



## Baltic Marine Environment Protection Commission

First Meeting of the Working Group on Reduction of  
Pressures from the Baltic Sea Catchment Area  
Helsinki, Finland, 30-31 October 2014

PRESSURE 1-2014

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<b>Document title</b>	Proposal for the overall framework and contents of the nutrient reduction scheme follow-up system
<b>Code</b>	5-1
<b>Category</b>	DEC
<b>Agenda Item</b>	5 - Follow-up of the HELCOM nutrient reduction scheme
<b>Submission date</b>	9.10.2014
<b>Submitted by</b>	Chairman of LOAD, BNI and Secretariat

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### Background

The first version of the HELCOM nutrient reduction scheme follow-up system should be finalized prior to the next meeting of the Helsinki Commission in March 2014. This implies development of assessments for following up on the progress towards fulfilment of the new Maximum Allowable Inputs (MAI) and Country-wise Allocation of Reduction Targets (CART) adopted by the 2013 HELCOM Copenhagen Ministerial Meeting.

This document presents:

- An overview of a proposed structure and contents of the follow-up scheme
- Draws attention to the challenges for implementing the follow-up scheme that need to be addressed
- A road map for completing a first version of the follow-up scheme by March 2015, and
- Open issues that should be discussed and considered by the new Working Group on Reduction of Pressures from the Baltic Sea Catchment Area, including how to operationalize the future updating of the MAI and CART assessment products.

Drafts of (1) the core pressure indication of nutrient inputs for follow-up of MAI and (2) the CART follow-up assessment will be presented to the meeting as separate documents (documents 3-2 and 3-3 – the latter to be submitted later).

This document and the core pressure indicator on nutrient inputs have also been submitted as meeting documents to LOAD 8-2014 (which take place just prior to the PRESSURE\* 1-2014 meeting) and comments from LOAD 8-2014, or slightly amended versions of these documents, may be submitted at a late stage to the Meeting.

HOD 46-2014 has requested this Working Group to prioritize this work and come up with a proposal how the work could be organized.

### Action required

The Meeting is invited to:

- consider the proposal for the nutrient reduction scheme follow-up system, taking into account also possible comments from LOAD 8-2014, and to provide guidance for its further elaboration and implementation
- discuss and recommend how to organize the work for future development and updating of the nutrient reduction scheme follow-up system.

## Proposal for the overall framework and contents of the nutrient reduction scheme follow-up system

The first version of the HELCOM nutrient reduction scheme follow-up system should be finalized prior to the next meeting of the Helsinki Commission in March 2015. This implies development of assessments for following up on the progress towards fulfilment of the revised Maximum Allowable Inputs (MAI) and the new Country-wise Allocation of Reduction Targets (CART) adopted by the 2013 HELCOM Copenhagen Ministerial Meeting.

HOD 46-2014 considered information on the progress with follow-up of the HELCOM nutrient reduction scheme ([document 4-17](#)). The meeting noted 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 and inland surface water retention in countries receiving transboundary waterborne inputs, for which dedicated expert resources and a formal arrangement, or a project will need to be established. HOD 46-2014 requested the new Working Group on Reduction of Pressures from the Baltic Sea Catchment Area to prioritize this work and come up with a proposal how the work could be organized for the HOD 47-2014 meeting in December.

This document presents:

- An overview of a proposed structure and contents of the follow-up scheme
- Draws attention to the challenges for implementing the follow-up scheme that need to be addressed
- A road map for completing a first version of the follow-up scheme by March 2015, and
- Open issues that should be discussed and considered by the new Working Group on Reduction of Pressures from the Baltic Sea Catchment Area including how to establish an operational, regular process for following up progress in nutrient input reductions.

### Requirements of the follow-up system

Based on discussions at LOAD 7-2013 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:
  - i. 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)
  - ii. 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)

The follow-up of CARTs is further complicated by the principles set out by the 2013 Copenhagen Ministerial Declaration, 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.<sup>1</sup>

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<sup>1</sup> 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 Target

## Structure of the follow-up system

An overview of the proposed framework, workflow and content of the nutrient reduction scheme follow-up system is presented as a flow diagram in **figure 1**.

The HELCOM nutrient reduction scheme follow-up system consists of three main components:

1. Compilation of data on airborne and waterborne nutrient inputs including quality assurance (based on waterborne input data reporting by Contracting Parties to the HELCOM PLC-Water database and atmospheric deposition modeled by EMEP based on emission data provided by countries, where the PLC-Water database is handled by the PLC-water database manager).
2. Processing of data to get the necessary figures for assessment of progress:
  - i. Filling in gaps and correcting suspicious data (so far carried out by PLC-5.5 project (already finalized) and LOAD core group assisted by the PLC-Water database manager)
  - ii. Normalization of the input data to remove effects of interannual variability caused by meteorological conditions (so far carried out by BNI, Sweden, acting also as PLC database Host and Application Developer)
  - iii. Statistical trend analysis (so far carried out by DCE, Denmark, under PLC-5.5 project)
3. Preparation of the follow-up assessments
  - i. Making of tables, graphs, maps and text (so far carried out by Chair of LOAD, BNI and Secretariat)

Two separate assessment products are needed to follow up on the progress of the MAI and CART:

1. Follow-up of progress towards fulfilling maximum allowable inputs (MAI) via a core pressure indicator on nutrient inputs with the following main content:
  - i. Evaluation of whether the latest annual normalized air- and waterborne inputs of nitrogen and phosphorus to the sub-basins are above or below the MAI using a statistical [method developed as a part of the PLC-6 project](#)
  - ii. Evaluation of trends in air and waterborne inputs to the Baltic Sea sub-basins since 1995
  - iii. Presentation of the percentage change in annual normalized inputs since the reference period (average normalized input during 1997-2003) in order to show the progress towards reaching MAI
  - iv. Presentation of the actual air- and waterborne inputs of nitrogen and phosphorus to sub-basins from the latest available year as indication of the actual nutrient pressure to the Baltic Sea
  - v. Assessment of how much reduction is still needed to reach MAI

*Note: No country-wise input assessment is made because core indicators are focused on the pressure on the Baltic Sea itself*

The indicator is in line with MSFD reporting requirements and follows the common core 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.

2. Follow-up of progress towards fulfilling country-wise allocation of reduction targets (CART) via a separate CART follow-up assessment system with the following main content.
  - i. Average annual country-wise normalized net inputs of nitrogen and phosphorus of latest years are compared to the reference period 1997-2003 and the reduction requirements
  - ii. Evaluation of trends in air- and waterborne inputs from each country/source since 1995
  - iii. Assessment of statistical certainty whether country-wise (Contracting Parties, non-HELCOM countries, shipping etc.) average normalized latest years net input (i.e. taking into account retention) is above or below CART
  - iv. Assessment of how much reduction is still needed to reach CART

*Note: No basin-wise input assessment is made as the CART follow-ups are focused on the nutrient reductions requirements from each country/source*

A simple web-based assessment product 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) for each country/sources.

## HELCOM nutrient reduction scheme follow-up

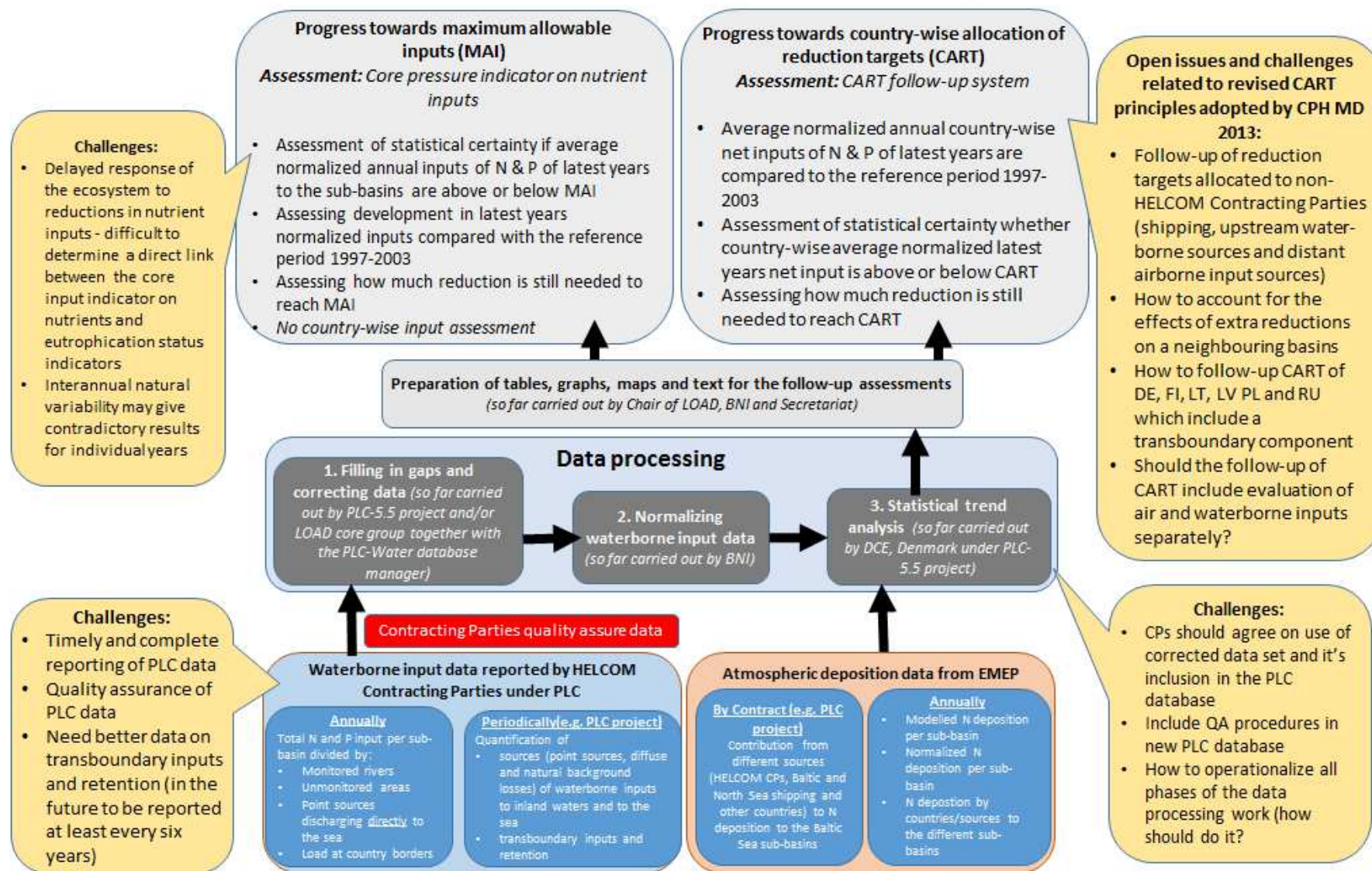


Figure 1. Flow chart of the proposed framework, workflow and content of the nutrient reduction scheme follow-up system



## Challenges for implementing the follow-up scheme

Although HELCOM already has a fairly well-established system for compiling data on pollution inputs (PLC data) to the Baltic Sea much work is still needed to establish an operational follow-up of progress towards MAI and CART. There are shortcomings in the PLC data that need to be addressed, systems need to be set up for processing the PLC data so that they can be used for making follow-up assessments, and assessment methodologies need to be developed to meet the requirements set out by the 2013 Copenhagen Ministerial Declaration.

### 1. The necessary data basis:

- i. Complete and quality assured waterborne input (PLC) data should be reported by Contracting Parties
- ii. Waterborne input data should be reported on time and in compliance with the requirements set out in the PLC guidelines
- iii. Contracting Parties need to report transboundary inputs data annually and retention data at the minimum in connection with periodic assessments
- iv. The PLUS project for modernization of the PLC-Water database will facilitate smoothly data upload and quality assurance procedures
- v. Need for better data on transboundary inputs and estimates of inland surface water retention in receiving countries. This includes a need to define who will, and how to, coordinate cooperation with non-Contracting Parties and international river basin commissions to get this information

### 2. Data processing:

- i. Need to agree on who will fill in gaps and correct suspicious data based on commonly agreed principles
- ii. Find a procedure where Contracting Parties smoothly will agree on that corrected data can be used for HELCOM assessment purposes (and included in the PLC database - marked (flagged) as estimated/corrected values)
- iii. Need to agree on how to operationalize the normalization of the input data (at a later stage it might be possible to include this functionality in the modernized PLC-Water database – but this task is not included as a highest priority functional specification of the current PLUS project)
- iv. Need to agree on who will carry out the statistical trend analysis
- v. Need to agree on how to cover the costs of these additional tasks, which are not included in the current PLC data management contract

### 3. Follow-up assessments

- i. Need to agree on who will update the tables, graphs, maps and text of the MAI and CART follow-up assessments. (Until the new PLC database can handle also normalized data, it will not be possible to produce most of the necessary data products via the web application of the database.)
- ii. Core input indicator:
  - Interannual natural variability may result in contradictory results for individual years, i.e., when inputs are close to MAI, some years may be below and others above. The developed statistical test on MAI fulfilment should be further developed to also take into account natural variation when inputs are close to MAI.
  - It is challenging to directly link between the core pressure indicator on nutrient inputs and core indicators and assessments on eutrophication status since the marine ecosystem is complex and there is a delay in the response of the ecosystem to reductions in nutrient inputs. Further work is needed to explore this aspect.
- iii. CART follow-up assessment:

- Need to develop methodology for how to 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.
- Need to improve estimates/modelling of retention for most of the catchment receiving transboundary inputs
- Need to establish “input-ceilings” for each country/source
- Need to develop methodology for how to account for extra reductions in one basin for CART in another basin requires development.

## Road map for completing a first version of the follow-up scheme by March 2014

### 1. 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: A first complete draft of the Core Pressure Indicator of Nutrient Inputs was presented and discussed at CORESET II 2/2014 meeting
2. October 2014: LOAD 8-2014 and the 1<sup>st</sup> meeting of the new Working Group on Reduction of Pressures from the Baltic Sea Catchment Area to consider and provide final comments on the draft core indicator based on data up to 2010
3. November 2014: Final draft of the core indicator to be submitted to HOD 47-2014 for endorsement
4. January 2015: The core indicator to be updated based on data up to 2012
5. March 2015 and HELCOM 36-2015: Core indicator published and available on HELCOM website

### 2. CART follow-up assessment

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. October 2014: A proposal for the contents of the CART follow-up assessment (based on data up to 2010) to be presented to the meetings of LOAD 8-2014 and the 1<sup>st</sup> meeting of the new Working Group on Reduction of Pressures from the Baltic Sea Catchment Area for consideration and commenting.
2. November 2014: A draft of the preliminary<sup>2</sup> CART follow-up assessment to be submitted to HOD 47-2014 for endorsement
3. January 2015: The preliminary CART follow-up assessment to be updated with data up to 2012
4. March 2015 and HELCOM 36-2015: The preliminary CART follow-up assessment to be published and available via the HELCOM website.
5. 2015: A working arrangement and/or project to take care of different components of the data processing as well as further develop access to data and assessment methodology for the follow-up of progress towards CART.

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<sup>2</sup> Due to open issues and the need for further development of assessment tools to follow-up progress towards CART, the first version of the CART follow-up assessment should be considered preliminary, with the understanding that it will be further developed over time as new data and methodologies become available.

## Open issues that should be discussed and considered by the new Working Group on Reduction of Pressures from the Baltic Sea Catchment Area

### **A. How to organize the follow-up process of the HELCOM nutrient reduction scheme:**

1. There should be some guidance/agreement on the updating frequency of the MAI and CART assessment products. Based on the availability of data, it could be feasible to update the:
  - MAI follow-up assessment on an annual basis (if Contracting Parties submit complete datasets on time)
  - CART follow-up assessment every three years, taking into account also reporting requirements under the WFD and MSFD. This is to reflect the fact that additional data are required (especially on transboundary inputs and retention) and assessment methods need further development.
2. How do we operationalize the updating of the MAI and CART assessment products?
3. In what framework should further development of CART assessment methodology be carried out?

### **B. Main technical questions/issues to consider/solved in the follow-up process of the HELCOM nutrient reduction scheme**

1. Does HELCOM need to separately follow-up on the explicit numbers on transboundary inputs between Contracting Parties in the 2013 CART (i.e., Finland and Germany) or should this be done at the national level?
2. How do we get improved data on transboundary inputs and retention from non-Contracting Parties?
3. 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.
4. Should the follow-up of CART also include evaluation of air and waterborne inputs separately?
5. How should extra reductions by a country to one basin be accounted for in terms of adjusting CART to adjacent basins (see footnote 1)?

### **C. Initial ideas for a way forward**

1. A liaising group (between technical PLC work and the new Working Group on Reduction of Pressures from the Baltic Sea Catchment Area): The work carried out so far by the LOAD core group could continue also in the future, especially for coordinating the work carried out by the projects related to monitoring and assessment of pollution inputs and the further development of the nutrient reduction scheme follow-up. The core group would be in position to evaluate the progress in PLC related work and address the Pressure Working Group with any challenges. It would also coordinate PLC work not specifically covered by a separate project such as airborne inputs and further development and regular updating of the nutrient reduction scheme follow-up. It is therefore suggested that the current LOAD core group would continue its work (probably with a new name), and would consist at least of the Chair of former LOAD expert group, relevant project managers, data consultants and database managers, including BNI, as well as the Secretariat. The core group would be open to any other representatives from the Contracting Parties wishing to participate in the work. The core group would report to the Pressure Group and work according to a mandate given in the ToR to be developed.
2. Improving transboundary inputs and retention data. This work should preferably be carried out within the framework of a project.
3. Resources needed for operationalization and maintenance of the MAI-CART follow-up system. As far as possible, resources and budgetary implications of the data processing and assessment work



could be included in PLC related contracts (the calculation of normalized inputs, elaboration of the assessments). For this purpose the contents of the future contracts would need to be revised, which should also take into account the change of the tasks due to the new PLC database and PLUS web application being put in place. Calculation of statistical methods, however, might require additional funding. The Secretariat would be responsible for initiating the new content of the contracts.



