HELCOM MINISTERIAL MEETING COPENHAGEN 3 OCTOBER 2013

HELCOM Copenhagen Ministerial Declaration

Taking Further Action to Implement the Baltic Sea Action Plan
- Reaching Good Environmental Status
for a healthy Baltic Sea

3 October 2013, Copenhagen, Denmark

Baltic Marine Environment Protection Commission

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- Reaching Good Environmental Status for a healthy Baltic Sea

Declaration of the Ministers of the Environment of the Baltic Coastal Countries and the EU Environment Commissioner, HELCOM Copenhagen Declaration 2013

Six years after the adoption of the Baltic Sea Action Plan (BSAP) and three years after the first Ministerial review and update, responsible Ministers and the EU Commissioner **ASSEMBLED** in Copenhagen, Denmark, in order to assess the progress towards reaching the common goal of the Baltic Sea in a good environmental status by 2021, on the occasion of the Ministerial Meeting of the Helsinki Commission, on 3 October 2013.

The Ministers and the Commissioner reconfirmed the commitment to implement the Baltic Sea Action Plan (BSAP) and decided on further action needed as well as the future strategic approach of HELCOM;

APPRECIATING the High-level Conference on the Protection of the Environment of the Baltic Sea Region (Baltic Sea Forum), organized on 5-6 April 2013 in St. Petersburg in the context of the Russian Presidency of the Council of the Baltic Sea States, where high-level political decision-makers gave their support to the joint protection of the marine environment of the Baltic Sea, including the Baltic Sea Action Plan, and pointed to specific priorities to be dealt with in the future.

RECALLING the fundamental principles the Contracting Parties to the Helsinki Convention shall apply in their efforts to restore the good environmental status of the Baltic Sea, including the polluter-pays principle, the use of Best Environmental Practice and Best Available Technology, and that when applying an ecosystem-based approach to the management of human activities, while enabling a sustainable use of marine goods and services, priority should be given to achieving or maintaining good environmental status in the marine environment;

CONFIRMING, our aim is to contribute to coherence between different policies and foster the integration of environmental concerns into other policies, such as in fisheries, agriculture and other relevant policies;

We believe that the Baltic Sea region can make an important contribution to international commitments in the field of environmental policy, including climate change policy

1. **RECALLING** the chapter on “Oceans and seas” of the Rio+20 outcome, the Convention on Biological Diversity (CBD) Strategic Action Plan for Biodiversity 2011-2020 and its associated Aichi Biodiversity Targets which are also addressed under the EU Biodiversity Strategy to 2020;
2. **SUPPORTING** HELCOM’s continued commitments to contribute to global efforts for healthy and productive oceans and seas, especially under the framework of the UNEP Global Programme of Action for the Protection of the Marine Environment from the Land-based Activities and in cooperation with other Regional Seas Conventions, in particular the OSPAR Convention and the Convention on the Protection of the Black Sea Against Pollution;
3. **CALLING** for enhanced action across the relevant sectors to respond, prepare and better adapt to the current and future impacts of climate change on the Baltic Sea environment;

We are concerned about the still unsatisfactory environmental status of the Baltic Sea

4. **NOTING WITH ALARM** that the environmental status of the Baltic Sea, which is especially fragile, is still impaired;
5. **RECOGNIZING WITH CONCERN** the magnitude and intensity of human pressures and their cumulative impacts, affecting all areas of the Baltic Sea and exceeding levels compatible with achieving good environmental status;
6. **BEING AWARE** that climate change already has an impact on ecosystems and exacerbates pressures on the marine and coastal environment;

We believe that Baltic Sea ecosystems, and the services they provide, are vital for our well-being and economies

7. **RECALLING** the agreement of HELCOM Baltic Sea Action Plan that the Baltic Sea shall become a model of good management of human activities and **COMMITTING** to make the Baltic Sea region a model for sustainable growth, applying best practices in the maritime field, providing jobs and prosperity;
8. At the same time **REAFFIRMING** that sustainable development, as well as sustainable growth in the region must be supported by an ecosystem-based approach to the management of human activities, including consideration of possible cumulative effects, and while enabling a sustainable use of marine goods and services, priority should be given to achieving or maintaining good environmental status in the marine environment, to continuing its protection and preservation and to preventing subsequent deterioration; In this respect, increasing general awareness is the cornerstone of successful implementation of the ecosystem approach and thus also ecosystem based management;
9. **NOTING** that the economic benefits of reaching the targets of the Baltic Sea Action Plan concerning eutrophication alone are in the magnitude of one billion Euros per year in welfare gains (according to BalticStern);
10. **RECOGNIZING** that green investments in cleaner technologies, developing environmental know-how, and applying best environmental practices, are necessary to implement the Baltic Sea Action Plan will strengthen the economy in the Baltic Sea region and will improve the quality of the environment for all;

We strive for more coherent policies and implementation

11. **STRESSING** the need to further develop marine and maritime governance capacity and to integrate environmental concerns and internationally agreed targets into all relevant policies;
12. **NOTING** with satisfaction the HELCOM platform for the implementation of the ecosystem approach and **WELCOMING** the opportunities which it creates for identifying mutual goals and approaches between the Baltic Sea Action Plan, the Maritime Doctrine of the Russian Federation, and the EU Marine Strategy Framework Directive as an environmental pillar of the EU's Integrated Maritime Policy, to reach a good environmental status of the Baltic Sea by 2021;
13. **WELCOMING** the well-established cooperation between HELCOM and VASAB on coherent and ecosystem-based Maritime Spatial Planning in the Baltic Sea, and **CALLING FOR** the use of maritime spatial planning in combination with other policy instruments including coastal zone management, strategic environmental assessment, designation of marine protected areas, internalization of environmental costs in prices and phasing out environmentally harmful subsidies;
14. **ENCOURAGING** development of activities and projects in the environmental field under the cooperation of the EU and Russian Federation;

We commit to strengthen our efforts

15. **APPRECIATING** that nearly one third of the actions contained in the Baltic Sea Action Plan, to be completed by 2021, have been implemented, however;
16. **EXPRESSING CONCERN** about the low level of activities in implementing some of the measures of the Baltic Sea Action Plan and **STRESSING** the need to fulfill HELCOM requirements by the agreed deadlines. In particular actions for preserving biodiversity, further improvements in municipal waste water treatment and prevention of pollution from agriculture as well as prevention of emissions and discharges of hazardous substances, require special attention;
17. **UNDERLINING** the key role of agriculture, land-based and offshore industries, fisheries, shipping, waste water management, tourism, the private sector, local actors as well as science in fulfilling the Baltic Sea Action Plan in a cost efficient way, and **CALLING ON** stakeholders and civil society at large to actively engage in working towards reaching the targets for a healthy Baltic Sea environment, including nutrient reduction targets;

18. **DETERMINED** to take further measures, initiatives or efforts needed to reach a healthy marine ecosystem supporting a prosperous Baltic Sea region, including addressing pollution of the marine environment by litter, as well as impacts on marine organisms from underwater impulsive and continuous noise;
19. **WITHOUT PREJUDICE** to national legislation, international agreements and legislation of the European Union;
20. **WE DO HEREBY ADOPT** this HELCOM Copenhagen Ministerial Declaration.

Future strategic approach for HELCOM

I. **WE DECIDE** to continue to strengthen cross-sectoral cooperation in the fields of maritime traffic, maritime spatial planning, integrated coastal management, agriculture and fisheries and stimulate the implementation of the ecosystem approach in all sectors and policies, through awareness raising, exchange of experiences and implementation of adequate management principles and measures;

II. **WE ALSO DECIDE** to further pursue the coordinated development and implementation of programmes of measures for the protection of the marine environment of the Baltic Sea, through HELCOM, building on the Baltic Sea Action Plan and its follow up, including the BSAP National Implementation Programmes and the nutrient reduction scheme, with the aim to reach good environmental status in the most cost-efficient way;

III. In order to further align the implementation of the ecosystem approach through the HELCOM BSAP, the EU Marine Strategy Framework Directive implemented by the HELCOM Contracting States being also EU Member States and the Maritime Doctrine of the Russian Federation, **WE DECIDE** to:

- promote the regional knowledge and specificities of the Baltic Sea at the European and international fora;
- use limited resources effectively by better drawing on synergies between the work of HELCOM, other relevant international organisations, including Regional Seas Organizations, and the Common MSFD Implementation Strategy;
- produce joint documentation in support of regional coordination and coherence - “Baltic Sea roof reports”;

IV. **WE FURTHER DECIDE** to cooperate with institutions having leading expertise on economic and social analysis of the use of the Baltic Sea and of the cost of degradation of the marine environment in order to contribute to the holistic assessment’s socio-economic analysis;

V. **WE ACKNOWLEDGE** that environmental deterioration such as oxygen depletion is increasingly affecting marine life by e.g. affecting the geographical distribution and reproductive success of cod and accelerating eutrophication by increasing the internal load;

VI. **RECOGNIZING** the need to reduce human pressures and their cumulative impacts, **WE AGREE** to strengthen the protection of biodiversity, including an improvement of the network of the Baltic Sea Protected Areas, in such a way that Baltic Sea biodiversity will effectively contribute to the resilience and buffering capacity of the ecosystem in the face of external stressors, and that biodiversity can optimally contribute to mitigation of global climate change by storing and absorbing carbon;

VII. **WE DECIDE** to better prepare and adapt policies in response to the impacts of climate change on the Baltic Sea ecosystem and its services, taking necessary measures in areas such as agriculture and forestry, informed by modelling practices and assessments of the effects of climate change on the Baltic Sea ecosystem, its catchment and the resulting inputs of nutrients to the sea;

VIII. **BEING SERIOUSLY CONCERNED** about the growing evidence of harmful effects of marine litter on wildlife and habitats and on marine biodiversity and the environment with a dominance of plastics of different sizes (ranging from macro- to microparticles);

IX. **WE AGREE** to prevent and reduce marine litter from land- and sea-based sources, causing harmful impacts on coastal and marine habitats and species, and negative impacts on various economic sectors, such as fisheries, shipping or tourism, and to this end **DECIDE** to develop a regional action plan by 2015 at the latest with the aim of achieving a significant quantitative reduction of marine litter by 2025, compared to 2015, and to prevent harm to the coastal and marine environment;

X. **WE AGREE** to continue the intensified efforts to improve data and information quality and availability as well as coordinated monitoring practices, constituting the basis of HELCOM work, which is to ensure a sufficient knowledge base for devising cost-efficient measures and overall the implementation of the ecosystem approach and management of human activities in the Baltic Sea;

XI. **WE DECIDE** to further streamline HELCOM working structures, make resources available for identified priorities and foster cross-sectorial cooperation and synergies, in a focused, cost efficient way.

TO THIS END:

WE ADOPT

- HELCOM Recommendation 34E/1 “Safeguarding important bird habitats and migration routes in the Baltic Sea from negative effects of wind and wave energy production at sea”;
- Regional Baltic Maritime Spatial Planning Roadmap 2013-2020;
- HELCOM Recommendation 34E/2 “Further testing and development of the concept of pro-active route planning as well as other e-navigation solutions to enhance safety of navigation and protection in the marine environment in the Baltic Sea Region”;
- HELCOM-BSHC Harmonised Re-survey Scheme 2013, with time schedule estimations and funding arrangements, bearing in mind that these are likely to be modified when new national needs or priorities arise;
- HELCOM Recommendation 34E/3 “Amendments to Annex VII Response to Pollution Accidents of the 1992 Helsinki Convention, concerning response on the shore”;
- HELCOM Response Manual Volume III “Response to Pollution Incidents on the shore”;
- HELCOM Recommendation 34E/4 “Airborne surveillance with remote sensing equipment in the Baltic Sea Area”;

WE FURTHER ADOPT the Joint HELCOM/OSPAR Guidelines on the granting of exemptions under the International Convention for the Control and Management of Ships’ Ballast Water and Sediments, Regulation A-4 and the related HELCOM online decision support tool and port survey database, and **AGREE** to develop further necessary details of the Joint HELCOM/OSPAR Guidelines through a continuation of cooperation with OSPAR;

WE ENDORSE regional HELCOM Interim Guidance on technical and operational aspects of delivery of sewage by passenger ships to port reception facilities and **NOTING** that there are some outstanding issues identified in the Guidance, **AGREE** to clarify these open issues latest by 2014;

WE ENDORSE the updated HELCOM Palette of optional agro-environmental measures to be implemented through corresponding international and national instruments;

WE ALSO ENDORSE the Palette of measures on management options to reduce discharges, emissions, and losses of hazardous substances from various sources. The document is meant to be used by national authorities and industries as a background on indicative measures and their cost-efficiency and to inform further work on regional level;

WE ADOPT the revised HELCOM Monitoring and Assessment Strategy implying a six-year monitoring and assessment cycle;

WE WELCOME that the provisional nutrient reduction scheme of the HELCOM Baltic Sea Action Plan has been reviewed and revised based on a new and more complete dataset as well as an improved modeling approach and revised harmonized eutrophication status targets, which resulted in the following Maximum Allowable Inputs;

Baltic Sea Sub-basin	Maximum Allowable Inputs		Reference inputs 1997-2003		Needed reductions	
	TN, tons	TP, tons	TN, tons	TP, tons	TN, tons	TP, tons
Kattegat	74,000	1,687	78,761	1,687	4,761	0
Danish Straits	65,998	1,601	65,998	1,601	0	0
Baltic Proper	325,000	7,360	423,921	18,320	98,921	10,960
Bothnian Sea	79,372	2,773	79,372	2,773	0	0
Bothnian Bay	57,622	2,675	57,622	2,675	0	0
Gulf of Riga	88,417	2,020	88,417	2,328	0	308
Gulf of Finland	101,800	3,600	116,252	7,509	14,452	3,909
Baltic Sea	**792,209**	**21,716**	**910,344**	**36,894**	**118,134**	**15,178**

WE RECOGNIZE that the revised Maximum Allowable Inputs represent best available scientific knowledge base and data, and characterize the HELCOM long-term vision of the Baltic Sea unaffected by eutrophication that we aspire;

WE ARE COMMITTED to implement nutrient reductions to improve the environmental status of eutrophied Baltic Sea sub-basins including coastal areas, even if the modelling approach taken did not establish reduction requirements for these areas[1];

WE WELCOME the overall progress in reducing phosphorus and nitrogen inputs to the Baltic Sea and **RECONFIRM** the goal of the Baltic Sea Action Plan to reach good environmental status by 2021. **WE NOTE,** however, that the Baltic Sea is still affected by eutrophication and that, while due to natural processes it may take a long time before the HELCOM eutrophication objectives are reached, modeling indicates that significant improvement is expected to take place rapidly and immediately after reaching the Maximum Allowable Inputs;

With this background, **WE RECOGNIZE** that in order to reach the ecological objectives of the Baltic Sea Action Plan by 2021, HELCOM Contracting States need to confront the continuing challenge to further cut their discharges and emissions to the marine environment and that the challenge is likely to be further exacerbated due to the expected impacts of climate changes on the Baltic Sea basin;

WE AGREE that the following revised Country Allocated Reduction Targets (CARTs), covering both pollution from land and airborne, substitute the provisional country-wise nutrient reduction requirements of the Baltic Sea Action Plan:

	Nitrogen	**Phosphorus**
Denmark	2890	38
Estonia	1800	320
Finland	2430 +600*	330 +26*
Germany	7170 +500*	110 +60*
Latvia	1670	220
Lithuania	8970	1470
Poland[2]	43610	7480
Russia	10380*	3790*
Sweden	9240	530

The figures are rounded

WE DECIDE to take strong actions to reduce the nutrient inputs from HELCOM countries further, to reach good environmental status, to be included in national implementation programmes, river basin management plans and schemes as well as programmes of measures by 2016, and jointly address common challenges, including through sub-regional and bilateral projects, as well as develop additional reduction measures as needed based on cost-efficiency to be in place by 2020;

WE ACKNOWLEDGE that sustainability of agricultural production is a key to the success of reaching input reductions for Good Environmental Status, **RECALLING** that agriculture substantially contributes to the nutrient inputs to the Baltic Sea;

WE STRIVE for the development and application of sustainable agricultural practices with the least environmental impacts on the Baltic Sea, underpinned by technical, economic and regulatory measures. Based on the latest developments and best practice **WE AIM** at improved farm nutrient

[1] Finland's view is that according to HELCOM assessment open parts of the Bothnian Sea, Åland Sea and the Archipelago Sea are eutrophied and need reduction of nutrient levels, although BALTSEM model did not establish nutrient input reduction requirements to the drainage basins of these sea areas. Finland will address water protection measures to the drainage basins of these areas in its national plans.

[2] At this point in time Poland accepts the Polish Country Allocated Reduction Targets as indicative due to the ongoing national consultations, and confirms their efforts to finalize these consultations as soon as possible.

* Reduction requirements stemming from
- German contribution to the river Odra inputs, based on ongoing modeling approaches with MONERIS;
- Finnish contribution to inputs from river Neva catchment (via Vuoksi river)
- these figures include Russian contribution to inputs through Daugava, Nemunas and Pregolya rivers

The figures for transboundary inputs originating in the Contracting Parties and discharged to the Baltic Sea through other Contracting Parties are preliminary and require further discussion within relevant transboundary water management bodies.

management, especially manure nutrient recycling, including calculation of nutrient surplus in fertilization practices, and nutrient accounting at the farm level;

WE STRESS that the achievement of good environmental status in relation to eutrophication in the Baltic Sea also relies on additional reduction efforts by non-Contracting Parties as follows:

- 18720 tons of airborne nitrogen from non-Contracting Parties assuming full implementation of the Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone of the UNECE Convention on Long-range Transboundary Air Pollution until 2020;
- 3230 tons of waterborne nitrogen and 800 tons of waterborne phosphorus from non-Contracting Parties assuming that they take the same responsibility to reduce as the Contracting Parties,

RECALLING the decision of the Moscow Ministerial Meeting on reduction of air-borne nitrogen pollution from shipping which will lead to the reduction of 6930 tons on nitrogen over thirty years **WE ALSO STRESS** that the achievement of good environmental status in relation to eutrophication in the Baltic Sea also relies on additional reduction efforts by shipping;

THEREFORE WE AGREE that transboundary pollution originating in the non-Contracting States 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;

WE APPRECIATE the upcoming scientific background report "Revision of the maximum allowable inputs and country allocation scheme of HELCOM Baltic Sea Action Plan", **NOTING** that it contains in particular a more detailed overview of the airborne and waterborne contributions of the Contracting and non-Contracting Parties to form the basis for a detailed follow-up of the achievement of the reduction targets set above, and **AGREE** that this process needs to be further developed based on the best available scientific knowledge, **NOTING** that for those HELCOM Contracting Parties being also EU Members States it would need to be compatible with the requirements of the Marine Strategy Framework Directive;

RECOGNIZING that reductions in nutrient inputs in sub-basins may have wide-spread effects, **WE AGREE** that extra reductions can be accounted for, in proportion to the effect on a neighboring basin with reduction targets, by the countries in reaching their Country Allocated Reduction Targets;

WE SUPPORT development of environmentally sound approaches to remove the nutrients before they enter inland waters and the sea, and to address the internal loading, in coastal areas and semi-enclosed lagoons, as well as in the open sea;

WE AGREE to monitor and evaluate regularly the progress in implementing the measures;

WE RECALL and **CONFIRM** that there is a need for review of nutrient reduction scheme based on best available scientific knowledge as necessary;

Finally, **WE AGREE** to fully implement the 2007 Baltic Sea Action Plan by 2021. With this Declaration with its general and specific approaches, actions and measures **WE FURTHER AGREE** to step up efforts for further strengthened implementation of the BSAP **WE NOTE WITH APPRECIATION** the following further general and specific approaches, actions and measures. **WE WILL** continuously **REVIEW and REPORT** how these commitments are implemented.

Biodiversity and resilient ecosystems which underpin ecosystem services, human well-being and prosperity

1 (B). WE DECIDE to maintain biodiversity of the Baltic Sea and ensure that the quality and occurrence of habitats and the distribution and abundance of species is in line with prevailing physiographic, geographic and climatic conditions;

2 (B). WE AGREE to mainstream the conservation of biodiversity, specifically marine biodiversity, across government and society through more effective policy integration, planning processes, incorporation into national accounting, as appropriate, reporting systems and via awareness raising;

3 (B). WE AGREE, for Contracting Parties being also EU Member States, to use HELCOM as the regional cooperation platform implementing the biodiversity related aspects of relevant EU Directives and Strategies;

4 (B). WE DECIDE to implement on a regional level the Strategic Plan for Biodiversity for the 2011-2020 period of the UN Convention of Biological Diversity, including the Aichi Biodiversity Targets, taking into account the special characteristics of the Baltic Sea, bearing in mind that the implementation of the Plan in the EU and its Member States is carried out through the EU Biodiversity Strategy, and more specifically DECIDE to:

- develop by 2015 regional targets for the implementation of the Strategic Plan for Biodiversity, including the completion and further development of a set of HELCOM core indicators for biodiversity and their monitoring;
- increase positive incentives to enhance reduction of pressures on biodiversity and to work towards elimination by 2020 of incentives and subsidies which could be harmful to biodiversity in order to improve the buffering capacity of the marine and coastal ecosystems for a better resilience ;
- take measures so that by 2020, regionally, the loss of all red listed marine habitats and biotopes in the Baltic Sea will be halted and they have largely recovered, and that degradation and fragmentation have been significantly reduced, the progress of which will measured with a core indicator to be produced; develop by 2015 a new HELCOM Recommendation on conservation plans for species, habitats and biotopes which are at risk of extinction;
- protect seabirds in the Baltic Sea, taking into consideration migratory species and need for co-operation with other regions through Conventions and institutions such as the Agreement on Conservation of African Eurasian Migratory Waterbirds (AEWA) under the Convention on Migratory Species (CMS), and particularly in the North Sea (OSPAR) and Arctic (Arctic Council) areas;
- protect sturgeon through supporting the HELCOM project on Baltic sturgeon remediation as well as raise public awareness concerning re-introduction of sturgeon among fishermen, other relevant stakeholders and the public;
- protect the ringed seal in the Gulf of Finland, whose population is severely depleted and faces extinction in this area, STRESSING that immediate action is needed to significantly reduce by-catch and to improve the understanding of the other direct threats on the seals, and URGE transboundary co-operation between Estonia, Finland and Russia to support achieving a viable population of ringed seals in the Gulf;
- take decisive action to work towards a favourable conservation status of the harbor porpoise based on implementation of the CMS ASCOBANS Jastarnia Plan for the harbor porpoise in the Baltic Sea, in particular by addressing the pressing problem of by-catch;

5 (B). WE AGREE to revise by 2014 HELCOM Recommendation 15/5 “System of coastal and marine Baltic Sea protected areas (BSPAs)”, taking into consideration new developments under relevant legislation of the Contracting Parties as well as under the CBD, IUCN and other institutions;

6 (B). WE DECIDE to re-enforce action to achieve by 2020 an ecologically coherent network of well-managed marine protected areas for the Baltic Sea as decided in the BSAP and the Moscow Ministerial Declaration, including the objective to provide specific protection to those species,

habitats and biotopes included in the HELCOM Red Lists that are considered to be priorities for protection and hence contributing to achieving a good environmental status of the marine environment;

7 (B). WE AGREE to modernize by 2014 the HELCOM BSPA database to make it publicly available and to update by 2015 the assessment of ecological coherence of the network of protected areas in the Baltic Sea, with an evaluation of marine areas in need of further protection;

8 (B). WE AGREE to strengthen the efforts to implement the decision made at the HELCOM 2010 Moscow Ministerial Meeting to develop and apply by 2015, management plans and/or measures for already existing Baltic Sea Protected Areas; and to follow every new BSPA designation by the establishment of a management plan and/or measures within five years;

Fisheries-related actions, especially within Marine Protected Areas

9 (B). WE AGREE to ensure that measures to address fisheries practices which have a negative impact on conservation goals and/or threatened or declining species and habitats are continued, including new measures to be initiated by 2015;

10 (B). WE AGREE to further work to develop and implement, as soon as possible, sustainable fishing methods and practices into management plans for marine protected areas, in order to contribute to meeting the specific conservation objectives set for the marine protected areas, including protecting essential fish habitats, and cooperate with the International Council for the Exploration of the Seas (ICES) and regional stakeholders including EU Baltic Sea Regional Advisory Council and BALTFISH Forum, when doing so;

11 (B). WE SUPPORT the further development and testing of the HELCOM generic decision-support tool to map possible negative impacts of specific gear types on threatened or declining species and habitats, and which helps to develop and/or recommend measures to address these;

Ecosystem-based fisheries

12 (B). WE AGREE that populations of all commercially exploited fish and shellfish should be within safe biological limits, exhibiting a population age and size distribution indicative of a healthy stock and that Maximum Sustainable Yield shall be achieved by 2015 where possible and on a progressive, incremental basis at the latest by 2020 for all stocks;

13 (B). WE WELCOME the introduction, as from 2015, of the discard ban under the EU Common Fisheries Policy and SUPPORT regionally appropriate solutions to solving the discard problem such as through improved selectivity and fishing behavior and incentives to facilitate a smooth transition to applying the ban;

14 (B). WE SUPPORT an ecosystem-based approach for fisheries management with the development of a multi-species management plan for the main commercial Baltic Sea fish stocks including conservation measures to maintain or restore fish stocks above levels capable of producing Maximum Sustainable Yield (MSY) exploitation rates by 2015 where possible and by 2020 at the latest; This approach should contribute to the achievement of Good Environmental Status as measured by indicators under the coherent implementation of HELCOM BSAP and the EU Marine Strategy Framework Directive;

15 (B). WE DECIDE to take action to reduce the negative impacts of fishing activities on the marine ecosystem and to this end, SUPPORT the development of fisheries management and technical measures to minimize unwanted by-catch of fish, birds and mammals in order to achieve the close to zero target for by-catch rates of the Baltic Sea Action Plan and minimize damage to sea bed habitats;

16 (B). WE AGREE to continue the work on strengthening ecosystem-based management for coastal fish populations, utilizing, and enhancing as far as possible, monitoring for assessment of coastal fish communities;

17 (B). WE AGREE to continue to work to develop common procedures to facilitate the sharing of aggregated data on fisheries activities in the Baltic Sea in an applicable format for the purpose of assessing pressures on marine and coastal ecosystems e.g. to be applied in maritime spatial planning.

Salmon and sea-trout

18 (B). WE NOTE the regional perspective in the European Commission proposal for a multi-annual plan for the Baltic salmon stock and its targets on protection and restoration of riverine habitats and populations based on HELCOM results and the scientific advice from ICES;

19 (B). BEING AWARE that many of the Baltic salmon and sea trout stocks are unlikely to achieve MSY by 2015, WE AGREE to prioritise and intensify implementation of HELCOM BSAP (2007) conservation goals for the Baltic salmon and sea trout to be met by 2015, based on HELCOM Recommendation 32-33/1 "Conservation of Baltic Salmon (*Salmo salar*) and Sea Trout (*Salmo trutta*) populations by the restoration of their river habitats and management of river fisheries", and the upcoming EU multi-annual plan for the Baltic salmon stock and the fisheries exploiting that stock (as applicable to EU Member States), through exchange of best practices, knowledge and experiences on regional level, as well as follow-up initiatives addressing salmon and sea trout restoration activities and further development and implementation, by 2015 and onwards, in co-operation with ICES, of:

- common practices for breeding, rearing and releasing salmon and sea trout as reintroductions in potential salmonid rivers;
- investigations of needed improvements for stocking practices (e.g. biological and genetical guidelines);
- recommendations for riverine and estuarine management and conservation measures, such as fish ways for up and down migration, restoration and protection of spawning grounds, concerning fisheries within rivers and estuaries;
- comparable methodology for data collection through surveys, especially on recreational fisheries;

Baltic Sea cod

20 (B). ACKNOWLEDGING the important recovery of the Eastern cod spawning stock biomasses in the Baltic Sea, WE SUPPORT the further implementation of commitments under the BSAP and relevant legislation to secure the full recovery of all cod stocks to healthy population size and age distribution by 2020 and management consistent with achieving MSY, with the aim of further developing and applying an ecosystem approach to fisheries;

European eel

21 (B). BEING CONCERNED with the critical status of European eel and that fisheries management and other measures undertaken by individual countries have not yet shown any significant improvement in the status of eel, WE AGREE to continue the efforts underway and enhance co-ordination of measures within the Baltic Sea as well as with other European countries, for the conservation of eel stocks, in line with national eel management plans and to consider additional measures if necessary, such as reducing fishing mortality in accordance with the ICES Advice, removing migration barriers, and re-stocking in eel-safe river systems, e.g. utilising the outcomes of co-operation between ICES, HELCOM and other stakeholders on this issue;

Sustainable aquaculture

22 (B). HIGHLIGHTING the increasing importance of sustainable aquaculture, WE AGREE to develop a new HELCOM Recommendation on sustainable aquaculture by 2014 to substitute the existing HELCOM Recommendation 25/4 aiming at limiting potential environmental impacts of aquaculture activities such as the introduction of non-indigenous species, ecological and genetic impacts on wild fish stocks from unintended releases of farmed species, nutrient pollution, as well as introduction of antibiotics and other pharmaceuticals;

Recreational fisheries

23 (B). RECOGNIZING that recreational fisheries conducted e.g. from boats using commercial gears at a certain scale may contribute to fishing mortality of certain commercially exploited fish stocks and impacts on biodiversity, WE AGREE to ask for advice from Regional Coordination Groups within the EU Data Collection Framework and ICES on how to improve data collected on such recreational fisheries, with a view to evaluate the impacts of such recreational fisheries on the marine environment;

Marine litter

24 (B). WE AGREE that the regional action plan on marine litter should allow to:

- carry out concrete measures for prevention and reduction of marine litter from its main sources with the aim of achieving significant quantitative reductions focusing *inter alia* on working with industry to reduce or phase out microbeads in certain products in the market
- develop and test technology for removal of microplastics and nanoparticles in municipal waste water treatment plants by 2020 and *inter alia* work with industry to ban the use of microplastics and on the assessment of the use of nanoparticles within the production process (e.g. in cosmetics);
- utilize existing networks to address marine litter issues;
- develop common indicators and associated targets related to quantities, composition, sources and pathway of marine litter, including riverine inputs, in order to gain information on long-term trends, and carry out the monitoring of the progress towards achieving the agreed goals and to gain an inventory of marine litter in the Baltic Sea as well as scientific sound evaluation of its sources. Where possible, the harmonized monitoring protocols based on the recommendations of the EU Technical Subgroup on Marine Litter will be used;
- identify the socio-economic and biological impacts of marine litter, also in terms of toxicity of litter;
- review regularly the effectiveness of the measures, for the first time by 2020;

Introduction of energy, including underwater noise

25 (B). WE AGREE that the level of ambient and distribution of impulsive sounds in the Baltic Sea should not have negative impact on marine life and that human activities that are assessed to result in negative impacts on marine life should be carried out only if relevant mitigation measures are in place, and accordingly as soon as possible and by the end of 2016, using mainly already on-going activities, to:

- establish a set of indicators including technical standards which may be used for monitoring ambient and impulsive underwater noise in the Baltic Sea;
- encourage research on the cause and effects of underwater noise on biota;
- map the levels of ambient underwater noise across the Baltic Sea;
- set up a register of the occurrence of impulsive sounds;
- consider regular monitoring on ambient and impulsive underwater noise as well as possible options for mitigation measures related to noise taking into account the ongoing work in IMO on non-mandatory draft guidelines for reducing underwater noise from commercial ships and in CBD context;

Nutrient Pollution from air and waterborne sources on land

Agriculture

1 (N). RECOGNISING challenges in addressing diffuse pollution, ACKNOWLEDGING that sustainable agricultural production is a key to the success of reaching Good Environmental Status, and BEING AWARE that modernization and future development of agriculture production in the Baltic Sea region, including effective nutrient management can bring opportunities for better addressing nutrient losses to the sea;

2 (N). WE AGREE to make use of appropriate policy and economic instruments such as full implementation of EU *aquis* including EU Marine Strategy Framework Directive, Nitrates Directive, Water Framework Directive, Integrated Pollution Prevention and Control and Common Agricultural Policy for EU Member States and funding opportunities on national and international level, as well as economic levies and incentives, in order to minimize nutrient losses in agriculture and thus contribute to keeping the nutrient inputs to the Baltic Sea below the Maximum Allowable Inputs;

3 (N). RECOGNIZING the value of an open dialogue on the regional level among authorities, farmer organizations, industry and other stakeholders, WE ACKNOWLEDGE the HELCOM Agriculture and Environment Forum as a platform for thematic discussions on the applicability and development of measures;

4 (N). WE AGREE to initiate activity to identify/verify areas critical to N and P losses, utilizing the available data and as a starting point, to enable directing targeted and cost-effective measures where they can bring the greatest environment effect, e.g. compulsory measures on manure handling (storage and application) for installations of intensive rearing of cattle, poultry and pigs;

5 (N). WE AGREE to facilitate enhanced transfer of knowledge and technology and exchange of good examples as well as development of co-operation projects to reduce agricultural impact on the Baltic Sea;

6 (N). WE RE-ITERATE the commitment to implement and enforce the provisions of part II of Annex III ”Prevention of Pollution from Agriculture” of the Helsinki Convention and SUPPORT its effective and cost-efficient implementation;

7 (N). WE DECIDE to investigate measures to reduce nutrient surplus in fertilization practices to reach nutrient balanced feritilization with the objective to come to an agreement on national level by 2018;

8 (N). WE AGREE to promote and advance towards applying by 2018 at the latest annual nutrient accounting at farm level taking into account soil and climate conditions giving the possibility to reach nutrient balanced fertilization and reduce nutrient losses at regional level in the countries, noting the positive examples of mandatory requirements on nutrient bookkeeping in some HELCOM countries and with an aim to apply it region-wide, as a first step, in areas critical to nutrient losses;

9 (N). WE AGREE to follow-up and exchange experiences and ideas for potential development of policy instruments, both voluntary and mandatory, as well as measures for improved farm nutrient management;

10 (N). With a view to fully utilize nutrient content of manure in fertilization practices and to avoid overfertilization WE ALSO AGREE to establish by 2016 national guidelines or standards for nutrient content in manure and to develop by 2018 guidelines/recommendation on the use of such standards;

11 (N). WE AGREE to initiate and accomplish by 2016 a review and an updating of part II of Annex III of the Helsinki Convention, in order to better serve the purposes of reaching good environmental status;

12 (N). Awaiting the release of the updated EU’s BREF document and Conclusions on BAT for intensive rearing of poultry and pigs (to become legally binding under the EU Directive on Industrial Emissions), WE AGREE on the application of at least equally ambitious BAT throughout the region, especially for the facilities located within areas critical to nutrient losses;

13 (N). RECOGNIZING the concerns about limited future supplies of nutrients, especially phosphorus, and the water and soil pollution caused by the losses at several steps of their lifecycle, STRESSING the need for sustainable use of nutrients, AGREE to enhance the recycling of phosphorus (especially in agriculture and waste water treatment) and to promote development of appropriate methodology;

14 (N). WE AGREE to apply innovative water management measures, in particular under difficult soil conditions, to ensure that upgrading and renovation of the agricultural drainage systems aim at reducing nutrient concentrations in the outlets of the adjacent catchment;

Point sources

15 (N). WE AGREE to prioritize further upgrading of waste water treatment to fully implement HELCOM Recommendation 28E/5, *inter alia* through launching pilot activities by engaging a wider network of municipalities, and where appropriate enhancing co-operation in environmental field under the EU Strategy for the Baltic Sea Region between HELCOM countries being EU Member States;

16 (N). WE DECIDE to continuously assess potential significant sources of nutrient pollution on land e.g. industries, fur- and fish-farming, and when needed, address them with abatement measures and/or emission limits;

Hot Spots under Joint Comprehensive Environmental Action Programme

17 (N). Based on the assessment of efficiency of the Joint Comprehensive Environmental Action Programme (JCP), 1992-2012, WE ACKNOWLEDGE the efforts undertaken with support of International Financial Institutes and European institutions to clean-up and remediate 110 pollution hot spots, which has led to significant reductions of pollution loads, including nutrients from the hot spots and proving the overall value of the JCP in improvement of environmental situation in the Baltic Sea region;

18 (N). RECOGNISING the challenges in remediation of still active hot spots (52), especially represented by agricultural run-off (6) and coastal management programmes (3), WE AGREE to:

- aim for elimination of remaining hot spots from the JCP List as part of the implementation of the Baltic Sea Action Plan by 2018 latest, with a view that municipal (23) and industrial (20) hot spots should be removed from the List by 2016; Possible remaining JCP Hot Spots should then be included in the National Implementation Programmes of the Baltic Sea Action Plan;
- follow up the progress in hot spots remediation and support exchange of information and knowledge, especially on application of BAT for remaining industrial hot spots, with a view to facilitate necessary abatement measures to speed up remediation;

19 (N). WE ENCOURAGE and APPRECIATE national initiatives to promote green technologies and practices to implement all segments of the Baltic Sea Action Plan;

Hazardous substances from air and waterborne sources on land

1 (H). WE SUPPORT intensification of efforts and co-operation to reduce inputs of hazardous substances with an ultimate aim to reach good environmental status, through e.g.:

- monitoring and assessment of airborne inputs and development of measures addressing airborne transport of hazardous substances;
- encouraging continued research on hazardous substances of specific concern to the Baltic Sea, including on their interaction and cumulative effects as well as source reduction measures and development of cost-efficient end-of-pipe solutions, in collaboration with e.g. the BONUS Programme and the Priority Area Hazard of the EU Strategy for the Baltic Sea Region;
- assessing the need for joint measures to reduce emissions and discharges of hazardous substances;
- making use of information generated by REACH Regulation, EU WFD and EU MSFD, e.g. substance-specific risk assessments and dossiers, etc., as well as exchanging information collected within HELCOM work with relevant legal frameworks and in the IPCheM exposure knowledge base, a platform to exchange and access monitoring information,

2 (H). NOTING that the Whole Effluent Assessment approach was tested and evaluated for possible introduction in the Baltic Sea region through a joint region-wide research initiative, WE AGREE that further research is needed before its region-wide application can be recommended as a cost-efficient instrument;

3 (H). RECOGNIZING that the concentrations of several of the 11 hazardous substances / substance groups identified within HELCOM as of specific concern to the Baltic Sea need to be further reduced in the marine environment in order to reach good environmental status and that additional risk management measures are needed especially for some substance groups:

- WE ENCOURAGE early ratification of the UNEP 2013 Minamata Convention on Mercury, as well as a quick start of the implementation of the Convention, taking into account existing and possibly updated HELCOM Recommendations limiting the use of mercury in products and processes;

- WE RE-ITERATE the agreement to establish combustion efficiency requirements and/or emission limit values for dioxins according to HELCOM Recommendation 28E/8 by 2016 in order to minimize dioxin emissions from small-scale combustion sources as well as develop cost-efficient and BAT measures to large-scale industrial sources;

4 (H). BEING CONCERNED about the negative impacts of some pharmaceuticals and resistant micro-organisms, WE DECIDE to collect more information and assess the state of contamination with pharmaceuticals and their degradation products of the aquatic environment, which would also contribute to the development of the EU's strategic approach to addressing the pollution of water by pharmaceutical substances, and to develop measures, as appropriate, to prevent pharmaceuticals from reaching the Baltic Sea;

5 (H). RECOGNIZING the importance of raising public awareness in the field of hazardous substances, WE AGREE to further promote and continuously support actions aiming at changing e.g. consumer behavior towards “greener” (less associated with use of hazardous substances) products, processes and services;

6 (H). ACKNOWLEDGING that due to radioactive fallout from the Chernobyl accident the Baltic Sea has the highest concentrations of ^{137}Cs of any regional sea and RECOGNIZING the risk of pollution by radioactive substances caused by nuclear accidents in the Baltic Sea catchment area or farther away, WE AGREE to continue monitoring of radioactive substances in accordance with HELCOM Recommendation 26/3 and making assessments of the impacts of radioactivity on the marine environment and humans;

Shipping and activities at sea

1 (M). RECOGNIZING the international nature of shipping and the need to agree on global rules for shipping in the International Maritime Organization (IMO) and RECALLING the role of HELCOM, according to the Helsinki Convention, in the effective and harmonized implementation of rules adopted by the IMO, WE REAFFIRM the importance of joint proposals to IMO regarding the rulemaking to promote clean and safe shipping in the Baltic Sea area;

Ballast Water

2 (M). WE WELCOME the accessions to the IMO Ballast Water Management Convention by Sweden on 24 November 2009, the Russian Federation on 24 May 2012, Denmark on 11 September 2012 and ratification by Germany on 20 June 2013, and ENCOURAGE the remaining HELCOM countries to speed up the ratification of the Convention taking into account the agreement from 2007 to have the Convention ratified by all Baltic Sea countries by 2013;

3 (M). WE AGREE to develop, based on an overview of the situation, a comprehensive regional Baltic Sea implementation plan for the IMO Ballast Water Management Convention by the end of 2014 bearing in mind the possible need to accept a transitional period for exemptions in case of lacking data;

Sewage from Ships

4 (M). EMPHAZISING the importance of reducing nutrient inputs to the Baltic Sea from ships’ sewage, and RECALLING the designation of the Baltic Sea as a Special Area under IMO MARPOL Annex IV, WE AGREE to continue efforts to upgrade port reception facilities in the remaining ports, in order to strive for that HELCOM countries are in the position to report to IMO, by 2014 (IMO MEPC 67), that adequate facilities are available for the regulation to enter into force by 1 January 2016 for new ships;

5 (M). WE WELCOME the efforts by the cruise industry to use on board waste water treatment plants on cruise ships operating in the Baltic Sea which meet the standards set by IMO for the Baltic Sea as part of the MARPOL Annex IV Special Area designation;

Airborne emissions from ships

6 (M). EMPHASIZING the importance and RECOGNIZING the need of reducing nutrient inputs to the Baltic Sea also from airborne emissions from shipping, which constitutes 7% of the overall nitrogen deposition to the Baltic Sea, and RECALLING the 2010 Moscow Ministerial decision to work towards submitting, preferably by 2011, a joint proposal by the Baltic Sea countries to the IMO applying for the NOx Emission Control Area (NECA) status for the Baltic Sea, taking into account the results of the study by HELCOM on the economic impacts of a Baltic Sea NECA;

7 (M). WE SUPPORT the idea of a designation of NOx Emission Control Area in other sea areas, particularly the neighbouring areas as larger geographic coverage of NECA would bring greater environmental benefits;

8 (M). WE TAKE NOTE of the fact that due to the need for further technical consultations amongst some of the Contracting Parties as regards to the availability of technology to implement the Tier III NOx emission standards under MARPOL Annex VI, the application on the Baltic Sea NECA has not yet been submitted to IMO. WE NOTE that in that context, in order to move forward, HELCOM Stakeholder Conference "Baltic Sea – NOx Emission control area" was organized in March 2013 which discussed the availability of technology to implement the Tier III NOx emission standards under MARPOL Annex VI, including further enhancement of existing and development of new relevant technology. A review of the status of technological developments to implement the Tier III NOx emissions standards has been prepared by IMO and considered in May 2013;

9 (M). EMPHASIZING the need to work jointly in co-operation with other regional governmental and non-governmental organizations, the industry and research community, to further promote development and enhanced use of green technologies and alternative fuels, including LNG, methanol as well as other propulsion technologies, in order to reduce harmful exhaust gas emissions and greenhouse gases from ships, WE AGREE to work towards the creation of a joint "Green Technology and Alternative Fuels Platform for Shipping" together with other regional actors in the Baltic Sea;

10 (M).WE WELCOME co-operation between the Contracting Parties to enhance the enforcement of the more stringent limits for SOx emissions that will come into force in 2015;

Safety of navigation

11 (M).RECALLING the HELCOM Copenhagen 2001, Krakow 2007 and Moscow 2010 commitments to increase safety of navigation in the Baltic Sea, WE AGREE to further strengthen co-operation with IMO in the field of safety of navigation and to further develop technical co-operation between the European Maritime Safety Agency and HELCOM, including to ease collection and analysis of maritime data relevant for the Baltic Sea;

12 (M).WE AGREE to further work with regard to the regional HELCOM AIS system operational since 2005 in order to increase safety of navigation and gain environmental benefits;

13 (M).WE AGREE to comprehensively assess the status, environmental risks and opportunities of maritime activities in the Baltic Sea region within HELCOM by 2016, contributing to the HELCOM Holistic Assessment planned for 2016, as well as to safety measures including routeing and those on winter navigation, and further AGREE to disseminate information on the Baltic Sea environmental regime for mariners, by updating the "HELCOM Clean Seas Guide" and further developing the online Mariners' Routeing Guide Baltic Sea;

14 (M).RECALLING the HELCOM Copenhagen 2001, Krakow 2007 and Moscow 2010 commitments on hydrographic re-survey and COMMENDING WITH APPRECIATION the subsequent substantial progress made in systematic re-surveying of major shipping routes and ports in the region according to the HELCOM-BSHC Re-survey Scheme aimed at ensuring that safety of navigation in the Baltic Sea region is not endangered by inadequate source information;

15 (M).WE AGREE to take actions to ensure the completion of the re-surveys for areas used by navigation (CAT I and II) within the time schedules estimated in the 2013 Re-survey Scheme, to promote wider use of accurate and reliable depth information by e.g. developing existing and/or new products including an enhanced and freely accessible Baltic Sea Depth Model, and to foster CAT III re-surveys of other areas not primarily for safety of navigation purposes, e.g. for environmental protection;

16 (M).RECALLING the Helsinki Convention Article 9 on pleasure craft, WE AGREE to consider an assessment of pleasure craft activities in the Baltic Sea Area, including *inter alia* their environmental impacts and risks of accidents, in order to consider the safety of navigation of both recreational as well as commercial vessels;

Enforcement of international regulations

17 (M).WE AGREE to enhance co-operation between Paris MoU and HELCOM by applying for advisor status of HELCOM to Paris MoU on Port State Control;

Preparedness and response to pollution at sea and on the shore

1 (R). RECALLING commitments on regional co-operation in combatting marine pollution and notification and consultation on pollution incidents included in the Helsinki Convention and its Annex VII, WE AGREE to consider and implement the recommendations of the HELCOM BRISK and BRISK–RU projects to strengthen preparedness and response capacity to marine accidents in the Baltic Sea;

Preparedness and response on the shore and oiled wildlife response

2 (R). NOTING the current status of Oiled Wildlife Response (OWR) in the Baltic Sea countries, WE AGREE to develop and adopt national wildlife response plans by 2016; AGREE to strengthen the work on OWR under HELCOM RESPONSE through a targeted expert working group and by enhancing co-operation with NGOs and the private sector, *inter alia* in order to accommodate the involvement of volunteers;

3 (R). WE WELCOME the submission by Denmark, Poland and other countries to IMO of a paper regarding discharging of paraffin wax, the substance which has been found washed up on several beaches in the countries bordering the Baltic Sea during the last few years;

Preparedness and response to accidents at sea

4 (R). WE AGREE to update HELCOM Manual on Co-operation in Combatting Marine Pollution Volume II, focusing on response to accidents at sea involving spills of hazardous substances and loss of packaged dangerous goods by 2016;

5 (R). WE AGREE to further develop by 2015 regional preparedness and response related services including HELCOM SeaTrackWeb, HELCOM Automatic Identification System, HELCOM Pollution Reporting System (POLREP), HELCOM GIS and links to relevant EU systems towards a second generation HELCOM oil response information system covering the whole Baltic Sea on an equal basis;

Hazardous submerged objects

6 (R). WE AGREE to produce by 2015, a one-off HELCOM thematic assessment on environmental risks of hazardous submerged objects covering contaminated wrecks, lost or dumped dangerous goods (e.g. containers), and other objects, also utilizing the 2013 report on dumped chemical munitions;

Marine knowledge, monitoring and assessment

1 (K). WE AGREE to develop regional assessments jointly and in such a way that they can be used by the Contracting Parties in assessments of their marine and coastal waters, as well as for their reporting purposes under EU MSFD and other international frameworks, and WE AGREE to start implementing the revised HELCOM Monitoring and Assessment Strategy immediately, including:

a. as the first step, to review and update the monitoring programme by 2014, and related guidelines and manuals by 2015, and thereby streamline the work of the Contracting Parties to serve the BSAP and other international and national monitoring and reporting requirements such as the MSFD and Maritime Doctrine of the Russian Federation;

b. to further develop, test and apply HELCOM assessment tools starting already in 2014;

c. to develop and deliver operational assessments of pressures, including nutrient and hazardous substances inputs (PLC), impacts of fisheries on other species and on the seabed, pressures from shipping and other relevant pressures on the Baltic Sea and use these to update the Baltic Sea Impact Index and to support the implementation of ecosystem-based Maritime Spatial Planning;

d. by 2016, to develop the second holistic assessment of ecosystem health, including the status of the Baltic Sea in regard to eutrophication, hazardous substances and biodiversity;

e. to make the Red List assessments of Baltic Sea species and habitats/biotopes a regular activity which will enable the tracking of long-term trends in the status of the Baltic Sea biodiversity;

f. to make the assessment of regional climate change and its implications on the Baltic Sea ecosystem a regular activity, collaborating with Baltic Earth (BALTEX) in this respect, with the aim to make it an indicator-based assessment;

2 (K). WE SUPPORT the first set of core indicators of environmental status and pressures with the intention that they will form the basis of an indicator-based follow-up system for measuring progress towards achieving good environmental status with a full set of operational core indicators, and further STRESS that the joint coordinated monitoring by the Contracting Parties should provide the data necessary for regular updating of the HELCOM core indicators and assessments;

3 (K). WE AGREE to develop monitoring and assessment methods for the rate of loss of quantity and quality of natural marine habitats to serve further core indicator development and the needs stemming from implementation of the UN CBD Aichi targets, and AGREE to enhance scientific understanding of Baltic Sea species and habitats and biotopes, as well as pressures and impact mechanisms acting on ecosystems, ecosystem services and the benefits provided by the Baltic Sea environment;

4 (K). WE AGREE to review the agreed set of HELCOM eutrophication indicators and status targets at regular intervals, especially in the light of new scientific findings and further developed ecological models for the assessment of eutrophication, and that this process should also aim for further regional differentiation of the targets, in particular in the coastal zone, with the view to seek coherence between open sea and coastal waters targets;

5 (K). STRESSING the need for spatially and temporally relevant data and information at scales corresponding to diverse planning and decision-making processes, and UNDERLINING the scarcity of such data and information for the Baltic Sea, WE AGREE to strengthen efforts to ensure that data and information meeting these requirements are obtained and made available;

6 (K). WE DECIDE to further develop and update HELCOM data and information systems with the view to strengthen HELCOM's role as the key Baltic Sea data hub for online information on the state of the environment as well as on human activities and their impacts on the Baltic Sea[3] complementing and compatible with the ongoing national, regional and European data management processes, to support the national data functions, and taking into account the need to make available and utilizable the data that have been compiled during various assessment processes;

7 (K). WE AGREE, in particular, to strive for active and regionally harmonized data collection on marine species and habitats, their distribution, abundance and trends, as well as the quality of habitats and biotopes with the view that the data will be made available in the regional data pool;

8 (K). WE ACKNOWLEDGE the increasingly evident conflict between the new and emerging economic uses of the sea (e.g. for offshore wind farms, cables, pipelines, sea bed mining) and the legacy of submerged hazardous objects in the Baltic Sea;

9 (K). WE RECOGNIZE the need for forward-looking options for solutions and an assessment of the environmental risks posed by all kinds of submerged hazardous objects containing harmful substances which may affect the environment and all activities in the Baltic Sea, including wrecks filled with oil and other hazardous cargo, sea-dumped munitions and warfare materials;

10 (K). WE WELCOME the 2013 report of the HELCOM Ad Hoc Expert Group To Update And Review The Existing Information On Dumped Chemical Munitions In The Baltic Sea (HELCOM MUNI) which has provided significant new information and insight but also reconfirmed that most of HELCOM's recommendations and advice on dumped chemical munitions are still valid. When significant new findings will be made available by e.g. CHEMSEA, preparation of updated report will be decided;

11 (K). WE REQUEST the Contracting Parties to further strengthen co-operation with ICES in responding to the scientific needs arising from the implementation of the BSAP and relevant global, European and national requirements, including integration of environmental and fisheries surveys,

[3] *These systems include: the environmental information needed for the proposed core set of indicators, HELCOM AIS system, annually collected shipping accident data, the HELCOM POLREP, MSP related Geographic Information System (GIS) datasets, information on air- and waterborne pollution loads, etc.*

and as the first step for the purposes of co-operation towards automatized data aggregation and further enhanced quality assurance for the assessments;

12 (K). WELCOMING the fruitful cooperation between BONUS and HELCOM, WE ENCOURAGE similarly good collaboration in the future;

13 (K). WE AGREE to revive the co-operation with the European Environment Agency for mutual benefits and to contribute to European wide assessments of marine and coastal waters;

Maritime Spatial Planning applying the Ecosystem approach

1 (MSP). NOTING that the Baltic Sea countries are entitled to establish a legal regime for Maritime Spatial Planning throughout their Internal Waters, Territorial Sea and Exclusive Economic Zones; WE AGREE to put national frameworks for coherent Maritime Spatial Planning (MSP) in place by 2017 reflecting HELCOM-VASAB MSP principles, including the ecosystem approach, taking into account the relevant EU policy instruments for the Baltic Sea countries being EU Member States;

2 (MSP). FURTHER AGREEING that the ultimate goal is to draw up and apply maritime spatial plans throughout the Baltic Sea region by 2020, which are coherent across the borders and applying the ecosystem approach, WE DECIDE to continue the work towards reaching common understanding and adopting guidelines on ecosystem approach, transboundary consultation and co-operation as well as public participation in the MSP framework according to the Regional Baltic MSP Roadmap 2013-2020;

3 (MSP). WE WELCOME the progress made within the joint HELCOM-VASAB MSP Working Group since 2010 and SUPPORT the continuation of the HELCOM co-operation with VASAB and the role of the joint MSP Working Group to utilize the full potential of the EU Strategy for the Baltic Sea Region and to serve transboundary and cross-sectorial co-operation and consultation;

4 (MSP). WE ENCOURAGE the development of effective and efficient exchange of experience and knowledge from all relevant disciplines taking into account the results from Maritime Spatial Planning practices and projects;

Benefits of protecting the Baltic Sea (section on financing)

1 (F). WE APPRECIATE the results of the BalticStern network research that overall benefits of implementing the BSAP clearly exceed its costs, while the costs of inaction will be significant, and that the BSAP is an economically sound plan to solve the eutrophication problem;

2 (F). WE AGREE to make efforts to mobilize resources for the BSAP implementation on national and regional level by reflecting or prioritizing the BSAP targets in the country specific and co-operation programmes, including for the upcoming EU programming period 2014-2020;

3 (F). WE WELCOME the growing interest of the private sector to provide financing for the implementation of the Baltic Sea Action Plan;

4 (F). WE APPRECIATE and ENCOURAGE further co-operation with the Northern Dimension Environmental Partnership contributing to reaching HELCOM's targets of the Baltic Sea Action Plan and the European Union Strategy for the Baltic Sea Region through cost effective investment projects in the municipal infrastructure sector by combining IFI's lending with NDEP grants;

5 (F). WE INVITE the Northern Dimension Partnership on Transport and Logistics to likewise co-operate with HELCOM to support the environmentally friendly and safe maritime activities in the Baltic;

6 (F). WE RECOGNIZE the important role of International Financial Institutions to speed up the implementation of the BSAP commitments and HELCOM Recommendations, and SUPPORT their broader engagement in projects reducing environmental impact on the Baltic Sea, both in HELCOM countries as well as non-Contracting Parties such as Belarus and Ukraine, including remediation of the remaining JCP Hot Spots;

7 (F). WE AGREE to identify and prioritize by 2016 the remaining investment needs for further reduction of nutrients, with the aim to bridge the gap in translating HELCOM nutrient reduction targets into area or site specific implementation and thus strengthen local contributions towards regional goals;

8 (F). WE AGREE to initiate or intensify the work to attribute economic value to marine and coastal ecosystem services and their contribution to societal, cultural and ecological well-being, in cooperation with initiatives such as the Economics of Ecosystems and Biodiversity for National and International Policy Makers (TEEB), with a view to starting more comprehensively embracing an ecosystem accounting approach;

9 (F). WE AGREE, to a greater extent, to incorporate the emerging environmental economics knowledge as well as socio-economic analysis in the work of HELCOM, with the purpose of ensuring and demonstrating cost-effectiveness of new measures to protect the marine environment.

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Background

The HELCOM nutrient reduction scheme was revised and new Maximum Allowable Inputs (MAI) and Country-wise Allocation of Reduction Targets (CART) adopted by the 2013 HELCOM Copenhagen Ministerial Meeting.

This document summarizes the steps towards development of tools for following up on the progress towards MAI and CART. Progress towards MAI to be presented via the core pressure indicator on nutrient inputs and progress towards CART via a web-based follow-up tool.

Action required

The Meeting is invited to:

- take note of progress in developing follow-up tools for MAI and CART
- support the roadmap for implementing the MAI-CART follow-up process, and
- note that the updating and full operationalization of the MAI-CART follow-up will require further work and filling in the knowledge gaps, e.g. regarding transboundary inputs, for which dedicated expert resources and a formal arrangement, or aproject will need to be established, and request a new WG based on LOAD and LAND, pending the final decision on its establishment, to prioritize this work and come up with a proposal how the work could be organized for the December meeting of HOD.

Information on progress with follow-up of the HELCOM nutrient reduction scheme

1. Background

The HELCOM nutrient reduction scheme is based on:

- Maximum Allowable Inputs (MAI) of nutrient indicating the maximal level of inputs of water- and airborne nitrogen and phosphorus to Baltic Sea sub-basins that can be allowed to fulfill the targets for non-eutrophied sea; and
- Country-wise Allocation of Reduction Targets (CART), indicating how much nutrient inputs (in tonnes per year) the HELCOM countries need to reduce comparing to a reference period (average annual normalized input during 1997-2003).

The MAI have been updated and CART have been recalculated from the 2007 Baltic Sea Action Plan provisional figures based on improved scientific basis, more recent and complete data and revised allocation principles. The revised figures were adopted by the 2013 HELCOM Copenhagen Ministerial Declaration.

There is a need to establish an operational, regularly updated, process for following on progress in nutrient input reductions. The system should allow:

1. for following progress in fulfilling MAI: an evaluation of the overall amount of atmospheric and waterborne nutrient inputs entering the Baltic Sea sub-basins and relate this information to the assessed eutrophication status (Requirement 1)
2. for following progress in fulfilling CART:
    - Contracting Parties to evaluate whether their national measures taken are successful and how far they are from fulfilling their national nutrient reduction requirements (Requirement 2)
    - Contracting Parties to evaluate whether non-HELCOM Contracting Parties and the international shipping sector are fulfilling the nutrient reduction targets assigned to these polluters according to the 2013 HELCOM Copenhagen Ministerial Declaration (Requirement 3)

2. Components of the MAI-CART follow-up process

A. Core pressure indicator on nutrient inputs

The web-based core nutrient input indicator [or core pressure indicator on nutrients input] presents the *actual* air- and waterborne inputs of nitrogen and phosphorus for the latest available year to the sub-basins of the Baltic Sea. Actual (not normalized) input data is used to present the actual pressure on the marine environment.

The indicator evaluates whether the latest annual air- and waterborne inputs are above or below the MAI using a statistical method developed as a part of the PLC-6 project. Further, it presents also the % change in inputs since the reference period (average normalized input during 1997-2003) in order to show the progress towards reaching MAI. The indicator also evaluated trends in air and waterborne inputs to the Baltic Sea sub-basins since 1995. All these analyses are based on use normalized data

The indicator is in line with MSFD reporting requirements and follows the common indicator structure set out by the CORESET II project. The MAI are the Environmental Target of the core indicator and the CART is to be seen as a means to reach the Environmental Target.

Data basis: Annual data on waterborne nutrient inputs to the Baltic Sea sub-basins reported to the HELCOM PLC database and atmospheric deposition data provided by EMEP. Further annual normalized air- and waterborne inputs.

Possible updating frequency: could be updated annually if Contracting Parties submit complete PLC data sets on time.

Challenges: Since the marine ecosystem is complex, and there is a delay in the response of the ecosystem to reductions in nutrient inputs, it is difficult to determine a direct link between the core input indicator on nutrients and the eutrophication status indicators and assessment. Further work is needed to explore this aspect. Interannual natural variability may give contradictory results for individual years, i.e., when close to MAI, some years may be below and others above.

Further challenges are described under section B "CART follow-up tool".

B. CART follow-up tool

Contracting Parties need to evaluate whether their national measures are successful and how far they are from reaching their CART. It is also necessary to evaluate how non-HELCOM Contracting Parties and the international shipping sector are fulfilling the nutrient reduction targets.

A simple web-based tool could be set up on the HELCOM website, following a similar idea to the core indicator, in that it starts with a top level, general, overview page from which there are links to country-wise and sub-basin-wise graphs and tables showing progress towards CART. There would also be links to technical annexes and tables showing most commonly asked questions. MONAS 20-2014 requested that the follow-up tool should explicitly give information on how much Contracting Parties are allowed to discharge into the sea (input ceiling).

Present PLC data on waterborne inputs and EMEP data on airborne inputs can be used to assess country-wise inputs of nutrients to the different sub-basins. Since meteorological and weather conditions cause annual variability in riverine as well as airborne nutrient inputs, it is important to *normalize* the input data in order to reduce the influence of meteorology and weather conditions. Normalization of input data serves as a management support tool which makes it easier to determine possible trends in nutrient inputs and the effectiveness of pollution reduction measures.

CART is allocated to each Contracting Party taking into account transboundary air and waterborne inputs. Information on transboundary inputs is necessary as are estimates of retention on transboundary riverine inputs in inland surfaces waters of Contracting Parties receiving these inputs.

Data basis: PLC and EMEP data needs to be normalized (so far done voluntarily by BNI, Sweden) and trend analysis needs and test for targets fulfilment to be carried out (so far done voluntarily by DCE, Aarhus University, Denmark). Additional data on transboundary inputs and retention in inland surface waters are needed which are currently not available via the present PLC reporting, but included as a request to Contracting Party in the draft PLC6 guidelines.

Possible updating frequency: requires additional data and further development of assessment methods, and hence could be assessed less frequently, e.g. every three years, taking into account also reporting requirements under the WFD and MSFD.

Challenges: Follow-up of CARTs (and the principles set out by the 2013 Ministerial Declaration) is complicated, especially due to the separation of transboundary inputs (taking into account retention in

Contracting Parties receiving these inputs) as well as the fact that countries may wish to account for extra reductions in one basin for CARTs to another basin.[1]

There is a need to formalize/operationalize the future updating of the MAI-CART follow-up, taking into account that the LOAD core group will cease to exist and the tasks do not fall under the activities of on-going PLC projects. The LOAD Core group can continue with the task until it is decided how the MAI-CART follow-up should be dealt with under the umbrella of the future WG based on LAND and LOAD. The calculations of transboundary inputs and retention, calculation of normalized inputs, trend analysis, test of CART fulfilment etc. are time and resource consuming activities and Contracting Parties have been placing different, challenging demands, which up to now have been done on a voluntary basis by BNI and DCE. There is also a need to further discuss the scientific and technical aspects related to the follow-up of the CART, especially the aspects related to transboundary input and retention in inland surface waters, and it may take some time to finalize the process. The current work process is not sustainable and some kind of formal working group or project should be set up for this task.

Open questions/issues:

- Does HELCOM need to separately follow-up on the explicit numbers on transboundary inputs between Contracting Parties in the 2013 CART or should this be done at the national level?
- Need for improved data on inputs and retention in transboundary rivers
- There may be implications for CART if, in the future, retention figures are found to be significantly different from those used for the 2013 revision of the nutrient reduction scheme.
- Should the follow up of CART include evaluation of air and waterborne inputs separately
- How should extra reductions by a country to one basin be accounted for in terms of adjusting CART to adjacent basins (see footnote 1)?

3. Roadmap for implementing the follow-up process

A. Core input indicator

Good progress has been made in elaborating a core pressure indicator on nutrient inputs and the following schedule is proposed for finalizing it.

1. September 2014: LOAD core group will submit a draft of the core pressure indicator on nutrient inputs (based on data up to 2010) to the next meeting of CORESET II (which will be held on 29-30 September 2014) for review.
2. October 2014: Based on feedback from the CORESET II project meeting, an updated version to be submitted to the first meeting of the future WG based on LAND and LOAD for review (end of October)

December 2014: Submitted to HOD 47-2014 for endorsement

March 2015 and HELCOM 36-2015: Published on HELCOM website

Although other core indicators being elaborated by the CORESET II project are planned to be finalized and published only in June/July 2015, it is proposed that the core nutrient input indicator is published earlier so that it can be released at the same time as the preliminary CART follow-up tool – as the two data products are closely interlinked.

