Contents

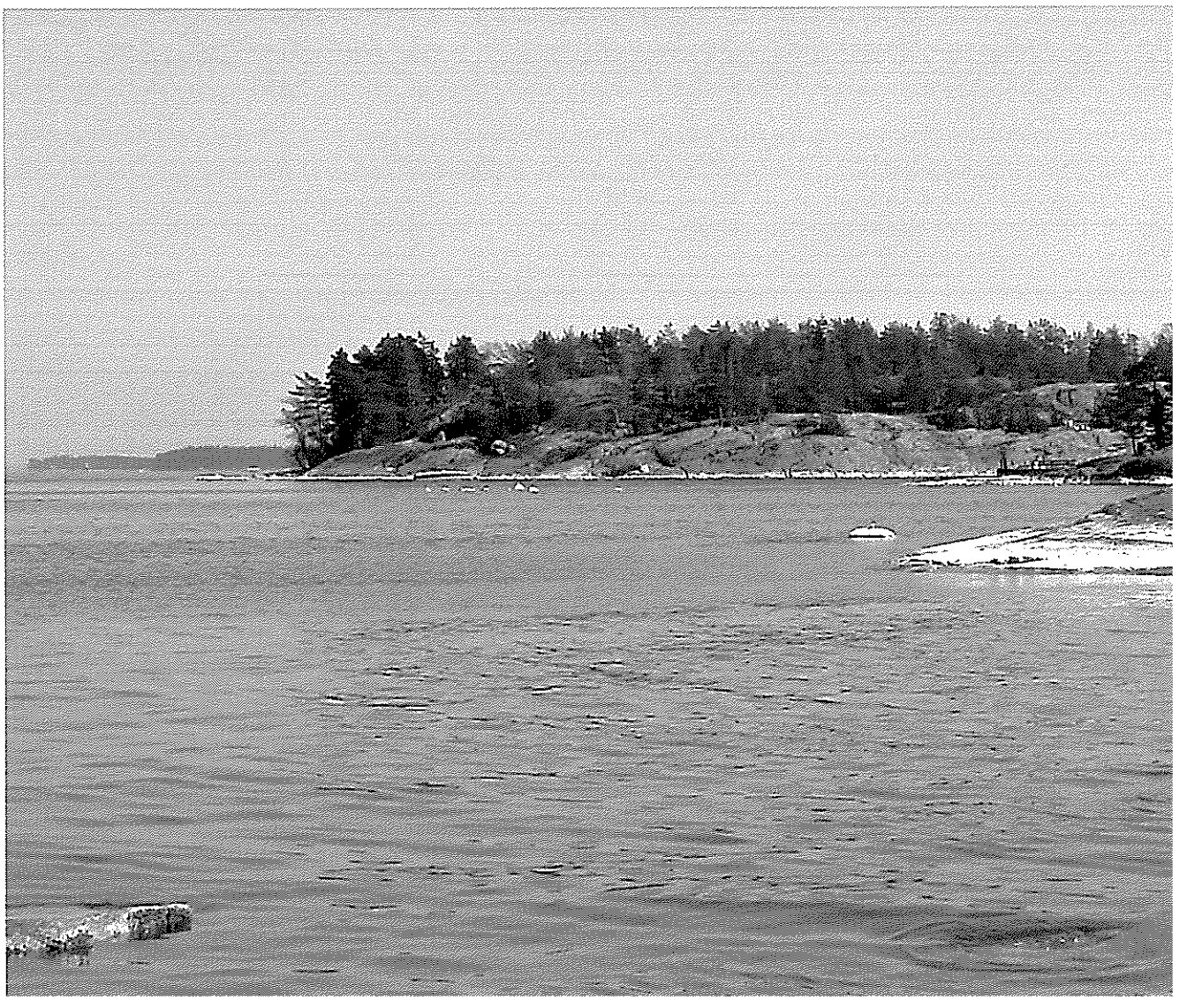
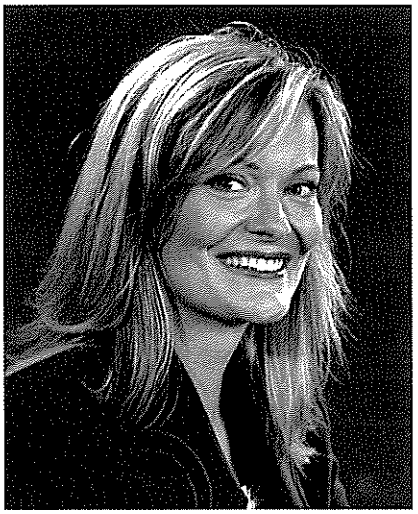


Photo: Mikołaj Wiśniewski, HELCOM

Foreword



As Executive Secretary of the Baltic Marine Environment Protection Commission (Helsinki Commission), I am pleased to present our Annual Report, an overview of our organisation's key accomplishments during the last 12 months, ending in March 2008.

2007 was a year of great success and achievement for HELCOM. It was a year when we made history by creating an ambitious yet realistic action plan to cease excessive pollution inputs and restore the health of the Baltic Sea by 2021. Following more than two years of intense consultations, 38 expert and senior officials meetings, and two major international stakeholder conferences, the ministers of the environment of the nine Baltic Sea countries and the European Commission adopted the Baltic Sea Action Plan at a HELCOM ministerial-level meeting held on 15 November 2007 in Krakow, Poland. The adoption of the plan marked a key turning point in the destiny of our fragile Baltic Sea. It will forever change the ways in which the coastal countries manage the marine environment.

The Baltic Sea Action Plan is a first ever attempt by a regional seas convention to incorporate an innovative ecosystem-based approach into the protection of the marine environment. The core policy of the plan is based on Ecological Objectives defined to reflect a common vision of a healthy sea - a sea with diverse biological components functioning in balance and supporting a wide range of sustainable human economic and social activities. This vision dictates the need for specific, tailor-made solutions for different environmental challenges.

One of the major highlights of the new plan is that it opens a new era in marine environmental protection by including the concept of maximum allowable nutrient input, which still makes it possible for the Baltic Sea to reach a good ecological status. The plan also contains provisional country-wise annual nutrient input reduction targets for both nitrogen and phosphorus, the nutrient pollutants responsible for the continuing degradation of the sea.

HELCOM has become the first marine convention in the world to have developed a truly overarching programme of actions for the rehabilitation of an entire sea basin. The plan highlights an integrated approach to the protection of the Baltic Sea, which combines environmental objectives with sectoral goals, acknowledging that both can benefit from more holistic measures (e.g. fisheries, agriculture and maritime transportation).

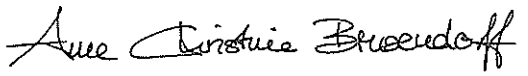
The holistic plan contains concrete and meaningful actions to solve all major problems affecting the Baltic Sea. Its four segments include measures designed to curb eutrophication, to prevent pollution involving hazardous substances, to improve maritime safety and accident response capacity, and to halt habitat destruction and the decline in biodiversity. The plan specifies milestones and final compliance dates. It includes a system of measurable parameters that will enable us to evaluate the efficiency of adopted measures, and to determine whether we are on our way towards reaching the desired state of the Baltic Sea.

The HELCOM Baltic Sea Action Plan incorporates inputs from major stakeholder groups and the findings of numerous project studies, workshops, and key regional environmental

policies. This plan has already been widely heralded as a pilot project for European seas under the EU Marine Strategy Framework Directive, and a model to be followed by other regional marine conventions around Europe. In November 2007, the HELCOM Baltic Sea Action Plan was awarded the European Regional Champions Award as an outstanding example of an innovative regional environmental programme.

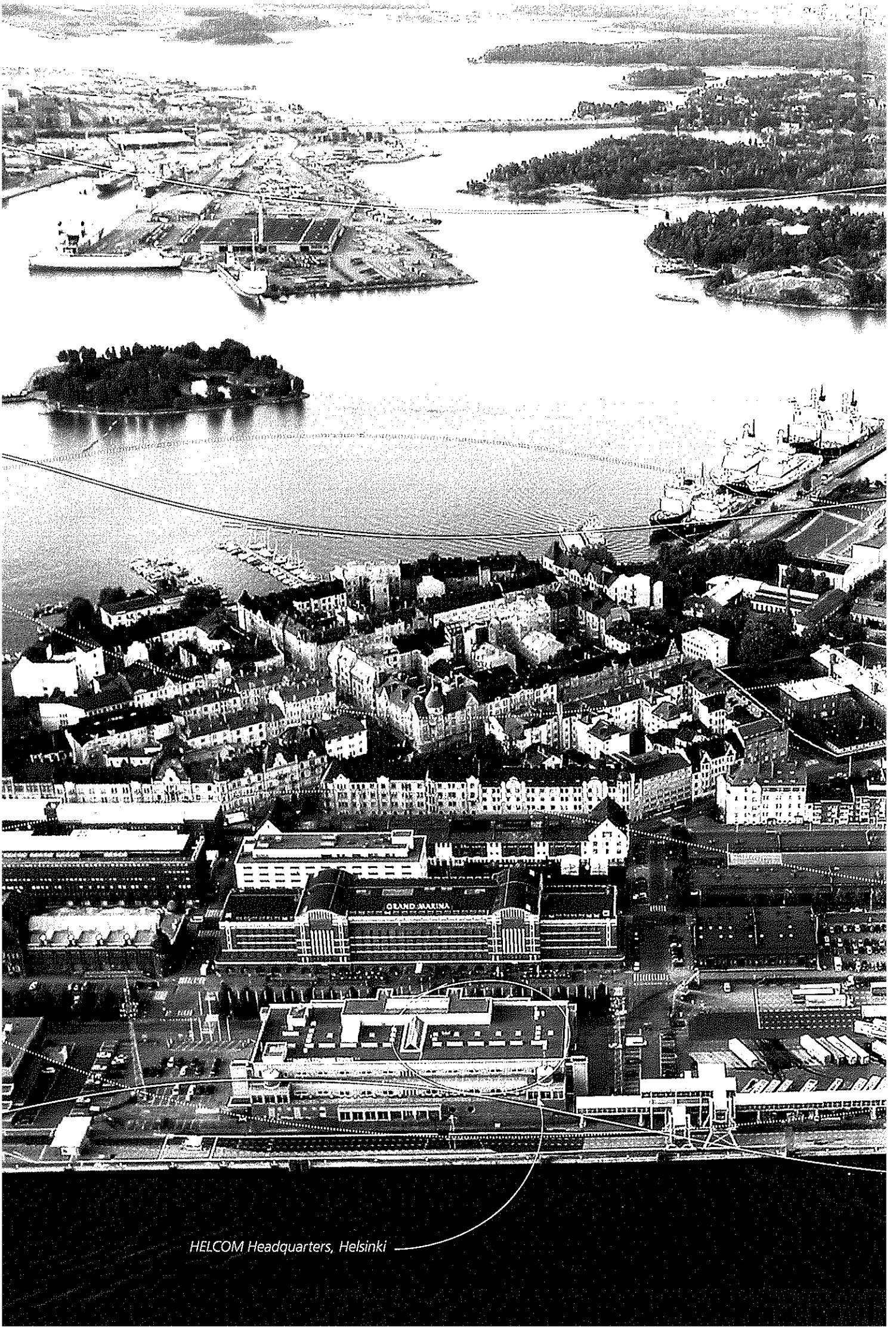
The HELCOM Baltic Sea Action Plan took a long time to craft, and we are still only at the beginning of a long road towards achieving our shared goal of a healthy marine environment. The most challenging implementation phase still remains ahead. For the success of the HELCOM Baltic Sea Action Plan, it will be extremely important to ensure good co-operation and co-ordination between all the countries in the Baltic Sea region. The overall state of the sea can only be further improved through combined efforts and integrated actions.

I hope that this annual report will provide you with plenty of useful information about the Baltic Sea Action Plan, as well as an overview of HELCOM's assessments of current trends in the Baltic marine environment and the many other wide-ranging activities carried out by the Helsinki Commission during 2007 to protect the Baltic Sea.



Anne Christine Brusendorff
Executive Secretary of the Helsinki Commission

Photo: Tomas Lundaly



HELCOM Headquarters, Helsinki

1. The working structure of HELCOM

The Baltic Marine Environment Protection Commission, more usually known as the Helsinki Commission, or HELCOM, works to protect the marine environment of the Baltic Sea from all sources of pollution through intergovernmental co-operation between Denmark, Estonia, the European Community, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden.

HELCOM is the governing body of the "Convention on the Protection of the Marine Environment of the Baltic Sea Area" – more usually known as the Helsinki Convention.

Organisation

The Helsinki Commission meets annually. Ministerial level meetings are also held occasionally. The Commission unanimously adopts Recommendations for the protection of the marine environment, which the governments of the Contracting Parties must act on in their respective national programmes and legislation.

The chairmanship of the Helsinki Commission rotates between the Contracting Parties every two years, according to their alphabetical order in English. HELCOM is currently chaired by Poland (1 July 2006 – 30 June 2008). On 1 July 2008, the chairmanship will be taken over by Russia.

The working structure of HELCOM, supported by the Secretariat, consists of the meetings of the Helsinki Commission, the Heads of Delegation, and five main expert groups.

The goals of the Helsinki Commission

HELCOM's main goal is to protect the marine environment of the Baltic Sea from all sources of pollution, and to restore and safeguard its ecological balance.

The 1974 Convention

For the first time ever, all the sources of pollution around an entire sea were made subject to a single Convention, signed in 1974 by the then seven Baltic coastal states. The 1974 Convention entered into force on 3 May 1980.

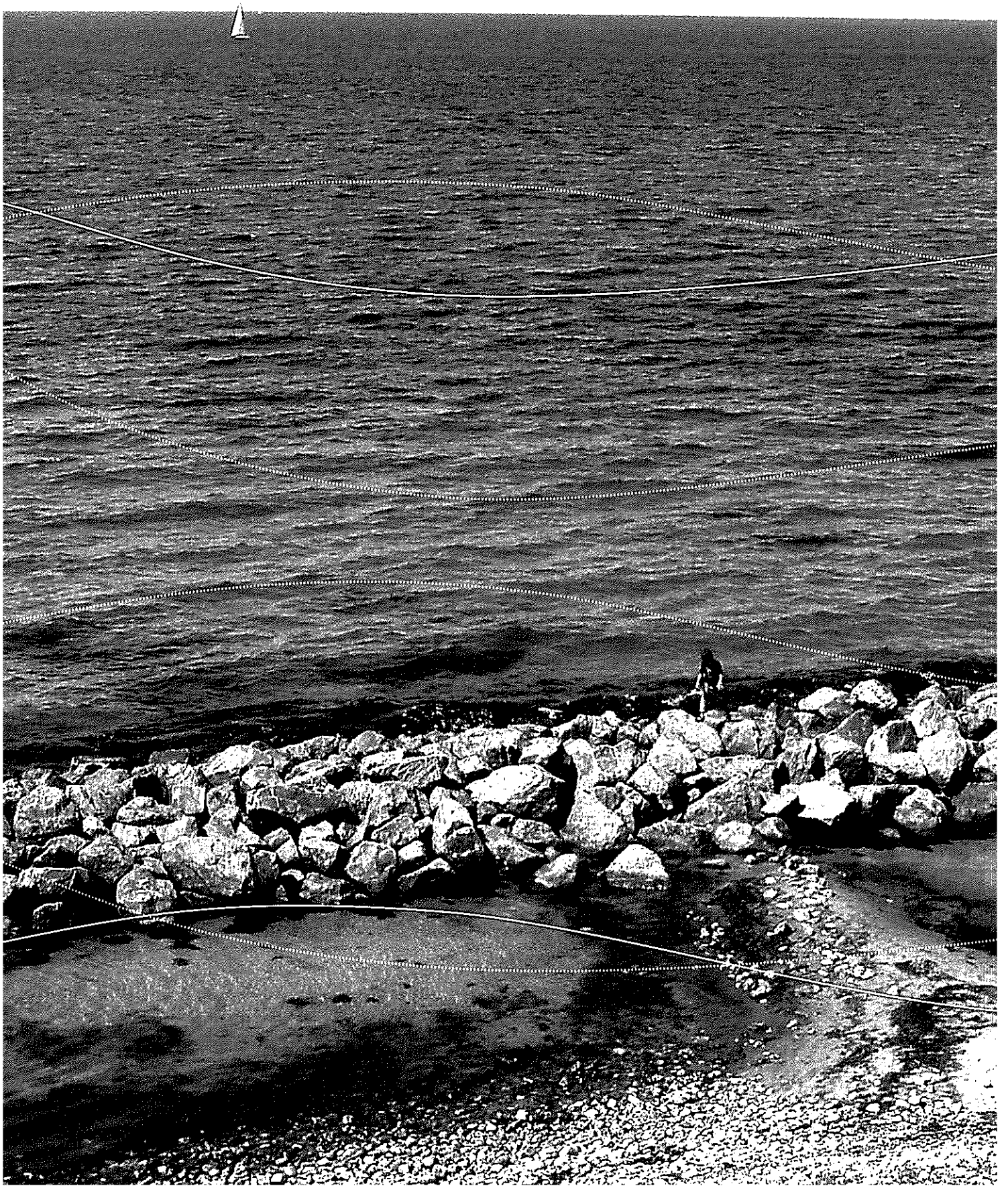
The 1992 Convention

In the light of political changes, and developments in international environmental and maritime law, a new Convention was signed in 1992 by all the states bordering on the Baltic Sea, and the European Community. After ratification, the Convention entered into force on 17 January 2000. The Convention covers the whole of the Baltic Sea area, including inland waters as well as the waters of the sea itself, and the sea-bed. Measures are also taken in the whole catchment area of the Baltic Sea to reduce land-based pollution.

Priorities

- Environmental monitoring and assessment
- Combating eutrophication caused by excessive nutrient loads from agricultural sources
- Preventing pollution by hazardous substances
- Improving navigational safety and accident response capacity
- Protecting and conserving marine and coastal biodiversity

Structure of HELCOM



2. The HELCOM Baltic Sea Action Plan – a new era in marine environmental protection

HELCOM adopts a strategic Baltic recovery plan

1. Making history

At the HELCOM Ministerial Meeting held on 15 November 2007 in Krakow, Poland, the Ministers of the Environment and Senior Government Officials of the HELCOM Member States and the European Community adopted an ambitious overarching action plan to drastically reduce pollution to the Baltic Sea and restore its good ecological status by 2021. The programme of actions was approved by representatives of Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia, Sweden and the European Community, which is also a HELCOM Member. Denmark adopted the plan at a later stage following the formation of the new cabinet.

The adoption of the Baltic Sea Action Plan represents a milestone in the joint efforts of the HELCOM Members to restore the Baltic marine environment. The plan is the first bold attempt by a regional marine protection convention to implement the ecosystem approach defined by the 1992 Rio Declaration and the 2002 World Summit on Sustainable Development in Johannesburg.

The new strategy is a crucial stepping stone for wider and more efficient actions to combat the continuing deterioration of the marine environment resulting from human activities. With the adoption of the new environmental strategy, HELCOM will continue its long record of respected leadership in marine environmental protection, incorporating the latest scientific knowledge and innovative management approaches into strategic policy implementation, and stimulating even closer, goal-oriented multilateral co-operation around the Baltic Sea region.

The plan will lead to profound, innovative changes in the ways the coastal countries manage the environment in the Baltic Sea region. The innovative cross-sectoral plan is designed to solve all major environmental problems affecting the Baltic Sea. It sets a strategic target of achieving a good ecological status of the Baltic Sea - a sea with diverse biological components functioning in balance and supporting a wide range of sustainable human economic and social activities. The plan contains concrete and meaningful actions to curb eutrophication, prevent pollution involving hazardous substances, improve maritime safety and accident response capacity, and halt habitat destruction and the decline in biodiversity.

Krakow, Poland

The development of the action plan took almost two and a half years. Following the successful launch of the Baltic Sea Action Plan concept back in 2005, and building on the outcome of the

initial preparatory period, the detailed elaboration of the plan was officially kick-started at the Stakeholder Conference on 7 March 2006 in Helsinki. At its annual meeting on 8-9 March 2006, HELCOM approved the first core elements of a new environmental strategy to restore the Baltic Sea - a common vision of a healthy sea, and a set of Ecological Objectives to work towards so as to fulfill this vision. Following a series of meetings and consultations, the first draft of a set of actions to be included in the Baltic Sea Action Plan was unveiled in March 2007, at the 2nd Stakeholder Conference, where the proposals received overwhelming support and the backing of major international organisations. The annual HELCOM meeting held on 8-9 March 2007 conducted an extensive review of the actions proposed for the plan. During the final series of negotiations held from April to October 2007 the coastal countries reached broad consensus on concrete and meaningful measures to restore the sea. The final version of the Baltic Sea Action Plan was complete in the beginning of November 2007.

2. Main challenges

The Baltic Sea Action Plan addresses all the major environmental problems affecting the Baltic marine environment. The environmental situation in the Baltic Sea has drastically changed over recent decades. Human activities both on the sea and throughout its catchment area are placing rapidly increasing pressure on marine ecosystems. Of the many environmental challenges, the most serious and difficult to tackle with conventional approaches is the continuing eutrophication of the Baltic Sea. Inputs of hazardous substances also affect the biodiversity of the Baltic Sea and the potential for its sustainable use. Clear indicators of this situation include problems with algal blooms, dead sea-beds, and depletion of fish stocks. Such problems call for immediate wide-scale action to put an end to the further destruction of the Baltic marine environment and to avoid an irreversible disaster. Failure to react now would undermine both the prospects for the future recovery of the sea and its capability to cope with predicted pressures related to climate change. Furthermore, inaction now would affect resources that are vital for the future economic prosperity of the whole region, and result in eventual costs tenfold higher than the cost of action today.

3. Previous efforts and the need for new approaches

Previous HELCOM efforts to reduce pollution and repair the damage to the marine environment have led to noticeable improvements in many areas, enabling people to bathe on beaches that were once polluted, and helping endangered wildlife populations to recover. But there is still a lot left to do, as many of the Baltic's environmental problems are proving difficult to solve, and it could take several decades for the marine environment to recover. For example, concerning

inputs of the nutrients responsible for eutrophication, HELCOM has already achieved a 40% reduction in nitrogen and phosphorus discharges from sources in the catchment area, as well as a 40% decrease in emissions of nitrogen to the air. The total discharges of about 50 hazardous substances have meanwhile been halved. But in order to achieve "clear water", which is one of the main objectives of the HELCOM Baltic Sea Action Plan, phosphorous and nitrogen inputs to the Baltic Sea must be further cut by about 42% and 18%, respectively.

However, further progress cannot be achieved using only the old administrative measures of equal reductions in pollution loads. A completely different approach and new tailor-made actions are required to reach the goal of good ecological status. Moreover, the remaining challenges are more difficult than earlier obstacles. Reductions in nutrient inputs have so far mainly been achieved through improvements at major point sources, such as sewage treatment plants and industrial wastewater outlets. Achieving further reductions will be a tougher task, requiring actions to address diffuse sources of nutrients such as runoff from over-fertilised agricultural lands.

4. A plan based on Ecological Objectives

The new plan is radically different from any other plan or programme previously undertaken by HELCOM. The innovative approach is that the plan is based on a clear set of 'ecological objectives' defined to reflect a jointly agreed vision of 'a healthy marine environment. Example objectives include clear water, an end to excessive algal blooms, and viable populations of species. Targets for 'good ecological status' are based on the best available scientific knowledge.

With the application of the ecosystem approach, the protection of the marine environment is no

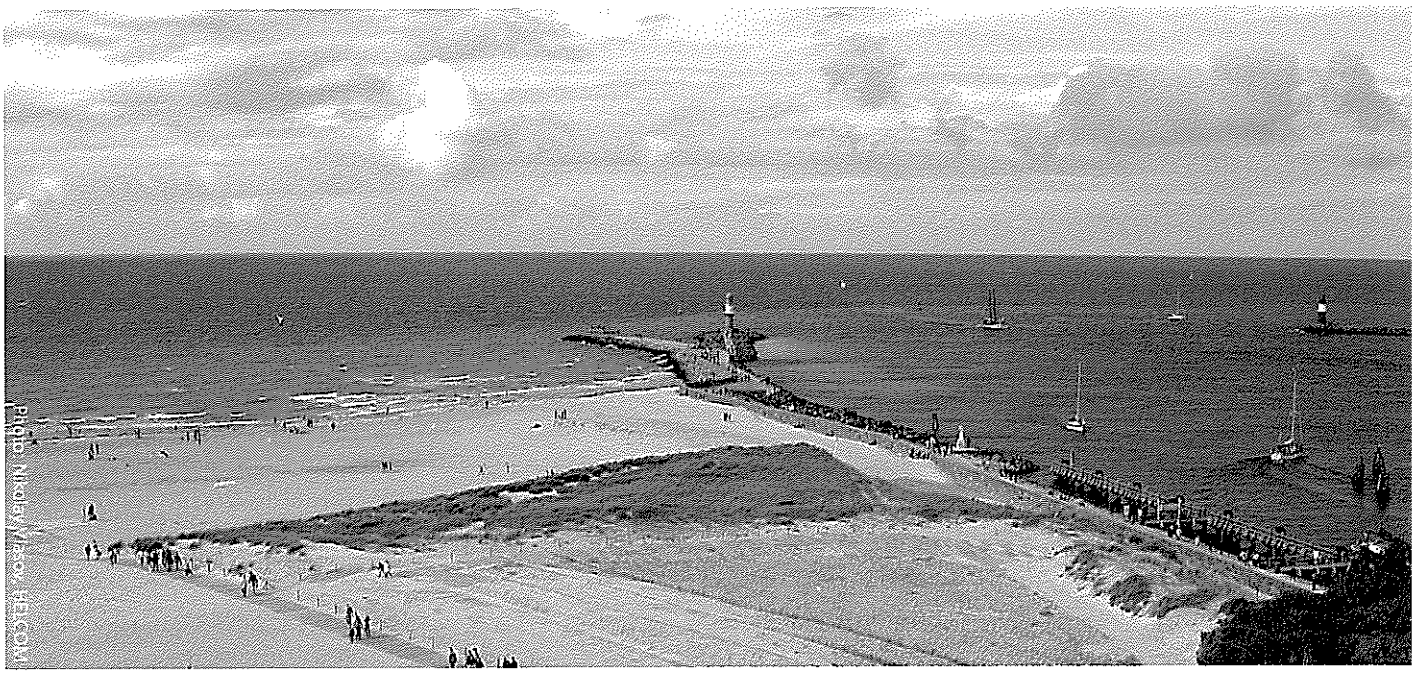


PHOTO: NIKOLAI/PROV. HELCOM

longer seen as an event-driven pollution reduction approach to be taken sector-by-sector. Instead, the starting point is the ecosystem itself, and a shared concept of a healthy sea with a good ecological status. This vision will determine the need for further reductions in pollution loads, as well as the extents of various human activities.

The cross-sectoral plan identifies the specific actions needed to achieve agreed targets within a given timeframe for the main environmental priorities.

The action plan distinguishes between measures that can be implemented at regional or national level, and measures that can only be implemented at EU level (e.g. Common Fisheries Policy, Common Agricultural Policy, controls over the marketing and use of chemicals) or globally (e.g. the shipping controls defined by the International Maritime Organisation).

5. Stakeholder participation

Another highlight of the elaboration of the HELCOM Baltic Sea Action Plan has been the active participation of all major stakeholder groups in the region. Such participation ensures that the plan is truly relevant and can be effectively implemented in practice. The choices that we make reflect the choices of society as a whole. For this reason, the common vision of the healthy Baltic Sea has been defined together with all participating stakeholders – from governments, through industry and NGOs, right down to individual citizens, including older and younger generations, and organisations in both the private and the public sectors. In this way the plan promotes employment and other aspects of sustainable socio-economic development, as well as ecological sustainability and a healthy environment.

Photo: Andris Soms

6. A pilot scheme for European seas

The concept of the HELCOM Baltic Sea Action Plan has already been widely supported by politicians at various forums, and heralded as a pilot project for European seas in the context of the proposed at that time EU Marine Strategy Framework Directive. The European Community has described HELCOM's plan as a cornerstone for further action in the Baltic Sea region, emphasising that the plan is instrumental to the successful implementation of the EU Marine Strategy Framework Directive in the region.

The EU Marine Strategy Framework Directive foresees such an action plan for each eco-region, including the Baltic. HELCOM is in a unique position to deliver this already, given its embracing of all the countries in the Baltic Sea catchment area. HELCOM is also in a unique position to ensure that the special characteristics of the Baltic Sea are fully accounted for in European policies.

As a pioneer in the application of the ecosystem approach, the innovative HELCOM action plan will also serve as a model example to be followed by the Regional Seas Conventions and Action Plans under the auspices of the UNEP Regional Seas Programme.

In developing the action plan, HELCOM has taken into account the environmental provisions of the Maritime Doctrine of the Russian Federation. Close co-operation with Russia, which is the only HELCOM country outside EU in the Baltic Sea region, is crucial for any further progress to be made in rescuing the troubled Baltic marine environment. HELCOM's innovative strategy is also instrumental to the implementation of the renewed Northern Dimension policy, the Baltic Sea regional aspects of the EU-Russian Environmental Dialogue, the Nordic Environmental Action Plan, and the upcoming European Maritime Policy.

But first and foremost, the HELCOM action plan is considered a joint regional policy, with common objectives, actions, and obligations. The future success of the plan largely depends on how all the coastal countries can co-operate to achieve the goal of a healthy Baltic marine environment.

Summary of the four main segments of the HELCOM Baltic Sea Action Plan, financing, implementation and review

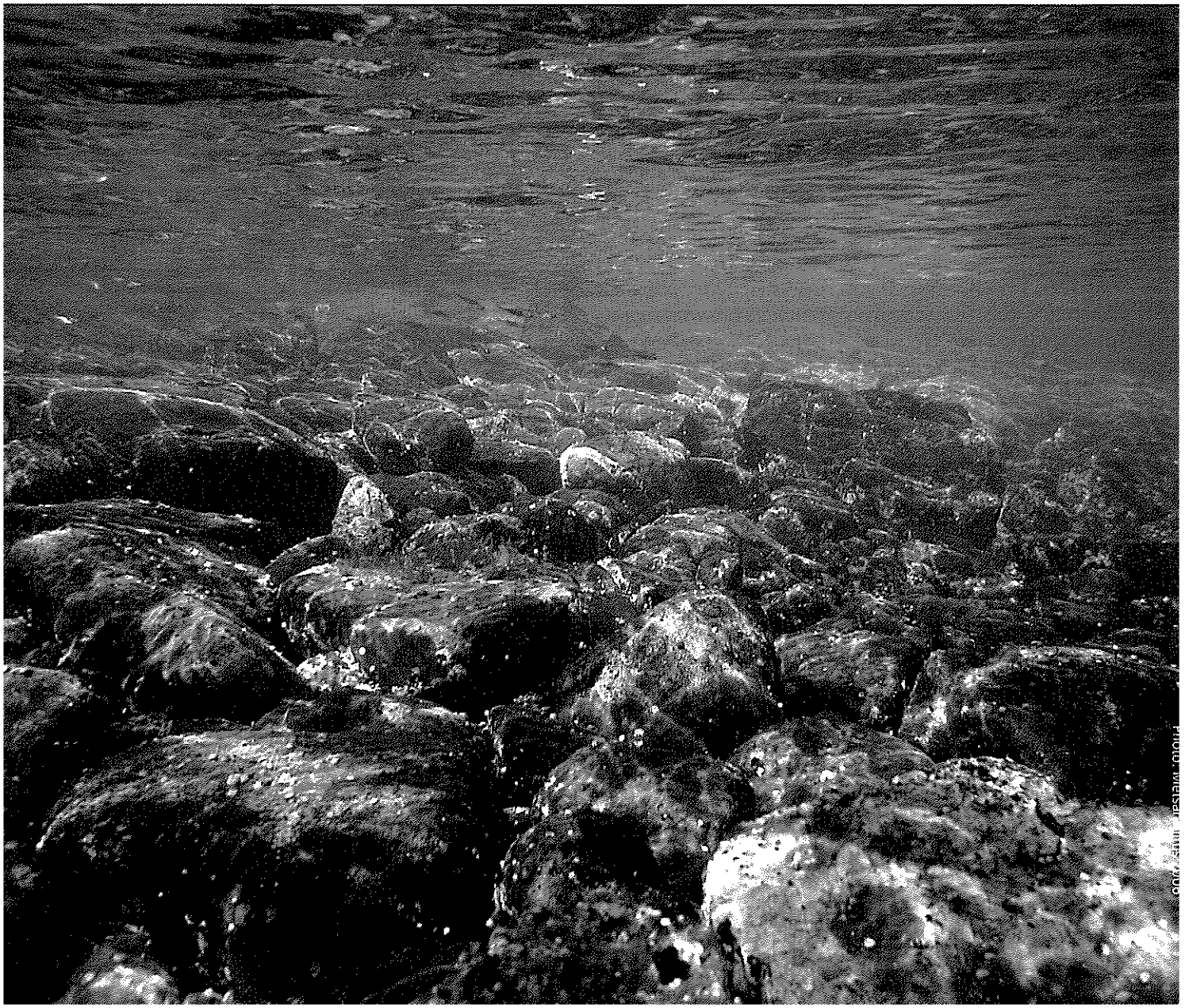
1. Towards a Baltic Sea unaffected by eutrophication

Eutrophication is a major problem in the Baltic Sea, caused by excessive inputs of nitrogen and phosphorus which mainly originate from inadequately treated sewage, agricultural run-off and airborne emissions from shipping and combustion processes. Eutrophication leads to problems such as intensified algal blooms, murky water, oxygen depletion and lifeless sea bottoms.

The plan's objectives for eutrophication include:

- Concentrations of nutrients close to natural levels
- Clear water
- Natural levels of algal blooms
- Natural oxygen levels
- Natural distributions and abundance of plants and animals

HELCOM has estimated that for good environmental status to be achieved, the maximum allowable annual nutrient pollution inputs into the Baltic Sea would be 21,000 tonnes of phosphorus and about 600,000 tonnes of nitrogen. Over the period 1997-2003, average annual inputs amounted to 36,000 tonnes of phosphorus and 737,000 tonnes of nitrogen, therefore,



annual reductions of some 15,000 tonnes of phosphorus and 135,000 tonnes of nitrogen would be required to reach to achieve the plan's crucial "clear water" objective.

In order to diminish nutrient inputs to the Baltic Sea to the maximum allowable levels, the HELCOM countries have agreed to take actions not later than 2016 to reduce nutrient loads in waterborne and airborne inputs aiming to reach good ecological and environmental status by 2021. The action plan duly proposes provisional country-wise nutrient input reduction targets for both nitrogen and phosphorus (see table below).

	Phosphorus (tonnes)	Nitrogen (tonnes)
Denmark	16	17,210
Estonia	220	900
Finland	150	1,200
Germany	240	5,620
Latvia	300	2,560
Lithuania	880	11,750
Poland	8,760	62,400
Russia	2,500	6,970
Sweden	290	20,780
Transboundary Common pool*	1,660	3,780

*Non-HELCOM countries

To reach these reduction targets, the Baltic Sea countries will:

- develop national programmes, by 2010, designed to achieve the required reductions. Each country will be given enough flexibility to choose the most cost-effective measures, which can also be incorporated into River Basin Management Plans.
- implement specific measures to improve the treatment of wastewater, including increasing phosphorus removal from 80% to 90%, and substituting phosphorus in detergents. These measures alone will reduce phosphorus inputs into the Baltic by 6,700 tonnes, almost half of the total required reduction.

The implementation of the action plan will also include the identification of individual pollution hot spots such as major facilities for the intensive rearing of cattle, poultry and pigs, where actions should be prioritised in order to comply with revised requirements for prevention of pollution from agriculture (Annex III of the 1992 Helsinki Convention). Accordingly, a more stringent system of environmental permits for livestock facilities based on their environmental performance and best available techniques (BAT) shall be applied for large installations, with simplified approach for smaller units also introduced.

2. Towards a Baltic Sea undisturbed by hazardous substances

Hazardous substances include contaminants such as dioxins, PCBs, TBT, PFOS and heavy metals. Once released into the sea, hazardous substances can remain in the marine environment for very long periods and accumulate in the marine food web. Hazardous substances cause adverse effects in ecosystems, including health and reproductive problems in animals, especially top predators. Certain contaminants may be hazardous because of their effects on hormone and immune systems, as well as their toxicity, persistence and bio-accumulating properties. Some fish caught in the Baltic Sea, particularly herring and salmon, contain concentrations of hazardous substances that exceed maximum allowable levels for foodstuffs as defined by EU.

HELCOM has already set a zero-emission target for all hazardous substances in the whole Baltic Sea catchment area by 2020.

The ecological objectives set out in the HELCOM Baltic Sea Action Plan are:

- To reach concentrations of hazardous substance close to natural levels
- To ensure that all Baltic fish are safe to eat
- To safeguard the health of wildlife
- To reach pre-Chernobyl levels of radioactivity


Photo: Metsähallitus 2005

Under the plan, all the coastal countries will launch national programmes addressing nine organic hazardous substances and two heavy metals. These substances have been selected by HELCOM as being of specific concern in the Baltic marine environment. The HELCOM countries will restrict uses of the selected hazardous substances and promote substitutions with less hazardous substances in industry and other sectors. The selected hazardous substances include halogenated hydrocarbons, as well as mercury (in certain applications) and cadmium (in fertilisers and certain other uses). There is also a need to define guidelines and build up the capacities of the relevant authorities and industries in order to increase awareness of how pollution involving hazardous substances can be eliminated. An agreement has therefore been made on the establishment and development of appropriate joint chemical product registers, in order to provide more reliable substance-specific information on the amounts of chemicals used for various purposes.

