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HELCOM Activities 2011

Overview

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Baltic Marine Environment Protection Commission

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Contents

Foreword

It is my pleasure as the new Executive Secretary of the Baltic Marine Environment Protection Commission (Helsinki Commission or HELCOM) to present my first Annual Report, a review of HELCOM's major activities and accomplishments during the twelve-month period from April 2011 to March 2012.

The past year under the Swedish chairmanship was filled with a multitude of regular activities and many important achievements. Several new projects and new forms of cooperation were initiated for the benefit of the Baltic Sea.

Progress continued in the implementation of the ambitious HELCOM Baltic Sea Action Plan (BSAP). The ultimate goal of the Action Plan, adopted in 2007, is to achieve a Baltic Sea in good environmental status by 2021. By now, all member states around the Baltic Sea have prepared their National Implementation Programmes (NIP) for the Action Plan and their realization is ongoing.

To mention some positive examples, countries are taking action to reduce inputs of nutrients by building or upgrading wastewater treatment plants to meet strict HELCOM standards, by upgrading port reception facilities and by recycling sewage sludge and manure from animal farms for use in biogas and fertilizer plants. Many countries have banned phosphorus in laundry detergents for household use and, following the Baltic example, it will be phased out at EU-wide scale from 1 July 2013. Up till now more than 12 per cent of the Baltic has also been designated as Marine Protected Areas (MPA) in order to preserve biodiversity.

However, there are some challenging areas, where improvement is needed. These include reducing nutrient input from diffuse sources, especially from agriculture, controlling the spread of hazardous substances and ensuring sustainable use of Baltic marine resources.

BSAP progress will be reviewed and discussed in the HELCOM Ministerial Meeting in Denmark in autumn 2013.

HELCOM is a dynamic organization, doing its utmost to adjust its operations to the changing world and expanding needs. During the reporting period the HELCOM cross-sectorial fora continued their work and new cooperation platforms were initiated to meet emerging needs. I would like to mention the joint Working Group on Maritime Spatial Planning (MSP) between HELCOM and Vision and Strategies around the Baltic Sea (VASAB), which ensures cooperation among the Baltic Sea Region countries for coherent regional MSP processes. The joint HELCOM-VASAB MSP principles have been successfully tested by an EU-funded maritime spatial planning project Plan Bothnia, led by HELCOM and involving six other partner institutions including VASAB, through a practical case study in the Bothnian Sea between Finland and Sweden.

A new body, HELCOM LOAD, an Expert Group on the follow-up of progress towards reaching BSAP nutrient reduction targets, was initiated in 2011. HELCOM LOAD will provide crucial input to the HELCOM Ministerial Meeting in 2013 by delivering updated information on the progress towards reaching HELCOM BSAP targets in each Baltic Sea country.

In March 2012 the Helsinki Commission agreed on the establishment of the new HELCOM Group for the Implementation of the Ecosystem Approach (HELCOM GEAR). HELCOM GEAR will act as a managerial level body steering the process of reaching a good environmental status of the Baltic Sea and complementing the technical-scientific subsidiary bodies. The goal of a good environmental status is central to both the Baltic Sea Action Plan and the EU Marine Strategy Framework Directive; thus the Group will serve as a regional coordination and cooperation platform for the work in implementing the Directive for those HELCOM countries being also EU member states.

The HELCOM Fisheries and Environment Forum, and the Agriculture and Environment Forum have firmly established themselves as major stakeholder

platforms in the Baltic Sea, where constructive dialogue on solutions beneficial for both sustainable fisheries and agriculture, respectively, and for the environment is continued.

As it is impossible to list here all our successes during the past year, I have picked a few examples that I would like to highlight, from the Groups' activities, from the project work, as well as related to the EU Strategy for the Baltic Sea Region. These are by no means the only ones worth mentioning, so please read more in the subsequent chapters of this Annual Report.

A great achievement was the adoption by the International Maritime Organization (IMO) in July 2011 of the HELCOM Maritime Group´s proposal to ban all sewage discharge from passenger ships operating in the Baltic Sea. The elaboration process of reaching the agreement between the HELCOM countries, developing the proposal and negotiating it in IMO took less than four years.

The initiative for the development of HELCOM core set of indicators (HELCOM CORESET) completed the selection of key aspects of biodiversity and hazardous substances to be followed up with indicators. The project to review the ecological targets for eutrophication of the HELCOM BSAP (HELCOM TARGREV) has worked hard to bring the best available science into the consideration of updating the targets on the status of eutrophication. The first set of core indicators will be the basis of the follow-up system of the implementation of the Baltic Sea Action Plan to be presented to the HELCOM 2013 Ministerial Meeting.

A new activity, HELCOM MORE, was launched to revise the HELCOM monitoring programmes. The project will develop a strategic approach to cost-effective coordinated Baltic Sea monitoring programmes that serve different reporting requirements.

The HELCOM Red List Project is to produce a comprehensive Red List of Baltic Sea species and biotopes for the HELCOM area by 2013. In 2011 the project finalized checklists for the Baltic Sea macro-species. For the first time ever, all animal and plant species visible to the human eye and found in the Baltic Sea have been collected into one Checklist.

The EU-funded BALTHAZAR project (2009–2012) promotes the protection of the Baltic Sea from hazardous waste and agricultural nutrient loading. The implementation of this pilot project in Russia has contributed to the implementation of the BSAP by assisting in the development of national action plans and the prioritization of necessary measures. This project also made it to the headlines regarding phosphorus sampling in River Luga. The newly approved BASE project will continue the work.

I am proud to continue the work of my predecessor Anne Christine Brusendorff. Her new post as the head of ICES will provide opportunities for future cooperation between our two organizations. The newly launched inception phase of the BALTFIMPA project on managing fisheries in marine protected areas is a good example of already pooling together the expertise ICES and HELCOM hold.

It is essential to involve all stakeholders in the protection of the Baltic Sea. We in HELCOM are happy for our excellent and extensive cooperation network, and I would like to thank all our partners for contributing towards our common cause.

Monika Stankiewicz
Executive Secretary of HELCOM

1. Introduction

This report summarises the activities of the Helsinki Commission (HELCOM) related to the protection of the Baltic marine environment in 2011 and the first months of 2012.

It provides an update on HELCOM's recent activities as well as the latest HELCOM assessment of the current trends in the Baltic marine environment.

HELCOM's work aims to curb eutrophication caused by excessive nutrient loads entering the sea; prevent pollution involving hazardous substances; improve maritime safety and accident response capacity; and halt habitat destruction and the decline in biodiversity.

More details of HELCOM's activities, projects and publications are available at: www.helcom.fi

2. HELCOM at Work

2.1. Progress in the National Implementation of the Baltic Sea Action Plan
as Presented in the High-Level Segment of the 32nd Meeting of the Helsinki Commission, March 2011

The Baltic Sea Action Plan (BSAP) has received world-wide recognition as an example of excellent ecosystem-based, multinational management of the marine environment concerning an entire sea basin and its catchment area. All member states have prepared their National Implementation Programmes (NIP) for the BSAP in accordance with their national procedures and needs.

The measured progress on national implementation schemes show several similarities between the countries on how they perceive and deal with challenges related to the marine environment. As an example, many countries around the Baltic are taking actions to reduce inputs of nutrients by building or upgrading wastewater treatment plants to further improve nutrient removal and sanitary standards. Similarly, port reception facilities are being jointly upgraded for the better collection of passenger ship sewage.

Some actions are being developed to 'recycle' nutrients. Sewage sludge as well as manure from animal farms can be effectively used in modern biogas plants and for fertiliser use, thus reducing nutrient losses and saving valuable nutrient resources.

Several countries have already banned phosphorus containing laundry detergents for household use. Furthermore, to protect Baltic Sea biodiversity, the countries have been effective in designating more than 12% of the Baltic as Marine Protected Areas (MPAs).

Areas of Slow – or No – Progress

Less progress and fewer concerted initiatives have been presented to reduce nutrient input from diffuse sources, to control the spread of hazardous substances or to reduce the impacts from fisheries activities. To address these issues, adequate legislative and voluntary measures as well as the enforcement of existing requirements need to be ensured.

Since agriculture is the main source of nutrient inputs, HELCOM needs to guarantee efficient work within the HELCOM Baltic Agriculture and Environment Forum.

The management of human activities is a prerequisite for successfully applying the ecosystem approach in the Baltic Sea. Scientific inventories, assessment and mapping activities will continue to be essential methods for ensuring a sufficient knowledge-base for future actions to protect the marine environment and conserve biodiversity.

Maritime spatial planning is an important process in linking human activities more integrally to marine protection. Moreover, the elaboration of management plans and measures for all Baltic Sea Protected Areas (BSPAs) is crucial for ensuring ecological coherence of the BSPA's network also offshore.

BSAP Interacts Well with National and EU Processes

The Russian Federation has adopted and updated a number of strategic documents in the field of the protection of the marine environment to rehabilitate and recover the Baltic Sea ecosystem such as the Maritime Doctrine of the Russian Federation until 2020 adopted by the President of the Russian Federation on 27 July 2001; the Water Strategy of the Russian Federation until 2020 adopted by the Government of the Russian Federation on 27 August 2009; and the Climate Doctrine of the Russian Federation adopted by the President of the Russian Federation on 17 December 2009.

Notwithstanding the importance of the cooperation among all Baltic Sea States to protect the marine environment, for those HELCOM countries which are also EU Member States the on-going legislative work under the EU with a bearing on the marine environment is of particular importance. Due to its legal obligations and requirements of regional coordination, EU processes are highly prioritised in coastal EU Member States. The BSAP relates positively to the implementation of EU legislation, HELCOM being the coordinating platform for the regional implementation of the Marine Strategy Framework Directive (MSFD) in the region *(see sections 2.3 and 3.6)*.

Everyone Must be Involved – Also economics

An awareness and the willingness to contribute to the restoration of the health of the Baltic Sea is increasing at all levels. Today, the area's citizens are concerned about the health of the sea and demand action. Sectorial cooperation organisations and environmental protection NGOs, as well

as parliamentary and financing cooperation organisations have actively participated and contributed to the work on the BSAP. As important, the private sector has shown equal willingness to support the work for a healthier Baltic Sea together at the highest political level.

Saving the Baltic Sea is not only for scientific and emotional purposes, it is also of economic interest and of interest in balancing the benefits attainable from the Baltic among the members of society. Environmental economists around the Baltic are working to estimate the potential threats to economic and social development and well-being in order to prevent the further degradation of the marine environment and the benefits that can be gained by protection measures. For instance, the report on economics of ecosystems and biodiversity (TEEB report) shows how natural capital supports economies, societies and individual well-being, but at the same time is undervalued, unaccounted and in need of immediate protection.

We can also derive it from the climate-change focused, influential Stern report[1]: It is cheaper to act now than wait.

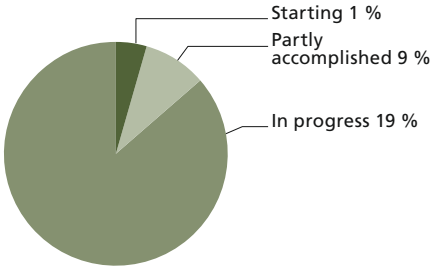
Concerted Action as a Way Forward

HELCOM has generated the Action Plan with the ultimate goal of achieving a Baltic Sea in good environmental status by 2021. In addition to HELCOM's work in the field of science and policy developments, HELCOM will serve as the forum for the exchange of experiences, identifying synergies, developing cooperation networks and facilitating dialogue with potential financing mechanisms. In this regard, HELCOM Contracting States will also ensure that their activities are consistent with already accomplished or on-going implementation processes under other legally binding requirements, such as EU legislation.

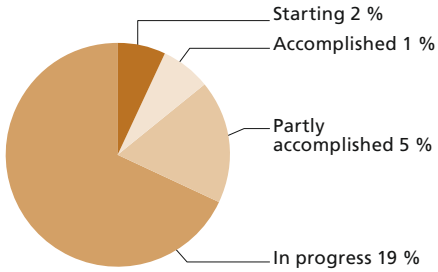
2.2. Baltic Sea Action Plan Index of Actions – Follow-up of Implementation

Based on information contained in the National Implementation Programs (NIP) and reported by the Contracting States, the following overall picture of implementation of the BSAP is presented:

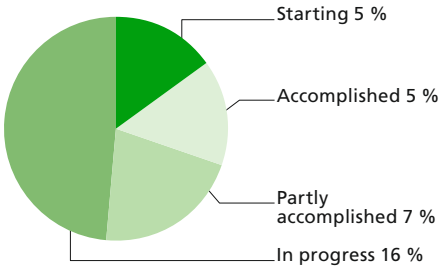
Eutrophication Segment



Hazardous Substances Segment



Biodiversity Segment



Maritime Activities Segment

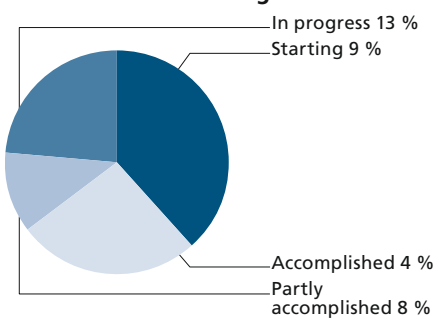


Figure 1. Overall progress in implementing the actions of the Baltic Sea Action Plan since 2008.

1 Nicholas Stern, 'The Economics of Climate Change – The Stern Review'. Cabinet Office, HM Treasury, UK 2007.

2.3. Cooperation with the EU's Marine Strategy Framework Directive

As the EU Marine Strategy Framework Directive (MSFD) and HELCOM Baltic Sea Action Plan both have the same goal – good environmental status of the marine environment by 2020 and 2021, respectively – HELCOM's activities support synergistic implementation of both the Plan and Directive.