[1] Contracting Parties, in the 2013 HELCOM Copenhagen declaration, recognized that reductions in nutrient inputs in sub-basins may have wide-spread effects, and agreed that extra reductions can be accounted for, in proportion to the effect on a neighboring basin with reduction targets, by the countries in reaching their Country Allocated Reduction Targets

B. CART follow-up tool

LOAD 7-2014 requested that a first version of the CART follow-up tool should be prepared during the summer of 2014 so that it could be used as input to the second round of the river basin management plans. Due to numerous other time consuming tasks, e.g. related to PLC-5.5, PLC-6 and PLUS projects, and some open questions that need further discussion in the new working group following up LAND and LOAD it has not been possible to prepare a draft CART follow-up tool yet.

1. A preliminary CART follow-up tool (based on data up to 2010) to be presented to the meeting of the WG based on LAND and LOAD to be held in October 2014.
2. An updated version of the follow-up tool (based on data up to 2012 and revised based on comments by the WG) to be submitted to HOD 47-2014 for endorsement
3. A preliminary CART follow-up tool to be presented to HELCOM 36-2015.
4. New WG 2/2015 or a project: Further elaborate the follow-up tool

The preliminary CART follow-up tool will need to be further developed in the future to better take into account transboundary inputs, including the importance of retention in Contracting Parties receiving these inputs, and inputs from non-HELCOM Contracting Parties and shipping. Further, methodology for how to account for extra reductions in one basin for CART in another basin requires development.

A project and/or expert working group should be set up for:

- Providing/facilitating access to and improving the transboundary input data and retention
- developing methodology for follow-up of CART according to principles set out in the 2013 HELCOM Copenhagen Ministerial Declaration; and
- operationalization (future updating) of the CART follow-up, as well as the core nutrient input indicator (for following up on progress towards MAI).

The work could start as a project together with an expert group and when the follow-up tool is ready the expert group can make the updates of the CART follow-up.

Document title	Draft CART follow-up system
Code	3-26
Category	CMNT
Agenda Item	3 – Matters arising from the HELCOM Groups
Submission date	8.12.2014
Submitted by	Executive Secretary
Reference	

Background

This document contains a draft follow-up assessment on progress towards the country-wise allocation of nutrient reduction targets (CART) based on data up to 2012. Statistical analysis of the data has been performed to be able to evaluate trends (as well as fulfillment of input ceilings).

The structure of the follow up is designed for web presentation, with the intention to first present the main message, which will be followed with more detailed information and technical details.

The draft is the first presentation of the results with data up to 2012. It will be further fine-tined and updated and addtional tables and figures added as necessary prior to HELCOM 36-2015. Also text will be added to the assessment at a later stage.

Action required

The Meeting is invited to:

- note that the draft follow-up assessment on progress towards the country-wise allocation of nutrient reduction targets (CART) is almost complete and that it has been carried out with data up to 2012,
- provide an overall feedback on the follow-up from the point of view of presentation of results and policy needs, especially on the key message,
- agree to discuss the progress towards CARTs at HELCOM 36-2015 when the final draft will be available, including its web version,
- thank the authors for the work on the follow up assessment.

Draft CART follow-up system

This is a preliminary assessment for following-up on progress towards the country-wise allocated reduction targets on nutrients (CART) adopted by the 2013 Copenhagen HELCOM Ministerial Declaration.

The present version of the CART follow-up assessment is based on data from 1994-2012.

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With support from the HELCOM expert group on follow-up of national progress towards reaching BSAP nutrient reduction targets (HELCOM LOAD)

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Background

The HELCOM Baltic Sea Action Plan reduction scheme was reviewed and revised in 2013 leading to updated revised maximum allowable inputs (MAI) for fulfilling eutrophication status targets on nutrients, secchi depth, chlorophyll a and oxygen debt. Based on the revised MAI and revised allocation principles (Gustafsson & Mörth, in prep, HELCOM 2013, b) new Country allocated reduction targets (CART) were calculated. The 2013 Copenhagen HELCOM Ministerial declaration decided that reduction targets should be specific related to net nutrients inputs from the countries, and reductions requirement should be allocated also on transboundary air-and waterborne inputs. The overall CART from is shown in **Table 1**.

Table 1: Country allocated reductions targets (CART) from 2013 Copenhagen HELCOM Ministerial declaration (HELCOM 2013a).

Country/Source	Nitrogen (tonnes)	Phosphorus (tonnes)
Denmark	2,890	38
Estonia	1,800	320
Finland[1]	2,430+600*	330+26*
Germany[1]	7,170+500*	110+60*
Latvia	1,670	220
Lithuania	8,970	1,470
Poland[2]	43,610	7,480
Russia	10,380*	3,790*
Sweden	9,240	530
Waterborne transboundary	3,230	800

Airborne non-Contracting Parties	18,720	
Shipping	6,930	
Total	118,134	15,178

[1]Finland's view is that according to HELCOM assessment open parts of the Bothnian Sea, Åland Sea and the Archipelago Sea are eutrophied and need reduction of nutrient levels, although BALTSEM model did not establish nutrient input reduction requirements to the drainage basins of these sea areas. Finland will address water protection measures to the drainage basins of these areas in its national plans; [2] At this point in time Poland accepts the Polish Country Allocated Reduction Targets as indicative due to the ongoing national consultations, and confirms their efforts to finalize these consultations as soon as possible.

* Reduction requirements stemming from:
- German contribution to the river Odra inputs, based on ongoing modeling approaches with MONERIS;
- Finnish contribution to inputs from river Neva catchment (via Vuoksi river)
- these figures include Russian contribution to inputs through Daugava, Nemunas and Pregolya rivers

The figures for transboundary inputs originating in the Contracting Parties and discharged to the Baltic Sea through other Contracting Parties are preliminary and require further discussion within relevant transboundary water management bodies.

Following up Contracting Parties reduction commitments from the Copenhagen 2013 HELCOM Ministerial Declaration requires quantification of the water- and airborne nutrient inputs *that can be assign to each Contracting Party* and further to quantify the transboundary nutrient inputs entering Baltic Sea sub-basins. In the declaration it is remarked that transboundary inputs are preliminary and requires further discussion. In this document some questions are raised to solve it.

This document is the follow-up progress in CART fulfilment, while the follow-up on MAI is in the Core Pressure Indicator of nutrient inputs.

Key Message

Country allocated reduction requirements (CART) of nitrogen and phosphorus have been expresses as input ceilings for each country and source by sub-basin.

Bases on analysis on normalized inputs of nitrogen and phosphorus from mid- 1990'ties to 2012 (Tables 1a and 1b2) the following conclusion with high statistical certainty can be made:

- Denmark fulfils nitrogen ceilings to all HELCOM sub-basins
- Germany and Sweden fulfil nitrogen ceilings to all HELCOM basins with exception of Baltic Proper
- Russia exceeds their ceiling to all sub-basins
- Baltic Sea shipping and countries outside HELCOM exceed their ceilings to all sub-basins
- All countries with waterborne phosphorus inputs to the Baltic Sea exceed their ceiling to Baltic Proper and Gulf of Finland
- Total nitrogen and phosphorus inputs to Bothnian Sea, Danish Straits and Kattegat are below the ceiling for the HELCOM sub-basins
- Denmark, Germany, Poland, Sweden and countries outside HELCOM have reduced their total nitrogen inputs to all HELCOM sub-basins
- Nitrogen input from Baltic Sea shipping has increased

- Denmark and Poland have reduced their total phosphorus input to the HELCOM sub-basins to which they have waterborne inputs
- Latvia has increasing phosphorus inputs to Baltic Proper and Gulf of Riga
- Latvia, Lithuania, Russia and Belarus have increase phosphorus input to Gulf of Riga
- Since the reference period (1997-2003) nitrogen and phosphorus inputs overall decrease with 9% and 14 %, respectively to the Baltic Sea

Table 1a: Evaluation of fulfilling CART for total nitrogen inputs country per basin based on statistical adjusted 2012 inputs. Red = CART are not fulfilled/input ceilings are with 95 % statistical certainty exceeded. Yellow: Within the statistical uncertainty it cannot be justified if CART is fulfilled/inputs ceilings exceeded. Green: CART is with 95 % statistical certainty fulfilled/inputs ceiling not exceeded. Blue: classification not relevant. The arrows indicates where there is a trend in total nitrogen inputs from mid-1990'ties to 2012 and whether it is a decrease (↓) or increase (↑) in inputs. BY = Belarus; CZ = Czech Republic; UA = Ukraine; SS = Baltic Sea shipping; OC= other countries and sources as the 20 EU countries not being HELCOM Contracting Parties, countries outside EU including BY, CZ and UA, North Sea shipping etc.

Country/basin	BB	BS	BP	GF	GR	DS	KT	Sum
DK	↓	↓	↓	↓	↓	↓	↓	↓
EE	↓	↓	↓			↓	↓	
FI	↑		↓		↓	↓	↓	
DE	↓	↓	↓	↓	↓	↓	↓	↓
LV								
LT								
PL	↓	↓	↓	↓	↓	↓	↓	↓
RU								
SE	↓	↓	↓	↓	↓	↓	↓	↓
BY			↓					
CZ			↓					↓
UA			↓					↓
SS	↑	↑	↑	↑	↑	↑	↑	↑
OC	↓	↓	↓	↓	↓	↓	↓	↓
Sum		↓	↓			↓	↓	↓

Table 1b: Evaluation of fulfilling CART for total phosphorus inputs country per basin based on statistical adjusted 2012 inputs. Red = CART are not fulfilled/input ceilings are with 95 % statistical certainty exceeded. Yellow: Within the statistical uncertainty it cannot be justified if CART is fulfilled/inputs ceilings exceeded. Green: CART is with 95 % statistical certainty fulfilled/inputs ceiling not exceeded. Blue: classification not relevant. The arrows indicates where there is a trend in total nitrogen inputs from mid-1990'ties to 2012 and whether it is a decrease (↓) or increase (↑) in inputs.BY = Belarus; CZ = Czech Republic; UA = Ukraine; SS = Baltic Sea shipping; OC= other countries and sources as the 20 EU countries not being HELCOM Contracting Parties, countries outside EU including BY, CZ and UA, North Sea shipping etc.

Country/basin	BB	BS	BP	GF	GR	DS	KT	Sum
DK			↓			↓	↓	↓
EE					↓			
FI		↓						↓
DE						↓		↓
LV			↑		↑			↑
LT			↓		↑			↓
PL			↓					↓
RU					↑			
SE		↓	↓			↓		↓
BY			↓		↑			
CZ			↓					↓
UA			↓					↓
SS								
OC								
Sum		↓	↓			↓	↓	↓

Figure 1a and 1b compares the average normalized nitrogen and phosphorus in 2010-2012 inputs per country/sources per HELCOM sub-basin with the respective inputs ceiling. The overall conclusion is the same as given in tables 1a and 1b.

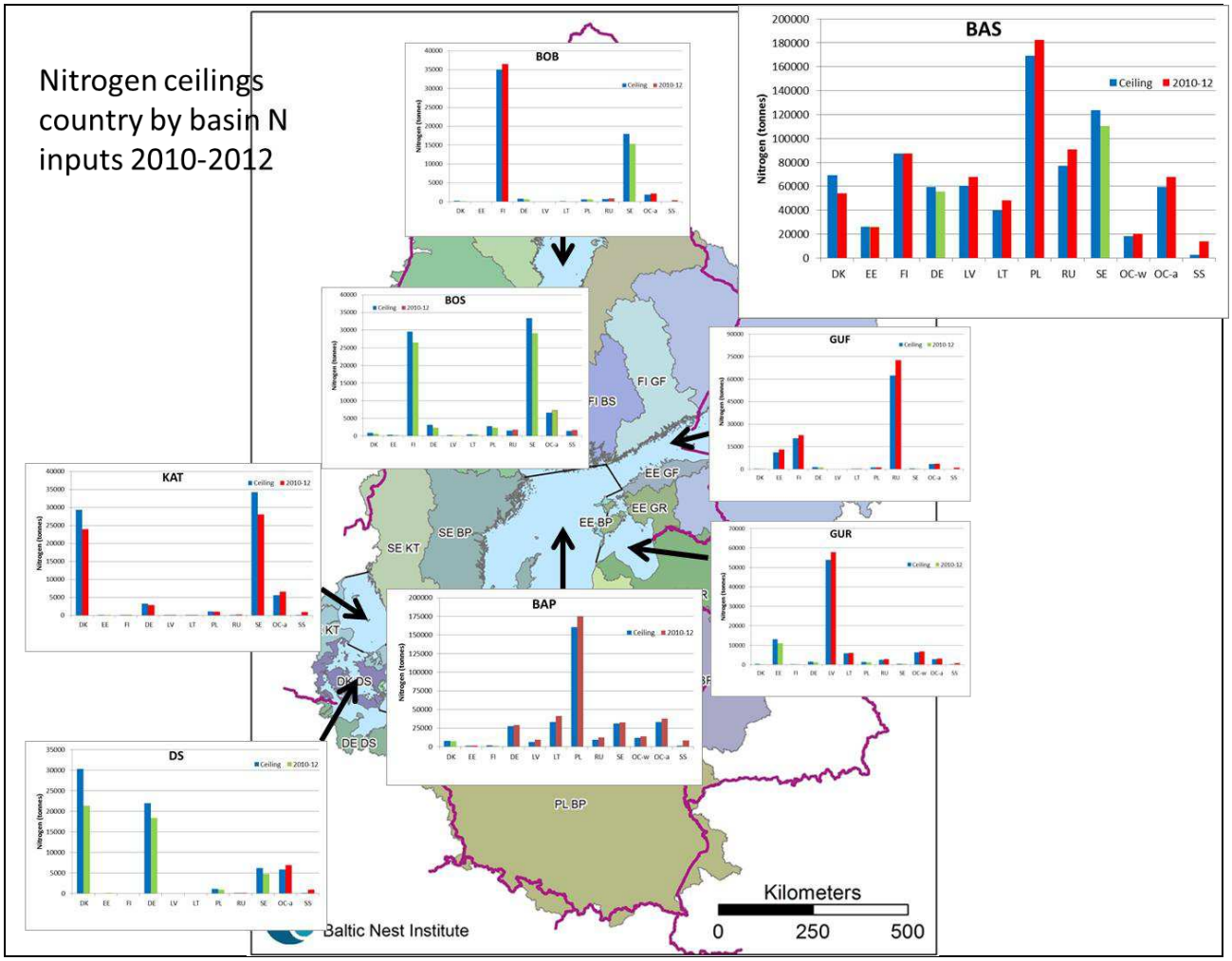


Figure 1a Net nitrogen ceilings[1] per country pr. sub-basin and average air- and waterborne nitrogen inputs in 2010-12. Red: nitrogen ceilings are not fulfilled. Yellow colour: it cannot be judged with statistical certainty if average input in 2010-12 is higher than the ceiling. Green colour: Nitrogen ceiling is fulfilled taking into account statistical uncertainty.

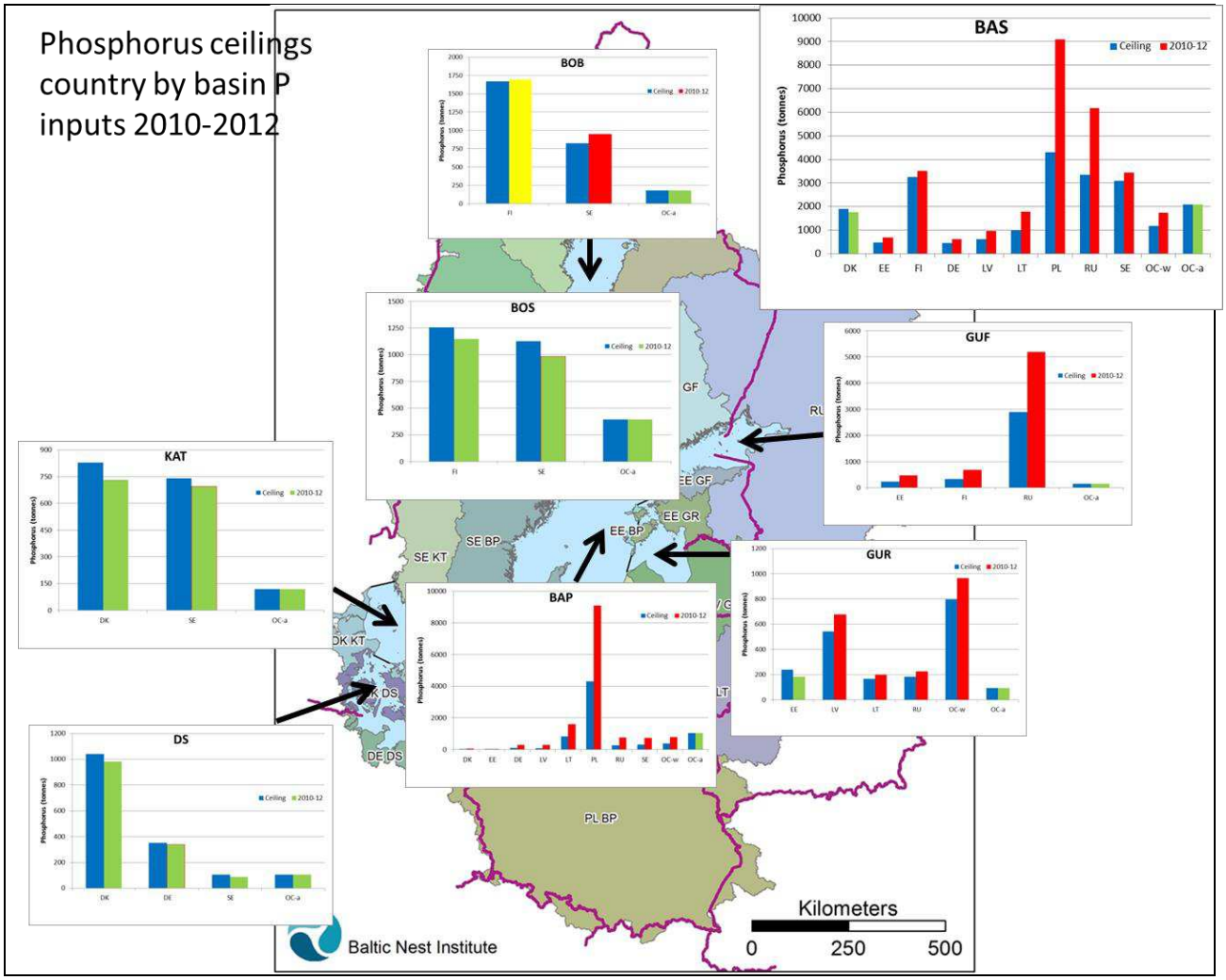


Figure 1b: Net phosphorus ceilings per country pr. sub-basin and average air- and waterborne nitrogen inputs in 2010-12. Red: nitrogen ceilings are not fulfilled. Yellow colour: it cannot be judged with statistical certainty if average input in 2010-12 is higher than the ceiling. Green colour: Nitrogen ceiling is fulfilled taking into account statistical uncertainty.

Progress toward fulfilling nutrient input ceiling

The normalized statistical estimated nutrient inputs per country and sub-basin in 2012 are compared with the corresponding ceilings using a statistical method (see annex and Larsen & Svendsen, 2013) to evaluate progress in fulfilling nutrient reduction requirements (Tables 1a and 1b). These tables show with statistical high significance (>95%):

- Denmark fulfils nitrogen ceilings to all HELCOM sub-basins
- Germany and Sweden fulfil nitrogen ceilings to all HELCOM basins with exception of Baltic Proper
- Russia exceeds their ceilings to all sub-basin
- Baltic Sea shipping and countries outside HELCOM exceed their ceilings to any sub-basin

[1] For the final version: The ceilings may quite easily be turned from bars to horisontal lines in a drawing programme

- All countries with waterborne phosphorus inputs to the Baltic Sea exceed their ceiling to Baltic Proper and Gulf of Finland
- Total nitrogen and phosphorus inputs to Bothnian Sea, Danish Straits and Kattegat are below the ceiling for the HELCOM sub-basins
- Denmark, Germany, Poland, Sweden and countries outside HELCOM have reduced their total nitrogen inputs to all HELCOM sub-basins
- Nitrogen input from Baltic Sea shipping has increased
- Denmark and Poland have reduced their total phosphorus input to the HELCOM sub-basins to which they have waterborne inputs
- Latvia has increasing phosphorus inputs to Baltic Proper and Gulf of Riga
- Latvia, Lithuania, Russia and Belarus have increase phosphorus input to Gulf of Riga

In the section "Longer term trends and changes in inputs" further details on changes in total inputs and in air and waterborne inputs can be found.

For basins and for country by basins where the ceilings are fulfilled with statistical high certainty the margin of fulfilment can be evaluated to indicate how many tons of nitrogen and/or phosphorus the latest inputs are below the ceiling taking into account statistical uncertainty. This could indicated how much inputs could increase without exceeding the input ceilings taking into account precautionary principles. An examples is shown in table 2.a and 2.b

Table 2a: The bold numbers are an estimate of how many tons the total statistical estimated normalized water + airborne nitrogen inputs in 2012 were below the inputs ceiling taking into account statistical uncertainty. "no": Inputs 2010-12 are numerically below the ceiling but taking into statistical uncertainty it cannot be evaluated if the ceilings are fulfilled. "-" Input ceiling no fulfilled.

	BB	**BS**	**BP**	**GF**	**GR**	**DS**	**KT**
Input ceiling	57,622	79,372	325,001	101,800	88,418	65,998	74,001
Estimated input 2012	59,032	72,856	364,152	117,679	91,222	50,157	64,287
Input 2012 minus input ceiling	1,410	**-6,876**	39,151	15,879	2,804	**-15,841**	**-9,714**
Estimated Uncertainty	1,764	2,220	13,298	2,440	7,153	1,533	1,734
Fulfilment margin		**4,656**	-	-	-	**14,308**	**7,980**

Table 2b: The bold numbers are an estimate of how many tons the total statistical estimated normalized water + airborne phosphors inputs in 2012 were below the inputs ceiling taking into account statistical uncertainty. "no": Inputs 2010-12 are numerically below the ceiling but taking into statistical uncertainty it cannot be evaluated if the ceilings are fulfilled. "-" Input ceiling no fulfilled.

	BB	**BS**	**BP**	**GF**	**GR**	**DS**	**KT**
Input ceiling	2,675	2,773	7,360	3,600	2,020	1,601	1,687
Estimated input 2012	2,669	2,376	14,754	7,254	2,566	1,345	1,536
Input2012 minus input ceiling	**-6**	**-397**	7,365	3,654	546	**-256**	**-151**
Uncertainty	142	130	446	343	254	83	63
Fulfilment margin	no	**267**	-	-	-	**-173**	**88**

[**For discussion**: *Tables 2a and b above can be further broken down for country by basin where the total water and airborne inputs of nitrogen/phosphorus input during 2010-12 is with statistical high certainty so far below the input ceilings, that there is a potential margin for an increase in inputs without exceeding the input ceilings.]*

In table 3 is shown an example for nitrogen inputs to Kattegat where the table includes a proposals for discussion. It is based on the estimate from table 2a on how much it would be possible to increase nitrogen inputs compared with estimated inputs in 2012 and with high statistical certainty fulfilling the nitrogen ceiling to Kattegat. The potential increase can either be divided according to countries percent of CART or countries proportion of obtained reductions.

Table 3: How a potential increase in nitrogen inputs to Kattegat could be divided between countries either according to the percentages of CART or according to the proportion of obtained nitrogen input reduction since the reference period. In table 2a is estimate that nitrogen inputs to Kattegat could be increased with 7,920 tonnes compared with 2010-2012 inputs and still with high statistical certainty fulfilling the nitrogen ceiling to Kattegat.

Country	CART (tonnes)	CART (% of total CART)	Potential increase in inputs (1) (tonnes)	Reduction since reference period (tonnes)	Proportion of reduction (%)	Potential increase in inputs (2) (tonnes)
DK	708	14.9	1180	6,061	40.4	3155
EE	0	0	0	2	0	1
FI	2	0	0	24	0.1	13
DE	79	1.7	134	535	0,04	278
LV	1	0	0	1	0	0
LT	1	0	0	7	0	4
PL	27	0.6	48	134	0,1	70
RU	4	0.1	8	-17	0	0
SE	826	17.3	1370	7,008	46.7	3647
SS	602	12.7	1006	-124	0	0
OC	2,511	52.7	4174	1,444	9.6	751
Total	4,761	100	7,920	15,007	100	7,920

Changes in inputs since the reference period

The natural way to evaluate fulfilment is to compare with a national emission ceiling of nutrient inputs to the Baltic Sea. This is calculated using the PLC 5.5 reference data set averaged for 1997-2003. The national inputs from the countries are computed as the sum of the waterborne and airborne parts, taking into account transboundary waterborne contributions from/to other countries. For the reference period these data were readily presented in the background documents to the 2013 Ministerial meeting (HELCOM 2013,b). A nutrient input ceiling is calculated by subtracting the national inputs in the reference period (1997-2003) with the CART. In tables 4-5, the national input ceilings are shown together with the achieved

reductions 2010-12 compared to the reference input data and in the last column, how large proportion of the CART that was achieved by 2010-12. Negative reduction indicates increased inputs. For the basins without reduction requirements, the countries may still not increase their inputs because of the precautionary principle was applied when calculating MAI rather that estimating the largest possible inputs to these basins.

In tables 6-7, the background data for the calculation of national reductions are provided so that each country can follow the changes in airborne, waterborne and transboundary inputs between 1997-2003 and 2010-2012.

Table 4: Country by basin wise total normalized nitrogen input ceilings, achieved reductions in 2010-2012 compared to the reference inputs (1997-2003), average normalized input 2010-2012 and these inputs in percentage compared with the ceiling. Negative reductions indicate increased inputs. In tonnes.

	Ceiling	Achieved	Input	% of ceiling		Ceiling	Achieved	Input	% of ceiling
		Denmark					**Lithuania**		
BOB	231	67	159	69	BOB	110	9	99	90
BOS	904	253	601	66	BOS	491	41	423	86
BAP	7910	2625	7422	94	BAP	33093	610	41418	125
GUF	334	116	260	78	GUF	261	19	275	105
GUR	381	110	264	69	GUR	5795	-382	6064	105
DS	30313	7220	21368	70	DS	54	7	44	82
KAT	29319	6061	23967	82	KAT	60	7	54	90
Sum	*69392*	*16450*	*54041*	*78*	*Sum*	*39864*	*311*	*48378*	*121*
		Estonia					**Poland**		
BOB	95	2	91	96	BOB	644	62	569	88
BOS	317	2	298	94	BOS	2802	256	2391	85
BAP	1413	377	1418	100	BAP	160857	29175	175118	109
GUF	11265	-421	13105	116	GUF	1166	122	1191	102
GUR	13029	1876	10901	84	GUR	1361	122	1213	89
DS	18	2	15	84	DS	1125	132	929	83
KAT	20	2	18	90	KAT	1106	134	999	90
Sum	*26156*	*1839*	*25845*	*99*	*Sum*	*169062*	*30004*	*182409*	*108*
		Finland					**Russia**		
BOB	35081	-2122	36510	104	BOB	710	-205	901	127
BOS	29619	1511	26466	89	BOS	1551	-386	1851	119
BAP	1569	504	1489	95	BAP	9253	-515	12266	133
GUF	20653	615	22642	110	GUF	62522	-2181	72583	116
GUR	255	62	188	74	GUR	2516	-265	2732	109
DS	64	18	42	65	DS	174	-9	173	100
KAT	77	24	55	71	KAT	174	-17	195	112
Sum	*87318*	*613*	*87391*	*100*	*Sum*	*76900*	*-3578*	*90701*	*118*

Germany				
BOB	817	164	637	78
BOS	3170	649	2345	74
BAP	27473	5823	29069	106
GUF	1312	324	1153	88
GUR	1465	317	1120	76
DS	21957	2315	18393	84
KAT	3285	535	2829	86
Sum	*59480*	*10127*	*55546*	*93*

Sweden				
BOB	17924	2192	15378	86
BOS	33350	2393	29109	87
BAP	30942	6781	32518	105
GUF	502	117	448	89
GUR	449	85	356	79
DS	6224	1123	4747	76
KAT	34206	7008	28024	82
Sum	*123597*	*19698*	*110579*	*89*

Latvia				
BOB	63	-1	63	100
BOS	273	-12	270	99
BAP	6091	-1718	9454	155
GUF	183	-18	224	123
GUR	53898	-5022	57876	107
DS	24	1	22	90
KAT	25	1	25	100
Sum	*60558*	*-6770*	*67934*	*112*

	Ceiling	Achieved	Input	% of ceiling
Other sources				
BOB	1876	571	2114	113
BOS	6603	2105	7346	111
BAP	33002	9859	37868	115
GUF	3455	1137	3804	110
GUR	2804	866	3147	112
DS	5880	1768	6863	117
KAT	5579	1444	6646	119
Sum	*59199*	*17750*	*67788*	*115*

Baltic Sea shipping				
BOB	72	-79	440	610
BOS	292	-286	1747	598
BAP	1434	-1133	8302	579
GUF	147	-146	885	602
GUR	112	-106	667	595
DS	165	-122	948	574
KAT	149	-124	875	587
Sum	*2372*	*-1996*	*13864*	*585*

	Ceiling	Achieved	Input	% of ceiling
Belarus				
BAP	7322	720	8578	117
GUR	6352	-501	6729	106
Sum	*13673*	*219*	*15308*	*112*
Czech republic				
BAP	2693	465	2955	110
Sum	*2693*	*465*	*2955*	*110*
Ukraine				
BAP	1948	337	2138	110
Sum	*1948*	*337*	*2138*	*110*

	Ceiling	Achieved	Input	% of ceiling
Total Baltic Sea				
BOB	57622	660	56962	99
BOS	79372	6526	72846	92
BAP	325001	53910	370012	114
GUF	101800	-316	116568	115
GUR	88418	-2840	91257	103
DS	65998	12453	53545	81
KAT	74001	15077	63685	86
Sum	792212	85471	824875	104

Table 5: Country by basin wise total normalized phosphorus input ceilings, achieved reductions in 2010-2012 compared to the reference inputs (1997-2003), average normalized input 2010-2012 and these inputs in percentage compared with the ceiling. Negative reductions indicate increased inputs. In tonnes.

	Ceiling	Achieved	Input	% of ceiling
Denmark				
BAP	21	7	52	245
DS	1040	58	982	94
KAT	829	97	732	88
Sum	*1890*	*161*	*1767*	*93*
Estonia				
BAP	8	3	20	252
GUF	236	34	470	199
GUR	239	94	183	77
Sum	*483*	*131*	*673*	*139*
Finland				
BOB	1668	-26	1694	102
BOS	1255	107	1148	91
GUF	322	10	676	210
Sum	*3245*	*90*	*3518*	*108*
Germany				
BAP	101	-10	285	283
DS	351	11	340	97
Sum	*451*	*1*	*625*	*138*
Latvia				
BAP	74	-94	296	403
GUR	541	-48	676	125
Sum	*615*	*-142*	*972*	*158*
Lithuania				
BAP	831	679	1593	192
GUR	166	-8	200	121
Sum	*996*	*670*	*1793*	*180*
Poland				
BAP	4309	2691	9095	211
Sum	*4309*	*2691*	*9095*	*211*
Russia				
BAP	277	0	758	273
GUF	2892	987	5183	179
GUR	185	-9	224	121
Sum	*3354*	*978*	*6165*	*184*
Sweden				
BOB	826	-123	949	115
BOS	1125	139	986	88
BAP	308	111	732	238
DS	105	18	87	83
KAT	740	44	696	94
Sum	*3104*	*190*	*3449*	*111*

	Ceiling	Achieved	Input	% of ceiling
Belarus				
BAP	244	195	473	194
DS	797	-40	965	121
Sum	*1041*	*155*	*1438*	*138*
Czech Republic				
BAP	108	66	229	212
Sum	*108*	*66*	*229*	*212*
Ukraine				
BAP	33	21	71	211
Sum	*33*	*21*	*71*	*211*

	Ceiling	Achieved	Input	% of ceiling
Total Baltic Sea				
BOB	2675	-149	2824	106
BOS	2773	246	2527	91
BAP	7360	3669	14651	199
GUF	3600	1031	6478	180
GUR	2020	-12	2340	116
DS	1601	87	1514	95
KAT	1687	141	1546	92
Sum	*21717*	*5013*	*31882*	*147*

	Ceiling	Achieved	Input	% of ceiling
Atmospheric deposition				
BOB	181	0	181	100
BOS	394	0	394	100
BAP	1046	0	1046	100
GUF	150	0	150	100
GUR	93	0	93	100
DS	105	0	105	100
KAT	118	0	118	100
Sum	*2087*	*0*	*2087*	*100*

Table 6: Summary of country-wise total normalized nitrogen inputs Country by basin in the reference period, compared with 2010-2012 averaged, reduction between the periods and the changes in percentages. Negative reductions indicate increased inputs. In tonnes.

	Reference 1997-2003				2010 - 2012				Reduction			
DK	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Net**	**Rel. (%)**
BOB	0	226	0	226	0	159	0	159	0	67	67	29
BOS	0	854	0	854	0	601	0	601	0	253	253	30
BAP	1864	8182	0	10046	1503	5919	0	7422	361	2263	2625	26
GUF	0	376	0	376	0	260	0	260	0	116	116	31
GUR	0	374	0	374	0	264	0	264	0	110	110	29
DS	23277	5311	0	28588	17407	3961	0	21368	5870	1350	7220	25
KAT	24392	5635	0	30027	19654	4313	0	23967	4739	1322	6061	20
BAS	*49533*	*20958*	*0*	*70491*	*38563*	*15478*	*0*	*54041*	*10970*	*5480*	*16450*	*23*
EE	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Net**	**Rel. (%)**
BOB	0	93	0	93	0	91	0	91	0	2	2	2
BOS	0	299	0	299	0	298	0	298	0	2	2	1
BAP	1134	661	0	1795	791	627	0	1418	343	34	377	21
GUF	12004	680	0	12684	12389	715	0	13105	-386	-35	-421	-3
GUR	12530	247	0	12777	10648	253	0	10901	1882	-6	1876	15
DS	0	17	0	17	0	15	0	15	0	2	2	11
KAT	0	20	0	20	0	18	0	18	0	2	2	11
BAS	*25667*	*2017*	*0*	*27684*	*23828*	*2017*	*0*	*25845*	*1839*	*0*	*1839*	*7*
FI	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Net**	**Rel. (%)**
BOB	32625	1764	0	34389	34863	1648	0	36510	-2238	116	-2122	-6
BOS	25641	2337	0	27978	24404	2063	0	26466	1237	274	1511	5
BAP	0	1993	0	1993	0	1489	0	1489	0	504	504	25
GUF	16909	994	5353	23256	16384	816	5442	22642	526	178	615	3
GUR	0	250	0	250	0	188	0	188	0	62	62	25
DS	0	60	0	60	0	42	0	42	0	18	18	31
KAT	0	79	0	79	0	55	0	55	0	24	24	31
BAS	*75175*	*7477*	*5353*	*88005*	*75650*	*6299*	*5442*	*87391*	*-475*	*1178*	*613*	*1*

DE	Water	Air	Transb.	Net	Water	Air	Transb.	Net	Water	Air	Net	Rel. (%)
BOB	0	801	0	801	0	637	0	637	0	164	164	20
BOS	0	2994	0	2994	0	2345	0	2345	0	649	649	22
BAP	6847	25708	2337	34892	6120	20930	2019	29069	727	4778	5823	17
GUF	0	1477	0	1477	0	1153	0	1153	0	324	324	22
GUR	0	1437	0	1437	0	1120	0	1120	0	317	317	22
DS	12843	7865	0	20708	11715	6678	0	18393	1128	1187	2315	11
KAT	0	3364	0	3364	0	2829	0	2829	0	535	535	16
BAS	*19690*	*43646*	*2337*	*65673*	*17835*	*35691*	*2019*	*55546*	*1855*	*7955*	*10127*	*15*

LV	Water	Air	Transb.	Net	Water	Air	Transb.	Net	Water	Air	Net	Rel. (%)
BOB	0	62	0	62	0	63	0	63	0	-1	-1	-2
BOS	0	258	0	258	0	270	0	270	0	-12	-12	-5
BAP	10134	967	-3365	7736	12522	1027	-4094	9454	-2388	-60	-1718	-22
GUF	0	206	0	206	0	224	0	224	0	-18	-18	-9
GUR	65843	441	-13431	52853	71874	513	-14511	57876	-6031	-72	-5022	-10
DS	0	23	0	23	0	22	0	22	0	1	1	5
KAT	0	26	0	26	0	25	0	25	0	1	1	4
BAS	*75977*	*1983*	*-16795*	*61164*	*84396*	*2143*	*-18605*	*67934*	*-8419*	*-160*	*-6770*	*-11*

	Reference 1997-2003				2010 - 2012				Reduction			
LT	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Net**	**Rel. (%)**
BOB	0	108	0	108	0	99	0	99	0	9	9	9
BOS	0	464	0	464	0	423	0	423	0	41	41	9
BAP	42536	2384	-2891	42028	41175	2099	-1855	41418	1361	285	610	1
GUF	0	294	0	294	0	275	0	275	0	19	19	6
GUR	0	437	5245	5682	0	397	5667	6064	0	40	-382	-7
DS	0	51	0	51	0	44	0	44	0	7	7	13
KAT	0	61	0	61	0	54	0	54	0	7	7	12
BAS	*42536*	*3799*	*2354*	*48689*	*41175*	*3391*	*3812*	*48378*	*1361*	*408*	*311*	*1*
PL	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Net**	**Rel. (%)**
BOB	0	631	0	631	0	569	0	569	0	62	62	10
BOS	0	2647	0	2647	0	2391	0	2391	0	256	256	10
BAP	192832	19655	-8194	204293	164260	17481	-6623	175118	28572	2174	29175	14
GUF	0	1313	0	1313	0	1191	0	1191	0	122	122	9
GUR	0	1335	0	1335	0	1213	0	1213	0	122	122	9
DS	0	1061	0	1061	0	929	0	929	0	132	132	12
KAT	0	1133	0	1133	0	999	0	999	0	134	134	12
BAS	*192832*	*27775*	*-8194*	*212413*	*164260*	*24773*	*-6623*	*182409*	*28572*	*3002*	*30004*	*14*
RU	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Net**	**Rel. (%)**
BOB	0	696	0	696	0	901	0	901	0	-205	-205	-29
BOS	0	1465	0	1465	0	1851	0	1851	0	-386	-386	-26
BAP	10950	3881	-3080	11751	10751	4633	-3118	12266	199	-752	-515	-4
GUF	74006	1748	-5353	70401	75799	2226	-5442	72583	-1792	-478	-2181	-3
GUR	0	510	1957	2467	0	618	2114	2732	0	-108	-265	-11
DS	0	164	0	164	0	173	0	173	0	-9	-9	-6
KAT	0	178	0	178	0	195	0	195	0	-17	-17	-9
BAS	*84956*	*8642*	*-6476*	*87123*	*86549*	*10597*	*-6446*	*90701*	*-1593*	*-1955*	*-3578*	*-4*
SE	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Net**	**Rel. (%)**
BOB	16813	758	0	17571	14759	620	0	15378	2054	138	2192	12

BOS	28964	2537	0	31501	27036	2073	0	29109	1929	464	2393	8
BAP	31382	7916	0	39298	25917	6601	0	32518	5465	1315	6781	17
GUF	0	565	0	565	0	448	0	448	0	117	117	21
GUR	0	440	0	440	0	356	0	356	0	85	85	19
DS	5485	384	0	5869	4444	303	0	4747	1041	81	1123	19
KAT	34091	941	0	35032	27245	780	0	28024	6847	161	7008	20
BAS	*116736*	*13541*	*0*	*130277*	*99400*	*11179*	*0*	*110579*	*17336*	*2362*	*19698*	*15*

	Reference 1997-2003				**2010 - 2012**				**Reduction**			
OC	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Net**	**Rel. (%)**
BOB	0	2685	0	2685	0	2114	0	2114	0	571	571	21
BOS	0	9451	0	9451	0	7346	0	7346	0	2105	2105	22
BAP	0	47727	0	47727	0	37868	0	37868	0	9859	9859	21
GUF	0	4941	0	4941	0	3804	0	3804	0	1137	1137	23
GUR	0	4013	0	4013	0	3147	0	3147	0	866	866	22
DS	0	8631	0	8631	0	6863	0	6863	0	1768	1768	20
KAT	0	8090	0	8090	0	6646	0	6646	0	1444	1444	18
BAS	*0*	*85538*	*0*	*85538*	*0*	*67788*	*0*	*67788*	*0*	*17750*	*17750*	*21*
SS	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Net**	**Rel. (%)**
BOB	0	361	0	361	0	440	0	440	0	-79	-79	-22
BOS	0	1461	0	1461	0	1747	0	1747	0	-286	-286	-20
BAP	0	7169	0	7169	0	8302	0	8302	0	-1133	-1133	-16
GUF	0	739	0	739	0	885	0	885	0	-146	-146	-20
GUR	0	561	0	561	0	667	0	667	0	-106	-106	-19
DS	0	826	0	826	0	948	0	948	0	-122	-122	-15
KAT	0	751	0	751	0	875	0	875	0	-124	-124	-16
BAS	*0*	*11868*	*0*	*11868*	*0*	*13864*	*0*	*13864*	*0*	*-1996*	*-1996*	*-17*

	Reference 1997-2003				2010 - 2012				Reduction			
BY	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Net**	**Rel. (%)**
BAP	0	0	9299	9299	0	0	8578	8578	0	0	720	8
GUR	0	0	6228	6228	0	0	6729	6729	0	0	-501	-8
BAS	*0*	*0*	*15527*	*15527*	*0*	*0*	*15308*	*15308*	*0*	*0*	*219*	*1*
CZ	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Net**	**Rel. (%)**
BAP	0	0	3420	3420	0	0	2955	2955	0	0	465	14
BAS	*0*	*0*	*3420*	*3420*	*0*	*0*	*2955*	*2955*	*0*	*0*	*465*	*14*
UA	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Net**	**Rel. (%)**
BAP	0	0	2474	2474	0	0	2138	2138	0	0	337	14
BAS	*0*	*0*	*2474*	*2474*	*0*	*0*	*2138*	*2138*	*0*	*0*	*337*	*14*

	Reference 1997-2003				2010 - 2012				Reduction			
ALL	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Net**	**Rel. (%)**
BOB	49437	8185	0	57622	49621	7341	0	56962	-184	844	660	1
BOS	54605	24767	0	79372	51439	21407	0	72846	3166	3360	6526	8
BAP	297679	126243	0	423922	263038	106975	0	370012	34641	19268	53910	13
GUF	102919	13333	0	116252	104572	11997	0	116568	-1652	1336	-316	0
GUR	78373	10045	0	88418	82521	8736	0	91257	-4149	1309	-2840	-3
DS	41605	24393	0	65998	33566	19978	0	53545	8039	4415	12453	19
KAT	58484	20278	0	78762	46898	16786	0	63685	11585	3492	15077	19
BAS	*683102*	*227244*	*0*	*910346*	*631655*	*193220*	*0*	*824875*	*51446*	*34024*	*85471*	*9*

Table 7: Summary of country-wise total normalized nitrogen inputs Country by basin in the reference period, compared with 2010-2012 averaged, reduction between the periods and the changes in percentages. Negative reductions indicate increased inputs. In tonnes.

	Reference 1997-2003			2010 - 2012			Reduction	
DK	**Water**	**Transb.**	**Net**	**Water**	**Transb.**	**Net**	**Abs.**	**Rel. (%)**
BAP	59	0	59	52	0	52	7	12
DS	1040	0	1040	982	0	982	58	6
KAT	829	0	829	732	0	732	97	12
BAS	*1928*	*0*	*1928*	*1767*	*0*	*1767*	*161*	*8*
EE	**Water**	**Transb.**	**Net**	**Water**	**Transb.**	**Net**	**Abs.**	**Rel. (%)**
BAP	23	0	23	20	0	20	3	12
GUF	504	0	504	470	0	470	34	7
GUR	277	0	277	183	0	183	94	34
BAS	*804*	*0*	*804*	*673*	*0*	*673*	*131*	*16*
FI	**Water**	**Transb.**	**Net**	**Water**	**Transb.**	**Net**	**Abs.**	**Rel. (%)**
BOB	1668	0	1668	1694	0	1694	-26	-2
BOS	1255	0	1255	1148	0	1148	107	9
GUF	637	49	686	635	41	676	10	1
BAS	*3560*	*49*	*3609*	*3477*	*41*	*3518*	*90*	*3*
DE	**Water**	**Transb.**	**Net**	**Water**	**Transb.**	**Net**	**Abs.**	**Rel. (%)**
BAP	175	101	276	207	78	285	-10	-3
DS	351	0	351	340	0	340	11	3
BAS	*525*	*101*	*626*	*547*	*78*	*625*	*1*	*0*
LV	**Water**	**Transb.**	**Net**	**Water**	**Transb.**	**Net**	**Abs.**	**Rel. (%)**
BAP	269	-66	203	390	-94	296	-94	-46
GUR	1959	-1331	627	2065	-1389	676	-48	-8
BAS	*2228*	*-1398*	*830*	*2455*	*-1483*	*972*	*-142*	*-17*
LT	**Water**	**Transb.**	**Net**	**Water**	**Transb.**	**Net**	**Abs.**	**Rel. (%)**
BAP	2635	-363	2272	1787	-194	1593	679	30
GUR	0	192	192	0	200	200	-8	-4
BAS	*2635*	*-171*	*2463*	*1787*	*6*	*1793*	*670*	*27*
PL	**Water**	**Transb.**	**Net**	**Water**	**Transb.**	**Net**	**Abs.**	**Rel. (%)**
BAP	12310	-524	11786	9457	-361	9095	2691	23
BAS	*12310*	*-524*	*11786*	*9457*	*-361*	*9095*	*2691*	*23*

RU	Water	Transb.	Net	Water	Transb.	Net	Abs.	Rel. (%)
BAP	960	-202	758	960	-202	758	0	0
GUF	6218	-49	6169	5224	-41	5183	987	16
GUR	0	215	215	0	224	224	-9	-4
BAS	*7178*	*-36*	*7142*	*6184*	*-19*	*6165*	*978*	*14*
SE	**Water**	**Transb.**	**Net**	**Water**	**Transb.**	**Net**	**Abs.**	**Rel. (%)**
BOB	826	0	826	949	0	949	-123	-15
BOS	1125	0	1125	986	0	986	139	12
BAP	843	0	843	732	0	732	111	13
DS	105	0	105	87	0	87	18	17
KAT	740	0	740	696	0	696	44	6
BAS	*3639*	*0*	*3639*	*3449*	*0*	*3449*	*190*	*5*

BY	Water	Transb.	Net	Water	Transb.	Net	Abs.	Rel. (%)
BAP	0	668	668	0	473	473	195	29
GUR	0	925	925	0	965	965	-40	-4
BAS	*0*	*1593*	*1593*	*0*	*1438*	*1438*	*155*	*10*
CZ	**Water**	**Transb.**	**Net**	**Water**	**Transb.**	**Net**	**Abs.**	**Rel. (%)**
BAP	0	295	295	0	229	229	66	22
BAS	*0*	*295*	*295*	*0*	*229*	*229*	*66*	*22*
UA	**Water**	**Transb.**	**Net**	**Water**	**Transb.**	**Net**	**Abs.**	**Rel. (%)**
BAP	0	91	91	0	71	71	21	23
BAS	*0*	*91*	*91*	*0*	*71*	*71*	*21*	*23*

	Reference 1997-2003		2010 - 2012		Reduction	
OC	**Air**	**Net**	**Air**	**Net**	**Abs.**	**Rel. (%)**
BOB	181	181	181	181	0	0
BOS	394	394	394	394	0	0
BAP	1046	1046	1046	1046	0	0
GUF	150	150	150	150	0	0
GUR	93	93	93	93	0	0
DS	105	105	105	105	0	0
KAT	118	118	118	118	0	0
BAS	*2087*	*2087*	*2087*	*2087*	*0*	*0*

	Reference 1997-2003				2010 - 2012				Reduction	
ALL	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Abs.**	**Rel. (%)**
BOB	2494	181	0	2675	2643	181	0	2824	-149	-6
BOS	2379	394	0	2773	2133	394	0	2527	246	9
BAP	17274	1046	0	18320	13605	1046	0	14651	3669	20
GUF	7359	150	0	7509	6328	150	0	6478	1031	14
GUR	2235	93	0	2328	2247	93	0	2340	-12	-1
DS	1496	105	0	1601	1409	105	0	1514	87	5
KAT	1569	118	0	1687	1428	118	0	1546	141	8
BAS	*34807*	*2087*	*0*	*36894*	*29795*	*2087*	*0*	*31882*	*5013*	*14*

It has been tested if the changes in total normalized average inputs 2010-12 compared with the reference period is statistical significant the results is shown in table 8a and 8b. Denmark, Sweden and countries outside HELCOM had significant decrease in nitrogen inputs with 23%, 15% and 21% respectively. Inputs from Baltic Sea shipping increased significantly with 17 %. The nitrogen inputs decreased significantly to Baltic Proper (13%), Danish Straits (19%), Kattegat 19%) and Baltic Sea (9%). Phosphorus inputs decreased significantly from most of the countries to Baltic Proper, and increased significantly from Latvia with 46%. Overall there is a decrease in total phosphorus since the reference period but it is only significant to Baltic Proper (20%), Kattegat at 90-95% significant (8%) and to the Baltic Sea (14%).

Table 8.a Changes (%) in total normalized average nitrogen inputs 2010-2012 compared with the average in the reference period country by HELCOM sub-basin. – indicates decreasing input since the reference period. Green colors indicates high statistical significance (>95%), yellow 90-95 % statistical significance and red no statistical significant changes. Blue indicates no input from the country to the sub-basin. *[Comma will be change to "."]*

Country	BB	BS	BP	GF	GR	DS	KT	Sum
DK	-29,4	-29,6	-26,1	-30,7	-29,4	-25,3	-20,2	-23,3
EE	-1,8	-0,5	-21,0	3,3	-14,7	-13,0	-12,4	-6,6
FI	6,2	-5,4	-25,3	-2,6	-24,8	-30,3	-30,6	-0,7
DE	-20,5	-21,7	-16,7	-22,0	-22,0	-11,2	-15,9	-15,4
LV	2,2	4,6	22,2	9,0	9,5	-5,7	-4,1	11,1
LT	-8,8	-8,8	-1,5	-6,3	6,7	-12,9	-12,0	-0,6
PL	-9,9	-9,7	-14,3	-9,3	-9,1	-12,4	-11,9	-14,1
RU	29,4	26,4	4,4	3,1	10,7	5,7	9,1	4,1
SE	-12,5	-7,6	-17,3	-20,8	-19,1	-19,1	-20,0	-15,1
BY			-7,8		8,0			-1,4
CZ			-13,6					-13,6
UA			-13,6					-13,6
SS	22,0	19,5	15,8	19,7	19,0	14,8	16,5	16,8
OC	-21,3	-22,3	-20,7	-23,0	-21,6	-20,5	-17,8	-20,8
Sum	-1,1	-8,2	-12,7	0,3	3,2	-18,9	-19,1	-9,4

Table 8.b Changes (%) in total normalized average phosphorus inputs 2010-2012 compared with the average in the reference period country by HELCOM sub-basin. – indicates decreasing input since the reference period. Green colors indicates high statistical significance (>95%), yellow 90-95 % statistical significance and red no statistical significant changes. Blue indicates no input from the country to the sub-basin. *[Comma will be change to "."]*

Country	BB	BS	BP	GF	GR	DS	KT	Sum
DK			-11,9			-5,6	-11,7	-8,4
EE			-12,3	-6,8	-34,0			-16,3
FI	1,6	-8,5		-1,4				-2,5
DE			3,5			-3,1		-0,2
LV			46,0		7,7			17,0
LT			-29,9		4,3			-27,2
PL			-22,8					-22,8
RU			0,0	-16,0	4,3			-13,7
SE	14,9	-12,4	-13,2			-17,3	-6,0	-5,2
BY			-29,2		42,6			-9,8
CZ			-22,3					-22,3
UA			-22,3					-22,3
SS								
OC	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Sum	5,6	-8,9	-20,0	-13,7	0,5	-5,4	-8,3	-13,6

Changes in normalized net nitrogen and phosphorus water—and airborne inputs compared with the corresponding inputs in the reference period have been calculated (Tables 9 and 10). Further it has been tested if the changes are significant.
[more text to be added when statistical analysis are ready]

Table 9a:[2] Changes (%) in normalized airborne nitrogen inputs (tonnes) from the reference period (1997-2003) to the average 2010-2010. BY = Belarus; CZ = Czech Republic; UA = Ukraine; SS = Baltic Sea shipping; OC= other countries and sources as the 20 EU countries not being HELCOM Contracting Parties, countries outside EU including North Sea shipping etc. The changes in tonnes can be seen in table 6.

Country/Basin	BB	BS	BP	GF	GR	DS	KT	ALL
DK	-29.4	-29.6	-27.7	-30.7	-29.4	-25.4	-23.5	-26.1
EE	-1.8	-0.5	-5.2	5.2	2.5	-13.0	-12.4	0.0
FI	-6.6	-11.7	-25.3	-17.9	-24.8	-30.3	-30.6	-15.7
DE	-20.5	-21.7	-18.6	-22.0	-22.0	-15.1	-15.9	-18.2
LV	2.2	4.6	6.2	9.0	16.2	-5.7	-4.1	8.1
LT	-8.8	-8.8	-12.0	-6.3	-9.1	-12.9	-12.0	-10.7
PL	-9.9	-9.7	-11.1	-9.3	-9.1	-12.4	-11.9	-10.8
RU	29.4	26.4	19.4	27.4	21.0	5.7	9.1	22.6
SE	-18.2	-18.3	-16.6	-20.8	-19.1	-21.3	-17.1	-17.4
BY								
CZ								
UA								
SS	22.0	19.5	15.8	19.7	19.0	14.8	16.5	16.8
EU	-26.9	-26.8	-26.0	-26.7	-26.2	-28.4	-26.9	-26.5
OC	-13.1	-15.5	-9.3	-18.3	-14.5	6.4	7.1	-8.9
ALL	-10.3	-13.6	-15.3	-10.0	-13.0	-18.1	-17.2	-15.0

Table 9b[3]: Changes (%) in normalized net waterborne nitrogen inputs from the reference period (1997-2003) to the average 2010-2012. BY = Belarus; CZ = Czech Republic; UA = Ukraine. The changes in tonnes can be seen in table 6.

Country/Basin	BB	BS	BP	GF	GR	DS	KT	ALL
DK			-19.4			-25.2	-19.4	-22.1
EE			-30.2	3.2	-15.0			-7.2
FI	6.9	-4.8		-2.0				0.7
DE			-11.4			-8.8		-9.9
LV			24.5		9.4			11.2
LT			-0.8		8.0			0.2
PL			-14.6					-14.6
RU			-3.0	2.5	8.0			2.1
SE	-12.2	-6.7	-17.4			-19.0	-20.1	-14.9
BY			-7.8		8.0			-1.4
CZ			-13.6					-13.6

[2] Significant changes will later be shown in bold
[3] Significant changes will later be shown in bold

UA			-13.6					-13.6
SS								
EU								
OC								
ALL	0.4	-5.8	-11.6	1.6	5.3	-19.3	-19.8	-7.5

Table 10[4]: Changes (%) in normalized total waterborne phosphorus inputs from the reference period (1997-2003) to the average 2008-2010. BY = Belarus; CZ = Czech Republic; UA = Ukraine; SS = Baltic Sea shipping; OC= other countries and sources as the 20 EU countries not being HELCOM Contracting Parties, countries outside EU including and North Sea shipping etc. The changes in tonnes can be seen in table 7.

Country/Basin	BB	BS	BP	GF	GR	DS	KT	ALL
DK			-11,9			-5,6	-11,7	-8,4
EE			-12,3	-6,8	-34,0			-16,3
FI	1,6	-8,5		-1,4				-2,5
DE			3,5			-3,1		-0,2
LV			46,0		7,7			17,0
LT			-29,9		4,3			-27,2
PL			-22,8					-22,8
RU			0,0	-16,0	4,3			-13,7
SE	14,9	-12,4	-13,2			-17,3	-6,0	-5,2
BY			-29,2		4,3			-9,8
CZ			-22,3					-22,3
UA			-22,3					-22,3
SS								
EU								
OC								
ALL	5,6	-8,9	-20,0	-13,7	0,5	-5,4	-8,4	-13,6

Longer term trend and changes in inputs

In section “xxxx” is included several figures with shown time series of normalized water- and airborne nitrogen (Figures xx-xxx) and phosphorus (Figures yy-yyy) during 1995 to 2012 country per basin including figures for the transboundary air- and waterborne inputs. These figures include ceilings and show the trend line.

[4] Significant changes will later be shown in bold

Table 11.a *Significant changes in* ***total (air- + waterborne)*** *normalized nitrogen and phosphorus inputs to the Baltic Sea by country and by sub-basin from 1994 to 2012. For phosphorus, only the country by sub-basin results are included where there are waterborne inputs from the country. N.i. = no waterborne inputs from the Contracting Party to this sub-basin. Only results where the trend is statistically significant (confidence < 5%) are shown; results where the confidence is between 5-10% are given in parentheses.* BY = Belarus; CZ = Czech Republic; UA = Ukraine (only waterborne); SS = Baltic Sea shipping; OC= other countries and airborne sources as BY, CZ, UA, other countries outside EU including and North Sea shipping etc.

	BOB		***BOS***		***BAP***		***GUF***		***GUR***		***DS***		***KAT***	
	N%	***P%***	***N%***	***P%***	***N%***	***P%***	***N%***	***P%***	***N%***	***P%***	***N%***	***P%***	***N%***	***P%***
DE	-34	ni	-34	ni	-24	-	-34	ni	-33	ni	-31	-21	-29	ni
DK	-46	ni	-45	ni	-40	-28	-46	ni	-46	ni	-39	-26	-31	-24
EE	-12	ni	-12	ni	-21	*-29*	-	-	-	-38	-13	ni	-12	ni
FI	14	-	-	-20	-36	ni	-	-	-36	ni	-41	ni	-40	ni
LV	-	ni	-	ni	-	79	-	ni	-	48	-	ni	-	ni
LT	-	ni	-	ni	-	-41	-	ni	-	49	*-15*	ni	-	ni
PL	-27	ni	-27	ni	-23	-28	-27	ni	-27	ni	-26	ni	-26	ni
RU	*37*	ni	*35*	ni	-	-	-	-	-	49	36	ni	37	ni
SE	-13	-	-9	-21	-24	-	-39	-	-37	ni	-39	-27	-23	-
BY	ni	ni	ni	ni	-21	-38	ni	ni	-	49	ni	ni	ni	ni
CZ	ni	ni	ni	ni	-23	-29	ni	ni	ni	ni	ni	ni	ni	ni
UA	ni	ni	ni	ni	-23	-29	ni	ni	ni	ni	ni	ni	ni	ni
SS	39	ni	39	ni	39	ni	39	ni	39	ni	39	ni	39	ni
EU20	-38	ni	-38	ni	-38	ni	-38	ni	-37	ni	-40	ni	-40	ni
OC	-23	ni	-25	ni	-16	ni	-30	ni	-25	ni	12	ni	11	ni

Table 11b[5]. *Significant changes in normalized nitrogen and phosphorus* ***deposition*** *to the Baltic Sea by country and by sub-basin from 1995 to 2010. As phosphorus deposition is calculated as the same fixed value during 1995-2010 no statistical test was performed. Only results where the trend is statistically significant (confidence < 5%) are shown; results where the confidence is between 5-10% are given in parentheses.* BY = Belarus; CZ = Czech Republic; UA = Ukraine; SS = Baltic Sea shipping; OC= OC= other countries and airborne sources as BY, CZ, UA, other countries outside EU including and North Sea shipping etc.

	BOB		***BOS***		***BAP***		***GUF***		***GUR***		***DS***		***KAT***	
	N%	***P%***	***N%***	***P%***	***N%***	***P%***	***N%***	***P%***	***N%***	***P%***	***N%***	***P%***	***N%***	***P%***
DE														
DK														
EE														
FI														
LV														
LT														
PL														
RU														
SE														
SS														
EU20														
OC														

[5] Finalized in January 2015

Table 11c. *Significant changes in flow normalized total* ***waterborne*** *nitrogen and phosphorus inputs to the Baltic Sea by country and by sub-basin from 1994 to 2010. Only results where the trend is statistically significant (confidence < 5%) are shown; results where the confidence is between 5-10% are given in parentheses. N.i. = no waterborne inputs from the Contracting Party to this sub-basin.* BY = Belarus; CZ = Czech Republic; UA = Ukraine; SS = Baltic Sea shipping; OC= other countries and sources as the 20 EU countries not being HELCOM Contracting Parties, countries outside EU including and North Sea shipping etc.

	BOB		***BOS***		***BAP***		***GUF***		***GUR***		***DS***		***KAT***	
	N%	***P%***	***N%***	***P%***	***N%***	***P%***	***N%***	***P%***	***N%***	***P%***	***N%***	***P%***	***N%***	***P%***
DE	*n.i.*	*n.i.*	*n.i.*	*n.i.*			*n.i.*	*n.i.*	*n.i.*	*n.i.*			*n.i.*	*n.i.*
DK	*n.i.*	*n.i.*	*n.i.*	*n.i.*			*n.i.*	*n.i.*	*n.i.*	*n.i.*				
EE	*n.i.*	*n.i.*	*n.i.*	*n.i.*							*n.i.*	*n.i.*	*n.i.*	*n.i.*
FI					*n.i.*	*n.i.*			*n.i.*	*n.i.*	*n.i.*	*n.i.*	*n.i.*	*n.i.*
LV	*n.i.*	*n.i.*	*n.i.*	*n.i.*			*n.i.*	*n.i.*	-	*61*	*n.i.*	*n.i.*	*n.i.*	*n.i.*
LT	*n.i.*	*n.i.*	*n.i.*	*n.i.*			*n.i.*	*n.i.*	*n.i.*	*n.i.*	*n.i.*	*n.i.*	*n.i.*	*n.i.*
PL	*n.i.*	*n.i.*	*n.i.*	*n.i.*			*n.i.*	*n.i.*	*n.i.*	*n.i.*	*n.i.*	*n.i.*	*n.i.*	*n.i.*
RU	*n.i.*	*n.i.*	*n.i.*	*n.i.*					*n.i.*	*n.i.*	*n.i.*	*n.i.*	*n.i.*	*n.i.*
SE							*n.i.*	*n.i.*	*n.i.*	*n.i.*				
BY														
CZ														
UA														

Data per country/source

Status on inputs 2012

The normalized net water and airborne inputs and the river flow entering Baltic Sea sub-basins from each country in 2012 is shown in table 15. In the northern and eastern part of the catchment river flow was much higher Finland and Sweden) or higher (Estonia and Russia) than the average for 1994-2011 while it was much lower that this average from most of the southern part of the catchment (Lithuania and Poland). It was also higher than the average for Germany.

Table 15 River flow (as average 1994-2011 and for 2012), flow normalized waterborne and normalized airborne inputs of phosphorus and nitrogen to the Baltic Sea in 2012 by a) country and b) sub-basin. EU20 = non-HELCOM EU countries (including Croatia); 'other atm. Sources' and 'atmospheric phosphorus sources' = other countries and sources contributing to atmospheric deposition on the Baltic Sea.

Country	**Flow**		**Nitrogen (tonnes)**			**Phosphorus (tonnes)**		
	1994-2011 m^3/s	**2012 m^3/s**	**Airborne**	**Waterborne**	**Total**	**Airborne**	**Waterborne**	**Total**
Denmark	283	281	15,513	38,553	54,046		1,811	1,811
Estonia	413	497	1,984	24,501	26,485		624	624
Finland	2,528	3,509	6,098	79,960	86,059		3,372	3,372
Germany	128	150	32,813	15,889	48,702		557	557
Latvia	1,070	1,249	2,397	62,132	64,528		1,050	1,050
Lithuania	636	638	3,824	48,587	52,411		1,572	1,572
Poland	1,967	1,548	24,111	137,490	161,601		8,627	8,627
Russia	2,891	3,191	7,149	77,465	84,614		5,129	5,129
Sweden	5,799	7,051	10,778	96,465	107,242		3,368	3,368
Belarus				15,069	15,069		1,515	1,515

Czech Republic				2,570	2,570		217	217
Ukraine				1,859	1,859		67	67
Baltic Shipping			14,081		14,081			
EU20			41,366		41,366			
Other atm. sources			25,666		25,666			
Atm. P sources						2,087		2,087
Total	**15,715**	**18,114**	**185,778**	**600,520**	**782,298**	**2,087**	**27,909**	**29,997**

Technical information

Figure A.1-A.2 are supplementary figures to the key messages.

