HELCOM Baltic Sea Action Plan

HELCOM Ministerial Meeting

Krakow, Poland, 15 November 2007

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HELCOM BALTIC SEA ACTION PLAN

adopted on 15 November 2007 in Krakow, Poland
by the HELCOM Extraordinary Ministerial Meeting

Preamble

The Commission, represented by

[the Minister for Environment of the Kingdom of Denmark,]

the Minister of the Republic of Estonia,

the Minister for Environment of the Republic of Finland,

the High Level Representative of the Federal Republic of Germany,

the Minister of the Republic of Latvia,

the Minister of Environment of the Republic of Lithuania,

the Minister for Environment of the Republic of Poland,

the High Level Representative of the Russian Federation,

the Minister for Environment of the Kingdom of Sweden;

and by the High Level Representative of the European Commission on behalf of the European Community

ASSEMBLED in Krakow, Poland on the occasion of the Extraordinary Ministerial Meeting of the Helsinki Commission, on 15 November 2007;

RECALLING the provisions of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992;

Especially BEING CONSCIOUS of the indispensable values of the unique marine ecosystem of the Baltic Sea area, its exceptional hydrographical and ecological characteristics and the particular sensitivity of its living resources to changes in the environment.

AWARE that HELCOM's work has led to significant environmental improvements in many areas, but that a large number of problems have yet to be fully addressed and that major threats still persist which are hindering restoration, protection and sustainable utilisation of the marine goods and services provided by the Baltic Sea;

FULLY AWARE that climate change will have a significant impact on the Baltic Sea ecosystem requiring even more stringent actions in the future and of the efforts made by the Conference of the Parties to the 1992 United Nations Framework Convention on Climate Change;

RECALLING the 2003 Declaration of the First Joint Ministerial Meeting of the Helsinki and OSPAR Commissions to apply and further develop the measures necessary to implement an ecosystem approach to the management of human activities;

ACKNOWLEDGING that the ecosystem approach is based on an integrated management of all human activities impacting on the marine environment and, based on best available scientific knowledge about the ecosystem and its dynamics, identifies and leads to actions improving the health of the marine ecosystem thus supporting sustainable use of ecosystem goods and services;

STRESSING the need for integrated management of human activities and the need to take into account their impacts on the marine environment in all policies and programmes implemented in the Baltic Sea region;

FURTHERMORE STRESSING the need for integration of environmental objectives with economic and socio-economic goals in order to advance and strengthen the three interdependent pillars of sustainable development;

RECALLING the adopted HELCOM vision "A healthy Baltic Sea environment, with diverse biological components functioning in balance, resulting in a good environmental/ecological status and supporting a wide range of sustainable human economic and social activities" having biodiversity at its core and which builds upon concepts such as "favourable conservation status" and "good ecological and good environmental status";

FURTHER RECALLING that based on HELCOM monitoring and assessment work on the state of the Baltic marine environment four strategic goals, reflecting the jointly identified major environmental problems in the Baltic Sea, have been adopted describing the desired state of the marine environment, namely a "Baltic Sea unaffected by eutrophication", "Baltic Sea with life undisturbed by hazardous substances", "Maritime activities carried out in an environmentally friendly way", all of which will lead to a "Favourable conservation status of Baltic Sea biodiversity";

FURTHERMORE RECALLING the adopted HELCOM ecological objectives which describe the good environmental/ecological status we want to achieve for the Baltic Sea in the future;

AGREEING that the targets, which are associated with the ecological objectives, are defining the good environmental/ecological status of the Baltic Sea;

AGREEING that the management decisions are based on sub-regional targets;

FURTHER AGREEING that when selecting the necessary management measures within different sectors focus shall be put on cost-benefits and cost-efficiency taking into account economic and social sustainability in the Baltic Sea Region;

BEING AWARE that there are cost implications of not taking actions against eutrophication and other threats to the Baltic Sea;

FURTHERMORE AGREEING that the effectiveness of the actions taken shall be evaluated by using appropriate indicators to measure the progress towards the targets. This will allow future adjustments of the actions to ensure that the objectives will be achieved;

ACKNOWLEDGING that the current environmental as well as reduction targets in the various segments are based on best available knowledge of today. Pursuing the adaptive management principles, the objectives and targets should be periodically reviewed and revised using a harmonised approach and most updated information;

STRESSING that HELCOM's monitoring and assessment programme will contribute to an improved scientific understanding of the marine environment that will in turn contribute to the periodic review of the objectives, associated targets and indicators, and will be decisive when determining the need for further management measures;

FURTHER STRESSING the need to co-ordinate and harmonise the work within the HELCOM Baltic Sea Action Plan to various on-going initiatives at the international and national level, including the proposed EU Marine Strategy Directive, the EU Maritime Policy and the Maritime Doctrine of the Russian Federation;

FURTHERMORE STRESSING the need to make use of common Baltic knowledge and priorities in policy making at the global, regional and national level when deciding on the needed actions to reach the good environmental/ecological status of the Baltic Sea;

APPRECIATING the positive contributions made by Intergovernmental Organisations and Non-governmental Organisations within their work and within the work of HELCOM towards

preserving and protecting the Baltic Sea Area and ensuring a prudent utilisation of its marine goods and services;

WITHOUT PREJUDICE TO international agreements and legislation of the European Community;

HAS AGREED TO THE FOLLOWING ACTIONS TO ACHIEVE A BALTIC SEA IN GOOD ENVIRONMENTAL STATUS BY 2021:

Eutrophication segment of the HELCOM Baltic Sea Action Plan

Eutrophication segment of the HELCOM Baltic Sea Action Plan

Eutrophication – towards a Baltic Sea unaffected by eutrophication

Introduction

The overall goal of HELCOM is to have a Baltic Sea unaffected by eutrophication.

Eutrophication is a major problem in the Baltic Sea. Since the 1900s, the Baltic Sea has changed from an oligotrophic clear-water sea into a eutrophic marine environment. Eutrophication is a condition in an aquatic ecosystem where high nutrient concentrations stimulate the growth of algae which leads to imbalanced functioning of the system, such as:

- intense algal growth: excess of filamentous algae and phytoplankton blooms;
- production of excess organic matter;
- increase in oxygen consumption;
- oxygen depletion with recurrent internal loading of nutrients; and
- death of benthic organisms, including fish.

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

Ecological objectives

The aim is to reach HELCOM's vision for good environmental status in the Baltic Sea. For this reason HELCOM has adopted the following ecological objectives to describe the characteristics of a Baltic Sea, which is unaffected by eutrophication:

- Concentrations of nutrients close to natural levels,
- Clear water,
- Natural level of algal blooms,
- Natural distribution and occurrence of plants and animals,
- Natural oxygen levels.

In order for the ecological objectives to be made operational, indicators with target values, reflecting good ecological and environmental status of the Baltic marine environment, have been agreed upon. Clear water was chosen as the primary ecological objective with water transparency as the indicator (see page 77).

Cross-references with other objectives

Failure to reach the objectives for eutrophication will impair the achievement of favourable status of biodiversity.

At the same time the management objectives for airborne nitrogen emissions from shipping and nutrient inputs from ships' untreated sewage are also relevant for reaching the objectives with regard to eutrophication.

In order to reach the goal towards a Baltic Sea unaffected by eutrophication

WE AGREE on the principle of identifying maximum allowable inputs of nutrients in order to reach good environmental status of the Baltic Sea,

WE ALSO AGREE that there is a need to reduce the nutrient inputs and that the needed reductions shall be fairly shared by all Baltic Sea countries,

BEARING IN MIND that the figures are based on the MARE NEST model, the best available scientific information, and thus stressing the provisional character of the data **WE ACKNOWLEDGE** that the maximum nutrient input to the Baltic Sea that can be allowed and still reach good environmental status with regard to eutrophication is about 21,000 tonnes of phosphorus and 600,000 tonnes of nitrogen,

WE FURTHERMORE RECOGNISE that, based on national data or information from 1997-2003 in each sub-region of the Baltic Sea, the maximum allowable nutrient inputs to reach good environmental status and the corresponding nutrient reductions that are needed in each sub-region are as follows:

Sub-region	**Maximum allowable nutrient input (tonnes)**		**Inputs in 1997-2003 (normalised by hydrological factors)**		**Needed reductions**	
	Phosphorus	Nitrogen	Phosphorus	Nitrogen	Phosphorus	Nitrogen
Bothnian Bay	2,580	51,440	2,580	51,440	0	0
Bothnian Sea	2,460	56,790	2,460	56,790	0	0
Gulf of Finland	4,860	106,680	6,860	112,680	2,000	6,000
Baltic Proper	6,750	233,250	19,250	327,260	12,500	94,000
Gulf of Riga	1,430	78,400	2,180	78,400	750	0
Danish straits	1,410	30,890	1,410	45,890	0	15,000
Kattegat	1,570	44,260	1,570	64,260	0	20,000
Total	21,060	601,720	36,310	736,720	15,250	135,000

In order to diminish nutrient inputs to the Baltic Sea to the maximum allowable level **WE AGREE** to take actions not later than 2016 to reduce the nutrient load from waterborne and airborne inputs aiming at reaching good ecological and environmental status by 2021,

WE AGREE on the following country-wise provisional nutrient reduction requirements:*

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

WE ACKNOWLEDGE that the current environmental and nutrient reduction targets presented above are provisional, though based on best available knowledge of today. Pursuing the adaptive management principles, all the figures related to targets and maximum allowable nutrient inputs should be periodically reviewed and revised using a harmonised approach using updated information to be made available by the Contracting States and starting in year 2008 taking into account the results of the Fifth Pollution Load Compilation (PLC-5) and national river basin management plans,

WE RECOGNISE that the reduction of water- and airborne inputs of nutrients within a HELCOM Contracting State contributing to the achievement of country-wise reduction targets should be accounted for,

In order to reach the above country-wise provisional reduction targets **WE AGREE** to develop and to submit for HELCOM's assessment national programmes by 2010 with a view to evaluate the effectiveness of the programmes at a HELCOM Ministerial Meeting in 2013 and whether additional measures are needed. **WE ACKNOWLEDGE** that this approach would leave enough flexibility for the countries to choose the cost-effective measures to be implemented to reach the reduction targets in order to achieve a good ecological and environmental status of the Baltic Sea with regard to eutrophication.

FURTHERMORE WE AGREE TO identify and where appropriate to include the required and appropriate measures into national programmes / River Basin Management Plans of the EU Water Framework Directive (Directive 2000/60/EC) for HELCOM Contracting States that are also EU Member States.

In order to cut the nutrient load from waterborne inputs

WE ADOPT the following two Recommendations on wastewater treatment which – if fully implemented – have an estimated capacity to reduce the current total nutrient input to the Baltic Sea including 6,700 tonnes phosphorus which means an additional 2,000 tonnes compared to existing requirements:

- HELCOM RECOMMENDATION 28E/5 on more stringent requirements for P-removal from municipal wastewater treatment plants (above 10,000 p.e.) and introduction of requirements for wastewater management for small- and medium-sized municipalities (300-10,000 p. e.);
- HELCOM RECOMMENDATION 28E/6 on improvement of on-site wastewater treatment of single-family homes, small businesses and settlements up to 300 p.e.,

* *Finland informs that the reduction needs for the Archipelago Sea, which have not been sufficiently taken into account using the MARE NEST model will be addressed according to national plans.*

Furthermore **WE AGREE** that, in order to achieve country-wise nutrient reduction targets, the Contracting States should choose the most appropriate and cost-effective measures taking into account requirements of the two aforementioned Recommendations and include them into national programmes.

WE FURTHERMORE ADOPT HELCOM RECOMMENDATION 28E/7 on Measures aimed at the substitution of phosphorus in detergents by 2012,

WE ACKNOWLEDGE that agriculture is the main source of nutrient inputs to the Baltic Sea, and

WE FURTHERMORE CONSIDER that nutrient losses from urban as well as scattered settlements will be reduced to an acceptable level with full implementation of the above recommendations and that the agricultural sector is the land-based source where major reductions are needed, and to this end,

WE AGREE to take all necessary steps towards designating relevant parts of agricultural land in the catchment area as a zone vulnerable to nitrates,

WE AGREE to amend Annex III part II Prevention of pollution from Agriculture of the Convention by adopting HELCOM RECOMMENDATION 28E/4 and **EMPHASISE** the need for proper implementation of its requirements and to apply agricultural Best Environmental Practice (BEP) and Best Available Technology (BAT),

WE ENDORSE the HELCOM list of examples for measures for reducing phosphorus and nitrogen losses from agriculture as contained on page 87,

FURTHERMORE WE AGREE to establish by 2009 a list of Hot Spots identifying existing installations for the intensive rearing of cattle, poultry and pigs not fulfilling the requirements in the revised Annex III of the Convention,

Contracting States which are also Member States of the EU **WELCOME** that the European Commission is about to adopt a communication on the Health Check of the EU Common Agricultural Policy which will trigger a broad EU-wide consultation process, and **AGREE** within the given deadline to make a joint submission stressing the need to integrate better the specific environmental concerns of the Baltic Sea, and the need to adopt additional and targeted agricultural measures in particular to reduce eutrophication of the Baltic Sea,

WE AGREE on the need to address also other sources which can have significant eutrophication impacts such as forestry, peat mining, aquaculture and fur farming,

WE RECOGNISE the increased production of energy crops and **AGREE** on the need to apply adequate water protection requirements,

WE ALSO ACKNOWLEDGE that an estimated amount of 1,660 tonnes of phosphorus and 3,780 tonnes of nitrogen coming from transboundary waterborne pollution originating in Belarus should be allocated to a common pool. **WE AGREE** that transboundary pollution originating in the non-Contracting States Belarus and Ukraine should be addressed by initiating joint activities e.g. by bi- and/or multilateral projects and through other existing funding mechanisms as well as by international agreements such as the 1992 UNECE Convention on Transboundary Waters and Lakes, and the River Basin Management Plans of the EU Water Framework Directive for HELCOM Contracting States being also EU Member States,

In order to cut the nutrient load from airborne inputs

WE ACKNOWLEDGE that a quarter of the total nitrogen input to the Baltic Sea is airborne of which sources outside the Baltic Sea catchment area contribute about 40% of the direct nitrogen deposition, and therefore,

WE DECIDE that the governments of the HELCOM Contracting Parties shall make use of the assessments of the inputs and effects of airborne nitrogen to the Baltic Sea in the revision of the emission targets for nitrogen under the 1979 UNECE Convention for Long-Range Transboundary Air Pollution, and

WE AGREE that HELCOM Contracting States that are also EU Member States, in order to strengthen the emission targets for nitrogen under the EU National Emissions Ceilings Directive (Directive 2001/81/EC), will aim to include also emissions from ships and the achievement of ecological objectives for eutrophication in the marine environment.

WE ALSO AGREE that all HELCOM Contracting Parties will aim to do so likewise for the emission targets in the 1999 Gothenburg Protocol under the UNECE Convention for Long-Range Transboundary Air Pollution.

Hazardous substances segment of the HELCOM Baltic Sea Action Plan

Hazardous substances segment of the HELCOM Baltic Sea Action Plan

Hazardous Substances – towards a Baltic Sea with life undisturbed by hazardous substances

Introduction

The overall HELCOM goal is to achieve a Baltic Sea with life undisturbed by hazardous substances.

Pollution caused by hazardous substances refers to a massive number of different anthropogenic substances ending up in the marine environment including substances that do not occur naturally in the environment and substances occurring at concentrations exceeding natural levels. Although monitoring indicates that the loads of some hazardous substances have been reduced considerably over the past 20–30 years, problems still persist, and concentrations in the marine environment of some new substances have even increased (e.g. perfluorinated substances).

Once released into the Baltic Sea, hazardous substances can remain in the marine environment for very long periods and can accumulate in the marine food web up to levels which are toxic to marine organisms. Levels of some hazardous substances in the Baltic Sea exceed concentrations in e.g. the North East Atlantic by more than 20 times. Hazardous substances cause adverse effects on the ecosystem, such as

- Impaired general health status of animals;
- Impaired reproduction of animals, especially top predators;
- Increased pollutant levels in fish for human food.

Some fish species caught in some parts of the Baltic Sea are not suitable for human consumption as they contain hazardous substances exceeding established concentration levels. Certain contaminants may be hazardous because of their effects on hormone and immune systems, as well as their toxicity, persistence and bio-accumulating properties.

Within HELCOM substances are defined as hazardous if they are toxic, persistent and bio-accumulative (PBT-substances), or very persistent and very bio-accumulative (vPvB). Moreover, substances having an equivalent level of concern such as substances with effects on hormone and immune systems are also hazardous substances.

Especially substances which are persistent and bio-accumulative may cause potential hazards to humans.

Ecological objectives

The agreed goal of HELCOM on hazardous substances is a *Baltic Sea undisturbed by hazardous substances.*

The goal is described by four ecological objectives:

- Concentrations of hazardous substances close to natural levels,
- All fish safe to eat
- Healthy wildlife,
- Radioactivity at pre-Chernobyl level.

In order for the ecological objectives to be operational, indicators with targets, reflecting good ecological and environmental status of the Baltic marine environment, have been agreed upon as contained on page 82.

Cross-references with other objectives

Failure to reach the objectives for hazardous substances will impair the achievement of favourable status of biodiversity.

At the same time the achievement of management objectives for Eutrophication and Maritime Activities will have an impact on reaching the goal of a Baltic Sea undisturbed by hazardous substances.

Taking into account the potential hazard of the substances of specific concern to the Baltic Sea marine environment, the substances on page 78 were selected for inclusion in the Baltic Sea Action Plan acknowledging the possible revision of the list and the actions in the future when more information will be available.

In order to address specific sources of hazardous substances and to reach the goal of a Baltic Sea with life undisturbed by hazardous substances

WE ADOPT HELCOM RECOMMENDATION 28E/8 concerning environmentally friendly practices for the reduction and prevention of emissions of dioxins and other hazardous substances from small-scale combustion.

In relation to the HELCOM Recommendation 28E/8, **WE FURTHER AGREE** to develop in 2008 specific efficiency requirements and emission limit values for small scale combustion appliances.

In order to address identified important sources of hazardous substances **WE AGREE** to update HELCOM Recommendation 19/5 on the HELCOM Strategy for hazardous substances and HELCOM Recommendation 24/5 concerning Proper handling of waste/landfilling as well as HELCOM Recommendation 24/4 for the iron and steel industry,

Taking into account the importance of reducing heavy metal and other hazardous substances emissions from energy production and industrial combustion plants, **WE AGREE** by 2008 to evaluate the need to develop further requirements in these sectors,

WE AGREE to develop and to submit for HELCOM's assessment national implementation programmes by 2010 with a view to evaluating the effectiveness of the programmes at a Ministerial Meeting in 2013 and to further evaluate whether additional measures are needed either on a national, HELCOM or global level. In developing the programmes we agree to take into account the need for:

- identification of sources of the selected hazardous substances or substance groups (taking also into account the relevant sectors as contained in other documents section, page 79);
- a ban or restrictions on the use of identified relevant hazardous substances or substance groups;
- substitution of the selected hazardous substances or substance groups with less hazardous substances;
- development of technical guidance documents for environmental permitting addressing hazardous substances;
- capacity building for authorities and industries with regard to identification of hazardous substances and the possibilities for elimination of the use of substances as well as application of BEP and BAT;
- raising awareness among consumers by arranging campaigns and disseminating information about environmentally friendly products;
- relevant legislation including a proper definition of hazardous substances;

WE AGREE to further identify, estimate and reduce the discharges, emissions and losses from sources within the identified potential sectors and main uses and include them into national implementation programmes/ Programmes of measures under the EU Water Framework Directive for HELCOM Contracting States that are also EU Member States. The selected hazardous substances or substance groups as on page 78 will be taken into account when environmental permits will be established or renewed for different industrial activities and municipal wastewater treatment plants and municipal landfill sites where the substances or the substance groups potentially occur. BAT and BEP are to be applied where hazardous substances might be released. Furthermore, co-operation will be developed for a mutual information exchange on hazardous substances with the European Chemical Agency in Helsinki,

WE ALSO AGREE that screening and assessment of the occurrence and effects of a subset of the selected hazardous substances in the Baltic Sea marine environment will be started in 2008, in co-operation with the Nordic Council of Ministers, in order to further develop measures for selected substances,

WE FURTHER AGREE as soon as possible, but not later than in the beginning of 2009, that the screening of the occurrence and effects in the environment should be complemented with screening of the sources of selected substances in municipal and industrial wastewaters as well as landfill effluents and storm waters,

WE AGREE to evaluate as soon as possible, but not later than in the beginning of 2009, the practical introduction of the whole effluent assessment (WEA) approach to monitoring of complex discharges of hazardous substances into the HELCOM framework and to establish a pilot project to test some of the presented methods by making a survey in the HELCOM countries in municipal wastewater treatment plants and some specific industrial sectors. The outcome of this pilot project should be used to evaluate the effluents jointly for the Baltic Sea region and to possibly establish PBT (persistent, bioaccumulating, toxic)-based discharge limit values based on the WEA approach,

WE AGREE by 2010 to establish and develop appropriate chemical product registers in order to have more reliable substance-specific information on uses and amounts of chemicals used. It has to be taken into account that existing registers and those under development should be used as much as possible and the respective developments under e.g. the EU regulatory framework for Registration, Evaluation, Authorisation and Restriction of Chemicals, REACH (EC1907/2006) should be built upon,

WE AGREE to use the information created through implementation of the EU chemicals legislation REACH in order to decrease pollution caused by hazardous substances to the Baltic marine environment for HELCOM Contracting States that are also EU Member States**,**

WE ALSO AGREE by 2009 if relevant assessments show the need to initiate adequate measures such as the introduction of use restrictions and substitutions in the most important sectors identified by the Contracting Parties and taking as a starting point the list as contained in the other document section (page 79)

- medium-chain chlorinated paraffins (MCCPs)
- octylphenols (OP)/Octylphenol ethoxylates (OPE)
- perfluorooctanoic acid (PFOA)
- decabromodiphenyl ether (decaBDE),

and **WE ALSO AGREE** to consider similar approaches with regard to hexabromocyclododecane (HBCDD)

WE AGREE by 2010 in the whole Baltic Sea catchment area of the Contracting States to ban the use, production and marketing of (taking into account the as contained in the other document section (page 79)

- endosulfan
- pentabromodiphenylether (pentaBDE) and

- octabromodiphenylether (octaBDE),

WE AGREE to start by 2008 to work for strict restrictions on the use in the whole Baltic Sea catchment area of the Contracting States of (taking into account the information as contained in the other document section (page 79):

- perfluorooctane sulfonate (PFOS)
- nonylphenol/nonylphenolethoxylates (NP/NPEs)
- Short-chain chlorinated paraffins (SCCPs),

WE AGREE to assess by 2009 the possibility of introducing restrictions for cadmium content in fertilisers,

WE AGREE to apply strict restrictions on the use of mercury in products and from processes and support the work towards further limiting and where feasible totally banning mercury in products and from processes. **WE FURTHERMORE AGREE** to review this issue at the 2010 HELCOM Ministerial Meeting,

WE AGREE on the need to apply the same requirements for products marketed globally as in the internal European market concerning hazardous substances,

WE AGREE to implement as soon as possible the Globally Harmonised System (GHS) on classification and labelling of chemicals and to take into account guidelines for preparing safety data sheets,

WE ALSO EMPHASISE the importance of influencing ongoing work on hazardous substances in other international forums by coherent input by HELCOM Contracting States, where possible based on a common HELCOM position:

- to the development of EU BAT Reference Documents (BREFs) in order to enhance implementation of BAT with regard to hazardous substances with special focus on main uses or on uses having high emission factor to the environment
- to the updating of the EU Water Framework Directive list of priority substances and substances to be evaluated under REACH with a special focus on those substances included in Annex XIV of the EU chemicals legislation REACH for those Contracting States that are also EU Member States including by transmitting monitoring data to the European Chemical Agency
- on placing of plant protection and biocides products on the market, if e.g. levels of these substances in the Baltic marine environment are so high that they may cause adverse effects on marine organisms,

WE FURTHERMORE AGREE to promote and support the identification of new candidate substances and their inclusion in the 2001 Stockholm Convention on Persistent Organic Pollutants and the 1998 Aarhus Protocol on Persistent Organic Pollutants to the UNECE Convention on Long-Range Transboundary Air Pollution, taking into account adequate assessments in particular on their impact on the marine environment,

WE AGREE that all Contracting Parties ratify the 2001 Stockholm Convention on Persistent Organic Pollutants and the 1998 Aarhus Protocol on Persistent Organic Pollutants to the UNECE Convention on Long-Range Transboundary Air Pollution as soon as possible but not later than 2010,

WE AGREE to promote the Strategic Approach on International Chemicals Management and participate in the regional implementation process as soon as possible but not later that 2010,

WE FURTHER AGREE starting in 2008 to develop biological effects monitoring to facilitate a reliable ecosystem health assessment,

WE FURTHER AGREE to continue HELCOM's work with regard to radioactivity, including monitoring of discharges, emissions from nuclear power plants as well as their effects in the marine environment in order to reach the targets for radioactivity.

