

HELCOM news

2/2008 Newsletter



In this issue:

Russia assumes the Chairmanship of HELCOM

HELCOM launches Group to steer Baltic recovery

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

HELCOM measures keep illicit oil spills in the Baltic near record lows

HELCOM's fleet conducts an emergency response exercise off the Russian coast

Message from the HELCOM Executive Secretary



I am pleased to report that the Helsinki Commission has launched the implementation phase of the ambitious Baltic Sea Action Plan to cease excessive inputs of pollution and restore the health of the Baltic Sea by 2021. This holistic plan, which was adopted by HELCOM in November 2007, contains concrete and meaningful actions to solve all major problems affecting the Baltic Sea. Its four segments include measures designed to curb eutrophication; prevent pollution involving hazardous substances; improve maritime safety and accident response capacity; and to halt habitat de-

struction and the decline in biodiversity.

Following the inaugural session of the Commission's newly established Group to steer the implementation of the plan on 7 April 2008, we are now working on the elaboration of a comprehensive list of municipal wastewater treatment plants and a list of agricultural pollution hot spots that do not fulfil the HELCOM requirements. This project is absolutely crucial for the successful implementation of the action plan. Inadequately treated sewage and agricultural runoff are the major sources of nitrogen and phosphorus inputs into the Baltic Sea responsible for its eutrophication. Therefore, mitigation of excessive nutrient loads from these sources is recognised as one of the priority actions. The beginning of the implementation process coincides with the Russian Chairmanship of HELCOM which began on 1 July 2008. The new HELCOM Chairman, Mr. Igor Maydanov, has indicated that Russia strongly supports the Baltic Sea Action Plan, considering it as a joint initiative of the highest political importance for

the Baltic Sea region. He stresses that under the Russian Chairmanship, one of HELCOM's main tasks over the next two years will be to proactively get all interested stakeholders involved in dialogues at the regional and Pan-European levels to provide permanent political support to achieve the plan's environmental goals, and to mobilise the necessary resources.

I hope that this newsletter will provide you with an insight into the wide-range of activities HELCOM has carried out to protect the Baltic Sea from pollution and ensure the safety of navigation, as well as an overview of HELCOM's assessments of current trends in the marine environment.

Anne Christine Brusendorff

HELCOM news 2/2008

Published by: Helsinki Commission
Katajanokanlaituri 6 B, FI-00160 Helsinki, Finland
© 2008 HELCOM
E-mail: info@helcom.fi
Web: <http://www.helcom.fi>

Editor: Nikolay Vlasov, Information Secretary,
HELCOM

Language revision: Howard McKee

Design and layout: Leena Närhi

Cover photos (from top): Andrei Stepanov, Elena Bulycheva, Alexei Bugakov

HELCOM news is the official newsletter of the Helsinki Commission, or HELCOM, which is an inter-governmental organisation of the Baltic Sea coastal countries and the European Community for the protection of the Baltic marine environment from all sources of pollution

Contents



Message from the HELCOM Executive Secretary, page 2

Chair's corner

Russia assumes the Chairmanship of HELCOM, page 4

Implementation of the HELCOM Baltic Sea Action Plan – the highest political priority in the region, page 5

International conference paves the way for IFI involvement in HELCOM's action plan, page 6

HELCOM conducts marine spatial planning exercise in the Baltic, page 7

HELCOM adopts two new Recommendations and announces the elimination of a major pollution hot spot, page 9

HELCOM launches group to steer Baltic recovery, page 10

Extracts from recent statements by politicians on the Baltic Sea Action Plan, page 11

IX International Baltic Sea Day addresses key issues of HELCOM's plan, page 14

Kaliningrad hosts two Stakeholder Workshops on the implementation of the HELCOM Baltic recovery plan, page 15

HELCOM presents its action plan and public awareness raising activities at the CBD Meeting in Bonn, page 17

Finland to provide more funds for wastewater treatment in St. Petersburg, page 18

Unsettled summer weather prevents major algae blooms in the Baltic, page 19

The absence of major inflows is intensifying the stagnation of the Baltic, page 22

Considerable increases in American comb jelly numbers in the Gulf of Finland and the Åland Sea, page 25

Grey seal population in Finnish waters in 2008 equal last year's levels, page 26

HELCOM's measures keep illicit oil spills in the Baltic near record lows, page 27

Almost twenty illegal oil discharges detected during Super CEPCO surveillance flights, page 29

Several illegal oil discharges detected during HELCOM's CEPCO North and CEPCO South flights, page 30

HELCOM's fleet conducts a successful emergency response exercise off the Russian coast, page 32

Russian team wins HELCOM Trophy, page 34

HELCOM to assess the contamination levels of hazardous substances in the eastern Baltic, page 35

Catches of chemical munitions in the Baltic fall to a record low, page 36

HELCOM launches Fisheries and Environmental Forum on the sustainable use of Baltic marine biodiversity, page 37

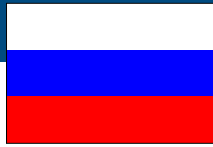
Germany to host the Fourth HELCOM Youth Forum, page 38

HELCOM releases an online version of mariners' routing guide for the Baltic, page 38

Latest HELCOM publications, page 39

Forthcoming HELCOM Meetings, page 40

HELCOM Secretariat welcomes new staff members, page 40



Chair's corner

Russia assumes the Chairmanship of HELCOM

On July 1, Russia assumed the rotating Chairmanship of the Helsinki Commission. The Government of the Russian Federation nominated Mr. Igor I. Maydanov as Chairman of HELCOM. Mr. Maydanov is currently serving as Director of the Department for International Cooperation at the Ministry of Natural

Resources and Ecology of the Russian Federation.

Mr. Maydanov is a career diplomat and has served in several Russian embassies since the mid-1980s until he was appointed to his present post in 2006.

Upon assuming the Chairmanship, Mr. Maydanov has highlighted HELCOM's key priorities for the next two years. Mr. Maydanov has put the commencement of the implementation of the HELCOM Baltic Sea Action Plan to restore the good ecological status of the marine environment at the top of the list. Another top priority is to further enhance the Commission's role as the focal point for the protection of the Baltic marine environment and strengthen the cooperation between all the nine coastal countries and the European Community.

Mr. Maydanov succeeds Prof. Mieczyslaw S. Ostojki of Poland who chaired the Helsinki Commission from from 2006 to 2008. The Chairmanship of HELCOM rotates between the Baltic Sea coastal countries and the European Community every two years according to alphabetical order. As Chairman, Mr. Maydanov will lead the work of HELCOM up until 30 June 2010.



Nikolay Vlasov / HELCOM

Implementation of the HELCOM Baltic Sea Action Plan – the highest political priority in the region

Igor Maydanov, Chairman of HELCOM

Under Russian Chairmanship, HELCOM will continue to be the focal point for the protection of the Baltic marine environment. On assuming the Chairmanship of HELCOM, the Russian Federation fully recognises its responsibilities over the coming period, including the commencement of the implementation of the HELCOM Baltic Sea Action Plan which is considered a top political priority in the region. Building on the achievements of the Polish Chairmanship, during which this strategic programme was developed and adopted, Russia will ensure the wider participation of various stakeholders in the implementation of the action plan, as well as the realisation of all the necessary measures to ensure the sustainability of the recovery process of the Baltic marine ecosystem.

The development and adoption of the HELCOM Baltic Sea Action Plan confirmed the readiness of the Baltic Sea countries to implement a joint environmental protection strategy in the region aimed at its sustainable development. However, despite this common readiness and the efforts of all countries, we still face many challenges along the road to a healthy Baltic Sea.

The action plan focuses on the region's most urgent environmental problems and, in many ways, is linked to the European and international programmes that regulate activities in the common European space. Therefore, one of our main tasks over the coming two years is to proactively get all interested stakeholders involved in dialogues at the regional and Pan-European levels to provide permanent political support for achieving the plan's environmental goals and mobilising the necessary resources. The com-

mitment of Heads of State and Governments to the implementation of the action plan will maintain momentum, accelerate the development of national programmes of action, and ensure appropriate financing is allocated for their implementation.

In practice, the timeframe for the implementation of the HELCOM Baltic Sea Action Plan is rather limited. A suitable methodology for prioritising projects designed to meet the goals of the plan at both the national level and at the Baltic Sea region level should, therefore, be developed as soon as possible together with the approaches to mobilise and combine financial, human and other resources. It is clear that during this period, great responsibility will lie on the shoulders of the Baltic Sea Action Plan Implementation Group.

A programme of actions designed to reduce pollution outside HELCOM countries should also be developed over the coming two years, since significant pollution reaches the Baltic Sea via transboundary waters or in the form of long-range airborne pollution. In this work, we shall actively use bilateral and multilateral projects, existing financing mechanisms, and international agreements such as the Convention on the Protection and Use of Transboundary Watercourses and International Lakes.

Another important issue on the agenda requiring thorough discussion is the application of economic tools to stimulate reductions in nutrient inputs including nutrient credit trading. As all the Baltic Sea countries want to have quotas reliably and scientifically based, the actions necessary to organise the monitoring and assessment of nutrient inputs should be taken by all the HELCOM Contracting Parties.



Elena Buljcheva

One of HELCOM's goals is to raise public awareness. During the action plan's implementation period, this work will be carried out in close cooperation with NGOs in recognition of their important role in the process of preparing the document, as well as their readiness to continue such collaboration. To ensure the wide participation of various stakeholders in discussions concerning the implementation of the action plan, we shall exploit the International Environmental Forum known as the 'Baltic Sea Day', whose usefulness has been widely acknowledged by the Baltic Sea countries.

One sea and a common European space unite us. Ultimately, as the world itself is not that big, we should seek to apply our Baltic experiences, knowledge and priorities not only at the European level but also globally.

We hope that the joint activities will help find efficient and balanced approaches for the successful implementation of the prioritised goals, as well as create appropriate and worthy responses to the new challenges we now face - in the same way that HELCOM has responded to challenges many times in the past.

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

The Third Stakeholder Conference on the HELCOM Baltic Sea Action Plan, held on 4 March in Helsinki, set up a preliminary road map for the involvement of the international financial institutions (IFIs) in the implementation of the strategic programme to restore the health of the Baltic Sea by 2021.

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



Elena Bulycheva

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. The Conference acknowledged the view of several institutions that there is plenty



HELCOM conducts marine spatial planning exercise in the Baltic

of funding that can be made available for the environmental projects under the HELCOM plan. Particularly, funding is available from EU funds (e.g. structural, cohesion and fisheries funds), IFIs as well as from the private sector. It was stated that it is now crucial to move from a programme level to project level as the IFIs are interested in funding concrete projects - not the Baltic Sea Action Plan as a programme. At the same time, it was noted that since there is a tense competition for monetary resources between various sectors, there is a need to prioritise those projects which give the best environmental output in relation to the money spent.

Bearing in mind that most 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 for them, the HELCOM countries need to: 1) develop a list of municipal wastewater treatment plants which contain information on size, treatment technology, performance parameters and the potential for improvements (e.g. nitrogen & phosphorus removal); 2) develop a new list of agricultural pollution hot spots; 3) initiate a broader discussion on economic instruments to stimulate investments in nutrient reduction measures (e.g. the Nutrient Reduction Trading Scheme) to be applied within HELCOM; and 4) arrange a Pledging Conference to enhance the elaboration of projects. The pooling of monetary, human and other resources for the implementation process is urgently needed; for this reason, the arrangement of the HELCOM Baltic Sea Action Plan Pledging Conference is vital for the success of the whole programme.

The Third Stakeholder Conference on the HELCOM Baltic Sea Action Plan, held on 4 March in Helsinki, 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 exercise involved government officials, representatives of the scientific and business communities of the Baltic Sea coastal countries and the European Community, as well as major regional organisations.

The participatory activity revolved around a fictive case where Conference participants, split into groups of 10-15, were requested to propose locations for 20 gigawatts of wind energy parks and additional Baltic Sea Protected Areas on a map of the Baltic Sea. Background information about various anthropogenic activities and natural values of the Baltic were given as support material.

During the exercise, the participants became familiar with the challenges as well as the costs and benefits that need to be considered when planning the uses of marine areas. They also had to take into account differing stakeholder interests and any potential negative environmental consequences resulting from their proposals.





In the concluding panel session, group leaders discussed the processes and issues that arose during the 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 coordinate and plan various human activities in space,” explains Anne Christine Brusendorff, HELCOM’s Executive Secretary. “It was recognised that the spatial dimension is relevant to monitoring, planning and regulating activities. Also in this sense, marine spatial planning is closely linked to ecosystem approach and its implementation.”

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 region. By this, HELCOM could play a valuable supportive role in implementing national and especially regional commitments regarding marine spatial planning.

HELCOM was recognised as an important focal point for sharing best practices and as a knowledge ‘factory’ in the region, as well as being a regional environmental data provider and a data access point in the Baltic.