In the past year, the efforts have continued to follow-up and contribute towards the smoothly synchronised relation.

HELCOM's role as the regional coordination platform of the EU Directive is linked to the first deliverables of the TARGREV and CORESET projects that have developed core indicators and determined good ecological status for eutrophication, biodiversity and hazardous substances, as well as starting the revision of HELCOM monitoring (*see section 6.1*).

The synchronized relation has also been supported through participation in the Working Group on Good Environmental Status (WG GES), the Working Group on Data and Information (WG DIKE) and the Strategic Coordination Group of the MSFD.

2.4. HELCOM's Chronicles

2.4.1. HELCOM Events at the European Maritime Day in Poland – 2011

The 2011 European Maritime Day was held in Poland on 19-21 May, under the theme 'Maritime Policy: Putting People First'.
As side-events before and after the Conference, HELCOM arranged a seminar on the risks of pollution by shipping and on oil spill preparedness (BRISK and BRISK-RU Projects; *see section 7.1*), and a joint workshop on maritime spatial planning which presented the joint work of HELCOM and Visions and Strategies around the Baltic Sea (VASAB, *see section 3.3*) and relevant projects.

2.4.2. HELCOM Trophy Won Again by Latvia in BALEX DELTA Oil Response Exercise

The traditional competition between the national teams of the HELCOM fleet of oil combatting vessels was held in Bornholm, Denmark after the BALEX DELTA oil response exercise in August 2011. This year, however, a tug-of-war replaced rowing as the main event.

The day after the exercise - successfully completed on 30 August despite rough seas - all the naval teams gathered under some light rain showers. The HELCOM trophy went to Latvia for the second time in a row.

2.4.3. Expert Workshop on Environmental Monitoring of the Black Sea – Baltic2Black Project – 2011

Drawing from over 30 years of HELCOM's Baltic experience of joint monitoring and assessment of eutrophication, the Baltic2Black Project (2011-2013) organised an expert workshop in Istanbul, Turkey, on 6 -7 September. This was the first encounter of its kind with the aim of transfering knowledge specifically on eutrophication monitoring between the Baltic and Black Sea regions. Experts in the Black Sea region are especially interested in the nutrient reduction scheme of the HELCOM Baltic Sea Action Plan and the steps needed to create a similar scheme for the Black Sea.

2.4.4. Thirteenth Global Meeting of the Regional Seas Meeting in Busan, Republic of Korea – 2011

HELCOM presented its work at the 13th Global Meeting of the Regional Seas Conventions and Action Plans in Busan, Republic of Korea, on 3 – 5 October, arranged by the Regional Seas Programme of United Nations Environmental Programme.

The meeting focused on the implementation of the Global Programme of Actions (GPA) in the

Regional Seas Conventions and Action Plans. It also addressed Regular Process on Reporting and Assessing the State of the Marine Environment, including socio-economic aspects and preparations for the UN Conference on Sustainable Development Rio+20.

2.4.5. HELCOM in the EU Baltic Sea Region 2nd Annual Forum in Gdansk – 2011

The 2nd Annual Forum of the EU Strategy for the Baltic Sea Region (EU SBSR) was held back-to-back with the 13th Baltic Development Forum Summit in Gdansk, Poland, on 24–26 October 2011. The Forum gathered over 750 participants to discuss the progress of the EU SBSR two years after its launch.

HELCOM participated in both policy-level debates and panel discussions while networking with stakeholders at side events and workshops. The activities of Helsinki Commission were presented in the Networking and Project Village by over 20 projects that contribute or directly represent Flagship initiatives under various Priority Areas of the EU Baltic Region Strategy.

3. HELCOM as a Coordination Platform

3.1. Sustainable Fisheries Management

The HELCOM Fisheries and Environment (FISH/ENV) Forum develops common solutions for sustainable fisheries and the enhanced protection of Baltic Sea biodiversity.

Fisheries management, the environmental protection authorities and stakeholders all work together to ensure the sustainable use of the Baltic Sea's marine resources. Joint perspectives are being developed for long-term management plans of commercial fish species in the Baltic, e.g. salmon and eel, and for fisheries management in the Baltic Marine Protected Areas. Other equally important challenges discussed include the ecosystem-based management of coastal fish communities as well as the state of populations and restoration of habitats of migratory fish species.

The report 'Indicator-based assessment of coastal fish community status in the Baltic Sea 2005-2009' (Baltic Sea Environmental Proceedings No. 131) was published in the first half of 2012 first half of 2012 (see section 4.5).

3.2. Environmentally-Sound Agriculture

The HELCOM Agriculture and Environment (AGRI/ENV) Forum enhances knowledge and shares experiences on sustainable agricultural practices to tackle pollution loads originating from agriculture - one of the current key challenges in better protecting the Baltic Sea environment.

Improved dialogue and cooperation between the agriculture and environment administrations and stakeholders are central in order to successfully achieve the goals of the Baltic Sea Action Plan.

The main focus of the Forum has been on national best practices and case studies in agro-innovative techniques for manure handling, fertilisation practices as well as other measures to prevent nutrients from leaching into the Baltic Sea. Moreover, the Forum endeavours to harmonise methods with which to assess diffuse and point-source pollution loads from agriculture.

3.3 Joint Planning of the Common Sea - HELCOM-VASAB Maritime Spatial Planning Working Group

As envisioned by the ecosystem approach, Maritime Spatial Planning (MSP) provides the possibility of widening the horizon beyond purely sectorial policy measures towards an integrated spatial approach within the Baltic marine area.

The Baltic Sea countries work together in the HELCOM-VASAB Maritime Spatial Planning Working Group, jointly launched by HELCOM and the Vision and Strategies around the Baltic Sea (VASAB) in 2010. The group has emerged as the key Baltic regional intergovernmental forum on transboundary spatial planning at sea.

The HELCOM-VASAB regional MSP Principles, adopted by the two organisations, provide valuable guidance for achieving better coherence in the development of MSP systems in the region. The Working Group focuses on the practical application of the ecosystem approach in spatial planning at sea; minimum international legal requirements for transboundary MSP; and spatial data requirements. It also serves as a forum for considering the outcomes of projects and initiatives.

The Working Group has followed, examined and made use of the outcomes and findings of regional project activities relevant to MSP such as the EU-funded Plan Bothnia on testing joint MSP principles (*see section 3.7.*) and the BaltSeaPlan.

HELCOM is the leader in the Horizontal Action on Maritime Spatial Planning in the EU Strategy for the Baltic Sea Region.

3.4 Cleaner Shipping - Cooperation Platform for Port Reception Facilities

Passenger ships operating in the Baltic Special Area will be required to treat sewage onboard or deliver it to a port reception facility, following HELCOM efforts to designate the Baltic as a Special Area for sewage discharges from passenger ships by the International Maritime Organisation (IMO). HELCOM countries are working to upgrade reception facilities for waste waters in their passenger ports to ensure that the new IMO regulation comes into effect by 2015 at the latest.

The Cooperation Platform on Port Reception Facilities (PRFs) promotes a dialogue on the provision of adequate PRFs among the key stakeholders, including passenger ports, the shipping industry,

national administrations and municipal wastewater treatment plants. It focuses on operational and technical aspects of sewage delivery and facilitates the implementation of the 2010 HELCOM Road Map for PRFs.

Based on the discussions and recommendations from meetings and collected information, a joint HELCOM guidance on technical and operational aspects of sewage delivery from passenger ships is being developed in dialogue with municipalities to meet the needs of ports and the shipping industry.

3.5 Synergies with the EU Strategy for the Baltic Sea Region

By integrating the Baltic Sea Action Plan objectives and approaches into the first EU macro-regional policy, the Strategy for the Baltic Sea Region shows the value of HELCOM's pioneering work. The Baltic Sea Action Plan (BSAP) and the EU Strategy are implemented in synergy, ensuring that all countries are involved in joint actions to save the sea. Equally important, HELCOM is constantly working to identify gaps and areas in need of progress, thus setting future priorities for action.

The work deriving from the BSAP provides a major contribution to many Priority Areas of the Strategy within its environmental and safety and security pillars, including flagship projects. HELCOM's experience on setting joint targets and designing indicators supports the further development of the Strategy, including to:

Priority Area 1. reduce nutrient inputs to the sea to acceptable levels
Priority Area 2. preserve natural zones and biodiversity, including fisheries
Priority Area 3. reduce the use and impact of hazardous substances
Priority Area 4. become a model region for clean shipping
Priority Area 9. reinforce sustainability of agriculture, forestry and fisheries
Priority Area 13. become a leading region in maritime safety and security
Priority Area 14. reinforce protection from major emergencies at sea and on land

as well as to the following Horizontal Actions
- 'Encourage the use of Maritime Spatial Planning in all Member States around the Baltic Sea and develop a common approach for cross-border cooperation'
- 'Support for sustainable development of the fisheries areas'

3.6 Coordinated Ecosystem Approach

The HELCOM Group for Implementation of the Ecosystem Approach (GEAR) initiates and strengthens actions to implement the Baltic Sea Action Plan and the EU Marine Strategy Framework Directive for those HELCOM countries that are also EU member states.

The ecosystem approach is the key ingredient of the Baltic Sea Action Plan and a driving principle in the Directive. The approach, which also considers humans as part of the ecosystem, is about using scientific knowledge as the basis of protection and the sustainable use of the marine environment as well as prioritising and applying management actions. It also incorporates the learning-by-doing principle of adaptive management.

The GEAR group relies on strong, regional coordination. At the managerial level, it steers HELCOM's

efforts to restore the Good Environmental Status of the sea. The Group complements HELCOM's scientific-technical activities.

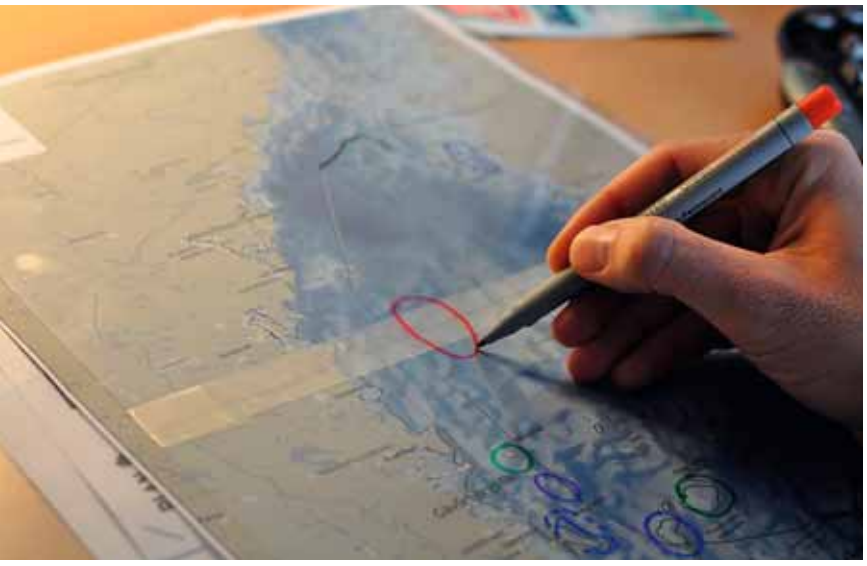
GEAR builds on the work by the Joint Advisory Board of HELCOM CORESET (Development of HELCOM core set indicators) and TARGREV (Review of ecological targets for eutrophication of the HELCOM BSAP).

3.7 Plan Bothnia

PLAN BOTHNIA

Co-Funded under European Integrated Maritime Policy

Plan Bothnia (www.planbothnia.org) is an EU-funded maritime spatial planning 'Preparatory Action' for the Baltic Sea led by HELCOM and involving six other partner institutions including VASAB.



The initiative tests the joint HELCOM-VASAB MSP principles through a practical case study in the Bothnian Sea, Northern Baltic. For this work, the project has involved regional and national administrations in Sweden and Finland. The project has also supported the work of the joint HELCOM-VASAB MSP WG by Baltic-wide consultancy studies.

This 18 month initiative held its final conference in Gothenburg, Sweden, on 23 May 2012.

4. Monitoring the Marine Environment

4.1. Setting the Baseline for Measuring the Baltic Marine Environment - the CORESET Project and the CORE EUTRO Process

A core set of indicators for the Baltic Sea marine environment is being developed for each of the four segments[2] of the Baltic Sea Action Plan (BSAP). The core indicators with quantitative targets will become a limited set that can be used to assess the state of the Baltic Sea coherently, and to follow the effectiveness of the implementation of the BSAP. The core set will ultimately be available for use for the other international monitoring and reporting requirements such as the EU Marine Strategy Framework Directive.

The CORESET project will focus, in particular, on core indicators for biodiversity and hazardous substances. The associated boundaries for good environmental status will enable the classification of the environmental status into different status quality classes. The HELCOM core indicators for eutrophication have been further developed within the CORE EUTRO process.

2 'A core set of indicators with targets is under development for eutrophication, biodiversity and hazardous substances in the HELCOM TARGREV (partly funded by Nordic Council of Ministers) and HELCOM CORESET projects.'