Biodiversity and nature conservation segment of the HELCOM Baltic Sea Action Plan

Biodiversity and nature conservation segment of the HELCOM Baltic Sea Action Plan

Biodiversity – towards a favourable conservation status of Baltic Sea biodiversity

Introduction

The Baltic Sea has a unique combination of marine and freshwater species and habitats adapted to brackish conditions. Favourable conservation status of Baltic Sea biodiversity is a prerequisite for the marine ecosystems to be resilient and able to adapt to changing environmental conditions.

The Baltic Sea Action Plan aims at aligning the goal "favourable conservation status of marine biodiversity" with corresponding goals and objectives of already existing regulations which also address biodiversity and nature conservation.

This section of the Baltic Sea Action Plan contributes to the implementation of commitments made through global agreements related to the protection of biodiversity such as the 2002 World Summit on Sustainable Development (WSSD), the 1992 Convention on Biological Diversity, the 1971 Ramsar Convention on Wetlands, the 1979 Bern Convention on the Conservation of European Wildlife and Natural Habitats, the 1979 Bonn Convention on the Conservation of Migratory Species of Wild Animals, and the EU Habitats Directive (Directive 92/43/EEC), Birds Directive (Directive 79/409/EEC), EU Water Framework Directive, the proposed Marine Strategy Directive, and national legislation.

Ecological objectives

In order to reach favourable conservation status of biodiversity, HELCOM has adopted Ecological Objectives covering topics referring to:

- restoring and maintaining sea floor integrity at a level that safeguards the functions of the ecosystems;
- that habitats, including associated species, show a distribution, abundance and quality in line with prevailing physiographic, geographic and climatic conditions; and
- a water quality that enables the integrity, structure and functioning of the ecosystem to be maintained or recovered.

In accordance with the Convention on Biological Diversity, HELCOM's overall goal of a favourable conservation status of Baltic Sea biodiversity is described by the following three ecological objectives:

- natural marine and coastal landscapes,
- thriving and balanced communities of plants and animals, as well as
- viable populations of species.

In order to make the ecological objectives operational and to assess how the objectives have been achieved, the initial targets and indicators as on page 84 will be used.

Cross-references with other objectives

Since a multitude of human activities have impacts on biodiversity and the biodiversity serves as a holistic controlling element for the performance of the whole Action Plan, the goal "favourable conservation status of the Baltic Sea biodiversity" cannot be reached without a broad consideration of human activities and needs for strong actions in other segments. Reduced eutrophication will decrease algal blooms, suffocating growth of filamentous littoral algae and anoxic bottoms, and making possible the natural distribution and occurrence of natural marine landscapes, habitats, and plant and animal species. Minimised concentrations of hazardous substances in the biota are a prerequisite for a healthy wildlife, i.e. viable populations in the

Baltic Sea. Enhancing the safety of navigation will decrease the probability of environmental stress caused by minor and severe oil spills. Actions aiming at prevention of pollution from ships as well as the prevention of introduction of alien species are needed to reach favourable conservation status.

To reach the targets and objectives associated with the favourable conservation status of Baltic Sea biodiversity

WE AGREE to jointly develop by 2010, as well as test, apply and evaluate by 2012, in co-operation with other relevant international bodies, broad-scale, cross-sectoral, marine spatial planning principles based on the Ecosystem Approach:

- whereby all Contracting Parties and relevant HELCOM bodies shall co-operatively participate;
- thereby giving guidance for the planning and ensuring the protection of the marine environment and nature, including habitats and seafloor integrity;
- securing sustainable use of marine resources by reducing user conflicts and adverse impacts of human activities,

WE NOTE in this respect the results of the INTERREG-IIIB BALANCE Project related to spatial planning,

To this end **WE ADOPT** HELCOM RECOMMENDATION 28E/9 on development of broad-scale marine spatial planning principles in the Baltic Sea area on page 58,

WE DECIDE to designate by 2009 already established marine Natura 2000 and Emerald sites, where appropriate, as HELCOM Baltic Sea Protected Areas (BSPAs) and to designate by 2010 additional BSPAs especially in the offshore areas beyond territorial waters bearing in mind the 2012 target of the UN WSSD Johannesburg Declaration and the Convention on Biological Diversity,

WE AGREE to improve the protection efficacy of the BSPA network by 2010

- by assessing the ecological coherence of the BSPA network together with the marine Natura 2000 and Emerald sites;
- by finalising, where possible, and implementing management plans,

WE ACKNOWLEDGE the need for further research to reach the targets and objectives associated with the favourable conservation status of the Baltic Sea biodiversity,

Therefore **WE AGREE** to increase knowledge on and protection of Baltic Sea marine habitats, communities and species

- by 2011 by updating a complete classification system for Baltic marine habitats/biotopes;
- by 2013 by updating HELCOM Red lists of Baltic habitats/biotopes and biotope complexes, and producing a comprehensive HELCOM Red list of Baltic Sea species;
- by developing further, where appropriate and needed, detailed landscape maps of the Baltic Sea area based on existing information;
- by 2013 by identifying and mapping the potential and actual habitats formed by species such as bladderwrack (*Fucus* spp.), eelgrass (*Zostera marina*), blue mussel (*Mytilus* spp.), *Furcellaria lumbricalis* and stoneworts (Charales) as well as recruitment habitats for coastal fish using modelling among other tools, and to develop a common approach for the mitigation of negative impacts;
- by developing research on possibilities of reintroduction of valuable phytobenthos species in regions of their historical occurrence especially in degraded shallow waterbodies in the southern Baltic Sea;
- by 2011 by producing, in co-operation with relevant organisations, an assessment of the conservation status of non-commercial fish species;

- by 2010 by further developing in co-operation with the 1991 Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS) a co-ordinated reporting system and database on Baltic harbour porpoise sightings, by-catches and strandings;
- by the promotion of research aiming at developing additional methods for the assessment of, and reporting on, the impacts of fisheries on biodiversity;
- by the development and implementation of effective monitoring and reporting systems for by-caught birds and mammals;

WE FURTHER REQUEST the competent authorities, in co-operation with the Baltic Regional Advisory Council (RAC) under the EU Common Fisheries Policy and HELCOM, to collaborate closely with the Contracting Parties in developing and implementing management measures for fisheries inside marine protected areas in the Baltic Sea area in order to fulfil conservation targets by 2010,

WE AGREE to safeguard the long-term viability of the Baltic seal populations according to Recommendation 27-28/2, by following its general management principles, and by 2012, to finalise national management plans and by implementation of non-lethal mitigation measures for seals-fisheries interactions,

WE AGREE that the Baltic Sea shall become a model of good management of human activities, and recommend that all fisheries management be developed and implemented based on the Ecosystem Approach in order to enhance the balance between sustainable use and protection of marine natural resources,

WE ARE AWARE that this aim can be only achieved in co-operation with all Contracting Parties and Observers to HELCOM,

WE URGE competent fisheries authorities to take all the necessary measures to ensure that, by 2021, populations of all commercially exploited fish species are within safe biological limits, reach Maximum Sustainable Yield, and are distributed through their natural range, and contain full size/age range,

Therefore, **WE URGE** the competent fisheries authorities in co-operation with the Baltic RAC and HELCOM to take immediate actions for:

- development of long-term management plans for commercially exploited fish stocks so that they are within safe biological limits and reach agreed targets, such as Maximum Sustainable Yield (MSY), and improve their distribution and size/age-range, especially for salmon, sea trout, pelagic species (sprat and herring), and flatfish species, by 2010;
- introduction of additional fisheries management measures based on the best available scientific evidence to achieve:
  - that all caught species and by-catch which cannot be released alive or without injuries are landed and reported, by 2012;
  - continued designation of additional/improved spatial and/or temporal closures of sufficient size and duration for fisheries to prevent capture of spawning and juvenile fish;
  - the designation of additional permanent closures of sufficient size for fisheries to prevent capture of non-target species to protect important reproduction and feeding areas and to protect ecosystems, by 2012;
  - the further development and application in all cases of appropriate breeding and restocking practices for salmon and sea trout to safeguard the genetic variability of native wild stocks, by 2012;
  - the urgent adoption of measures to minimise by-catch of undersized fish and non-target species by 2012,

- by an evaluation of the effectiveness of existing technical measures, by 2008, to minimise by-catch of harbour porpoises, and to introduce adequate new technologies and measures.

WE also URGE the competent authorities to take actions for:

- immediate elimination of illegal, unregulated and unreported (IUU) fisheries and further development of landing control and other measures, taking into account the outcome of the Baltic RAC Conference on Control and Compliance in the Baltic in March 2007;
- rapid implementation of the existing long-term management plans for cod and eel, not later than by 2012 to improve their distribution size/age-range;

WE FURTHER AGREE to invite the competent authorities to apply, in relation to the recommendation above, the targets annexed to the Baltic Sea Action Plan which require the implementation of fisheries management measures;

Contracting States that are also Member States of the EU **AGREE** to make a joint submission , in consultation with the Russian Federation, with the view to ensure that fisheries are managed in sustainable manner compatible with the environmental objectives of the HELCOM Baltic Sea Action Plan, to the 2012 review of the EU Common Fisheries Policy (CFP);

WE ALSO AGREE:

- to develop national programmes for the conservation of eel stocks as a contribution to a Baltic co-ordinated programme to ensure successful eel migrations from the Baltic Sea drainage basin to natural spawning grounds. For the EU Member States thus implementing the EC Regulation No. 1100/2007 establishing measures for the recovery of the stock of European eel, by 2008;
- the classification and inventorying of rivers with historic and existing migratory fish species (e.g. salmon, eel, sea trout and sturgeon), no later than by 2012;
- the development of restoration plans (including restoration of spawning sites and migration routes) in suitable rivers to reinstate migratory fish species, by 2010;
- the active conservation of at least ten endangered/threatened wild salmon river populations in the Baltic Sea region as well as the reintroduction of native Baltic Sea salmon in at least four potential salmon rivers, by 2009,

WE ALSO AGREE to enhance restoration of lost biodiversity by joining and/or supporting Poland and Germany in reintroducing Baltic sturgeon to its potential spawning rivers,

WE AGREE that coastal fish constitute an imperative part of the Baltic Sea total biodiversity and have a structuring role in coastal food webs. Furthermore, coastal fisheries are of great importance to the society from both a socio-economic and a cultural point of view,

WE ACKNOWLEDGE that a substantial part of the coastal fish community of the Baltic Sea consists of freshwater species, only managed at a national level,

WE AGREE and **INVITE** the competent authorities

- to establish an international co-operation network to agree on guidelines to promote the ecosystem-based management of coastal fisheries in the Baltic region;
- to develop long-term plans for, protecting, monitoring and sustainably managing coastal fish species, including the most threatened and/or declining, including anadromous ones (according to the HELCOM Red list of threatened and declining species of lampreys and fishes of the Baltic Sea, BSEP No. 109), by 2012,
- develop a suite of indicators with region-specific reference values and targets for coastal fish as well as tools for assessment and sustainable management of coastal fish by 2012.

Maritime activities segment of the HELCOM Baltic Sea Action Plan

Maritime Activities segment of the HELCOM Baltic Sea Action Plan

Towards a Baltic Sea with maritime activities carried out in an environmentally friendly way

Introduction

The strategic goal of HELCOM is to have maritime activities in the Baltic Sea carried out in an environmentally friendly way. It should be understood, however, that due to its international character shipping is regulated by global provisions accepted within the framework of the specialised organisation, notably the International Maritime Organization (IMO).

The Baltic Sea is one of the most intensively trafficked areas in the world. Both the number and the size of the ships, especially oil tankers, have been growing during the last years, and this trend is expected to continue.

This heavy traffic is being carried out within narrow straits and in shallow water, covered with ice for a long period, which makes the Baltic a difficult area to navigate and leads to traffic junctions and an increased risk of shipping incidents.

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

Management objectives

To reach the goal the following eight management objectives, indicating areas of major importance, have been agreed upon:

- Enforcement of international regulations - No illegal discharges
- Safe maritime traffic without accidental pollution
- Efficient emergency and response capability
- Minimum sewage pollution from ships
- No introductions of alien species from ships
- Minimum air pollution from ships
- Zero discharges from offshore platforms
- Minimum threats from offshore installations

These management objectives do not directly describe the good ecological and environmental state of the Baltic Sea, but they rather indicate the main areas of concern as to the human activity at sea and its possible negative impact.

Cross-reference with other objectives

Failure to reach the objectives for maritime activities will impair the achievement of a healthy Baltic Sea unaffected by eutrophication, with its life undisturbed by hazardous substances and with favourable status of biodiversity.

More specifically, actions to reduce air emissions from shipping and measures addressing oil accidents and illegal oil discharges agreed in this Action Plan will contribute to the decreased concentration of nutrients and hazardous substances in sea water; the actions to prevent introduction of invasive and alien species via shipping will be crucial for achievement of thriving and balanced communities of plants and animals.

To measure progress towards the management objectives, the set of indicators as on page 85 will be used.

Enforcement of international regulations – No illegal discharges

WE CALL UPON all Baltic Sea States to ratify and implement IMO conventions, and to this end

WE WELCOME WITH APPRECIATION that the 2001 International Convention on the Control of Harmful Anti-fouling Systems on Ships (the AFS Convention) will enter into force on 17 September 2008,

WE AGREE that all HELCOM Contracting States shall by 2008-2009 ratify the AFS Convention,

WE ALSO AGREE that as of 1 January 2010 no ships calling at a port in the Baltic Sea area may use organotin compounds which act as biocides in its antifouling system having in mind that this requirement is applicable to ports of EU member states already from 1 January 2008 and to ports of the Contracting Parties to the AFS Convention according to its Article 18,

WE ALSO AGREE to promote development of effective, environmentally friendly and safe TBT-free antifouling systems on ships,

WE ALSO AGREE that HELCOM should play a proactive role concerning the effective enforcement of the AFS Convention in the Baltic Sea area by developing a monitoring system enabling the detection of non-compliant ships entering the HELCOM area. Such a system should be based on the list possibly to be developed and updated in co-operation with the 1982 Paris Memorandum of Understanding on Port State Control (the 1982 Paris MoU) and make use of the HELCOM Automatic Identification System (HELCOM AIS),

FURTHERMORE WE AGREE that all Contracting States will ratify Annex VI to the 1973 International Convention for the Prevention of Pollution from Ships as modified by the Protocol of 1978 relating thereto (MARPOL 73/78), not later than 1 January 2010,

WE DECIDE in co-operation with the European Maritime Safety Agency to make full use of the satellite images made available to the Baltic Sea States and to establish harmonised satellite and aerial surveillance covering the whole Baltic Sea area to improve detection of illegal oil spills in the Baltic,

WE ENCOURAGE projects by local governments and local communities to remove litter from the coastal and marine environment, such as beach clean-up operations, “Fishing for Litter” initiatives and local litter campaigns, noting the leading role of the voluntary sector in such activities,

WE AGREE to extend the “no-special-fee” system for ship-generated wastes in the Baltic Sea region to cover also wastes caught in fishing nets and to consider adequate incentives to encourage delivery by fishermen of such waste to onshore port reception facilities. To this end **WE ADOPT** the revised HELCOM Recommendation 28/1 “Application of the “no-special-fee” system to ship-generated wastes in the Baltic Sea Area” as HELCOM RECOMMENDATION 28E/10 (page 60),

WE FURTHER AGREE to enhance the availability of adequate reception facilities for ship-generated wastes, mandatory delivery of waste and the application of the “no-special-fee” system in all the Baltic Sea ports,

WE ALSO AGREE to continue the enforcement of the existing legal regime e.g. through concentrated inspection campaigns under the 1982 Paris MoU and co-operation in prosecution of offenders of illegal discharges,

WE DECIDE to encourage development and use of innovative and cost-effective, integrated surveillance sensors permitting fast and reliable identification of pollutants on the sea surface and in the water column as well as emitted by ships to the air, e.g. light detection and ranging technologies,

WE STRESS the importance of the use of the HELCOM AIS system to ensure the effective enforcement of existing legal regimes, and **AGREE** to extend existing monitoring of non-compliant ships and of the movement of ships in the Baltic which have been detained under the 1982 Paris MoU with a view to giving strong support to port state controls especially of these ships.

Safe maritime traffic without accidental pollution

WE DECIDE to advance winter navigation safety and efficiency in the Baltic Sea and enhance the co-operation between all Baltic Sea States during wintertime by strengthening our co-operation with the maritime authorities from all Baltic Sea States within the framework of Baltic Icebreaking Management (BIM). To this end **WE ADOPT** HELCOM RECOMMENDATION 28E/11 "Further measures to improve the safety of navigation in ice conditions in the Baltic Sea" (page 64).

WE DECIDE to encourage shipping companies to use ships with crew trained for winter navigation and to use voluntary pilotage for winter navigation under ice conditions also in the open Northern Baltic Sea, including the Gulf of Finland, for enhanced navigation safety.

WE AGREE to consider having in 2008 a joint submission by the HELCOM Contracting States to IMO on the needed modification of AIS information content in order to optimise the opportunities provided by AIS and to further improve safety of navigation and protection of the environment.

WE ALSO AGREE to cooperate in the investigation of the potential for Differential Global Navigation Satellite System (DGNSS) broadcast via AIS base stations in the Baltic Sea, pending a recommendation from the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) on the subject.

WE AGREE to amend the HELCOM Agreement on Access to AIS Information by 2008 taking into account the proposal elaborated by HELCOM AIS EWG 16/2007.

WE DECIDE to support in IMO initiatives for introducing a general carriage requirement for Electronic Chart Display and Information System (ECDIS) as early as possible, and to request IMO to develop a concrete time schedule.

Efficient emergency and response capability

WE ADOPT HELCOM RECOMMENDATION 28E/12 "Strengthening of sub-regional co-operation in response field" (page 66).

WE AGREE to implement this Recommendation by 2013. To this end we **AGREE FURTHER**:

- by 2008 to develop and agree upon common methodology for the assessment of risk and sufficiency of emergency and response capacity, to be used with "Guidance for the sub-regional plans to quantify needed emergency/response resources" (page 67);
- by 2009 to finalise the assessments by the Contracting States of the risks of oil and chemical pollution and to finalise the quantification of the emergency and response resources at the sub-regional level (emergency towing, fire-fighting and emergency lightering, hardware,[*] human resources) needed to meet these risks;
- by 2010, based upon risk assessments, to identify the gaps in emergency and response resources at the sub-regional level and to prepare concrete plans/programmes for fulfilling them by 2013, except for emergency towing and response to accidents involving chemicals,

[*] *including but not limited to skimmer capacity, vessels, booms, storage capacity, adequacy of aerial and satellite surveillance to provide guidance to response operations*

for which the deadlines are 2013 and 2016, respectively; however this postponed timing should not refrain the Contracting States from earlier, if possible, implementation of the requirements;
- by 2010, based upon sensitivity mapping, to identify the need for and to finalise the quantification of countermeasures for shoreline response, and to prepare concrete plans/programmes for fulfilling them by 2013.

WE FURTHER AGREE to promote an efficient emergency management and efficient support for ships in need of assistance taking into account the specific needs of the Baltic Sea Region.

WE ALSO AGREE to encourage ships in need of assistance to accept in time the most appropriate response to a threat of pollution.

WE RECOGNISE the great importance of an efficient use of places of refuge and for that reason **DECIDE** to develop by 2009 and implement by 2010 a mutual plan for places of refuge in the Baltic Sea.

WE AGREE to further investigate issues of liability and compensation related to a mutual plan on places of refuge. This should include possible recovery of costs between different HELCOM Contracting States involved in a response action going beyond reimbursement schemes according to existing international conventions.

WE FURTHER AGREE on the need for a sufficient liability and compensation regime for damage in relation to carriage of hazardous and noxious substances by sea and to support ongoing work at the global level to put such a regime in place.

WE AGREE FURTHERMORE to make full use of satellite surveillance to assist response to accidental oil spills in the Baltic.

WE ALSO AGREE by 2009 to develop and agree on a decision support (approval) system for use of dispersants in the Baltic Sea setting the rules for dispersant application based on appropriate IMO Guidelines, Net Environmental Benefit Analyses (NEBA) and the existing knowledge of properties of oil transported in the Baltic.

WE FURTHER AGREE to promote development and to enhance the use of technology to respond to accidents at night and in bad visibility, in bad weather, oil on ice, accidents involving heavy oil, chemical accidents, and to continue the research work and information exchange to close gaps in the knowledge in this field.

WE AGREE to cooperate in order to develop best practices for shoreline response, to continue the research work and information exchange to close gaps in the knowledge in this field, in order to improve regional co-operation especially when introducing coastal planning and regional agreements on co-operation in response actions.

WE AGREE FINALLY to integrate the subject of oiled wildlife response into oil pollution contingency plans either on a national or sub-national/local level, as deemed appropriate by the relevant Contracting State.

Minimum sewage pollution from ships

WE AGREE to have in 2009 a joint submission by HELCOM Contracting States to IMO in order to elaborate relevant new regulations for ships covered by the existing Annex IV to MARPOL 73/78, including further consideration of designation of the Baltic Sea as a special area, with the aim to eliminate the discharge of sewage from ships, especially from passenger ships and ferries.

