next such assessment to be carried out by 2025. By 2027 the results from the coherence assessment are to be used to take appropriate actions to ensure conservation and resilience of biodiversity, and to identify possible spatial conservation expansion needs to improve coherence.
- B7

Ensure that by 2030 the HELCOM marine protected area (MPA) network amongst other things provides specific protection to species and biotopes listed as regionally threatened or near threatened in the HELCOM Red Lists.

Theme: Conservation of species

- B8

By 2022 at the latest, specify knowledge gaps on all threats to the Baltic Proper harbour porpoise population, and by 2023 for the western Baltic population, including by-catch and areas of high by-catch risk, underwater noise, contaminants and prey depletion. Knowledge gaps related to areas of high by-catch risk are to be addressed and by 2028 at the latest additional areas of high by-catch risk for both Baltic Sea populations are to be determined. To strengthen the Baltic harbour porpoise population, by 2025 identify possible mitigation measures for threats other than by-catch and implement such measures as they become available.

Cross-reference to actions in other segments

S43 S44 S45 S46 S47 S48
- B9

By 2024 assess the status of the Haploops species and the biotopes, as well as key threats and, if relevant based on the assessment, by 2026 develop a joint conservation plan for Haploops species including jointly agreed measures to improve the status of the species and biotopes, to be implemented by 2028.
- B10

Include information on functional and life history traits for the species in the HELCOM Biodiversity Database, by 2024.

Topic: Conservation of birds

- B11

Maintain an updated map of the sensitivity of birds to threats such as wind energy facilities, wave energy installations, shipping and fisheries. Complete, as a first step, the mapping of migration routes, staging, moulting and breeding areas based on existing data by 2022. By 2025 further develop these maps by incorporating new data, post-production investigation information and addressing the subject of cumulative effects from these activities in space and time.
- B12

By 2023 and onwards with new findings use the maps on sensitivity of migratory birds to threats in environmental impact assessment (EIA) procedures with the aim to protect migratory birds against potential threats arising from new offshore wind farms and other installations with barrier effect.
- B13

By the next update cycle of the maritime spatial plans seek to incorporate the maps on sensitivity of migratory birds to threats in the work concerning maritime spatial planning to avoid that maritime activities impair birds and their habitats.

Cross-reference to actions in other segments

HT13 HT14
- B14

By 2027 assess the effectiveness of conservation efforts to protect waterbirds against threats and pressures.

Topic: Conservation of fish

- B15

Develop and coordinate monitoring and assessment methods, where ecologically relevant, for specified representative coastal fish species, populations and communities, by 2023. Based on these assessment methods, to regularly assess the state of the coastal fish community through selected coastal fish species and groups, including threatened species, by at latest 2023. Based on the results of the assessment, develop and implement management measures with the ambition to maintain or improve the status of coastal fish species, including migratory species by 2027.

Cross-reference to actions in other segments

S53

B16	To strengthen native strains and to reinstate migratory fish species: - By 2023 identify rivers where management measures for migratory fish species, including eel, would have the greatest positive impact. - Starting from 2023, in line with relevant international commitments, iteratively review and prioritize effective mitigation measures in the identified rivers and/or dams, including removal of dams and migration barriers where relevant and possible, especially in small waterways. - Develop and implement habitat restoration plans of spawning sites for anadromous species in relevant rivers by 2025.
	With the aim to protect and restore eel populations, determine which measures set out in the Convention on the Conservation Migratory Species of Wild Animals (CMS), EU Eel Regulation and other relevant instruments would benefit from regional cooperation on a Baltic-wide level. Finalize by 2024 and implement by 2025 a Baltic coordinated programme of such measures.
	B18 Restore functional populations of Baltic sturgeon by 2029 implementing the HELCOM Baltic Sea Sturgeon Action Plan.
Topic: Conservation of seals	
B19	By 2023 finalise and implement national or local conservation and/or management plans for grey seals.
B20	By 2023 finalise and implement national conservation and/or management plans for ringed seals.
B21	By 2025 protect the ringed seal in the Gulf of Finland, including to significantly reduce by-catch and to improve the understanding of the other direct threats on the seals, and urge transboundary co-operation between Estonia, Finland and Russia to support achieving a viable population of ringed seals in the Gulf.
Topic: Red listed species	
B22	Update the HELCOM Red List Assessments by 2024, including identifying the main individual and cumulative pressures and underlying human activities affecting the red listed species.
B23	By 2025 develop, and by 2027 implement, and enforce compliance with ecologically relevant conservation plans or other relevant programmes or measures, limiting direct and indirect pressures stemming from human activities for threatened and declining species. These will include joint or regionally agreed conservation measures for migrating species.
B24	Develop tools for and regularly assess the effectiveness of other conservation measures for species besides marine protected areas (MPAs), with the first assessment to be done by 2025, as well as assess the effect on species through risk and status assessments by 2029.
Theme: Conservation of habitats and biotopes	
B25	Map ecosystem services and the present and potential spatial distribution of key ecosystem components, including habitat forming species such as bladder wrack, eelgrass, blue mussel and stoneworts Baltic-wide, by 2025.
B26	Protect key ecosystem components including habitat forming species by 2030, by: - assessing the state of, and threats to these key ecosystem components by 2023 - implement effective and relevant threat mitigation measures based on the threat and state assessments, including restricting human activities associated with causing physical loss or disturbance, by 2030 - identifying suitable measures and types of habitats, biotopes and key ecosystem components for passive or active restoration by 2025 and implementing programmes for restoration as outlined in the HELCOM Restoration Action plan by 2030.
	By 2025 develop and by 2026 start implementing a HELCOM Action Plan for habitat and biotope restoration, including qualitative and quantitative regional targets, a prioritized list of actions, and an associated implementation toolbox outlining best practices and methods for restoration in the Baltic Sea region.
B27	Cross-reference to actions in other segments S52

Topic: Red listed habitats and biotopes	
B28	Update the HELCOM Red List Assessments by 2024, including identifying the main individual and cumulative pressures and underlying human activities affecting the red listed biotopes and habitats.
B29	By 2025 develop, and by 2027 implement, and ensure compliance with, ecologically relevant conservation plans or other relevant programmes or measures, limiting direct and indirect pressures stemming from human activities for threatened and declining biotopes and habitats.
B30	Develop tools for and regularly assess the effectiveness of other conservation measures for habitats and biotopes besides marine protected areas (MPAs), with the first assessment to be done by 2025, as well as assess the effect on biotopes and habitats through risk and status assessments by 2029.
Theme: Enabling ecosystem-based management	
B31	Identify by 2022 data needs for spatial pressure and impact assessment of human activities, including cumulative impacts, and implement by 2024 at the latest methods for mapping and assessment of adverse effects on the ecosystem of human activities in the Baltic Sea region.
B32	Update the HELCOM Underwater biotope and habitat (HUB) classification where gaps have been identified by 2024, and by 2025 develop a fully functioning translation matrix between HUB, Marine Strategy Framework Directive (MSFD) broad habitat types, Habitats Directive habitats and the European Nature Information System (EUNIS), in co-operation with the European Marine Observation and Data network (EMODnet).
Topic: Indicators	
B33	By 2024 develop a roadmap to fill gaps to enable a holistic assessment for all relevant ecosystem components and pressures and, by 2030 at the latest, develop and fully operationalise a set of indicators fulfilling HELCOM's needs, including the need to provide a regional platform for the Marine Strategy Framework Directive (MSFD).
B34	Develop core indicators, and threshold values to evaluate the status of food webs by 2026, where applicable, and implement a holistic assessment of food webs no later than 2030.
B35	By 2024 operationalize a set of indicators for the assessment of fish population health, including size and age distribution, where applicable, and, by 2029, for any remaining relevant species.
	Cross-reference to actions in other segments S40 S48

Connection to other treaties

The HELCOM biodiversity commitments are well aligned with the Sustainable Development Goals (SDGs) of the United Nations Agenda 2030, with the long-term 2050 vision of the Convention on Biological Diversity (CBD), the Convention on Conservation of Migratory Species of Wild Animals and its regional agreements insofar as applicable, and with the EU legislation and policies related to biodiversity. This holds true even in those cases where HELCOM commitments predate these processes.



Eutrophication



Eutrophication
goal

*“Baltic Sea unaffected
by eutrophication”*



Ecological
objectives

- Concentrations of nutrients close to natural levels
- Clear waters
- Natural level of algal blooms
- Natural distribution and occurrence of plants and animals
- Natural oxygen levels



Management
objective

- Minimize inputs of nutrients from human activities





Eutrophication segment

Baltic Sea unaffected by eutrophication

Description of current state

Eutrophication remains the major environmental threat to the Baltic Sea. It results in intense algal growth and depletion of oxygen on the bottom of the sea, further leading to vast areas with anoxic or hypoxic conditions in the Baltic Sea and affects the entire ecosystem. Despite a slight long-term improvement, over 96 percent of the region is still below good status with regard to eutrophication, including all of the open sea area and 86 percent of coastal waters, as shown by a HELCOM assessment for the years 2011-2016. Recently the eutrophication status has deteriorated in four of the 17 Baltic Sea sub-basins, which might be attributed to temporal variability in climate and hydrography.

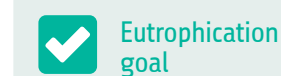
Eutrophication is caused by an excessive input of nutrients – phosphorus and nitrogen – to the aquatic environment. The input of nutrients to the Baltic Sea originates from natural sources and from various human activities on land and at sea, with nutrients reaching the sea via water and air. Waterborne input includes transport by rivers and direct discharges from point sources such as wastewater treatment plants or industries. The riverine input is the main source of both nitrogen and phosphorus, with diffuse sources such as losses from agricultural land to rivers making up a large share while point sources contribute only a few percent of the total input. Airborne transport also plays a significant role for the input of nitrogen, contributing 27 percent of the total load.

Excessive anthropogenic nutrient inputs to the Baltic Sea in the past have led to the accumulation of a considerable amount of

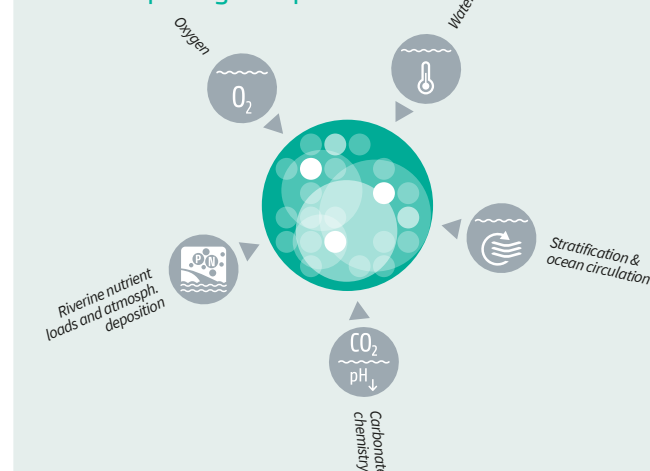
phosphorus in the bottom sediments. Under hypoxic conditions, or low oxygen levels, phosphate is released from the sediments, thus increasing the total nutrient load on the marine ecosystem and further fuelling the vicious circle of eutrophication in the Baltic Sea.

Inputs of nutrients to almost all sub-basins of the Baltic Sea have significantly decreased, with substantial reductions of 12 percent for nitrogen and 26 percent for phosphorus having been achieved by all HELCOM Contracting Parties over the past two decades. Nevertheless, the original targets for nutrient inputs as set by the initial Baltic Sea Action Plan (BSAP) adopted in 2007 were not achieved by 2021.