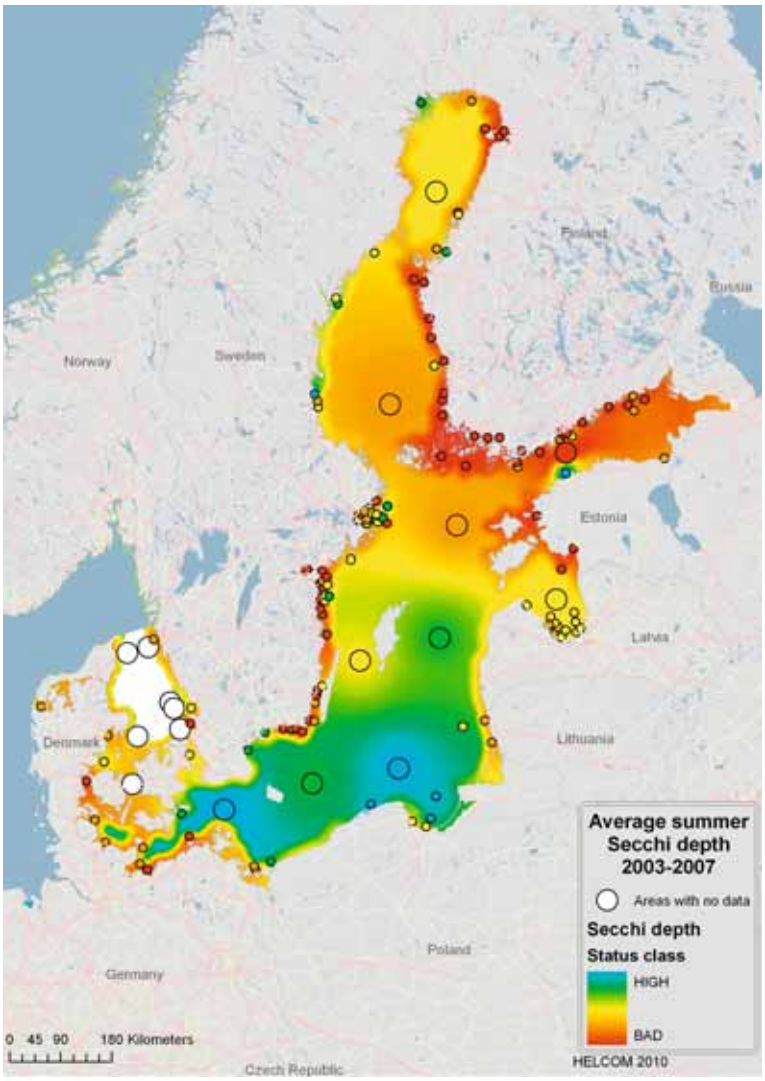


Figure 2. Average summer Secchi depth 2003-2007

A recently published interim report describes the basis for indicator development with expert groups on marine biodiversity and hazardous substances proposing outlines for the core indicators. The intense development work will continue and is followed up by the HELCOM Monitoring and Assessment Group (MONAS) and the Group for Implementation of the Ecosystem Approach (GEAR).

The HELCOM core indicators will be regularly updated web-based products targeted at all interest groups from decision makers to the general public. They will give a clear and transparent message of the state of the environment and contain more technical parts for experts and scientists.

CORESET's hazardous substance work is an EU Flagsip project 3.4 under the Priority Area 3.

4.2. Sharing Information about the State of the Marine Environment: Indicator Fact Sheet Highlights

Every year, HELCOM publishes a set of Indicator Fact Sheets on its website, which provide information on the recent state of, and trends in, the Baltic marine environment. The sheets are compiled by scientists in various research institutes around the Baltic Sea covering hydrographic conditions, inputs and concentrations of nutrients and hazardous substances, plankton blooms and species composition, radioactivity and illegal oil discharges. The sheets cover a wider range of indicators than the more specific HELCOM core indicators.

In 2011, two new indicator fact sheets were published for the first time, one on Cyanobacteria biomass and the other on population development Southern Dunlin (*Calidris alpina schinzii L., 1758*).

Some highlights from the 2011 HELCOM Indicator Fact Sheets:

- **Emissions of heavy metals to the air** from HELCOM countries in 2009 continued to decrease. **Annual emissions of dioxins and furans** from HELCOM countries have decreased by 42% during 1990-2009. Since emissions had decreased by 48% in 2000, they have gradually increased from 2001 to 2009.
- **Cyanobacterial blooms** in the Baltic Sea during the summer of 2011 (see **Figure 5**) were observed over a two-month period from 29 June to 5 September. During 30 days from 7 July, extensive blooms were seen; however, the most massive accumulations stayed away this year. The Bothnian Sea, which usually blooms in August, also had an unusually prolonged bloom.
- There was a decline in the annual **emissions of nitrogen to the air** for most HELCOM countries during 1995 – 2009. **Emissions of NOx, CO and CO2 from ships** as well as fuel and energy consumption have all increased; however, SOx and particulate matter emissions from shipping decreased by 20% and 9.5% respectively from 2009 to 2010. Mainly due to interannual changes in meteorological conditions, **annual nitrogen deposition** to the Baltic Sea and its sub-basins varies significantly from year to year (see **Figure 4**).

- The concentrations of **lead** and **PCBs** have decreased significantly. Recent levels of **cadmium** in herring are not significantly lower compared to the concentrations measured at the beginning of the 1980s, despite measures taken to reduce discharges of cadmium to the environment.
- The levels of **radioactivity in the Baltic Sea water and biota** have shown declining trends since the Chernobyl incident in 1986. Radioactive fallout over the Baltic Sea from the Fukushima accident in Japan in March 2011 is very small and may not be detectable in seawater and

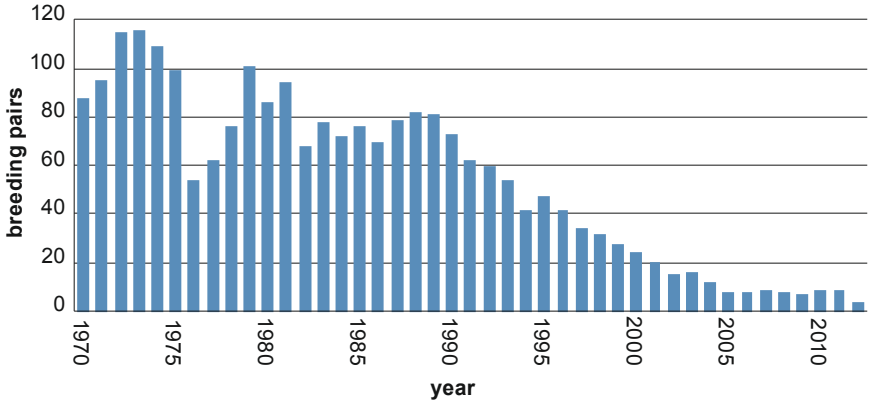


Figure 3. The population of the southern subspecies of the Dunlin (Calidris alpina schinzii), which was once an abundant breeding bird of the Baltic Sea area, has during the 20th century declined rapidly and counts currently not more than 500-640 breeding pairs. From many parts of its former Baltic range the Dunlin has disappeared and risk of extinction in the Baltic region during the next few decades cannot be excluded.

The reasons for the rapid decline in both numbers and range in the Baltic Sea area are not well understood, but habitat loss and habitat changes due to changes in land use are likely to play a key role. Increased predation by both mammalian and avian predators represents another significant factor.

Figure 4. Atmospheric deposition of oxidized, reduced and total nitrogen to the entire Baltic Seabasin for the period 1995–2009 in per cent of 1995 value.

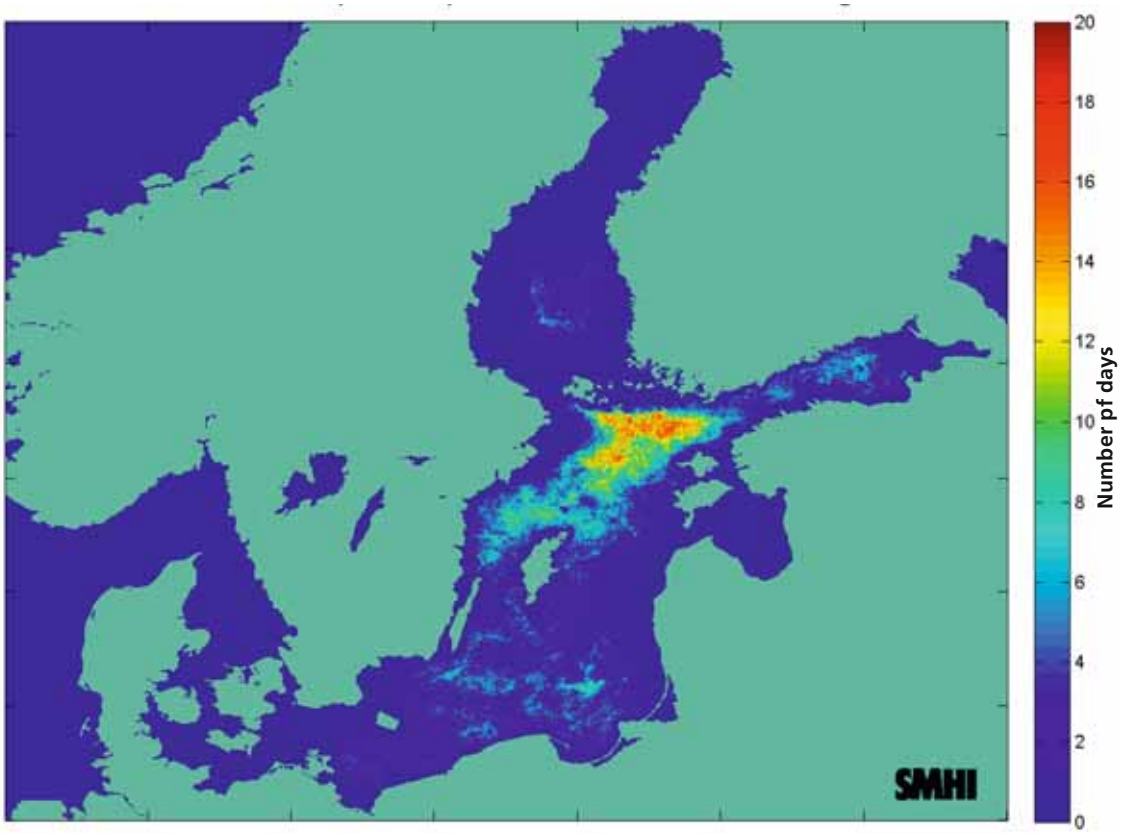


Figure 5. Number of days with cyanobacteria observations during 2011

fish. The corresponding radiological risks are estimated to be negligible.

- Despite the rapidly growing density of shipping, a decreasing trend continues in the number of observed **illegal oil discharges**. Altogether, 149 oil spills were observed in 2010, which is 29 less than in 2009 and 61 less than in 2008.

- Although the **reproductive health investigated in grey seals** has improved since the mid-1980s and the population has been increasing at about 8% per year since 1990, results after 2005 indicate that the population growth trend is leveling off.

More information is available in later sections of this report and on the HELCOM website: **http://www.helcom.fi/BSAP_assessment/ifs/ifs2010/en_GB/cover/**

4.3. Revising Monitoring Programs: HELCOM MORE Project

The HELCOM MORE Project has been established to revise the HELCOM monitoring programmes.

The MORE Project aims to summarise and list the required parameters, processes and products, including those identified by TARGREV and

CORESET Projects that need to be monitored to meet the requirements of the Baltic Sea Action Plan and HELCOM Ministerial declarations. This initial inventory should cover all existing regular marine monitoring in the HELCOM Convention area, including an overview of the data being regularly reported to common databases.

In assessing the state of the art of the current monitoring and comparing it with the monitoring needs identified by the HELCOM projects and the Initial Assessments of EU Member States under the Marine Strategy Framework Directive, for example, HELCOM MORE will identify the gaps in the HELCOM monitoring programmes. The subsequent step is a review of HELCOM's monitoring and assessment strategy to provide the basis for optimising the observation network where possible.

4.4. Reviewing HELCOM's Targets for Eutrophication Status: TARGREV

The project 'Review of the ecological targets for eutrophication of the HELCOM BSAP' (HELCOM TARGREV) aims to review HELCOM's existing targets for eutrophication, e.g. for the nutrient reduction scheme of the BSAP. TARGREV was launched in early summer 2010.

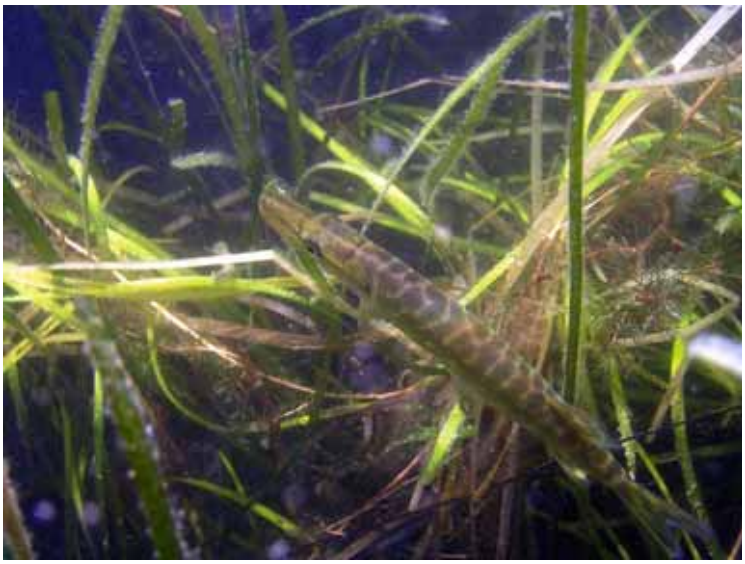
HELCOM has defined five ecological objectives for the eutrophication segment: concentrations of nutrients close to natural levels; clear water; the natural level of algal blooms; the natural distribution of plants and animals; and natural oxygen levels. The project will review the targets of indicators relevant for these objectives and will also strengthen the scientific basis of these targets and indicators. The targets are aimed to review the BSAP nutrient load reduction scheme - the first step being reduction scheme - the first step being the technical recalculation of the maximum allowable inputs. The targets should also be available for use as boundaries of good environmental status for HELCOM core eutrophication indicators.

The report is almost completed - detailed work plans and outlines with final contributions have been agreed on.

