

Programme of measures of the Finnish marine strategy 2016–2021

SUMMARY

On 3 December 2015, Finland's government approved the programme of measures for the Finnish marine strategy 2016–2021. The programme of measures is the third part of the Finnish marine strategy. The definitions for the good environmental status, environmental targets, as well as an initial assessment of the state of the marine environment are all part of the first stage of the Finnish marine strategy, and a monitoring programme for the marine strategy makes up its second part. The government approved the first part of the strategy in 2012 and the second part in 2014. Preparation of the Finnish marine strategy has been pursuant to the Act on Water Resources Management and the Government Decree on marine resources management, and it is also part the mandatory national marine strategy required by the implementation of the directive establishing framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive).

The programme of measures curtails the pressure people's actions have on the marine environment and improves the state of the marine environment. The objective is to maintain or achieve a good environmental status by 2020.

The programme examines the containment of eutrophication, the reduction of hazardous and harmful toxins, the conservation of biodiversity, the prevention of the spread of invasive alien species, the promotion of sustainable use and management of marine resources, a reduction in the impact of human activities on seafloors, the prevention of disturbances caused by hydrographic change and the realisation of a cut in the littering of seas and beaches, and a cut to underwater noise pollution.

Currently implemented measures, such as international agreements, EU and national legislation and different programmes and strategies that Finland has committed, which improve the state of the marine environment form the basis for the measures for the Finnish marine strategy. With regard to the state of the Baltic Sea, the most important of currently implemented measures are the measures listed in river basin management plans 2016–2021, which address loading from on-land sources. To ensure that the marine strategy's objectives can be achieved, it is important that many of the existing measures be implemented more effectively with regard to marine resources management. However, the existing measures alone are not sufficient for achieving the marine strategy's objectives. These will not ensure the good environmental status, and, for this reason, **29 new measures** have been added to the programme of measures for the Finnish marine strategy.

In order to achieve a good environmental status in Finland's territorial waters **nutrient loading and eutrophication** must be cut by at least 440 tonnes of phosphorous and 6,600 tonnes a year in relation to the average level in 2006–2011. Nutrient loading into the Baltic Sea from Finland is decreasing with the exception of loading in the Bothnian Bay. Although, numerous industries cause nutrient loading, agriculture is the single greatest attributer (64–82 per cent phosphorous and 50–80 per cent nitrogen). The realisation of river basin management plans will play a key role in cuts to nutrient loading from on-land sources, and the measures listed in this programme will supplement these. The new measures for the Finnish marine strategy include actions for the more effective recycling of nutrients, development and full utilisation of the current and the coming 2021–2027 environmental compensation system for agriculture, measures for the adoption of fish fodder made from raw materials produced in the Baltic Sea region, an increase to the use of cyprinids as human nutrition, promoting the field spreading of gypsum to bind phosphorus, assessing the dynamics and potential for control of the Baltic Sea's internal nutrient stores, and Finland's participation in negotiations in HELCOM that would see the Baltic Sea designated a NOx Emission Control Area by the IMO. Additionally, the programme promotes the use of LNG to power vessels in order to reduce their NOx emissions. Many of these measures will only have a substantial effect during the latter half of the programme period or during the next programme period. With the realisation of measures listed in the programme of measures of the Finnish marine strategy and river basin management plans 2016–2021, as well as existing measures nutrient loading can be cut enough to achieve HELCOM's load reduction targets for open sea by the designated target year, 2020. However, the targets for larger cuts required for a good state of coastal waters will not be achieved elsewhere than in Kvarken. It will only be possible to achieve a good state with regard to eutrophication in the Kvarken area by 2020. Achieving a good environmental status in this regard will be delayed elsewhere.