WE FURTHER AGREE to encourage voluntary activities in ports and shipping companies to dispose of sewage to the port reception facilities. To this end **WE AGREE** to undertake all the necessary improvements in the availability of these port reception facilities.

No introductions of alien species from ships

WE ADOPT the road map towards ratification and harmonised implementation of the 2004 International Convention for Control and Management of Ships' Ballast Water and Sediments (BWM Convention) as contained on page 98.

WE AGREE in 2008, in co-operation with the OSPAR Convention, to investigate and if possible determine areas outside the Baltic Sea area for Ballast Water Exchange.

WE FURTHER AGREE THAT the ultimate goal of implementing the road map is ratification of the BWM Convention by the HELCOM Contracting States preferably by 2010, but in all cases not later than 2013.

Minimum air pollution from ships

WE AGREE by 2009 to investigate and when appropriate take into consideration introduction of feasible and effective economic incentives in the Baltic Sea for reducing emissions by ships. To this end **WE ADOPT** HELCOM RECOMMENDATION 28E/13 "Introduction of economic incentives as a complement to existing regulations to reduce emissions from ships" (page 69).

WE AKNOWLEDGE the serious impact on the particularly sensitive Baltic Sea ecosystem from regional, and due to the transboundary character of air emissions, also global shipping activities. Therefore, **WE AGREE** to support efforts within IMO under the ongoing review process of Annex VI of MARPOL 73/78 to tighten sulphur content in fuel oil at the global level, by having a joint submission to IMO as contained on page 100 by 25 January 2008 prior to MEPC 57 in April 2008, with the aim of addressing also the regional component of the issue.

WE AGREE to contribute to the work by IMO aiming at implementing more stringent requirements for emissions from shipping by evaluating the impact of NOx emissions from shipping in the Baltic on the marine environment of the Baltic Sea. To this end **WE AGREE**:

- to have in 2008 a joint submission by the HELCOM Contracting States to IMO evaluating the environmental effect on the Baltic Sea of possible new NOx emission control measures,
- to further estimate the contribution of NOx emissions from shipping to eutrophication of the Baltic Sea to encourage revision of Annex VI of MARPOL 73/78.

Zero-discharge from offshore platforms

WE AGREE on the Action Plan for the protection of the environment from offshore platforms to apply a "zero-discharge" principle for the offshore platforms in the Baltic Sea starting from 1 January 2010, as contained on page 101.

Minimum threats from offshore installations

HAVING IN MIND that the Baltic Sea faces an increasing number of – in many cases - competing uses and that the installations such as underwater cables, pipelines and offshore wind farms put increasing pressure on the Baltic Sea ecosystem, **WE AGREE** that HELCOM Contracting Parties will carefully follow the relevant processes with the understanding that any environmentally significant adverse impacts on the environment that may be caused by any offshore installation should be prevented, reduced or offset as fully as possible.

Development of assessment tools and methodologies

Development of assessment tools and methodologies

WE ADOPT HELCOM RECOMMENDATION 28E/14 on harmonisation of methods to assess diffuse nutrient loads from the Baltic Sea catchment area to enable more reliable estimation and assessment of nutrient load from agriculture and other diffuse sources and to ultimately combine and develop joint catchment models covering the whole Baltic Sea area and linking the nutrient input with ecosystem modelling on the effects in the marine environment (page 74),

WE ACKNOWLEDGE that the HELCOM Baltic Sea Action Plan requires a harmonised approach to assess the eutrophication status of the Baltic Sea. Therefore **WE AGREE** to further develop the common HELCOM eutrophication assessment tool, by promoting inter alia the HELCOM Project to elaborate the HELCOM Baltic Sea-wide thematic assessment on eutrophication (HELCOM EUTRO-PRO) taking into account the Common Implementation Strategy (CIS) Guidance document on eutrophication assessment made in the context of European water policies,

WE ACKNOWLEDGE that the HELCOM Baltic Sea Action Plan requires efficient use of analytical tools, such as models, to support management decisions, that development and use of ecosystem models need efficient co-operation and optimisation due to limited resources available in the scientific community and that scientific consensus on the model approach is important for the acceptance of the results by management,

WE ENCOURAGE efforts to institutionalise and make operational the relevant modelling activities and to prioritise information delivery to HELCOM, bearing in mind that modelling needs to be seen as a long-term activity that extends beyond individual scientists and projects,

Therefore, **WE AGREE** to further develop information provision from ecosystem models and to co-operate closely in doing so, bearing in mind the requirements of the HELCOM Baltic Sea Action Plan in developing targets for good ecological status, indicators for assessing the ecological status of the marine environment and in estimating future allowable nutrient inputs to the Baltic Sea and its sub-regions without jeopardising achievement of the good ecological and environmental status,

WE ACKNOWLEDGE that the HELCOM Baltic Sea Action Plan requires an integrated assessment of the occurrence and inputs, as well as uses and sources, of hazardous substances in the Baltic Sea region. Therefore, **WE STRESS** the importance of a Baltic Sea-wide thematic assessment on hazardous substances to be ready by 2010,

WE ACKNOWLEDGE that the HELCOM Baltic Sea Action Plan requires a harmonised approach to assess the conservation status of biodiversity and nature protection of the Baltic Sea. Therefore, **WE AGREE** to further develop the common HELCOM approach and assessment tools for these purposes.

By doing so, **WE WELCOME** the HELCOM Project to elaborate the HELCOM Baltic Sea-wide thematic assessment on biodiversity and nature protection (HELCOM BIO) defining indicators and targets for the favourable conservation status of Baltic Sea biodiversity and ecological coherence of the Baltic Sea Protected Areas network,

WE AGREE to continuously monitor the conservation status of biodiversity and the effectiveness of nature protection measures and periodically evaluate whether the targets of this Action Plan have been met using indicator-based assessments,

WE ALSO ACKNOWLEDGE that the HELCOM Baltic Sea Action Plan requires an integrated assessment of the inputs of pollution from shipping and their effect on the Baltic Sea environment. Therefore, **WE STRESS** the importance of a Baltic Sea-wide thematic assessment on maritime shipping to be ready by 2010.

Awareness raising and capacity building

Awareness raising and capacity building

WE ACKNOWLEDGE that public engagement and stakeholder involvement can effectively contribute to a successful implementation of the Baltic Sea Action Plan and therefore **RECOMMEND** countries, regional and local government and organizations representing civil society to engage the public and stakeholders in activities promoting a healthy Baltic Sea and to actively promote public participation in decision making.

WE STRESS the importance of raising the awareness of the public regarding the effects on human health and the environment of hazardous substances. To this end **WE AGREE** that by 2008 the Contracting Parties should develop and inform HELCOM about their regular information campaigns,

WE STRESS the importance of further capacity building within and between authorities as well as for industries on the identification and implementation of requirements concerning hazardous substances,

WE FURTHER DECIDE to implement a public awareness programme aimed at involving the public in the detection of illegal discharges from ships,

WE AGREE on raising public awareness of the negative environmental and economic effects of marine litter in the marine environment, including effects of “ghost fishing” of lost or discarded fishing gear,

WE FURTHER DECIDE to implement an awareness programme regarding the importance of the proper fulfilment of existing international regulations concerning ship-generated waste discharges including on-shore disposal and treatment of all ship-generated sewage,

WE ALSO AGREE to promote environmentally friendly pleasure boating and the development of marinas and the use of the best ecological practice by every marina/guest harbour, including education and raising awareness of the personnel and boat owners of key marinas/guest harbours,

WE DECIDE to expand the HELCOM Geographic Information System with an interface on the HELCOM website showing the progress towards a healthy Baltic Sea.

Financing

Financing

WE AGREE that a cost benefit analysis of projects, including the cost of non-action and unit abatement cost (UAC) calculation, should be the basis when deciding on implementation taking into account NEFCO's findings that

- all projects with a UAC for reduction of phosphorus that is below € 150,000 per tonne reduced are examples of cost-efficient actions and should be implemented as soon as possible;
- based on current information the nutrient reduction needs indicated by HELCOM to meet the objectives for eutrophication would be met if all these cost-efficient investments were implemented together with relevant EU Directives,
- particularly cost-efficient projects for phosphorus reduction are
  - proper manure management at large animal installations;
  - addition of chemical phosphorus treatment in existing waste water treatment plants;
  - construction and upgrading of wastewater systems in larger and smaller cities/municipalities;
  - reduction/substitution of phosphorus in detergents,

WE STRESS THE NEED for using adequate and comprehensive financial resources for environmental investments for actions according to the Baltic Sea Action Plan in particular within the new EU countries e.g. through sector programmes. The main sources of funding are state budgets and EU's structural funds including the Cohesion Fund, which are made available to the new EU Member States also for implementation relevant EU directives;

WE ALSO FIND that non-EU Member States can benefit from financing in the context of the EU Neighbourhood and Partnership Instruments,

WE ENCOURAGE Contracting Parties that are EU Member States as well as regional and local governments and others concerned to identify projects and apply for financing through e.g. the objective "Territorial Co-operation" under the EU Regional Fund or the Cohesion Fund.

WE ALSO ENCOURAGE Contracting Parties to take additionally into account bilateral sources as well as the European Neighbourhood and Partnership Initiative (ENPI) and Northern Dimension Environmental Partnership (NDEP) which are offering grant financing for high priority environmental projects in Russia.

For this reason **WE AGREE** that all Contracting Parties shall investigate how to make better use of available funding for the financing of the implementation of the HELCOM Baltic Sea Action Plan, taking especially into account the need to connect priorities within the different sectors in which projects are being chosen for financing, and the need during this process to make use of transparent parameters, such as unit abatement cost,

WE ALSO WELCOME the growing interest of private companies and non-profit foundations to provide funds for the protection of the Baltic Sea on a voluntary basis,

WE AGREE to start in 2008 to identify and list projects based on e.g. results of the Fifth Pollution Load Compilation (PLC-5) and document "Background paper on financing and cost-efficiency" elaborated by NEFCO with a UAC for reduction of phosphorus below € 150,000 per tonne which could be addressed by initiating joint initiatives in the Baltic Sea catchment area in co-operation with non-profit foundations and private companies.

In order to overcome bottlenecks in already approved projects and in the development of new ones, and to speed up and increase investments within municipal infrastructure for wastewater treatment and within the agricultural sector, including environmental investments in large animal farms, **WE RECOMMEND** the following actions:

- providing adequate resources for training for project preparation and implementation
- providing additional support for training and advice for farmers
- training of central and regional environmental authorities for proactivity in project development and support to applicants
- conducting information seminars for commercial banks regarding unit abatement cost calculations in environmental projects
- increased focus on the dialogue with Russia concerning institutional development in particular with a view to creating a higher number of bankable projects within municipal infrastructure such as water supply and wastewater treatment, food industry such as large animal farms, and other industry for cleaner production processes.

To urgently start the actions required to enhance investments to achieve the goals of the HELCOM Baltic Sea Action Plan , **WE AGREE** to arrange a “pledging conference” - this time pledging not only monetary resources, but also pledging to give priority to solving the above-mentioned bottlenecks through concrete actions, within an agreed time frame and thus trying to ensure that projects within the environmental sector, rather than other sectors with larger and less complicated project structures, will be given priority in the final project selection stage.

Implementation and review of the HELCOM Baltic Sea Action Plan

Implementation and review of the HELCOM Baltic Sea Action Plan

WE AGREE to monitor and evaluate the status of implementation of the Baltic Sea Action Plan by making use of the indicators agreed upon as well as HELCOM thematic assessments, annual HELCOM indicator fact sheets and other information available,

WE DECIDE to arrange in 2013 a HELCOM ministerial meeting to evaluate the effectiveness of the national programmes and to review the progress towards the ecological objectives describing a Baltic Sea in good ecological status. Based on this review the Action Plan will be adjusted and the set of indicators with associated targets will be up-dated to ensure their relevance for achieving the objectives.

Given the political priority of the HELCOM Baltic Sea Action Plan, **WE AGREE** on the need for a Baltic Sea Action Plan implementation process steered on a high level and thus

WE DECIDE to establish a Baltic Sea Action Plan Implementation Group and to decide on its Terms of Reference at HELCOM 29/2008.

The implementation process needs to build on close co-operation amongst all present and future HELCOM bodies and may possibly require the adjustment of the HELCOM working structure

Recommendations

Recommendations

HELCOM RECOMMENDATION 28E/4

Adopted 15 November 2007
having regard to Article 20 (1), c)
of the 1992 Helsinki Convention

AMENDMENTS TO ANNEX III "CRITERIA AND MEASURES CONCERNING THE PREVENTION OF POLLUTION FROM LAND-BASED SOURCES" OF THE 1992 HELSINKI CONVENTION

THE COMMISSION,

TAKING INTO CONSIDERATION the amendment procedure for the Annexes of the 1992 Helsinki Convention, as contained in Article 32 of that Convention,

RESOLVES:

a) to amend Annex III of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992, in accordance with the Attachment to this Recommendation;

b) to ask the Depositary Government to Communicate these amendments to the Contracting Parties with the Commission's Recommendation for acceptance; and

c) to determine that the accepted amendments shall enter into force one year after the adoption of this HELCOM Recommendation,

REQUESTS the Governments of the Contracting Parties to report on the progress of implementation of the amendments to Annex III in accordance with the agreed deadlines and Article 16, Paragraph 1 of the 1992 Helsinki Convention.

Attachment

Revised Annex III "Criteria and Measures Concerning the Prevention of Pollution from Land-Based Sources"

Part II: Prevention of Pollution from Agriculture

Regulation 1: General provisions

In accordance with the relevant parts of this Convention, the Contracting Parties shall apply the measures described below and take into account Best Environmental Practice (BEP) and Best Available Technology (BAT) to reduce the pollution from agricultural activities. The Contracting Parties shall elaborate Guidelines containing items specified below and report to the Commission.

Regulation 2: Plant nutrients

The Contracting Parties shall integrate the following basic principles into national legislation or guidelines and adapt them to the prevailing conditions within the country to reduce the adverse environmental effects of agriculture. Specified requirement levels shall be considered to be a minimum basis for national legislation.

1. Animal density

To ensure that manure is not produced in excess in comparison to the amount of arable land, there must be a balance between the number of animals on the farm and the amount of land available for spreading manure, expressed as animal density. The maximum number of animals should be determined with consideration taken of the need to balance between the amount of phosphorus and nitrogen in manure and the crops' requirements for plant nutrients.

2. Location and design of farm animal houses

Farm animal houses and similar enclosures for animals should be located and designed in such a way that ground and surface water will not be polluted.

3. Construction of manure storage

Manure storage must be of such a quality that prevents losses. The storage capacity shall be sufficiently large to ensure that manure only will be spread when the plants can utilise nutrients. The minimum level to be required should be 6 months' storage capacity.

Manure storage should be constructed to safeguard against unintentional spillages and be of such a quality that prevents losses. With regard to different types of manure, the following principles should be considered:

- solid manure should be stored in dung yards with watertight floor and side walls
- liquid manure and farm waste should be stored in containers that are made of strong material impermeable to moisture and resistant to impacts of manure handling operations.

Animal manure should be used in such a way that as high a utilisation efficiency as possible is promoted.

Co-operation between farmers in the use of manure has to be encouraged.

5. Agricultural wastewater, manure and silage effluents

Wastewater from animal housing should either be stored in urine or slurry stores or else be treated in some suitable manner to prevent pollution. Effluents from manure or from preparation and storage of silage should be collected and directed to storage units for urine or liquid manure.

6. Application of organic manures

Organic manures (slurry, solid manure, urine, sewage sludge, composts, etc) should be used in such a way that a high utilisation efficiency can be achieved. Organic manures shall be spread in a way that minimises the risk of loss of plant nutrients and should not be spread on soils that are frozen, water saturated or covered with snow. Organic manures should be incorporated as soon as possible after application on bare soils. Periods shall be defined when no application is accepted.

7. Application rates for nutrients

The application of nutrients in agricultural land shall be limited, based on a balance between the foreseeable nutrient requirements of the crops and the nutrient supply to the crops from the soil and the nutrients with a view to minimise eutrophication.

National guidelines should be developed with fertilising recommendations and they should make reference to:

- soil conditions, soil nutrient content, soil type and slope;
- climatic conditions and irrigation;
- land use and agricultural practices, including crop rotation systems;
- all external potential nutrient sources

The amount of livestock manure applied to the land each year including by the animals themselves should not exceed the amount of manure containing:

- 170 kg/ha nitrogen
- 25 kg/ha phosphorus

with a view to avoiding nutrient surplus, taking soil characteristics, agricultural practices and crop types into account.

8. Winter crop cover

In relevant regions the cultivated area should be sufficiently covered by crops in winter and autumn to effectively reduce the loss of plant nutrients

9. Water protection measures and nutrient reduction areas

Protection measures should be established to prevent nutrient losses to water particularly as regards

- Surface water: buffer zones, riparian zones or sedimentation ponds should be established, if necessary.
- Groundwater: Groundwater protection zones should be established if necessary. Appropriate measures such as reduced fertilisation rates, zones where manure spreading is prohibited and permanent grassland areas should be established.
- Nutrient reduction areas: Wetland areas should be retained and where possible restored, to be able to reduce plant nutrient losses and to retain biological diversity.

10. Ammonia emissions

In order to reduce ammonia emissions from animal husbandry, a surplus of nitrogen in the manure should be avoided by adjusting the composition of the diet to the requirements of the individual animal. In poultry production, emissions should be brought down by reducing the moisture content of the manure or by removal of manure to storage outside the housing system as soon as possible.

Programmes including strategies and measures for reducing ammonia volatilisation from animal husbandry should be developed.

Urine and slurry stores should be covered or handled by a method that efficiently reduces ammonia emissions.

Regulation 3: Plant protection products

Plant protection products shall only be handled and used according to a national risk reduction strategy which shall be based on BEP. The strategy should be based on an inventory of the existing problems and define suitable goals. It shall include measures such as:

1. Registration and approval

Plant protection products shall not be sold, imported or applied until registration and approval for such purposes has been granted by the national authorities.

2. Storage and handling

Storage and handling of plant protection products shall be carried out so that the risks of spillage or leakage are prevented. Some crucial areas are transportation and filling and cleaning of equipment. Other dispersal of plant protection products outside the treated agricultural land area shall be prevented. Waste of plant protection products shall be disposed of according to national legislation.

3. Licence

A licence shall be required for commercial use of plant protection products. To obtain a licence, suitable education and training on how to handle plant protection products with a minimum of impact on health and the environment shall be required. The users' knowledge regarding the handling and usage of plant protection products shall be updated regularly.

4. Application technology

Application technology and practice should be designed to prevent unintentional drift or runoff of plant protection products. Establishment of protection zones along surface waters should be encouraged. Application by aircraft shall be forbidden; exceptional cases require authorisation.

5. Testing of spraying equipment

Testing of spraying equipment at regular intervals shall be promoted to ensure a reliable result when spraying with plant protection products.

6. Alternative methods of control

Development of alternative methods for plant protection control should be encouraged.

Regulation 4: Environmental permits

Farms with livestock production above a specified size should require approval with regard to environmental aspects and impacts of the farms.

Installations for the intensive rearing of poultry, pigs and cattle with more than 40,000 places for poultry, 2,000 places for production pigs (over 30 kg), 750 places for sows or 400 animal units cattle shall have a permit fully co-ordinated by the relevant authorities.

The permits must take into account the whole environmental performance of the enterprise, covering e.g. emissions to air, water and land, generation of waste and prevention of environmental accidents. The permit conditions must be based on BAT.

The competent authorities, in determining permit conditions, can take into account the technical characteristics of the enterprise, its geographical location and the local environmental conditions.

These large animal enterprises shall be considered as point sources and shall have adequate measures.

For installations with more than 100 AU the Contracting Parties shall put in practice general rules or a system corresponding to a simplified permit system to ensure the implementation of the requirements in this Annex.

Both of these permit systems shall be applied to existing installations and new installations and existing installations which are subject to substantial changes by 2012.

Regulation 5: Monitoring and evaluation

The Contracting Parties shall describe the implementation and monitoring of measures in this Annex in their national programmes.

To evaluate the effectiveness of the measures, the Contracting Parties shall develop projects to assess the effects of measures and the impacts of the agricultural sector on the environment.

Regulation 6: Education, information and extension service

The Contracting Parties shall promote systems for education, information and extension (advisory service) on environmental issues in the agricultural sector.

HELCOM RECOMMENDATION 28E/5

Supersedes HELCOM Recommendations 7/3, 9/2 and 16/9

Adopted 15 November 2007
having regard to Article 20, Paragraph b)
of the Helsinki Convention 1992

MUNICIPAL WASTEWATER TREATMENT

THE COMMISSION,

RECALLING Paragraph 1 of Article 6 of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 (Helsinki Convention), in which the Contracting Parties undertake to prevent and eliminate pollution of the Baltic Sea Area from land-based sources,

HAVING REGARD also to Article 3 of the Helsinki Convention, in which the Contracting Parties shall individually or jointly take all appropriate legislative, administrative or other relevant measures to prevent and abate pollution in order to promote the ecological restoration of the Baltic Sea Area,

RECALLING Article 5 of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 (Helsinki Convention), in which the Contracting Parties undertake to prevent and eliminate pollution of the marine environment of the Baltic Sea caused by harmful substances,

RECALLING FURTHER that the Ministerial Declaration 1988, of the ninth meeting of the Helsinki Commission calls for a considerable reduction of land-based pollution,

RECALLING FURTHER Recommendation 9/2 from 1988 concerning measures aimed at the reduction of discharges from urban areas by the use of effective methods in wastewater treatment requiring phosphorus reduction for plants serving more than 10 000 p.e. down to 1.5 mg P/l,

RECALLING FURTHER the outcome of the informal Ministerial Meeting 2005 and the 27th meeting of the Helsinki Commission which call for further action regarding the Baltic Sea by deciding to elaborate a Baltic Sea Action Plan (BSAP),

RECALLING FURTHER the Ministerial Meeting 2007 in which the Ministers adopted the Baltic Sea Action Plan (BSAP) which calls for urgent actions to reduce the discharges of nutrients to the Baltic Sea Area,

RECOGNISING ALSO that in an urban area the sewerage system and the sewage treatment plant must be regarded as a unit when the pollution load is dealt with. For practical reasons, however, this Recommendation covers only the treatment of the amounts of water entering the sewage treatment plant. Concerning the pollution load due to sewer overflows, this is regulated in a qualitative manner in Recommendation 7/5, e). Work is ongoing to strengthen this by stating specific values,

RECOGNISING ALSO the need for development of the present sewerage systems,

RECOGNISING the importance of municipal sewage as a source of pollution of the marine environment,

RECOGNISING ALSO that improved phosphorus removal has been found to be necessary in the Baltic Sea Area,

RECOGNISING ALSO that phosphorus from medium-sized Urban Waste Water Treatment Plants is contributing to the eutrophication of the Baltic Sea,

RECOGNISING ALSO that nitrogen removal has been found to be necessary in many parts of the Baltic Sea Area,

DESIRING to limit this pollution by effective treatment of municipal sewage,

RECOMMENDS to the Governments of the Contracting States to the Helsinki Convention that:

A. Development of sewerage systems

1. Urban (municipal) wastewater deriving from households (domestic wastewater) or industrial enterprises should be collected and treated before being discharged into waterbodies; by-passes may only be used in emergency cases;

2. The sewerage system must not become deteriorated due to the content of substances in the effluent water from industries,

3. A separated sewerage system and/or a semi-separated sewerage system should be selected for new developments;

4. Sewers should be maintained and renewed in a way that infiltration and exfiltration are minimised;

5. The net infiltration in major catchment areas should not exceed 100% of the dry weather flow as a yearly average.

B. Treatment of municipal wastewaters discharging to the catchment of the Baltic Sea area.

1. Limit values for substances harmful to the receiving waters which cannot be treated in the municipal wastewater treatment plants or which are harmful to the sewerage systems or the processes of the treatment plant should be established separately for industry and other relevant sectors discharging indirectly based on the BAT and BEP.