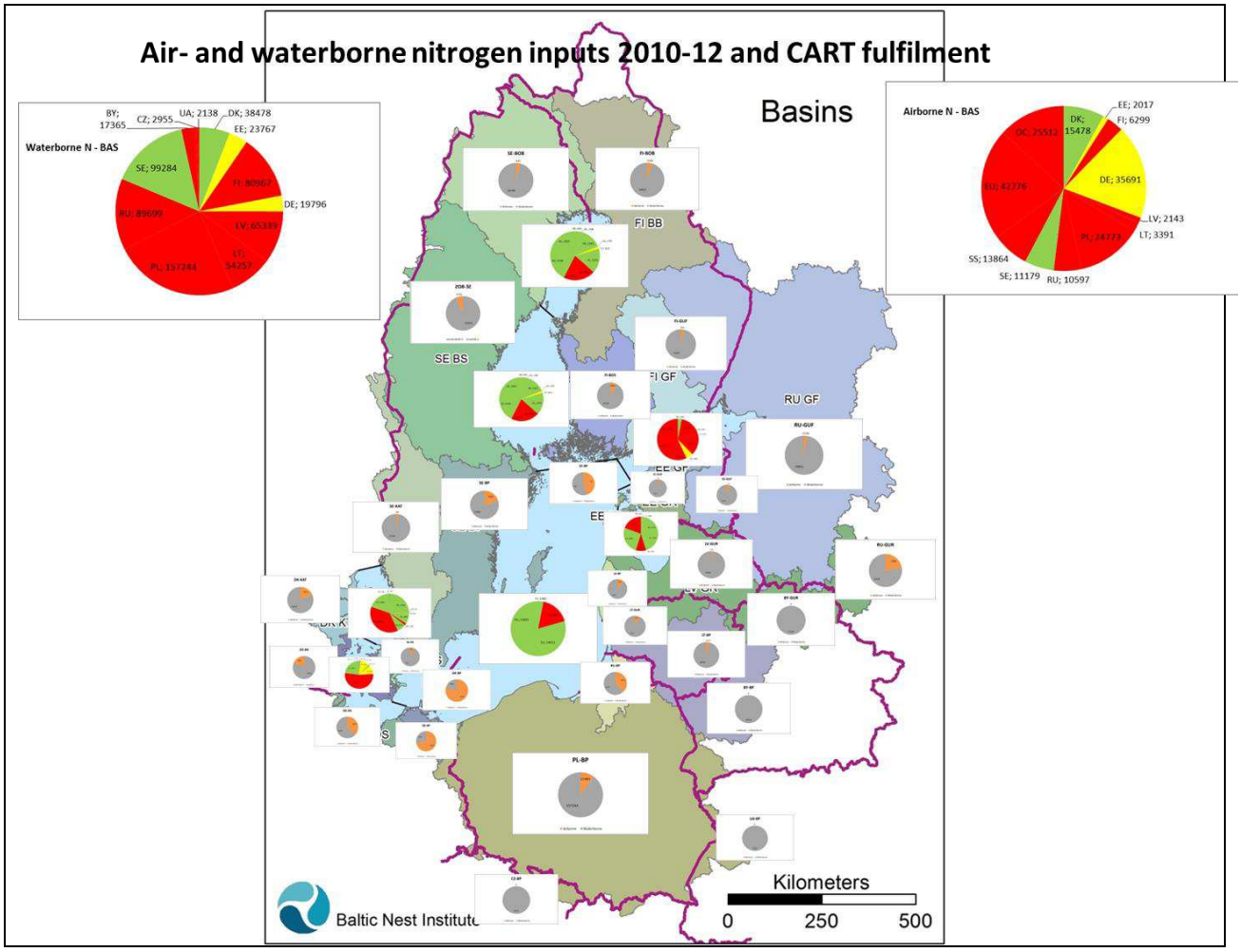
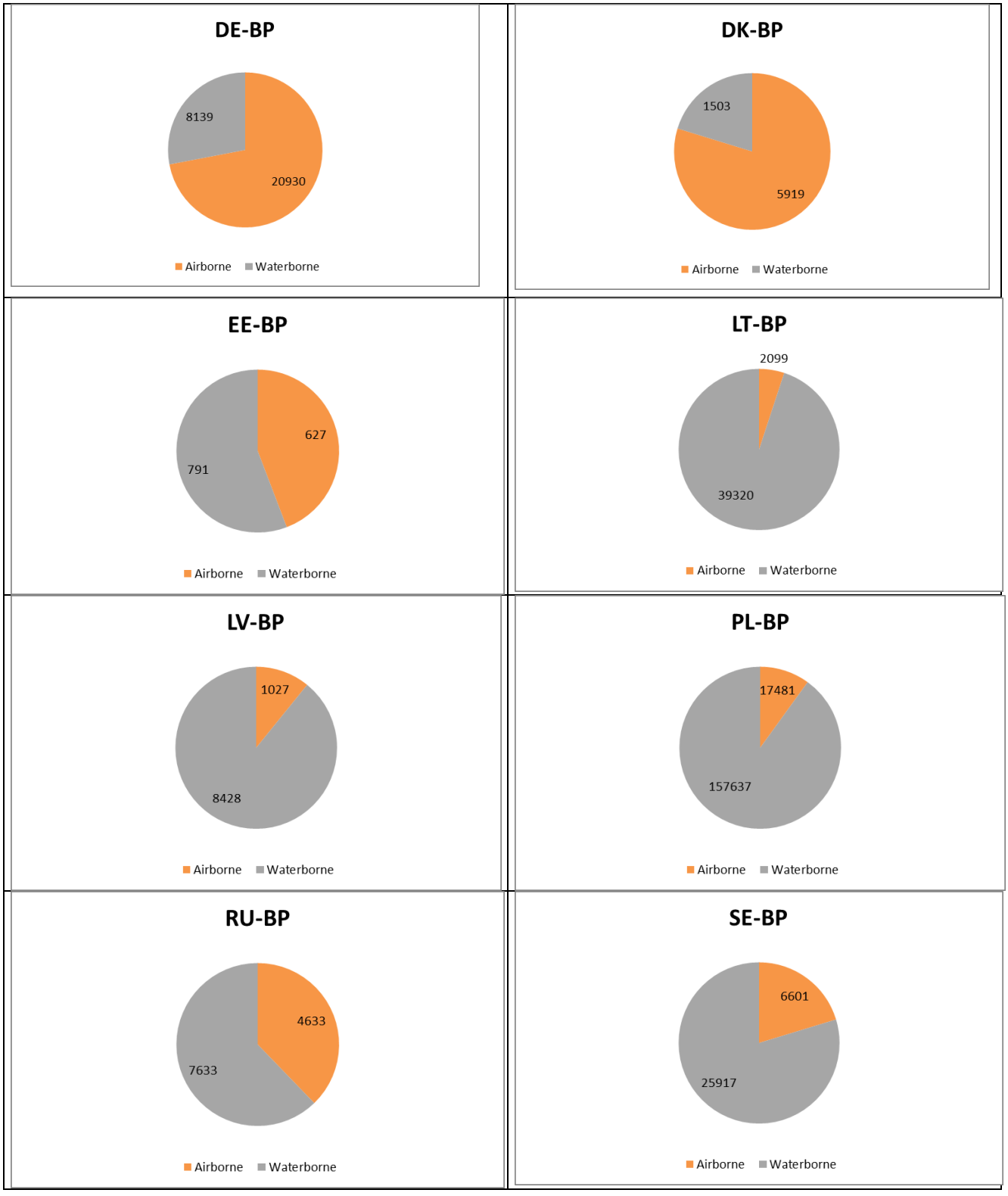


Figure A.1[6] Average net air- and waterborne nitrogen inputs (normalized) per country and basin during 2010-12 and to the Baltic Sea. The numbers in the figures are nitrogen input (water- or airborne) in tonnes. Countries with waterborne nitrogen inputs to a sub-basin are shown separately on the catchment to the sub-basin. Countries only contributing with airborne nitrogen inputs are shown together in the pie diagram located on the sub-basins. Red colour: nitrogen ceilings are not fulfilled. Yellow colour: it cannot be judged with statistical certainty if average input in 2010-12 is higher than the ceiling. Green colour: Nitrogen ceiling is fulfilled taking into account statistical uncertainty.

In figure A.2 is shown and alternative version of figure A.1. If this version is preferred a figure for each basin will be developed.

[6] We are aware to it might be difficult to see all details. The intention is to colour the catchment according to fulfilment of CART. Will be updated.


DE-BP
8139
20930
Airborne
Waterborne
DK-BP
1503
5919
Airborne
Waterborne
EE-BP
627
791
Airborne
Waterborne
LT-BP
2099
39320
Airborne
Waterborne
LV-BP
1027
8428
Airborne
Waterborne
PL-BP
17481
157637
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Waterborne
RU-BP
4633
7633
Airborne
Waterborne
SE-BP
6601
25917
Airborne
Waterborne

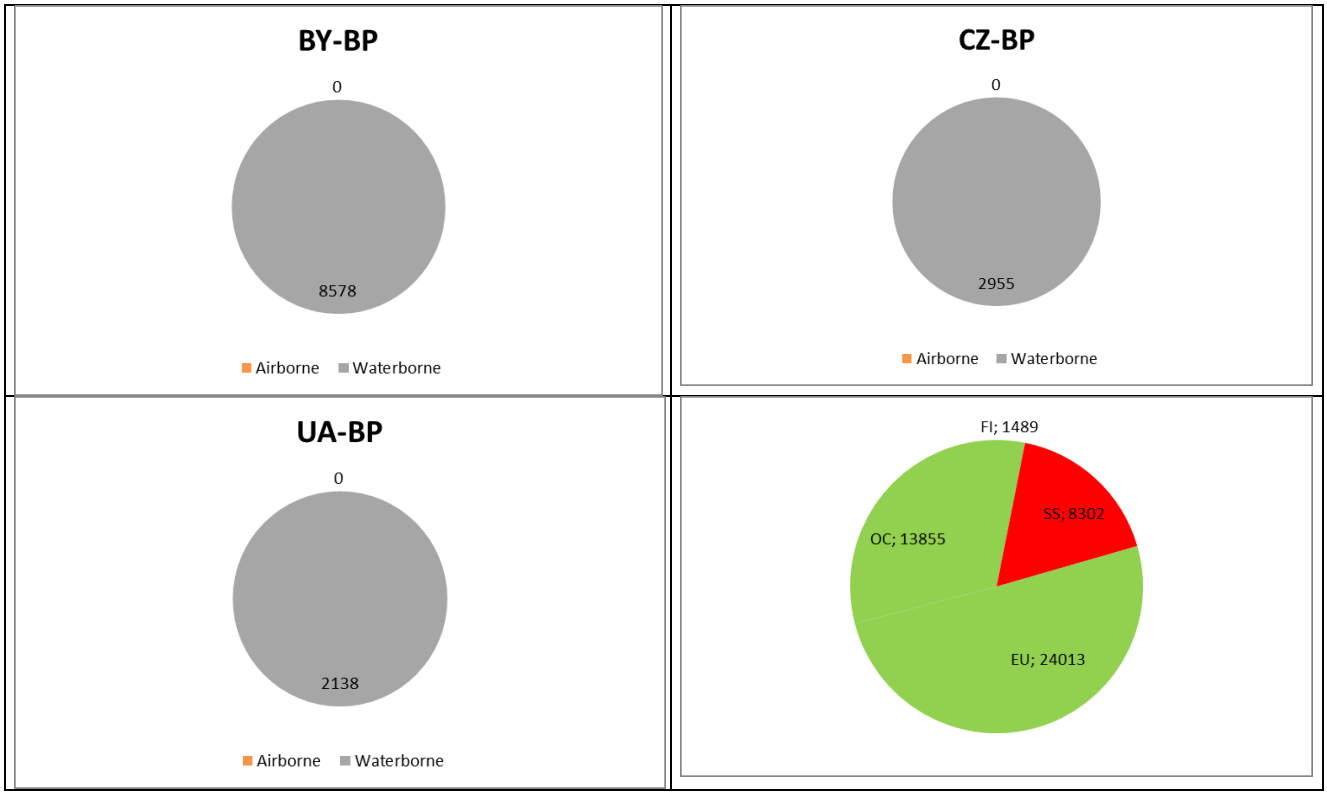


Figure A.2: Alternative presentation of figure A.1 net normalized air- and waterborne nitrogen inputs to Baltic Proper in 2010-12 from countries/sources. A separate pie diagram is given for countries with waterborne inputs, while countries/sources only with airborne inputs is shown together in one pie *diagram [It is the intention to add red, yellow, green to all pie diagrams according to the fulfilment of input ceilings as shown for the bottom right pie diagram.]*

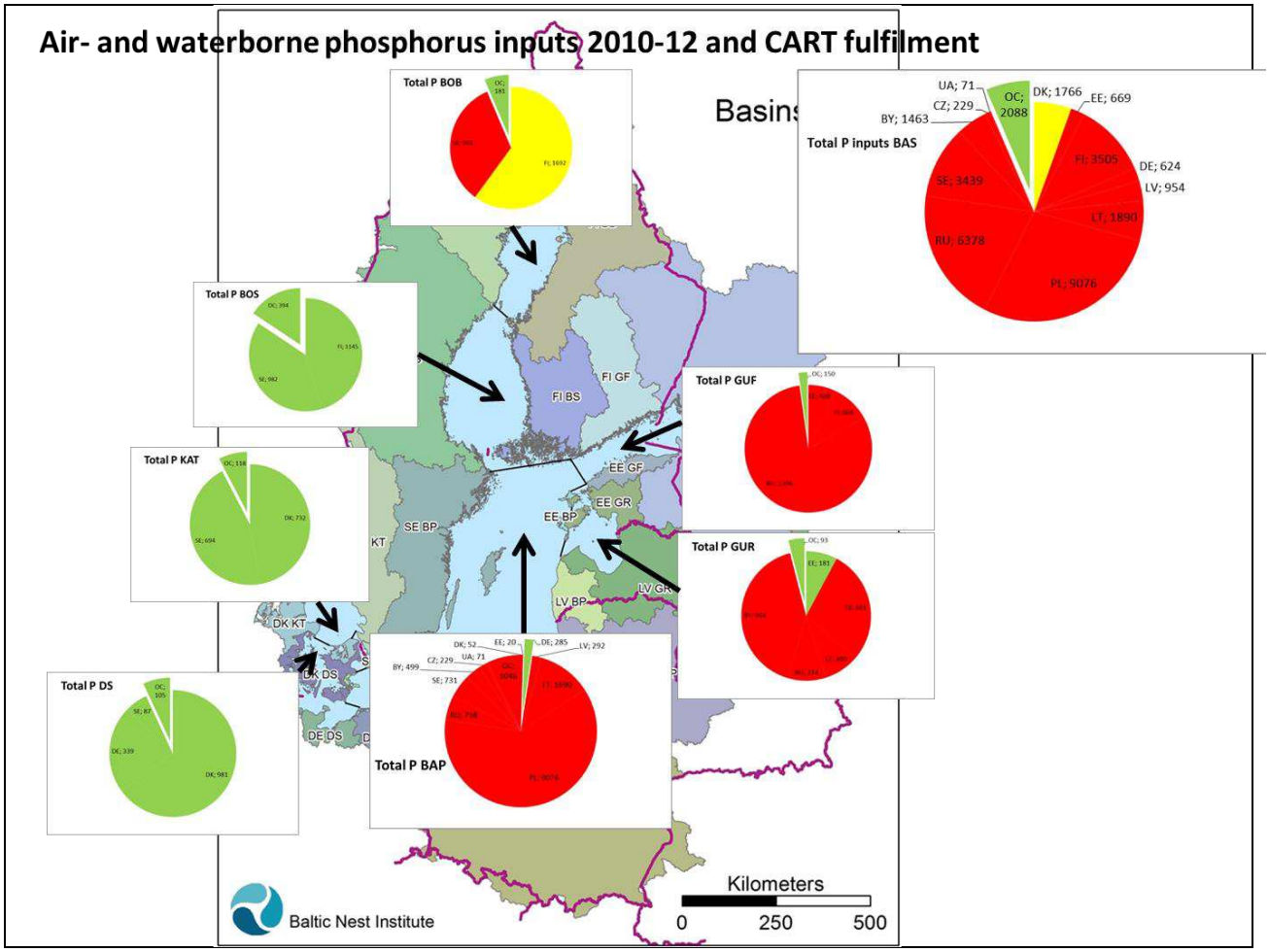
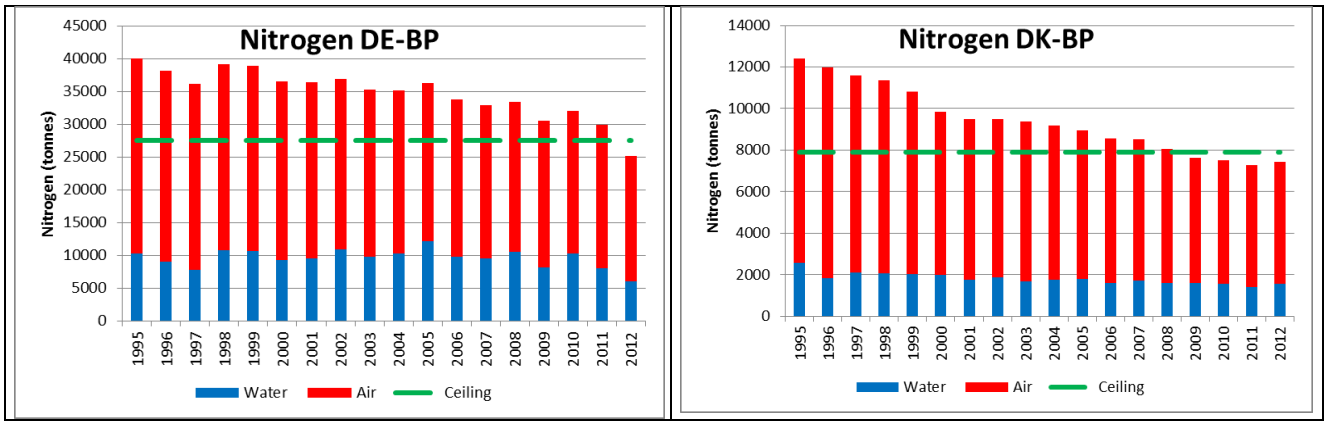
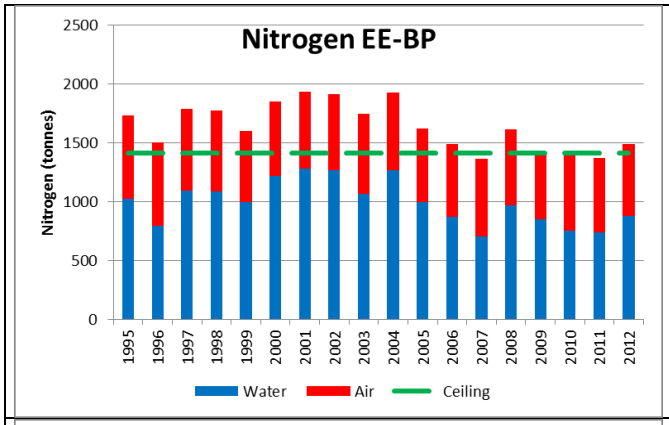
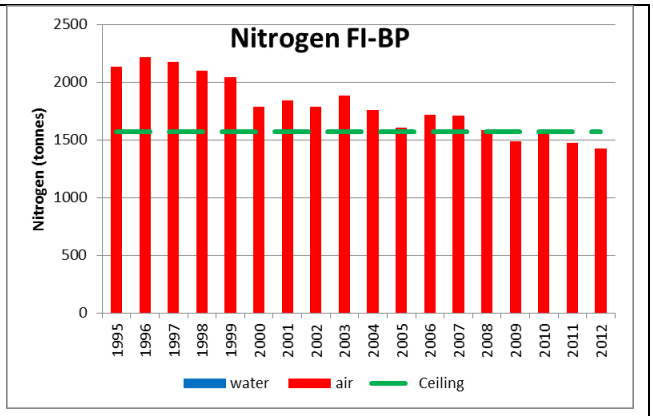
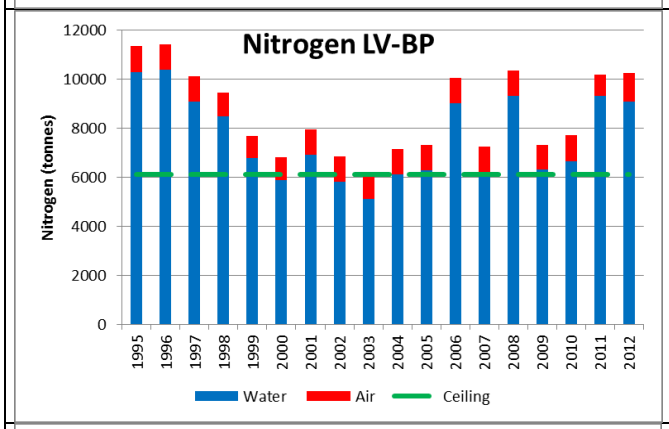


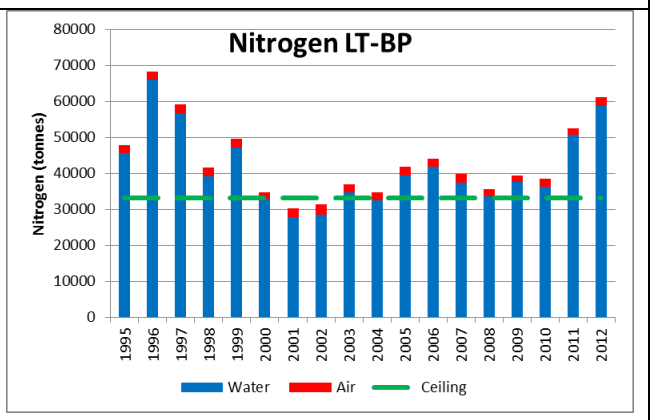
Figure A:3 Average net air- and waterborne phosphorus inputs (normalized) per country and basin during 2010-12 and to the Baltic Sea. The numbers in the figures are phosphorus input (water- or airborne) in tonnes. Airborne inputs from all sources are aggregated per sub-basin (OC = other sources). Red: nitrogen ceilings are not fulfilled. Yellow: it cannot be judged with statistical certainty if average input in 2010-12 is higher than the ceiling. Green: Phosphorus ceiling Nitrogen ceiling is fulfilled taking into account statistical uncertainty.

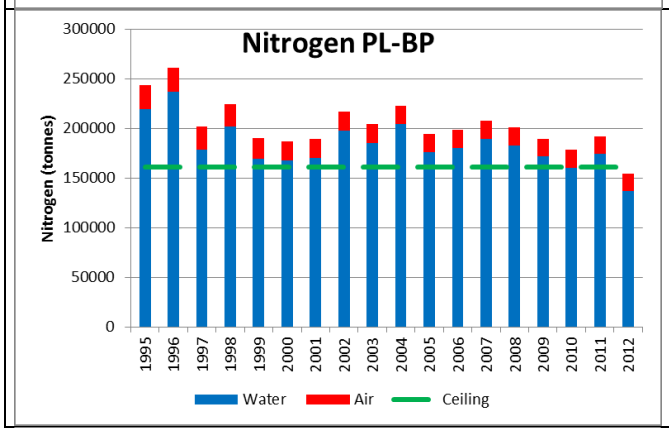


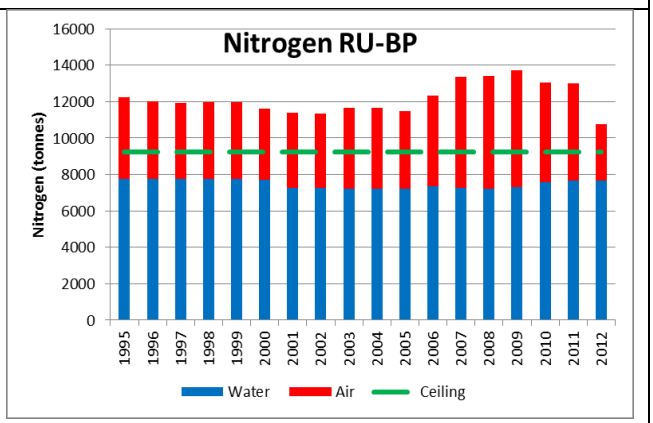

Nitrogen EE-BP
Nitrogen (tonnes)
Water
Air
Ceiling

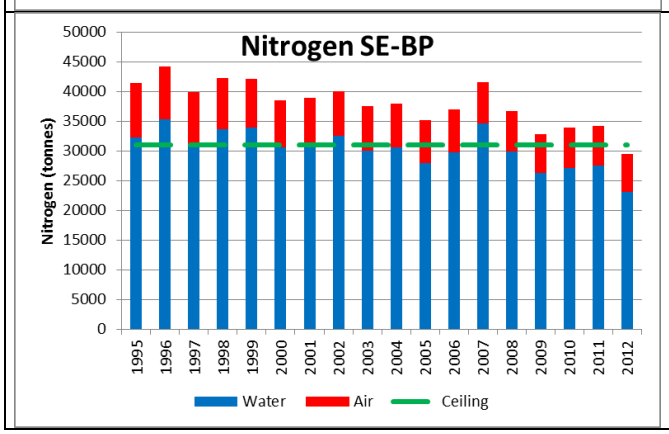

Nitrogen FI-BP
Nitrogen (tonnes)
water
air
Ceiling

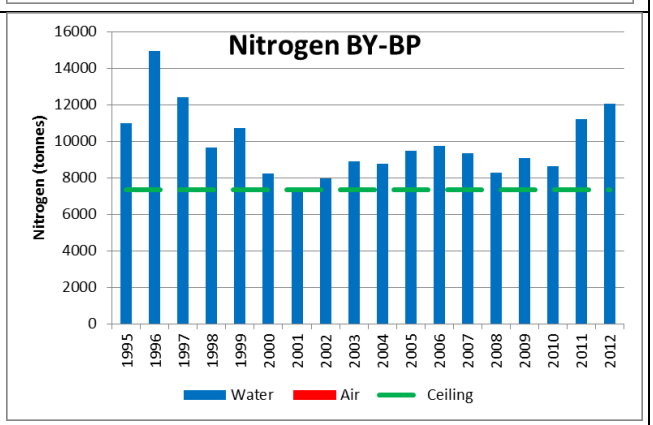

Nitrogen LV-BP
Nitrogen (tonnes)
Water
Air
Ceiling


Nitrogen LT-BP
Nitrogen (tonnes)
Water
Air
Ceiling


Nitrogen PL-BP
Nitrogen (tonnes)
Water
Air
Ceiling


Nitrogen RU-BP
Nitrogen (tonnes)
Water
Air
Ceiling


Nitrogen SE-BP
Nitrogen (tonnes)
Water
Air
Ceiling


Nitrogen BY-BP
Nitrogen (tonnes)
Water
Air
Ceiling

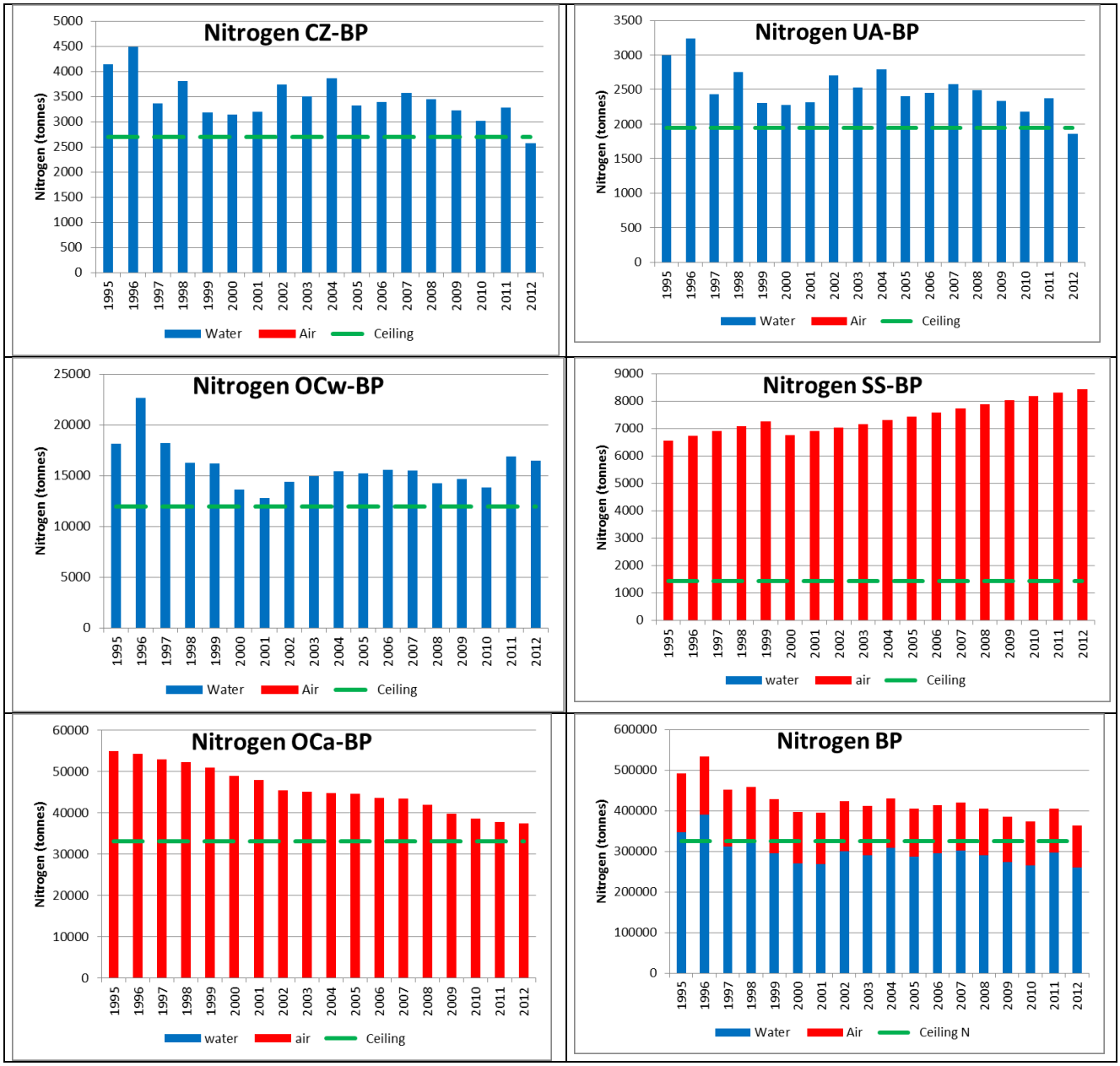
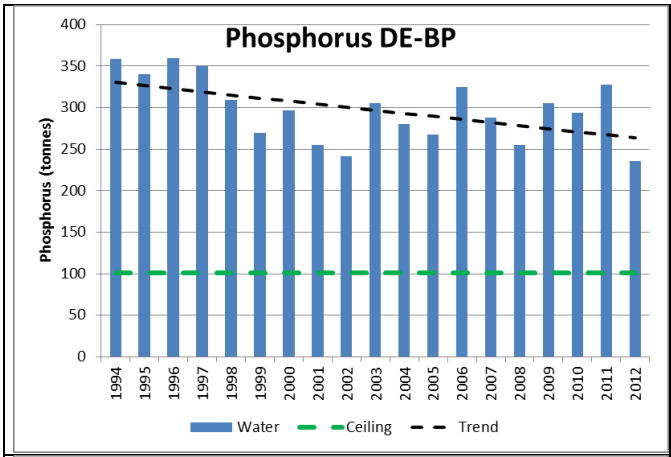
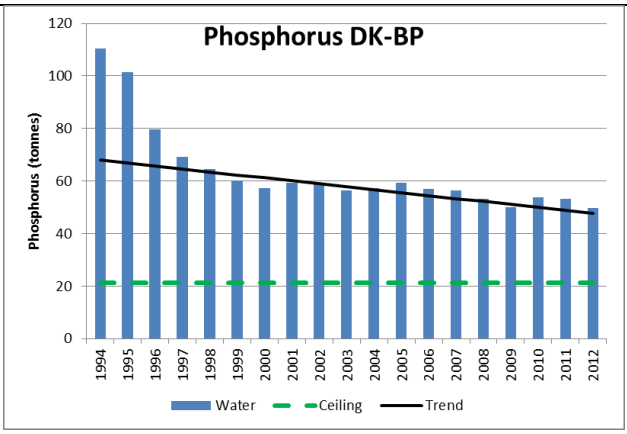


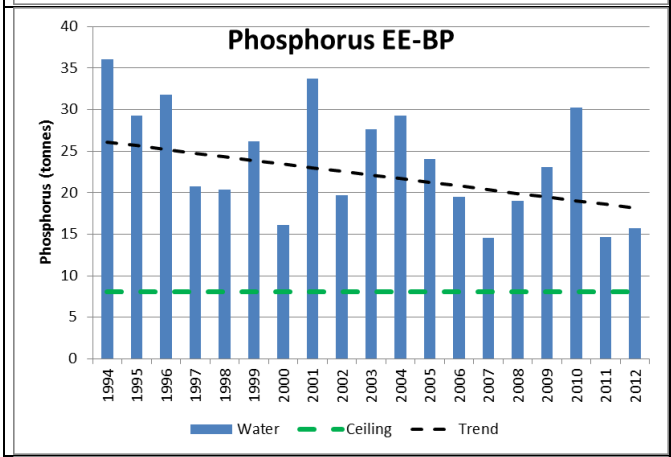
Figure A.4[7] Normalize net inputs of water- and airborne nitrogen 1995-2012 to Baltic Proper from countries/source. The input ceiling (dotted line) is inserted. [8]*Further a trend line is inserted, where full line indicates statistical significant trend and dotted line no statistical significant trend as shown in figure A.4.*

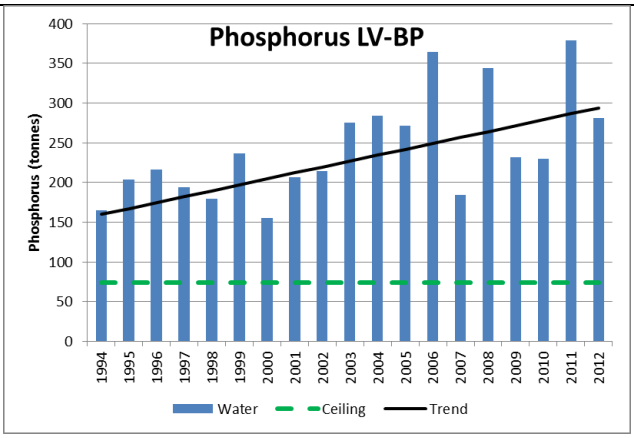
[7] 7 figures will be include for nitrogen, representing each sub-basin

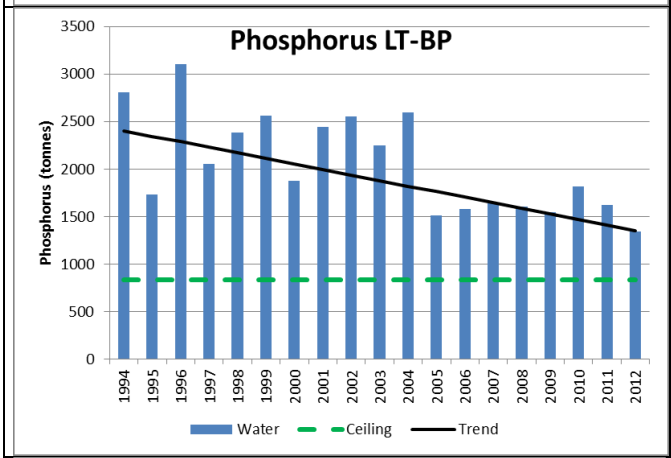
[8] This trend lines will be added when the statistical analysis are ready

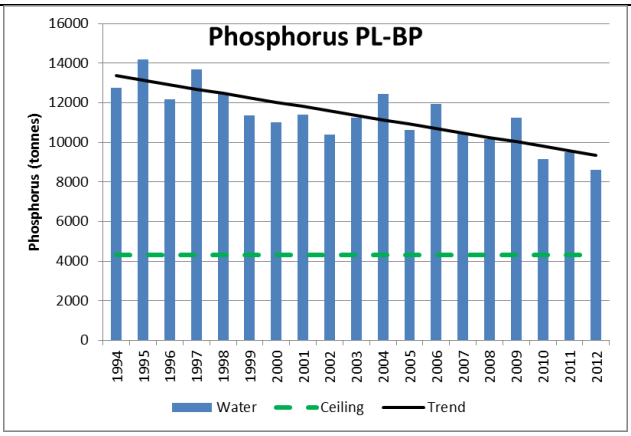

Phosphorus DE-BP
Phosphorus (tonnes)
Water
Ceiling
Trend

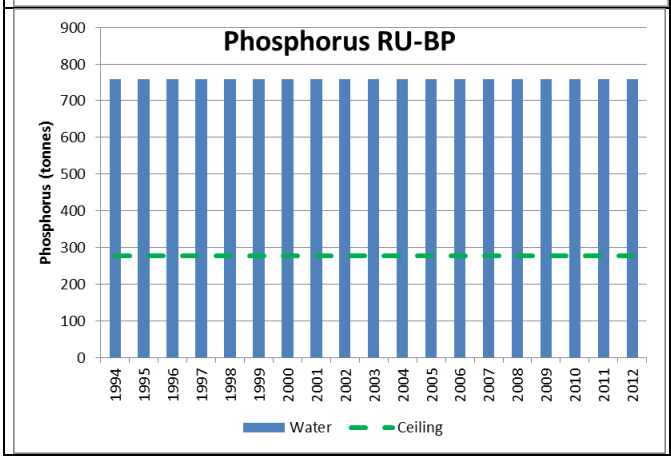

Phosphorus DK-BP
Phosphorus (tonnes)
Water
Ceiling
Trend

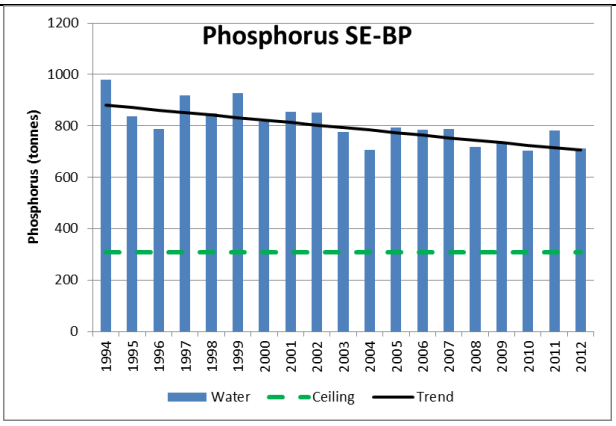

Phosphorus EE-BP
Phosphorus (tonnes)
Water
Ceiling
Trend


Phosphorus LV-BP
Phosphorus (tonnes)
Water
Ceiling
Trend


Phosphorus LT-BP
Phosphorus (tonnes)
Water
Ceiling
Trend


Phosphorus PL-BP
Phosphorus (tonnes)
Water
Ceiling
Trend


Phosphorus RU-BP
Phosphorus (tonnes)
Water
Ceiling


Phosphorus SE-BP
Phosphorus (tonnes)
Water
Ceiling
Trend

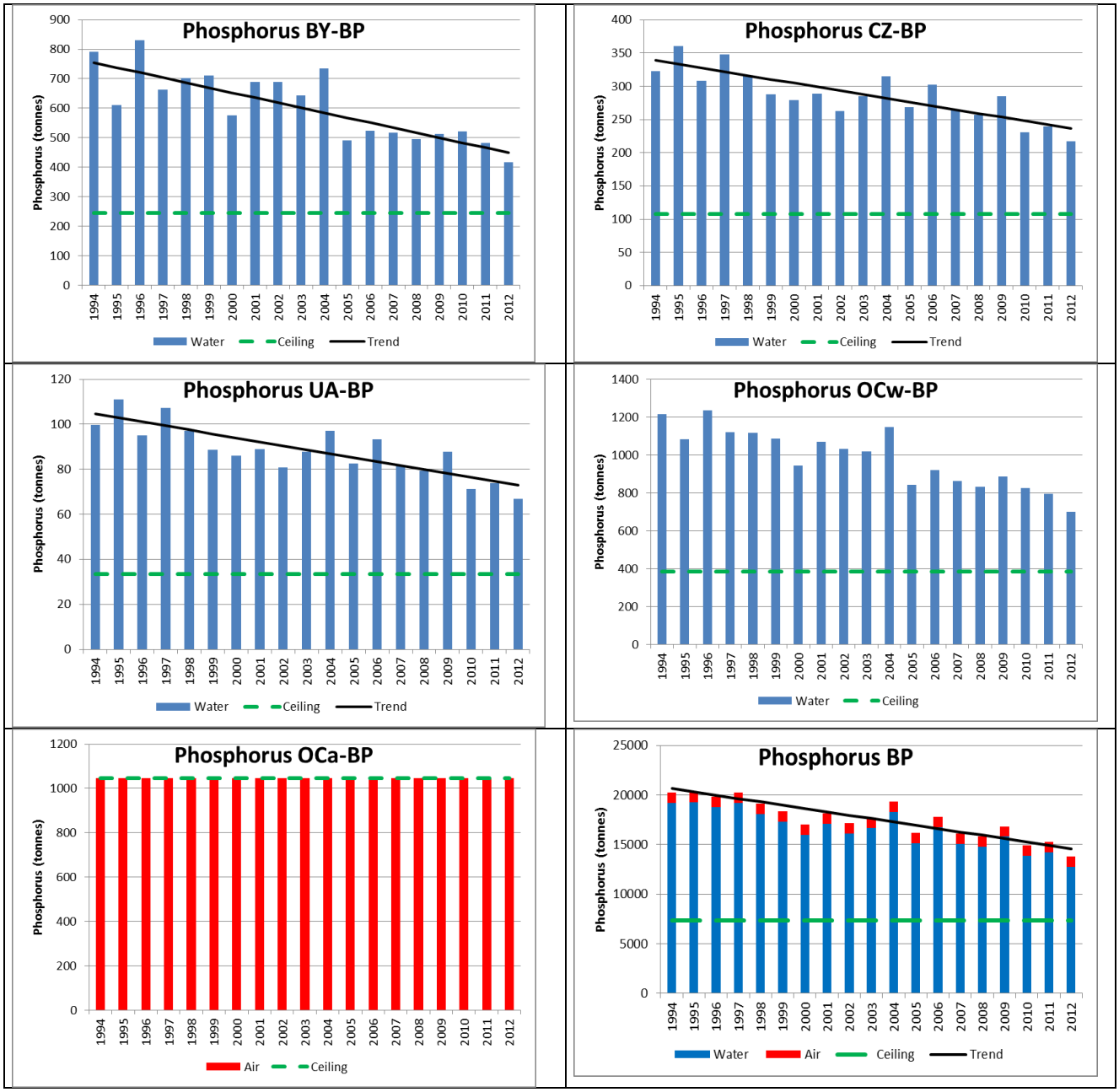


Figure A.5[9] Normalize net inputs of water- and airborne nitrogen 1995-2012 to Baltic Proper from countries/source. The input ceiling (dotted line) is inserted. Trend line (full line) inserted when trend are statistical significant (>95%), and with dotted line with significance between 90-95%.

An example illustrating the importance of changing retention for CART

[An example will be elaborated including a table/tables to illustrate the importance of changing retention for the resulting CART]

Impact of reducing nutrient inputs in one sub-basin for neighbouring basins

[Text will be added to introduce table 8.a and 8.b]

[9] 7 figures will be for phosphorus, representing each sub-basin

Table x.a: Example from BALTSEM simulations on how large nitrogen input reductions to one basin needs to be to give the same effect as reductions of external inputs to another basins. For example: 1.7 tonnes/year reductions to DS give the same effect in KAT as 1 tonnes/year reductions of the external inputs to KAT.

		Gives the equivalent effect of 1 tonne reduction of direct inputs to these basins						
		KAT	DS	BAP	BOS	BOB	GUR	GUF
A reduction of this magnitude in these basins	KAT	1	7.3	15	-	-	-	-
	DS	1.7	1	4.6	-	-	-	-
	BAP	46	32	1	21	-	-	48
	BOS	-	-	15	1	7.8	49	-
	BOB	-	-	12	1.1	1	-	-
	GUR	-	-	1.3	22	-	1	62
	GUF	-	-	4.0	33	-	-	1

Table x.b: Example from BALTSEM simulations on how large phosphorus input reductions to one basin needs to be to give the same effect as reductions of external inputs to another basins. For example: 3.2 tons/yr reductions to DS gives the same effect in BAP as 1 ton/yr reductions of the external inputs to BAP.

		Gives the equivalent effect of 1 ton reduction of direct inputs to these basins						
		KAT	DS	BAP	BOS	BOB	GUR	GUF
A reduction of this magnitude in these basins	KAT	1	4.0	11	-	-	-	43
	DS	0.8	1	3.2	12	27	49	12
	BAP	2.4	2.8	1	3.3	7.7	14	3.8
	BOS	3.8	4.6	1.5	1	2.6	18	5.8
	BOB	25	26	9.0	8.3	1	-	35
	GUR	3.6	4.3	1.6	4.8	14	1	6.5
	GUF	3.6	4.2	1.3	4.1	10	17	1

Challenges and need for further development:

This section includes issues discussed at the LOAD 8/2014 meeting and it in a final draft of the CART follow-up proposals will be included for further consider. Some of the question will probably need a project for development of solutions.

Under the preparation of this draft and in working with the development of follow-up assessment several questions for discussion or further elaboration appeared:

- How can we establish time series for transboundary inputs (if they are not reported use a fixed proportion of total waterborne inputs to the basin according to the proportion set under reference period)? If the proportion changes (due to real changes and/or due to reported/monitored data) how to take into account these changes when evaluating progresses in CART fulfilment
- Should we introduce a minimum transboundary input (%) before it is taken into account
- How to establish time series for retention (at present we use the same retention coefficient every year). If we change retention coefficient how to take into account the influence on CART between CP's- use an example to show what will happen if retention coefficient are change for CART between CP's
- How should we follow up CART for FI and GE regarding the division of their CART?

- Should we show waterborne inputs from non-CP to sub-basins as sums or separately for Belarus, Czech Republic and Ukraine?
- If old data are reported again/corrected and when we add new data (years) and make new normalization we will get changed data also for the reference period. In this draft we have used the reference period data from the 2013 Copenhagen HELCOM Ministerial Declaration (PLC-5.5 report) – when comparing changes with inputs in 2010-2012 – but scientifically speaking this is not 100% correct, because changes in inputs 2010-2012 since the reference period should be based on the same normalized data. Regarding trends and changes from 1995 to 2012 we use the new normalization – so we have a challenges to decide on and solve – because if we change the input during the reference period that would change the input ceiling (and then CART!!!)
- Further develop statistical methods:
  - Make statistical evaluation on whether changes in inputs 2010-12 as compared with reference period are statistical significant
  - Evaluation of fulfilling CART for sub-basins where CART are 0 should be done slightly different that for basins where CART >0
  - For CP/sub basins with CART>0 and CART are statistical fulfilled estimated how many tons inputs are under the threshold for statistical fulfilling CART. Further how could this “free” input be divided among Contracting Parties (based on proportion of CART, proportion of real reductions or?)
- Which data should be available in a spreadsheet on HELCOM web-site regarding the CART follow-up
- Discussion on how some of the figures/presentation could be done

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Abbreviations/definitions

Airborne (or windborne)	Nutrients carried or distributed by air.
AIS	Automatic Identification System with devices on ships that allow for real-time surveillance and statistics of movement of ships.
Anthropogenic	Caused by human activities.
Atmospheric deposition	Airborne nutrients or other chemical substances originating from emissions to the air and deposited from the air on the surface (land and water surfaces).
BAP (or BP)	Baltic Proper
BAS	The entire Baltic Sea (as a sum of the Baltic Sea sub-basins). See the definition of sub-basins.
BNI	Baltic Nest Institute, Stockholm University, Sweden.
BOB (or BB)	Bothnian Bay
BOS (or BS)	Bothnian Sea
BSAP	Baltic Sea Action Plan
BY	Belarus
Catchment area	The area of land bounded by watersheds draining into a body of water (river, basin, reservoir, sea).
Contracting Parties	Signatories of the Helsinki Convention (Denmark, Estonia, European Commission, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden).
Country-Allocated Reduction Targets (CART)	Country-wise requirements to reduce waterborne and airborne nutrient inputs (in tonnes per year) to reach the maximum allowable nutrient input levels in accordance to the Baltic Sea Action Plan.
CZ	Czech Republic
DCE	Danish for the Environment and Energy, Aarhus University, Denmark.
DE	Germany
Diffuse sources	Sources without distinct points of emission e.g. agricultural and forest land, natural background sources, scattered dwellings, atmospheric deposition (mainly in rural areas)
DIN and DIP	Dissolved inorganic nitrogen and dissolved inorganic phosphorus compounds.
Direct Sources	Point sources discharging directly to coastal or transitional waters.
DK	Denmark
DS	Danish Straits
EE	Estonia
EMEP	Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe
Eutrophication	Condition in an aquatic ecosystem where increased nutrient concentrations stimulate excessive primary production, which leads to an imbalanced function of the ecosystem.
FI	Finland

Flow normalization	A statistical method that adjusts a data time series by removing the influence of variations imposed by river flow, e.g. to facilitate assessment of development in e.g. nitrogen or phosphorus inputs.
FR	France
GB	Great Britain
GUF (or GF)	Gulf of Finland
GUR (or GR)	Gulf of Riga
Input ceiling	The allowable amount of nitrogen and phosphorus input per country and sub-basin. It is calculated by subtracting the national CART from the input of nitrogen and phosphorus during the reference period of the BSAP (1997-2003).
KAT (or KT)	Kattegat
HELCOM LOAD	HELCOM Expert Group on follow-up of national progress towards reaching BSAP nutrient reduction targets
LT	Lithuania
LV	Latvia
Maximum Allowable Input (MAI)	The maximum annual amount of a substance that a Baltic Sea sub-basin may receive and still fulfil HELCOM's ecological objectives for a Baltic Sea unaffected by Eutrophication.
Monitored areas	The catchment area upstream of the river monitoring station. The chemical monitoring decides the monitored area in cases where the locations of chemical and hydrological monitoring stations do not coincide.
Monitoring stations	Stations where hydrographic and/or chemical parameters are monitored.
MSFD	EU Marine Strategy Framework Directive
MWWTP	Municipal wastewater treatment plant
NL	Netherlands
Non-contracting parties	Countries that are not partners to the Helsinki Convention 1992, but that have an indirect effect on the Baltic Sea by contributing with inputs of nutrients or other substances via water and/or air.
NOS	North Sea Shipping
OC, OC_a or OC_w	Other countries (sources of transboundary inputs) airborne (OC_a) or waterborne OC_w
PL	Poland
PLC	Pollution Load Compilation
Point sources	Municipalities, industries and fish farms that discharge (defined by location of the outlet) into monitored areas, unmonitored areas or directly to the sea (coastal or transitional waters).
QA	Quality assurance
Reference period	1997-2003
Reference input	The average normalized water + airborne input of nitrogen and phosphorus during 1997-2003 used to calculate CART and input ceilings.

Retention	The amount of a substance lost/retained during transport in soil and/or water including groundwater from the source to a recipient water body. Often retention is only related to inland surface waters in these guidelines.
Riverine inputs	The amount of a substance carried to the maritime area by a watercourse (natural or man-made) per unit of time.
RU	Russia
Statistically significant	In statistics, a result is called "statistically significant" if it is unlikely to have occurred by chance. The degree of significance is expressed by the probability, P. P< 0.05 means that the probability for a result to occur by chance is less than 5%.
Sub-basins	Sub-division units of the Baltic Sea: the Kattegat (KAT), Belt Sea (BES), Western Baltic (WEB), Baltic Proper (BAP), Gulf of Riga (GUR), Gulf of Finland (GUF), Archipelago Sea (ARC) Bothnian Sea (BOS) and Bothnian Bay (BOB). The whole Baltic Sea is abbreviated BAS.
SE	Sweden
SS	Baltic Sea Shipping
Transboundary input	Transport of an amount of a substance (via air or water) across a country border.
TN and TP	Total nitrogen and total phosphorus which includes all fractions of nitrogen and phosphorus.
UA	Ukraine
Unmonitored area	Any sub-catchment(s) located downstream of the (riverine) chemical monitoring point within the catchment and further all unmonitored catchments; e.g. partly monitored rivers, unmonitored part of monitored rivers, unmonitored rivers and coastal areas including unmonitored islands. In previous versions of the guidelines, direct diffuse sources (scattered dwellings and storm waters overflows) were reported separately and some countries also reported coastal areas separately. These are now reported as part of the unmonitored area.
Waterborne	Substances carried or distributed by water.
WFD	EU Water Framework Directive

OUTCOME OF THE 49TH MEETING OF HEADS OF DELEGATION (HELCOM HOD)

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OUTCOME OF THE 49TH MEETING OF HEADS OF DELEGATION (HELCOM HOD)

Introduction

0.1 The 49th Meeting of the Heads of Delegation was held in the premises of the HELCOM Secretariat in Helsinki, Finland, on 10-11 December 2015.

0.2 The Meeting was attended by participants from all Contracting Parties as well by Observers from Baltic Farmers' Forum on Environment (BFFE), Baltic Sea Parliamentary Conference (BSPC), Coalition Clean Baltic (CCB), Federation of European Aquaculture Producers (FEAP), John Nurminen Foundation (JNF), Oceana and World Wide Fund for Nature (WWF). The List of Participants is contained in **Annex 1**.

0.3 The Meeting was chaired by the Chair of the Helsinki Commission, Mr. Harry Liiv.

Agenda Item 1 Adoption of the Agenda

Documents: 1-1, 1-2

1.1 The Meeting adopted the Agenda as contained in document 1-1.

Agenda Item 2 Preparations for HELCOM 37-2016

Documents: 2-1, 2-2

2.1 The Meeting discussed and agreed on the Provisional Agenda for HELCOM 37-2016 (10-11 March 2016) (document 2-2) with the addition of a new agenda item "Next HELCOM Ministerial Meeting" as Agenda Item 3.

2.2 The Meeting discussed the preparations for HELCOM Marine Litter Stakeholder Conference (9 March 2016) and took note of input to the programme from Contracting Parties and endorsed in principle the draft provisional programme for the HELCOM Stakeholder Conference (document 2-1) to be further developed based on the discussions in the meeting.

Agenda Item 3 Next HELCOM Ministerial Meeting

Documents: 3-1

3.1 The Meeting took note of the updated Roadmap of HELCOM activities based on the progress since HOD 48-2015 (document 3-1) and agreed that the Roadmap is to be further updated based on the outcome of this Meeting and submitted to HELCOM 37-2016 for endorsement.

3.2 The Meeting discussed the next HELCOM Ministerial Meeting and identified HOLAS II and MAI/CART as the most important issues suitable for ministerial attention, with the possibility to include other issues as well. The Meeting agreed that in order to attract high-level political attention the discussion of the next Ministerial Meeting should focus on a few topical priority issues and that the programme should be arranged so that it is interactive and the ministers can actively make an impact, and a new type of outcome could be planned for.

3.21 The Meeting tentatively agreed that the next HELCOM Ministerial Meeting will be held in 2018. The exact timing will be decided as soon as possible based on knowledge of other events on the international agenda and the development of the priority topics identified and invited the Secretariat to start preparations.

Agenda Item 4 Matters arising from the HELCOM Groups

Documents: 4-1, 4-2, 4-3, 4-4, 4-5, 4-6, 4-7, 4-8, 4-9, 4-10, 4-11, 4-12, 4-13, 4-14, 4-15, 4-16, 4-17, 4-18, 4-19, 4-20, 4-21, 4-22, 4-23, 4-24, 4-25, 4-25-Corr.1, 4-26, 4-27, 4-28, 4-29, 4-30, 4-30-Corr.1, 4-31, 4-32, 4-33, 4-34, 4-35, 4-36, 4-37, 4-38, 4-39

Pressure

4.1 The Meeting took note in general of the outcome of the Third Meeting of the new Working Group on Reduction of Pressures from the Baltic Sea Catchment Area (PRESSURE 3-2015), Copenhagen, Denmark, 7-9 October 2015 (document 4-3), presented by the Chair of the Pressure WG Mr. Lars Sonesten.

4.2 The Meeting welcomed the offers for leadership in implementing the actions from the Regional Action Plan on Marine Litter (RAP ML) received so far from the Contracting Parties and other actors and the information that Germany is ready to co-lead matters related to the implementation of the pressure-related actions of the RAP ML, if needed and having also a co-lead for the State & Conservation WG related parts, and invited further offers for lead in the remaining actions.

4.3 The Meeting was of the opinion that the work on further development of the HELCOM Recommendation on sewage sludge management should be continued by the Pressure group and the issues related to the Annexes containing limit values should be further discussed by experts in order to prepare acceptable suggestions for the meeting of PRESSURE 4-2016. The Meeting took note that Germany will provide initial suggestions by end of the year 2015.

4.4 The Meeting noted the Terms of Reference for the HELCOM Expert Network on Marine Litter (EN-Marine Litter) (Attachment 1 in document 4-3).

4.5 The Meeting welcomed the offer by Germany to lead development of the registry of sources of impulsive underwater noise and related indicator.

4.6 The Meeting took note of the concerns by Finland and Estonia regarding the impact of dredging activities in the Port of Bronka (Russia) and that a letter has been sent by Finland as well as the HELCOM Executive Secretary to the Russian Federation requesting information on how the requirements of the Helsinki Convention have been followed in this large scale operation.

4.7 The Meeting noted that this information request concerns e.g. the exact amounts and level of contamination of material dredged and dumped for the port construction, as well as monitoring in the area.

4.8 The Meeting took note of the information by Russia that the data required to prepare the detailed answer to the request is being collected from data holders and that the information will be provided to the Contracting Parties as soon as the compilation is ready. The Meeting took note of the information by Russia that some information is available in English on the web page of the Port of Bronka at http://eng.port-bronka.ru.

4.9 The Meeting noted the status of reporting within PLC-6 and annual PLC, and requested Poland and Russia to report annual PLC data as soon as possible.

4.10 The Meeting approved arranging the next meeting of the Pressure WG (PRESSURE 4-2016) on 19-21 April 2016 in Gothenburg, Sweden, and PRESSURE 5-2016 on 24-28 October 2016 and welcomed the offer by Poland to consider hosting the Meeting.

4.11 The Meeting took note of the information on the status of reporting and assessment of dredging and exploration of mineral resources in the Baltic Sea (document 4-32), provided feedback to the Secretariat regarding the focus of such assessment and welcomed the information that Pressure WG at its next meeting will consider both the assessment methodology and related improvements in reporting, taking into account similar work in OSPAR. The Meeting requested that also the Maritime Working Group is involved in improving the assessment of dredging activities/depositing of dredged material.

4.12 The Meeting recalled that HELCOM Recommendation 36/2 on management of dredged material and its reporting format has been recently revised and adopted.

4.13 The Meeting considered progress in the elaboration of the PLC products (document 4-11) and an updated division of tasks and timetable in the implementation plan of the HELCOM MAI-CART OPER project (document 4-11-Add.1).

4.14 The Meeting decided that the next PLC assessment (PLC-7) will be made in 2019 based on the monitoring data from 2017. The Meeting agreed on the need to make already plans for timing of PLC-8 assessment to be able to plan ahead and noted the proposal by Germany to conduct monitoring in 2021 and reporting in 2023. The Meeting requested PRESSURE 4-2016 to consider the timing of PLC-8 and make a proposal to HOD 50-2016.

4.15 The Meeting recognized that the PLC assessment routine needs re-consideration, since the "traditional" PLC products have changed their character, and the focus in periodic PLC is much more now on source apportionment and effectiveness of measures. Also coupling of future PLC assessments and CART assessment needs to be further considered by Pressure WG.

4.16 The Meeting took note of the view by Germany that human and financial resources should be dedicated to PLC-7 to work towards a more harmonised approach for source apportionment, aiming at harmonising the catchment models (or even using one catchment model for all countries).

4.17 The Meeting discussed the first draft of the CART assessment (accessible via a link circulated by the Secretariat) and appreciated efforts made by the experts involved in preparing the assessment. The Meeting noted that a few of the Contracting Parties had some further suggestions for improvements, however, recognized that the assessment should be published without further delay as clear indications where the Baltic Sea region stands with respect to CART are urgently needed.

4.18 On the basis of the above, the Meeting agreed to publish the CART assessment as preliminary results with the understanding that these are scientific results, noting that besides editorial improvement the two remaining issues are:

- to include, in the key message, information that Poland accepts the Polish Country Allocated Reduction Targets as indicative due to the ongoing national consultations and confirms their efforts to finalize these consultations as soon as possible;
- in the key message tables it should be made clearer that there is a difference in how far the countries are from the targets.

4.19 The Meeting agreed that in the future the science-based CART assessment product has to be separated from a policy message product, related to the implementation of the HELCOM nutrient reduction scheme.

4.20 The Meeting requested the Pressure WG to continue work to implement this new approach (para 4.19), including through a possible expert workshop, and take into account the comments provided by the Contracting Parties and the need to make the next CART assessment - though remaining a scientific project- more user friendly.

4.21 The Meeting encouraged all Contracting Parties to be involved in the PLC work within the Pressure WG.

4.22 The Meeting requested PRESSURE-4 to consider the reference contained in the Copenhagen Ministerial Declaration regarding an extra reduction in basins where reduction targets have already been fulfilled, to be accounted for in other basins, and if the assessment of inputs by major rivers could be provided.

4.23 The Meeting agreed to discuss the progress in implementation of the HELCOM nutrient reduction scheme at HELCOM 37-2016.

4.24 The Meeting noted the start-up of the project on operationalization of the nutrient reduction scheme follow-up system (MAI-CART OPER, 2015-2017) including the outcomes of the project workshop on 1 December 2015 and approved the implementation plan of the project (document 4-11, Attachment 3 and document 4-11-Add.1) and requested that also a user manual is prepared by the project.

4.25 The Meeting took note of the clarification by the Secretariat that the project should be seen as contributing to the overall operationalisation of MAI/CART assessments and that it focuses on automation of certain steps in the assessments, improving overall quality of the assessment result and transparency of the assessment procedures.

4.26 The Meeting pointed out that the Pressure WG should be actively involved in the project coordination. The Meeting invited Contracting Parties to consider contributing financially to bridge the gap in the project budget which would otherwise need to be covered from the HELCOM budget.

4.27 The Meeting agreed and endorsed the draft HELCOM Recommendations on waterborne pollution input assessment and on monitoring of airborne pollution input (document 4-6) and agreed to submit them to HELCOM 37-2016 for adoption pending the confirmation by Germany by **8 January 2016**.

4.28 The Meeting decided on removing of the JCP Hot Spots Nos. 87.1, 99.2, 82, 83.1, 84 and 85 from the list of JCP Hot Spots (document 4-4) and congratulated Poland for the achievement.

4.29 The Meeting considered the draft roadmap to build a knowledge base on underwater noise (document 4-21) and the revised version based on the comments by Russia (document 4-21 Rev.1), noting that the draft was also considered by HELCOM MARITIME 15-2015, which should be made more clear on the cover page.

4.30 The Meeting approved the roadmap as included in **Annex 2**, pending clarification of the study reservation by Russia by **31 January 2016**.

4.31 The Meeting noted that underwater noise is a crosscutting issue and should continue to be also considered by the Maritime group.

4.32 The Meeting took note of the progress in setting up the registry for impulsive underwater noise (document 4-22) and recognized the opportunity to join the OSPAR regional registry being set up in ICES with minimal cost, allowing timely fulfillment of the Ministerial commitment.

4.33 The Meeting agreed that HELCOM joins the OSPAR registry of impulsive noise and on the need to clarifify hosting of the database and condition of hosting and noted that the work on reporting details is still ongoing and is aimed to be finalized by HELCOM EN-Noise in close cooperation with OSPAR and ICES.

Fish

4.34 The Meeting took note of the outcome of the Third Meeting of the HELCOM Group on Ecosystem-based Sustainable Fisheries (FISH 3-2015), Warsaw, Poland, 26-27 November 2015 (document 4-35).

4.35 The Meeting agreed on an option for HELCOM to be involved as a partner in the SUSFISHING project for restoration of sea trout rivers in the Baltic Sea (presentation 4 from HELCOM FISH 3-2015) to support activities of the Task Force on migratory fish species.

4.36 The Meeting approved organizing the next meeting of the Fish Group during the first week of May 2016.

4.37 The Meeting stressed the importance of close cooperation between HELCOM and other organisations working with fish and/or fisheries, in particular BALTFISH, as HELCOM can provide scientific input.

4.38 The Meeting welcomed the information that Estonia is willing to host FISH 5 if it will take place during 2016.

4.39 The Meeting took note of the draft HELCOM Recommendation on sustainable aquaculture in the Baltic Sea as editorially revised intersessionally (document 4-10).

4.40 The Meeting considered and discussed the submission from Denmark regarding the draft Recommendation (document 4-37) with a proposal for alternative wordings to point 1c iii of the Annex of the Recommendation.

4.41 The Meeting agreed on the wording for points 1c iii of the Annex *"…avoid or minimize negative impacts on the current status of the environment and aim at not jeopardizing the achievement of good ecological/environmental/chemical status of the area affected, and…".*

4.42 The Meeting agreed further to change, for reasons of consistency, the wording in point 3 (page 3) in the main text of the draft Recommendation as follows: *"…in an overall endeavour by the Contracting Parties to keep inputs ~~to~~ within Maximum Allowable Inputs for nitrogen and phosphorus for the Baltic Sea basins…"*.