## Baltic Marine Environment Protection Commission

First Meeting of the Working Group on Reduction of Pressures from the Baltic Sea Catchment Area  
Helsinki, Finland, 30-31 October 2014

PRESSURE 1-2014, 5-3

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<b>Document title</b>	Proposal for a CART follow-up system
<b>Code</b>	5-3
<b>Category</b>	CMNT
<b>Agenda Item</b>	5 - Follow-up of the HELCOM nutrient reduction scheme
<b>Submission date</b>	29.10.2014
<b>Submitted by</b>	LOAD Chair, BNI and Secretariat

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### Background

The attached document contains a draft of the preliminary follow-up assessment of the country-wise allocated reduction targets on nutrients (CART) decided by the 2013 Copenhagen HELCOM Ministerial Declaration. Document 5-1, 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.

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 further consideration:

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.

The meeting of LOAD 8-2014 consider the attached draft CART follow-up assessment and provided the following feedback:

1. Suggested to make it more user-friendly by splitting it 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 (could be a separate publication)

2. Include an annex with just the national input ceilings (as these are probably of most interest to the Contracting Parties)
3. Sort some of the tables according to Contracting Party rather than by basin.
4. The example illustrating the importance of retention for CART should be moved to an annex
5. It would be helpful to have arrows showing the direction of the trend in tables 6a and 6b.

LOAD 8-2104 discussed how to proceed with the further elaboration of the CART follow-up assessment, bearing in mind that BNI, Stockholm University and DCE, Aarhus University who developed the draft have received an updated MAI-CART follow-up dataset with errors that will require substantial additional work (new flow normalization and repeating the statistical analysis) and affects the original proposed time table. 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 and that the next PLC-6 workshop (to be held on 15-17 December 2014) should be used partly to discuss and resolve remaining technical issues and to further elaborate the CART follow-up assessment. In January 2015 the preliminary CART follow-up assessment will be finalized by internal working procedures before it is send to HELCOM 36-2015.

#### Action required

The Meeting is invited to:

- consider and discuss the draft of the proposal for a CART follow-up assessment
- provide advice for finalizing a draft of the CART follow-up assessment before it is submitted to HOD 47-2014 for endorsement, and
- support the road map for finalizing the preliminary CART follow-up assessment for HELCOM 36-2015.

## Proposal for a CART follow-up system

### Authors

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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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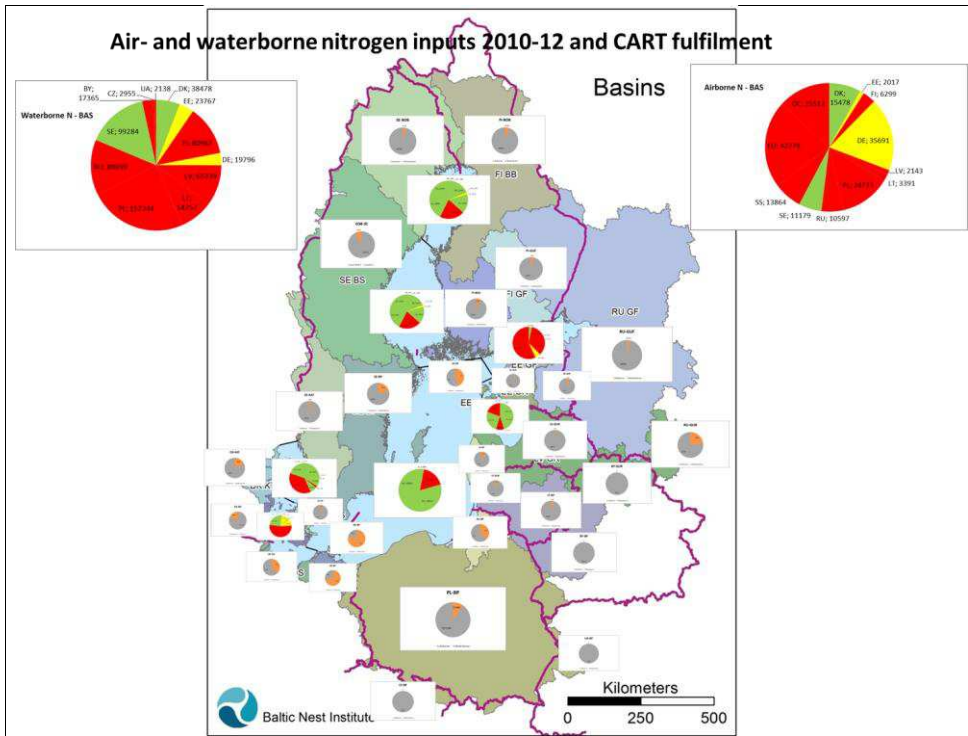
### Summary/main conclusion

Country allocated reduction requirements (CART) of nitrogen and phosphorus have been expressed 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
- ...

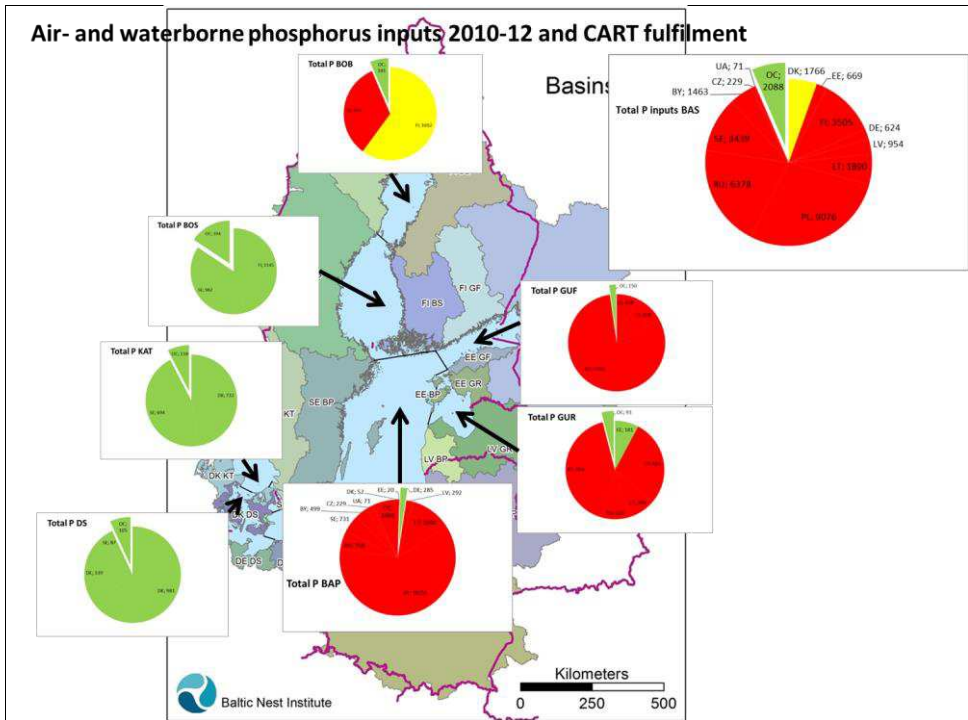
**Commented [LMS1]:** These conclusion will be extended and completed, when we have the results of the statistical analyses



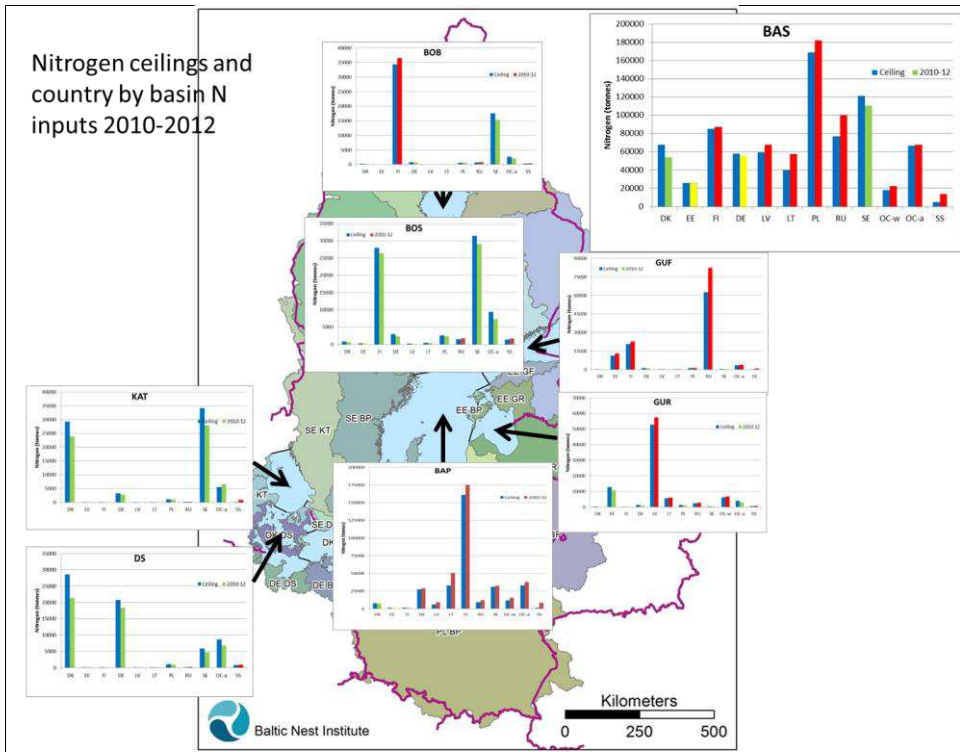
**Figure 1a:** Average net air- and waterborne nitrogen inputs (normalized) per country and basin during 2010-12 and to the Baltic Sea. The numbers in the figures are nitrogen input (water- or airborne) in tonnes. Countries with waterborne nitrogen inputs to a sub-basin are shown separately on the catchment 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 [LMS2]:** We are aware to it might be difficult to see all details. Figures to be updated when statistical analysis are ready – the colours are provisional. The intention is to also color the catchment according to fulfilment of CART. The figure is elaborated to follow same concept as for MAI-follow up – we can discuss how to make it more readable. In annex figure A1 the figures regarding BP is shown with a higher resolution





**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 [LMS3]:** Colours will be updated when statistical analysis are ready

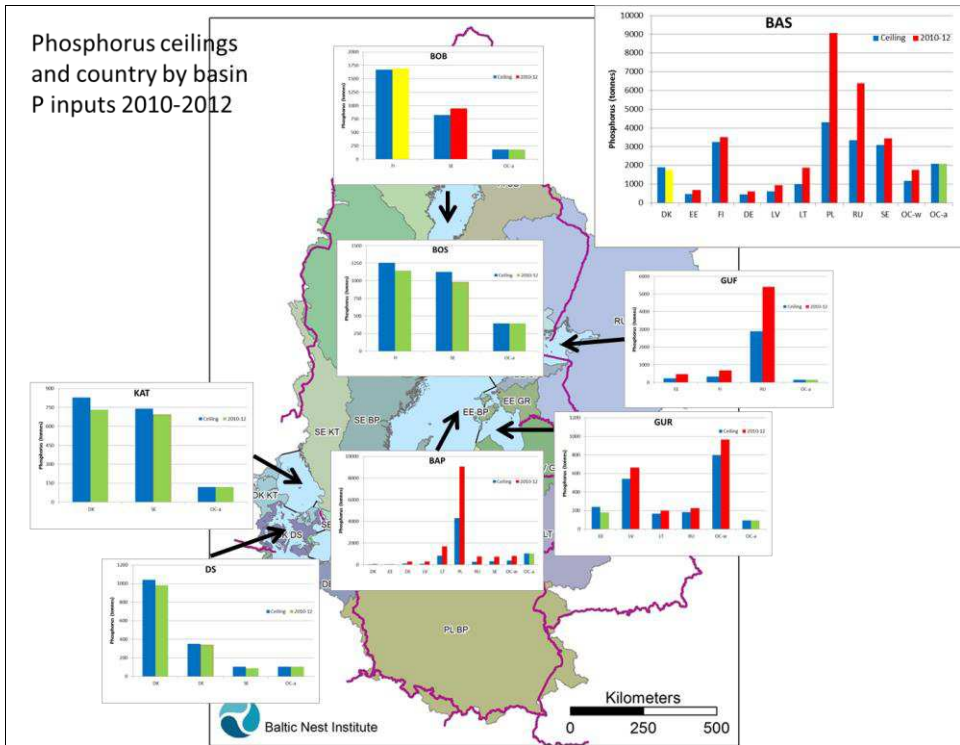


Figure 2b: Net phosphorus ceilings per country pr. sub-basin and average air- and waterborne nitrogen inputs in 2010-12. Red: nitrogen ceilings are not fulfilled. Yellow colour: it can't be judged with statistical certainty if average input in 2010-12 is higher than the ceiling. Green colour: Nitrogen 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 <sup>1</sup>	2,430+600*	330+26*
Germany <sup>1</sup>	7,170+500*	110+60*
Latvia	1,670	220
Lithuania	8,970	1,470
Poland <sup>2</sup>	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	
<b>Total</b>	<b>118,134</b>	<b>15,178</b>

<sup>1</sup>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;

<sup>2</sup>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

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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 than 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.

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
<b>Sum</b>	<b>325001</b>	<b>43132</b>	<b>44</b>

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
<b>Sum</b>	<b>101800</b>	<b>-9888</b>	<b>-68</b>
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
<b>Sum</b>	<b>74001</b>	<b>15155</b>	<b>318</b>

**Commented [LMS4]:** In the final version of table 2-5 statistical significant reductions will be indicated with bold

**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
<b>Sum</b>	<b>57622</b>	<b>712</b>	<b>n/a</b>
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
<b>Sum</b>	<b>88418</b>	<b>-2435</b>	<b>n/a</b>
DS	Ceiling	Reduction	% of CART

DK	854	253	n/a	DK	28588	7271	n/a
EE	299	2	n/a	EE	17	2	n/a
FI	27978	1596	n/a	FI	60	18	n/a
DE	2994	649	n/a	DE	20708	2339	n/a
LV	258	-12	n/a	LV	23	1	n/a
LT	464	41	n/a	LT	51	7	n/a
PL	2647	256	n/a	PL	1061	132	n/a
RU	1465	-386	n/a	RU	164	-9	n/a
SE	31501	2403	n/a	SE	5869	1134	n/a
OC	9451	2105	n/a	OC	8631	1768	n/a
SS	1461	-286	n/a	SS	826	-122	n/a
<b>Sum</b>	<b>79372</b>	<b>6621</b>	<b>n/a</b>	<b>Sum</b>	<b>65998</b>	<b>12541</b>	<b>n/a</b>

**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
<b>Sum</b>	<b>7360</b>	<b>3571</b>	<b>33</b>
GF	Ceiling	Reduction	% of CART
EE	236	36	13
FI	322	18	5
RU	2892	773	24
OC	150	0	n/a
<b>Sum</b>	<b>3600</b>	<b>828</b>	<b>21</b>
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
<b>Sum</b>	<b>2020</b>	<b>5</b>	<b>2</b>

BB	Ceiling	Reduction	% of CART
FI	1668	-24	n/a
SE	826	-118	n/a
OC	181	0	n/a
<b>Sum</b>	<b>2675</b>	<b>-142</b>	<b>n/a</b>
BS	Ceiling	Reduction	% of CART
FI	1255	110	n/a
SE	1125	143	n/a
OC	394	0	n/a
<b>Sum</b>	<b>2773</b>	<b>253</b>	<b>n/a</b>
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
<b>Sum</b>	<b>1601</b>	<b>88</b>	<b>n/a</b>
KT	Ceiling	Reduction	% of CART
DK	829	97	n/a
SE	740	46	n/a
OC	118	0	n/a
<b>Sum</b>	<b>1687</b>	<b>143</b>	<b>n/a</b>

**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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BOB	Reference 1997-2003				2010 - 2012				Reduction
	Water	Air	Transb.	Net	Water	Air	Transb.	Net	
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
<i>Sum</i>	<i>49437</i>	<i>8185</i>	<i>0</i>	<i>57622</i>	<i>49570</i>	<i>7341</i>	<i>0</i>	<i>56910</i>	<i>712</i>
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
<i>Sum</i>	<i>54605</i>	<i>24767</i>	<i>0</i>	<i>79372</i>	<i>51344</i>	<i>21407</i>	<i>0</i>	<i>72751</i>	<i>6621</i>
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
<i>Sum</i>	<i>297679</i>	<i>126243</i>	<i>0</i>	<i>423922</i>	<i>273816</i>	<i>106975</i>	<i>0</i>	<i>380790</i>	<i>43132</i>

**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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GUF	Reference 1997-2003				2010 - 2012				Reduction
	Water	Air	Transb.	Net	Water	Air	Transb.	Net	
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
<b>Sum</b>	<b>102919</b>	<b>13333</b>	<b>0</b>	<b>116252</b>	<b>114144</b>	<b>11997</b>	<b>0</b>	<b>126141</b>	<b>-9888</b>
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
<b>Sum</b>	<b>78373</b>	<b>10045</b>	<b>0</b>	<b>88418</b>	<b>82117</b>	<b>8736</b>	<b>0</b>	<b>90852</b>	<b>-2435</b>
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
<b>Sum</b>	<b>41605</b>	<b>24393</b>	<b>0</b>	<b>65998</b>	<b>33479</b>	<b>19978</b>	<b>0</b>	<b>53457</b>	<b>12541</b>