Most of the reductions so far have been achieved through measures addressing point sources, such as wastewater treatment facilities and industries, and the airborne input of nitrogen, primarily due to reduced emissions in the energy and transport sectors. However, no significant reduction of input from diffuse sources has been observed in the last two decades, and diffuse nutrient run-off contributes almost 35 percent of the riverine input. Agriculture, which has the highest reduction potential, is currently the main contributor to the diffuse load of nutrients to the Baltic Sea. There also is a further reduction potential for point sources, especially in the upper parts of river basins, as well as for smaller settlements and individual houses that do not have adequate wastewater treatment in place yet. Despite the overall progress achieved in reducing nitrogen deposition, further reductions are still required, in particular in the shipping sector. Emissions of ammonia remain at a similar level and have even increased recently, indicating a need for more effective reduction measures in the agricultural sector.

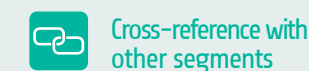


“Baltic Sea unaffected by eutrophication”



- **2.4** By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.
- **6.3** By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally
- **6.5** By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate
- **14.1** By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution

Further information on connection to other treaties related to eutrophication can be found on page 26.



- Reaching the objectives for eutrophication is a necessity to meet the goal 'Baltic Sea ecosystem is healthy and resilient';
- Reaching the goal and objectives for sea-based activities is a requirement for reaching the goal for eutrophication.

Description of desired state

The desired state of the Baltic Sea regarding eutrophication is described by the ecological objectives:

- Concentrations of nutrients close to natural levels
- Clear waters
- Natural level of algal blooms
- Natural distribution and occurrence of plants and animals
- Natural oxygen levels

The achievement of regional nutrient input targets – Maximum Allowable Inputs (MAI) and Nutrient Input Ceilings (NIC) – for all sub-basins, as identified in this BSAP, is the key prerequisite for achieving the ecological objectives.

Reaching desired state: management objective and strategic decisions

The management objective of the BSAP with respect to eutrophication is to minimize inputs of nutrients from human activities.

The regional input targets to reach good environmental status of the Baltic Sea are the maximum allowable inputs of nutrients (MAI) – indicating the maximum level of inputs of water and airborne nitrogen and phosphorus to the Baltic Sea sub-basins. To reach good environmental status regarding eutrophication, the maximum input to the Baltic Sea that can be allowed is 792,209 tonnes of nitrogen and 21,716 tonnes of phosphorus annually. The maximum allowable inputs of nitrogen and phosphorus to the Baltic Sea sub-basins, based on the most recent available data on fluxes in the marine ecosystem, are given in Table 1.

Attaining the MAI targets in all sub-basins does not imply the immediate achievement of the objectives for eutrophication. The Baltic Sea ecosystem, which has been exposed to anthropogenic pressure for more than a century leading to the accumulation of legacy nutrients in the sediments, may require several decades to fully recover even after a significant reduction of nutrient inputs. Measures to manage these internal nutrient reserves should utilize the best available scientific knowledge and minimize potential risks through the application of the HELCOM Guidelines for sea-based measures to manage internal nutrient reserves.

Net nutrient input ceilings (NIC) define maximum inputs via water and air to achieve good status with respect to eutrophication for Baltic Sea sub-basins for each country. They are calculated as shares of the maximum allowable inputs to each sub-basin using the proportions of nitrogen and phosphorus inputs in the reference period 1997- 2003. NIC values are given in Table 2. Nitrogen and phosphorus input ceilings are also calculated for non-HELCOM countries in the Baltic Sea catchment area, other countries with airborne input, Baltic Sea shipping and North Sea shipping.

Net nutrient input ceilings for each country and sub-basin incorporate the national shares of the nutrient inputs via transboundary rivers. Thus, nutrient input ceilings were specifically computed for these rivers, further indicating the respective national shares of their total inputs. Nutrient input ceilings for transboundary rivers are given in the HELCOM report “The revised nutrient input ceilings (NIC) to the BSAP update”.

All nutrient input reduction measures necessary to achieve the NICs should be fully implemented by 2027 at the latest, to take into account the time-lag associated with the reduction of nutrient inputs to the sea.

The input ceilings for nitrogen and phosphorus are based on current scientific knowledge and are subject to uncertainties. This emphasizes the need to follow the precautionary principle. While recognizing activities of vital societal needs, increased inputs of nitrogen or phosphorus to a basin are to be avoided to the extent possible until both MAI and good status with respect to eutrophication have been reached, even in basins where inputs are already below the NIC.

Reductions of nutrient inputs in a particular sub-basin may have effects on other sub-basins too. Therefore, a reduction of nitrogen and phosphorus below the NIC for one specific sub-basin – can be proportionally taken into account by a country in reaching its input ceiling for another sub-basin. The application of the mechanism for the reallocation of extra reduction is based on the agreed principles. MAI and NIC are based on the best available scientific

information. As such, they are subject to review when new scientific knowledge is available, including on climate change. Targeted regional studies should be continued in a joint effort to improve the quality of the assessment data particularly on natural background losses, atmospheric deposition, retention, transboundary loads and other aspects.

It should also be ensured that the input of nutrients will not increase after the achievement of the MAI targets. This requires efficient nutrient management, for instance through the implementation of the HELCOM Baltic Sea Regional Nutrient Recycling Strategy. Continuous cooperation with river basin management authorities will ensure that river basin management plans, including for transboundary rivers, consider the environmental targets as set by the BSAP.

Table 1. Maximum allowable inputs (MAI) of nitrogen (TN) and phosphorus (TP) to the Baltic Sea sub-basins (in tonnes/year)

	Maximum allowable inputs (MAI)	
	Total nitrogen (TN) tonnes/year	Total phosphorous (TP) tonnes/year
Baltic Sea sub-basin		
Kattegat	74,000	1,687
Danish Straits	65,998	1,601
Baltic Proper	325,000	7,360
Bothnian Sea	79,372	2,773
Bothnian Bay	57,622	2,675
Gulf of Riga	88,417	2,020
Gulf of Finland	101,800	3,600
Baltic Sea	792,209	21,716

Table 2a. Net nutrient input ceilings (NIC) of nitrogen for the HELCOM countries, non-HELCOM countries in the Baltic Sea catchment area, other countries with airborne input, Baltic Sea shipping and North Sea shipping (in tonnes/year).

	Bothnian Bay	Bothnian Sea	Baltic Proper	Gulf of Finland	Gulf of Riga	Danish Straits	Kattegat
Germany	947	3,920	34,077	1,645	1,747	23,647	4,661
Denmark	280	1,148	9,025	421	462	28,067	28,538
Estonia	113	404	1,478	11,334	13,099	22	24
Finland	35,087	28,700	1,827	20,457	295	76	89
Lithuania	108	495	25,878	305	8,820	66	80
Latvia	73	330	6,457	246	43,074	31	34
Poland	668	3,125	151,997	1,407	1,596	1,480	1,443
Russia	839	1,993	10,317	61,503	3,296	238	245
Sweden	17,718	32,633	30,690	626	525	6,056	32,799
Other countries with airborne input	1,375	5,008	26,947	2,986	2,188	4,933	4,502
Belarus	-	-	13,456	-	12,820	-	-
Czech Republic	-	-	3,551	-	-	-	-
Ukraine	-	-	1,693	-	-	-	-
Baltic Sea shipping	284	1,141	5,180	675	345	651	701
North Sea shipping	131	475	2,427	196	150	729	884

Table 2b. Net nutrient input ceilings (NIC) of phosphorus for the HELCOM countries, non-HELCOM countries in the Baltic Sea catchment area (in tonnes/year).

	Bothnian Bay	Bothnian Sea	Baltic Proper	Gulf of Finland	Gulf of Riga	Danish Straits	Kattegat
Germany	-	-	109	-	-	401	-
Denmark	-	-	21	-	-	979	815
Estonia	-	-	9	225	185	-	-
Finland	1,683	1,246	-	315	-	-	-
Lithuania	-	-	703	-	175	-	-
Latvia	-	-	167	-	1,061	-	-
Poland	-	-	4,291	-	-	-	-
Russia	-	-	242	2,909	99	-	-
Sweden	811	1,133	318	-	-	116	753
Belarus	-	-	349	-	407	-	-
Czech Republic	-	-	57	-	-	-	-
Ukraine	-	-	47	-	-	-	-

Actions on eutrophication

To achieve the set objectives, the following actions will be taken:

Code	Action
Theme: Follow-up of the implementation of nutrient input targets	
E1	Submit an account listing, as detailed as possible, the planned and implemented measures in different sectors and catchments alongside an estimation of their effectiveness to HELCOM by 2023 in order to demonstrate whether national net nutrient input ceilings can be achieved with these measures.
E2	Assess progress towards maximum allowable inputs annually and national input ceilings every second year, to follow up implementation of regional and national targets for inputs of nutrients.
E3	Provide timely, sufficient and consistent data on nutrient loads to the Baltic Sea, ensuring reliability of the follow-up system, by maintaining and enhancing monitoring programmes and networks striving for harmonized methods to estimate nutrient inputs, including from unmonitored areas.
E4	Strengthen cooperation with river basin management authorities of non-HELCOM countries through official agreements addressing transboundary waterborne nutrient inputs from non-Contracting Parties. Cross-reference to actions in other segments HT26
Theme: Agriculture	
E5	Implement and enforce the provisions of part 2 of Annex III “Prevention of pollution from agriculture” of the 1992 Helsinki Convention.
E6	Establish site specific buffer zones to reduce nutrient losses from agricultural land, for example on parts of fields where surface run-off and erosion occurs, along ditches or at surface water inlets.
E7	Balance fertilization rates site-specifically and promote precision fertilization practices to improve nutrient use efficiency and reduce nutrient losses.
E8	Develop by 2025 and apply by 2027 the best practices to improve soil structure and aggregate stability on clay soils to reduce phosphorus losses from agricultural lands, for example by using soil structure lime or gypsum.
E9	Promote organic farming to increase its proportion to at least 25% of agricultural land by 2030.
E10	Discourage application of manure and other organic fertilizers in the autumn in fields without green plant cover in winter.
E11	Improve knowledge exchange by establishing dialogue between farmers, authorities and decision makers.
E12	Enhance mutual learning among farmers on best practices and innovative technologies.
E13	Develop by 2025 recommendations for Best Available Technology (BAT)/Best Environmental Practice (BEP) to reduce ammonia and greenhouse gas emissions from livestock housing, manure storage and spreading.
E14	Develop by 2025 recommendations for manure management specifically for horses, sheep, goats, and fur farming.