4.43 The Meeting recalled that the FISH 3-2015 meeting had agreed to propose a follow up to the HELCOM Recommendation by developing a draft document on BAT/BEP for sustainable aquaculture in the Baltic Sea region in a HELCOM Fish Correspondence Group and noted that the Chair of FISH Group proposed the following way forward:

- that given the heterogeneous nature of aquaculture a scoping/matrix approach could be a good start;
- variability in technology and geography (differences between sub-regions) are important dimensions in the scoping exercise.

4.42 The Meeting took note of the comment by Finland that their reservation on the Recommendation follow-up as expressed in FISH 3-2015 remains.

4.44 The Meeting discussed the follow up of the Recommendation, once adopted, regarding BAT/BEP for aquaculture in the Baltic Sea region and noted the different views of the Contracting Parties on the the approach and further process in developing BAT/BEP.

4.45 The Meeting agreed on the need to clarify this issue before adoption of the Recommendation and agreed to establish a correspondence under the lead of [the HELCOM FISH Chair] to pave the way to be able to agree on the Recommendation and its follow-up at HELCOM 37-2016.

4.46 The Meeting agreed that HELCOM 37-2016 should reconsider the draft Recommendation based on the outcome of the correspondence work.

4.47 The Meeting took note of the comment by FEAP that involving the aquaculture industry in the work on HELCOM Recommendation on sustainable aquaculture is highly appreciated, the regional aquaculture BAT/BEP process should be industry driven and that the economic feasibility of measures should be included in the work.

4.48 The Meeting noted the comment by CCB that developing regional HELCOM BAT/BEP documentation is a key element based on fundamental principles of 1992 Helsinki Convention. The Meeting also took note of the information on CCB Seminar on Land-based aquaculture systems, held on 11-12 November 2015 in Stockholm, Sweden, as a first step of involving industry in development of BAT/BEP.

4.49 The Meeting took note of the information by the EU, as a follow up to FISH 3-2015 considerations on international agreements for the management of eel stock, that an eel management plan has been prepared by Poland and the Russian Federation and that, following the scientific assessment of the plan, the European Commission will consider approving the plan as it is expected to contribute to the improvement of the stock status and its recovery.

Gear

4.50 The Meeting took note of the outcome of the 12th Meeting of the Group for the Implementation of the Ecosystem Approach (GEAR 12-2015), Warsaw, Poland, 29-30 October 2015 (document 4-2).

4.51 The Meeting noted that 14 future HELCOM actions are proposed as the result of the coordination efforts relating to national PoMs that have taken place in the process of documenting regional coordination of programmes of measures (document 4-26). These proposed actions are new activities to be taken forward by the HELCOM working groups, as a follow-up of BSAP.

4.52 The Meeting took note of the information on the amended Action 11 and 12 related to the Fish Group (document 4-36) and that they substitute the corresponding actions in document 4-26.

4.53 The Meeting took note that Germany here, as in other places and due to a formal study reservation, is not in a position to agree on any of the proposed future actions.

4.54 The Meeting noted that several Contracting Parties expressed their concern about the German formal study reservations under the HOD 49 Agenda (4.27, 4.53, 4.55, 4.94, 4.124, 4.128) and its paralyzing effects on HELCOM work, and about the HELCOM MSFD-coordination that has been requested by the EU, being jeopardised, and invited Germany to explain what the substantive issues at stake are regarding the individual documents in order to allow for a constructive way forward. Following that request, Germany informed the meeting as follows: The reason for the study reservations relates to ongoing national discussions between different levels of administration (Federal coastal states and federation) about the national consultation procedures concerning regional work. Until those procedures are not clarified, Germany is not in a position to formally endorse documents which – directly or indirectly - relate to the MSFD implementation process. Germany will inform HOD as soon as possible about progress and the possibility to lift its reservations.

4.55 The Meeting noted the specific study reservation by Germany on action 1.

4.56 The Meeting noted the study reservation by Denmark on actions 2 and 9 (document 4-26) and invited Denmark to clarify the position on action 2 by **4 January 2016** and that the clarification on action 9 will be discussed in the planned intersessional activity to elaborate the Recommendation on conservation plan for species (cf. paragraph 4.112)

4.57 The Meeting considered action 14 'To develop a Roadmap for Biofouling management' and could not agree to it in its current form and proposed that it could be reconsidered after further development. The Meeting furthermore requested a clarification if the action is aimed at "outlining the steps towards reducing the risk of spread of non-indigenous species" (as indicated in document 4-25) or "environmentally friendly and safe TBT-free antifouling systems on ships" (as indicated in document 4-36).

4.58 Taking note of the German (c.f. para 4.53 and 4.55 above) and Danish (c.f. para 4.56 above) study reservations, the Meeting agreed on the remaining actions as included in document 4-36, with the following specific comments for further consideration:

- Action 2: 'Assess the role of internal nutrient reserves/accumulated nutrients/stored nutrients in the Baltic and potential management measures'. The Meeting agreed on the alternative text proposed by Sweden.
- Action 11: 'Adjustment or utilization of EU data collection framework to retrieve data for assessments and the development of management measures related to by-catch of species'. The Meeting noted the proposal from Finland to fine-tune the text of Action 11 to properly reflect the EU Common Fisheries Policy Data Collection Framework (DCF) process and invited Finland to submit the proposal to Lead country Poland. The Meeting invited the Secretariat to consult with the European Commission to clarify aspects of the action related to the DCF.
- Action 13: 'Regional monitoring programme on non-indigenous species in the Baltic Sea'. The Meeting noted the view of Germany to cooperate with OSPAR on the development of the monitoring programmes.

4.59 The Meeting noted that the action on regional risk assessment of shipping (Action 5) and joint principles for environmental targets of sea-bed habitats (Action 10) are already agreed actions.

4.60 The Meeting requested the Secretariat to identify responsible HELCOM working groups for each action.

4.61 The Meeting took note of the presentation of the HOLAS II project by the Secretariat (document 4-5, **Presentation 1**). The Meeting noted that several project activities until mid-2017 are taken forward through projects co-financed by the EU, more specifically the BalticBOOST project and TAPAS project. The Meeting welcomed the recent decision on financing TAPAS (document 4-8).

4.62 The Meeting welcomed the progress of the HOLAS II project and acknowledged the need for Contracting Parties to ensure national expertise and deliver required data according to the timetable of the project.

4.63 The Meeting exchanged views on the planned consultations within countries with regard to HELCOM assessments to be used for other reporting obligations and expressed the view that this issue requires careful consideration in order to maintain the scientific quality of the HELCOM assessment products.

4.64 The Meeting noted that a questionnaire will be circulated to GEAR contacts to clarify national requirements on the consultation process.

4.65 The Meeting noted the ongoing work of the European Environment Agency to develop a European marine assessment under MSFD Article 20.3b, which is to be carried out in coordination with RSCs and furthermore noted that Contracting Parties are invited to provide their views on the European marine assessment and how the cooperation between EEA and HELCOM can be structured, including the tentative need for resources for such cooperation.

4.66 The Meeting approved organizing the next meeting of the GEAR group on 10-11 February 2016 in Berlin, Germany.

4.67 The Meeting took note of the 'Draft Joint documentation of regional coordination of programmes of measures in the Baltic Sea' and recognized that it is the result of the coordination undertaken by Contracting Parties in relation to their Programmes of measures (document 4-25).

4.68 The Meeting noted proposed revisions to the document by Russia as well as Germany (document 4-27) and that Finland intends to provide some editorial improvements by **11 January 2016.**

4.69 The Meeting endorsed in principle the "Joint documentation of the regional coordination of the programme of measures" noting a study reservation on the document by Russia and invited Russia to clarify the study reservation by **11 January 2016**.

4.70 The Meeting agreed to delegate the deliberation of remaining comments and finalization of the text in the Joint documentation to GEAR 13-2015 and requested GEAR to update the document to reflect the finalization of national programmes of measures (by 28 February 2016 at the latest).

4.71 The Meeting clarifed that as soon as GEAR has finalised the joint documentation, it can be made available for reporting under the MSFD, for those HELCOM countries which are also EU member states.

4.72 The Meeting agreed to keep and update Annex 3 of the draft Joint documentation on Programmes of measures to reflect the outcome of the meeting regarding future actions (paragraphs 4.51, 4.52, 4.57-4.59), taking note of the study reservations raised at the Meeting (paragraphs 4.53, 4.55 and 4.565).

4.73 The Meeting considered the statement by CCB on funding the EU MSFD Programs of Measures (document 4-17) and discussed relevant steps to fully utilize available funding while devising joint and coherent implementation of the EU MSFD and HELCOM BSAP.

Maritime and Response

4.74 The Meeting took note of the outcome of the 15th Meeting of the HELCOM Maritime Working Group (MARITIME 15-2015), Klaipeda, Lithuania, 23-25 November 2015 (documents 4-30 and 4-30-Corr.1).

4.75 The Meeting congratulated Ms. Anna Petersson, Sweden, Ms. Natalia Kutaeva, Russia, and Mr. Jorma Kämäräinen, Finland, for re-election as chair and vice-chairs, respectively, of the Maritime Working Group for the next two-year period (2016-2017).

4.76 The Meeting approved organizing the next meeting of the Maritime Working Group during the week 5-9 September 2016.

4.77 The Meeting adopted the Terms of Reference for the Joint HELCOM-OSPAR Task Group on Ballast Water Management Convention Exemptions (HELCOM-OSPAR TG BALLAST) for 2015-2016 (document 4-31) with the information that HELCOM considers the footnote as deleted.

4.78 The Meeting took note that the 2004 IMO Ballast Water Management Convention is very close to entry into force as on the basis of preliminary calculations by the IMO Secretariat only a fraction of a percentage is missing from the remaining unfulfilled criteria on ratified flag state tonnage.

4.79 The Meeting recalled that HELCOM and OSPAR have carried out substantial work on preparing for the implementation of the BWM Convention in the Baltic and North-East Atlantic regions and noted that with entry into force of the Convention the results will likely collect increased interest from other regions.

4.80 The Meeting noted that one of the central products is the HELCOM-OSPAR Joint Harmonised Procedure, a system to implementat regulation A-4 (exemptions) of the BWMC, and that the online risk assessment tool would benefit from enhancements to make it more user friendly.

4.81 The Meeting took note that a revision to HELCOM Recommendation 25/7 has been endorsed by MARITIME and will be submitted to HELCOM 37-2016 for adoption.

4.82 The Meeting took note that Sweden relies mainly on criminal sanctions, which limits a practical application of harmonized level of administrative fines to be considered by the ongoing revision of HELCOM Recommendation 19/14.

4.83 The Meeting took note of the draft Roadmap for designating a NECA in the Baltic Sea in parallel with the North Sea (document 4-29) as well as the NECA-related outcome of MARITIME 15-2015 as presented by Demark (**Annex 3**).

4.84 The Meeting took note of the statement by Germany, supported by WWF, that the postponement of NECA submission dates and effective date in the NECA Roadmap to 2021 is not their first option but can be accepted for the sake of compromise.

4.85 The Meeting considered further steps how to proceed with the NECA issue and with the draft roadmap and welcomed that Denmark will submit a revised version, based on the outcome of MARITIME 15-2015, to HELCOM 37-2016 for adoption.

4.86 The Meeting took note that national consultations are still ongoing in Finland, and therefore, Finland will inform on their position on the timing of NECA at HELCOM 37-2016.

4.87 The Meeting noted that Finland remains the only country that is not ready yet to decide on the timing of the Baltic NECA, in parallel to the North Sea NECA

4.88 The Meeting took note of the statement by the EU that it is important to keep in mind appropriate procedures in Contracting Parties that are EU Member States when considering the different steps under the NECA roadmap.

4.89 The Meeting considered the proposal by Sweden for financing model for the maintenance of the Seatrack Web (STW) (document 4-16).

4.90 The Meeting took note that with regard to this financing scheme for Finland, Lithuania, Germany and Latvia it is the only option that contributions from national institutions are paid directly to SMHI hosting the tool.

4.91 The Meeting took note of the following comments by Contracting Parties on the financing of the STW tool:

- Denmark, Finland, Lithuania and Germany can support the contributions allocated to them in the document 4-16.
- Latvia needs to consider more the basis of calculating the contribution.
- Russia is not prepared to participate as Russia is using another model and is not in favour of using HELCOM budget for the scheme.
- Poland and Estonia need more time for national consultations.

4.92 The Meeting invited Poland, Estonia and Latvia to clarify their position to Sweden as soon as possible.

4.93 The Meeting adopted the proposed core pressure indicator on oil spills affecting the marine environment (document 4-9) with the change that Figure 1 (page 5) should include both flight hours and estimates of volume of spills, and pending the confirmation by Germany by end of this year.

4.94 The Meeting approved the proposal for HELCOM Project on Maritime Assessment (**Annex 4**) to enable involvement of the needed expertise and took note of the outline of the Maritime Assessment (document 4-23). The Meeting took note of the Russian proposal to cover the positive long-term trends such as the significant decrease in illegal spills in the Baltic Sea 1989-2015 and reduction of emission of sulphur from shipping.

4.95 The Meeting took note of the Baltic LINes project to be implemented 2016-2019 (document 4-34).

Follow-up system for HELCOM agreements

4.96 The Meeting took note of the presentation by the Secretariat of the draft assessment of accomplishment of HELCOM actions implemented at a regional level and the test case of an action implemented at the national level, carried out by the Secretariat as requested by GEAR 12-2015 (document 4-15, 4-15 Att 1, **Presentation 2**).

4.97 The Meeting recalled that the system covers actions committed under the Baltic Sea Action Plan and 2010 and 2013 Ministerial Declarations as well as HELCOM Recommendations adopted since the BSAP.

4.98 The Meeting noted that the evaluation criteria for the follow-up of actions have been reviewed by HELCOM Working Groups during 2015. The Meeting further noted that the aim is to create a web-based implementation database with possibility to extract results and to visualize results based on a set of pre-defined figures and that the technical completion of the system is supported by resources from the EU co-financed BalticBOOST project.

4.99 The Meeting welcomed the system as a transparent way to follow progress of accomplishment of HELCOM commitments and was of the view that it will simplify the reporting by Contracting Parties.

4.100 The Meeting noted that the WWF welcomed the development of a transparent follow-up of HELCOM agreements.

4.101 The Meeting considered the proposal to report actions implemented at the national level by mid-February 2016 with the view to presenting first exmplary draft results as progress report to HELCOM 37-2016. The Meeting noted that a majority of Contracting Parties will be able to provide reporting of national actions within this time-frame while other Contracting Parties were not in a position to guarantee reporting on all themes by this time.

4.102 The Meeting agreed on a step-wise approach on the reporting where two themes would be reported by mid-February 2016 and two themes by end of February 2016 and invited the countries to finalize the reporting according to this time-table as far as possible. For one specific theme with the fewest number of actions, still to be identified, all Contracting Parties are requested to prioritize reporting by mid-February in order to be able to present results at HELCOM 37-2016.

4.103 The Meeting discussed two options of visualizing implementation of national actions and was of the view that they could be visualized by displaying accomplishment of individual actions by all Contracting Parties in the same figure (cf. figure 3, document 4-15), or by preparing web-pages listing country-wise accomplishment of actions. The Meeting noted that Lithuania preferred the first option while Denmark will return with a clarification on the preferred visualization within a week.

4.104 The Meeting noted the comment by Russia on the importance of clarifying the information contained in document 4-15 and 4-15 Att 1 before making it available to the general public.

4.105 The Meeting took note that Denmark might come back regarding the criteria for assessing accomplishment by mid-February 2016 (by Gear meeting).

4.106 The Meeting noted that Sweden wished to see a possibility to seek for synergies with identifying reporting requirements as under e.g. EU directives and to the EEA.

State and Conservation

4.107 The Meeting took note of the outcome of the Third Meeting of the State and Conservation Working Group (STATE & CONSERVATION 3-2015), Helsinki, Finland, 9-13 November 2015, as presented by the co-Chairs Mr. Urmas Lips and Ms. Penina Blankett (document 4-7), and noted:

- that reporting to the COMBINE data base is missing from some Contracting Parties and needs to submitted as soon as possible to ensure access to data for the 2nd HELCOM holistic assessment;
- that a joint EUSBSR PA Hazards/HELCOM background report on pharmaceuticals in the Baltic Sea is being finalized and will be presented at a stakeholder conference in Copenhagen on 15 December 2015;
- that State and Conservation agreed on the draft Terms of Reference of the HELCOM expert network on hazardous substances;
- that State and Conservation supported the proposal to establish a HELCOM expert network on eutrophication and agreed on draft Terms of Reference;
- that the modernized HELCOM MPA database has been published and that the methodology for the assessment of ecological coherence was discussed and agreed by the Meeting.

4.108 The Meeting agreed to convene STATE & CONSERVATION 4-2015 on 11-15 April 2016, in Germany, and STATE & CONSERVATION 5-2015 on 7-11 November 2016, tentatively in Estonia.

4.109 The Meeting took note of the presentation by Lead Country Germany on the draft HELCOM Recommendation on Conservation of Baltic Sea species categorized as threatened according to the HELCOM red list (document 4-12).

4.110 The Meeting recalled that all Contracting Parties but Denmark were ready to adopt the final draft HELCOM Recommendation on 'Conservation of Baltic Sea species categorized as threatened according to the HELCOM Red List' at HELCOM 36-2015. The Meeting took note of the information that while intersessional consultations have taken place, Denmark's study reservation remains and furthermore took note that the Danish national concerns are related to the costs of developing species specific conservation plans and evaluating the red listed species in EIA-like procedures as well as questioning the efficiency of protecting species that are naturally rare such as red listed species in the Kattegat area (documents 4-38 and 4-39).

4.111 The Meeting regretted that the current draft Recommendation would need further elaboration to accommodate the Danish concerns while still being acceptable to all Contracting Parties and that this Meeting is not in position to agree on the draft Recommendation.

4.112 The Meeting welcomed the willingness of Germany to continue leading the finalization of the Recommendation and the offer to continue the further elaboration of the text bilaterally with Denmark and *via* consultation of all Contracting Parties, e.g. through written procedure or an online meeting, as appropriate, with the view to reaching an agreement in time for adopting the Recommendation at HELCOM 37-2016. All Contracting Parties will be consulted on time e.g. through written procedure or the organization of an online meeting as appropriate. Against that background the Meeting, furthermore, agreed to start with the second Recommendation on "Conservation of Baltic Sea underwater biotopes, habitats and biotope complexes threatened according to the HELCOM Red List" only upon finalization of the first Recommendation.

4.113 The Meeting requested that in parallel to considering the Recommendation on conservation of threatened species, the action to support conservation of Baltic species and biotopes/habitats categorized as threatened according to the HELCOM Red List (action 9, document 4-26) is taken up with a possibility to start work on some species/habitats/biotopes.

4.114 The Meeting considered the draft Recommendation 'Co-operation and coordination of research vessel based monitoring in off-shore areas and procedures for granting permits for monitoring and research activities' as presented by the co-Chair of State and Conservation (document 4-14).

4.115 The Meeting took note of the following comments and revised the Recommendation accordingly:

- to place the reference to UNCLOS as paragraph 3 of the pre-amble;
- to remove reference to UNCLOS Article 247 and 248 in paragraph d);
- to phrase paragraph d) according to the following: "to facilitate granting of permits, to carry out monitoring and research activities in the framework of the HELCOM coordinated monitoring programme in the exclusive economic zones, fishing zones, continental shelves or territorial waters, aiming at within six weeks from the time of the request."

4.116 The Meeting took note of the of the study reservation by Russia on paragraph c, since granting of one year permits may not be in accordance with national legislation, and that Russia will clarify the position by **17 December 2015**.

4.117 Taking note of the study reservation by Russia, the Meeting endorsed in principle the draft Recommendation for adoption by HELCOM 37-2016.

4.118 The Meeting agreed to establish a HELCOM intersessional expert network on eutrophication and agreed to the draft Terms of Reference as contained in document 4-13.

4.119 The Meeting welcomed the outcome of the EUTRO-OPER project and took note that the pre-core indicators developed by EUTRO-OPER will not be finalized by end of the project and that in order to finalize them Lead Countries are needed to ensure their continued development as well as resources for modelling to develop GES-boundaries for three of the indicators. The Meeting noted the view of Finland, Germany and Sweden to continue the project in 2016 with support of a part-time project manager. The Meeting agreed to continue the project for a limited period 3-6 months and welcomed the offer by Germany to contribute to the work financially.

4.120 The Meeting took note of the view of the Chair of the Pressure WG that it would beneficial to link the work of the RedCore and EUTRO-OPER project.

4.121 The Meeting took note of the working arrangement for continued development of indicators (document 4-20) and recalled that it is based on a Lead Country approach and a more continuous engagement of HELCOM expert groups, networks and projects, as agreed by HOD 48-2015. The Meeting noted that a key task for HELCOM experts groups, network and project is to carry out the updating of indicator evaluations for core indicator reports as well as for the 2nd holistic assessment.

4.122 The Meeting noted that Germany is not in a position to be in the lead on the cumulative impact indicators, and its repeated view that the core indicators on nutritional and reproductive status of marine mammals are not suitable to assess the health of marine mammals.

4.123 The Meeting encouraged Contracting Parties to take the lead on development of indicators where Lead country offers are lacking, noting that this is in particular the case for indicators related to hazardous substances and benthic communities and habitats.

4.124 Noting the study reservation by Germany, the Meeting agreed, while taking into account a respective German reservation (see para 4.54), to further consider the core indicator on incidental by-catch under the Fish Group as well as the State and Conservation Working Group as regards defining the maximum allowable catch of species.

4.125 The Meeting welcomed that Denmark is lifting the study reservation on GES boundaries for the core indicators on Abundance of waterbirds in the wintering season, Abundance of waterbirds in the breeding season, Hexabromocyclododecane (HBCDD), Perfluorooctane sulphonate (PFOS), Polybrominated Diphenyl, Ethers (PBDE), Metals (Cd, Pb, Hg) and Radioactive substances (document 4-33).

4.126 The Meeting noted that for indicators included in Annex 1 to document 4-33, Denmark suggests that further work is carried out in order to adjust them to be suitable also to Danish waters. The Meeting invited Denmark to take an active part in the discussions and meetings being set up by Lead countries and

relevant HELCOM experts groups and network during 2016 to clarify the views on the indicators and to contribute with data to test and develop the indicators.

4.127 The Meeting requested the Secretariat to continue cooperation with OSPAR e.g. in the planned development of databases for biodiversity elements.

4.128 The Meeting took note that Germany is not in a position to lift their reservation on the core indicators due to matters of national administration (cf paragraph 4.54).

4.129 The Meeting took note of the ongoing ecological coherence assessment of the Baltic Sea MPA network and the report planned to be finalized by HELCOM 37-2016 (document 4-28).

4.130 The Meeting considered the information by CCB on pending issues from HELCOM STATE & CONSERVATION 3-2015 (document 4-19):

- proposal to consider the revision of HELCOM Assessment on Marine Sediment Extraction in the Baltic Sea, as an input to the Holistic Assessment,

- proposal to relevant HELCOM groups to consider developing an international agreement to protect European eel population under the CMS Convention as current legal frameworks are not enough.

4.131 The Meeting noted the support expressed by Sweden to consider all potential measures to protect the eel, including the proposal for development of such international agreement to protect the European eel population.

4.132 The Meeting noted the support from Sweden to the CCB concerns of the state of the eel population.

4.133 The Meeting took note of the concerns expressed by CCB on the state of nature protection and threats to Baltic MPAs within the Russian part of the Gulf of Finland, as exemplified by cases of Kurgalskiy Nature Reserve and Kroshtadtskaya Kolonia (document 4-18). The Meeting noted that Lithuania, Finland and Sweden welcomed the document and were concerned about the issues raised by CCB.

4.134 The Meeting took note of the information from Russia that information could be shared by Russia on the issues of MPAs in the Gulf of Finland if requested.

Agri

4.135 The Meeting took note of the information on intersessional activities of the HELCOM Group on Sustainable Agricultural Practices (Agri) (document 4-24) and that the work on both priorities of the Agri Group (nutrient accounting on farm level and standards for nutrient content in manure) has been started and that the outcomes of the related workshops as well as next steps will be considered by AGRI 3-2016, as appropriate.

4.136 The Meeting supported HELCOM involvement as a project partner in the planned project on manure standards led by Finland and invited potential project partners from the Contracting Parties to contact Luke (sari.luostarinen@luke.fi) as soon as possible.

4.137 The Meeting thanked Estonia for offering to host the next Agri Group meeting (AGRI 3-2016) in the first week of April 2016.

4.138 The Meeting took note of the information by CCB that the seminar devoted to manure management in the Baltic Sea region in the context of industrial animal farming will be held in Vitebsk, Belarus 17 December 2015.

MSP WG

4.139 The Meeting took note of the outcome of the Eleventh Meeting of the joint HELCOM-VASAB Maritime Spatial Planning Working Group (HELCOM-VASAB MSP WG 11-2015), Riga, Latvia, 30 September-1 October 2015 (document 4-1).

4.140 The Meeting took note that the Guideline for the implementation of ecosystem-based approach in Maritime Spatial Planning (MSP) in the Baltic Sea has been agreed by the Working Group and requested,

to consider the conservation aspects in accordance with the ecosystem approach, that the guidelines are consulted with State and Conservation WG before the adoption by HOD.

4.141 The Meeting approved organizing of the next meeting of the Group (HELCOM-VASAB MSP WG 12-2016) tentatively on 25-26 February 2016 in Poland, and noted that a workshop on MSP is planned by Poland to be held back-to-back with the meeting.

4.142 The Meeting took note that the work of the newly established Baltic Sea Region MSP Data Expert Sub-Group (BSR MSP Data ESG) has started with the first meeting held on 1-2 October 2015, in Riga, Latvia.

Agenda Item 5 HELCOM institutional and organisational matters

Documents: 5-1, 5-2, 5-3

5.1 The Meeting took note of the Audit Report and the Financial Statement of the Helsinki Commission for the financial period 1 July 2014 to 30 June 2015 as well as of the explanatory memorandum (document 5-3) and advised the Executive Secretary to submit them to HELCOM 37-2016 in order to have the accountables officially discharged from responsibility.

5.2 The Meeting took note of the recommendation included in the Audit Report, decided to come back to this issue by HELCOM 37-2016 and took note of the offer by Finland to support the Secretariat in investigations.

5.3 The Meeting considered the draft budget for the financial period 2016-2017 (document 5-1) and advised the Executive Secretary to submit the draft budget to HELCOM 37-2016 for official adoption, pending the clarification of the study reservations by Lithuania and Poland as soon as possible taking into account the submission deadline of 60 days before the Commission meeting (c.f. Financial Rule 2.3).

5.4 The Meeting took note of the request by Russia and Latvia to further clarify how equal share is reflected in the proposed budget. The Meeting took note of the explanation by the Executive Secretary recalling that as endorsed by HELCOM 36-2015, the equal share contributions for the period 2016-2017 and 2017-2018 as required by the Helsinki Convention are based on the financial period 2014-2015, which was the reference year for the negotiations with Latvia and Lithuania on the road map to reach equal contribution. The Meeting requested the Executive Secretary to provide additional clarification as may be needed by HELCOM 37-2016.

5.5 The Meeting considered and endorsed the draft budget estimate for 2017-2018 (document 5-2), pending clarification of study reservations by Lithuania and Poland (c.f. paragraph 5.3).

5.6 The Meeting took note of the request by Estonia to the Secretariat to include estimates of external contribution from projects into the draft budget tables to be submitted to HELCOM 37-2016.

5.7 The Meeting took note of the submission of the observer applications by PlasticsEurope and Marine Stewardship Council (MSC) to HELCOM 37-2016.

5.8 The Meeting was concerned about late submission and high number of documents to the working group meetings and HOD 49 meeting that cannot be properly coordinated anymore within different governmental systems and such short deadlines. The Meeting agreed to review the status of HELCOM's streamlining, including organizational and work flows, in HOD 50-2016 next June.

Agenda Item 6 Any other business

Documents: 6-1, 6-2, 6-3, 6-4, 6-5, 6-7, 6-8, 6-9, 6-10, 6-11, 6-12

6.1 The Meeting took note of the information on the planned activity in 2016 and 2017 of the oil company Lukoil in the continental shelf of the Russian Federation in the Baltic Sea (document 6-6).

6.2 The Meeting took note of the information on the XVII International Environmental Forum «Baltic Sea Day», to be held on 22-23 March 2016 in Saint-Petersburg, Russia (document 6-11) and invited Contracting Parties to contribute to the programme of the meeting.

6.3 The Meeting took note of the information on European Maritime Day, to be held in Turku, Finland, on 18-20 May 2016 (document 6-10) where also HELCOM activities can be presented.

6.4 The Meeting took note of the information by Sweden on the EUSBSR Strategy Forum to take place in Stockholm on 8-9 November 2016.

6.5 The Meeting took note of the information on upcoming meetings within HELCOM and other forums in late 2015 and in 2016 (document 6-9) and invited Contracting Parties to inform on updates to the meeting list if needed.

6.6 The Meeting took note of and welcomed the information by Sweden on plans to replenish the BSAP Fund.

6.7 The Meeting took note of the information by Sweden on reinforced work against dumping in the Baltic Sea (document 6-12) and supported closer cooperation between HELCOM and London Convention. The Meeting took note that the London Convention and Protocol are IMO agreements, and agreed that HELCOM, being an observer to IMO, should be more active within this field of IMO work as HELCOM has much to offer to these global processes.

6.8 The Meeting welcomed the information that Finland is in the process of ratifying the 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972.

6.9 The Meeting took note of the information on the publicity for the next HELCOM Ministerial Meeting and approved the progress report on communication update (document 6-5).

6.10 The Meeting took note of the upcoming process of implementing the UN Sustainable Development Goals (SDGs) from the Contracting Parties' perspective and on a possible role of HELCOM in this process (document 6-2).

6.11 The Meeting took note of the information on the joint UNEP/EC expert workshop on Regional Ocean Governance, organized on 9-10 November 2015 in Brussels (document 6-7).

6.12 The Meeting took note of the WWF Report "All Hands on Deck: Setting Course to a Sustainable Blue Economy in the Baltic Sea Region" (document 6-3).

6.13 The Meeting took note of the CCB Report on climate change in the Baltic Sea region, with a focus on biodiversity, and policy recommendations, (document 6-4) and invited the Contracting Parties to make use of those documents in national and regional work to protect the Baltic Sea marine environment.The Meeting took note of the information about the CCB Seminar on promotion of BAT to reduce impacts of Industrial Animal Farming (IAF) within Daugava/Western Dvina river basin to be held in Vitebsk, Belarus on 17 December 2015.

6.14 The Meeting took note of the information on the Baltic Sea City Accelerator, a platform for public and private actors to explore and co-create innovative approaches to local water and wastewater management challenges, and meet sustainability objectives (document 6-1), which is a follow-up of the report commissioned by the Zennström Philantrophies, presented at HELCOM 36-2015.

6.15 The Meeting took note of the information on on-going projects within HELCOM (document 6-8).

6.16 Welcoming the new Danish Head of Delegation Anne Mette Hjortebjerg Lund the Meeting warmly thanked former Danish HOD Tonny Niilonen for his commitment and dedication in the HELCOM work for the Baltic Sea HELCOM work since years and wished him all the best for his retirement days.

6.17 The Meeting took note of the statement by the European Union as included in **Annex 5**.

6.18 The Meeting took note of the information by the Chair that in the beginning of 2015 OECD agreed to develop a Nitrogen Assessment on a global scale and that Estonia is prepared to facilitate closer cooperation between HELCOM work in the Baltic and the work within OECD.

Agenda Item 7 Next meeting(s)

Documents: 7-1

7.1 The Meeting agreed to hold the next meeting of the HELCOM Heads of Delegation (HOD 50-2016) on 15-16 June 2016 and welcomed the offer of Estonia to host the meeting.

Agenda Item 8 Outcome of the Meeting

Documents: 8-1

8.1 The Meeting adopted the draft Outcome of the Meeting as contained in document 8-1. The final Outcome, incorporating the comments by the Meeting, has been prepared by the Secretariat in consultation with the Chair and made available in the HELCOM Meeting Portal.

Annex 1 List of Participants

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Annex 2 Regional Baltic Underwater Noise Roadmap 2015-2017

Background information

Anthropogenic noise has potentially harmful effects on the marine environment and the species therein.

Pressure on the marine environment from anthropogenic noise in the Baltic Sea Area needs to be addressed.

Presently piling (impulsive noise) and shipping (continuous noise) are considered to constitute the two major sources of underwater noise in the Baltic Sea, and more evidence is needed to adequately reflect the scale of the problem in the Baltic Sea.

The 2013 HELCOM Copenhagen Ministerial Declaration commits the Contracting Parties to take further measures, initiatives or efforts to reach a healthy marine ecosystem supporting a prosperous Baltic Sea region, including addressing pollution of the marine environment by litter, as well as impacts on marine organisms from underwater impulsive and continuous noise.

In the 2013 HELCOM Copenhagen Ministerial Declaration it has been agreed that the level of ambient and distribution of impulsive sounds in the Baltic Sea should not have negative impact on marine life and that human activities that are assessed to result in negative impacts on marine life should be carried out only if relevant mitigation measures are in place, and accordingly as soon as possible and by the end of 2016, using mainly already on-going activities, to

- establish a set of indicators including technical standards which may be used for monitoring ambient and impulsive underwater noise in the Baltic Sea;
- encourage research on the cause and effects of underwater noise on biota;
- map the levels of ambient underwater noise across the Baltic Sea;
- set up a register of the occurrence of impulsive sounds;
- consider regular monitoring on ambient and impulsive underwater noise as well as possible options for mitigation measures related to noise taking into account the ongoing work in IMO on non-mandatory draft guidelines for reducing underwater noise from commercial ships and in CBD context;

This roadmap will support the achievement of the commitments acquired in 2013.

There is a potential need for future revisions of the timetable indicated in this roadmap due to ongoing international, regional and European processes.

Goal

To make every effort to prepare a knowledge base towards a regional action plan on underwater noise in 2017/2018 to meet the objectives of the 2013 Ministerial Meeting, and of the EU MSFD for HELCOM countries being EU members.

Necessary steps

The following steps are perceived as necessary:

1. Knowledge gathering

1.1 Compile and review the available knowledge on impact of anthropogenic noise in the Baltic Sea;

1.2 Identify and map human activities that are the [main] sources of anthropogenic noise in the Baltic Sea;

1.3 Investigate and assess the significance of the sources of anthropogenic noise in the Baltic Sea from e.g. shipping, recreational vessels, ice-breaker vessels, low-frequency sonar, acoustic devices, acoustic

experiments, as well as offshore construction, sand and gravel extraction, drilling, intense low or mid-frequency (Naval) sonar, underwater explosions, seismic surveys.

1.4 Investigate and identify sound sensitive species in the Baltic Sea in order to prioritize needed protection measures.

1.5 Compile information on measures to manage emissions and mitigate relevant impacts of anthropogenic underwater noise proposed and/or implemented internationally.

2. Indicators

2.1 Support Lead Countries in the further development of the pre-core indicator 'Continuous low frequency anthropogenic sound' towards its operationalization by taking the following necessary steps:

- propose a concept for a regional monitoring network and propose HELCOM common monitoring guidelines based on the BIAS standards
- develop the assessment protocol based on experiences and information available;
- identify spatial and temporal distribution of sound sensitive species and habitats in the Baltic Sea including sensitive biological areas (spawning, nursery areas);
- develop a concept for the GES-boundary based on the available data.

2.2 Support the Lead Countries in the further development of the candidate indicator 'Distribution in time and place of loud low and mid frequency anthropogenic impulsive sounds' towards its operationalization by taking the following necessary steps:

- cooperate with OSPAR and ICES on the establishment of a joint regional registry of impulsive sound;
- define the elements and mechanisms required for a joint regional registry of impulsive sound activities, including reporting requirements;
- coordinate testing of the regional registry of impulsive sound activities;
- propose a concept for determining sustainable levels of impulsive sound.

3. Explore possibility to determine acceptable levels of underwater noise for marine species

3.1 Based on the compilation of information on impacts of noise (1.1), investigate the possibility to use species specific tolerance to define Good Environmental Status / develop environmental targets based on common principles.

4. Evaluation and follow-up

4.1. Carry out a workshop with all HELCOM members to discuss the Roadmap.

4.2. Update the Roadmap, if necessary, in 2016 e.g. based onapplicability of the measures identified under section 1.5 in the Baltic Sea area and the knowledge gathered to be a starting point for initial considerations on suitable measures to be implemented, including a cost effectiveness analysis.

4.3 Assess the implementation of this Roadmap in 2017.

5. Updated working timetable

Milestone	Date
Cooperate with ICES and OSPAR on the establishment of a regional registry of sound	Joint HELCOM EN NOISE, ICG Noise-HELCOM EN Noise - EU TG NOISE in September 2015
Further work on the “Distribution in time and place of loud low and mid frequency anthropogenic impulsive sounds” candidate indicator aiming at its shift to pre-core indicator and subsequently, core indicator	FI and SE informed in PRESSURE 3-2015
Further work on the "Continuous low frequency anthropogenic sound” pre-core indicator aiming at its shift to core indicator	PRESSURE 3-2015 considered
Establish a joint regional registry of impulsive noise	By Mid-2016
Workshop with all HELCOM members to discuss the Roadmap	September 2016
– Develop assessment protocol for ambient noise based on experiences and information available – Test the regional registry using initial data – Identify and map human activities that are the [main] sources of anthropogenic noise in the Baltic Sea	By the end of 2016
– Identify spatial and temporal distribution and subsequent mapping of sound sensitive species and habitats in the Baltic Sea including sensitive biological areas (spawning, nursery areas) – Explore possibility to use species specific tolerance of underwater noise for defining GES and/or environmental targets	Progress by September 2016, work continued into 2017
Update the Roadmap, if necessary	In 2016
Assess the implementation of this Roadmap	In 2017

Annex 3 Statement by Denmark concerning the draft Roadmap for designating a NECA in the Baltic Sea in parallel with the North Sea as well as the NECA-related outcome of MARITIME 15-2015

- *As you may recall, the HELCOM Ministerial Meeting held on the 20th of May 2010 agreed to work towards submitting a joint NECA application by the Baltic Sea countries to the IMO. However, the date of submission is still outstanding.*

- *After some years of still-stand, the clarification of submission and not least the effective date (also called "compliance date" in the roadmap) of NECA in the Baltic Sea has been re-invigorated in the last year.*

- *Denmark submitted a draft roadmap one year ago to HELCOM Maritime 14. Back then, the Baltic Sea countries expressed their preference for a NECA designation in parallel with the North Sea countries. At the meeting there was broad consensus that a NECA roadmap is valuable and needed and there was general support for a dialogue meeting to be held between the North Sea and the Baltic Sea countries.*

- *The North Sea countries, (which count Sweden, Germany, The Netherlands, Belgium, France, the UK, Norway and Denmark) agreed during the spring this year that they are ready to submit their NECA application to the IMO. The North Sea countries are likewise in favor of a NECA designation in parallel with the Baltic Sea and therefore they invited the Baltic Sea countries to a technical meeting in June 2015. At the meeting the timing and procedural steps for a parallel process were discussed. The current roadmap proposal is based on the outcome of that technical meeting.*

- *The roadmap proposes to submit the North Sea and the Baltic Sea NECA applications in parallel to the IMO ahead of the Marine Environment Protection Committee meeting in October 2016 (MEPC 70). If the applications are approved at MEPC 70 they will be forwarded to MEPC 71 for adoption. In the roadmap it is assumed that MEPC 71 will be held in May 2017. The NECA would enter into force at least 16 months later taking us to October 2018.*

- *It is proposed in the roadmap to give the industry three years from the date of adoption to the effective date– which means that the effective date could be on the 1st of June 2020, three years after the adoption at MEPC 71.* ***However, at HELCOM Maritime 15 it was agreed to adjust the effective date in the roadmap to the 1st of January 2021.*** *This would imply Tier III emission standards to be applicable only to new ships constructed on or after this date, namely the 1st of January 2021.*

- *At HELCOM Maritime 15 there was general agreement of the necessity to designate and effectuate Tier III requirements in the Baltic Sea in parallel with the North Sea. The roadmap and the agreed adjustments have been forwarded to HELCOM HoD in preparation for political decision by the Baltic States, through HELCOM.*

- *We propose from the Danish side that the HoD at its next meeting in June next year – based on an updated NECA application – will decide on the submission of the application to MEPC 70 with compliance date from 1st of January 2021 for the Baltic Sea. Denmark would kindly urge delegations to support this compromise proposal.*

- *The specific timing is expected to be supported by the North Sea countries as well, so that NECA will be established in the two seas at the same time.*

- *If there is support for this roadmap today, we will from the Danish side start the parallel formal decision process among the North Sea countries.*

Annex 4 HELCOM project on the assessment of maritime activities in the Baltic Sea

1. Title of Project: Assessment of Maritime Activities in the Baltic Sea

2. Project Chair:

Project coordinator: Maritime Professional Secretary

3. Proposing Party:

Contracting Party: _____

Commission: _____

Subsidiary body: _____

Heads of Delegation: _____

Executive Secretary: X_____

4. The body supervising the Project: HELCOM MARITIME

5. Background, targets and activities

a) Background

The Contracting Parties agreed as part of the 2013 HELCOM Ministerial Declaration to comprehensively assess the status, environmental risks and opportunities of maritime activities in the Baltic Sea region within HELCOM by 2016. HELCOM MARITIME 13-2013 considered and approved the work plan and the outline in general for a HELCOM Assessment on Maritime Activities with some additional suggestions. HELCOM RESPONSE 18-2014 took note of the outline and highlighted that it would be useful to provide information on response related matters including oil and chemical transportations.

However, due to lack of funding the Secretariat has not been in the position to start developing the assessment in the originally agreed timeframe in 2014. In 2015 background work could start with the help of related analyses of ship traffic data based on the HELCOM AIS network. These developments have enabled to start the development of the maritime assessment but successful completion by 2016 requires additional resources in the form of project.

A revised outline with some indicative content of the maritime assessment, based on the original 2013-2014 input and other more recent developments, can be found in Attachment 1 of document HOD 49-2015.

The aim is a concise document relying mainly on figures and maps, less on text. Possible publishing format is online pdf with a summary brochure in printed form. In addition, an online data visualisation tool as part of the assessment could be considered for exploring statistics generated from the AIS dataset.

Maritime Assessment will provide input to HOLAS II, including with regard to information on human activities at sea.

b) Targets for the MARAS project

The project will enable supporting the production of the HELCOM Maritime Assessment 2016 via contracting experts as well as production of a summary brochure of the main contents.

The specific expertise and issues where project support is needed will be selected according to need but likely include traffic statistics, shipping accidents, submerged hazardous objects, interactive online visualisation of compiled data as well as lay-out and printing costs of a summary/brochure.

The HELCOM Maritime Assessment 2016 will include the following tangible products which will be supported according to the emerging needs during 2016:

1. Assessment datasets

The maritime assessment will rely heavily on statistics, figures and maps and less on text. A key source of this information is the AIS data on ship movements collected in the region during 2005-2015. Due to this, one of the most work-intensive part of the assessment will be on compilation of reliable datasets.

2. Assessment main publication

The main assessment document will cover all maritime activities and uses of the sea. The main focus will be on the developments during the period 2005-15.

3. Assessment executive summary/brochure

In addition to the main assessment document the aim is to produce a summary publication which will be printed. This publication will try to crystallise the messages emerging from the main document in easily understandable format.

4. Assessment online dimension

The assessment will be based on comprehensive datasets which would benefit from interactive visualization and display.

c) Activities and outline of work

During spring 2016 the project will focus on compiling the needed datasets and writing initial drafts, during summer-early autumn the focus will be on writing and adjusting the draft with comments from the Contracting Parties.

A mature draft is aimed to be submitted for the MARITIME meeting to take place in autumn 2016 and, after possible intersessional work and consultations, to HOD December 2016 for final publishing approval. The publication will be finalised and lay-outed after the HOD in December 2016 and thus be available during early spring 2017.

d) Project management

The project will be managed and implemented by the Secretariat. The Maritime Professional Secretary will coordinate implementation.

6. Expected results

According to targets.

7. Consistency with HELCOM priorities

X yes ____ no

8. Timetable

The project will be carried during the period January 2016-January 2017.

9. Budget

Budget is tentative and depending on employment arrangements i.e. project employment at the HELCOM Secretariat or engagement of experts.

9.1. Total cost:

45.000 Euro

9.2. Costs divided per financial year (Euro):

	15/16	16/17	**Total cost**
Experts&interactive visualization	20000	20000	**40000**
Lay out& print of summary extract publication	0	5000	**5000**
Total cost	20000	25000	**45000**

9.3. Sources of financing divided per financial year (Euro):

Financing to be provided from the HELCOM budget.

10. Additional requests (manpower, equipment, facilities, etc.)

10.1 From the Contracting Parties

All Contracting Parties are requested to provide and check data, review assessment publication according to their possibilities

10.2 From the Secretariat

Parts of the work fall under the regular mandate of the Secretariat.

11. Organization of Project

The HELCOM Maritime and RESPONSE Group Contacts and Observers will be the main contact lists for project implementation and consultation. The FISH Group will be consulted regarding Aquaculture and Fisheries.

Project Coordinator will be MARITIME Professional Secretary (as part of regular duties)

HELCOM Risk Assessment Procedure is to be observed.

12. Signature of the Project Coordinator

13. Opinion of the Chairs of the relevant body

14. Opinion of the Executive Secretary

Executive Secretary supports the project

15. Decision of the Heads of Delegation

HOD 49-2015 approved the proposal

Outline of HELCOM Maritime Assessment (c.f. doc. HOD 49-2015, 4-23, Attachment 1)

Annex 5 Statement by the European Commission Regarding Financing and the Implementation of EU Legislation

The EU is an important financing body for potential projects being considered within the context of HELCOM. In order to avoid any interference with the independent decision-making procedures established under the various financing instruments, the EU does, as a matter of principle, not take any position as regards any project proposal intended for submission to EU financing bodies. This should not be interpreted in any way as prejudging the position of the EU when taking financing decision.

The responsibility for implementing EU legislation is solely with the EU Member States. The role of the European Commission is, inter alia, to assess compliance with EU legislation once a Member State has submitted its report. Hence, any statement or position taken by the EU within the context of HELCOM should not be construed to give any assessment of whether the work done by HELCOM is compliant with EU legislation.

Statement regarding MSFD Implementation

The EU pointed out that any agreement that the EU delegation will give within the context of HELCOM in this respect is without prejudice to the European Commission's role under the EU Treaty to assess the implementation and compliance of EU Member States with EU law and the assessments that the European Commission is required to carry out in accordance with Articles 12 and 16 MSFD after EU Member States have officially reported to the European Commission.

List of Documents

Name	Category	Submitted by	Date
1-1 Provisional Agenda.pdf	DEC	Executive Secretary	27.10.2015
1-2 Annotations to the Provisional Agenda.pdf	CMNT	Executive Secretary	27.10.2015
2-1 Preparations for HELCOM Marine Litter Stakeholder Conference 9.3.2016.pdf	DEC	Executive Secretary	12.11.2015
2-2 Provisional Agenda for HELCOM 37-2016.pdf	DEC	Chair and Executive Secretary	30.11.2015
3-1 Updated Roadmap of HELCOM activities - status December 2015.pdf	INF	Executive Secretary	4.12.2015
4-1 Outcome of HELCOM-VASAB MSP WG 11-2015.pdf	DEC	Executive Secretary	6.11.2015
4-2 Outcome of GEAR 12-2015.pdf	DEC	Executive Secretary	6.11. 2015
4-3 Outcome of PRESSURE 3-2015.pdf	DEC	Executive Secretary	10.11. 2015
4-4 Proposal to delete hot spots from the list of JCP Hot Spots.pdf	DEC	Executive Secretary	10.112015
4-5 Information on progress in preparing the second holistic assessment.pdf	INF	Executive Secretary	13.11. 2015
4-6 Draft HELCOM Recommendations on waterborne pollution input assessment and on monitoring of airborne pollution input.pdf	DEC	Executive Secretary	16.11.2015
4-7 Outcome of State and Conservation 3-2015.pdf	DEC	Executive Secretary	16.11.2015
4-8 Summary of HELCOM TAPAS application.pdf	INF	Executive Secretary	16.11.2015
4-9 A proposal for Core pressure indicator on oil spills affecting the marine environment.pdf	DEC	Executive Secretary	16.11.2015
4-10 Draft HELCOM Recommendation on sustainable aquaculture.pdf	DEC	Executive Secretary	18.11.2015
4-11 Progress in elaboration of the PLC products.pdf	DEC	Executive Secretary	18.11.2015
4-11-Add1 Updated division of tasks and timetable in the implementation plan of the HELCOM MAI-CART OPER project.pdf	CMNT	Executive Secretary	3.12.2015
4-12 Draft Recommendation on Conservation of Baltic Sea species categorized as threatened according to HELCOM red list.pdf	DEC	Executive Secretary	18.11.2015
4-13 Proposal to establish a HELCOM intersessional expert network on eutrophication.pdf	DEC	Executive Secretary	18.11.2015
4-14 Draft Recommendation on Co-operation and coordination of research vessel based monitoring.pdf	DEC	Executive Secretary	18.11.2015
4-15 Follow-up of HELCOM agreements - examples based on the new system.pdf	DEC	Executive Secretary	19.11.2015
4-15-Att. BSAP follow-up regional actions.xlsx	DEC	Executive Secretary	24.11.2015
4-16 Proposal for financing model for the maintenance of Seatrack Web (STW).pdf	DEC	Sweden	19.11.2015
4-17 Funding the EU MSFD Programs of Measures_CCB.pdf	CMNT	CCB	19.11.2015
4-18 Call for HELCOM action regarding Baltic MPAs within Russian part of the Gulf of Finland.pdf	CMNT	CCB	19.11.2015
4-19 Pending issues from State and Conservation 3-2015 CCB.pdf	CMNT	CCB	19.11.2015
4-20 Working arrangement for development of indicators and updates of indicator evaluations.pdf	DEC	Executive Secretary	19.11.2015
4-20-Attachment 1 List of nominated experts and participants of HELCOM expert groups, networks and projects.pdf	DEC	Executive Secretary	19.11.2015
4-21 Draft Regional Baltic Underwater Noise Roadmap.pdf	DEC	Executive Secretary	19.11.2015
4-21-Rev1 Draft Regional Baltic Underwater Noise Roadmap.pdf	DEC	Executive Secretary	11.12.2015
4-22 Progress on setting up a regional registry for impulsive noise	DEC	Executive Secretary	20.11.2015
4-23 Proposal for HELCOM Project on Maritime Assessment	DEC	Executive Secretary	20.11.2015
4-24 Information on intersessional activities of the HELCOM Agri group	INF	Executive Secretary	23.11.2015
4-25 Draft Joint documentation of regional coordination of programmes of measures	DEC	Chair of IG PoM	23.11.2015
4-25-Corr1 Draft Joint documentation of regional coordination of programmes of measures in the Baltic Sea area.pdf	DEC	Executive Secretary	8.12.2015

4-26 Proposed actions within HELCOM	DEC	Executive Secretary	23.11.2015
4-27 Comments to Draft Joint documentation of regional coordination of programmes of measures	CMNT	Germany	27.11.2015
4-28 Ecological coherence assessment of the Baltic Sea MPA network.pdf	INF	Executive Secretary	30.11.2015
4-29 Roadmap for designating a NECA in the Baltic Sea in parallel with the North Sea.pdf	DEC	Executive Secretary	1.12.2015
4-30 Outcome of MARITIME 15-2015.pdf	DEC	Executive Secretary	1.12.2015
4-30-Corr1 Cover Outcome of MARITIME 15-2015.pdf	DEC	Executive Secretary	3.12.2015
4-31 Draft Terms of Reference for HELCOM-OSPAR TG BALLAST for 2015-2016.pdf	DEC	Executive Secretary	1.12. 2015
4-32 Initial stock-taking to improve assessment of dredging activities in the Baltic Sea.pdf	INF	Executive Secretary	3.12. 2015
4-33 Danish comments on core indicators and GES boundaries.pdf	CMNT	Denmark	3.12. 2015
4-34 Baltic LINes project.pdf	INF	Executive Secretary	3.12. 2015
4-35 Outcome of FISH 3-2015.pdf	DEC	Executive Secretary	4.12.2015
4-36 Amended future actions within HELCOM related to the Fish Group.pdf	DEC	Executive Secretary	4.12.2015
4-37 Danish comments on draft HELCOM Recommendation on sustainable aquaculture.pdf	CMNT	Denmark	7.12.2015
4-38 Danish comments on the draft HELCOM Recommendation on the red list.pdf	CMNT	Denmark	10.12.2015
4-39 Danish suggestions for a revised draft HELCOM Recommendation on the red list.pdf	CMNT	Denmark	10.12.2015
5-1 Draft budget for the financial period 2016-2017.pdf	DEC	Executive Secretary	19.11.2015
5-2 Draft budget estimate for 2017-2018.pdf	DEC	Executive Secretary	19.11.2015
5-3 Accounts of the Commission 2014-2015.pdf	DEC	Executive Secretary	30.11.2015
6-1 Baltic Sea City Accelerator.pdf	INF	Executive Secretary	6.11.2015
6-2 UN 2030 Agenda for Sustainable Development.pdf	CMNT	Executive Secretary	6.11.2015
6-3 WWF Report All Hands on Deck.pdf	INF	WWF	13.11.2015
6-4 CCB Report on climate change in the Baltic Sea region.pdf	INF	CCB	1.12.2015
6-5 Publicity for HELCOM Ministerial Meeting and communication update.pdf	INF	Executive Secretary	1.12.2015
6-6 Information on the planned activity of the oil company Lukoil.pdf	INF	Russia	3.12.2015
6-7 Information on the joint UNEP-EC expert workshop on Regional Ocean Governance.pdf	INF	Executive Secretary	3.12.2015
6-8 Ongoing projects within HELCOM.pdf	INF	Executive Secretary	3.12.2015
6-9 Upcoming meetings within HELCOM and other forums in late 2015 and in 2016.pdf	INF	Executive Secretary	3.12.2015
6-10 European Maritime Day Turku May 2016.pdf	INF	Finland	3.12.2015
6-11 XVII International Environmental Forum Baltic Sea Day.pdf	INF	Russia	4.12.2015
6-12 Reinforced work against dumping in the Baltic Sea.pdf	INF	Sweden	4.12.2015
6-13 EUSBSR Annual Forum 2016.pdf	INF	Sweden	9.12.2015

Document title	Draft methodology for accounting an extra reduction
Code	6-2
Category	DEC
Agenda Item	6 – Matters arising from the HELCOM Groups
Submission date	16.11.2016
Submitted by	Executive Secretary
Reference	Outcome of PRESSURE 5-2016, paras 8.10 -8.17

Background

In the Ministerial Declaration 2013 the Contracting Parties agreed that the countries can account for extra reductions, in proportion to the effect on a neighboring basin with reduction targets, in reaching their Country Allocated Reduction Targets.

Pressure 5-2016 considered the methodology and provided feedback on the accounting for extra reductions to follow up CART assessment, as proposed in a document prepared by the RedCore Drafting Group.

The meeting took note that Sweden and Finland need the option to be credited with the extra reduction in order to meet their CARTs. The meeting also took note of the concern of Germany regarding the use of the methodology, particularly the assumption regarding nutrient fluxes between sea basins, and that Germany will only use the methodology if it rests on sound scientific basis. Germany is also concerned about using extra reductions that are not due to measures implemented since the reference period but result from basins that have no reduction targets.

The Pressure group noted that the extra reduction can be used by all the countries where applicable, not only by those which are exampled.

The meeting noted that Denmark supports the use of the methodology and its principles, but without principle 8 that extra reduction cannot be used for purposely increase the input to a basin. The position by Denmark is that the use of extra reduction is under national competence and not for HELCOM to decide.

The meeting also noted that Germany supports the precautionary principle which lays in the basis of principle 8 of the proposed methodology which is backed up by the commitment taken in the Ministerial Declaration 2013.

PRESSURE 5-2016 agreed that the methodology will be used for a trial calculation in the PLC-6 assessment.

Action requested

The Meeting is invited to endorse the use of the methodology for a trial calculation in the PLC-6 assessment.

Accounting for extra reductions

Introduction

As a part of the nutrient reduction scheme in the 2013 HELCOM Ministerial Declaration, the following principle was approved:

> *RECOGNIZING that reductions in nutrient inputs in sub-basins may have wide-spread effects, WE AGREE that extra reductions can be accounted for, in proportion to the effect on a neighboring basin with reduction targets, by the countries in reaching their Country Allocated Reduction Targets.*

The rationale behind this statement is that MAI was calculated focusing on offshore major basins and with the optimization of aiming for a maximal total nutrient input, which in principle would be the most cost efficient solution. The necessary reductions to meet MAI were allocated country-wise within each basin. Due to lack of detailed information of reduction potential (or/and costs of measures) in the different countries one had resided on simple principles for this allocation, i.e., countries have to reduce in proportion to their emissions. However, one have to acknowledge that the reduction targets calculated in this way do not necessarily match national plans or be the most cost-efficient solution for individual countries. Several countries implement and/or have implemented measures because of other policies than BSAP (e.g. WFD, Nitrates Directive, Gothenburg Protocol) that results in reductions in basins without reduction requirements or with a magnitude that significantly exceeds the reduction requirements. Thus, inputs to some basins may become significantly lower than MAI leading to winter nutrient concentrations decreasing below the environmental targets. That effect will to some extent spread to adjacent basins, and as a consequence the environmental targets can be reached with somewhat higher inputs than MAI to these “downstream” basins. Thus, under these conditions, making overall larger reductions than required by MAI may be the most cost effective and should be accounted for if it can be shown that the environmental targets are met everywhere.

The paragraph above is somewhat vaguely formulated in the Ministerial Declaration, and the following clarifications based on the groundwork for the Declaration can be made:

- The paragraph was clearly developed in the spirit that this accounting would be done for countries individually, (for example, Sweden could take into account some of extra reductions done in the Bothnian Sea in their bookkeeping of reductions to Baltic proper), and not shared between all countries.
- Any relocation of measures should lead to the same environmental improvement as if CART were implemented.

To illustrate the potential of this principle in preparation of the Ministerial Declaration, BNI quantified how much reduction needs to be done in one basin to get the same environmental effect in a “downstream” basin. However, the mechanisms on how to estimate expected effects or how to evaluate compliance were not discussed in the groundwork for the Ministerial Declaration. This ambiguity has led to some confusion as to how to plan and implement the programs of measures to obtain the goals of the BSAP nutrient reduction scheme in this respect. BNI provided a basis for discussing these issues to the PRESSURE 4 (Document 7-4 and Presentation 7). On the basis of this, PRESSURE 4-2016 requested RedCore DG to elaborate further documentation of the methodology and limits for its application as well as provide examples.

This document provides a) principles that should be used when evaluating extra reductions, b) a brief description of the methodology and c) examples as to how the methodology could be used for involved countries, although limited to phosphorus at this stage.

Principles for accounting extra reductions

RedCore DG has developed the following principles to be used in the accounting of extra reductions

1. **Accounting should be based on countries individually**
   This implies that countries can plan and implement measures across basins at their own discretion as long as it results in conforming to CART after accounting of extra reduction is performed.

2. **Countries could claim accounting for missing reductions even if MAI is exceeded due to inputs from other countries**
   No country should need to wait for any other country before claiming themselves fulfilment of CART.

3. **Any relocation of measures should lead to at least the same environmental improvement as if CART were implemented**
   This is imperative for the GES to be achieved eventually. Inevitably, using extra reductions will lead to less inputs than MAI as seen as a total for the Baltic Sea, but its distribution need to be such that GES will be achieved everywhere.

4. **The effect of extra reductions on neighboring basins with missing reductions should be estimated given that these are minor deviations from MAI**
   The Baltic Sea is a strongly perturbed system and hence, functioning quite different today compared to how it will function when measures been implemented and status approach GES. The whole calculation of MAI is taking this into account and when deviations to MAI are to be analysed, it should be done assuming that we are close to GES.

5. **Accounting for extra reductions in connection with CART follow-up assessments are to be performed in a uniform way supervised by RedCore DG**
   Accounting for extra reductions should be included in the regular CART assessment using a common and harmonized methodology. RedCore DG is the forum that supervises development of methodology and, after appropriate approval, implementation of this in the assessment.

6. **The Archipelago Sea phosphorus input reductions should be accounted in the Finnish CART for Gulf of Finland (cf. BSAP 2007)**
   Already in BSAP 2007, Finland pointed out that models failed to separate the Archipelago Sea from Bothnian Sea and that this should be taken into account at a later stage. Also in the 2013 revision of the nutrient reduction scheme, model limitations failed to address separate MAI calculations for the Archipelago Sea. However, within the context of accounting for extra reduction can be an opportunity to take into account separately the nutrient inputs to Archipelago Sea from the remaining Bothnian Sea inputs.

7. **In the context of extra reduction accounting, reductions of phosphorus to Baltic Proper could be accounted as input reduction in Gulf of Finland**
   In the calculations of MAI, the most limiting targets affecting the distribution of MAI for phosphorus were the winter nutrient concentrations in the Baltic Proper. Strictly following the principle of “maximum” inputs, led to a situation where this gave an optimal solution resulting in removal of virtually all phosphorus inputs to the Baltic Proper and barely any reductions to Gulf of Finland. This solution clearly violated the principle of cost-efficiency so additional calculations based on cost functions for phosphorus input reductions were performed to distribute reductions between Baltic Proper and Gulf of Finland in a cost-efficient way. The obtained MAI results in conforming to phosphorus target in Baltic Proper, but in Gulf of Finland the resulting phosphorus concentrations will be significantly less than target. In line with this, it could be argued for states having phosphorus inputs both to Baltic Proper and Gulf of Finland, that *extra reductions* to Baltic Proper could be deducted from missing reductions in Gulf of Finland with 100% efficiency. However, one should bear in mind that the MAI for nitrogen to Gulf of Finland was determined

from applying the HEAT approach, balancing nitrogen and phosphorus concentrations, so if MAI for phosphorus to Gulf of Finland is not achieved fully additional reductions on nitrogen inputs might be necessary.

8. **Following the precautionary principle, extra reduction accounting cannot be used to purposely increase inputs to a basin**

   Although accounting of extra reductions is based current scientific knowledge and modelling, it comes with significant uncertainty and will sooner or later be subject of improvement. Therefore, it would be a risk for the environment to increase inputs to basins based on this methodology. In addition, a prerequisite for the calculations here is an environment close to GES and additional inputs today may cause significant deterioration of the present eutrofied state.

RedCore DG, with assistance of the MAI-CART OPER project, will test the methodology presented here and in document 7-4 to PRESSURE 4-2016 when preparing the next CART assessment in connection with the HELCOM PLC-7 project.

Extra reduction is the margin to CART (or input ceiling) including the statistical uncertainty for a given country and basin combination.

Missing reduction is defined additional input reduction needed to reach CART including the statistical uncertainty for a given country and basin combination.

Understanding effects of extra and missing reductions

The Baltic Sea comprises of a series of connected basins, and changes in the environment will lead to changes in adjacent basins as well due to transport of nutrients between the basins. In simple terms, if the nutrient concentrations change in one basin it will cause changes in the nutrient transports to adjacent basins. The magnitude of the nutrient transport change will depend on the water exchange between the basins and concentration difference between the basins. Note, however, that the nutrient transport also includes nutrients within organic matter and not only the inorganic nutrients. In Figure 1, the simulated phosphorus transports between the basins are shown for the present day situation and for the situation when MAI is achieved. It is clear that at present day, the quite high phosphorus concentrations in the Gulf of Finland and Baltic Proper cause significant fluxes to the other basins, thus causing elevated production also in these basins. When MAI is achieved, concentrations in Gulf of Finland and Baltic Proper decrease significantly and therefore fluxes to the other basins decrease significantly.

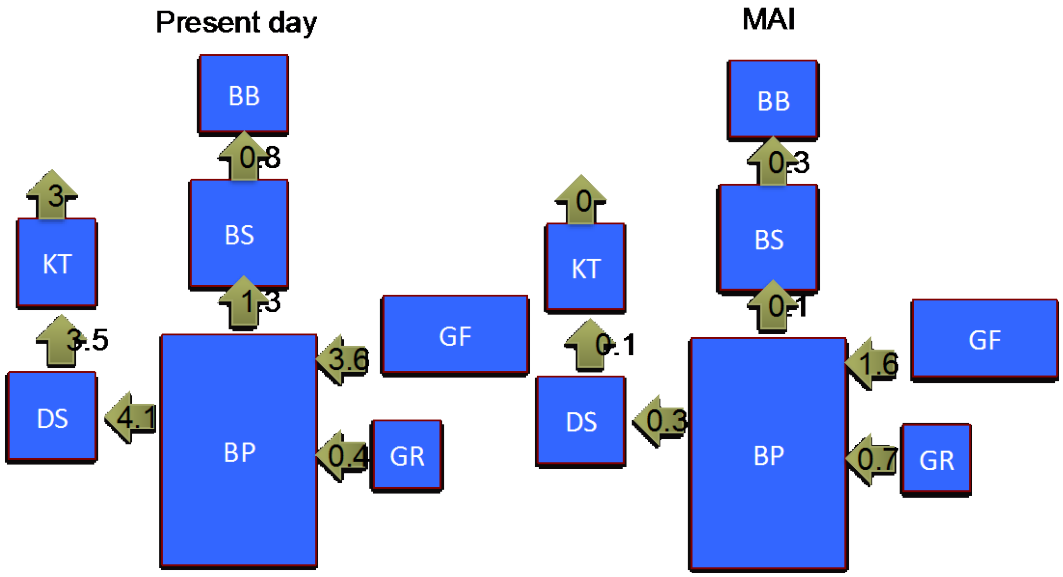

Figure 1: The average fluxes of phosphorus between the Baltic Sea sub-basins at present day (to the left) and when Baltic Sea adjusted to MAI (to the right). Unit is kTon/yr.

