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## **HELCOM – VIEWS ON THE ENVIRONMENTAL STATE OF THE BALTIC SEA TAKING ACTION TO COMBAT EUTROPHICATION IN THE BALTIC**

Ladies and Gentlemen,

While the title of my presentation is a bit broader, I will - after a short introduction to HELCOM as such - focus specifically on the work of HELCOM to combat eutrophication. To my mind this will also bridge my presentation to the next one.

The Baltic Marine Environment Protection Commission – also known as HELCOM – is well on in years; having 30 years of experience in how best to protect the Baltic Sea.

The Baltic Sea States quite early realized that something multilateral had to be done about the deteriorating situation of the Baltic Sea area. The basis for this is the Convention on the Protection of the Marine Environment of the Baltic Sea Area from 1974, and revised in 1992, as well as Recommendations adopted unanimously by the nine countries bordering the Baltic Sea area and the European Community.

The co-operation within HELCOM marked an important political milestone in international ecopolitics. The Convention was the first international agreement ever to take into account all aspects of marine environment protection. But also the signing of the Convention was a historical turning point when all the Baltic Sea States, despite their political and economical differences in the times of the cold war, agreed in an unprecedented joint effort to protect their common sea

The work under the Convention is carried out in several subsidiary bodies and working groups, under the governance of the Helsinki Commission (HELCOM) - and supported by a Secretariat of 16 persons, located in Helsinki, Finland.

Let me say a few words about the role of HELCOM in the region. This, naturally, has to be done in the light of the EU enlargement last year, as well as the outcome and decisions taken during our HELCOM Bremen Ministerial Meeting in 2003. The EU enlargement brought about significant political changes in the Baltic region. It also had a profound impact on the environmental priorities of the Contracting Parties, with uniform environmental legislation being applicable in large parts of the catchment area of the Baltic Sea and at the same time also increasing the work loads of the Contracting Parties, to both contribute to the EU work and to implement nationally the EU decisions.

In this new political context, HELCOM also puts a lot of emphasis on continued co-operation with the Russian Federation. We emphasise the equal partnership among the states surrounding the Baltic Sea - and the role of HELCOM acting as a bridge between EU and

Russia in securing that the same environmental standards are being implemented throughout the Baltic Sea and its catchment area.

Even within an enlarged European Union there is a clear need to take into account regional specifics – or should I say even a greater need. This is basically due to two fundamental elements: the different environmental conditions and sensitivities of the European Seas to various human impacts, and the different pressures experienced by these seas. I think in this forum there is no need to remind you of the sensitivity of our sea - both due to its natural characteristics, as well as due to the activities carried out at sea and in the catchment area. This also means that the role of HELCOM - as the guardian of our sea and mouthpiece of our region, channelling the specific needs for addressing our specific situation - is a crucially important one. This is a role we have pursued - with good results - both by ourselves and within various other international organisations.

Acknowledging the need for full integration of all aspects and interests - and to move away from the present sector and species approach - HELCOM has decided that all future decisions shall be based on the ecosystem approach, for which Ecological Objectives shall be developed.

Ecological Objectives are tools to describe the desired level of the Baltic Sea eco-systems, and inherently they also force us to make choices in order to balance the eco-system health we want and the human influences that we will accept.

In order to ensure that the choices will reflect those of the society, it is very important to develop a common vision that is shared between the various stakeholders: the older and the younger generations; those representing the private and the public sectors; and those representing the green and the industrial NGO's. This requires of HELCOM that we make use of transparency and participation in our work – and that we inform about the health of the Baltic Sea, give diagnoses as to the sicknesses and symptoms as well as prescribe the right medication for cure.

Within the eco-system approach the following areas are set as the priorities for HELCOM's future work:

- joint monitoring and assessment; and
- nature conservation and biodiversity;

these being the backbones in the work of HELCOM providing the information on the basis of which decisions will be taken as to the need for further actions; and

- eutrophication;
- hazardous substances;
- safety of navigation and response activities,

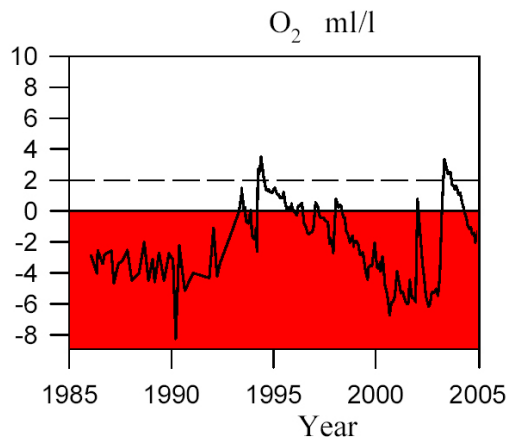
these being the three main areas where need for further action has been defined.