4.5. FISH-PRO – Expert Network on Ecosystem-based Management of Coastal Fish Communities

FISH-PRO coordinates and develops the coastal fish monitoring and assessment component of the COMBINE Programme. The network aims at further developing a harmonised monitoring programme for coastal fish, which also takes into account national and other international programmes. This project is a continuation of the HELCOM FISH Project, 2008-2010.

The FISH-PRO project has contributed to the revision of the HELCOM Red List of threatened and declining species of lampreys and fish as well as the biodiversity expert work of the HELCOM CORESET project on the development of core indicators and GES targets.



The project has recently released the 'Indicator-based assessment of coastal fish community status in the Baltic Sea for 2005-2009' (BSEP No. 131). The findings of the assessment make it evident that the continuation of long-term monitoring programs is pivotal for future assessments of coastal fish community status, and that regular meetings between contracting parties are needed to harmonise assessment methods.

5. Combating Eutrophication and Hazardous Substances

5.A. Combating Nutrient Pollution

5.A.1. Compiled Pollution Data from All Baltic Countries Released - Fifth Baltic Sea Pollution Load Compilation (PLC-5)

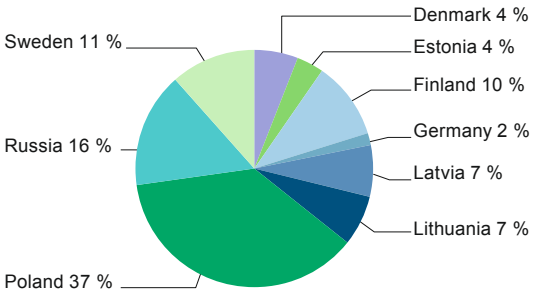
The Pollution Load Compilation on total waterborne inputs of nutrients and some hazardous substances to the Baltic Sea was released in November 2011. The aim of the PLC-5 project was to quantify and describe the waterborne discharges from point sources and losses from non-point pollution sources as well as the natural background losses into inland surface waters (source-oriented approach). The monitoring period for most of detailed pollution load data is from 1 January 2006 to 31 December 2006, with data on total nutrient inputs up to 2008.

For the first time, the PLC report presents flow-normalisation as important approach to smoothen out the effect of variations in water flow. The report also includes a statistical analysis of nutrient load trends.

An Executive Summary of the PLC-5 (including the most recent data from 2008) on waterborne loads and airborne inputs to the Baltic Sea will be released during summer 2012.

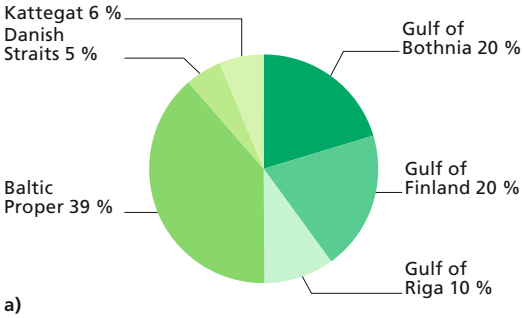
Total Nutrient Inputs to the Baltic Sea in 2008
The latest data on total input of phosphorus and nitrogen to the Baltic Sea is from 2008, whereas the most recent comparable figures on source distribution are from 2006.

Total inputs of phosphorus per country, based on long-term average, 1994-2008



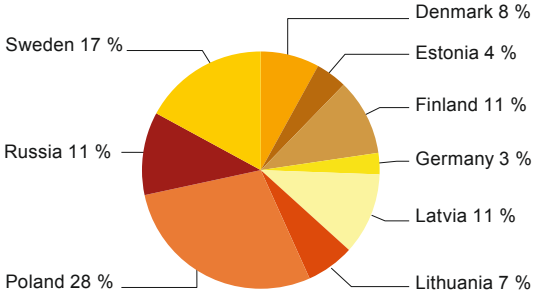
a)

Total input of phosphorus in 2008: 29,000 tonnes



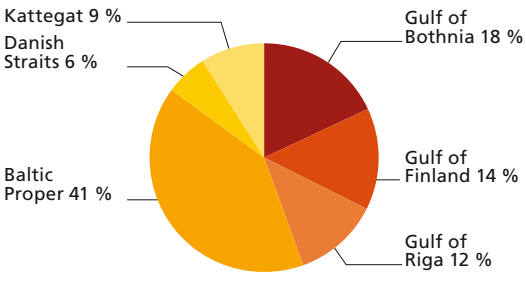
a)

Total inputs of nitrogen per country, based on long-termaverage, 1994-2008



b)

Total input of nitrogen in 2008: 859,600 tonnes



b)

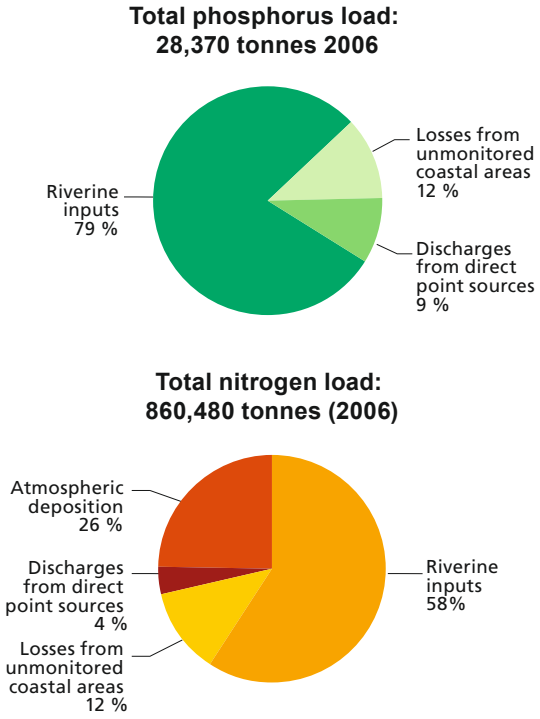
Figure 6 a-b. Total inputs on a) phosphorus and b) nitrogen (including waterborne and airborne loads) to the Baltic Sea in 1994-2008. Note: The waterborne inputs include transboundary loads.

Figure 7 a-b. Inputs of total a) phosphorus and b) nitrogen to the Baltic Sea by sub-basin in 2008. Of the Baltic Sea sub-basin, the Baltic Proper received by far the greatest proportion of nutrient inputs.

Pollution Sources in 2006

The main pathway for inputs of nitrogen (N) and phosphorus (P) was riverine load, whereas point sources such as municipalities and industries only accounted for 9% (P) and 4% (N) of the total loads in 2006. **Figure 8** shows the contributions of

airborne and waterborne nitrogen from HELCOM countries, Baltic Sea shipping and distant sources to the total nitrogen input to the Baltic Sea in 2006.



Figures 8 and 8 Pathways of a) total phosphorus and b) total nitrogen inputs into the Baltic Sea in 2006.

Development in Air Emissions and Aatmospheric Depositions of Nitrogen

Annual nitrogen emissions from most HELCOM Contracting Parties have decreased from 1995 to 2008; however, it is not been determined whether this decrease is statistically significant. The greatest reductions have been achieved by Denmark and Sweden.

Development in Waterborne Inputs of Nutrients

When comparing riverine inputs into the Baltic Sea from different years, the controlling influence of the runoff, namely climate, should be taken into account since there is a close correlation between runoff and nutrient loads. During years with heavy precipitation and associated high runoff, more nitrogen and phosphorus are leached and eroded from cultivated areas - and most probably from natural background areas - resulting in higher riverine nutrient inputs to the Baltic Sea than in dry years.

Direct discharges of phosphorus and nitrogen from coastal municipal wastewater treatment plants, industry and fish farms into the Baltic Sea are generally independent of variations in precipitation, except during heavy storm water events. **For all these sources, there is an overall significant decrease to the Baltic Sea during 1994 to 2008** for both nitrogen and phosphorus. All countries have a significant decrease in the direct point source load for phosphorus and all countries for nitrogen, except Poland and Russia (HELCOM, 2011).

By How Much Could the Nutrient Loads be Reduced?

Water management in the Baltic Sea catchment has improved during the last ten years and in the Nordic countries and Germany since the 1970s, resulting in a considerable decrease of phosphorus loads to most sub-basins. For nitrogen, the development has been less positive and the total loads remained virtually unchanged. Although progress has been made, it is obvious that the BSAP nutrient reduction targets have not been fully reached.

Urban areas are important sources of nutrient loads and further reductions are needed in order to meet the HELCOM Recommendation for wastewater treatment plants. Further measures - mainly upgrading all wastewater treatment - would greatly contribute to the reduction potential.

The largest potential for phosphorus reductions from point sources (mainly wastewater treatment) are seen in Poland, Russia and Belarus, while Denmark, Finland, Sweden and Germany have already reached the required levels.

For nitrogen, all countries except Denmark and Germany display some reduction potentials, although for Finland and Sweden they mainly occur in the Bothnian Bay and Bothnian Sea catchments.

The total reduction potential for unconnected households is more difficult to assess, since detailed information on location and treatment techniques is not available. About 21 million people live in houses not connected to municipal wastewater treatment, many of which have improper treatment efficiency. The estimated reduction potential is between 1,000 - 3,000 tonnes of phosphorus per year, and relatively lower for nitrogen.

A rough estimate is that agriculture accounts for almost half of the total loads of nitrogen and phosphorus to the Baltic Sea. To tackle this appears to be a challenging task. The future common agriculture policy within the EU will be of vital importance in this process.

The annual atmospheric deposition of nitrogen has decreased by about 10% over the last decade; if this reduction continues at the same pace until 2020, it will contribute with a significant share of the remaining reduction target of 90,000 tonnes.

In conclusion, it is unlikely that either good environmental status or the preconditions for good environmental status of the Baltic Sea can be achieved by 2021 if the nutrient reduction targets from only municipal wastewaters are fulfilled. Furthermore, the long residence time for nutrients in the catchment area implies that the results of sufficient measures, if implemented, will not be manifested soon.

5.A.2. PURE – Project on Urban Reduction of Eutrophication

PURE is part-financed by the European Union. (European Regional Development Fund and European Neighbourhood and Partnership Instrument

The PURE Project implements one of the most cost-effective and quickest ways to tackle eutrophication: it enhances phosphorus removal at selected municipal wastewater treatment plants (WWTPs). PURE partner water

utilities aim to achieve the recommended average phosphorus concentration of 0,5 mg/l in treated sewage through concrete, voluntary investments in municipalities and transnational cooperation.

As sludge management is essential for preventing phosphorus leakages to watercourses, the project also studies and shares existing good practices and solutions for sustainable sludge handling, e.g. in utilising its energy and nutrient potential.

After initial audit studies and the establishment of a database during 2011, the project investments were progressing through different phases of preparing, tendering and delivering equipment in Brest, Jurmala, and Riga.

The publication of good practices in sustainable sludge handling at municipal WWTPs will be released later in 2012. Another key output is the compilation of data on wastewater treatment levels, technologies and related nutrients.

The Union of the Baltic Cities (UBC), the John Nurminen Foundation and HELCOM are jointly implementing the project together with nine city partners and their municipal WWTPs. The project is financed by the EU BSRP and project partners. PURE also contributes directly to the implementation of the EU Baltic Sea Region strategy, under Flagship Project 1.2 on cleaner waste water.

For more information, see: http://www.purebaltic-sea.eu/.

5.A.3. Baltic COMPASS

Baltic COMPASS (2007-2013), a project lead by the Swedish University of Agricultural Sciences (SLU), works to bring together environmental, agricultural, rural development and business interests. Agricultural activity around the Baltic Sea is intensifying due to global phenomena and the increased demand for meat, biofuels and food in general. As climate change may bring about additional land-use pressures for agriculture, there is a need for a comprehensive transnational and multi-level approach to questions concerning agriculture and the environment.

The Project's methods include boosting the application of Best Environmental Practices and Best Available Techniques in farm practices and agricultural monitoring; accelerating investments in innovative techniques; demonstrating inter-sectoral adaptation; and implementing relevant policies.

Baltic COMPASS has established the partnership consisting of 22 partners and established working relations with associated organisations, national ministries and other stakeholders.

A region-wide, country-wise report on the challenges in implementing the EU agro-environment schemes at the national level will be produced, as will a report on the specifics and comparability of national agricultural nutrient loss assessments and proposals for priority measures, among others. HELCOM entered the project as an active partner from the beginning of 2012.

Further information about the project is available at www.balticcompass.org.

Project contributes to PA 1 and 9 of the EU Strategy for the BSR.

5.A.4. LOAD – Expert Group on Nutrient Reduction

HELCOM LOAD is a newly established Expert Group on the follow-up of national progress towards reaching the Baltic Sea Action Plan nutrient reduction targets. It consists of experts on the Pollution Load Compilation of nutrients (water and air), the European Monitoring and Evaluation Programme (EMEP) and experts from HELCOM LAND Group. Further, the Baltic Nest Institute (BNI) as well as other modellers and statisticians are utilised concerning relevant tasks.

HELCOM LOAD will work on reviewing the provisional nutrient reduction targets of HELCOM BSAP and updating the nutrient reduction allocation scheme, which will also take into account normalised atmospheric deposition, divided according to the same principles as the waterborne inputs, and following the polluter pays principle.

The work of HELCOM LOAD will provide input to the next HELCOM Ministerial Meeting in 2013 in terms of delivering updated information on the progress towards reaching the HELCOM BSAP provisional nutrient reduction targets.

5.A.5. Baltic Hot Spots Decreasing Steadily – Green Spots on Their Way

The objective of the HELCOM Baltic Sea Joint Comprehensive Environmental Action Programme (JCP) is to facilitate the implementa-

tion of pollution reduction measures at the most polluted sites in the Baltic Sea drainage area. The programme, which should be completed by 2012 at the latest, specifies a series of actions to be undertaken at 162 pollution Hot Spots.