The information currently available on inputs and sources of hazardous substances is not as extensive as for nutrients, so it is not yet possible to conduct a comprehensive assessment of the situation in the Baltic Sea. The HELCOM countries have therefore decided to work together to build up more information about the sources of the selected hazardous substances, the extent of their occurrence in the Baltic marine environment, and their biological effects. This knowledge can then be used as a basis for identifying further actions.

3. Towards the favourable conservation status of the Baltic Sea biodiversity

Many human activities have impacts on biodiversity, and the biodiversity segment of the HELCOM Baltic Sea Action Plan aims to serve as an all encompassing element reflecting the performance of the whole plan. The goal of achieving a favourable conservation status for the biodiversity of the Baltic Sea cannot be reached without comprehensively considering human activities and carrying out decisive action in other segments of the plan.

Eutrophication and hazardous substances have strong impacts on biodiversity. Some species are directly threatened by overfishing or the destruction of their habitats by human activities such as dredging and construction along shores. Intensified shipping can add to the existing environmental stress by introducing invasive alien species, resulting in minor oil spills, and increasing the probability of a major oil spill that could be highly destructive for many species and habitats. Together with the predicted impacts of global warming, all of these pressures increasingly threaten the biodiversity of the Baltic Sea.

The biodiversity segment of the action plan aims to restore and maintain natural marine landscapes, thriving and balanced communities of animals and plants, as well as viable populations of species. Actions are focused on three cross-cutting issues to be addressed together with the relevant international authorities: marine spatial planning, long-term management plans for threatened species and habitats; and the promotion of the research needed to fill in the information gaps that currently hamper the planning of further actions.

In order to secure the sustainable use of marine resources by reducing conflicts and the adverse

impacts of human activities, HELCOM will devise a set of principles for cross-sectoral marine spatial planning, as well as test and apply tools to be further developed jointly with other international organisations. These principles and tools should be ready by 2012. One particularly important issue is the further development of an ecologically coherent network of marine protected areas around the Baltic Sea, including fisheries management measures to be applied in marine protected areas by 2010.

In order to enhance the balance between the sustainable use of marine natural resources and their protection, the HELCOM countries have agreed that good management of human activities for the Baltic Sea area should be based on the ecosystem approach. This will involve:

- developing, by 2012, long-term plans for protecting and sustainably managing the most threatened and declining species and habitats defined by HELCOM;
- further developing and implementing long-term management plans for commercially exploited fish stocks so that they remain within safe biological limits;
- preventing catches of non-target species and under-sized fish; and
- devising long-term plans for the monitoring, protection and sustainable management of coastal fish species.

These actions will be carried out by the competent fisheries authorities in co-operation with the Baltic Sea Regional Advisory Council (RAC) and HELCOM, mainly by 2012.

HELCOM will also promote further research designed to support the conservation of marine landscapes, habitats, communities and species. This work will involve:

- developing detailed landscape and habitat maps, especially for habitat-forming species;
- updating HELCOM Red Lists of Baltic habitats/biotopes and biotope complexes, and producing a comprehensive HELCOM Red List of threatened Baltic Sea species; and
- developing additional methods for assessing and reporting on the impacts of fisheries on biodiversity, including effective monitoring and reporting systems for by-catches of seabirds and marine mammals.

4. Towards a Baltic Sea with environmentally friendly maritime activities

The Baltic Sea is one of the busiest marine areas in the world in terms of shipping densities. Both the numbers and the sizes of ships have grown in recent years, especially oil tankers, and this trend is expected to continue.

The Baltic's narrow straits and shallow waters, many of which are covered by ice for prolonged periods in winter, make navigation very challenging, and increase the risk of shipping accidents.

The main environmental effects of shipping and other activities at sea include air pollution, illegal deliberate and accidental discharges of oil, hazardous substances and other wastes, and the unintentional introduction of invasive alien organisms via ships' ballast water or hulls.

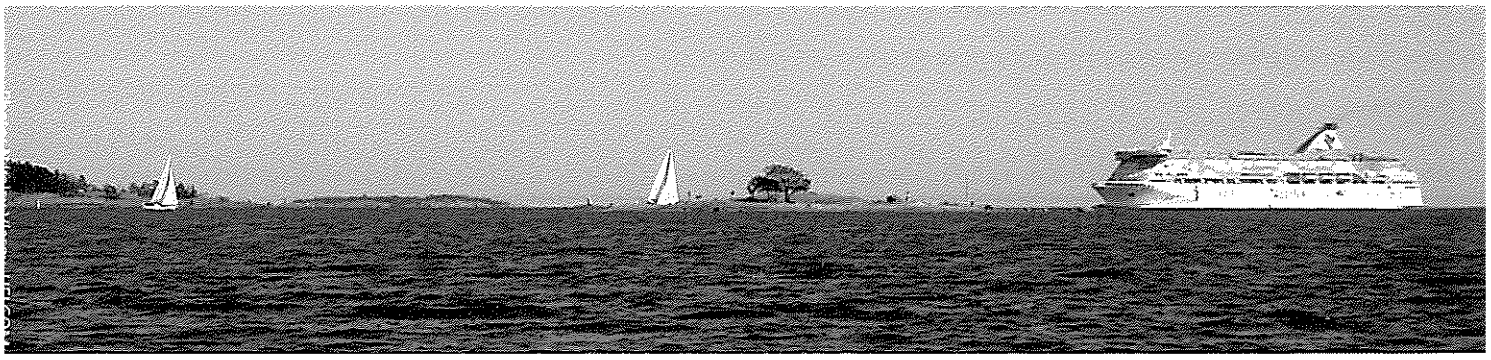
Shipping adds to the problem of eutrophication of the Baltic Sea with its nutrient inputs from sewage discharges and nitrogen oxides (NOx) emissions. The Baltic Sea countries have resolved to act jointly within the International Maritime Organization (IMO) to apply stricter controls over these sources of nutrient pollution.

Firstly, the countries plan to propose an amendment to the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) to introduce standards for nutrient concentrations in sewage discharges from ships.

The HELCOM countries have already contributed to the ongoing revision of Annex VI of MARPOL 73/78, which deals with the prevention of air pollution from ships as envisaged in the Baltic Sea Action Plan. The contribution has examined whether IMO proposals for a tightening of regulations on ships' NOx emissions are sufficient for the Baltic, and illustrated the region's positive experiences as a sulphur oxide (SOx) Emission Control Area.

The plan also envisages the use of non-regulatory measures such as economic incentives to stimulate further reductions in emissions from ships.

The best way to reduce the risk of pollution accidents at sea is to increase the safety of navigation. Oil spills can destroy important marine and coastal habitats and have serious economic impacts on coastal communities. Much has already been done by HELCOM to enhance the safety of navigation. Future measures under the



new action plan are related to the more effective use of the Automatic Identification System (AIS), which facilitates the exchange of information between ships, and between ships and shore stations. The countries will propose to IMO necessary improvements in the information content of AIS in order to enhance maritime safety, security and environmental protection.

The HELCOM countries will also work within IMO to speed up the introduction of a general requirement for ships to use Electronic Chart Display and Information System (ECDIS) instead of paper navigational charts. This improved system enables ships to display their own positions in real time. The use of ECDIS onboard ships in areas where coverage with official Electronic Navigational Charts (ENCs) is satisfactory - like in the Baltic - considerably reduces the risk of groundings.

In addition, the plan includes a new HELCOM Recommendation on further measures to improve the safety of navigation in icy conditions.

Another important part of the HELCOM action plan concerns the intensified enforcement of existing environmental regulations. The Baltic Sea countries will better utilise satellite surveillance to detect illegal discharges, as well as a newly developed detection system based on AIS, to identify non-compliant ships in the HELCOM area.

The risk of a shipping accident will never be totally eliminated, so there is a need to ensure efficient emergency and response capabilities in the HELCOM countries. A new HELCOM Recommendation aims to strengthen existing sub-regional co-operation with regard to response to pollution accidents at sea. By 2013, all sub-regions of the Baltic Sea should be fully prepared to cope with medium-sized oil spills affecting and requiring response from more than one country. An adequate level of preparedness to respond to accidental pollution involving hazardous substances is to be achieved by 2016.

Increasing numbers of non-native species are being observed in seas all around the world, and the Baltic Sea is no exception. Shipping is the most important vector of unintentional species introductions into aquatic environments due to releases of ballast water and the fouling of hulls. The entry into force of the 2004 International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention) is the most important step towards combating the spread of invasive non-native species. The HELCOM countries have agreed to ratify the BWM Convention by 2013. Measures included in a Road Map drawn up by HELCOM will be taken already before ratification to ensure this urgent issue is addressed as soon as possible.

5. Financing

The main sources of funding for the above-mentioned actions include national budgets and EU structural funds, including the Cohesion Fund set up to help new member countries implement EU Directives. Russia as a non-EU country will benefit from funding provided for high priority environmental projects through the EU Neighbourhood Programme, bilateral agreements, and the Northern Dimension Environmental Partnership fund.

The action plan also encourages the elaboration of bilateral and multilateral projects and programmes to reduce nutrient inputs using the most cost-efficient measures, particularly for addressing transboundary nutrient inputs from non-HELCOM countries. The plan recognises non-profit foundations and private companies as important contributors to

the establishment of projects to reduce pollution to the Baltic Sea.

In 2008, the HELCOM countries will start identifying and listing projects largely on the basis of the results of the Fifth Pollution Load Compilation (PLC-5) and the document "Background paper on financing and cost-efficiency" elaborated by the Nordic Environment Finance Corporation (NEFCO), with a unit abatement cost (UAC) for reduction of phosphorus below €150,000 per tonne which could be addressed by initiating joint initiatives in the Baltic Sea catchment area in co-operation with non-profit foundations and private companies.

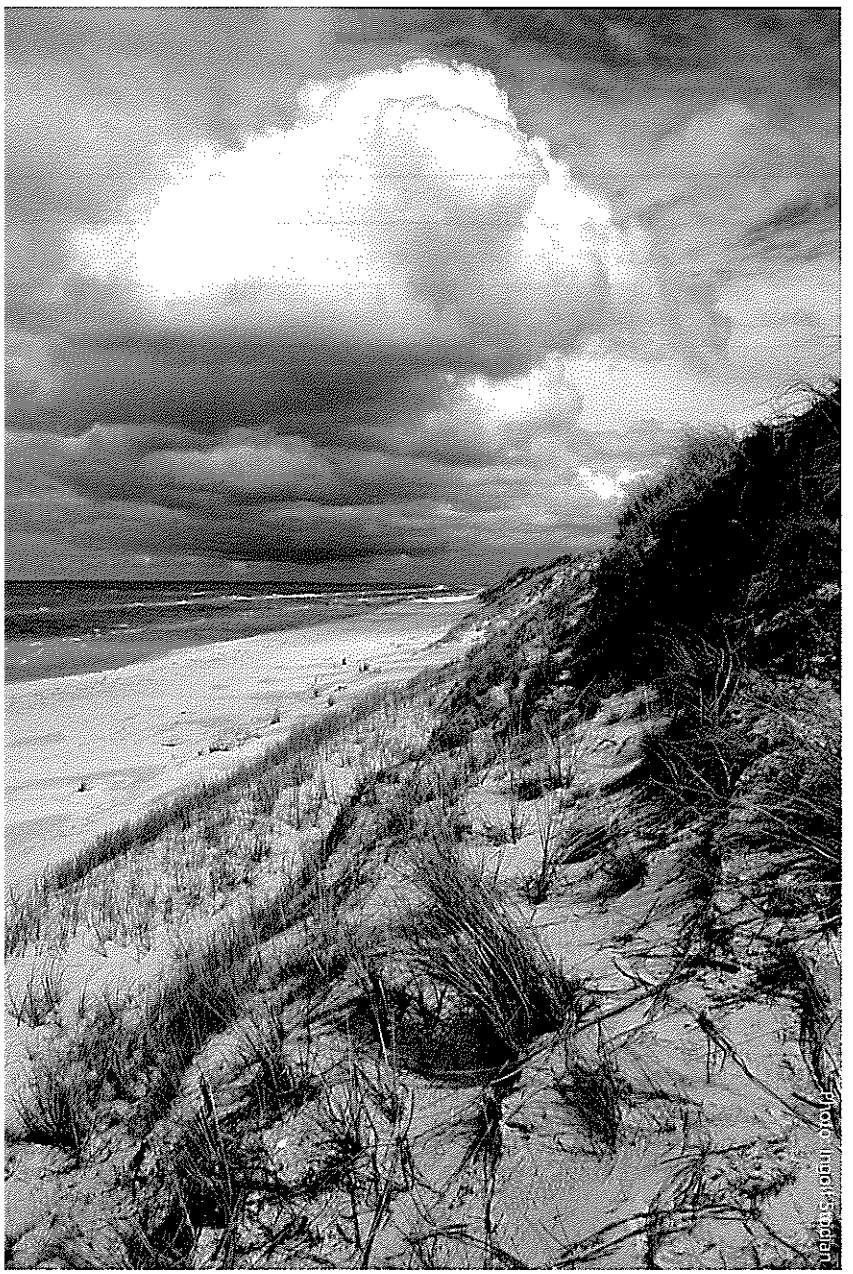


Photo: Ingrid Sundell

To urgently start the actions required to enhance investments to achieve the goals of the HELCOM Baltic Sea Action Plan, the HELCOM countries have agreed to arrange a "pledging conference". This will serve as a meeting point for international financial institutions and the HELCOM Members committed to the implementation of the Baltic Sea Action Plan. The aim will be to bring together political commitments, donors' expectations and the readiness of coastal countries to provide realistic, feasible and bankable projects.

6. Implementation and review

The HELCOM Members have agreed to monitor and evaluate the status of implementation of the Baltic Sea Action Plan by making use of the agreed indicators, HELCOM's thematic assessments, the annual HELCOM Indicator Fact Sheets and other information.

The Member States have also decided to arrange in 2013 a HELCOM Ministerial Meeting to evaluate the effectiveness of national programmes and review progress towards the ecological objectives used to define good ecological status for the Baltic Sea. Based on this review, the action plan will be adjusted and its set of indicators with associated targets will be up-dated to ensure their relevance for achieving these vital objectives.

Given the political priority of the Baltic Sea Action Plan, in January 2008 HELCOM established the Baltic Sea Action Plan Implementation Group. Its general purpose is to steer on a high level the process of successful implementation of the programme of actions. The Implementation Group will co-ordinate and guide the work of the HELCOM subsidiary bodies for implementation of the plan. It will monitor, assess and review the implementation of the plan, and follow up and promote any necessary revisions in the provisional maximum allowable nutrient inputs and reduction requirements for each sub-region and country. The Group will also consider financial issues, including the cost of inaction, the economic benefits of a healthy sea, financing possibilities for the agreed measures and national programmes, cost efficiency and economic incentives.

HELCOM's plan receives European Award

The HELCOM Baltic Sea Action Plan received the European Regional Champions Award 2007 in the environment category. These awards aim to showcase and celebrate the very best in regional innovation and examples of best practice throughout EU regions in ten different categories. They highlight champion programmes and projects that can serve as examples to other regions.

The winners of the inaugural European Regional Champions Awards, hosted by Brussels magazine Regional Review in association with the European Union's Committee of the Regions (CoR), were unveiled at a ceremony attended by CoR President Michel Delebarre at the Chatelain Hotel in Brussels on 27 November 2007.

There were more than 150 nominations for the awards. A jury including CoR Secretary General Gerhard Stahl, MEP Catherine Stihler, European Policy Centre Chief Executive Hans Martens, and the Editor of Regional Review, Chris Jones, drew up a shortlist of 30 finalists – including the three strongest nominations in each category. The CoR members and regional offices then took part in a vote to select the top 10 – one for each category.

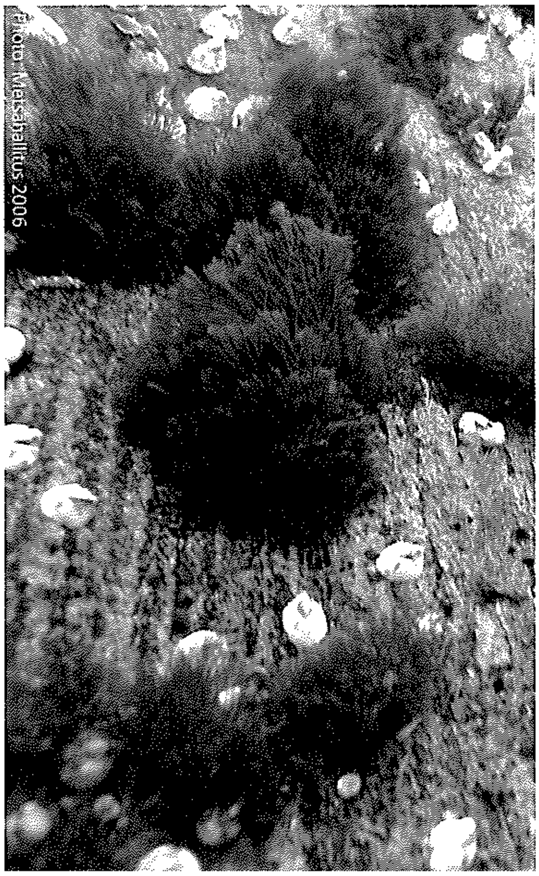


Photo: Metsähallitus 2006

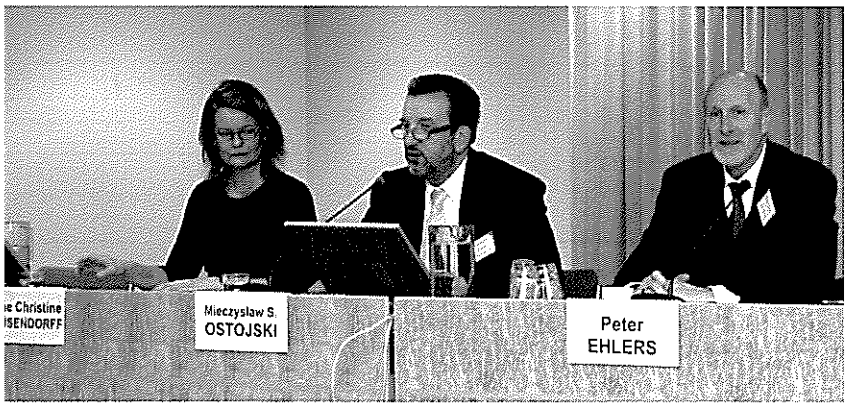
The HELCOM Baltic Sea Action Plan was awarded the European Regional Champions Award as an outstanding example of an innovative regional environmental programme.

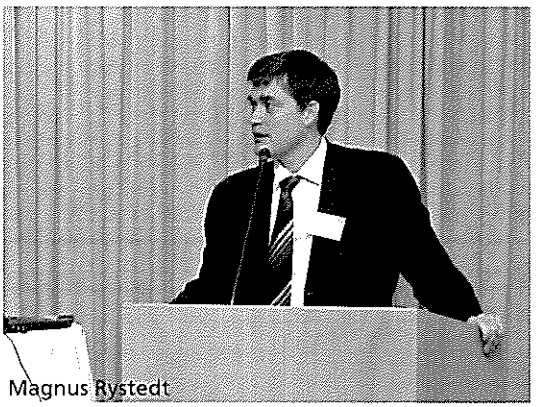
In many respects the plan is clearly a model for what the future marine programmes of action might look like around Europe. HELCOM's experiences will also be useful for other regional seas conventions around the globe. HELCOM finds it important to support the sharing of experience between regions so that best practices and models from one region can be replicated in other regions.

HELCOM holds 3rd Stakeholder Conference on the Baltic Sea Action Plan

The 3rd Stakeholder Conference on the HELCOM Baltic Sea Action Plan, held on 4 March 2008 in Helsinki, set out a preliminary road map for the involvement of international financial institutions (IFIs) in the implementation of the strategic programme to restore the Baltic Sea.

HELCOM Headquarters, Helsinki





Magnus Rystedt

The financial aspect of the plan's implementation was one of the top issues at the Conference. Participants, representing governments, scientific and business communities of the Baltic Sea coastal countries, as well as the European Community, and major regional organisations discussed the availability of sources of funding, and the involvement of IFIs and the private sector. Much attention was focused on understanding the requirements for providing financing support, as well as how to prepare successful projects to ensure and increase the investments for marine environmental protection.

The Conference outlined the existing possibilities and bottlenecks in the financing of the projects within the framework of the action plan. Participants acknowledged the view of several institutions that there is plenty of funding that can be made available for the environmental projects under the HELCOM plan. Such funding is particularly available from the EU structural, cohesion and fisheries funds, and from IFIs, as well as the private sector. It was stated that it is now crucial to move from a programme level to project level due to the fact that IFIs are interested in funding concrete projects, rather than the Baltic Sea Action

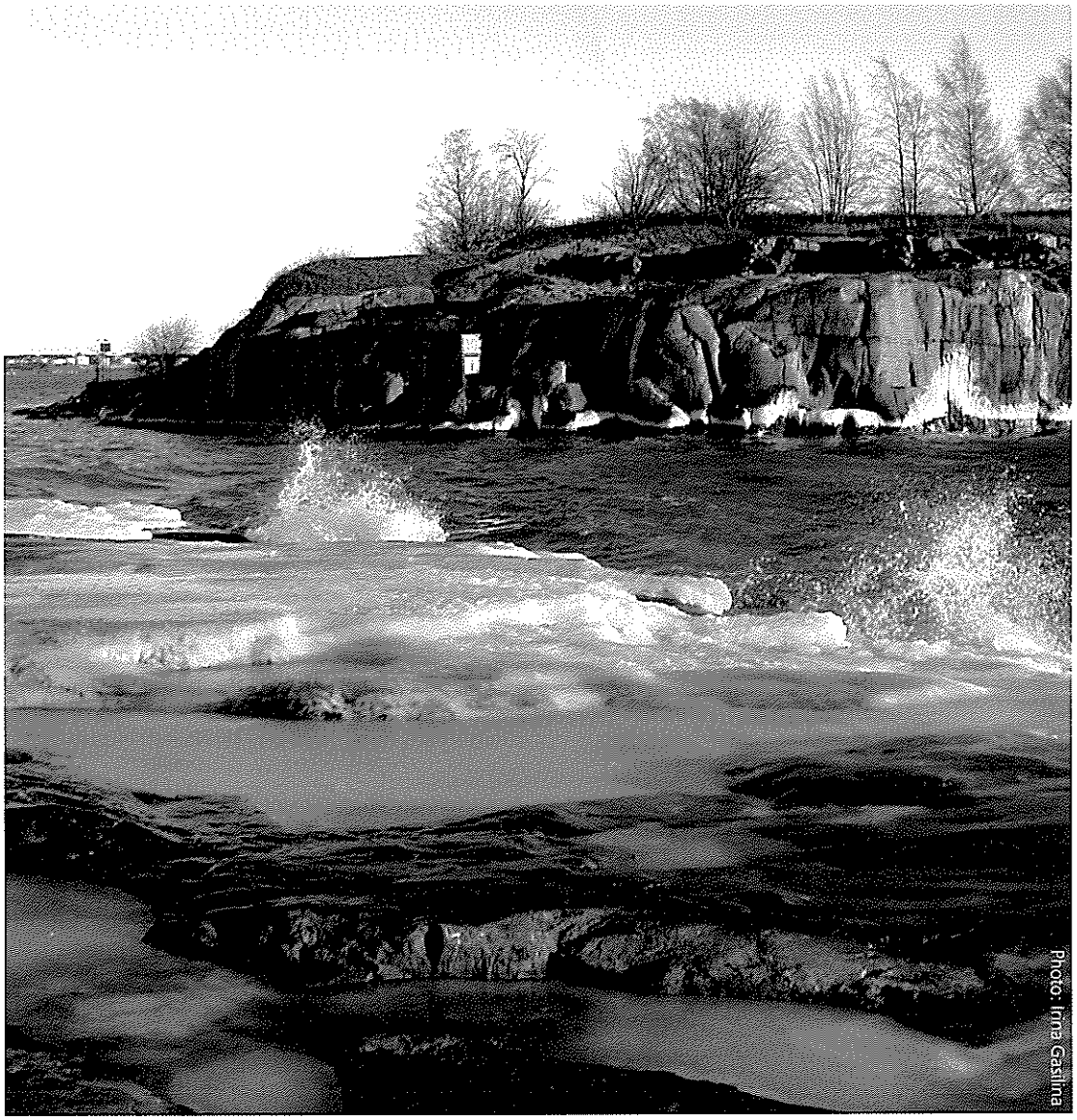
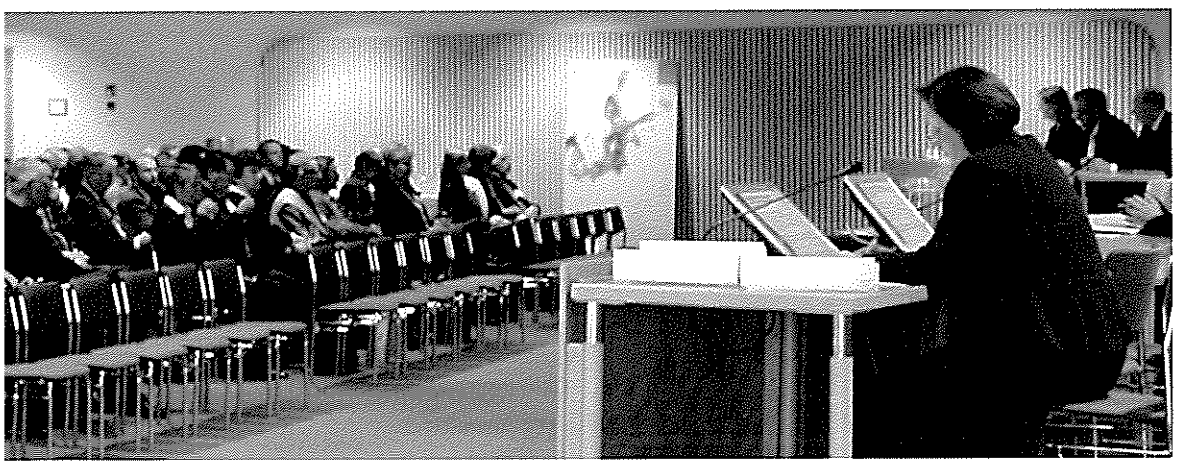


Photo: Irma Gaslina

Plan as an entire programme. At the same time it was noted that since there is tough competition for funding between various sectors there is a need to prioritise projects that will maximise the environmental benefit in relation to the money spent.

Recognising that most nutrient pollution originates in runoff from farmland and untreated sewage, the Conference was of the opinion that as a preliminary step to prioritise projects and to secure funding the HELCOM countries need to: 1) produce a list of municipal wastewater treatment plants with details of their size, treatment technology,



performance parameters and potential for improvements (e.g. nitrogen & phosphorus removal); 2) produce a new list of agricultural pollution hot spots; 3) initiate broader discussion on economic instruments to stimulate investments in nutrient reduction measures (e.g. Nutrient Reduction Trading Scheme) to be applied within HELCOM; and 4) arrange a Pledging Conference to enhance the elaboration of projects. There is an urgent need for the pooling of monetary, human and other resources for the implementation process, so the arrangement of the HELCOM Baltic Sea Action Plan Pledging Conference is vital for the success of the whole programme.


Ilkka Herlin


Jaakko Henttonen

The Stakeholder Conference also featured a table-top exercise, which aimed to illustrate the problems related to the process of marine spatial planning when trying to balance conservation needs and other uses of the marine environment. Broad-scale marine spatial planning is one of the new concepts within the Baltic Sea Action Plan. The participatory

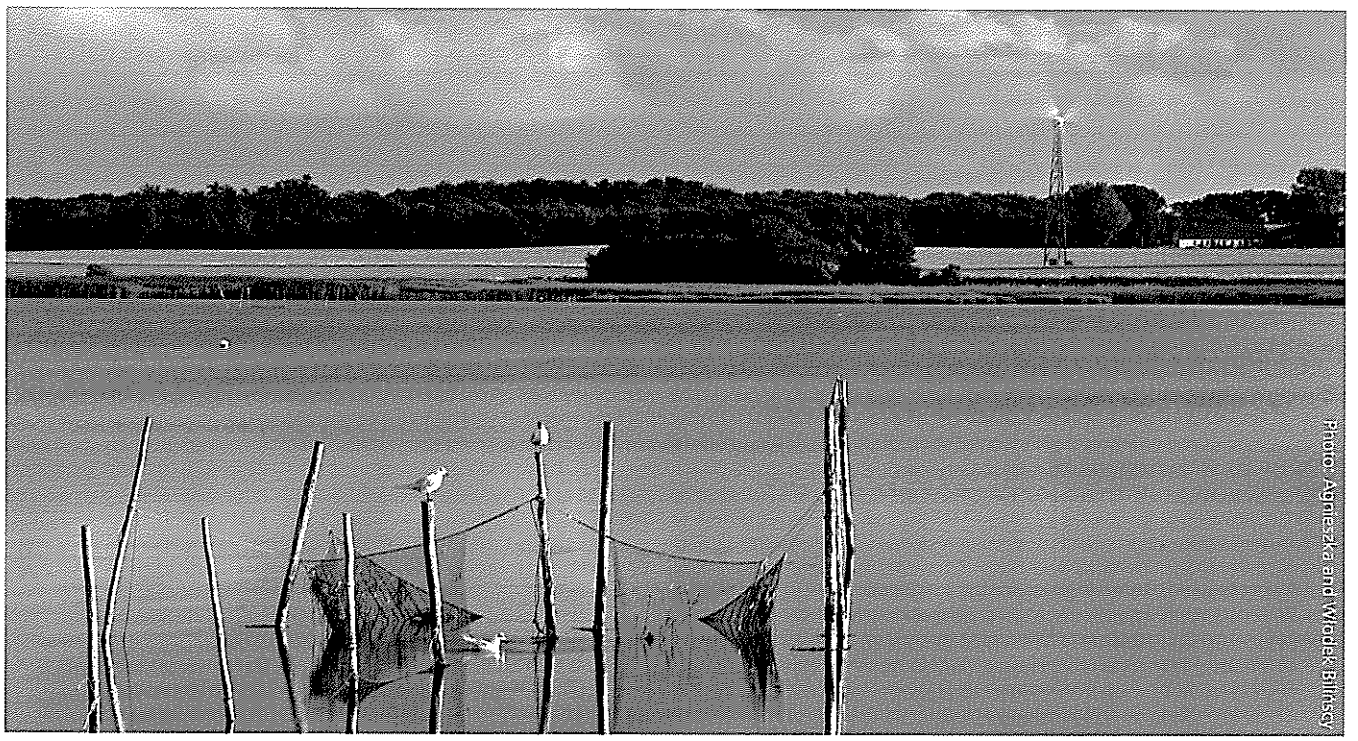


Photo: Agnieszka and Wlodek Bilinscy

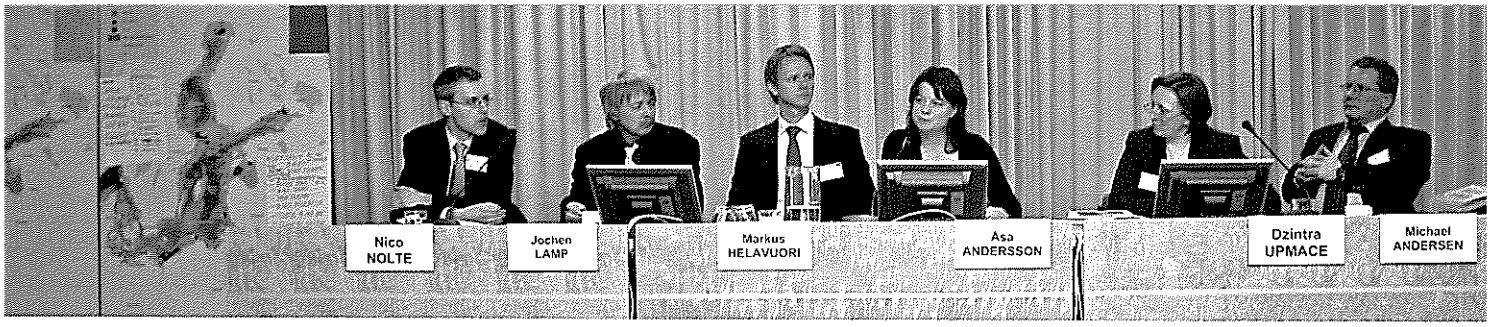
activity revolved around a scenario where Conference participants, split into groups of 10-15, were asked to propose locations for 20-gigawatt wind parks and additional Baltic Sea Protected Areas on a map of the Baltic Sea. Background information about various anthropogenic activities and natural values was provided to facilitate the task.

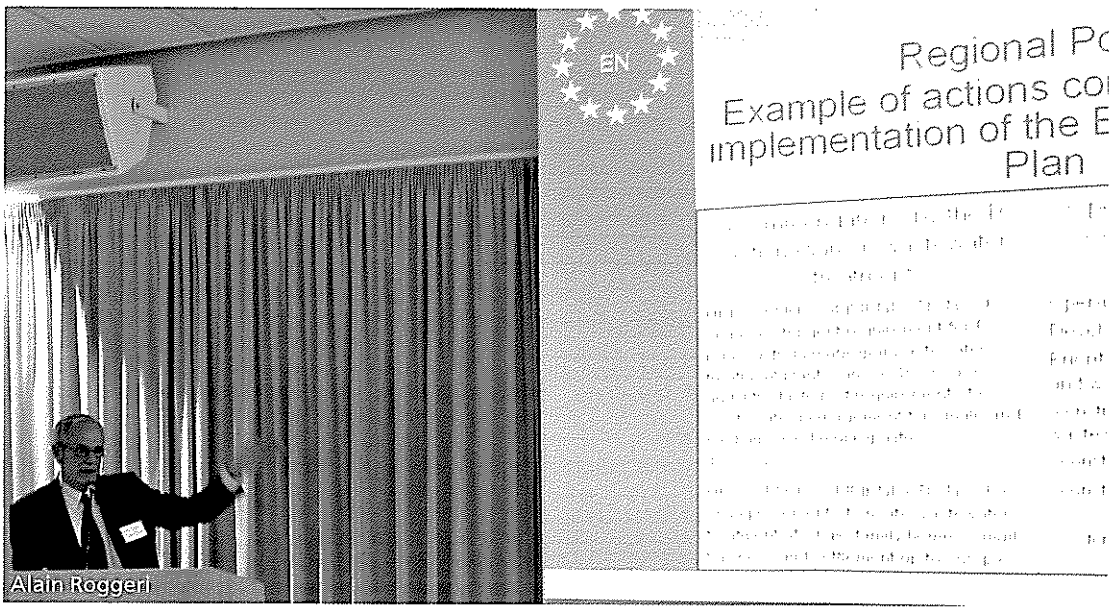
During the exercise, participants became familiar with the challenges, costs and benefits that need to be considered when planning the uses of marine areas. This involves taking into account differing stakeholder interests as well as the potential negative environmental consequences of various different choices.

In the concluding panel session, group leaders discussed the processes and issues that arose during the group exercise.

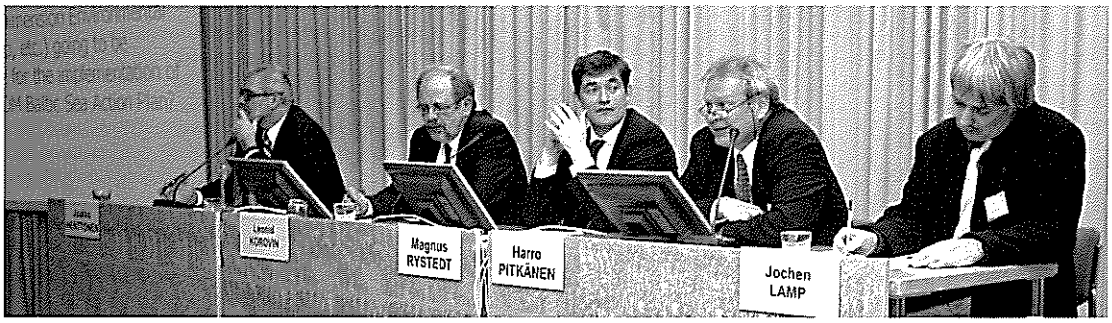
The Conference participants shared the view that broad scale marine spatial planning is an important part of an ecosystem approach to the management of human activities, as it highlights the need to co-ordinate and plan various human activities in their spatial context. It was recognised that the spatial dimension is highly relevant to monitoring, planning and regulating activities, and that marine spatial planning is also in this sense closely linked to the ecosystem approach and its implementation.

Karl-Johan Lehtinen





HELCOM's activities to develop common principles for broad-scale marine spatial planning were considered important for harmonising different approaches and setting common goals for the Baltic Sea region. This will enable HELCOM to play a valuable supportive role for implementing national and especially regional commitments as regards marine spatial planning. HELCOM was recognised as an important focal point for sharing best practices, a knowledge "factory" and a regional provider of environmental data for the whole Baltic Sea region.