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



Nikolay Vlasov / HELCOM

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



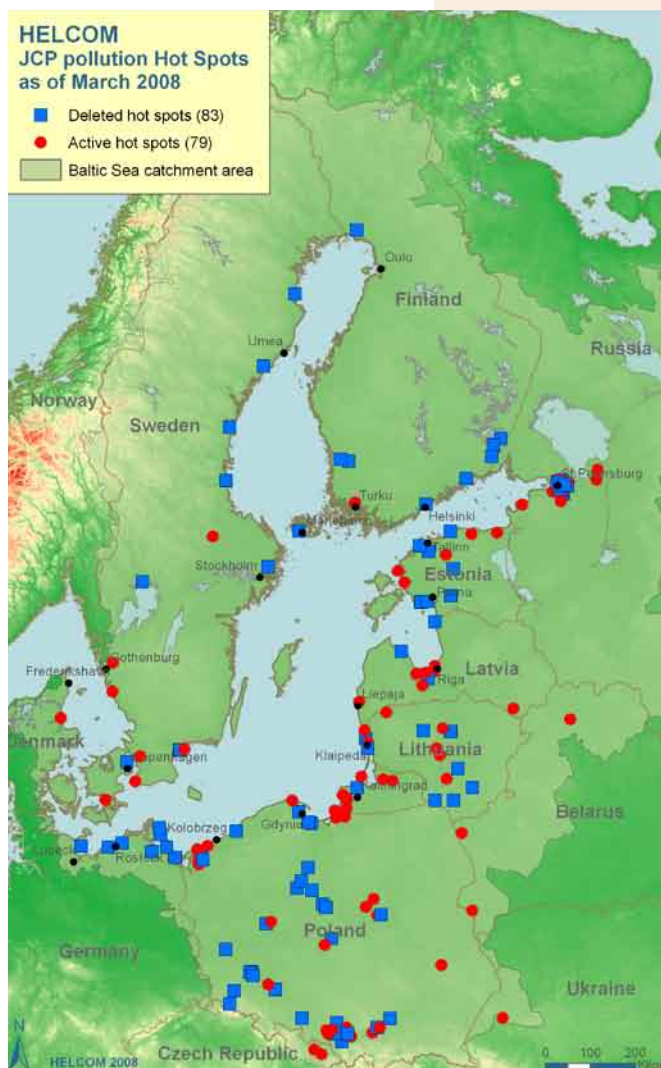
The 29th annual Meeting of the Helsinki Commission, held on 5-6 March, adopted two new Recommendations and announced the recovery of a major pollution hot spot in the Baltic Sea region. The Delegations of the HELCOM Member States also reviewed the organisation's progress in the protection of the Baltic marine environment from pollution and set new objectives and priorities for future work.

Preparations for the upcoming implementation phase of the Baltic Sea Action Plan to restore the Baltic marine environment by 2021 topped the agenda. The Meeting agreed on the composition of the international *ad hoc* Group which will steer the implementation of the action plan. Representatives of the Baltic Sea countries and the European Community unanimously appointed the Finnish Ambassador for Baltic Sea issues, Mr. Ole Norrback, as Chairman of the Group. The HELCOM Member States also nominated national representatives to the Implementation Group and invited representatives from major international financial institutions (IFIs) and other stakeholders to participate in its work.

The continuing recovery of major pollution hot spots in the Baltic Sea

coastal countries was one of the key issues. The Meeting deleted Hot Spot No. 22 – 'St. Petersburg Metal Plating Industry/Heavy metals in wastewater and sludge' from the list of the Baltic Sea's most significant pollution source hot spots. The local industry has made major investments in wastewater treatment techniques resulting in a significant reduction of pollution. Currently, a total of 79 hot spots and sub-hot spots remain on the list after the deletion of 83 of the earlier identified 162 hot spots/sub-hot spots.

Among the two new HELCOM regulations – Recommendations No. 29/1 and No. 29/2 - adopted by the HELCOM Meeting, the first deals with the reduction of emissions from crematoria by setting limits for emitting mercury and other harmful substances into the air. Crematoria are considered a significant source for mercury emissions in many of the Baltic Sea countries. The second Recommendation is to do with harmonising the methods of sampling and reporting the amount and type of marine litter on the beach within the Baltic Sea region as part of a global initiative to assess the impact of marine litter.



HELCOM launches Group to steer Baltic recovery



Representatives of the HELCOM Member States, the science community and International Financial Institutions met in Helsinki on 7 April for a two-day inaugural session of the Commission's newly established Group which will steer the implementation of the strategic Baltic Sea Action Plan.

"The task of this *ad hoc* Group is to supervise and lead the implementation of the Baltic Sea Action Plan, advise the Helsinki Commission on any additional actions, and to consider financial issues including the financing possibilities of the agreed measures, and the cost-efficiency and economic incentives," says Anne Christine Brusendorff, HELCOM's Executive Secretary.

The first meeting of the Baltic Sea Action Plan Implementation Group focused on practical issues related to the upcoming implementation of the plan. Representatives of the HELCOM Member States presented an overview of their national implementation process including foreseen potential difficulties. They discussed measures that need immediate action to meet some of the plan's deadlines in 2009 and 2010.

One of the topmost issues on the agenda was the elaboration of a comprehensive list of municipal wastewater treatment plants. This is con-

sidered as one of the priority projects for the successful implementation of the action plan. Municipal wastewater treatment plants (MWWTPs) contribute to one third of the total nutrient load to the Baltic Sea, being one of the major causes of eutrophication. Mitigation of their excessive nutrient loads is therefore recognised as one of the priority actions due to its cost-efficiency and the ease by which progress can be monitored. Members of the Implementation Group discussed a step-wise approach in order to elaborate a comprehensive list of MWWTPs, in which those plants discharging directly to the Baltic Sea, and not yet fulfilling HELCOM's requirements, are addressed as the first step in project prioritisation.

Another key issue at the Meeting was the discussions on how to proceed with the elaboration of a list of the agricultural pollution hot spots that do not fulfil HELCOM's requirements. Agriculture remains a major source of nutrient inputs to the Baltic Sea and is mainly considered a diffuse source of pollution as the nutrients affecting the Baltic Sea enter indirectly via runoff in the watershed area. The impacts of agriculture can be reduced by means of the broad application of Good Agricultural Practices at farmlands within the catchment of the Baltic Sea. Nevertheless, the intensified development

of the industrial production of cattle, pigs and poultry within the Baltic Sea area has led to the creation of a new segment of pollution point sources which significantly contribute to the amount of nutrient loads. These can be addressed in the same manner as industrial point sources, e.g. through establishing a list of priority hot spots that need to be remediated first.

The Meeting also looked into the effects and cost-effectiveness of the rapid implementation of the requirements for municipal wastewater treatment plants discharging directly to the Baltic Sea and for agricultural pollution hot spots. Scenario-based studies on these issues were presented by the Baltic Nest Institute (BNI).

Among other topics, the Implementation Group discussed the possibility of arranging regional/national workshops in cooperation with International Financial Institutions such as NIB, NEFCO and EBRD to support the development of national action programmes. The regional/national workshops should enhance the elaboration of national projects and the development of prioritised lists of actions, help acquire financing for speeding-up the implementation of the plan, as well as increase awareness of the Baltic Sea Action Plan and its implementation.

Extracts from recent statements by politicians on the Baltic Sea Action Plan

From the speech by President of the Republic of Finland Tarja Halonen at the WWF Seminar in Stockholm, 27 August 2008

The HELCOM Baltic Sea Action Plan adopted in November 2007 set the objective of the Baltic Sea being in good condition by 2021. We have 13 years to achieve this objective, and the situation is not good. We know that rapid action is required, and our commitments must become achievements. The sea will not wait.

A key task in this context is the efficient cleaning of community waste water. Another important task is a radical reduction in the nutrient loading from agriculture. The increasing standard of living in the Baltic Sea region is a positive development, yet it is likely to



increase the load on the environment. We must ensure that the strengthening economic growth is also socially just and ecologically sustainable.

* * *

We have many positive examples of concrete projects to protect the Baltic Sea. There have been significant steps in the cleaning of community waste water in St. Petersburg. The results of this will be seen in the next few years. There has also been action to combat eutrophication in Poland, and new important projects are being started to reduce the amount of phosphorus in waste water.

Achieving better results requires co-operation at all levels. We already have the mechanisms for this; we only need to enhance and improve them to achieve tangible results. We do not need new committees or organisations; we need closer co-operation and more rapid action.

Nikolay Vlasov / HELCOM



**From the Chairman's
Conclusions of 7th Baltic Sea
States Summit,
Riga, 4 June 2008**

The Heads of Government reiterated their profound concern about the



state of the land and marine environment in the Baltic Sea Region and its adjacent areas and congratulated the Baltic Marine Environment Protection Commission (HELCOM) on the HELCOM Baltic Sea Action Plan, as recently adopted in Krakow, Poland, to restore the good environmental status of the Baltic Sea by 2021.

The Heads of Government underlined that the implementation of this overarching programme of actions to combat the serious deterioration of the Baltic marine environment is an initiative of the highest political importance for the region. They gave their full support and commitment to ensure the implementation of the

Baltic Sea Action Plan. In this respect, they stressed the importance of the national programmes of actions to be developed and considered by the HELCOM Ministerial Meeting in 2010.

The Heads of Government expressed their common concern on maritime safety. They underlined the importance of continued coordinated efforts in this sphere, including further development of the ship reporting systems existing in the Baltic Sea Region.

The Heads of Government expressed their commitment to action across all sectors, thereby addressing in a coherent manner all human activities affecting the marine environment of the Baltic Sea, and sustainable management of the land and sea areas of the region.



From an interview with the Danish Minister of Foreign Affairs, Dr. Per Stig Møller, on the Danish CBSS Presidency Program

(published by the CBSS official journal Balticness, autumn 2008)

Q: How would you, as Chair of the Council, like to proceed in ensuring the support and full implementation of the Baltic Marine Environment Protection Commission's (HELCOM) Baltic Sea Action Plan?

A: The present input levels of nutrients and other pollutants to the Baltic Sea is too high and is giving rise to negative impacts on the quality of the Baltic Sea environment. The HELCOM 2007 Baltic Sea Action Plan represents a tailor-made bid with many newly developed ideas on how to improve

the quality of the sea. I welcome the plan and would like to point out that HELCOM, since its start in 1974, has been the main actor in the international cooperation for the protection of the marine environment of the Baltic Sea.

Implementation of the plan started in spring 2008 and will be ongoing until 2021. The Danish CBSS Presidency will be standing by to assist the HELCOM Implementation Group chaired by Finland's Baltic Sea Environmental Ambassador, Mr. Ole Norrback, if the need arises. I believe that Ambassador Norrback, as a former minister, is the right kind of Chairman for this task. It is evident that attaining the goals of the Baltic Sea Action Plan will require substantial political support for many years to come and, in this respect, CBSS sooner or later could play a sup-



portive role in the ongoing work by keeping the action plan high on the political agenda.



Elena Bulycheva



Nikolay Vlasov / HELCOM

IX International Baltic Sea Day addresses key issues of HELCOM's plan



Established to support and promote the work of HELCOM, the Baltic Sea Day is considered as an important regional forum to stimulate public awareness of the state of the Baltic marine environment, enhance political attention to existing problems and boost support for those actions needed to protect the sea.

“We had very productive discussions on issues such as sustainable agriculture, the assessment of the state of the Baltic Sea, stakeholder involve-

Up to 500 participants from the Baltic Sea countries, including government officials, scientists and business leaders, as well as representatives of major regional organizations and NGOs took part in the IX International Environmental Forum the ‘Baltic Sea Day’ held on 12-13 March in St. Petersburg. One of the major themes of this year’s Forum was the implementation of the HELCOM Baltic Sea Action Plan.



Kaliningrad hosts two Stakeholder Workshops on the implementation of the HELCOM Baltic recovery plan

ment in implementing the HELCOM Baltic Sea Action Plan, financing environmental projects and maritime transportation,” says Anne Christine Brusendorff, HELCOM’s Executive Secretary. “The outcome will serve as a substantial contribution to the implementation of the HELCOM plan to restore the health of our sea”.

Keynote speakers at the official opening and plenary session included senior officials of the Government of St. Petersburg, the Ministry of Natural Resources and Ecology of the Russian Federation, HELCOM’s Chairman, Ministers of the Environment from several Baltic Sea countries, as well as representatives of the Nordic Council, the Nordic Investment Bank, the Baltic Sea Parliamentary Conference, and the Baltic Sea States Sub-regional Cooperation.

The Baltic Sea Day, which has been observed annually in St. Petersburg since 2000, was established on the basis of a decision made by HELCOM and is held on the anniversary of the signing of the Helsinki Convention for the protection of the Baltic marine environment. It is organised by the St. Petersburg NGO ‘Ecology and Business’ with active support from the Ministry of Natural Resources and Ecology of the Russian Federation, the local governments of St. Petersburg and the Leningrad Region, as well as the governments and financial institutions of the Baltic Sea countries.



Elena Bulychева

Senior government officials of Russia’s Kaliningrad Region, representatives of the local and international scientific and business communities, international financial institutions (IFIs), NGOs, as well as diplomats and officials from neighbouring countries took part in a Stakeholder Workshop, held in Kaliningrad on 22 May, to discuss the upcoming implementation of the HELCOM Baltic Sea Action Plan.

The Workshop was opened by the Governor of Kaliningrad Oblast, Mr. Georgy Boos. It was seen as symbolically important reflecting the Region’s support and commitment to the HELCOM Baltic Sea Action Plan.

The overall objective of the Workshop - arranged in close cooperation between HELCOM, the Nordic Council of Ministers and the regional Russian authorities - was to facilitate the involvement of stakeholders into the process of implementing the Baltic Sea Action Plan in the Kaliningrad Region.

The Workshop discussed actions within all the four segments of the action plan. These included: combating eutrophication caused by excessive inputs of nitrogen and phosphorous which mainly originate from inadequately treated sewage and agricultural runoff; preventing pollution by hazardous substances; halting habitat destruction and the decline in biodiversity, and improving maritime safety and accident response capacity. However, the major focus was on eutrophication and biodiversity as well as other issues that were of interest to the Kaliningrad Region.