When inputs to a basin deviate from MAI, the fluxes in Figure 1 will be perturbed. When inputs are lower than MAI (*extra reduction*), fluxes will increase to that basin and status will improve somewhat in the other basins as well and while higher inputs than MAI (*missing reduction*) will lead to export of nutrients and deterioration in adjacent basins. In Figure 2, examples are shown on what happens with fluxes when there is extra reduction to Bothnian Sea and missing reduction to Baltic Proper, respectively. In this example, if one would trade the missing reduction to Baltic Proper with the extra reduction in Bothnian Sea one must ensure that a) the eutrophication status of the Baltic Proper retained by the additional export to the Bothnian Sea and b) there is no deterioration of status in the other basins. For large missing and extra reductions, this becomes a relatively complicated calculation, but if the reductions are small compared to the MAI and focus is on single basin pairs a significantly simpler approach is valid. In principle, one could picture it as ensure that the missing reduction is compensated by a flux of nutrient to the basin with extra reduction. In example in Figure 2, we could assume that the extra reduction in Bothnian Sea will cancel out all the red and green arrows to the basins south and east of Baltic Proper and these basins can then not benefit from extra reduction in Bothnian Sea. However, there will still be some benefit in the Bothnian Bay from the extra reduction, although it should be smaller than if Baltic Proper fulfilled MAI because of the elevated nutrient flux to the Bothnian Sea. Assuming small changes one could probably assume that the net effect of the extra reduction in Bothnian Sea and missing reduction in Baltic Proper on Bothnian Bay would be the difference between the green and red arrow in Figure 2.

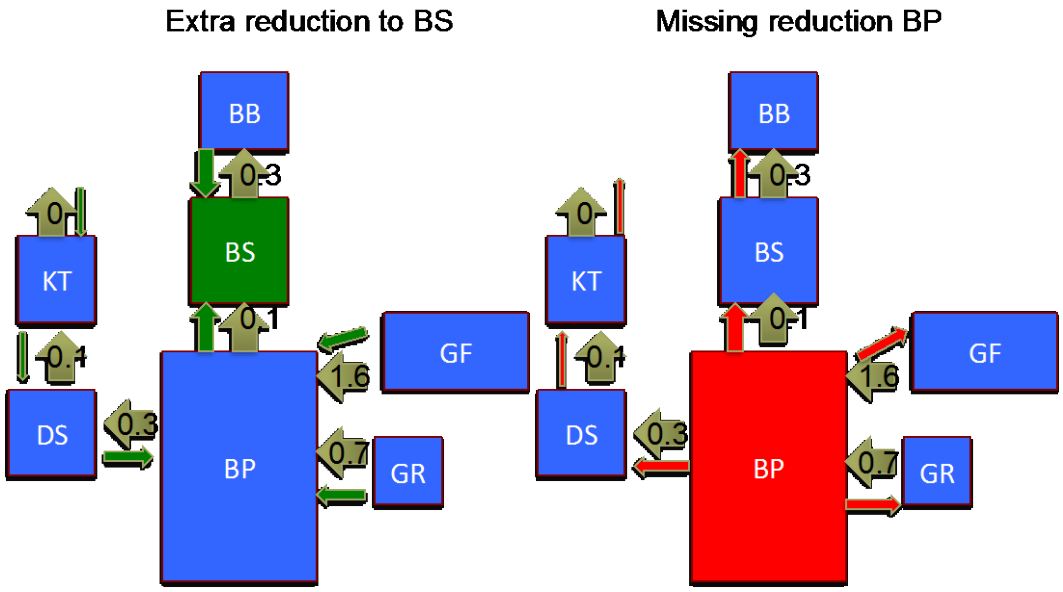

Figure 2: Illustration how extra reduction and missing reduction changes the phosphorus fluxes between the basins. To the left it is illustrated with green arrows how an extra reduction to the Bothnian Sea cause additional flux from the Baltic Proper and decreased flux to Bothnian Bay, and how these effects propagate to the exchange with the other basins. To the right it is illustrated with red arrows how missing reduction to the Baltic Proper causing additional flux to Bothnian Sea and the other basins. If the green arrow from the Baltic Proper to the Bothnian Sea is so large that it equals the missing reduction, the environment will be the same in the Baltic Proper as if MAI was applied and the red arrows would all be zero. NB! If there is missing reduction to the Baltic Proper, the basins GF, GR, DS and KT will no longer get any benefit from the extra reduction in BS.

A method to match missing reductions with extra reductions

The BALTSEM model was used to find the combination of inputs (MAI) that would eventually lead to the good environmental status as quantified by the eutrophication status targets taking into account the circulation and biogeochemical cycles of the Baltic Sea. The same model can be used to as basis for a method to match missing reductions with extra reductions.

The methodology takes the starting point from the state obtained when MAI is achieved and GES is reached, i.e., the model is run with inputs as given by MAI for a very long time. From this state, a series of model experiments are performed for which N and P inputs are systematically perturbed from MAI, that is different N and P input combinations for one basin at a time. In total about 160 simulations were performed providing a large data set on how the state change in the Baltic basins depending on a nutrient input change to one basin.

To simplify the further analysis, a few assumptions were made:

1. assume that deviation from MAI is relatively small so that linear response can be expected;
2. assume the analysis can be done separately for each single nutrient and basin combination.

It would be straightforward to evaluate single cases that violate the two assumptions, but presenting the results in an easily-understandable way would be difficult.

The equivalent reductions for phosphorus and nitrogen obtained from BALTSEM simulations are shown in Tables 1 and 2. Since in general nitrogen retention is higher, the equivalent reductions are in most cases higher for nitrogen than phosphorus. The uncertainty increases for distant basins when the effective reduction becomes really small and equivalent reduction high. Rather arbitrarily, values higher than 10 is not shown in the tables.

Table 1: Equivalent reductions on phosphorus. The table should be read so that each row provides the necessary input reduction to the basins to the left to provide the equivalent environmental effect in the basins in the top row, e.g. 1.5 ton reduction to BS gives the same effect in the BP as 1 ton reduction directly to BP. NB! That the factors are valid on single basin pairs under condition that all other basins fulfil MAI.

	KT	DS	BP	BS	BB	GR	GF
KT	1	4.0	–	–	–	–	–
DS	0.8	1	3.2	–	–	–	–
BP	2.4	2.8	1	3.3	7.7	–	3.8
BS	3.8	4.6	1.5	1	2.6	–	5.8
BB	–	–	9.0	8.3	1	–	–
GR	3.6	4.3	1.6	4.8	–	1	6.5
GF	3.6	4.2	1.3	4.1	–	–	1

Table 2: Equivalent reductions on nitrogen. The table should be read so that each row provides the necessary input reduction to the basins to the left to provide the equivalent environmental effect in the basins in the top row, e.g. 1.3 ton reduction to GR gives the same effect in the BP as 1 ton reduction directly to BP. NB! That the factors are valid on single basin pairs under condition that all other basins fulfil MAI.

	KT	DS	BP	BS	BB	GR	GF
KT	1	7.3	–	–	–	–	–
DS	1.7	1	4.6	–	–	–	–
BP	–	–	1	–	–	–	–
BS	–	–	–	1	7.8	–	–
BB	–	–	–	1.1	1	–	–
GR	–	–	1.3	–	–	1	–
GF	–	–	4.0	–	–	–	1

How to use the equivalent reductions tables

Below in Annex A to this document there are examples on how one can use Tables 1 and 2 to calculate the achieved effective reductions from extra reductions published in the CART follow-up[1] in the case of follow-up. Exactly the same calculation should be used when relocating measures in developments of programs of measures, but it may be on future expected extra reductions rather than achieved reduction.

It should be noted that not fulfilling CART in one basin leads to that other basins may not reach GES as defined by the environmental targets because of the same reasons behind the equivalent reduction calculation. This implies that one cannot necessarily use the extra reduction to one basin to compensate for missing reduction in several basins. Thus calculation is quite straightforward when analyzing single pairs of basins, one with extra reduction and one taking benefit of the effective reduction. In more general terms, it quickly becomes more complicated.

If desirable, one could in each follow-up assessment directly take into account the extra reductions when evaluating progress towards achieving CART following the approach outlined in Annex A.

[1] http://www.helcom.fi/baltic-sea-action-plan/progress-towards-reduction-targets/in-depth-information/data-on-fulfillment-of-nutrient-input-ceilings/

Annex A: Examples of follow-up calculations

Extra and missing reductions were calculated and presented in the CART follow-up[1]. Here we use these figures to show some examples on calculations for some involved countries. Calculations are limited at this stage to phosphorus. The examples start with Sweden, because that illustrates the complication of having extra reductions in several basins and how that complicates the calculation. As long as one consider only a pair of basins the values in Table 1 can be used without concern, but one cannot use extra reduction from one basin to compensate for missing reduction in several basins without additional considerations.

Sweden:

In Table 3, the extra and missing reductions of phosphorus for Sweden are summarized based on the results of table 5k in the CART follow-up[1]. Sweden has available extra reductions of 176 and 16 ton phosphorus to the Bothnian Sea and Danish Straits, respectively. To calculate what the effective reductions from the Bothnian Sea are in the other basins, we divide by the values on the Bothnian Sea row in Table 1, see Table 4. The effective reductions from the extra reduction available to the Danish Straits (16 ton) is calculated in the same way, see Table 5.

If we just consider a single pair of basins, for example, how much less do Sweden need to reduce to Baltic Proper when taking into account the extra reduction to Bothnian Sea the calculation is straightforward and the number 117 ton can be used directly (leaving 313 ton remaining). Similarly, Sweden could deduct 20 tons on the missing reduction to Kattegat (leaving 47 ton remaining) from the extra reduction to Danish Straits.

The results from a full calculation of remaining reductions for Sweden are presented in Table 6. The starting point of this calculation was to use the 117 ton from Bothnian Sea on Baltic Proper and we see that for Kattegat the remaining reduction is quite close to what is given by the missing reduction minus the effective reduction from the Danish Straits as expected. We see that because reductions are less in Baltic Proper, the full effective reduction to Bothnian Bay from the extra reduction in Bothnian Sea cannot be accounted.

Table 3: The extra and missing reductions of phosphorus from Sweden according to the latest CART assessment. Sweden has no reduction requirements on phosphorus to Gulf of Riga and Gulf of Finland.

Basin	Extra reduction	Missing reduction
KT		67
DS	16	
BP		430
BS	176	
BB		100

Table 4: Calculation of effective reductions for the extra reduction from Sweden to Bothnian Sea.

Basin	Equivalent reduction	Calculation	Effective reduction
BP	1.5	176/1.5	117
BB	2.6	176/2.6	68

Table 5: Calculation of effective reductions for the extra reduction from Sweden to Danish Straits.

Basin	Equivalent factor	Calculation	Effective reduction
KT	0.8	16/0.8	20
BP	3.2	16/3.2	5

Table 6: The extra and remaining reductions of phosphorus from Sweden in relation to the estimates in the last CART assessment. In the calculation of remaining reductions the extra reductions are taken into account.

Basin	Extra reduction	Remaining reduction
KT		47
DS	16	
BP		313 (308 if the 5 tons from DS is also subtracted)
BS	176	
BB		48

Finland:

The extra and missing reductions for Finland are shown in Table 7. Finland is a special case because, firstly, the Archipelago Sea should according to Ministerial Declarations be treated separately as far as possible, and secondly, that additional phosphorus reductions needed to be placed on Gulf of Finland to obtain the environmental targets in Baltic Proper (see BNI presentation to PRESSURE 4). NB! The latter only applies to phosphorus, not nitrogen.

Table 8a shows the effective reductions due to extra reduction to Bothnian Sea, if applying equivalent reductions from Table 1 directly without considering the special cases. This leads to extra and remaining missing reductions shown in Table 9a.

To illustrate calculations separating Archipelago Sea from Bothnian Sea, we had to estimate how large part of the extra reduction that stems from Archipelago Sea. This was done using a Finnish calculation that compared the latest 5 year inputs with the reference inputs for the two seas separately. The 82 tons extra reduction was then split according to the proportions of the input reductions according to the Finnish calculation and this resulted in that Archipelago Sea had 28 tons extra reduction and Bothnian Sea had 54 tons. In an assessment one would of course need to redo the calculation using the proper methodology, i.e., split the CART for Finland to Bothnian Sea and calculate the extra reductions including statistical uncertainty in the same way as for other basins.

Table 8b shows the effective reductions in the case that the Archipelago Sea inputs are accounted as part of Baltic Proper, i.e. with equivalent reduction = 1 (cf. principle 6), while the remaining extra reduction for Bothnian Sea is accounted for in Bothnian Bay and Gulf of Finland. Following argumentation above (principle 7), the effective reduction to Baltic Proper from Finland could directly be accounted for in the missing reduction in Gulf of Finland as shown in Table 9b.

Table 8c shows a case were also the remaining extra reduction in Bothnian Sea is accounted for in Baltic Proper, however, using the equivalent reduction between the seas from Table 1 (= 1.5) and Table 9c shows the remaining missing reductions using these effective reductions taking into account principle 7.

Note that in the use of extra reductions in Bothnian Bay, it is assumed that missing reductions to Gulf of Finland does not affect the environment in Bothnian Bay (no efficient reduction in Table 1), but this is a case where some deeper analysis may be necessary so remaining reductions for Bothnian Bay in Tables 9a-9c should be regarded as preliminary.

Table 7: The extra and missing reductions of phosphorus from Finland according to the latest CART assessment. Finland has no reduction requirements on phosphorus to Gulf of Riga, Baltic Proper, Danish Straits and Kattegat.

Basin	Extra reduction	Missing reduction
BS	82	
BB		28
GF		417

Table 8a: Calculation of effective reductions for the extra reduction from Finland to Bothnian Sea following strictly the methodology above.

Basin	Equivalent reduction	Calculation	Effective reduction
GF	5.8	82/5.8	14
BB	2.6	82/2.6	32

Table 8b: Calculation of effective reductions for the extra reduction from Finland to Bothnian Sea following that the reductions to Archipelago Sea should be regarded as reductions to Baltic proper directly (principle 6).

Basin	Equivalent reduction	Calculation	Effective reduction
BP	1	28/1	28
GF	5.8	54/5.8	9
BB	2.6	54/2.6	21

Table 8c: Calculation of effective reductions for the extra reduction from Finland to Bothnian Sea following that the reductions to Archipelago Sea should be regarded as reductions to Baltic proper directly (principle 6). In addition, the remaining Bothnian Sea reductions should be accounted to the Baltic proper since this basin needs the largest phosphorus reductions (principle 7).

Basin	Equivalent reduction	Calculation	Effective reduction
BP	1	28/1	28
BP	1.5	54/1.5	36
BB	2.6	54/2.6	21

T**able 9a**: The extra and remaining reductions of phosphorus from Finland with effective reductions in Table 8a are taken into account.

Basin	Extra reduction	Missing reduction
BS	82	
BB		-4
GF		403

Table 9b: The extra and remaining reductions of phosphorus from Finland with effective reductions in Table 8b are taken into account. The effective reduction to BP is to be deducted directly from the Finnish missing reduction to GF as explained in the text.

Basin	Extra reduction	Missing reduction
BS	82	
BB		7
GF		380

Table 9c: The extra and remaining reductions of phosphorus from Finland with effective reductions in Table 8c are taken into account. The effective reduction to BP is to be deducted directly from the Finnish missing reduction to GF as explained in the text.

Basin	Extra reduction	Missing reduction
BS	82	
BB		7
GF		353

Denmark:

Denmark has made a national evaluation of the extra and missing reduction based on data up to 2014, and using a more sophisticated statistical approach. For Denmark we use these numbers (presented in Table 10) as basis for exemplifying the accounting for Denmark. Denmark is in the fortunate position to have managed to get extra reductions both to Kattegat and Danish Straits. The effective reductions stemming from the extra reductions in Danish Straits are shown in Table 11 and in Kattegat in Table 12. Since Denmark already is fulfilling the reduction targets in Danish Straits, the extra reduction in Kattegat is not needed. However, the missing reduction in Baltic Proper is 49 tons and the extra reduction in Danish Straits will only cover 5 tons of this leaving a missing reduction of 44 tons (Table 13).

Table 10: The extra and missing reductions of phosphorus from Denmark according to the latest CART assessment. Denmark has only phosphorus inputs to these basins.

Basin	Extra reduction	Missing reduction
KT	114	
DS	17	
BP		49

Table 11: Calculation of effective reductions for the extra reduction from Denmark to Danish Straits.

Basin	Equivalent reduction	Calculation	Effective reduction
KT	0.8	17/0.8	21
BP	3.2	17/3.2	5

Table 12: Calculation of effective reductions for the extra reduction from Denmark to Kattegat.

Basin	Equivalent reduction	Calculation	Effective reduction
DS	4	114/4	28

Table 13: The extra and missing reductions of phosphorus from Denmark after taking into account the extra reduction to Danish Straits in the missing reduction to Baltic Proper.

Basin	Extra reduction	Missing reduction
KT	114	
DS	17	
BP		44

Germany:

Germany has phosphorus inputs to Danish Straits and Baltic Proper, and the extra and missing reductions to these basins are shown in Table 14. Since it is only two basins, calculations are straightforward. Table 15 shows the effective reduction calculation based on the extra reduction in Danish Straits and Table 16 shows the resulting remaining reduction in the Baltic Proper after deducting the effective reduction.

Table 14: The extra and missing reductions of phosphorus from Germany according to the latest CART assessment. Germany has only phosphorus inputs to Danish Straits and Baltic Proper.

Basin	Extra reduction	Missing reduction
DS	30	
BP		208

Table 15: Calculation of effective reductions for the extra reduction from Germany to Danish Straits.

Basin	Equivalent reduction	Calculation	Effective reduction
BP	3.2	30/3.2	9

Table 16: The extra and missing reductions of phosphorus from Germany after using effective reduction in Baltic Proper.

Basin	Extra reduction	Missing reduction
DS	30	
BP		199

Estonia:

Estonia has phosphorus inputs to Gulf of Finland, Gulf of Riga and Baltic Proper. According to the latest CART assessment Estonia managed to achieve their reduction targets with a small margin to the Gulf of Riga and got an extra reduction of 3 tons, see Table 17. The effective reduction from the extra reduction in Gulf of Riga can be used in Baltic Proper, see Table 18. The adjusted missing reductions are shown in Table 19. We see that Estonia could meet their Baltic Proper reduction targets by reducing another 15 × 1.6 = 24 tons to Gulf of Riga. If they do reduce even more than this, one could consider using the same argument as for Finland that phosphorus reductions to Baltic Proper could be accounted for in Gulf of Finland.

Table 17: The extra and missing reductions of phosphorus from Estonia according to the latest CART assessment. Estonia has only phosphorus inputs to Gulf of Riga, Gulf of Finland and Baltic Proper.

Basin	Extra reduction	Missing reduction
GR	3	
GF		285
BP		17

Table 18: Calculation of effective reductions for the extra reduction from Estonia to Baltic Proper.

Basin	Equivalent reduction	Calculation	Effective reduction
BP	1.6	3/1.6	2

Table 19: The extra and missing reductions of phosphorus from Estonia according to the latest CART assessment. Estonia has only phosphorus inputs to Gulf of Riga, Gulf of Finland and Baltic Proper.

Basin	Extra reduction	Missing reduction
GR	3	
GF		285
BP		15

Outcome of the 51st Meeting of the Heads of Delegation

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Outcome of the 51st Meeting of the Heads of Delegation

Introduction

0.1 The 51st Meeting of the Heads of Delegation was held in Helsinki, Finland, on 14-15 December 2016.

0.2 The Meeting was attended by participants from all Contracting Parties and by observers from Baltic Farmers' Forum on Environment (BFFE), Coalition Clean Baltic (CCB), OCEANA and World Wide Fund for Nature (WWF). The List of Participants is contained in **Annex 1**.

0.3 The Meeting was chaired by the Chair of the Helsinki Commission, Ms. Marianne Wenning.

Agenda Item 1 Adoption of the Agenda

Documents: 1-1, 1-2

1.1 The Meeting adopted the Agenda as contained in document 1-1.

Agenda Item 2 Work plan of the EU Chairmanship of HELCOM

Documents: 2-1

2.1 The Meeting welcomed the workplan of the EU Chairmanship of HELCOM and endorsed it as guidance for future HELCOM activities under the EU Chairmanship (document 2-1).

2.2 The Meeting noted that the factual correction will be made to the implementation year related to the MARPOL Annex IV in the workplan.

Agenda Item 3 Ongoing global processes related to seas and oceans

Documents: 3-1, 6-14, 3-2

NECA

3.1 The Meeting recalled that HELCOM HOD 50-2016 approved the final Baltic Sea NOx Emission Control Area application and the related information document on NOx reducing technology and decided that they will be submitted to the 70th session of the IMO Marine Environment Protection Committee (IMO MEPC 70) for consideration after editorial work by Finland.

3.2 The Meeting took note that the NECA documents were submitted as agreed to IMO MEPC 70 in July 2016 and that the meeting agreed to the proposals to designate the North Sea and the Baltic Sea as emission control areas for NOx Tier III control with an effective date of 1 January 2021.

3.3 The Meeting took note that, as these decisions involve amendments to the MARPOL treaty, the IMO Secretary-General has circulated the related amendments among the Contracting Parties with a view to formal adoption at MEPC 71, scheduled for 3-7 July 2017.

3.4 The Meeting highlighted the need to continue developing the technology needed to implement NECA, including to reduce the economic impact to shipowners, and underlined the importance of all Contracting Parties to be actively involved and participate in activities within the framework of HELCOM and other fora.

3.5 The Meeting took note of the information on the ongoing negotiations on the development of an international legally binding instrument under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (ABNJ).

3.6 The Meeting invited the Contrating Parties to provide their views on the needs to follow up this process from the perspective of HELCOM work as a possible new international instrument would change the global marine policy framework.

G7 Marine Litter

3.7 The Meeting took note of the information by Germany that, based on the positive outcome of G7 action plan to combat marine litter, the intention is to continue this work in the G20 context. A workshop on this issue will be organised on 7-8 March 2017, and Germany will provide more information on the workshop at a later stage.

SOI initiative and Fisheries-Environment cooperation

3.8 The Meeting took note of the outcome of the "Sustainable Ocean Initiative (SOI) Global Dialogue with Regional Seas Organizations and Regional Fisheries Bodies on Accelerating Progress Towards the AICHI Biodiversity Targets" held in Seoul, Korea, on 26-29 September 2016 (document 3-1).

3.9 The Meeting considered in general regional follow-up of global commitments and processes related to closer cooperation between management of fisheries and marine environment, including SDG 14 (document 6-14) and the anticipated role and contribution of HELCOM FISH in this work (see also new HELCOM FISH work plan 2017-2018 in Annex 3 of document 6-14).

3.10 The Meeting took note that the SOI event stressed the need for enhanced cooperation and collaboration at the regional level in the fisheries and environment theme, supported by continual exchange of information and lessons learned, exploring of shared objectives, and addressing issues of common interest.

3.11 The Meeting highlighted that the HELCOM FISH group is in itself a very good example of closer cooperation between management of fisheries and marine environment called for by the SOI event as well as recent global developments within UN General Assembly, FAO, CBD and UNEP.

3.12 The Meeting further stressed that a large number of UN SDG targets (particularly under SDG 14) directly relate to fisheries and highlighted the importance of involvement of national fisheries administrations in SDGs and Aichi Targets implementation in the context of HELCOM work.

3.13 The Meeting recalled that currently no formal regular exchange of information exists between HELCOM groups and the fisheries management work taking place within BALTFISH or the EU-Russia arrangement.

3.14 The Meeting took note that formal arrangement for regular and direct information exchange would enable exploring synergies between activities taking place within the different bodies and remove uncertainties regarding overlap of activities, for the benefit of national work.

3.15 The Meeting supported the plan for closer cooperation between marine environment and fisheries management in the Baltic Sea (document 6-14) and agreed to initiate a process for closer cooperation between HELCOM FISH, BALTFISH and the EU-RU fisheries commission based on the three steps outlined on the cover page of document 6-14. The Meeting agreed that the Chair of HELCOM will initiate communication with BALTFISH and other relevant stakeholders.

3.16 The Meeting noted that HELCOM FISH will consider the issue further based on intersessional developments regarding the cooperation.

3.17 The Meeting took note of the comment by CCB that the success of this proposed closer cooperation depends also on progress within BALTFISH to adopt clear rules of procedure reflecting good governance, including access to decision making meetings for civil society observers or at least providing access to reports containing the decisions made within such meetings.

SDG 14 High level meeting

3.18 The Meeting took note of the information by Sweden on the United Nations Conference "Our oceans, our future: partnering for the implementation of Sustainable Development Goal 14", to be held on 5-9 June 2017 in New York (2017 SDG 14 Conference), co-hosted by Sweden and Fiji (document 3-2).

3.19 The Meeting discussed a possible HELCOM contribution to and presence at the SDG 14 Conference and agreed on the importance to showcase added value of regional cooperation in Regional Sea Conventions, including in the Baltic Sea being an exemplary region for policy making based on best available science, stakeholder involvement and establishing partnerships for integrated management of human activities.

3.20 The Meeting took note of the information by EU on the recently released joint communication "International ocean governance: an agenda for the future of our oceans", in which improvement and strengthening of regional governance is a key topic.

3.21 The Meeting took note that one viable way to convey HELCOM message at the Conference would be through the Contracting Parties. The Meeting took note that such a regional HELCOM message requires national coordination which should be initiated without delay as a preparatory UN meeting to the Conference will be organised on 15 February 2017 in New York.

3.22 The Meeting invited the Contracting Parties to stay in contact with the Secretariat in order to inform on any possibilities to provide input in a form of short draft messages which can be used as material for national consultations in the process of preparing for the SDG 14 Conference, taking into account the conference focus on "partnerships" across different administrations and public and private organisations, and that the showcased HELCOM partnerships could include shipping-environment, environment-fisheries and marine litter.

3.23 The Meeting took note of the information that Sweden will organise a side event at the SDG 14 Conference and welcomed the information that Sweden is inviting HELCOM to present its work at the side event possibly through case studies to demonstrate best practices and lessons learned from the Baltic Sea such as the MAI/CART system as well as recent measures to reduce nutrient pollution.

3.24 The Meeting discussed other possibilities for contributing to the side events in the UN SDG 14 Conference and welcomed an initiative of UN-Environment to organize a side event to demonstrate cooperation among 18 Regional Sea Conventions and Action Plans, including HELCOM.

3.25 The Meeting suggested that the upcoming Intergovernmental Review (IGR-4) event of the UNEP Global Programme of Action (GPA), on land-based sources of pollution, to take place in October 2017 in Indonesia, is also a possibility for HELCOM to provide input.

Our Ocean 2017

3.26 The Meeting took note that the EU will host the global 'Our Ocean' 2017 Conference in Malta which will build on the issues of the ocean and climate change, marine pollution and sustainable fishing. The participants are invited to provide suggestions for conference substance and possible commitments to be made at this Conference (Matjaz.MALGAJ@ec.europa.eu).

Agenda Item 4 Preparations for HELCOM 38-2017 including the high-level segment

Documents: 4-1, 4-2, 4-2-Rev.1, 4-3, 4-4

4.1 The Meeting took note of the Provisional Agenda for the 38th Meeting of the Helsinki Commission (HELCOM 38-2017) to be held on 28 February - 1 March 2017 in Helsinki, Finland (document 4-1).

4.2 The Meeting considered the outline for the high-level segment on ocean-related Sustainable Development Goals (SDG) and regional issues important for the Baltic Sea to take place on 28 February 2017 during HELCOM 38-2017 (document 4-2) and agreed on the amended outline including questions for debate (document 4-2-Rev.1).

4.3 The Meeting took note of the information by Germany and Sweden that both countries confirmed representation in the high-level segment and invited all other Contracting Parties to inform about the attendance of their high-level representatives to the Secretariat by **15 January 2017**.

4.4 The Meeting considered an initial proposal for the content of the HELCOM high-level segment 28 February 2017 (document 4-3) and suggested to keep the focus of the segment on HELCOM regional work in the context of SDGs, e.g. climate change issues, effectiveness of Marine Protected Areas in protection of endangered species, fisheries management, marine litter and eutrophication.

4.5 The Meeting took note of the suggestion by WWF to also include a discussion regarding where additional attention is still needed to ensure timely implementation of the agreed actions of the BSAP and to highlight concrete proposals to effectively address remaining roadblocks to further progress.

4.6 The Meeting considered that the outcome of the preparatory meeting on UN SDG Conference, to be held in February 2017, may be a useful contribution for the HELCOM high-level segment.

4.7 The Meeting highlighted that the high-level segment outcome should be structured around few and brief political messages identifying HELCOM's role in regional implementation of SDG and contribution to the global process; that the outcome should also have a clear future oriented aspect. The Meeting invited the Contracting Parties to provide comments to the draft outcome by **15 January 2017** with the intention to finalize the outcome by 15 February 2017.

4.8 The Meeting discussed and reviewed the draft document on HELCOM results and targets as aligned with the UN Sustainable Development Goals (document 4-4) and invited the Contracting Parties to provide inputs and comments to the material by **15 January 2017**, with the aim to finalize material for final approval by the Contracting Parties and finalize the layout work during February 2017.

Agenda Item 5 Next HELCOM Ministerial Meeting

Documents: none

5.1 The Meeting discussed the timing of the next HELCOM Ministerial Meeting and agreed that it would be best to organize the Ministerial Meeting in spring or early summer 2018, possibly back-to-back with the EU Environment Council to better attract Ministerial attendance.

5.2 The Meeting welcomed the offer by the EU to host the HELCOM Ministerial Meeting during their Chairmanship and invited the EU to explore possible dates and come back on the issue at HELCOM 38-2017.

5.3 The Meeting supported the idea of inviting representatives of the OSPAR Commission to the HELCOM Ministerial Meeting.

5.4 The Meeting agreed to continue planning concrete topics and possible outcomes of the HELCOM Ministerial Meeting at HELCOM 38-2017.

Agenda Item 6 Matters arising from the HELCOM Groups

Documents: 6-1, 6-2, 6-3, 6-4, 6-5-Rev.1, 6-6, 6-7, 6-8, 6-9, 6-9-Add.1, 6-10, 6-11, 6-12, 6-13, 6-15, 6-16, 6-17, 6-18, 6-19, 6-20, 6-21, 6-22, 6-23-Rev.1, 6-24, 6-25, 6-26, 6-27, 6-28, 6-29, 6-30, 6-31, 6-32

HOLAS II

6.1 The Meeting took note of the timetable and process for finalizing and approving the first version of the 2nd HELCOM holistic assessment by June 2017 (document 6-23-Rev.1).

6.2 The Meeting supported the proposal by GEAR 15-2016 regarding the use of indicators in HOLAS II: 1) if core indicators are not operational on a Baltic-wide scale, the indicators could still be used in the sub-basins where they are operational if agreed by countries sharing that basin 2) if pre-core indicators will be shifted to core indicators or if core indicators will become operational for additional assessment units during 2017, to consider including them in the final version of HOLAS II by mid-2018.

6.3 The Meeting took note of the concerns expressed by WWF, on behalf of the NGO observers, regarding the delay in the timeline of the HOLAS, which raises issues of credibility given the tremendous resources, time and capacity invested to date and threatens to already delay the stated priorities of the workplan of the EU Chairmanship which was widely supported by the Contracting Parties. Furthermore, the NGOs urged that this process, under the EU presidency, could demonstrate fruitful complementarity between HELCOM and EU processes and urged the Contracting Parties to honour their commitments to this process as agreed under the BSAP.

Core indicator

6.4 The Meeting considered the adoption of GES-boundary proposals for core indicators, adoption of new core indicators and associated GES-boundaries, shift in status to pre-core indication as endorsed by State and Conservation 5-2016 (document 6-17, Table 1).

6.5 The Meeting welcomed that Germany can lift the general study reservation on indicators.

6.6 The Meeting took note of the concern by Denmark that they are not for the time being in a position to participate in an agreement on threshold values. The Meeting noted the proposal of Denmark that boundaries used in association to HELCOM indicators should be called assessment values and should not be equivalent to MSFD threshold values.

6.7 Concerning the usage of the term 'threshold value' for HOLAS II and relationship with the term as used in the EU rules, the representative of the EU clarified that according to new GES decision, currently under scrutiny procedure, the threshold values developed through process at regional level, such as HOLAS II, do not automatically become binding on Member States. The freedom of Member States to incorporate or not incorporate these regionally agreed threshold values is reflected in the text of the Commission Decision (Recital 12, Article 4(1)(a) and Article 6).

6.8 The Meeting took note of the statement by Denmark as included in **Annex 2** and agreed on the following clarifying statement in regard to HELCOM indicators:

"At this point in time, HOLAS II indicators and threshold values should not automatically be considered by the Contracting Parties that are EU Member States, as equivalent to criteria threshold values in the sense of Commission Decision (EU) 2017/… laying down criteria and methodological standards on good environmental status, but can be used for the purposes of their MSFD obligations by those Contracting Parties being EU Member States that wish to do so".

With this clarification Denmark lifted the general reservation on the indicators.

6.9 The Meeting noted that the ZEN-ZIIM project has proposed revisions to the GES-boundaries to the core indicator 'Zooplankton mean size and total stock' since the endorsement by State & Conservation 5-2016. The Meeting took note of the study reservation by Poland on the new proposal on GES-boundary for

Gdansk basin. The Meeting invited the ZEN-ZIIM project to submit the new proposal for GES-boundaries for consideration at the intersessional meeting of State & Conservation to be held 26 January 2017.

6.10 The Meeting adopted GES-boundaries for the core indicator 'State of the soft-bottom macrofauna community' as contained in **Annex 3** Table 1, taking note of the study reservation on the indicator by Denmark and further noted that Denmark currently takes part in the development of the indicator and GES-boundaries for additional areas.

6.11 The Meeting took note that Estonia lifted the study reservation on Pb in fish liver in offshore waters while the study reservation on Cd in fish liver is retained (document 6-24) and endorsed the GES-boundaries for the core indicator Metals as contained in Annex 3 Table 1.

6.12 The Meeting agreed to extend the core indicator on 'Oxygen debt' to Bothnian Bay, Bothnian Sea and Åland Sea assessment units.

6.13 The Meeting took note that Germany can lift the study reservation on the core indicators on 'Abundance of coastal fish key functional groups' and 'Abundance of key coastal fish species', noting that the results are to be noted as preliminary since Germany sees the need for further development of the indicators.

6.14 The Meeting took note that Denmark lifted the study reservations on the core indicators 'Zooplankton mean size and total stock', 'Population trends and abundance of seals' as well as on 'Number of drowned mammals and waterbirds in fishing gear' under the condition that during further development and when considering values, the PBR should be replaced with specific values for by-catch.

6.15 The Meeting noted that Denmark can lift the study reservation on the protocol for calculating indicators related to the concentration of hazardous substances.

6.16 The Meeting took note that Denmark and Poland lifted the study reservations on the shift of the pre-core indicator on 'Total nutrients' to core indicator. The Meeting took note that the GES-boundary for total nitrogen in the Gdansk basin should adhere to the Polish national value, i.e. 18.8 μmol N/l. The Meeting thus adopted 'Total nutrients' as a core indicator noting that GES-boundaries will be presented for consideration at the intersessional meeting of State & Conservation to be held 26 January 2017.

6.17 The Meeting took note that with regard to shifting the status of the pre-core indicator 'Cyanobacterial bloom index' to core indicator, Germany kept its reserve with the aim of clarifying the situation as soon as possible. Germany explained that, at this point of time, there were no or little satellite data from the Baltic Sea region being used for the development of this indicator, however, welcomed that there has been agreement to apply satellite data in the future. Any further assessment on how well the results of the satellite data will be for the Baltic Sea areas will only be looked into once results are available.

6.18 The Meeting took note that Poland, due to lack of data, placed a study reservation on the shift to core indicator for indicators on 'Phytoplankton community composition as a foodweb indicator', 'Diatom/Dinoflagellate index' and 'Cumulative impact on benthic biotopes'. Poland seeks to clarify the situation and find a solution as soon as possible together with the Secretariat by **7 January 2017**.

6.19 The Meeting took note that Denmark could lift the study reservation on the shift of the candidate indicator 'Shallow water oxygen' to pre-core.

6.20 The Meeting agreed to shift the candidate indicators on 'Litter on the Seafloor' and 'Distribution in time and space of loud low- and mid-frequency impulsive sound' and 'Shallow water oxygen' to pre-core indicators.

6.21 The Meeting noted the available set of core indicator based on the outcome of the Meeting and recgonized gaps in indicators related to the pelagic habitats and that resolving these reservations will significantly improve completeness of the set of indicators according to themes that will be addressed in HOLAS II.

6.22 Contracting Parties that still have study reservations on the individual indicators agreed that a solution could be found to apply these indicators in HOLAS II by indicating that the results are of intermediate/test character and that the indicators may need further development. The Meeting requested

these Contracting Parties to come back with information to which indicators the solution could be applied and the specific wording could be agreed by the online meeting of State and Conservation in January 2017.

6.23 The Meeting took note that with the approach proposed in the paragraph above, Denmark can agree on the use in HOLAS II of the indicators 'State of the soft-bottom macrofauna community', 'Phytoplankton community composition as a foodweb indicator', 'Seasonal succession of dominating phytoplankton groups', 'Cyanobacterial bloom index'.

6.24 Indicators with remaining study reservations are listed in Annex 3.

6.25 The Meeting took note of the document by Germany on HELCOM Indicators on population demography of seals (document 6-31).

6.26 The Meeting noted the request to re-confirm the role as Lead and co-Lead Countries for pre-core and core indicators to be further tested and developed and the re-confirm role as Lead Countries on all indicators during the course of the HOLAS II project. The Meeting noted that Germany regretted that this delegation for internal reasons had to withdraw, at this point of time, the lead on the indicator "shallow water oxygen". The Contracting Parties are invited to inform the Secretariat (ullali.zweifel@helcom.fi) on their possibilities to do so by **31 January 2017**. The Meeting took note of the current list of Lead Countries as contained in document 6-30.

Assessment tools

6.27 The Meeting took note that Germany recognizes that the assessment methods need to be implemented in HOLAS II to keep the timetable, however, reserved its final position on the assessment tools in the light of further work on the tools and the results of their application.

6.28 The Meeting considered an updated proposal for the biodiversity assessment tool (BEAT 3.0) taking into account the agreements at State and Conservation 5-2016 (document 6-15).

6.29 The Meeting endorsed the methodology to assess biodiversity in HELCOM and HOLAS II. The Meeting noted that there is a still an open issue regarding the integration of assessment results for mammals beyond species. The Meeting mandated the national experts to come to an agreement at the HELCOM HOLAS II workshop to be held in March 2017 and the HOLAS II project to continue working on the basis of the outcome of the workshops and present the draft assessment results to the State and Conservation Working Group. In that process, the HOLAS II project will take record of issues that could still need improvement and should be considered in future developments of the tool.

6.30 The Meeting agreed in principle on the approach to assess confidence as presented in section 4.5 of document 6-15, taking note of the proposal by Sweden to make an analysis of weaknesses and strengths of the confidence assessment and that Sweden is willing to support such analysis. The Meeting noted the proposal of Denmark not to include "zero" in the confidence interval.

6.31 The Meeting took note of the view of Germany that the assessment of harbour porpoise under the Habitats Directive should be included in the BEAT tool. The Meeting noted the explanation that the biodiversity assessment tool has certain requirements on the indicators that are not met by assessments under the Habitats Directive. However, key topics such as harbour porpoise, for which there is no operational core indicators, can still be addressed in the HOLAS II report, for example through a descriptive approach.

6.32 The Meeting took note of the concerns of Germany on the dual use of indicators in the eutrophication and biodiversity assessments.

6.33 The Meeting considered a proposal for a hazardous substances assessment tool (CHASE) (document 6-16). The Meeting welcomed that Denmark lifted the study reservation on the tool.

6.34 The Meeting agreed on the method to assess hazardous substances in HELCOM and HOLAS II. As suggested by the GEAR Group, the Meeting agreed that the integrated CHASE assessment can be used to summarize the contamination status of the Baltic Sea in HOLAS II, however, that the integrated assessment results should not be expressed in terms of GES/sub-GES.

6.35 The Meeting agreed on the confidence assessment as presented in section 4-4 of document 6-16 (Alternative 2).

6.36 The Meeting took note of the concern of Germany on the applicability of CHASE in coastal waters and that a final position depends on testing of data in German coastal waters.

6.37 The Meeting agreed in principle on the method to calculate the Baltic Sea Impact Index (BSII) and its use (document 6-7), noting that the method to assess the impacts on ecosystem components will still be tested and the results will be presented to the planned HELCOM HOLAS II workshop in March 2017. The Meeting mandated the workshop to recommend which method to use and the HOLAS II project to proceed according to those recommendations and present the outcome to State and Conservation 7-2017. The Meeting noted that the Baltic Sea Impact Index will continue to be developed in HELCOM in future as needed. The Secretariat will provide information on links to the outcome of workshops and meetings that have guided the development of the BSII.

6.38 The Meeting took note of the comments by Germany:

- to revise Table 1 according to comments provided through the GEAR Group on the work done under BalticBOOST project, Theme 3;
- that terminology on page 8, point 9, should be harmonized with Table 2.

6.39 The Meeting took note of the status of data reporting for HOLAS II (document 6-29).

6.40 The Meeting noted that in order to solve the data situation for the first version of HOLAS II it is accepted that data is made available from other sources than the agreed data arrangements in HELCOM, however, that in the longer term, including for the final version of HOLAS II by mid-2018, it is necessary that data is reported according to HELCOM agreements in order to facilitate the update of HOLAS II as well as future assessments.

6.41 The Meeting invited those Contracting Parties that have not yet reported the requested data to propose solutions including possible alternative sources of data to the Secretariat by **20 December 2016** (joni.kaitaranta@helcom.fi).

6.42 The Meeting took note that Russia agrees that the Russian national data on the state of the marine environment and human activities collected by the Gulf of Finland -2014 Project can be used for the purpose of the HOLAS II project and integrated into the related databases. The Meeting also noted that Russia considers these data as scientific expert input and they should be recognized accordingly.

6.43 The Meeting also noted the view of Russia that the HOLAS II project, as a scientifically based assessment, serves for evaluating the effectiveness of measures but the aim is not to use it as a sole basis for making decisions on future measures.

6.44 The Meeting supported in principle the tentative planning for a regional consultation on HOLAS II 2017-18 (document 6-22)

6.45 The Meeting agreed that the GEAR Group will continue planning intersessionally for a regional consultation as outlined in the document, in a suitable timetable, taking into account also national consultations and open questions regarding how and who is undertaking the consultation.

6.46 The Meeting proposed that tentative stakeholder events should be coordinated with the Contracting Parties.

6.47 The Meeting considered and agreed on the roadmap for continued HELCOM work on economic and social analyses (ESA) (document 6-10).

6.48 The Meeting recognized resource constrains in some of the Contracting Parties to assign all the needed expertise to the network.

6.49 The Meeting noted the agreement in GEAR to strengthen the HELCOM ESA network and that the Terms of Reference for the network will be presented to HELCOM 38-2017.

Outcomes of working groups' meetings

6.50 The Meeting took note of the outcomes of the recent working group meetings and marine litter workshop and the essential issues stemming from the meetings (documents 6-9 and 6-9-Add.1).

6.51 The Meeting adopted the following new Work Plans/Terms of Reference for the working groups and expert groups as contained in Attachments 1-10 of documents 6-9 and 6-9-Add.1:

- Work Plan for MARITIME 2016-2018 (Attachment 1);
- Updated ToR of HELCOM-OSPAR TG BALLAST 2016-2017 endorsed by Maritime 16-2016 and OSPAR (Attachment 2);
- Work Plan for PRESSURE 2017-2018 (Attachment 3);
- Work Plan for State & Conservation 2017-2018 (Attachment 4);
- Updated ToR of the HELCOM Expert Group on Monitoring of Radioactive Substances in the Baltic Sea (MORS EG) as endorsed by State & Conservation 5-2016 (Attachment 5) (Denmark withdrew the proposal to change the last sentence of paragraph 2 of the introduction);
- Work Plan for RESPONSE 2017-2018 (Attachment 6);
- Work Plan for AGRI 2017-2018 (Attachment 7), taking note of the Statement to the initial suggestion on work plan for group by BFFE (document 6-25) and that the related paper by the Copa Cogeca was distributed at the Meeting.
- Work Plan of FISH 2017-2018 (Attachment 8);
- Work plan for HELCOM Task Force on migratory fish species (FISH-M) 2017-2018 (Attachment 9);
- Terms of Reference for the HELCOM expert coordination network on response on the shore (HELCOM SHORE network) (Attachment 10).

6.52 The Meeting took note that concerning the FISH Group, the work plan will be further polished for the next meeting of the group.

6.53 The Meeting noted the concern by CCB that the deadline for the revision of Annex III of the Helsinki Convention is not set in the AGRI Group work plan and took note of the information by CCB on the ongoing activities related to the promotion of existing and development of new BAT and BEP for Industrial Livestock Farms, including cattle in the BSR.

6.54 The Meeting took note of the call by Finland for the Contracting Parties to engage more in the work of the AGRI Group.

6.55 The Meeting noted the information by Russia regarding the ongoing national development of the BAT for agricultural production and including cattle farms larger than 400 items in the Baltic Sea region. The Meeting also took note of the opinion of Russia that there is a need to elaborate a methodology for identification of the P sensitive areas in the Baltic Sea region and probably to consider a related project.

6.56 The Meeting clarified that, concerning the RESPONSE Working Group, the RESPONSE Correspondence Group on HELCOM Recommendation 28E/12 led by Denmark will, as part of the work, consider sub-regional response preparedness targets. However, this does not indicate that Denmark would necessarily be in favour or approve such targets.

6.57 The Meeting took note that the Seventh Meeting of the Group of Experts on Safety of Navigation (Outcome of SAFE NAV 7-2016, para 5.2) invited each Contracting Party to closely study and, if needed, revise the Cat I & II areas in their waters based on up-to-date hydrographic surveys and current commercial shipping AIS info to ensure safe navigation in their waters and highlighted the importance of this work.

6.58 The Meeting approved the amended reporting format for data on dredging and depositing operations at sea.

6.59 The Meeting took note that Germany appreciated the contribution of Sweden related to the concept of green infrastructure as a tool for integrating environmental considerations in MSP as it was reflected in paragraphs 4.3 and 4.4 of the outcome of the last HELCOM-VASAB MSP WG Meeting. The German Federal Agency for Nature Conservation currently runs a complementary research and development project which also deals with implementing Ecosystem Approach in MSP. This R&D approach has a special focus on transferring scientific data on spatial claims of ecosystem components and their sensitivities into concrete planning objectives and principles to provide scientific input to MSP of the German EEZ. Identifying and establishing priority areas for nature conservation purposes and strengthening ecological connectivity of MPAs is also part of this project. By 2017 the Agency envisages first results. Germany was of the opinion that this method provides valuable knowledge for strengthening nature conservation concerns in MSP and recognizes the high potential of developing and making use of synergies between the approach of R&D project and other HELCOM-Parties for the implementation of Ecosystem Approach. Therefore, Germany would welcome the opportunity for a fruitful exchange of views and experiences on these issues at the occasion of the next meeting of the HELCOM-VASAB Group.

6.60 The Meeting took note that Germany retains their study reservation to approve the proposed change in the separation between the HELCOM assessment units "Sound" and "Arkona basin", as defined in the HELCOM Monitoring and Assessment Strategy.

6.61 The Meeting approved the organization of the next meetings of the working groups as listed in documents 6-9 and 6-9-Add.1.

6.62 The Meeting welcomed the offer by Germany to host the HELCOM nutrient recycling workshop in Berlin 27-28 March 2017.

6.63 The Meeting welcomed the offer by Russia to host the MARITIME 17-2017 meeting on 10-12 October 2017.

6.64 The Meeting congratulated the new Chairs/Vice-Chairs of the working groups for their election/re-election:

- Mr Lars Sonesten, Sweden, Chair of the Pressure Group for 2017-2018;
- Mr Peter Sigray, Sweden, Chair of the HELCOM Expert Network for Underwater Noise;
- Ms Penina Blankett, Finland and Mr. Urmas Lips, Estonia, Co-Chairs of the State&Conservation Group for 2017-2018;
- Ms Heli Haapasaari, Finland, Chair and Mr Ojars Gerke, Latvia and Mr Alexander von Buxhoeveden, Sweden, Vice-Chairs of the Response Group for 2017-2018;
- approved the nomination of Mr Joacim Johannesson as HELCOM Co-chair for the HELCOM-VASAB Maritime Spatial Planning Working Group for the next three year period.

6.65 The Meeting thanked Finland for offering a Chair to the AGRI Group.

6.66 The Meeting advised that special attention is paid to the process of electing Chairs for the groups.

Pressure

6.67 The Meeting considered the Scoping Study on International and European Processes that are relevant to and contribute to the implementation of OSPAR's and HELCOM's Regional Action Plans on Marine Litter (document 6-27) submitted by Sweden.

6.68 The Meeting noted the Terms of Reference for the study, endorsed the proposal of HELCOM to join the scoping study, and mandated the Executive Secretary to coordinate with the OSPAR Secretariat and take necessary administrative steps.

6.69 The Meeting suggested sharing the results of the study with the Mediterranean region and possibly other sea regions for their potential use.

6.70 The Meeting considered the draft HELCOM Recommendation on Sewage Sludge Handling (document 6-1) and the comments submitted by Germany (document 6-32).

6.71 The Meeting agreed in general on the proposed version of the document and invited the Contracting Parties to provide minor written comments on the updated version of the draft Recommendation by **20 January 2017** with an intention to adopt it at HELCOM 38-2017. The Meeting noted that the reporting dates indicated in the document should be adjusted bearing in mind the actual date of possible adoption.

6.72 The Meeting also noted the comment by Russia that the section "leading countries" in the reporting format, annexed to the document, should be left blank until the lead countries are identified.

6.73 The Meeting took note of the study reservation by Sweden and Denmark for the final consultations on the updated version of the draft Recommendation with national competent authorities.

6.74 The Meeting endorsed the use of the methodology for accounting extra reduction as a trial calculation in the PLC-6 assessment (document 6-2).

6.75 The Meeting took note of the view of Denmark that principle 8 of the methodology application is not relevant. The Meeting also noted the position of Russia that the trial can be made but the further use of the methodology should be based on the strong scientific background.

6.76 The Meeting also noted the statement by Germany that it agreed to use of the proposed methodology in a trial calculation. At the same time, Germany emphasized that the methodology to account for extra reductions should only be used if it rests on a sound scientific basis, and if it follows a number of agreed principles. The Meeting noted that principle 8 is of particular importance for Germany, notably the precautionary principle that states to Contracting Parties that the methodology should not be applied to purposely increase inputs to a basin. The Meeting took note that against that background, Germany and Sweden expressed their concerns that Denmark had stated at PRESSURE 4-2016 that it would not intend to follow principle 8 and the methodology would allow Denmark to compensate potential impacts on water quality deriving from human activity with this methodology which, according to the understanding in Germany, would not be in line with the respective principle of the Convention.

6.77 The Meeting approved the establishment of an intersessional Expert Network on dredging/depositing operations at sea (HELCOM EN DREDS) and its Terms of Reference (document 6-4).

6.78 The Meeting took note of the status of the PLC national data reporting and the availability of these data for the further work (document 6-26) and invited the Contracting Parties to prioritize the work on assuring of the completeness and precision of national datasets.

6.79 The Meeting considered and approved the PLC-7 project proposal (**Annex 4**).

6.80 The Meeting noted the statement by Germany that it agreed to the PLC-7 project outline and in particular welcomed the new structure of the PLC products with many smaller reports released in sequence instead of one large report. Germany underlined that this will hopefully also contribute to having these reports a bit more up to date. Furthermore, Germany pointed out that it is of high importance to further harmonize the PLC reporting routines (e.g. parameters assessed, assessment areas used etc.) with the requirements under the WFD. To achieve this, Germany has initiated a national process and will inform the PLC Project Group on the outcomes of that process as soon as possible. Germany, finally, regretted to inform the Meeting that due to constraints in terms of timing and personnel this delegation was not able to offer taking the lead on any of the PLC-7 products.

6.81 The Meeting welcomed the offer by Denmark to take a lead in implementation of two tasks: assessment of the sources of nutrients and updating of the PLC guideline with statistical report.

6.82 The Meeting agreed on the deletion of the hot spot No. 27 "Kehra Pulp and Paper" in Estonia from the HELCOM hot spot list (document 6-12) and congratulated Estonia for the achievement.

6.83 The Meeting welcomed the offer by Russia to host PRESSURE 6-2017 on 25-27 April 2017 in St.Petersburg but noted that the official confirmation will be given by 15.01.2017.

6.84 The Meeting welcomed the offer by Lithuania to consider a possibility to host the PRESSURE 7-2017 meeting in autumn 2017 and noted that the offer will be confirmed at PRESSURE 6-2017.

6.85 The Meeting welcomed the information by Finland that NEFCO management board has recently decided that this organization will take actively part in the work related to remediation of the toxic waste landfill Krasnyi Bor in Russia and supported the decision by PRESSURE 5-2016 to invite NEFCO to contribute to the remediation of the Krasnyi Bor landfill.

6.86 The Meeting also welcomed the effort by Russia to reduce the environmental risks posed by the site and preparedness to cooperate with international experts in remediation of this HELCOM hot spot.

6.87 The Meeting noted the comment by CCB that a regular follow up of the situation around Krasny Bor hazardous waste dumpsite should be maintained by HELCOM PRESSURE in line with the work on remediation of other HELCOM hot spots.

Underwater noise

6.88 The Meeting welcomed the report "Noise Sensitivity of Animals in the Baltic Sea", agreed on its publication in the Baltic Sea Environment Proceedings series (document 6-6), and proposed that the report should be shared with other RSCs and the CBD. The Meeting took note that Finland and Germany will provide editorial comments to the Secretariat.

6.89 The Meeting decided to postpone the discussion on the progress in implementing the underwater noise roadmap to HELCOM 38-2017.

State and Conservation

6.90 The Meeting considered the draft HELCOM Recommendation on conservation of Baltic Sea underwater biotopes, habitats and biotope complexes (document 6-18) and the proposed changes to the draft Recommendation submitted by Denmark (document 6-19). The Meeting noted that HELCOM Recommendation 21/4 (Protection of Heavily Endangered or Immediately Threatened Marine and Coastal Biotopes in the Baltic Sea) will we superseded if the new draft Recommendation is adopted.

6.91 The Meeting noted that Germany could not agree to the Danish proposals and that Germany offered to continue a bilateral dialogue with Denmark to reach a solution with the aim to agree on the Recommendation at HELCOM 38-2017. The Contracting Parties are invited to inform if they wish to join the dialogue. The Meeting underlined that the new draft Recommendation should thus not weaken the paragraphs that stem from Recommendation 21/4.

6.92 The Meeting endorsed the project proposal for PEG QA 2017-2019 (**Annex 5**).

6.93 The Meeting considered the proposal on the Limit Reference Level (LRL) for harbour seals (document 6-21), noted that Denmark and Sweden can lift their study reservations, and agreed to define the limit reference level at 10 000 harbour seals for the combined management unit "Kattegatt (including the Danish Straits)" and "Southwestern Baltic".

6.94 The Meeting took note of the proposal by Finland for HELCOM to host a workshop in spring 2018, guided by the CBD secretariat, on identifying potential EBSAs (Ecologically or Biologically Significant Marine Areas) in the Baltic Sea region (document 6-5-Rev.1). The Meeting noted that such a workshop would focus on reaching a common understanding on the added value of nominating EBSAs in the light of the needs identified in the HELCOM BSEP report 148.

6.95 The Meeting approved that Finland will start planning for a regional EBSA workshop and agreed to the proposal to convene an online HELCOM expert meeting in spring 2017 to support the planning of the workshop. The Meeting agreed to consider the outcome of the online meeting and the further planning of the workshop at HOD in June 2017.

6.96 The Meeting took note of the interest stated by WWF to contribute to such a workshop where results from their Scorecard on MPAs in the Baltic Sea (http://d2ouvy59p0dg6k.cloudfront.net/downloads/wwf_mpa_scorecard_2016_nov.pdf) and recommendations regarding securing greater coherence of the Baltic Sea MPA network, in line with HELCOM

Recommendations, could be shared perhaps together with contributions from other NGOs active on this topic.

6.97 The Meeting considered document 6-13 submitted by CCB on the status of the Baltic cod stocks and took note of the comment by CCB that if no action is implemented on the Baltic cod the stock may face collapse. CCB also reminded of the BSAP 2017, HELCOM Recommendation 37/2 and the actions therein, and recommended to update the HELCOM Red list categorization of cod based on its current status, to consider cod status as part of the HOLAS II work and MSFD assessments to be reported in 2018. CCB also highlighted the need to establish new or extend existing MPAs to safeguard threatened species, including the cod stocks in Kattegatt, in the Danish Straits and Belt Sea as well as in the Baltic Proper.

6.98 The Meeting took note of the EU competences on cod, and comments by Poland and the EU that the proposals for recent TAC decisions on Baltic cod stocks were in line with the scientific advice and the EU recalled that a number of associated measures should over time alleviate concerns regarding overfishing.

6.99 The Meeting took note that Denmark does not agree to the information in document 6-13 submitted by CCB.

6.100 The Meeting took note that Germany shares the concern of CCB from the biodiversity point of view and supports the efforts to take further steps on Baltic Sea cod.

6.101 The Meeting agreed that the threat status of cod should be considered as part of the upcoming work to revise the HELCOM Red List accoding to the existing timeplans.

6.102 The Meeting recalled the decision to strengthen the cooperation and partnerships on sustainable fisheries (cf. para 3.15 above) to be initiated by the HELCOM Chair, creating prospects for strengthened regional dialogue on Baltic Sea cod.

Maritime

6.103 The Meeting considered the regional Baltic Sea plan for harmonized ratification and implementation for the 2004 IMO Ballast Water Management Convention (BWMC) (document 6-8) and approved it as included in **Annex 6**, incorporating editorial changes reflecting the facts that Finland has ratified the Convention on 8 September 2016 and that the BWMC will enter into force on 8 September 2017.

Response

6.104 The Meeting endorsed the revised HELCOM Response Manual Volume III “Response to pollution incidents on the shore” (document 6-11) for adoption by HELCOM 38-2017 with the amendment that prices of equipment of Germany should be removed from Annex 1 “List of specialized on shore equipment that can be sent to assist other Contracting Parties”.

Other issues

6.105 The Meeting took note of the list of BONUS projects results having a potential in management (document 6-28).

6.106 The Meeting suggested to the Secretariat to invite BONUS project to follow up closer the HELCOM priorities and synthetize their expected policy input to HELCOM work and share it with the relevant HELCOM bodies.

6.107 The Meeting also recommended to consider an opportunity to include an overview of the BONUS projects contributing into the current agenda of one of the upcoming HELCOM meetings.

Agenda Item 7 HELCOM institutional and organisational matters

Documents: 7-1, 7-2, 7-3

7.1 The Meeting took note of the Audit Report and the Financial Statement of the Helsinki Commission for the financial period 1 July 2015 to 30 June 2016, as well as of the explanatory memorandum (document 7-2) and advised the Executive Secretary to submit them to HELCOM 38-2017 in order to have the accountables officially discharged from responsibility. Furthermore, the Meeting considered and endorsed the proposal for a decision by HELCOM 38-2017 in response to the recommendation included in the Audit Report.

7.2 The Meeting considered the draft budget for the financial period 1 July 2017 to 30 June 2018 (document 7-3) and noted the comments by Germany and the study reservations by Poland, Lithuania and Latvia on the draft budget.

7.3 The Meeting advised the Executive Secretary to submit the draft budget to HELCOM 38-2017 for official adoption.

7.4 The Meeting noted that the draft budget estimate for the following financial period (2018-2019), to be based on the draft budget for 2017-2018, will also be submitted to HELCOM 38-2017 as per Financial Rule 2.

7.5 The Meeting underlined in this context the importance of streamlining and priority setting and invited the Contracting Parties into the work and decided to discuss this issue at HOD 52-2017, based on intersessional exchange to be initiated after the annual Commission meeting.

7.6 The Meeting considered the vacancy announcement of the post of a Professional Secretary for the Maritime, Response and Fish groups (document 7-1) and agreed on the timetable for the recruitment process. The Meeting nominated the following three members (in addition to the *ex officio* members, i.e., the Chair and the Executive Secretary of the Commission) to the Recruitment Panel to conduct the selection procedure: Germany, Latvia and Russia.

7.7 The Meeting took note that the Contracting Parties have been asked to provide their comments by **21 January 2017** to the application for observer status to HELCOM by Low Impact Fishers of Europe (LIFE) distributed via e-mail to HODs on 28 November 2016 and by Baltic Sea States Sub-Regional Cooperation (BSSSC) distributed via e-mail to HODs on 11 December 2016 and noted that the decision regarding the observer status of these organizations will be made by HELCOM 38-2017.

Agenda Item 8 Any other business

Documents: 8-1, 8-2, 8-3, 8-4, 8-5, 8-6

8.1 The Meeting took note of the information on the on-going projects within HELCOM and with HELCOM involvement (document 8-2).

8.2 The Meeting took note of the list of upcoming meetings within HELCOM and other forums in 2017 (document 8-3).

8.3 The Meeting took note of the information by Russia about the XVIII International Environmental Forum “Baltic Sea Day” to take place in St. Petersburg on 22-23 March 2017 as well as of the information by the Secretariat on the situation regarding a project proposal on organizing the “Baltic Sea Day” submitted to the Nordic Council of Ministers on 31 October 2016 (document 8-5).

8.4 The Meeting invited the Contracting Parties to contribute to the content of the agenda of the Forum by mid-January 2017 and engage national stakeholders to attend the event.

8.5 The Meeting took note of the support of the Forum by CCB and that it is preliminarily planning to arrange a round table related to the the river basin management as a tool to reduce inputs of nutrients into the marine environment.

8.6 The Meeting also noted that Sweden is planning to contribute to the organization of the Forum programme related to the problem of littering of the marine environment.

8.7 The Meeting took note of the information by Sweden about the outcome of the EUSBSR Strategy Forum held in Stockholm on 8-9 November 2016 and of the outcome of the political seminar '"This is what we need to do for a cleaner sea." Sectors have their say' held by HELCOM at the 7th Strategy Forum of the EUSBSR in Stockholm, Sweden, on 8 November 2016 (document 8-4).

8.8 The Meeting took note of the information on the 8th Annual Forum on EUSBSR in Berlin on 13-14 June 2017, the focus of the event and the invitation to attend the Forum.

8.9 The Meeting considered the update on and future outlook for HELCOM communication activities (document 8-1) and took note of the communication needs of HOLAS II.

8.10 The Meeting requested the Contracting Parties to consider offering additional funding for tasks 5-8 in section 1.4 to complement the funds available from the HELCOM budget and possible support via the new SPICE project proposal.

8.11 The Meeting took note of the information from Russia, in accordance with Helsinki Convention Annex VI Reg. 9, that Russia plans to carry out test drilling in 2017 at the offshore deposit D-33 (document 8-6).

8.12 The Meeting took note of the information from Russia that as this is a test drill and not a full launch of offshore activities, a full Environmental Impact Assessment (EIA) as called for by the Helsinki Convention, is not planned. If a full project will be launched at a later stage the environmental impacts will be considered in accordance with the international and national commitments of Russia.

8.13 The Meeting took note of the reminder expressed by CCB to all the Contracting Parties on the need to follow relevant international EIA procedures in case large infrastructure projects are planned in the BSR.

8.14 The Meeting took note of the comment by Poland that all the relevant environmental impact provisions, including those of European law as well as the Helsinki and Espoo Conventions will be followed in the project for a navigation canal between the Vistula Lagoon and Gulf of Gdansk across the Vistula Spit.

8.15 The Meeting took note of a scientific study commissioned by Oceana of European fish stocks (http://eu.oceana.org/sites/default/files/exploitationstatus_8nov16_2.pdf?_ga=1.100437278.1662887962.1482087650) and its conclusions that 85% of the fish stocks are overfished, only 12% of the stocks fulfil the goals set by the EU CFP and if the fish stocks would be well managed catches would increase by more than half.

8.16 The Meeting took note of the statement by the European Union on financing and legislation as included in **Annex 7**.