Furthermore, HELCOM was seen as having an important role in integrating and harmonising marine spatial planning between EU and the Russian Federation. The need to have the same overall principles applied in the whole Baltic Sea is crucial in the light of various current legislative and non-legislative spatial planning initiatives at national and European level, including the forthcoming EU Maritime Policy and its Blue Book. The Conference was also of the opinion that HELCOM could and should contribute to these initiatives and be a proactive partner in their regional implementation.

3. Monitoring the marine environment

Thematic assessments of the Baltic Sea

HELCOM has initiated the preparation of several major thematic assessments of the Baltic Sea to support the implementation of its strategic action plan to restore the Baltic marine environment.

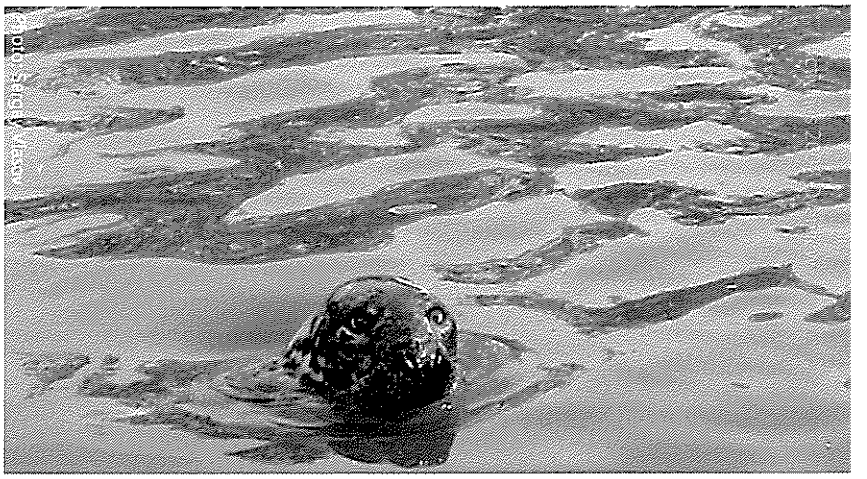
New thematic assessments on eutrophication and biodiversity are underway, and will be finalised by the annual HELCOM Meeting in 2009. Thematic assessments on hazardous substances and maritime shipping should be completed by 2010. These assessment reports will be produced from the results of a unique compilation of data and analyses based on the vast amounts of scientific research being carried out around the Baltic Sea.

HELCOM's thematic assessment on eutrophication will provide information on the extent of nutrient inputs to the Baltic Sea and on the eutrophication status of the sea. The assessment will make use of a new assessment tool designed to facilitate analyses of large quantities of different types of data from different parts of the Baltic Sea. The scientists in charge of preparing the assessment will also provide input to the decision making process based on the results of the assessment.

The assessment on nature conservation and biodiversity will evaluate the status of biodiversity at different levels: landscapes, communities and populations of species. The assessment will analyse various pressures affecting the state of biodiversity, and provide useful guidance for policy makers.

The assessment on hazardous substances aims to focus on the sources of hazardous substances, their occurrence in the ecosystem, and their accumulation and effects in biota. HELCOM will also produce a comprehensive assessment on changes in radioactivity levels in the Baltic Sea ecosystem and the consequent radiological impact on man and the environment. This assessment will be finalised by 2011.

These assessments all require data from HELCOM's pollution load compilations, which are currently carried out for airborne and waterborne loads of nutrients and hazardous substances entering the



Baltic Sea. Pollution Load Compilation 5, which focuses on data on waterborne nutrient inputs from year 2006 will be finalised by the annual HELCOM Meeting in 2009.

The first meeting of the HELCOM Project for Expert Network on Monitoring and Protecting of Coastal Fish and Lamprey Species (HELCOM FISH 1/2008) agreed on the elaboration of an assessment of the coastal fish in the Baltic Sea area by 2010. The assessment will update and improve knowledge about the occurrence and distribution of populations of coastal fish and lamprey species including all anadromous species, especially focusing on threats and any decline of populations. It will also help identify potential restoration programmes for threatened species.

These thematic assessments will together provide the basis for a subsequent holistic assessment of the status of and pressures on the marine environment of the Baltic Sea.

Latest data on the state of the environment and pollution inputs into the Baltic Sea

The Baltic marine environment is still being degraded as economic activities in the region generate serious pollution and overexploit fragile ecosystems, according to the latest HELCOM Indicator Fact Sheets. At a Meeting on 8-12 October 2007 in Helsinki, HELCOM's Monitoring and Assessment Group (HELCOM MONAS) presented new information on sources and quantities of inputs of harmful substances into the Baltic Sea, as well their effects on the state of the marine environment.

Experts from the coastal countries have compiled a set of new and updated indicator fact sheets showing current trends in pollution loads and their impacts on Baltic ecosystems. The reports, 37 in all, particularly provide the latest data on inputs of nutrients and hazardous substances, which are largely responsible for the ongoing degradation of the marine environment. The data includes details of concentrations of heavy metals and dioxin in fish, shifts in the Baltic Sea's summer phytoplankton communities, distributions and quantities of recently arrived aquatic

invasive species, and illegal oil discharges at sea. One of the newest indicator fact sheets approved at the Meeting is dedicated to liquid discharges of artificial radionuclides from local nuclear installations.

HELCOM's indicators provide crucial background information to facilitate the management of environmental problems. These indicators are compiled by dedicated research institutions around the Baltic Sea, and approved by HELCOM MONAS. They are primarily based on variables studied in HELCOM monitoring programmes. Each indicator only provides limited information on a specific issue, but when combined, the indicators can reflect conditions and trends in the whole ecosystem.

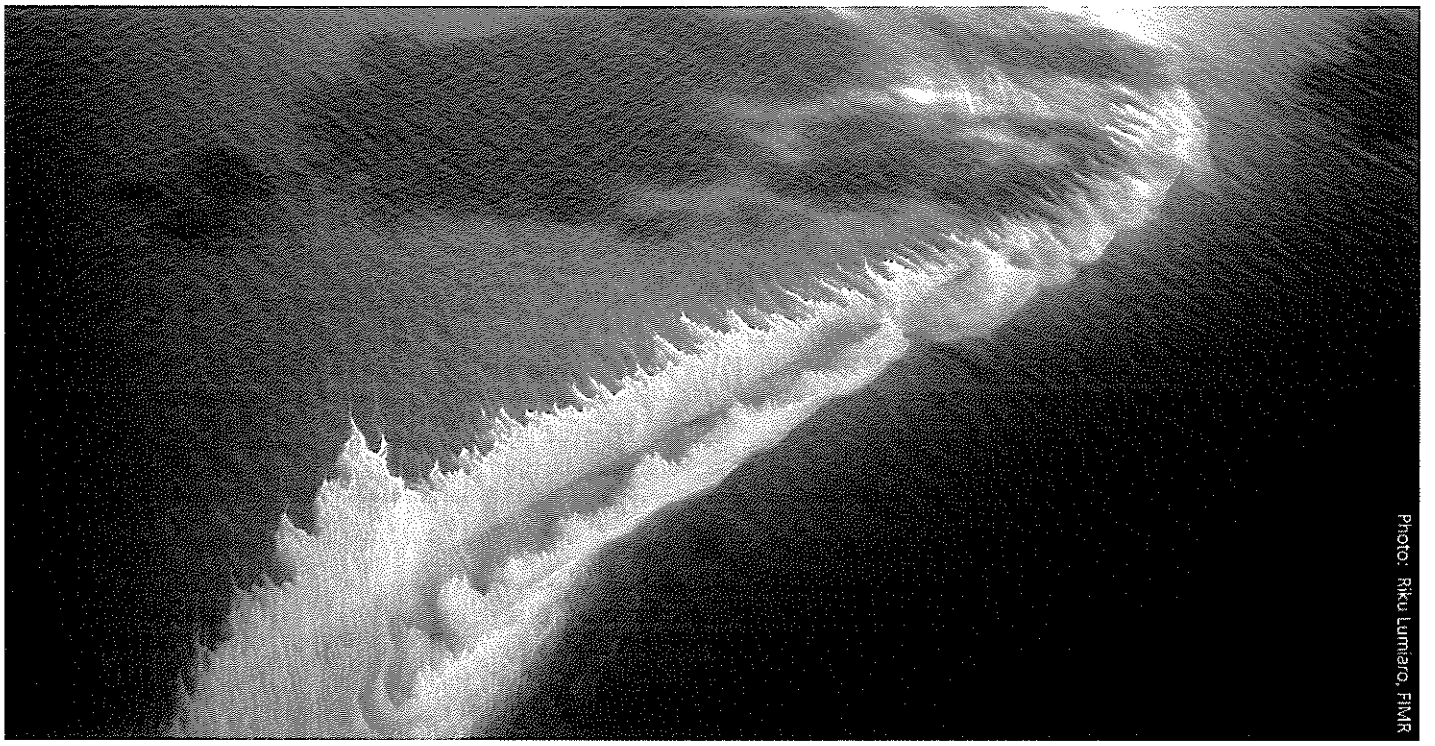


Photo: Riku Lumiaro, FIMR

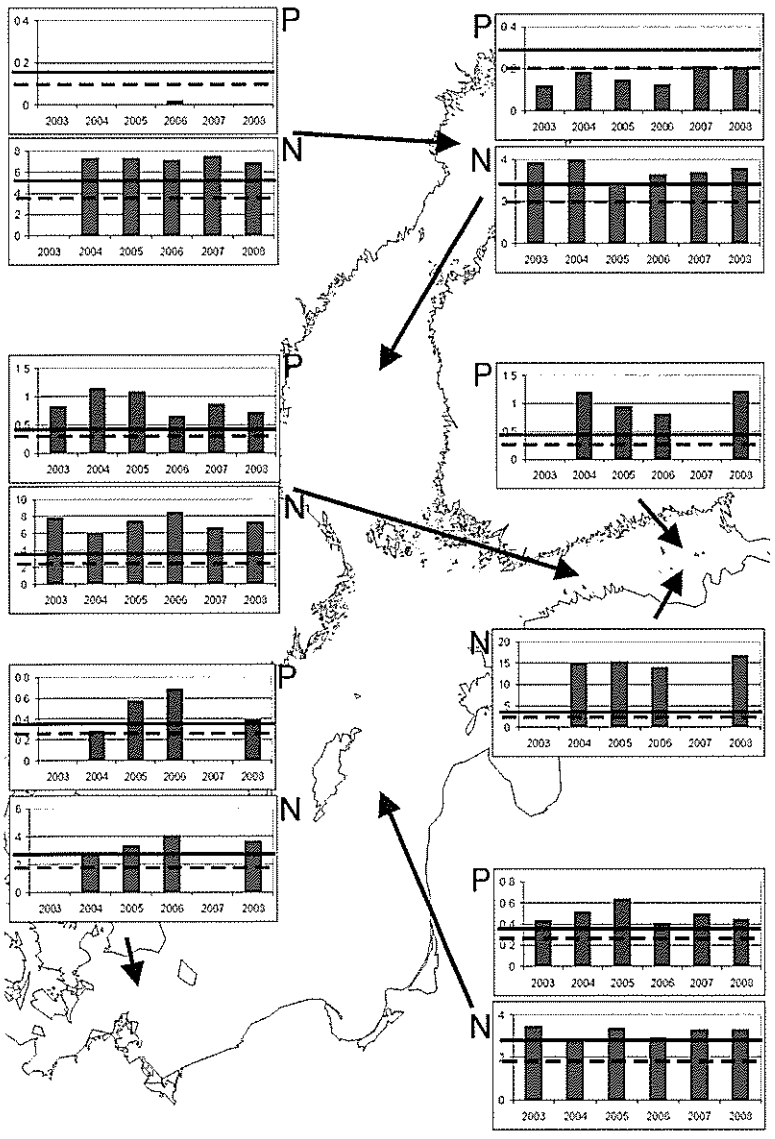
The latest HELCOM Indicator Fact Sheets are available at http://www.helcom.fi/environment2/ifs/ifs2007/en_GB/cover/.

1. Wintertime nutrient concentrations exceed HELCOM target levels

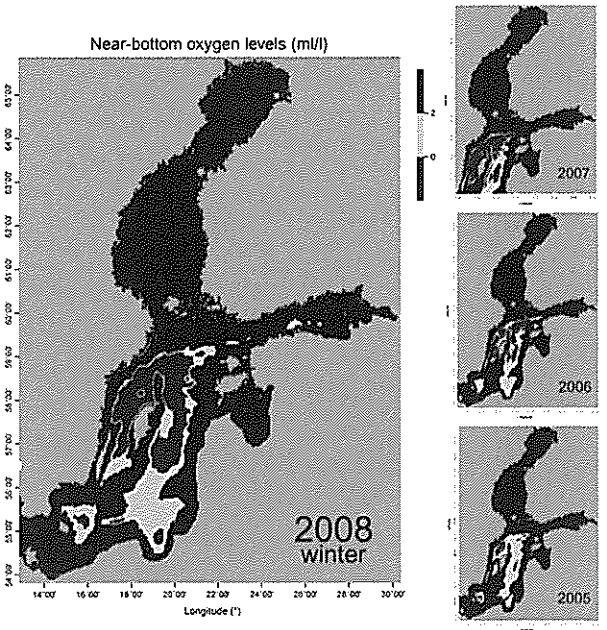
The research vessel Aranda of the Finnish Institute of Marine Research returned on 1 February 2008 from its annual winter HELCOM COMBINE monitoring cruise, having sailed through all of the main open waters of the Baltic Sea. During the cruise, scientists analysed readings of various environmental parameters including concentrations of nutrients and oxygen.

Surface concentrations of both inorganic phosphorus and nitrogen clearly exceeded reference levels defined by HELCOM, except for phosphorus in the Bothnian Bay. Target levels for good ecological status were widely exceeded, especially in the Gulf of Finland.

Little or no oxygen was detected in the deep bottoms of the Baltic Proper, Bornholm Basin and the Bay of Gdansk, but winter storms had mixed the waters of the Gulf of Finland, improving both the oxygen situation on the sea bed and concentrations of phosphorus.



Wintertime bioavailable phosphorus (PO4) and nitrogen (NO2+NO3) levels as mol per litre in the Baltic Sea, 2003-08. The solid horizontal lines show target levels and the broken lines mark reference levels assigned by HELCOM. Source: Finnish Institute of Marine Research.

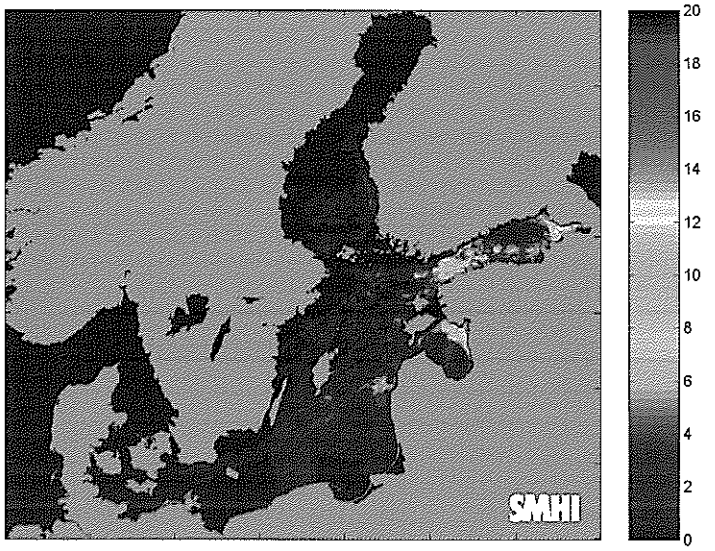


Near-bottom oxygen levels in the Baltic Sea based on data collected by the Finnish Institute of Marine Research. Red: anoxic bottoms; yellow: oxygen concentrations below 2 ml/l.

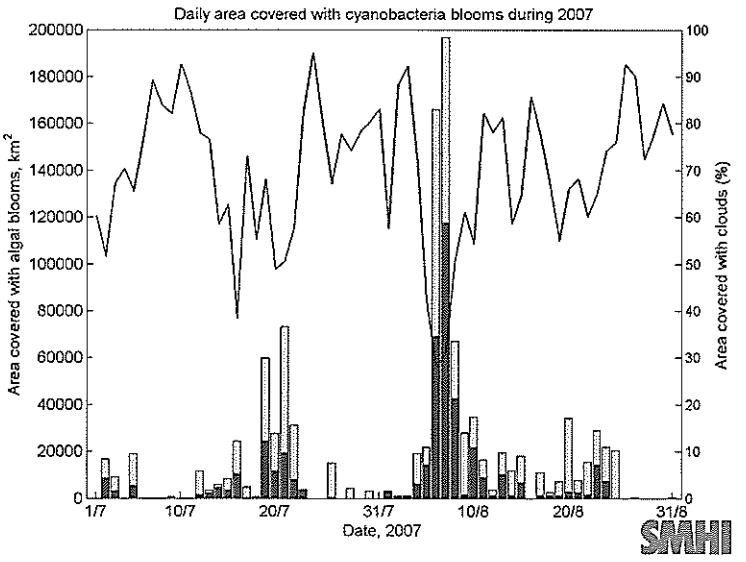
2. Weather conditions prevented large surface accumulations of cyanobacteria in 2007

Cold, windy and rainy weather conditions prevented the formation of large surface accumulations of cyanobacteria in summer 2007, but eutrophication is far from being curbed.

Number of days with cyanobacteria observations during 2007



Number of days during 2007 with surface accumulations of cyanobacteria observed in each pixel based on NOAA-AVHRR satellite imagery



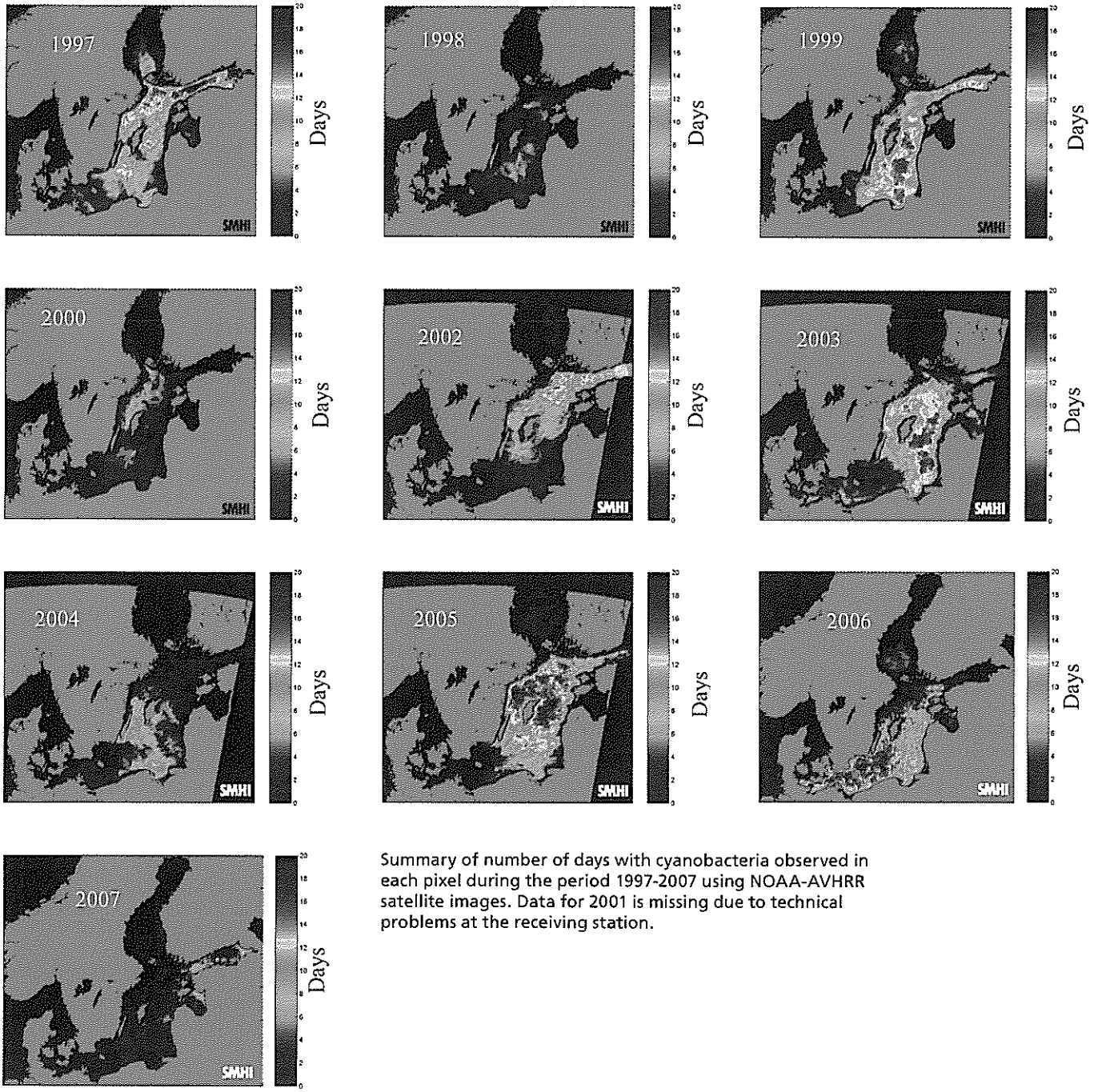
Daily extent of surface accumulations of cyanobacteria in the Baltic Sea during 2007, observed using NOAA-AVHRR satellite images. The red bars show confirmed observations of blooms, and yellow bars indicate unconfirmed bloom observations. The blue line represents cloud cover (as a percentage of the total area)

Eutrophication is the result of excessive nutrient inputs, and is an issue of major concern almost everywhere around the Baltic Sea. Satellite-derived measures of chlorophyll-like pigments in the Baltic Sea are clearly higher than in the Skagerrak and North Sea. Average biomass production has increased by a factor of 2.5 compared to natural levels, leading to decreased water clarity, exceptionally intense algal blooms, more extensive areas of oxygen-depleted sea beds, degraded habitats, and changes in species' abundance and distribution.

Annual integrated rates for the sedimentation of organic matter in the Gotland Sea show no significant trends between 1995 and 2003. The bacterioplankton growth rate in the deep waters of the Gulf of Bothnian suggests that oxygen consumption conditions have been at least good during the past decade. However, reductions in water clarity have been observed in all Baltic Sea sub-regions over the last century, especially in the Northern Baltic Proper and the Gulf of Finland.

No rising trend can be detected in spring blooms from 1992 to 2007 in the Gulf of Finland, the northern Baltic Proper, or the Arkona Basin. However in 2007, the spring bloom in the Gulf of Finland occurred unusually early and was more intense than during the previous year, but close to the ten year average.

Chlorophyll *a* concentrations exceeded 3mg m^{-3} for more than 60% of the days during the summer period 2006 (June-September) in the Arkona, Bornholm, Easter Gotland and Northern Gotland Basins, and in the Gulf of Riga and the Gulf of Finland. Patterns of dissolved inorganic nutrients in the winter nutrient pool may reflect reductions in nutrient inputs in the 1990s, as well as the high rainfall and runoff experienced at the beginning of 2007. Dissolved inorganic nitrogen concentrations remain below the 1993-2002 average, except in the Belt Sea, the Kattegat and southern Swedish coastal waters. Dissolved inorganic phosphorus concentrations remain high in the Baltic Proper. The natural Baltic outflow through the Sound and Belt Sea has also led to higher dissolved inorganic phosphorus levels even in the eastern Kattegat.



Summary of number of days with cyanobacteria observed in each pixel during the period 1997-2007 using NOAA-AVHRR satellite images. Data for 2001 is missing due to technical problems at the receiving station.

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Area (A), km²	8009	12240	9621	6061	-	5448	6386	5384	6572	9149	3219
Duration (T), days	6	3	7	3	-	5	7	3	8	8	2
Intensity (I), km² days	49821	31214	68342	17461	-	26474	42841	17726	55319	73452	7193

This table compares the average extent, duration and intensity of cyanobacterial blooms during the period 1997-2007. The results are based on the yearly summaries. Courtesy of SMHI.

Over the decade since 1997, cyanobacteria have been most abundant in 1999 and 2000. Large variations were observable in consecutive years. In 2006, the index for toxic *Nodularia spumigena* rank-based abundance was almost at the same level as in the previous five years, while *Aphanizomenon flos-aquae* showed a minor increase during 2006 in comparison to the previous year. In the summer of 2007, however, the normalised indexes for cyanobacteria bloom intensity, duration and extent were the lowest recorded during the period 1997-2007. Nevertheless, blooms were detected in most parts of the Baltic region, with the exception of the Bothnian Bay. The low incidence of blue-green algal blooms during the summer of 2007 is mainly the result of unfavorable weather conditions for cyanobacteria.

3. Stagnation intensifying in the absence of new seawater inflows

The present state of the Baltic Sea is not only the result of anthropogenic pressures, but is also influenced by hydrographic forces such as the varying natural exchange of water between the Baltic Sea and the North Sea. After the major inflow of January 2003, which renewed most of the deep water in the Baltic Sea, a new stagnation period started in 2004 for the deep basins of the Baltic. The subsequent period has been characterised by low inflows, and the stagnation experienced since 2004-2005 is intensifying, except in the southern Baltic.

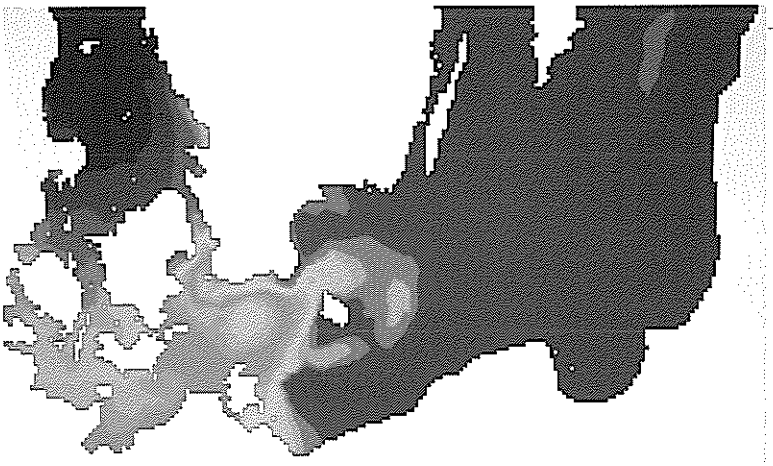
Hydrogen sulphide is present in a large area of the East Gotland Basin, and at depths below 70 metres in the West Gotland Basin and the Northern Baltic Proper. Deep anoxic water even extends up into the Gulf of Finland. This deep water, however, does not make it over the sill into the Gulf of Bothnia, and therefore the Aland Sea remains well oxygenated despite its depth, even during autumn.

4. Promising trends in emissions and inputs of nutrients and hazardous substances

The Baltic Sea's habitats and species are threatened by eutrophication and elevated amounts of hazardous substances as a result of decades of human activities in the sea and its surrounding catchment area.

The inputs of some hazardous substances to the Baltic Sea have been reduced considerably over the past 20 to 30 years. Discharges of heavy metals have particularly decreased. Significant proportions of heavy metals enter the Baltic via rivers or as direct discharges: 47% for lead, 78% for mercury and 87% for cadmium. The remaining share of inputs is mainly from atmospheric deposition of these heavy metals. Dioxin emissions to the air from the Baltic coastal states have decreased by 24% during the period 1994-2005, whereas the atmospheric deposition of dioxins into the Baltic Sea during the same period has decreased by up to 50%.

A wide range of economic activities contribute significant nutrient inputs entering the sea either via runoff and riverine input or through direct

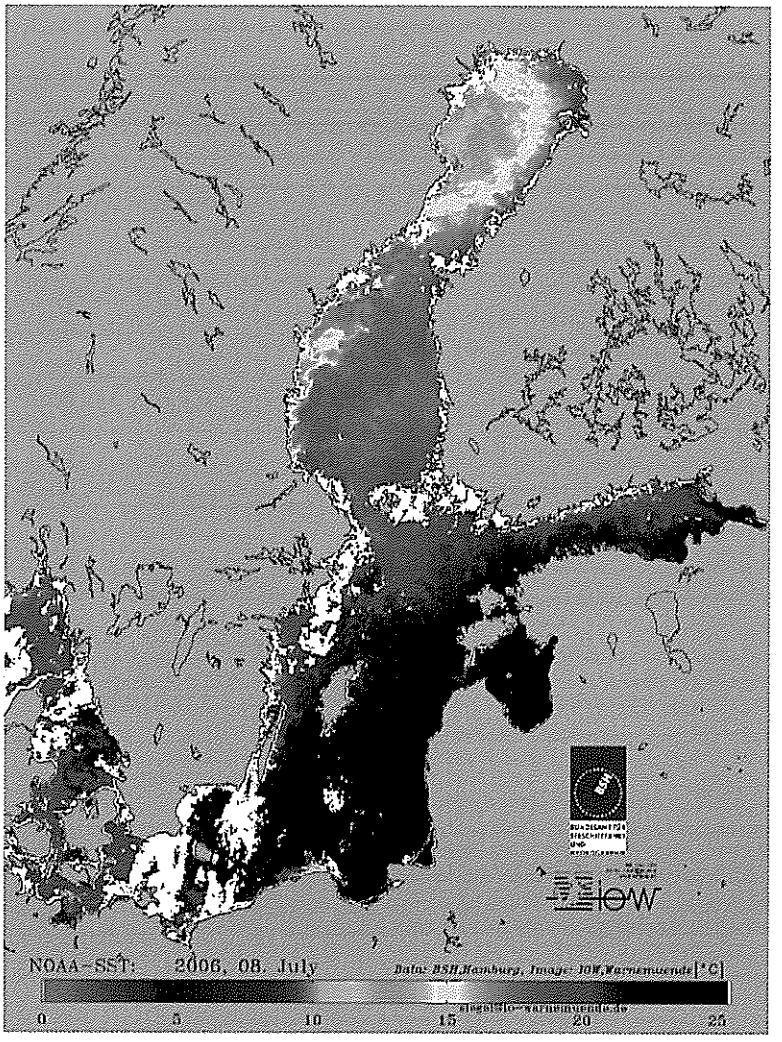


High water in Helsinki

discharges. Although nutrient inputs from point sources such as industrial and municipal facilities have been cut significantly, the total input of nitrogen to the Baltic Sea is still almost a million tonnes per year, of which approximately 25% enters as atmospheric deposition and 75% as waterborne inputs. The total input of phosphorus to the Baltic Sea in 2005 was about 29,000 tonnes, mainly as waterborne input, with atmospheric deposition only contributing 1-5% of the total. The main source of nutrient inputs is agriculture.

The 2005 waterborne loads for nitrogen and phosphorus were in most countries at the same level as in the previous year, because riverine runoff was almost equal to the runoff in

2004. Compared with the ten year average for 1996-2005, both nitrogen (-5%) and phosphorus (-11%) waterborne loads in 2005 were lower, most probably reflecting the implementation of load reduction measures in the catchment area. Annual emissions of nitrogen from the HELCOM countries were lower in 2004 than in 1995. Emissions from outside the Baltic Sea region add to the nitrogen loads entering the Baltic, as do emissions from ships. In 2005, 16% of nitrogen oxides (NOx) emissions from international shipping traffic were deposited into the Baltic Sea. Mainly because of annual weather variations, no significant temporal patterns can be detected in nitrogen deposition rates for the Baltic Sea and its sub-basins for the period 1995-2000. Nevertheless, a clear decline after the year 2000 can be observed, with reductions of 17%, 13% and 15% in the deposition of oxidised, reduced and total nitrogen, respectively, between 1995 and 2005.



Maximum sea surface temperatures for 2006 (recovered on 8 July)

5. Heavy metals and organic pollutants still pose a threat to the marine environment

Despite considerable reductions in the inputs of some hazardous substances into the Baltic Sea, the concentrations of heavy metals and organic pollutants in seawater are still several times higher in the Baltic Sea compared to waters of the North Atlantic.

Concentrations of contaminants in fish vary according to substance, species and location. Concentrations of cadmium, lead, PCBs and lindane have all decreased, but there is no general trend observable for mercury concentrations. Dioxins show declining trends due to measures taken to reduce emissions between 1969 and 1985, but this decline has since ceased. As for the concentrations of flame retardant HBCD, a significant increase of about 3% per year can be observed in guillemot eggs, although no general trend is evident for HBCD levels in herring muscle during the monitoring period 1999-2005.

6. Observing sea surface temperatures

Sea surface temperatures in 2006 were characterised by comparatively warm months in July, October and December, and the annual average for 2006 was the warmest during the period 1990-2006. The months February-May were comparatively cold, however. Seasonal variations in the wave climate in the Baltic Sea, Kattegat and Skagerrak in 2006 were rather typical, and no extreme events were measured.

The ice season 2006-2007 was very late, short and mild, in terms of ice extent. The largest total ice cover, 139,000 km², was reached on 23 February. The sea ice broke up about a week earlier than normal in most waters, and by 25 May the Baltic Sea was entirely ice-free.

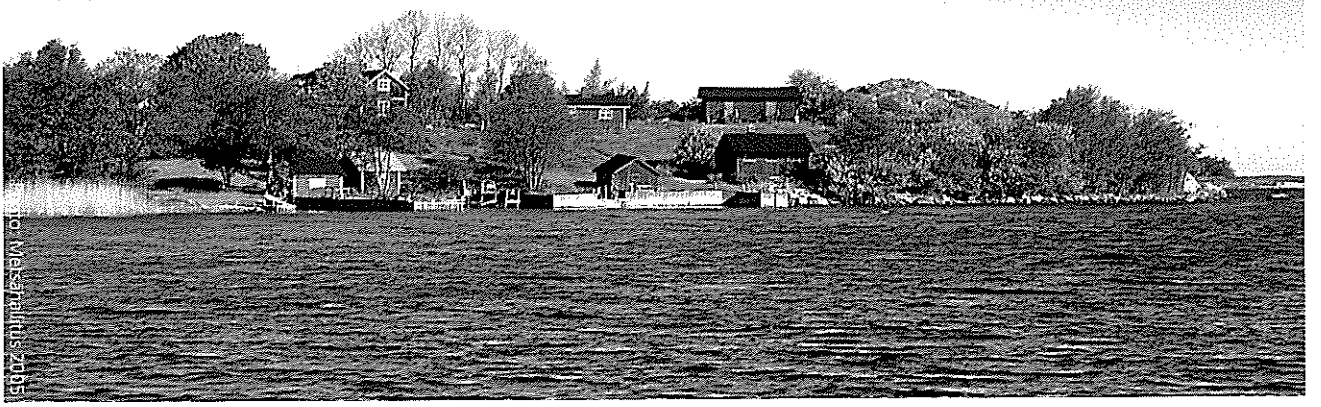
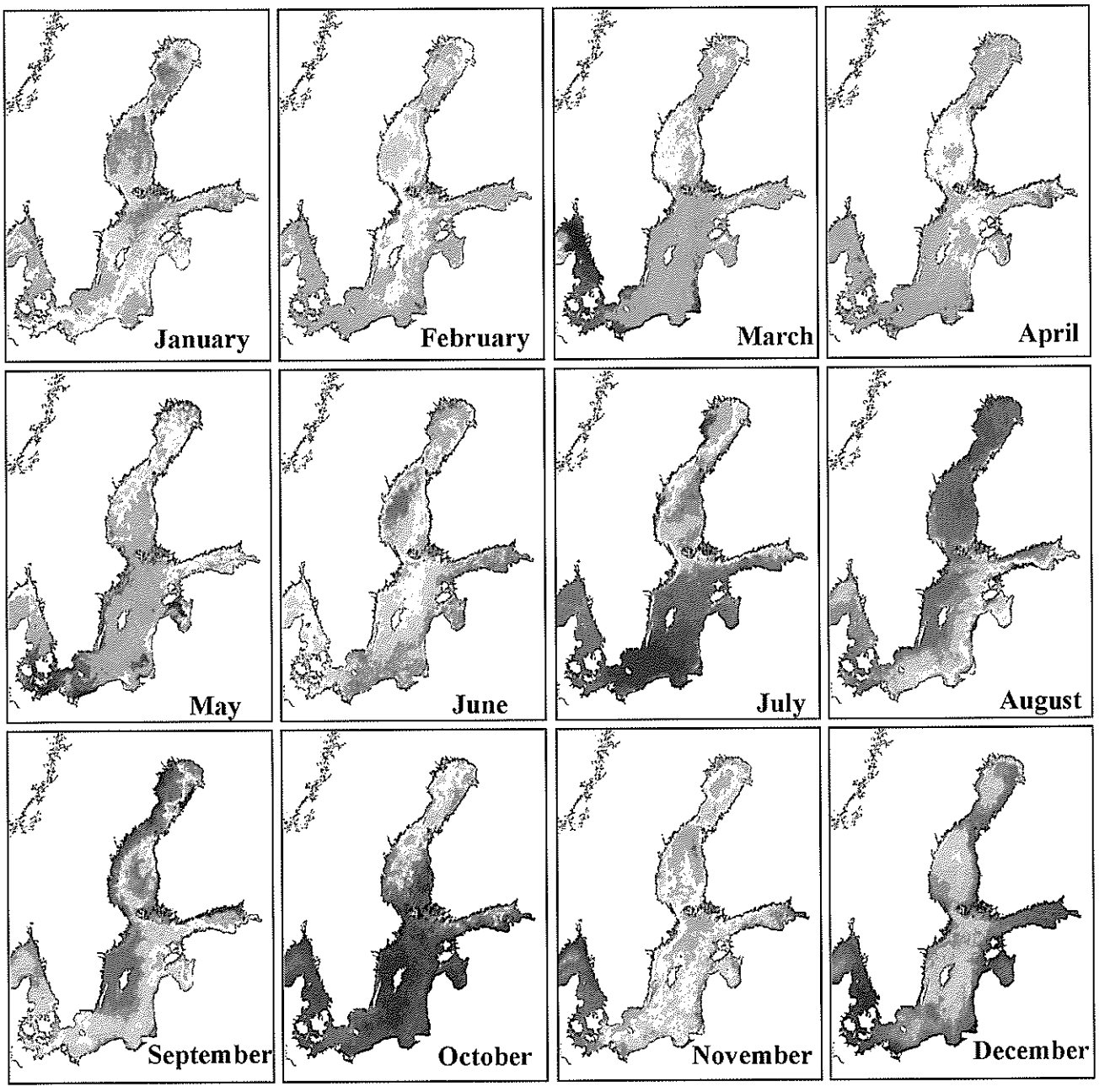


Photo: Mats Tallius 2005

Anomalies of SST in the Baltic in 2006



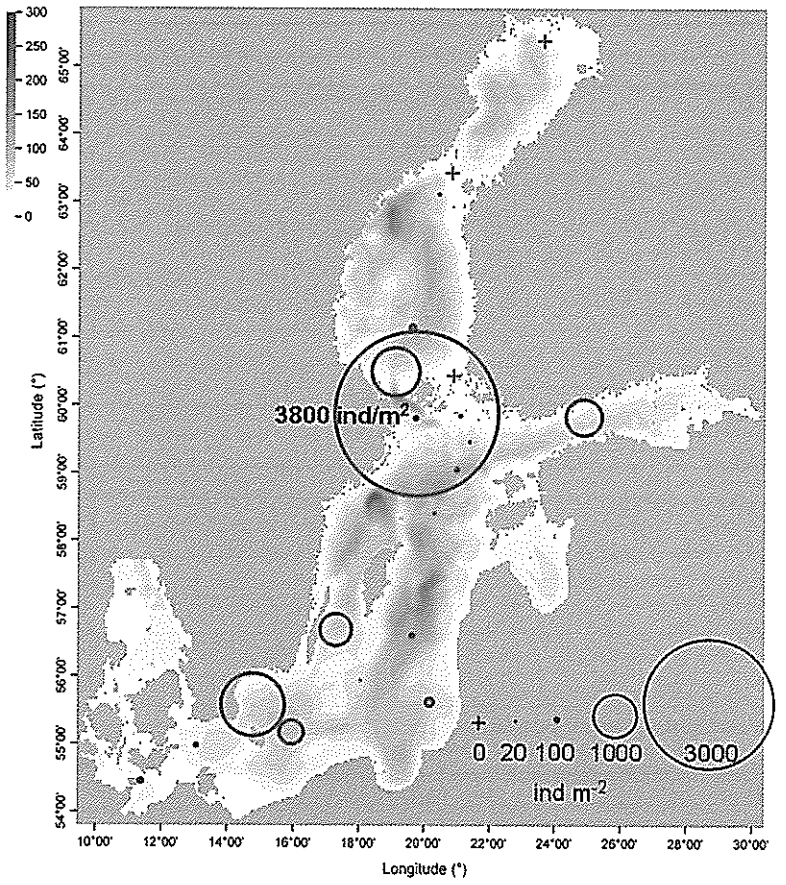
Anomalies of sea surface temperature (SST) in the Baltic Sea in the monthly mean values of the year 2006 referring to the mean values of the years 1990 – 2004. Figure courtesy of the Baltic Sea Research Institute Warnemünde (IOW).