E15	Apply as a minimum the EU’s updated Best Available Techniques (BAT) Reference Document and Conclusions on BAT for intensive rearing of poultry and pigs, especially for the facilities located within areas critical to nutrient losses.
E16	Review national regulations and voluntary measures and – if relevant – implement further or revised measures, as compiled in the revised palette of measures for reducing phosphorus and nitrogen losses from agriculture.
E17	Agree on the national level by 2023 on measures to reduce nutrient surplus in fertilization practices to reduce nutrient losses.
E18	Investigate opportunities for taxation of mineral fertiliser and/or taxation of nitrogen surplus and/or payments for agri-environment measures by 2024 and implement them building on the experiences available in various countries.
E19	Apply innovative water management measures where appropriate, for example, lime filter ditches, sediment traps and controlled drainage, and nature-based solutions, such as two-level ditches and constructed wetlands, when upgrading and renovating agricultural drainage systems.
Theme: Atmospheric nitrogen emissions	
E20	Revise by 2023 the HELCOM Recommendation 24/3 on “Measures aimed at the reduction of emissions and discharges from agriculture” ensuring reduction of agricultural ammonia emissions and considering relevant Best Available Technology (BAT) and Best Environmental Practice (BEP).
E21	Continue to reduce the deposition of atmospheric nitrogen on the Baltic Sea through the implementation of the national nitrogen reduction commitments of the Gothenburg Protocol and the EU NEC-Directive 2016/2284 for those HELCOM Contracting Parties that are also EU Member States. HELCOM Contracting Parties will ensure that measures taken in transportation, combustion and agriculture are tailored to contribute to the reduction of the nitrogen deposition on the Baltic Sea.
E22	Enhance HELCOM cooperation with the UNECE Convention for Long-Range Transboundary Air Pollution in order to promote the inclusion of the protection of the Baltic Sea ecosystem as an additional criterion in the process of the revision of the emission targets for nitrogen in the Gothenburg Protocol.
Theme: Wastewater sector	
E23	Strengthen the HELCOM Recommendation 28E/5 on municipal wastewater treatment by 2027.
E24	Facilitate exchange of information on best available treatment techniques for wastewater treatment plants through cooperation with existing regional digital platform(s) acting as a hub for the best knowledge in the wastewater management sector.
E25	Encourage educational cooperation with involvement of relevant non-governmental organizations utilizing such regional digital platform(s) to solve problems of municipal sewage in smaller municipalities and scattered settlements.
E26	Cooperate with relevant Policy Areas of the EU Strategy for the Baltic Sea Region (EUSBSR) regarding e.g. wastewater treatment plants (under “save the sea” objective of the EUSBSR) as well as other regional policies to engage a wider network of stakeholders into cooperation to achieve the BSAP targets.
E27	Target the elimination of phosphorus in laundry detergents for consumer use as soon as possible, but not later than by 2024.
E28	Build a knowledge base to target the reduction of phosphorus in detergents for industrial & institutional use. By 2025, develop and publish a HELCOM progress report about best available techniques, alternative builders, especially on their use, environmental effects and effectiveness.
E29	Undertake efforts to reduce and where possible eliminate phosphorus in detergents for industrial & institutional use, in particular for institutional use of laundry and dishwater detergents no later than by 2030 based on the knowledge on best available techniques compiled during the first step.



Theme: Nutrient recycling

- | | |
|------------|--|
| E30 | Implement adequate measures, especially in agriculture and wastewater management, to achieve the objectives of the Baltic Sea Regional Nutrient Recycling Strategy by 2027. |
| E31 | Create legal and institutional tools to advance towards introducing annual field-level fertilization planning and farm-gate nutrient balancing for nitrogen (N) and phosphorus (P) as a requirement for all farms in the Baltic Sea Region to reduce nutrient surplus on farmlands to the highest possible degree in a cost-effective way. |
| E32 | Enhance the use of recycled nutrients in agriculture making use of best available technologies and fertilize according to crop needs. |
| E33 | Develop by 2027 safety requirements for recycled fertilizer products and minimise the occurrence of harmful compounds in these products to comply with the requirements. |
| E34 | Increase the knowledge and promote education and advisory services on nutrient recycling. |
| E35 | Improve the conditions for the development of a market for recycled fertilizer products by setting incentives with the aim of making the use of such products equally attractive to farmers as the use of mineral fertilizers. |
| E36 | Enhance cooperation and share experiences between sectors and actors to create a holistic view on sustainable food systems including nutrient recycling across sectors. |

Connection to other treaties

The achievement of good environmental status in relation to eutrophication in the Baltic Sea also relies on additional reduction of inputs from third parties by 2030 as follows:

- 52,758 tonnes of airborne nitrogen since the reference period (1997–2003) assuming full implementation of the Gothenburg Protocol of the UNECE Convention on Long-range Transboundary Air Pollution and National Emissions Ceilings (NEC) Directive,
- 5,561 tonnes of waterborne nitrogen and 930 tonnes of waterborne phosphorus since the reference period (1997–2003) assuming that non-Contracting Parties take the same responsibility to reduce nutrients input as the Contracting Parties,
- 16,803 tonnes of airborne nitrogen from shipping due to the implementation of the decision by the International Maritime Organization (IMO) to establish a NO_x Emission Control Area (NECA) in the Baltic Sea and North Sea.

In addition to the above-mentioned policies, implementation of the EU legislation and policies related to nutrients, as well as the Water Code and Law on Environment protection of the Russian Federation are prerequisites to the achievement of the goal for this segment of the BSAP.





Hazardous substances & litter



Hazardous substances
and litter goal

*“Baltic Sea unaffected
by hazardous substances
and litter”*



Ecological
objectives

Hazardous substances

- Marine life is healthy;
- Concentrations of hazardous substances are close to natural levels;
- All sea food is safe to eat;
- Minimal risk to humans and the environment from radioactivity.

Marine litter

- No harm to marine life from litter.



Management
objectives

Hazardous substances

- Minimize input and impact of hazardous substances from human activities.

Marine litter

- Prevent generation of waste and its input to the sea, including microplastics;
- Significantly reduce amounts of litter on shorelines and in the sea.





Hazardous substances and litter segment

Baltic Sea unaffected by hazardous substances and litter

Description of current state

Hazardous substances

As shown by the latest HELCOM assessments of pollution by heavy metals, organic contaminants and radioactive substances, the Baltic Sea remains heavily impacted by hazardous substances. In particular, levels of polybrominated diphenyl ethers (PBDEs), mercury and cesium-137 are still high in all parts of the sea, and contaminants of emerging concern, such as some pharmaceuticals, were also found in almost all components of the marine environment. Nonetheless, due to scarcity of data on contaminants of emerging concern and other indicator substances it is currently not possible to obtain a comprehensive picture of the extent of the contamination of the Baltic Sea.

Hazardous substances originate from a wide range of human activities on land and at sea. Thousands of chemicals and synthetic materials are widely used in households, and sewage treatment systems are their primary pathways to the aquatic environment. Urban storm water and agricultural run-off also contribute to the overall contamination of the Baltic Sea. Industries use chemical compounds in technological processes or as a raw material, and their emissions through air or water also pose an environmental risk. A significant group of hazardous substances are by-products of the combustion of fossil fuels, wood or wastes as well as fuels used in various types of transport. Many compounds are highly volatile and can travel through the air for long distances, thereby contributing to the contamination of the Baltic Sea marine environment – even if their use is prohibited in the HELCOM countries. Finally, offshore sources of pollution include, for example, the leaching of chemicals from antifouling paints, discharge of polluted water from ships, aquaculture and offshore installations, as well as accidental or intentional spills of oil or other harmful substances.

For many substances inputs to the Baltic Sea are decreasing, and some of the most toxic compounds are banned today. However, several persistent legacy contaminants remain in sediments and

can be resuspended, for instance as a result of dredging processes or the depositing of contaminated sediments at sea. Consequently, they can enter the food webs in the marine ecosystem. Furthermore, dumped chemical and conventional munition remain buried on the seafloor, and new chemicals with currently unknown effects and unquantified inputs are being used and released into the aquatic environment.

Marine litter

Marine litter, including microlitter, originates from various land- and sea-based sources. Among land-based sources, the major contributors to the littering of the sea are recreational or tourism activities, especially on the seashore, as well as construction and households. Microlitter including microplastics is primarily released to the aquatic environment via sewage waters, untreated or insufficiently treated storm waters, and snowmelt run-off. It might also originate from the disintegration of larger plastic litter items in the environment.

Shipping, fisheries, aquaculture and offshore installations are sources of litter at sea, for example through accidental or intentional discharges of waste from commercial or pleasure vessels. Abandoned, lost or otherwise discarded fishing gear (ALDFG) is a type of litter that poses a particular threat to marine life, causing either physical harm or breaking down into smaller particles that then enter the food web.

So far, marine litter is only assessed descriptively at the Baltic Sea scale, and monitoring of marine litter is currently under development. However, data series regarding beach litter already allow for the establishment of a baseline. Most of the litter items found on beaches consist of plastics, with most of them being single-use items and linked to eating, drinking, smoking, or industrial packaging. It is further worthy of notice that balloons or balloon-related items are found among the top ten items in several sub-basins. At sea, abandoned, lost and discarded fishing gear constitutes a severe threat to marine life. The problem affects the entire region, though its magnitude depends mainly on the bottom morphology and the intensity of fisheries.



Hazardous substances and litter goal

“Baltic Sea unaffected by hazardous substances and litter”

Effects of climate change impacting hazardous substances and litter



Pressures addressed



Activities addressed



SDG targets addressed

- **12.2** By 2030, achieve the sustainable management and efficient use of natural resources
- **12.5** By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse
- **12.4** By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment
- **14.1** By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution

Further information on connection to other treaties related to eutrophication can be found on page 35.

Cross-reference with other segments

- Reaching the objectives for hazardous substances and litter is a necessity to meet the goal ‘Baltic Sea ecosystem is healthy and resilient’;
- Reaching the goal for sea-based activities is a requirement for reaching the goal for hazardous substances and litter.

Description of desired state

The goal of the Baltic Sea Action Plan (BSAP) with regard to hazardous substances and litter is a “Baltic Sea unaffected by hazardous substances and litter”.

Hazardous substances

The desired state of the Baltic Sea regarding hazardous substances is described by the ecological objectives:

- Marine life is healthy;
- Concentrations of hazardous substances are close to natural levels;
- All sea food is safe to eat;
- Minimal risk to humans and the environment from radioactivity.

The BSAP’s goals and objectives for hazardous substances will be achieved when chemicals occurring in the marine environment

due to human activities do not cause any dysfunction of the marine ecosystem, such as mutations or disruption of biochemical processes or food chains. The desired state of the Baltic Sea, or good environmental status, also requires that the occurrence of hazardous substances does not jeopardize the functioning of ecosystem services and does not pose any risk to human health.

Because of the wide array of chemical substances and human activities involved, efforts towards achieving the goals on hazardous substances require the application of a holistic approach for their management on land and at sea, comprising measures addressing legacy pollutants such as heavy metals, dioxins or organotins, and contaminants of emerging concern such as per- and polyfluoroalkyl substances (PFAS) and pharmaceuticals. Such a holistic approach also needs to include establishing a mechanism for the identification of regional priorities utilizing best available scientific knowledge, as well as the review of those priorities to enable a timely response to emerging challenges. Cooperation with global treaties is also key to addressing sources of contaminants beyond the region.

Marine Litter

The desired state of the Baltic Sea with regard to marine litter is described by the ecological objective of “no harm to marine life from litter”.

As for hazardous substances, achieving the goals and objective for marine litter implies that litter items, including microlitter, occur in the marine environment only in amounts that do not cause dysfunction of the ecosystem, enter food chains or physically damage marine organisms. It also means that marine litter does not adversely affect functionality of marine ecosystem services and does not pose a risk to human activities. This desired state can only be reached through the implementation of a complex system of measures addressing the entire lifecycle of products and goods, ensuring that they do not turn into litter, either on land or at sea. Active cooperation with global treaties and other regional sea conventions should be pursued in order to engage third parties beyond the region in tackling this global challenge.

Reaching desired state: management objectives

Hazardous substances

In order to reach this desired state, the management objective “to minimize input and impact of hazardous substances from human activities” was identified.