8.17 The Meeting took note of the concern by Germany that there is an ultimate need to keep at least three-week gaps between the meetings of Pressure and State and Conservation groups in order to enable better preparation for the meetings.

8.18 The Meeting thanked the retiring Head of Delegation of Finland, Eeva-Liisa Poutanen for her committed efforts covering four decades for the benefit of the Baltic marine environment.

8.19 The Meeting thanked Information Secretary Johanna Laurila, whose term of employment is about to finish, for her excellent work since 2011 in making HELCOM more visible.

Agenda Item 9 Next meeting(s)

Documents: none

9.1 The Meeting confirmed that the next meeting (HOD 52-2017) will be held on 20-21 June 2017 in Brussels, Belgium and hosted by the EU. The Meeting decided that HOD 53-2017 will be held tentatively on 13-14 December 2017.

Agenda Item 10 Outcome of the Meeting

Documents: 10-1

10.1 The Meeting adopted the draft Outcome of the Meeting as contained in document 10-1. The final Outcome, incorporating the comments by the Meeting, will be prepared by the Secretariat in consultation with the Chair and made available in the HELCOM Meeting Portal.

Annex 1 List of Participants

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Annex 2 Danish Statement on HOLAS

Like other Contracting Parties Denmark wants to be part of the HOLAS process and to maintain the right to use the results of HOLAS to the extent, we find it useful and valid.

It is our understanding that a Commission directive adopted according to a formal committee procedure is just as legally binding as the mother directive.

The Commission Decision adopted in November establishes in art 4 a general obligation for Member States to regionally establish quantitative threshold values. Art. 5 further gives the right for Member States to use national values or trends etc. but only until regional values have been established. Art. 6 says that Member States are only bound by what they report to the European Commission.

If art. 6 could be read alone, we would have no concern, but it is our expectation that art. 6 will be interpreted in the context of art. 4 and 5, which means that a Member State may be met with a request to justify their choice not to use a regional threshold value.

Against this it is important for Denmark that regional values are something we adopt with open eyes and not something we accept indirectly, because they are used for HOLAS. We are also of the conviction that a regionally coordinated threshold value in accordance with art. 4 is something which exists or not exists, and that it is not something an individual Member State may unilaterally decide.

Denmark recognizes that the Commission Decision has not yet come into force, however we understand that it is expected to happen in the beginning of 2017. Some Contracting Parties have indicated that a Commission Directive cannot be retroactive and will therefore not be applicable to the HOLAS values. In the view of Denmark it is not clear, when a HOLAS value is adopted. Is it now or when the final HOLAS report is being adopted? If the last option is the case the values are adopted after the Commission Directive.

So in order to maintain the right for Contracting Parties to choose which values to use, we find it important that we adopt a disclaimer which makes it clear that HOLAS values are not art. 4 values.

Annex 3 Indicators

Summary of status of HELCOM indicators as result of HOD 51-2016.

Annex 3 Table 1. List of new threshold values for previously agreed core indicators adopted by HOD 51-2016

Biodiversity

State of soft-bottom macrofauna community

Assessment unit	threshold value
Åland Sea	4.0
Bothnian Sea	4.0
The Quark	4.0
Bothnian Bay	1.5

Metals

All offshore assessment units

	Matrix	Threshold value	Reference
Cd	Water	0.2 µg/l	EQS
	Secondary GES boundary: Mussels	*960 µg/kg dw*	*OSPAR BAC*
	Secondary GES boundary: Sediment	*2.3 mg/kg*	*QS from EQS dossier*
Pb	Water	1.3 µg/l	EQS
	Secondary GES boundary: Mussels	*1300 µg/kg dw*	*OSPAR BAC*
	Secondary GES boundary: Fish liver	*26 µg/kg ww*	*OSPAR proxy BAC*
	Secondary GES boundary: Sediment	*120 mg/kg*	*QS from EQS dossier*

Annex 3 Table 2. List of HELCOM core indicators as of the outcome of HOD 51-2016

Theme: Biodiversity and foodweb
Abundance of waterbirds in the breeding season
Abundance of waterbirds in the wintering season
Distribution of Baltic seals
Population trends and abundance of seals
Nutritional status of seals
Reproductive status of seals
Number of drowned mammals and waterbirds in fishing gear
Abundance of coastal fish key functional groups
Abundance of key coastal fish species
Abundance of salmon spawners and smolt
Abundance of seatrout spawners and parr
State of the soft-bottom macrofauna community[1]
Seasonal succession of functional phytoplankton groups [2]
Theme: Non-indigenous species
Trends in arrival of new non-indigenous species

[1] Denmark has a remaining study reservation on the indicator (HOD 51-2016 outcome para 6.10), however agreed that the indicator can be used in HOLAS II by indicating that the results are of interim/test character (HOD 51-2016 outcome para 6.22-6.23)

[2] Denmark has a remaining study reservation on the indicator, however agreed that the indicator can be used in HOLAS II by indicating that the results are of interim/test character (HOD 51-2016 outcome para 6.22-6.23)

Theme: Eutrophication
Nitrogen (DIN)
Phosphorous (DIP)
Chlorophyll-a
Water clarity
Oxygen debt
Total nutrients
Theme: Hazardous substances
Hexabromocyclodecane (HBCDD)
Metals (Cd, Pb, Hg)[3] (partial study reservation, see Table 3)
Polybrominated biphenylethers (PBDE)
Perfluorooctane sulphonate (PFOS)
Polyaromatic hydrocarbons (PAH) and their metabolites[4] (partial study reservation, see Table 3)
Polychlorinated biphenyls (PCB)[5] and dioxins and furan (partial study reservation, see Table 3)
TBT and imposex[6] (partial study reservation in place, Table 3)
Radioactive substances
White-tailed eagle productivity
Theme: Pressure
Inputs of nitrogen and phosphorous to the sub-basins
Operational oil-spills from ships

Annex 3 Table 3. List of core indicators with remaining indicator specific national study reservations as of the outcome of HOD 51-2016

Core indicator	Study reservation
Theme: Hazardous substances	
Polyaromatic hydrocarbons (PAH) and their metabolites	**Denmark** (HOD 50-2016 para 4-48) - Primary threshold value on metabolites (1-hydroxypyrene) - Secondary substance fluoranthene secondary threshold value for sediment
TBT and imposex	**Denmark** (HOD 50-2016 para 4.48) - Primary threshold TBT in sediment, - Secondary threshold TBT in mussels - Primary threshold imposex
Metals	**Estonia, Denmark** (State and Conservation 5-2016) - Secondary threshold value for Cd in fish liver
Polychlorinated biphenyls (PCB) and dioxins and furans	**Denmark** (HOD 50-2016) - Secondary threshold CB-118 in biota

[3] agreed thresholds: primary threshold Hg biota, primary threshold Cb, Pb water, secondary thresholds Cd mussels and sediments, Pb mussels, fish liver and sediments

[4] agreed thresholds; primary threshold benzo(a)pyrene, secondary substance fluoranthene secondary threshold value crustaceans, secondary substance anthracene secondary threshold value sediment

[5] agreed thresholds of the core indicator: primary threshold value dioxin in biota, primary threshold non-dioxin like PCBs in biota

[6] agreed thresholds: secondary threshold TBT in water

Theme: Biodiversity and food-web	
Proportion of large fish in the community (LFI)	Lead Country presented approach for trend based threshold value and assessment of available dataset for HOLAS II purposes was not endorsed at State and Conservation 5-2016 (outcome para 4J.26). Germany, Estonia and Poland provided written comments regarding their reservations after the meeting.
Zooplankton mean size and total stock	**Poland** (HOD 51-2016 outcome para 6.9) regarding Gdansk basin ZEN ZIIM invited to submit threshold value proposals to 26 January online meeting of State and Conservation

Annex 3 Table 4. List of pre-core indicators proposed to be shifted to core indicators but not adopted as such by HOD 51-2016

Pre-core indicator	Study reservation on shift to core indicator
Theme: Biodiversity and food-web	
Diatom/Dinoflagellate index	**Denmark** (State and Conservation 5-2016): national testing of the diatom-dinoflagellate index does not show relevant responses to nutrient stress **Poland** (HOD 51-2016): Lack of data
Cumulative impact on benthic biotopes	**Denmark** (State and Conservation 5-2016 para 4J.50) reservation placed due to lack of data and current state of the indicator **Poland** (HOD 51-2016): Lack of data
Theme: Eutrophication	
Cyanobacterial bloom index	**Germany** (HOD 51-2016 outcome para 6.17) expressed aim to clarify reservation by considering applicability of satellite data when results are available. **Denmark** (State and Conservation 5-2016, para 4J.41) analysis of the western Baltic Sea to be carried out before being shifted to core, however agreed that the indicator can be used in HOLAS II by indicating that the results are of interim/test character (HOD 51-2016 para 6.22-6.23) Threshold value proposal to be discussed at State and Conservation online meeting 26 January
Theme: Litter	
Beach litter	**Sweden** (State and Conservation 5-2016) can support the interim definition of GES, however is not able to endorse the shift from pre-core to core indicator.

Annex 3 Table 5. List of HELCOM pre-core indicators as of the outcome of HOD 51-2016

Theme: Biodiversity
Lower depth limit distribution of the macrophyte community
Condition of benthic habitats
Theme: Eutrophication
Shallow water oxygen
Phytoplankton spring bloom intensity based on chl-a
Theme: Hazardous substances
Reproductive disorders: malformed eelpout and amphipod embryos[7]
Acetylholinesterase inhibition
Diclofenac concentration

[7] proposed to be used as supplementary indicator in HOLAS II by Finland and Sweden (State and Conservation 5-2016 outcome paragraph 4J.49)

Estrogenic-like chemicals and effects
Lysosomal membrane stability (LMS)
Fish disease index
Micronucleus test
Theme: Litter
Beach litter
Litter on the seafloor
Theme: Underwater noise
Continuous low frequency anthropogenic sound
Distribution in time and space of loud low- and mid-frequency impulsive sound

Annex 3 Table 6. List of HELCOM candidate indicators

Theme: Biodiversity and foodweb
Harbour porpoise distribution and abundance
Seal pup weight at weaning
'marine mammal health' [8]
Distribution of seabirds
Breeding success in guillemots of Gotland
Maximum length fish in the pelagic community
State of hard-bottom communities
Biomass ratio of opportunistic and perennial macroalgae
Phytoplankton community composition as a foodweb indicator [9]
Phytoplankton species assemblage clusters based on environmental factors
Phytoplankton taxonomic diversity
Theme: Eutrophication
Deep-water oxygen consumption
Theme: Hazardous substances
PCB and dioxins for fish safe to eat
EROD activity
Theme: Litter
Microlitter in the water column
Pressures
Dredging and dumping of dredge materials

[8] The specific indicator has not yet been specified, however the intention to develop new health indicators for marine mammals has been noted by State and Conservation 5-2016 and that this intention should be reflected in HOLAS II (outcome para 4J.10)

[9] The indicator was endorsed to be shifted from candidate to core indicator and the proposed threshold values was endorsed by State and Conservation 5-2016. At HOD 51-2016 Poland placed a study reservation on the shift of status for the indicator, thus it is still a candidate indicator (outcome para 6.18)

Annex 4 HELCOM Project for the Seventh Baltic Sea Pollution Load Compilation (PLC-7)

PROJECT DESCRIPTION (PROJECT NO. 11.56)

1. Title of Project

The Seventh Baltic Sea Pollution Load Compilation (PLC-7)

2. Project Manager(s)

Lars M. Svendsen

3. Proposing Party

Contracting Party	_____
Commission	_____
Subsidiary body	__X__
Heads of Delegation	_____
Executive Secretary	_____

4. The body supervising the project

Working Group on Reduction of Pressures from the Baltic Sea Catchment Area

5. Objective and background

In Article 3 and Article 16 of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 (Helsinki Convention), the Contracting Parties agreed to undertake measures to prevent and eliminate pollution of the marine environment of the Baltic and to provide pollution load data, as far as available. Compilations of pollution load data (PLC) have been an integral part of HELCOM assessment system since 1987, focusing on annual and periodic assessments of inputs of nutrients and selected hazardous substances.

The 2013 Monitoring and Assessment Strategy and adoption of the nutrient reduction scheme by the 2013 HELCOM Copenhagen Ministerial Meeting have created demands for new PLC products: a pressure indicator report on progress towards fulfilment of Maximum Allowable Inputs of nutrients (MAI) and an assessment of progress towards implementation of Country Allocated Reduction Targets (CART).

HOD 48-2015 agreed on what should be the PLC assessment products in the future, including annual reports on (actual) airborne and waterborne inputs of nutrients and selected hazardous substances and periodic PLC assessments, in addition to assessments of MAI and CART. HOD 49-2015 agreed that the periodic PLC assessment should be more focused on source apportionment and effectiveness of measures and coupling of future PLC assessments and CART assessment needs to be further considered. HOD 49-2016 also decided that the next PLC-7 assessment will be made in 2019 based on the monitoring data from 2017, which will also serve those Contracting Parties that are EU Member States for their next generation river basin management plans under WFD in 2019/2020.

The Project will use monitoring data obtained in accordance with the requirements of the HELCOM Recommendations on waterborne pollution input assessment and on monitoring of airborne pollution input. Also the Project will utilise data reported by the Contracting Parties under the Convention on Long-range

Transboundary Air Pollution and its protocols as well as data obtained in the frame of the EU and national monitoring programmes. The assessment will be performed using the methodologies provided for in the updated HELCOM PLC Guideline. The PLC-7 will also incorporate an assessment of inputs of nitrogen and phosphorus from seven major rivers as it was agreed by PRESSURE 4-2016.

The PLC-7 project will be based on annual water- and airborne data on nitrogen, phosphorus and selected heavy metals from 1995-2017, periodical data from 2017 supplied with former reported periodical data from e.g. 2006 and 2014. Further background information and data on effects, and as far as possible effectiveness of measures to reduce nitrogen and phosphorus inputs will be collected and included in the assessment. The assessment will use the new PLC database (produced by HELCOM PLUS project) for reporting and quality assuring data. The tools developed by the HELCOM MAI-CART OPER project will be used to complete the assessment data set, make normalizations, trend and other statistical analysis and the evaluation of fulfilment of MAI and CART. Standard tables and figures for the updated Core Pressure Indicator on nutrient inputs, the updated scientific report on CART follow-up assessment and for Seventh Baltic Sea Pollution Load Compilation (PLC-7) will also be produced using the tools developed by HELCOM MAI-CART OPER project.

6. Tasks and expected results (summary, see Annex 1 for full description)

In order to reach project objective the following tasks, grouped in three working packages will be implemented:

1. ESTABLISHING DATASETS AND UPDATE OF MAI AND CART

- Monitoring and reporting of national annual/periodical data
- Updating PLC-Water database and data on atmospheric inputs (PLC-Air)
- Establishing the periodic assessment data set

2. PERIODIC ASSESSMENT

- Assessment of sources of nutrients
- Assessment of the effectiveness of measures
- Assessment of inputs of selected hazardous substances
- Compilation of the executive summary including policy messages

3. METHODOLOGIES

- Updating guidelines and a statistical methodology report
- Intercalibration on heavy metals and nutrients

The expected results are:

1. The PLC assessment data set based on annual and periodic reports of water- and airborne inputs of nutrients and selected hazardous substances from 1995 to 2017 (periodic for 2017).
2. The updated HELCOM Core Pressure Indicator on nutrient inputs (update of MAI fulfilment follow-up) covering data from 1995 to 2017.
3. Updated scientific report on follow up progress toward national reduction targets for nutrients, CART follow-up assessment, covering data from 1995 to 2017.
4. A thematic report on sources of nutrients.
5. A thematic report on effectiveness of measures to reduce nutrients inputs to the Baltic Sea.
6. A thematic report on input of hazardous substances.
7. Executive summary of Seventh Baltic Sea Pollution Load Compilation (PLC-7) including policy messages (also on CART).

8. A report on intercalibration on heavy metals and nutrients between at least 1-2 laboratories from each Contracting Party conducting chemical analysis.
9. Updated PLC guidelines on nutrients and selected heavy metals, including updated statistical methodologies used for PLC and MAI/CART assessments.

7. Consistency with HELCOM priorities ____ yes

- In Article 3 and Article 16 of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 (Helsinki Convention);
- Baltic Sea Action Plan, HELCOM Ministerial Meeting, Krakow, Poland, 15 November 2007;
- Nutrient reduction targets, HELCOM Ministerial Meeting, Copenhagen, Denmark, 3 October 2013;
- The HELCOM Monitoring and Assessment Strategy, HELCOM Ministerial Meeting, Copenhagen, Denmark, 3 October 2013.

8. Timetable (see also **Annex 2**)

Task	**Timeframe (quarter/year)**	
	Start of the task	End of the task
Project management (including about 12 project team meetings)	1/2017	4/2020
Workshops (2 workshops are planned)	1/2017	4/2019
Monitoring and compilation of national annual/periodical data	1/2017	4/2017
Reporting of quality assured national annual/periodic data	3/2018	3/2019
Establishing the periodic assessment data set	2/2019	4/2019
Assessment of sources of nutrients	4/2019	1/2020
Assessment of the effectiveness of measures	1/2019	1/2020
Assessment of inputs of selected hazardous substances	3/2019	2/2020
Compilation of the executive summary and policy messages	3/2020	4/2020
Updating guidelines and statistical methodology report	1/2017	1/2018
Intercalibration on heavy metals and nutrients	3/2017	2/2018

9. Budget (taking into account financial year from 1 July to 30 June)

9.1 Total Costs

300,000 Euro

9.2 Costs divided per financial year

2016/17 – 50,000 Euro

2017/18 – 50,000 Euro

2018/19 – 60,000 Euro

2019/20 – 70,000 Euro

2020/21 – 69,750 Euro

9.3 Sources of financing divided per financial year

HELCOM budget

10. Additional requests (manpower, equipment, facilities, etc.)

10.1 From the Contracting Parties

The available funds from the HELCOM budget (the indicated above and in **Annex 3**) do not cover all expenses for the implementation of the tasks. Additional funds are requested to be allocated by the Contracting Parties either via national arrangement (e.g. in kind co-financing) or contribution to the HELCOM budget, in accordance with monthly rate of the national experts and the working time required for the implementation of the individual tasks except for the tasks under the contracts between HELCOM and HELCOM PLC-Water Centre (SYKE) and HELCOM PLC-Air Centre (EMEP), laboratory work for intercalibration and expenses for proofreading and publication (see **Annex 3** for details). The minimum estimated working time required for the implementation of the project tasks is given in **Annex 4**.

The Contracting Parties have been invited to take a lead on preparation of the individual thematic assessment reports (see points 2.1-2.3 in **Annex 1**). The leads, through assigned experts, will be responsible for preparing the assessment reports based on the gathered data and information, in accordance with the description of the tasks and PLC Guidelines.

The PLC-7 project budget does not reflect national resources that need to be allocated for implementation of national monitoring programmes, compilation and reporting of national data.

The Contracting Parties are expected to attend 2-3 meetings of the PLC-7 project implementation group per year during 2017-2020 as well as two workshops. The Contracting Parties will be invited to host the meetings.

10.2 From the Secretariat

The Project will be supported by the Secretariat.

Annual PLC-Water data management will be covered by a separate annual contract.

Annual PLC-Air data on inputs of nitrogen and selected hazardous substances will also be covered by a separate annual contract.

Contract with BNI for hosting PLC-water database and its supplementary functionality.

11. Organization of the project and procedure of nomination of the Project Team members

The project will be coordinated by a project manager. Project Manager – Lars M. Svendsen (DCE, Denmark) - was nominated by the Working Group on Reduction of Pressures from the Baltic Sea Catchment Area (outcome of PRESSURE 5-2016). The PLC-7 project manager coordinates the work and follows the implementation of the project tasks. He is involved in the collecting of information, outlining of the project products and contributing to their content. The Project manager with assistance of the HELCOM Secretariat reports to PRESSURE and RedCore DG, prepares project meetings and organizes workshops on technical and methodological solutions on follow-up of MAI/CART.

The HELCOM PLC-7 project will be implemented by a project implementation group consisting of participants from all Contracting Parties (PLC-7 Project Group). Members of the PLC-7 project group, to be nominated by the Contracting Parties, will guide and support the work of the project, attend project meetings and workshops, and actively contribute into, *inter alia*, the collection of background information, revising guidelines, and contributing to writing the assessment reports. The Contracting Parties are responsible for collection, compilation, quality assurance and national data reporting. The PLC-7 project implementation group will meet regularly 2-3 times per year (2-3 days/meeting) during 2017-2020. The Contracting Parties will be invited to host project meetings.

It is foreseen that country-leadership will be assumed for preparation of the individual thematic assessment reports. Work on the Executive Summary will be done by a drafting team to be established at a later stage.

RedCore DG will provide methodological support for the project implementation. The group will assist with quality assurance and preparing for approval of PLC assessment dataset, scientific advice, and quality assurance of the assessment reports. HELCOM Secretariat will assist with the finalization of the reports (design, linguistic check, etc.).

Pressure Working Group will provide overall guidance to the project including preparation of the assessment reports. The progress in implementation of the PLC-7 will be regularly reported to Pressure group to ensure that the final products correspond to the demands of the countries and HELCOM agreements.

12. Signature of the Project Manager(s)

13. Opinion of the Chairs of the relevant body

The Chair of the Pressure working group supports the project proposal.

14. Opinion of the Executive Secretary

The Executive Secretary supports the Project proposal.

15. Decision of the Heads of Delegation

HOD 51-2016 decided

__X_ to establish ____not to establish

the project

Annex 1

Work packages and tasks

The PLC-7 assessment results will be reported as individual thematic reports, with an Executive Summary summing up the main finding from these reports. The PLC-7 project will consist of the three thematic work packages (WP) and WP0 - project management. The work packages will include:

WP0 Project management

The management of the project includes the overall coordination of project implementation, communication with project partners and participants with an assistance by the Secretariat, planning project activities and follow-up their implementation and reporting on status and progress of the project to PRESSURE and RedCore DG. The work package includes organization of project team meetings with assistance of the Secretariat and other project partners, as well as will support the preparation of two workshops on technical and methodological solutions to follow-up of MAI/CART.

The appointed project manager will follow the HELCOM risk management procedure.

WP1 Establishing datasets and update of MAI and CART

1.1 Contracting Parties will organize monitoring and compilation of national annual and periodical data in 2017 according to the relevant HELCOM Recommendations and Guidelines. Contracting Parties will report national annual and periodic data using PLC reporting WEB application assuring quality control of the reported data and their insertion into the PLC database. The annual and periodic data 2017 will be reported by 31 October 2018 and 31 December 2018, respectively, and according to the established procedure (Procedures for releasing the reported PLC water data adopted by HOD 50-2016). Contracting Parties will also provide background information including data on effects of measures.

1.2 Reporting templates (with prefilled metadata) for PLC-7 (2017) will be prepared and update of the PLC database will be made. Other activities include: carrying out manual data quality assurance, follow-up with Contracting Parties on reporting and missing data, preparing datasets for RedCore DG and PLC-7 project team to complete datasets taking into account missing data and data inconsistency. HELCOM procedure for releasing the reported PLC water data will be followed. Selected standard figures will be provided to PLC-7 project meetings upon request. Further, calculations and assessment of emissions of nitrogen as source receptor matrix [2017] and of actual and normalized deposition (divided per country by basin including shipping on Baltic Sea and North Sea, inputs from all individual EU countries and other significant contributors of nitrogen deposition on the Baltic Sea) will be made. PLC-Water Data Centre and MSC-W EMEP centre acting as HELCOM PLC-Air Centre will carry out the work. Further annual deposition in 2017 of four selected hazardous substances calculated by EMEP (MSC-E) will be included in the PLC-7 assessment.

1.3 Establishing the periodic assessment data set as filling in data gaps, removing inconsistent data and approval of the assessment data set by Contracting Parties is included in the work package. Further, normalization, trend analysis and other statistical analysis and the evaluation of fulfilling MAI and CART applying the MAI CART OPER tools is included together with the preparing of updated MAI report (Core Pressure indicator on nutrients) and an updated scientific CART report. The normalization and statistical data processing might be repeated in case the data set are updated/corrected during the assessment process. Further preparing periodic data for source apportionment, big rivers and hazardous substances is included as well. The project task includes also operations related to processing and storage of the assessment datasets.

WP2 Periodic assessment

The periodic assessment is focused on three main themes: source apportionment, effects and as far as possible effectiveness of measures and input of hazardous substances.

2.1 A thematic report on sources of nutrients (source apportionment) will be based on the periodic reports by countries on industrial, WWTP and aquaculture point sources, and on natural background and diffuse sources in accordance with the PLC Guideline. Also the assessment of flow and loads in selected (at least 7) big rivers will be carried out.

2.2 A thematic report on effects of measures to reduce nutrients inputs to the Baltic Sea will be based on information provided by the countries as replies to a questionnaire that will be prepared by the project. The report will also utilize outcomes of the workshop(s) and other reporting by countries (e.g. programmes of measures, etc.) and address effectiveness of measures as far as possible.

2.3 A thematic report on input of hazardous substances will be based on the periodic reports by countries on inputs of selected hazardous substances according to the PLC Guideline, and airborne inputs on four hazardous substances calculated by EMEP. The assessment will also as far as possible utilize the results of questionnaires utilizing data obtained by national monitoring and screening campaigns.

2.4 Main outcomes of the PLC-7 assessment will be summarized in an executive summary, reflecting on essential and policy-relevant aspects of the progress in implementation of the HELCOM nutrient reduction scheme and the themes of thematic reports. The work on outlining the content of the report will start along with the work on other work packages.

The thematic assessments will be prepared by [2020].

WP3 Methodologies

3.1 In order to improve quality and intercomparability of PLC products, regular intercalibration between laboratories conducting chemical analysis are necessary. The latest intercalibration was conducted in 2013 on nutrients (nitrogen and phosphorus including fractions of these) and six heavy metals (Cd, Cr, Cu, Hg, Ni and Pb) for river and waste water samples with participation of 18 laboratories. The PLC-7 project will perform intercalibration with at least one laboratory from each Contracting Party participating, but altogether up to twenty laboratories are budgeted. The intercalibration will be made for heavy metals (Cd, Cr, Cu, Hg, Ni, Pb and Zn) and for total nutrients and nutrient fractions (total nitrogen, ammonia-N, nitrite-nitrate-N, dissolved and total and phosphorus) from both river and point source (waste water) samples.

3.2 HELCOM PLC Guideline was adopted for publication by HOD 47-2015. The Guideline contains description of assessment methodologies as well as data reporting format. The HELCOM PLC Guideline (2015) needs to be updated utilizing the experienced gained by the PLC-6 project. The following methodologies will be adjusted/updated by the PLC-7 project:

- statistical methods;
- evaluation of effects of measures;
- calculation of transboundary input;
- accounting extra reduction;
- adjusting CART evaluation if requested as a result of the MAI/CART workshop scheduled for February 2017;
- definitions of source apportionment and retention.

An update of the statistical methods will include new algorithms for trend analysis and modernized approaches to flow normalization and evaluation of uncertainties. Altogether the following statistical methodologies will be revised/added:

- detection of break point in time series
- testing for non-linear trend – and changes
- flow normalization in case of trend in flow
- estimates of uncertainties on e.g. monitored, unmonitored and total inputs country pr. basin and on the CART evaluation
- other necessary adjustments of the statistical methods
- adjusting methodology for CART fulfilment evaluation as a result of MAI/CART workshop in February 2017 (MAI CART OPER project) and from a further workshop.

Descriptions of all the revised methodologies will be compiled in the updated version of the PLC Guideline. PRESSURE 4-2016 noted that it will not be possible to develop a common methodology or fully harmonized source apportionment approach for the PLC-7 assessment due to the short preparation time, but the possibilities for further harmonisation will be investigated for the PLC-8 assessment.

Division of tasks and responsibilities

Work package	Task	Specification	Responsible	Deliverables
WP0: Project management	0.1 Overall coordination, communication, implementation and follow-up	- regular reporting of the progress to Pressure WG - planning project activities - follow-up their implementation.	Project manager	Progress reports to Pressure group meetings. Outcomes of the project meetings. Outcomes of workshops
	0.2 Preparations for meetings and workshops	Technical and methodological aspects of project implementation. With assistance from the Secretariat	Project manager	2 workshops will be organized 2-3 project meetings per year during 2017-2020
WP1: Establishing datasets and update of MAI and CART	1.1 Monitoring, compilation, quality assurance and reporting of national annual and periodical data	According to the PLC Guideline and the timelines of HELCOM procedure for releasing the reported PLC water data.	Contracting Parties	
	1.2 Updating periodic data in the PLC database and providing data on atmospheric inputs	The tasks for the PLC Water Data Manager related to the PLC-7 assessment The tasks for the WSC-W EMEP centre as PLC Air Centre related to the PLC-7 assessment	PLC-Water Data Centre PLC-Air Data Centre	The PLC database updated with the verified periodical data 2017 reported by countries Source receptor matrixes (2017) and country pr. basin deposition for all HELCOM CP's, other EU countries and other major sources on nitrogen deposition based on normalized data 1995-2017. Reports and data on airborne inputs selected hazardous substances for the period 1995-2017
	1.3 Establishing the periodic assessment data set	Verification of the periodic PLC data 1995-2017 for outliers and suspicious data, filling-in data gaps, establishing waterborne input country pr. sub-basin taking into account transboundary inputs and retention. Getting approval from national experts in	BNI, DCE RedCore DG and Project manager	The periodic assessment dataset established and approved by the national experts. The updated HELCOM Core Pressure Indicator on nutrient inputs.

		Contacting Parties Flow-normalisation of waterborne inputs, checking for trends in riverine, direct, waterborne, airborne and total inputs country pr. basin. Tables and figures, updating text. Estimation of total inputs country pr. basin including, uncertainty, evaluation of CART fulfilment, produce tables and figures, elaborate scientific report. Preparing data for the assessment of source apportionment (periodical data), load data on big rivers (including trend and changes) and for inputs of hazardous substances to the Baltic Sea		The updated scientific report on follow up progress toward national reduction targets for nutrients - CART follow-up assessment
WP2: Periodic assessment	2.1 Assessment of sources of nutrients	Elaboration of source apportionment, assessing sources, produce figures and tables, preparing text for PLC-7 assessment. Assessing nutrient loads on the sea by at least seven big rivers, evaluating significance of inputs to the Baltic Sea, and trend and changes in loads	Lead needed for preparing the report together with project team; RedCore DG methodological support	Thematic report on source apportionment as a part of PLC-7 assessment report, including results of assessing nutrient load by at least seven big rivers
	2.2 Assessment of the effectiveness of measures	Compilation of data on measures to reduce input of nutrients implemented in the assessment period from all countries and reduction achieved through these measures. Compilation of information on measures foreseen by the countries to reach the reduction targets by 2021 and anticipated reduction through each of them. Assessment of the effectiveness of measures throughout the BS region,	Lead needed for preparing the report together with prohject team; RedCore DG methodological support	Thematic report on effectiveness of measures to reduce nutrients inputs to the Baltic Sea
	2.3 Assessment of inputs of selected hazardous	Evaluate comparability of the data on hazardous substances concentrations between countries and years. Calculate inputs of HZS to the Baltic Sea, produce figures and tables, preparing	Lead needed for preparing the report together with project	Thematic report on input of selected hazardous substances into the Baltic Sea

	substances	text for PLC-7 assessment.	team; RedCore DG methodological support	
	2.4 Compilation of the executive summary with policy messages	Main outcomes of the PLC-7 assessment will be synthetized in the executive summary covering policy messages on the progress in implementation of the HELCOM nutrient reduction scheme and the themes of thematic reports.	A drafting team; RedCore DG methodological support	Executive summary with policy messages
WP3: Methodologies	3.1 Intercalibration on heavy metals and nutrients	Intercalibration with at least one laboratory from each Contracting Party. The intercalibration will be made for heavy metals (Cd, Cr, Cu, Hg, Ni, Pb and Zn) from river and point source samples. Intercalibration for total nutrients and nutrient fractions (total nitrogen, ammonia-N, nitrite-nitrate-N, dissolved and total and phosphorus) will be carried out for at least one laboratory from each Contracting Party.	Project manager, PLC 7 project team	The intercalibration report covering at least 1 and up to 2 laboratories per Contracting Party
	3.2 Updated PLC guidelines and statistic report	The following methodologies are updated: -statistical method for trend analysis including break points; testing for non-linear trend – and changes, flow normalization in case of trend in flow, estimates of uncertainties -evaluation of effects of measures; -calculation of transboundary input; -accounting extra reduction; - adjusting CART evaluation if requested as a result of the MAI/CART workshop scheduled for February 2017 -definitions of source apportionment and retention.	Project manager, PLC 7 project team and DCE (statistical report)	Updated HELCOM PLC Guideline, including an updated report with statistical methods for PLC and MAI/CART assessments

Annex 2

Project timetable

WP	Task	1-2017	2-2017	3-2017	4-2017	1-2018	2-2018	3-2018	4-2018	1-2019	2-2019	3-2019	4-2019	1-2020	2-2020	3-2020	4-2020
WP0	Project management																
	Workshops																
WP1	Monitoring and reporting of national annual/periodical data																
	Updating PLC database and data on atmospheric inputs																
	Establishing the periodic assessment data set																
WP2	Assessment of sources of nutrients																
	Assessment of the effectiveness of measures																
	Assessment of inputs of selected hazardous substances																
	Compilation of the executive summary and policy messages																
WP3	Updating guidelines and statistical methodology report																
	Intercalibration on heavy metals and nutrients																

Annex 3

The HELCOM budget for PLC-7 project

	Project tasks	Project management	Statistical analysis (DCE)	QA and inter-calibration*	Assessment data processing (BNI)	Periodic PLC water data management (SYKE)**	Periodic data on air-borne input (EMEP)	Assessment tasks by experts	Report proofreading & publishing	Total for the tasks
WP0	Project management	**46125**							**10000**	**71500**
WP1	Monitoring and reporting of national annual/periodical data									**0**
	Updating PLC database and data on atmospheric inputs					**28500**	**27 000**			**55500**
	Establishing of the periodic assessment data set (DCE and BNI)				**33000**			**25500**		**78000**
WP2	Assessment of sources of nutrients							**20625**		**27500**
	Assessment of the effectiveness of measures							**17625**		**23500**
	Assessment of inputs of selected hazardous substances							**16500**		**22000**
	Compilation of the executive summary and policy messages (a drafting team)							**14250**		**19000**
WP3	Updating guidelines and statistical methodology report		**20625**					**15375**		**47500**
	Intercalibration on heavy metals and nutrients			**25000**						**25000**
HELCOM budget		**46125**	**20250**	**25000**	**33000**	**28500**	**27 000**	**109875**	**10000**	**299750**

* price for 15 laboratories participating in the intercalibration. (27,000 € for 20 labs). The cost for national laboratories are not included.

** maximal number of man month calculated according to the Procedures for releasing the reported PLC water data.

Annex 4

The minimum estimated workload for the implementation of the PLC-7 project tasks in man/month. The HELCOM budget (Annex 3) does not cover total cost of the project deliverables. The Contracting Parties leading the selected tasks (columns highlighted in yellow) are invited to co-finance implementation of the tasks in the volume according to the monthly rates of the national experts. The co-financing can be provided to the HELCOM budget or through national arrangements including in kind contribution.

	Project tasks	Project management	Statistical analysis (dedicated task by DCE)	QA and inter-calibration*	Assessment data processing	Periodic PLC water data management (SYKE)**	Periodic data on air-borne input (EMEP)	Assessment tasks by experts	Report proofreading & publishing	Sum
WP0	Project management	**4.5**							**10000**	**4,5**
WP1	Monitoring and reporting of national annual/periodical data									**0**
	Updating PLC database and data on atmospheric inputs					**3**	**27000**			**3**
	Establishing of the periodic assessment data set (DCE and BNI)				**4**			**2.5**		**6,5**
WP2	Assessment of sources of nutrients							**2*** **		**2**
	Assessment of the effectiveness of measures							**2.5*** **		**2,5**
	Assessment of inputs of selected hazardous substances							**2*** **		**2**
	Compilation of the executive summary and policy messages (a drafting team)							**2**		**2**
WP3	Updating guidelines and statistical methodology report		**2**					**1,5*** **		**3,5**
	Intercalibration on heavy metals and nutrients			**25000***						
Sum		**4.5**	**2**		**4**	**3**		**12,5**		**26**

* price for 15 laboratories participating in the intercalibration. (27,000 € for 20 labs). The cost for national laboratories are not included.

** maximal number of man month calculated according to the Procedures for releasing the reported PLC water data.

*** Lead countries to be responsible for implementation of the assessment tasks including preparation of thematic reports which require specific expertise.

Annex 5 HELCOM Project for Quality assurance of phytoplankton monitoring in the Baltic Sea (HELCOM PEG QA)

PROJECT DESCRIPTION (PROJECT NO. 11.57)

1. Title of the project:

Quality assurance of phytoplankton monitoring in the Baltic Sea (HELCOM PEG QA)

2. Project Manager(s):

Ms. Iveta Jurgensone, Latvia, 2017-2019

3. Proposing party:

Contracting parties: Latvia

4. The body supervising the project:
HELCOM State and Conservation

5. Target and activities:

- The main target of the project is to ensure and maintain high quality standard of the international Baltic Sea regional phytoplankton monitoring within the HELCOM COMBINE Programme. This should be achieved by:
- Maintaining annual training courses (workshop)
- Maintaining the phytoplankton biovolume list
- Intercalibrations
- Maintaining the HELCOM Monitoring guidelines for Phytoplankton - Species composition, abundance and biomass (currently Combine manual Annex C-6).
- HELCOM PEG will serve as a forum for:
    - discussion and review of phytoplankton indicators developed by Lead Countries and to dedicate part of annual meetings to this objective,
    - commenting the HELCOM phytoplankton indicator reports and indicator evaluations for use in HELCOM assessments,
    - supporting the definition of data requirements for phytoplankton indicators and an appropriate data reporting format to ensure that the COMBINE database hosted by ICES provides the data needs for HELCOM phytoplankton indicators,
    - comparing the HELCOM core indicators with OSPAR indicator work after HOLAS II.

The main activities within the project will be carried out at the annual workshops. Intersessional activities will be organized if needed. The following types of activities are planned:

Activity:	Aim:
Training courses	**To maintain continuity and high quality in phytoplankton identification and quantification, in particular because a new generation of phytoplankton researchers and analysts are currently joining the PEG;** **To follow recent changes in taxonomy of problematic and important phytoplankton groups in order to keep the PEG Phytoplankton list up to date.**
Intercalibrations	**To keep the high standard of phytoplankton monitoring in the Baltic Sea, to assure the comparability of results.**
Further unifying the counting method	**To continuously update the HELCOM monitoring manual for phytoplankton species composition, abundance and biomass.**
Revision of the biovolume file	**To add new species and size classes when necessary; to update the biovolume file according to recent taxonomical changes in co-operation with ICES Data Centre.**
Production of environmental fact sheets	**Updating and production of environmental fact sheets to track changes in phytoplankton community structure.**
Platform for phytoplankton indicators	**The project will serve as a forum for discussion of phytoplankton indicators being developed in HELCOM and review the results of the indicator evaluations of the HELCOM holistic assessment (HOLAS II) to be finalized 2017-2018.**

At the training courses it is planned to consider:

a) Identification of phytoplankton species;

b) Maintaining and upgrading of the expertise for identification of alien species;

c) Making representative and validated images of the Baltic Sea phytoplankton species public in the HELCOM PEG image gallery at, www.Nordicmicroalgae.org.

Intercalibrations and further unifying the counting method includes:

a) Interlaboratory intercalibration and checking the general methodology, species identification, counting strategy, biovolume estimation etc.

b) For the professional planning and statistical evaluation of the intercalibration, an expert with a short-term contract has to be employed (approximately 3 months)

The venue of the workshops will be circulated between the Contracting Parties and their marine laboratories. Suggested host countries are: Russia in 2017, Sweden in 2018 and Latvia in 2019.

The project period is three years. Ms. Iveta Jurgensone, Latvia, will be the convener during 2017-2019.

6. Expected results

The outcome of the project will be:

a) Annual reports from the 3 workshops to HELCOM State and Conservation;
b) Annually revised species/biovolume list of Baltic Sea phytoplankton species;
c) Updated HELCOM Monitoring manual for Phytoplankton - Species composition, abundance and biomass;
d) Review the indicator evaluations for phytoplankton
e) Intercalibration report to HELCOM/ICES;
f) Updated environmental fact sheet;
g) Continuation of contribution of quality-checked images to the HELCOM PEG image gallery at, www.Nordicmicroalgae.org;
h) Final report (2017-2019).

7. Consistency with HELCOM priorities __X__yes____no

8. Timetable

The project will be carried out in 2017-2019 as a continuation to the ongoing HELCOM PEG project for 2014-2016. More specific timetable:

Regular tasks will be discussed during all workshops, especially:

- discussion on new species and size classes that have occurred in the previous year's samples including non-indigenous species
- discussion of new environmental fact sheets and updating of the existing one
- harmonization of species identification by common microscoping of samples from the Baltic Sea
- harmonization of analyzing methods by discussing the methodology and committing intercalibrations
- information on recent changes in taxonomy of planktonic microalgae
- new images to add to the phytoplankton image gallery
- information on new relevant literature, projects about e.g. the development of phytoplankton indicators, meetings and conferences.
- review of phytoplankton indicators being developed by Lead Countries.

Specific tasks for the separate workshops are:

Workshop 2017

a) A training course on cyanobacteria, teacher will be decided in 2017;
b) Planning of the next intercalibration;

The workshop will be held in St.Peterburg, Russia.

Workshop 2018

a) A training course on diatom resting spores and dinoflagellate cysts, Anna Godhe Sweden;
b) Planning the next project (2020-2022).

The workshop will be held in Sweden.

Workshop 2019

a) Presentation of the results from the intercalibration;
b) A training course on diatoms, teacher will be decided in 2018

The workshop will be held in Latvia.

Specific tasks to support the development and evaluation of phytoplankton indicators

2017:

Comment on phytoplankton indicator analyses made for the HOLAS II report and indicator evaluations on phytoplankton by February 2017.

2018:

Comment on phytoplankton indicator reports and indicator evaluations according to deadlines agreed in the HOLAS II project.

9. Budget

9.1. Total costs

The total costs for HELCOM from 2017 to 2019 are estimated to be **15480** EUR.

9.2. Costs divided per financial year

Estimated costs for HELCOM

2017:

Compensation for teaching (120 EUR/h, 8 hours)	960 EUR
Travel and accommodation for the teacher	1000 EUR
Administrative costs	1100 EUR
Travel and accommodation for project manager to present the PEG work in the HELCOM State and Conservation meeting	600 EUR
SUM	**3660 EUR**

2018:

Compensation for teaching (120 EUR/h, 8 hours)	960 EUR
Travel and accommodation for the teacher	1000 EUR
Administrative costs	1100 EUR
Preparation of intercalibration	1500 EUR
Travel and accommodation for project manager to present the PEG work in the HELCOM State and Conservation meeting	600 EUR
SUM	**5160 EUR**

2019:

Compensation for teaching (120 EUR/h, 8 hours)	960 EUR
Travel and accommodation for the teacher	1000 EUR
Compensation for teaching evaluation of ringtest (intercalibration)	3000 EUR
Administrative costs	1100 EUR
Travel and accommodation for project manager to present the PEG work in the HELCOM State and Conservation meeting	600 EUR
SUM	**6660 EUR**

9.3. Sources of financing divided per financial year

In general both HELCOM and the host countries finance the workshops and activities therein:

2017: HELCOM and Russia

2018: HELCOM and Sweden

2019: HELCOM and Latvia

10. Additional requests

10.1. From the Contracting Parties

The Contracting Parties are supposed to cover the travel expenses for the participation of the national experts in the workshops, which are not included in the project budget.

The financial contribution of the host country for each workshop is estimated to be ca. 1500 EUR annually, which is expected cost in addition to the administrative costs listed under 9.2.

11. Procedure of nomination of the Project team members

The present phytoplankton expert group consists of the following experts:

Hans Jakobsen	Denmark
Andres Jaanus	Estonia
Annely Enke	Estonia
Kaire Kaljurand	Estonia
Marko Järvinen	Finland
Heidi Hällfors	Finland
Sirpa Lehtinen	Finland
Jeanette Göbel	Germany
Norbert Wasmund	Germany
Regina Hansen	Germany
Susanne Busch	Germany
Iveta Jurgensone	Latvia
Irina Olenina	Lithuania
Janina Kownacka	Poland

Slawomira Gromisz	Poland
Wojciech Kraśniewski	Poland
Andrey Sharov	Russia
Evgenia Lange	Russia
Chatarina Karlsson	Sweden
Siv Huseby	Sweden
Helena Höglander	Sweden
Lars Edler	Sweden
Malin Mohlin	Sweden
Marie Johansen	Sweden
Ann-Turi Skjevik	Sweden

12. Signatures of the project managers

Ms. Iveta Jurgensone

Chair of HELCOM Phytoplankton Expert Group

13. Opinion of the chairman of the relevant body

14. Opinion of the Executive Secretary

positive

15. Decision of the heads of Delegation

HOD 51-2016 decided

_X___ to establish _____not to establish

the project

Annex 6 Regional Baltic Sea plan for harmonized ratification and implementation for the 2004 IMO Ballast Water Management Convention (BWMC)

Recalling that the 2004 International Convention for Control and Management of Ships' Ballast Water and Sediments (BWM Convention) will enter into force in 8 September 2017, and to ensure its coherent implementation, **the HELCOM member states AGREE**:

To encourage Estonia, Latvia, Lithuania and Poland to ratify the BWM Convention as soon as possible and at the latest before the entry into force of the BWM Convention to ensure the equal treatment of the ships (i.e. the granting of exemptions) throughout the Baltic Sea (HELCOM area).

To continue the work within the HELCOM-OSPAR TG BALLAST, including:

- Continuing working on the Joint HELCOM/OSPAR Harmonised Procedure for the Contracting Parties of OSPAR and HELCOM on the granting of exemptions under BWM Convention (JHP) and further developing the online decision support tool.
- Further studying the new concept of the "same risk area" - which is currently being discussed at IMO - in relation to the JHP, avoiding pre-empting any decisions at IMO MEPC or PPR.
- Examining if the database on port survey results can be coupled with or linked to the data obtained from the Marine Strategy Framework Directive (MSFD) monitoring for Descriptor 2 in order to improve the current limitation of data availability on non-indigenous species (NIS).

To nominate a national focal point to the new expert group to continuously update the target species list (TSL) for the JHP risk assessments.

To develop and have in place by 2018 a system to quickly disseminate information on outbreaks of ballast water mediated invasive species which, for example, could lead to the withdrawal of A-4 exemption or requirements on contingency measures or require notification to ship owners and administration to avoid ballast water operations where such events occur (early warning system).

To provide, and inform on availability, of reception facilities for sediments in ports and terminals where cleaning and repair of ballast tanks occurs based on IMO Guidelines G1 by 2018.

To investigate if ports as hotspots should be included as a regular part of the HELCOM Monitoring programs on NIS keeping in mind the obligations from the EU Marine Strategy Framework Directive (MSFD) and the other EU Directives for the EU member states.

To generate a list of surveyed ports by 2018; the list will be permanently updated.

To support and exchange experiences on compliance control and enforcement of the BWMC.

To work towards further harmonization of implementing regulations of the BWM Convention.

Annex 7 Statements by the European Commission Regarding Financing and the Implementation of EU Legislation

Statements by the European Commission Regarding Financing and the Implementation of EU Legislation

The EU is an important financing body for potential projects being considered within the context of HELCOM. In order to avoid any interference with the independent decision-making procedures established under the various financing instruments, the EU does, as a matter of principle, not take any position as regards any project proposal intended for submission to EU financing bodies. This should not be interpreted in any way as prejudging the position of the EU when taking financing decision.

The responsibility for implementing EU legislation is solely with the EU Member States. The role of the European Commission is, inter alia, to assess compliance with EU legislation once a Member State has submitted its report. Hence, any statement or position taken by the EU within the context of HELCOM should not be construed to give any assessment of whether the work done by HELCOM is compliant with EU legislation.

Statement regarding MSFD Implementation

The EU pointed out that any agreement that the EU delegation will give within the context of HELCOM in this respect is without prejudice to the European Commission's role under the EU Treaty to assess the implementation and compliance of EU Member States with EU law and the assessments that the European Commission is required to carry out in accordance with Articles 12 and 16 MSFD after EU Member States have officially reported to the European Commission.

List of documents

Title	Category	Submitted by
1-1 Provisional Agenda.pdf	DEC	Executive Secretary
1-2 Annotations to the Provisional Agenda.pdf	CMNT	Executive Secretary
2-1 Work plan of the EU Chairmanship.pdf	DEC	Chair
3-1 SOI Seoul Outcome.pdf	CMNT	Executive Secretary
3-2 Information on upcoming global events related to SDG 14.pdf	INF	Executive Secretary
4-1 Provisional Agenda for HELCOM 38-2017.pdf	INF	Chair and Executive Secretary
4-2-Rev1 Outline for the high-level segment of HELCOM 38-2017.pdf	DEC	Executive Secretary
4-3 Initial proposal for the content of the HELCOM high-level segment 28 February 2017.pdf	CMNT	Executive Secretary
4-4 HELCOM results and targets as aligned with the UN Sustainable Development Goals.pdf	CMNT	Executive Secretary
6-1 Draft HELCOM Recommendation on sewage sludge handling.pdf	DEC	Executive Secretary
6-2 Draft methodology for accounting an extra reduction.pdf	DEC	Executive Secretary
6-3 Project proposal PEG QA 2017-2019.pdf	DEC	Executive Secretary
6-4 Proposal to establish an intersessional Expert Network on dredging-depositing operations at sea (HELCOM EN DREDS).pdf	DEC	Executive Secretary
6-5-Rev1 Identifying Ecologically or Biologically Significant Marine Areas (EBSAs) in the Baltic Sea.pdf	DEC	Finland
6-6 Noise Sensitivity of Animals in the Baltic Sea.pdf	DEC	Executive Secretary
6-7 Endorsement of the method to calculate the Baltic Sea cumulative impact index (BSII).pdf	DEC	TAPAS Project
6-8 Draft regional Baltic Sea plan for harmonized ratification and implementation for the 2004 IMO BWMC.pdf	DEC	Executive Secretary
6-9 Outcomes of working groups meetings.pdf	DEC	Executive Secretary
6-9-Add1 Outcomes of working groups' meetings.pdf	DEC	Executive Secretary
6-10 Roadmap for continued HELCOM work on social and economic analyses.pdf	CMNT	Executive Secretary
6-11 Revised HELCOM Response Manual Volume III.pdf	DEC	Executive Secretary
6-12 Deletion of Hot Spot No 27 – Kehra Pulp and Paper.pdf	DEC	Estonia
6-13 Status of the Baltic cod stocks and related actions in BSAP.pdf	DEC	CCB
6-14 Plan for closer cooperation between marine environment and fisheries management in the Baltic Sea.pdf	DEC	Executive Secretary
6-15 Agreement on a biodiversity assessment tool.pdf	DEC	Executive Secretary
6-16 Agreement on a hazardous substances assessment tool.pdf	DEC	Executive Secretary
6-17-Rev1 Adoption of core indicators and GES boundary values.pdf	DEC	Executive Secretary
6-18 Draft HELCOM Recommendation on conservation of Baltic Sea underwater biotopes, habitats and biotope complexes.pdf	DEC	Executive Secretary
6-19 Danish proposed changes to HELCOM draft Rec on conservation of Baltic Sea underwater biotopes, etc.pdf	CMNT	Denmark
6-20 PLC-7 Project Proposal.pdf	DEC	Executive Secretary
6-21 Proposal on the Limit Reference Level (LRL) for harbour seals.pdf	DEC	Executive Secretary
6-22 Tentative plan for a regional consultation on HOLAS II 2017-18.pdf	DEC	Executive Secretary
6-23-Rev1 Achievements and plans of the HOLAS II project.pdf	INF	Executive Secretary
6-24 Estonian clarification on study reservation on Cd and Pb secondary GES boundary.pdf	INF	Estonia
6-25 Statement to the initial suggestion on work plan for HELCOM AGRI Group 2017-2018.pdf	INF	BFFE
6-26 The status of PLC data reporting.pdf	INF	Executive Secretary

6-27 Scoping Study on International and European Processes relevant to OSPAR and HELCOM RAP ML.pdf	CMNT	Sweden
6-28 BONUS projects results having a potential in management.pdf	INF	Sweden
6-29 Status on reporting of data for use in HOLAS II.pdf	INF	Executive Secretary
6-30 Lead Countries on indicators.pdf	INF	Executive Secretary
6-31 HELCOM Indicators on population demography of seals.pdf	INF	Germany
6-32 Comments by Germany to the draft HELCOM Recommendation on Sewage Sludge Handling.pdf	CMNT	Germany
7-1 Recruitment of Professional Secretary.pdf	DEC	Executive Secretary
7-2 Accounts of the Commission 2015-2016.pdf	DEC	Executive Secretary
7-3 Draft budget for 2017-2018.pdf	DEC	Executive Secretary
8-1 Update on HELCOM communication activities and outlook for future.pdf	INF	Information Secretary
8-2 On-going projects within HELCOM and with HELCOM involvement.pdf	INF	Executive Secretary
8-3 Upcoming meetings within HELCOM and other forums in 2017.pdf	INF	Executive Secretary
8-4 Outcome of the political seminar by HELCOM at the 7th Strategy Forum of the EUSBSR.pdf	INF	Executive Secretary
8-5 Baltic Sea Day 2017.pdf	INF	Russia
8-6 Information on Lukoil activity.pdf	INF	Russia

Baltic Marine Environment Protection Commission

Expert Group on follow-up of national progress towards reaching BSAP nutrient reduction targets (HELCOM LOAD)
Helsinki, Finland, 27-29 October 2014

LOAD 8-2014, 3-3

Document title	Proposal for a CART follow-up system
Code	3-3
Category	CMNT
Agenda Item	3 - Elaboration of core pressure indicator on nutrient inputs and a follow-up system for the BSAP country-wise allocation of nutrient reduction targets (CART)
Submission date	27.10.2014
Submitted by	LOAD Chair, BNI and Secretariat

Background

The attached document contains a draft of the follow-up assessment of the country-wise allocated reduction targets on nutrients (CART) decided by the 2013 Copenhagen HELCOM Ministerial Declaration. Document 3-1, submitted to HELCOM LOAD 8-2014, includes a discussion of the overall framework and content of the nutrient reduction scheme follow-up assessment including challenges for implementing the follow-up scheme that need to be addressed and the process on how to developed and maintain the follow-up system.

Commented [BG1]: Shouldn't we use "assessment" rather than "system"?

The attached draft presents initial figures and table that are proposed to be included in the CART follow-up assessment. It also raises some technical and scientifically issues that need consideration, e.g.:

- Shall we assume that transboundary inputs constitutes the same proportion of total inputs to a sub-basin since 1994 as in the reference period if we don't receive new information on transboundary inputs and retention?
- If retention figures are changed also CART change between involved countries
- How to handle the notes on transboundary inputs from Finland and Germany in the 2013 Copenhagen HELCOM Ministerial Declaration?
- How to take into account uncertainties when statistical evaluating progress in fulfilling CART?

These issues need further clarification, discussion and development before further developing the follow-up for CART.

The present version of the CART follow-up assessment is based on data from 1994-2012 to avoid making double work by first elaborating an assessment on 1994-2010 data and within few weeks repeating the assessment with updated data. As the complete dataset including both water- and airborne inputs and the normalized airborne data were only available by mid-October 2014, and the normalization, statistical analysis, calculation and assessments are based on voluntary work, the statistical analysis was not ready for this version of the CART follow-up system. Therefore, some tables and figures are not finalized yet, and only an example for one sub-basin is shown for some other figures. Further, part of the text is provisional and should be further developed, and the annex is only partly developed. This draft will be updated based on the discussions at the LOAD 8/2014 meeting and with inclusion of the results of the statistical trends

analysis and test for progresses in fulfilling CART and send to HOD 47-2014. Afterwards it will be finalized in January 2015 before submission for HELCOM 2015.

Action required

The Meeting is invited to scrutinize, consider and discuss the draft of the proposal for a CART follow-up assessment and provide advice for adjustments for finalizing a draft of the CART follow-up assessment before it is submitted to HOD 47-2014 for endorsement. Further, the Meeting should address the raised scientifically and technical issues and the question on how Contracting Parties prefer that the follow-up assessment is carried out.

Proposal for a CART follow-up system

Authors

Lars M. Svendsen[1], Bo Gustafsson[2], Minna Pyhälä[3], Seppo Knuuttila[4] and Lars Sonesten[5]

With support from the HELCOM expert group on follow-up of national progress towards reaching BSAP nutrient reduction targets (HELCOM LOAD)

[1] DCE - Danish Centre for Environment and Energy, Aarhus University
[2] Baltic Nest Institute, Sweden
[3] HELCOM Secretariat
[4] Finnish Environment Institute, SYKE
[5] Swedish University of Agricultural Sciences, SLU

Summary/main conclusion

Country allocated reduction requirements (CART) of nitrogen and phosphorus have been expresses as input ceilings for each country and source by sub-basin.

Bases on average normalized inputs in 2010-2012 the following ceilings have been fulfilled:

- Denmark and Germany is fulfilling nitrogen ceilings to all HELCOM sub-basins
- Baltic Sea shipping exceeds nitrogen ceiling to all sub-basins
- ….
- All countries exceeds their phosphorus ceilings to Baltic Proper
- Xx countries reduced significantly their air- and waterborne nitrogen inputs to the Baltic Sea in 2010-2012 compared with the reference period (1997-2003)
- yy countries reduced significantly their air- and waterborne nitrogen inputs to the Baltic Sea in 2010-2012 compared with the reference period (1997-2003)
- Nitrogen input from Baltic Sea shipping has increased significantly since the reference period
- …

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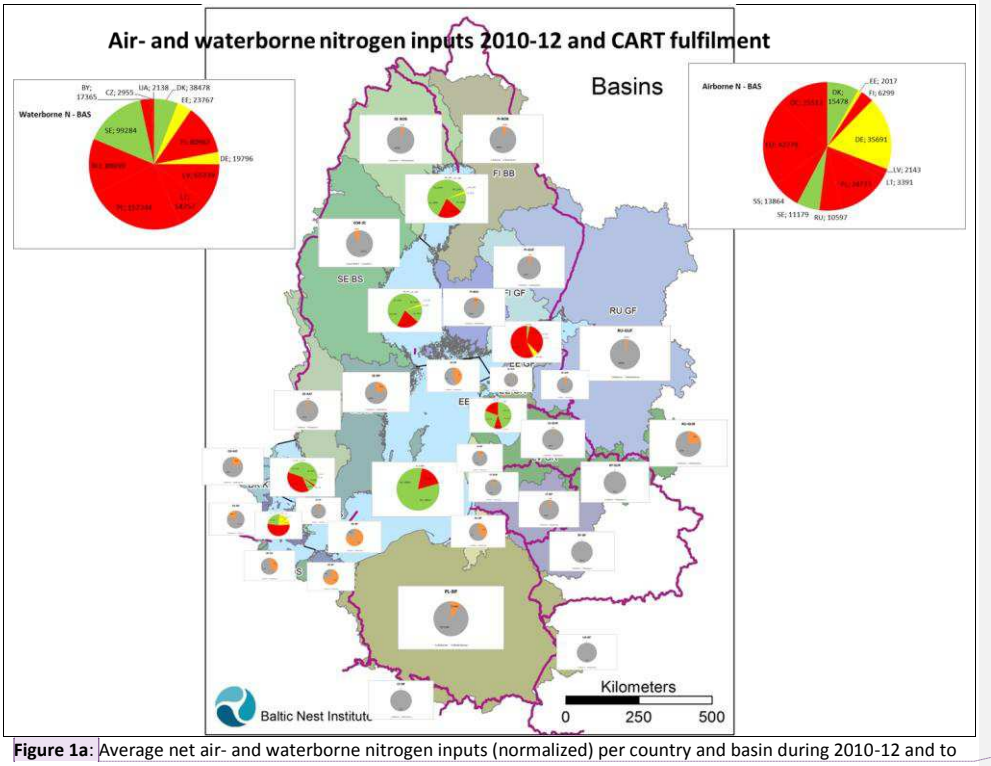

Figure 1a: Average net air- and waterborne nitrogen inputs (normalized) per country and basin during 2010-12 and to the Baltic Sea. The numbers in the figures are nitrogen input (water- or airborne) in tonnes. Countries with waterborne nitrogen inputs to a sub-basin are shown separately on the catchment to the sub-basin. Countries only contributing with airborne nitrogen inputs are shown together in the pie diagram located on the sub-basins. Red colour: nitrogen ceilings are not fulfilled. Yellow colour: it can't be judged with statistical certainty if average input in 2010-12 is higher than the ceiling. Green colour: Nitrogen ceiling is fulfilled taking into account statistical uncertainty.

Commented [LMS3]: We are aware to it might be difficult to see all details. Figures to be updated when statitistical analysis are ready – the colours are provisional The intention is to also to clor the catchment according to fulfilment of CART. The figure is elaborated to follow same concept as for MAI-follow up – we can discuss hos to make it more readable.. In annex figure A1 the figures regarding BP is shown with a higher resoloution

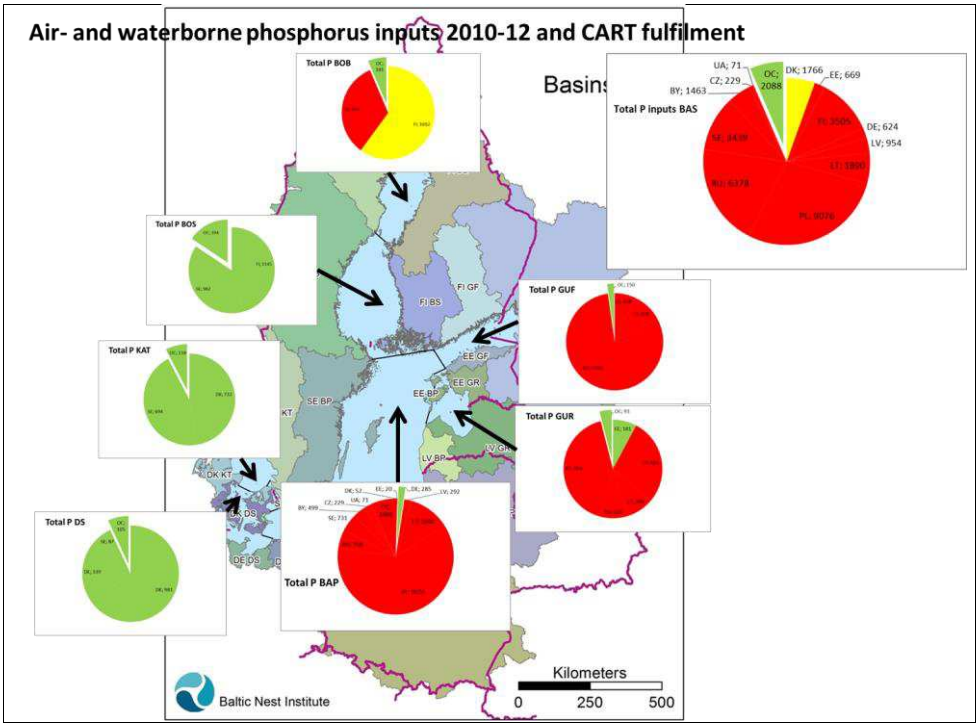

Figure 1b Average net air- and waterborne phosphorus inputs (normalized) per country and basin during 2010-12 and to the Baltic Sea. The numbers in the figures are phosphorus input (water- or airborne) in tonnes. Airborne inputs from all sources are aggregated per sub-basin (OC = other sources). Red: nitrogen ceilings are not fulfilled. Yellow: it can't be judged with statistical certainty if average input in 2010-12 is higher than the ceiling. Green: Phosphorus ceiling Nitrogen ceiling is fulfilled taking into account statistical uncertainty.