7. Alien comb jelly spreading north and east in the Baltic

An invasive alien ctenophore, the American comb jelly *(Mnemiopsis leidyi)*, has been observed overwintering in large numbers in the Baltic Sea.

New information from the Finnish Institute of Marine Research shows that the species, which first invaded the southern Baltic Sea in late autumn 2006, has spread in just one year throughout the Baltic Sea – with the exception of the Bothnian Bay, where it seems to be unable to survive.

The distribution and abundance of the American comb jelly throughout the Baltic Sea were surveyed in January 2008 by scientists on board R/V Aranda, the research vessel of the Finnish Institute of Marine Research.

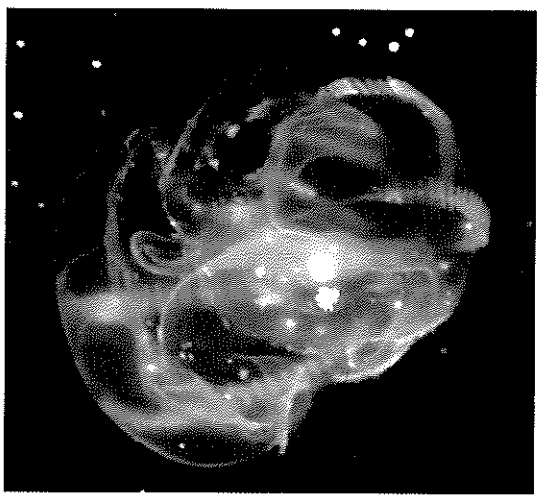


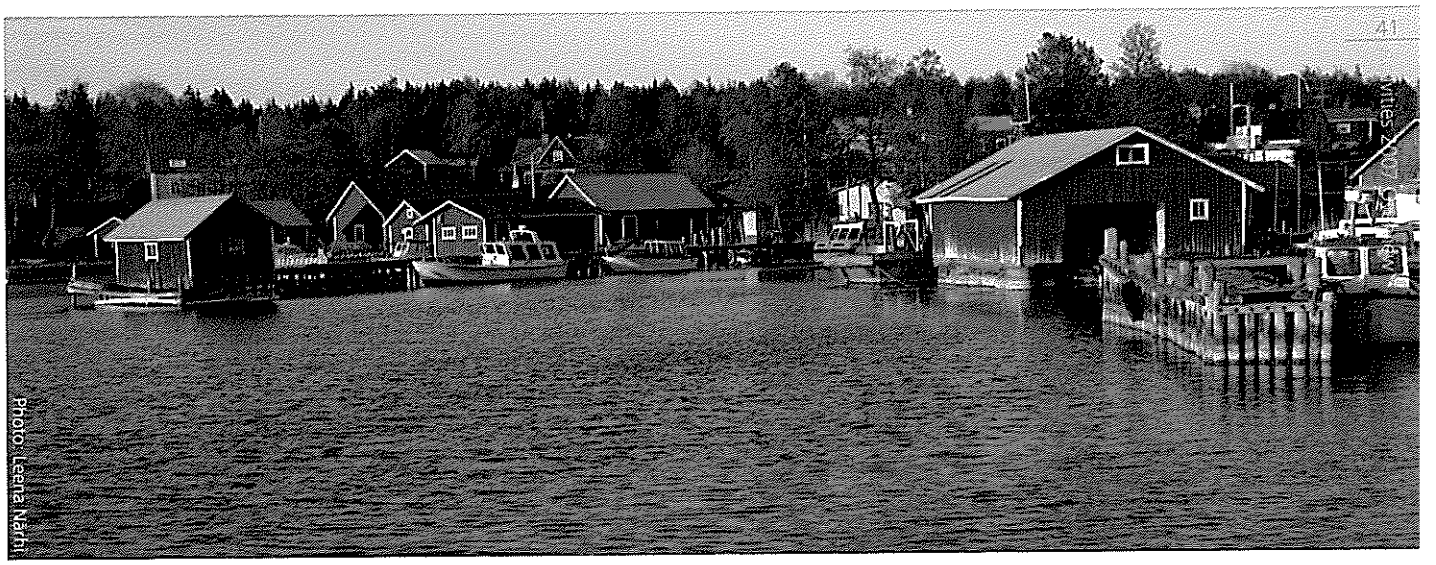
Distribution and abundance of the American comb jelly *(Mnemiopsis leidyi)* in the Baltic Sea as surveyed in January 2008 from the research vessel R/V Aranda by scientists from the Finnish Institute of Marine Research

The jellies were exceptionally abundant in the well-oxygenated Aland Sea deep, where up to 3,800 individuals could be found per square metre. The current densities are over six times higher than those recorded in late summer 2007, indicating that eggs produced during the autumn have successfully hatched to release many individuals now in their larval stage. American comb jellies have evidently now become numerous in the Gulf of Finland, as well in the southern Baltic Sea, where the largest specimens (approx. 4 cm in length) were observed. Most of the overwintering *Mnemiopsis leidyi* were much smaller, however, less than 2 mm long.

The survey results show that the American comb jelly can survive ice-free winter conditions in the northern Baltic Sea as well as further south. It is now likely that the species has established a permanent population in the Baltic Sea.

The appearance and proliferation of alien invasive species has been identified as one of the major threats to marine ecosystems, causing biodiversity loss and adverse environmental, economic and social impacts from the local level upwards. The Baltic Sea is a young and simple ecosystem, which makes it vulnerable to ecological changes. Invasive species often have an opportunity to find a free ecological niche, and consequently establish permanent populations. The present eutrophic conditions and rapid intensification of shipping traffic both make it easier for alien species to invade the Baltic. This increases the related threats to existing ecosystems.





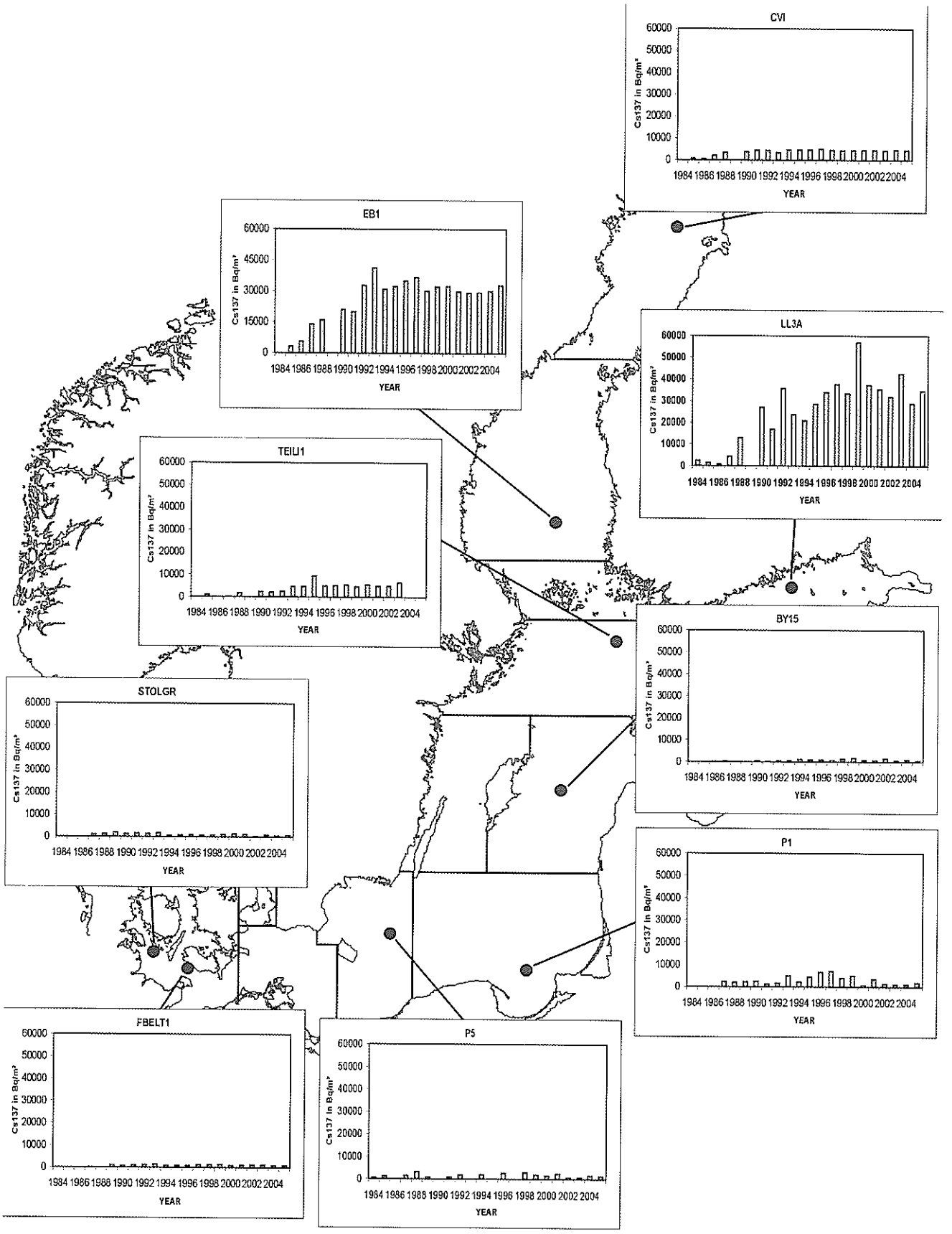
Inventory of long-lived radionuclides in the Baltic Sea sediments

The most remarkable event affecting the quantities of artificial radionuclides in the Baltic Sea sediments was the accident at the Chernobyl Nuclear Power Plant in April 1986. The global fallout from atmospheric nuclear weapons tests during the 1950s and 1960s, and discharges from reprocessing plants in Western Europe and from nuclear facilities in the Baltic Sea region, have not had such marked consequences in terms of radionuclide concentrations in sediments, especially in the northern parts of the Baltic Sea.

The Baltic Sea was the marine area most affected by the Chernobyl accident because the first radioactive clouds from Chernobyl travelled north and caused strong deposition in the Baltic Sea region.

Most of the radionuclides released were short-lived, however, and their impact on the environment was negligible. Among the longer-lived radionuclides, caesium-137 (Cs-137) was the most important owing to its relatively long half-life (30 years) and its relevance with respect to radiation doses to man.

The total inventory of Cs-137 in the seabed of the Baltic Sea is now estimated at 2,100–2,400 TBq. This is about 8–9% more than in the previous evaluation in 1998. The difference is due to



Total amounts of Cs-137 (Bq m-2) at different sampling stations around the Baltic Sea, 1984-2004. Current levels are still generally about 8 times higher than pre-Chernobyl levels.

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Photo: Nikolay Vlasov, HELCOM

the availability of new data enabling more precise calculations, and the fact that Chernobyl-derived caesium has continued to be deposited onto the seabed.

The dominant role of the Bothnian Sea as an accumulation basin for Chernobyl caesium has continued to strengthen, amounting to 73% of the total inventory (1,530–1,740 TBq). The proportion occurring in the Gulf of Finland has clearly decreased from the previous estimate, while proportions in the Baltic Proper and the Bothnian Bay have increased slightly.

The results show that about half of the total input of Cs-137 from Chernobyl into the Baltic Sea area has accumulated in the seabed. Accumulation was most intense in the first 5–6 years after the accident, but it is still in progress. Cs-137 is still being transported from the drainage area into the sea, and moving within the sea from the water column to the bottom. In recent years, the accumulation rate of Cs-137 has become slower, and total inventories of this radionuclide in the seabed have stopped increasing, which means that the accumulation rate of Cs-137 and its radioecological half-life in the sediments are essentially attaining balance at present.

The concentrations of man-made radionuclides in 2000–2005 remained higher than HELCOM's ecological objective of "radioactivity at pre-Chernobyl level". This is particularly true for the Bothnian Sea and the Gulf of Finland, which received the largest amounts of the fallout from the Chernobyl in 1986. Nonetheless, the concentrations of man-made radionuclides in sediments in the period 2000–2005 were generally at or below the concentrations of naturally occurring radionuclides, and as such are not expected to cause any harmful effects on the wildlife of the Baltic Sea.

The HELCOM Indicator Fact Sheets show that levels of radioactivity in Baltic Sea water and biota have generally shown declining trends since the Chernobyl accident. Discharges of radionuclides from local nuclear power plants into the Baltic Sea have also generally shown decreasing trends during the last decade, and such emissions contribute less than 1% of total inputs of radioactivity into the Baltic Sea. Radioactivity is now slowly being transported out of the Baltic Sea into the North Sea via Kattegat.

4. Protecting biodiversity

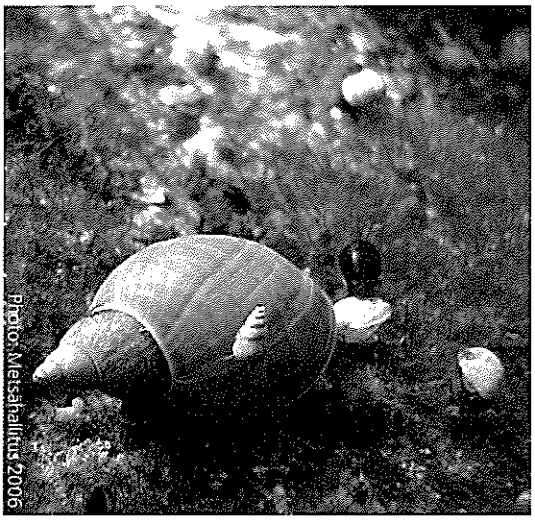
Status of the Baltic Sea Protected Areas network

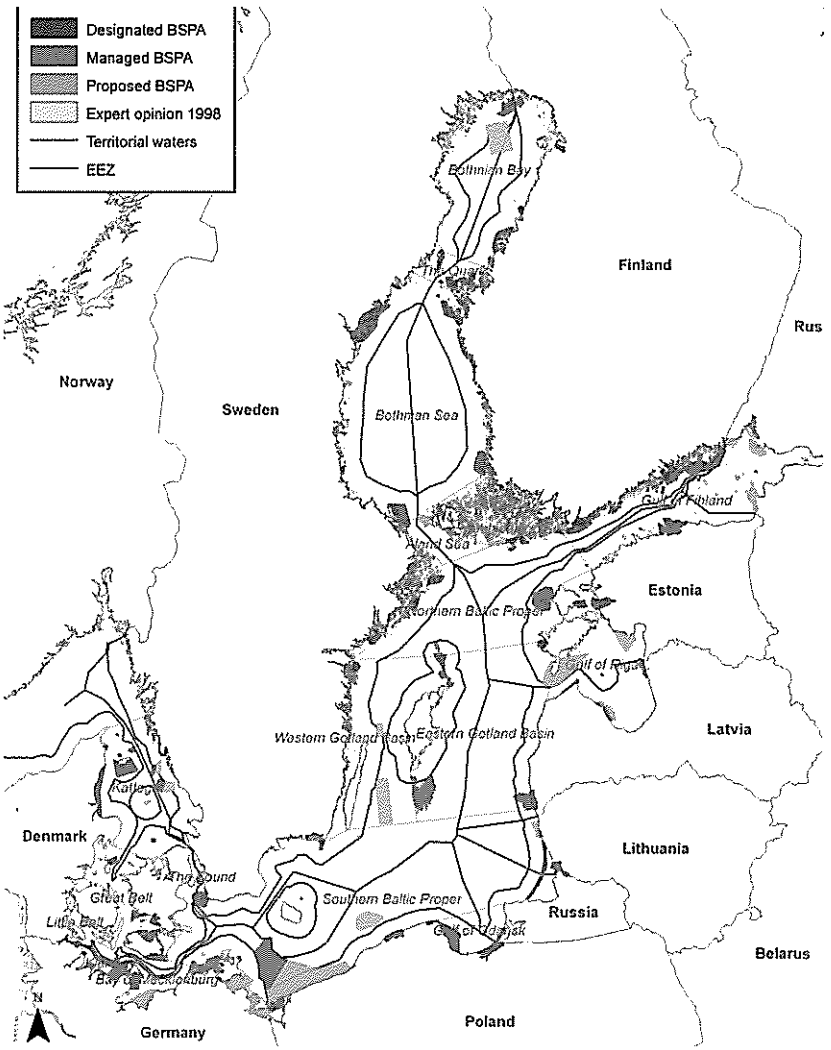
Currently the HELCOM BSPA Database contains information on 111 sites of which 86 have been notified and designated by the HELCOM countries as BSPAs.

Categorisation of the sites included in the BSPA Database and number of sites

Category	Number of sites
BSPA	86
Proposed BSPA (Recommendation 15/5)	15
Other areas recommended for designation as BSPAs by expert opinion, 1998	10

The network of BSPAs covers all the sub-basins of the Baltic Sea. At present 6.5% of the Baltic Sea area is covered by the 86 BSPAs, equalling a total area of 29,113 km². The World Summit on Sustainable Development (2002) and the subsequent Convention on Biological Diversity both adopted a global target that 10% of all marine ecological regions should be effectively conserved by 2012. If all the 111 sites in the HELCOM BSPA database are eventually included, the total area under protection would amount to 9.7% of the Baltic Sea, slightly under the 10% international target.





Baltic Sea Protected Areas (BSPAs), proposed BSPAs and other offshore areas recommended for BSPA status by expert opinion

Numbers and sizes of sites in the HELCOM BSPA Database for each country, as well as the percentages of the notified and designated sites consisting of marine areas. This table does not include information on the ten undesignated sites proposed by expert opinion in 1998.

Country	Number of proposed sites	Number of BSPAs	Total size of all sites (km²)	Total size of BSPAs (km²) (excluding proposed BSPAs)	% of the BSPAs consisting of marine areas (excluding proposed BSPAs)
Denmark	16	16	2925	2925	92.2
Estonia	7	5	4555	2044	59.8
Finland	23	22	5697	5697	93.5
Germany	12	9	6995	4338	62
Latvia	5	4	5070	5070	21.6
Lithuania	4	3	557	557	38.5
Poland	7	4	5453	670	40.4
Russia	6	2	789	145	67.6
Sweden	21	21	7667	7667	65.4
Total	**101**	**86**	**39708**	**29113**	**60.1**

Missing data: Finland: area of 1 proposed BSPA; Germany: marine areas of 6 BSPAs; Latvia: area of 1 proposed BSPA; Lithuania: area of 1 proposed BSPA; Russia: marine areas of 1 BSPA and 3 proposed BSPAs, total areas of 3 proposed BSPAs; Sweden: total areas of 2 BSPAs, marine areas of 8 BSPAs.

The sizes of almost all (99%) of the notified and designated BSPAs exceed 10 km², as recommended in HELCOM Recommendation 15/5. Most of the sites cover both terrestrial and marine areas. The majority (89%) of the notified and designated sites are within territorial waters, although Denmark and Germany have each designated one site within their respective exclusive economic zones (EEZs), and Denmark and Lithuania have two sites and Sweden one site partly within their EEZs.

Nearly all (98.6%) of the notified and designated sites are also EU Natura 2000 sites, thus providing legal protection status. According to the European Nature Information System (EUNIS Database, http://eunis.eea.europa.eu/), several marine Natura 2000 sites have not yet been designated as BSPAs as urged by the annual HELCOM Meeting in 2007. Also seven of the Proposed BSPAs sites (HELCOM Recommendation 15/5) and sites recommended by expert opinion in 1998 are included partly or totally in the Natura 2000 network.

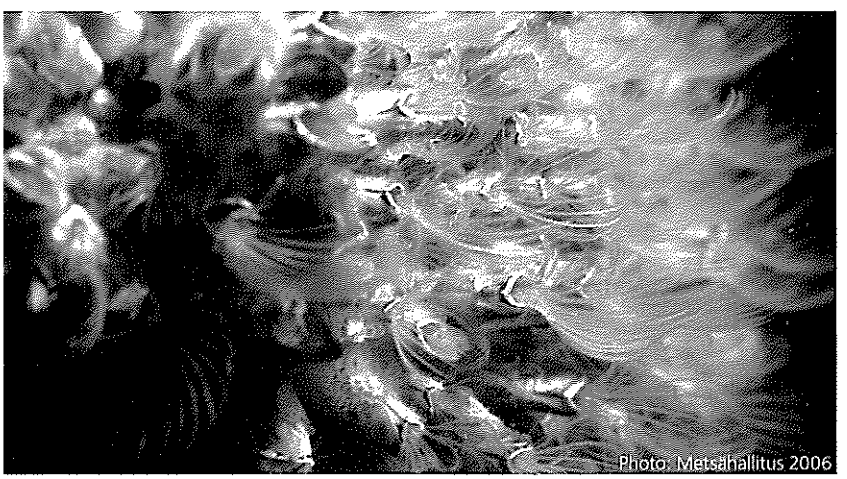


Photo: Metsähallitus 2006

HELCOM Recommendation 15/5 urges countries to establish and implement management plans for each BSPA and also to evaluate and review the effectiveness of their management. HELCOM has produced a comprehensive document on "BSPA Planning and Management: Guidelines and Tools", which has also been adopted by OSPAR. Currently, about 20% of the BSPAs have management plans, while in 33% a management plan is under preparation, leaving 47% of the BSPAs for which management plans may not exist or have not been reported for the database.

An initial analysis of ecological coherence conducted in 2006 showed that the sites in the HELCOM BSPA Database, including BSPAs and other sites (proposed and expert opinion sites) could form a network of areas protecting representative ecosystems, biotopes, habitats and species. However, based on the currently

available information on the sites and the whole network, the present BSPA network does not fulfil the criteria for an ecologically coherent network.

An ecologically coherent network of well-managed BSPAs is one means of reaching the HELCOM ecological objective "natural marine and coastal landscapes" included in the HELCOM Baltic Sea Action Plan. This objective aims to maintain and restore natural marine, coastal and adjacent terrestrial landscapes in the whole Baltic Sea area. It addresses the overall functioning and resilience of marine ecosystems and their services, the regenerative capacity of natural resources and their sustained availability for human use, as well as the characteristic features and aesthetic values of coastal and marine landscapes. The HELCOM Baltic Sea Action Plan recognises that the BSPA network should be a major instrument for reaching the overall targets for "natural marine and coastal landscapes" and includes commitments to:

- by 2010, have an ecologically coherent and well-managed network of Baltic Sea Protected Areas (BSPAs), Natura 2000 areas and Emerald sites in the Baltic Sea;
- by 2012, have common broad-scale spatial planning principles for protecting the marine environment and reconciling various interests concerning the sustainable use of coastal and offshore areas, including the Coastal Strip, as defined in HELCOM Recommendation 15/1; and
- by 2021, ensure that "natural" and near-natural marine landscapes are adequately protected and that degraded areas will be restored.

The HELCOM Baltic Sea Action Plan also reaffirms the commitment of the Contracting Parties to the Helsinki Convention to the 2003 Joint HELCOM/OSPAR Work Programme on Marine Protected Areas, and to improve the protection efficacy of the BSPA network by 2010.

Identifying threatened and declining species and biotopes

Pressures on the Baltic marine environment from human activities have resulted in losses of sensitive marine habitats and reductions in several areas in the populations of marine species, including many fish and marine mammals. The publication of the HELCOM lists of threatened and declining species and habitats or biotopes is a first step in identifying species and habitats which are threatened, declining, or in immediate need of protection, and in assessing human activities with adverse impacts on

biodiversity. The lists particularly aim to report on species and biotopes which are in urgent need of protective measures.

Species and biotopes for consideration were selected by international marine experts, who widely referred to national Red Lists. Only species and biotopes clearly associated with the Baltic Sea were included on the lists. The experts also compiled draft fact sheets for most of the listed species and biotopes, which can be viewed on the HELCOM website (http://www.helcom.fi/environment2/biodiv/endangered/en_GB/fact_sheets/).

The list of threatened and declining species contains seven species of macroalgae, notably including bladder wrack. This seaweed species is present in all areas of the Baltic Sea except the Quark and the Bothnian Bay, and under threat or in decline in many parts of the Gulf of Finland, and in the Gulf of Gdansk and Kiel Bay. The four listed vascular plants include eelgrass, which is found throughout the Baltic Sea except for the Gulf of Bothnia, and under threat or in decline in all southwestern regions of the Baltic. The list also contains seven invertebrate species, thirteen birds, twenty-three fish, and all four of the marine mammals regularly found in the Baltic Sea.

The list of threatened and declining biotopes contains sixteen biotopes. Of these biotopes offshore (deep) waters below the halocline, shell gravel bottoms, macrophyte meadows and beds, gravel bottoms with Ophelia species, and coastal lagoons are all under threat or in decline where ever they occur.

HELCOM list of threatened and declining fish species and new information on coastal fish

There are a number of threatened and declining species of fish in the Baltic Sea area, several of which have local, regional or global importance. The HELCOM List of Threatened and Declining Fish and Lamprey Species includes these species together with background information on related threats and pressures.

Only species known to occur naturally in the Baltic Sea are listed in the report. The list makes use of the status categories defined by the International Union for Conservation of Nature (IUCN). The main threats are indicated for each species to help define the measures needed to support their populations in the HELCOM area. The main threats are: fisheries (target species or by-catch), habitat loss, eutrophication, pollution, construction and hydrological engineering along rivers, and introductions for aquaculture.

The list highlights the importance of "keystone species", defined by HELCOM as having a controlling influence on communities. For declining species,

the list applies a "Conservation Cube" approach to establish whether a species should be listed as a low, medium or high priority for conservation action. Keystone species are more likely to be red listed.

Cod *(Gadus morhua)* is a commercially exploited species that is at present relatively common in parts of the Baltic Sea. Due to the special hydrographic conditions of the Baltic Sea, recruitment does not occur regularly. The Baltic Sea cod stocks probably depend to a high degree on supply from Skagerrak and Kattegat, where as in the North Sea in general cod stocks have severely declined in recent years. Cod is classified on the Swedish Red List as endangered. According to the Canadian research, cod stocks do not recover after a massive decline, even following a long-term fishing moratorium. Cod is today threatened throughout its range by fisheries (as a target species), eutrophication and habitat loss.

Due to a long-term decline in the area and severe threats, the species is classified as endangered under IUCN criteria. The Baltic cod is considered to be a keystone species, as other species like sea birds (e.g. cormorants) depend on it as a major food item. It is also of global importance, as one of the last remaining large populations of the species, due to a massive decline in the species in other seas. Cod is not considered rare at the moment, though the reproductively active part of the population may well be. This is why cod has been included on the Red List. The species' decline in the Baltic Sea is conservatively classified as probable, though stocks were definitively much higher 100 years ago. However, in Swedish waters cod is declining in all areas, and the spawning stock biomass declined by at least 60% between 1990 and 2004. As a result, cod is listed as a high priority species under HELCOM criteria.

Coastal fish populations are important components of Baltic Sea biota. They are widely affected by eutrophication, climate change and hazardous substances, as well by direct human impacts through fisheries. In an effort to improve the state of the Baltic marine environment, and thus also reduce pressures on fish communities, coastal fish experts have formulated ecological objectives to restore and maintain the structure and functioning of coastal fish communities, encompassing the species and genetic diversity of coastal fish stocks including non-commercial species.

Earlier work by experts on coastal fish has generally indicated that high water temperatures during growth seasons in recent years may have affected coastal fish communities in the Bothnian Sea. This is reflected in the increased recruitment success or increased individual growth rates of species associated with warmer waters.

The effects of changes in fishing pressure have been observed in the Gulf of Riga and in the Southern Baltic Proper. In the Gulf of Riga the high exploitation rate of piscivorous fish during mid 1990s was clearly recognisable, and in the Baltic Proper, flounder *(Platichthys flesus)* increased significantly during the same period, possibly due to a population recovery after a previous high exploitation rate.

5. Combating eutrophication and hazardous substances

Eutrophication is a condition affecting aquatic ecosystems where excess nutrient inputs lead to elevated nutrient concentrations. This in turn stimulates the growth of algae leading to imbalanced functioning of whole systems. This imbalance is reflected in the increases in the production of organic matter, its sedimentation, and consequently oxygen consumption on the sea floor. This process leads to oxygen depletion and recurrent releases of internal loads of nutrients as well as death of benthic organisms, including fish.

Excessive nitrogen and phosphorus loads from land-based sources are the main cause of the eutrophication of the Baltic Sea. About 75% of the nitrogen load and at least 95% of the phosphorus load enter the Baltic Sea via rivers or as direct waterborne discharges. About 25% of the nitrogen load comes as atmospheric deposition.

Hazardous substances include various anthropogenic substances which pollute the marine environment. They include substances that do not occur naturally in the environment, but also certain naturally occurring substances whose concentrations today exceed natural levels.

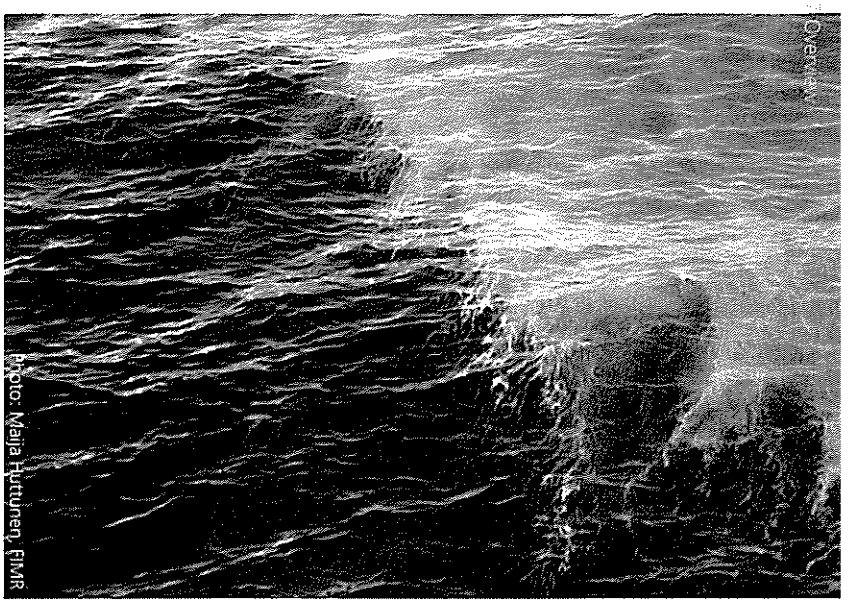
Hazardous substances have adverse effects on the ecosystem, including the impaired general health status and reproductive ability of animals, especially top predators, and the increased contamination of fish eaten by people.

Although monitoring indicates that the loads of some hazardous substances have been reduced considerably over the past 20–30 years, problems still persist, and concentrations in the marine environment of some new substances have even increased.

Eutrophication and hazardous substances have been equally addressed within activities of the HELCOM Land-based Pollution Group.

Assessing eutrophication impacts

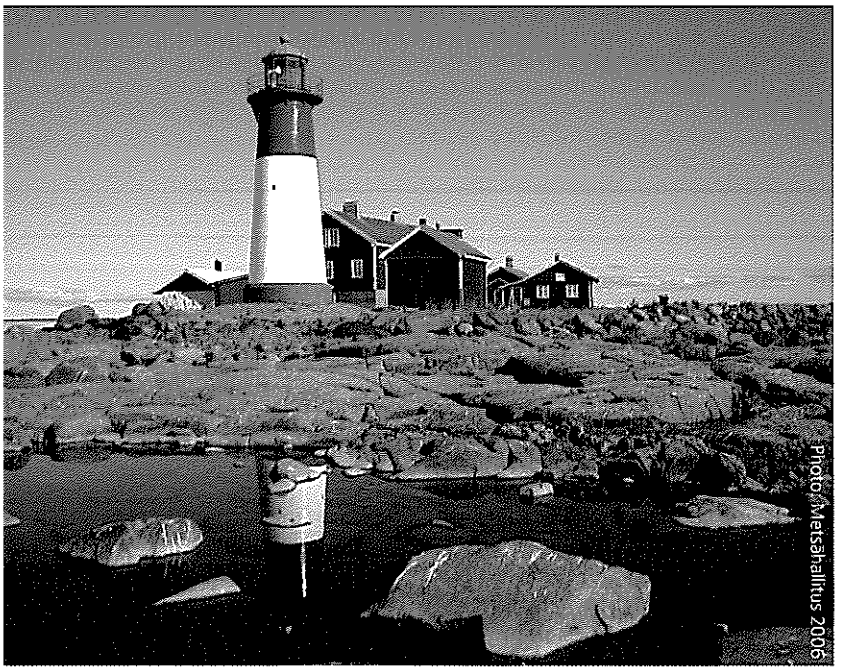
HELCOM assessments clearly show that problems with eutrophication persist in most of the Baltic's sub-basins and that good environmental status has not been reached. Activities to identify further cost-effective nutrient reduction measures in different sectors and parts of the Baltic Sea catchment area are ongoing, and will continue to provide input for implementation of the Baltic Sea Action Plan.



While preparing the plan, HELCOM has assessed the environmental impacts of various policies in the Baltic Sea region. The results of a number of policy scenarios produced by the Baltic NEST Institute using the MARE programme have been compared with HELCOM target levels for the environmental indicator "water clarity" measured by Secchi depth. The results show how far existing EU legislation and programmes, as well as HELCOM Recommendations, will bring us towards reaching the targets for eutrophication and good environmental status. Accurate policy scenarios are difficult to develop, but even imperfect scenarios can provide useful guidance on the extent to which further measures are needed. This work combines pollution load models with environmental effect models in order to predict the environmental effects of various policies.

Nutrient reduction efforts should particularly address the impact of agriculture, since less progress has so far been made reducing emissions in agriculture than for point sources such as municipalities and industry, and also because agricultural production is expected to grow following the enlargement of the EU. Reductions in nutrient releases from agriculture can be achieved through

a combination of different measures applied according to local characteristics such as soil properties and watershed retention rates. Scenarios show substantial reductions in nitrogen and phosphorus releases if balanced strategies are applied optimising nutrient use and minimising nutrient fluxes from agricultural systems, such as animal feeding, manure use and crop cultivation. The scenarios also show that nutrient inputs will increase substantially if agricultural production is intensified throughout the Baltic Sea region without the application of strict measures.