For each of the priorities HELCOM has decided on the goals, the actions to be taken to reach them as well as the timeframe within which to do it.

Today I will touch upon one of these priorities: eutrophication.

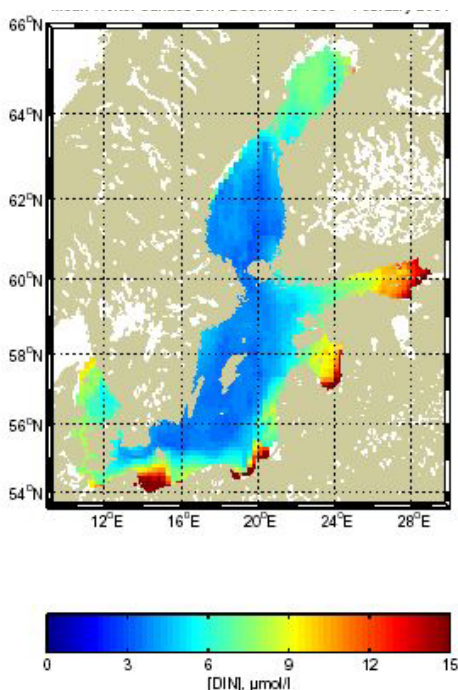
The present state of the Baltic Sea is the result of both anthropogenic pressures and natural hydrographic processes, such as the exchange of water between the Baltic Sea and the North Sea. No significant new inflows have occurred since the major Baltic inflow of January 2003, which renewed most of the deep water in the Baltic Sea, and the near-bottom water in the Bornholm and eastern Gotland Basin consequently reverted to anoxic conditions in mid 2004.

This figure shows long time-series of oxygen concentrations in the bottom water in the Gotland Deep. Negative concentrations in the red area indicate the presence of toxic hydrogen sulphide. Oxygen concentrations below 2 ml/l, the broken line are considered to be too low for macroscopic animals, such as fish, to survive.



*Figure 1. Long time-series of oxygen concentrations in the bottom water in the Gotland Deep. The solid line represents the amount of oxygen in the water (ml/l). Negative concentrations below zero (shaded red) indicate the presence of toxic hydrogen sulphide. Oxygen concentrations below 2 ml/l (broken line) are considered to be too low for macroscopic animals such as fish to survive. Source: SMHI.*

This figure shows concentrations of dissolved inorganic nutrients which were highest in coastal waters from the southern Belt Sea to the inner Gulf of Finland, due to run-off from the land. The high winter nutrient concentrations led to intense phytoplankton blooms in the spring, especially in the Gulf of Finland.

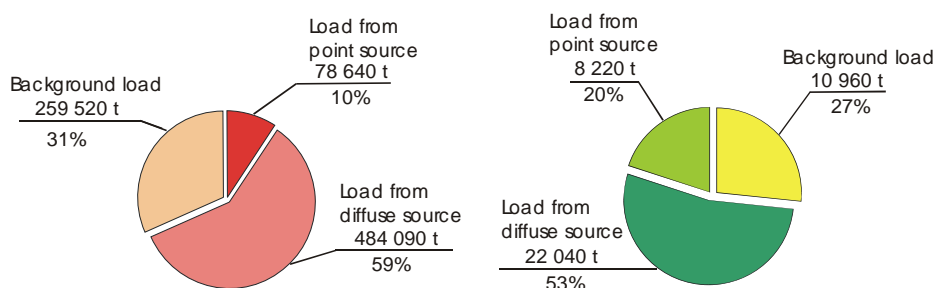


*Figure 2. Long-term mean winter surface concentrations of dissolved inorganic nitrogen (DIN), 1996-2004.*

Every five years the overall pollution load of nutrients, organic matter, and heavy metals entering the Baltic Sea, via rivers or via direct discharges from pollution sources located on the coastline, is assessed. The fourth such compilation, Fourth Pollution Load Compilation (PLC-4) concerns figures for 2000. In this compilation also the discharges from point sources and losses from diffuse sources throughout the territories of the HELCOM Contracting Parties within the Baltic Sea catchment area was for the first time quantified in order to determine the relative significance of different sources of pollution.