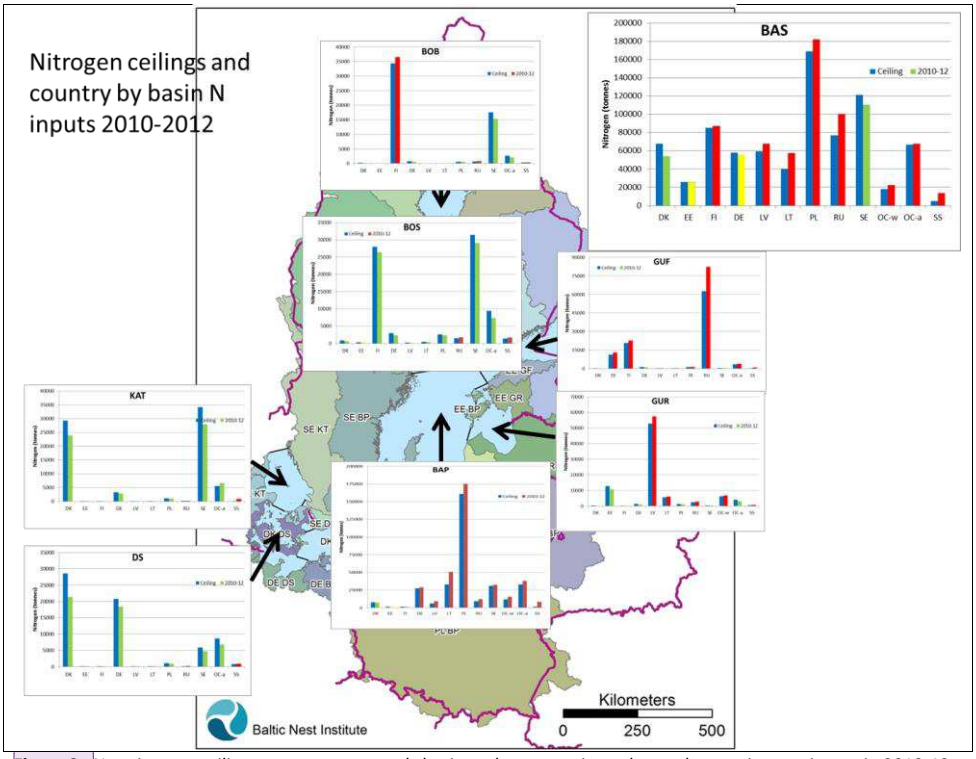

Figure 2a Net nitrogen ceilings per country pr. sub-basin and average air- and waterborne nitrogen inputs in 2010-12. Red: nitrogen ceilings are not fulfilled. Yellow colour: it can't be judged with statistical certainty if average input in 2010-12 is higher than the ceiling. Green colour: Nitrogen ceiling is fulfilled taking into account statistical uncertainty.

Commented [LMS4]: Colours will be updated when statistical analysis are ready

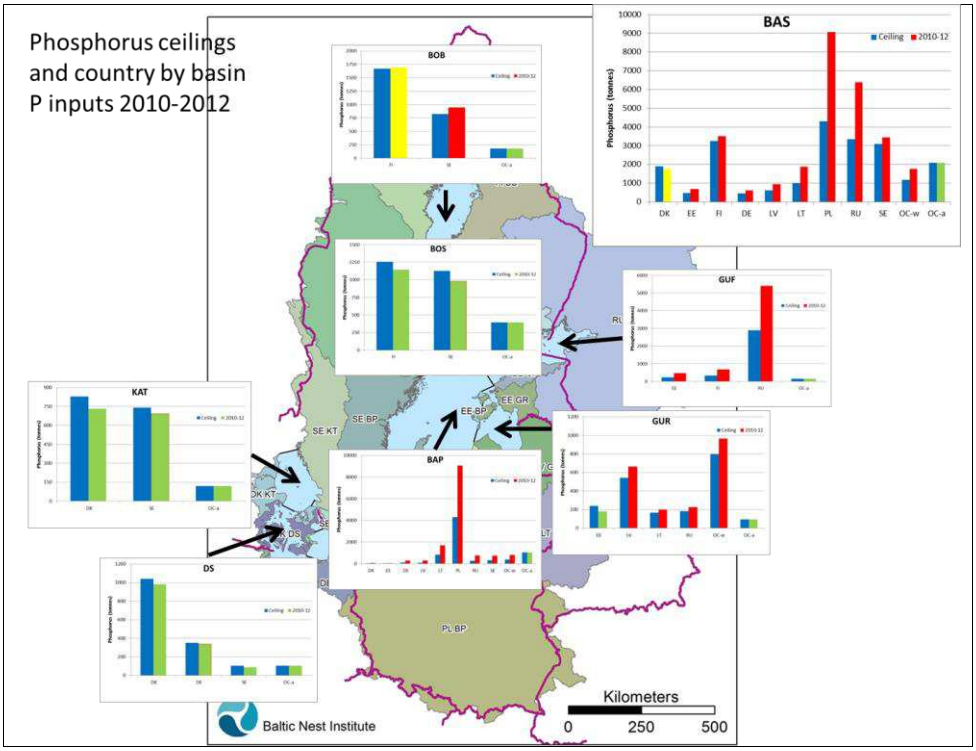

Figure 2b: Net phosphorus ceilings per country pr. sub-basin and average air- and waterborne nitrogen inputs in 2010-12. Red: nitrogen ceilings are not fulfilled. Yellow colour: it can't be judged with statistical certainty if average input in 2010-12 is higher than the ceiling. Green colour: Nitrogen ceiling is fulfilled taking into account statistical uncertainty.

Introduction

The HELCOM Baltic Sea Action Plan reduction scheme was reviewed and revised in 2013 leading to updated revised maximum allowable inputs (MAI) for fulfilling eutrophication status targets on nutrients, secchi depth and oxygen debt. Based on the revised MAI and revised allocation principles (Gustafsson & Mörth, in prep, HELCOM 2013, b) new Country allocated reduction targets (CART). The 2013 Copenhagen HELCOM Ministerial declaration decided that reduction targets should be specific related to net nutrients inputs from the countries, and reductions requirement should be allocated also on transboundary air-and waterborne inputs. The overall CART from is shown in table 1.

Table 1: Country allocated reductions targets (CART) from 2013 Copenhagen HELCOM Ministerial declaration (HELCOM 2013a).

Country/Source	**Nitrogen tonnes**	**Phosphorus tonnes**
Denmark	2,890	38
Estonia	1,800	320
Finland[1]	2,430+600*	330+26*
Germany[1]	7,170+500*	110+60*
Latvia	1,670	220
Lithuania	8,970	1,470
Poland[2]	43,610	7,480
Russia	10,380*	3,790*
Sweden	9,240	530
Waterborne transboundary	3,230	800
Airborne non-Contracting Parties	18,720	
Shipping	6,930	
Total	118,134	15,178

[1]Finland's view is that according to HELCOM assessment open parts of the Bothnian Sea, Åland Sea and the Archipelago Sea are eutrophied and need reduction of nutrient levels, although BALTSEM model did not establish nutrient input reduction requirements to the drainage basins of these sea areas. Finland will address water protection measures to the drainage basins of these areas in its national plans;

[2] At this point in time Poland accepts the Polish Country Allocated Reduction Targets as indicative due to the ongoing national consultations, and confirms their efforts to finalize these consultations as soon as possible.

* Reduction requirements stemming from:

- German contribution to the river Odra inputs, based on ongoing modeling approaches with MONERIS;
- Finnish contribution to inputs from river Neva catchment (via Vuoksi river)
- these figures include Russian contribution to inputs through Daugava, Nemunas and Pregolya rivers

The figures for transboundary inputs originating in the Contracting Parties and discharged to the Baltic Sea through other Contracting Parties are preliminary and require further discussion within relevant transboundary water management bodies;

Following up Contracting Parties reduction commitments from the Copenhagen 2013 HELCOM Ministerial Declaration requires quantification of the water- and airborne nutrient inputs *that can be assign to each Contracting Party* and further to quantify the transboundary nutrient inputs entering Baltic Sea sub-basins. In the declaration it is remarked that transboundary inputs are preliminary and requires further discussion. In this document some questions to solve it

This document is the follow-up progress in CART fulfilment, while the follow-up on MAI is in the Core Pressure Indicator of nutrient inputs (HELCOM LOAD document 3/2).

Evaluating progress fulfilling new CART

The natural way to evaluate fulfilment is to compare with a national emission ceiling of nutrient inputs to the Baltic Sea. This is calculated using the PLC 5.5 reference data set averaged for 1997-2003. The national inputs from the countries are computed as the sum of the waterborne and airborne parts, taking into account transboundary waterborne contributions from/to other countries. For the reference period these data were readily presented in the background documents to the 2013 Ministerial meeting (HELCOM 2013,b). A nutrient input ceiling is calculated by subtracting the national inputs in the reference period (1997-2003) with the CART. In tables 2-3, the national input ceilings are shown together with the achieved reductions 2010-12 compared to the reference input data and in the last column, how large proportion of the CART that was achieved by 2010-12. Negative reduction indicates increased inputs. For the basins without reduction requirements, the countries may still not increase their inputs because of the precautionary principle was applied when calculating MAI rather that estimating the largest possible inputs to these basins.

In tables 4-5, the background data for the calculation of national reductions are provided so that each country can follow the changes in airborne, waterborne and transboundary inputs between 1997-2003 and 2010-2012.

Table 2a: Country by basin wise total nitrogen input ceilings, achieved reductions in 2010-2012 compared to the reference inputs (1997-2003), and the percentage of reduction compared to CART. Negative reductions indicate increased inputs.

Commented [LMS5]: *In the final version of table 2-5 statistical significant reductions will be indicated with bold*

BAP	Ceiling	Reduction	% of CART
DK	7910	2628	123
EE	1413	381	100
FI	1569	504	119
DE	27473	5857	79
LV	6091	-1638	-100
LT	33093	-8660	-97
PL	160857	29568	68
RU	9253	-515	-21
SE	30942	6817	82
OC	33002	9859	67
SS	1434	-1133	-20
BY	7322	-1337	-68
CZ	2693	465	64
UA	1948	337	64
Sum	*325001*	*43132*	*44*

GUF	Ceiling	Reduction	% of CART
DK	334	116	275
EE	11265	-396	-28
FI	20653	614	24
DE	1312	324	197
LV	183	-18	-80
LT	261	19	58
PL	1166	122	83
RU	62522	-11777	-149
SE	502	117	186
OC	3455	1137	76
SS	147	-146	-25
Sum	*101800*	*-9888*	*-68*

KAT	Ceiling	Reduction	% of CART
DK	29319	6091	860
EE	20	2	n/a
FI	77	24	1223
DE	3285	535	677
LV	25	1	107
LT	60	7	730
PL	1106	134	498
RU	174	-17	-417
SE	34206	7055	854
OC	5579	1444	58
SS	149	-124	-21
Sum	*74001*	*15155*	*318*

Table 2b: Country by basin wise total nitrogen input ceilings, achieved reductions in 2010-2012 compared to the reference inputs for the sub-basins with zero CART

BOB	Ceiling	Reduction	% of CART
DK	226	67	n/a
EE	93	2	n/a
FI	34389	-2081	n/a
DE	801	164	n/a
LV	62	-1	n/a
LT	108	9	n/a
PL	631	62	n/a
RU	696	-205	n/a
SE	17571	2203	n/a
OC	2685	571	n/a
SS	361	-79	n/a
Sum	*57622*	*712*	*n/a*

BOS	Ceiling	Reduction	% of CART

GUR	Ceiling	Reduction	% of CART
DK	374	110	n/a
EE	12777	1909	n/a
FI	250	62	n/a
DE	1437	317	n/a
LV	52853	-4651	n/a
LT	5682	-382	n/a
PL	1335	122	n/a
RU	2467	-265	n/a
SE	440	85	n/a
OC	4013	866	n/a
SS	561	-106	n/a
BY	6228	-501	n/a
Sum	*88418*	*-2435*	*n/a*

DS	Ceiling	Reduction	% of CART

DK	854	253	n/a
EE	299	2	n/a
FI	27978	1596	n/a
DE	2994	649	n/a
LV	258	-12	n/a
LT	464	41	n/a
PL	2647	256	n/a
RU	1465	-386	n/a
SE	31501	2403	n/a
OC	9451	2105	n/a
SS	1461	-286	n/a
Sum	*79372*	*6621*	*n/a*

DK	28588	7271	n/a
EE	17	2	n/a
FI	60	18	n/a
DE	20708	2339	n/a
LV	23	1	n/a
LT	51	7	n/a
PL	1061	132	n/a
RU	164	-9	n/a
SE	5869	1134	n/a
OC	8631	1768	n/a
SS	826	-122	n/a
Sum	*65998*	*12541*	*n/a*

Table 3a: Country by basin wise total phosphorus input ceilings, achieved reductions in 2010-2012 compared to the reference inputs, and the percentage of reduction compared to CART. Negative reductions indicate increased inputs.

BP	**Ceiling**	**Reduction**	**% of CART**
DK	21	7	19
EE	8	3	20
DE	101	-9	-5
LV	74	-90	-70
LT	831	582	40
PL	4309	2710	36
RU	277	0	0
SE	308	112	21
OC	1046	0	n/a
BY	244	169	40
CZ	108	66	35
UA	33	21	36
Sum	*7360*	*3571*	*33*
GF	**Ceiling**	**Reduction**	**% of CART**
EE	236	36	13
FI	322	18	5
RU	2892	773	24
OC	150	0	n/a
Sum	*3600*	*828*	*21*
GR	**Ceiling**	**Reduction**	**% of CART**
EE	239	96	252
LV	541	-34	-39
LT	166	-8	-32
RU	185	-9	-31
OC	93	0	n/a
BY	797	-39	-31
Sum	*2020*	*5*	*2*

BB	**Ceiling**	**Reduction**	**% of CART**
FI	1668	-24	n/a
SE	826	-118	n/a
OC	181	0	n/a
Sum	*2675*	*-142*	*n/a*
BS	**Ceiling**	**Reduction**	**% of CART**
FI	1255	110	n/a
SE	1125	143	n/a
OC	394	0	n/a
Sum	*2773*	*253*	*n/a*
DS	**Ceiling**	**Reduction**	**% of CART**
DK	1040	59	n/a
DE	351	11	n/a
SE	105	18	n/a
OC	105	0	n/a
Sum	*1601*	*88*	*n/a*
KT	**Ceiling**	**Reduction**	**% of CART**
DK	829	97	n/a
SE	740	46	n/a
OC	118	0	n/a
Sum	*1687*	*143*	*n/a*

Table 4a: Summary of country-wise total nitrogen inputs to Bothnian Bay, Bothnian Sea and Baltic Proper in the reference period compared to 2010-2012 averaged.

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	Reference 1997-2003				2010 - 2012				
BOB	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Reduction**
DK	0	226	0	226	0	159	0	159	67
EE	0	93	0	93	0	91	0	91	2
FI	32625	1764	0	34389	34822	1648	0	36469	-2081
DE	0	801	0	801	0	637	0	637	164
LV	0	62	0	62	0	63	0	63	-1
LT	0	108	0	108	0	99	0	99	9
PL	0	631	0	631	0	569	0	569	62
RU	0	696	0	696	0	901	0	901	-205
SE	16813	758	0	17571	14748	620	0	15368	2203
OC	0	2685	0	2685	0	2114	0	2114	571
SS	0	361	0	361	0	440	0	440	-79
Sum	*49437*	*8185*	*0*	*57622*	*49570*	*7341*	*0*	*56910*	*712*
BOS	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Reduction**
DK	0	854	0	854	0	601	0	601	253
EE	0	299	0	299	0	298	0	298	2
FI	25641	2337	0	27978	24319	2063	0	26381	1596
DE	0	2994	0	2994	0	2345	0	2345	649
LV	0	258	0	258	0	270	0	270	-12
LT	0	464	0	464	0	423	0	423	41
PL	0	2647	0	2647	0	2391	0	2391	256
RU	0	1465	0	1465	0	1851	0	1851	-386
SE	28964	2537	0	31501	27025	2073	0	29098	2403
OC	0	9451	0	9451	0	7346	0	7346	2105
SS	0	1461	0	1461	0	1747	0	1747	-286
Sum	*54605*	*24767*	*0*	*79372*	*51344*	*21407*	*0*	*72751*	*6621*
BAP	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Reduction**
DK	1864	8182	0	10046	1499	5919	0	7418	2628
EE	1134	661	0	1795	788	627	0	1414	381
FI	0	1993	0	1993	0	1489	0	1489	504
DE	6847	25708	2337	34892	6086	20930	2019	29035	5857
LV	10134	967	-3365	7736	12441	1027	-4094	9374	-1638
LT	42536	2384	-2891	42028	52503	2099	-3913	50689	-8660
PL	192832	19655	-8194	204293	163867	17481	-6623	174725	29568
RU	10950	3881	-3080	11751	10751	4633	-3118	12266	-515
SE	31382	7916	0	39298	25881	6601	0	32482	6817
OC	0	47727	0	47727	0	37868	0	37868	9859
SS	0	7169	0	7169	0	8302	0	8302	-1133
BY	0	0	9299	9299	0	0	10636	10636	-1337
CZ	0	0	3420	3420	0	0	2955	2955	465
UA	0	0	2474	2474	0	0	2138	2138	337
Sum	*297679*	*126243*	*0*	*423922*	*273816*	*106975*	*0*	*380790*	*43132*

Table 4b: Summary of country-wise total nitrogen inputs to Gulf of Finland, Gulf of Riga and the Danish Straits in the reference period compared to 2010-2012 averaged.

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	Reference 1997-2003				2010 - 2012				
GUF	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Reduction**
DK	0	376	0	376	0	260	0	260	116
EE	12004	680	0	12684	12365	715	0	13080	-396
FI	16909	994	5353	23256	16353	816	5474	22643	614
DE	0	1477	0	1477	0	1153	0	1153	324
LV	0	206	0	206	0	224	0	224	-18
LT	0	294	0	294	0	275	0	275	19
PL	0	1313	0	1313	0	1191	0	1191	122
RU	74006	1748	-5353	70401	85426	2226	-5474	82178	-11777
SE	0	565	0	565	0	448	0	448	117
OC	0	4941	0	4941	0	3804	0	3804	1137
SS	0	739	0	739	0	885	0	885	-146
Sum	*102919*	*13333*	*0*	*116252*	*114144*	*11997*	*0*	*126141*	*-9888*
GUR	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Reduction**
DK	0	374	0	374	0	264	0	264	110
EE	12530	247	0	12777	10614	253	0	10868	1909
FI	0	250	0	250	0	188	0	188	62
DE	0	1437	0	1437	0	1120	0	1120	317
LV	65843	441	-13431	52853	71502	513	-14510	57504	-4651
LT	0	437	5245	5682	0	397	5667	6064	-382
PL	0	1335	0	1335	0	1213	0	1213	122
RU	0	510	1957	2467	0	618	2114	2732	-265
SE	0	440	0	440	0	356	0	356	85
OC	0	4013	0	4013	0	3147	0	3147	866
SS	0	561	0	561	0	667	0	667	-106
BY	0	0	6228	6228	0	0	6729	6729	-501
Sum	*78373*	*10045*	*0*	*88418*	*82117*	*8736*	*0*	*90852*	*-2435*
DS	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Reduction**
DK	23277	5311	0	28588	17356	3961	0	21317	7271
EE	0	17	0	17	0	15	0	15	2
FI	0	60	0	60	0	42	0	42	18
DE	12843	7865	0	20708	11691	6678	0	18368	2339
LV	0	23	0	23	0	22	0	22	1
LT	0	51	0	51	0	44	0	44	7
PL	0	1061	0	1061	0	929	0	929	132
RU	0	164	0	164	0	173	0	173	-9
SE	5485	384	0	5869	4432	303	0	4735	1134
OC	0	8631	0	8631	0	6863	0	6863	1768
SS	0	826	0	826	0	948	0	948	-122
Sum	*41605*	*24393*	*0*	*65998*	*33479*	*19978*	*0*	*53457*	*12541*

Table 4c: Summary of country-wise total nitrogen inputs to Kattegat and the whole Baltic Sea in the reference period compared to 2010-2012 averaged.

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	Reference 1997-2003				2010 - 2012				
KAT	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Reduction**
DK	24392	5635	0	30027	19623	4313	0	23936	6091
EE	0	20	0	20	0	18	0	18	2
FI	0	79	0	79	0	55	0	55	24
DE	0	3364	0	3364	0	2829	0	2829	535
LV	0	26	0	26	0	25	0	25	1
LT	0	61	0	61	0	54	0	54	7
PL	0	1133	0	1133	0	999	0	999	134
RU	0	178	0	178	0	195	0	195	-17
SE	34091	941	0	35032	27197	780	0	27977	7055
OC	0	8090	0	8090	0	6646	0	6646	1444
SS	0	751	0	751	0	875	0	875	-124
Sum	*58484*	*20278*	*0*	*78762*	*46821*	*16786*	*0*	*63607*	*15155*
BAS	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Reduction**
DK	49533	20958	0	70491	38478	15478	0	53956	16536
EE	25667	2017	0	27684	23767	2017	0	25784	1900
FI	75175	7477	5353	88005	75494	6299	5474	87266	738
DE	19690	43646	2337	65673	17777	35691	2019	55487	10185
LV	75977	1983	-16795	61164	83943	2143	-18604	67482	-6318
LT	42536	3799	2354	48689	52503	3391	1754	57648	-8959
PL	192832	27775	-8194	212413	163867	24773	-6623	182016	30397
RU	84956	8642	-6476	87123	96176	10597	-6477	100296	-13174
SE	116736	13541	0	130277	99284	11179	0	110463	19814
OC	0	85538	0	85538	0	67788	0	67788	17750
SS	0	11868	0	11868	0	13864	0	13864	-1996
BY	0	0	15527	15527	0	0	17365	17365	-1838
CZ	0	0	3420	3420	0	0	2955	2955	465
UA	0	0	2474	2474	0	0	2138	2138	337
Sum	*683102*	*227244*	*0*	*910346*	*651289*	*193220*	*0*	*844508*	*65838*

Table 5a: Summary of country-wise total phosphorus inputs to Bothnian Bay, Bothnian Sea, Baltic Proper, Gulf of Finland and Gulf of Riga in the reference period compared to 2010-2012 averaged.

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	Reference 1997-2003				2010 - 2012				
BOB	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Reduction**
FI	1668	0	0	1668	1692	0	0	1692	-24
SE	826	0	0	826	944	0	0	944	-118
OC	0	181	0	181	0	181	0	181	0
Sum	*2494*	*181*	*0*	*2675*	*2636*	*181*	*0*	*2817*	*-142*
BOS	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Reduction**
FI	1255	0	0	1255	1145	0	0	1145	110
SE	1125	0	0	1125	982	0	0	982	143
OC	0	394	0	394	0	394	0	394	0
Sum	*2379*	*394*	*0*	*2773*	*2127*	*394*	*0*	*2521*	*253*
BAP	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Reduction**
DK	59	0	0	59	52	0	0	52	7
EE	23	0	0	23	20	0	0	20	3
DE	175	0	101	276	206	0	78	285	-9
LV	269	0	-66	203	386	0	-94	292	-90
LT	2635	0	-363	2272	1910	0	-220	1690	582
PL	12310	0	-524	11786	9437	0	-361	9076	2710
RU	960	0	-202	758	960	0	-202	758	0
SE	843	0	0	843	731	0	0	731	112
OC	0	1046	0	1046	0	1046	0	1046	0
BY	0	0	668	668	0	0	499	499	169
CZ	0	0	295	295	0	0	229	229	66
UA	0	0	91	91	0	0	71	71	21
Sum	*17274*	*1046*	*0*	*18320*	*13703*	*1046*	*0*	*14749*	*3571*
GUF	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Reduction**
EE	504	0	0	504	468	0	0	468	36
FI	637	0	49	686	634	0	34	668	18
RU	6218	0	-49	6169	5430	0	-34	5396	773
OC	0	150	0	150	0	150	0	150	0
Sum	*7359*	*150*	*0*	*7509*	*6532*	*150*	*0*	*6682*	*828*
GUR	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Reduction**
EE	277	0	0	277	181	0	0	181	96
LV	1959	0	-1331	627	2049	0	-1388	661	-34
LT	0	0	192	192	0	0	200	200	-8
RU	0	0	215	215	0	0	224	224	-9
OC	0	93	0	93	0	93	0	93	0
BY	0	0	925	925	0	0	964	964	-39
Sum	*2235*	*93*	*0*	*2328*	*2231*	*93*	*0*	*2324*	*5*

Table 5b: Summary of country-wise total phosphorus inputs to Danish Straits, Kattegat and the whole Baltic Sea in the reference period compared to 2010-2012 averaged.

	Reference 1997-2003				2010 - 2012				
DS	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Reduction**
DK	1040	0	0	1040	981	0	0	981	59
DE	351	0	0	351	339	0	0	339	11
SE	105	0	0	105	87	0	0	87	18
OC	0	105	0	105	0	105	0	105	0
Sum	*1496*	*105*	*0*	*1601*	*1408*	*105*	*0*	*1513*	*88*
KAT	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Reduction**
DK	829	0	0	829	732	0	0	732	97
SE	740	0	0	740	694	0	0	694	46
OC	0	118	0	118	0	118	0	118	0
Sum	*1569*	*118*	*0*	*1687*	*1426*	*118*	*0*	*1544*	*143*
BAS	**Water**	**Air**	**Transb.**	**Net**	**Water**	**Air**	**Transb.**	**Net**	**Reduction**
DK	1928	0	0	1928	1766	0	0	1766	163
EE	804	0	0	804	669	0	0	669	135
FI	3560	0	49	3609	3470	0	34	3505	104
DE	525	0	101	626	546	0	78	624	2
LV	2228	0	-1398	830	2435	0	-1482	954	-124
LT	2635	0	-171	2463	1910	0	-20	1890	573
PL	12310	0	-524	11786	9437	0	-361	9076	2710
RU	7178	0	-36	7142	6390	0	-12	6378	764
SE	3639	0	0	3639	3439	0	0	3439	200
OC	0	2087	0	2087	0	2087	0	2087	0
BY	0	0	1593	1593	0	0	1463	1463	130
CZ	0	0	295	295	0	0	229	229	66
UA	0	0	91	91	0	0	71	71	21
Sum	*34807*	*2087*	*0*	*36894*	*30062*	*2087*	*0*	*32149*	*4745*

Average normalised nitrogen and phosphorus air- and waterborne inputs in 2010-2012 country by basin is shown in figure 1.a and b and compared with the corresponding ceilings in figure 2.a and b. With colours (red, yellow and green) are indicated whether the input ceilings are fulfilled using statistical methods as shortly summarized in Annex A and which is further described in Larsen & Svendsen (2013). The main results from figure 1a and b and 2 a and b are:

- Denmark and Germany is fulfilling nitrogen ceilings to all HELCOM sub-basins
- Baltic Sea shipping exceeds nitrogen ceiling to all sub-basins
- ….
- All countries exceeds their phosphorus ceilings to Baltic Proper
- Xx countries reduced significantly their air- and waterborne nitrogen inputs to the Baltic Sea in 2010-2012 compared with the reference period (1997-2003)
- yy countries reduced significantly their air- and waterborne nitrogen inputs to the Baltic Sea in 2010-2012 compared with the reference period (1997-2003)
- Nitrogen input from Baltic Sea shipping has increased significantly since the reference period

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The normalized statistical estimated nutrient inputs per country and sub-basin in 2012 are compared with the correspondoing ceilings using a statistiacl method (see annex and Larsen & Svendsen, 2013) to evaluate progress in fulfilling nutirent reduction requirements (Tables 6a and 6b). Denmark fulfil its nitrogen ceilings to the seven HELCOM sub-basins. For Baltic Proper al countries execpt Finland (have no waterborne inputs to this basin) have phosphorus inputs above their ceilings. .....

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Table 6a: Evaluation of fulfilling CART for total nitrogen inputs country per basin based on statistical adjusted 2012 inputs. Red = CART are not fulfilled/input ceilings are with 95 % statistical certainty exceeded. Yellow: Within the statistical uncertainty it can't be justified if CART is fulfilled/inputs ceilings exceeded. Green: CART is with 95 % statistical certainty fulfilled/inputs ceiling not exceeded. Blue: classification not relevant. BY = Belarus; CZ = Czech Republic; UA = Ukraine; SS = Baltic Sea shipping; OC= other countries and sources as the 20 EU countries not being HELCOM Contracting Parties, countries outside EU including BY, CZ and UA, North Sea shipping etc.

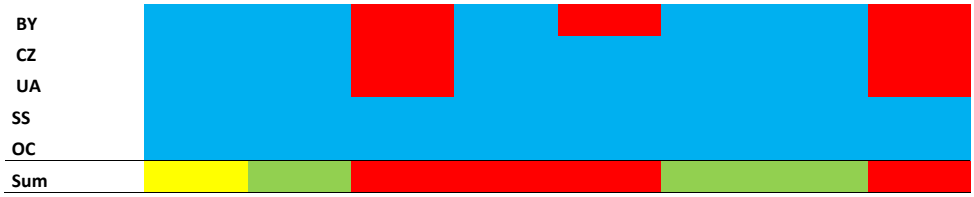
Commented [LMS8]: The evaluation for country per basin is a qualified guess to show a possible result. Will be updated when the statistical analysis are finalized.

Country\Basin	BB	BS	BP	GF	GR	DS	KT	Sum
DK								
EE								
FI								
DE								
LV								
LT								
PL								
RU								
SE								
BY								
CZ								
UA								
SS								
OC								
Sum								

Table 6b: Evaluation of fulfilling CART for total phosphorus inputs country per basin based on statistical adjusted 2012 inputs. Red = CART are not fulfilled/input ceilings are with 95 % statistical certainty exceeded. Yellow: Within the statistical uncertainty it can't be justified if CART is fulfilled/inputs ceilings exceeded. Green: CART is with 95 % statistical certainty fulfilled/inputs ceiling not exceeded. Blue: classification not relevant. BY = Belarus; CZ = Czech Republic; UA = Ukraine; SS = Baltic Sea shipping; OC= other countries and sources as the 20 EU countries not being HELCOM Contracting Parties, countries outside EU including BY, CZ and UA, North Sea shipping etc.

Commented [LMS9]: The classification country per basin is a qualified guess to show a possible result. Will be updated when the statistical analysis are finalized.

Country\Basin	BB	BS	BP	GF	GR	DS	KT	Sum
DK								
EE								
FI								
DE								
LV								
LT								
PL								
RU								
SE								



An example illustrating the importance of changing retention for CART

[Some lines of text will be included together with a table/tables (7..x) to illustrate the importance of changing retention for the resulting CART]

Impact of reducing nutrient inputs in one sub-basin for neighbouring basins

[Text will be added to introduce table 8.a and 8.b]

Table 8.a: Example from BALTSEM simulations on how large nitrogen input reductions to one basin needs to be to give the same effect as reductions of external inputs to another basins. For example: 1.7 tons/yr reductions to DS gives the same effect in KAT as 1 ton/yr reductions of the external inputs to KAT.

		Gives the equivalent effect of 1 ton reduction of direct inputs to these basins						
		KAT	DS	BAP	BOS	BOB	GUR	GUF
A reduction of this magnitude in these basins	KAT	1	7.3	15	-	-	-	-
	DS	1.7	1	4.6	-	-	-	-
	BAP	46	32	1	21	-	-	48
	BOS	-	-	15	1	7.8	49	-
	BOB	-	-	12	1.1	1	-	-
	GUR	-	-	1.3	22	-	1	62
	GUF	-	-	4.0	33	-	-	1

Table 8.b: Example from BALTSEM simulations on how large phophorus input reductions to one basin needs to be to give the same effect as reductions of external inputs to another basins. For example: 3.2 tons/yr reductions to DS gives the same effect in BAP as 1 ton/yr reductions of the external inputs to BAP.

		Gives the equivalent effect of 1 ton reduction of direct inputs to these basins						
		KAT	DS	BAP	BOS	BOB	GUR	GUF
A reduction of this magnitude in these basins	KAT	1	4.0	11	-	-	-	43
	DS	0.8	1	3.2	12	27	49	12
	BAP	2.4	2.8	1	3.3	7.7	14	3.8
	BOS	3.8	4.6	1.5	1	2.6	18	5.8
	BOB	25	26	9.0	8.3	1	-	35
	GUR	3.6	4.3	1.6	4.8	14	1	6.5
	GUF	3.6	4.2	1.3	4.1	10	17	1

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Evaluation of how much input 2010-12 are below input ceilings

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[*When statistical analysis are ready a table 9a and 9b to be including which for all basins where a statistical test show that input ceilings are not exceeded estimates the" margin of fulfilment" to indicate how many tons of nitrogen and/or phosphorus that we are below the ceiling taking into account statistical uncertainty. This would be an estimate of how much inputs could increase without exceeding the input ceilings/not fulfilling CARTs*]

Table 9a: The bold numbers is an estimate of how many tons the total normalized water + airborne nitrogen inputs during 2008-2010 was below the inputs ceiling taking into account statistical uncertainty. "no": Inputs 2010-12 are numerically below the ceiling but taking into statistical uncertainty it can't be evaluated if the ceilings are fulfilled. "-" Input ceiling no fulfilled.

Commented [LMS10]: This table will be updated when statistical analysis of 1994-2012 data are ready – the used uncertainties is from the 1994-2010 data. Further the latest year will be used (2012) (not 2010-12)

	BB	BS	BP	GF	GR	DS	KT
Input ceiling	57,622	79,372	325,001	101,800	88,418	65,998	74,001
Input 2010-12	56,910	72,751	380,790	126,141	90,852	53,457	63,607
Input2010-12 minus input ceiling	**-712**	**-6,621**	55,789	24,341	2,434	**-12,541**	**-10,394**
Uncertainty	1,581	2,909	16,803	2,372	6,388	5,621	6,215
Fulfilment margin	no	no	-	-	-	**6,920**	**4,179**

Table 9b: The bold numbers is an estimate of how many tons the total normalized water + airborne nitrogen inputs during 2008-2010 was below the inputs ceiling taking into account statistical uncertainty. "no": Inputs 2010-12 are numerically below the ceiling but taking into statistical uncertainty it can't be evaluated if the ceilings are fulfilled. "-" Input ceiling no fulfilled.

Commented [LMS11]: This table will be updated when statistical analysis of 1994-2012 data are ready – the used uncertainties is from the 1994-2010 data .Further the latest year will be used (2012) (not 2010-12)

	BB	BS	BP	GF	GR	DS	KT
Input ceiling	2,675	2,773	7,360	3,600	2,020	1,601	1,687
Input 2010-12	2,817	2,521	14,749	6,682	2,324	1,513	1,544
Input2010-12 minus input ceiling	142	**-252**	7,389	3,082	304	**-83**	**-143**
Uncertainty	130	161	544	237	281	100	84
Fulfilment margin	-	**91**	-	-	-	no	**59**

[**For discussion**:
Tables 9a and 9b above can be further broken down for sub-basin where the total water and airborne inputs of nitrogen/phosphorus input during 2010-12 is with statistical high certainty so far below the input ceilings, that there is a potential margin for an increase in inputs without exceeding the input ceilings. In table 10 is an example on how this could be calculated and presented – this example is for nitrogen inputs to Kattegat where the table below includes proposals for discussion. It is based on the estimate from table 9a and b on how much it would be possible to increase nitrogen inputs compared with inputs in 2010-12 and still with high statistical certainty fulfilling the nitrogen ceiling to Kattegat. The potential increase can either be divided according to countries percent of CART or countries proportion of obtained reductions.]

Table 10: How a potential increase in nitrogen inputs to Kattegat could be divided between countries either according to the percentages of CART or according to the proportion of obtained nitrogen input reduction since the reference period. In table 9a is estimate that nitrogen inputs to Kattegat could be increased with 4.179 tonnes compared with 2010-2012 inputs and still with high statistical certainty fulfilling the nitrogen ceiling to Kattegat.

Country	CART (Tonnes)	CART (% of total CART)	Potential increase in inputs (1) (tonnes)	Reduction since reference period (tons)	Proportion of reduction (%)	Potential increase in inputs (2) (tonnes)
DK	708	14,9	623	6091	39,9	1668
EE	0	0	0	2	0	0
FI	2	0	0	24	0,2	8
DE	79	1,7	71	535	3,5	146
LV	1	0	0	1	0	0
LT	1	0	0	7	0	0
PL	27	0,6	25	134	0,9	37
RU	4	0,1	4	-17	0	0
SE	826	17,3	723	7055	46,1	1927
SS	602	12,7	531	-124	0	0
OC	2,511	52,7	2,202	1444	9,4	393
Total	4,761	100	4,179	15155	100	4,179

Changes in inputs since reference period

Changes in normalized net nitrogen and phosphorus water—and airborne inputs compared with the corresponding inputs in the reference period have been calculated (Tables 11 and 12). Further it have been tested if the changes are significant.

[more text to be added when statistical analysis are ready]

Table 11a: Changes (%) in normalized airborne nitrogen inputs (tonnes) from the reference period (1997-2003) to the average 2010-2010. BY = Belarus; CZ = Czech Republic; UA = Ukraine; SS = Baltic Sea shipping; OC= other countries and sources as the 20 EU countries not being HELCOM Contracting Parties, countries outside EU including BY, CZ and UA, North Sea shipping etc. The changes in tonnes can be seen in table 4a, b and c.

Commented [LMS12]: When the statistical tests have been performed significant changes will be shown in bold

Country/Basin	BB	BS	BP	GF	GR	DS	KT	ALL
DK	-29,4	-29,6	-27,7	-30,7	-29,4	-25,4	-23,5	-26,1
EE	-1,8	-0,5	-5,2	5,2	2,5	-13,0	-12,4	0,0
FI	-6,6	-11,7	-25,3	-17,9	-24,8	-30,3	-30,6	-15,7
DE	-20,5	-21,7	-18,6	-22,0	-22,0	-15,1	-15,9	-18,2
LV	2,2	4,6	6,2	9,0	16,2	-5,7	-4,1	8,1
LT	-8,8	-8,8	-12,0	-6,3	-9,1	-12,9	-12,0	-10,7
PL	-9,9	-9,7	-11,1	-9,3	-9,1	-12,4	-11,9	-10,8
RU	29,4	26,4	19,4	27,4	21,0	5,7	9,1	22,6
SE	-18,2	-18,3	-16,6	-20,8	-19,1	-21,3	-17,1	-17,4
BY								
CZ								
UA								
SS	22,0	19,5	15,8	19,7	19,0	14,8	16,5	16,8

EU	-26,9	-26,8	-26,0	-26,7	-26,2	-28,4	-26,9	-26,5
OC	-13,1	-15,5	-9,3	-18,3	-14,5	6,4	7,1	-8,9
ALL	-10,3	-13,6	-15,3	-10,0	-13,0	-18,1	-17,2	-15,0

Table 11b: Changes (%) in normalized net waterborne nitrogen inputs from the reference period (1997-2003) to the average 2010-2012. BY = Belarus; CZ = Czech Republic; UA = Ukraine. The changes in tonnes can be seen in table 4a, b and c.

Commented [LMS13]: When the statistical tests have been performed significant changes will be shown in bold

Country/Basin	BB	BS	BP	GF	GR	DS	KT	ALL
DK			-19,6			-25,4	-19,6	-22,3
EE			-30,5	3,0	-15,3			-7,4
FI	6,7	-5,2		-2,0				0,5
DE			-11,7			-9,0		-10,1
LV			23,3		8,7			10,4
LT			22,6		8,0			20,9
PL			-14,8					-14,8
RU			-3,0	16,5	8,0			14,3
SE	-12,3	-6,7	-17,5			-19,2	-20,2	-15,0
BY			14,4		8,0			11,8
CZ			-13,6					-13,6
UA			-13,6					-13,6
SS								
EU								
OC								
ALL	0,3	-6,0	-8,0	10,9	4,8	-19,5	-19,9	-4,7

Table11c: Changes (%) in normalized net water and airborne nitrogen inputs from the reference period (1997-2003) to the average 2010-2012. BY = Belarus; CZ = Czech Republic; UA = Ukraine; SS = Baltic Sea shipping; OC= other countries and sources as the 20 EU countries not being HELCOM Contracting Parties, countries outside EU including BY, CZ and UA, North Sea shipping etc. The changes in tonnes can be seen in table 4a, b and c.

Commented [LMS14]: When the statistical tests have been performed significant changes will be shown in bold

Country/Basin	BB	BS	BP	GF	GR	DS	KT	ALL
DK	-29,4	-29,6	-26,2	-30,7	-29,4	-25,4	-20,3	-23,5
EE	-1,8	-0,5	-21,2	3,1	-14,9	-13,0	-12,4	-6,9
FI	6,1	-5,7	-25,3	-2,6	-24,8	-30,3	-30,6	-0,8
DE	-20,5	-21,7	-16,8	-22,0	-22,0	-11,3	-15,9	-15,5
LV	2,2	4,6	21,2	9,0	8,8	-5,7	-4,1	10,3
LT	-8,8	-8,8	20,6	-6,3	6,7	-12,9	-12,0	18,4
PL	-9,9	-9,7	-14,5	-9,3	-9,1	-12,4	-11,9	-14,3
RU	29,4	26,4	4,4	16,7	10,7	5,7	9,1	15,1
SE	-12,5	-7,6	-17,3	-20,8	-19,1	-19,3	-20,1	-15,2
BY			14,4		8,0			11,8
CZ			-13,6					-13,6
UA			-13,6					-13,6

SS	22,0	19,5	15,8	19,7	19,0	14,8	16,5	16,8
EU	-26,9	-26,8	-26,0	-26,7	-26,2	-28,4	-26,9	-26,5
OC	-13,1	-15,5	-9,3	-18,3	-14,5	6,4	7,1	-8,9
ALL	-1,2	-8,3	-10,2	8,5	2,8	-19,0	-19,2	-7,2

Table 12: Changes (%) in normalized total water and airborne phosphorus inputs from the reference period (1997-2003) to the average 2008-2010. BY = Belarus; CZ = Czech Republic; UA = Ukraine; SS = Baltic Sea shipping; OC= other countries and sources as the 20 EU countries not being HELCOM Contracting Parties, countries outside EU including BY, CZ and UA, North Sea shipping etc. The changes in tonnes can be seen in table 5a and b.

Commented [LMS15]: When the statistical tests have been performed significant changes will be shown in bold.

Country/Basin	BB	BS	BP	GF	GR	DS	KT	ALL
DK			-11,9			-5,6	-11,7	-8,4
EE			-13,2	-7,1	-34,5			-16,7
FI	1,4	-8,8		-2,7				-2,9
DE			3,2			-3,2		-0,4
LV			44,1		5,3			14,8
LT			-25,6		4,2			-23,3
PL			-23,0					-23,0
RU			0,0	-12,5	4,2			-10,7
SE	14,3	-12,7	-13,2			-17,4	-6,2	-5,5
BY			-25,3		41,9			-8,2
CZ			-22,3					-22,3
UA			-22,3					-22,3
SS								
EU								
OC	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
ALL	5,3	-9,1	-19,5	-11,0	-0,2	-5,5	-8,5	-12,9

Trends and change in nutrient inputs 1994 to 2012

In figure A.1-14 in Annex 1 is shown time series of normalized water- and airborne nitrogen (Figures A1-7) and phosphorus (Figures A8-14) during 1995 to 2012 country per basin including figures for the transboundary air- and waterborne inputs.

Commented [LMS16]: When statistical analysis are ready a trend line will be added to all figures (full line with statitical trend, dotted lines wiht no trend)

[more text on main results when statistical analysis are ready]

[This following section will include Tables corresponding to tables 5.5a,b,c d and e (airborne, waterborne and total N and P inputs respectively) in the PLC-5.5 report with the matrix country/sources per basin showing % changes 1995-2012 for all country pr. basin combinations with significant trends – but compared with the PLC-5.5 tables they will present the net waterborne inputs country per basin and the net transboundary inputs per country/source – further text to be added].

Table 5.5a *Significant changes in* ***total (air- + waterborne)*** *normalized nitrogen and phosphorus inputs to the Baltic Sea by country and by sub-basin from 1994 to 2010. For phosphorus, only the country by sub-basin results are included where there are waterborne inputs from the country. N.i. = no waterborne inputs from the Contracting Party to this sub-basin. Only results where the trend is statistically significant (confidence < 5%) are shown; results where the confidence is between 5-10% are given in parentheses. See note to Table 4.1a regarding the pre-conditions on the PLC-5.5 data set.*

	BOB		BOS		BAP		GUF		GUR		DS		KAT	
	N%	P%	N%	P%	N%	P%	N%	P%	N%	P%	N%	P%	N%	P%
DE	-29	n.i.	-29	n.i.	-19	-	-29	n.i.	-29	n.i.	-26	-23	-26	n.i.
DK	-42	n.i.	-42	n.i.	-40	-27	-42	n.i.	-42	n.i.	-38	-32	-29	-23
EE	-11	n.i.	-11	n.i.	(-18)	-	-	-	-	-	-11	n.i.	-7.7	n.i.
FI	-	-18	-	(-19)	-32	n.i.	-20	-	-33	n.i.	-37	n.i.	-37	n.i.
LV	-	n.i.	-	n.i.	-	88	-	n.i.	-	72	-	n.i.	-	n.i.
LT	-	n.i.	-	n.i.	-	(-33)	-	n.i.	-	n.i.	-	n.i.	-	n.i.
PL	-28	n.i.	-29	n.i.	-19	-24	-28	n.i	-29	n.i.	-27	n.i.	-28	n.i
RU	41	n.i.	44	n.i.	10	-	-	-	44	n.i.	44	n.i.	43	n.i.
SE	-	-	-	-28	-19	-20	-37	n.i.	-39	n.i.	-38	-26	-18	-
SS	34		34		34		34		34		34		34	
EU20	-34		-33		-34		-33		-33		-33		-36	
OC	-21		-23		-16		-28		-24		10		8.8	

Table 5.5b. *Significant changes in normalized nitrogen and phosphorus* ***deposition*** *to the Baltic Sea by country and by sub-basin from 1995 to 2010. As phosphorus deposition is calculated as the same fixed value during 1995-2010 no statistical test was performed. Only results where the trend is statistically significant (confidence < 5%) are shown; results where the confidence is between 5-10% are given in parentheses. See note to Table 4.1a regarding the pre-conditions on the PLC-5.5 data set.*

	BOB		BOS		BAP		GUF		GUR		DS		KAT	
	N%	P%	N%	P%	N%	P%	N%	P%	N%	P%	N%	P%	N%	P%
DE	-29	-	-29	-	-26	-	-29	-	-29	-	-21	-	-26	-
DK	-42	-	-42	-	-41	-	-42	-	-42	-	-37	-	-37	-
EE	-11	-	-11	-	-10	-	-9.1	-	-8.9	-	-11	-	-7.8	-
FI	-14	-	-19	-	-32	-	-27	-	-33	-	-37	-	-37	-
LV	-	-	-	-	-	-	-	-	13	-	-	-	-	-
LT	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PL	-28	-	-29	-	-29	-	-28	-	-29	-	-27	-	-28	-
RU	41	-	44	-	45	-	41	-	44	-	44	-	43	-
SE	-36	-	-35	-	-29	-	-37	-	-36	-	-32	-	-28	-
SS	34	-	34	-	34	-	34	-	34	-	34	-	34	-
EU20	-34	-	-33	-	-33	-	-33	-	-33	-	-36	-	-36	-
OC	-21	-	-23	-	-16	-	-28	-	-24	-	10	-	8.8	-

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Table 5.5c. *Significant changes in flow normalized total* ***waterborne*** *nitrogen and phosphorus inputs to the Baltic Sea by country and by sub-basin from 1994 to 2010. Only results where the trend is statistically significant (confidence < 5%) are shown; results where the confidence is between 5-10% are given in parentheses. N.i. = no waterborne inputs from the Contracting Party to this sub-basin. See note to Table 4.1a regarding the pre-conditions on the PLC-5.5 data set.*

	BOB		BOS		BAP		GUF		GUR		DS		KAT	
	N%	P%	N%	P%	N%	P%	N%	P%	N%	P%	N%	P%	N%	P%
DE	n.i.	n.i.	n.i.	n.i.	-	-16	n.i.	n.i.	n.i.	n.i.	-33	-27	n.i.	n.i.
DK	n.i.	n.i.	n.i.	n.i.	-33	-33	n.i.	n.i.	n.i.	n.i.	-42	-41	-29	-26
EE	n.i.	n.i.	n.i.	n.i.	-	-26	-	-11	-	-38	n.i.	n.i.	n.i.	n.i.
FI	16	-24	-	-16	n.i.	n.i.	-15	-16	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.
LV	n.i.	n.i.	n.i.	n.i.	-	105	n.i.	n.i.	-	61	n.i.	n.i.	n.i.	n.i.
LT	n.i.	n.i.	n.i.	n.i.	(-39)	-38	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.
PL	n.i.	n.i.	n.i.	n.i.	-26	-25	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.
RU	n.i.	n.i.	n.i.	n.i.	-	-	-	-7.7	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.
SE	-	-21	-	-33	-20	-24	n.i.	n.i.	n.i.	n.i.	-37	-28	-20	(-16)

Table 5.5d. *Significant changes in total flow normalized* ***riverine*** *nitrogen and phosphorus inputs to the Baltic Sea by country and by sub-basin from 1994 to 2010. Only results where the trend is statistically significant (confidence < 5%) are shown; results where the confidence is between 5-10% are given in parentheses. n.i. = no waterborne inputs from the Contracting Party to this sub-basin. See note to Table 4.1a regarding the pre-conditions on the PLC-5.5 data set.*

	BOB		BOS		BAP		GUF		GUR		DS		KAT	
	N%	P%	N%	P%	N%	P%	N%	P%	N%	P%	N%	P%	N%	P%
DE	n.i.	n.i.	n.i.	n.i.	-	-	n.i.	n.i.	n.i.	n.i.	(-16)	(-16)	n.i.	n.i.
DK	n.i.	n.i.	n.i.	n.i.	-31	-12	n.i.	n.i.	n.i.	n.i.	-36	-26	-28	-18
EE	n.i.	n.i.	n.i.	n.i.	-	-	(22)	-	-	(-37)	n.i.	n.i.	n.i.	n.i.
FI	17	-21	-	-	n.i.	0	-	-	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.
LV	n.i.	n.i.	n.i.	n.i.	-	106	n.i.	n.i.	(-24)	91	n.i.	n.i.	n.i.	n.i.
LT	n.i.	n.i.	n.i.	n.i.	(-39)	-36	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.
PL	n.i.	n.i.	n.i.	n.i.	-26	-25	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.
RU	n.i.	n.i.	n.i.	n.i.	-	-	-	-	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.
SE	-	-	-	-34	-19	-20	n.i.	n.i.	n.i.	n.i.	-28	-20	-18	-

Table 5.5e *Significant changes in total* ***direct inputs*** *(point sources discharging directly to the sea) of nitrogen and phosphorus to the Baltic Sea by country and by sub-basin from 1994 to 2010. Only results where the trend is statistically significant (confidence < 5%) are shown; results where the confidence is between 5-10% are given in parentheses. N.i. = no waterborne inputs from the Contracting Party to this sub-basin. See note to Table 4.1a regarding the pre-conditions on the PLC-5.5 data set.*

	BOB		BOS		BAP		GUF		GUR		DS		KAT	
	N%	P%	N%	P%	N%	P%	N%	P%	N%	P%	N%	P%	N%	P%
DE	n.i.	n.i.	n.i.	n.i.	-92	-82	n.i.	n.i.	n.i.	n.i.	-83	-83	n.i.	n.i.
DK	n.i.	n.i.	n.i.	n.i.	-88	-94	n.i.	n.i.	n.i.	n.i.	-75	-78	-60	-79
EE	n.i.	n.i.	n.i.	n.i.	-19	-41	-	-	-	(-31)	n.i.	n.i.	n.i.	n.i.
FI	-36	-48	-38	-53	n.i.	n.i.	-60	-49	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.
LV	n.i.	n.i.	n.i.	n.i.	-56	-73	n.i.	n.i.	-2	-92	n.i.	n.i.	n.i.	n.i.
LT	n.i.	n.i.	n.i.	n.i.	-77	-91	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.
PL	n.i.	n.i.	n.i.	n.i.	(-44)	-	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.
RU	n.i.	n.i.	n.i.	n.i.	-	-	-27	(-69)	n.i.	n.i.	n.i.	n.i.	n.i.	n.i.
SE	-	-29	-	-32	-51	-42	n.i.	n.i.	n.i.	n.i.	-57	-57	-43	-48

]

Commented [LMS17]: Data replace with result of the statixtical analysis of 1995-2012 when available

Status on inputs 2012

The normalized net water and airborne inputs and the river flow entering Baltic Sea sub-basins from each country in 2012 is shown in table 15. In the northern and eastern part of the catchment river flow was much higher Finland and Sweden) or higher (Estonia and Russia) than the average for 1994-2011 while it was much lower that this average from most of the southern part of the catchment (Lithuania and Poland). It was also higher than the average for Germany.

Table 15 River flow (as average 1994-2011 and for 2012), flow normalized waterborne and normalized airborne inputs of phosphorus and nitrogen to the Baltic Sea in 2012 by a) country and b) sub-basin. EU20 = non-HELCOM EU countries (including Croatia); 'other atm. Sources' and 'atmospheric phosphorus sources' = other countries and sources contributing to atmospheric deposition on the Baltic Sea.

Country	Flow		Nitrogen (t)			Phosphorus (t)		
	1994-2011 m^3/s	2012 m^3/s	Airborne	Waterborne	Total	Airborne	Waterborne	Total
Denmark	283	281	15,513	38,448	53,961		1,810	1,810
Estonia	413	497	1,984	24,437	26,421		621	621
Finland	2,528	3,509	6,098	79,939	86,038		3,359	3,359
Germany	128	150	32,813	15,845	48,658		557	557
Latvia	1,070	1,249	2,397	61,702	64,098		1,030	1,030
Lithuania	636	514	3,824	63,967	67,791		1,783	1,783
Poland	1,967	1,548	24,111	137,148	161,259		8,609	8,609
Russia	2,891	3,191	7,149	88,195	95,343		5,112	5,112
Sweden	5,799	7,051	10,778	96,354	107,132		3,358	3,358
Belarus				18,266	18,266		1,561	1,561
Czech Republic				2,570	2,570		217	217
Ukraine				1,859	1,859		67	67
Baltic Shipping			14,081		14,081			
EU20			41,366		41,366			
Other atm. sources			25,666		25,666			
Atm. P sources						2,087		2,087
Total	**15,715**	**17,990**	**185,778**	**628,730**	**814,508**	**2,087**	**28,083**	**30,171**

Challenges and need for further development:

This section includes issues for discussion at the LOAD 8/2014 meeting and it in a final draft of the CART follow-up it should be included as proposals or issues to further consider. Some of the question will probably need a project for development of solutions

Under the preparation of this draft and in working with the development of follow-up assessment several questions for discussion or further elaboration appeared:

- How can we establish time series for transboundary inputs (if they are not reported use a fixed proportion of total waterborne inputs to the basin according to the proportion set under reference period)? If the proportion changes (due to real changes and/or due to reported/monitored data) how to take into account these changes when evaluating progresses in CART fulfilment

- Should we introduce a minimum transboundary input (%) before it is taken into account
- How to establish time series for retention (at present we use the same retention coefficient every year). If we change retention coefficient how to take into account the influence on CART between CP's- use an example to show what will happen if retention coefficient are change for CART between CP's
- How should we follow up CART for FI and GE regarding the division of their CART?
- We will show waterborne inputs from non-CP to sub-basins as sums or separately for Belarus, Czech Republic and Ukraine?
- It old data are reported again/corrected and when we add new data (years) and make new normalization we will get changed data also for the reference period. In this draft we have used the reference period data from the 2013 Copenhagen HELCOM Ministerial Declaration (PLC-5.5 report) – when comparing changes in inputs in 2010-2012 – but scientifically speaking this is not correct, because changes in inputs 2010-2012 since the reference period should be based on the same normalized data. Regarding trends and changes from 1995 to 2012 we use the new normalization – so we have a challenges to decide on and solve – because if we change the input during the reference period that would change the input ceiling (and then CART!!!)
- Further develop statistical methods:
  - Make statistical evaluation on whether changes in inputs 2010-12 as compared with reference period are statistical significant
  - Evaluation of fulfilling CART for sub-basins where CART are 0 should be done slightly different that for basins where CART >0
  - For CP/sub basins with CART>0 and CART are statistical fulfilled estimated how many tons inputs are under the threshold for statistical fulfilling CART. Further how could this "free" input be divided among Contracting Parties (based on proportion of CART, proportion of real reductions or?)
- Which data should be available in a spreadsheet on HELCOM web-site regarding the CART follow-up
- Discussion on how some of the figures/presentation could be done

References

Commented [LMS18]: To be finalized later

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Field Code Changed

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Field Code Changed

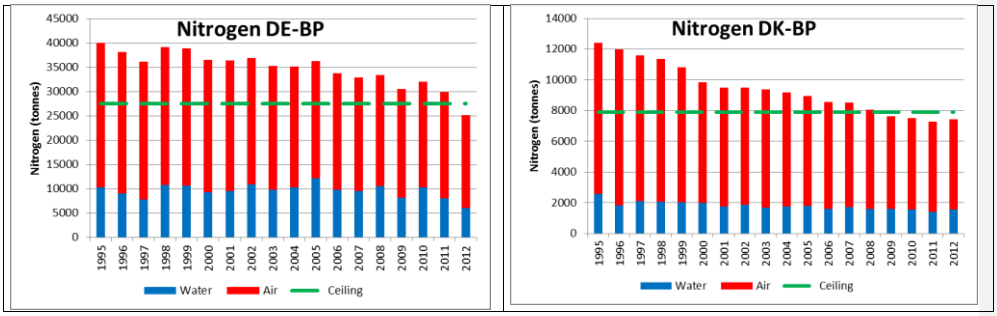
ANNEX

[*These annexes are not ready yet but will include the following issues*:]

- *Explain that CART is based on flow normalized data only*
- *How transboundary inputs are updated and net input are calculated*
- *How ceilings are calculated (if not covered in the main part of the document)*
- *Summarize which statistical methods that are used to test for trends, changes in inputs 1994 to 2012, if changes 2010-12 compared with reference period are significant, the test for fulfilment of CART and how far the inputs are below the ceilings. Where changed methodology has been used compared with what was included in Larsen & Svendsen (2013) that is added in this appendix]*

Figure x: Alternative presentation of figure 1 net normalized air- and waterborne nitrogen inputs to Baltic Proper in 2010-12 from countries/sources. A separate pie diagram is given for countries with waterborne inputs, while countries/sources only with airborne inputs is shown together in one pie *diagram [It is the intention to add red, yellow, green to all pie diagrams according to the fulfilment of input ceilings as shown for the bottom right pie diagram.]*

Commented [LMS19]: If this version is prefer, on efigure for each sub-basin is needed.




Nitrogen EE-BP
Nitrogen (tonnes)
Water
Air
Ceiling
Nitrogen FI-BP
Nitrogen (tonnes)
water
air
Ceiling
Nitrogen LV-BP
Nitrogen (tonnes)
Water
Air
Ceiling
Nitrogen LT-BP
Nitrogen (tonnes)
Water
Air
Ceiling
Nitrogen PL-BP
Nitrogen (tonnes)
Water
Air
Ceiling
Nitrogen RU-BP
Nitrogen (tonnes)
Water
Air
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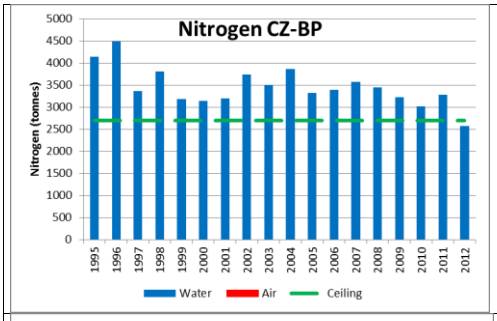
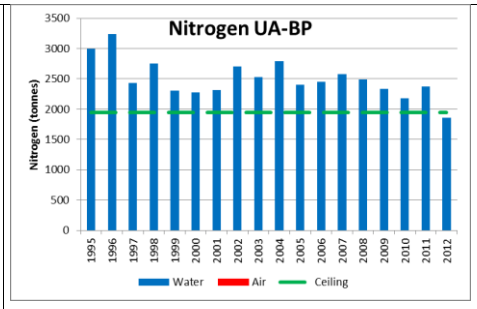
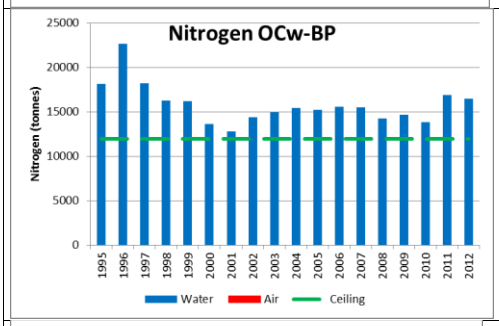
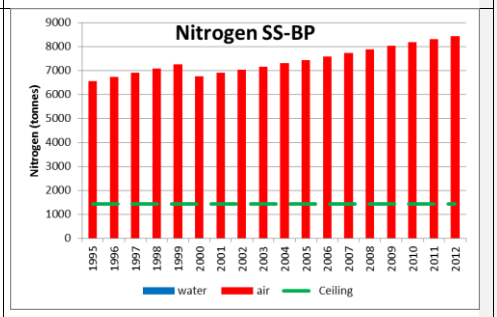
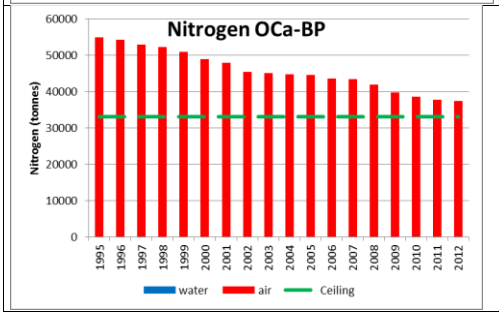
Nitrogen (tonnes)
Water
Air
Ceiling
Nitrogen BY-BP
Nitrogen (tonnes)
Water
Air
Ceiling

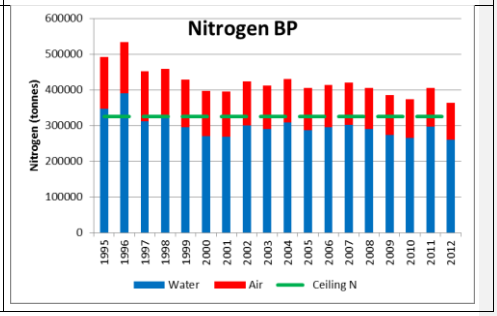

Nitrogen CZ-BP
Nitrogen (tonnes)
Water
Air
Ceiling

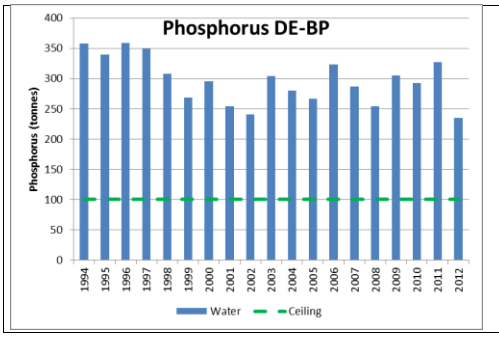

Nitrogen UA-BP
Nitrogen (tonnes)
Water
Air
Ceiling

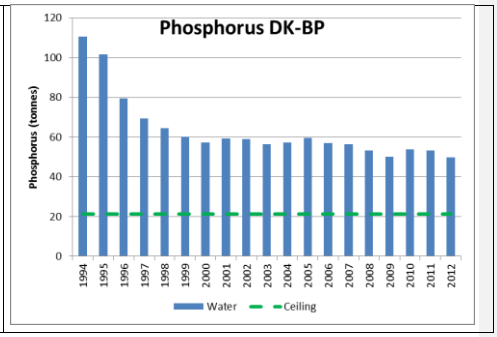

Nitrogen OCw-BP
Nitrogen (tonnes)
Water
Air
Ceiling

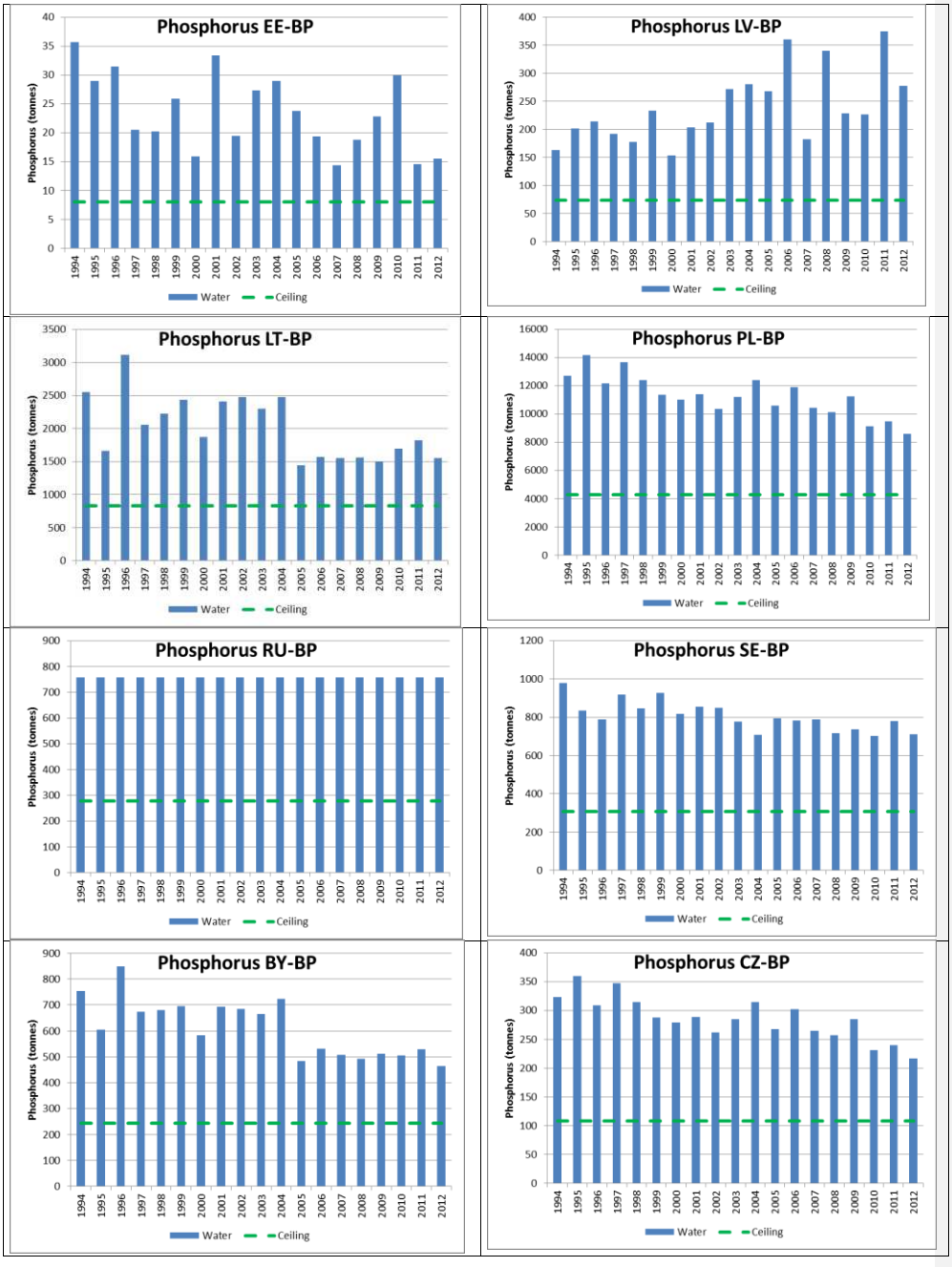

Nitrogen SS-BP
Nitrogen (tonnes)
water
air
Ceiling


Nitrogen OCa-BP
Nitrogen (tonnes)
water
air
Ceiling


Nitrogen BP
Nitrogen (tonnes)
Water
Air
Ceiling N


Phosphorus DE-BP
Phosphorus (tonnes)
Water
Ceiling


Phosphorus DK-BP
Phosphorus (tonnes)
Water
Ceiling


Phosphorus EE-BP
Phosphorus LV-BP
Phosphorus LT-BP
Phosphorus PL-BP
Phosphorus RU-BP
Phosphorus SE-BP
Phosphorus BY-BP
Phosphorus CZ-BP
Phosphorus (tonnes)
Water
Ceiling

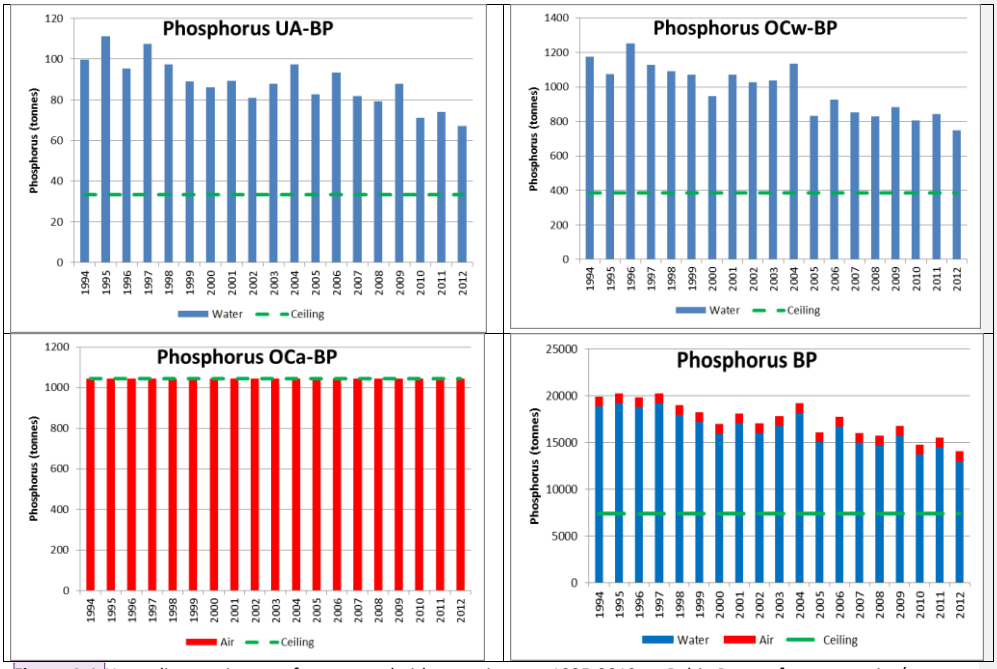


Figure A.1 Normalize net inputs of water- and airborne nitrogen 1995-2012 to Baltic Proper from countries/source. The input ceiling (dotted line) is inserted. Further a trend line is inserted, where full line indicates statistical significant trend and dotted line no statistical significant trend.