2. Domestic sewage or wastewater of similar type which is collected in a central sewerage system and treated in wastewater treatment plants, with a load of 300 - 2 000 person equivalents, should be treated so that the treatment results in:

- at least 80% reduction of BOD_5, or 25 mg/l
- at least 70% reduction of total phosphorus, or 2 mg/l, when discharging directly or indirectly to the marine areas
- at least 30% reduction of total nitrogen, or 35 mg/l, when discharging directly or indirectly to marine areas sensitive to nitrogen.

Alternatively, reduction requirements as set out in HELCOM RECOMMENDATION 28E/6 on on-site wastewater treatment of single family homes, small businesses and settlements up to 300 person equivalents (p.e.) must be applied.

3. Domestic sewage or wastewater of similar type which is collected in a central sewerage system and treated in wastewater treatment plants, with a load of **2,000 – 10,000 person equivalents**, should be treated so that the treatment results in:

- at least 80% reduction[*] of BOD_5[**]; or at most a concentration of BOD_5 in the effluent of the treatment plant of 15 mg/l.
- at least 80% reduction of total phosphorus; or at most a concentration of total phosphorus in the effluent of the treatment plant of 1[***] mg/l when discharging directly or indirectly to the marine areas;

[*] *In this recommendation: the relation to the load of the influent*
[**] *Calculated as annual means with nitrification inhibitor*
[***] *Target value, calculated as annual means.*

- at least 30% reduction of total nitrogen[****], when discharging directly or indirectly to marine areas sensitive to nitrogen.

4. Domestic sewage or wastewater of similar type which is collected in a central sewerage system and treated in wastewater treatment plants, with a load of **10,001 – 100,000 person equivalents**, should be treated as soon as possible so that the treatment results in:

- at least 80% reduction of BOD_5; or at most a concentration of BOD_5 in the effluent of the treatment plant of 15 mg/l.
- at least 90% reduction of total phosphorus; or at most a concentration of total phosphorus in the effluent of the treatment plant of 0.5[*****] mg/l when discharging directly or indirectly to the marine areas;
- a minimum of 70-80% reduction of total nitrogen; or at most a concentration of total nitrogen in the effluent of the treatment plant of 15 mg/l, when discharging directly or indirectly to marine areas sensitive to nitrogen.

5. Domestic sewage or wastewater of similar type which is collected in a central sewerage system and treated in wastewater treatment plants, with a load of **more than 100,000 person equivalents**, should be treated as soon as possible so that the treatment results in:

- at least 80% reduction of BOD_5; or at most a concentration of BOD_5 in the effluent of the treatment plant of 15 mg/l.
- at least 90% reduction of total phosphorus; or at most a concentration of total phosphorus in the effluent of the treatment plant of 0,5 mg/l when discharging directly or indirectly to the marine areas
- a minimum of 70-80% reduction of total nitrogen; or at most a concentration of total nitrogen in the effluent of the treatment plant of 10[******] mg/l, when discharging directly or indirectly to marine areas sensitive to nitrogen.

6. Alternatively, the requirements for individual plants set out in paragraphs 1, 2, 3, 4 and 5 need not apply where it can be shown that the minimum percentage of reduction of the overall load entering all urban wastewater treatment plants in the catchment area is at least 90% for total phosphorus when discharging directly or indirectly to the marine areas and 75% for total nitrogen for plants discharging directly or indirectly to marine areas sensitive to nitrogen.

7. The Contracting States shall ensure that urban wastewater entering collecting systems before discharge fulfil the demands stated in paragraphs 2, 3, 4 and 5 according to the following timetable, without prejudice to existing legislation applicable to Contracting States that are also EU Members

- at the latest by 31 December [2010] for discharges from agglomerations of more than 200,000 p.e.,
- at the latest by 31 December [2012] for discharges from agglomerations of more than 100,000 p.e.,
- at the latest by 31 December [2015] for discharges from agglomerations of between 10,000 and 100,000 p.e.,
- at the latest by 31 December [2018] for discharges from agglomerations of between 2,000 and 10,000 p.e.,

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[****] *Total nitrogen means the sum of total Kjeldahl nitrogen (organic + NH_4), nitrate (NO_3)-nitrogen and nitrite (NO_2)-nitrogen.*

[*****] *The concentration values in Recommendation are Target values, calculated as annual means.*

[******] *Calculated as annual means. However, the requirements for nitrogen may be checked using daily averages when it is proved that the same level of protection is obtained. In this case, the daily average must not exceed 20 mg/l of total nitrogen for all the samples when the temperature from the effluent in the biological reactor is higher than or equal to 12 ℃. The conditions concerning temperature could be replaced by a limitation on the time of operation to take account of regional climatic conditions.*

- at the latest by 31 December [2018] for discharges from agglomerations of between 300 and 2,000 p.e.,

Alternatively, for agglomerations above 10,000 p.e. the recommendation for phosphorus treatment in the wastewater would be 1.0 mg/l or 90% reduction until 2013.

The implementation of the 0.5 mg/l requirement will be decided by the Contracting States according to national programmes to HELCOM by 2010.

RECOMMENDS FURTHER that the Contracting States report to the Helsinki Commission every three years starting at the end of 2010 with data from 2009,

RECOMMENDS ALSO that the Contracting Parties re-evaluate the present Recommendation and reconsider it in 2015 taking into account new developments on national or international and EU level for Member States,

RECOMMENDS ALSO that the Contracting Parties establish a programme for the implementation of this Recommendation and that the Contracting Parties provide the Helsinki Commission with information on the programme at the latest by 31 December 2009.

REPORTING FORMAT FOR HELCOM RECOMMENDATION 28E/5 CONCERNING MUNICIPAL WASTEWATER TREATMENT				
Lead Country: Sweden				
Country:				Year:
A. Development of municipal sewerage networks				
1. What type of sewerage system is:	Combined		Semi-separated	Separated
a) in use (percentage of length for each type, or rank 1,2,3)?				
b) chosen for new developments (percentage for each type or rank)?				
2. To what extent are sewers being renovated (e.g. km/year, certain areas etc.)				
3. Is renovation of networks a matter for the central, regional or local governments?				
4 a. Have assessments been made of the net infiltration into sewerage systems in major catchment areas?	Yes		No	Unknown
4 b. If so, do the results show compliance with the recommended max 100% infiltration of baseflow rates?	Yes		No	Partly
B. Treatment of municipal wastewater treatment				
1. Are there any limit values or target values for different substances permitted into the sewerage and/or to the wastewater treatment plants? If yes, please submit them (or in case of earlier Submission, give reference to the earlier document)				
2. Number of persons (million inhabitants) and percentage of population connected to municipal wastewater treatment				
3. For the different size classes give the number of plants and the number of persons served:				
	101 – 2,000 p.e.	2001 – 10,000 p.e.	10,001 – 100,000 p.e.	> 100,000 p.e.
a) at the coast of the Baltic Sea				
b) within the catchment area of the Baltic Sea				
c) located in nitrogen-sensitive areas				
d) located in nitrogen-sensitive areas and in compliance with nitrogen removal requirements				
e) in compliance with phosphorus removal requirements				
f) in compliance with BOD removal requirements				

4. Different treatment methods, per cent of population served:		
	Total discharges to the Baltic catchment area	Direct discharges to the Baltic Sea
a) no treatment		
b) mechanical		
c) biological		
d) chemical		
e) biological-chemical		
f) other methods		
5. Wastewater flow, million m^3/a		
6. Discharge to water of substances in **treated** wastewater, t/a		
a) $BOD_{5\ ATU}$		
b) phosphorus		
c) nitrogen		
7. Reduction, in per cent		
a) $BOD_{5\ ATU}$		
b) phosphorus		
c) nitrogen		
8. Discharge of wastewater of **untreated** wastewater (overflows and bypasses)		
a) volume, million m^3/a		
b) $BOD_{5\ ATU}$, t/a		
b) phosphorus, t/a		
c) nitrogen, t/a		
9. Describe how areas sensitive or non-sensitive to nitrogen have been assessed; methods or reference to publication.		
10. Describe how the Recommendation concerning municipal wastewater treatment has been implemented; new legislation, amendment to existing legislation or other means.		
11. Please submit a map of designated areas sensitive to nitrogen		

HELCOM RECOMMENDATION 28E/6

Adopted 15 November 2007
Having regard to Article 20, Paragraph 1 b)
of the Helsinki Convention

ON-SITE WASTEWATER TREATMENT OF SINGLE FAMILY HOMES, SMALL BUSINESSES AND SETTLEMENTS UP TO 300 PERSON EQUIVALENTS (P.E.)

THE COMMISSION,

RECALLING Paragraph 1 of Article 6 of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 (Helsinki Convention), in which the Contracting Parties undertake to prevent and eliminate pollution of the Baltic Sea Area from land-based sources by using, inter alia, Best Environmental Practice for all sources and Best Available Technology for point sources,

HAVING REGARD to Article 3 of the Helsinki Convention, in which the Contracting Parties shall individually or jointly take all appropriate legislative, administrative or the relevant measures to prevent and abate pollution in order to promote the ecological restoration of the Baltic Sea Area,

RECALLING the Ministerial Declaration of 1988 and the Baltic Sea Declaration of 1990, calling, inter alia, for a substantial reduction of the inputs caused by diffuse sources,

RECALLING FURTHER HELCOM Recommendation 9/2 in which the use of effective methods of wastewater treatment is stressed,

RECOGNISING the fact that a substantial part of the eutrophication problems observed in the Baltic Sea Area is caused by nutrient inputs from diffuse sources,

RECOGNISING that wastewater discharges originating from sources outside urban wastewater collection systems, such as single family homes, small businesses and settlements are a land-based source from which considerable quantities of nutrients are likely to reach, directly or indirectly, the marine area,

TAKING INTO ACCOUNT that stricter requirements for on-site wastewater treatment outside sewer networks are likely to enhance water quality also in local water bodies and shallow wells used for extraction of drinking water,

NOTING that for the purpose of this Recommendation the following definitions apply:

Grey water:	Non-industrial wastewater generated in domestic processes, excluding human excrements, such as washing dishes, laundry and bathing
Black water:	Domestic wastewater containing human excrements
Composting dry toilet:	A toilet system without water flush used for disposal of and biological processing of human excrement into organic compost material.

NOTING that the objective of this Recommendation is to reduce domestic and other wastewater discharges from sources outside urban wastewater collection systems,

NOTING FURTHER that this Recommendation covers those on-site wastewater systems which receive domestic or similar wastewater from single family homes, small businesses or settlements outside urban wastewater collection systems,

RECOMMENDS to the Governments of the Contracting States that the following practices should be promoted in on-site wastewater treatment for single family homes, small businesses and settlements up to 300 p.e.:

1. Untreated wastewaters shall not be led directly to natural water systems in areas that are not connected to sewers.

2. Wastewaters from single family homes, small businesses and settlements should be treated so that emissions per capita to the environment reach at most the values set in Table 1.

For a high standard household with warm water, showers, laundry and dishwashing machines and flush toilets this would mean approximately a basic reduction of 80% of BOD_5, 70% of total phosphorus and 29% of total nitrogen.

Table 1. Maximum permissible daily load per capita for biological oxygen demand over five days (BOD_5), total phosphorus (P_{tot}) and total nitrogen (N_{tot}) of the treated wastewater.

Load parameter	Permissible load of treated wastewater (g person^{-1} d^{-1})*
BOD_5	8
P_{tot}	0.65
N_{tot}	10

*g person^{-1} d^{-1} is grams per person per day

Alternative 1: the requirements based on emissions per capita need not apply where it can be shown that an on-site wastewater treatment plant results in at most a concentration of BOD_5 of 20 mg/l, P_{tot} 5 mg/l and N_{tot} 25 mg/l in the effluent of the treatment plant.

Alternative2: the requirements based on emissions per capita need not apply where it can be shown that an on-site wastewater treatment plant using the Best Available Technology (BAT) is installed and operated so that the treatment results in at most a concentration of BOD_5 of 40 mg/l and 150 mg/l COD in the effluent of the treatment plant.

Alternative 3:
Mapping
Improved treatment shall be introduced in areas where the quality of the waterbody is below the desired quality, when – and only when - it can shown that that the quality of the waterbody is poorer due to the influence of discharged wastewater.

Treatment
Improved wastewater treatment must be introduced when a house not connected to public sewer is situated in an area where the aforementioned conditions are present. The following table shows different levels of treatment, depending on the sensitivity of the waterbody:

Receiving water sensitivity	Treatment type	BOD_5 reduction (%)	Phosphorus reduction (%)	Nitrification (%)
Class 1	Enhanced OP treatment	95	90	90
Class 2	Enhanced O treatment	95		90
Class 3	OP treatment	90	90	
Class 4	O treatment	90		

O: organic matter
P: phosphorus. (P-reduction achieved in effluent)
Nitrification: chemical process transforming ammonium-nitrogen (NH4-N) into nitrate (NO3-N).]

3. The two possible phases of minimisation of the discharges of wastewater to the environment are

- the use of. dry toilets, phosphate-free detergents and minimisation of water consumption;

- Treatment of wastewater. The level of the treatment depends on the composition of the wastewater; black water needs a higher level of treatment than grey water.

Examples of wastewater generation and treatment options:

- Composting dry toilet with separation of urine in combination with on-site grey water treatment.
- Composting dry toilet in combination with on-site grey water treatment.
- Separation of grey water and black water, on-site treatment of grey water in combination with storage and transportation of black water to the municipal wastewater treatment plant for treatment.
- An on-site wastewater treatment system for all wastewaters.
- An on-site holding tank or cesspool with transportation to and treatment of wastewaters at a municipal wastewater treatment plant.

Drainage and storm waters should never be led to a wastewater treatment system.

For estimates of needed reduction levels for two different combinations of wastewater generation and treatment, see attachment.

4. Attention should be paid to reducing sludge formation and to promoting systems which enable recycling of nutrients back to agricultural use. Sludge should be collected, stored and transported to a municipal wastewater treatment plant or a designated sludge handling unit in manner that avoids leakages. Sludge from septic tanks or activated sludge systems should not be dumped into waterbodies or close to them.

5. A transitional period of 10 years for the households (with water flush toilets and 14 years without water flush toilets) to implement the Recommendation from the date of adoption should be applied,

RECOMMENDS FURTHER that the Contracting Parties report on the implementation of the Recommendation to the Commission, based on reporting requirements developed by the Land-based Pollution Group.

HELCOM RECOMMENDATION 28E/7

Adopted 15 November 2007
having regard to Article 20, Paragraph 1 b)
of the Helsinki Convention

MEASURES AIMED AT THE SUBSTITUTION OF POLYPHOSPHATES (PHOSPHORUS) IN DETERGENTS

THE COMMISSION,

RECALLING Article 5 of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 (Helsinki Convention), in which the Contracting Parties undertake to prevent and eliminate pollution of the Baltic Sea Area caused by harmful substances from all sources, according to the provisions of this Convention and, to this end, to implement the procedures and measures of Annex I,

RECALLING ALSO that Annex I of the 1992 Helsinki Convention defines phosphorus as a harmful substance for the purposes of Article 5 of the Convention,

RECALLING FURTHER the Ministerial Communiqué 1998, calling for implementation of HELCOM Recommendation 19/5 on the HELCOM Objective with regard to Hazardous Substances, which is to prevent pollution of the Convention Area by continuously reducing discharges, emissions and losses of hazardous substances, with the ultimate aim of concentrations in the environment near background values for naturally occurring substances and close to zero for man-made synthetic substances, until 2020,

FURTHER RECALLING that based on HELCOM monitoring and assessment work on the state of the Baltic marine environment four strategic goals, reflecting the jointly identified major environmental problems in the Baltic Sea, have been adopted describing the desired state of the marine environment, namely a “Baltic sea unaffected by eutrophication”, “Baltic Sea life undisturbed by hazardous substances”, “Maritime activities carried out in an environmentally friendly way”, all of which will lead to a “Favourable status of Baltic Sea biodiversity”;

RECOGNISING the relative importance of detergents containing phosphates as a source of pollution by phosphorus, and the fact that phosphate-free detergents are available,

RECOGNISING FURTHER that sewage treatment investments are needed in parallel to the reduction of phosphates in detergents due to the need for the reduction of other polluting substances and other sources,

BEING MINDFUL of the pollution caused by discharges of phosphorus resulting from detergents containing phosphates which contribute to eutrophication, and the usefulness of taking adequate action on a flexible basis,

RECOMMENDS to the Governments of the Contracting States to the Helsinki Convention that:

a) Polyphosphates as builders in laundry detergents for consumer use should be substituted according to national programmes and measures with a timetable to be presented and decided at the HELCOM Ministerial Meeting in 2010. In practical terms, a maximum limit for the content of total phosphorus should be applied and a hurdle of 0.2 to 0.5% P weight/weight could be recommended;
b) possibilities for the substitution of the use of polyphosphates as builders in dishwasher detergents for consumer use be further investigated;
c) further investigations on alternative builders, especially on their use and environmental effects, be carried out.

RECOMMENDS FURTHER that the action taken by Contracting Parties in accordance with this Recommendation should be reported to the Commission annually,

DECIDES ALSO that further considerations on the substitution of the use of polyphosphates as builders in dishwasher detergents for consumer use referred to in paragraph b) should be reconsidered in 2010.

HELCOM RECOMMENDATION 28E/8

adopted 15 November 2007
having regard to article 20, Paragraph 1 b)
of the Helsinki Convention

ENVIRONMENTALLY FRIENDLY PRACTICES FOR THE REDUCTION AND PREVENTION OF EMISSIONS OF DIOXINS AND OTHER HAZARDOUS SUBSTANCES FROM SMALL-SCALE COMBUSTION

THE COMMISSION,

RECALLING Paragraph 1 of Article 6 of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 (Helsinki Convention), in which the Contracting Parties undertake to prevent and eliminate pollution of the Baltic Sea Area from land-based sources by using, *inter alia*, Best Environmental Practice for all sources and Best Available Technology for point sources,

HAVING REGARD also to Article 3 of the Helsinki Convention, in which the Contracting Parties shall individually or jointly take all appropriate legislative, administrative or other relevant measures to prevent and abate pollution in order to promote the ecological restoration of the Baltic Sea Area,

RECALLING Article 5 of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 (Helsinki Convention), in which the Contracting Parties undertake to prevent and eliminate pollution of the marine environment of the Baltic Sea caused by harmful substances,

RECOGNISING that small-scale combustion appliances are land-based sources from which considerable emissions of dioxin are likely to reach, directly or indirectly, the marine area,

RECALLING that dioxin compounds are hazardous substances selected for immediate action by HELCOM,

RECOGNISING ALSO that dioxins are toxic and carcinogenic to aquatic organisms, and bioconcentrate at low trophic levels in the aquatic ecosystem,

RECOGNISING ALSO that the release of dioxins arising in domestic combustion appliances can be minimised by applying Environmental Friendly Practices,

TAKING INTO ACCOUNT that abatement measures for dioxins also affect the emissions of other hazardous substances,

NOTING that for the purpose of this Recommendation the following definitions apply:

- "Dioxin" means chlorinated dibenzo-p-dioxin (PCDD) and dibenzofuran (PCDF) compounds;
- "Domestic combustion appliances/small-scale combustion appliances" mean boilers, stoves and open fireplaces, used for domestic heating, cooking, baking, sauna bathing or other, similar purposes generating an input effect of less than 50 kW;
- "Fuel" means solid fuel consisting of pure material of wood, peat or coal,

NOTING ALSO that the purpose of this Recommendation is to prevent and eliminate pollution of the marine environment by the application of Environmentally Friendly Practices for the use of small-scale combustion appliances with a view to limiting emissions of dioxins and other dioxin-like compounds,

NOTING FURTHER that this Recommendation applies to combustion appliances using solid fuel,

RECOMMENDS to the Governments of the Contracting States to take the necessary measures to:

1. Ensure the introduction of the use of an increasing number of low-emission combustion appliances

   - Environmentally sound combustion appliances should be promoted for small-scale combustion installations. Suppliers should be made aware of environmentally sound practices for combustion appliances below 50 kW and should be involved in the promotion of Best Environmental Practises (BEP) for households;
   - At enterprises, annual internal inspections (by the operator) and regular instructions on the proper use of the technical equipment by authorised experts (e.g. professional chimney sweepers) should be recommended or made mandatory,

2. Enhance public awareness

   2.1 Public awareness should be enhanced regarding
   a) importance of environmentally friendly practices to minimise effects of small-scale combustion in domestic and small enterprise furnaces;
   b) purchase of domestic combustion appliances, the preparation and storage of fuel and the operation of the combustion appliances,

   2.2. Public awareness should be enhanced in the abovementioned fields by developing guidelines and arranging information campaigns for households and small enterprises. The information should aim at promoting the following measures and practices:
   a) when new appliances are installed, certified or other products with high environmental performance should be chosen;
   b) only combustion appliances constructed in accordance with the amount of energy required for its purpose should be installed;
   c) combustion appliances should be operated in a way that optimises combustion processes, taking into account at least the following modes of operation:

   (i) fuel:
   - fuel should be prepared and stored in a way that ensures that it is dry when combusted
   - fuel should be homogeneous in quality and size
   - any such waste (plastics, paper, painted wood, etc.) which contribute to the formation of dioxins should not be incinerated or used as fuel; However wood waste, with the exception of wood waste which may contain halogenated organic compounds or heavy metals as a result of treatment with wood-preservatives or coating, can be used as fuel

   (ii) loading:
   - each load of fuel should be in accordance with the quantity/size for which the combustion appliance is designed and constructed
   - frequency of loading should be adapted to the combustion appliance and adjusted to maintain good combustion conditions

   (iii) operation:
   - start-up periods should be as short as possible and dry fuels of appropriate size/shape should be used.
   - during the burning period, inlet of air should be adjusted to optimal combustion conditions. Deficit or excess air should be prevented;

   d) combustion appliances should be regularly maintained by removing bottom ash. Chimneys should be regularly swept in order to reduce emission of dioxins and to prevent chimney fire.