HELCOM acts as a coordinator of the joint efforts of the Contracting Parties to identify priority contaminants, quantify their inputs and regional sources, and develop effective national or regional measures based on such information. Recurrent screening of contaminants in the marine environment as well as of their potential sources and pathways is one of the tools to identify emerging contaminants of concern. The data obtained through the screening, in combination with the information on substances used in industrial processes and consumption products, create a basis for transformation of indicator-based evaluation to a more flexible status evaluation. This information enables mechanisms for a regular update of the contaminants of regional priority, monitoring and assessment targets, and a holistic approach that considers time trends in inputs to the sea and ecotoxicological effects with a clear link to the total load of contaminants. Such a holistic approach strengthens the management cycle, making it possible to keep track of measures, assess their effects and tailor these measures to target specific contaminants and their groups. HELCOM commits to developing an action plan for hazardous substances as a part of the regional strategic approach to strengthening the management cycle for hazardous substances and linking HELCOM activities with other relevant regional and global policies.

Marine litter

In order to reach the desired state, the following management objectives have been identified for marine litter:

- Prevent generation of waste and its input to the sea, including microplastics;
- Significantly reduce amounts of litter on shorelines and in the sea.

The HELCOM Regional Action Plan on Marine Litter is the main regional tool for achieving the marine litter ecological and management objectives. It ensures that there are measures in place to address the most common and harmful litter items found in the Baltic Sea region by:

- reducing the impact of abandoned, lost or otherwise discarded fishing gear on the marine ecosystem in a systematic way by developing HELCOM guidelines and recommendations,
- significantly reducing the consumption of single-use plastics, including the phase-out of unnecessary single-use plastics which are prone to becoming litter,
- preventing litter from all sources,
- minimizing inputs of microplastics through measures both at source and through end-of-pipe solutions,
- being aware of new and emerging issues related to marine litter generation and act if needed and
- promoting and actively working for a global agreement to reduce input of marine litter and microplastics.

HELCOM will reduce marine litter on the beaches by at least 30 percent by 2025 and by 50 percent by 2030, from the baseline total abundance of 40 litter items per one hundred meters of beach for the whole Baltic Sea (except for Kattegat in 2015-2016). This will start with the reduction of the most commonly found single-use plastic items and items related to fishing gear. By 2023 HELCOM will further develop regionally coordinated quantitative reduction targets for marine litter to guide progress towards relevant regional and EU threshold values. In order to reach these targets, Contracting Parties will implement the HELCOM Regional Action Plan on Marine Litter in addition to other initiatives.

The assessment of progress towards these environmental targets should be based on monitoring programmes utilizing regionally harmonized methodologies. Available knowledge has improved since the first Action Plan on Marine Litter was adopted, however further scientific and technological development is crucial for achieving the BSAP objectives, especially with regard to microlitter.

Actions on hazardous substances and litter

To achieve the set objectives, the following actions will be taken:

Code	Action
Theme: Hazardous substances	
HL1	Develop a regional strategic approach and, on the basis of that approach, an action plan for HELCOM work on hazardous substances by 2024.
HL2	Develop national programmes with a particular focus on hazardous substances which are not adequately regulated by other policies.
HL3	Submit to HELCOM by 2023 an account listing, as detailed as possible, the planned and implemented measures to reduce releases of hazardous substances in the environment, including available knowledge on their effects.
HL4	Strengthen and update HELCOM recommendations for industrial releases of hazardous substances by applying information produced under the EU Industrial Emissions Directive and other sources in order to sufficiently protect the Baltic Sea environment.
HL5	Decrease the emissions of hazardous substances from small scale emitters in urban areas (municipal entities, businesses and private households) by chemical-smart purchasing strategies, substitution and awareness raising campaigns.
HL6	Establish a chemical product register to be built upon, e.g. the EU REACH (EC1907/2006) framework, by 2025.
HL7	Launch educational and information campaigns by 2025 to raise public awareness regarding responsible handling of hazardous substances in household chemicals and articles to prevent their release into the environment.
HL8	Introduce requirements regarding content of chemicals of high regional environmental concern in public procurement procedures by 2025 and provide support for follow-up.
HL9	Establish procedures by 2025 to utilize information obtained under various policies and policy frameworks addressing the use of chemicals (e.g. Stockholm Convention, SAICM successor, REACH Regulation, Water Framework Directive, Industrial Emissions Directive etc) to prioritize measures targeting regional contaminants and to identify emerging pollutants of high concern.
HL10	Establish a mechanism for managing the HELCOM list of priority substances starting from 2025 and respond to screening and assessment results pointing out regional challenges for the Baltic Sea environment and contaminants of emerging concern.
HL11	Organize continuous follow-up of the work on hazardous substances under various global and EU policies as well as in Regional Sea Conventions (RSCs) starting from 2024, and actively influence these processes by promoting international actions identified as necessary to improve the environmental status with respect to hazardous substances in the Baltic Sea.
HL12	HELCOM participation starting from 2023 as a member in the Strategic Approach to International Chemicals Management High Ambition Alliance (SAICM HAA) to support international cooperation on global chemical challenges that influence the state of the Baltic Sea. Identification of global challenges that are of importance for the Baltic Sea that HELCOM will put on the SAICM HAA agenda.
HL13	By 2028 develop further relevant monitoring for the biological effects of hazardous substances in order to facilitate a reliable ecosystem health assessment.

Topic: Legacy pollutants

- HL14** Encourage the use of alternative less toxic metals and other materials to replace lead in fishing gear and shooting bullets with the aim to minimize harmful use of metallic lead.
- HL15** In order to decrease dioxin emissions, establish information campaigns and other instruments which focus on the quality and species of firewood, and what is burned in small-scale combustion appliances, by 2025.
- HL16** Enhance implementation of the UNEP 2013 Minamata Convention on Mercury by those Contracting Parties that are parties to this Convention and encourage its ratification by HELCOM countries that are not yet parties to the Convention.
- HL17** Undertake all possible measures to reduce mercury emissions from the energy sector by 2028.
- HL18** Control concentration of mercury in dredged material and undertake possible measures to prevent its release during dredging operations and handling of dredged material.
- HL19** Introduce the ban of the use of mercury-based amalgam in dentistry by 2030, except when deemed strictly necessary.
- HL20** Establish by 2023 and maintain procedures (rules) to handle mercury-containing wastes to prevent entering of the contaminant to the environment, including public information on the procedures (rules).
- HL21** Introduce by 2027 measures based on the best available scientific knowledge and technologies to restrict the use and prevent releases of perfluorinated alkyl substances, phenolic compounds with endocrine disrupting effects and chlorinated paraffins.

Topic: Contaminants of emerging concern

- HL22** Improve the knowledge base on occurrence of pharmaceutical substances in the environment, their persistence and harmful effects and ensure availability of this information for a broad expert community by 2025.
- HL23** Identify priority pharmaceuticals by 2024 utilising the best available knowledge on their releases into the aquatic environment, environmental effects and available data on their use in the region, for efficient risk reduction and for subsequent integration of these substances to HELCOM assessments, as indicators of the state of the Baltic Sea and environmental pressure.
- HL24** Develop guidance for the environmental monitoring and analysis of pharmaceuticals identified as indicators of the state of the Baltic Sea by 2025.
- HL25** Organize an information campaign on what not to flush by 2025 (addressing chemicals, pharmaceuticals and litter).
- HL26** Strengthen the collection of unused pharmaceuticals from the public in the Baltic Sea region by 2026.
- HL27** In cooperation with health care institutions, increase awareness and knowledge of consumers about pharmaceuticals containing substances that are persistent and harmful for the environment, when scientifically justified information is available.
- HL28** Address substances of emerging concern by commencing recurrent screening campaigns starting from 2021 including broad analytical techniques such as suspect screening and non-target screening methods.
- HL29** Limit the use of firefighting foam containing per- and polyfluoroalkyl substances (PFAS) at sea and in the catchment area and promote sustainable alternatives by 2027.

Minimize the release of biocides from antifouling products to the marine environment, and preferably by 2027 replace the use of biocidal antifouling products with biocide-free alternatives on structures, equipment and recreational craft in cases not already subject to the International Convention on the Control of Harmful Anti-fouling Systems on Ships when available and environmentally and technically feasible.

Cross-reference to actions in other segments

S8 S9 S10

Theme: Marine litter

- HL31** Improve the evidence base on the impact of marine litter on the Baltic Sea region in order to develop and agree on new measures by 2025.
- HL32** Agree on core indicators and harmonized monitoring methods to evaluate quantities, composition, distribution and sources (including riverine input), of marine litter, including microlitter, by 2022, where applicable and for the rest no later than 2026. Work should be done in close coordination with work undertaken by Contracting Parties in other relevant fora, such as the Technical Group on marine litter under the Marine Strategy Framework Directive.

Please note: The HELCOM Regional Action Plan on Marine Litter is the main regional tool for achieving the marine litter ecological and management objectives.

Connection to other treaties

Cooperation in the framework of HELCOM provides and enhances opportunities for synergies in national efforts in relation to various polices and treaties. The implementation of EU legislation and policies related to hazardous substances and litter, as well as the Water Code and Law on Environment protection of the Russian Federation is essential to reaching the goal of the segment. Key global treaties are those concluded under the IMO, the Minamata, Basel, Rotterdam, Stockholm Conventions, the Convention on the Protection and Use of Transboundary Watercourses and International Lakes.



Sea-based activities



Sea-based
activities goal

*“Environmentally
sustainable sea-based
activities”*



Ecological
objectives

- No or minimal disturbance to biodiversity and the ecosystem
- Activities affecting seabed habitats do not threaten the viability of species' populations and communities
- No or minimal harm to marine life from man-made noise



Management
objectives

- Minimize loss and disturbance to seabed habitats
- Minimize noise to levels that do not adversely affect marine life
- No introductions of non-indigenous species
- Minimize the input of nutrients, hazardous substances and litter from sea-based activities
- Enforce international regulations – no illegal discharges
- Safe maritime traffic without accidental pollution
- Effective emergency and response capabilities
- Minimize harmful air emissions
- Zero discharges from offshore platforms
- Ensure sustainable use of the marine resources





Sea-based activities segment

Environmentally sustainable sea-based activities

Description of current state

Sustainable management of sea-based activities is essential for achieving good environmental status of the Baltic Sea. Sea-based activities comprise all human operations and constructions at sea, from commercial shipping and recreational boating to fisheries, and from construction work and dredging to energy production and the extraction of minerals, oil and gas. Achieving the overall strategic goal of the segment therefore requires cooperation on a wide range of topics, and involves the coordination of numerous and diverse actors and the inclusion of various objectives.

Emissions and discharges from shipping continue to have harmful impacts on the Baltic Sea environment, despite the reinforced existing and developed new international regulations concerning ship-source pollution which have been adopted by the International Maritime Organization (IMO) over the last ten years. Energy efficiency of ships is improving, and a downward trend is also evident for other types of emissions and discharges. Nevertheless, shipping still contributes to emissions and discharges to the Baltic Sea, including nitrogen oxides (NOx), sulphur oxides (SOx), particulate matter, sewage and discharges from exhaust gas cleaning systems, leading to pollution and eutrophication of the marine environment. In addition, shipping contributes to a number of pressures on the marine environment that are not yet covered by mandatory international regulations, such as underwater noise, biofouling, and grey water discharges.

Oil spills observed by aerial surveillance have been decreasing in both numbers and size, and while preparedness and response to spills of oil and hazardous noxious substances at sea and on shore are rather advanced in the Baltic Sea, there is still a need for improvement. Annual reports show an increasing number of spills of unidentified chemical substances and novel fuel types, for which response options need to be developed, especially in light of the increasing likelihood of accidents as a result of increased traffic and extreme weather conditions due to climate change.