**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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KAT	Reference 1997-2003				2010 - 2012				Reduction
	Water	Air	Transb.	Net	Water	Air	Transb.	Net	
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
<b>Sum</b>	<b>58484</b>	<b>20278</b>	<b>0</b>	<b>78762</b>	<b>46821</b>	<b>16786</b>	<b>0</b>	<b>63607</b>	<b>15155</b>
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
<b>Sum</b>	<b>683102</b>	<b>227244</b>	<b>0</b>	<b>910346</b>	<b>651289</b>	<b>193220</b>	<b>0</b>	<b>844508</b>	<b>65838</b>



**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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BOB	Reference 1997-2003				2010 - 2012				Reduction
	Water	Air	Transb.	Net	Water	Air	Transb.	Net	
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
<i>Sum</i>	<i>2494</i>	<i>181</i>	<i>0</i>	<i>2675</i>	<i>2636</i>	<i>181</i>	<i>0</i>	<i>2817</i>	<i>-142</i>
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
<i>Sum</i>	<i>2379</i>	<i>394</i>	<i>0</i>	<i>2773</i>	<i>2127</i>	<i>394</i>	<i>0</i>	<i>2521</i>	<i>253</i>
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
<i>Sum</i>	<i>17274</i>	<i>1046</i>	<i>0</i>	<i>18320</i>	<i>13703</i>	<i>1046</i>	<i>0</i>	<i>14749</i>	<i>3571</i>
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
<i>Sum</i>	<i>7359</i>	<i>150</i>	<i>0</i>	<i>7509</i>	<i>6532</i>	<i>150</i>	<i>0</i>	<i>6682</i>	<i>828</i>
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
<i>Sum</i>	<i>2235</i>	<i>93</i>	<i>0</i>	<i>2328</i>	<i>2231</i>	<i>93</i>	<i>0</i>	<i>2324</i>	<i>5</i>

**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.

DS	Reference 1997-2003				2010 - 2012				Reduction
	Water	Air	Transb.	Net	Water	Air	Transb.	Net	
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
<i>Sum</i>	<i>1496</i>	<i>105</i>	<i>0</i>	<i>1601</i>	<i>1408</i>	<i>105</i>	<i>0</i>	<i>1513</i>	<i>88</i>
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
<i>Sum</i>	<i>1569</i>	<i>118</i>	<i>0</i>	<i>1687</i>	<i>1426</i>	<i>118</i>	<i>0</i>	<i>1544</i>	<i>143</i>
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
<i>Sum</i>	<i>34807</i>	<i>2087</i>	<i>0</i>	<i>36894</i>	<i>30062</i>	<i>2087</i>	<i>0</i>	<i>32149</i>	<i>4745</i>

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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:

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- 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 corresponding ceilings using a statistical method (see annex and Larsen & Svendsen, 2013) to evaluate progress in fulfilling nutrient reduction requirements (Tables 6a and 6b). Denmark fulfill its nitrogen ceilings to the seven HELCOM sub-basins. For Baltic Proper all countries except 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 [LMS6]: Text further elaborated when statistical analysis are ready

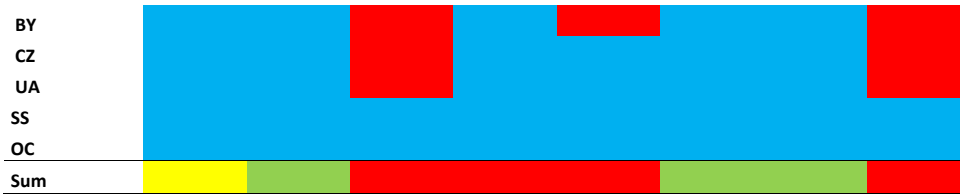
Commented [LMS7]: The evaluation for country per basin is a qualified guess to show a possible result. Will be updated when the statistical analysis are finalized.

Country\Basin	BB	BS	BP	GF	GR	DS	KT	Sum
DK	Green	Green	Green	Green	Green	Green	Green	Green
EE	Yellow	Yellow	Yellow	Red	Yellow	Yellow	Yellow	Red
FI	Red	Green	Red	Green	Green	Green	Green	Red
DE	Yellow	Yellow	Red	Red	Red	Yellow	Yellow	Red
LV	Green	Green	Red	Red	Red	Yellow	Yellow	Red
LT	Green	Green	Red	Yellow	Green	Green	Green	Red
PL	Red	Red	Red	Red	Red	Yellow	Red	Red
RU	Red	Red	Red	Red	Red	Yellow	Red	Red
SE	Green	Green	Red	Green	Green	Green	Yellow	Red
BY	Blue	Blue	Blue	Blue	Red	Blue	Blue	Red
CZ	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Red
UA	Red	Red	Red	Red	Red	Red	Red	Red
SS	Red	Red	Red	Red	Red	Red	Red	Red
OC	Green	Green	Red	Green	Green	Green	Green	Red
Sum	Green	Green	Red	Red	Red	Green	Green	Red

**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 [LMS8]: 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	Blue	Blue	Red	Blue	Blue	Green	Green	Red
EE	Blue	Blue	Blue	Red	Green	Blue	Blue	Red
FI	Yellow	Green	Blue	Red	Green	Blue	Blue	Red
DE	Blue	Blue	Red	Blue	Blue	Green	Blue	Red
LV	Blue	Blue	Red	Blue	Red	Blue	Blue	Red
LT	Blue	Blue	Red	Blue	Red	Blue	Blue	Red
PL	Blue	Blue	Red	Blue	Blue	Blue	Blue	Red
RU	Blue	Blue	Red	Red	Red	Blue	Blue	Red
SE	Red	Green	Red	Blue	Blue	Green	Green	Red



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]

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**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

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**Table 8.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.

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		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

[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.

	BB	BS	BP	GF	GR	DS	KT
<b>Input ceiling</b>	57,622	79,372	325,001	101,800	88,418	65,998	74,001
<b>Input 2010-12</b>	56,910	72,751	380,790	126,141	90,852	53,457	63,607
<b>Input2010-12 minus input ceiling</b>	<b>-712</b>	<b>-6,621</b>	55,789	24,341	2,434	<b>-12,541</b>	<b>-10,394</b>
<b>Uncertainty</b>	1,581	2,909	16,803	2,372	6,388	5,621	6,215
<b>Fulfilment margin</b>	no	no	-	-	-	<b>6,920</b>	<b>4,179</b>

**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.

	BB	BS	BP	GF	GR	DS	KT
<b>Input ceiling</b>	2,675	2,773	7,360	3,600	2,020	1,601	1,687
<b>Input 2010-12</b>	2,817	2,521	14,749	6,682	2,324	1,513	1,544
<b>Input2010-12 minus input ceiling</b>	142	<b>-252</b>	7,389	3,082	304	<b>-83</b>	<b>-143</b>
<b>Uncertainty</b>	130	161	544	237	281	100	84
<b>Fulfilment margin</b>	-	<b>91</b>	-	-	-	no	<b>59</b>

### [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.

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**Commented [LMS9]:** 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)

**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)

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
<b>Total</b>	<b>4,761</b>	<b>100</b>	<b>4,179</b>	<b>15155</b>	<b>100</b>	<b>4,179</b>

#### 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.

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

**Commented [LMS11]:** When the statistical tests have been performed significant changes will be shown in bold

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<b>EU</b>	-26,9	-26,8	-26,0	-26,7	-26,2	-28,4	-26,9	-26,5
<b>OC</b>	-13,1	-15,5	-9,3	-18,3	-14,5	6,4	7,1	-8,9
<b>ALL</b>	-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.

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								
<b>ALL</b>	0,3	-6,0	-8,0	10,9	4,8	-19,5	-19,9	-4,7

**Commented [LMS12]:** When the statistical tests have been performed significant changes will be shown in bold

**Table 11c:** 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.

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

**Commented [LMS13]:** When the statistical tests have been performed significant changes will be shown in bold

PRESSURE 1-2014, 5-3

<b>SS</b>	22,0	19,5	15,8	19,7	19,0	14,8	16,5	16,8
<b>EU</b>	-26,9	-26,8	-26,0	-26,7	-26,2	-28,4	-26,9	-26,5
<b>OC</b>	-13,1	-15,5	-9,3	-18,3	-14,5	6,4	7,1	-8,9
<b>ALL</b>	-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 [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
<b>DK</b>			-11,9			-5,6	-11,7	-8,4
<b>EE</b>			-13,2	-7,1	-34,5			-16,7
<b>FI</b>	1,4	-8,8		-2,7				-2,9
<b>DE</b>			3,2			-3,2		-0,4
<b>LV</b>			44,1		5,3			14,8
<b>LT</b>			-25,6		4,2			-23,3
<b>PL</b>			-23,0					-23,0
<b>RU</b>			0,0	-12,5	4,2			-10,7
<b>SE</b>	14,3	-12,7	-13,2			-17,4	-6,2	-5,5
<b>BY</b>			-25,3		41,9			-8,2
<b>CZ</b>			-22,3					-22,3
<b>UA</b>			-22,3					-22,3
<b>SS</b>								
<b>EU</b>								
<b>OC</b>	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>ALL</b>	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 [LMS15]:** When statistical analysis are ready a trend line will be added to all figures (full line with statistical trend, dotted lines with 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	-

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**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	-

**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	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-	-16	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-33	-27	<i>n.i.</i>	<i>n.i.</i>
DK	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-33	-33	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-42	-41	-29	-26
EE	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-	-26	-	-11	-	-38	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>
FI	16	-24	-	-16	<i>n.i.</i>	<i>n.i.</i>	-15	-16	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>
LV	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-	105	<i>n.i.</i>	<i>n.i.</i>	-	61	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>
LT	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	(-39)	-38	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>
PL	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-26	-25	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>
RU	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-	-	-	-7.7	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>
SE	-	-21	-	-33	-20	-24	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</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	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-	-	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	(-16)	(-16)	<i>n.i.</i>	<i>n.i.</i>
DK	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-31	-12	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-36	-26	-28	-18
EE	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-	-	(22)	-	-	(-37)	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>
FI	17	-21	-	-	<i>n.i.</i>	0	-	-	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>
LV	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-	106	<i>n.i.</i>	<i>n.i.</i>	(-24)	91	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>
LT	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	(-39)	-36	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>
PL	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-26	-25	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>
RU	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-	-	-	-	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>
SE	-	-	-	-34	-19	-20	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</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	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-92	-82	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-83	-83	<i>n.i.</i>	<i>n.i.</i>
DK	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-88	-94	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-75	-78	-60	-79
EE	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-19	-41	-	-	-	(-31)	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>
FI	-36	-48	-38	-53	<i>n.i.</i>	<i>n.i.</i>	-60	-49	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>
LV	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-56	-73	<i>n.i.</i>	<i>n.i.</i>	-2	-92	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>
LT	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-77	-91	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>
PL	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	(-44)	-	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>
RU	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-	-	-27	(-69)	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>
SE	-	-29	-	-32	-51	-42	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	<i>n.i.</i>	-57	-57	-43	-48

]

**Commented [LMS16]:** Data replace with result of the statistical 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 than 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 <sup>3</sup> /s	2012 m <sup>3</sup> /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
<b>Total</b>	<b>15,715</b>	<b>17,990</b>	<b>185,778</b>	<b>628,730</b>	<b>814,508</b>	<b>2,087</b>	<b>28,083</b>	<b>30,171</b>

## 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

Gustafsson, B.G & Mörtz, C.M. In prep. Revision of the Maximum Allowable Inputs and Country Allocation Scheme of the Baltic Sea Action Plan V. 3 with contributions from the BNI team: Bärbel Müller-Karulis, Erik Gustafsson, Bonghi Hong, Christoph Humborg, Steve Lyon, Marmar Nekoro, Miguel Rodriguez-Medina, Oleg Savchuk, Erik Smedberg, Alexander Sokolov, Dennis Swaney, & Fredrik Wulff. Baltic Nest Institute, Stockholm University, SE-106 91 Stockholm.

HELCOM in prep. Updated Fifth Baltic Sea pollution load compilation (PLC-5.5). Baltic Sea Environment Proceedings.

HELCOM 2013a. HELCOM Copenhagen Declaration "Taking Further Action to Implement the Baltic Sea Action Plan - Reaching Good Environmental Status for a healthy Baltic Sea". Adopted 3 October 2013.

HELCOM 2013b. Summary report on the development of revised Maximum Allowable Inputs (MAI) and updated Country Allocated Reduction Targets (CART) of the Baltic Sea Action Plan. Supporting document for the 2013 HELCOM Ministerial Meeting. [Available online](#).

HELCOM 2013c. Review of the Fifth Baltic Sea Pollution Load Compilation for the 2013 HELCOM Ministerial Meeting. Baltic Sea Environment Proceedings No. 141. HELCOM 2012. Fifth Baltic Sea Pollution Load Compilation – An Executive Summary. Baltic Sea Environment Proceedings No. 128A.

Commented [LMS17]: To be finalized later

Field Code Changed

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HELCOM 2007. HELCOM Baltic Sea Action Plan (BSAP). HELCOM Ministerial Meeting. Adopted in Krakow, Poland, 15 November 2007.

Hirsch, R.M., Slack, J.R. & Smith, R. A. 1982. Techniques of trend analysis for monthly water quality data. *Water Resources Research*, 18, 107-121.

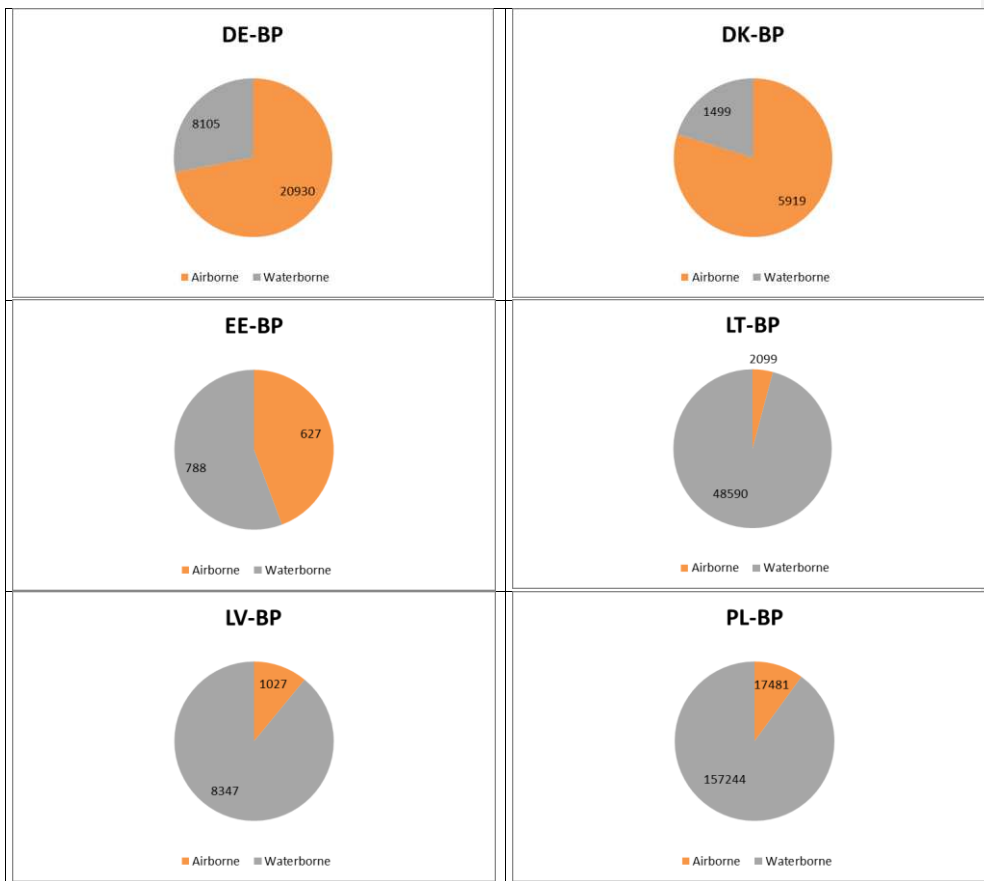
Larsen, S.E. & Svendsen, L.M. 2013. Statistical aspects in relation to Baltic Sea Pollution Load Compilation. Task 1 under HELCOM PLC-6. Aarhus University, DCE – Danish Centre for Environment and Energy, 34 pp. Technical Report from DCE – Danish Centre for Environment and Energy No. 33. <http://dce2.au.dk/pub/TR33.pdf>.