RECOMMENDS FURTHER that the Contracting Parties develop in 2008 specific efficiency requirements and emission limit values for small scale combustion appliances

RECOMMENDS FURTHERMORE that the Contracting Parties report on the implementation of the Recommendation to the Commission, based on reporting requirements developed by the Land-based Pollution Group.

HELCOM RECOMMENDATION 28E/9

Adopted 15 November 2007,
having regard to Article 20, Paragraph 1 b)
of the 1992 Helsinki Convention

DEVELOPMENT OF BROAD-SCALE MARINE SPATIAL PLANNING PRINCIPLES IN THE BALTIC SEA AREA

THE COMMISSION,

RECALLING Article 3 of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 (Helsinki Convention), in which the Contracting Parties declare the application of the precautionary principle, and Article 15 in which the Contracting Parties agree to individually and jointly take all appropriate measures, with respect to the Baltic Sea Area and its coastal ecosystems influenced by the Baltic Sea, to conserve natural habitats and biological diversity and to protect ecological processes,

RECALLING FURTHER HELCOM Recommendation 24/10 on implementation of integrated marine and coastal management of human activities in the Baltic Sea Area and to promote integrated management of human activities having impacts on the marine environment,

RECOGNISING that the network of Baltic Sea Protected Areas forms an integral part of the broad-scale spatial planning, **WE STRESS** that the Contracting Parties must fulfil their obligations under the joint 2003 HELCOM/OSPAR Marine Protected Areas Working Programme by 2010,

BEING CONCERNED about the increasing intensity of human activities in marine and coastal areas causing threats to the environment,

BEARING IN MIND that:

a) the Baltic Sea marine and coastal areas possess a unique biodiversity and resources, the use and protection of which requires special, sustainable and co-ordinated planning and new approaches to the management of human activities;
b) the Ecosystem Approach calls for cross- sectoral management of human activities;
c) the improper use of the marine and coastal areas may result in irreversible changes or long-lasting damage, and thus could affect the sustainable use of marine resources by future generations;
d) marine broad-scale spatial planning is an overarching spatial management method providing tools for comprehensive and integrated coastal and marine management,

BEING AWARE that broad-scale marine spatial planning can help in meeting ecosystem-based management objectives, in reducing user conflicts, and in reducing adverse impacts of human uses now and in the future,

BEING CONCERNED that marine and coastal spatial planning is not carried out on a whole-Baltic scale, in a way that safeguards the marine and terrestrial biodiversity,

RECOGNISING that several components of broad-scale spatial planning are already in place within the Baltic Sea Area, e.g. Marine Protected Areas, Traffic Separation Schemes and the EU and EU-Russian regulations on fisheries management (areas closed to fisheries),

ACKNOWLEDGING
a) the Recommendation of the European Parliament and of the Council concerning the implementation of Integrated Coastal Zone Management in Europe (Recommendation 2002/413/EC);

b) Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE);
c) the proposal for a Directive of the European Parliament and of the Council establishing a Framework for Community Action in the field of Marine Environmental Policy (Marine Strategy Directive);
d) the Blue Paper on a Future Maritime Policy for the European Union (Towards a future Maritime Policy for the Union: A European vision for the oceans and seas);
e) the 1991 Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention),

WELCOMING furthermore the activities currently carried out in the Baltic Sea region by several HELCOM Contracting Parties, and within international initiatives, such as VASAB 2010[*], Baltic 21 as well as recognising results of INTERREG Projects,

NOTING FURTHER that
a) most of the Contracting Parties have national legislation and policies regarding integrated management of human activities impacting marine and coastal areas,
b) national agencies, private parties and NGOs have roles, interests, concerns and obligations regarding the marine and coastal areas that differ from one another as well as between countries,

ENSURING that all Contracting Parties have free access to the HELCOM GIS database and permission to use the data for the spatial planning activities in their countries,

RECOMMENDS that the Contracting Parties:
a) jointly develop the marine and coastal broad-scale spatial planning common principles to facilitate the protection and sustainable use of the Baltic Sea;
b) fill in data gaps in spatial data e.g. on marine and coastal biodiversity, natural resources, use of land and water areas, demography, traffic, shipping;
c) develop joint solutions to the problems associated with access to spatial data;
d) provide HELCOM and other relevant parties with the necessary spatial data for marine and coastal broad-scale spatial planning;
e) identify and map interacting and/or conflicting interests, obligations and uses of the sea, primarily to broaden the HELCOM GIS as a data source and an effective tool to be used in marine broad-scale spatial planning (compatible with the European Environment Agency database including spatial data);
f) carry out consultations jointly concerning activities which may have transboundary negative effects on the environment and coastal populations.

The implementation of this Recommendation should be evaluated at regular intervals.

[*] e.g. the VASAB Recommendation for spatial planning of the coastal zone in the Baltic Sea Region.

HELCOM RECOMMENDATION 28E/10

Supersedes HELCOM Recommendations 19/8, 26/1 and 28/1.

Adopted 15 November 2007
having regard to Article 20, Paragraph 1 b)
of the Helsinki Convention

APPLICATION OF THE NO-SPECIAL-FEE SYSTEM TO SHIP-GENERATED WASTES AND MARINE LITTER CAUGHT IN FISHING NETS* IN THE BALTIC SEA AREA

THE COMMISSION,

RECALLING Article 8 of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 (the Convention) which calls for development and application of uniform requirements for the provision of reception facilities,

RECALLING ALSO Article 9 of the Convention stipulating a need for special measures in relation to pleasure craft, which includes the establishment of adequate reception facilities for wastes from pleasure craft,

CONSCIOUS that the "no-special-fee" system constitutes a system with the dual purpose of encouraging ships to deliver waste ashore and to avoid undesirable waste streams between ports, thereby encouraging a sound sharing of the waste burden,

CONSCIOUS ALSO that the no-special-fee system constitutes one of the prerequisites for a substantial decrease in the number of operational and illegal discharges and thus for the prevention of pollution of the marine environment from ships,

NOTING that the port authorities are responsible for providing reception facilities for wastes covered by Annex I (oil), Annex II (noxious liquid substances), Annex IV (sewage) and Annex V (garbage) of the 1973 International Convention for the Prevention of Pollution from Ships as modified by the Protocol of 1978 relating thereto (MARPOL 73/78),

NOTING ALSO that the consignor in the loading port is responsible for reception arrangements for cargo-related wastes covered by Annex I (oil residues from cargo tanks) of MARPOL 73/78,

NOTING FURTHER that the consignee in the unloading port is responsible for reception arrangements for wastes covered by Annex II (residues of noxious liquid substances) of MARPOL 73/78,

RECOMMENDS that the Governments of the Contracting Parties apply the attached Guidelines for the establishment of a harmonised "no-special-fee" system for the operation of reception facilities in their ports as of 1 January 2000 for ship-generated wastes covered by Annex I (oily wastes from machinery spaces) of MARPOL 73/78 and as of 1 January 2006 for wastes covered by Annex IV (sewage) and Annex V (garbage) of MARPOL 73/78,

RECOMMENDS ALSO *that the litter caught in fishing nets be covered by the "no-special-fee" system,**

TAKING NOTE of the adoption within the European Union of Directive 2000/59/EC on port reception facilities for ship-generated waste and cargo residues,

REQUESTS the Contracting Parties to support or seek active co-operation with the North Sea States for the purpose of establishing a similar "no-special-fee" system also in the North Sea Region,

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* *Amendment to the existing Recommendation*
* *Amendment to the existing Recommendation*

REQUESTS ALSO the Governments of the Contracting Parties to report on the implementation of this Recommendation and attached Guidelines in accordance with Article 16(1) of the Convention.

Attachment

Guidelines for the establishment of a harmonised "no-special-fee" system for the delivery of ship-generated oily wastes originating from machinery spaces and for the delivery of sewage and garbage, including marine litter caught in fishing nets*, to port reception facilities

1 Definition of the "no-special-fee" system

1.1 In this context the "no-special-fee" system is defined as a charging system where the cost of reception, handling and disposal of ship-generated wastes, originating from the normal operation of the ship, *as well as of marine litter caught in fishing nets,* is included in the harbour fee or otherwise charged to the ship irrespective of whether wastes are delivered or not.

1.2 The "no-special-fee" system is not restricted to any specific type of ship-generated waste.

2 Obligation to pay

2.1 Every sea-going ship's obligation to pay for reception, handling and disposal of oil residues, sewage and garbage is deemed to arise with the arrival of a ship in any port of the participating countries, irrespective of whether or not that particular ship will actually make use of the reception facilities, which are available there.

2.2 The above fee covers the waste collecting, handling and processing including infrastructure and shall be distributed among ships and collected as part of or in addition to the port dues.

3 Exemptions

3.1 A ship may be exempted by the competent authority from the obligation to pay, when engaged in regular services and it is ensured that the disposal requirements will be met on the ship's own account.

3.2 For the purpose of these Guidelines *"regular services" means a series of ship crossings operated so as to serve traffic between the same two or more ports, or a series of voyages from and to the same port without intermediate calls, either:*

(i) according to a published timetable, or

(ii) with crossings so regular or frequent that they constitute a recognisable schedule.

A crossing should be considered as frequent if the ship visits the port once a fortnight.*

3.3. When a ship applies for an exemption, the competent authority of the Port State should require evidence of the ship's scheduled traffic as well as evidence of waste management practice (contract, receipts, copy of garbage record book, oil record book etc.). The ship has to organise its waste management according to a contract and deliver its waste regularly under this arrangement in a certain port/ports. If it chooses to deliver elsewhere, a port can charge the ship according to the real costs (direct fee).

3.4. The Contracting States should also inform about the issued exemptions to other Port States along the scheduled route. The Contracting States will inform the HELCOM Secretariat of their competent authority responsible for granting exemptions from the mandatory delivery and notification requirements.

4 Basis of calculation of the no-special-fee

4.1 The waste management fee imposed on a ship should be independent of the volume of the wastes delivered to the port reception facilities. To obtain the maximum of truth and fairness

* *Amendment to the existing Recommendation*

* *Amendment to the existing Recommendation*

in specifying the ship’s contribution to the no-special-fee system the gross tonnage, as indicated in the vessel's Data Sheet, could be taken as the basis of calculation by the port. Basis of calculation of oil, garbage and sewage may depend on the type and size of the ship as well as the number of crew and passengers.

4.2 A high quality standard of the applied waste management procedures and waste processing equipment on board can also be taken into account in scaling the waste management fee, having in mind the general aim of minimisation of waste production, and the benefit of waste separation.

4.3 The waste management fee shall be fair, transparent and non-discriminatory to all ships, i.e. the size of the waste management fee shall be visible to every ship even if it is included in the harbour fee.

4.4 The waste management fees received from ships shall be used for no other purposes than:

- investments in reception facilities, stationary and mobile;
- operation of reception facilities;
- repair and maintenance costs of such facilities;
- costs of handling, treatment and final disposal of the received wastes.

5 Avoidance of competitive distortion

5.1 To avoid competitive distortions between ports located in different sea areas, all possible efforts shall be made to achieve as soon as possible a harmonised waste management fee system for the ports in the Baltic Sea and in the North Sea Regions.

5.2 The Contracting States involved shall make the necessary efforts in order to implement a harmonised fee system simultaneously in the ports of the Baltic Sea as well as in the North Sea Regions.

5.3 Provisions should be made to preclude any subsidising of the waste management fee through public funds for the operation of reception facilities.

5.4 The Governments of the Contracting States shall exchange periodic reports on the implementation of these Guidelines in their ports, including reports on the financing and operation of reception facilities, and evaluate such reports at the meetings of the Maritime Group of the Helsinki Commission.

HELCOM RECOMMENDATION 28E/11

Adopted 15 November 2007
having regard to Article 20, Paragraph 1 b)
of the Helsinki Convention

FURTHER MEASURES TO IMPROVE THE SAFETY OF NAVIGATION IN ICE CONDITIONS IN THE BALTIC SEA

THE COMMISSION,

BEING CONSCIOUS that parts of the Baltic Sea are ice-covered for several winter months, which places some limitation on maritime transportation and entails greater risks of accidents and pollution,

NOTING the increasing vessel traffic and especially transportation of oil products in the Baltic and the expected future significant growth of shipping activities in general,

BEING AWARE of the technical difficulties in responding to oil spills in ice,

BEING FURTHER AWARE that the increasing vessel traffic will also increase demands for icebreaking services, especially during severe winters and in difficult ice conditions,

OBSERVING that the capability of vessels to navigate in ice has constantly improved due to the technological development, while there seems to be a lack of relevant experience and know-how among the ship crews, and that the risk of accidents during ice conditions can be decreased by well-trained and experienced ship crew,

RECOGNISING that timely and reliable information on ice conditions, recommended routes and available icebreaking services are of crucial importance when assisting the ships in their route through the Baltic,

RECALLING the Declaration on the Safety of Navigation and Emergency Capacities in the Baltic Sea Area (HELCOM Copenhagen Declaration) adopted on 10 September 2001 in Copenhagen,

BEING CONVINCED of the need for further measures to advance the safety and efficiency of winter navigation in the Baltic Sea and to create unified rules and regulations and operational practises for navigation in ice conditions,

ACKNOWLEDGING the successful development of co-operation among maritime authorities from all the Baltic Sea Coastal States within the framework of the Baltic Icebreaking Management organisation,

WELCOMING closer exchange of information with Baltic Icebreaking Management (BIM) in order to join forces of the two organisations: HELCOM as environmental policy-maker on one side and BIM as a platform for exchange of information and knowledge related to navigation in ice conditions on the other,

APPRECIATING the initiative by BIM to create a single source of timely and reliable information on ice conditions, traffic restrictions, icebreakers and other issues relevant to mariners navigating in the Baltic Sea during wintertime, which can be obtained from the website www.baltice.org,

RECOMMENDS that the Governments of the Contracting States take necessary steps to ensure that there are sufficient icebreaking services available to assist ships bound for ports in their territory,

RECOMMENDS FURTHER that the Governments of the Contracting States, when arranging icebreaking services, try to prioritise the provision of service according to the risk areas,

including heavy traffic routes, routes to oil terminals, ports with a large number of calls in ice conditions, and others,

RECOMMENDS FURTHERMORE the Governments of the Contracting States to advance educational offers for seafarers of high quality training programmes in navigation in ice conditions according to the 1978 International Convention on Standards in Training, Certification and Watchkeeping for Seafarers. Such training programmes should provide knowledge, understanding and proficiency required for operating a ship in ice-covered waters, including:

- ice conditions, ice types and ice chart;
- ice classes, ship's construction and traffic restrictions;
- icing and winterisation;
- voyage planning and operation in ice;
- icebreakers and assistance,

RECOMMENDS ALSO the Contracting Parties to promote the use of the Electronic Chart Display and Information System (ECDIS) and the use of qualified Baltic Sea Pilots during their voyage in the Baltic Sea in ice conditions until the Master or Senior Watchkeeping Officer of the vessel has achieved sufficient experience in winter navigation,

INVITES experts on icebreaking within BIM to contribute to the relevant work of the HELCOM Maritime and Response groups,

REQUESTS the Governments of the Contracting States to implement the above mentioned measures as soon as possible and to report on the implementation of this Recommendation in accordance with Article 16, Paragraph 1 of the Helsinki Convention.

HELCOM RECOMMENDATION 28E/12

Adopted 15 November 2007
having regard to Article 20, Paragraph 1 b)
of the Helsinki Convention

STRENGTHENING OF SUB-REGIONAL CO-OPERATION IN RESPONSE FIELD

THE COMMISSION,

BEING AWARE that the increasing maritime traffic is causing a potential threat of a pollution incident at sea,

BEING ALSO AWARE that spills of oil or other harmful substances can have a long-lasting harmful impact on the sensitive marine environment and the coastal areas of the Baltic Sea,

RECOGNISING the efficiency of an operational "three tier" approach for planning and response to pollution incidents in the Baltic, whereby minor oil spills are addressed by one Contracting State, spills of medium size are addressed by well-organised and timely action by several Contracting State located in the vicinity of the accident, and the largest spills are addressed by the co-ordinated efforts of all Contracting Parties and, if necessary, with use of external assistance,

NOTING the significance of sub-regional approach to ensure timely and well-organised emergency towing, fire-fighting and lightering and, if needed, response to a pollution incident, including shoreline response, and in that way to minimise environmental damage caused by an accident,

NOTING FURTHER that sub-regional co-operation is of crucial importance when effectively using the emergency and response resources,

RECOMMENDS that the Contracting Parties take necessary steps to assess the risk of oil and chemical pollution and on that basis review emergency and response resources on a sub-regional basis in order to ensure that:

1. there are sufficient emergency resources in the area to provide adequate emergency towing, fire-fighting and lightering capacity to a ship in need of assistance within a reasonable period of time;
2. there are sufficient response resources/capacity to ensure effective collection of pollutants in case of a "medium-size" pollution incident or to control large-scale pollution incidents until the assisting forces arrive on the scene;
3. there is adequate response capacity to enable effective shoreline response,

RECOMMENDS ALSO that the Contracting Parties draw up bilateral or multilateral agreements and/or response plans for major risk areas and/or dangerous objects located in the vicinity of their borders and where co-ordinated efforts are needed to ensure adequate response to pollution incidents,

RECOMMENDS FURTHER that the Contracting States cooperate by carrying out joint surveillance operations and/or flights by one Contracting State over the responsibility area of the other Contracting State(s) in order to ensure that the minimum HELCOM requirements on aerial surveillance are fulfilled,

RECOMMENDS ADDITIONALLY that the Contracting States endeavour to do their best in order to ensure that a ship in need of assistance would be accommodated in the most appropriate place of refuge without undue delay,

RECOMMENDS FINALLY that the Contracting States integrate shoreline response into national contingency plans, and cooperate by conducting trainings and organising exchange programmes to ensure swift and adequate response capacity and to develop best practices.

Attachment

Guidance for sub-regional plans to quantify needed emergency/response resources

The idea of enhanced sub-regional co-operation, which has been discussed and agreed in HELCOM RESPONSE, rests on a four-step logic:

- Analysis of the likely accident scenarios taking into account sub-regional specifics;
- Identification (both quantitative and spatial) of the emergency and response resources needed sub-regionally to respond to an accident of Tier 1 and 2 and how to deal with a Tier 3 accident until the assistance arrives;
- Comparison of the identified needs to the available resources and development of plans to meet the needs for resources in the sub-region in the most effective way;
- By the above standing steps, achieving adequate emergency and response preparedness in the most cost-efficient way.

Even though the risks and likely accident scenarios certainly vary sub-regionally, it might be beneficial to have a general discussion on certain aspects of the assessments in order to facilitate sub-regional actions:

- Likely maximum accident for which the sub-regions should be prepared;
- Principles for the estimation of the needed emergency and response resources as well as their preparedness and spatial allocation.

Emergency towing

Every sub-region should have adequate emergency towing capacity to be able to handle the largest vessels sailing in the region in rough sea conditions (e.g. Beaufort 10-12 in the Baltic Sea).

Spatial allocation and preparedness should correspond to the time limits for approaching and securing a ship in distress along the major shipping lane(s) in the sub-region before it reaches shallow waters.

Emergency lightering

Emergency lightering capacity (pumping capacity, intermediate storing and possible places of refuge) should be analysed for a lightering operation of the biggest ships sailing in the area (up to 150,000 tonnes).

Emergency fire fighting

Emergency fire fighting capacity should ensure at least availability of Fire Fighters class 1 according to Det Norske Veritas (DNV) or similar (around 20,000 litres/minute).

Places of refuge

Based on risk assessment in a sub-regional context, including evaluation of the environmental factors, adequate response capacities should be available for places of refuge.

Shoreline response

Every sub-region should have adequate equipment and trained personnel to protect the coast, especially vulnerable habitats and areas (Baltic Sea Protected Areas, BSPAs) and to ensure immediate and appropriate action on shore.

Shoreline response capacity should be addressed and arranged in its complexity within sub-regional agreements between adjacent Contracting States. Such agreements are aimed at ensuring fast and sharp reaction when a second and/or third tier or transboundary pollution accident has occurred.

The logic described in HELCOM Recommendation 11/13 serves as a basis to analyse and utilise the personnel, amount and type of booms, skimmers, vacuum cleaners, washers and other relevant equipment needed to maintain readiness for actual operations in such accidents.

All priorities related to vulnerable areas (BSPAs) are to be pre-planned within sub-regional action plans; this may include wildlife response as deemed feasible.

Response capacity

Response capacity should be available for responding to a 1,000- 5,000 tonnes (depending on the likely accident in the area) oil spill at sea in favourable weather within 3 days. Local geographical and other specifics (e.g. archipelago area, shallow water, etc.) should be taken into account.

Action Plan

When the above standing analysis has been performed, there should be an action plan for how together to improve the capacity. Who buys what and when? How do the others get hold of it in an emergency situation, etc.

Notification

NB -There is no need for special alarm procedures, etc. Normal HELCOM routines should be applied, but of course it is permitted to call or mail the sub-regional partners as a first notification.

HELCOM RECOMMENDATION 28E/13

Adopted 15 November 2007
having regard to article 20, p. 1b and
Annex II of Helsinki Convention

INTRODUCING ECONOMIC INCENTIVES AS A COMPLEMENT TO EXISTING REGULATIONS TO REDUCE EMISSIONS FROM SHIPS

THE COMMISSION,

BEING AWARE that pollution from shipping has negative impacts on the sensitive marine environment of the Baltic Sea,

ACKNOWLEDGING that, although there has been general substantial progress achieved in improving the protection of the marine environment of the Baltic Sea and in reducing the airborne emissions from shipping in particular, there is still a need for further emission reduction,

ACKNOWLEDGING the importance of a review of Annex VI to MARPOL 73/78 and other international measures to reduce emissions from ships,

STRESSING the need for introducing new and effective solutions to curb emissions from shipping,

RECOGNISING the need to evaluate and implement additional alternatives to the existing regulatory measures to reduce emissions from shipping,

RECALLING Annex II to the Helsinki Convention **AND NOTING** that the promotion and use of Best Environmental Practice and Best Available Technology can be triggered by the application of economic instruments to activities, products and emissions in the Baltic Sea Area and may constitute an effective means to reduce emissions from shipping,

NOTING FURTHER that economic incentives can serve as complements to regulatory measures and thereby may lead to a larger reduction of pollution compared to that achieved by traditional regulations and can stimulate technological improvements and innovations as well as achievement of environmental results at lower costs,

BEING CONVINCED that sub-regional co-operation is of crucial importance also when the desire is to effectively use economic instruments,

RECOMMENDS that the Contracting Parties investigate and, when appropriate, introduce feasible and effective economic instruments as a possible complement to existing regulations to further reduce air pollution from shipping,

RECOMMENDS FURTHER that the Contracting Parties take into consideration the attached **Guidelines** when introducing economic incentives schemes to reduce emissions from ships.

Attachment

Guidelines for introducing economic incentive schemes as a possible complement to existing regulations to reduce emissions from ships in the Baltic Sea Area

These guidelines are intended to give advice to the Contracting Parties to the Helsinki Convention to introduce incentive schemes to reduce air pollution from ships calling upon Baltic Sea ports.