No quantitative targets have been set for a cut to loading of hazardous and harmful substances that are from on-land sources or airborne, but the quality norms have been established for level of substances in the marine environment. The objective is to achieve concentrations that are in line with environmental quality standards. Regular loading inventories are carried out in order to gather data on loading on hazardous substances to waters. Industry and community waste water treatment plants cause the single greatest amount of loading. Long-range transboundary air pollution is a significant source of mercury and dioxin deposition. Current legislation and agreements, such as chemicals legislation, the EU REACH Regulation, the Stockholm Convention on Persistent Organic Pollutants, as well as the Minamata Convention on Mercury play a fundamental role in work that aims to reduce loading. An initial action plan for certain hazardous and harmful substances pursuant to the Directive on Environmental Quality Standards will be drafted in 2018. New marine strategy measures include a review of pharmaceuticals in marine areas and a report on the volumes of and changes in dioxin and furan loads that flow through Kymijoki river into the Baltic Sea. It will not be possible to achieve the targets for hazardous and harmful substances in all regards by 2020, because TBT levels will remain too high in certain coastal areas as will the level of dioxin compounds in fish that people eat. This is due to the Baltic Sea's slow recovery from previous polluting activities especially with regard to TBT and the long-range transboundary pollution of dioxins.

Sustainable fishing and hunting are key objectives for the sustainable use and management of marine natural resources. The maximum sustainable yield or a similar indicator should be used when utilising fish populations for fishing, and fishing must not cause significant harm to the marine environment. The most important existing measures include the implementation of the EU's common fisheries policy and national regulation of fishing in accordance with the Fishing Act and other measures such as National Fish Passage Strategy, the national salmon and sea trout strategy as well as management and conservation of seal and bird populations. New measures added to the Finnish marine strategy include a review of the possibilities and need for improving the effectiveness of regulations that apply to fishing of coastal species and measures for the conservation of the European grayling. At this time, no accurate time line can be given on the reaching of good environmental status related to sustainable use and management of marine resources. After the measures have been realised there will be a natural delay in the growth of fish populations. However, progress will be made on their sustainable utilisation, and it is possible to achieve the targets set for sustainable use and management of marine natural resources by 2020. Achieving this objective will be a challenge specifically for reasons related to the sea trout, the zander and the European whitefish. It is possible that due the sea trout being caught as a by-catch of other fishing, more effective regulation will not lead to a sufficient drop in its fishing, and certain natural populations will remain endangered or threatened. However, the amended fishing legislation lays down the conditions that will allow the status of these populations to improve.

The aim of invasive alien species control is to prevent their introduction and to slow down the rate at which they spread. It has been determined that this objective had already been achieved in 2012. Maritime transport is the most important manner in which alien marine species arrive. The most important currently implemented measures are the EU Regulation on invasive alien species, Finland's National Strategy on Invasive Alien Species, as well as Finland's Act on the control of risks posed by invasive alien species, which will enter into force in 2016. Signed in 2004, The IMO's International Convention for the Control and Management of Ships' Ballast Water and Sediments is to enter into force in 2016 and Finland intends to ratify the convention before it enters into force internationally. The currently implemented measures are sufficient to allow the now achieved target to be maintained, and the programme of measures does not have any new measures for the control of invasive alien species. However, the responsible ministries must now set performance targets in place so that the procedures related to the elimination of small pests listed in the national Strategy on Invasive Alien Species can become more effective.

Work to curtail littering of the sea and beaches aims to achieve a level at which littering does not threaten or harm the coastal or marine environment. Littering is a new focus area of the marine strategy, but due to a lack of information, it was impossible to carry out a thorough status assessment in 2012. Especially recreational use of the sea and beaches, shipping, boating, spillover from wastewater treatment plants, storm waters, and fishing have been identified as sources of littering. The most important current measure is the implementation of national waste legislation. In 2015, HELCOM approved a recommendation for reducing litter and the Marine Litter Action Plan for the Baltic Sea. This action plan includes a measure for the implementation of the Baltic's international action plan. The first part of the measure includes a broad-scoped general survey on sources of littering, the next part will outline the target and measures for littering and the last part will comprise

the implementation of the measures. Due to lack of information, it has been impossible to predict the status of littering in 2020.

Reducing underwater noise pollution is a new focus area in the Finnish marine strategy, but due to lack of information it was impossible to carry out a status assessment in 2012. No quantitative targets have been set for reduction of underwater noise, and few, if any, national provisions or measures have been specified for this area. Propeller noise from vessels and boats, as well as underwater civil engineering projects have been identified as the most significant source of underwater noise. In 2014, the International Maritime Organization (IMO) drafted guidelines for the curtailing of underwater noise pollution caused by vessels, and the UN Convention on Biological Diversity recommends that the sources and impacts of underwater noise pollution be examined. New measures include the promotion of decision-making in the International Maritime Organization that aims to reduce the amount of underwater noise caused by ships and measures that will reduce the amount of impulsive noise caused by underwater civil engineering. Due to a lack of information, it has been impossible to predict the state of conduction of underwater noise pollution and other energy in 2020.