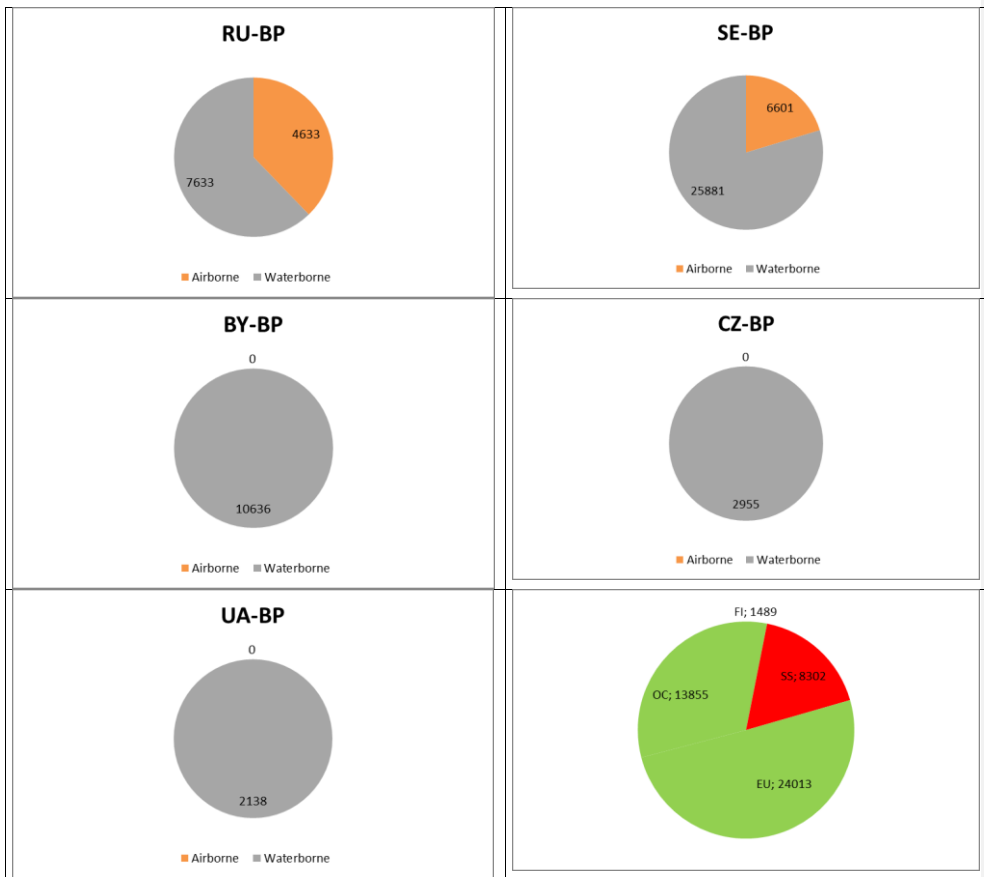
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ANNEX

[These annexes are not ready yet but will include the following issues:]

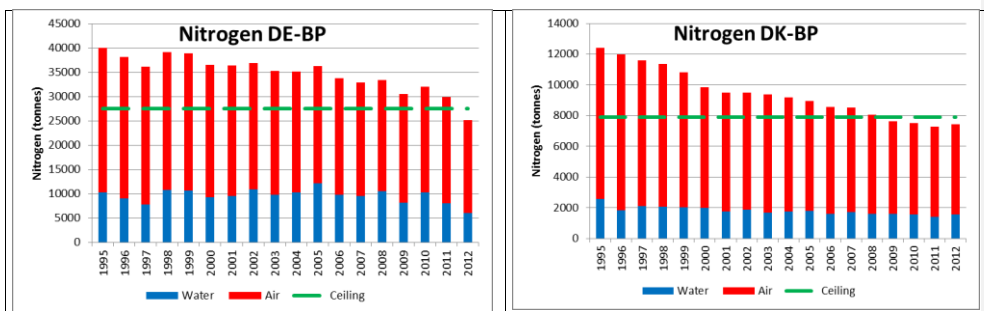
- Explain that CART is based on flow normalized data only
- How transboundary inputs are updated and net input are calculated
- How ceilings are calculated (if not covered in the main part of the document)
- Summarize which statistical methods that are used to test for trends, changes in inputs 1994 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]

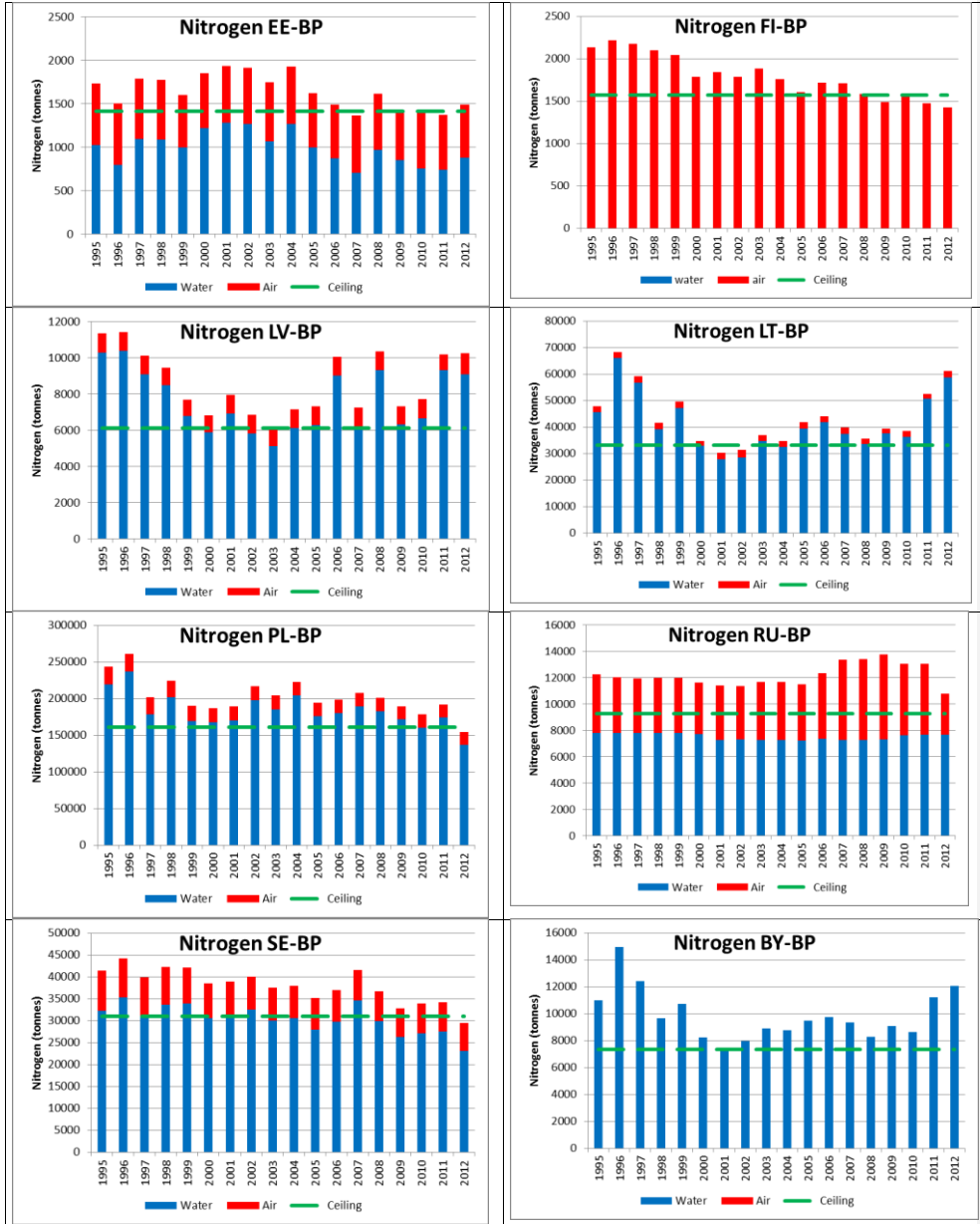




**Figure x:** Alternative presentation of figure 1 net normalized air- and waterborne nitrogen inputs to Baltic Proper in 2010-12 from countries/sources. A separate pie diagram is given for countries with waterborne inputs, while countries/sources only with airborne inputs is shown together in one pie 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.]

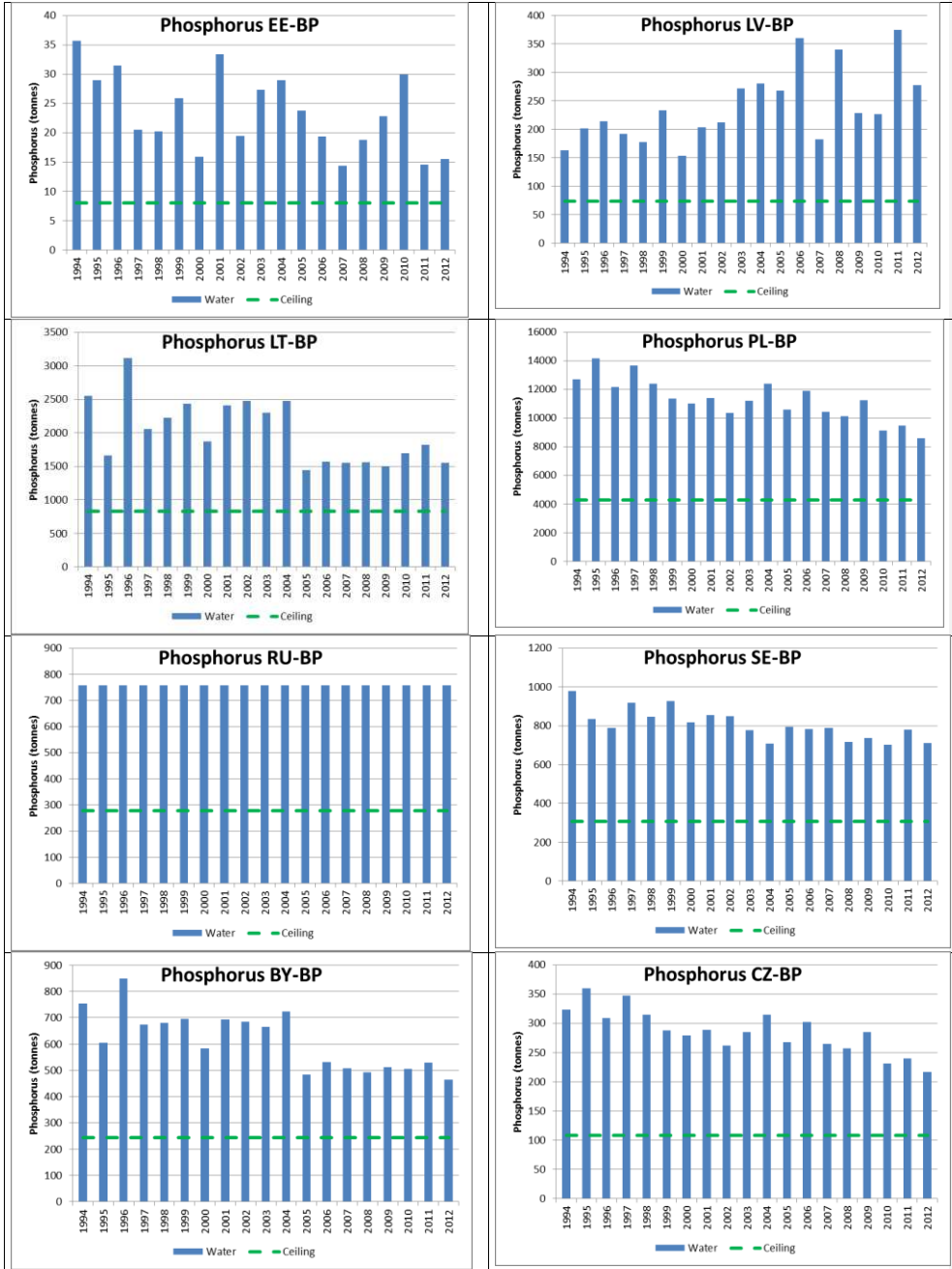
**Commented [LMS18]:** If this version is prefer, one figure for each sub-basin is needed.

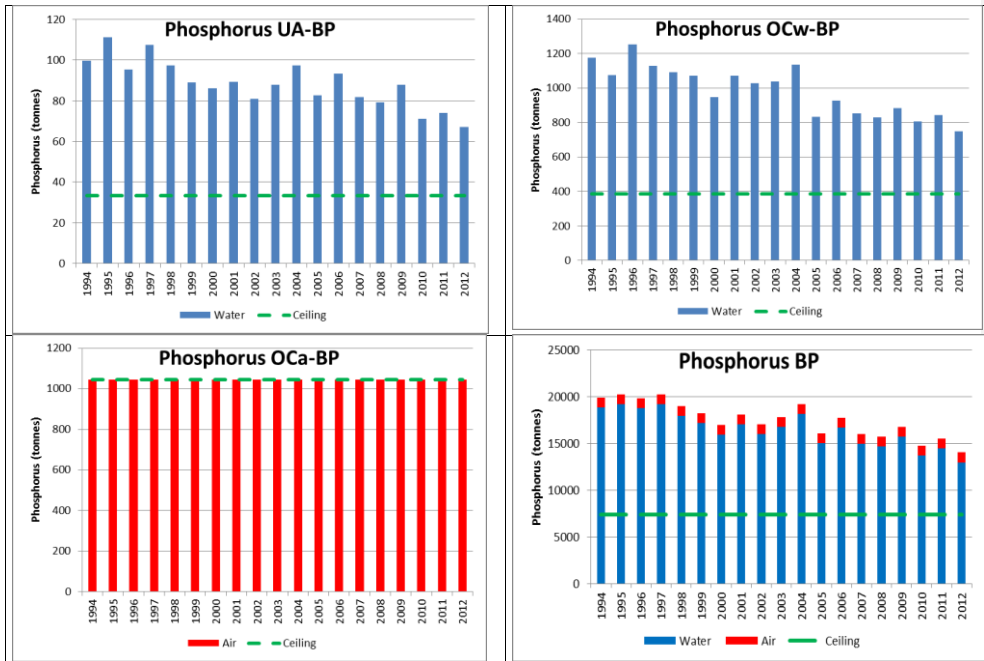












**Figure A.1** Normalize net inputs of water- and airborne nitrogen 1995-2012 to Baltic Proper from countries/source. The input ceiling (dotted line) is inserted. Further a trend line is inserted, where full line indicates statistical significant trend and dotted line no statistical significant trend.

**Commented [LMS19]:** 14 figure will be include 7 for nitrogen and 7 for phosphorus, representing each sub-basin

**Commented [LMS20]:** This trend lines will be added when the statistical analysis are ready

## Annex 2 Abbreviations/definitions

**Commented [LMS21]:** Revised from PLC-5.5 report – to be reviewed

<b>Airborne (or windborne)</b>	Nutrients carried or distributed by air.
<b>AIS</b>	Automatic Identification System with devices on ships that allow for real-time surveillance and statistics of movement of ships.
<b>Anthropogenic</b>	Caused by human activities.
<b>Atmospheric deposition</b>	Airborne nutrients or other chemical substances originating from emissions to the air and deposited from the air on the surface (land and water surfaces).
<b>BAP (or BP)</b>	Baltic Proper
<b>BAS</b>	The entire Baltic Sea (as a sum of the Baltic Sea sub-basins). See the definition of sub-basins.
<b>BNI</b>	Baltic Nest Institute, Stockholm University, Sweden.
<b>BOB (or BB)</b>	Bothnian Bay
<b>BOS (or BS)</b>	Bothnian Sea
<b>BSAP</b>	Baltic Sea Action Plan
<b>BY</b>	Belarus
<b>Catchment area</b>	The area of land bounded by watersheds draining into a body of water (river, basin, reservoir, sea).
<b>Contracting Parties</b>	Signatories of the Helsinki Convention (Denmark, Estonia, European Commission, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden).
<b>Country-Allocated Reduction Targets (CART)</b>	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.
<b>CZ</b>	Czech Republic
<b>DCE</b>	Danish for the Environment and Energy, Aarhus University, Denmark.
<b>DE</b>	Germany
<b>Diffuse sources</b>	Sources without distinct points of emission e.g. agricultural and forest land, natural background sources, scattered dwellings, atmospheric deposition (mainly in rural areas)
<b>DIN and DIP</b>	Dissolved inorganic nitrogen and dissolved inorganic phosphorus compounds.
<b>Direct Sources</b>	Point sources discharging directly to coastal or transitional waters.
<b>DK</b>	Denmark
<b>DS</b>	Danish Straits
<b>EE</b>	Estonia
<b>EMEP</b>	Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe
<b>Eutrophication</b>	Condition in an aquatic ecosystem where increased nutrient concentrations stimulate excessive primary production, which leads to an imbalanced function of the ecosystem.
<b>FI</b>	Finland
<b>Flow normalization</b>	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.
<b>FR</b>	France
<b>GB</b>	Great Britain
<b>GUF (or GF)</b>	Gulf of Finland
<b>GUR (or GR)</b>	Gulf of Riga
<b>Input ceiling</b>	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).
<b>KAT (or KT)</b>	Kattegat
<b>HELCOM LOAD</b>	HELCOM Expert Group on follow-up of national progress towards reaching BSAP nutrient reduction targets
<b>LT</b>	Lithuania
<b>LV</b>	Latvia
<b>Maximum Allowable Input (MAI)</b>	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.
<b>Monitored areas</b>	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.
<b>Monitoring stations</b>	Stations where hydrographic and/or chemical parameters are monitored.
<b>MSFD</b>	EU Marine Strategy Framework Directive
<b>MWWTP</b>	Municipal wastewater treatment plant
<b>NL</b>	Netherlands
<b>Non-contracting parties</b>	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.
<b>NOS</b>	North Sea Shipping
<b>OC, OC<sub>a</sub> or OC<sub>w</sub></b>	Other countries (sources of transboundary inputs) airborne (OC <sub>a</sub> ) or waterborne OC <sub>w</sub>
<b>PL</b>	Poland
<b>PLC</b>	Pollution Load Compilation
<b>Point sources</b>	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).
<b>QA</b>	Quality assurance
<b>Reference period</b>	1997-2003
<b>Reference input</b>	The average normalized water + airborne input of nitrogen and phosphorus during 1997-2003 used to calculate CART and input ceilings.
<b>Retention</b>	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.
<b>Riverine inputs</b>	The amount of a substance carried to the maritime area by a watercourse (natural or man-made) per unit of time.
<b>RU</b>	Russia
<b>Statistically significant</b>	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%.
<b>Sub-basins</b>	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.
<b>SE</b>	Sweden
<b>SS</b>	Baltic Sea Shipping
<b>Transboundary input</b>	Transport of an amount of a substance (via air or water) across a country border.
<b>TN and TP</b>	Total nitrogen and total phosphorus which includes all fractions of nitrogen and phosphorus.
<b>UA</b>	Ukraine
<b>Unmonitored area</b>	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.
<b>Waterborne</b>	Substances carried or distributed by water.
<b>WFD</b>	EU Water Framework Directive



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## Outcome of the First Meeting of the Working Group on Reduction of Pressures from the Baltic Sea Catchment Area

### Introduction

0.1 The First Meeting of the new HELCOM Working Group on Reduction of Pressures from the Baltic Sea Catchment Area (PRESSURE 1<sup>1</sup>-2014) was held on 30-31 October 2014 at the premises of the Finnish Meteorological Institute and Finnish Environment Institute in Helsinki, Finland.