1. Introduction

The shipping sector is not regulated as extensively as land-based sources and, as a result, in contrast to the expected progress in reducing emissions from land-based sources, shipping emissions of NOx and SOx are expected to continue to increase. Due to the international nature of shipping, the measures adopted at the national or regional level can only have limited impact on emissions from shipping in the specific region. All Contracting States must therefore take active part in global actions initiated within the IMO to substantially reduce emissions from ships. These measures form the international baseline upon which there often is room for regions or nations to introduce non-discriminatory economic incentives to further reduce pollution from ships within their jurisdiction.

2. Definitions of Economic Incentives

Economic incentives defined broadly are instruments that use financial means to motivate actors to reduce health and environmental risks posed by their facilities, processes, or products. These incentives provide monetary rewards for those polluting less and impose costs of various types for those polluting more, thus supplying the necessary motivation of change to polluters. This approach provides an opportunity to address sources of pollution at an overall cost that is lower than traditional forms of regulation as well as providing a reason for polluters to improve in addition to existing regulatory requirements.

3. Existing financial instruments

Economic instruments to encourage environmentally friendly or quality shipping have been introduced in some countries and ports around the world to encourage ship owners to reduce their atmospheric emissions. These include differentiated port and fairway dues, differentiated taxation of marine fuels and differentiated tonnage taxes. However, those measures when taken only on a national level might have a limited effect on the overall emissions from shipping. To achieve a substantial emission reduction, a much broader incentive scheme, a common Baltic or European system of economic incentives, is needed. The system should be flexible in order to permit national and local differences to be catered for. However, it does not need to be necessarily restricted by the peculiarities of Contracting States' national institutional arrangements concerning shipping dues. Environmentally differentiated fairway dues or other incentive schemes limited to ships calling at Baltic Sea ports can be introduced without conflict to the right of innocent passage provided by 1982 United Nations Convention on the Law of the Seas (Article 26).

4. Proposed financial structure for introducing economic incentives

All countries around the Baltic Sea have some kind of financial system that enables provision of services to shipping, infrastructure investments, dredging, lighthouse and fairway maintenance, icebreaking, hydrological surveys, etc. Taking into consideration the diversity of financial systems applied in the Baltic Sea countries and to allow some flexibility in introducing economic incentives, this proposal allows the Contracting Parties to consider the introduction of economic incentives to reduce emissions from shipping in addition to local financial systems. There are three options for introducing economic incentives that Contracting Parties may choose between:

- to introduce a system of environmentally differentiated fairway dues;
- to modify an existing charging system to allow environmental differentiation of dues;

- to add an emission fee with subsequent differentiation on top of their present system.

There are, however, some requirements that should be followed regardless of which incentive scheme is considered or subject to be implemented. An incentive scheme should have the following prerequisites:

- It should offer the best possible protection of the environment;
- It should cover all important aspects (management, design/equipment, ship operation);
- Emission charges are suitable for ships of all flags, 400 GT and above, visiting Baltic ports;
- The system should be reliable and easy to implement;
- Evidence of compliance should be simple;
- Expenses for the operators of the system should be low.

It is important that the level of charge is accurately set. This would create a zero-sum game for the industry as a whole. Since ferry traffic is responsible for mainstream emissions in ports[*] these ships would need to be actively involved in the incentives schemes. The dues levied per unit of the vessel's gross tonnage might be differentiated with the introduction of lower levels for passenger vessels and cruise liners if so desired. When introducing an incentive scheme, the following measures should be considered:

- to establish levels for NOx and SOx emissions (or to lower the existing ones) based on which rebate schemes for NOx and SOx will be developed;
- to decide a minimum fee based on gross tonnage or installed engine power (might differ for different categories of ships);
- to decide on number of calls subject to dues (for instance, five calls per calendar month for Ro/Pax and passenger ferries and two calls for other vessels);
- to consider a revenue-neutrality resulting in higher dues for more polluting ships and rebates for ships that invest in emission abatement technologies depending on achieved results.

The following rebate schemes for reducing NOx and SOx emissions might be used.

Nitrogen oxide discount

The Contracting Parties might consider an entrance reduction limit for discounts as 10 g per kWh. The scale extends below 0.5 g/kWh. The lowest limit set up to 0.5 g/kWh would provide a stronger incentive to include auxiliary engines in measures to cut NOx emissions. The table below constitutes an example of how the dues after discount per unit of the vessel's gross tonnage could be applied.

Emission level, gram NOx/kWh	Ro-Pax and passenger vessels, €	Cruise vessels, €	Oil tankers. €	Other vessels, €
0 – 0.50	0.064	0.042	0.107	0.096
0.51 – 1.00	0.075	0.053	0.118	0.107
1.01 – 2.00	0.096	0.059	0.139	0.123
2.01 – 3.00	0.116	0.064	0.159	0.142
3.01 – 4.00	0.125	0.069	0.168	0.152
4.01 – 5.00	0.135	0.075	0.178	0.162
5.01 – 6.00	0.145	0.080	0.188	0.172
6.01 – 7.00	0.154	0.085	0.197	0.182
7.01 – 8.00	0.164	0.091	0.207	0.191
8.01 – 9.00	0.174	0.096	0.217	0.20
9.01- 10.00	0.183	0.102	0.226	0.21
10.01 -	0.193	0.107	0.236	0.22

[*] *Ferry and Ro-Ro traffic is responsible for about 75 % of energy consumption of ships calling upon Swedish ports*

Monitoring, reporting and control

Currently it is not possible to continuously measure the exact amount of different pollutants being emitted from individual ships. Until the monitoring technologies are developed and available, emissions will have to be estimated. The calculation can make use of data on the amount of NOx and SOx that is released by vessel's main engines for each kilowatt-hour at 75% of utilised engine capacity.

MARPOL Annex VI sets limits on emissions of NOx from diesel engines. The NOx Technical Code stipulates how this shall be done. The method in the Code can also be used to establish emission levels below the mandatory value.

Measurements of the emission levels from individual vessels shall be conducted by an accredited control laboratory (authorised authority) according to ISO 8178 and the provisions of the NOx Technical Code. The laboratory issues a survey report and a NOx attestation. The Maritime Administration or the recognised organisation (classification society) acting on behalf of that Administration issues the NOx Certificate. Certificates issued by the Administration of a Contracting State shall be recognised by another Contracting State.

The survey report shall specify which measures are taken onboard the ship to continuously reduce NOx emissions as well as information on how the monitoring and verification shall proceed.

NOx certificate

Based on the conducted survey report that shows that the abatement technology is installed and that the calculated weighted emission of NOx is less that 10 g/kWh, the accredited laboratory may issue a NOx reduction attestation. This attestation shall demonstrate the NOx emission level measured and adjusted for ambient factors and recalculated to nitrogen dioxide (NO_2/kWh) in grams with two decimals at 75% power output and steady-state running conditions for main engines (ME) and 50% for auxiliary engines (AE).

Sulphur-related dues and discount

According to Directive 1999/32/EG relating to a reduction in the sulphur content of certain liquid fuels or marine gas oil (MGO) may not be used in EU territorial waters if their sulphur content exceeds 0.2%. Directive 2005/33/EC amending the Directive 1999/32/EG requires from 1 January 2010 a maximum limit of 0.1% sulphur by weight for marine fuels used by inland waterways vessels and ships at berth in Community ports. The directive does not cover heavy fuel oil (HFO) or the fuel in the bunker tanks of ships passing the border between EU and non-EU countries. The economic incentives (environmental differentiation of fairway or other dues aimed at providing an incentive for vessels to use low-sulphur bunker fuel oil) must now be adjusted to prevailing rules. Although most vessels that utilise marine fuel covered by the directive are obliged to use bunker fuel oil with a sulphur content less than 0.2 percent by weight, these vessels should be given a certain discount, as there might otherwise be a risk for their switch to HFO. Moreover, a certain stimulus should be given to vessels not covered by the directive.

The table below shows an example of the sulphur-related dues calculated per unit of the vessel's gross tonnage that might be introduced for all types of ships.

Sulphur content, percent by weight	Ro-Pax and passenger vessels, €	Other vessels, €
0 – 0.2	0	0
0.21 – 0.5	0.032	0.021
0.51 – 1.0	0.064	0.042
1.01 -	0.064	0.064

The significance of passenger vessels in curbing sulphur emissions to the atmosphere corresponds to the difference in the incentive structure vis-à-vis other vessels, as shown in the table.

SOx emissions, Sulphur attestations and certificates for abatement technology

The emission of sulphur from ships is proportional to the sulphur content of the bunker fuel oil if no abatement technologies are applied. According to MARPOL Annex VI, ships have to carry a Bunker Delivery Note (BDN), which provides information on the sulphur content of the fuel. In order to be qualified for deduction, the ship owner has to fill in a sulphur attestation stating the continuous operation on low-sulphur fuel verified by BDN and samples.

If an abatement technology to reduce emissions of SOx is applied, the Maritime Administration or recognised organisation acting on behalf of that Administration shall conduct a survey report specifying which measures are taken onboard the ship to continuously reduce SOx emissions. The survey report shall also contain information on how the monitoring, control and verification shall proceed. If the installation is approved, the Maritime Administration will issue a certificate. Certificates issued by the Administration of a Contracting State shall be recognised by another Contracting State.

HELCOM RECOMMENDATION 28E/14

Adopted 15 November 2007
having regard to article 20, p. 1b)
of the Helsinki Convention

DEVELOPMENT OF HARMONISED PRINCIPLES FOR QUANTIFYING DIFFUSE LOSSES THROUGHOUT THE BALTIC SEA CATCHMENT AREA

THE COMMISSION,

RECOGNISING that a goal of the HELCOM Baltic Sea Action Plan is to achieve good ecological status of the marine environment of the Baltic Sea, and the need to quantify the future inputs of nutrients to the whole Baltic Sea and its sub-regions in order achieve the HELCOM Ecological Objectives under the goal "Baltic Sea unaffected by eutrophication",

RECALLING that existing methods and catchment models are able to describe and assess different loss processes and pathways. However, it is difficult to quantify losses from diffuse sources accurately and to consider the various natural and anthropogenic components of the discharges/losses regime of nitrogen and phosphorus in the river systems,

BEING AWARE that

- currently no common methodology has been agreed to quantify diffuse sources or delivery pathways;
- there is a clear need to improve these issues for future HELCOM Pollution Load Compilations;
- any common methodology must be designed for application in catchment areas with different physical characteristics,
- the HELCOM Baltic Sea Action Plan also requires an estimate as exact as possible on diffuse sources entering into the Baltic Sea;
- the existing information and results from ongoing projects in HELCOM and OSPAR areas (e.g. the outcome of the EU-funded EUROHARP Project and the OSPAR HARP-NUT Guideline 6 on diffuse sources) should be taken into account,

ACKNOWLEDGING the need of harmonized principles for quantifying diffuse losses throughout the Baltic Sea catchment area in order to obtain comparable and reliable estimates on the waterborne inputs from both point sources and diffuse sources entering into the Baltic Sea. The information is required to enable better assessments whether HELCOM reduction targets are met and as well to improve the possibilities to assess the effectiveness of different measures taken,

TAKING INTO CONSIDERATION that the implementation of this HELCOM Recommendation will result in improved knowledge and more reliable results of inputs from especially diffuse sources for future Pollution Load Compilation assessments and as basis for decisions to be taken for the HELCOM Baltic Sea Action Plan,

RECOMMENDS the Contracting Parties to the Helsinki Convention:

1. to support the development and use of harmonised principles for quantifying losses and inputs from diffuse sources;

2. to monitor, calculate and report complete data sets on point and diffuse source nutrient loads, so the total loads entering the Baltic Sea can be estimated with reasonable accuracy bearing in mind the requirements of the HELCOM Baltic Sea Action Plan

- in developing targets for good ecological status;
- in estimating future allowable nutrient inputs to the Baltic Sea and its sub-regions without jeopardize achieving the good ecological status;

3. to support further division of total diffuse losses between different sources (e.g. agriculture, managed forests, natural background) as well as to estimate the retention rates nitrogen and phosphorus in the catchment;

4. to include the loads coming from upstream countries in a more comprehensive way when quantifying losses from diffuse (as well as from point) sources,

REQUESTS FURTHER HELCOM Monitoring and Assessment Group to follow the implementation of this Recommendation in accordance with Article 16, Paragraph 1 of the Helsinki Convention,

AUTHORISES the HELCOM Monitoring and Assessment Group to adopt technical guidelines for the implementation of this Recommendation,

Other documents to be adopted by the HELCOM Ministerial Meeting on 15 November 2007 in Krakow, Poland

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Indicators and targets for monitoring and evaluation of implementation of the Baltic Sea Action Plan

In order for the ecological objectives to be operational, initial indicators with set initial targets have been agreed upon. The set targets, when reached, reflect the good ecological status.

Eutrophication

It has been decided that the ecological objectives for eutrophication will be measured by the following indicators:

- Winter surface concentrations of nutrients reflecting the ecological objective "Concentrations of nutrients close to natural levels"
- Summer Secchi depth reflecting the ecological objective "Clear water"
- Chlorophyll *a* concentrations reflecting the ecological objective "Natural level of algal blooms"
- Depth range of submerged vegetation reflecting the ecological objective "Natural distribution and occurrence of plants and animals"
- Area and length of seasonal oxygen depletion reflecting the ecological objective "Natural oxygen levels".

The transparency of seawater integrates many of the concrete effects of eutrophication and has been chosen as the primary ecological objective with summertime (June-September) Secchi depth as an indicator. The other indicators can be regarded as supportive indicators to give additional information on whether good environmental status has been achieved and are dealt with elsewhere.

Target levels for water transparency are defined by acceptable deviation from reference levels reflecting historical, non-impacted status. As a pragmatic approach, the maximum deviation from reference level should not exceed 25%.

Table 1. The initial target and present levels for summertime water transparency in the different sub-regions

Sub-basin (# of EUTRO assessment table)*	**Transparency (summer-August) [m]**		
	Reference (EUTRO)	**Target (25% deviation from reference)**	**Present situation (EUTRO)**
Bothnian Bay (EUTRO 40)	7.5	Present situation	5.8
Bothnian Sea (EUTRO 38)	9.0	Present situation	7.0
Gulf of Finland (EUTRO 31)	8.0	6.0	4.1
Gulf of Riga (EUTRO 25)	6.0	4.5	3.4
Kattegat (EUTRO 1)	10.5	Present situation	8.5
Baltic Proper (mean calculated from EUTRO 30, 28 & 17)	9.3	7.0	6.3

*Development of tools for assessment of eutrophication in the Baltic Sea (BSEP No. 104)

Hazardous substances

Substances or substance groups of specific concern to the Baltic Sea

Substances or substance groups of specific concern to the Baltic Sea.
1. Dioxins (PCDD), furans (PCDF) & dioxin-like polychlorinated biphenyls
2a. Tributyltin compounds (TBT)
2b. Triphenyltin compounds (TPhT)
3a. Pentabromodiphenyl ether (pentaBDE)
3b. Octabromodiphenyl ether (octaBDE)
3c. Decabromodiphenyl ether (decaBDE)
4a. Perfluorooctane sulfonate (PFOS)
4b. Perfluorooctanoic acid (PFOA)
5. Hexabromocyclododecane (HBCDD)
6a. Nonylphenols (NP)
6b. Nonylphenol ethoxylates (NPE)
7a. Octylphenols (OP)
7b. Octylphenol ethoxylates (OPE)
8a. Short-chain chlorinated paraffins (SCCP or chloroalkanes, C_{10-13})
8b. Medium-chain chlorinated paraffins (MCCP or chloroalkanes, C_{14-17})
9. Endosulfan
10. Mercury
11. Cadmium

Substance relevant sectors of the 11 hazardous substances / substance groups of specific concern to the Baltic Sea

Substance	**Main uses potentially relevant for the HELCOM area** (Current regulatory actions for these substances in different Contracting Parties have not been presented in the table)
Organic substances	
1. Dioxins (PCDD), Furans (PCDF) and Dioxin-like Polychlorinated Biphenyls Chosen as indicator for objective 1 and objective 2	Main sources to air: (http://ec.europa.eu/environment/dioxin/sources.htm): - Residential combustion - Open burning of waste (backyard burning) - Iron and steel industry - Power production, non-ferrous metals, chemical industry
2a. Tributyltin compounds (TBT) Chosen as indicator for objective 1	- Use as anti-fouling agent (main use) - Use as biocide - Use as pesticide - Use as marking agent in manufacture of aircraft - Use as fungicide in “regular” (non-anti-fouling) paints - Mono- and dibutyltin, which are used as stabilisers in e.g. PVC, polyurethane, polyester, can include TBT as impurity
2b. Triphenyltin compounds (TPhT)	- Use as anti-fouling agent (main use) - Use as biocide - Use as pesticide (fungicide)
3a. Pentabromodiphenyl ether (pentaBDE)	- Use as flame retardant in plastic used in electrical equipment such as computers (e.g. in electronic circuits) - Use as flame retardant in different textiles used in special work wear (designed e.g. to protect humans) and special carpets - Use as flame retardant in different products made of flexible polyurethane foam such as in furniture, mattresses, parts of cars and packing material (main use) - Use in resin used as raw material for above-mentioned plastic polymers
3b. Octabromodiphenyl ether (octaBDE)	- Use as flame retardant in insulated wires and cables used in different electronic equipment such as computers - Use as flame retardant in different plastic products made of polymers such as ABS and HIPS (main use) - Use as flame retardant in different textiles made of polymers PBT, polyamide (e.g. nylon), PE-LD and polycarbonate polymers - Use in resin used as raw material for above-mentioned plastic polymers
3c. Decabromodiphenyl ether (decaBDE)	- Use as flame retardant in different plastic products made of HIPS used e.g. in shell structures of TVs and monitors and in wires and cables of electrical equipment - Use in textiles such as in curtains, upholstery fabrics and carpets containing polypropylene - Use in resins as raw material for above-mentioned plastic polymers
4a. Perfluorooctane sulfonate (PFOS) Chosen as indicator for objective 1	Main uses: - Use as surface-active agent in waxes and floor polishes - Use as dirt rejecter, friction control agent, surfactant and antistatic agent in photographic industry in manufacturing of photo film, paper and plates and developing photos (main use and high emission factor to wastewater) - Use in semiconductor industry in photo-acid generators, antireflective coatings, etch mixtures and photo-resists (high emission factor to wastewater) - Use as surface-active agent in metal surface treatment in chromium bath used in e.g. chromium plating (main use and high emission factor to wastewater). Important applications / final products are e.g. aircraft and vehicles - Use in fire-fighting foams (high emission factor to wastewater) - Use as surfactant in industrial and household cleaning products - Use as flame retardant, corrosion inhibitor and surface-active agent in

	hydraulic fluids of both civil and military airplanes - Use as water and oil repellent in surface treatment (impregnation) of textiles and leather - Use as water and grease repellent in surface treatment (impregnation) of paper and cardboard (high emission factor to wastewater)
4b. Perfluorooctanoic acid (PFOA)	- Use as fluxing agent in plumbing with leaded soldering tin - As impurity in polytetrafluoroethylene (PTFE) fluoroplastic coatings (in primer and topcoat) applied in many sorts of products. PFOA is used as processing aid in manufacture of fluoropolymers such as PTFE - Normally, PFOA is not intentionally part of the final products (unlike PFOS), but there are residual contents in e. g. fluorpolymer. PFOA can be formed through the transformation or metabolism of PFOA related substances such as telomere alcohols.
5. Hexabromocyclododecane (HBCDD)	- Use as flame retardant in four principal product types: 1. Expandable Polystyrene (EPS, main use), which (as foam containing HBCDD) is further used in the building and construction industry in end products such as insulation panels / boards in the construction sector, automobile cushions for children, rigid packaging material for fragile equipment, packaging material such as ”chips” and shaped EPS-boards 2. Extruded Polystyrene (XPS, main use), which is further used e.g. in rigid insulation panels/boards in the construction sector, insulation material protecting against frost damage on road and railway embankments and sandwich construction in e.g. caravans and lorry platforms 3. High Impact Polystyrene (HIPS), which is further used in electrical and electronic appliances such as audio-visual equipment cabinets (video and stereo equipment), distribution boxes for electrical lines in the construction sector and refrigerator lining 4. Polymer dispersion for textile finishing (coating, significant source); textiles can be used for e.g. flat and pile upholstered furniture (residential and commercial furniture), upholstery seats in transportation, draperies, and wall coverings, bed mattress ticking, interior textiles e.g. roller blinds, automobile interior textiles and car cushions
6a. Nonylphenols (NP)	- Use as raw material for production of NPE - Use as stabiliser and emulsifying agent in paints, varnishes and coatings - Use as adhesive or binding agent, process regulator, stabiliser and hardener for epoxy resin in manufacture of plastic products such as in construction materials and as soldering agent in insulated wires and cables
6b. Nonylphenol ethoxylates (NPE) NPE degrades to NP	- Use as stabiliser and emulsifying agent in paints, varnishes and coatings (main use and risk use) - Use as solvent for pesticides applied in agriculture and horticulture (high emission factor to wastewater) - Use as aid agent in pre-treatment of wooden fibre mass and removal of lignin in manufacture of pulp (high emission factor to wastewater) - Use as stabiliser and developer agent in developing photos (high emission factor to wastewater) - Use in metal-working fluids in treatment and coating of metal (high emission factor to wastewater) - Use as surface-active agent in manufacture of pharmaceuticals - Use as cleaning agent in cleaning preparations applied by industry and households (main use and high emission factor to wastewater) - Use as soldering agent in manufacture of electronic valves and tubes and other electronic components - Use as laboratory chemical - Use as anti-icing agent in aircraft (high emission factor to wastewater) - Use in liquids designed for technical testing on damage / cracks in different objects - Use in cosmetics - Use as surface-active agent in veterinary medicines - Use in treatment of textiles (e.g. washing of wool, pre-treatment of fibres and smoothing of ink / colour) (main use and high emission factor to wastewater)