Pollution from municipal wastewater and from agricultural runoff, as well as the status of biodiversity were addressed at parallel sessions in order to discuss what concrete actions can be taken to solve existing environmental problems. The financial aspects of the plan’s implementation and the cost-efficiency of the measures were one of the main issues. Discussions mainly focused on the sources of funding and



Nikolay Vlasov / HELCOM

the involvement of the international financial institutions and the private sector in the implementation of the HELCOM Baltic Sea Action Plan. Much attention was focused on understanding their requirements for providing financing support, as well as how to prepare successful projects to ensure and increase the investments for marine environmental protection. Also participating in the discussions were IFIs, such as the European Bank of Reconstruction and Development (EBRD), the Nordic Dimension Environmental Partnership (NDEP), the Nordic Environment Finance Corporation (NEFCO), and local banks.

“The outcome report from the Workshop with concrete suggestions on priority issues serves as a roadmap for the implementation of the Baltic Sea Action Plan in Kaliningrad Region,” says Anne Christine Brusendorff, HELCOM’s Executive Secretary. “HELCOM considers regional/national workshops as a crucial means to facilitate the elaboration of national programmes of action, and acquire financing for speeding-up the implementation of the Baltic Sea Action Plan.”

The Second Stakeholder Workshop in Kaliningrad was held on 29 August to discuss the implementation of the maritime segment of the HELCOM Baltic Sea Action Plan in the south-eastern Baltic. It was attended by representatives of marine pollution response and environmental authorities from Denmark, Finland, Lithuania, Poland and Russia, as well as from the NGO sector.

“The objective of the Workshop was to provide a local perspective and contribute to the implementation of the maritime segment of the HELCOM

Baltic Sea Action Plan with particular focus on improving maritime safety and oil spill response capacity and strengthening sub-regional cooperation in this field in the south-eastern Baltic,” says Brusendorff.

Another major theme was the coastal preparedness for oil spills and how to integrate wildlife response into local/regional contingency planning. Additionally, participants looked into ways on how to ensure efficient enforcement of compliance with anti-pollution regulations, as well as public involvement in enforcement campaigns.

The Workshop was arranged in close cooperation between the Government of the Kaliningrad Oblast’, the HELCOM Secretariat, Russia’s Federal Agency for Maritime and River Transport, the Ministry of Natural Resources and Ecology of the Russian Federation and the Nordic Council of Ministers.

Kaliningrad Oblast’ is the second in the region to host such Workshops. Sweden has already arranged a Workshop for municipal authorities on financing actions for implementing the action plan. It was held in Stockholm on 25 January 2008.



HELCOM presents its action plan and public awareness raising activities at the CBD Meeting in Bonn

On 19-30 May, HELCOM participated in the Ninth Meeting of the Conference of the Parties (COP-9) to the Convention on Biological Diversity (CBD), which was held in Bonn. The Meeting discussed agricultural biodiversity, global strategy for plant conservation, invasive alien species, ecosystem approach, forest biodiversity and progress in the

implementation of the strategic plan and progress towards the 2010 target and relevant Millennium Development Goals, as well as other substantive issues.

The Secretariat of the Commission presented the Baltic Sea Action Plan, particularly its biodiversity segment and



the ecosystem approach, at a HELCOM side-event arranged at the Meeting, as well as at the COP-9 poster session on the implementation of national biodiversity strategies and action plans and their contribution to the 2010 biodiversity target. Additionally, the Secretariat presented its communication and public awareness raising activities at a fair on experiences and best practices in communication, education and public awareness (CEPA) held on the margins of COP-9.



Nikolay Vlasov / HELCOM

Finland to provide more funds for wastewater treatment in St. Petersburg



Nikolay Vlasov / HELCOM

Gulf of Finland will decline by almost 10% (600 tonnes annually).

The Finnish Ministry of the Environment and the St. Petersburg water company, Vodokanal, have been testing chemical phosphorus removal techniques since 2005. Trial procedures conducted by Kemira Oyj have accelerated the implementation of phosphorus removal at six wastewater treatment plants, including the St. Petersburg Central plant – the city's largest. The total costs of the projected wastewater treatment improvements at St. Petersburg North will be in the region of EUR 700,000.

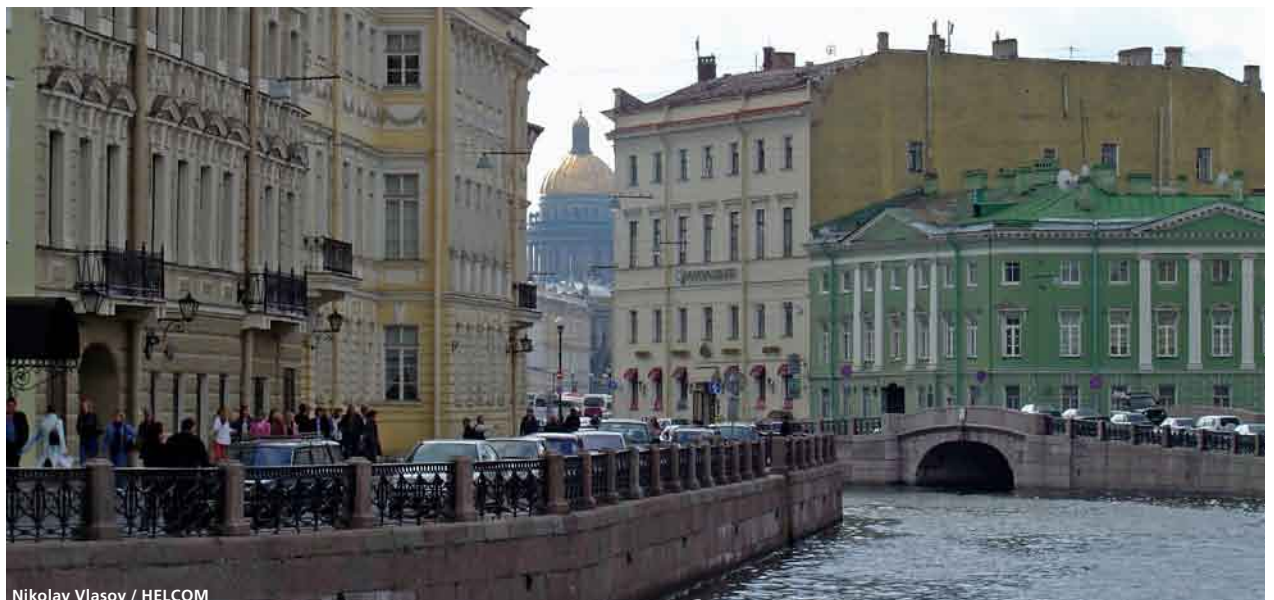
Today, the plant treats wastewater from the homes of about 1.3 million people in northern districts of the city; however, this figure will double during 2008-2012 as more homes are connected to the plant through sewerage tunnels currently under construction.

The Ministry of the Environment of Finland will contribute funds amounting to EUR 400,000 towards improving phosphorus removal at the St. Petersburg North wastewater treatment plant, where new phosphorus

removal facilities should be up and running by the end of 2009. As more wastewater is fed into the plant over the coming years, instead of being released untreated into waterways, the phosphorus loads entering the

Support from EU Northern Dimension funds for the Neva Project

The Ministry's support for the St. Petersburg North plant is related to the EU Northern Dimension's Neva



Nikolay Vlasov / HELCOM

Unsettled summer weather prevents major algae blooms in the Baltic

Project which aims to halt all releases of untreated sewage into the Neva River, which flows into the Gulf of Finland at St. Petersburg. The steering group of the Northern Dimension Environmental Partnership (NDEP) earmarked EUR 30 million of funding for the project on 4 June. This new investment should enable the construction of sewerage tunnels leading to the St. Petersburg North wastewater treatment plant, as well as renovation work at the plant and other plants in Zeleznogorsk.

The Neva Project is part of a wider investment strategy for St. Petersburg's water services drawn up with support from Finland and Sweden. The resultant programme, with its budget of almost EUR 900 million, aims to implement cost-effective measures to reduce eutrophication in the Baltic Sea. Russia is contributing EUR 790 million to the programme from the federal budget, the finances of the City of St. Petersburg and from the St. Petersburg water company. Some EUR 60 million of funding will be obtained through international loans.

NDEP provides extensive funding for environmental protection projects in Northwestern Russia. Finland has contributed a total of EUR 18 million to the related funds. International financial institutions, the European Commission and several other donor countries are also involved.

Since 1991, Finland's Ministry of the Environment has contributed funds totalling EUR 30 million to support wastewater treatment projects in St. Petersburg. The St. Petersburg water company is striving to reach targets set out in the HELCOM Baltic Sea Action Plan already by 2015.

Martin Hansson & Jörgen Öberg,
Swedish Meteorological and Hydrological Institute

This year, the cool and windy weather held back the growth of algae and the formation of mats during the entire season. Compared with long-term averages, the algae situation in the sea was better than usual in June and August but was average in July.

The cyanobacterial blooms in the Baltic Proper were mainly in July, whereas blooms in the Bothnian Sea continued towards the end of August.

The first extensive surface accumulations were observed in the southern half of the Baltic proper on 2 July.

This summer's bloom culminated in the warm and sunny period of 24 July to 1 August, when the satellite image revealed that almost the entire Baltic Sea was green. The normalized bloom indexes for bloom extent (6,675 km²), duration (4.9 days) and intensity (32,651 km² days) were all lower than the means for the period 1997-2007.

The amount of available phosphate in the surface water and weather conditions during the summer are impor-

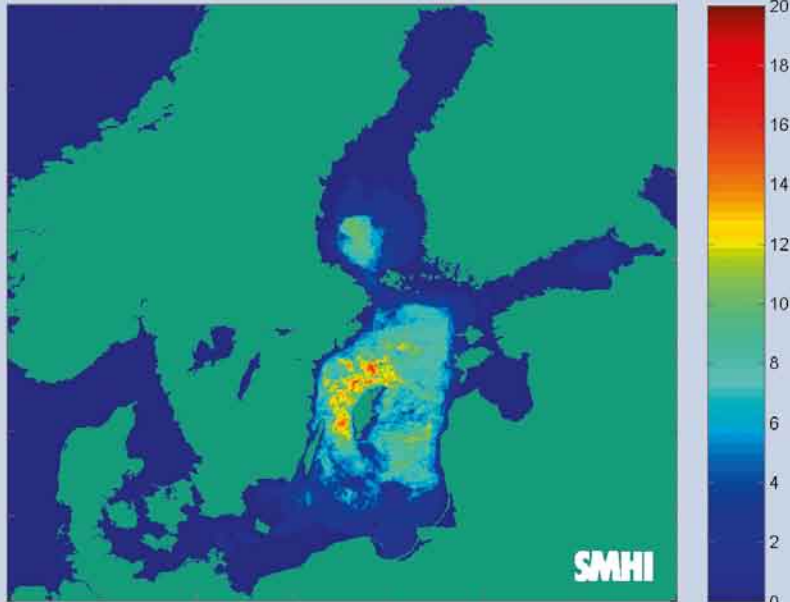
tant factors regulating the intensity of cyanobacterial blooms in the Baltic Sea. During 2008, phosphate concentrations were back to normal in the Baltic Proper with the exception of elevated concentrations in the Arkona and Bornholm Basins.

Weather conditions in the Baltic region during the summer were variable. Favourable weather conditions for cyanobacterial blooms prevailed during early and late July while August was dominated by unstable weather.

Faint signs of cyanobacteria on the water surface could be seen in the southernmost part of the Baltic proper in June but none that caused any concern. On 2 July, the sky was clear over the southern half of the Baltic proper. This revealed a large coherent surface accumulation that was even more pronounced the following day. The samples from R/V Argos' survey (the SMHI research vessel) on 7-12 July showed *Aphanizomenon* sp. and *Anabaena* sp. dominating in the southwest, while *Nodularia* sp. was most common in



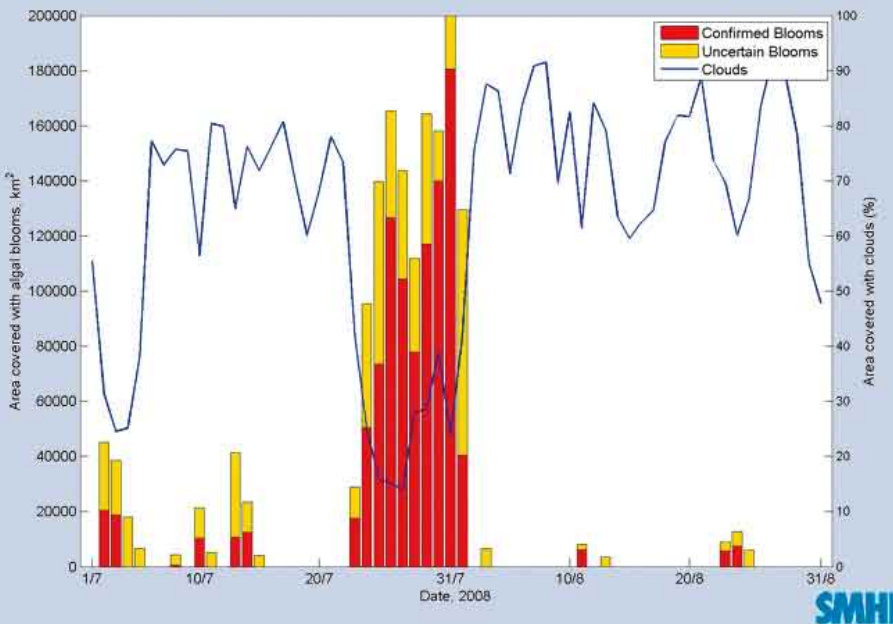
Nikolay Vlasov / HELCOM



Number of days during 2008 with surface accumulations of cyanobacteria observed in each pixel based on NOAA-AVHRR satellite imagery

the eastern part of the Baltic proper. Over the following three weeks, most of the sea surface was hidden under a dense cloud cover. The few gaps between the clouds only offered a very scattered view of the algal bloom. 23 July, however, saw the onset of a week of calm and clear weather.