0.2 The Meeting was attended by all Contracting Parties except for Denmark, European Union, and Latvia. Observers from BFFE, EurEau, WWF Baltic Ecoregion Programme, as well as the Data Consultant (Finnish Environment Institute, SYKE) and invited guests from Baltic Nest Institute (BNI), Sweden, Danish Center for Environment and Energy, coordinator of EUSBSR PA Hazards and John Nurminen Foundation, Finland also attended the Meeting. The List of Participants is contained in **Annex 1**.

0.3 The Meeting was chaired by Mr. Lars Sonesten, Sweden. Ms. Minna Pyhälä and Mr. Dmitry Frank-Kamenetsky of the HELCOM Secretariat acted as secretaries 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.

1.2 The Meeting elected Mr. Lars Sonesten, Sweden, as chair of the Working Group on Reduction of Pressures from the Baltic Sea Catchment Area for the next two year period (2014-2016) and agreed to elect a vice-chair at the next meeting of the group.

### Agenda Item 2 Outcome of HELCOM modernization

Documents: 2-1, 2-2

2.1. The Meeting took note of the outcome of the recent HELCOM streamlining process as agreed on by HELCOM 35-2014 and HOD 46-2014, including the new working structure, as presented by the Executive Secretary Ms. Monika Stankiewicz (Presentation 1). The Meeting noted that Pressure Working Group and State Working Group are tentative names which are expected to be concluded by HELCOM HOD 47-2014 at the latest.

2.2. The Meeting took note of the Terms of Reference of the Working Group on Reduction of Pressures from the Baltic Sea Catchment Area (document 2-1) and agreed to make use of it as appropriate when developing the Work Plan for the Group.

2.3. The Meeting took note of the draft Work Plan prepared by the Secretariat as contained in document 2-2 and agreed to develop it further based on the discussions during the meeting and under Agenda Item 11 on Future Work. Finland noted that it would be useful if the Work Plan has a clear link to the respective tasks in the ToR in order to ensure that all the tasks are reflected.

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<sup>1</sup> Tentative name, study reservation on the name "PRESSURE" by Germany



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## Agenda Item 3            Other HELCOM work and cross-cutting issues

Documents: 3-1, 3-2

- 3.1            The Meeting took note of information presented by Estonia about the priorities of Estonian Chairmanship in HELCOM.
- 3.2            The Meeting took note of information by the Secretariat on relevant outcomes from the meetings of HELCOM HOD-46 and GEAR 8-2014 as contained in document 3-2 and the outcome of the last LOAD 8-2014, as presented by the Chair of LOAD, Mr. Lars M. Svendsen, Denmark (Presentation 2).
- 3.3            The Meeting took note of information by the Executive Secretary of the intersessional activity under HELCOM GEAR on development of joint documentation for programmes of measures (Presentation 3). The Meeting noted that one of the tasks of the WG will be to support, in cooperation with the appointed lead countries, the coordination on joint/coordinated measures and completion of the documentation during next year for the following four teams: Inputs of nutrients and organic matter, Inputs of synthetic and non-synthetic contaminants and systematic and/or intentional release of substances, Input of litter, and Input of energy, including underwater noise.
- 3.4            The Meeting took note that, for example for Inputs of synthetic and non-synthetic contaminants, based on the stocktaking of planned national measures and other information (e.g. core indicators), it will be possible to decide whether there are grounds for proposing joint regional actions in particular to address transboundary input.
- 3.5            The Meeting took note of the description of the HOLAS II project for elaboration of a second holistic assessment of ecosystem health status of the Baltic Sea as well as information about activities of the CORESET II project on development of core indicators as presented by Ms. Lena Avellan, CORESET II Project Manager (Presentation 4, document 3-1).
- 3.6            The Meeting noted that the core pressure indicator on nutrient inputs has been almost finalized and will be ready for use for the HOLAS assessment and that there are three draft indicators on marine litter being developed within CORESET II.
- 3.7            The Meeting noted that the development of core pressure indicators on underwater noise is on-going within CORESET II but still at an early stage.
- 3.8            The Meeting took note that HOLAS II is to be based on core indicators and that PRESSURE is expected to support development and operationalization of relevant core pressure indicators as well as provision of supporting parameters for the second integrated assessment as well as for the following assessment cycle.
- 3.9            The Meeting noted that although there exists data on atmospheric and waterborne inputs of three heavy metals and atmospheric inputs of dioxins/furans, there has been no discussion of environmental targets defining an acceptable level of activity which still allows good environmental status GES – which is a requirement for qualifying as a core indicator. The quality of waterborne heavy metal input data also needs to be improved.
- 3.10           Recognizing that it is not feasible to develop hazardous substances core pressure indicators in time for use in HOLAS II, the Meeting invited the HOLAS II project to consider how they could make use of existing data on atmospheric inputs of hazardous substances available via the Baltic Sea Environment Fact Sheets (BSEFS) and annual reports provided by EMEP and waterborne input data available via pollution load compilation (PLC) assessments and the PLC-Water database.
- 3.11           The Meeting stressed the need for stronger expertise in the field of hazardous substances in the frame of the PRESSURE Working Group, to e.g. support the future development and subsequent up-keeping of hazardous substances indicators.
- 3.12           The Meeting recommended that the HOLAS Core Team should work closely with experts in the countries working with implementation of the MSFD.

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## Agenda Item 4                      Progress with pollution load compilation

Documents: 4-1, 4-2

4.1            The Meeting welcomed the information on the phase II results of the RusNIP project as contained in document 4-2 and that the final report will be available by the end of November 2014. The Meeting encouraged Russia to implement the draft recommendations contributing in particular to improvement of the national PLC reporting and invited Russia to submit information regarding progress with implementation of the recommendations the further PRESSURE group meetings.

4.2            The Meeting took note of on-going activities related to monitoring and assessment of inputs of nutrients and hazardous substances, which are supported by a number of HELCOM projects and until now have been supported by LOAD Expert Group and LOAD Core Group, as presented by Ms. Minna Pyhälä, HELCOM Secretariat (Presentation 5, document 4-1).

4.3            The Meeting welcomed the information that in autumn 2015 EMEP will present an assessment of atmospheric inputs of PCB-153 on a test basis. The Meeting pointed out that it is relevant to get estimates of inputs of EU priority substances for the upcoming revision of the list of substances and was of the view that the cooperation with EMEP could be made use of for this.

4.4            The Meeting discussed how the activities related to monitoring and assessing of water and airborne pollution inputs should be carried out in the future, taking into account the suggestions by LOAD 8-2014 (cf. Presentation 2) and agreed to discuss these together with how to organize future work related to follow-up of the nutrient reduction scheme under Agenda Item 5.

## Agenda Item 5                      Follow-up of the HELCOM nutrient reduction scheme

Documents: 5-1, 5-2, 5-2-Rev1, 5-3, WP.1

5.1            The Meeting considered and supported the proposal for the overall framework and contents of the nutrient reduction scheme follow-up system presented by the Chair of LOAD, Mr. Lars M. Svendsen (Presentation 6, document 5-1).

5.2            The Meeting highlighted that PLC is core work of the group however recognized that to enable more policy discussions in the meetings a core expert group needs to be established to coordinate the technical PLC activities, building on the former LOAD expert group and LOAD Core Group.

5.3            The Meeting emphasised the need of adequate monitoring for avoiding filling in the data gaps and stressed the importance of making the data publicly available and easily accessible.

5.4            The Meeting reviewed the final draft of the core pressure indicator on nutrient inputs for assessing progress towards the maximum allowable inputs (MAI) of the HELCOM nutrient reduction scheme (Presentation 7, documents 5-2 and 5-2-Rev1).

5.5            The Meeting noted the comment by the CORESET II Project Manager that the intention is that maps on the key message page of core indicators are based on the agreed assessment units and are unified as much as possible and invited the Project Manager and Chair of former LOAD expert group to discuss how this could be accommodated also in the core pressure indicator on nutrients bearing in mind the need to avoid misleading information that coastal areas are assessed against nutrient inputs.

5.6            The Meeting endorsed the core pressure indicator and agreed that it should be submitted to HELCOM HOD 47-2014 for approval. The Meeting noted that the indicator will be updated with data up to 2012 once the input data has finalized and that a final version will be presented to the meeting of HELCOM 36-2014 in March 2015.

5.7            The Meeting supported the suggestion that the core pressure indicator could be updated annually once the data flow and updating procedure has been made operational.

5.8 The Meeting considered the draft proposal for content of an assessment for following-up on progress towards the country-wise allocation of nutrient reduction targets (CART), taking into account also the suggestions from LOAD 8-2014 (Presentation 8, document 5-3).

5.9 The Meeting noted that so far the development of the CART follow-up assessment has been carried out by the LOAD Core Group with no formal arrangement for the substantial work input by Mr. Lars M. Svendsen as well as BNI Sweden. The Meeting appreciated the work done so far by these LOAD core group members.

5.10 The Meeting noted that the figures presented in the draft CART follow-up assessment will need to be changed and new statistical analyses performed as some incorrect updating of the PLC dataset has been discovered, and regretted that this will cause an additional workload and a delay in the submission of the document to HOD 47-2014. Following the meeting on 10 November 2014 (cf. paragraph 5.15), the final dataset will be redone and the relevant countries will be approached to check/confirm the used datasets.

5.11 The Meeting agreed on the need to establish a procedure for filling in data gaps and agreeing on datasets for the use for pressure core indicator and CART assessment system.

5.12 The Meeting noted the intention by some Contracting Parties to make their own national CART follow-up assessments and recognized that their results may differ from the HELCOM results if they use different data (e.g. retention coefficients and transboundary input data). The Meeting stressed the importance to document the HELCOM assessment methodology for also national use and for countries to share their experiences (and new data) in order to use these to improve future CART calculations.

5.13 Further, the Meeting suggested organizing a workshop devoted to the updating knowledge on retention coefficient and transboundary inputs in spring 2015.

5.14 The Meeting noted that the assessment could potentially include a massive amount of information, and that there is a need to discuss how much of the follow-up assessment should be carried out within the HELCOM framework and how much could be carried out by the Contracting Parties themselves to serve their specific purposes. The Meeting invited Contracting Parties to provide feedback on which information they would like to see included in the CART follow-up assessment to Mr. Lars M. Svendsen ([lms@dce.au.dk](mailto:lms@dce.au.dk)) **by Friday 7 November 2014**.

5.15 The Meeting supported the road map for finalizing the preliminary CART follow-up assessment for HELCOM 36-2015 and agreed that a further developed draft CART follow-up assessment (taking into account the feedback from Contracting Parties) should be submitted to HOD 47-2014 for approval. The Meeting welcomed that the members of the former LOAD Core Group can support the work until a new working arrangement has been decided by HOD 47-2014, including that they will meet on 10 November 2014 to make the preparations for the submission of the draft CART assessment to HOD 47-2014.

5.16 The Meeting noted that while the intention is to have the initial assessment developed by HELCOM 37-2015, the further development of the assessment cannot be secured without funding since the carrying out of the follow-up assessment is time- and resource consuming.

5.17 The Meeting considered the possibility to carry out part of the assessment development work in a project and requested core expert group (cf. paragraph 5.22) to propose which parts of the work needs to be supported by the project/funding and the Secretariat to start investigating possible sources of funding.

5.18 The Meeting supported the suggestion that it could be more reasonable to update the CART follow-up assessment every three years since it requires more data than is available on an annual basis as well as further development of assessment methodology. However, the Meeting agreed to have a closer look at the assessment and PLC schedule at a later stage and that it should take into account the timetable for with EU WFD and MSFD reporting requirements.

5.19 The Meeting discussed the principal agreed on in the 2013 Ministerial Declaration that some Contracting Parties may wish to account for extra reductions in one basin to CART in another basin and

noted that no detail consideration on how this could be carried out has been given so far and agreed that this could be a task for the future, possibly to be carried out within a project.

5.20 The Meeting noted that HOD 46-2014 requested PRESSURE to consider how to start cooperating more closely with transboundary river basin commissions in order to engage them in the work on CART and PLC.

5.21 The Meeting took note that the Chair of former LOAD, Mr. Lars M. Svendsen attended the Odra Commission meeting in August 2014 to present HELCOM work and the information that the river basin management commissions hold data that could be of use for calculating retention, transboundary inputs etc. The Meeting recognized the need to establish cooperation and reflected it in its Work Plan accordingly (cf. paragraph 11.1). The Meeting agreed to come back to this issue and suggested discussing possible ways of cooperation with river basin commissions at the next meeting of Pressure WG.

5.22 The Meeting established a drafting group, consisting of the Chair, Finland, Germany, Lithuania, Poland, Russia, Sweden, Chair of former LOAD EG, Data Consultant SYKE and the Secretariat to develop a Terms of Reference for a Reduction Scheme Core Expert Group (RedCor)<sup>2</sup> to carry out the future work in relation to monitoring and assessment of pollution inputs and follow-up of MAI and CART. The Meeting considered the proposal by the drafting group for the ToR contained in document WP.1 and further amended and agreed on the ToR as contained in **Annex 2**. The Meeting agreed to forward the ToR along with the Work Plan to HOD 47-2014 for approval.

5.23 The Meeting invited interested Contracting Parties to consider nominating national members to the Reduction Scheme Core Expert Group, including participation in the upcoming meeting on 10 November 2014 and to inform the Secretariat ([Minna.pyhala@helcom.fi](mailto:Minna.pyhala@helcom.fi)) by **7 November 2014** accordingly.

5.24 The Meeting elected Mr. Lars M. Svendsen, the former Chair of LOAD, as Chair for the Reduction Scheme Core Expert Group to take up the position once the establishment of the group is approved by HOD.

## Agenda Item 6 Other joint measures to address nutrients

Documents: 6-1, 6-2, 6-3, 6-4

6.1 The Meeting considered the draft HELCOM Recommendation on sustainable handling of sewage sludge (document 6-3) and appreciated work done by the lead countries Germany and Sweden so far.

6.2 The Meeting was of the view that the draft recommendation requires further work i.a. to take into account the upcoming proposal for EU regulation for fertilizers as well as comments by the Contracting Parties and Observers. The Meeting suggested that a workshop gathering relevant national experts should be arranged during spring 2015 to further review and elaborate the recommendation.

6.3 The Meeting took note of outcomes of the BASE project related to improvement of waste water treatment in small settlements (document 6-1) and proposed that the information should be used as a basis for development of national measures aimed at nutrient input reduction.

6.4 The Meeting took note of information on recent and ongoing research and field activities in Sweden on selected potential measures to reduce internal loads of plant nutrients in the Baltic Sea, and the plan to arrange a workshop on the topic in Stockholm on 12 February 2015. The Meeting took note that the aim is to prepare background material for the workshop which will integrate different scientific views and provide the basis for the discussions on pros and cons of such measures. The Meeting invited Contracting Parties to also share their national experiences at the workshop and to contact the organizers ([anders.alm@regeringskansliet.se](mailto:anders.alm@regeringskansliet.se) or [bo.gustafsson@su.se](mailto:bo.gustafsson@su.se)) accordingly.

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<sup>2</sup> Tentative name

6.5 The Meeting took note of the information by Finland on recent and planned measures to further reduce phosphorus loading into the Bothnian Sea from Yara Finland's Uusikaupunki site as presented by Mr. Seppo Knuutila, Finland (Presentation 9, document 6-4).

## Agenda Item 7 Joint measures to address hazardous substances

Documents: 7-1, 7-2, 7-3

7.1 The Meeting took note of the outcomes of the BASE project related to assessment of inputs of pharmaceuticals with treated waste water discharge in St. Petersburg (document 7-1) and considered information by Contracting Parties of national studies, inventories and assessments of inputs of pharmaceuticals to the marine environment.

7.2 The Meeting expressed general concern for the issue and agreed that measures should be taken to address the handling of pharmaceuticals throughout the process chain (production to disposal) at the regional level. The Meeting acknowledged the on-going work at EU level and agreed that in order to avoid double work there is a need to identify the additional regional needs.

7.3 The Meeting welcomed the information about the possibility to establish relevant projects under the framework of the EU Strategy for the Baltic Sea Region (EUSBSR) and the offer of the lead of PA Hazards (Sweden) to help with coordination.