Commented [LMS20]: 14 figure will be iclude 7 for nitroegn and 7 for phosphjorus, representing each sub-basin

Commented [LMS21]: This trend lines will be added when th estatistical analysis are ready

Annex 2 Abbreviations/definitions

Commented [LMS22]: Revised from PLC-5.5 report – to be reviewed

Airborne (or windborne)	Nutrients carried or distributed by air.
AIS	Automatic Identification System with devices on ships that allow for real-time surveillance and statistics of movement of ships.
Anthropogenic	Caused by human activities.
Atmospheric deposition	Airborne nutrients or other chemical substances originating from emissions to the air and deposited from the air on the surface (land and water surfaces).
BAP (or BP)	Baltic Proper
BAS	The entire Baltic Sea (as a sum of the Baltic Sea sub-basins). See the definition of sub-basins.
BNI	Baltic Nest Institute, Stockholm University, Sweden.
BOB (or BB)	Bothnian Bay
BOS (or BS)	Bothnian Sea
BSAP	Baltic Sea Action Plan
BY	Belarus
Catchment area	The area of land bounded by watersheds draining into a body of water (river, basin, reservoir, sea).
Contracting Parties	Signatories of the Helsinki Convention (Denmark, Estonia, European Commission, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden).
Country-Allocated Reduction Targets (CART)	Country-wise requirements to reduce waterborne and airborne nutrient inputs (in tonnes per year) to reach the maximum allowable nutrient input levels in accordance to the Baltic Sea Action Plan.
CZ	Czech Republic
DCE	Danish for the Environment and Energy, Aarhus University, Denmark.
DE	Germany
Diffuse sources	Sources without distinct points of emission e.g. agricultural and forest land, natural background sources, scattered dwellings, atmospheric deposition (mainly in rural areas)
DIN and DIP	Dissolved inorganic nitrogen and dissolved inorganic phosphorus compounds.
Direct Sources	Point sources discharging directly to coastal or transitional waters.
DK	Denmark
DS	Danish Straits
EE	Estonia
EMEP	Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe
Eutrophication	Condition in an aquatic ecosystem where increased nutrient concentrations stimulate excessive primary production, which leads to an imbalanced function of the ecosystem.
FI	Finland
Flow normalization	A statistical method that adjusts a data time series by removing the influence of variations imposed by river flow, e.g. to facilitate assessment

	of development in e.g. nitrogen or phosphorus inputs.
FR	France
GB	Great Britain
GUF (or GF)	Gulf of Finland
GUR (or GR)	Gulf of Riga
Input ceiling	The allowable amount of nitrogen and phosphorus input per country and sub-basin. It is calculated by subtracting the national CART from the input of nitrogen and phosphorus during the reference period of the BSAP (1997-2003).
KAT (or KT)	Kattegat
HELCOM LOAD	HELCOM Expert Group on follow-up of national progress towards reaching BSAP nutrient reduction targets
LT	Lithuania
LV	Latvia
Maximum Allowable Input (MAI)	The maximum annual amount of a substance that a Baltic Sea sub-basin may receive and still fulfil HELCOM's ecological objectives for a Baltic Sea unaffected by Eutrophication.
Monitored areas	The catchment area upstream of the river monitoring station. The chemical monitoring decides the monitored area in cases where the locations of chemical and hydrological monitoring stations do not coincide.
Monitoring stations	Stations where hydrographic and/or chemical parameters are monitored.
MSFD	EU Marine Strategy Framework Directive
MWWTP	Municipal wastewater treatment plant
NL	Netherlands
Non-contracting parties	Countries that are not partners to the Helsinki Convention 1992, but that have an indirect effect on the Baltic Sea by contributing with inputs of nutrients or other substances via water and/or air.
NOS	North Sea Shipping
OC, OC_a or OC_w	Other countries (sources of transboundary inputs) airborne (OC_a) or waterborne OC_w
PL	Poland
PLC	Pollution Load Compilation
Point sources	Municipalities, industries and fish farms that discharge (defined by location of the outlet) into monitored areas, unmonitored areas or directly to the sea (coastal or transitional waters).
QA	Quality assurance
Reference period	1997-2003
Reference input	The average normalized water + airborne input of nitrogen and phosphorus during 1997-2003 used to calculate CART and input ceilings.
Retention	The amount of a substance lost/retained during transport in soil and/or water including groundwater from the source to a recipient water body.

	Often retention is only related to inland surface waters in these guidelines.
Riverine inputs	The amount of a substance carried to the maritime area by a watercourse (natural or man-made) per unit of time.
RU	Russia
Statistically significant	In statistics, a result is called "statistically significant" if it is unlikely to have occurred by chance. The degree of significance is expressed by the probability, P. P< 0.05 means that the probability for a result to occur by chance is less than 5%.
Sub-basins	Sub-division units of the Baltic Sea: the Kattegat (KAT), Belt Sea (BES), Western Baltic (WEB), Baltic Proper (BAP), Gulf of Riga (GUR), Gulf of Finland (GUF), Archipelago Sea (ARC) Bothnian Sea (BOS) and Bothnian Bay (BOB). The whole Baltic Sea is abbreviated BAS.
SE	Sweden
SS	Baltic Sea Shipping
Transboundary input	Transport of an amount of a substance (via air or water) across a country border.
TN and TP	Total nitrogen and total phosphorus which includes all fractions of nitrogen and phosphorus.
UA	Ukraine
Unmonitored area	Any sub-catchment(s) located downstream of the (riverine) chemical monitoring point within the catchment and further all unmonitored catchments; e.g. partly monitored rivers, unmonitored part of monitored rivers, unmonitored rivers and coastal areas including unmonitored islands. In previous versions of the guidelines, direct diffuse sources (scattered dwellings and storm waters overflows) were reported separately and some countries also reported coastal areas separately. These are now reported as part of the unmonitored area.
Waterborne	Substances carried or distributed by water.
WFD	EU Water Framework Directive

Outcome of the eighth meeting of the expert group on follow-up of national progress towards reaching BSAP nutrient reduction targets (HELCOM LOAD 8 -2014)

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Outcome of the eighth meeting of the expert group on follow-up of national progress towards reaching BSAP nutrient reduction targets (HELCOM LOAD 8 -2014)

Introduction

0.1 The Eighth Meeting of the Expert Group on follow-up of national progress towards reaching BSAP nutrient reduction targets (HELCOM LOAD 8-2014) was held on 27-29 October 2014 at the premises of the HELCOM Secretariat in Helsinki, Finland. The Meeting was held back-to-back with the first meeting of the new HELCOM Working Group on Reduction of Pressures from the Baltic Sea Catchment Area (PRESSURE*), which will take place in Helsinki, Finland, on 30-31 October 2014.

0.2 The Meeting was attended by all Contracting Parties except for Poland and the European Union. The Meeting was also attended by the Data Consultants from Meteorological Synthesizing Centres EMEP MSC-E, EMEP MSC-W, and Finnish Environment Institute (SYKE) as well as the invited guest from Baltic Nest Institute (BNI) Sweden. The List of Participants is contained in **Annex 1**.

0.3 The main focus of the Meeting was to discuss the follow-up of the HELCOM nutrient reduction scheme and how to ensure carrying out of work previously carried out under LOAD within the new and revised HELCOM structure. The Meeting also reviewed and discussed progress of work within the PLC related projects (PLC-5.5, PLC-6 and PLUS) as well as data deliverables from EMEP and status of PLC-water reporting.

0.4 The Meeting was chaired by Mr. Lars M. Svendsen, Denmark, Chair of HELCOM LOAD, and Ms. Minna Pyhälä, HELCOM Assisting Professional Secretary, acted as secretary of the Meeting.

Agenda Item 1 Adoption of the Agenda

Documents: 1-1

1.1 The Meeting adopted the provisional agenda as contained in document 1-1.

Agenda Item 2 Information by Chairman, Secretariat and Contracting Parties

Documents: 2-1, 2-2, 2-3, 2-4

2.1 The Meeting took note of information by the Secretariat on the new, streamlined structure of HELCOM agreed on by HOD 46-2014 (Presentation 1, document 2-1), especially the terms of reference of the new Working Group related to reducing loads, emissions and anthropogenic discharges (cf. document 9-1).

2.2 The Meeting took note of the changing of the chairmanship of HELCOM and the priorities of the new Chair, Estonia, as contained in document 2-2.

2.3 The Meeting took note of the relevant outcomes of HELCOM meetings and workshops (document 2-3) and agreed to make use of the information as appropriate.

2.4 The Meeting took note of information by Russia on the results of the project "Implementation of the Baltic Sea Action Plan (BASE)", especially in relation to sampling in Neva and Pregolya rivers and their tributaries (Presentation 2, document 2-4).

2.5 The Meeting welcomed the new information provided by the project and pointed out that increased frequency of sampling is needed in the future to ensure more reliable input data. The Meeting

* Tentative name, study reservation by Germany

also took note that the location of the stations at Lake Ladoga outlet in winter were very close to shore due to challenges in sampling caused by ice conditions and recognized that they may have significant effects on the results.

2.6 The Meeting noted that Russia is in the beginning of the process of getting approval from relevant national authorities for including the results in official Russian PLC data, but that it might not be possible to include it yet in the PLC-6 data reporting. The Meeting noted that in the meantime the information might be made use of for filling in PLC data gaps.

2.7 The Meeting took note of the follow information of relevance from the Contracting Parties:

- Estonia will continue the Norwegian funded project on modelling of inputs at least for the next year and a half.
- Lithuania has almost completed a calibrated model which will be used for updating the WFD river basin management plans and will be used for PLC periodic reporting.
- Sweden informed that she has a new government, who are proposing increased funding for environmental monitoring and for the programmes of measures under the WFD and MSFD. The River Basin Management authorities are finalizing their programmes of measures prior to the start of public consultation on the 1st November. The RBM programmes manage all eutrophication measures on land and are expected to take care of almost all Sweden's phosphorus obligations under CART – although this is preliminary and subject to change during the public consultation. Sweden has had a bilateral meeting with Finland & Åland about the MSFD PoM and will organize a workshop in Stockholm on the 12th February 2015 to discuss measures concerned with addressing internal loads. There is a new contract between HaV and SMED (the consortium that does the technical reporting work to, among others, PLC) that should ensure reporting for the coming eight years.
- EMEP MSC-East informed that LRTAP Convention is considering a new assessment, which will focus on pollution changes and trends within the EMEP region during two recent decades and this may be of interest to HELCOM also in the coming years.
- EMEP MSC-West informed that the Steering Body decided that emission data should be delivered according to 14 x 14 km resolution from 2017. Some countries have already started reporting using this higher resolution and may even re-report historical data.

Agenda Item 3 Elaboration of core pressure indicator on nutrient inputs and a follow-up system for the BSAP country-wise allocation of nutrient reduction targets (CART)

Documents: 3-1, 3-2, 3-2-Rev1, 3-3

3.1 The Meeting took note of the proposed structure for the nutrient reduction scheme follow-up system presented in document 3-1.

3.2 The Meeting considered the draft core pressure indicator on nutrients inputs as presented by the chair Mr. Lars M. Svendsen (Presentation 3, document 3-2) and provided the comments contained in document 3-2-Rev1.

3.3 The Meeting noted that the meeting of PRESSURE 1-2014 will be invited to endorse the core indicator before it is submitted to HOD 47-2014 (9-10 December 2014) for approval. The Meeting noted that after the HOD 47-2014 meeting the indicator will be updated with data up to 2012 once the MAI-CART follow-up dataset has been updated (cf. paragraph 3.5).

3.4 The Meeting considered the proposal for the overall contents of a CART follow-up system contained in document 3-3 and as presented by the Chair Mr. Lars M. Svendsen, Denmark (Presentation 4) and Mr. Bo Gustafsson, BNI, Sweden (Presentation 5) and appreciated their extensive efforts.

3.5 The Meeting took note that that the results presented in document 3-3 and presentations 4 and 5 should be considered as only initial examples since the statistical analysis has not yet been carried out and errors in the waterborne input dataset was discovered just before the Meeting. Due to a misunderstanding, the PLC-5.5 dataset (which the CORE Group has asked the data manager to update only with 2011-2012 data), was amended with officially reported PLC data (1994-2010) from Latvia, Lithuania and Russia. This has resulted in that e.g. inputs from river Neva to the Gulf of Finland are missing a significant amount of unreported inputs, and the normalization and statistical analysis now must be redone.

3.6 The Meeting noted that in order for the follow-up of MAI and CART to be comparable with the MAI and CART adopted at the 2013 HELCOM Ministerial Meeting, the same dataset (1994-2010) which was used for calculation of CART (PLC-5.5 dataset and data in the reference period 1997-2003) must be used since changed data requires updating of CART.

3.7 The Meeting recalled there are many uncertainties in the data and models (e.g. estimation of transboundary inputs and retention coefficients) used to calculate MAI and CART, and hence possible changes to CART should only be made if there is a very strong scientific justification. Therefore, the Meeting was of the opinion that the 2013 CART should not be changed for the time being and that the assumptions used for their calculation should be kept as stable as possible until the next revision cycle.

3.8 The Meeting recalled that some countries were of the opinion that the PLC-5.5 dataset (with officially reported data corrected and data gaps filled in) could only be used for the PLC-5.5 assessment and the calculation of revised 2013 CART. The Meeting felt, however, that since this dataset needs to be the basis for comparable follow-up of CART, that it should not be necessary to request for separate permission to use the dataset for the follow-up assessment.

3.9 The Meeting acknowledged that Contracting Parties should have the possibility to check "corrected" data for years after 2010, but felt that it is not feasible to make time-consuming official requests from Contracting Parties to use "corrected data" every time a follow-up assessment is updated. The Meeting therefore suggested that if clear procedures for filling in data gaps could be agreed on by the Contracting Parties, then it should be possible for Contracting Parties to quickly approve the use of the data after checking it. The Meeting also emphasized that in order to avoid delays and duplicate work during the updating process, there should be a clear message that any changes or additions received after a commonly agreed cut-off date will not be included in the assessment.

3.10 The Meeting noted that there have been changes in the normalized atmospheric nitrogen input data provided by EMEP. EMEP informed that their model is being revised and deposition figures are being recalculated due to changes in reported emissions, affecting also the historical data.

3.11 The Meeting reviewed the proposed contents of the CART follow-up assessment presented in document 3-3 and suggested that to make it more user-friendly, it should be split into two separate products:

- a simplified version directed at policy makers showing tables 6a and 6b and a short message per country on how many tonnes still remain to be reduced overall. In this short summary, the progress of other pollution sources (non-contracting CPs, shipping) towards the targets set out in the 2013 Ministerial Declaration should also be explicitly shown
- a background report with the details from the present version (could be a separate publication)

3.12 The Meeting also provided the following suggestions to the draft CART follow-up assessment:

- Include an annex with just the national input ceilings (as these are probably of most interest to the Contracting Parties)
- Sort some of the tables according to Contracting Party rather than by sub-basin.
- The example illustrating the importance of retention for CART should be moved to an annex
- It would be helpful to have arrows showing the direction of the trend in tables 6a and 6b.

3.13 The Meeting considered which data connected to the CART follow-up should be made available in a supporting spreadsheet to be made available on the HELCOM web-site and agreed that the time series of net normalized inputs (by country per basin) is most relevant.

3.14 The Meeting discussed how to deal with transboundary inputs and retention in the CART follow-up assessment and welcomed the presentation by Mr. Svajunas Plunge, Lithuania (Presentation 6) on the results of calculations to estimate Lithuanian progress towards their CART and the questions that came up during the process. The Meeting acknowledged the challenges related to calculation of national progress towards national emission ceilings, especially in cases with transboundary inputs, and decided to have a detailed discussion, including a step-by-step procedure for making the calculations (using the Lithuanian case as an example), at the next meeting of the PLC-6 project (cf. paragraph 5.16).

3.15 The Meeting also recognized the need to emphasize in the CART follow-up assessment that the estimates of net transboundary inputs are rather crude approximations and that results may be different if countries make a more detailed national assessment using different retention values.

3.16 The Meeting took note of the following comments by Finland and Germany who have separate transboundary CART specified in the 2013 Ministerial Declaration:

– Finland informed that practically it will be impossible to fulfill the CART concerning transboundary inputs to the Gulf of Finland via Russia since the concentrations in the River Vuoksi are so low at the Finnish border that they can be considered as background inputs. BNI pointed out that according to the CART principles, Finland can also reduce the inputs to the Gulf of Finland from other river catchments or via extra reductions to other sub-basins as to the Bothnian Sea.

– Germany informed that they would appreciate it if HELCOM could assess the fulfillment of the transboundary CART (from Oder River) because at a national level they have different Ländern involved in the catchment areas used for PLC and WFD assessments.

3.17 The Meeting took note of the view of Sweden that since they are taking measures to reduce inputs by increasing retention in the catchment, it is important to make use of the latest available retention values. Sweden therefore stressed that if retention figures are changed for assessment purposes, then it is important to specify the period for which the retention applies.

3.18 The Meeting considered the presented proposal on how to deal with the fact that some Contracting Parties may wish to account for extra reductions in one basin for CARTs to another and welcomed the information that this estimation also take into account atmospheric deposition.

3.19 The Meeting took note of the demonstration by Mr. Svajunas Plunge, Lithuania, of a programme he has developed for flow normalizing data, and appreciated the possibility to test it and compare it with the normalization results obtained by BNI Sweden. The Meeting took note that the programme can be downloaded via the LOAD 8-2014 document library and invited Contracting Parties to provide their possible feedback to Mr. Plunge (s.plunge@aaa.am.lt).

3.20 The Meeting discussed how to proceed with the further elaboration of the CART follow-up assessment, bearing in mind that the errors in the updated MAI-CART follow-up dataset (cf. paragraph 3.5) will require substantial additional work for BNI and DCE and affects the time table proposed in document 3-1.

3.21 The Meeting took note of the view of Germany that the MAI-CART follow-up assessments should be finalized as soon as possible so that those Contracting Parties that are EU member states can make use of them for revision of the WFD river basin management plans and setting up reduction targets under the MSFD.

3.22 The Meeting recognized that the updated CART follow-up assessment will be submitted to HOD 47-2014 as a late document and agreed that HOD 47-2014 should be requested to approve the content of the assessment in principle with the view that the next PLC-6 workshop (cf. paragraph 5.16)

should be used partly to discuss and resolve remaining technical issues and further elaborate the CART follow-up assessment.

3.23 The Meeting agreed that once the new MAI-CART follow-up dataset has been corrected, it will be forwarded to Contracting Parties for approval. The Meeting pointed out that due to time constraints it will not be possible to make further corrections to the dataset.

3.24 The Meeting took note that HOD 46-2014 has requested the new Working Group on Reduction of Pressures from the Baltic Sea Catchment Area to prioritize work on further development and implementation of the MAI-CART follow-up system and to come up with a proposal how the work could be organized.

3.25 The Meeting considered the proposed approach presented in document 3-1 acknowledging that WG PRESSURE will probably not be the right forum for detailed technical discussions. The Meeting noted that future work related to PLC data can be taken care of under PLC related projects (e.g. PLC-6) but stressed that there is need for a forum for discussion of other technical matters that have previously been handled by LOAD, such as to development of MAI-CART, indicators and atmospheric issues.

3.26 The Meeting suggested that one possibility might be to hold thematic workshops back-to-back with PLC or PRESSURE meetings.

3.27 The Meeting supported proposal to carry out the work related to transboundary inputs and retention within a project.

Agenda Item 4 Review of 5th Baltic Sea Pollution Load Compilation for 2013 HELCOM Ministerial Meeting (HELCOM PLC-5.5)

Documents: 4-1

4.1 The Meeting took note that HOD 46-2014 approved in principle the publication of the PLC-5.5 final report, pending updating of the report with some final comments provided by Germany after the HOD meeting.

4.2 The Meeting took note of the latest version of the PLC-5.5 report (document 4-1) and discussed the open issues related to comments received from Germany. The Meeting supported all the proposed amendments to the text and agreed that the PLC-5.5 data should not be included in the Annex but made available via a link to the spreadsheet.

4.3 The Meeting decided that as requested by Germany, two new tables should be included in the chapter five of the report which give the actual change (in tonnes) in the total normalized nitrogen and phosphorus inputs from the reference period (average of 1997-2003) to 2008-2010 by country/source.

4.4 The Meeting also requested that in Annex 9.4 the parameters used in the equations should be better explained) in order to make them more easily understandable.

Agenda Item 5 Sixth Baltic Sea Pollution Load Compilation (HELCOM PLC-6)

Documents: 5-1, 5-1-Rev1, 5-2, 5-3

5.1 The Meeting took note that the PLC-6 guidelines have been approved in principle by HOD 46-2014, pending a study reservation by Russia for national consultation by 31 October 2014.

5.2 The Meeting welcomed the information from Russia that they are in a position to lift the study reservation.

5.3 The Meeting took note that at the HOD 46-2014 Sweden, Finland and Denmark emphasized that the quality assurance procedures PLC-6 guidelines should be in compliance with the EU requirements and comparable to OSPAR requirements. The Meeting recalled that the guidelines do take these

requirements into account and requested the project to add a statement in the introduction to the guidelines reflecting this issue.

5.4 The Meeting reviewed and discussed the latest version of the PLC-6 guidelines (document 5-1) and updated the guidelines up to chapter 8 as contained in document 5-1-Rev1. The Meeting agreed to further review the guidelines at the next PLC-6 project meeting in December 2014.

5.5 The Meeting noted the comment by Sweden that the guidelines lack a lot regarding methods for quantifying sources of heavy metals, specifically sources (e.g. dump sites, mining areas etc.) to inland waters and retention and recirculation from sediments and acknowledged that there is very little national experience in this field at this stage. The Meeting agreed that it would be valuable to get an overview of the main sources of the three main heavy metals in the PLC-6 assessment and requested the next PLC-6 project meeting to consider how to make such an assessment. The Meeting suggested that as a first step it would be useful to get an overview of what Contracting Parties are monitoring and how they estimate inputs from different sources.

5.6 The Meeting took note that the guidelines have been updated so that references to IPPC have been changed to the EU Industrial Emission Directive. The Meeting considered the new proposal by Germany to streamline HELCOM PLC reporting with the reporting of discharges from industrial plants according to EU as presented by Mr. Dietmar Koch, Germany (Presentation 7, document 5-2) by including the IED industrial sector code when reporting point sources for PLC.

5.7 The Meeting discussed the proposal, taking into account also the comments from the PLUS project team to the German proposal (document 5-3). The Meeting agreed that PLC reporting should be simplified and as far as possible streamlined with EU reporting, but acknowledged that the proposal has implications on the database structure and reporting templates which need to be investigated.

5.8 The Meeting also pointed out the following challenges related to implementing the German proposal:

- Since the PRTR requires includes only the largest polluters counting for about 90% of the releases – the individual point sources may change from year to year and result in inconsistent database contents. Small sources would be missed
- Russian data is not included in the PRTR and they have different definitions for industrial sectors
- According to the IED, urban waste water treatment plants and aquaculture are included as industrial activities.
- Need to be careful that large animal farms (industrial food production) are included as point sources in PRTR and as diffuse sources in national input models used for PLC – this might increase the risk for double reporting for PLC
- The PLC database categories are in line with the old IPPC categories, but as these are not valid for EU reporting anymore, it would be good to update the PLC categories to be in line with the PRTR industrial sectors

5.9 The Meeting stressed that PRTR data cannot be used for PLC reporting due to the risk of missing data and the fact that PLC assesses the inputs to the sea and therefore requires subtracting retention from the emission figures. The Meeting nevertheless agreed that the metadata in the PRTR register would provide useful information for the PLC database, which would be helpful especially for quality assurance purposes.

5.10 The Meeting invited the PLUS team to consider the possibility to amend the point sources background table as follows: (1) remove the branch code, (2) add the EU sector code (expanding this to the nine sectors used in PRTR, including aquaculture and waste water treatment), and (3) add a new field with the nationally used EU code.

5.11 The Meeting invited Contracting Parties to investigate nationally their position on the proposal and agreed to discuss this issue again at the next meeting of the PLC-6 project in December 2014.

5.12 The Meeting recalled the lack of a clear definition of what is a small or large industrial point source. The Meeting agreed that it is not necessary to separately define whether and industry is small and big as the main objective is to get an overall view of the amount of discharges. The Meeting felt that this information is obtained by reporting all large point sources individually and smaller point sources as aggregated, and therefore agreed that the reporting of plant size should not be included in future reporting.

5.13 The Meeting noted that the annual reporting template and Annex 2 of the Guidelines will be finalized after the next meeting of the PLUS project (cf. paragraph 6.6) and that the periodic reporting template and corresponding instructions (Annex 3) will be prepared afterwards for the next PLC-6 project meeting.

5.14 The Meeting noted that at HOD 46-2014 Sweden raised the issue of the new reporting requirement related to uncertainty on national data sets and suggested the organizing of a workshop back-to-back with a meeting dealing with LOAD issues to discuss and secure a common approach to this reporting. The Meeting welcomed this proposal and proposed that the relevant group working on this issue under the framework of PRESSURE should make plans to arrange such a workshop in spring 2015, perhaps in connection with a PLC-6 project meeting.

5.15 The Meeting supported the arranging of the next project meeting on 15-17 December 2014 at the premises of the Secretariat in Helsinki, Finland, starting at 10 am on 15 December and ending on Wednesday at 4 pm on 17 December.

Agenda Item 6 Modernization of the PLC-water database (HELCOM PLUS)

Documents: 6-1

6.1 The Meeting took note of the progress with implementation of the project to modernize the PLC-water database (HELCOM PLUS) (document 6-1).

6.2 The Meeting took note that the latest version of the new annual reporting template (which is in line with the PLC-6 guidelines) has been sent out to Contracting Parties for commenting on 24 October 2014.

6.3 The Meeting noted that the periodic reporting format will be based on the annual reporting template but include additional reporting requirements on source apportionment and retention and acknowledged that these can be elaborated once the annual reporting formats have been finalized.

6.4 The Meeting recalled that most Contracting Parties have agreed to report 2013 PLC data into the new PLC-Water SQL database using the new annual reporting template. The Meeting took note that Lithuania has already reported their 2013 data using the old template and welcomed the offer of Lithuania to re-report the data using the new template as a test.

6.5 The Meeting noted that Germany and Poland have reported partial PLC-6 data from 2012 (only annual data – periodic data is still missing).

6.6 The Meeting supported the arranging of the next project meeting on 11-12 November 2014 with an aim to finalize the new annual reporting format and Annex 2 of the guidelines, and start discussion on key requirements for the annual reporting template. The Meeting also agreed that the meeting should decide on the deadline for reporting 2013 data. The Meeting agreed that the Meeting should start at 10 am on 11 November 2014 and end at 2 pm on 12 November 2014. The Meeting agreed that the project meeting should be held at the premises of the Secretariat in Helsinki, Finland with option for video participation by those Contracting Parties who do not wish to travel.

Agenda Item 7 Data on pollution inputs

Documents: 7-1

7.1 The Meeting took note of presentations by EMEP MSC-W and EMEP MSC-E on inputs of nitrogen, heavy metals and PCDD/Fs to the Baltic Sea in 2012 as presented by Ms. Semeena Valiyaveetil Shamsudheen and Mr. Alexey Gusev (Presentations 8 and 9).

7.2 The Meeting took note that the deposition of nitrogen to Baltic Sea has increased in 2012 and noted that this is mostly largely due to changes in meteorological conditions. The Meeting noted that this message is confusing since emissions from most HELCOM countries are decreasing, but acknowledged that the EMEP model is complicated and there are non-linear chemical reactions affecting the deposition results.

7.3 The Meeting took note of the observation by Finland that atmospheric nitrogen deposition seems to have increased in recent years, even though the normalized data suggest a decreasing trend, and noted that EMEP have checked the results and that it seems that it is likely due to high precipitation in recent years. The Meeting was of the opinion that in the future it is important to keep this issue under observation and consider how ensure that the EMEP results are interpreted correctly.

7.4 The Meeting also noted the increase in inputs for heavy metals and PCDD/Fs especially in December 2012 and that it appears to be due to variation of meteorological conditions (atmospheric transport pathways, temperature, and precipitation).

7.5 The Meeting noted that the draft annual report by EMEP *Atmospheric supply of nitrogen, lead, cadmium, mercury and dioxins/furans to the Baltic Sea in 2012* is available on the EMEP website (document 7-1). The Meeting invited Contracting Parties to check the draft report and submit their amendments to Ms. Semeena Valiyaveetil Shamsudheen (semeenav@met.no) **by 28 November 2014**. The Meeting approved in principle the publication of the reporting on the EMEP and HELCOM websites **by mid-December 2014** once the report has been updated with the comments provided by Contracting Parties.

7.6 The Meeting recalled the discussion at LOAD 7-2014 to test the assessment of atmospheric inputs of PCBs and PAHs and noted that the contracting between EMEP and HELCOM has been amended so that in 2015, the assessment of PCDD/Fs will be substituted by PCB-153, on a test basis. The Meeting agreed that the relevant HELCOM experts should be invited to review the new data deliverable in autumn 2015.

7.7 The Meeting noted that the contract with EMEP will be updated again in mid-2015 and agreed that it would be useful to determine before that which hazardous substances data deliverable would be of most relevant for HELCOM and Contracting Party priorities. The Meeting recalled that an overview of such priorities was made by LOAD 6-2013 (document 4-3), and welcomed the offer of Ms. Tuija Ruoho-Airola, Finland, to coordinate the updating of this overview.

7.8 The Meeting took note of information by the PLC data manager, SYKE, on the status on the reporting and quality assurance of 2011 and 2012 waterborne PLC data. Some Contracting Parties have even reported their 2013 data.

7.9 The Meeting took note that the annual PLC-Water dataset (with data up to 2012) has been frozen as the contents of the old MS Access database is currently being transferred into the new PLC database. The Meeting recalled that new waterborne input data will no longer be included in the old Access database and recognized that due to the database migration and new procedures there may be some delays in verifying the reported data.

Agenda Item 8 Implementation of measures for reaching CART

Documents: None

8.1 The Meeting recalled the presentation by Germany at LOAD 7-2014 on how to maximize the benefits of the implementation of the Gothenburg Protocol for the achievement of the nitrogen reduction targets of the BSAP (LOAD 7-2014 document 9-9) and was of the view that this is an issue that is relevant for PRESSURE.

8.2 The Meeting also recalled EMEP's offer to run German nitrogen emission data with the EMEP model with the view that the results could be useful for understanding where to distribute measures and encouraged Germany and EMEP to cooperate in such an exercise and inform PRESSURE of the results.

Agenda Item 9 Work programme and future work

Documents: 9-1, 9-2

9.1 The Meeting scrutinized the terms of reference of the newly established Working Group PRESSURE (document 9-1), noting especially the issues previously taken care of by LOAD.

9.2 The Meeting took note that PRESSURE will recommend to HOD 47-2014 how the tasks carried out so far by LOAD should be taken care of in the future.

9.3 The Meeting discussed its views on how implementation of these tasks should be ensured in the future and pointed out that although there are several projects (PLC-6 and PLUS) which cover some of the tasks, there is still need for an expert group that can discuss cross-cutting and thematic issues such as technical issues related to MAI and CART as well as review and discussion of the EMEP deliverable on atmospheric deposition of nutrients and hazardous substances. The Meeting proposed that the additional tasks could be coordinated by a small expert group such as the LOAD core group and the broader discussions could take place in thematic workshops.

9.4 The Meeting considered the list of LOAD expert group contacts contained in document 9-2 and felt that it would be valuable to maintain such list of pollution input expert contacts also in the future, i.e. to ensure that invitations to thematic workshops reach the relevant experts. The Meeting updated the list of contacts as contained in **Annex 2**.

Agenda Item 10 Any other business

Documents: None

10.1 The Meeting acknowledged that this is the last meeting of the LOAD expert group in its present form and thanked Mr. Lars M. Svendsen, Denmark, for his dedicated and skilful work as Chair of the group during the past three years.

Agenda Item 11 Closing of the Meeting

Documents: 11-1

11.1 The Meeting adopted the draft Outcome of the Meeting. The final Outcome of the Meeting will be made available in the HELCOM Meeting Portal, together with the documents and presentations considered by the Meeting.

Annex 1 List of Participants

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Annex 2 List of pollution input expert contacts

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Outcome of the Workshop

Introduction

With regard to the decision of PRESSURE 5-2016 (Outcome, paragraph 8.23), document 8-3 of HOD 51-2016 and invitation by the Baltic Nest Institute, Stockholm University, the Workshop on methodologies to assess the implementation of the HELCOM nutrient reduction scheme (MAI/CART assessment), was held in "Juristernas hus" at the Stockholm University campus on 6-7 March 2017.

The List of Participants is attached as **Annex 1**.

The Programme of the Workshop is contained in **Annex 2**.

PLC data collection and quality assuring

The quality of PLC products depends on the quality of the compiled data. The participants discussed the datasets collected by the PLC-6 project and evaluated their completeness and reliability. The participants also stressed the need for the Contracting Parties to timely deliver the PLC data to allow sufficient time for compilation and data quality assurance at the HELCOM level.

Specifically, the participants noted that flow normalization procedures could not smooth out the high variability in loads for some rivers. The importance of appropriate monitoring of nutrient concentrations and flows in rivers was highlighted. In order to provide reliable data, monitoring should be organized in accordance with the PLC-Water Guidelines that recommends regular measuring at least 12 times a year. The participants took note of the information by the PLC Data Manager that recently reported data 2013/2014 almost comply with these requirements, while old estimations might be based on a few measurements per year. Also, experts pointed out that in case of rivers with specific hydrological regime or high variability in nutrient concentration, sampling schedule might need to be adjusted taking into account the specific properties. Nonetheless, experts highly appreciated the work done during the last decades and emphasized that the quite unique database consists of data covering a period of 20 years of continuous observations for approximately 150 rivers.

The Workshop also noted that the data quality depends on thoroughly performed quality assuring and approval procedures at the HELCOM level. In case of delay in data reporting the time for assuring the data quality is limited and procedures prescribed by the HELCOM Guidelines might not be performed appropriately, thus resulting in lowering of data quality. Timely reporting of the national data is a prerequisite of the reliable assessment dataset. The experts pointed out that data deviating remarkably from the preliminary MAI assessment presented at the Workshop will be critically considered and further consulted with the countries.

Provisional assessment of input by big rivers

The participants welcomed information on the preliminary results of nutrient inputs by the seven biggest rivers discharging into the Baltic Sea. However, they noted a low correlation between flow and load in some of the rivers and concluded that it should be thoroughly considered to identify reasons that caused these deviation. The participants suggested that one of the reasons might be significant contributions by point sources.

The participants further discussed the use of the data on assessment of nutrient inputs by the big rivers, noting that this information is viable for elaboration of national programmes of measures in accordance with the WFD requirements. However, the participants pointed out difficulties in correlation of the measures and management plans for fresh waters with the ones set for marine environment and also noting a lack of tools to establish a link between environmental targets for marine environment and upstream measures.

The Workshop also took note of the information by Sweden on national studies that revealed several lakes turned from phosphorus sinks to sources of phosphorus and thereby also influence the water quality in the Baltic Sea. The implementation of requirements according to the WFD in Sweden is estimated to serve for reaching eutrophication related goals for the marine environment. Germany informed of similar estimations for national environmental targets. Finally, participants concluded that new HELCOM PLC database enables comprehensive analyses of riverine inputs.

Influence of the new data on atmospheric deposition

The Workshop discussed new data on atmospheric nitrogen deposition, presented by EMEP, and that the update of the EMEP model and its underlying emission data resulted in a remarkable revision of the data used in previous assessments. Deposition of nitrogen obtained with the new model was in average more than 20% higher than the one previously used. The participants discussed how the new data on atmospheric deposition of nitrogen in the reference period could influence the HELCOM nutrient reduction scheme.

The participants concluded that the maximum allowable inputs were computed independently from the atmospheric input data. The input data was used only for model calibration. A deviation in about 5% of total nitrogen input caused by revision of the atmospheric input would not bias the results of modelling and it is not considered that recalculation of the allowable inputs is needed because of these revised data. Bearing that in mind, the participants concluded that there was no need to revise the targets stipulated by the HELCOM nutrient reduction scheme.

The participants pointed out progress in reduction of NOx emissions and that such reductions had not been achieved in emissions of ammonia which indicates that there ought to be room for reduction measures in the agricultural sector being the primary source of ammonium emission.

The Workshop also discussed the reduction under the requirements of the Gothenburg Protocol and that they could be projected to the year 2030, taking into account potential reduction caused by implementation of NECA in the Baltic and North Sea. The Workshop also took note of a suggestion by Germany to arrange a compliance check for implementation of the Gothenburg protocol by HELCOM countries. Some participants expressed a concern that the countries outside HELCOM, being remarkable contributors to the nitrogen deposition in the region, might not implement the required reductions. The participants also suggested that the compliance check could be done for non-HELCOM countries from the list of top 10 contributors. Though, even if they missed their Gothenburg Protocol targets by a noticeable amount, it would not have a significant effect on the total N-load to the Baltic. Thus, the feasibility of such a check depends on demanded resources.

A discussion on new updates of the progress indicator towards MAI

The Workshop welcomed provisional information on updates of the HELCOM core indicator on inputs of nutrients – progress towards MAI. However, the Workshop was informed that the assessment dataset used for the preliminary evaluation had not yet been approved by all countries, and that the assessment results might be updated. These updates might be especially visible in sub-basins with inputs close to MAI. The participants pointed out a significant increase of the P- load to BAP and a significant reduction of P-input to GUF. The latter supposed to be at least to some extent be achieved due to measures on improvement of water treatment implemented in St. Petersburg, but it may also be a result of improved estimates on loads from unmonitored areas.

The Workshop also took note of the concern of a Lithuanian participant regarding the nutrient fluxes form the Gulf of Riga to the Baltic Proper. The Workshop discussed the exchange of nutrient fluxes between sub-basins of the Baltic Sea and recalled that this exchange was taken into account when MAI were computed.

Statistical analysis of the assessment data

A new approach based on statistical analysis of trends with break points was introduced to the Workshop. After considering a number of examples with the new approach, the participants suggested to use this approach only when the break point can be validated and explained by implemented measures or other known phenomena. Otherwise, the break points might reflect only erroneous data or changes in monitoring methodologies. In general the participants agreed that the approach provides a sensitive tool for the assessment of achieved progress, and that the assessment results are closer to really reported values than those obtained with linear trend analysis in cases where the trend is not linear, but pointed out that the outcome from the break-point analysis should be further communicated with countries to verify the observed changes in trends.

The Workshop took note of the remark by Sweden that indicating the status of Bothnian Bay in terms of meeting MAI as statistically uncertain is in princeple not correct bearing in mind that the sub-basin does not have a reduction target nor reduction measures to be implemented.

Discussion on progress towards CART assessment

The participants clarified that the values used for input ceilings have not been modified bearing in mind that the reference input data were recalculated due to revision of information on airborne inputs.

Discussing the provisional data on country-wise inputs of nutrients to sub-basins, experts noticed continuous increase of P-inputs to the Gulf of Riga from Latvia in recent years. The participants assumed that one of possible reasons for such a phenomenon could be the lack of proper monitoring data in the previous years.

Examples on the progress towards CART, evaluated using three different methods, were presented by DCE. The methods were based on 3- and 5-year averaging of the input data and statistically adjusted values for the latest year. The experts concluded that statistically based evaluation, taking into account break points in trends, is the most sensitive method reflecting the recent changes. But this method is also very sensitive to erroneous or any other outstanding data and could provide a biased picture. 5-year averaging provides rather steady information which does not reflect recent changes. 3-year averaging is more sensitive than 5-year and also corresponds to the approach used for the MAI core indicator.

The participants pointed out the importance of using real input values and not only percentage to evaluate achieved progress, noting that high percentage could reflect changes in very small real values and vice versa.

The Workshop briefly discussed normalization procedures used in the assessment and noted that all the rivers were normalized individually, while in previous years a normalization per basin was applied. Experts also noted that only a couple of rivers indicate systematic increase of the flow that might be a result of climate change. The other rivers do not show any systematic changes, which can also partly be a result of regulated flows.

In finalising the discussion on provisional results of CART assessment, the participants pointed out the importance to identify sources of nutrients showing the highest reduction. The Workshop also recalled that a unified methodology ought to be used for the assessments, otherwise the results for different countries might be incomparable.

An example of using extra reduction

The Workshop was informed on the basic principles of using extra reduction and an example of calculation based on the old assessment dataset was given. Analysis of the latest data was not possible, as the data on extra reduction and missing reduction are still not available.

The participants suggested to use extra reduction in simple pair of basins as spreading the effect to other basins brings a lot of uncertainty into the estimates.

The Workshop expressed a concern regarding the principle that the methodology for accounting extra reduction should only be applied for basins close to achieving GES, noting that achieving GES in term of eutrophication takes much longer time than achieving MAI. That principle can make the methodology inapplicable at foreseeable time. However, the participants agreed that the methodology can be tested by individual countries that have reached extra reduction in a particular basin.

Outlining CART policy message

The Workshop discussed the previous agreements regarding the contents of the CART policy message and concluded that the visualization used in the previous assessment (2015) in general reflects required information. Also, the participants agreed that the outline of the policy message should not be changed in each assessment in order to keep the results comparable. Thus, the Workshop agreed that the country-to-basin matrix used in the previous assessment will form a basis of the policy message.

The participants suggested that the matrix can be accompanied by a table containing the values of achieved reduction and its percentage in the total reduction.

The Participants also suggested that the policy message could contain a section with one bar diagram for each country illustrating reduction achieved in all basins. The other information considered to be valuable for the policy message is a projection of the reduction achieved in 2021, estimated with a current pace of the progress.

List of Participants

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Programme of the Workshop

Day 1 – Monday, 6 March 2017

Convener: Lars Sonesten, Chair of HELCOM Pressure Group

10.00-11.15

Welcome words and setting the scene.

Establishing the nutrient input dataset to the Baltic Sea used for the MAI/CART follow-up assessment (assessment dataset)

1. **Data on waterborne input reported by countries (PLC annual and periodic reporting) (Secretariat with PLC Data Manager and RedCore DG)**
   National data reporters and assurers are invited to present information on national procedures related to data reporting and quality assuring as well as suggestions on how to improve them in the PLC-7 project.
   - What is reported by the Contracting Parties on waterborne inputs in the period from 1995-2014 (riverine, diffuse, direct, transboundary, retention and flows, etc.).
   - Quality assurance of reported waterborne data.
   - Data verification: filling in data gaps, corrections of suspicious data and approval by the Contracting Parties of waterborne input data for the assessments.
     (Chair of RedCore DG to give examples of filling in data gaps)

2. **Calculation of net inputs – actual and normalized**
   (Bo Gustafsson, BNI with contribution by Søren E. Larsen, DCE)
   Sweden will contribute to the discussion on the uncertainties of nutrients input and flows.
   - How water- and airborne inputs are divided by country and Baltic Sea sub-basins (net input per Country) and divided in riverine, direct, atmospheric and total nutrient inputs to Baltic Sea sub-basins.
   - What is the difference between actual nutrient inputs and normalized inputs – and why and how do we normalized water- and airborne inputs?
   - What is the uncertainty on nutrient inputs and flow data and how is it estimated/calculated?

11.15-11.35 – Coffee break

11.35-12.50

3. **Airborne inputs (atmospheric deposition of nitrogen and its sources) (Jerzy Bartnicki, EMEP)**
   - Changes in airborne N input data and how does it influence the reference data for nutrient input assessment;
   - Estimation of phosphorus deposition (contribution by Lars M. Svendsen)

Implementation of the HELCOM nutrient reduction scheme. MAI/CART follow up

4. **Draft updated HELCOM Core indicator on input of nutrients 1995-2014**
   (Lars M. Svendsen, Søren E. Larsen, DCE and Bo Gustafsson, BNI)
   - Assessment of fulfilment of MAI and the use of actual data versus normalized ones.
   - Nutrient inputs to the Baltic Sea sub-basins in 2014.
   - Evaluation of trends in nutrient inputs to sub-basins and estimation of changes in inputs – including introducing evaluation of breakpoints in time series.
   - Results of assessment of progress towards fulfilling MAI and their visualization.
   - Accounting for uncertainties in nutrient inputs in the assessment.

12.50-13.45 – Lunch

13.45-15.00

5. **Data on transboundary waterborne inputs (Bo Gustafsson, BNI)**

   - Transboundary inputs: how are data obtained, how are inputs divided between countries, estimating retention to quantify net inputs to the Baltic Sea. Discuss unresolved challenges with transboundary nutrient input data, and possible initiatives to obtain improved estimates of transboundary inputs.

6. **Estimation of input of nutrients via selected big rivers**
   (Finland with BNI and DCE and contribution to the discussion by Germany)

   - Introducing the big rivers, as e.g. Daugava, Göta älv, Kemijoki, Oder, Nemunas, Neva and Vistula.
   - Nutrient inputs from the big rivers in 2014.
   - Trend and changes in inputs from the big rivers during 1995-2014.

15.00-15.30 – Coffee break

The discussion will be convened by Anders Alm, WWF.

15.30 – 16.00

Wrap up of the day and conclusions

16.00 – 18.00

An open discussion on technical and methodological aspects of assessment of nutrient inputs and the HELCOM nutrient reduction scheme follow-up.

Day 2 – Tuesday, 7 March 2017

Convener: Lars Sonesten, Chair of HELCOM Pressure Group

09.00-10.15

Implementation of the HELCOM nutrient reduction scheme. MAI/CART follow up

7. **National input ceilings and long term trends 1995-2014**
   (Lars M. Svendsen and Søren E. Larsen, BNI)
   - How were national input ceilings derived from MAI and CART and accounting of transboundary inputs in their identification?
   - Methodology for and results of trend analysis and changes in inputs from countries to sub-basins during 1995-2014.

8. **Approaches to assessment of the progress toward fulfilment of CART**
   (Lars M. Svendsen, Søren E. Larsen, DCE; contribution by Bo Gustafsson, BNI regarding reference input)
   - Use of normalized data
   - Use of statistical analysis of time series
   - Average of x years or latest inputs
   - Taking into account uncertainties in inputs
   - Examples of evaluation of progress towards fulfilling CART using 2013-2014 data
   - Which reference inputs (1997-2003) should be used, etc.
   - How can we take into account, that updated data on water- and airborne inputs will also change nutrient inputs in the references period 1997-2003 as compared with the Copenhagen Ministerial Declaration 2013, which have been the basis for MAI and CART calculation?

10.15-10.45 – Coffee break

10.45-12.00

9. **Accounting of extra reduction in evaluation of CART fulfillment – first test**
   (Bo Gustafsson, BNI with contribution by countries)

10. **Outlining of the CART policy messages. What are the main messages to present, and how can we present the main results for policymakers unambiguously?**
    (Secretariat with the Chair of Pressure Group and contribution by countries)

    Participants are invited to contribute to the discussion by showing examples of using the information on CART implementation for policy purposes at national level.
    - Level of the assessment data aggregation - results shown country per Baltic Sea sub-basin.
    - Whether the reduction target is achieved?
    - What is the distance from the target, e.g. in tons, percentages, years, before fulfilment with present trends etc.
    - What is the trend and changes in inputs?

12.00-13.00 – Lunch

13.00 – 15.00

Common discussion on the approaches to evaluate progress toward CART and the policy message outline; wrap up of the workshop, conclusions and recommendations.

Stockholm University

Accounting for Extra reduction

Bo Gustafsson

Baltic Nest Institute

Stockholm University

RECOGNIZING that reductions in nutrient inputs in sub-basins may have wide-spread effects, WE AGREE that extra reductions can be accounted for, in proportion to the effect on a neighboring basin with reduction targets, by the countries in reaching their Country Allocated Reduction Targets

From Copenhagen Ministerial declaration, 2013

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How MAI was determined!

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- Maximize the load of nitrogen (N_n) and phosphorus (P_n) given the constraint that the targets are fulfilled everywhere
- Limitations:
  - N_n and P_n should not be larger than reference inputs
- Calculations were done taking into account nutrient fluxes between basins

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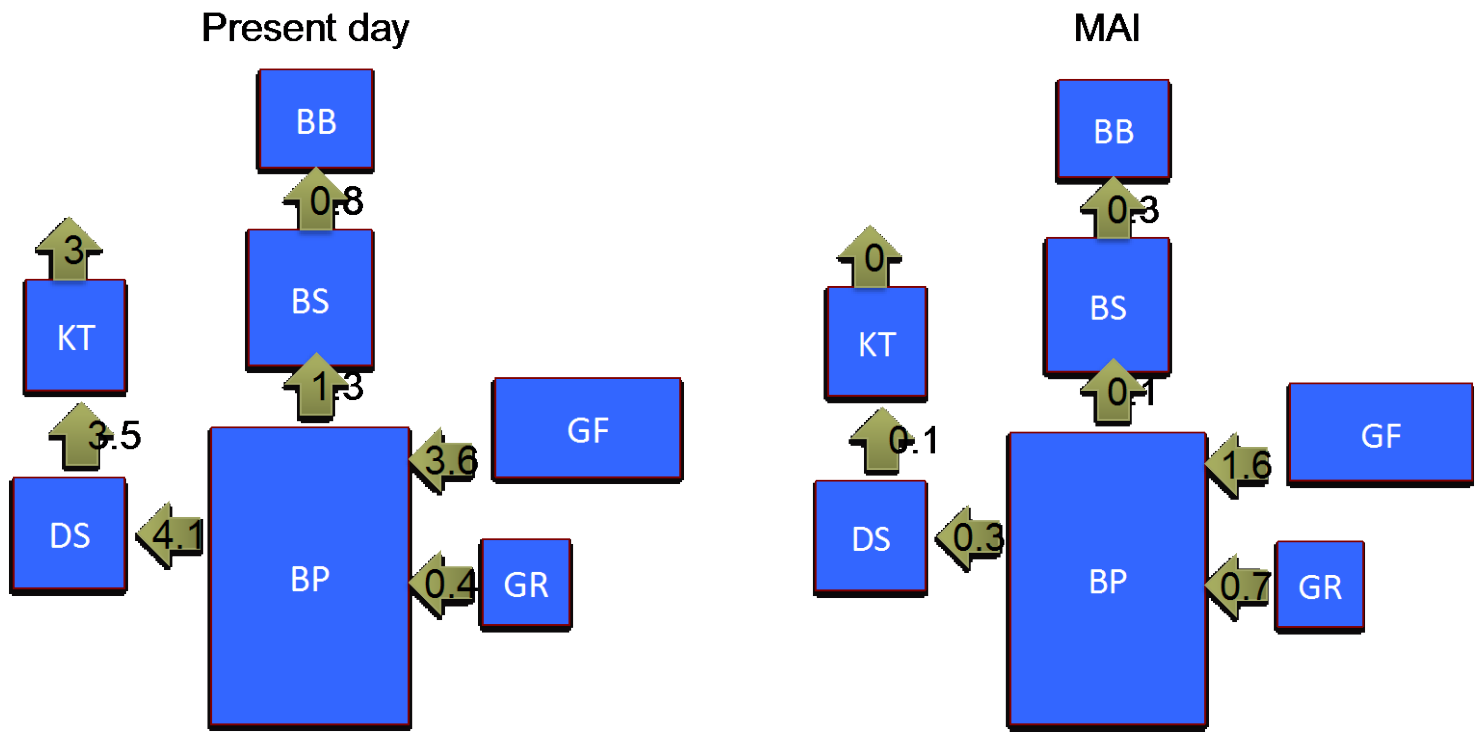
Phosphorus fluxes between basins (in kton/ yr)



Definitions 1

Extra reduction is the margin to CART (or input ceiling) including the statistical uncertainty for a given country and basin combination.

Missing reduction is defined additional input reduction needed to reach CART including the statistical uncertainty for a given country and basin combination.

Phosphorus fluxes between basins

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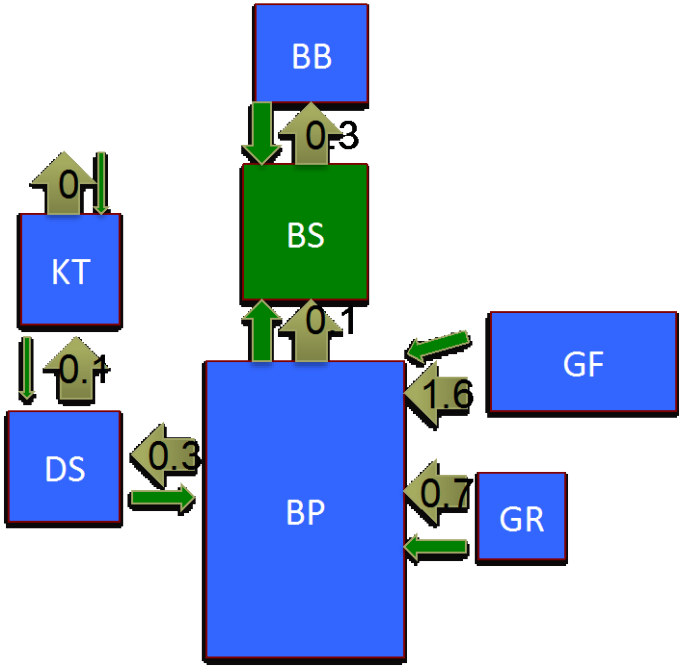
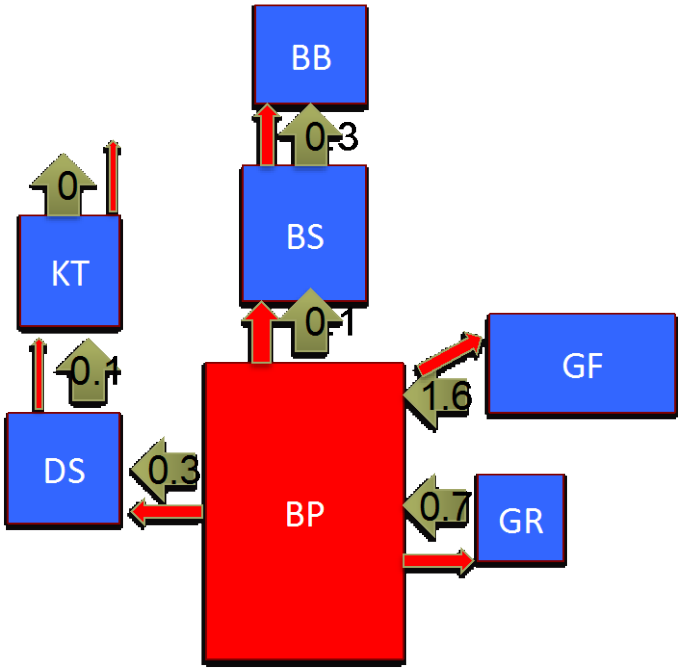
Extra reduction to BS



Missing reduction BP



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So

- Extra reductions give improvement to the other basins
- Missing reductions give deterioration to the other basins

Thus, the sum of the two effects need to be considered

Definitions 2

Equivalent reduction is input reduction to basin A that leads to the equivalent environmental benefit in basin B as 1ton reduction to basin B. **NB!** prerequisite is that inputs to all other basins fulfill MAI.

Effective reduction is the apparent input reduction in a basin resulting from extra reductions in another basin, in practice: the **extra reduction** divided by **equivalent reduction. NB!** Missing reductions will lead to “negative” effective reductions because lateral nutrient transports were taken into account when MAI-CART was calculated.

Principles

1. **Accounting should be based on countries individually**

   This implies that countries can plan and implement measures across basins at their own discretion as long as it results in conforming to CART after accounting of extra reduction is performed.

2. **Countries could claim accounting for missing reductions even if MAI is exceeded due to inputs from other countries**

   No country should need to wait for any other country before claiming themselves fulfilment of CART.

3. **Any relocation of measures should lead to at least the same environmental improvement as if CART were implemented**

   This is imperative for the GES to be achieved eventually. Inevitably, using extra reductions will lead to less inputs than MAI as seen as a total for the Baltic Sea, but its distribution need to be such that GES will be achieved everywhere.

4. **The effect of extra reductions on neighboring basins with missing reductions should be estimated given that these are minor deviations from MAI**

   The Baltic Sea is a strongly perturbed system and hence, functioning quite different today compared to how it will function when measures been implemented and status approach GES. The whole calculation of MAI is taking this into account and when deviations to MAI are to be analysed, it should be done assuming that we are close to GES.

Principles

5. **Accounting for extra reductions in connection with CART follow-up assessments are to be performed in a uniform way supervised by RedCore DG**

Accounting for extra reductions should be included in the regular CART assessment using a common and harmonized methodology. RedCore DG is the forum that supervises development of methodology and, after appropriate approval, implementation of this in the assessment.

6. **The Archipelago Sea phosphorus input reductions should be accounted in the Finnish CART for Gulf of Finland (cf. BSAP 2007)**

In BSAP 2007 and 2013, Finland pointed out that models failed to separate the Archipelago Sea from Bothnian Sea and that this should be taken into account at a later stage and within the context of accounting for extra reduction can be an opportunity to take into account separately the nutrient inputs to Archipelago Sea from the remaining Bothnian Sea inputs.

7. **In the context of extra reduction accounting, reductions of phosphorus to Baltic Proper could be accounted as input reduction in Gulf of Finland**

The obtained MAI results in conforming to phosphorus target in Baltic Proper, but in Gulf of Finland the resulting phosphorus concentrations will be significantly less than target. In line with this, it could be argued for states having phosphorus inputs both to Baltic Proper and Gulf of Finland, that extra reductions to Baltic Proper could be deducted from missing reductions in Gulf of Finland with 100% efficiency. However, one should bear in mind that the MAI for nitrogen to Gulf of Finland was determined from applying the HEAT approach, balancing nitrogen and phosphorus concentrations, so if MAI for phosphorus to Gulf of Finland is not achieved fully additional reductions on nitrogen inputs might be necessary.

Principles

8. **Following the precautionary principle, extra reduction accounting cannot be used to purposely increase inputs to a basin**

   Although accounting of extra reductions is based current scientific knowledge and modelling, it comes with significant uncertainty and will sooner or later be subject of improvement. Therefore, it would be a risk for the environment to increase inputs to basins based on this methodology. In addition, a prerequisite for the calculations here is an environment close to GES and additional inputs today may cause significant deterioration of the present state.

Equivalent reductions of phosphorus

	KT	DS	BP	BS	BB	GR	GF
KT	1	4.0	–	–	–	–	–
DS	0.8	1	3.2	–	–	–	–
BP	2.4	2.8	1	3.3	7.7	–	3.8
BS	3.8	4.6	1.5	1	2.6	–	5.8
BB	–	–	9.0	8.3	1	–	–
GR	3.6	4.3	1.6	4.8	–	1	6.5
GF	3.6	4.2	1.3	4.1	–	–	1

Equivalent reductions on Nitrogen

	KT	DS	BP	BS	BB	GR	GF
KT	1	7.3	–	–	–	–	–
DS	1.7	1	4.6	–	–	–	–
BP	–	–	1	–	–	–	–
BS	–	–	–	1	7.8	–	–
BB	–	–	–	1.1	1	–	–
GR	–	–	1.3	–	–	1	–
GF	–	–	4.0	–	–	–	1

Example, Sweden

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Table 3: The extra and missing reductions of phosphorus from Sweden according to the latest CART assessment. Sweden has no reduction requirements on phosphorus to Gulf of Riga and Gulf of Finland.

Basin	Extra reduction	Missing reduction
KT		67
DS	16	
BP		430
BS	176	
BB		100

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Focus on the Bothnian Sea extra reduction

Table 4: Calculation of effective reductions for the extra reduction from Sweden to Bothnian Sea.

Basin	Equivalent reduction	Calculation	Effective reduction
KT	3.8	176/3.8	46
DS	4.6	176/4.6	38
BP	1.5	176/1.5	117
BB	2.6	176/2.6	68

Focus on using the 117 tons for the Baltic Proper

This means that it remains 430 – 117 = 313 tons for Sweden to reduce to BP

How about the other basins?

- In this case, the Extra reduction in BS can not be used in DS and KT, because the effect is “removed” by the missing reduction in BP
- For Bothnian Bay there will be:
  - Improvement because of the extra reduction in Bothnian Sea although than given in the table because Baltic Proper loads are higher than MAI and compensated by flux of nutrients to Gulf of Bothnia

  68 tons from BS extra reduction – (117/7.7 =) 15 tons = 53 tons

Concluding remarks

- It is not so straightforward to do the calculations in practice
- When evaluating remaining reductions needed one have to make a selection on what basins that extra reductions should be used on in order to complete the calculation
- The analysis will be done as examples for all relevant countries following the principles