The following day – 24 July and continuing until 1 August - almost the entire Baltic proper and the southern half of the Bothnian Sea were covered with surface accumulations of cyanobacteria. The strongest accumulations were found at sea east of Gotland and southeast of Öland. The satellite image from 31 July mostly shows dense accumulations present from Bornholm in the southwest up to 62° N in the Bothnian Sea including the western half of the Gulf of Finland. Argos cruised around the Baltic Proper in the last days of July and confirmed the satellite observations.



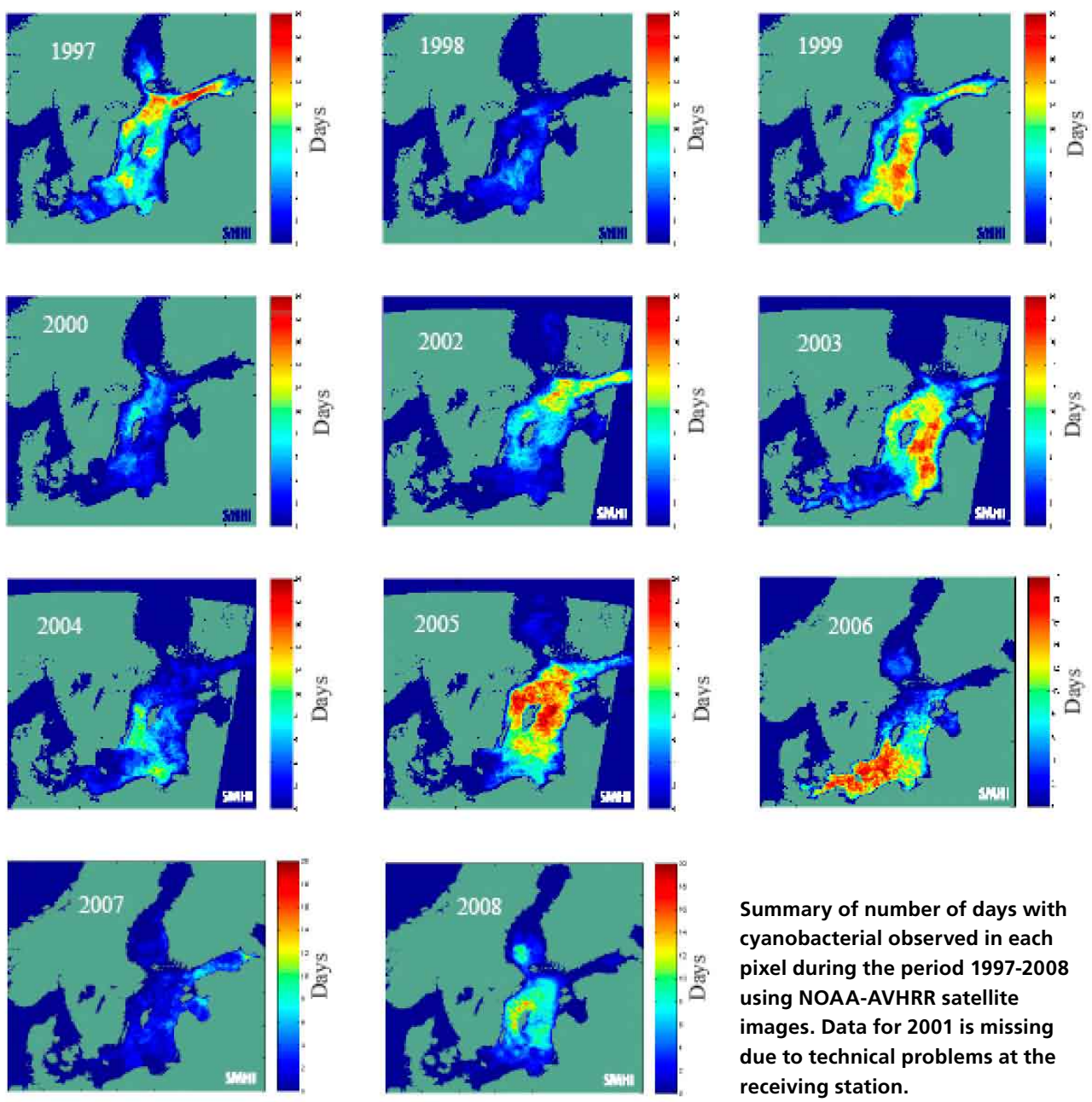
Daily extent of surface accumulations of cyanobacteria in the Baltic Sea during 2008 observed using NOAA-AVHRR satellite images. The red bars show confirmed observations of blooms and the yellow bars indicate unconfirmed bloom observations. The blue line represents cloud cover (as a percent) of the total area.

On 2 August, the weather in the Baltic Proper turned cloudy and windy, and the dense blooms were dispersed by strong winds and waves. The surface accumulations in the Bothnian Sea, however, remained for another couple of weeks but became more and more faint and had completely disappeared by the end of August.

The maximal extent (~180 000 km²) was observed on 31 July when almost the entire Baltic Proper and parts of the Bothnian Sea and the Gulf of Finland were covered by surface accumulations.



Nikolay Vlasov / HELCOM

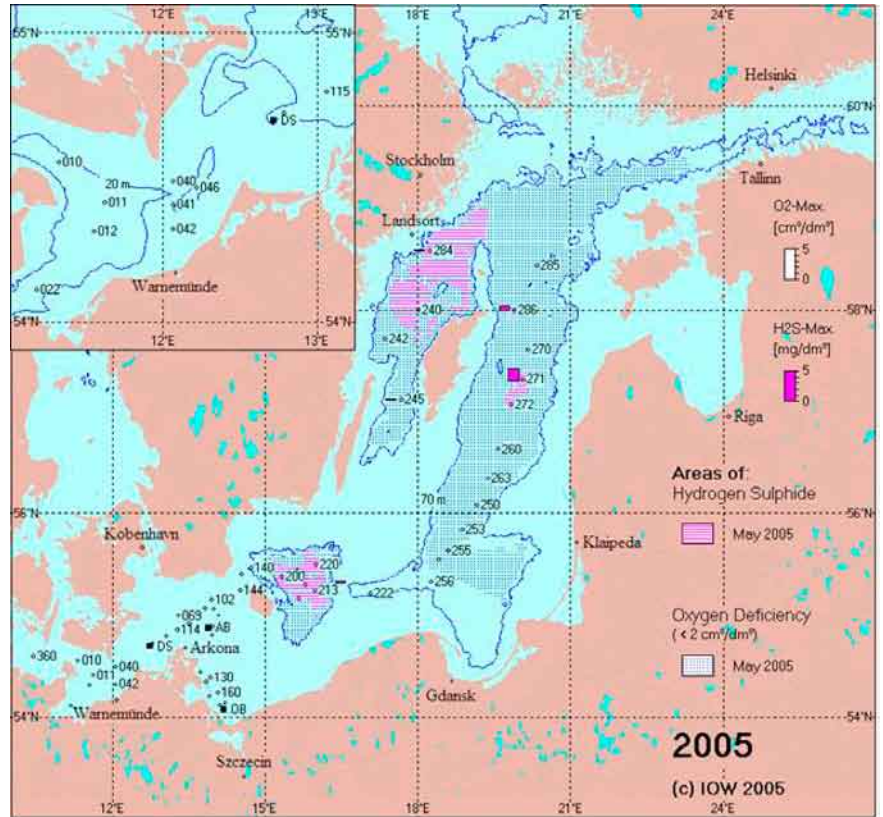


Summary of number of days with cyanobacterial observed in each pixel during the period 1997-2008 using NOAA-AVHRR satellite images. Data for 2001 is missing due to technical problems at the receiving station.

The absence of major inflows is intensifying the stagnation of the Baltic

Rainer Feistel, Günther Nausch and Eberhard Hagen, IOW

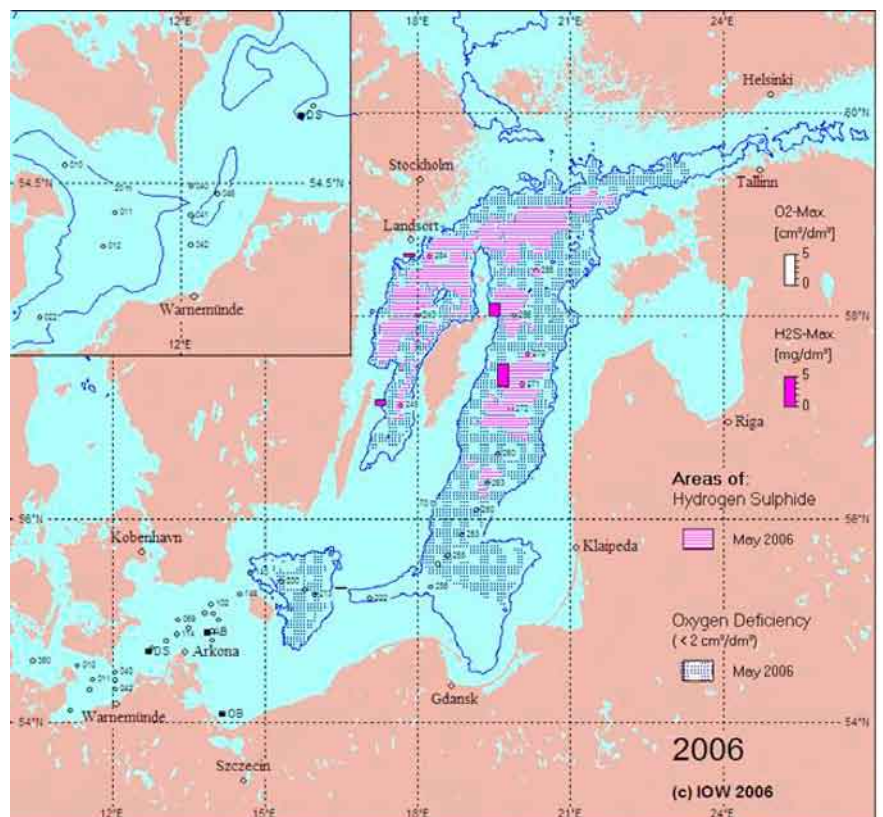
The inflow activity of recent years from the Kattegat into the Baltic Sea was coined by a quite unusual sequence of events: a warm summer inflow in 2002 was followed by a cold gale (force one) in January 2003, and again by a warm summer inflow 2003. Together they terminated the stagnation period in the Baltic deep water which had lasted since 1995. The period following this was characterised by low inflow activities with only a slight intensification since 2006. Except in the southern Baltic, the stagnation period that has lasted since 2004/2005 is strengthening. A baroclinic inflow in summer 2006, followed by small barotropic inflows in 2007, again caused very high temperatures observed in the central Baltic deepwater.

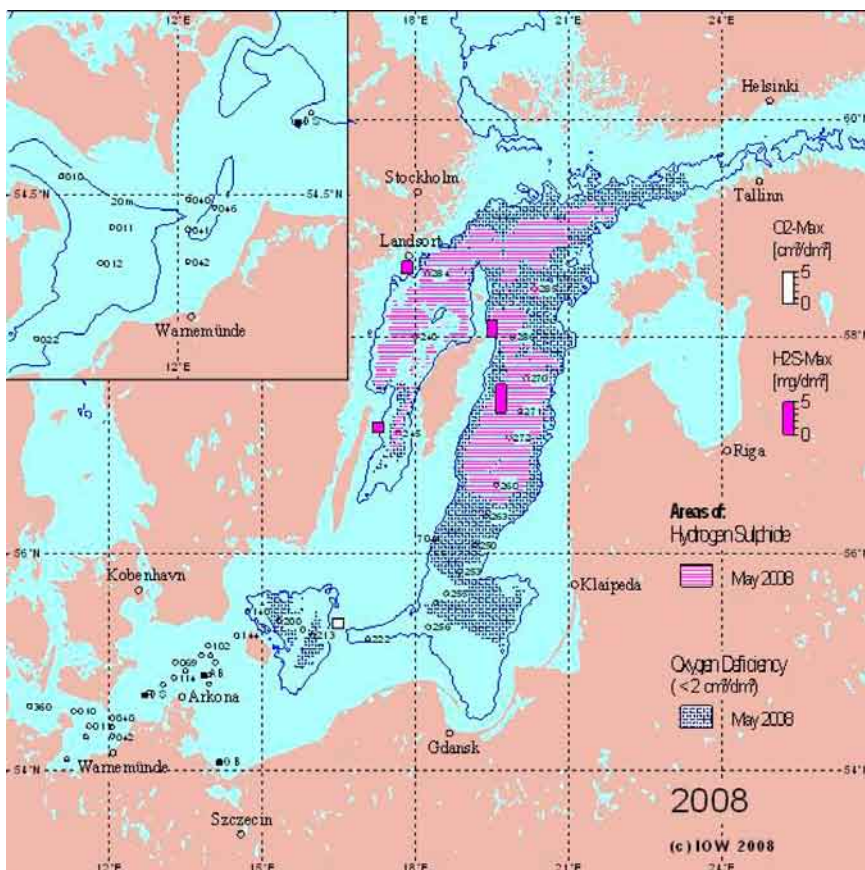
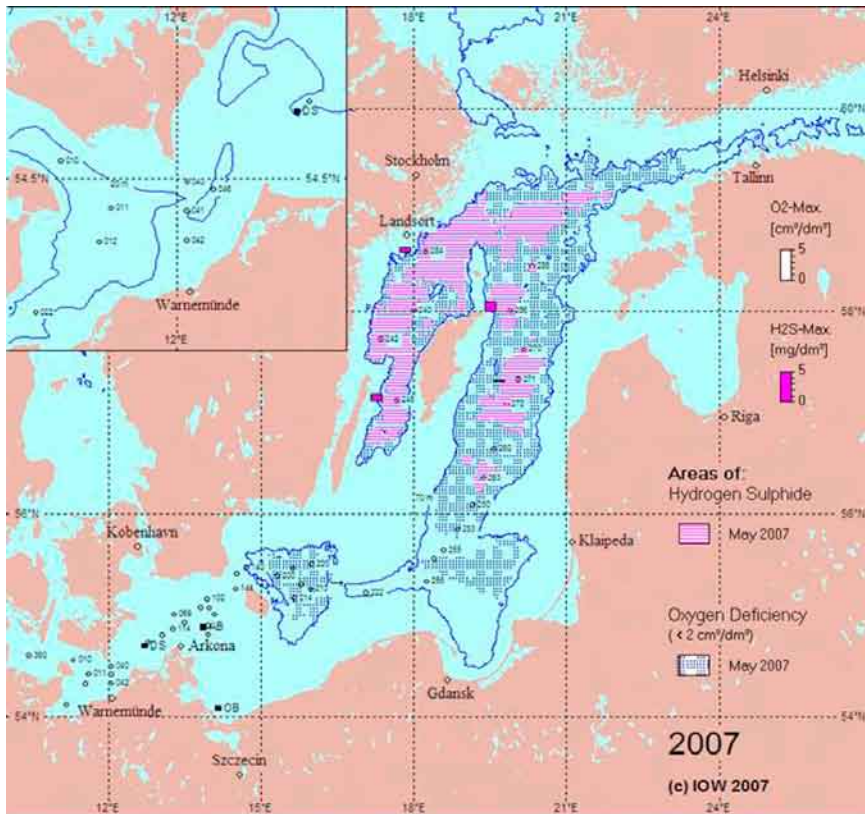