7.4 The Meeting welcomed the initiative by Germany to come up with an initial list of possible measures for action to prevent pharmaceuticals reaching the Baltic Sea (document 7-3).

7.5 The Meeting recommended the arranging of a workshop in spring 2015 for further development of the recommendation and welcomed the offer of Germany to investigate the possibility to hosting such a workshop as well as lead the activity on pharmaceutical in HELCOM in cooperation with Sweden in their coordinating role for PA Hazards of the EU SBSR. The Meeting invited Germany to submit a draft recommendation, developed by the workshop, for consideration by one of the next meetings of PRESSURE.

7.6 The Meeting welcomed the information about the activities of PA Hazards as presented by the coordinator of PA Hazards, Ms. Jenny Hedman, Sweden (Presentation 10).

7.7 The Meeting discussed how to coordinate the work between PA Hazards and HELCOM. The Meeting was of the view that HELCOM provides a forum for policy considerations while the EUSBSR provides possibilities for projects. PA Hazard could serve as the tool to facilitate implementation of the HELCOM recommendations in field of hazardous substances.

7.8 The Meeting discussed possible measures aimed at HELCOM Recommendation 28E/8 on environmentally friendly practices for the reduction and prevention of emissions of dioxins and other hazardous substances from small-scale combustion, in particular setting up emission limit values for small-scale combustion appliances. The Meeting acknowledged that the most countries already have strict dioxin emissions regulation or are implementing EU level requirements and was of the opinion that it would be difficult to set such regional emission limit values.

7.9 The Meeting took note of information by the Contracting Parties national progress in ratification of the UNEP 2013 Minamata Convention on Mercury. Poland has recently signed the convention and Russia is in the process of ratifying it. The other EU member states are in the process of ratifying it in connection with EU processes.

7.10 The Meeting considered the proposal to revise HELCOM Recommendation 6/4 "Concerning Measures Aimed at the Reduction of Mercury Resulting from Dentistry" as contained in document 7-2 and was of the opinion that it is not necessary to update the Recommendation as most countries no longer use mercury in dentistry. The Meeting acknowledged that there is a phase-out stage at the moment, including how to deal with amalgam in connection with removal of teeth.

7.11 The Meeting decided to discuss possible joint actions aimed at reductions of emissions and discharges of mercury in the Baltic Sea Region at one of the future meetings of the group.

## Agenda Item 8 Joint measures to address marine litter

Documents: None

8.1 The Meeting took note of information on progress with the development of the HELCOM Regional Action Plan on Marine Litter, RAP ML (document 7-1).

8.2 The Meeting noted that PRESSURE is expected to be responsible for overall coordination and facilitation of the implementation of the RAP ML at regional and national level once it has been adopted, even though monitoring in the marine environment will be coordinated by STATE, indicators are being developed by CORESET II and measures should be defined by PRESSURE and MARITIME groups.

8.3 The Meeting discussed how to organize the overall coordination and agreed to come back to this after the adoption of the plan in March 2015. The Meeting welcomed the offer of Germany to continue overall coordination of regional implementation of the RAP ML within the HELCOM framework.

8.4 The Meeting also took note of the comment by the chair that in the future there may be a need to consider monitoring of waterborne inputs of litter within the PLC framework.

## Agenda Item 9 Joint measures to address underwater noise

Documents: None

9.1 The Meeting took note of information of on-going activities related to development of joint monitoring of underwater noise and indicators within the framework of STATE in coordination with the project Baltic Sea Information on the Acoustic Soundscape, BIAS as presented by Mr. Dmitry Frank-Kamenetsky, HELCOM Secretariat (Presentation 11).

9.2 The Meeting considered the issue and invited Contracting Parties to investigate nationally on-going activities and report on these at the next meeting of PRESSURE.

9.3 The Meeting acknowledged that PRESSURE does not have the contacts to the competent authorities dealing with measures to address underwater noise and was of the view that these activities are more related to activities dealt with by other HELCOM groups, i.e. monitoring (STATE) and maritime activities (MARITIME). The Meeting agreed to address HODs with this issue.

## Agenda Item 10 Any other business

Documents: None

10.1 The Meeting compiled a list of contact of the Working Group based on nominations by the Heads of Delegation and HELCOM Observers as contained in **Annex 3**.

10.2 The Meeting emphasized the need for timely submission of documents in the future.

## Agenda Item 11 Future work and meetings

Documents: None

11.1 The Meeting further developed and agreed on the draft Work Plan (cf. document 2-2) as contained in **Annex 4**, pending clarification of a study reservation by Finland on hazardous substances actions **by 7 November 2014** to be sent to the Secretariat and Chair.



11.2 The Meeting was of the opinion that there should be two meetings a year to get things going and proposed that the upcoming meeting in spring should be three days, even though in the future the group should strive for two day meetings.

11.3 The Meeting agreed to hold the group's next meeting (PRESSURE 2-2014) on 6-8 May 2015 starting at 13:00 on the first day and ending in the afternoon on the last day. The Meeting welcomed the offer of Estonia to host the meeting in May 2015 and invited Contracting Parties to consider their possibilities to host the meeting in October 2015.

11.4 The Meeting proposed reserving two days during the week of 5-9 October 2015 for the third meeting of PRESSURE.

11.5 The Meeting supported the idea proposed by the chair that meetings should have a thematic focus with PRESSURE 2-2015 dealing mostly with nutrient and PRESSURE 3-2015 on hazardous substances. The Meeting requested Contracting Parties to nominate experts for the different themes and asked the Secretariat to approach Contracting Parties accordingly.

## Agenda Item 12 Outcome of the Meeting

Documents: 12-1

12.1 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

Name	Delegation	Organization	E-mail
<b>CONTRACTING PARTIES</b>			
Reet Ulm	Estonia	Ministry of the Environment of Estonia	reet.ulm@envir.ee
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Lars Sonesten	Sweden	Swedish University of Agricultural Sciences	Lars.Sonesten@slu.se
<b>OBSERVERS AND DATA CONSULTANTS AND INVITED GUESTS</b>			
Marta Kalinowska	Observer	WWF Baltic Ecoregion Programme	mkalinowska@wwf.pl
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Bo Gustafsson	Invited Guest	BNI	bo.gustafsson@su.se
Jenny Hedman	Invited Guest	PA Hazard Coordinator, Swedish Environmental Protection Agency	jenny.hedman@naturvardsverket.se
Marjukka Porvari	Invited Guest	John Nurminen Foundation	marjukka.porvari@jnfoundation.fi
Lars M. Svendsen	Chair of LOAD	Danish Center for Environment and Energy, Aarhus University	lms@dce.au.dk
<b>SECRETARIAT</b>			
Dmitry Frank-Kamenetsky	Secretariat	HELCOM Secretariat	Dmitry.Frank-Kamenetsky@helcom.fi
Monika Stankiewicz	Secretariat	HELCOM Secretariat	<a href="mailto:Monika.stankiewicz@helcom.fi">Monika.stankiewicz@helcom.fi</a>
Minna Pyhälä	Secretariat	HELCOM Secretariat	minna.pyhala@helcom.fi



## Annex 2 Draft Terms of Reference for [Reduction Scheme Core Expert Group, RedCor]<sup>3</sup>

### Background

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

The establishment of an operational system to follow-up on progress towards the MAI and CART requires development of assessment methodology, filling in knowledge gaps as well as a working procedure for establishing assessment datasets and regularly updating the follow-up assessments.

The Terms of Reference of PRESSURE include duties to:

Develop and maintain a system to evaluate progress by the HELCOM countries in meeting their country-allocated nutrient reduction targets of the HELCOM nutrient reductions scheme, follow-up on the progress and prepare reports and recommendations for improved implementation;

Guide Pollution Load Compilations (PLCs) (Water, and Air in cooperation with EMEP) and continuous work on improving data reporting and quality, as well as prepare assessment reports meeting policy needs, and in relation to PLC be responsible for that:

- HELCOM core indicators for pressures on marine environment are developed and operationalized (in cooperation with EMEP) to serve e.g. holistic assessments according to the goals and objectives of the Baltic Sea Action Plan, HELCOM Ministerial Declarations, and the EU Marine Strategy Framework Directive for those Contracting Parties also being EU Member States;
- PLC associated technical guidelines for quality assurance are developed and updated to ensure confident monitoring and assessment results for inputs of nutrients and hazardous substances, taking into account the existing international guidance documents;
- PLC database is developed and maintained;

HOD 46-2014 requested PRESSURE to prioritize work on further development and implementation of the MAI-CART follow-up system and make a proposal how the work could be organized.

HELCOM LOAD 8-2014:

- Was of the view 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 an expert group/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/EMEP deliverables.
- 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. One possibility might be to hold thematic workshops back-to-back with PLC or PRESSURE meetings.
- Supported proposal to carry out the work related to transboundary inputs and retention within a project.

PRESSURE 1-2014:

- Highlighted that PLC is core work of the group, however, recognized that to enable more policy discussions in the meetings a core expert group needs to be established to coordinate the technical PLC activities, building on the former LOAD expert group and LOAD Core Group.
- Agreed on these terms of reference.

**PRESSURE proposes to establish a [core expert group] that carries out technical work related to development of the nutrient reduction scheme follow-up and PLC activities as well as other activities as requested by PRESSURE.**

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<sup>3</sup> Tentative name

### Objectives for the establishment of [core expert group]

The purpose of the establishment of [name] is to support the work of the Pressure Working Group by liaising between PRESSURE and the scientific work related to the follow-up of the HELCOM nutrient reduction scheme and PLC related activities.

It is also to provide a forum for technical discussions and elaboration of proposals as support for more policy oriented discussion at PRESSURE meetings.

Further, [group] will ensure a robust scientific basis for the work of PRESSURE.

And lastly, it is to ensure timely delivery of policy relevant quality assured products from PLC related activities for the consideration of PRESSURE.

### Composition of the [core expert group]

The [expert group] should be kept small to enable an efficient and flexible structure that can adapt to the quick working pace.

The [core expert group] should have a Chair.

It should consist of the Chair, PLC-6 project manager, PLC data manager, BNI-Sweden, Chair of PRESSURE, representatives from Contracting Parties as appropriate, invited guests and the Secretariat.

### Suggested tasks for the [core expert group]

- Maintain a forum for technical discussions and elaboration of proposals
- Further develop the CART follow-up assessment and propose how to operationalize regular updating
- Make regular assessments (MAI/CART) based on inputs from data consultants
- Establish procedures for making a complete, quality assured dataset suitable for follow-up of MAI and CART, including a mechanism for quick approval by Contracting Parties
- Coordinate and guide technical work and projects within PLC related activities (currently PLC-6 and PLUS) and follow-up on their progress
- Prepare a road map of future activities for improving PLC data and operationalizing the follow-up of MAI and CART
- Guide the timely elaboration of technical assessments
- Make proposals, as needed, to PRESSURE based on the outcomes of projects, assessments, and workshops
- Quality assurance of PLC related products

*Ad hoc* thematic workshops will be held as needed (e.g. back to back with PLC-6 project or PRESSURE meetings) where experts from Contracting Parties and HELCOM data consultants will be invited to participate.

The ad hoc workshops/seminars could cover the following technical cross cutting issues:

- Data reporting, quality assurance, guidelines, statistical methods, uncertainty on dataset, filling in data gaps
- Further development of the follow-up assessments of MAI and CART
- How to revise the nutrient reduction scheme (MAI/CART)
- Discussion of the results of the annual reports from EMEP, including methodologies related to improvement of atmospheric input data, parameters, modelling etc.

**The work will be support by data consultants and project. The [core expert group] is invited to propose how the tasks of the data consultants and project delivers should be amended in the future to reflect the upcoming needs.**

#### Working procedures and timeline

The [group] will report to PRESSURE and will assist other subsidiary bodies and projects of HELCOM with requested information.

The [group] will meet as often as necessary and in addition to physical meetings will utilize video-/teleconferencing when appropriate.

The Secretariat will provide administrative support during the meetings. The [group] will focus on elaboration of proposals, documents and products, and will record the outcomes of the meetings in the form of short memos.

The [core expert group] will identify tasks that may require additional resources and may come up with proposals for projects.

The [group] is established for the period of 2014 – [2017] and its mandate can be renewed for additional years.

---

## Annex 3 List of PRESSURE Contacts

### Estonia

Rene Reisner, Estonia  
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### Data Consultants

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### Others (not officially nominated but to be kept informed)

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Jenny Hedman, PA Hazards Coordinator  
Joanna Charytonowicz, PA Nutri Coordinator  
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Ludmila Filatova, Russia  
[Tonny Niilonen], Denmark  
Lars M. Svendsen, Denmark  
Korsjukov, Estonia  
Stefanie Werner, UBA, Germany (marine litter)  
Ms Galander, UBA (mercury in dentistry)  
Philip Axe, Sweden  
Natalia Oblomkova, Russia  
Larisa Marakova, Russia  
Leonid Korovin, Russia

## Annex 4 Draft Work plan of the Working Group on Reduction of Pressures from the Baltic Sea Catchment Area

Nr	ACTION	LEAD /RESPONSIBLE	INTERLINKED ACTIVITIES	TIME FRAME
<b>Action 1 Guide Pollution Load Compilations (PLCs) and prepare related reports meeting policy needs, including core indicators<sup>4</sup></b>				
1	Annual compilation of Atmospheric inputs of nitrogen, cadmium, lead, mercury and dioxins and furans to the Baltic Sea: <ul style="list-style-type: none"> <li>- Produce annual report and BSEFS<sup>5</sup></li> <li>- Guide development of possible core pressure indicators/ supporting parameters on hazardous substances (nutrients covered in No. 6) and subsequent operationalization of indicators within PRESSURE</li> <li>- Consider inclusion of new and/or rotation of already covered substances</li> </ul>	Data reporting by CPs PLC-Air Consultant EMEP [RedCor]	Input to HOLAS II CORESET II is developing a common set of core indicators, including pressure indicators by mid-2015, with a help of an network of hazardous substances experts	- Annually - by mid-2016 and thereafter - continuously
2	Annual compilation of waterborne inputs of nutrients and selected hazardous substances <ul style="list-style-type: none"> <li>- Establish procedure to fill in gaps and approve datasets</li> <li>- Produce annual dataset</li> <li>- Guide development of possible core pressure indicators /supporting parameters on hazardous substances (nutrients covered in No. 6) and subsequent operationalization of indicators within PRESSURE</li> </ul>	Data reporting by CPs BNI Sweden PLC-Water Consultant SYKE [RedCor]	Input to HOLAS II CORESET II is developing a common set of core indicators, including pressure indicators by mid-2015, with a help of an network of hazardous substances experts	Annually - by mid-2016 and thereafter - continuously
3	Compilation of PLC 6 data (monitoring in 2012/2014), incl. quantification of waterborne point, diffuse and natural sources: <ul style="list-style-type: none"> <li>- updated and extended PLC-Water Guidelines</li> <li>- production of an assessment report</li> </ul>	PLC-6 project	Making essential data available in 2016 for national use and HOLAS II	- 2014 - 2017 report

<sup>4</sup> Coordinate and organize the monitoring and assessment activities of HELCOM related to waterborne and airborne discharges, emissions and inputs of nutrients and hazardous substances: Guide Pollution Load Compilations (PLCs) (Water, and Air in cooperation with EMEP) and continuous work on improving data reporting and quality, as well as prepare assessment reports meeting policy needs, and in relation to PLC be responsible for that:

- HELCOM core indicators for pressures on marine environment are developed and operationalized (in cooperation with EMEP) to serve e.g. holistic assessments according to the goals and objectives of the Baltic Sea Action Plan, HELCOM Ministerial Declarations, and the EU Marine Strategy Framework Directive for those Contracting Parties also being EU Member States;
- PLC associated technical guidelines for quality assurance are developed and updated to ensure confident monitoring and assessment results for inputs of nutrients and hazardous substances, taking into account the existing international guidance documents;
- PLC database is developed and maintained;

Further develop and maintain additional pressure indicators, e.g. concerning inputs to the marine environment of noise, litter and hazardous substances and other emerging issues

<sup>5</sup> Baltic Sea Environment Fact Sheet

4	Establish new modernized PLC-Water database, incl. web application and establish links to HELCOM GIS map services	PLUS project BNI (Database Host) in cooperation with Secretariat	Cooperation with OSPAR ongoing to look into synergies	2015 (database) 2016 (web interface)
5	Improve PLC data on nutrient inputs from upstream sources incl. transboundary watercourses, retention co-efficient, as well as municipal and industrial point sources in the whole catchment e.g. via cooperation with relevant river basin commissions and non-CPs	[RedCor]	Reliable nutrient load data of the Baltic Sea Catchment Project proposal coordinated by BNI Sweden under EUSBSR PA Nutri	2015 and onwards workshop on retention spring 2015
<b>Action 2 Follow-up of HELCOM nutrient reduction scheme<sup>6</sup></b>				
6	Develop and update the core pressure indicator on nutrient inputs for assessing progress towards the maximum allowable inputs (MAI)	[RedCor] [a possible project to support activities]	CORESET II Project and link to the national work on MSFD for EU countries	- HOD 47-2014 / HELCOM 36-2015 annually
7	Develop and update the system for following up on progress towards country-wise allocated nutrient reduction targets (CART)	[RedCor] [a possible project to support activities]	Cooperation with BNI Sweden Input to joint documentation on Programmes of Measures under GEAR (eutrophication component led by Finland) (draft by December 2014 and completed by the end of 2015)	1 <sup>st</sup> version HOD 47-2014 / HELCOM 36-2015, to be further developed [Every third year]