The results of the MARE scenarios also show that there is great potential for further decreases in nutrient inputs from other sources, especially in Estonia, Latvia, Lithuania, Poland and Russia, but also in Belarus. Key measures include:

- the implementation of efficient municipal wastewater treatment;
- increased connectivity to sewerage systems; and
- the introduction of phosphorus free detergents.

The implementation of existing regulations will reduce such inputs substantially, but going beyond and speeding up the agreed programmes would further improve the situation. These measures will primarily reduce loads of phosphorus. In order to reduce the loads of nitrogen, non-point sources, particularly within agriculture, have to be addressed.

Assessments also show that atmospheric nitrogen deposition to the Baltic Sea, including nitrogen coming from sources outside the catchment of the HELCOM countries, makes up a large proportion of nitrogen input to the sea, and should therefore also be addressed. According to scenarios, the deposition of nitrogen will not decrease even if existing targets for nitrogen under the Gothenburg Protocol to the UNECE Convention on Long-Range Transboundary Air Pollution (CLRTAP) and the EU National Emissions Ceilings (NEC) Directive are reached.

One of the aims of the HELCOM Baltic Sea Action Plan is to encourage and enhance the full enforcement of existing legislation. However, even after current legislation has been fully implemented, additional nutrient reductions will be necessary to achieve a good ecological and environmental status for the Baltic Sea. The necessary actions go beyond those needed to reach good status according to the EU Water Framework Directive (WFD), as the restoration of the whole Baltic Sea requires more drastic measures than those within the one nautical mile limit from the coast regulated by the WFD. It is expected that the actions presented in the Baltic Sea Action Plan will also serve to implement the EU Marine Strategy Framework Directive.

Based on the results of the scenarios, cost-efficiency analyses and evaluations of gaps in existing requirements at HELCOM, national and international level, there is a need to take actions both for point and diffuse sources in the following sectors:

- Wastewaters from municipalities, scattered settlements and single family homes
- Agriculture
- Transboundary airborne and waterborne pollution

Since diffuse nutrient sources also have a central role in determining the future state of the Baltic marine environment, the EU Member States around the Baltic will give joint input to the forthcoming Health Check of the EU Common Agricultural Policy stating the importance to the marine environment of pillar II on the rural development

Photo: Nikolay Vlassov, HELCOM

programmes and cross compliance, as well as the need to revise the targets for nitrogen in the UNECE Gothenburg Protocol and the EU NEC Directive.

The implementation of the action plan will aiso include the identification of further pollution hot spots on a plant by plant basis, e.g. concerning installations for the intensive rearing of poultry, pigs and cattle which should be addressed as a first priority. There will also be more stringent requirements for agriculture such as environmental permit conditions for livestock farms and rules governing the application of manure. The action plan also encourages the elaboration of bilateral and/or multilateral projects and programmes to reduce nutrient inputs using the most cost-efficient measures, particularly seeking to address transboundary nutrient inputs from the non-HELCOM countries. The action plan suggests that such inputs should be jointly dealt with under a "common pool", which can be diminished through both national means, and funding from non-profit foundations and private companies provided on a voluntary basis.

Present nutrient inputs to the Baltic Sea

HELCOM's monitoring programmes provide regular information on the waterborne and airborne inputs and sources of nutrients to the Baltic Sea and their trends. HELCOM's Pollution Load Compilations (PLCs) are among the most comprehensive sources of reliable scientific data on the state of the environment of the Baltic Sea, as they contain quantitative and qualitative information on direct and indirect discharges of various contaminants into the Baltic Sea watershed and air emissions by all the Contracting Parties. Four Waterborne Pollution Load Compilations for the whole Baltic Sea have been finalized and published for the years 1987, 1990, 1995 and 2000. PLC-4, for the year 2000, covered waterborne pollution loads from both point and diffuse sources throughout the parts of the Baltic Sea catchment area located within the borders of HELCOM's countries.

The objectives of periodic Waterborne Pollution Load Compilations (PLC-Water) regarding pollution of the Baltic Sea from land-based sources are:

1. to compile information on the waterborne inputs via rivers and direct discharges of important pollutants entering the Baltic Sea from different sources in the catchment area on the basis of harmonised monitoring methods;
2. to follow up the long-term changes in the pollution load from various sources;
3. to determine the priority order of different sources of pollutants for the pollution of the Baltic Sea;
4. to assess overall the effectiveness of measures taken to reduce the pollution load in the Baltic Sea catchment area; and
5. to provide information for assessment of the state and long-term changes of the marine environment in the open sea and the coastal zones.

The adoption of HELCOM Recommendation 26/2 "Compilation of Waterborne Pollution Load (PLC-Water)" means that future waterborne pollution load compilations will be carried out in two phases:

1. Total waterborne loads (rivers, unmonitored and coastal areas, as well as point sources and diffuse sources discharging directly to the Baltic Sea) of nutrients and hazardous substances are to be reported to HELCOM annually and assessed as annual indicator reports.
2. Comprehensive Waterborne Pollution Load Compilations quantifying waterborne discharges from point sources and losses from non-point pollution sources as well as natural background losses into inland surface waters within the catchment area of the Baltic Sea located within the borders of the Member States are to be reported to HELCOM every sixth year starting in 2006.

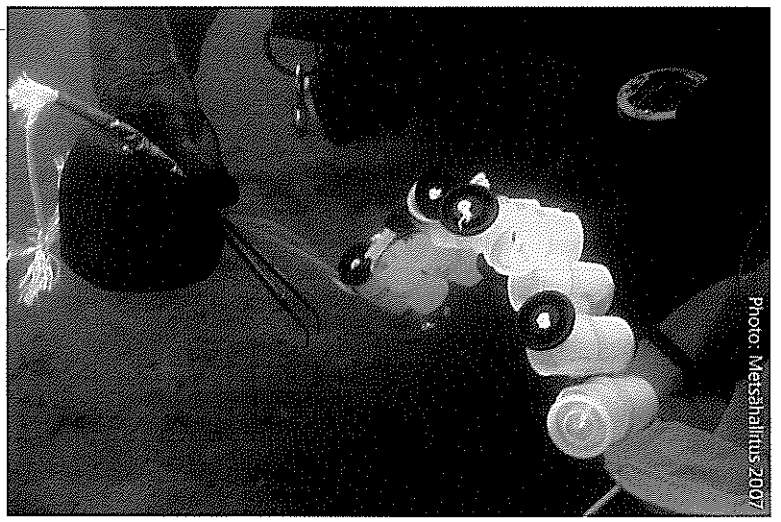


Photo: Metsähallitus 2007

losses into inland surface waters (applying a source-oriented approach) within the catchment area of the Baltic Sea located within the borders of the HELCOM countries, and also request non-Member States to submit information on sources;
- quantify and describe the loads (from rivers, unmonitored areas, coastal areas and point sources) discharging directly into the Baltic Sea (applying a load-oriented approach);
- evaluate changes in pollution loads since 1994;
- explain to which extent changes are caused by human activities or natural variations; and
- evaluate the overall significance of various water protection measures applied in the Baltic Sea catchment area to reduce pollution loads from land-based sources.

The currently ongoing HELCOM Pollution Load Compilation 5 shall:
- quantify and describe waterborne discharges from point sources and losses from non-point pollution sources as well as natural background

The PLC-5 assessment will be based on data collected by the HELCOM countries for the annual indicator facts sheets on total waterborne loads and additional comprehensive data for the year


Photo: Metsähallitus 2007

2006, in accordance with the Waterborne Pollution Load Guidelines. These guidelines are based on the PLC-4 Guidelines modified to meet new requirements, including the need to avoid overlapping with reporting of EU Member States in accordance with the requirements of EU regulations such as the UWWT and IPPC Directives.

The timeline for PLC-5 Project is as follows:

2005 Finalization of PLC-Water Guidelines; drafting of the outline of the PLC-5 report; and revision of reporting format and data entry system

2006 Monitoring and data collection by the HELCOM countries; updating of data base by the Data Consultant

2007 Data compilation, reporting, and testing of the data entry system

2008 Data assessment and preparation of the PLC-5 report

2009 Finalization of the PLC-5 report

2010 Final PLC-5 report and PLC-Popular Report to be submitted to the annual HELCOM Meeting in 2010 for approval

Due to requirements related to the implementation of the Baltic Sea Action Plan, it is of the utmost importance to obtain the results of PLC-5 as soon as technically possible to provide a scientific basis for the revision of national nutrient reduction allocations.

1. Overview of nutrient inputs

In 2005, total nutrient inputs amounted to 787,000 tonnes of nitrogen and 28,600 tonnes of phosphorus. About 75% of the nitrogen entered the Baltic Sea as waterborne input and the rest as atmospheric deposition. Phosphorus enters the Baltic Sea mainly as waterborne input, with airborne contribution only accounting for an estimated 1-5% of the total phosphorus input. An updated assessment of inputs and sources will be made for 2006 (PLC-5).

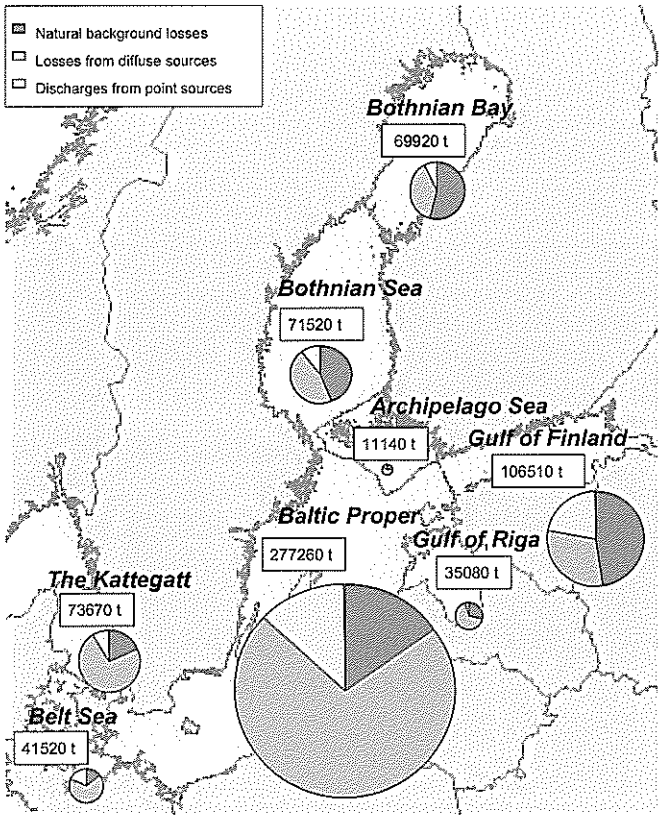


Figure 1. Proportion of sources contributing to waterborne nitrogen input into the Baltic Sea sub-regions in 2000 (HELCOM 2004).

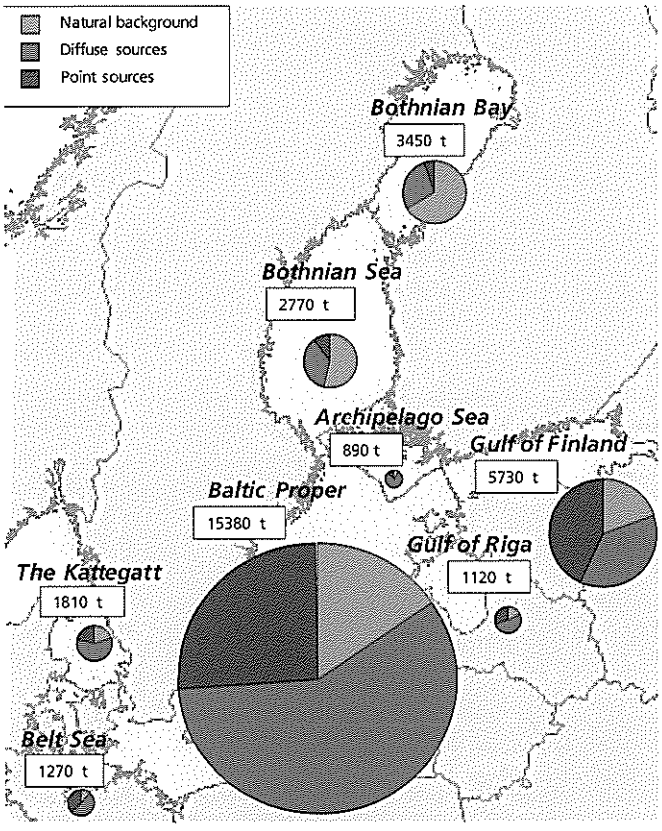


Figure 2. Proportion of sources contributing to phosphorus inputs into the Baltic Sea sub-regions in 2000 (HELCOM 2004).

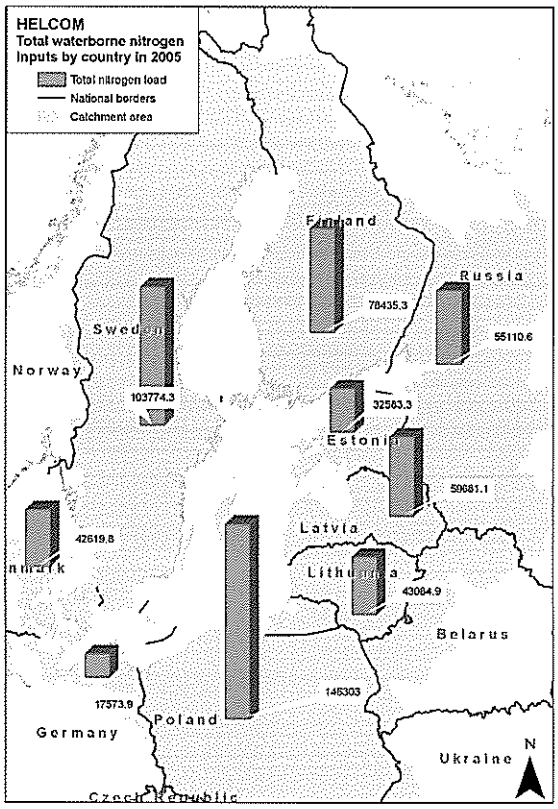


Figure 3. Waterborne loads of nitrogen (tonnes) entering the Baltic Sea from each HELCOM country in 2005. (HELCOM PLC-Group 2007). (Russian data partly missing).

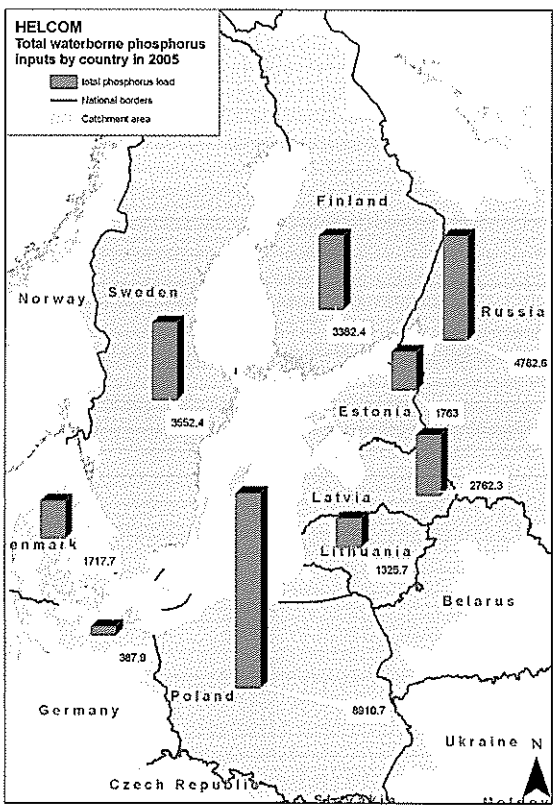
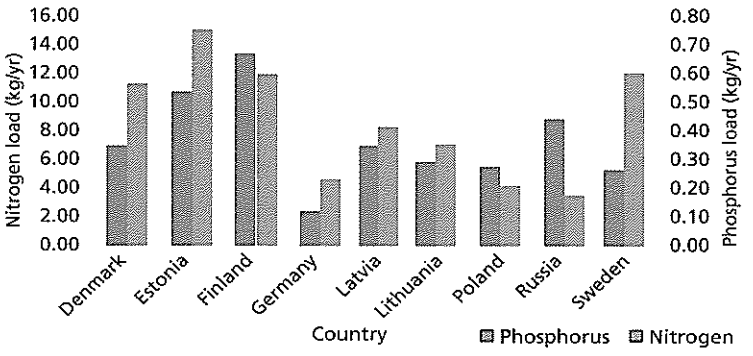


Figure 4. Waterborne loads of phosphorus (tonnes) entering the Baltic Sea from each HELCOM country in 2005, when the total reported waterborne phosphorus input was 28,600 tonnes. (HELCOM PLC-Group 2007). (Russian data partly missing).

2. Waterborne nutrient inputs

Diffuse losses (mainly from agriculture, forestry and scattered dwellings) contribute 58% of the waterborne nitrogen inputs and 49% of phosphorus inputs entering the Baltic Sea. Atmospheric deposition on inland waters is also a significant source of nitrogen. About 10% of nitrogen and 25% of phosphorus originates from point sources (municipalities and industry). The proportions of natural background losses were 32% for nitrogen and 26% for phosphorus (Figures 1 and 2 on page 55). Figures 3 and 4 show the waterborne loads of nitrogen and phosphorus entering the Baltic Sea from each of the HELCOM countries.

Per capita anthropogenic nutrient load by country in 2000



3. Airborne nutrient inputs

Airborne nitrogen contributes significantly to the input of nutrients to the Baltic Sea - from the total nitrogen input to the Baltic around a quarter comes as atmospheric deposition. The estimated airborne contribution of phosphorus is only 1-5% of the total phosphorus input.

Nitrogen compounds are emitted into the atmosphere as nitrogen oxides and ammonia. Road transportation, energy combustion and shipping are the main sources of nitrogen oxide emissions in the Baltic Sea region (Figure 5).

In the case of ammonia, roughly 90% of emissions originate from agriculture. Agriculture is the most significant contributor of total airborne nitrogen, accounting for 43% of the total air emissions of nitrogen from the HELCOM countries. Consequently, the need to reduce emissions and discharges from agriculture has become increasingly important as this sector is also responsible for the majority of waterborne nitrogen discharges into the Baltic Sea. Distant sources outside the Baltic Sea catchment area account for more than 30% of the total airborne deposition of nitrogen (Fig. 6).

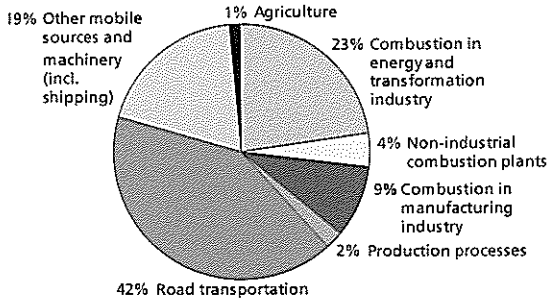


Figure 5. Percentage of total emissions of nitrogen oxides (NOx) from different sectors in the HELCOM Contracting States in 2005 (EMEP 2007)

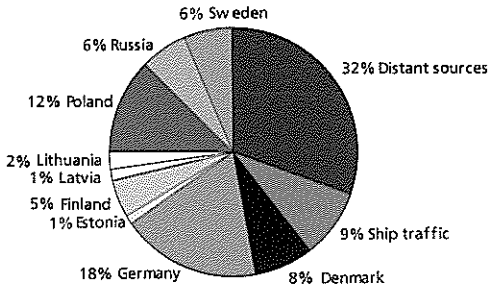


Figure 6. Proportion of contribution by source to the atmospheric deposition of nitrogen entering the Baltic Sea basin in 2005. The diagram shows that over 30% of the total nitrogen input originates from sources outside the HELCOM area (EMEP 2007).

Achieved input reductions

The Helsinki Convention, HELCOM Recommendations, EU legislation and other national and international regulations have all imposed stricter controls on industry, municipalities and diffuse sources such as agriculture.

1. Achieved reductions in waterborne discharges and inputs

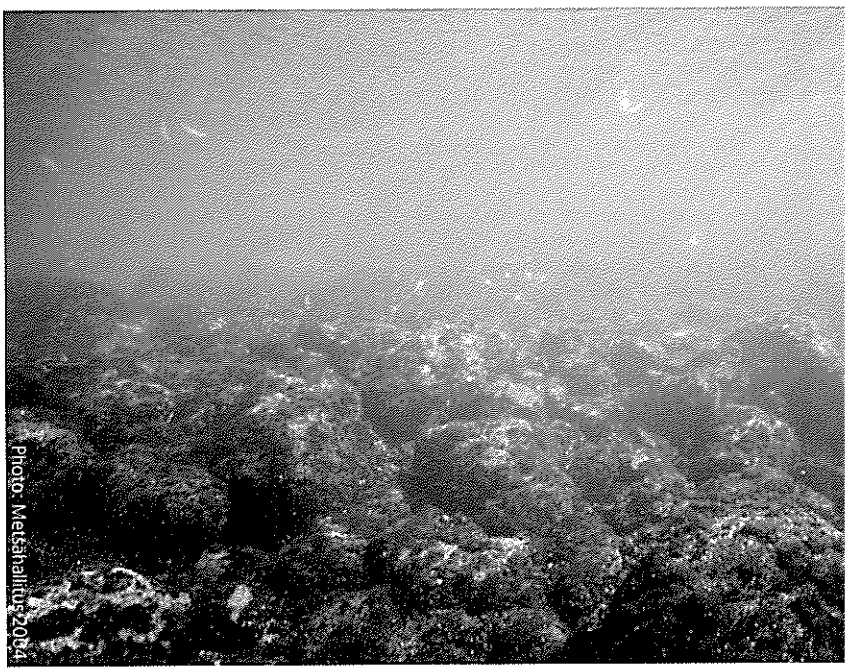
Riverine loads vary greatly from year to year, mainly depending on hydrological conditions. The overall reductions in waterborne discharges for both phosphorus and nitrogen in the Baltic Sea catchment area have been roughly 40% in total since the late 1980s. Despite reduced discharges within the catchment area, no clear trend in reduced riverine inputs to the Baltic Sea has been observed, due to the time lag caused by nutrient retention in inland waters.

Point sources

Progress in reducing waterborne nutrient discharges from point sources such as municipal and industrial wastewater treatment plants has been good, with the 50% reduction target for phosphorus achieved by almost all the HELCOM countries already in 2000. Some 20 HELCOM Recommendations have been elaborated to reduce discharges from industrial plants and Recommendations concerning new or reconstructed industrial plants have been implemented by all of the Baltic Sea countries. Many municipal wastewater treatment plants have been newly constructed or modernised in all of the HELCOM Member States, thus improving the implementation situation of the related HELCOM Recommendations. The new EU countries have particularly undertaken extensive modernisation plans for both municipal wastewater treatment plants and industrial facilities. The construction of a new treatment plant in St. Petersburg and the introduction of chemical phosphorus removal in some of the city's existing plants, are also encouraging steps forward. There are, however, still some compliance problems in some countries, especially with regard to nitrogen limit values.

Diffuse sources

Diffuse nutrient runoff originates mostly from agriculture, scattered settlements and forestry. It is difficult to separate these sources, but especially for phosphorus both the runoff from agriculture and scattered settlements are important. Reducing nutrient losses from these sources is much more complicated than curbing loads from point sources, due to technical and socio-economic obstacles.



Annex III of the Helsinki Convention, regarding agriculture, and requirements in Recommendation 24/3 have been implemented almost fully by Denmark, Finland, Germany and Sweden, according to an assessment made for year 2000. Some of the requirements have also been implemented by Estonia, Latvia, Lithuania, Poland and Russia, and have been duly transposed into national legislation. However, the practical implementation of the required measures at farm level is very difficult to assess, and actions have not as yet resulted in significant reductions in nutrient losses from farmlands. There is, however, a considerable time-lag before the effects of such measures can be seen, due at least partly to the high usage of fertilisers in the 1970s and 1980s in many countries, which has built up long-term nutrient surplus in farmland soils.

For scattered settlements there are only a few specific regulations within HELCOM or EU legislation, but some HELCOM countries have recently adopted new national legislation as the share of phosphorus discharges from scattered settlements is thought to be higher than from municipalities.

2. Achieved reductions in airborne emissions and deposition

Since 1980 there has been a reduction of approximately 38% in the levels of total nitrogen emissions to the air from the HELCOM countries.

Annual deposition of total nitrogen to the Baltic Sea

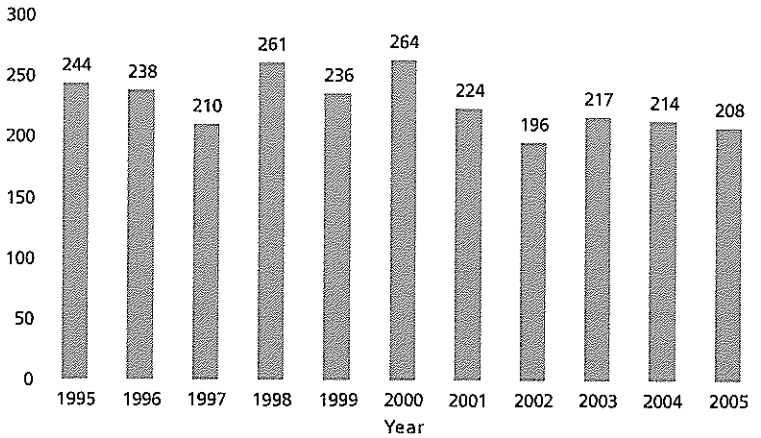
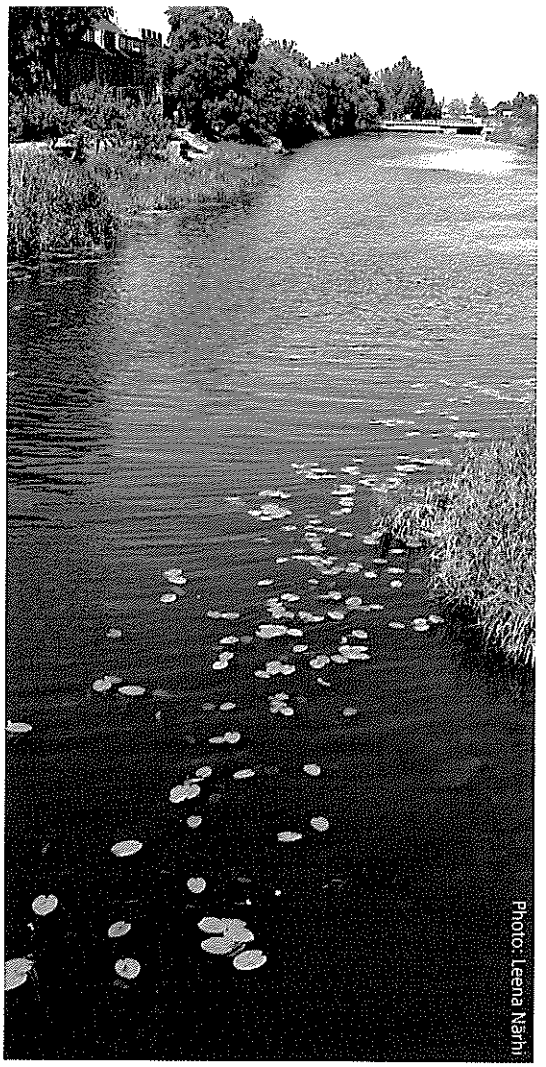


Figure 7. Atmospheric deposition of total (oxidised and reduced) nitrogen into six sub-basins of the Baltic Sea for the period 1995-2005, in kilotonnes N/year.



On the other hand, deposition levels have only declined by some 33% during the same time period. This is partly due to the fact that the deposition of nitrogen into the Baltic Sea is highly dependent on meteorological conditions that change from year to year (Figure 7). As a result, reductions in nitrogen emissions in the Baltic Sea region and elsewhere do not necessarily lead to corresponding reductions in observed deposition into the Baltic Sea.

Land-based air emissions are quite well regulated at all levels, and programmes for the reduction of emissions from the different sectors have been adopted in the EU and by the United Nations Economic Commission for Europe (UNECE). The Gothenburg Protocol under the Convention on Long-Range Transboundary Air Pollution (CLRTAP) of UNECE and the EU National Emission Ceilings (NEC) Directive are among the most important regulatory instruments at European level to reduce airborne pollutants. Taking into account that almost half of the nitrogen deposition on the Baltic Sea originates from outside the catchment area, these instruments are important when evaluating possible further developments and the adequacy of measures taken to reduce airborne nitrogen pollution.

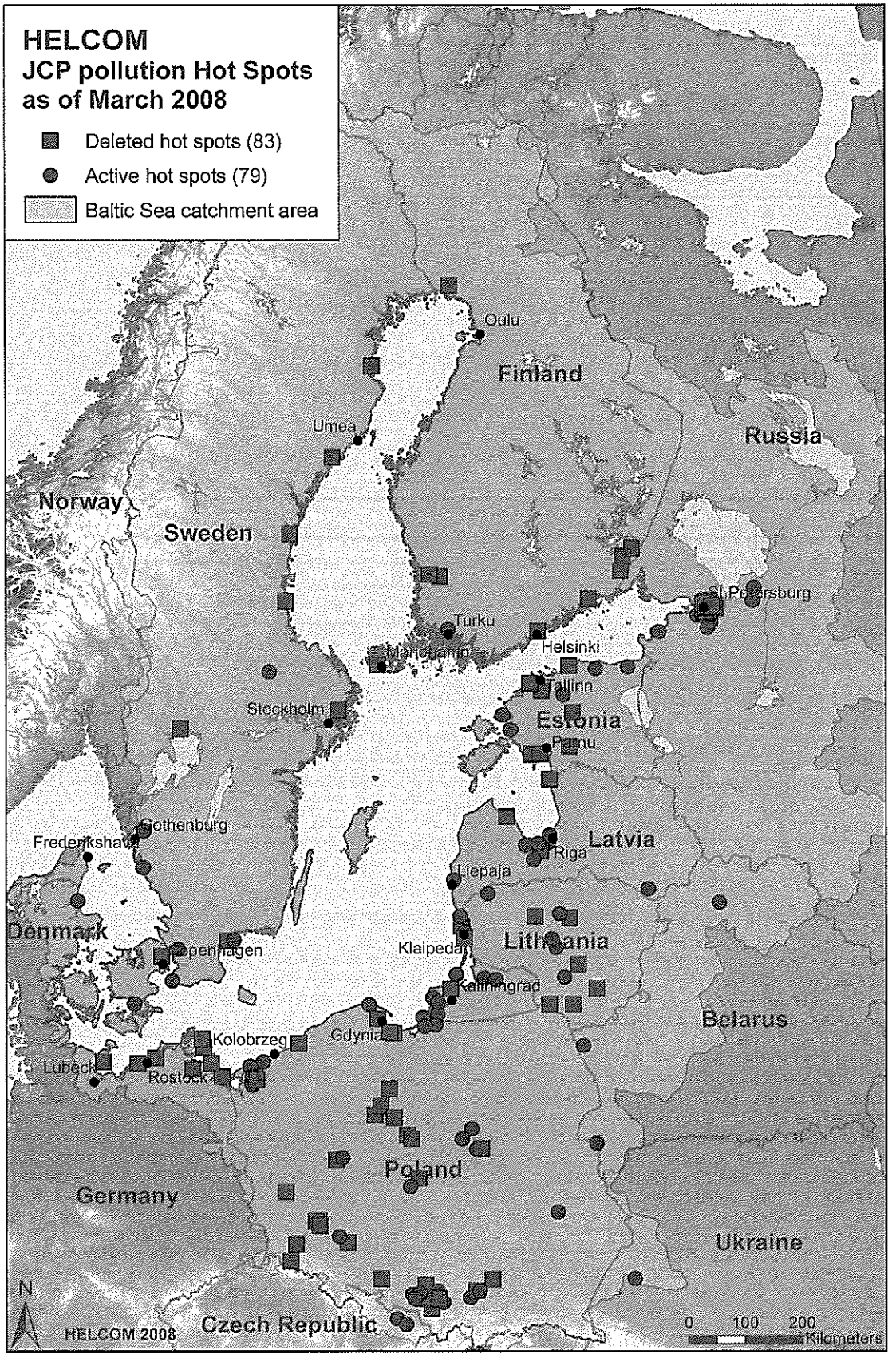
HELCOM passes the halfway mark in the elimination of the Baltic Sea pollution hot spots

In June 2007 and March 2008, HELCOM approved the removal of two major hot spots from the list of the Baltic Sea's most significant pollution sources. This latest development means that more than half of the designated 162 pollution hot spots in the region have now been eliminated.

The most recent development, announced by the annual HELCOM Meeting in March 2008, is the recovery of Hot Spot No. 22 – "St. Petersburg Metal Plating Industry/Heavy metals in wastewater and sludge", where major investments in wastewater treatment have significantly reduced pollution. The Heads of Delegation of the HELCOM Member States had already in June 2007 approved the deletion of a wastewater treatment plant at Tychy Urbanowice, near Katowice, in Poland, from the list of pollution hot spots. This plant has also achieved compliance with HELCOM requirements for municipal wastewater.

The Hot Spots List of the most significant point sources of pollution around the Baltic Sea was first drawn up under the HELCOM Baltic Sea Joint Comprehensive Environmental Action Programme (JCP) in 1992. The hot spots were designated by an international group of scientists, engineers, environmental managers, financers and government representatives, according to practical economic considerations as well as the seriousness of their impact on the environment and human health.

The JCP programme aims to facilitate the implementation of pollution reduction measures at the most polluted sites in the Baltic Sea catchment area. This programme, which should be completed by 2012 at the latest, specifies a series of actions to be undertaken at pollution hot spots. The most notorious hot spots are point sources such as municipal facilities and industrial plants, but the programme also covers pollution from agricultural


HELCOM
JCP pollution Hot Spots
as of March 2008
Deleted hot spots (83)
Active hot spots (79)
Baltic Sea catchment area
Oulu
Finland
Umea
Russia
Norway
Sweden
St Petersburg
Turku
Helsinki
Mariehamn
Tallinn
Stockholm
Estonia
Parnu
Gothenburg
Fredrikshavn
Latvia
Riga
Liepaja
Denmark
Lithuania
Klaipeda
Kaliningrad
Belarus
Kolobrzeg
Gdynia
Lubeck
Rostock
Poland
Germany
Ukraine
Czech Republic
N
HELCOM 2008
0 100 200
Kilometers

areas and rural settlements, as well as sensitive areas where special environmental measures are needed, such as coastal lagoons and wetlands.

Certain hot spots have been split into sub-hot spots in order to facilitate their management and actions to reduce pollution. After the latest deletions, a total of 79 hot spots and sub-hot spots now remain on the list, following the deletion of 83 of the earlier identified 162 hot spots/sub-hot spots.

Alleviating pollution at hot spots involves considerable investments. In 1992, it was estimated that total funding of ECU 18 billion would be needed to finance the necessary measures at all the hot spots. Rough current estimates of the total clean up costs for the remaining hot spots amount to €9–11 billion.

Investments and remediation projects carried out at pollution hot spots around the Baltic Sea have contributed substantially towards overall pollution load reductions in the Baltic Sea catchment area. Water quality in many coastal waters of the Baltic Sea has improved considerably since 1992, reflecting welcome progress in the treatment of municipal and industrial wastewater.

List of agricultural hot spots to be elaborated

Large areas of the Baltic Sea catchment area have been identified as Agricultural Hot Spots. The list of JCP Hot Spots established in 1992 contained 16 Agricultural Hot Spots. The list also contained five Coastal Lagoon/Wetlands Hot Spots which are influenced by agricultural activities, and where relevant management programmes are needed.

So far, five such hot spots have been deleted from the list: two in Estonia, one shared by Estonia and Latvia, one in Latvia and one in Germany. The main reason for deletion has been a remarkable decrease in agricultural activities in Estonia and Latvia due to economic recession. However, current economic trends indicate fairly rapid growth in the agricultural sector in all of the countries of the region, which can be expected to lead to increased amounts of nutrients being applied, and consequent rises in nutrient loads.

The current list of Agricultural Hot Spots mainly covers agricultural runoff as a diffuse source of nutrient inputs, while large facilities for the intensive rearing of cattle, poultry and pigs were not considered as ordinary 'point sources', although

List of Agricultural Hot Spots under the Joint Comprehensive Programme as of June 2007

Key	Priority Hot Spots	Location	Country	Site name	Site type
10		Archipelago Sea	Finland	Agriculture (2)	Agricultural Runoff
24	X	Gulf of Finland	Russia	St. Petersburg Region	Large Livestock Farms
60	X	Nevezis RB	Lithuania	Agriculture / Livestock	Agricultural Runoff Programme
72		Kaliningrad	Russia	Agriculture / Livestock	Agricultural Runoff Programme
95	X	Vistula	Poland	Agriculture / Livestock	Agricultural Runoff Programme
112	X	Oder / Odra	Poland	Agriculture / Livestock	Agricultural Runoff Programme
112	X	Oder / Odra	Poland	Agriculture / Livestock	Agricultural Runoff Programme
122		Belt Sea	Denmark	Agriculture (8)	Agricultural Runoff Programme
124		The Sound	Denmark	Agriculture (8)	Agricultural Runoff Programme
125		The Sound	Sweden	Agriculture	Agricultural Runoff Programme
128		Kattegat	Sweden	Agriculture	Agricultural Runoff Programme
129		Kattegat	Denmark	Agriculture (8)	Agricultural Runoff Programme
132		Bornholm Basin	Sweden	Agriculture	Agricultural Runoff Programme

recent developments within EU legislation (e.g. the IPPC Directive) and other international fora show the importance of pollution originating from such facilities.