Results and assessment

Deep water renewal processes can be divided into two types: the 'classical' barotropic Major Baltic Inflows (MBIs) and the 'new' baroclinic inflows. MBIs occurring in winter and spring cause higher salinities, lower temperatures and increased oxygen levels in the deep basins. In summer and autumn, those of either type increase salinity along their pathway with

Areas with oxygen deficiency and hydrogen sulphide in the near bottom layer of the Baltic Sea in May during 2005 – 2008. Histograms show the maximum oxygen and hydrogen sulphide concentrations of this layer. The figure also shows the 70 m isobath. The top-left corner magnifies the western Baltic Sea with the 20 m isobath.





high temperatures but only carry low amounts of oxygen.

Before 1980, MBIs were relatively frequent and could be observed once a year on average. In the last two decades, however, they have become rather scarce; the last three major inflows took place in 1993, 1997 and 2003 with a minor one in 2001.

In 2003, the deeply contrasting thermal signatures of both inflow types provided (and still provide in remote basins) natural 'tracers' and allowed a clear insight into the dynamics of deep water propagation through the main basins of the western and central Baltic.

In the largest Baltic basin, the Eastern Gotland Basin, the barotropic inflows in autumn 1997 and October 2001 increased the temperature to more than 6.5°C at a depth of some 200 m; however, it did not improve the oxygen conditions significantly.

In addition, the exceptional baroclinic inflow in the summer/autumn of 2002 brought very warm water into this basin but was immediately replaced by a very cold and dense MBI in January 2003, which was enhanced by some smaller events in the spring. The temperature dropped to around 4.5°C. Since then, near-bottom temperatures have exceeded the long-term mean again as a consequence of the 2003 baroclinic inflow, and rose even further in 2007 due to the baroclinic inflows of 2006. In particular, the baroclinic inflow of August/September 2006 carried very warm water into the Bornholm Deep which has been residing there since November 2006. Apparently, it was lifted over the Slupsk Sill in January



Nikolay Vlasov / HELCOM

2007 and reached the Gotland Basin in April 2007 when extremely high values of 7.1°C were measured in the near-bottom layer. Despite its drastic temperature signal, this was a rather smooth substitution process without significant signals in salinity. This event further continued the 'warm period' of the central Baltic deepwater that has lasted since 1997.

The major Baltic inflow from January 2003 was the last strong inflow event into the Baltic Sea. The deep basins were additionally influenced by a warm summer inflow in 2003. The salinity development in the Gotland Basin reflects these inflow processes. In deep water, steep increases after inflows are

followed by slow decreases in the stagnation periods afterwards. It was the short inflow of August 2003, in particular, which elevated the salinity again to levels typical for the 1960s and 1970s. The surface salinity is following this trend delayed by a decade. The effects of these events are phasing out; a new stagnation period had started already in 2004 and continued until 2008 in all deep basins of the central Baltic Sea. The barotropic inflow events of 2007 could only marginally influence the deep waters around Gotland if at all.

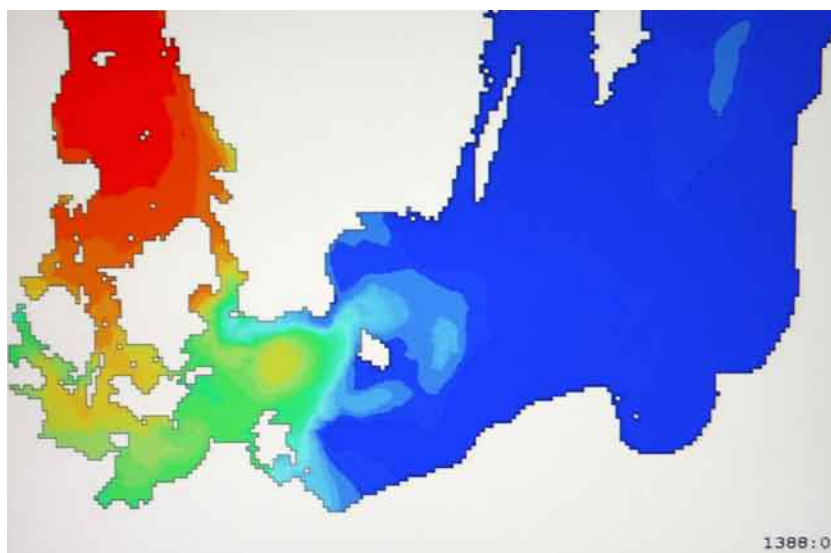
Changes of the near-bottom distributions of dissolved oxygen and hydrogen sulphide reflect these processes. In spring 2003, the MBI of January had

ventilated the Bornholm, Gdansk and Eastern Gotland Basin with considerable amounts of oxygen. In the latter basin, an oxygen content of 3.96 ml/l could be measured in the near-bottom layer. Since then, a deterioration of the oxygen situation in the deep water was observed. There was a continuous increase in hydrogen sulphide concentrations (expressed as negative oxygen equivalents) in the near-bottom layer.

The vertical extension of the hydrogen sulphide containing layer also increased. In summer 2008, hydrogen sulphide was found in the Gotland and Farö Deeps between 125 m and the bottom. At the Landsort Deep station, the layer between 100 m and the bottom was anoxic.

In the Bornholm Basin, in contrast, the baroclinic inflows of 2006 and the small barotropic inflows of 2007 resulted in an oxygenation of the deep water in both years.

A surprising finding was the complete ventilation of the formerly increasingly anoxic water column at the Karlsö Deep. Apparently caused by a wintery deep convection down from the surface, small concentrations of oxygen (0.5 ml/l) and nitrate (1 µmol/l) were measured near the bottom during April 2008.



Considerable increases in American comb jelly numbers in the Gulf of Finland and the Åland Sea

Maiju Lehtiniemi and Juha Flinkman, Finnish Institute of Marine Research

On 17 September, the Finnish research vessel Aranda returned to the home-port of Helsinki from a ten-day cruise in the Gulf of Finland and the Northern Baltic with a worrisome finding. The major purpose of this trip was to study the reproduction and nutrient consumption of the voracious comb jellyfish from North America, a recently introduced to the Baltic alien invasive species that poses a serious threat to local fish stocks. The results of the survey shows that the numbers of American comb jelly have increased considerably in both the Gulf of Finland and the Åland Sea since monitoring was carried out in August, and are at the same level as the peak winter figures. However, numbers have continued to decrease in the Bothnian Sea.

It has been noted around the world that the numbers of American comb jelly vary over the year with the reproductive cycle. The Aranda's latest observations also support the theory



American comb jelly larva

Photo Janne Bruun

of a seasonal reproductive cycle in the Northern Baltic. American comb jelly frequencies are again as high as the peak levels of last winter in the Gulf of Finland and the Åland Sea. The current incidences were highest near the halocline layer at a depth of 30-90 metres. Large quantities of American comb jelly eggs were also found.

The American comb jelly was found in fewer numbers in the Bothnian Sea, than in the other sea areas, and the number of individuals found per square metre was less than during the Aranda's August voyage. Also, the American comb jelly were found in deep waters in the Bothnian Sea below the halocline layer.

During the Aranda's expedition, nutrient consumption and reproduction experiments were carried out on comb jelly. The comb jelly produced eggs in laboratory conditions, which were similar to those in the sea below the halocline (saline and cold). Further research will allow more accurate species identification and provide further information on the hatching time of eggs. This will be used to estimate the development of the comb jelly community in the Northern Baltic. The American comb jelly is still very small in size, on average 1 mm, feeding on small zoo and phytoplankton. The analysis of the nutrient consumption samples will continue in the laboratory of the Finnish Institute of Marine Research's.



Metsähallitus 2006

Grey seal population in Finnish waters in 2008 equal last year's levels

Mervi Kunnasranta, Finnish Game and Fisheries Research Institute

Early this summer, more than 9,700 grey seals were counted in Finland's seawaters. The main area of concentration was the south-western archipelago where 8,300 grey seal were tallied.

during moulting as they tend to group together on exposed islets. Counts only provide a 'tracking value', as the smaller numbers of seals that are in the water at the time of the count are excluded. Seals are photographed from a plane in order to determine an exact population number. Flights

Grey seals counted in 2008

Åland islands	5,913
Archipelago Sea	2,395
Gulf of Bothnia	972
Gulf of Finland	460

encompass the entire archipelago belt within the Finnish territory. Similar seal counts are carried out each summer in Sweden, Estonia and Russia. The grey seal count of the entire Baltic Sea can be estimated at the end of the year, when the counts from each country are combined. The grey seal count has grown in the last decade and each year the count is larger.

This year's total count is roughly the same as in 2007 when 9,300 grey seal were spotted in Finland's sea waters; the record high of 2006 (10,700 seals) still remains unbroken. Although the counts can indicate changes in the overall grey seal stock, other factors can also contribute to count fluctuation such as weather conditions, the recognised mobility of seals and chance. Long-term tracking is still useful in terms of showing the overall trend in grey seal stock size.



Sergey Vlasov

Over 70% of the grey seals counted in the south-western archipelago were found in the waters around the Åland islands. In other Finnish sea waters, grey seals were clearly less populous. During the early summer moulting season, seals living in the Gulf of Bothnia can best be found in the Quark and the Bothnian Sea protected nature reserve areas. The largest seal populations counted in the Gulf of Finland were also observed in nature reserve areas.

Each year in late May to early June, the Game and Fisheries Research Institute of Finland carries out an inventory of the grey seal. They are easiest to count in the early summer



Sergey Vlasov

HELCOM's measures keep illicit oil spills in the Baltic near record lows

While the annual number of deliberate, illegal oil discharges from ships observed by national surveillance planes and satellites over the Baltic Sea area has increased slightly, it still remains near record lows, according to the HELCOM annual report for 2007 released in June.

The annual statistics which is based on the information provided by the HELCOM Member States shows that there were 238 illicit oil spills detected during a total of 3,969 hours of surveillance flights conducted by the coastal countries over the Baltic Sea during 2007. This is compared to 236 discharges observed during 5,128 air patrol hours in 2006, and 224 discharges observed during 5,637 air patrol hours in 2005. Despite the small increase, this is still one of the lowest numbers since 1999 when 488 discharges were detected during 4,883 flight hours.