<sup>6</sup> Monitor and assess the implementation of the HELCOM nutrient reduction scheme, as well as support the review of the scheme based on the best available scientific knowledge in cooperation with other relevant subsidiary bodies and institutes and modeling centres, as may be necessary: Develop and maintain a system to evaluate progress by the HELCOM countries in meeting their country-allocated nutrient reduction targets of the HELCOM nutrient reductions scheme, follow-up on the progress and prepare reports and recommendations for improved implementation; Cooperate to address nutrient emissions and inputs from non-Contracting Parties to meet the expected reductions according to the HELCOM nutrient reduction scheme, e.g. in relation to the Gothenburg Protocol under the UN ECE CLRTAP as well as EU NECD, the work of river basin management commissions/bodies; Identify and prioritize needs for further reduction of nutrients, with the aim to bridge the gap in translating the nutrient reduction scheme into area or site-specific implementation, with a view to, among others, pointing to investment needs

8	Identify how to cooperate more closely with relevant river basin commissions in order to engage them in the work on CART and PLC and address nutrients inputs and emissions in transboundary context	[lead countries(s) to be identified]		Meeting of RedCor in 2015
9	Assess the effects of implementation of the Gothenburg Protocol and upcoming NEC II directive on atmospheric deposition on the Baltic Sea	a study to be initiated in cooperation with EMEP [RedCor]		to be investigated
10	Identify and prioritize needs for further reduction of nutrients (based on gaps in implementation and reduction potential), incl. prepare recommendations for improved implementation of country-allocated nutrient reduction targets		Input to the Recommendation of any regional measures or concerted actions needed to achieve the remaining reduction requirements (led by Finland, under GEAR)  Based on e.g. stock-taking of national measures envisaged under Art. 13 MSFD for coordination for HELCOM countries being EU Member States, and under Maritime Doctrine and SKIOVO for Russia, including reduction potential for measures to be implemented (led by Finland, under GEAR)	PRESSURE 2-2015 2015
<b>Action 3 Pollution prevention from waste water treatment, including sustainable handling of sewage sludge<sup>7</sup></b>				
11	Finalize HELCOM recommendation on sustainable handling of sewage sludge	Lead: Germany, Sweden		2015
12	Follow-up on full implementation of HELCOM Rec. 28E/5 and 28E/6 on sewage treatment			continuous
13	Consider policy relevant proposals raised by PA NUTRI EUSBSR	Finland leading in their capacity as Coordinator for PA NUTRI		continuous

<sup>7</sup> Cooperate on pollution prevention from waste water treatment, including sustainable handling of sewage sludge

Action 4 Solutions for limiting emissions and losses of hazardous substances <sup>8</sup>				
14	Identify substances and scope areas for which joint actions might be needed, such as atmospheric inputs of e.g. mercury and dioxins and input of pharmaceuticals	[Poland]	Based e.g. stock-taking of national measures planned under Art. 13 MSFD for HELCOM countries being EU Member States, and under relevant legislation for Russia (under GEAR, led by Poland) Work on core indicators on hazardous-substances	2015
15	Knowledge gathering and actions to prevent <b>pharmaceuticals</b> from reaching the sea starting from identification and prioritization of sources	[Germany to lead]	Planning for assessment of the state of contamination with pharmaceuticals by STATE Ongoing development of EU Strategy for pharmaceuticals Cluster projects on pharmaceuticals within PA Hazards of EU SBSR	[workshop spring 2015 in Germany]
16	Early ratification of the UNEP 2013 Minamata Convention on Mercury and subsequently identification of possible joint actions for harmonized implementation			
17	Consider policy relevant proposals raised by PA Hazards of EUSBSR	Sweden leading in their capacity as Coordinator for PA Hazards		continuous
18-	Follow up on progress with implementing the Guidelines for Management of Dredged Material at Sea	Lead: Lithuania, Sweden	Harmonized with OSPAR Input to the 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 under SUBMERGED expert group	On-going 2015

<sup>8</sup> Share best practices and solutions for limiting emissions and losses of hazardous substances from existing sources and exchange information of EU BAT, BEP, REACH and other legislation and of activities concerning new and emerging substances (e.g. pharmaceuticals)



<b>Action 5 Coordinate implementation of Regional Marine Litter Action Plan<sup>9</sup></b>				
19	Develop the Regional Action Plan on Marine Litter, and development of core indicator(s)	Lead: Germany with assistance of Secretariat	In cooperation with OSPAR and Barcelona Conventions Work under CORESET II (by mid-2015) and STATE related to development of core indicators and joint monitoring	2015 (HELCOM 36-2014)
20	Coordinate and follow up on implementation of the Regional Action Plan on Marine Litter	Lead by Germany, in cooperation with STATE, MARITIME [RedCor]		Continuous after 2015
<b>Action 6 Lead the work on underwater noise<sup>10</sup></b>				
21	Identify initial issues for consideration in a Regional Action Plan (RAP) for underwater noise and provide practical arrangements and timelines for developing the RAP	In coordination with STATE and MARITIME [a project]	BIAS project Based on e.g. stock-taking of national mitigation measures planned under Art. 13 MSFD for HELCOM countries being EU Member States, and under relevant legislation for Russia (under GEAR, led by Sweden) OSPAR Intersessional group on noise	2015/16
22	Contribute to development of core pressure indicator on underwater noise	In coordination with STATE [a project]	Work under CORESET II and STATE (tentative name) on development of core indicators and joint monitoring	2015

<sup>9</sup> Lead regional implementation of the Regional Marine Litter Action Plan and coordinate its implementation with relevant subsidiary bodies to enable their substantial contribution

<sup>10</sup> Lead the work on underwater noise, including evaluating inputs of noise to the marine environment with the view to developing regional action on underwater noise as far as necessary, in coordination with relevant subsidiary bodies.

<b>Action 7 Assess individual or newly identified point sources of pollution<sup>11</sup></b>				
23	Consider, and where applicable agree on, the elimination of remaining hot spots on the JCP list			Municipal and industrial hot spots should be removed by 2016; possible remaining JCP Hot Spots should then be included in the BSAP NIPs and removed by 2018
24	Identify current and emerging issues related to point sources of land based pollution and assess the effectiveness of the measures being adopted and the need for any additional or different measures			On-going
<b>Action 8 Reporting on implementation of BSAP and HELCOM recommendations in the remit of PRESSURE</b>				
25	Contribute to indicator-based follow up system for BSAP		New indicator-based BSAP follow up system initiated under GEAR, to complement the joint documentation on Programmes of Measures	2015
26	Establish longer-term planning for the reporting of Recommendations, organized theme-wise in response to policy needs			PRESSURE 2-2015 to start discussion

<sup>11</sup> Respond to the requests to assess individual or newly identified point sources of pollution as may be needed; Identify current and emerging issues related to point sources of land based pollution and assess the effectiveness of the measures being adopted and the need for any additional or different measures, including in relation to remaining hot spots from the list of the Joint Comprehensive Environmental Action Programme

# Accounting for Extra reduction

Bo Gustafsson

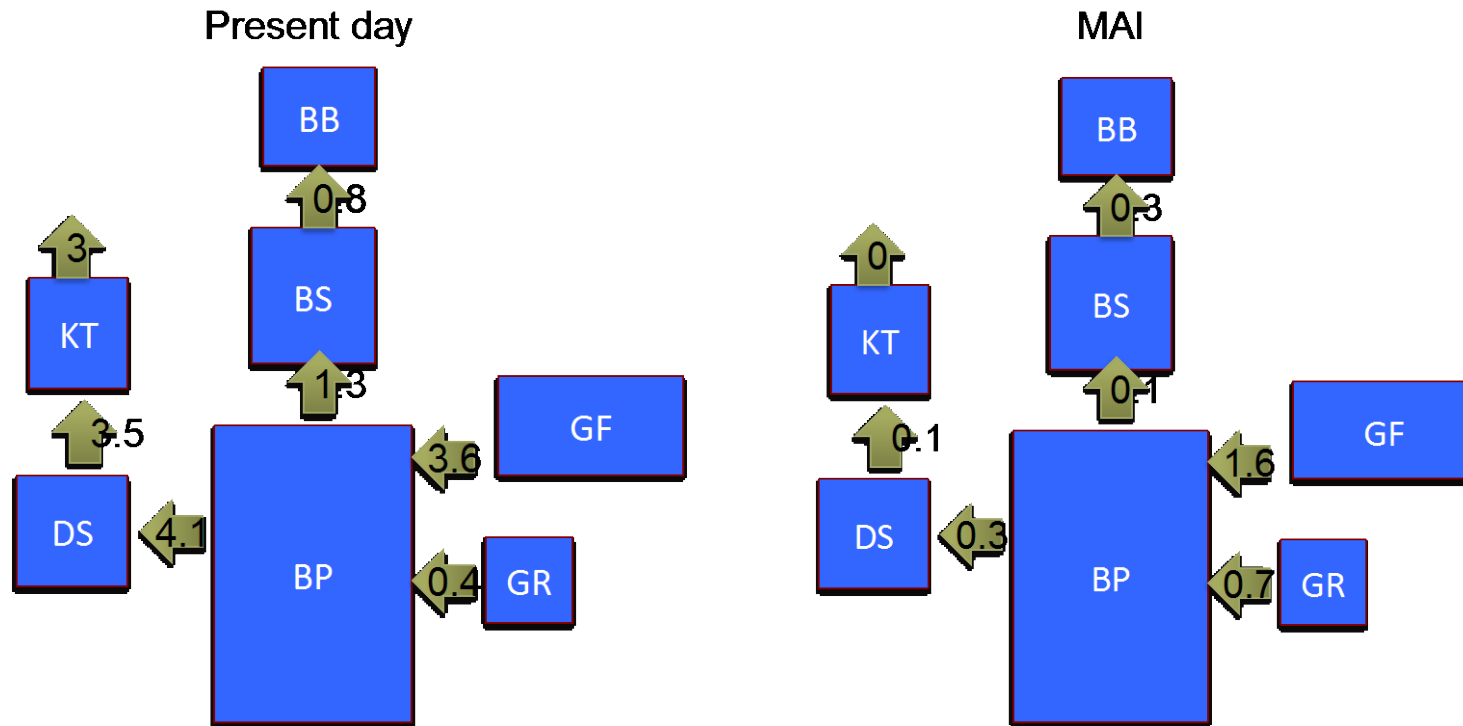
***RECOGNIZING that reductions in nutrient inputs in sub-basins may have wide-spread effects, WE AGREE that extra reductions can be accounted for, in proportion to the effect on a neighboring basin with reduction targets, by the countries in reaching their Country Allocated Reduction Targets***

From Copenhagen Ministerial  
declaration, 2013

# How MAI was determined!

- 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

# Phosphorus fluxes between basins (in kton/ yr)



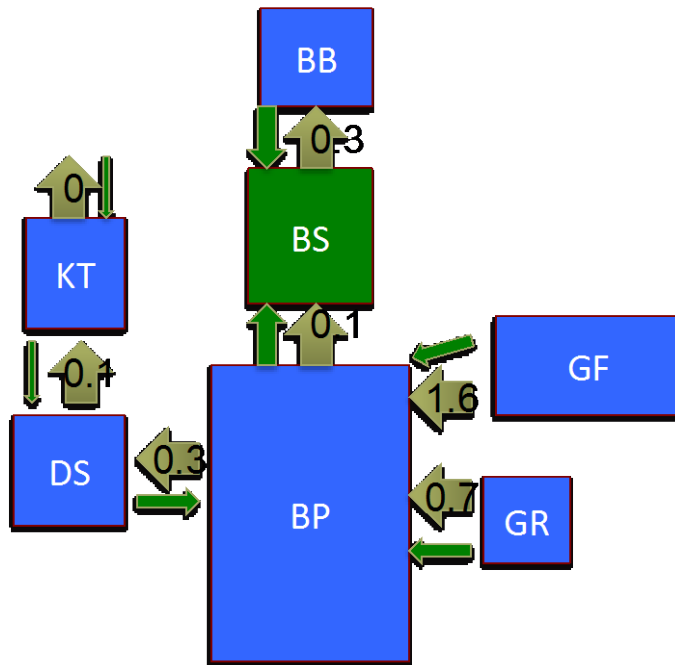
# Definitions 1

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

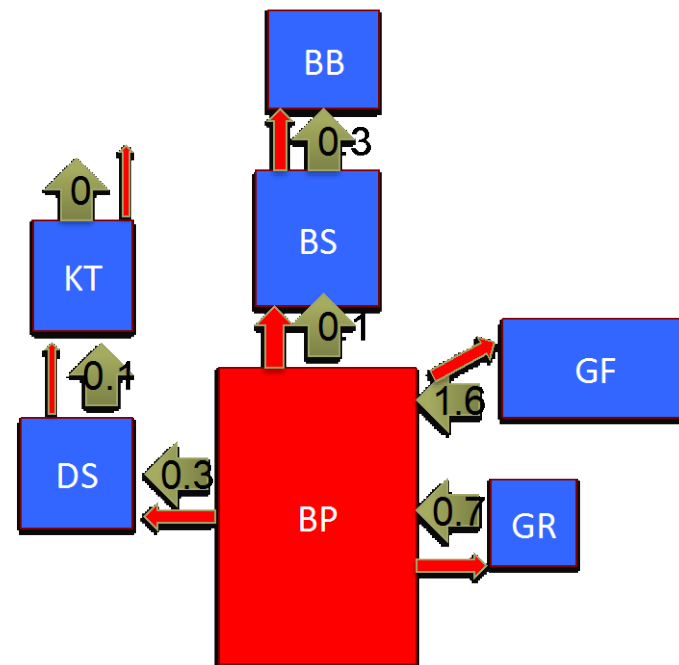
**Missing reduction** is defined additional input reduction needed to reach CART including the statistical uncertainty for a given country and basin combination.

# Phosphorus fluxes between basins

Extra reduction to BS



Missing reduction BP





# 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

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



# 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



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<b>Document title</b>	Accounting an extra reduction in CART follow-up
<b>Code</b>	7-4
<b>Category</b>	DEC
<b>Agenda Item</b>	7 - Thematic session on input of nutrients
<b>Submission date</b>	29.3.2016
<b>Submitted by</b>	BNI
<b>Reference</b>	2013 HELCOM Ministerial Declaration, HOD 49-2015

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### Background

In the 2013 HELCOM Ministerial Declaration the Contracting Parties 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.

HOD 49-2015 requested PRESSURE 4-2016 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.

This document contains a suggestion by BNI on the methodology based on considerations within the RedCore Drafting Group.

### Action requested

The Meeting is invited to discuss the suggested approach and agree on its possible use to follow up the progress towards the reduction targets.

## Accounting for extra reductions

Bo Gustafsson, Baltic Nest Institute, Stockholm University, Sweden, (March 28, 2016)

### Background

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 lead 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. The aim of this paper is to bring some clarity to the open questions and provide a brief overview BNIs work and viewpoints on the matter.

### Understanding extra reductions

#### Definitions:

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

**Equivalent reduction** is input reduction to basin A that leads to the equivalent environmental benefit in basin B as 1 ton reduction to basin B. **NB!** that prerequisite is that all other basins fulfill MAI **and** Missing reduction to basin leads to environmental cost in the adjacent basins.

**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.

#### Equivalent 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. The same model was used to estimate the equivalent reductions for different extra reductions.

The methodology was to take 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 were performed where N and P inputs were systematically perturbed from MAI, 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 a single nutrient and basin input deviation

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. Details of the calculations are given in an annex to this document. Given the assumptions the equivalent reductions are presented in tables 1 and 2. All values above 10 are considered insignificant.

**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 fulfill 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 fulfill 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 B to this document there is an example on how one can use Tables 1 and 2 to calculate the achieved effective reductions from extra reductions published in the CART follow-up<sup>1</sup> 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 B.

#### BNI's views as points for discussion

1. Using equivalent reduction from extra reduction should be done on single country basis, i.e., the equivalent reduction should not be shared between all countries.
2. Although MAI is exceeded it would be fair that a country that has extra reductions made could make use of this for deducting equivalent reduction in another basin.
3. Evaluation of extra reductions should be made using a common approach and not by individual national studies.
4. For the upcoming assessment, Tables 1 and 2 should be used and a complete analysis for all affected countries should be made. However, it may be that several options will be described and they may not confirm with national plans.

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

## Annex A: Calculation of equivalent reduction

Given the two assumptions, we could analyze the model results in the terms of a linear response so that the environmental change in basin  $j$  (denoted  $\Delta E_{n,j}$ ) due to a given input change in basin  $i$  (denoted  $\Delta I_i$ ) can be described by the following equation:

$$\Delta E_{i,j} = k_{i,j} \Delta I_i \quad (1)$$

We now want to analyze how much do we need to decrease the input in the basin with extra reduction (say basin  $n$ ) to get the same change in the environment in another basin (say basin  $m$ ) as a given reduction in that basin (which then is given by  $\Delta I_m$ ).

The effect in basin  $m$  from load reduction in basin  $m$  is

$$\Delta E_{m,m} = k_{m,m} \Delta I_m \quad (2)$$

and the effect from the extra reduction in basin  $n$  on the environment in basin  $m$  is by the expression above, i.e.,

$$\Delta E_{n,m} = k_{n,m} \Delta I_n. \quad (3)$$

When it is required that the environmental change  $\Delta E_{n,m}$  is equal to  $\Delta E_{m,m}$ , the relationship between the input reduction is given by

$$\Delta I_n = \frac{k_{m,m}}{k_{n,m}} \Delta I_m = f_{n,m} \Delta I_m. \quad (4)$$

Thus, an input reduction in basin  $n$  needs to be a factor of  $f_{n,m}$  higher than if made on the inputs directly to basin  $m$ . This is exactly what we defined above as *equivalent reduction* although expressed without dimension.