The criteria for the inclusion and deletion of hot spots, defined by the HELCOM Programme Implementation Task Force (PITF) in 1999, state that the development and adoption of new agricultural policies and practices, the potential revival of older input-intensive agriculture, and increases in livestock production could all create site-specific situations in the Baltic Sea region which would result in the need to consider new agricultural non-point source hot spots. In undertaking activities in this area, special reference should be made to Annex III of the Helsinki Convention, which addresses environmental management issues in agriculture. The HELCOM Ministerial Meeting in Krakow in 2007 therefore decided that a list of hot spots identifying existing installations for the intensive rearing of cattle, poultry and pigs not fulfilling the requirements of the revised Annex III of the Helsinki Convention should be drawn up by 2009 as part of the Baltic Sea Action Plan.

Baltic Sea Regional Project Phase I finalised

As part of international efforts to combat the environmental degradation of the Baltic Sea, the World Bank, acting on behalf of the Global Environment Facility (GEF), provided a grant of $5.5 million for the Baltic Sea Regional Project. Contributions from other co-financiers and project beneficiaries including Finland, Norway, Sweden, the United States and the Nordic Environment Finance Corporation (NEFCO) increased the total budget for the project to approximately $16 million. Actions within the project took place in Estonia, Latvia, Lithuania, Poland and Russia.

The GEF-Baltic Sea Regional Project Phase I was finalized on 30 June 2007.

The goals of the Baltic Sea Regional Project (BSRP) were:

- To introduce ecosystem-based assessments to strengthen the management of Baltic Sea coastal and marine environments through regional co-operation
- To reduce pollution from non-point sources (especially in agriculture)
- To promote sustainable agriculture and fisheries

The Project consisted of four inter-related components:

1. Large Marine Ecosystem Activities
   - To introduce ecosystem-based assessments and management for the Baltic Sea
   - To co-ordinate and integrate regional monitoring and assessment capacity
   - To improve management practices to increase and sustain fishery yields and the biological productivity of the Baltic Sea Large Marine Ecosystem (LME)


Photo: Leena Näätti

- In the long-term, to improve both the marine ecosystem and the economic benefits and standard of living of Baltic fishing and coastal communities

2. Land and Coastal Management Activities
   - To increase awareness of environmental issues related to agriculture among farmers and communities
   - To invest in and implement environmentally responsible farm management practices
   - In the long-term, to improve the economic welfare and standard of living within the farming community while reducing agricultural pollution

3. Institutional Strengthening and Regional Capacity Building
   Component 3 supported local and regional capacity building and institutional strengthening through integrated land, coastal and marine activities. These activities were mainly carried out within the respective thematic components, the LME and the land based component.

4. Project Management
   The Baltic Sea Regional project was administered and managed by HELCOM and the Project Implementation Team (PIT) in co-operation with the International Council for the Exploration of the Sea (ICES), the Swedish University of Agricultural Sciences (SLU), the Worldwide Fund for Nature (WWF) and NEFCO.

   The project was steered on the regional level by the HELCOM Heads of Delegation and the ICES Bureau.

Key figures of the GEF-Baltic Sea Regional Project

Partners	30 partner institutions in the five beneficiary countries, several institutions in five donor countries
Staff	70 people working directly in the project on a part-time basis
Total assets (office, laboratory, field research, monitoring, wetland/grassland management and manure handling equipment)	€1.6 million (includes external financing for farm equipment)
GEF Grant	€4 million (equivalent)
Effective time of implementation	(March 2003) February 2004–June 2007

Updated information on the outcomes of the project is available on the HELCOM website at: http://www.helcom.fi/projects/GEF-BSRP/en_GB/bsrp/.

Struggling against pollution by hazardous substances

HELCOM monitoring programmes provide regular information on the waterborne and airborne inputs and sources to the Baltic Sea, as well as trends for selected heavy metals and organic pollutants. Data on the sources and inputs of hazardous substances is scarce compared to information on nutrients.

The loads of some hazardous substances to the Baltic Sea have been reduced considerably over the past 20-30 years. In particular, discharges of heavy metals have decreased, although no similar general trend has been observed for concentrations of heavy metals in marine biota since 1990.

For mercury, lead and cadmium, waterborne inputs to the Baltic Sea, via rivers or as direct discharges, are the main sources. The remaining inputs are mainly from atmospheric deposition.

Dioxins are never intentionally produced, but they are formed as by-products or impurities during several different industrial processes and many combustion processes in the chemical, paper and metal industries, the incineration of municipal and hazardous waste, and small scale burning. The use of fossil fuels in energy generation and transport in Central Europe and in the countries around the Baltic Sea also contribute to their presence. Natural events or processes such as forest fires or steppe fires and volcanic eruptions can also result in dioxin emissions. Dioxins thus enter the Baltic Sea as atmospheric fallout when transported from land-based sources and via water courses. Knowledge of dioxin air emissions has improved to the point where relatively accurate measurements or estimates are available from some countries. However, less information is available concerning dioxin concentrations in wastewater or wastes.

According to a HELCOM evaluation in 2001, it can be assumed that 50% of the discharge reduction target has been largely achieved for 46 hazardous substances prioritised by HELCOM.

Estimated significant sources of eight organic substances are presented in Table 1. It should be noted that not all of the sources mentioned may be relevant in all of the HELCOM countries, and significant sources should be identified within national programmes under the HELCOM Baltic Sea Action Plan. The industrial sector or professional use has been identified as a significant source if the emission factor is relatively high, or if it has been identified as risk use in national risk assessments, or if experts otherwise believe this is the case. The significance of other activities (e.g. wastewater treatment plants) has been evaluated on the basis of measured effluent concentrations.

Table 1. Estimated significant sources of priority organic substances

Substance	Sources of substances entering aquatic environments	Sources of substances entering the atmosphere
TBT, TPhT	• anti-fouling use in sea ship hulls (the most significant source for Baltic Sea) • waste treatment, storm water from waste sorting sites • landfills	• considered to be unimportant
Brominated Flame retardants (penta, octa, deca BDE)	• waste treatment, storm water from waste sorting sites • landfills • WWTPs • industrial wastewater from textile industry & pentaBDE, octaBDE, decaBDE production	• waste treatment • losses from products during service life
HBCDD	• industrial wastewater from textile industry and laundries • landfills • waste treatment, storm water from waste sorting sites	• production of HBCDD
PFOS & PFOS related substances PFOA	• use of PFOA related substances • fluoropolymer production • landfills • WWTPs • industrial wastewater from metal plating factories, semiconductor and photographic industry, manufacture (and use) of fire fighting foams, paper and packaging protection industry	• semiconductor industry • use of PFOA related substances • fluoropolymer production
Nonylphenols (NP, NPE)	• use of NPE-based products, see NPE sources • industrial wastewater from NPE production, pulp and paper industry, paint industry, production (also use) of detergents and cleaning agents, metal working industry, textile and leather industry, photographic industry and civil and mechanical engineering industry • air transport (de-icing use) • agriculture • WWTPs • landfills • storm water from waste sorting sites & residential area	• considered to be unimportant
Octylphenols (OP, OPE)	• use of OPE-based products, see OPE sources • industrial wastewater possibly[1] • WWTPs • landfills • waste treatment, storm water from waste sorting sites and residential area	• considered to be unimportant
Short- and medium-chained chlorinated paraffines (SCCP MCCP)	• industrial wastewater from metal cutting and leather • industry and manufacture of fat liquoring products used in textile industry	• industrial wastewater from metal cutting, plastics and rubber industry
Endosulfan	• agricultural pesticide use	• agricultural pesticide use

[1] An assessment is not possible due to lack of information on emission factors

Further actions

As a result of the EU enlargement and the development of new EU measures, there is a reduced need for corresponding HELCOM measures. There remain, nevertheless, continuing needs for identifying the specific problems in the Baltic marine environment and reviewing whether measures by the various organisations (global organisations, EU, HELCOM or national) adequately cover the general obligations of the Helsinki Convention and the HELCOM objective with regard to the cessation target for emissions and discharges of hazardous substances by 2020 in the whole Baltic catchment area. Particular care should be taken that the interests of all HELCOM countries are taken into account. This might generate the need for HELCOM to adopt its own Baltic specific measures.

The basic steps for taking action in HELCOM are:

- Identification of threats
- Identification of fields of action and the need for measures
- Screening the coverage / implementation efficiency of existing international and national provisions
- Deciding whether to develop new measures at international, regional or national level

The information available on inputs and sources for hazardous substances is much scarcer than that on nutrients, and does not allow for a comprehensive assessment of the situation in the Baltic at present.

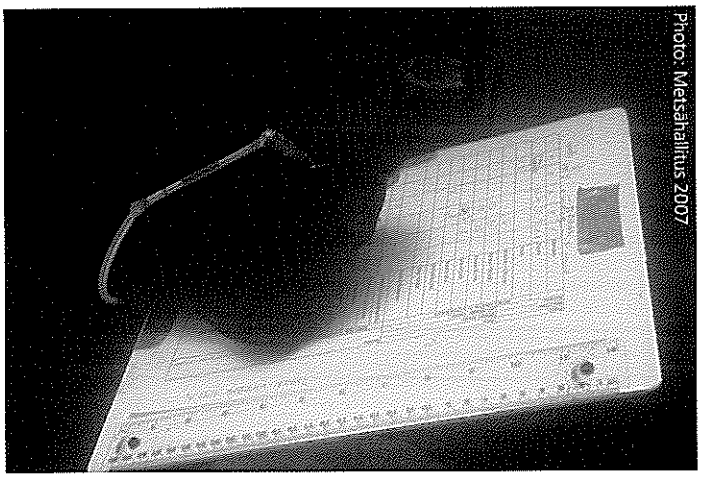


Photo: Metsähallitus 2007


Photo: Jan Ekebom

There is a clear need to efficiently implement existing regulations concerning hazardous substances, such as best available techniques (BAT) and the substitution of hazardous substances in production processes. One particular field with direct impact on the marine environment, where the implementation of existing HELCOM regulations should be further improved, seems to be dredging and the disposal of dredged spoils. The HELCOM survey shows that TBT concentrations are high in sediments in some areas, indicating that disposal of contaminated material from those areas should be managed in an appropriate way.

As a basis for the HELCOM Baltic Sea Action Plan, HELCOM has evaluated all available information on certain hazardous substances with the aim to assess their impacts on the Baltic marine environment. Efforts have focused on nine organic hazardous substances and two heavy metals selected by HELCOM as being of specific concern to the Baltic marine environment. These substances have also been included in the HELCOM Baltic Sea Action Plan, acknowledging that the list and planned actions could be revised in the future when more information is available.

HELCOM has collected information on the use of the selected substances in different sectors from national registers and other sources. Information has also been collected on their occurrence in discharges and emissions, and in the Baltic marine environment, and on possible actions needed to reduce the chemical loads entering the Baltic Sea. This information is to be used when taking actions

to restrict and substitute the use of the selected substances in important sectors within an agreed timetable in the whole catchment area.

The HELCOM countries should also all develop their own national programmes addressing hazardous substances, taking into account the need for further identification of sources and elimination or restrictions of uses of the selected hazardous substances, as well as the need for development of guidelines and capacity building for authorities and industries with regard to identification of hazardous substances and the application of BAT. There is also a need to further increase public awareness with regard to hazardous substances, e.g. in the field of environmentally friendly practices for the use of small-scale combustion appliances with a view to limiting emissions of dioxins.

Additional information will be collected in a screening study focusing on the occurrence of the selected hazardous substances in the Baltic marine environment, and there are plans to further screen the sources of these substances in the Baltic Sea countries.

Based on the outcome of available reports, and the work still to be carried out, the most relevant hazardous substances of specific concern, their main uses and most significant sources have been identified. This information will be the basis for developing input, e.g. a joint position by the HELCOM countries, to international, regional or national actions, including:

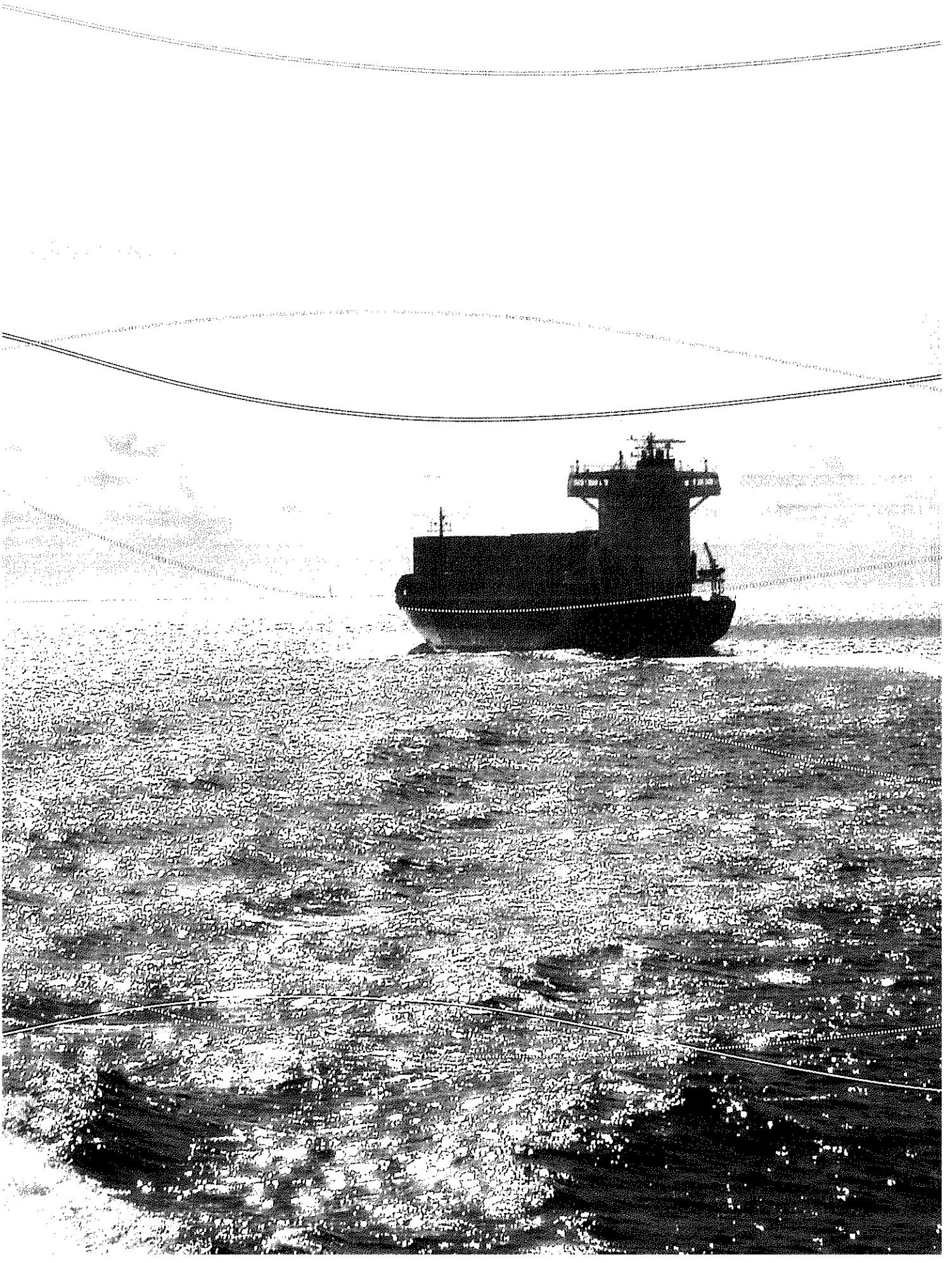
- the development of EU BAT Reference Documents (BREFs) in order to enhance implementation of BAT with regard to hazardous substances, with special focus on uses known to result in high emissions or discharges into the environment;
- the updating of the EU Water Framework Directive list of priority substances and substances to be evaluated under REACH;
- controls over plant protection and biocide products available on the market, if levels of these substances in the Baltic marine environment are so high that they may cause adverse effects on marine organisms; and
- the identification of new candidate substances and their inclusion in the Stockholm Convention on Persistent Organic Pollutants and the Protocol on Persistent Organic Pollutants in the UNECE Convention On Long Range Transboundary Air Pollution.

HELCOM assessments show that a significant share of both the airborne and waterborne inputs of hazardous substances to the Baltic Sea originate in non-HELCOM countries. This means that it is of utmost importance that the results of HELCOM assessments are also taken into account in other fora.

Other necessary actions:

- the introduction of the whole effluent assessment approach;
- the development of biological effects monitoring; and
- the development of requirements concerning imports and exports of hazardous substance.

Photo: Nikolai Vlasov/HELCOM



6. Reducing the impacts of shipping

The Baltic Sea today is one of the busiest seas in the world, accounting for more than 15% of the world's cargo transportation. According to the HELCOM Automatic Identification System (AIS) for monitoring maritime traffic, there are about 2,000 ships in the Baltic marine area at any given moment, and each month around 3,500-5,000 ships ply the waters of the Baltic Sea.

In 2006, 60% of these ships were cargo vessels, 18% were tankers and 11% were passenger vessels. Forecasts indicate that due to economic growth, especially in the eastern part of the region, the amounts of cargo shipped on the Baltic will grow by 64% by 2020 from a level of 731 million tonnes in 2003.

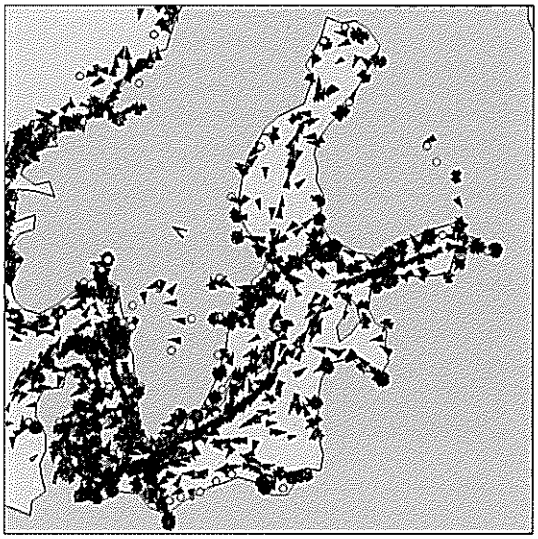
The transportation of oil and other potentially hazardous cargoes is growing steeply and steadily. By 2015, a 40% increase is expected in the amounts of oil being shipped on the Baltic, which in 2007 reached more than 170 million tonnes. The use of much bigger tankers is also expected to rise – there will be more tankers in the Baltic carrying 100,000-150,000 tonnes of oil.

Fewer shipping accidents in the Baltic

The annual number of shipping accidents in the Baltic Sea area, including accidents resulting in oil spills, has significantly decreased for the first time since 2004, although it is still almost twice as high as four or five years ago, according to the latest study released by HELCOM in June 2007.

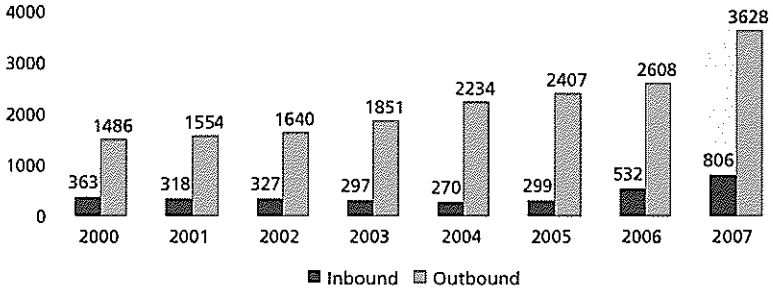
Analysis of the data contained in the latest national annual reports provided by all the Baltic Sea coastal countries to HELCOM reveals that there were 117 accidents in 2006, compared to 146 in 2005, and 142 in 2004. In 2006, only 5 accidents resulted in small-scale pollution, compared to 13 similar cases in the previous year. Over the period 2000-2003 there were on average only around 60 accidents recorded each year in the Baltic.

According to HELCOM experts, one possible explanation for the apparent increase back in 2004 is the introduction of HELCOM's new reporting requirements for shipping accidents. However,



Snapshot from the HELCOM AIS (26 February 2008)

Number of laden tankers entering and leaving the Baltic (SHIPPOS)



Amount of oil transported via the Great Belt (SHIPPOS)

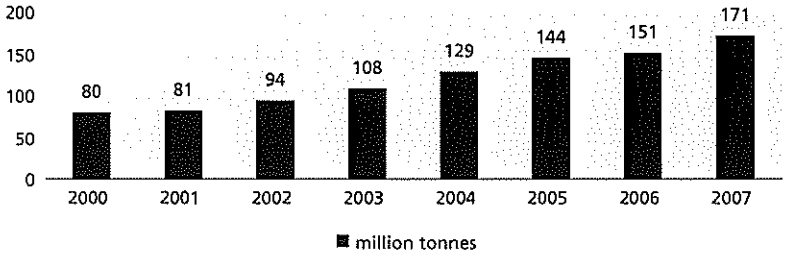
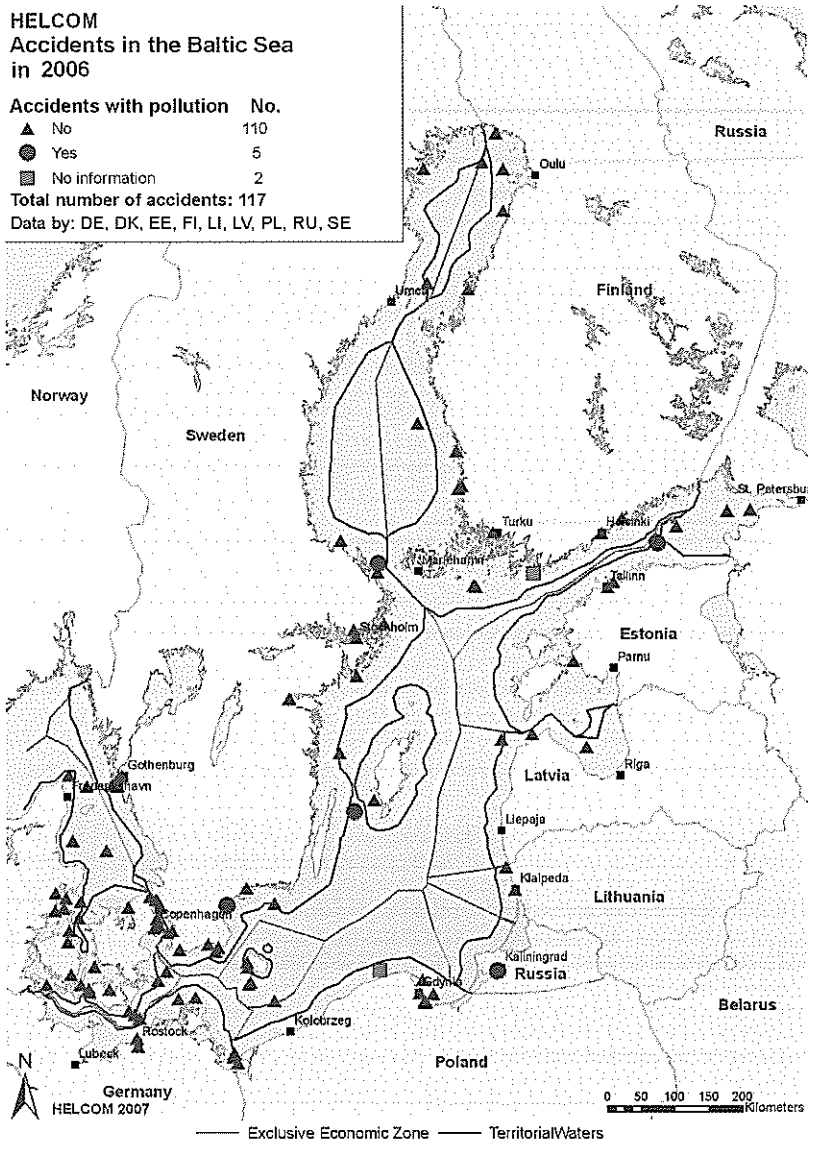



Photo: Nikolay Vlasov, HELCOM

rapidly growing maritime traffic in the region could clearly have contributed to a real increase in the number of accidents.

Most of the accidents occurred in the south-western waters of the Baltic Sea. Collisions were the most common type of accidents in the Baltic, accounting for almost a half of all reported cases (46%), and for the second year in a row surpassing the number of groundings (39% of all accidents). The shares of both types of accidents have increased by as much as 10% for collisions and 2% for groundings compared to 2005.



Other major types of accidents included fires/explosions (6%) and machinery damage (4%). Collisions between two ships accounted for 52% of all collisions (29 cases) in 2006, with the other collisions involving fixed or floating structures such as piers or navigation signs.

Cargo vessels (56%), tankers (15%) and passenger ferries (17%) were the main types of vessels involved in accidents. The main cause of accidents in 2006 is not as clear as the year before, due to the lack of information in 35% of all cases. Human error (36%) still seems to continue to be the main factor, followed by technical factors (15%).

Of the 5 small oil spills which occurred as a result of accidents in 2006, the largest contained 150 cubic metres of oil (following a collision involving two cargo vessels in the Gulf of Finland); the second largest released 10 cubic metres of oil (following a grounding of a vessel in the port of Kaliningrad); and other spills did not exceed 0.1 cubic metres.

Fortunately, most of the accidents in the Baltic do not cause notable pollution, but even one large-scale accident would seriously threaten the marine environment. Over the period 2000-2006, an average of 7% of all reported accidents resulted in some kind of pollution. Two of the five most serious accidents in the Baltic marine area have occurred since 2001 – involving "Baltic Carrier" in 2001 (2,700 tonnes of oil spilt), and "Fu Shan Hai" in 2003 (1,200 tonnes of oil spilt).

HELCOM calls for tighter IMO regulations to curb air pollution and sewage discharges from ships

1. Emissions of nitrogen oxides

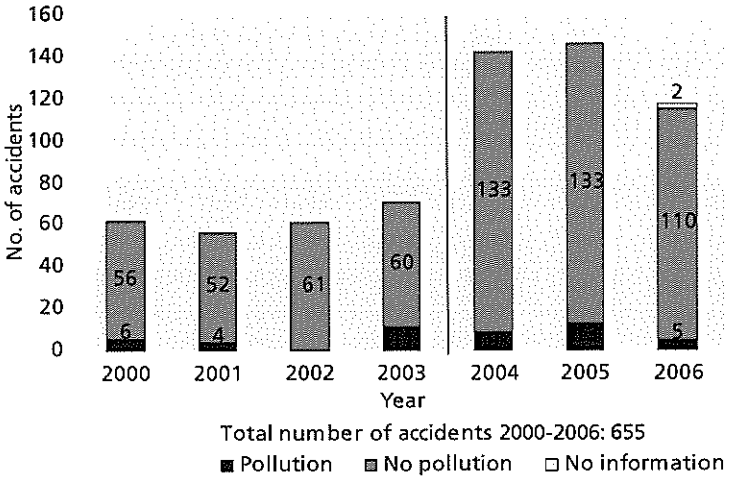
In December 2007, the HELCOM countries submitted a joint document to the 57th session of the IMO Marine Environment Protection Committee calling for tighter international regulations to prevent a predicted sharp increase in nitrogen oxide (NOx) emissions from ships in the Baltic Sea. This meeting was held in March 2008 to approve new requirements for NOx and sulphur oxide (SOx) emissions under Annex VI of the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78).

The call for stricter IMO requirements was part of the HELCOM Baltic Sea Action Plan, which aims to drastically reduce marine pollution. The submission was based on a study prepared for HELCOM by the research programme ShipNODeff, which has provided the first reliable estimates of the atmospheric emissions from shipping in the Baltic Sea, as well as a useful set of scenarios estimating how much NOx emissions from ships in the Baltic would be reduced if different proposed IMO emission control measures were adopted.

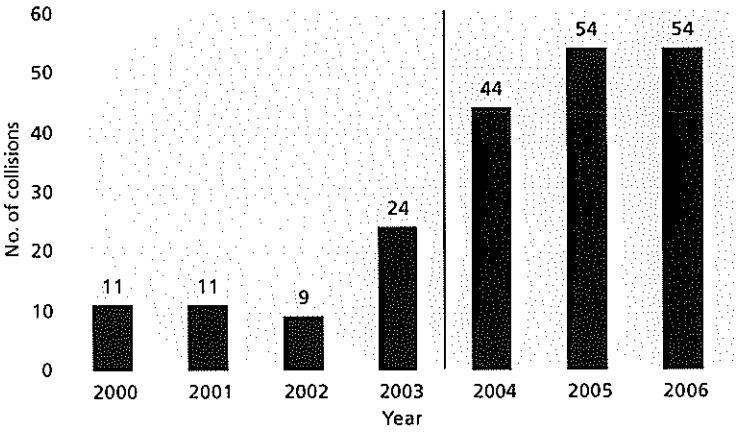
Several scenarios were calculated until the year 2030. The study reveals that with the projected annual 5.2% growth of maritime traffic in the Baltic Sea the proposed set of subsequent IMO measures – 19% reductions in emissions from diesel engines to be implemented after 2011, and 50% after 2015 - would not change the situation, and could even lead to further increases in emissions in the region. Only the most challenging requirement – for an 80% reduction in emissions from marine diesel engines installed on ships on or after 1 January 2015 - would reverse the increasing trend of NOx emissions by 2030.

Atmospheric nitrogen deposition is one of the main contributors to the high nutrient concentrations that stimulate massive algae blooms in the Baltic. The most recent calculations identify shipping as the largest contributor to atmospheric nitrogen oxide deposition to the Baltic Sea, with

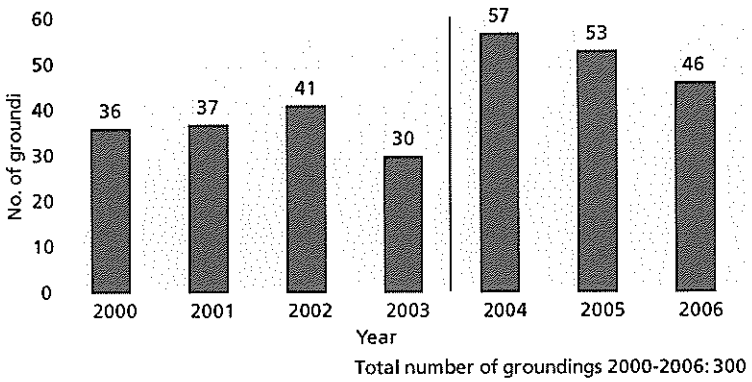
Number of reported accidents in the Baltic Sea, 2000-2006



Collisions in the Baltic Sea, 2000-2006



Groundings in the Baltic Sea, 2000-2006



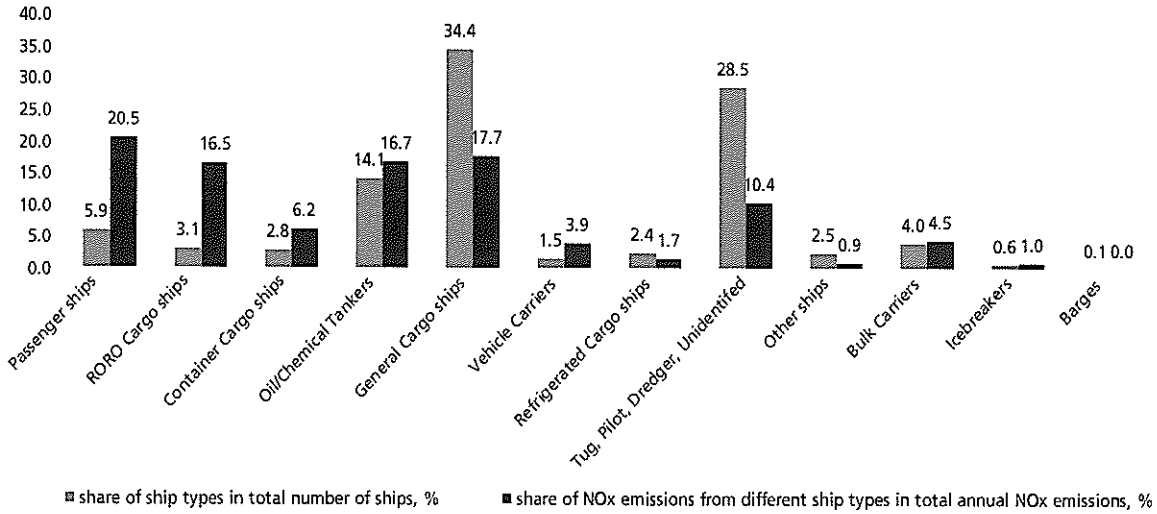
a share of 16%. The total annual NOx emissions from ships are estimated at more than 370,000 tonnes. This estimate is based on information from the HELCOM Automatic Identification System for monitoring ship traffic in the Baltic Sea, verified against information on fuel consumption obtained from shipping companies and measurements of air quality near fairways.

NOx emissions from shipping in Finnish waters are higher than emissions from Finnish land-based traffic. The report estimates that emissions from shipping in the whole of the Baltic Sea are comparable to the combined land-based NOx emissions from Denmark and Sweden. Most of these emissions are concentrated in the southern part of the Baltic Sea, around the Danish straits and the Kiel Canal where shipping is intense, but significant emissions also occur throughout the Gulf of Finland.

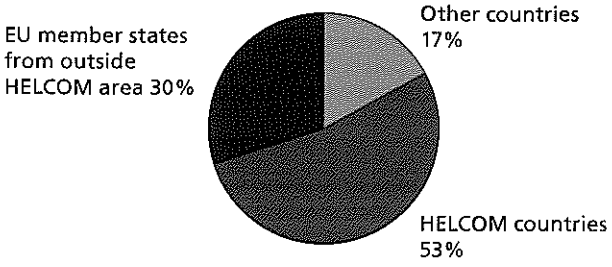
Two vessel classes particularly produce significant amounts of NOx compared to the number of ships involved: passenger ships (20.5% of total annual emissions); and Ro-Ro cargo ships (16.5%). Vessels constructed after 1990 produce almost 60% of the total emissions.

More than half of the annual NOx emissions were generated by ships flying the flags of the HELCOM countries, roughly one third from vessels flying a flag of EU Member States from outside the HELCOM area, and the remaining 17% came from ships under other countries' flags. This division was

Shares of total NOx emissions by ship type, compared to number of ships in the Baltic Sea, March 2007 - February 2007



Share of vessels' emissions in total annual NOx emission from ships in the Baltic Sea by nationality, March 2006 – February 2007



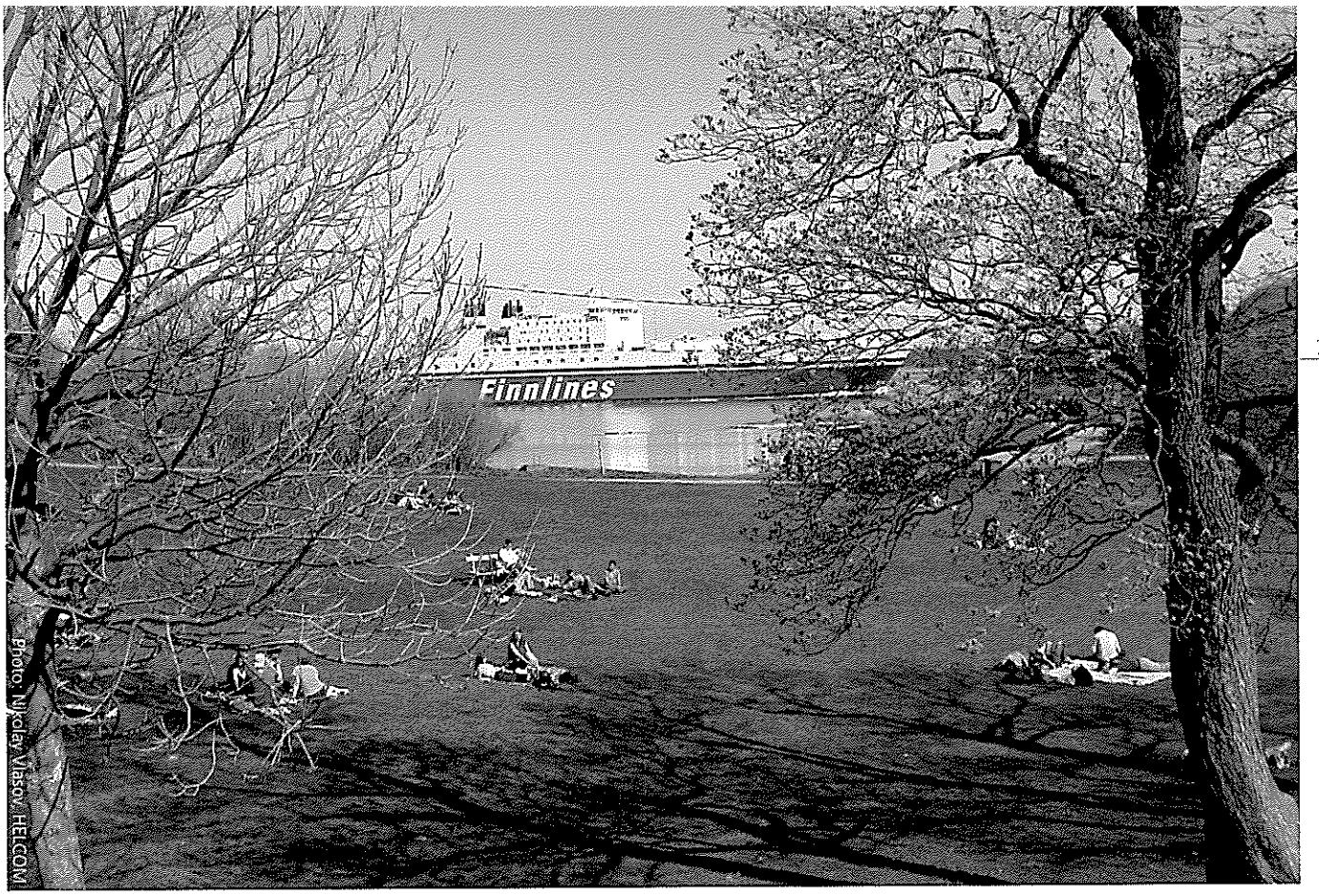


Photo: Nikolay Vasov, HELCOM

made by examining ships' Mobile Maritime Service Identity (MMSI) numbers and their country codes.