Reducing physical damage to the seafloor is a new focus area of the Finnish marine strategy. The focus area's status was estimated as good in 2012. No quantitative targets have been set. In Finland, the activities that cause the greatest damage to the seafloor include dredging, stacking of dredge spoils, excavation of marine sand and aggregates, construction work and laying down of cables, pipes and wires. If the area in which dredging and stacking of dredge spoils takes place is larger than 500 m³ the party carrying out the activities will be required to acquire a permit and follow guidelines. However, there is no definite requirement for a permit in cases of waterway maintenance dredging, but a permit is required, if dredging can alter the water environment. Small-scale dredging can be carried out after submitting a notification. Civil engineering is regulated in accordance with the Land Use and Building Act and the Environmental Impact Assessment procedures. Effective implementation of existing measures, such as the Water Act, is hampered by a lack of information on the characteristics of the seafloor and underwater nature. New measures that aim to maintain a good status include the drafting of a national programme for the extraction of marine sand and gravel, as well as the expansion of the knowledge-base for the assessment and monitoring of the impacts of dredging and for the assessment of the development needs of current practices and legislation that apply to dredging. It has been determined that a good status can be maintained until 2020.

The objective of preventing hydrographic changes is to ensure that permanent changes in hydrographic conditions do not have an adverse impact on marine ecosystems. Especially underwater construction work and dredging affect hydrographic conditions. In 2012, it was determined that a satisfactory state had been achieved. The most important existing measures include the Water Act, the Government Decree on Water Resource Management, the Environmental Impact Assessment procedure and application of the ministry's new guidelines for dredging and stacking. A report on measures to improve local flow conditions in coastal areas has been added as a new measure to the programme. It has been determined that a good status can be maintained until 2020.

The general objective for maritime safety and reduction of emissions from vessels is simply that maritime travel is safe and that it has as few harmful effects on the environment as possible. The focus point for this area is the control of risks related to oil and chemical spills. The most important existing measures include monitoring and reporting of shipping with the VTS (vessel traffic service) and the Gulf of Finland's mandatory reporting system GOFREP, hydrographic services for the updating of depth materials, development and maintenance of a level of preparedness for marine environment disasters, and the implementation of the Act on Environmental Protection in Maritime Transport. The new measures approved for the programme include a measure to reduce the risk of oil spills by improving the effectiveness of monitoring STS procedures in Finland's territorial waters by continuing the drafting of harmonised STS procedures within the framework of HELCOM in the Baltic area and improving the safety of shipping with the eNavigation Strategy's Älyväylä concept. The level of preparedness for disasters affecting the marine environment will be improved by drawing up a development programme for preparedness in the prevention of marine environment disasters. Additionally, a national action plan for the assessment of the ecological impacts of chemical spills in the Baltic will be drawn up.

The objective is to use **maritime spatial planning** to combine different forms of utilisation in marine areas in a sustainable manner that takes ecosystem activities into account, and to, in this way, also avoid forms of use that contradict one another. The most important existing measures include the Directive for Maritime Spatial Planning, joint spatial planning work between countries bordering the Baltic Sea in the HELCOM-VASAB working group, and a roadmap for the implementation of maritime

spatial planning drawn up by the working group, as well as realisation of Finland's Coastal Strategy. The Directive for Maritime Spatial Planning stipulates that maritime spatial plans must be drawn up before 2021. Maritime spatial plans can be used to manage the pressures caused by people to the marine environment and promote the implementation of numerous measures in this programme of measures, such as those related to the seafloor, hydrography, noise pollution, the prerequisites for shipping or the realisation of measures related to protected areas. Existing regional plans and other plans for use of space that are based on the Land Use and Building Act currently largely meet with maritime spatial planning requirements. The key measure for this programme is to integrate conservation objectives for protected marine areas into maritime spatial plans. It has been determined that the marine strategy target for maritime spatial planning can be achieved by 2020.