Fishing takes place in large areas of the Baltic Sea, with direct effects on target species as well as on protected species and habitats. Currently, the majority of Baltic Sea commercial fish stocks are not in good status with respect to biomass and there are concerns with fishing mortality for many stocks. Physical disturbance to the seabed from bottom trawling and by-catches of birds, marine mammals and non-target fish species in fishing gear constitute other pressures on the ecosystem, which need to

be reduced. Furthermore, fishing activities contribute to shifts in the food web, alterations in size-age distribution, as well as reductions in reproductive capacity and resilience of both fish and other marine organisms.

In addition to shipping and fishing, activities such as mineral extraction, dredging, installation of offshore wind farms, other forms of marine energy production, and laying of underwater cables and pipelines have negative effects on the marine environment. One of the effects from these activities is physical disturbance and loss of the seabed. About 40% of the Baltic Sea seabed is estimated to be potentially disturbed, with many underwater biotopes and species in unfavourable conservation status. Along with submerged hazardous objects such as sea-dumped munitions, warfare materials and wrecks containing oil, activities causing disturbance to the seabed contribute to the potential release of harmful substances that may affect the marine environment and activities in the Baltic Sea. Besides being sources of pollution, submerged hazardous objects are also physical obstacles on the seafloor and pose a risk to maritime workers. The above-mentioned activities, including the operation of offshore windfarms and aquaculture facilities, also affect marine organisms through the effects of noise and may cause hazards and disturbance to sea birds and other marine life.

Despite significant progress in many areas of sea-based activities, it is clear that further actions are needed. The expansion of sea-based activities through emerging maritime sectors has further resulted in several pressures for which regulatory frameworks are not or not yet in place. The cumulative effects of existing and new sea-based activities need to be evaluated, and an ecosystem-based approach implemented, where the carrying capacity of the ecosystem and the need to set limits for human activities are acknowledged.

Description of desired state

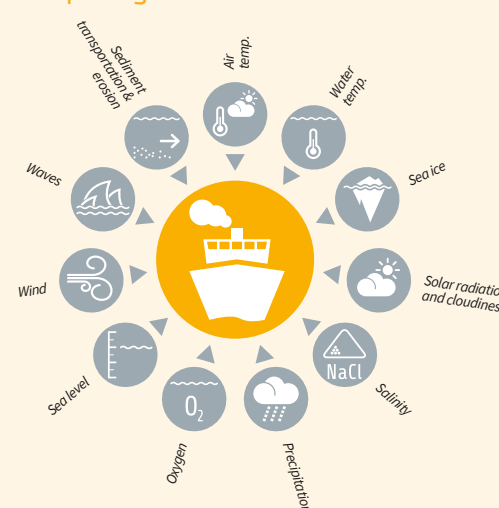
The desired state of the Baltic Sea regarding sustainable and safe sea-based activities is described by the ecological objectives:

- No or minimal disturbance to biodiversity and the ecosystem
- Activities affecting seabed habitats do not threaten the viability of species' populations and communities
- No or minimal harm to marine life from man-made noise

Sea-based activities goal

“Environmentally sustainable sea-based activities”

Effects of climate change impacting sea-based activities



Pressures addressed



Activities addressed



SDG targets addressed

- **2.4** By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.
- **12.2** By 2030, achieve the sustainable management and efficient use of natural resources
- **12.5** By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse
- **12.4** By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment
- **13.2** Integrate climate change measures into national policies, strategies and planning
- **14.1** By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution
- **14.4** By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics
- **14.c** Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Want
- **15.8** By 2020 introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems, and control or eradicate the priority species

Further information on connection to other treaties related to sea-based activities can be found on page 47.

Cross-reference with other segments

- Reaching objectives for sea-based activities is a necessity to meet the goal of a 'Baltic Sea ecosystem is healthy and resilient';
- Reaching the goal for sea-based activities is a requirement for reaching the goal for eutrophication and hazardous substances and litter.

Reaching desired state: management objectives

In order to reach this desired state, the following management objectives are to be met:

- Minimize loss and disturbance to seabed habitats
- Minimize noise to levels that do not adversely affect marine life
- No introductions of non-indigenous species
- Minimize the input of nutrients, hazardous substances and litter from sea-based activities
- Enforce international regulations – no illegal discharges
- Safe maritime traffic without accidental pollution
- Effective emergency and response capabilities
- Minimize harmful air emissions
- Zero discharges from offshore platforms
- Ensure sustainable use of the marine resources

Implementing the actions of the sea-based activities segment is one of the key factors for enabling the vision of the Baltic Sea Action Plan (BSAP) of reaching a healthy Baltic Sea environment, and for supporting a wide range of activities in the Baltic Sea region that do not compromise ecological, societal, and long-term economic sustainability. HELCOM has the ambition to work continuously towards making the Baltic Sea a front-runner in the field of environmentally sustainable sea-based activities, including shipping, fisheries, aquaculture, offshore wind farms and infrastructure. HELCOM recognises the need for significant expansion of offshore wind energy in order to reach the climate targets for 2030 and 2050 and will take action to ensure that the expansion of the offshore sector is achieved sustainably and with respect to our commitments on biodiversity and a healthy marine environment. Also, in order to minimize the short and long-term impacts of seabed mining (excluding sand and gravel extraction), minerals should not be exploited before the effects of seabed mining on the marine environment, biodiversity and human activities have been sufficiently researched. The risks need to be understood and technologies and operational practices should be able to demonstrate that the environment is not seriously harmed by seabed mining activities, in line with the precautionary principle.

Apart from implementing the actions set out in the BSAP, this will also require the implementation of other instruments such as the Regional Action Plan on Underwater Noise and the enforcement of applicable national, regional and international regulations in the field of sea-based activities, as well as active voluntary commitments by industry.

Actions on sea-based activities

To achieve the set objectives, the following actions will be taken:

Code	Action
Theme: Maritime activities	
Topic: Discharges from offshore platforms	
S1	Update the Action Plan for the protection of the environment from offshore platforms to put into practice the “zero-discharge” principle in respect of all chemicals and substances used and produced during the operation of offshore platforms by 2026.
Topic: Maritime safety	
S2	Take actions to ensure the completion of the re-surveys for Category I and II areas used by navigation by 2030 at the latest.
S3	Ensure the completion of the re-surveys for near shore areas and other areas used typically for safe boating, environmental protection, GIS data purposes and oil recovery contingency (also called Category III areas), by the time specified in the revised Baltic Sea Hydrographic Commission (BSHC)-HELCOM Revised Baltic Sea Harmonized Hydrographic Re-Survey Scheme.
S4	Further work with regard to the regional HELCOM Automatic Information System (AIS) and also new systems such as VHF Data Exchange System (VDES) and other e-navigation services by 2027 in order to increase safety of navigation and gain environmental benefits.
S5	Further strengthen co-operation with the International Maritime Organization (IMO) and regional co-operation in the field of safety of navigation in the framework of the HELCOM Maritime Group, as appropriate, in particular recognizing the need for the exchange of technical expertise regarding risk assessment to avoid shipping accidents in the Baltic Sea.
S6	Continue close technical cooperation with the European Maritime Safety Agency (EMSA) in collection and analysis of maritime data relevant for the development of safer shipping in the Baltic Sea, such as EMCIP and explore possibilities for future cooperation on the provision of data to EMSA, including on drug/alcohol abuse as a cause of accidents as well as data on linked spills and cargo losses to the environment.
Topic: Non-indigenous species	
S7	Establish by 2024 and subsequently implement the early warning system in case of the introduction of invasive species in ports.
S8	Work for the harmonized implementation of the International Maritime Organization (IMO) Biofouling Guidelines and Guidance, taking into account e.g. the proposed Biofouling Management Roadmap, and further contribute to the work carried out in the IMO. Cross-reference to actions in other segments HL30
S9	Promote the development and use of effective, environmentally sustainable biofouling management techniques and antifouling systems on ships and recreational craft, including biocide-free alternatives to prevent biofouling by supporting related research and development activities in the Baltic Sea region. Cross-reference to actions in other segments HL30



S10	Strengthen cooperation with stakeholders in the development and implementation of sustainable biofouling management options by 2026 to minimize the introduction of invasive aquatic species, the release of hazardous substances and microplastics from anti-fouling systems, as well as enhancing energy efficiency. Cross-reference to actions in other segments HL30
S11	Implement the Joint Harmonised Procedure for the Contracting Parties of OSPAR and HELCOM on the granting of exemptions under the Ballast Water Management (BWM) Convention, Regulation A-4, and keep the Ballast Water Risk Assessment Tool up to date with data from conducted port surveys.
S12	Continue close cooperation with OSPAR on the implementation of the Ballast Water Management (BWM) Convention and the issue of biofouling management at the regional and inter-regional level.
Topic: Recreational boating	
S13	Promote environmentally sustainable recreational boating, including the use of best environmental practices through education and raising awareness of boat users and the personnel of marinas and guest harbours. Promote also “green” marinas and guest harbours by e.g. introducing eco-labelling of marinas and developing guidance and best practice documents by 2025 as a help for the marinas to reach criteria.
Topic: Pollution from ships	
S14	Carry out a study and impact assessment by 2025, assessing the possible ways for cargo ships to deliver sewage to port reception facilities (PRF) or take treatment measures, using onboard treatment plants, before discharging it into the sea. Based on the results, take relevant action in making a decision by 2027 on whether to widen the scope of the Baltic Sea Special Area regulations under the International Convention for the Prevention of Pollution from Ships (MARPOL) Annex IV to cover also sewage discharges from cargo ships.
S15	Carry out a study and impact assessment by 2027, assessing the volume and potential harmful effects of grey water and the possibilities for ships to deliver it to port reception facilities or take treatment measures using onboard treatment plants, before discharging it into the sea. Based on the results, take relevant action in making a decision by 2029 on whether and how to manage grey water discharges from ships.
S16	Carry out a study and impact assessment by 2026 to estimate and evaluate the volumes and impact of discharges of residues of noxious liquid substances contained in cargo tank washing waters under the International Convention for the Prevention of Pollution from Ships (MARPOL) Convention Annex II into the Baltic Sea. Based on the results, take relevant action by 2028 on whether and how to further limit discharges of residues of noxious liquid substances contained in cargo tank washing waters under MARPOL Annex II into the Baltic Sea.
S17	Study the adequacy and use of port reception facilities (PRF) for the International Convention for the Prevention of Pollution from Ships (MARPOL) Convention Annex V cargo residues by 2024 and, based on this information, ensure adequate PRFs in Baltic Sea ports for cargo residues classified as non-HME substances under MARPOL Annex V and further ensure incentives for ships to use them by 2027.
S18	Develop a Roadmap to minimize the discharges of food waste into the Baltic Sea and subsequently develop by 2025 a HELCOM Recommendation to encourage voluntary agreements on delivering all food waste from ships to port reception facilities.
S19	Enforce the requirements of the Baltic Sea Special Area under the International Convention for the Prevention of Pollution from Ships (MARPOL) Convention Annex IV and continuously ensure the availability of adequate port reception facilities in passenger ports in the Baltic Sea Area taking into account the “Technical Guidance for the handling of wastewater in Ports of the Baltic Sea Special Area under MARPOL Annex IV”.
S20	Ensure the no-special-fee system for marine litter applies to all passively fished waste by 2024.
S21	Develop and introduce best technologies, techniques and practices (BAT/BEP) to minimize nutrient losses from dry bulk fertilizer storage and handling in ports in the Baltic Sea region by 2024.