	- Use as degreasing agent in treatment of animal hides (main use and high emission factor to wastewater) - Use in concrete in order to increase its porosity (high emission factor to wastewater)
7a. Octylphenols (OP)	- Use as adhesive during vulcanisation in manufacture of car tyres - Use in paper coating - Use in insulation of electronic coils in manufacture of electric motors, generators and transformers - As impurity in nonylphenol at concentrations of 1-10%
7b. Octylphenol ethoxylates (OPE) OPE degrades to OP	- Use as stabiliser and developer in developing photos - Use as surface-active agent in cleaning preparations used e.g. in service of motor vehicles, compressors and other industrial cleaning - Use as adhesive and glue in manufacture of plastic products - Use in water-based metal-working fluids in treatment and coating of metal - Use as emulsifier and dispersant for pesticides applied in agriculture and horticulture - Use in treatment of textiles and leather finishing - Use as emulsifier in manufacture of styrene-butadiene polymers - Use as emulsifier and dispersant in water-based paints, printing inks and paints intended for surfaces exposed to sea water - Use in pharmaceuticals
8a. Short-chain chlorinated paraffins (SCCP or chloroalkanes, C_{10-13})	- Use in manufacture of textiles and wearing apparels in order to achieve clothes (designed e.g. for sailing and industrial work) of high flame-resistant, water-proof and anti-fungal properties - Use as greasing agent in leather finishing, further use in manufacture of leather products - Use in metal-working fluids (both water- and oil-based) in treatment and coating of metal - Use as lubricants in compressed air tools in garages and in different industrial sectors - Use as plasticiser and flame retardant in paints (used e.g. in road marking and as primer for surfaces exposed to sea water), varnishes and coatings - Use as plasticiser and flame retardant in rubber products such as gaskets, sealants and in glues which have been used e.g. in construction sector and car industry - MCCP can contain up to 1% SCCP
8b. Medium-chain chlorinated paraffins (MCCP or chloroalkanes, C_{14-17})	- Use as substitute for SCCP - Use as greasing agent in leather finishing - Use in metal-working fluids (both water- and oil-based) in treatment and coating of metals - Use as plasticiser and flame retardant in paints (used e.g. in road marking and as primer for surfaces exposed to sea water), varnishes and coatings - Use as plasticiser and flame retardant in rubber products such as gaskets and in glues which have been used e.g. in construction sector and car industry - Use in some carbon copy paper types - Use as plasticiser and flame retardant in PVC plastic and further use in manufacture of plastic products
9. Endosulfan	- Agricultural pesticide (main use) - Possible use as a wood impregnation agent
Heavy metals	
10. Mercury Chosen as indicator for objective 1 and objective 2	Dentistry (dental amalgams) Batteries Measuring and control instruments (e.g. thermometers) Lamps Electronics Laboratory chemical and pharmaceuticals Gold and silver recovery Chlor-alkali industry Coating on paper or film in photographic applications Fossil fuel combustion in power plants Crematoria Production of zinc and copper (Hg in raw material) Non-antifouling paints (use possible)

	Cosmetics Pesticide Marine antifouling paints Wood preservation Textile treatment
11. Cadmium Chosen as indicator for objective 1 and objective 2	Stabiliser for PVC Pigment in plastics, glasses, ceramics, paints, papers and inks Electrode material in nickel-cadmium batteries Synthesis of other inorganic cadmium compounds Metal industry and metal ore roasting or sintering installations Production of ferrous and non-ferrous metals (zinc mining, lead and zinc refining, cadmium) Plating of metals i.e. protection of iron against corrosion Component for various alloys Solar cells Fossil fuel combustion in power plants Fertiliser

Ecological objectives for hazardous substances will be measured where applicable by the following initial indicators and targets:

Table 1. Indicators for ecological objectives **"**Concentrations of hazardous substances close to natural levels" & "All fish safe to eat"

Indicator substance and matrix	**Target**
Ecological objective "Concentrations of hazardous substances close to natural levels" (i.e., environmental monitoring)	
Cadmium * in fish (herring or flounder or perch) liver as indicator for different sub-regions of Baltic Sea and * in bivalve (blue mussel or Baltic clam) soft tissue as indicator for different sub-regions of Baltic Sea	Primary target of decreasing concentration trend Ultimate target level to reach near background concentrations
Mercury * in fish (herring or flounder or perch) muscle as indicators for different sub-regions of Baltic Sea and * in bivalve (blue mussel or Baltic clam) soft tissue as indicators for different sub-regions of Baltic Sea	Primary target of decreasing concentration trend Intermediate target level for fish in **Table 2** Ultimate target level to reach near background concentrations
Dioxins, furans, dioxin-like PCBs * in fish (herring or salmon or perch) muscle for different sub-regions of Baltic Sea	Primary target of decreasing concentration trend Intermediate target level for fish in **Table 2** Ultimate target level to reach close to zero concentrations
TBT * in sediment or biota (fish or mussel) or imposex (i.e., biological effects monitoring) for different sub-regions of Baltic Sea	Primary target decreasing concentration trend and/or decreasing effects. Ultimate target level to reach close to zero concentration and/or no effect level.
PFOS * in sediment or fish (species optional) liver for different sub-regions of Baltic Sea	Primary target of decreasing concentration trend Ultimate target level to reach close to zero concentrations
Ecological objective "All fish safe to eat" (i.e., human health monitoring)	
Cadmium * in fish (herring or flounder or perch) muscle / edible part as indicators for different sub-regions of Baltic Sea	Primary target of decreasing concentration trend Intermediate target level for fish in **Table 2** Ultimate target level to reach near background concentrations
Mercury * in fish (herring or flounder or perch) muscle / edible part as indicators for different sub-regions of Baltic Sea	Primary target of decreasing concentration trend Intermediate target level for fish in **Table 2** Ultimate target level to reach near background concentrations
Dioxins, furans, dioxin-like PCBs * in fish (herring or salmon or perch) muscle / edible part for different sub-regions of Baltic Sea	Primary target of decreasing concentration trend Intermediate target level for fish in **Table 2** Ultimate target level to reach close to zero concentrations

Table 2. Intermediate target levels / maximum allowable concentrations of mercury (Hg), cadmium (Cd), dioxins and sum of dioxins & dioxin-like PCBs in fish muscle meant for foodstuff as regulated by EC 1881/2006	
Substance	**Maximum levels in fish muscle** (µg/kg WW fish). Note: that exceptions in parentheses include only eel and pike, other species named in the regulation but less common in the Baltic are excluded.
Hg	500 (1,000 in pike *Esox lucius*, eel *Anguilla anguilla*)
Cd	50 (100 in eel *Anguilla anguilla*)
Dioxins (WHO-PCDD/F-TEQ)	4×10^{-3}
Dioxins + dioxin-like PCBs (WHO-PCDD/F-PCB-TEQ)	8×10^{-3} (**12×10^{-3} in eel *Anguilla anguilla*)**

Table 3. Indicators for ecological objective "Healthy wildlife"	
Indicator	**Target**
Predatory bird health: White tailed sea eagle (and/or osprey) for different sub-regions of Baltic Sea * Proportion of successfully reproducing pairs * Mean brood size	targets need to be defined
Fish health: * Fish Disease Index	target needs to be defined
Seal health: Grey seal for entire Baltic and ringed seal for northern Baltic, also harbour porpoise proposed for the consideration of Seal Group - rate of pregnancy (CA) - rate of fecundity (CL) - occurrence of uterine pathology (occlusion, stenosis, "myoma") - occurrence of intestinal ulcers in 1-3 year-old seals	- normal pregnancy rate (to be defined) - normal fecundity rate (to be defined) - normal level of uterine pathology (to be defined) - normal occurrence of intestinal ulcers in 1-3 year-old seals

Table 4. Indicators for ecological objective "Radioactivity at pre-Chernobyl levels" Target levels have been calculated on basis of average concentrations during years 1984-85 which refer to pre-Chernobyl time period.	
Indicator substance and matrix	**Target**
Cs-137 * in herring muscle as indicator for whole Baltic Sea * in plaice and flounder muscle for Southern Baltic Sea (southwards from Gotland)	- Primary target of decreasing concentration trend - Ultimate target level to reach pre-Chernobyl level which is 2.5 Bq/kg wet weight for herring muscle and 2.9 Bq/kg wet weight for plaice and flounder muscle
Cs-137 * in sea water for whole Baltic Sea	- Primary target of decreasing concentration trend - Ultimate target level to reach pre-Chernobyl level of 14.6 Bq/m^3
Cs-137 * in sediment for whole Baltic Sea	- Primary target of decreasing concentration trend - Ultimate target level to reach pre-Chernobyl level 1 640 Bq/m^2

Nature conservation and biodiversity

Ecological objectives for nature conservation and biodiversity will be measured by the following initial indicators and targets:

Natural marine and coastal landscapes

Targets:

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

Preliminary indicators:

- Designated BSPAs, Natura 2000 and Emerald site area as percentage of total sub-region area,
- Percentage of important migration and wintering areas for birds within the Baltic Sea area which are covered by the BSPAs, Natura 2000 and Emerald sites,
- Percentage of marine and coastal landscapes in good ecological and favourable status,
- Percentage of endangered and threatened habitats/biotopes' surface covered by the BSPAs in comparison to their distribution in the Baltic Sea,
- Trends in spatial distributions of habitats within the Baltic Sea regions.

Thriving and balanced communities of plants and animals

Targets:

- By 2021, that the spatial distribution, abundance and quality of the characteristic habitat-forming species, specific for each Baltic Sea sub-region, extends close to its natural range,
- By 2010 to halt the degradation of threatened and/or declining marine biotopes/habitats in the Baltic Sea, and by 2021 to ensure that threatened and/or declining marine biotopes/habitats in the Baltic Sea have largely recovered,
- To prevent adverse alterations of the ecosystem by minimising, to the extent possible, new introductions of non-indigenous species.

Preliminary indicators:

- Percentage of all potentially suitable substrates covered by characteristic and healthy habitat-forming species such as bladderwrack, eelgrass, blue mussel and stoneworts,
- Trends in abundance and distribution of rare, threatened and/or declining marine and coastal biotopes/habitats included in the HELCOM lists of threatened and/or declining species and habitats of the Baltic Sea area,
- Trends in trophic structure and diversity of species (e.g. caught in scientific surveys),
- Trends in the numbers of detections of non-indigenous aquatic organisms introduced into the Baltic Sea.

Viable populations of species

Targets:

- By 2021 all elements of the marine food webs, to the extend that they are known, occur at natural and robust abundance and diversity,

- By 2015, improved conservation status of species included in the HELCOM lists of threatened and/or declining species and habitats of the Baltic Sea area, with the final target to reach and ensure favourable conservation status of all species,
- By 2012 spatial/temporal and permanent closures of fisheries of sufficient size/duration are established thorough the Baltic Sea area,
- By 2009, appropriate breeding and restocking activities for salmon and sea trout are developed and applied and therefore genetic variability of these species is ensured,
- By 2009 illegal, unregulated and unreported fisheries are close to zero,
- By 2008 successful eel migration from the Baltic Sea catchment area to the spawning grounds is ensured and national programmes for conservation of eel stocks are implemented,
- By 2015, as the short-term goal, to reach production of wild salmon at least 80%, or 50% for some very weak salmon river populations, of the best estimate of potential production, and within safe genetic limits, based on an inventory and classification of Baltic salmon rivers,
- By 2015, to achieve viable Baltic cod populations in their natural distribution area in Baltic proper,
- By 2015, to have the re-introduction programme for Baltic sturgeon in place, and - as a long term goal, after their successful re-introduction has been attained - to have best natural reproduction, and populations within safe genetic limits in each potential river,
- By 2015 by-catch of harbour porpoise, seals, water birds and non-target fish species has been significantly reduced with the aim to reach by-catch rates close to zero,
- By 2015 discards of fish are close to zero (<1%).

Preliminary indicators:

- Trends in the number of threatened and/or declining species,
- Abundance, trends and distribution of Baltic seal species compared to the safe biological limit (limit reference level) as defined by HELCOM HABITAT,
- Abundance, trends, and distribution of Baltic harbour porpoise,
- Number of rivers with viable populations of Baltic sturgeon,
- Spawning stock biomass of western Baltic cod and eastern Baltic cod compared to precautionary level (Bpa) as advised by ICES and/or defined by EC management plans,
- Fishing mortality level of western Baltic cod and eastern Baltic cod, compared to precautionary level (Fpa) as advised by ICES and/or defined by EC management plans,
- Trends in numbers of discards and by-catch of fish, marine mammals and water birds,
- Number of entangled and drowned marine mammals and water birds,
- Number of salmon rivers with viable stocks,
- Trends of salmon smolt production in wild salmon rivers.

Maritime Activities

Management objectives for maritime activities will be measured by the following initial indicators and targets:

Enforcement of international regulations - No illegal pollution

- Number of surveyed/inspected ships found to use organotin compounds actively in their antifouling systems in relation to the total number of surveyed ships calling at Baltic Sea ports,
- Pollution per Flight Hour (PF) Index (ratio of total no. of detected oil spills to total no. of flight hours) per year,
- Number of detected/confirmed illegal oil discharges per year,

- Number of regular flight hours, including Co-ordinated Extended Pollution Control Operation (CEPCO) flights, per year,
- Number of satellite imageries per year per sub-region,
- Number of ships caught red-handed per year,
- Amount of ship-generated waste delivered to port reception facilities in the Baltic ports in relation to the total number of calls at ports,
- Number of notifications on inadequacy of port reception facilities received by the Contracting States.

Safe maritime traffic without accidental pollution*

- Number of shipping accidents, including in ice conditions, per year in relation to yearly traffic (number of ships crossing pre-defined AIS lines),
- Number of accidents with pollution in relation to the total number of accidents per year,
- Number of collisions/groundings in relation to the total number of accidents per year.

Efficient emergency and response capability

General evaluation of implementation by HELCOM RESPONSE

- Rate of oil recovery and the amount of oily wastes at sea and on the shoreline during response operations to oil accidents,
- Number of accidents where dispersants were used.

Minimum sewage pollution from ships

- Number of ferry and passenger terminals equipped with adequate sewage reception facilities per number of all ferry and passenger terminals in a country per year,
- Number of ferries and passenger ships delivering sewage to port reception facilities.

No introductions of alien species from ships

General evaluation of implementation by HELCOM MARITIME in co-operation with HELCOM MONAS and HELCOM HABITAT

- Number of new introductions observed per year,
- Number of established alien species per year,
- Amount of sediments delivered to port reception facilities.

Minimum air pollution from ships

- NOx emissions from shipping in the Baltic per year,
- Number of ships that use NOx abatement technology and specified by technology, such as SCR (selective catalytic reduction), HAM (Humid Air Motor Technique), water injection, etc.,
- Number of non-compliant ships in relation to the total number of ships inspected in the Baltic Sea ports to control compliance with fuel oil requirements of Annex VI to MARPOL 73/78,
- Average content of sulphur in fuel delivered to ships from fuel oil suppliers in the Baltic Sea per year.

Zero discharges from offshore platforms

General evaluation by HELCOM MARITIME.

Minimum threats from offshore installations

General evaluation by HELCOM MARITIME.

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* *applicable for tankers over 150 GT and other ships over 400 GT according to the agreed HELCOM reporting form*

Examples of measures for reducing phosphorus and nitrogen losses from agriculture

Land use

Converting arable land to extensive grassland

Changing from intensive agriculture to extensive grassland will reduce nitrogen and phosphorus losses. This method suits best in areas which were historically kept as grazing areas and have conservation value.

Effectiveness

Converting arable land to extensive grassland is very effective in reducing nitrogen because the low inputs ensure that nitrogen does not accumulate in soil. Conversion to ungrazed grassland can reduce nitrate losses by 95%. However, where the phosphorus content in soil is high, significant reductions in the leaching of soluble phosphorus are not achieved in the short term because the elevated levels of phosphorus will continue to be recycled through the soil. The immediate effect is that a permanent vegetative cover will reduce soil erosion and phosphorus losses in surface runoff. Conversion to ungrazed grassland can result in a 50% reduction in phosphorus.

Costs

This is an extreme change in land use that is unlikely to be implemented by farmers without incentives.

Soil management

Plant cover in winter

Plant cover in winter will reduce nitrogen and phosphorus leaching and soil erosion.

Effectiveness

Without the plant cover in winter, nitrate can be lost through leaching by excess winter rainfall and phosphorus through sediment transport in surface runoff. Plant cover in winter protects the topsoil of the fields against the erosive forces of rain, melt and runoff waters during winter. Furthermore, it helps to improve the soil structure by increasing the amount of organic matter in the topsoil of the fields which decreases the topsoil's susceptibility to silting. Plant cover in winter can reduce erosion 10-40% and nitrate leaching 10-70%.

Costs

The method is relatively easy to implement. The costs of this method depend on the chosen plant, area and the possibility to use the farmer's own machinery or contractor.

Minimal cultivation systems

Using discs or tines to cultivate the soil or direct drill into stubbles (no-till) will maintain organic matter and preserve good soil structure. This will improve infiltration and retention of water and thereby decrease total phosphorus concentrations in surface runoff.

Effectiveness

Conversion from ploughing to minimal or no cultivation systems will decrease phosphorus in surface runoff. When using minimal cultivation systems the phosphorus storage concentrates in the shallow topsoil and that can in the long term increase the amount of dissolved phosphorus especially on the steep slopes with high phosphorus content. Buffer zones and more accurate phosphorus fertilisation should be used there. Nitrate leaching is generally decreased to a small extent through reduced mineralisation of organic matter in soil in the autumn.

Costs

The costs of this method depend on how it suits to the farm's crop rotation, how suitable the soils are for this method and whether it is profitable to use a contractor or purchase the machinery for the farm.

Cultivate land for crop establishment in spring rather than autumn

Autumn cultivation of land stimulates the mineralisation of nitrogen from organic matter reserves at a time when there is little nitrogen uptake by the crop, which will increase the potential for over-winter leaching losses. By cultivating in spring, there will be less opportunity for mineralised nitrogen to be leached and the nitrogen will be available for uptake by the established spring crops.

Effectiveness

Cultivation of soils results in mineralisation of organic nitrogen and increases the risk of nitrate leaching. The amount of mineralisation is strongly affected by soil temperature, moisture and nitrogen balance under the previous crop. Cultivation in spring is better, because bare soil is not exposed over the winter period and actively growing crop is established soon after cultivation to take up nitrogen and provide surface cover.

Costs

Land for spring crops, ploughed late in the autumn, has the winter for frost action and wetting and drying cycles to break down soil clods. Ploughing in the autumn also allows early establishment of the following spring crop. On medium to heavy soils if ploughing is not carried out in late autumn, the delayed cultivation may result in the spring crop being drilled into a drying seedbed. This may impact on establishment and yield.

Catch crops

Catch crops are fast-growing crops that are grown simultaneously with or between successive plantings of a main crop.

Effectiveness

Catch crops protect the surface of the soil and catch the extra nutrients. The longer the soil is covered with vegetation, the smaller is the nitrate leaching. Catch crops can also improve the soil structure and increase the amount of organic matter in the soil. According to a Finnish study undersowing of ryegrass with barley reduced nitrate leaching 27-68% depending on soil.

Costs

This method is relatively easy to implement. The costs of this method consist of buying the seeds, sowing and finishing the catch crop.

Ploughing of ley on sandy soils in autumn

The time for ploughing a ley is very important to nitrogen leaching. From a leaching point of view, it should be ploughed late in autumn instead of early in autumn. Spring ploughing is also good but nitrogen release from the large amounts of organic-N is often too late for crop demand and might instead be leached in the following autumn. However, ploughing in late autumn or in spring is not possible on many clay soils so this is a method for sandy soils.

Effectiveness

Because a lot of organic nitrogen is turned over into nitrate when ploughing a ley, leaching from ley ploughed early in autumn can be considerable, especially if the ley contains clover or if there is a lot of above-ground biomass. In such cases, an effective way to reduce leaching is to delay the ploughing of ley from early to late autumn. On clay soils effectiveness decreases as the clay content in the soil increases up to a limit where the clay content does not make it possible to employ late ploughing or ploughing in spring.

Costs

The single largest cost arises if ploughing is done so late in autumn that sowing of winterwheat is no longer possible. Ley is a good crop before winterwheat and often gives a larger yield of winterwheat compared to when cereals are cultivated before winterwheat. If this situation occurs, costs can be of importance but if the timing of ploughing of ley does not influence the choice of the next crop in the crop-rotation the cost is small.

Controlled sub-surface drainage

Controlled sub-surface drainage intensifies the drainage systems so that drainage waters from the arable areas can be efficiently utilised by the plants. The runoff of drainage waters is controlled and they are recirculated back to the arable area for irrigation.

Effectiveness

Controlled subsurface drainage will prevent nutrient leaching with ditch waters from the arable areas into watercourses and return the nutrients dissolved in the water back to the plants' root zone. Controlled subsurface drainage can result in 40% nitrate reduction.

Costs

The cost will be covered best in the cultivation of special plants e.g. potato.

Fertiliser and manure management

Nutrient balances

Preparing nutrient balances provides farmers with a tool for the long-term planning of fertilisation. Nutrient balances provide information on the efficiency of nutrient utilisation and help to identify the cropping phases in which nutrients are lost. The calculation of nutrient balances makes it possible to intensify the water protection measures for each farm and parcel.

Effectiveness

Using nutrient balances for fertilisation planning helps to reduce the excess nutrients in the soil to a minimum. It also ensures that the soil is in a sufficiently fertile state to maximise the efficient use of nutrients already in the soil. Improving the accuracy of the use of fertilisers on the basis of the crop, the yield and the characteristics of the parcel to the economic optimum will ensure that the necessary quantities of the essential crop nutrients are only available when required for uptake by the crop.

Costs

This method is cost-effective. Nutrient losses are a direct measure of the principal problem, namely excessive nutrients in the environment. Farmers have the freedom to determine the most economical method of nutrient loss reduction. The use of this method will require investment in education and guidance.

Conversion from conventional to organic production

Minimum standards of organic production are regulated by Council Regulation (EEC) No. 834/2007 and starting by 1 January 2009 Council Regulation (EEC) No. 2092/91.

Effectiveness

Nutrient input in organic production aims at promoting and maintaining soil fertility rather than crop yield. Organic production aims at closed nutrient cycles. Nutrient use efficiency is regularly higher and nutrient losses to the environment lower than in conventional production.

Costs

Organic production systems often use more labour because of new management practices, manual control of weeds, pests, and diseases and applying large volumes of organic fertilisers. They also have potentially increased harvest costs. The combined effect on production costs

from increased labour requirements and lower chemical inputs will vary and must be assessed in relation to other factors, particularly yield and price changes.

Reduced fertilisation

Reducing the amounts of nitrogen and phosphorus fertilisers by a certain percentage below the economic optimum will reduce the residual nitrate in the soil after harvest and in the short term the amount of soluble phosphorus. In the long term reducing phosphorus fertilisers can reduce the amount lost as particulate phosphorus.

Effectiveness

There will be a reduction of residual soil nitrate available for leaching in the autumn but there will be no effect on the nitrate mineralised from soil organic matter. In the long run, when soil phosphorus reserves will be decreased there will be a reduction in soluble phosphorus loss.

Costs

This method will have an impact on crop yields and crop quality and therefore there would be a considerable resistance to the method. Reducing phosphorus fertilisers would impact immediately crops that are particularly responsive to phosphorus e.g. potatoes and some vegetable crops. Reduction of nitrate fertilisers would have an immediate impact on all crops other than legumes.

Application techniques of manure

Decreasing of manure surface application and promoting injection techniques and mulching will decrease leaching into the watercourses immediately. These methods will help to prevent the exposure of manure to the surface runoff and drain flow losses.

Effectiveness

By injecting the slurry it is possible to apply it directly into the active layer of soil. The slurry can be released into slots cut in the soil and then closing them after application. There are also direct ground injection systems in operation which work by the direct injection of pressurised slurry into the ground. The injection of slurry effectively increases the utilisation of manure nutrients compared with surface application.

Costs

The additional cost is the biggest in the small farms. In the big farms the fixed costs will be divided by a bigger amount of manure and additional costs per tonne are smaller.