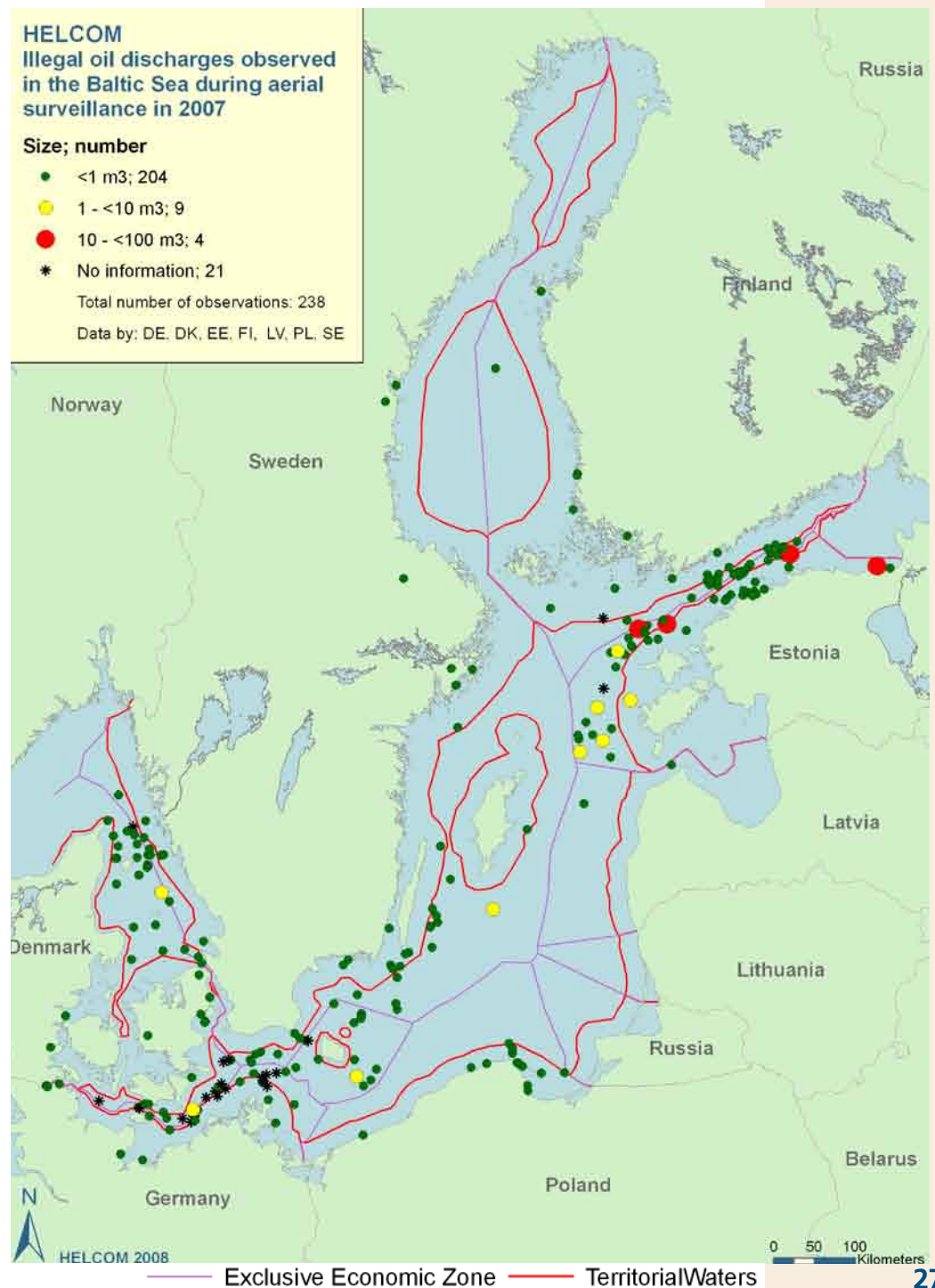
"HELCOM has achieved a significant reduction in the number of illicit oil discharges in the Baltic Sea area over the past years, even though the density of shipping has rapidly grown," says Monika Stankiewicz, HELCOM's Maritime and Response Professional Secretary. "We attribute this to the success of the complex set of measures known as the Baltic Strategy to prevent illegal discharges of oil and waste into the sea – measures the HELCOM countries have been implementing since the 1990s."

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.

In 2007, most of the illegal oil discharges were detected along major shipping routes. Up to 84% of the discharges were smaller than one cubic metre; however, four discharges of over 10 cubic metres were detected in the Estonian Exclusive

Economic Zone. The total estimated volume of oil spills observed in 2007 was 125.4 cubic metres.

In the vast majority of cases of detected illegal discharges, the polluters remain unknown. In 2007, out of





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.

Today, a blanket ban covers all discharges into the Baltic Sea of oil or diluted mixtures containing oil in any form, including crude oil, fuel oil, oil sludge and 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. Instead, costs are 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.

the total number of confirmed illegal discharges (238), the polluters were identified only in seven cases - eleven less than in 2006 when 236 oil spills were observed.

Regular aerial surveillance flights have contributed significantly to the decrease in discharges because ships are aware that their illicit polluting activities can be detected.

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 comprising 313 possible oil slicks were delivered to the Baltic Sea countries;

of these, 54 were eventually confirmed as being oil.

Satellite images can indicate 'candidates' for oil spills at sea, which can be later verified on site by a vessel or aircraft. The national satellite service, coupled with CSN, can detect illegal discharges at sea as well as provide support to response operations in the event 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 operationalised 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

Almost twenty illegal oil discharges detected during Super CEPCO surveillance flights

Almost twenty illegal oil discharges from ships were detected in the North Sea during the world's largest multi-national aerial surveillance operation against polluters at sea – Super CEPCO - which took place on 21-30 April along the major shipping routes connecting the Atlantic with the Baltic Sea Area.

Eight surveillance aircraft from eight countries, including several HELCOM Member States, participated in the round-the-clock flights which continuously surveyed the designated route off the southern shores of Norway



and in the Skagerrak area for oil pollution. Altogether, 185 flight hours were logged during the operation.

The operation remained classified until the last plane landed on 30 April in order to prevent possible offenders from discovering the surveillance activities. Up to 50 detections were made of which 17 were confirmed as mineral oil. All the confirmed illegal discharges were less than one cubic metre. A Norwegian ship was caught 'red-handed' polluting the Danish waters.

Remote sensing equipment, such as side-looking airborne radars (SLAR),



Several oil spills detected during HELCOM's CEPCO North and CEPCO South flights

infrared (IR) and ultraviolet (UV) cameras, was used during the operation. Tens of satellite images were also used to supplement the aerial surveillance.

"The operation was successful. Its results indicate that there is a noticeable decrease in the number of illegal oil discharges in the region," says Commander Peter Søberg Poulsen of the Admiral Danish Fleet HQ. "We are absolutely sure that the pollution control operations have contributed significantly to the decrease in the discharges, as ships are now more aware that their illicit polluting activities can be detected."

Super CEPCO 2008 was organised by Denmark, Norway and Sweden under the Bonn Agreement, and with the support of the European Maritime Safety Agency's CleanSeaNet Service, which provided satellite images of the flight area. Surveillance planes from Belgium, Denmark, Finland, France, Germany, the Netherlands, Spain and Sweden participated in the flights. The aircraft base was in Aalborg, Denmark.

"The main aim of the operation was continuous aerial surveillance over a region of interest in the North Sea over ten consecutive days in order to maximize the chances of catching 'red handed' any polluting vessels, develop rapid and effective procedures for prosecuting offenders in a multinational context and to optimize the use of satellite imagery as a complementary surveillance means," explains Commander Poulsen.

The first Super CEPCO operation took place in 2007. Seven aircraft from six countries flew over the English Channel and the southern part of the North Sea. The Super CEPCO flights will take place again in the future on top of surveillance operations conducted regularly in different European regions.

Two Coordinated Extended Pollution Control Operation (CEPCO) 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 predetermined routes in areas where operational spills are likely. CEPCO flights are also planned to 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. The HELCOM aerial surveillance fleet today comprises more than 20 aircraft and helicopters, most of which are equipped with up-to-date remote sensing equipment.

A total of seven illegal discharges of oil were detected during the Helsinki Commission's international CEPCO North 2008 aerial surveillance flights conducted over the north-eastern parts of the Baltic Sea during 16-17 September.

Four aircraft from Estonia, Finland, Latvia and Poland continuously surveyed the agreed route for oil pollution in the Gulf of Finland and the north-eastern Baltic Proper over a 24-hour period. The operation remained classified until the last plane landed on 17 September in order to prevent possible offenders from discovering the surveillance activities.

This year, the operation was organised by the Estonian Border Guard Aviation Group. The aircraft base for the CEPCO North flights was in Tallinn. Remote sensing equipment, such as



Nikolay Vlasov / HELCOM

side looking radars (SLAR), infrared (IR) and ultraviolet (UV) cameras, was used during the operation. Also, the European Maritime Safety Agency's CleanSeaNet service provided satellite images of the flight area.

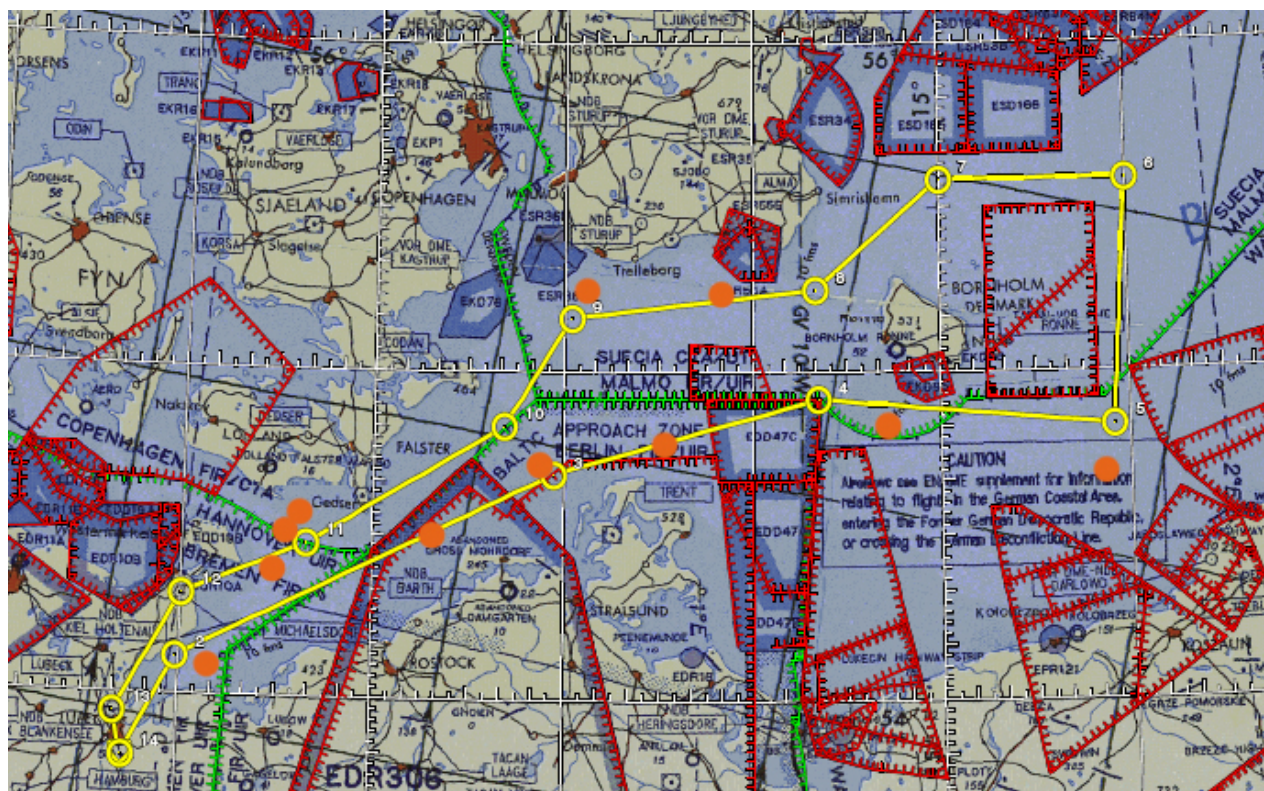
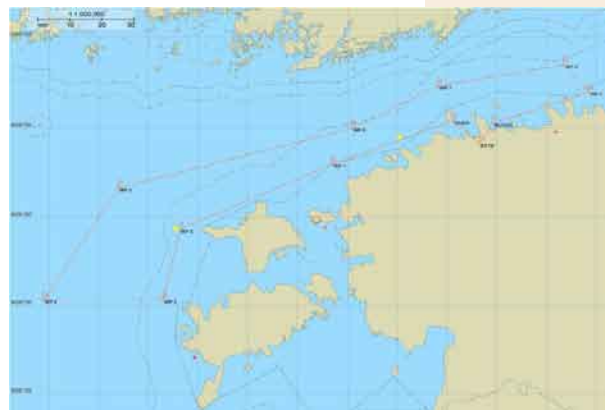
The detected spills have been recognised to contain only minor amounts of mineral oil - the largest being some 5.0 cubic metres. The total amount of oil in all detected slicks has been estimated at 10.1 cubic metres.



Nikolay Vlasov / HELCOM

Earlier this year, HELCOM also carried out aerial surveillance flights in the southern Baltic Sea from a base in Lübeck, Germany. CEPCO South involved four aircraft from Denmark, Estonia, Germany and Sweden which surveyed the Kadet Strait area and those areas around the island of Bornholm with high vessel traffic intensity on 17-19 June 2008. Two German response vessels and seven patrol vessels from Denmark, Germany,

Poland and Sweden supported the operation in the event that any investigations need to be made onboard ships detected of illegally discharging oil. During SEPCO South, 11 small discharges of mineral oil were observed by aircraft totalling 5.14 cubic metres; some unconfirmed slicks were also detected during one satellite overpass. One possible suspect of illegal pollution was identified by the German authorities.