S22	Develop a Roadmap by 2025 to reduce the input of pollutants from Exhaust Gas Cleaning System discharge waters, as a minimum in line with existing legislation, taking into consideration the precautionary principle and the outcome of the work of the International Maritime Organization (IMO).
S23	Develop a Roadmap to strengthen the implementation and enforcement of the Baltic Sea NOx Emission Control Area (NECA) by 2023 based on experience and lessons learned.
S24	Enhance the use of alternative fuels and sources of energy in shipping as well as recreational boating, as well as enhance the use of digitalization and other innovations in technology by 2027 to optimize energy efficiency in the Baltic Sea area with a view to reducing emissions of both greenhouse gases and air pollutants.
S25	Actively follow and contribute to the discussions at the International Maritime Organization (IMO) on greenhouse gas (GHG) emission reduction and ensure that ice navigation and its special requirements are duly taken into account. Ensure, through the work of the HELCOM Green Team, that shipping in the Baltic Sea area meets targets of the IMO GHG strategy by 2030 while at the same not impairing efforts on reducing air pollution or other environmental effects.
S26	Work towards securing ship financing and innovation funding to support more sustainable shipping and to ensure maritime transport components in applicable funding mechanisms.
S27	Enable onshore power in the Baltic Sea region by promoting onshore power supply availability and ensuring initial economic incentives for the use and supply of onshore power by 2027.
S28	Develop and facilitate implementation of feasible and effective economic incentives to reduce pollution from ships, taking into account HELCOM Recommendation 28E/13 as amended on 19 June 2019.
S29	Continue the dialogue established by the Baltic Sea Platform for Green Technology and Alternative fuels in shipping (HELCOM GREEN TEAM) and work jointly in co-operation with other regional governmental and non-governmental organizations, the industry and research community, to further promote development and use of green technologies and alternative fuels, in order to reduce harmful exhaust gas emissions and to strive for clean and low-carbon shipping.
Theme: Response	
S30	Further develop regional preparedness and response-related services by e.g. investigating options for upgrading SeaTrack Web to include live data feed in order to improve oil spill trajectory prognoses no later than by 2027. Investigate options to prepare SeaTrack Web for integration with the Clean Sea Net satellite detection service.
S31	Conduct a feasibility study by 2022 for, and as appropriate, undertake a risk analysis for oil and hazardous and noxious substances (HNS) pollution of the marine environment in the Baltic Sea area by 2025.
S32	Develop a framework for holistic/integrated management of marine pollution incidents to enable coordinated response operations at sea and on shore by 2025.
S33	Strengthen mutual assistance for oiled wildlife response in the Baltic Region by 2025.
S34	Develop Best Environmental Practice (BEP) for comprehensive risk assessment of munitions, wrecks and hazardous submerged objects by 2025 and implement the Best Available Techniques (BAT) for environmentally sound and safe management by 2028.
S35	Maintain the HELCOM thematic assessment on hazardous submerged objects as a living document, including munitions and wrecks and regularly update the information in the HELCOM Map and Data Service by 2024.
S36	Implement the Multi-Regional Marine HNS Response Manual in operational response to spills involving hazardous and noxious substances as well as exercises by 2025.
S37	Commit to testing the procedures of the Multi-Regional Marine HNS Response Manual at BALEX 2022.
S38	Undertake monitoring and pollution risk assessment regarding species and habitats in the Baltic Region by 2026.



Theme: Fisheries management

S39

Develop guidance by 2026 in cooperation with the Regional Coordination Groups within the EU Data Collection Framework and the International Council for the Exploration of the Sea (ICES) on how to improve data collected on recreational fisheries in a cost-effective way, with a view to evaluating the impacts of recreational fisheries on the marine environment, where there is a need.

S40

Identify by 2024 fish species for which there is a need for better data for identified purposes, such as setting threshold levels. Utilise dedicated programmes and projects to facilitate recording and reporting of data for these species by 2025 to support the identification and implementation of measures to achieve good environmental status.

Cross-reference to actions in other segments

B35

S41

Further elaborate cooperation between the Baltic Sea Fisheries Forum (BALTFISH) and relevant HELCOM working groups by 2023 to facilitate a wide range of actions to achieve good environmental status.

S42

Update and harmonize by 2024 the 2016 BALTFIMPA decision support tool approach with ongoing initiatives e.g. in the International Council for the Exploration of the Sea (ICES) on a seafloor assessment framework for the Baltic Sea. This tool should also provide options on how to reduce the possible negative impact of fisheries on conservation values in the most cost-effective way, including in marine protected areas (MPAs).

Cross-reference to actions in other segments

B3

B5

B8

Topic: By-catch

S43

Reduce the negative impacts of fishing activities on the marine ecosystem and to this end, support the development of fisheries management including technical measures to minimize unwanted by-catch of fish, birds and marine mammals and achieve the close to zero target for by-catch rates of relevant species by 2024, especially the Baltic proper population of harbour porpoise by 2022.

Cross-reference to actions in other segments

B8

S44

Invite the competent authorities to immediately, but no later than 2022, implement mitigation measures in the Baltic proper, in order for by-catch of harbour porpoise to be significantly reduced, with the aim of reaching by-catch rates close to zero.

Cross-reference to actions in other segments

B8

S45

Invite the competent authorities to implement operational conservation measures for the Belt Sea population of harbour porpoise by 2024 such as permanent and/or spatial-temporal closures for relevant fishing métiers in risk areas where technical mitigation measures are insufficient to reach conservation goals.

Cross-reference to actions in other segments

B8

S46

Promote effective mitigation measures to minimize by-catch of harbour porpoise in the Baltic Sea area inter alia via cooperation with the Baltic Sea Fisheries Forum (BALTFISH), and evaluate and promote adjusted measures as needed by 2025.

Cross-reference to actions in other segments

B8



S47

Continually test, promote and introduce new technical and operational by-catch mitigation measures such as alternative and seal safe gears in cooperation with competent authorities with the aim to, as appropriate, replace fishing gear proven to be problematic with respect to by-catch, with evaluation of measures every five years starting in 2023, and regularly update the HELCOM questionnaire on trials of alternative fishing gears and fishing techniques.

Cross-reference to actions in other segments

B3

B5

B8

S48

Develop and implement effective data collection for more reliable data on incidentally by-caught birds and mammals and fishing effort consistent and fully in line with the data needs identified by the International Council for the Exploration of the Sea (ICES). Relevant sources of data are e.g. the EU Control Regulation and additional national or regional coordinated data collection programmes or projects for filling data-gaps outlined in the HELCOM Roadmap on fisheries data.

Cross-reference to actions in other segments

B5

B8

S49

Maintain, develop and extend regulatory or voluntary schemes to protect key seabird areas and seasons by establishing appropriate fisheries measures in line with conservation objectives and to monitor incidental catches of seabirds by 2025. Extend and develop outreach programmes for the fisheries sector concerning their possible impacts on seabird populations.

Topic: Fish stock management

S50

Competent authorities to jointly further develop protective measures for Baltic Sea salmon to support the development of a new regional salmon management plan, and nationally establish salmon management plans by 2023, where appropriate. These management plans should be implemented by 2025 to achieve the set targets, including but not limited to smolt production, genetic diversity and distribution throughout the river habitat. In addition, nationally ensure that granting permits for activities in and near rivers does not compromise the ability to reach set river-specific fish population targets.

Cross-reference to actions in other segments

B16

S51

Competent authorities to improve data related to sea trout stocks and to improve populations of sea trout stocks by implementing national measures at the latest by 2025 with a view to achieving good ecological condition in sea trout streams.

Cross-reference to actions in other segments

B16

S52

Define necessary complementary measures by 2024 in relevant policy (fisheries, environment etc.) areas to improve the size/age structure for fish stocks, including cod.

Cross-reference to actions in other segments

B27

S53

Implement measures to restore coastal fish communities, including establishment of no-take areas, seasonal closures and catch regulations, as appropriate by 2026 for the specific coastal area.

Cross-reference to actions in other segments

B15

S54

Share information among Contracting Parties, the Baltic Sea Fisheries Forum (BALTFISH) and Baltic Sea Advisory Council (BSAC) on non-lethal mitigation measures or other ways to manage seals-fisheries interactions and implement those measures by 2025, as appropriate.

Cross-reference to actions in other segments

B3

B5

Theme: Underwater noise

S55

Identify at the latest by 2025, as well as regularly update every two years, mitigation measures according to Best Environmental Practice and Best Available Technique for continuous underwater noise in the Baltic Sea and implement thereafter in line with recommendations and regulations of the international Maritime Organization (IMO).

S56

Actively support and contribute to the ongoing discussions on underwater noise at the International Maritime Organization (IMO) by, amongst other things, working towards regionally coordinated implementation of actions by 2028.

Start working as soon as possible towards regionally coordinated actions on underwater noise, aiming in the long term towards addressing adverse effects of underwater noise on marine species identified as sensitive to noise, whilst safeguarding the potential of the Baltic Sea for sustainable human activities by:

- a. Supporting a swift implementation of the Regional Action Plan on Underwater Noise.
- b. Initiating and supporting pilot projects to study efficacy of vessel slowdown, rerouting and other operational measures, on noise emissions and responses of target species by the end of 2026. Results are to be communicated to the International Maritime Organization (IMO) for follow-up and further action.
- c. By 2027 Mapping the contribution of recreational craft to the noise in the marine environment; supporting studies on efficiency of mitigation measures, such as speed limitations and time-area restrictions; and studies on impact from echo sounders and fish-finders. Based on available evidence and new results, developing guidelines for implementing regulations to reduce impact on sensitive species. Simultaneously, establishing a discussion with the industry and relevant international standardization bodies and aiming at developing industry or/and application standards for underwater noise emissions of engines with respect to recreational craft, echo-sounders and fish finders, which can be utilized in national regulation of activities in marine protected areas (MPAs) and other noise sensitive areas in the Baltic Sea.

Cross-reference to actions in other segments

B3

S58

Study by 2026 the impacts of continuous underwater noise from the installation, operation and decommissioning of offshore windfarms on marine biota, including cumulative effects of multiple windfarms. Based on the results, take relevant action, if necessary, in developing appropriate mitigation measures for the continuous underwater noise generated by offshore wind farms by 2029.

S59

Reduce the impact of impulsive underwater noise on marine biodiversity.

S60

Identify at the latest by 2023, as well as regularly update every two years, mitigation measures according to Best Environmental Practice and Best Available Technique for impulsive underwater noise in the Baltic Sea and implement thereafter without delay.

S61

Develop and implement guidelines for the design and use of acoustic deterrent devices to avoid detrimental impacts on the environment from underwater noise by 2024.

S62

Develop and implement threshold values and assessment methods for adverse effects of impulsive and ambient noise for marine life, in cooperation with OSPAR, the EU and other relevant expert groups, by 2023 at latest for marine mammals and by 2026 for other relevant species groups.

S63

Implement regular and regional harmonized monitoring of ambient and impulsive noise by 2023 to follow up effects of mitigation measures.

Theme: Seabed loss and disturbance

S64

Enforce and implement by 2025, in line with the update of the marine protected area (MPA) management guidelines, effective management plans and/or conservation measures to not allow destructive and exploitative activities related to the seabed that may compromise the conservation objectives of MPAs.

Cross-reference to actions in other segments

B3

S65

By 2026 implement a common approach to address and where possible minimize the loss of and disturbance to seabed habitats caused by human activities.

S66

Regularly update and improve the HELCOM Recommendation and Guideline for handling dredged material at sea using the best available knowledge to minimize environmental impact of these activities further developing Best Environmental Practice (BEP) and Best Available Technique (BAT) for dredging and depositing operations.