To date, half of the identified hot spots have been removed from the list after investment and remediation projects were carried out at the sites. During 2011, the deletion of four hot spots in Lithuania was approved – three waste water treatment plants (WWTP) and one former oil refinery.

HELCOM requirements, particularly for phosphorus discharge from WWTPs, are twice as strict than similar provisions of the EU Urban Wastewater Treatment Directive. To resolve existing difficulties related to the implementation of the requirements included in HELCOM Recommendation 28E/5, the 2010 Moscow Ministerial Meeting agreed to promote the best national examples through the establishment of the List of Green Baltic Spots

The work to establish the Green List began in 2011 with the development and adoption of Criteria for the HELCOM Green Baltic Spots. HELCOM Member States are expected to nominate candidates to the list.

5.A.6. BALTHAZAR Project: Addressing Nutrient Loads from Agriculture and Building Capacity within Monitoring

This project is carried out with funding from the European Union

The main areas of HELCOM's BALTHAZAR Project (2009-2012) are to enhance the protection of the Baltic Sea from the main land-based threats: hazardous waste (see section 5.B.2.) and agricultural nutrient loading. The pilot project focuses exclusively on St. Petersburg and the Leningrad and Kaliningrad Oblasts of the Russian Federation.

The BALTHAZAR pilots included both single farm and large-scale manure management measures, and collaborated at municipal and district levels. Furthermore, the pilots included investment in machinery for more efficient slurry use, and assistance in tunnel composting manure.

BALTHAZAR continues to contribute to the harmonisation of assessment methods in the whole Baltic Sea region in order to have comparable and reliable results for assessments, and to improve reporting for HELCOM Pollution Load Compilations from Russia, especially concerning data on nutrients from diffuse sources.

The availability of regular monitoring data from diffuse and other sources on the nutrient concentrations and discharges of rivers is of key importance. A consortium comprising EU and Russian experts lead by SYKE was chosen to carry out the activities.

The sampling carried out in late November 2011 within the framework of the activity to build capacity within monitoring in the River Luga revealed a potentially significant source of phosphorus to the Baltic Sea downstream from the town of Kingisepp, North-West Russia. The investigation continues to obtain a more complete picture of the nutrient inputs in the Gulf of Finland.

BALTHAZAR Project Contributes to PA 1 and PA 3 in the EU Strategy for the Baltic Sea Region.

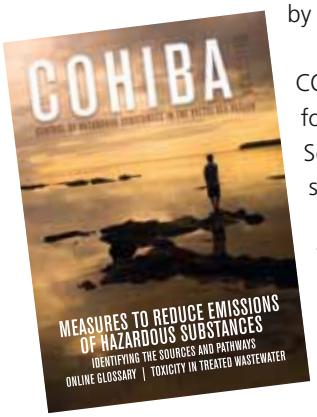
5.B. Combating Pollution by Hazardous Substances

5.B.1. COHIBA Project - Control of Hazardous Substances in the Baltic Sea Region

Part-financed by the European Union
(European Regional Development Fund)

The COHIBA Project (2009-2012) has further identified sources, evaluated effluents and flow patterns, and assessed different management measures of hazardous substances in the Baltic region.

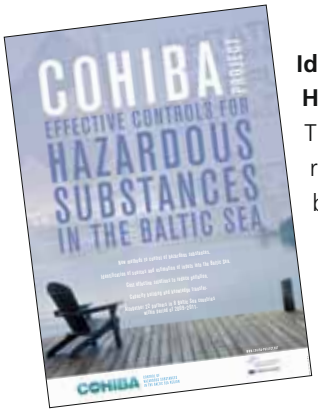
The eight Baltic coastal countries (excluding Russia) and HELCOM actively participated in COHIBA, led by the Finnish Environment Institute (SYKE).



COHIBA has made the information available for beneficiaries in various parts of the Baltic Sea Region, and especially paid attention to stakeholders in the east of the region.

The following broad region-wide conclusions are drawn as an outcome of COHIBA's work packages:

Screening Sources
For a number of substances within the hazardous BSAP substances, COHIBA was one of the first occasions to estimate the discharges to the eastern and south-eastern Baltic Sea region. On the basis of COHIBA's results, it is possible to plan future studies, reduction measures and national monitoring for selected substances.



Identification of Sources and Pathways of Hazardous Substances
The use and emission patterns show regional differences as well as differences between the substance groups – the Southern Baltic proper and the Gulf of Finland are the regions indicated to receive the highest loads of selected BSAP-substances.

Diffuse sources (including emissions during the service life of consumer articles) are becoming increasingly important, while industrial sources remain relevant in the region.

Long-range atmospheric transport is an important pathway into the region for several of the substances. Moreover, emissions to all environmental media and within the whole Baltic Sea region still remain important for the input to the Baltic Sea.

Searching for the Most Cost-Efficient Measures – Source-Oriented Measures
For most of the concerned 11 hazardous substances (HS), regulatory measures have recently been implemented. These have changed the emission pattern - with lower importance of large industrial point sources, the total load to the environment is reduced.

Despite the existing regulations at the EU level, some of the hazardous substances continue to be found throughout the region. Possible sources are: the use and disposal of imported products; long-range transport; historic uses; and the ongoing use or disposal of products containing hazardous substances with a long service life.

For some substances, long-range transport plays an important role. To reduce the load of these substances to the Baltic Sea, global measures are required. Further, gaps in regulation were identified for few substances (PFOA, OP, HBCDD, MCCP). A relatively large potential for emission reduction at industrial sources was identified for these substances.

For many substances, waste and wastewater is an important pathway for the emission of hazardous substances. Advanced municipal wastewater treatment may further contribute to reducing emissions. Other advantages of these measures are that they target several of the 11 HS simultaneously, as well as other substances of potential concern such as pharmaceuticals.

Cross Substance Effects
The measures targeting municipal wastewater, landfill leachate and urban run-off are becoming more important. For many substances, waste and wastewater is an important pathway for the emission of

hazardous substances (BDEs, PFCs, SCCP/MCCP and endosulfan); however, the existing wastewater treatment in the Baltic Sea area is not sufficient, especially if relevant directives have not yet been fully implemented.

In larger WWTPs, advanced wastewater treatment and sludge management (e.g. incineration of sludge) show more favourable cost-effectiveness.

For small and medium sized industrial units discharging into public sewers, an appropriate wastewater treatment should be implemented in all Baltic Sea countries - targeting mercury emissions from dental clinics or cadmium emissions from galvanic industries, for example.

Substance Specific Measures
To evaluate the substitution of hazardous substances, the information on the environmental performance of substitutes is crucial. In order to avoid emissions of the substitute, a combination of substitution with end-of-pipe measures should be considered.

Substance-specific emission reduction measures are not sufficient to reach the BSAP targets – cross-cutting measures are also important.

Public Awareness and Information on Hazardous Substances
COHIBA provided valuable and new information to stakeholders in the eastern Baltic on potential instruments for the reduction of hazardous substances; however, the project also shows that many improvements are needed to implement and enforce the measures.

At the region-wide scale, COHIBA has served as an important testing ground for various new and novel methods and techniques - the Whole Effluent Analysis, for instance. When combined with chemical analyses, it is possible to identify sources of hazardous substances and to plan preventive actions.

By conducting substance flow analyses in all Baltic Sea countries participating in the project, a unique compilation of information of emissions for substances of the Baltic Sea Action Plan (BSAP-substances) was created.

The COHIBA Project was co-financed by the European Union (EU BSRP 2007-2013).The project remains the flagship project 3.5 under Priority Area 3 of the EU Strategy for BSR.

5.B.2. Addressing Sources of Hazardous Substances in Russia – BALTHAZAR Project

This project is carried out with funding from the European Union

The implementation of the BALTHAZAR pilot project in Russia will contribute to the hazardous substances and eutrophication segments of the HELCOM Baltic Sea Action Plan in developing national action plans and prioritising necessary measures (see also section 5.A.6).

The emphasis in Phase II has been on further pilot projects and joint and complementary actions with other projects in the HELCOM framework, such as COHIBA. The project has carried out sampling and analysis of the 11 HELCOM target substances in selected WWTPs as well as river and coastal waters and sediments in order to complement the studies in waste site leachates performed in Phase I.

Another activity in the field of hazardous waste in the BALTHAZAR Project was carried out in Kaliningrad Region, which concerned improved treatment of mercury containing waste, especially fluorescent lamps from households. The aim is to reduce the loading of mercury compounds to the Baltic Sea by developing an effective collection system of mercury

containing waste from households, by raising awareness and by establishing the treatment capacity for such hazardous lamps in Kaliningrad Region.

An environmentally sound treatment plant for such hazardous waste has been set up and a special truck was brought in for the collection of the waste.

Despite the challenge, the best practices for raising awareness and collecting waste for treatment will be expanded to three additional pilot municipalities and the city of Kaliningrad, which will effectively cover most of the population in the whole region. This is planned under German-Russian cooperation

BALTHAZAR Project Contributes to PA 1 and PA 3 in the EU Strategy for the Baltic Sea Region.

5.B.3. Baltic Sea Region to Lead in Sustainable Management for Pharmaceuticals

The first meeting of the flagship project 'Make the Baltic Sea Region a Lead in Sustainable Management for Pharmaceuticals' was convened in October 2011.

The current EU pharmaceutical legislation regarding the authorisation of medicinal products does not allow environmental requirements related to their production. Currently, there is no self-evident way to regulate the emission of individual pharmaceutical substances from the pharmaceutical industry.

The project aims to further assess the environmentally negative impacts of pharmaceuticals and other substances that are not monitored regularly, and to establish a network of experts so that pharmaceutical and environmental authorities will have the possibility to discuss, meet and jointly consider an introduction of an environmental classification system, for example.

The project also intends to screen the amount of pharmaceuticals produced, prescribed and sold in different Baltic States. How many production sites do we have in the Baltic Sea area? How can the amount of active pharmaceutical ingredients released into Baltic waters be estimated? The screening is planned to take place at production sites and at the public sector's wastewater treatment plants. Finally, the project aims to review the legal basis on pharmaceuticals.

'Make the Baltic Sea Region a Lead in Sustainable Management for Pharmaceuticals' is a Flagship project 3.8 under PA 3 in the EU Strategy for the Baltic Sea Region.

5.B.4. Addressing Transboundary Sources of Pollution to the Baltic Sea – PRESTO

Part-financed by the European Union. (European Regional Development Fund and European Neighbourhood and Partnership Instrument

One of the fastest and most cost-efficient methods to reduce the nutrient load is to improve the municipal wastewater treatment processes in the Baltic Sea watershed. HELCOM is an associate partner with the PRESTO Project, which combats eutrophication by improving wastewater treatment in Belarus with technical studies and concrete investments as well as by increasing human competence.

The project will organise courses on modern wastewater treatment, showing practical examples of reconstruction projects in their different stages, and give opportunities for exchanging information between wastewater treatment specialists from Belarus and EU-member countries. PRESTO also includes activities to raise awareness on eutrophication and to strengthen the commitment to implement efficient ways to reduce nutrient loads.

Project partners include the Union of the Baltic Cities Commission on Environment (UBC EnvCom) as lead partner; the John Nurminen Foundation (JNF); the Technical University of Berlin; Daugavpils and Kaunas water utilities; Belarusian water utilities in Baranovichi; Grono, Molodechno and Vitebsk; and Belarusian technical universities.

PRESTO is a Flagship project 1.2 under Priority Area 1 in the EU Strategy for the Baltic Sea Region.

6. Protecting Biodiversity

6.1. Assessing Threatened Species and Habitats: HELCOM RED LIST Project

The HELCOM Red List Project was initiated in 2009 to produce a comprehensive Red List of Baltic Sea species and update the current Red Lists of Baltic Sea species, Baltic Sea biotopes and biotope complexes for the HELCOM area by 2013, as stipulated in the Baltic Sea Action Plan. The assessments of species and biotopes are being carried out by expert teams comprising some 70 experts.

The Red Lists of species is being prepared according to the International Union for Conservation of Nature (IUCN) regional Red List criteria The classification of species into Red List threat categories helps identify those species that are under the highest threat of extinction. For this reason, Red Lists are valuable tools for all sectors or people concerned with conservation, such as conservationists, infrastructure planners, politicians, decision makers or lawyers; moreover, they are also important information sources for the interested public.

To date, the species teams have finalised checklists for the Baltic Sea macro-species including distributional data per sub-basin (see below). The Waterbirds team has already finalissed the provisional Red List of Baltic Breeding Birds (*see section 6.3*).

The RED LIST of Habitats and Biotopes is utilising an efficient strategy to quickly and reliably achieve the needed results on classification work before proceeding with the threat assessments. This allows for an effective and transparent participation of both national experts and consultants who carry out the bulk of the work such as data acquisition, analyses and draft classifications. The consultants will collaborate closely with the national experts through intersessional work and workshops.

The biotope classification, planned for release in 2013, is of the utmost importance for purposes of both management and marine spatial planning. The threat assessment of Baltic Sea habitats and biotopes will take place side by side with this classification. The newly published IUCN Red List criteria for threatened ecosystems will be included in the assessment of the Baltic Sea biotopes.

The outcomes of the project as a whole will include an EUNIS-compatible classification system of the Baltic Sea, a Red List of Baltic Sea species and an updated Red List of Baltic Sea habitats and biotopes together with information sheets for all species and biotopes entered in the Red Lists.

6.2. Checklist of Baltic Sea Macro-species

For the first time ever, all macro-species - animal and plant species visible to the human eye and found in the Baltic Sea - have been collected into one checklist. The checklist, finalised in 2011 by the species teams of the HELCOM RED LIST project, presents a thorough and detailed overview on which species and where they occur in the Baltic Sea basin now or within the last 200 years. Usually, checklists concentrate on a particular group of species found in a defined region, mostly within national borders. The HELCOM checklist is unique in that it aims to cover all visible species simultaneously and the Baltic Sea in its entirety.