Patrol route, CEPCO North 2008

Patrol route, CEPCO South 2008

HELCOM's fleet conducts a successful emergency response exercise off the Russian coast

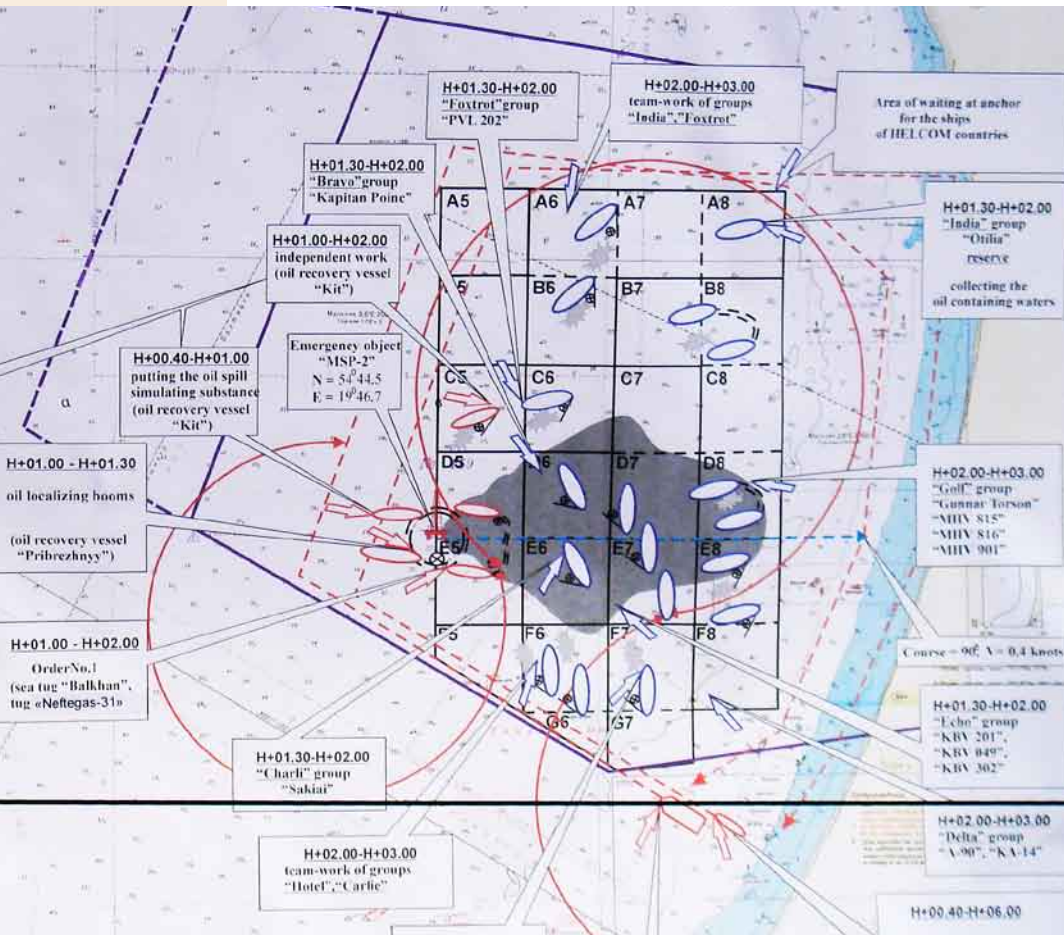
As part of the Helsinki Commission's continued focus on maritime safety and disaster preparedness in the

Baltic Sea area, a HELCOM flotilla of oil-combating ships staged its annual international pollution response

exercise BALEX DELTA 2008 simulating a major oil spill from an offshore platform off the coast of Kaliningrad, Russia, on 27 August.

Up to 20 oil-pollution-combating ships and other vessels from six HELCOM Member States - Denmark, Finland, Lithuania, Poland, Russia and Sweden - supported by helicopters took part in the exercise. The European Union (which is one of the HELCOM Contracting Parties) was also represented by one response vessel chartered by the European Maritime Safety Agency (EMSA). In addition, about 40 observers from Denmark, Estonia, Finland, Latvia, Lithuania, Poland, Russia, Sweden, and EMSA monitored the actions of the response units.

The basic aim of the exercise - the largest maritime emergency and counter-pollution drill of its kind in the Baltic Sea area and one of the largest worldwide - was to test HELCOM's accident response system, its command and communication system, as well as the cooperation between the response units of the



Ilya Sidlo



Nikolay Vlasov / HELCOM

Baltic Sea countries in the event of a major oil spill accident at sea.

“Overall, the exercise was a success, even though bad weather at sea continually hindered the response operation,” says Thomas Fagö, Chairman of the HELCOM Response Group. “We can see that the HELCOM accident response system works - and works quite efficiently. However, we need to continually improve our skills to ensure the HELCOM fleet is fully prepared and capable of responding to a major environmental disaster in the region. This is extremely important because the next time our ships meet under the HELCOM flag it could be a real accident.”

This year’s HELCOM annual exercise was organised by Russia’s Federal Agency of Maritime and River Transport and the State Marine Pollution Control, Salvage & Rescue Administration. The exercise involved a scenario where a well on a Russian oil platform off the coast of Kaliningrad Oblast’ blows out after a gas leak. As a result of the accident, the platform catches fire and spews 1,200 tonnes of crude oil into the sea which drifts towards



Nikolay Vlasov / HELCOM

the Russian coastline. Following the fire fighting operation and the evacuation of workers from the platform by a rescue helicopter, units from the HELCOM countries were tasked to deploy oil containment booms and skimming equipment to jointly collect oil from the sea and prevent the oil slick from reaching the shore.

The discharged oil was simulated with expanded perlite - a lightweight, micro-porous mineral substance pro-

duced from a volcanic rock which is white in colour and thus easily visible on the sea surface.

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

The issue of responding to accidents at sea has 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.



Monika Stankiewicz / HELCOM

Russian team wins HELCOM Trophy



Nikolay Vlasov / HELCOM

Russia's team won the HELCOM Trophy at the Helsinki Commission's 13th annual international rowing competition held on 28 August in Kaliningrad, Russia, following the international pollution response exercise BALEX DELTA 2008.

Seven teams of six rowers and a helmsman representing oil spill response vessels from Denmark,

Finland, Lithuania, Poland, Russia, Sweden, and the European Maritime Safety Agency (EMSA) took part in the race. The teams were divided into two groups and had to row around buoy placed 460 meters from the start - a total distance of 920 meters.

The first race (Denmark, Lithuania, Russia and EMSA) was dominated by the Russian crew who took a winning

lead from the start and clocked an impressive time of 7:06 minutes despite breaking an oar in the process. 'Silver' went to the Swedish team (7:15), winners of the second group (Finland, Poland and Sweden), while 'bronze' went to EMSA's team from the response vessel Otilia (7:43).

To date, thirteen HELCOM rowing competitions have been held since 1990. The race has been won six times by Swedish teams and twice by Finnish, Lithuanian and Polish teams.

The next annual HELCOM Trophy rowing competition will be held in Latvia – the host of the HELCOM BALEX DELTA 2009 oil pollution response exercise.



Russian team

Winners of the HELCOM Trophy rowing competition:

- 2008 (Kaliningrad) - Russia
- 2007 (Tallinn) - Poland
- 2006 (Gdynia) - Finland
- 2005 (Karlskrona) – Sweden
- 2004 (Warnemünde) – Sweden
- 2003 (Helsinki) - Sweden
- 2002 (Liepaja) – Lithuania
- 2001 (Rönne) – Lithuania
- 2000 (St. Petersburg) – Sweden
- 1998 (Gdynia) – Finland
- 1996 (Karlskrona) – Poland
- 1991 (Rönne) – Sweden
- 1990 (Gdynia) – Sweden



HELCOM to assess the contamination levels of hazardous substances in the eastern Baltic

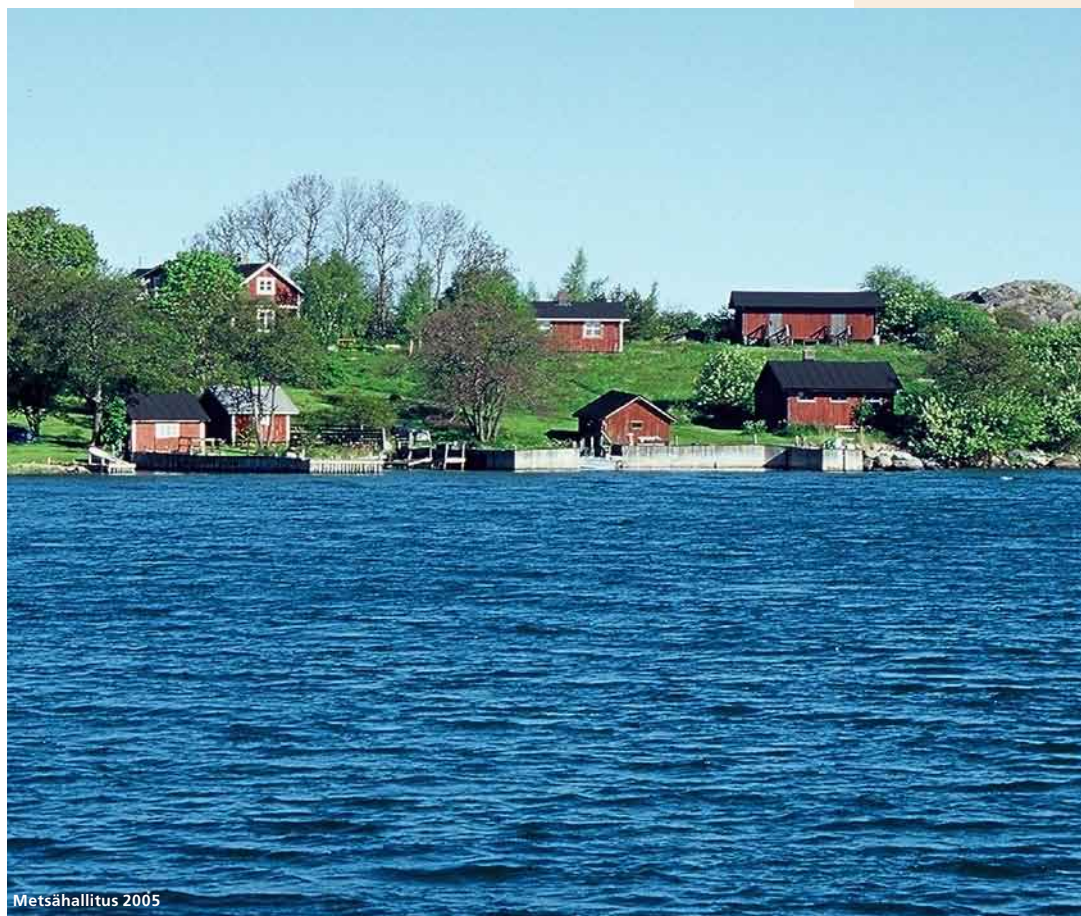
HELCOM has recently launched a screening study on the occurrence of hazardous substances in the eastern Baltic Sea as part of the activities under the Commission's ambitious plan to re-create a healthy Baltic marine environment. The study will identify the levels of nine hazardous substances or substance groups prioritised by HELCOM in the coastal waters of Estonia, Latvia, Lithuania, Poland and Russia. Together with national screenings in the western Baltic Sea - which have already been undertaken by Denmark, Finland, Germany and Sweden - the new data will be critical for closing existing information gaps on levels of hazardous substances in the whole Baltic basin.

"We need to get a clear picture of the state of contamination by hazardous substances in the whole Baltic Sea area in order to ensure the successful implementation of the HELCOM Baltic Sea Action Plan to restore the good ecological status of the sea by 2021," explains Anne Christine Brusendorff, HELCOM's Executive Secretary. "The results of this project will contribute to an overall thematic assessment on hazardous substances in the Baltic Sea region to be ready by 2010, including further development of indicators and necessary actions under the HELCOM plan."

"Although the occurrence of hazardous substances in marine environment will be mainly analysed in fish, sea water will also be surveyed," says Jukka Mehtonen, Project Manager at HELCOM. "Substances to be studied include dioxins, tributyltin (TBT), perfluorinated substances (PFOS) and nonylphenols. All substances will be chemically measured, except for dioxins, furans & dioxin-like PCBs. Existing information on their occurrence and contamination levels in the eastern Baltic marine environment will be compiled from various sources."

The sampling at all the ten sites was completed by the end of September 2008. All chemical analyses will be performed by one laboratory, located at the Swedish Environmental Research Institute, to ensure, e.g. sub-regional comparability. They will be ready by the end of May 2009.

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 the



Metsähallitus 2005

This project is funded by the Nordic Council of Ministers and coordinated by HELCOM. It is considered an integral part of the implementation of the Baltic Sea Action Plan.

Pollution involving hazardous substances is considered one of the major problems affecting the state of the Baltic marine environment. Hazardous substances include contaminants such as dioxins, PCBs, TBT, PFOS and heavy metals. Once released into the sea, hazardous substances can remain in

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 the maximum permitted 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.

Catches of chemical munitions in the Baltic fall to a record low

Catches of dumped World War II chemical munitions in the Baltic Sea have substantially decreased over the past several years. According to the latest annual statistics submitted by Denmark to HELCOM, fishermen reported two incidents of chemical munitions being caught in their nets in 2007 and only one in 2006 (compared to 25 incidents reported in 2003) - the lowest number since HELCOM began tracking this information in 1995.

However, experts are not, as yet, attributing the decrease to any specific factors. The reason for the dramatic decrease is unknown - as was the case for the dramatic increase in 2003. These variations are probably due to a combination of factors such as the intensity of fishing activities in the areas close to the dumped chemical munitions and the recommendations issued by HELCOM and the local authorities.

As Lead Country for monitoring dumped chemical munitions, Denmark prepared the latest annual report based on information received as of 1 April 2008. All catches occurred east of the island of Bornholm, near an area where large amounts of chemical munitions were dumped after World War II. The chemical munitions netted in 2007 were completely corroded and comprised lumps of mustard gas totaling approximately 58 kg. The weight of the catch in 2006 was only 6 kg. All catches were released at sea.