S67

Define the characteristics of benthic habitats, develop core indicators and undertake an integrated assessment of the status of benthic habitats, including their structure, function, distribution and extent of loss, no later than 2023, leading to the identification of measures to reduce adverse effects where needed. Work should be done in close cooperation with work undertaken by Contracting Parties in other relevant fora, taking into account activities in EU Technical Group on seabed habitats and sea-floor integrity (TG Seabed), and considering the ICES advice on a sea-floor assessment process.

S68

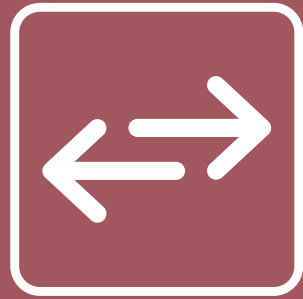
Develop a map service for lost and disturbed habitats under the HELCOM Map and Data Service by 2024.

Connection to other treaties

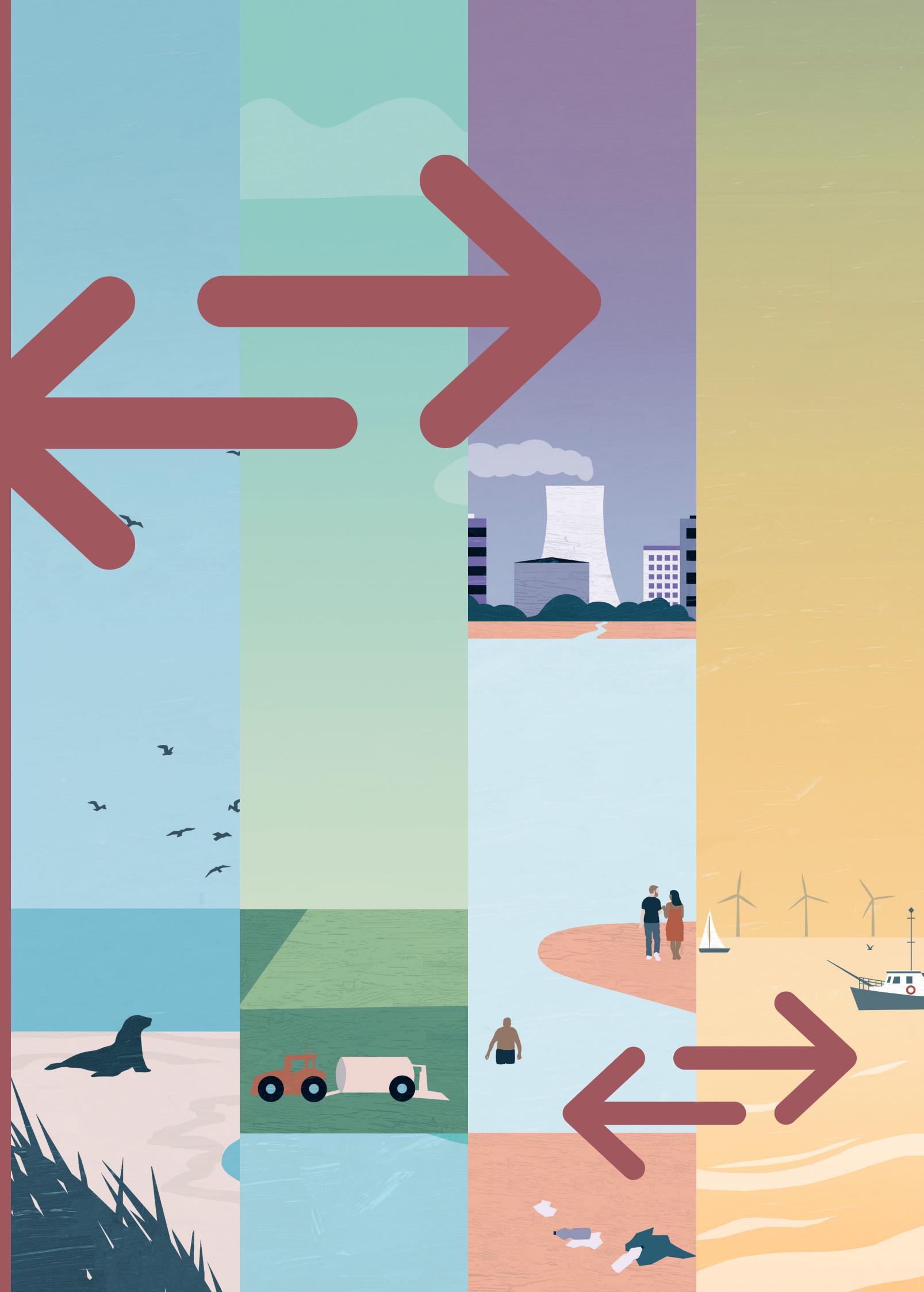
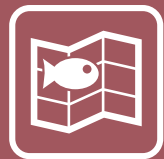
The achievement of good environmental status in relation to sea-based activities in the Baltic Sea also relies on the implementation and enforcement of relevant EU legislation and policies as well as a number of other treaties, including but not limited to:

- Conventions under the International Maritime Organization (IMO);
- Agreement on the Conservation of Small Cetaceans of the Baltic, North-East Atlantic, Irish and North Seas (ASCOBANS);
- Convention on the Conservation of Migratory Species of Wild Animals (CMS);
- World Trade Organization (WTO) agreements;
- Convention on Biological Diversity (CBD)
- Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR); and
- Bonn Agreement.

National and regional recommendations and regulations developed within HELCOM are important in complementing the international regulatory frameworks.



Horizontal topics





Horizontal topics

The topics included in this section are by their nature cross-cutting, or “horizontal”, thus potentially affecting the implementation of all elements of the Baltic Sea Action Plan (BSAP) as a whole. The topics under the updated BSAP which have been identified as cross-cutting are:

- **Climate change**
- **Monitoring**
- **Maritime spatial planning (MSP)**
- **Economic and social analysis**
- **Hot spots**
- **Knowledge exchange and awareness raising**
- **Financing**

Each of these seven topics is relevant to the achievement of the goals of the updated BSAP. Monitoring and economic and social analyses, for their part, serve to examine and quantify the direct and indirect effects of the implementation of, or failure to implement, the measures included in the BSAP. Maritime spatial planning is a key and increasingly important instrument in ecosystem-based management and in working towards good environmental status. Finally, the successful implementation of the BSAP depends on the availability of sufficient funding.

Climate change



The impacts of climate change on the marine environment are by nature very varied. They affect the various ecological components of, as well as the sectors of activity related to, the Baltic Sea touching on aspects ranging from science to high-level policy. Climate change is thus a horizontal issue affecting the entire Baltic Sea region.

With the entire marine environment affected by climate change its effects are already evident in the Baltic Sea: water temperature is rising, the sea ice cover has decreased, and annual mean precipitation is increasing over the northern part of the region. These effects extend to impact the species in the Baltic Sea, the ecosystem services it provides and the human activities depending on the sea. For example, many wintering birds have shifted their wintering range northwards, and the number of warm water fish species are increasing. Surface water warming has increased the risk of infection by pathogens and has already led to heightened sea-based activities such as trawl fishing that now begins earlier in the year, especially in the northern parts of the Baltic.

However, the various effects of climate change are often not easy to understand and can be difficult to distinguish from other anthropogenic pressures. Both climate change and other human-induced pressures vary significantly between different regions in

Code	Action
Theme: Climate change	
HT1	Using the HELCOM/Baltic Earth Joint Expert Network on Climate Change as a platform and through committed implementation of the HELCOM Science Agenda, improve the access of policy-makers to scientific information on the impacts of climate change together with multiple other pressures on the Baltic Sea marine environment through periodic updates of the HELCOM Climate Change Fact Sheet, and incorporate the possible effect of climate change into the holistic assessment of status as well as effectiveness of measures by 2030 at latest.
HT2	Identify the needs and possibilities to further adapt HELCOM's policies and recommendations to account for effects and impacts on the environment under the changing climate and to develop and carry out a climate change policy review process as part of the work of HELCOM, starting e.g. with indicators and open recommendations.
HT3	HELCOM and its parties will continue to strive to develop the work at the HELCOM Secretariat and the organisation of HELCOM meetings so as to further minimize emissions of greenhouse gases.
HT4	Promote research that increases understanding of the role of the Baltic Sea land-sea system in the carbon cycle and identifies how mitigation by natural blue carbon processes can be maximised and implement suitable measures. Increased understanding should be utilised to enable consideration of additional management measures.
HT5	Develop a strategic approach to ocean acidification for the Baltic Sea with first steps addressing the knowledge gaps by 2025.

the Baltic Sea, ruling out simple management solutions and a one-size-fits-all approach that could be applied across the entire region. Policies on climate change and its effects on the marine environment need to consider the dissimilarities in the Baltic Sea region and follow an adaptive management approach based on the best available science, tailored to the challenges faced by a specific area or subbasin.

With regard to climate change, the ultimate aim of HELCOM is to increase the resilience of the ecosystem of the Baltic Sea to its impacts. All measures that lead to a stronger Baltic marine ecosystem resilience should therefore also be regarded as climate adaptation measures. In order to support adaptive management, climate change work within HELCOM will focus on long-term, multi-disciplinary approaches. HELCOM serves as a platform for disseminating knowledge on the effects of climate change and ensuring that quality assured science becomes available to policy makers, other professionals and stakeholders in the Baltic Sea region as quickly as possible. This includes cooperation and communication with other relevant actors within and beyond the HELCOM region. For instance, HELCOM cooperates closely with the maritime sector on minimizing the negative impacts from shipping on the Baltic Sea, such as through incentivizing the transition to greener shipping practices and by supporting initiatives targeted at reducing greenhouse gas emissions from shipping.

Globally, naturally occurring emissions of greenhouse gases,

such as methane, from lakes and reservoirs amount to a release of greenhouse gases comparable to approximately 20% of emissions generated by fossil fuel combustion. In order to make progress on climate change mitigation measures related to the Baltic Sea, such as increasing the “blue carbon” storage we need to better understand the carbon cycle in the Baltic Sea land-sea system, including the links between the carbon dynamics (e.g. land-based input of organic carbon and outgassing of methane), the eutrophication legacy (e.g. carbon in sediments, anoxia) and biodiversity (e.g. carbon sequestration).

Although acidification is currently not a major trend in the Baltic Sea ecosystem, it is an advancing and significant trend in the world's oceans, directly connected to carbon dioxide emissions. The long-term forecast for the Baltic Sea also projects an increased acidification, but neither the carbon chemistry of the Baltic Sea nor possible impacts of acidification on biota are fully understood yet, and mitigation measures have not been considered so far.

Connection to other treaties

HELCOM's work on climate change supports the implementation of the Paris Climate Agreement. The extent of the effects of climate change on the Baltic Sea will depend on whether the goal of the Agreement – to limit global warming to well below 2°C, preferably to 1.5°C, compared to pre-industrial levels – is reached and to what extent this will be the case.

Monitoring



Monitoring is a well-established activity under the Helsinki Convention. Coordinated monitoring of physical, chemical and biological variables of the open sea of the Baltic Sea has been carried out since 1979. The data stemming from these coordinated monitoring programmes provide the basis for understanding the state of the marine ecosystem and the impacts on the sea of human activities, as well as the effects of measures addressing those impacts.