The compilation has been carried out by the HELCOM RED LIST project since 2009, and the result has been achieved by more than 70 dedicated experts working in five specialist teams.

A clear trend in biodiversity can be seen for all groups, where the amount of species located in an area decreases on a south-to-north gradient (**Figure 11**). An exception to this rule is the Gulf of Finland, where the steep salinity gradient and shallow waters provide a varied living environment with an influx of freshwater species and insect larvae from the River Neva estuary.

The list is a 'living document' - species are added or removed over time as species become extinct. As science progresses, there are also changes in taxonomy as species are merged or separated, especially following the major advances in genetic research. All this information is added to the checklists and enables researchers to track the occurrence of a species through historic literature.

The checklist and its documentation has been published as a part of the Baltic Sea Environment Proceeding (BSEP 130) on the HELCOM website. For easy access, the list is also available as download-

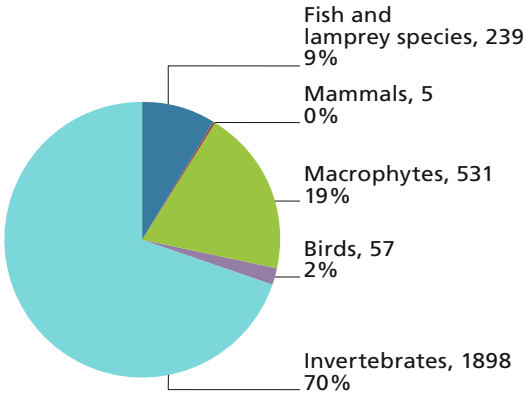


Figure 10. Total number of species per group.

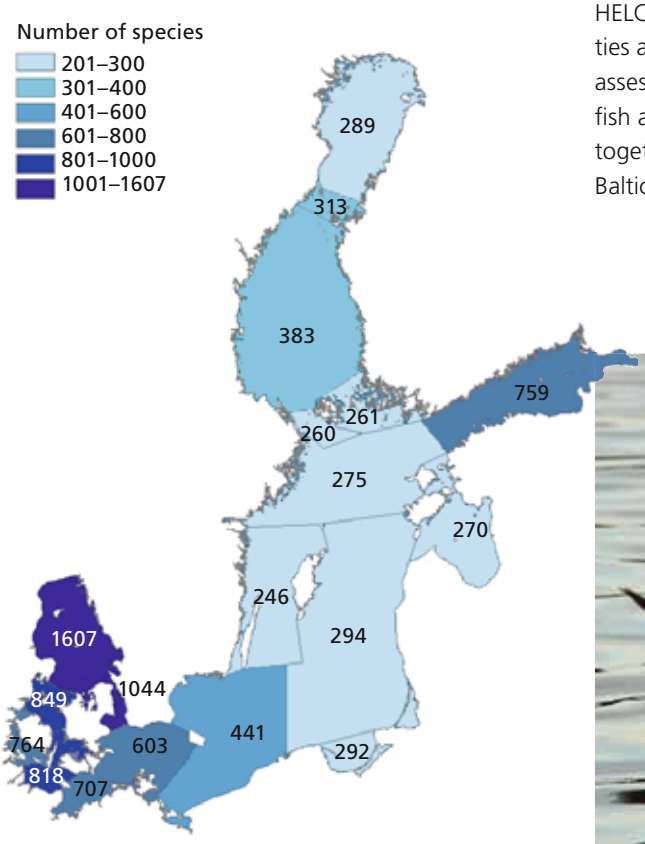


Figure 11.

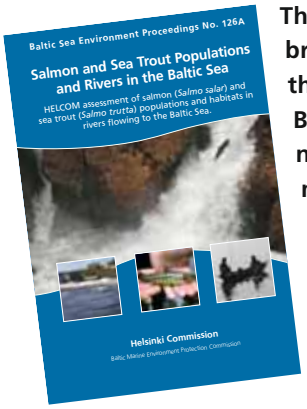
able Microsoft Excel files divided into macrophytes, benthic invertebrates, fishes and lampreys, breeding birds and marine mammals.

The initial review period is completed, but suggestions, changes or additions to the checklist are still welcomed and should be sent to the HELCOM Secretariat, after which their validity will be reviewed by expert teams.

6.3. HELCOM Red List of Breeding Birds

The 'Red List of Baltic Breeding Birds' represents the first attempt to assess the extinction risk of 54 bird taxa (species and subspecies) from a regional (biogeographic) view. The report was produced as part of the HELCOM RED LIST project's activities and it will be ultimately combined with the assessments of macrophytes, benthic invertebrates, fish and lamprey species and marine mammals that together will constitute the HELCOM Red List of Baltic Sea Species.

6.4. SALAR - Project on the State of Salmon and Sea Trout Populations in Rivers Flowing into the Baltic Sea



The SALAR project (2010–2011) is groundbreaking in that it offers a holistic view on the state of salmon and sea trout in the Baltic rivers, and identifies the measures needed for their recovery and development. This will allow for the development of international and national programs for the funding and systematic realisation of these actions.

The aim of the project was to make an inventory and classification of the historical and existing Baltic rivers with salmon and/or sea trout populations, and suggest measures for restoration plans and active conservation for selected wild salmon river populations, as adopted in the HELCOM Baltic Sea Action Plan (BSAP). In SALAR, the sea trout populations in the Baltic rivers were the subject of a common project for the first time.

The major outcomes of the project are the report 'Salmon and Sea Trout Populations and Rivers in the Baltic Sea (BSEP126A)' and the adopted HELCOM Recommendation 32-33/1. 'Conservation of Baltic Salmon (*Salmo salar*) and Sea Trout (*Salmo trutta*) populations by the restoration of their river habitats and management of river fisheries'. Other outcomes are a GIS map on Baltic salmon rivers (published on the HELCOM website), a database on populations as well as individual descriptions of salmon and sea trout rivers.

The project was funded through a co-financing agreement between the European Commission (DG MARE) and HELCOM. The project is a Flagship project 2.3 of the EU Strategy for the Baltic Sea Region.

6.5. BALTFIMPA – Sustainable Management of Fisheries in Marine Protected Areas

The main objective of the BALTFIMPA project, currently in its inception phase, is to assist the HELCOM Contracting States to fulfill their conservation objectives regarding Baltic Sea marine protected areas (MPA) by fisheries management.

The central question guiding the project is: How can fisheries management contribute to achieving the conservation objective's MPAs?

The project will draw on existing information and lessons learned from previous projects and initiatives, and will also follow and, at a regional level, implement the EU DG Environment Marine Expert Group 'Development of a common methodology for assessing the impact of commercial fisheries on marine Natura 2000'.

The inception phase will focus on developing a generic tool to assist decision making by mapping fishing activities and their impacts on Baltic Sea species and habitats; establishing a regional steering committee to guide the project; further developing the full-scale project proposal; and applying for financing to carry out a larger scale project including MPA cases.

BALTFIMPA contributes to the work under Priority Area 2 and 9 in the EU Strategy for the Baltic Sea Region.

6.6. HELCOM Recommendation on Seal Conservation has Boosted Collaboration

Marine mammals in the Baltic Sea are all threatened, yet they are important and valuable components of the ecosystem. Continued survival and well-being of them all – the grey seal (*Halichoerus grypus*), the ringed seal (*Pusa hispida*), the harbour seal (*Phoca vitulina*) and the harbour porpoise (*Phocoena phocoena*) – are inextricably linked to, and dependent on, the quality of the marine environment.

To ensure that the commitments of the Baltic Sea Action Plan and the HELCOM Recommendation 27-28/2 become a reality, the HELCOM SEAL Expert Group was established in 2006. The group meets every year and consists of marine mammal experts and managers from the HELCOM Contracting Parties, and works in three teams: population size, distribution, and health.

The Expert Group recently assessed whether the HELCOM Recommendation on the conservation of the Baltic seals has been effective. They concluded that four of the five seal Management Units show population recovery; that in some areas the grey seal may require further protection measures; and that the recommendation has proven efficient for the collaboration on the conservation of seals in the Baltic Sea Area and there is currently no need to amend it.

Much work remains ahead for the SEAL group. This work will be carried out under the lead of the new Chair Mr. Anders Galatius from Denmark, and with the new team leaders: Mr. Olle Karlsson, Sweden (seal distribution team); Mr. Markus Ahola, Finland (population team); and Ms. Ursula Siebert, Germany (health team).

7. Safer and Cleaner Shipping

7.1. Overview of Maritime Traffic

The Baltic Sea is one of the most heavily trafficked seas in the world, accounting for around 9% of total cargo and 11% of oil transportation in world traffic. Since July 2005, the Baltic Sea has been covered by land-based Automatic Identification System (AIS) stations, making the Baltic Sea the first region in the world where shipping traffic can be monitored in real time.

According to HELCOM AIS data, vessels entered or left the Baltic Sea via Skaw around 60,000 times in 2010. Approximately 51% of these ships were cargo vessels, 17% were tankers and 9% were passenger ships. A decrease in the AIS registered ship crossings was seen in 2009 and 2010, which is likely due to decreased shipping activity resulting from the economic recession. However, forecasts indicate that the maritime transport in the Baltic is expected to grow significantly by 2020.

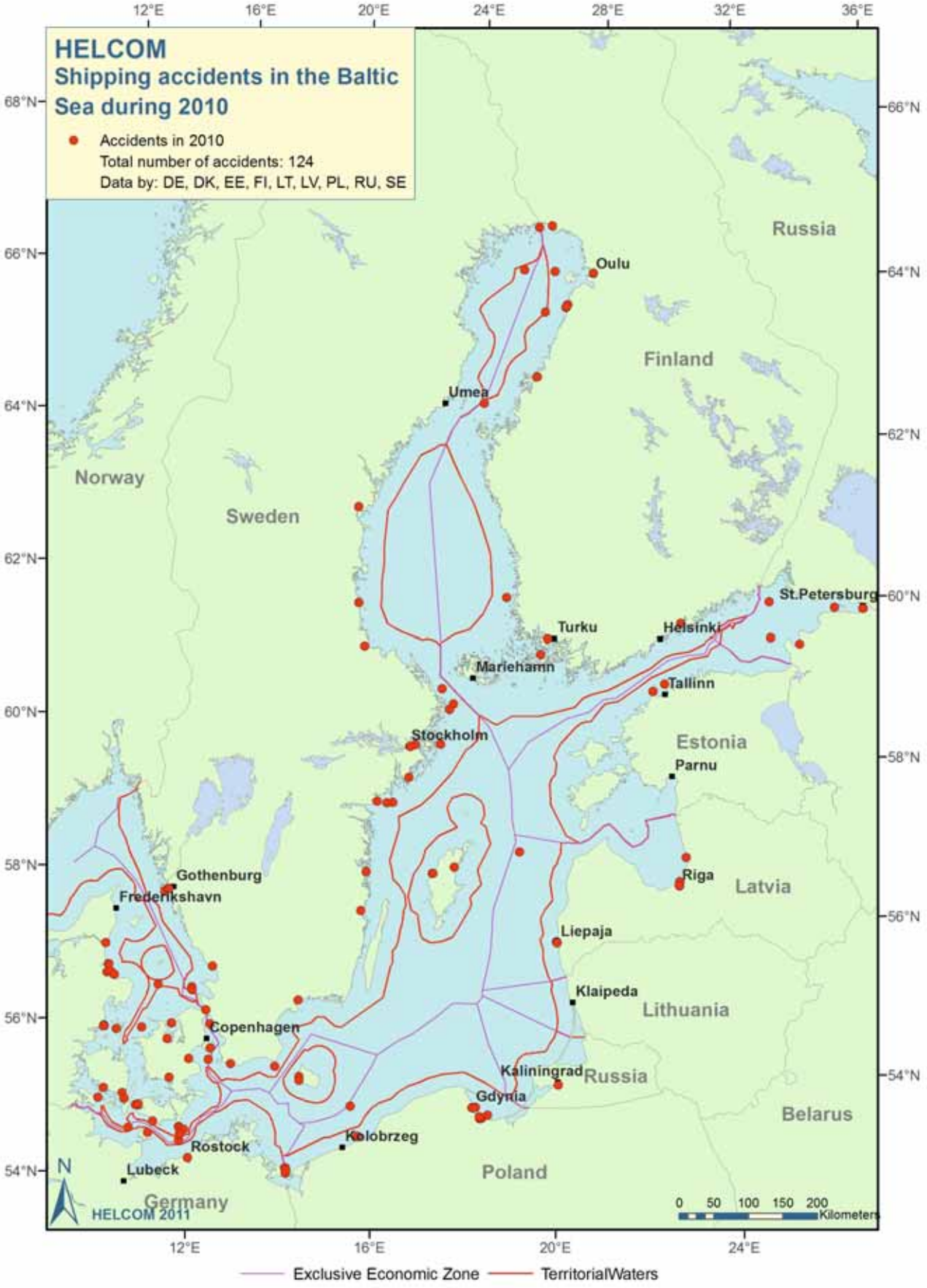


Figure 12. Shipping accidents in the Baltic Sea during 2010

7.2 HELCOM Report Shows an 18% Increase in Ship Accidents in the Baltic

An analysis of the accidents provided by HELCOM Member States revealed that there was a total of 124 ship accidents in the Baltic marine area in 2010, which is 18% more than the year before but still 8% less than in 2008. Almost all accidents occurred very close to shore or in harbours.

The most common accidents were collisions, accounting for 32% (40 accidents) of all reported cases. This was the first time since 2006 that collisions were more common than groundings. Ship to ship collisions are considered to be the most dangerous type and accounted for 50% of all collisions in 2010.

Groundings were the second most common type of accident in 2010, with 36 reported cases (29% of all accidents). This was the lowest number of groundings in the last seven years.