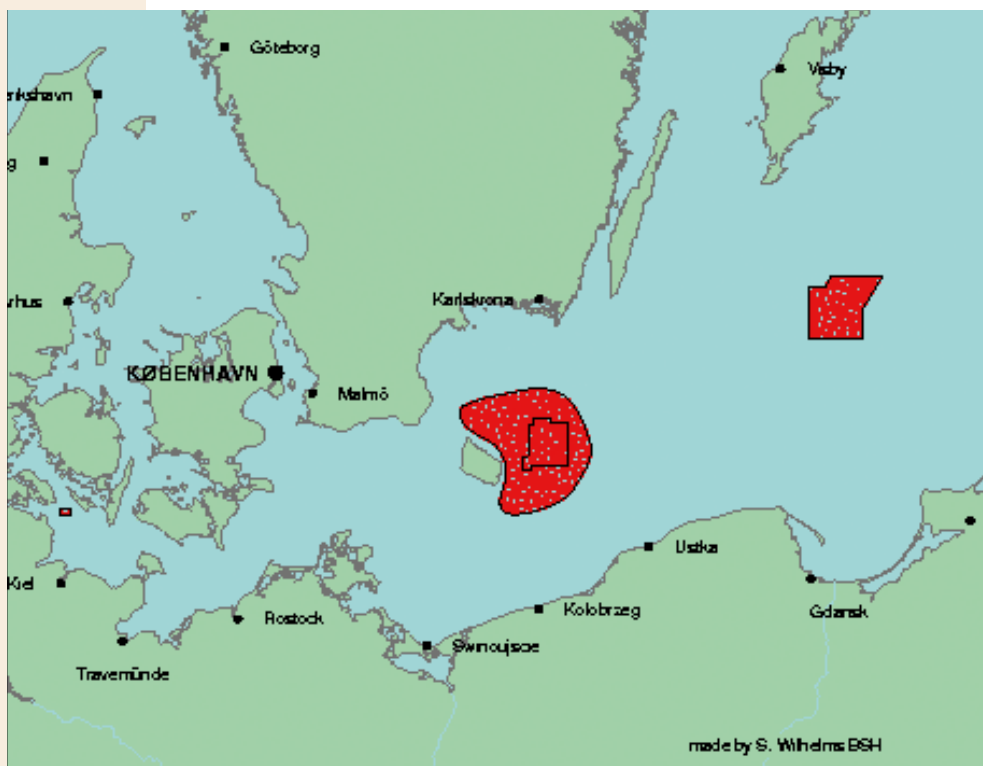
One of the biggest increases in both the numbers of incidents and the total weight of the chemical munitions caught in the Baltic Sea since the mid-1990s was in 2003 when 1,110 kg of gas-derived lumps was netted in 25 incidents. Over the period 1995-2002, some 5-11 incidents were reported annually - the total weight of the munitions did not exceed 514 kg a year. The highest number of incidents during the last 20 years was in 1991

when a total of 5,378 kg of munitions was netted in 103 incidents.

About 40,000 tonnes of chemical munitions were dumped into the Baltic Sea after World War II - mostly in the area to the east of Bornholm, southeast of Gotland and south of the Little Belt. It is estimated that these chemical munitions contained some 13,000 tonnes of chemical warfare agents. Dumping areas are marked as foul, with 'anchoring and fishing not recommended' on nautical charts. However, fishing in these waters is not prohibited and commercial fishing continues.

Warfare agents are also discovered outside the dumping areas from time to time, especially near Bornholm. Fishermen in these waters occasionally find bombs, shells or fragments of munitions and even lumps of mustard gas in their bottom trawl nets. The crews of fishing vessels risk contamination from chemical warfare agents if the lumps of viscous mustard gas or chemical munitions caught in bottom trawls are hauled on board. Simply touching these chemical agents or inhaling their vapours is very dangerous.

Chemical warfare agents break down at varying rates into less toxic, water-soluble substances. Some compounds, however, show an extremely low solubility and slow degradability (e.g. viscous mustard gas, Clark I and II, and Adamsite). As these compounds cannot occur at higher concentrations in water, any wide-scale threat to the marine environment from these chemical warfare agents can be ruled out. HELCOM has carried out extensive assessments and concluded that any threat to coastal areas from such residues of warfare agents or chemical munitions is unlikely.



HELCOM launches Fisheries and Environmental Forum on the sustainable use of Baltic marine biodiversity

HELCOM has successfully launched a new initiative to intensify the integration of fisheries and environment policies in the Baltic Sea area in order to ensure the conservation and sustainable use of marine biodiversity.

The inaugural Meeting of the Fisheries and Environmental Forum, held by HELCOM on 23 September, showed that the fisheries and environmental authorities of the Baltic Sea countries have considerable interest in cooperating to resolve any conflicts between nature protection and fisheries management. The Meeting discussed a wide range of issues including fisheries management within marine protected areas in the Baltic Sea. The development of an ecologically coherent network of marine protected areas, including fisheries management measures to be applied there by 2010, is one of the goals of the HELCOM Baltic Sea Action Plan.

“It is essential that the competent environmental and fisheries authorities in the region have a common forum to discuss fisheries in the context of the protection of the marine environment of the Baltic Sea area,” says Anne Christine Brusendorff, HELCOM’s Executive Secretary. “The fisheries sector has a significant impact on biological diversity, habitats and species, but it is also dependant on a healthy ecosystem for its survival. The results of these discussions on how to better integrate fisheries and environment policies will be very important for the successful implementation of the Baltic Sea Action Plan.”

The Meeting approved a Joint Statement on the general implementation status of marine protected areas in the Baltic Sea area, with specific focus on fisheries management measures. Taking into account the ongoing



EU work to develop guidelines for fisheries in marine protected areas around Europe, the Statement calls for the need to have a Baltic regional approach which takes into account regional specificities. The Joint Statement underlined the importance of gathering and exchanging data on marine environmental status and fisheries efforts. It also stressed the importance of projects carried out jointly with fisheries and environmental authorities to study the possible harmful effects of specific fishing practices in marine protected areas, and the need to ensure that the outcomes of joint projects are used in the policy-making processes. Additionally, participants agreed on the importance of broad stakeholder involvement as well as the need to enhance knowledge on socio-economic impacts in relation to the analysis of various management options for fisheries. The Joint Statement was submitted to the Expert Meeting on the establishment of the EU Natura 2000 marine sites, held on 29 September in Brussels, where the implementation of fisheries manage-

ment measures and the Guidelines on the establishment of such in marine protected areas were also discussed.

Among other key issues, the Meeting discussed the idea of a possible HELCOM project concerning a new inventory and classification of the Baltic salmon and sea trout rivers. Participants agreed that this inventory will be essential for the development and implementation of the new salmon management plan in the region. Participants also agreed that such an inventory should be carried out in close cooperation with the fisheries and environmental administrations of all the Baltic coastal countries. Additionally, the Meeting discussed the promotion of the ecosystem-based management of coastal fisheries, spatial planning issues and the integration and exchange of fisheries and environmental data for this purpose.

It has already been decided that the next Baltic Fisheries and Environmental Forum will meet in February or March 2009.

Germany to host the Fourth HELCOM Youth Forum

'HELCOM Baltic Sea Action Plan - a Regional Screenplay on the European Stage' will be the theme of the Fourth HELCOM Youth Forum which will be held on 4-6 May 2009 in Stralsund, Germany. It will be organised by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety in cooperation with the Baltic Sea Forum, the Hanseatic City of Stralsund, the University of Applied Sciences Stralsund and the German Oceanographic Museum.

More than 40 students representing all the nine Baltic Sea coastal countries will take part in this three-day event where they will exchange views with the aim of feeding their personal visions into

a future Baltic Sea Policy. Each coastal country will be represented by five postgraduate students with a bachelor's or comparable degree regardless of discipline (natural or political science, law or other) and who are interested in the issue of 'cooperation for the Baltic'.

To participate, the students need to apply by submitting a paper on how to achieve the goals of the plan by addressing one of the four segments of the HELCOM Baltic Sea Action Plan (i.e. 1. eutrophication; 2. hazardous substances; 3. biodiversity; 4. maritime affairs). Alternatively, they can submit a paper focussing on the latest developments in the European Marine/Maritime Policy - on the main purposes of

the European involvement in 'policy for our European seas'.

The HELCOM Youth Forum is intended to further the exchange amongst representatives of the 'future generation' around the Baltic Sea. An interesting conference including attractive social events will offer the possibility to input and receive new impulses with regard to cooperation in a developing and prospering region. Scientists and members of the political decision-making bodies will share their views and experiences and invite questions and comments. Workshops will offer the opportunity to actively scrutinise particular aspects and defend personal views. Moreover, students will have the chance to meet other students from the whole Baltic Sea region.

HELCOM is convinced that Public Awareness Raising – in particular with regard to the youth around the Baltic - is of utmost importance for safe-guarding future generations' interest concerning the Baltic.



HELCOM releases an online version of mariners' routeing guide for the Baltic



Irina Gasilina

The Helsinki Commission has released an online version of the Transit Guide for the Baltic Sea - a single source of essential navigational information for shipmasters planning safe routes through the Baltic.

"The web version of the HELCOM Transit Guide is the first undertaking of its kind in the Baltic Sea area," says Monika Stankiewicz, Professional Secretary for maritime and response issues at HELCOM. "It has been developed to provide online access to systematic and updated guidance and information related to the safety of navigation in the Baltic Sea area."

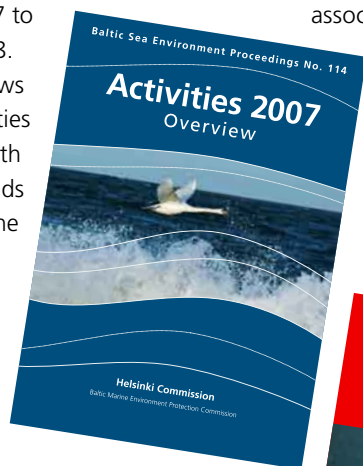
The web-based Transit Guide includes the same kind of information and a similar outline as the print version of the Guide and is designed to supplement the existing nautical chart portfolio for the Baltic Sea. It includes information on ship routeing systems, including numerous traffic separation schemes and deep water routes, ship reporting systems, pilotage, ice conditions, maritime assistance services and special regulations.

The online Guide has been developed by the HELCOM Transit Route Expert Working Group under the lead of Denmark by using a chart designed

Latest HELCOM publications

HELCOM Activities 2007 Overview (2008)

This report summarises the activities of the Helsinki Commission related to the protection of the Baltic marine environment over the period from March 2007 to March 2008. It also reviews these activities together with current trends related to the main environmental issues.



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. Freshwater species or biotopes/habitats with a wider distribution are, for the most part, not considered.

HELCOM lists of threatened and/or declining species and biotopes/habitats in the Baltic Sea area (2007)

The listed species and biotopes/habitats were selected by international Baltic Sea experts who widely



The Third Stakeholder Conference on the HELCOM Baltic Sea Action Plan (2008)

This set of on-line materials was released following the Third Stakeholder Conference on the Baltic Sea Action Plan held on 4 March 2008. It includes the conference outcome document, 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/.

and printed by the German Federal Maritime and Hydrographic Agency (BSH). The initial idea of the whole project, which included the development of both the print and online versions, was to provide mariners with an easy-to-use guide which allows them to instantly access all necessary information. Germany has kept the Transit Guide print version up-to-date since its initial release in 2006. The latest third edition was published in April 2008. The web-based Guide will be maintained by the Danish Maritime Safety Administration.



Irina Gasilina

Forthcoming HELCOM Meetings

7 – 8 October 2008

13th Meeting of the Expert Working Group on Transit Routeing (TRANSIT ROUTE EWG 13/2008), Helsinki, Finland

14 – 15 October 2008

Third Meeting of HELCOM Baltic Sea Action Plan Implementation Group (HELCOM BSAP IG 3/2008), Tallinn, Estonia

29 - 31 October 2008

Tenth Meeting of the Response Group (HELCOM RESPONSE 10/2008), Warnemünde, Germany

3 – 7 November 2008

Eleventh Meeting of the Monitoring and Assessment Group (HELCOM MONAS 11/2008), Stockholm, Sweden

18 – 20 November 2008

Seventh Meeting of the Maritime Group (HELCOM MARITIME 7/2008), St. Petersburg, Russia

21 November 2008

Third Stakeholder Workshop on the implementation of the Baltic Sea Action Plan (Maritime Segment) in the Russian Federation, St. Petersburg, Russia

2 December 2008

Fourth Meeting of HELCOM Baltic Sea Action Plan Implementation Group (HELCOM BSAP IG 4/2008), Helsinki, Finland

3 – 4 December 2008

27th Meeting of the Heads of Delegation (HELCOM HOD 27/2008), Helsinki, Finland

11 – 12 December 2008

18th Meeting of the Expert Working Group for Mutual Exchange and Deliveries of AIS data (AIS EWG 18/2008), Helsinki, Finland

2 – 4 February 2009

Second Meeting of the HELCOM Project for Expert Network on Monitoring and Protecting of Coastal Fish and Lamprey Species (HELCOM FISH 2/2009), Tallinn, Estonia

[17 February 2009]

Second Baltic Fisheries/Environmental Forum for Implementation of the HELCOM Baltic Sea Action Plan Fish/Fisheries related items (HELCOM FISH/ENV FORUM 2/2009)

3 March 2009

HELCOM Stakeholder Conference, Helsinki, Finland

4 – 5 March 2009

30th Meeting of the Helsinki Commission (HELCOM 30/2009), Helsinki, Finland

5 – 7 May 2009

14th Meeting of the Project Group for Monitoring of Radioactive Substances in the Baltic Sea (HELCOM MORS-PRO 14/2009), Stockholm, Sweden

12 – 15 May 2009

Eleventh Meeting of the Nature Protection and Biodiversity Group (HELCOM HABITAT 11/2009), Helsinki, Finland

[19 – 21 May 2009]

Fourteenth Meeting of the Land-based Pollution Group (HELCOM LAND 14/2009), Dessau, Germany

[June 2009]

28th Meeting of the Heads of Delegation (HELCOM HOD 28/2008), Helsinki, Finland

HELCOM Secretariat welcomes new staff members

In spring - autumn 2008, several new staff members, all from Finland, joined the HELCOM Secretariat located in Helsinki, Finland.

Mr. Samuli Neuvonen took up the position of Project Researcher (SCALE/GIS) in March. On 1 May, Mr. Samuli Korpinen joined the Secretariat to substitute Ms. Hanna Paulomäki, Scientific Assistant, who is currently on maternity leave. In June, Ms. Kati Kimanen took up the position of Assistant.

In September, Mr. Markku Lahtinen was recruited as the new Project Researcher on Fisheries, and in October Mr. Kaj Granholm, who has previously served in the Secretariat as the Baltic Sea Regional Project Assistant, was employed as Project Researcher for the development of the HELCOM prioritised list of wastewater treatment plants and agricultural hot spots.