The HELCOM Monitoring and Assessment Strategy sets out the basis for how the HELCOM Contracting Parties commit themselves to cooperating and coordinating when designing and carrying out their national monitoring programmes, and to working together to produce and update joint assessments. HELCOM monitoring provides the necessary data needed for the regular assessments of the

state of the Baltic Sea, as well as of the human pressures and their impacts on that state to track the effect of HELCOM commitments including the BSAP. It also enables evaluations of the extent to which measures are effective and contribute to the implementation of the BSAP and progress towards the visions, goals and objectives of the BSAP. For those Contracting Parties who are also EU member states the joint monitoring may also help to fulfill the requirements of the EU's Marine Strategy Framework Directive, the Water Framework Directive, the Habitats Directive and the Birds Directive.

HELCOM monitoring can also be utilized to detect climate change and its impacts on the Baltic Sea marine ecosystem over time. Sites with relevant long-term data records are maintained, whilst continuously making use of improved data collection techniques where appropriate, thus sustaining long-term data series needed to identify change over time. This can enable the assessment of the ability of the marine environment to cope with, adapt to or recover from the effects of climate change.

Code	Action
Theme: Monitoring	
HT6	Regularly review, and as necessary revise HELCOM monitoring programmes (once per six years), including the level of regional coordination, in line with the Marine Strategy Framework Directive (MSFD) reporting cycle, to adjust them to the latest technical and scientific developments for a cost-effective joint monitoring, which fully supports the indicator-based assessment approach and monitoring of the implementation of the Baltic Sea Action Plan, and is in line with other international monitoring and reporting requirements.
HT7	The validity of HELCOM Monitoring and Assessment Strategy and Data and Information Strategy should be reviewed within two years after updating the BSAP and revised as needed.
HT8	Ensure all HELCOM monitoring programs are regionally coordinated by 2026.
Topic: Monitoring of habitats and biotopes	
HT9	Map biotopes and habitats nationally based on regionally comparable classification systems, including key habitats and habitat forming species, and identify gaps in spatial coverage of mapping efforts, with the aim to produce Baltic-wide models, including production of maps, of distribution of habitats and biotopes by 2028.
HT10	As a first step target the gaps identified in the HELCOM monitoring programmes of biotopes, habitats, including key habitats and key habitats forming species by 2024 and operationalize continual Baltic-wide monitoring of those biotopes and habitats by 2030.
HT11	Develop quality standards for seafloor habitat mapping and derived products by 2024.

Maritime spatial planning



Maritime spatial planning (MSP) is a process to support the integrated management of sea-based human activities. By reducing their negative impacts on the various components of the marine environment, it effectively contributes to the achievement of the goals and objectives of the various BSAP segments. MSP helps to safeguard biodiversity and to promote the sustainable use of marine resources, while, at the same time, balancing the interests of all stakeholders, also in the light of other international environmental commitments. As an integrated tool, MSP also contributes to climate change adaptation and mitigation by increasing climate resilience.

Maritime spatial planning provides important added value for the BSAP as it is a process that considers multiple human activities from a spatial perspective. MSP is based on a comprehensive, coherent cross-border and forward-looking analysis of the use of marine space, with the purpose of identifying preferred and optimal locations for sea-based activities.

Maritime spatial planning supports sustainable development and sustainable marine economy/ blue economy by applying an ecosystem-based approach. MSP considers social, economic, cultural and other relevant aspects while also enhancing marine nature values, facilitating nature conservation and improving marine ecosystem services.

Code	Action
Theme: Maritime spatial planning	
HT12	Utilize maritime spatial planning (MSP) applying an ecosystem-based approach to support BSAP objectives and targets and contributing to sustainable sea-based activities.
HT13	Use maritime spatial planning (MSP) as a tool to signal areas of high nature value as identified by responsible environmental authorities. Cross-reference to actions in other segments B1 B13
HT14	Implement maritime spatial plans with the aim of steering sea-based activities away from areas where they can cause serious damage or disturbance. Cross-reference to actions in other segments B1 B13

Economic and social analysis



Economic and social analyses of the environment can demonstrate the interaction between the ecosystem and the social-economic system. Furthermore, economic and social analyses can support decision-making in relation to environmental policies and objectives by illustrating the importance of the marine environment in the Baltic Sea to citizens and society, the well-being of current and future generations, and national and regional economies.

In recent years, economic and social aspects of protecting the Baltic Sea have been brought to the fore within HELCOM. For instance, regional economic and social analyses were carried out.

These analyses concerned topics such as the use of marine waters and the costs of degradation from not achieving a good status of the marine environment, as well as the sufficiency, effectiveness and costs of measures. However, several methodological and practical challenges and knowledge gaps remain.

In order to use and further advance the regional economic and social analyses as a means of policy support the BSAP actions cover specific priority areas for developing and implementing these analyses in the Baltic Sea region. The actions provide regionally coherent data and results to support ecosystem-based management, sustainable use of marine resources, and development of efficient regional and national policies, including the BSAP and maritime spatial planning.

Code	Action
Theme: Economic and social analysis	
Topic: Enabling ecosystem-based management	
HT15	By 2023, integrate economic and social analyses in HELCOM work strands to support the implementation of the ecosystem-based approach and allow for assessment of the linkages between the marine environment and human wellbeing, including carrying out regionally coordinated economic and social analysis of the marine environment.
HT16	By 2028, improve the use of results from economic and social analyses in decision-making, including through establishing a set of indicators that describe the economic and social aspects of the marine environment.
HT17	By 2030, integrate quantitative and qualitative economic values of the environment into the management of human activities and maritime spatial planning.
Topic: Ecosystem services	
HT18	By 2023, identify potential uses of ecosystem services assessment and valuation, further develop and apply regionally coordinated methods in support of analyses of ecosystem services and provide an initial demonstration of how they can be used in policy development.
Topic: Ecosystem accounting	
HT19	By 2028, apply the framework of ecosystem accounting to assess the contributions of marine ecosystems to economic activity (e.g. Gross domestic product (GDP)) using values that are compatible with the system of national accounts and comparable with other economic sectors.
Topic: Sufficiency and efficiency of measures	
HT20	By 2024 analyse existing tools for analysing sufficiency of measures, with the aim to plan monitoring and assessment of the effect and cost of measures, in order to further make use of the experiences when the need for new measures occurs. By 2028, further develop and apply regionally coordinated methods for analyses of sufficiency of measures as well as for cost-effectiveness of measures and costs and benefits to achieve good environmental status of the Baltic Sea marine environment.
Topic: Incentives and subsidies	
HT21	By 2025 identify incentives to reduce pressures on the marine environment, including public and private economic and regulatory incentives, and by 2030 increase the use of incentives and fill possible gaps.
HT22	By 2025 HELCOM should identify subsidies or incentives which are harmful for the marine environment and, by 2030 work, in cooperation with relevant international organizations, on phasing out such subsidies or incentives.

Hot Spots



In 1992, the Baltic Sea Joint Comprehensive Environmental Action Programme (JCP), an international environmental management framework for the long-term restoration of the ecological balance of the Baltic Sea, was adopted to help identify and clean up pollution hot spots. The HELCOM Hot Spot list established by the JCP includes point sources of pollution such as municipal facilities and industrial plants, agricultural areas and rural settlements, as well as sensitive areas such as coastal lagoons and wetlands where special environmental measures are needed.

Good progress has been made in the last three decades by cleaning up more than three quarters of the total 162 HELCOM ‘hot spots’, but further efforts are needed to resolve the remaining 40 pollution sites. In general, despite the delay in its full implementation, the JCP has demonstrated its effectiveness for prioritizing and tackling local environmental issues, effectively contributing to the overall progress towards good environmental status of the Baltic Sea.

While the criteria for removal of the hot spots as outlined in the 1992 JCP should remain unchanged to avoid creating a moving target, HELCOM will explore widening the scope of the programme to include emerging challenges and develop additional criteria for the removal of newly designated hot spots.

Code	Action
Theme: Hot Spots	
HT23	Renew the effort to eliminate remaining hot spots identified by the Baltic Sea Joint Comprehensive Environmental Action Programme (JCP, 1992) by 2025.
HT24	Consider designating HELCOM hot spots by 2025 on the basis of identified additional sources of major negative impact on the Baltic marine ecosystem, starting with the development of specifying criteria for the designation and deletion of the hot spots by 2023, and based on those criteria, initiate and undertake targeted measures with the aim of eliminating where possible such new hot spots.
HT25	Prioritize inclusion of HELCOM hot spots into investment programmes (national or international) or establish alternative financial mechanisms by 2027 at the latest to eliminate hot spots from HELCOM list.
HT26	Enhance cooperation with non-HELCOM countries in removing existing hot spots and designate new hot spots applying HELCOM criteria and facilitate undertaking all possible measures to eliminate them.
E4	Cross-reference to actions in other segments

Code	Action
Theme: Knowledge exchange and awareness raising	
HT27	Increase knowledge exchange and awareness raising to promote public and stakeholder support and interest in understanding the state of the Baltic Sea and threats to its environment as well as promote opportunities for the general public to participate in citizen science.
HT28	Share experiences and best practices on measures that have been implemented.



Financing



The economic benefits of achieving a good status with regard to eutrophication, biodiversity and other aspects of the Baltic Sea ecosystem are evident and documented by impressive figures. The costs of protecting the Baltic Sea can be reduced by a cost-effective allocation of measures and, in many cases, benefits have been evaluated to exceed the costs. On the other hand, it should also be borne in mind that the cost of insufficient protection can be substantial as the polluter-pays principle is one of the fundamental principles and obligations enshrined in Article 3.4 of the Helsinki Convention.

In this respect, all Contracting Parties and HELCOM Observers will investigate how to make funding i.e. financial and non-financial contributions available for the implementation of the BSAP, taking into account in particular the need to connect priorities within the different sectors in which projects are being chosen for financing, in order to establish synergies and make best use of limited financial resources.

It should be underlined that increased public and private investment is necessary for implementing the actions and achieving the objectives of the updated BSAP, and thereby reaching the goal of a healthy Baltic Sea.

The private sector, financial institutions as well as non-profit foundations and non-Baltic Sea states are therefore invited to join in the efforts to restore the good environmental status of the Baltic Sea,

which also supports a growing sustainable blue economy in the region. The Contracting Parties will promote mobilising private and public funding sources to implement the BSAP and where possible also promote mobilising external funding in the context of organizations including the World Bank, the German Kreditanstalt für Wiederaufbau KfW development banking group, the Nordic Investment Bank and others.

The EU and those of its member states that are also Parties to the Helsinki Convention will dedicate funding to the implementation of the updated BSAP, notably where funding is available through programmes under the European Structural and Investment Funds in the 2021-2027 programming period and by funding adequate measures under the Common Agricultural Policy and the Common Fisheries Policy. They commit to taking into account priorities of the revised Action Plan of the EU Strategy for the Baltic Sea Region (EUSBSR) and its Policy Areas aiming to save the Baltic Sea in the development and implementation of post-2020 relevant programmes, as well as the Strategy for Social Economic Development of the North-West Federal District of the Russian Federation. Projects financed by the Interreg Baltic Sea Programme 2021-2027 can also support the implementation of the BSAP.

In that context, the Baltic Sea Action Plan Fund, hosted by NIB/NEFCO, can be a tool for supporting the implementation of the updated BSAP, and Contracting Parties and other possible contributors can voluntarily contribute to the Fund, with a view to replenishing the Fund so that it can provide funding to all actors interested in contributing to the aims and objectives of the BSAP.





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Corrigenda

22 October 2021: correction of erroneous text in action B24

7 December 2021: editorial corrections

30 March 2022: correction of erroneous label order in Table 2a

4 April 2022: rectification of headings in the horizontal topics chapter

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