Strengthening the marine protected area network and other nature conservation activities. The objective is to achieve a satisfactory level of conservation for native species and habitats in the Baltic Sea. No quantitative targets have been set. This target had not been achieved in 2012. All the aforementioned measures for the management and reduction of environmental pressures promote the conservation of species and habitats. The most important target is realising a reduction of eutrophication. The level of conservation can be influenced not only by reducing the aforementioned pressures, but also by implementing nature conservation measures. Of the current measures, the most important are the implementation of the Nature Conservation Act and the Water Act, as well as the establishment of marine protected areas and drawing up use and management plans and rules and regulations for these. The new measures approved for the programme include more effective conservation in marine protected areas, drawing up an action plan for threatened species and habitats, conservation of key underwater habitats, as well as drawing up and realising measures for the conservation of the Baltic Ringed-seal. One key part of measures is to improve the knowledge base related to underwater nature by extending the implementation of the Finnish Inventory Programme for the Underwater Marine Environment (VELMU) after 2015 and another is the addition of a map service to improve general accessibility to data. After an assessment it was determined that a good status could be achieved by 2020, but there were uncertainties linked to the assessment, and it was based on the assumption that all the existing measures and the measures listed in this programme are realised in their entirety.

The communication measure, which includes the distribution of information, guidance and environmental education, aims to improve the awareness individual citizens and people in different professions have on the factors that contribute to the good environmental status and good practices and operating methods that reduce the pressures to the marine environment caused by human activities.

According to an expert assessment, the realisation of current and newly proposed measures related to the marine strategy would see a decrease in the pressures caused by human activity on the sea and significantly improve the state of the marine environment by 2020. However, a good environmental status cannot be achieved in full by 2020. The environment will require quite some time to recover from damaged caused especially by eutrophication and harmful substances. On the other hand, the specified target year for achieving objectives is so near that there will not be sufficient amount of time to complete all the measures listed in the programme. Additionally, years or possibly decades will pass before the impacts of some of these measures on the marine environment will be discernible. Due to delays in meeting these targets, Finland will have to rely on exceptions pursuant to the Marine Strategy Framework Directive. These exceptions will apply to nutrient loading and eutrophication, hazardous and harmful substances and the sustainable use of marine resources.

According to an economic analysis of the programme of measures, by 2020 the improvement to the state of the marine environment will produce benefits valued at 300–900 million euros a year. The premise for the analysis is that the existing measures have been realised in their entirety. The total cost of the realisation of the programme of measures has been estimated at 100–200 million euros in 2016–2021. If only those measures that would not likely be implemented without this programme are taken into account, the total cost falls to approximately 60 million euros in 2016–2021. Although there are some uncertainties in the assessment of benefits and costs, it can be stated with reasonable certainty that even in the short-term (by 2020) the financial benefits achieved by realising the programme of measures will far outweigh the costs. The costs of supplementary water resource management measures that are of key importance to the marine strategy have been estimated at 2.1 billion euros in 2016–2021.

This programme of measures includes an environmental report. No unwanted secondary effects to the environment were identified in this programme. On the other hand, there is some uncertainty

related to whether the desired objectives can be achieved. The reason for this is that many of the proposed measures will only become more specific during the programme period. Additionally, the importance of voluntary steering is great. At its best, the programme of measures can produce considerable benefits for tourism, fishing, recreational use of the sea and beaches and the health and well-being of people. The programme of measures will likely have a positive influence on the marine environment also in the marine environment outside of Finland's territorial waters, and no harmful transboundary impacts were observed in the programme.

A broad-based preparation group was tasked with preparing the programme of measures for the Finnish marine strategy. Hearings were held from 15 January to 31 March 2015 during which stakeholders and experts were consulted on the programme of measures. Stakeholders have participated in preparation work in both the ELY Centres' water and marine resources cooperation groups and the programme measures preparation group. Coordination of this preparation work, as well as cooperation with other countries around the Baltic Sea, especially neighbouring EU Member States, has been carried out during preparation work in the Baltic Marine Environment Protection Commission (HELCOM) and bilaterally. HELCOM will prepare a summary of the programmes of measures decided on by Baltic states.

This programme of measures applies to Finland's territorial marine waters in their entirety from the shoreline to the border of our economic zone. Åland's government will prepare a programme of measures for its own territorial waters. The programme period will run from 1 January 2016 to 31 December 2021, and the implementation of some measures has already begun.