The total waterborne loads entering the Baltic Sea from rivers and coastal areas amounted to 738,000 tonnes for nitrogen and 34,100 tonnes for phosphorus in 2000.

The figures from the different sources within the catchment area show that the major portions of losses and discharges of total nitrogen and total phosphorous originated from diffuse sources. Natural background losses of nitrogen and phosphorus amounted to a little less than one third of the total losses and discharges entering inland surface waters within the Baltic Sea catchment area. The load from point sources amounted to 10 % for nitrogen and 20 % for phosphorus.



*Distribution of point source discharges, losses from diffuse sources and natural background losses of  $N_{total}$  and  $P_{total}$  into inland surface waters within the Baltic Sea catchment area in 2000 based on the Source-oriented approach.*

The major part of the nutrient loads are entering the Baltic proper, and if you compare the share of pollution coming from different sources in the Contracting Parties you can still see some differences between the countries. For example, the share of pollution coming from point sources in Poland is much more significant compared to Finland, where diffuse sources contribute with the largest share of nutrient inputs. (Point sources are marked with red colour in the pies of the graphs.)

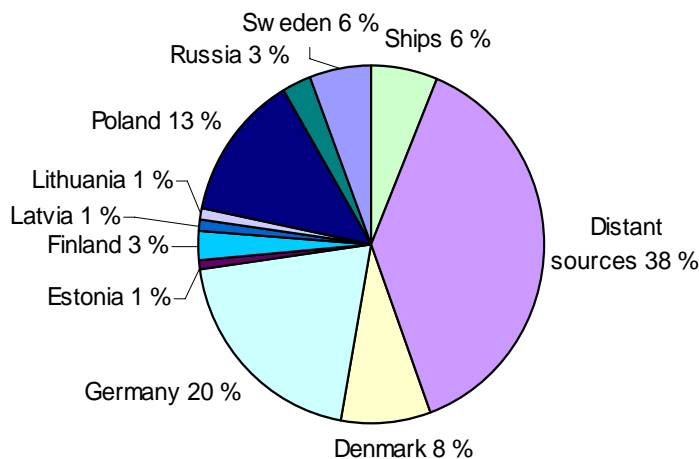
HELCOM reports show that the progress in reducing nutrient loads from point sources, such as municipal and industrial wastewater treatment plants, has been good. But the results also show that measures to reduce nutrients from agriculture have fallen short of their aims.

Further reductions in nutrient loads from point sources are likely, since the continued implementation of nitrogen and phosphorus removal measures will further curb loads from municipal plants, especially in the new EU countries. Further implementation of Best Available Techniques will also cut industrial nutrient pollution loads.

The implementation of load reduction measures will also support the reduction of nutrient loads from agriculture. But according to present knowledge, there is a considerable time lag between implementation of agricultural water protection measures and their effects in water bodies. It has also been envisaged that the agricultural production will grow after the EU enlargement, which will probably lead to increased discharges from this sector. Thus, there is a need to strengthen efforts to reduce the input of nutrients from agriculture.

It has to be remembered that a significant part, about a quarter of the total airborne and waterborne nitrogen input to the Baltic Sea, comes from airborne nitrogen deposited directly into the Baltic Sea. In addition to this direct deposition, part of the airborne nitrogen deposited in the Baltic Sea catchment area will also finally end up in the sea via runoff.

It is also remarkable that emission sources outside the Baltic Sea catchment area account for almost 40% of the total airborne nitrogen deposited into the Baltic Sea, as can be seen from this figure.



**Figure.** Proportion of atmospheric deposition of nitrogen on the Baltic Sea by country and source in 2000

Total nitrogen emissions from sources in the HELCOM countries have been reduced by around 40% since 1980. Deposition rates have only fallen by 15% over the same period. Nitrogen deposition rates are highly dependent on meteorological conditions that vary from year to year, so reductions in nitrogen emissions do not necessarily lead to corresponding reductions in deposition.