Integration of fertiliser and manure nutrient supply

Using manure analysis to calculate the amount of nutrients supplied by manure applications will help to determine the amount and ideal timing of additional fertilisers required by the crop. Taking better account of the nutrients in manure can reduce the fertiliser inputs and nitrate and phosphorus losses.

Effectiveness

Mineral fertiliser applications are reduced for optimum economic production level and to maintain adequate levels in the soils. The method is effective when mineral fertilisers are used to top-up the nutrients supplied in manure.

Costs

This method achieves savings rather than increasing costs. The use of this method will require investment in education and guidance.

Liming

Acid soil makes the plant nutrient uptake difficult. Especially the applicability of phosphorus is weakened in the acid soils. Phosphorus is bound tightly to the soil particles and it will easily

drift from the fields with runoff waters to the watercourses. Phosphorus intake will increase considerably when the pH is over 6.0.

Effectiveness

Liming helps to attain reasonable yields in acid soils with lower phosphorus fertiliser rates. Liming aims to ensure that phosphorus is utilised efficiently and thus to prevent nutrients from leaching into watercourses.

Costs

It may take 5 to 10 years after application to recover the cost of lime. The economics of lime use on rented land need special consideration. Profitability of liming on rented land is decreased and depends on the period of the rental agreement.

Avoiding the application of fertilisers and manure to high-risk areas

Not applying mineral fertilisers and manure at any time to high-risk areas helps to prevent the mobilisation and transfer of nitrate and phosphorus to the watercourses. Risk areas can be, for example, areas with flushes draining to a nearby watercourse, cracked soils over field drains or fields with high phosphorus values. Phosphorus risk areas can be estimated by using the phosphorus risk index or certain specified risk elements.

Effectiveness

Losses of phosphorus on eroded soil particles and by leaching are greatest on high phosphorus index soils. Applying manure to these areas will increase the excessive phosphorus content of the soil and increase the amounts lost. This method is most effective against losses of phosphorus where the primary mechanism of transport is surface runoff.

Costs

The cost of not applying fertilisers to high-risk areas would be in terms of avoiding a drop in production proportional to the lost yield. Not applying manure to high-risk areas will have no costs if land is available elsewhere on the farm. If there is a need for increased manure storage, there would be additional costs.

Avoiding the spreading of fertilisers and manure during high-risk periods

Avoiding spreading mineral fertilisers or manure during high-risk periods reduces the availability of nitrate for loss through leaching and of phosphorus for loss in surface runoff. High-risk periods can be, for example, when there is a high risk of surface flow, rapid movement to field drains from wet soils or when there is little or no crop uptake.

Effectiveness

Surface runoff risk is the greatest when rain falls onto sloping ground with saturated, frozen or snow-covered soils. Rapid flow of nutrients through the soil is most likely to occur from drained soils when they are wet and rainfall follows soon after applying fertilisers. Avoiding the addition of nitrogen in the autumn reduces the amount of nitrates available for leaching by over-winter rainfall.

Costs

This method will not have any costs in most cases because the fertiliser should not be required during high-risk periods since the crop will not be growing. However there may be indirect opportunity cost if the high-risk periods coincide with crop development in spring.

Increasing the capacity of manure storage

Adequate collection and storage facilities provide the possibility to choose when to apply manure to fields and there will be fewer occasions when lack of capacity forces the farmer to spread manure at unsuitable times. Manure can be spread at times when there is a low risk of runoff and when there is an actively growing crop to utilise the nutrients supplied in the manure.

Effectiveness

If there is not enough storage capacity for manure the farmer has to spread it as it is produced. This will inevitably result in applications at times when there is a risk of nitrate leaching and phosphorus being transported to watercourses in surface runoff.

Costs

This method is most important on farms that handle their manure as slurry.

Transporting manure to neighbouring farms

Where there is a surplus of nutrients, farm manure can be exported to neighbouring farmland. This reduces the nutrient load on the farm that has an excess of manure thereby reducing the risk of diffuse pollution. It also enables the remaining manure to be managed in a more integrated way.

Effectiveness

It is possible to balance the input of nutrients in an effective way so that there will be enough capacity of land to absorb the nutrients.

Costs

This method is most easily applied when the receiving farm holding is close e.g. within 5-20 km. The costs increase with distance. The treatment of manure (composting) helps it to be transported over larger distances relatively easily.

Slurry separation

In slurry separation, slurry is divided into a liquid and a solid fraction. The liquid part with lower nutrient concentration can be utilised at the production site and the solid with high dry matter content and high nutrient concentration can be transported to the other farms. This can either be done slowly by a weeping-wall system, or more quickly by mechanical separation. There are a number of different types of mechanical separators including rotary screens, roller presses, screw presses, inclined screens and vibrating screens.

Effectiveness

Slurry separation does not change the total phosphorus content of the slurry but will help to decrease the cost of transportation to other areas when there is not enough arable land to spread the slurry. Slurry separation allows greater flexibility in spreading times and application and thus can optimise the full nutrient potential of slurry.

Costs

In order to get maximum return from the investment, a separator must integrate easily into the existing farm setup with little extra expense and there must be sufficient slurry produced on the farm to justify the outlay.

Composting solid manure

Composting uses aerobic microbial metabolism to increase temperatures to inactivate pathogens and to reduce the readily available nitrate content of manures. Composting results in a more stable product which is easier to spread and more attractive to distribute to greater distances.

Effectiveness

The readily available nitrate content of manure is typically reduced from 25% to 10% of the total nitrates, so nitrate losses in land spreading are likely to be lower.

Costs

Composting of solid manures can be carried out on individual farms using standard farm equipment.

Biogas production

Biogas production reduces greenhouse gas emissions, provides a source of renewable energy and generates a digest product with reduced odour emissions and pathogen content at land spreading.

Effectiveness

Biogas production does not change the total nutrient content of the manure but will help to distribute it to greater distances through improved transport economy. The biogas digest is more easily distributed over a greater distance than the slurry.

Costs

High capital costs discourage uptake unless the process is supported by economic incentives or subsidies. The biogas production that is completely based on farm manure production can only be profitable in very large scale. Small farms can get the biogas production to be profitable by handling waste materials that come outside the farm or selling energy or biogas digest or if the energy consumption on a farm is very big.

Pelletisation

Pelletisation is most appropriate for manures with a high dry matter content, such as poultry litter or manures that have already been treated and separated to give a high dry matter material.

Effectiveness

Pelletisation does not change the total nutrient content of the manure but will help to distribute it to greater distances through improved transport economy.

Costs

Pelletisation is generally carried out in centralised plants. The costs are high but the end product can command a good price as a fertiliser.

Incineration

The incineration process has been identified as one possible method for dealing with poultry litter. The poultry litter is used as a fuel for power plants. The resulting ash can be sold as a phosphate and potash fertiliser.

Effectiveness

Incineration does not change the total nutrient content of the manure but will help to distribute it to greater distances through improved transport economy.

Costs

The investment costs are high. The running costs of incineration are estimated at around one Euro per tonne of dry solids contained in the waste. Although poultry manure is very dry and readily combustible, it may not be economically feasible to establish an incineration plant solely for solid farm wastes and even more so for slurries owing to the large amount of water present.

Animal feeding

Adopting phase feeding of livestock

Livestock at different growth stages or stages of the reproductive cycle have different optimum nutritional requirements. Because of limited labour and housing facilities, livestock with different feed requirements are often grouped together and receive the same ration. As a result some stock will receive higher levels of nitrogen and phosphorus than they can utilise efficiently and will excrete the surplus.

Effectiveness

Greater division and grouping of livestock on the basis of their feed requirements allows more precise formulation of individual rations. This will reduce the amount of nitrogen and phosphorus applied in manures and therefore decrease losses in surface runoff and by leaching.

Costs

There is a limited scope for improvements in the poultry sector where phase feeding is already widely in use. There is a great potential for phase feeding in the pig sector to reduce nitrogen and phosphorus excretion. However the costs can be considerable without necessarily improving performance.

Reducing dietary nitrogen and phosphorus intakes

Farm animals are often fed diets with higher than recommended contents of nitrogen and phosphorus as a safeguard against a loss of production arising from a deficit of these nutrients. For example, it has been shown that some cows get more protein (nitrogen) in their feed than would be necessary. In practice, however, surplus nitrogen and phosphorus is not utilised by the animal and will be excreted.

Effectiveness

Avoiding excess nitrogen and phosphorus in the diet composition of livestock diets can reduce the amount of nitrogen and phosphorus excreted either directly to fields or via manure and thereby minimise additions to the pools of nitrogen and phosphorus that are sources of diffuse pollution.

Costs

For example, the protein content in cowfeed can be reduced by one percent unit without decreasing milk yield.

Phytase supplementation

Supplementation of synthetic phytase to pig feed reduces the need for the addition of mineral phosphate. Phytase increases the availability of phosphorus in the feed and allows total phosphorus contents to be reduced without affecting productivity.

Effectiveness

With the addition of phytase the phosphorus content of the feed can be reduced by up to 30% for pig feed.

Costs

If there is too little phosphorus in the pig feed or the ratio between different minerals is wrong, the condition of pig legs and the ability to move can weaken. This can have an effect on the economic output.

Wet feed and fermentation

Endogenous phytase in grain can be activated by wetting the pig feed some time before feeding thereby reducing or even eliminating the need for mineral phosphorus supplementation. This means that pig production with wet feed systems should be able to utilise feed with lower phosphorus content than normally recommended.

Fermentation of the feed can reduce the need for mineral phosphate supplementation. Fermentation occurs naturally in wet feed after a certain amount of time. The fermentation process is difficult to manage and the method is still to be developed.

Farm infrastructure

Establishment of wetlands

Constructed or established wetlands are used to intercept runoff water from a field or group of fields. Wetlands can be natural or artificial, permanent or temporary, with water that is static or flowing, fresh or brackish. The wetland may be a wet grassland, wet woodland, reed bed, bog, sedimentation pond or lake.

Effectiveness

Wetlands act by intercepting pollutant delivery, providing a buffer zone and can potentially clean up polluted water. Wetlands improve water quality by breaking down, removing, using or retaining nutrients, organic waste and sediment carried to the wetland with runoff from the watershed. They can trap sediment and through the retention of runoff reduce nitrates and phosphorus (soluble and particulate). Wetlands reduce the severity of floods downstream by retaining water and releasing it during drier periods and protect stream banks and shorelines from erosion. According to a Finnish study, wetlands have reduced 25-48% phosphorus and 20-90% nitrogen. Swedish studies show that wetlands can reduce phosphorus 90-100% and nitrates 76-90%. The effectiveness depends on the size of the wetland, vegetation, loading and influx.

Costs

Wetlands are quite expensive to implement and their construction will often involve the loss of some agricultural land. Constructed wetlands require maintenance due to deposition of sediment and organic matter.

Buffer zones

Establishing vegetated and unfertilised buffer zones alongside watercourses decreases erosion and the movement of nutrients into watercourses. Buffer zones can reduce pollution in two ways. They stop agricultural activity on the area and therefore reduce direct pollution from inorganic fertilisers and organic manure additions. They also intercept overland flow from agricultural areas just before it reaches the watercourse.

Effectiveness

Buffer zones should be free-draining and have a good surface porosity to intercept surface runoff. According to a Finnish study, buffer zones of 10 meters have proved to be efficient in reducing the leaching of suspended solids, dissolved phosphorus and total nitrogen. During the four years of research, suspended-solid loads were reduced by 50–60%, leaching of nitrogen by 50% and leaching of phosphorus by 30%. The efficiency of buffer zones in removing suspended solids and nutrients is affected by the width of the zone, gradient of the drained field, soil type and particularly by the variety and density of zone vegetation.

Costs

Buffer zones require a certain amount of investment to establishment but once established require little maintenance.

Other

Effective purification of runoff waters

For the purification of runoff waters, soil particles in the runoff water are precipitated by Al^{3+} - ions or aluminium oxide polymers resulting in a low concentration of soluble phosphorus in runoff waters and negligible amounts of exchangeable phosphorus in the precipitated soil aggregates. This method needs further refinement and testing if it is to be used for quantitative determination of redox-sensitive P in runoff.

Systematic on-farm individual advice

Agrotechnical measures are implemented by close co-operation between farmers and advisors. Advisors apply limited stocking density, crop coverage over winter, intercropping, fixed value for nitrogen utilisation of farm manure, limited nutrient budget, fertiliser plans and nutrient balances.

Effectiveness

This method can reduce nutrient input by 50% and nutrient losses by 30%.

Costs

The method is easy to implement. It requires a dense system of advisors to support farmers.

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Road map towards harmonised implementation and ratification of the 2004 International Convention for Control and Management of Ships' Ballast Water and Sediments

We agree to ratify the 2004 International Convention for Control and Management of Ships' Ballast Water and Sediments (BWM Convention) as soon as possible, but in all cases not later than 2013. To this end WE AGREE:

1. To designate/identify clear national responsibilities for coordinating the national implementation of the BWM Convention.
2. To request HELCOM HABITAT and HELCOM MONAS to compile, from the existing data sources, by **the end of 2008** a HELCOM list of non-indigenous, cryptogenic and/or harmful native species in the Baltic Sea, including available information on their characteristics, distribution, abundance and ecological impact, and to keep the list updated as new knowledge becomes available.
3. To establish co-operation with other relevant regions for continuous exchange of information on non-indigenous, cryptogenic and harmful native species in other aquatic environments, including high risk invaders, and to make this information available for risk assessments.
4. Based on the HELCOM list and available information on potentially harmful and invasive species in other aquatic ecosystems, to select and agree by **the end of 2008** on the HELCOM Target Species, i.e. species that may impair or damage the environment, human health, property or resources in the Baltic Sea region, relevant for risk assessments according to the IMO Guidelines G7.
5. To conduct by **the end of 2008** baseline surveys of prevailing environmental conditions in major ports and to outline the major long-distance high risk voyages in order to gather data necessary to conduct and/or evaluate and consult risk assessments according to the IMO Guidelines G7.
6. To specify and agree **as soon as possible but not later than 2009** on criteria to distinguish between unacceptable high risk scenarios and acceptable low risk scenarios for regional voyages, i.e. voyages within the Baltic Sea biogeographical region, taking into account the relevant IMO Guidelines and data gathered under points 2-5, in order to support transparent and consistent risk assessments and to arrive at a unified Baltic Sea exemption system according to Regulation A-4 of the Annex to the BWM Convention.
7. For regional voyages connecting specified ports or locations assessed as posing an unacceptable high risk (regional high risk voyages), and therefore for which the exemption could not be granted according to the BWM Convention, to arrange in advance for suitable management options, which may include designation of ballast water exchange (BWE) zones, and if the case, agree on the general recommendations for such exchange in BWE zones. BWE zones, if at all, would only be of use for regional voyages/ships identified to represent a high risk. The possible management options should only be valid until the D-2 Performance Standard of the BWM Convention becomes obligatory.
8. Similarly, for voyages connecting the Baltic Sea and the North Sea where no areas exist that meet the Ballast Water Exchange criteria according to the BWM Convention, to consider jointly with OSPAR adequate management measures, including possibilities for ballast water exchange. Ballast water exchange areas, if designated, should only be

in use until the D-2 Performance Standard of the BWM Convention becomes obligatory and for vessels/voyages posing an unacceptable high risk.

9. To join the OSPAR initiative to request vessels transiting the Atlantic or entering the North-East Atlantic from routes passing the West African Coast to conduct on a voluntary basis ballast water exchange before arriving at the OSPAR area or passing through the OSPAR area and heading to the Baltic Sea and to notify jointly with OSPAR the IMO of this action.
10. To undertake a similar initiative for vessels leaving the Baltic and transiting through the OSPAR region to other destinations so the ballast water would not be exchanged until the vessel was 200 nm off the coast of North West Europe in waters greater than 200 m deep.
11. To cooperate with OSPAR on any other relevant topics for the benefit of both regions and as necessary for harmonised implementation of the BWM Convention.
12. To cooperate for the development and exchange of experience concerning Ballast Water Treatment Technology.
13. To adjust/extend by **2010** the HELCOM monitoring programmes to obtain reliable data on non-indigenous species in the Baltic Sea, including port areas, in order to gather the necessary data to conduct and/or evaluate and consult risk assessments according to the relevant IMO Guidelines. As a first step, species that pose the major ecological harm and those that can be easily identified and monitored should be covered. The evaluation of any adverse ecological impacts caused by non-indigenous species should form an inherent and mandatory part of the HELCOM monitoring system.
14. To link by **2010** the port surveys and monitoring to Navigation Telex System (NAVTEX) or the equivalent, whereby ships can be alerted not to take up ballast water during outbreaks of harmful species and other high risk conditions.
15. To cooperate in order to establish by **2010, but in all cases not later than 2013** the regional information system for the relevant data obtained during port surveys, monitoring (including early warning system) and risk assessments to facilitate the implementation of the BWM Convention.
16. To provide by **2010, but in all cases before the latest target ratification date which is 2013** adequate reception facilities for sediments in ports and terminals where cleaning and repair of ballast tanks occurs based on IMO Guidelines G1.
17. To establish a correspondence group that regularly updates the current status in implementing the road map and that offers a forum to discuss relevant developments.

Input paper by the Baltic Sea States to IMO on a need to further address SOx emissions from shipping

With this document the Coastal States of the Baltic Sea want to provide relevant information concerning implementation of the requirements of Regulations 14(4) of Annex VI to MARPOL 73/78 in the Baltic Sea SOx Emission Control Area as an input to the current discussion on further reduction of SOx emissions from ships.

The Baltic Sea riparian countries discussed under the umbrella of the Baltic Marine Environment Protection Commission, also known as HELCOM, possible actions with regard to further reduction of the sulphur content limit of fuel oil used by ships in the Baltic Sea as well as globally.

MARPOL Annex VI entered into force on 19 May 2005 with the Baltic Sea area as an SOx Emission Control Area (SECA). Regulation 14(4) concerning the limit of sulphur content of fuel oil used on board ships in the Baltic Sea entered into force on 19 May 2006.

Before the regulation came into force there were several concerns regarding availability of low sulphur fuel oil and possible consequences for the enforcement of the regulations and economic impacts.

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

Fuel oil with a maximum content of sulphur of 1.5% was available in the Baltic Sea ports as well as in European ports outside the Baltic. The availability of the fuel seemed to diminish with the distance from the Baltic Sea SECA where the requirements were less stringent on fuel oil quality. However, the Baltic Sea countries expect this to change with the North Sea becoming an SOx Emission Control Area and the entry into force of the relevant EU regulations.

From 17 May 2006 until 31 December 2006 as many as 1,879 ships were inspected in the Baltic Sea ports to control compliance with fuel oil requirements of Annex VI. The percentage of ships controlled out of the total number of ships calling into the Baltic Coastal State ports during the reported period ranged from 33% to less than 2%.

Only in 28 cases was non-compliance with the requirements of Regulation 18 “Fuel oil quality” of Annex VI detected, which is 1.5% of the all ships inspected. This indicates successful implementation of the relevant requirements in the Baltic Sea SECA.

The collection of information regarding implementation of MARPOL Annex VI in the Baltic Sea area will be continued to give more detailed information. No data are yet available for evaluation of the impact of implementation of Baltic SECA on air quality.

From the encouraging experience gained so far it can be concluded that even more ambitious aims concerning fuel oil quality are achievable globally as well as regionally within the next years.

The Committee is invited to take note of the information provided and to take action as deemed appropriate.

Action Plan for the protection of the environment from offshore platforms

The objective of this Action Plan is to ensure that environmental impacts from production and the preceding exploration for oil and natural gas remain within the limits set out in international and national regulations and correspond to principles of Best Available Technique (BAT) and Best Environmental Practice (BEP). Taking into account that most parts of the Baltic Sea Area have been declared by IMO as a Particularly Sensitive Sea Area and based upon BAT and BEP the "zero-discharge" principle[*] has already been implemented at a Russian offshore platform in the Baltic Sea, these principles shall be applied within forthcoming years to all existing, planned and under-construction offshore platforms (drilling rigs and production platforms) in the Baltic Sea Area.

The Action Plan covers the following elements and requirements:

Chemicals

All operators shall apply "zero-discharge" principle not later than 1 January 2010:

- by 23 April 2008 all operators must have ceased discharges of all "black" chemicals[**];
- operators must continue the process of substituting chemicals so that discharges of "red" chemicals cease no later than 1 January 2010.

Discharges of oil

All operators shall apply the "zero-discharge" principle for polluted substances and materials not later than 1 January 2010, which means that:

- from 1 January 2008 operators must comply with a limit value for dispersed oil of 15 mg/l, in production water discharged into the sea, measured as volume-weighted monthly average;
- from 1 January 2010 any discharge of oil-containing water shall be prohibited.

Air emissions

All operators shall apply "zero-discharge" principle as soon as possible, which means that:

- emissions of NO_x and SO_x to air shall comply with requirements of Annex VI to MARPOL 73/78 from 1 January 2008;
- emissions of VOCs, CO_2 and other greenhouse gases should correspond to BAT (e.g. elimination of flaring, use of low sulphur fuel, introduction of NO_x-abatement techniques for combustion exhausts, introduction of CO_2 emission reduction methods and techniques).

Solid wastes

All operators shall apply "zero-discharge" principle not later than by 1 January 2008, which means that all solid wastes shall be disposed on land and treated in an environmentally good manner.

Decommissioning

All operators shall apply "zero-discharge" principle while decommissioning offshore installations at the end of their exploitation. The installations shall be removed, dismantled and subsequently treated in an environmentally friendly manner.

Environmental impact assessment, management, monitoring and reporting

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[*] *The "zero-discharge" principle means a general approach to ensure the proper treatment of all kinds of offshore platform-generated wastes, including processing and consumption wastes, on land or on the offshore platforms according to Best Available Techniques and Best Environmental Practices and MARPOL 73/78, with the aim of avoiding discharges to the marine environment.*

[**] *The lists of "black" and "red" chemicals are to be adopted at the HELCOM 29/2008 meeting, taking into account the OSPAR Recommendation 2000/4.*

- Any new plan for offshore activities shall undergo a thorough Environmental Impact Assessment (EIA) procedure, including, if needed, assessment in a transboundary context under the 1991 Convention on Environmental Impact Assessment in a Transboundary Context (in case of potential adverse impacts on neighbouring states). Upon launching of a new installation, respective post-project analysis of its environmental performance against provisions of the initial EIA shall be undertaken in accordance with the afore-mentioned Convention.
- By no later than 2008, operators must introduce environmental management under a system ready for certification or other similar scheme. If another scheme is chosen, an independent third party must verify compliance with the legislative requirements on environmental reporting and measurement methods.
- All existing facilities shall undergo a regular survey (monitoring) of their actual pollution load and impacts. Guidelines shall be adopted on the matter.
- The environmental performance of offshore activities shall be handled in accordance with HELCOM Guidelines (HELCOM Recommendation 18/2).
- For 2008 and thereafter, each operator must prepare an annual environmental report and make it available to the public. The report must describe the environmental impacts of the oil and gas production, including emissions and discharges of substances to the atmosphere and the sea.