2. Emissions of sulphur oxides

The HELCOM Member States also backed IMO proposals for reductions in emissions of sulphur oxides (SOx) from ships, by submitting a joint document to the 57th session of the IMO Marine Environment Protection Committee describing the Baltic region's experiences as a SOx Emission Control Area (SECA).

In this submission, HELCOM pointed out that the successful implementation of the world's strictest regulations limiting the sulphur content of bunker fuel in a busy shipping area like the Baltic Sea indicates that even more ambitious aims are achievable regionally as well as globally over the coming years to further reduce SOx emissions from ships.

Annex VI of the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) includes a global cap of 4.5% on the sulphur content of fuel oil, and contains provisions allowing for special "SOx Emission Control Areas" (SECA) to be established with more stringent control on sulphur emissions. In these areas, the sulphur content of fuel oil used onboard ships must not exceed 1.5%. Alternatively, ships must fit an exhaust gas cleaning system or use other methods to limit SOx emissions. The Baltic Sea became the first region to establish SECA on 19 May 2006, followed by the North Sea a year and half later.

According to a study done for HELCOM by the research group ShipNODeff, with the current SECA cap of 1.5% on sulphur content of fuel oil permitted for use in the Baltic Sea, the total annual SOx emissions from shipping in the Baltic are estimated at around 148,000-167,000 tonnes. Without the SECA restrictions, the use of fuel with a global average sulphur content of 2.6% would increase annual SOx emissions to 290,000 tonnes, and using fuel with the current IMO maximum allowed global sulphur content of 4.5% would increase annual emissions to 502,000 tonnes.

Not all of the ships in the Baltic Sea follow the SECA restrictions. In 2006, a total of 1,879 ships were inspected in Baltic ports for compliance with the fuel oil requirements. Non-compliance was detected in 28 cases, amounting to 1.5% of all the ships inspected. This clearly indicates that the requirements have been quite successfully implemented in the Baltic Sea SECA. But more importantly, some ships have now started to use fuel with even lower sulphur content that would be legally required (0.5% and even less). The passenger ferries between Finland and Sweden voluntarily use fuel with lower sulphur content, for instance.

Experiences gained with the implementation and enforcement of such regulations in the HELCOM area have mostly been positive. The information gathered to assess the enforcement of the regulation shows that the countries did not face any major difficulties in implementing Annex VI to MARPOL 73/78, as far as fuel oil quality was concerned.

SOx emissions from shipping due to the combustion of marine fuels with high sulphur content contribute to air pollution in the form of sulphur dioxide and particulate matter, causing considerable harm to human health and the environment. Sulphur oxide is a heavy colorless residue, which results in acid rain, contributes to global warming, and causes respiratory complications and other adverse effects. Coastal areas and the surroundings of ports are particularly affected by pollution from ships using fuels with high sulphur content.

3. Work towards stricter sewage discharge regulations

The nutrient pollution loads originating from waste water discharges from ships into the Baltic Sea remain rather small, but not negligible due to the high sensitivity of the marine environment, according to a major study prepared by Finnish researchers from VTT for the Helsinki Commission in the beginning of 2007. These loads, which are concentrated along shipping routes, are immediately available for uptake by planktonic algae adding to the severe eutrophication of the Baltic Sea.

The results of the study clearly indicate that the main nutrient load to the Baltic Sea derives from waterborne inputs and atmospheric deposition. The discharges of nitrogen in sewage from ships represent approximately 0.05% (469 tonnes) of the total waterborne nitrogen load (744,900 tonnes), and 0.5% (156 tonnes) of the total phosphorus load (34,500 tonnes) entering the Baltic Sea.

Excessive loads of phosphorus and nitrogen have a detrimental impact on the marine environment. Phosphorus is directly responsible for the mass occurrences of blue-green algae which form foul-smelling masses and make the water unfit for swimming. In the Gulf of Finland, where maritime traffic has increased rapidly, the annual phosphorus load from ships is now almost the same as from the four largest Finnish coastal cities along the Gulf - Espoo, Hamina, Kotka, and Porvoo.

Due to the low response rate from ports and ship owners to VTT's inquiries, the estimated nutrient loads from ship generated sewage had to be calculated assuming that there is no waste water treatment onboard and all waste waters are discharged into the sea, representing a theoretical worst case scenario. The calculations included cargo ships (estimated discharge of up to 225 tonnes of nitrogen and 75 tonnes of phosphorus), cruise ships (totalling 113 tonnes of nitrogen and 38 tonnes of phosphorus) and passenger/car ferries (131 tonnes of nitrogen and 44 tonnes of phosphorus).

This theoretical worst case scenario is generally applicable in practice for most cargo vessels and cruise ships. Cruise trips typically last seven days and during that time waste has to be processed. The cruisers can discharge treated sewage directly into the sea where this is permitted by international regulations. Major ferries, in contrast, usually collect all the wastewaters generated during their shorter trips in holding tanks, and later utilise the reception facilities provided by ports. Most of the passenger ship companies have now started to discharge sewage ashore into municipal sewer networks.

Pleasure craft were not included in the calculations. Current HELCOM regulations require pleasure craft fitted with toilets to have toilet retention systems in order to be able to deliver sewage to reception facilities in ports.

According to Annex VI of the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78), the discharge of sewage into the sea is allowed if a ship is discharging comminuted

and disinfected sewage at a distance of more than 3 nautical miles from the nearest land, or sewage which is not comminuted or disinfected at a distance of more than 12 nautical miles from the nearest land, provided that in any case, the sewage that has been stored in holding tanks shall not be discharged instantaneously but at a moderate rate when the ship is en route and proceeding at not less than 4 knots.

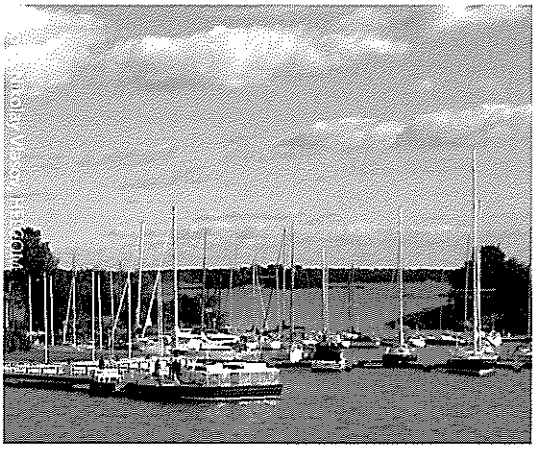
But the nutrient loads caused by nitrogen and phosphorus released from ships in treated sewage are currently not regulated. The quality standards for wastewater from ships only concern Biochemical Oxygen Demand (BOD), total suspended solids and faecal coliforms. This means that treated sewage containing some nitrogen and phosphorus is still discharged into the sea, increasing the nutrient loads in the marine environment.

To eliminate illegal discharges and encourage the delivery to shore facilities of ship-generated wastes, including oily wastes, and as of 1 January 2006 also sewage and garbage, HELCOM has established a "no-special-fee" system for the use of port reception facilities. Under this system, ships are not charged for using such reception facilities, and costs are instead recovered from general harbour fees or general environmental fees, for instance.

In response to the need for new regulations on wastewater discharges from ships in the Baltic Sea, HELCOM has started work on a joint submission to the 59th session of the IMO Marine Environment Protection Committee (July 2009), calling for the existing sewage treatment regulations (Annex IV to the MARPOL 73/78) to be extended to also cover nutrients. The necessary documentation is being prepared by the *ad hoc* Correspondence Working Group, led by Finland, and a first draft will be presented at the Meeting of the HELCOM Maritime Group in November 2008.

Interim measures to prevent the spread of alien species

The introduction of invasive aquatic organisms into new environments has been identified as one of the greatest threats to the world's seas today. Alien species are most commonly introduced into new aquatic environments unintentionally, in ships' ballast



water or ballast sediments, or on their hulls. Taking on and discharging ballast water is an essential part of ships' operations. Large ships require many thousands of tonnes of ballast water to maintain their stability, draft and manoeuvrability. Ballast water may contain hundreds of microscopic species that will be carried to new destinations by the ship. The vast majority of these species will not survive the journey, but any that do survive may be able to establish themselves in a new environment if the biological and physical conditions are favourable. Such invasive non-native species may cause serious ecological, economic and public health impacts.

The Baltic Sea with its busy maritime traffic is particularly in danger of intensified introductions of alien invasive species. More than 105 non-indig-

enous species have been recorded in the Baltic. Some 60-70 have established reproducing populations. Some of them have the potential to reduce native biodiversity by depleting zooplankton populations and thus altering the food web.

In order to reduce the risks of such species entering the HELCOM maritime area through ballast water exchange, the HELCOM countries have agreed to ratify by 2010, or at the latest by 2013, the 2004 International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention). Before ratification can take place, certain steps must be taken as set out in the HELCOM Road Map drawn up to facilitate the implementation of the Convention.

As part of this process HELCOM has already undertaken efforts to join OSPAR initiative which requests vessels transiting the Atlantic or entering the North-East Atlantic from routes passing the West African Coast to carry out ballast water exchange on a voluntary basis before arriving in the OSPAR area or passing through the OSPAR area and heading to the Baltic Sea.

Vessels are expected to carry out voluntary ballast water exchange in waters of specific depth and distance from the coast.

Marine litter a concern, but not a major problem in the Baltic

Marine litter is a cause of concern almost everywhere around the Baltic Sea area, but is not seen by experts as a major problem for the marine environment, which is suffering much more seriously from excessive pollution loads of phosphates and nitrates originating from agriculture and untreated sewage. According to the findings of the HELCOM project on marine litter, the Baltic can be considered as one of Europe's less littered seas, thanks to a set of environmental protection measures established by HELCOM itself, as well as clean-up operations conducted by local municipalities and NGOs.

PHOTO: MARGIT MÜLLER, HELCOM

The amounts of litter reported by the HELCOM countries and the information provided by NGOs suggest that currently there is no clear trend in the quantities of marine litter found on coasts of the Baltic Sea. The amounts can be substantial in some specific sites near sources of litter such as major shipping routes, rivers and public beaches. The highest amounts in the data from the Baltic Sea were between 700 and 1,200 items per 100 m of shoreline, which is similar to the quantities found on beaches around the northern North Sea. However, in many cases the average amounts of litter found along Baltic shores were as low as 6–16 pieces of litter per 100 m. The amounts of litter found in the Baltic Sea itself are also quite low compared to other seas. According to some estimates, there may be no more than one item of litter per hectare of sea surface. The main sources of marine litter in the Baltic Sea area are tourism and the recreational use of the coasts, as well as commercial shipping (fishing boats, cargo ships, tankers, passenger ships) and pleasure craft.

The HELCOM project on marine litter is the first effort in the region to look into the scale of this problem, and the actions needed in order to develop and implement specific measures. The project was carried out as part of the Global Marine Litter Initiative of the United Nations Environmental Programme (Global Programme of Action and Regional Seas Programme). The problem of marine litter is widely recognised around the world, and considered to be a major threat to our oceans.

Based on the outcomes of the marine litter project, HELCOM has developed new measures which are now part of the HELCOM Baltic Sea Action Plan and of a new HELCOM Recommendation concerning harmonization of methods of sampling and report-

ing on the amounts and types of marine litter on the beaches in the Baltic Sea region. One such measure requires that marine litter caught in fishing nets and trawls should be covered by the "no-special-fee" system for ship generated wastes. The action plan also aims to raise public awareness of the environmental and economic effects of marine litter, and support regular beach clean-up activities.

HELCOM tools to enforce legislation

1. Better identification of suspected ships

The Seatrack Web oil drift forecasting system in combination with the HELCOM Automatic Identification System (HELCOM STW/AIS) has proved to be a very effective tool, substantially facilitating the efforts of the HELCOM countries to identify ships suspected of illegally discharging oil into the sea, and providing better evidence for the courts.

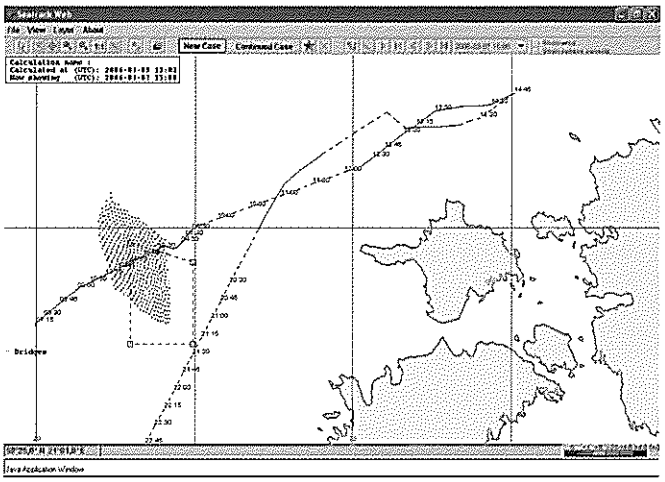
STW/AIS can be used for the backtracking simulation of detected oil spills. Based on an identified time window and area of interest, a database query is sent to an AIS database server. Ship tracks that match the query are extracted from the database, and subsequently plotted together with the oil spill backtracking trajectory in the Seatrack Web application.

Polluters remain unknown in the vast majority of cases of detected illegal discharges into the Baltic Sea. In 2006, polluters were only identified in 18 cases out of the total number of 236 confirmed illegal discharges.

An upgrading of STW/AIS was initiated in 2007 to improve its functionality and the integration of satellite information, so as to increase the likelihood that polluters will be identified. This project is being carried out by the Swedish Meteorological and Hydrological Institute (SMHI), and will be finalized in 2008.

2. Launch of a new system to detect non-compliant ships

A new system to detect single hull tankers carrying heavy grade oil entering the Baltic Sea was put into operation on 15 October 2007. The



Snapshot from the HELCOM Seatrack Web showing an oil slick and its backtracking trajectory (in red) together with the route of a suspected ship

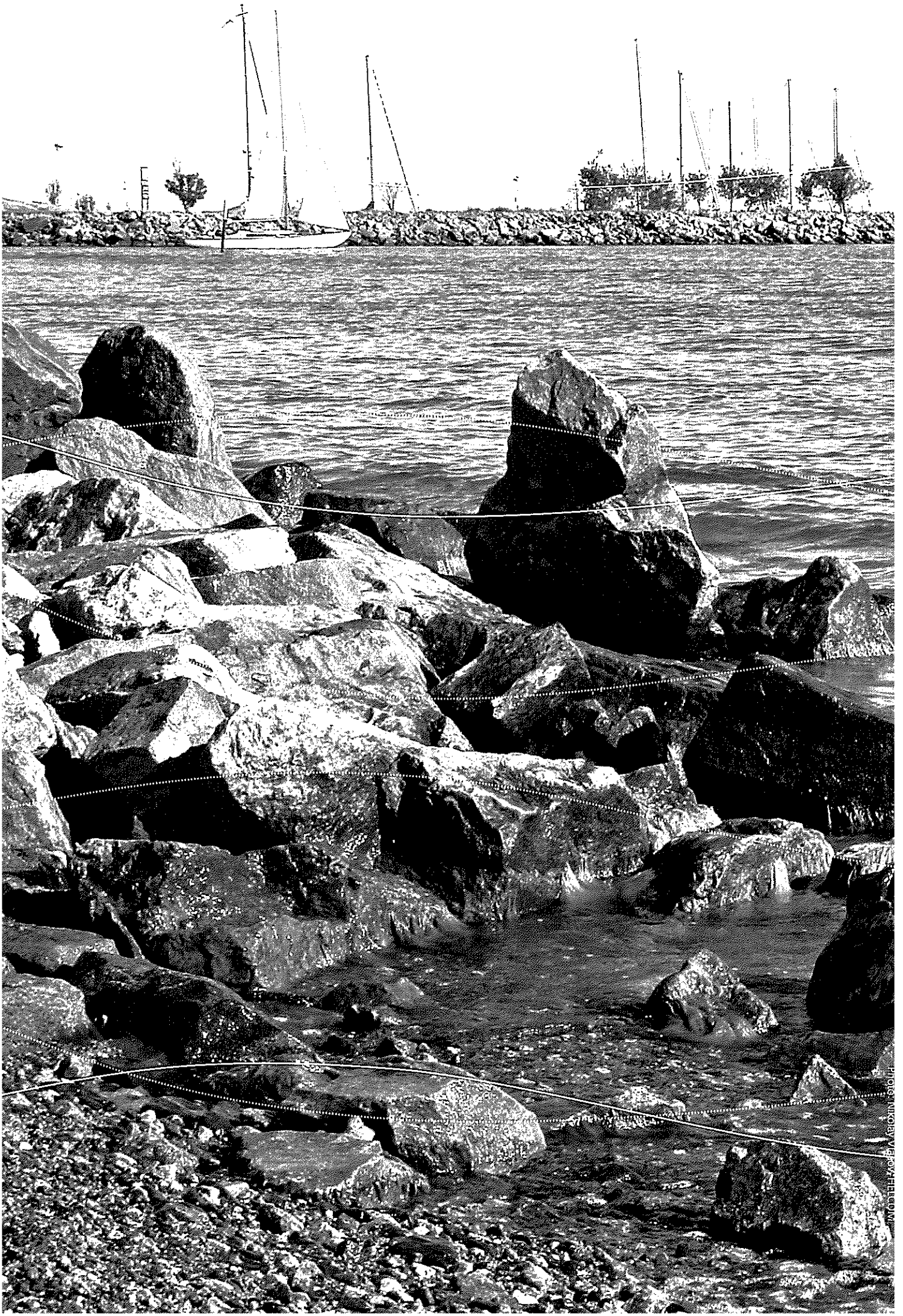
system has been produced within the HELCOM/EMSA (European Maritime Safety Agency) Single Hull Tanker Project. Its aim is to monitor ships' compliance with the provisions of the amended Annex I of the MARPOL 73/78 Convention and EC Regulation 1726/2003 on the carriage of heavy oil in single hull tankers.

The project exploits HELCOM's Automatic Identification System, national and regional traffic monitoring systems, EMSA's database systems, and the list of banned vessels issued under the Paris Memorandum of Understanding on Port State Control.

Denmark, Sweden, Finland, Estonia, Latvia, as well as Norway are participating in the monitoring activity, which gives sufficient area coverage to detect all single hull tankers navigating through the Baltic. The remaining Baltic Sea countries have also been invited to join the system.

Approximately 350 active single hull tankers have been detected in the Baltic Sea since the system was launched, but investigations indicated that none of them were carrying heavy grade oil.

The system has the potential to be employed in many other similar monitoring applications, including for example automated screening for banned vessels such as those identified in the Paris MoU list.



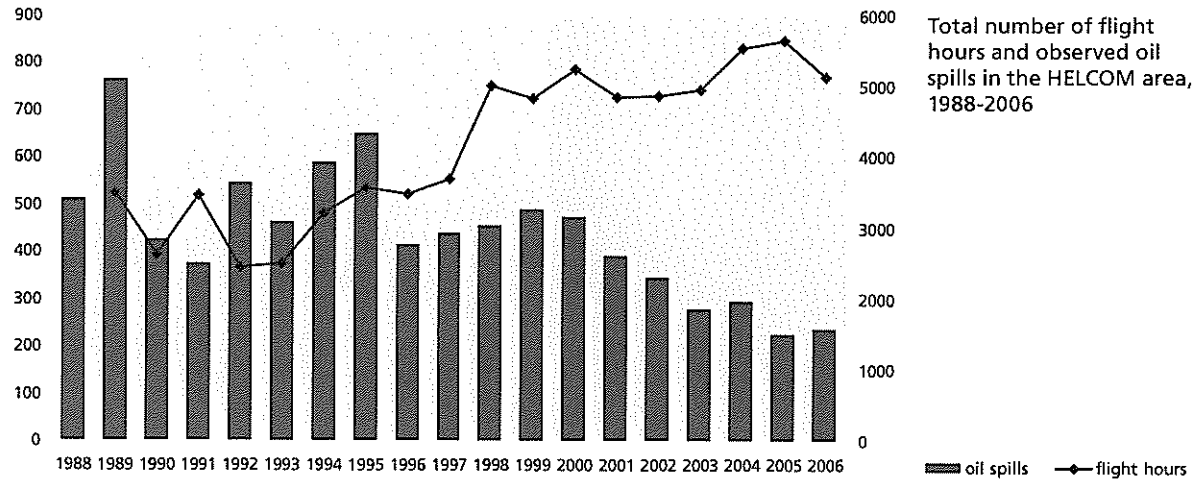
7. Ensuring response capacity

Illegal oil discharges in the Baltic remain low

The total number of illegal oil discharges from ships annually observed by national surveillance planes in the Baltic Sea area increased slightly, but still remains near record lows, according to a HELCOM study released in June 2007.

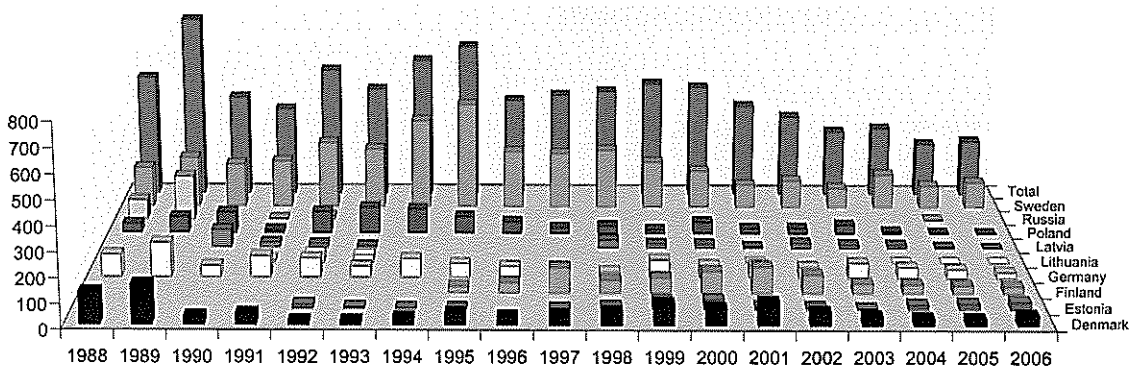
According to the latest national annual reports provided by the Member States to HELCOM, 236 illicit oil spills were detected during a total of 5,128 hours of surveillance flights conducted by the coastal countries over the Baltic Sea during 2006, compared to 224 discharges observed during 5,637 air patrol hours in 2005. Despite the increase, this is still the second lowest number since 1999, when 488 discharges were detected during 4,883 air patrol hours.

Deliberate oil discharges from ships have been regularly observed during surveillance flights over the Baltic Sea since 1988. One of the peak years was 1989, when 763 spills were detected during 3,491 flight hours. Since 1999 the number of discharges has been steadily decreasing.



Total number of flight hours and observed oil spills in the HELCOM area, 1988-2006

Number of confirmed oil spills by HELCOM country, 1988-2006



	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Denmark	129	159	34	46	18	17	30	48	36	38	53	87	68	93	54	37	30	28	41
Estonia					18	7	4	3		3	10	33	38	11	8	4	19	24	31
Finland								26	42	104	53	63	89	107	75	40	36	32	29
Germany	90	139	45	85	76	43	75	55	44	34	23	72	51	51	44	60	42	34	22
Lithuania				8	34	28								0			0	0	0
Latvia			73	20	15	6					33	18	17	6	21	14	13	5	0
Poland	40	69	88	14	92	110	104	72	50	25	33	18	51	24	25	39	10	5	3
Russia	82	184		3	13													2	
Sweden	168	212	184	197	278	250	375	445	241	234	249	197	158	98	117	84	143	94	110
Total	509	763	424	373	544	461	588	649	413	438	454	488	472	390	344	278	293	224	236

In 2006, most of the illegal oil discharges were detected along major shipping routes. Up to 86% of the discharges were smaller than one cubic metre. Only one discharge of more than 100 cubic metres of oil (in the south-western Baltic) and two of over 10 cubic metres (in the Gulf of Finland) were detected.

Regular aerial surveillance flights have contributed significantly to the decrease in discharges, as ships are aware that their illicit polluting activities can be detected. The HELCOM aerial surveillance fleet today consists of more than 20 airplanes and helicopters, many of which are equipped with remote

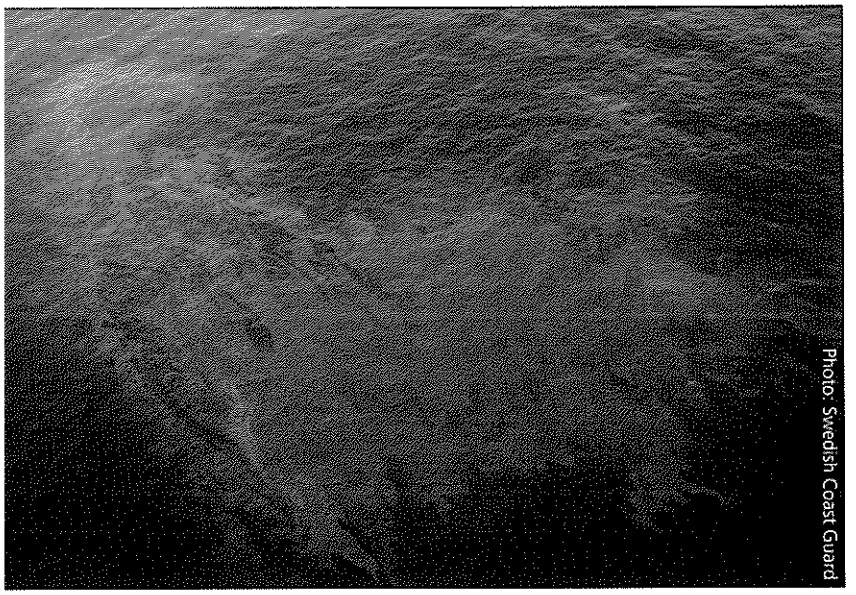


Photo: Swedish Coast Guard

sensing equipment such as side-looking airborne radar (SLAR), infrared (IR) and ultraviolet (UV) cameras, photo and video equipment.

HELCOM also uses satellite surveillance to detect illegal polluters. In 2007, this means of pollution control was substantially strengthened thanks to the CleanSeaNet (CSN) satellite service launched by the European Maritime Safety Agency. From April until December 2007, 401 images were delivered for the use by the Baltic Sea countries, containing a total of 270 possible oil slicks, of which 42 were eventually confirmed as being oil.

Satellite images can indicate "candidates" for oil spills at sea, which can be further on verified on location by a vessel or aircraft. The national satel-


Photo: Nikolay Nenov, HELCOM

lite service coupled with CleanSeaNet can detect illegal discharges at sea and also provide support to response operations in case of accidental oil spills.

Both aerial and satellite surveillance have contributed to the enforcement of the Baltic Strategy. The main objectives of the Strategy, which was operationalized by the HELCOM Ministerial Meeting in 1998, are to ensure ships' compliance with global and regional discharge regulations, and to eliminate illegal discharges into the sea of all wastes from all ships, and thus prevent pollution of the Baltic Sea. Another objective is to ensure the environmentally sound treatment of ship-generated wastes when these wastes have been delivered to port reception facilities ashore.

A blanket ban today covers all discharges into the Baltic Sea of oil or diluted mixtures containing oil in any form, including crude oil, fuel oil, oil sludge, or refined products. This prohibition stems from the international designation of the Baltic Sea as a "special area" under the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78).

To uphold this prohibition, HELCOM requires all ships, with a few exceptions, to deliver all such oily wastes to reception facilities before leaving port. To further encourage delivery, the countries bordering the Baltic Sea have agreed that ships should not be charged for using such reception facilities, under the "no-special-fee" system. Costs are instead recovered from general harbour fees or general environmental fees.

The increased amounts of wastes now being delivered to the Baltic Sea ports illustrate that more and more ships are delivering their oily wastes to port reception facilities rather than illegally discharging them into the Baltic Sea.

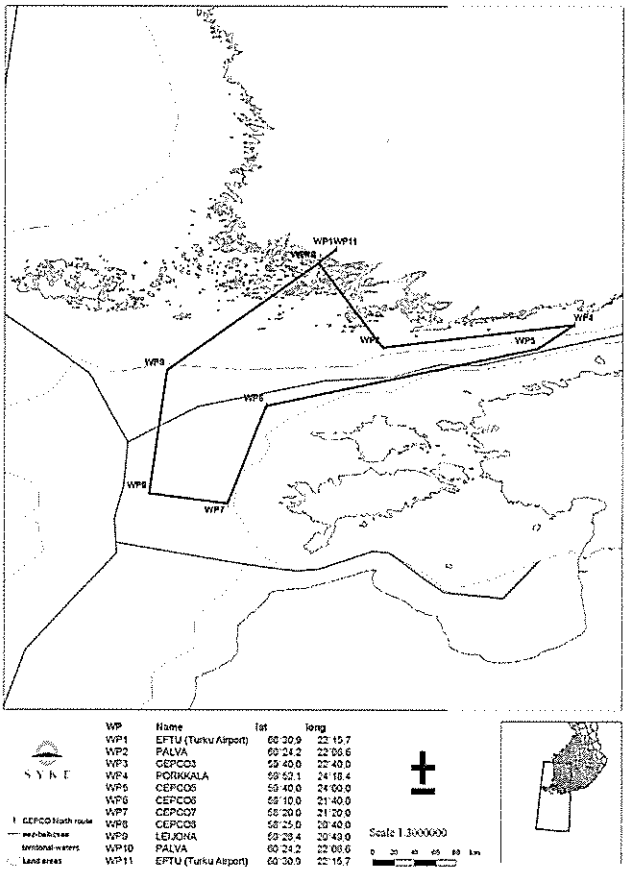
More than 30 illegal discharges detected during CEPCO flights in 2007

Two CEPCO (Co-ordinated Extended Pollution Control Operation) flights are arranged annually by HELCOM in the Baltic Sea: one in the south and one in the north. During CEPCO flights several HELCOM countries jointly carry out continuous aerial surveillance activities for 24 hours or more along the predetermined routes in areas where operational spills are likely. CEPCO flights also support national aerial surveillance data by detecting illegal discharges which would not be disclosed by routine national surveillance activities. This enables a realistic estimation of the total number of oil spills discharged into the Baltic Sea during one randomly selected day.

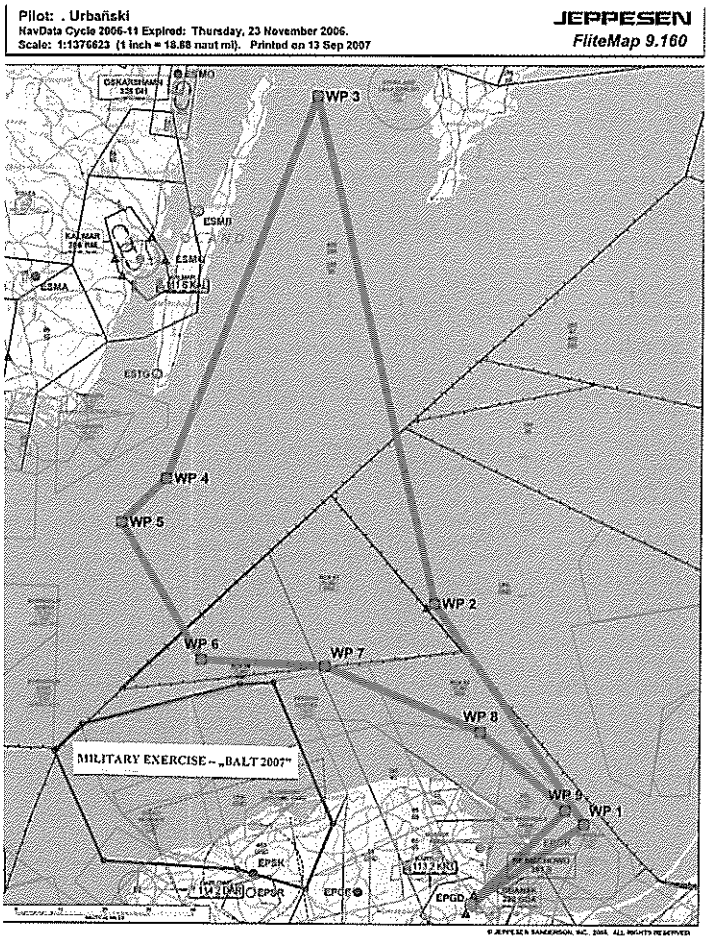
A total of 26 illegal oil discharges were detected during the Helsinki Commission's international CEPCO South 2007 aerial surveillance exercise, which took place on 2-3 October over the south-eastern parts of the Baltic Sea.

Five aircraft from Denmark, Finland, Poland and Sweden participated in the flights, during which they continuously surveyed the agreed route for oil pollution over a 24-hour period. The operation was supported by two vessels from Poland and Sweden in case any investigation would have to be made onboard of ships detected illegally discharging oil. The European Maritime Safety Agency's CleanSeaNet service provided satellite images of the flight area.

CEPCO NORTH ROUTE 2007



WP	Name	lat	long
WP1	EFTU (Turku Airport)	60 30.9	22 15.7
WP2	PALVA	60 24.2	22 06.6
WP3	CEPCO3	59 40.0	22 40.0
WP4	PORKKALA	59 52.1	24 18.4
WP5	CEPCO5	59 40.0	24 00.0
WP6	CEPCO6	59 10.0	21 40.0
WP7	CEPCO7	58 20.0	21 20.0
WP8	CEPCO8	58 25.0	20 40.0
WP9	LEIJONA	59 39.4	20 49.0
WP10	PALVA	60 24.2	22 06.6
WP11	EFTU (Turku Airport)	60 30.9	22 15.7



Two suspect ships were identified in Swedish waters, and the related evidence was transferred to the Swedish Coast Guard for further investigation.

The exercise was organised by the Maritime Office in Gdynia, Poland. The base airport for CEPCO South flights was in Gdansk. Remote sensing equipment, such as side-looking airborne radars (SLAR), infrared (IR) and ultraviolet (UV) cameras, was used during the operation.

In 2007, HELCOM also held an aerial surveillance exercise in the north-eastern parts of the Baltic Sea. The CEPCO North flights, organised on 29-31 May by the Finnish Border Guard and the Finnish Environment Institute, were based at Turku Airport. The surveillance exercise involved four aircraft, from Estonia, Finland, Latvia and Sweden. Five possible oil spills were detected, mainly from satellite images, since thunderstorms in the Gulf of Finland and the Archipelago Sea hampered the operation during the first two days.

HELCOM fleet stages disaster exercise off Estonia

A fleet of oil-combating ships from the Baltic Sea countries working jointly under HELCOM's flag conducted a successful operation to contain and recover a simulated massive oil spill off the Estonian capital, Tallinn, as part of the international oil spill response exercise BALEX DELTA, held on 6 September 2007.

The operation was organised by the Estonian Border Guard. The exercise involved a scenario where a large oil tanker carrying a cargo of around 100,000 tonnes of crude oil runs aground off the west coast of the Estonian island of Naissaare, near Tallinn. As a result of the grounding, the oil tanker leaks around 20,000 tonnes of its cargo, which drifts towards the Estonian coastline. Units from the HELCOM countries were tasked to jointly prevent the oil slick from coming ashore. The oil spilled during the exercise was simulated by the release of a large amount of popcorn at the site of hypothetical grounding.

Seventeen oil pollution response ships and smaller vessels from six HELCOM Member States - Estonia,

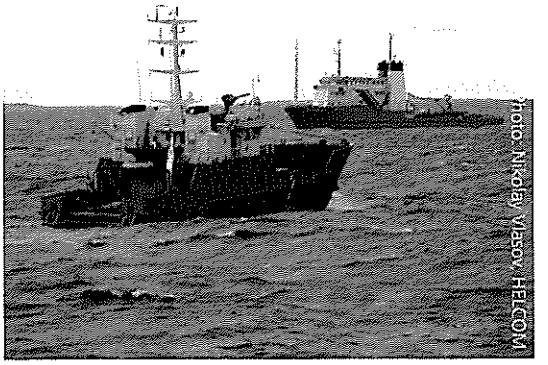


Photo: Nikolay Vlasov, HELCOM

Photo: Nikolay Vlasov, HELCOM

The Polish team from the oil pollution combating vessel Kapitan Poinc won the 12th annual HELCOM Trophy international rowing competition, which was held on 7 September in Tallinn, Estonia, following the pollution response exercise BALEX DELTA 2007

Denmark, Finland, Latvia, Poland, Sweden - and the European Maritime Safety Agency (EMSA) took part in the exercise. The operation involved the release of simulated oil from a grounded tanker, the deployment of pollution response vessels from the coastal countries, the establishment of a unified command structure and communication system, and a full-scale oil recovery operation at the site of the accident, including the actual deployment of oil containment booms and skimming equipment.