Figure. Baltic Sea in Finnish marine area before implementation of the programme of measures (left) and after implementation when the good environmental status has been reached (right). Graphs: Miila Westin.

| The measures for the Finnish marine strategy 2016–2021 | |
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| Reduce nutrient loading and eutrophication | |
| 1 | Improve the effectiveness of nutrient recycling (EUTROPH 1) |
| 2 | Develop and fully utilise the environmental compensation system for agriculture (EUTROPH 2) |
| 3 | Promote the increased use of fish fodder made from raw materials produced in the Baltic Sea region and the use of cyprinids as human nutrition (EUTROPH 3) |
| 4 | Improve habitats of sensitive marine species in flowing bodies of water (EUTROPH 4) |
| 5 | The spreading of gypsum in fields to cut nutrient loading (EUTROPH 5) |
| 6 | Assessment of the importance of the Baltic Sea's internal nutrient stores and the possibilities for cutting these (EUTROPH 6) |
| 7 | As part of HELCOM cooperation, Finland will continue to take part in negotiations that aim at having the International Maritime Organization designate the Baltic Sea a NOx emissions control area (NECA) (EUTROPH 7) |
| 8 | Contribute to adoption of LNG as the fuel used by vessels and take responsibility for building the necessary infrastructure (EUTROPH 8). |
| Reduction of hazardous and harmful substance loading | |
| 9 | Assessment of pharmaceuticals in the marine area (HARMFUL 1) |
| 10 | A review of the amount of and changes in dioxin and furan loading that flows via the Kymijoki river into the Baltic Sea (HARMFUL 2) |
| Sustainable use and management of marine natural resources | |
| 11 | Assessment of the possibilities and need for improving the effectiveness of restrictions that apply to fishing of coastline species (FISH 1) |
| 12 | Conservation of the European grayling (FISH 2) |
| Prevent the spread of invasive alien species | |
| - | No new measures |
| Reduction of pollution and littering | |
| 13 | A broad-scoped general survey, setting a target and the measures for reducing littering of the marine environment (LITTER 1) |
| Reduction of underwater noise pollution | |
| 14 | Contribute to decision-making in the International Maritime Organization that will reduce the amount of underwater noise caused by ships (NOISE POLLUTION 1) |
| 15 | Reduce impulsive noise caused by underwater construction work (NOISE POLLUTION 2) |
| 16 | Reduce production of underwater noise pollution (NOISE POLLUTION 3) |
| Reduce physical damage and loss of seafloor habitats | |
| 17 | Reduce harmful impacts of dredging (PHYSICAL 1) |
| 18 | Draft a national marine sand and aggregate extraction plan (PHYSICAL 2) |
| Prevent disturbances caused by hydrographic change | |
| 19 | Implement measures to improve local flow conditions in coastal areas (HYDRO 1) |
| Maritime safety and risk management | |
| 20 | Reduce risk of oil spills by improving effectiveness of monitoring STS procedures, i.e. ship-to-ship transfer of oil, in Finland's territorial waters by continuing the drafting of a harmonised practice for STS procedures within the framework of the Baltic Marine Environment Protection Commission – Helsinki Commission (HELCOM) in the Baltic area (SHIPPING 1) |
| 21 | Improve vessel traffic safety with the eNavigation strategy's Intelligent waterways concept –Älyväylä (MARITIME 2) |
| 22 | Draft a development programme for preparedness in the prevention of marine environment disasters (SHIPPING 3) |
| 23 | Draft a national action plan for the assessment of the ecological impacts of chemical spills in the Baltic (SHIPPING 4) |

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| Maritime spatial planning measures | |
| 24 | Include marine protected areas conservation objectives in maritime spatial plans (MARITIME SPATIAL 1) |
| Enhancing the marine protected area network and other nature conservation activities | |
| 25 | Improve conservation in marine protected areas (NATURE 1) |
| 26 | Action plans for threatened species and habitats (NATURE 2) |
| 27 | Conservation of key underwater habitats (NATURE 3) |
| 28 | Draft and realise measures related to conservation of the Baltic Ringed seal (NATURE 4) |
| Communication and guidance related to the programme of measures for the Finnish marine strategy | |
| 29 | Communication related to the objectives and measures for marine resources management (COMMUNICATION 1) |