During 2001-2010, an average of 7% of the reported accidents resulted in some kind of pollution (8% in 2010). One third of the vessels involved in the pollution accidents were tankers.

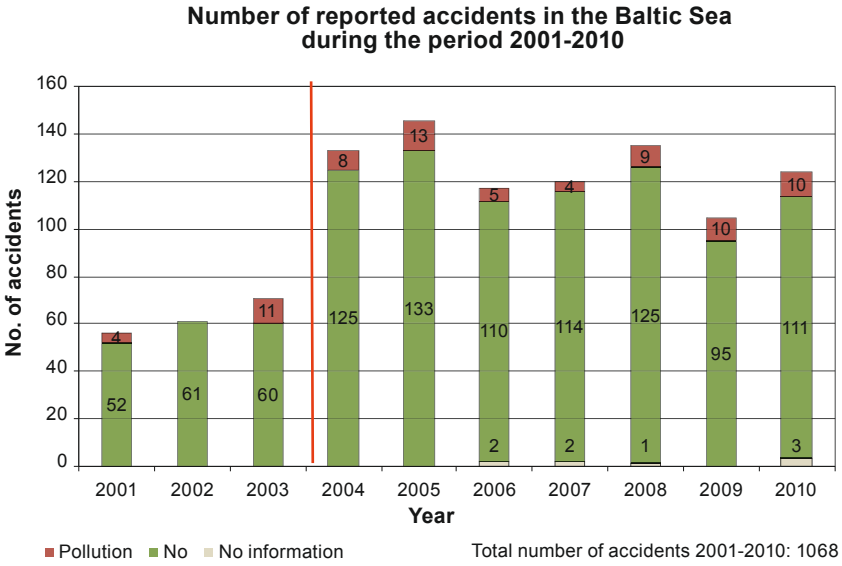


Figure 13. Cargo vessels accounted for the largest share of all accidents (44%), followed by passenger vessels (24%), other vessels (19%) and tankers (10%).

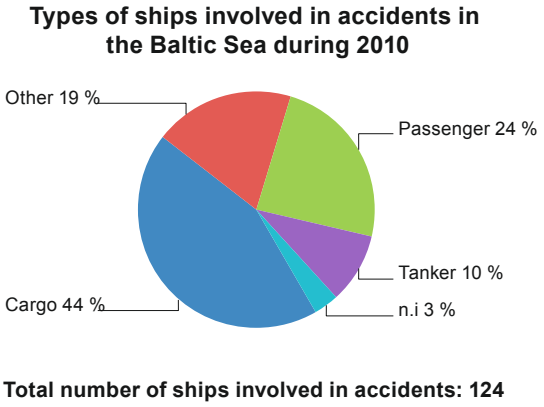


Figure 14. This proportion reflects the numbers of different vessel types making up the Baltic Sea traffic in 2010, with the exception of passenger ships which accounted for one fifth of all accidents, even though they only made up 9% of the overall shipping traffic.

The cause of 36% of all accidents was unknown in 2010; human factor accounted for 30%; technical factors 20%; and external factors 9%.

7.3. First in the World: Passenger Ship Sewage Discharge to Be Banned in the Baltic Sea

The HELCOM Maritime Group's proposal to ban all sewage discharge from passenger ships in the Baltic Sea was adopted by the International Maritime Organisation (IMO) on 15 July 2011. Any such discharge will be prohibited unless the ship uses an approved sewage treatment plant capable of sufficiently reducing nutrients, or delivers untreated sewage to a port reception facility. The elaborate process of reaching the agreement between the Baltic Sea countries, developing the proposal and negotiating it in IMO took less than four years - a timescale that is exceptionally fast for IMO.

Both new and existing passenger ships operating in the Baltic Sea Special Area will be required to comply with the anti-discharge regulations by 2016 and 2018, respectively. Moreover, reception facilities for sewage in ports used by passenger ships need to be adequate and upgraded where needed. The upgrading efforts, agreed by the coastal

countries and facilitated by **HELCOM Cooperation Platform on Port Reception Facilities**, are expected to be completed by 2015 at the latest.

The more stringent regulations for sewage discharge is another milestone in protecting marine environment against pollution from ships and combating its major environmental problem - eutrophication. Previously, far-reaching prohibitions and restrictions on any discharge into the sea of oil or oily mixtures and garbage have been introduced by the Baltic Sea States, under the IMO's International Convention for the Prevention of Pollution from Ships (MARPOL, Annexes I and V). The new amended passenger ship regulations are covered by Annex IV of MARPOL.

EU Flagship projects 4.4 and 4.1 contribute to the adoption as a Special Area

7.4. Designation of the Baltic as a NOx Emission Control Area Fully Documented

HELCOM has finalised the joint submission to the International Maritime Organisation (IMO) to designate the Baltic Sea as a NOx Emission Control Area (NECA) under the international MARPOL Convention. Under NECA status, the Baltic Sea will see substantial reductions in ship emissions of NOx which, in turn, will have positive effects on the marine environment and human health along coastal areas.

About 25% of the total nitrogen input to the marine environment occurs through atmospheric deposition. Shipping contributes to this deposition through emissions of nitrogen oxides (NOx), thus exacerbating the problem of Baltic Sea eutrophication. Reaching the agreed nutrient levels, i.e. close to natural levels, requires measures to reduce loading from all sectors, including shipping. NOx emissions also add to the acidification of the environment and cause negative human health effects throughout the Baltic Sea area.

The justification for the Baltic NECA has been well documented. A comprehensive analysis was carried out to estimate NOx emissions from ships operating in the Baltic Sea area and the impact of these emissions on air quality, ecosystems and human health. According to the analysis, total emissions are expected to decrease by 60% in the long run compared to 2007 if the NECA regulations (IMO tier III) are implemented.

In addition to the joint application for the Baltic NECA, a supplementary document to IMO has been prepared by the Baltic Sea countries containing information on available technology to

meet the NECA emission standard of Annex VI to the MARPOL Convention.

7.5. Achievements in Implementing the Ballast Water Management Convention

All Baltic Sea countries have agreed on the Ballast Water Road Map, which addresses specific aspects of the Ballast Water Management Convention (BWMC) implementation, posing challenges for the Baltic Sea Region.

The Baltic Sea countries, together with the OSPAR countries of the North-East Atlantic and REMPEC countries of the Mediterranean, have jointly developed a guidance that requires vessels entering the Mediterranean Sea from the North Atlantic to exchange all their ballast water tanks in identified areas prior to entry, irrespective of their destination. Vessels leaving the Mediterranean Sea and proceeding to the North Atlantic must also exchange all their ballast water tanks in the identified areas as soon as they enter the North-East Atlantic. As of February 2012, the guidance has been adopted by all three organisations and is expected to come into force in July 2012.

The pilot project on risk assessments of alien species transfer on intra-Baltic ship voyages has been finalised. The HELCOM Guidance, which was adopted by the 2010 Ministerial, was tested within the project due to the growing need to gain knowledge among national administrations, and to provide best practices on how to conduct and/or evaluate and consult risk assessments as set down in the BWMC. The project undertook some practical testing of the HELCOM Guidance on some selected ship routes connecting ports in different Baltic Sea countries, and provided input to be considered by national administrations dealing with BWMC.

A new project on biological surveys protocols and target species selection was launched in December 2011.

8. Better Preparedness and Response for Accidents

8.1. Accidental Spills from Ships Addressed by the BRISK and BRISK-RU Projects

The needed measures to effectively respond to major shipping spills in the Baltic Sea were at the core of the Final Conference of the BRISK and BRISK-RU projects (www.brisk.helcom.fi) in December 2011. The projects have assessed sub-regional risks of spills of oil and hazardous substances in the Baltic Sea. The ten-part final report is now available at the BRISK website.

As a basis and for the first time ever, an overall risk assessment of pollution caused by shipping accidents was carried out in the whole Baltic Sea area where traffic is dense and on routes where oil transportation has significantly increased in recent years. The projects have identified possible ways to effectively reduce the risk of spills including their impact and damage to the environment. These measures are specific to each sub-region of the Baltic. The measures include upgrading equipment for containing and recovering oil from the sea surface, including in bad visibility and from ice, and tools to reduce the risks such as carrying electronic maps by all ships operating in the Baltic Sea.

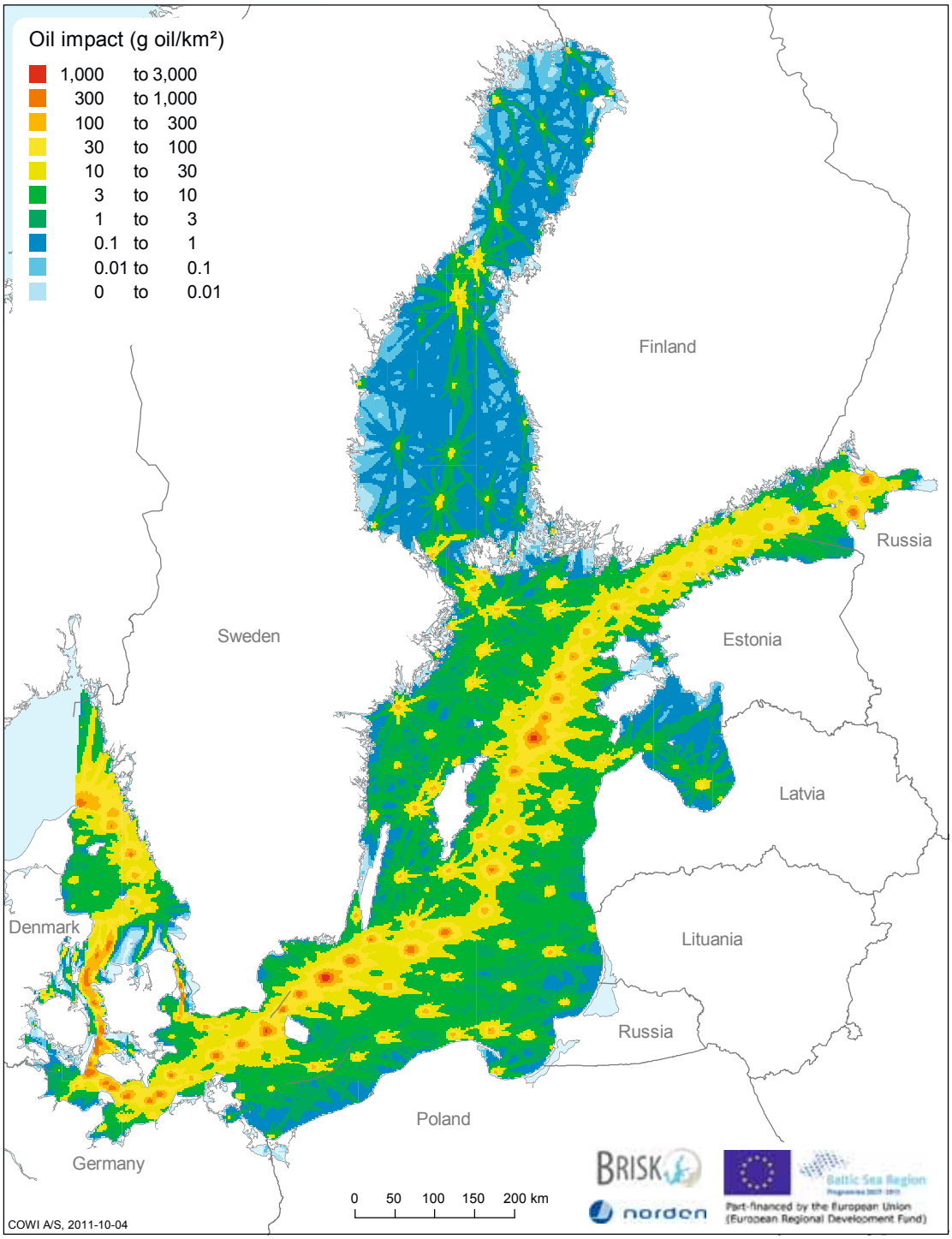


Figure 15. The map of BRISK/BRISK-RU Project on oil impact shows the distribution of oil on water due to accidental spills.

The risk assessment model takes into account, for example, the existing risk reducing measures such as various ship reporting systems and routeing measures, and a prognosis of future traffic. The major maps are available on the project website.

The projects were co-financed by the EU's European Regional Development Fund of the Baltic Sea Region Programme (EUR 2.5 m) and the Nordic Council of Ministers (EUR 200,000).