The main aim of the exercise was to test HELCOM's response system, command structure and communication system, as well as the co-operation and co-ordination between the various response units of the Baltic Sea countries. Another main goal of the exercise was to test response times. A prompt response within hours of an oil accident can be critical, and may well prevent a serious situation developing into an environmental disaster.

The BALEX DELTA operational response exercise, the largest maritime emergency and counter-pollution drill of its kind in the Baltic marine area, and one of the largest worldwide, has 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. The Baltic Sea countries now have a total of more than 30 response vessels located around the region. These vessels are able to reach any place in the Baltic Sea within 6 to 48 hours of notification of an accident.

The issue of response to accidents at sea has a high priority within the Baltic Sea region. The Baltic Sea's unusual hydrographic, chemical and physical conditions make its waters extremely sensitive to pollution. Any large-scale oil spill could lead to an environmental catastrophe. The risk of such a spill occurring has increased substantially over the last decade, due to the rising number of cargo ships carrying large amounts of fuel, and the constantly increasing volumes of oil transported on the Baltic.

HELCOM mutual plan for places of refuge

The HELCOM Workshop on Places of Refuge was held on 31 May – 1 June 2007 in Gdynia, Poland, with the participation of operational and legal experts from the HELCOM countries. The workshop was jointly organised by the HELCOM Response Group and the HELCOM Maritime Group in order to examine opportunities for a mutual plan among the Baltic Sea countries for granting places of refuge to ships in a need of assistance, also considering the legal, economic and other implications of such a plan. The workshop also discussed questions of compensation and liability for ship-related pollution incidents in relation to places of refuge.

Based on the workshop recommendations, several actions have been agreed by the HELCOM countries in the HELCOM Baltic Sea Action Plan, including the development of a mutual plan that would specify circumstances under which a place of refuge could be granted to a ship in another country than the one where the ship first needed assistance. The benefits of a mutual plan include the reduced risk of pollution, faster response times, and lower costs.

8. Promoting nature conservation

New HELCOM book takes readers on a grand tour of the Baltic Sea Protected Areas

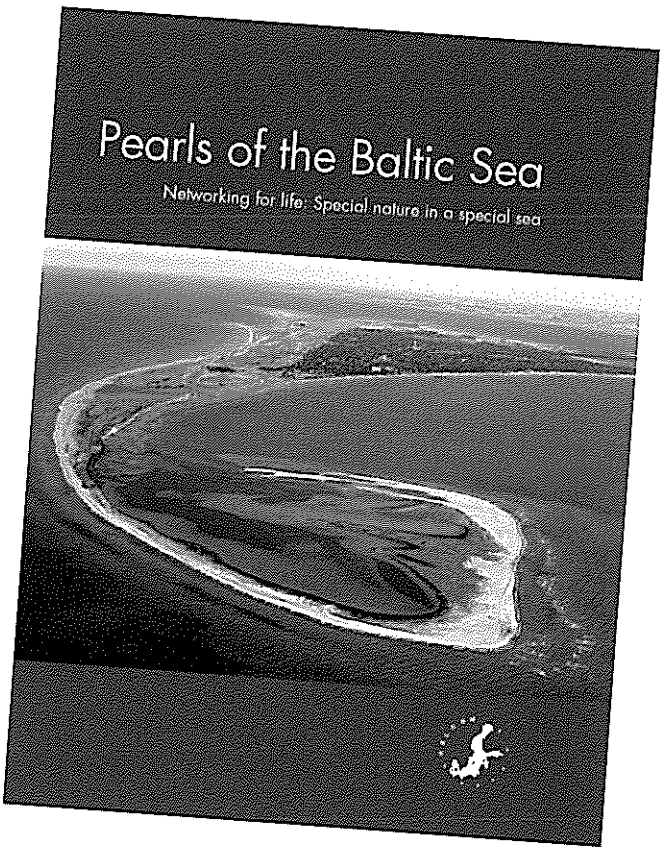
In November 2007, HELCOM published a new book entitled "Pearls of the Baltic Sea". This first comprehensive regional overview takes readers on an exciting grand tour around the Baltic Sea to discover nearly 100 marine and coastal landscapes that form the string of pearls known as the network of Baltic Sea Protected Areas (BSPAs).

A journey through this mosaic of coastal landscapes and underwater worlds is also a journey through the fascinating history of the Baltic Sea region. The book forms a beautifully illustrated field lesson in geology, geomorphology, glaciology, plate tectonics, brackish-water ecology and much more.

The Baltic Sea and the land around it have been shaped by various interacting natural forces on a colossal scale. All of the stages in this dramatic process have played a part in creating the features and characteristics we can see today around the Baltic Sea. Many changes and transformations have taken place over thousands, millions, and even billions of years, resulting in unique formations and environments for us to enjoy, cherish and protect.

A tour of these areas is also a reminder of how much is at stake for the future. The Baltic Sea Protected Areas delight the eye and the soul, and at the same time constitute essential habitats for plants and animals. Alarmingly, however, the valuable natural features of the Baltic Sea and its coasts are at risk. If we take them for granted, these natural pearls will gradually lose their lustre. Nature conservation is only partly about protecting nature for the sake of nature itself. Preserving, cherishing and generously extending this network of protected areas is not just a matter of maintaining the grandness and beauty of the highly special environments in the Baltic Sea region. It is truly networking for life.

Photographers from all of the countries around the Baltic Sea have contributed well over 180 photos (including many fascinating underwater images). Many of these photos are from areas that are

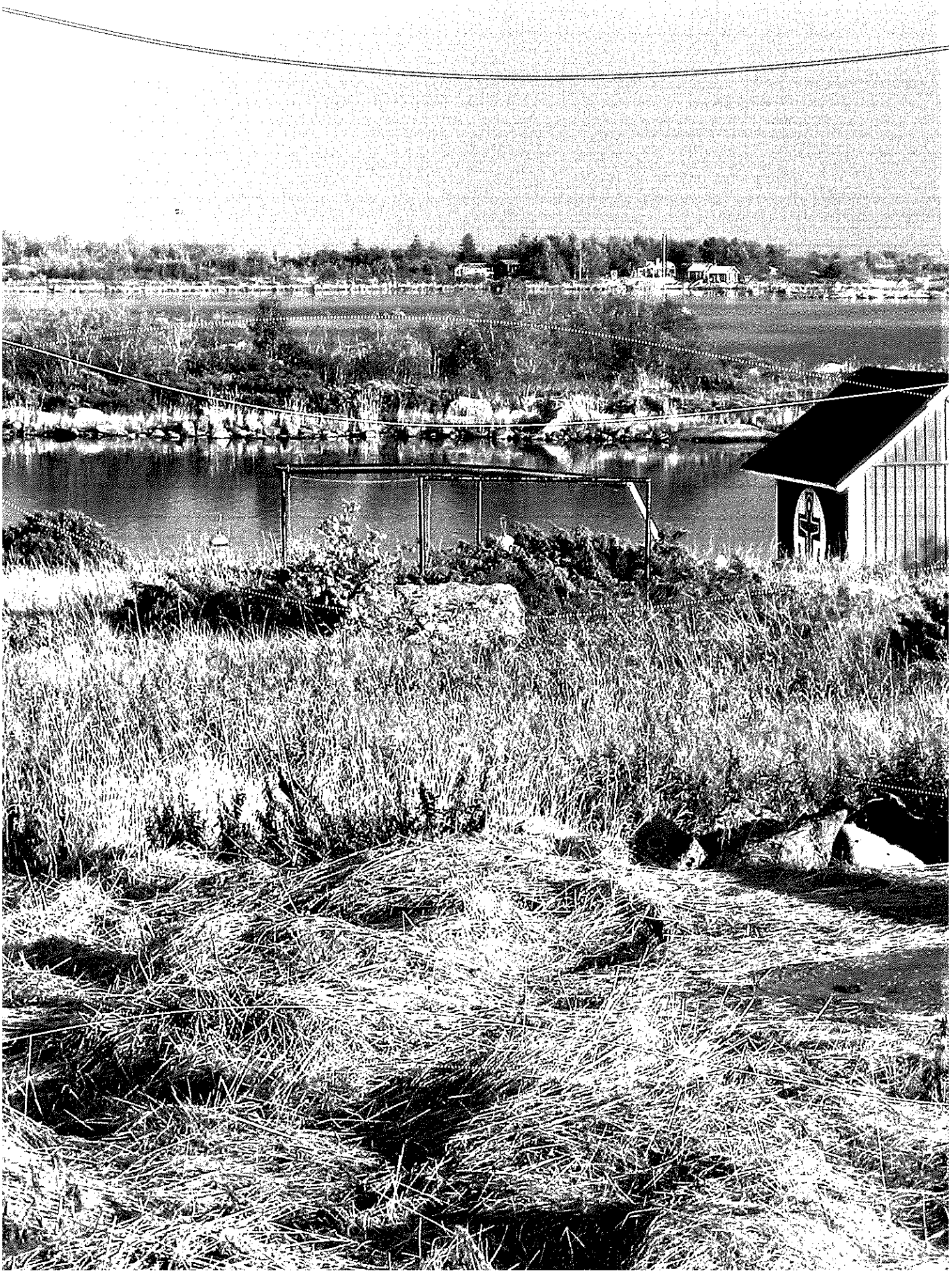


very dear to these photographers, many of whom are also professional nature conservationists, so readers of this 200-page hardcover book will see a selection of memorable images that have an experienced yet personal touch.

The book's accessible description of the colourful natural history of the Baltic Sea region – this young sea in an ancient cradle – is complemented by facts and figures about the Baltic Sea's many diverse biotopes and the Baltic Sea as a whole.

The book was written and edited by the Swedish environment and science writers Britt Hägerhäll Aniansson and Bertil Hägerhäll, in close collaboration with a team of HELCOM experts.

To order the book, please visit www.helcom.fi/press_office/en_GB/bookorder/.



9. Appendices

New HELCOM Recommendations

1. Adopted by the 2007 HELCOM Ministerial Meeting

The HELCOM Ministerial Meeting, held on 15 November 2007, adopted 11 HELCOM Recommendations as part of the Baltic Sea Action Plan:

1. HELCOM Recommendation 28E/4: Amendments to Annex III "Criteria and measures concerning the prevention of pollution from land-based sources" of the 1992 Helsinki Convention
2. HELCOM Recommendation 28E/5: Municipal wastewater treatment
3. HELCOM Recommendation 28E/6: On-site wastewater treatment of single family homes, small businesses and settlements up to 300 person equivalents
4. HELCOM Recommendation 28E/7: Measures aimed at the substitution of polyphosphates (phosphorus) in detergents
5. HELCOM Recommendation 28E/8: Environmentally friendly practices for the reduction and prevention of emissions of dioxins and other hazardous substances from small-scale combustion
6. HELCOM Recommendation 28E/9: Development of broad-scale marine spatial planning principles in the Baltic Sea area
7. HELCOM Recommendation 28E/10: Application of the no-special-fee system to ship-generated wastes and marine litter caught in fishing nets in the Baltic Sea area
8. HELCOM Recommendation 28E/11: Further measures to improve the safety of navigation in ice conditions in the Baltic Sea
9. HELCOM Recommendation 28E/12: Strengthening of sub-regional co-operation in response field
10. HELCOM Recommendation 28E/13: Introducing economic incentives as a complement to existing regulations to reduce emissions from ships
11. HELCOM Recommendation 28E/14: Development of harmonised principles for quantifying diffuse losses throughout the Baltic Sea catchment area

For details of the new Recommendations, please see the HELCOM website at http://www.helcom.fi/BSAP/MinisterialMeeting/en_GB/Recommendations/ or http://www.helcom.fi/Recommendations/en_GB/valid/.

2. Adopted by HELCOM 29

The 29th Meeting of the Helsinki Commission, held on 5-6 March 2008, adopted two new HELCOM Recommendations:

1. HELCOM Recommendation 29/1 on reduction of emissions from crematoria
2. HELCOM Recommendation 29/2 on marine litter within the Baltic Sea region

The Meeting also adopted the revised HELCOM Recommendation 28E/4 on amendments to Annex III of the 1992 Helsinki Convention "Criteria and measures concerning the prevention of pollution from land-based sources".

For details of the new Recommendations, please see the HELCOM website at: http://www.helcom.fi/Recommendations/en_GB/valid/.

Press releases

06.03.2008 HELCOM adopts two new Recommendations, announces the elimination of a major pollution hot spot

05.03.2008 Statement by HELCOM Executive Secretary at the 29th annual Helsinki Commission Meeting

05.03.2008 International conference paves the way for IFI involvement in HELCOM's action plan

05.03.2008 HELCOM conducts marine spatial planning exercise in the Baltic

04.03.2008 Speech by Chairman of HELCOM at the 3rd Stakeholder Conference on the Baltic Sea Action Plan

04.03.2008 Latest issue of HELCOM Newsletter released

03.03.2008 HELCOM preparing to launch the implementation phase of the Baltic recovery plan

29.02.2008 Media Advisory: HELCOM Executive Secretary to hold media availability

Photo: Irina Gasilina

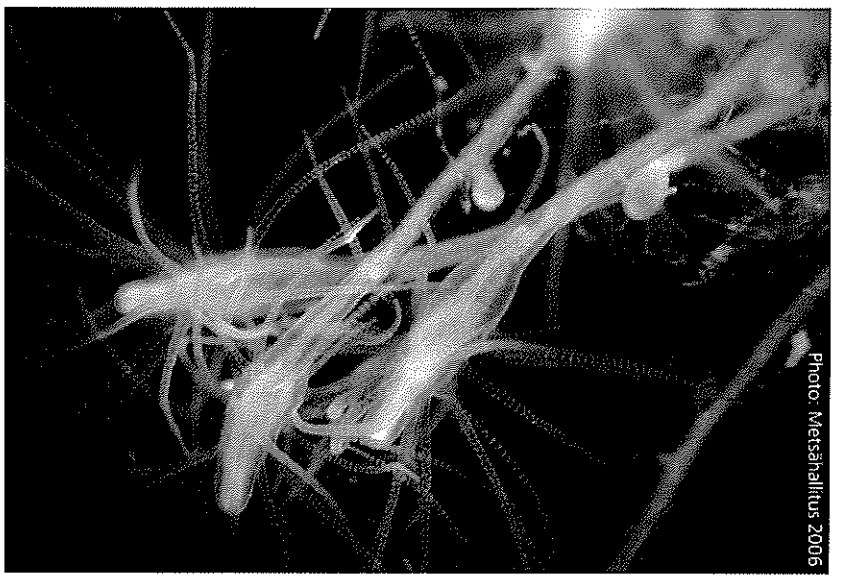


Photo: Metsähallitus 2006

27.02.2008 International conference to look into financial aspects of HELCOM's Baltic recovery plan implementation

27.02.2008 Media Advisory: 3rd Stakeholder Conference on the HELCOM Baltic Sea Action Plan

22.02.2008 New HELCOM project to produce full-scale assessment of Baltic coastal fish

08.02.2008 HELCOM backs steep reductions in sulphur emissions from ships

28.01.2008 Call for participants: 3rd Stakeholder Conference on the Baltic Sea Action Plan

23.01.2008 New HELCOM Group to steer the implementation of the Baltic recovery plan

17.01.2008 HELCOM commemorates the anniversary of the 1992 Helsinki Convention

17.01.2008 HELCOM to consider further activities in support of the Baltic recovery plan

10.01.2008 HELCOM calls for tighter IMO regulations to prevent predicted increase in air pollution from ships

21.12.2007 Full version of the HELCOM Baltic Sea Action Plan published

17.12.2007 International conference to discuss implementation of HELCOM action plan

11.12.2007 HELCOM Response to discuss implementation of the Baltic Sea Action Plan

29.11.2007 HELCOM Baltic recovery plan wins European Regional Champions Award

26.11.2007 New HELCOM book takes readers on a grand tour of the Baltic Sea Protected Areas

19.11.2007 Full version of the Baltic Sea Action Plan released

15.11.2007 HELCOM releases Summary of the Baltic Sea Action Plan

15.11.2007 HELCOM makes history with ambitious plan to restore the Baltic

15.11.2007 NEWS FLASH: HELCOM adopts Baltic recovery plan

09.11.2007 HELCOM countries poised to adopt an ambitious Baltic recovery plan

06.11.2007 Speech by Chairman Ostojski at the HELCOM Diplomatic Lunch, 5 November 2007

02.11.2007 Media Advisory: HELCOM Ministerial Meeting

25.10.2007 New era on the horizon as HELCOM prepares to adopt an ambitious plan to restore the Baltic Sea

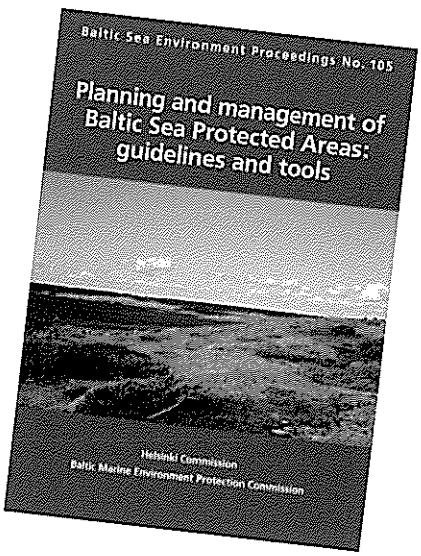
08.10.2007 HELCOM planning a joint ballast water management strategy with OSPAR
04.10.2007 HELCOM to release latest data on pollution inputs into the Baltic Sea
19.09.2007 HELCOM Baltic recovery plan nearly complete
10.09.2007 HELCOM Heads of Delegation to assess the readiness of the Baltic recovery plan
07.09.2007 Polish team wins HELCOM Trophy
06.09.2007 HELCOM fleet stages disaster exercise off Estonia
31.08.2007 Media Advisory - HELCOM Trophy rowing competition
30.08.2007 HELCOM to conduct annual maritime oil spill response exercise
30.08.2007 Media Advisory - Media tour of the BALEX DELTA 2007 area
27.08.2007 HELCOM to hold Expert Meetings on the Baltic Sea Action Plan
23.08.2007 Latvian President and HELCOM Executive Secretary discuss the environmental situation in the Baltic
20.08.2007 Latvian President to visit HELCOM Headquarters in Helsinki
05.07.2007 Marine litter is a concern but not a major problem in the Baltic
27.06.2007 HELCOM reports a noticeable drop in shipping accidents in the Baltic
21.06.2007 HELCOM passes 50% mark in elimination of Baltic Sea pollution hot spots
19.06.2007 HELCOM releases Annual Report on 2006 activities
18.06.2007 HELCOM countries to review progress on the development of the Baltic recovery strategy
04.06.2007 Outcomes of the VIII International Environmental Forum "Baltic Sea Day" released
01.06.2007 Several illegal oil discharges detected during HELCOM surveillance flights over the Baltic
31.05.2007 HELCOM experts to consider acceptable pollution levels for the Baltic recovery plan
16.05.2007 HELCOM experts to consider targets for reduction of nutrient pollution from agriculture
03.05.2007 Illegal oil discharges in the Baltic increase slightly, but still near record lows
03.05.2007 HELCOM HABITAT Meeting to focus on the protection of endangered species and marine spatial planning
16.04.2007 HELCOM devising additional measures to enhance oil spill response capacity
30.03.2007 Preparation of HELCOM's Baltic recovery plan enters final stage
21.03.2007 Address to the VIII International Environmental Forum Baltic Sea Day
20.03.2007 St. Petersburg to host VIII International Baltic Sea Day
16.03.2007 Vacancy Announcement for the post of Professional Secretary (HELCOM MONAS / HELCOM HABITAT)
16.03.2007 Vacancy Announcement for the post of Professional Secretary (HELCOM LAND)

Publications

The following list includes HECOM publications released since the 28th annual Meeting of the Helsinki Commission in March 2007.

A complete list of HELCOM publications is available at: http://www.helcom.fi/publications, where these publications can also be viewed. To order printed copies, please call the HELCOM Secretariat: + 358 (0)207 412 649 or send an e-mail to info@helcom.fi.

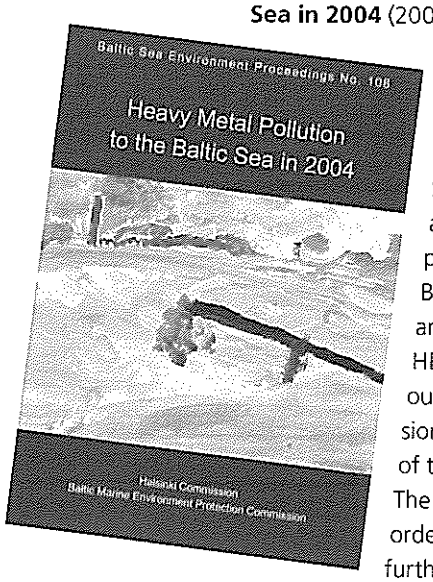
1. Baltic Sea Environment Proceedings (BSEP)



No. 105 **Planning and management of Baltic Sea Protected Areas: guidelines and tools** (2007)
The main purpose of this document is to facilitate the planning and management of those Baltic Sea Protected Areas (BSPAs) that still lack proper management or expertise to implement them effectively, by providing practical guidance and tools. The provisions of the Natura 2000 network sites have been acknowledged when relevant, but guidance has otherwise been kept on a more general level. The additional value of these guidelines lies in the comprehensive

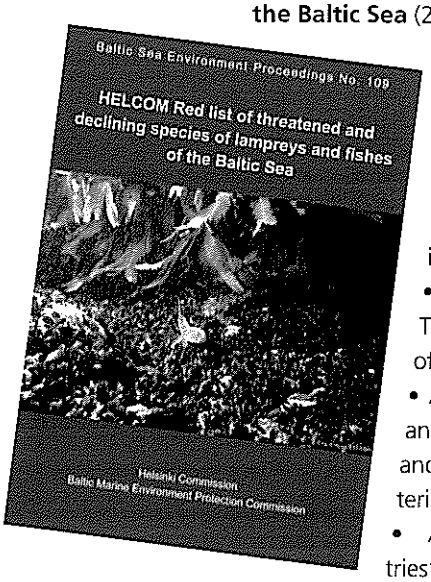
set of literature references and other complementary tools, which can be used to support the BSPA management work in accordance with the upcoming marine Natura 2000 guidelines.

No. 108 **Heavy Metal Pollution to the Baltic Sea in 2004** (2007)



This report is based on the latest available information on emissions and loads of cadmium, lead and mercury to the Baltic Sea in 2004. As heavy metals are long-range transboundary air pollutants, measures taken in the Baltic region to reduce emissions are not alone sufficient to reach HELCOM's objective of continuously reducing discharges, emissions and losses towards the target of their cessation by the year 2020. The report's findings suggest that in order to be able to reach this target, further measures will be needed, not only at regional level, but also at European and global levels. Recommendations for further actions to tackle the Baltic's problems with regard to heavy metal pollution are presented in the report's conclusions.

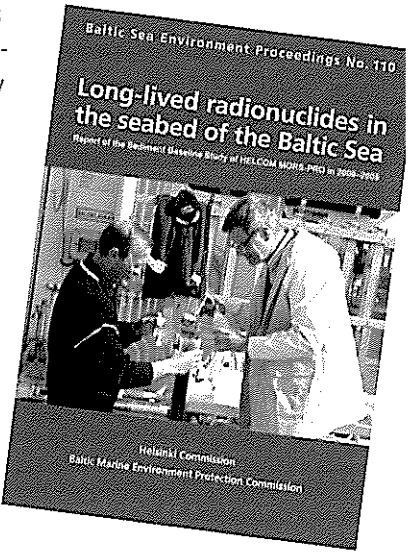
No. 109 **HELCOM Red List of threatened and declining species of lampreys and fishes of the Baltic Sea** (2007)



Many threatened and declining fish species live in the Baltic Sea area, and several of these fish are important locally, regionally or even globally. The HELCOM Red List includes the following items:

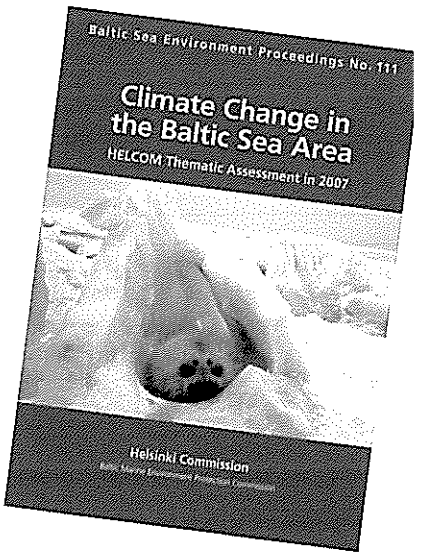
- A HELCOM Priority List of Threatened and Declining Species of Lampreys and Fishes
- A HELCOM List of Threatened and Declining Species of Lampreys and Fishes using IUCN Red List criteria
- A synopsis of the HELCOM countries' national Red Lists for fish.

No. 110 **Long-lived radionuclides in the seabed of the Baltic Sea** (2007)



This report presents the results of a Sediment Baseline Study carried out by the HELCOM Project Group for Monitoring of Radioactive Substances in the Baltic Sea (HELCOM MORS-PRO) over the years 2000–2005. The goal of the study was to complement existing knowledge and inventories of long-lived radionuclides in the seabed of the Baltic Sea by providing additional data on the so-called "white areas" for which data was lacking, and on radionuclides not measured in earlier surveys.

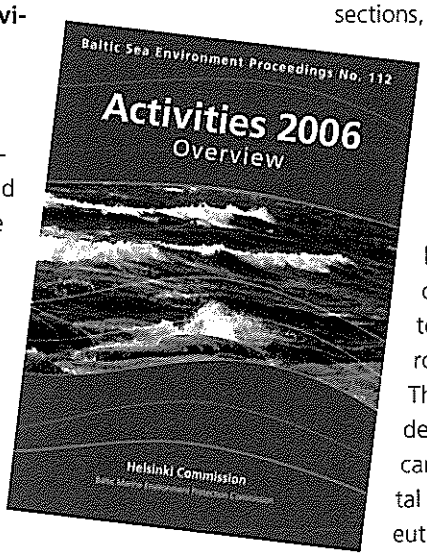
No.111 **Climate Change in the Baltic Sea Area** (2007)



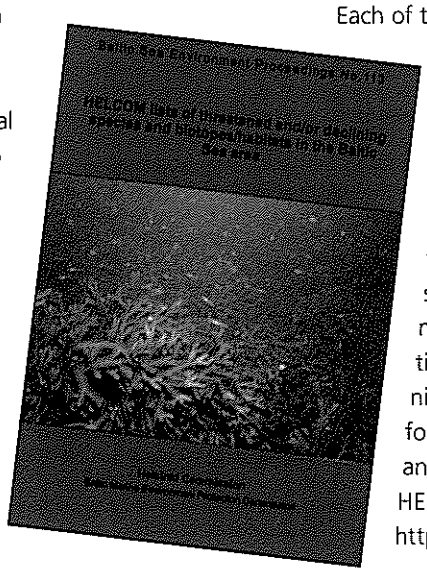
This HELCOM Thematic Assessment on Climate Change in the Baltic Sea Area is based on the Assessment of Climate Change for the Baltic Sea Basin Project (The BACC Project). It integrates the most significant available knowledge of historical, current, and expected future climate change.
The BACC Project is a joint venture of the BALTEX (Baltic Sea Experiment) Programme and HELCOM, and is thus an example of a dialogue between the scientific community and environmental policy makers. The unique feature of BACC is its combination of evidence on climate change and the related impacts on marine, freshwater,

and terrestrial ecosystems in the Baltic Sea basin, including the entire catchment area. It is the first systematic scientific effort for assessing climate change in a European region. More than 80 scientists from 12 countries have contributed to this work on a voluntary basis.

No. 112 **HELCOM Activities 2006 Overview** (2007)
This report summarises the activities of the Helsinki Commission related to the protection of the Baltic marine environment over the period from March 2006 to March 2007, also reviewing these activities together with current trends related to the main environmental issues.

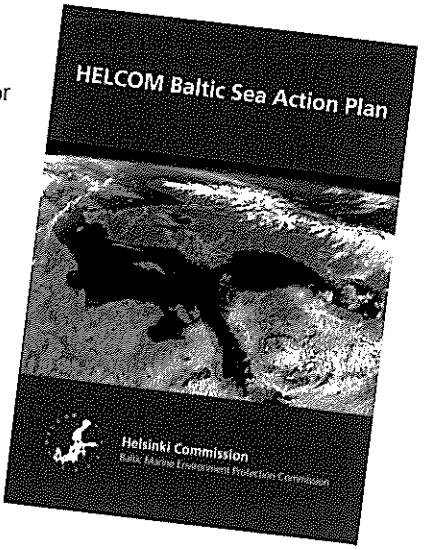


BSEP 113 **HELCOM lists of threatened and/or declining species and biotopes/habitats in the Baltic Sea area** (2007)
Listed species and biotopes/habitats were selected by international Baltic Sea experts, who widely referred to national Red Lists. The evidence in support of their selections was reviewed by the Member States and the lists were adopted by HELCOM in December 2006. Only species and biotopes/habitats clearly associated with the Baltic Sea are included on the lists. Freshwater species or biotopes/habitats with a wider distribution are therefore generally not considered.



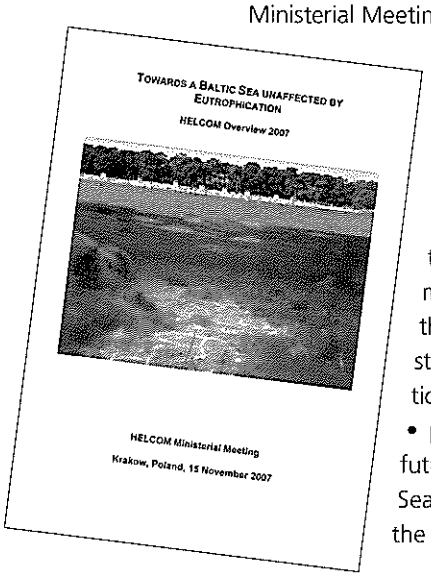
2. Other publications

HELCOM Baltic Sea Action Plan (2007)
This is a full version of the Baltic Sea Action Plan, which was adopted at the HELCOM Ministerial Meeting on 15 November 2007 in Krakow, Poland. The 100-page plan consists of nine major sections, as well as a set of supporting HELCOM Recommendations and other documents. The preamble explains the plan's purpose and describes its core policy, which is based on the application of the innovative ecosystem approach to environmental management. The next four segments describe the measures that can be taken to solve all major environmental problems affecting the Baltic Sea - to curb eutrophication, prevent pollution involving hazardous substances, improve maritime safety and accident response capacity, and halt habitat destruction and the decline in biodiversity. Each of these four segments contains 1) a short description of the problem area; 2) a listing of the ecological objectives and indicators with target levels that will be used to monitor and evaluate the implementation of the plan; 3) a set of actions needed to achieve the desired state of the marine environment. The next major sections of the plan detail an evaluation mechanism to measure the implementation status of actions, and a review mechanism for the plan itself, as well as actions for awareness raising, capacity building and financing. For the online version of the HELCOM Baltic Sea Action Plan, please visit http://www.helcom.fi/BSAP/en_GB/intro/.



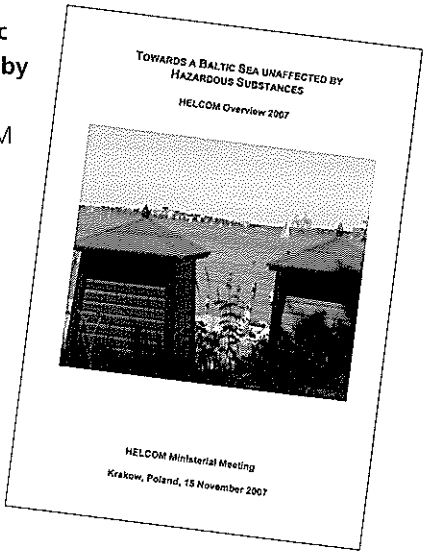
HELCOM Ministerial Meeting in Krakow (2007)
This comprehensive set of on-line materials relates to the Meeting of the Ministers of the Environment and Senior Government Officials of the Member States of HELCOM, which was held on 15 November 2007 in Krakow, Poland. This historic meeting involved the adoption of HELCOM's new action plan to drastically reduce pollution to the Baltic Sea and restore its good ecological status by 2021. The materials include all of the documents adopted at the Ministerial Meeting, as well as background materials, a Summary of the Baltic Sea Action Plan, statements by the high-level officials, and photos from the Meeting. The materials are available on the HELCOM website at http://www.helcom.fi/BSAP/MinisterialMeeting/en_GB/Ministerial_Meeting_2007/.

Towards a Baltic Sea unaffected by eutrophication (HELCOM Overview 2007)
The aim of this concise overview, which was submitted as background material for the HELCOM Ministerial Meeting in November 2007, is not to provide a comprehensive assessment on the status of eutrophication in the Baltic Sea, but rather to make a first attempt to:



- show how ecological objectives can be used as basic assessment tools for evaluating whether the Baltic Sea has reached a good status with respect to eutrophication;
- present a set of scenarios for future nutrient inputs to the Baltic Sea and their consequent effects on the environment;
- present definitions for the nutrient reductions needed over the Baltic Sea as a whole and also by sub-region, as well as the country-specific allocations of load reductions included in the HELCOM Baltic Sea Action Plan that will be needed to reach good environmental status according to the Baltic NEST model; and
- outline the current state and trends in the marine environment with respect to eutrophication, thus justifying the actions included in the HELCOM Baltic Sea Action Plan.

Towards a Baltic Sea unaffected by hazardous substances (HELCOM Overview 2007)
The aim of this concise overview, which was submitted as background information material for the HELCOM Ministerial Meeting in November 2007, is not to provide a comprehensive assessment of the extent of the impacts of hazardous substance on Baltic Sea environment, but rather to make a first attempt to:



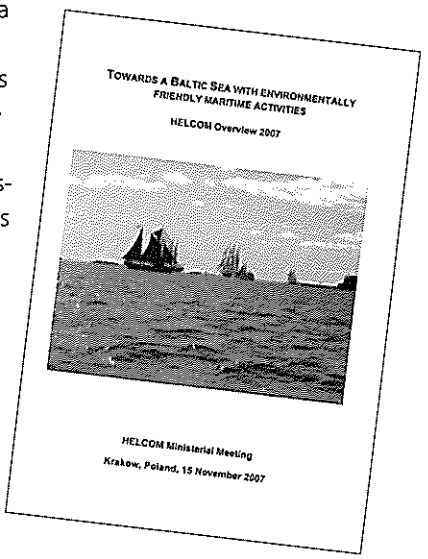
- show how ecological objectives can be used as basic tools when assessing the degree to which the Baltic Sea ecosystem is affected by hazardous substances;
- outline the current state and trends in the marine environment with respect to hazardous substances; and
- present the development of actions for the hazardous substances of specific concern included in the HELCOM Baltic Sea Action Plan.

Towards favourable conservation status of Baltic Sea biodiversity (HELCOM Overview 2007)
The aim of this concise overview, which was submitted as background information material for the HELCOM Ministerial Meeting in November 2007, is not to provide a comprehensive assessment of the status of biodiversity and nature conservation in

the Baltic Sea as such, but rather to outline procedures for an indicator-based biodiversity assessment in order to:

- show how ecological objectives could be used as basic assessment tools when assessing the favourable status of marine landscapes, communities and species; and
- highlight targets and indicators in the HELCOM Baltic Sea Action Plan.

Towards a Baltic Sea with environmentally friendly maritime activities
(HELCOM Overview 2007)
The aim of this topic-oriented overview, which was submitted as background information material for the HELCOM Ministerial Meeting in November 2007, is to present the types of further actions needed to bridge the gaps in existing national, regional and international legal regimes, policies, practices and monitoring programmes, so as to ensure the good environmental performance of shipping and other uses of the Baltic Sea. The ultimate goal is to contribute towards the achievement of a good ecological and environmental status for the Baltic marine environment. The necessary new measures described in this report have already been included in the HELCOM Baltic Sea Action Plan.



3rd Stakeholder Conference on the HELCOM Baltic Sea Action Plan (2008)
This set of on-line materials was released following the 3rd Stakeholder Conference on the Baltic Sea Action Plan, held on 4 March 2008. It includes the conference outcome document as well as presentations from the two thematic sessions on the financial aspects of the plan's implementation and the cost-efficiency of measures aiming to apply broad-scale marine spatial planning as a planning tool within HELCOM, as well as statements from the roundtable discussions. The materials are available via the HELCOM website at http://www.helcom.fi/BSAP/3rd/en_GB/3rd_Stakeholder_Conf/.