Addressing transboundary pollution originating from non-Contracting Parties has been identified as an important action for HELCOM.

HELCOM has already started to assess riverine pollution loads originating from Belarus, Ukraine, and the Czech Republic. These loads are being compared with HELCOM data on total pollution loads reaching the Baltic Sea, in order to assess the significance of transboundary pollution and the share coming from different sectors in these three countries.

This data has so far shown that transboundary pollution loads from Belarus, the Czech Republic and Ukraine are significant for nutrients and heavy metals. The proportions of the total pollution loads entering the Baltic Sea that originate from the upstream countries are 8% for nitrogen, 7% for phosphorus, and between 5% and 15% for selected heavy metals. The significance of this transboundary pollution is naturally higher in certain sub-catchments than in the Baltic Sea overall. These three countries are also significant sources for the airborne nitrogen pollution deposited into the Baltic Sea.

The data so far available on pollution sources in the non-Contracting Parties is, however, insufficient. To allow for comprehensive evaluations of the need for further actions, it is important to enhance co-operation between HELCOM and Belarus, Ukraine, and the Czech Republic.

In order to come up with concrete proposals to reduce inputs of nutrients in the different parts of the Baltic Sea region HELCOM has initiated a modelling activity.

In this HELCOM Modelling and Scenario Project it will be possible to:

- link catchment load - and air deposition models with environmental effects - models, describing effects on the Baltic Sea marine environment from the implementation of various agricultural policies in the Baltic Coastal Countries and by using various scenarios. The results are to be compared to the Ecological Objective for eutrophication;

The aim is also to develop proposals for most cost-effective measures;

The results will also be used to:

- develop a joint input from HELCOM to the mid-term review of EU Common Agricultural Policy in 2009; as well as
- to give input to the review of the EU Directive on National Emissions Ceilings for Certain Pollutants (EU NEC Directive), as well as for the revision of the Gothenburg Protocol to the UN/ECE convention on Long-range Transboundary Air Pollution.

HELCOM is also managing a Global Environment Facility (GEF) funded Baltic Sea Regional Project (BSRP) in co-operation with the International Council for the Exploration of the Sea (ICES), International Baltic Sea Fisheries Commission (IBSFC), and the Swedish University of the Agricultural Sciences.

While the overall aim of the Project is to implement an ecosystem approach and this goes hand-in-hand with HELCOM's decision, the aim of *Component 2* of the project is to reduce pollution from farms and other agricultural activities, and to increase sustainable agriculture. The activities will help in implementing environmental measures at farm level in Estonia, Latvia, Lithuania and Kaliningrad where local Implementation Units have been established. It also offers farmers a possibility to join training courses on how to improve the environmental management of their farms, followed by a possibility to obtain a grant and a loan on favourable conditions, in order to implement necessary environmental management measures.

During the Second Stakeholder Conference on the development of the European Marine Strategy it was proposed that implementation/action plans should be elaborated for each eco-region. As the Baltic Sea Region is considered as one eco-region, the Baltic Sea Coastal States decided that HELCOM should play a key role in the development of the Baltic Sea Action Plan.

The cornerstones of this joint Baltic Action Plan will be the Ecological Objectives, defined to reflect our common vision of a healthy Baltic Sea, with balanced ecosystems able to support a wide range of sustainable economic activities.

In order to ensure that all stakeholders come to terms with which health status it is that we want for the Baltic Sea and how that may affect the various activities that are being carried out, HELCOM will involve all stakeholders: from the civil sector, the financial sectors, and the fisheries and agricultural sectors – and of course NGOs such as CCB. Because only if - and when - we manage jointly to establish a Baltic Sea regional identity, we are able to jointly guide and agree on the development of co-ordinated initiatives supporting both the economic, social and environmental aspects – and in this way ensuring a healthy Baltic Sea also for future generations. Such a common identity is important, not only for us living in the Baltic Region but also when we want to get the attention of outsiders to our region's needs. I see also our gathering here in Kaliningrad as one step in the formulation of our joint Baltic Action Plan.

Let me finally encourage you to a look at our website [www.helcom.fi](http://www.helcom.fi) where you can find a lot of information about HELCOM and the work carried out.