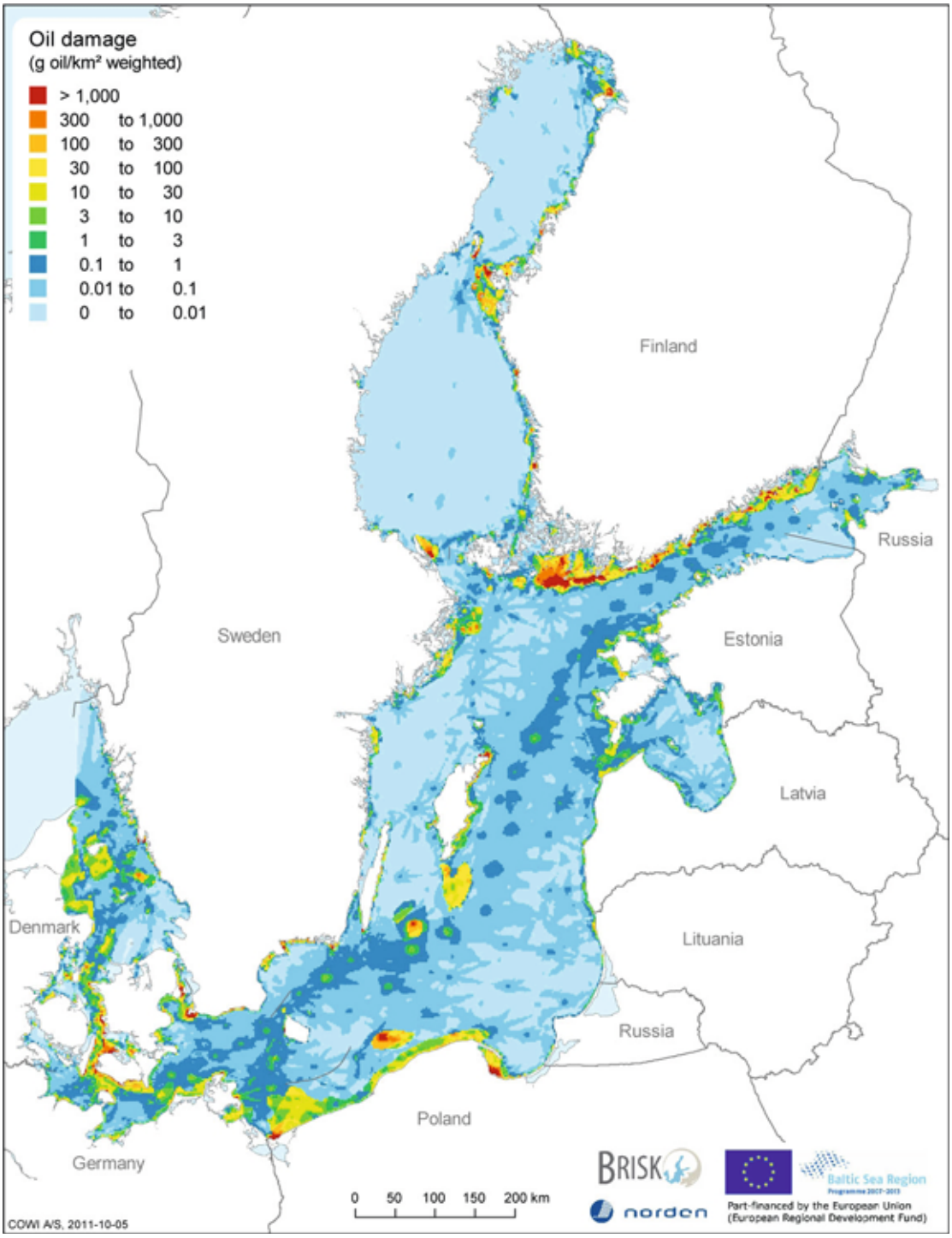


Figure 16. BRISK and BRISK-RU projects have assessed risks of major hazardous spills but also their impact. This map on oil damage combines information on oil impact with seasonal environmental sensitivity.

8.2. New Regulation for Shoreline Pollution Response in the Baltic

The HELCOM Expert Working Group on Shoreline Response has been working to determine the adequacy of existing resources to deal with shoreline pollution as well as introduce amendments to the HELCOM Response Manual. The Group has developed a new HELCOM Recommendation that would strengthen the cooperation of shoreline responses to spillages of oil and

other harmful substances. The Recommendation requires the Baltic Sea countries to develop and put into place a shoreline response plan – one that is integrated with the national contingency plan.

The adoption of a set of common requirements will ensure that all the coastal states achieve a corresponding level of preparedness. It will also ensure permanent cooperation in responding to shoreline pollution in the Baltic Sea, similarly to the well-functioning regional system for pollution in the open sea. The Recommendation is the outcome of the work of the HELCOM expert group, co-led by Poland and Germany.

8.3. Lowest Number of Illegal Oil Spills Ever Recorded in the Baltic Sea

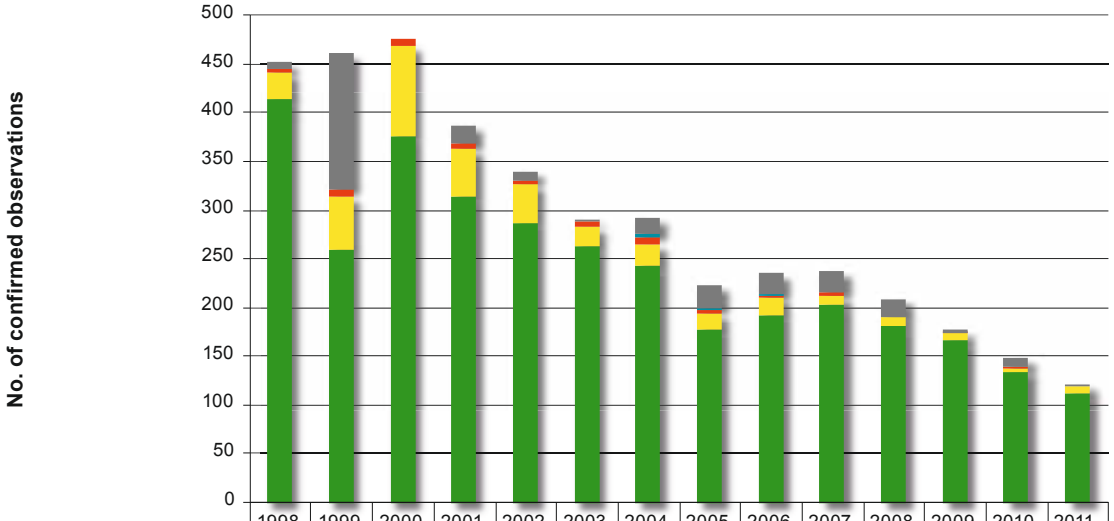
The trend is clear: the Baltic Sea suffers from fewer illegal discharges from ships. According to the latest national annual reports by HELCOM countries, a record low number of oil spills was detected by national surveillance aircraft and satellites in 2011. The number of surveillance flight hours was the highest in six years.

Altogether, 122 confirmed illegal oil discharges were observed in 2011, which is the lowest number of spills ever recorded in the Baltic Sea since the regular aerial surveillance started in 1988. Since 1999, the number of observed spills has declined by 75%.

The estimated total volume of spilled oil in 2011 was 24m^3, 50% less than in 2010. Most individual spills (93%) were smaller than 1 m^3. The small size of the spills follows the long-term trend of decreasing spill sizes.

Regular aerial surveillance flights have contributed significantly to the decrease in discharges, as ships are increasingly aware that their illicit polluting activities can be detected. The HELCOM aerial surveillance fleet today consists of more than 25 aircraft and helicopters, many of which are equipped with remote sensing equipment such as side-looking airborne radar (SLAR), infrared (IR) and ultraviolet (UV) cameras as well as photo and video equipment.

HELCOM also uses satellite surveillance to detect illegal polluters. Satellite images are provided by the CleanSeaNet (CSN) satellite service of the European Maritime Safety Agency.



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
unknown	7	138	0	19	9	2	17	23	21	21	18	2	9	2
> 100 m3	0	0	0	0	0	0	2	2	1	0	0	0	0	0
10-100 m3	3	8	6	5	4	6	8	4	2	4	0	1	2	0
1-10 m3	28	54	93	50	40	20	22	16	18	9	10	7	2	7
< 1 m3 (incl. < 0,1 m3)	414	261	377	314	288	264	244	179	194	204	182	168	136	113

Figure 17. Illegal oil discharges by spill size observed during aerial surveillance in the Baltic Sea, 1998-2011

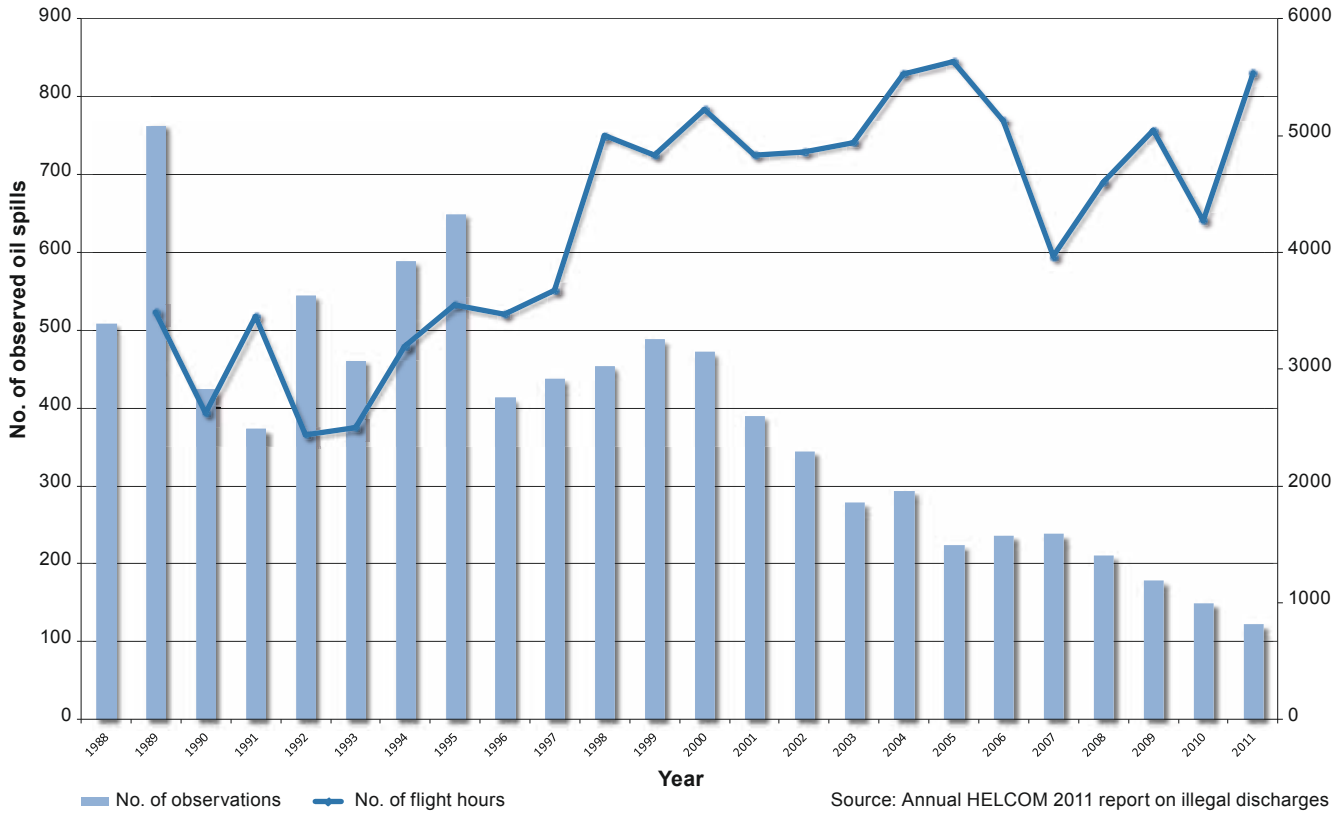


Figure 18. Total number of flight hours and observed oil spills in the HELCOM area during aerial surveillance, 1988-2011

8.4 Another Clean Year in the Baltic: Only Little Oil Found in Aerial Surveillance Operations

The Baltic Sea countries´ coordinated aerial surveillance has shown to be an effective preventive means to reduce the number of illegal oil spills. A Coordinated Extended Pollution Control Operation (SuperCEPCO) was co-organised in September 2011 by the Finnish Environment Institute (SYKE) and the Finnish Border Guard. It was considered a success due to well-functioning international cooperation and smooth coordination. Only one small mineral oil spill in a harbour and two other discharges were detected during the continuous six-day international aerial surveillance over the northern Baltic. Six specially equipped aircraft participated from five countries - Estonia, Finland, Germany, the Netherlands and Sweden. In addition, the European Maritime Safety Agency (EMSA) supported SuperCEPCO with satellite surveillance.

The results of the 2011 SuperCEPCO operation again confirm the decreasing trend in both the number of oil discharges and their volume. There was only one mineral oil spill found (less than 10 litres), one discharge of palm stearin and one of an unknown substance. The national aerial surveillance data supports this finding, which is highly significant considering that the density of shipping has increased so much in the Baltic Sea.

CEPCO's objectives are to continuously survey high-density traffic areas with a high risk of illegal discharges; identify and catch the polluters; practise communication between aircraft, patrol vessels and the Command Centres involved; improve cooperation between countries; and exchange experiences between crews.

8.5. Oil Disaster Successfully Prevented in Bornholm – in the HELCOM Exercise

On 30 August 2011, oil-combating forces of the Baltic Sea countries joined again under the HELCOM flag to test its preparedness in the event of a major oil spill during an international exercise held off the Danish Island of Bornholm. The drill - BALEX DELTA conducted by the coastal countries every year - is the largest emergency operation of its kind in the Baltic Sea and one of the largest worldwide.

This time, BALEX DELTA was organised by the Admiral Danish Fleet and it involved a scenario where an oil tanker collides with a large trawler in the waters between Sweden and Denmark. As a result, the tanker's two cargo tanks are breached

and leak around 5,000 tonnes of crude oil which starts to drift towards Bornholm.

The sea-going vessels were tasked to jointly prevent the oil slick from coming ashore. The pollution - which nonetheless reached shore - was handled with a national clean-up and oil wildlife response operation, providing an opportunity to gain invaluable experience, something that is needed to effectively deal with a real-life emergency situation.

In total, 14 oil-pollution-combating ships as well as smaller vessels participated from eight HELCOM countries - Denmark, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden. A Danish pollution patrol aircraft also took part in the exercise; the European Union as one of the HELCOM members was represented by one response vessel chartered by the European Maritime Safety Agency (EMSA). In addition, over 20 observers from all the Baltic Sea countries, EMSA, NGOs and the shipping industry monitored the actions of the response units.

The HELCOM BALEX DELTA operational response exercises have been held annually since 1989. Throughout this time, HELCOM has steadily improved the readiness of the countries around the Baltic to jointly respond to oil spills at sea.

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