The factors,  $f_{n,m}$ , were calculated from the model results for nitrogen and phosphorus separately, using winter nutrient concentration as indication for environmental change. It is done by first calculating the coefficients,  $k_{m,m}$  and  $k_{n,m}$ , and get  $f_{n,m}$  from the ratio  $\left(\frac{k_{m,m}}{k_{n,m}}\right)$ . In many cases the effect of the extra reduction is very small, resulting in a small  $k_{n,m}$  (and consequently large  $f_{n,m}$ ). These cases are quite uncertain in that a small error in  $k_{n,m}$  leads to a major change in  $f_{n,m}$ , and should therefore not be used. A formal quantification of uncertainty is not done, but in the results  $f_{n,m} > 10$  are not shown in the results.



## Annex B: Example of follow-up calculation

As mentioned above, extra reductions were calculated and presented in the CART follow-up<sup>1</sup>. Here we use the example of the extra reductions and missing reductions presented for 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<sup>1</sup>. 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.

However, one cannot simply use 117 tons to Baltic Proper and then in addition 46 tons to Kattegat, because the effect of 46 tons to Kattegat depends on that the full reduction is done in Baltic Proper. One can do the full calculation on how much is remaining to reduce to the different basins, but the calculations involves analyzing also how missing reductions spread between basins. Further, it mathematical problem is not fully determined so there exists multiple solutions. Nevertheless one example of results from a full calculation of remaining reductions for Sweden is 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
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

Table 5: Calculation of effective reductions for the extra reduction from Sweden to Bothnian Sea.

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

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		49
DS	16	
BP		313
BS	176	
BB		48



## Outcome of the Fourth Meeting of the Working Group on Reduction of Pressures from the Baltic Sea Catchment Area (PRESSURE 4-2016)

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# Outcome of the Fourth Meeting of the Working Group on Reduction of Pressures from the Baltic Sea Catchment Area (PRESSURE 4-2016)

## Introduction

0.1 The Fourth Meeting of the HELCOM Working Group on Reduction of Pressures from the Baltic Sea Catchment Area (PRESSURE 4-2016) was held by invitation from the Swedish Agency for Marine and Water Management, in Gothenburg, Sweden, on 19-21 April 2016.

0.2 The Meeting was attended by the Contracting Parties to the Helsinki Convention, except for European Union and Latvia. Observers from Coalition Clean Baltic and EurEau, as well as invited guests from Baltic Nest Institute (BNI) and EUSBSR-PA Hazards. The List of Participants is contained in **Annex 1**.

0.3 Mr. Björn Sjöberg, Director of the Department for Marine and Water Management at the Swedish Agency for Marine and Water Management, welcomed the Meeting on behalf of the host, the Swedish Agency for Marine and Water Management.

0.4 The Meeting was chaired by Mr. Lars Sonesten, Chair of the Pressure Group. Mr. Dmitry Frank-Kamenetsky, assisted by Ms. Marta Ruiz and Ms. Leena Heikkilä, from the HELCOM Secretariat acted as secretary of the Meeting.

## **Agenda Item 1                                      Adoption of the Agenda**

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

1.1 The Meeting took note of the request from Finland to inform under 'Any other business' (AI 8), on update on the Policy Area Nutri as well as information on the EU SBSR annual forum to be held in November 2016 in Stockholm, Sweden.

1.2 The Meeting agreed on the proposals. The Meeting adopted the agenda of the Meeting as contained in document 1-1-Rev.1.

## **Agenda Item 2                                      Matters arising from other HELCOM work**

Documents: 2-1

2.1 The Meeting took note of the outcomes of Heads of Delegation meeting (HOD 49-2015), HELCOM meeting (HELCOM 37-2016), State&Conservation 3-2015 and AGRI 3-2016, as well as a of number of workshops and project meetings that have taken place since the PRESSURE 3-2015 meeting.

## **Agenda Item 3                                      Follow up on marine litter and underwater noise**

Documents: 3-1, 3-2, 3-3, 3-4, 3-5, 3-6

## Marine litter

3.1 The Meeting took note of the key messages of the HELCOM Stakeholder Conference on Marine Litter held in Helsinki on 9 March 2016 (doc. 3-1) as presented by the Secretariat.

3.2 The Meeting discussed the request by HELCOM 37-2016 to take the key messages into account in the future work of the Pressure Working Group, and considered opportunities, scope and timeframe for possible regional roundtable on marine litter.

3.3 The Meeting took note of the information by Germany regarding the recently organized national roundtable which involved various stakeholders and covered all the themes included into Regional Action Plan on Marine Litter (RAP ML). The Meeting also noted that Germany is planning 2-3 meetings to be held this year and a high level event next year.

3.4 The Meeting emphasised the need to set up regional dialog especially for the task leads and co-leads of the different actions to follow up the implementation of the RAP ML and address the issues to the relevant audience, e.g. HELCOM Working Groups and stakeholders outside the immediate HELCOM structure.

3.5 The Meeting also stressed the importance of cooperation between European Regional Sea Conventions to exchange experience and to discuss progress in the implementation of regional action plans and identify areas for joined action.

3.6 The Meeting agreed to arrange the workshop back-to-back with PRESSURE 5-2016 and invite national coordinators, experts from EN-Marine Litter, experts who are task leads and co-leads of actions, and authorities and other stakeholders to discuss practical aspects of the RAP ML implementation and to identify fora to follow up the implementation of the particular actions. The Meeting noted the link between discussion on implementation of the national programmes of measures in the frame of the MSFD and the RAP ML. The Meeting also invited PA Hazards to cooperate with HELCOM in the organization of the regional dialog on implementation of the RAP ML in particular with regard in microplastics.

3.7 The Meeting took note of the current status of the actions of the RAP ML, including details of Lead and Co-Lead Countries and on-going regional and national activities (doc. 3-3).

3.8 The Meeting agreed that the table in document 3-3 is the appropriate tool to follow the request by HELCOM 37-2016 (cf. para 3.2). The Meeting also agreed to update this document for upcoming PRESSURE meetings.

3.9 The Meeting took note of the updated information on activities linked to the RAP on Marine Litter as follows:

- Estonia informed on the feedback received on the questionnaire on landfills circulated by e-mail in relation to action RL14 of the RAP ML. Information has been provided by all HELCOM members except Russia. The received feedback indicated that all the landfills are under control in the region and cannot be considered as sources of marine litter. There is no updated information regarding RL11.
- With regard to actions RL3 and RL5, Germany informed that two studies will be carried out in 2016 to establish an overview on best waste management practices and potential loopholes, as well as on the development of possible design improvements to reduce the negative impacts of products on the marine environment. For RL6 the national report on sources of microplastics is already available. For RS 2 an advanced draft of a background document is available. A questionnaire has also been sent to Maritime Group but only three countries have provided their answers so far, with the deadline for replies by 6 May 2016. Germany also informed the Meeting on the general expectations to be able to fulfil the deadlines of the actions under their leadership.
- Sweden informed on a report prepared by the Commission set up by the Swedish Environmental Protection Agency (EPA) to identify significant sources of microplastics in Sweden (<http://www.naturvardsverket.se/upload/miljoarbete-i-samhallet/miljoarbete-i-sverige/regeringsuppdrag/2016/mikroplaster/swedish-sources-and-pathways-for-microplastics-to-marine%20environment-ivl-c183.pdf>) and to act to reduce the origination and release of microplastics from these sources to the marine environment. Sweden also informed on the report on possibility to ban the use of microplastics in cosmetics. Sweden expect to be able to fulfil the deadlines of the actions under their leadership.

3.10 The Meeting took note that Sweden will not be able to lead action RL1, but to contribute to it. Regarding this action, the Meeting took note of the Swedish proposal to change the deadline to 2019 in order to be able to benefit from the guidelines produced by the BLASTIC project in 2018. The Meeting also took note of the Swedish proposal to proceed likewise with actions RS6 and RS7, under the leadership of Poland, in view of the expected outcomes in the frame of the MARELITT Baltic project to be available in 2018.

3.11 The Meeting agreed that relevant Questionnaires for the implementation of the RAP will also be circulated to the Marine Litter Expert Network and PRESSURE contacts. For action RS2, where Germany is in

lead the Questionnaire as mentioned above should be send out again by the Secretariat via MARITIME, the Expert Network and PRESSURE with a final deadline of 6 May 6 2016.

3.12 The Meeting took note of the suggestion by Germany to cooperate closer with professional societies and other political units developing sectoral regulations in order to include considerations of environmental issues into those regulations.

3.13 The Meeting also welcomed the suggestion by Germany to involve HELCOM into the ongoing OSPAR activity aimed at establishing a dialogue with the industries regarding microplastics in products.

3.14 The Meeting took note of the Finnish offer to co-lead action RL7 'Investigate and promote best available techniques' as well as research and develop additional techniques in waste water treatment plants to prevent microparticles from entering the marine environment. The Meeting agreed that the term 'best available techniques' in the frame of RL7 can be rephrased as compilation of 'available techniques'.

3.15 The Meeting took note of the suggestion by Estonia for early revision of the RAP ML based on the prioritisation of measures and that it could be a topic to discuss at the workshop in autumn. The Meeting welcomed a suggestion by Germany that an overview of implementation of the actions of the RAP ML should be prepared in advance for the workshop.

3.16 The Meeting took note of the information by CCB (doc. 3-6) on the ongoing activities on mitigation of littering the marine environment and future plans to address microparticles.

3.17 The Meeting agreed to set up a 3-week written procedure (**12 May 2016**) to update information on implementation of the RAP ML ([marta.ruiz@helcom.fi](mailto:marta.ruiz@helcom.fi)).

3.18 The Meeting took note of the information provided by Germany on the European Conference on Plastics in Freshwater Environments to be held in Berlin on 21-22 June 2016. The Meeting invited national experts to attend the conference ([link](#) to the conference website).

## Underwater noise

3.19 The Meeting took note that the study reservation by Russia was lifted at HELCOM 37-2016 where the roadmap, containing an additional reference to IMO as proposed by Russia (HELCOM 37 document 4-17), was adopted ([Annex 3 of the Outcome of HELCOM 37-2016](#)).

3.20 The Meeting took note of the present plans and timetable for the further development of the underwater noise indicators as follows:

Continuous low frequency anthropogenic sound:

- Lead Country: Poland, co-Lead Countries: Denmark, Finland, Germany and Sweden
- Indicator with GES-boundaries/GES-criteria anticipated as ready for use in HOLAS II: YES. The indicator development aims to proceed according to HOLAS II time-table. Should not be possible to propose a GES-boundary for the integration of the continuous noise indicator into HOLAS, an interim GES-boundary condition will be proposed.
- Plan 2016:
  - Q2 2016: proposal for a monitoring programme based on ongoing efforts (i.e. BIAS project) for submitted to STATE&CONSERVATION 4-2016 for consideration.
  - Q3 2016:
    - develop a proposal for assessment protocol;
    - tentatively June 2016: identify needs for long-term data arrangements for ambient noise monitoring data, i.a. BIAS calculated data (not raw data) to be brought to HELCOM members;
    - June 2016: workshop on GES on underwater noise envisaged in Germany.
  - Q4 2016:

- 5-6 October 2016: BalticBOOST workshop on GES on underwater noise;
  - propose an interim GES-boundary condition to relevant Working Group for a core indicator integration into HOLAS II based on the work conducted in the two workshops previously mentioned;
  - finalisation of the continuous noise indicator report.
- Q1 2017: Completing indicator evaluation for the first version of the 2nd holistic assessment to be prepared by mid-2017.

Distribution in time and space of low- and mid- frequency impulsive sounds:

- Lead Country: Germany, co-Lead Countries: Denmark, Finland and Sweden
- Indicator with GES-boundaries/GES-criteria anticipated as ready for use in HOLAS II: YES. The indicator development aims to proceed according to HOLAS II time-table. Should not be possible to propose a GES-boundary for the integration of the impulsive noise indicator into HOLAS, an interim GES-boundary condition will be proposed.
- Plan 2016:
  - Q2 2016: HELCOM members have been invited to inform of their national arrangements in order to deliver data to the registry for the use in HOLAS II in the upcoming PRESSURE 4-2016 (19-21 April 2016).
  - Q3 2016:
    - June 2016: workshop on GES on underwater noise envisaged in Germany.
    - follow up on the needs on the regional registry of impulsive activities as part of the joint HELCOM/OSPAR registry hosted by ICES;
    - initiate testing the registry with available project/national.
  - Q4 2016:
    - 5-6 October 2016: BalticBOOST workshop on GES on underwater noise;
    - develop a proposal for assessment protocol;
    - propose an interim GES-boundary condition to relevant Working Group for a core indicator integration into HOLAS II based on the work conducted in the two workshops previously mentioned;
    - finalisation of the impulsive noise indicator report.
  - Q1 2017: Completing indicator evaluation for the first version of the 2nd holistic assessment to be prepared by mid-2017.

3.21 The Meeting took note of the progress in setting up the OSPAR-HELCOM registry of underwater noise (doc. 3-2, **Presentation 1**). The Meeting also took note that the reporting format for reporting data to the OSPAR-HELCOM impulsive noise events registry had been evaluated by EN-Network. Reporting has been tested by some countries and the Meeting approved the reporting format (Annex of doc. 3-2), noting that it was coordinated with that developed within OSPAR and TG-Noise.

3.22 The Meeting took note of the national arrangements planned/undertaken in order to deliver data to the regional registry by September 2016 for the use in the Second Holistic assessment (HOLAS II) as follows:

- Lithuania informed that the data cannot be collected earlier than 2018;
- Finland will be able to supply data for the HOLAS II assessment;

- 
- Sweden informed on the existence of a national registry with reporting format to collect the data but the data from some sources are reported on a voluntary, not obligatory basis. It is expected that data are available before the summer;
  - Poland needs written procedure after the Meeting to clarify national arrangements and possibility to report national data;
  - Denmark will be able to deliver data on seismic activities from 2015. Denmark has started collecting data on naval events and other sources of impulsive noise in 2016. No data can be reported before that time;
  - Germany informed that the export functions to fulfil international commitments for data from pile driving, naval events and seismic activities are completed. Data for the Baltic noise registry will be provided to ICES by September 2016, but only from one windpark as this the only available dataset so far. The Meeting also took note that Germany will consider GES as part of an indicator workshop to take place in June 2016 together with TG Noise;
  - Russia has not any arrangements.

3.23 The Meeting took note of the dates 5-6 October 2016 for the HELCOM workshop on underwater noise and agreed that comments to the provisional draft programme are forwarded to the Secretariat ([marta.ruiz@helcom.fi](mailto:marta.ruiz@helcom.fi)) by 6 May 2016. The Meeting welcomed the offer by Denmark and Germany to consider hosting the workshop.

3.24 The Meeting took note of the compilation of the internationally available reviews on underwater noise mitigation measures and of the questionnaire prepared by BalticBOOST, to be filled in by HELCOM countries in order to identify which of the listed measures are nationally implemented, planned to be, or have the potential to be implemented in the future as contained in document 3-5 (**Presentation 2**).

3.25 The Meeting considered the procedure to refine and then fill in the questionnaire. The Meeting agreed to provide comments on the questionnaire from both and Pressure and Maritime delegates to the Secretariat ([marta.ruiz@helcom.fi](mailto:marta.ruiz@helcom.fi)) by 6 May 2016. The Secretariat will need to collate the comments and post the questionnaire at the HELCOM website by 20 May 2016. The Contracting Parties will fill in questionnaire in by 10 June 2016.

#### **Agenda Item 4 Dredging activities and extraction of mineral resources**

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

4.1 The Meeting took note of the information on the state of data reporting in accordance with the new reporting format and discussed the obstacles to provide complete national data sets (**Presentation 3**).

4.2 The Meeting took note of the following clarification by the countries:

- Estonia reported data in 2013 but there was no dredging activities during that year. Contaminants were not reported in year 2014, due to their concentration on the dredging material at the level of natural background;
- Russia informed that data from 2007 and 2008 had been reported;
- Finland: information on reporting data as contained in Table 1 in document 4-1 is misleading;
- Denmark indicated that summing-up the depositing sites reported in different years is not correct. The data from 2013 and 2014 to be further clarified. Denmark informed that it will unfortunately not be able to deliver data on dredging activities.

4.3 The Meeting also took note of the information required for HOLAS II assessment of pressures caused by human activities and identified issues in the reporting template which should be modified to cater for the assessment.

4.4 The Meeting discussed the suggested updates to the reporting guideline and format, listed in the Conclusions chapter of document 4-1, and decided to organize an expert skype meeting to discuss it.



- 4.5 The Meeting invited the Contracting Parties to nominate experts by 3 May ([dmitry.frank-kamenetsky@helcom.fi](mailto:dmitry.frank-kamenetsky@helcom.fi)) for a skype meeting on dredged material reporting format to be held during May.
- 4.6 The Meeting agreed to submit the suggested changes to the reporting guideline and format, based on outcomes of the Skype meeting, to HODs for approval via correspondence.
- 4.7 The Meeting took note of the study reservations by Denmark and Germany on the document until after the discussion at the Skype meeting.
- 4.8 The Meeting took note of the initial ideas on how to improve the assessment of impact of the activities on dredging and depositing dredged material into the Sea utilizing newly reported data. The Meeting also noted that the methodology has to be elaborated and agreed by the Contracting Parties by the end of 2016 to be used for HOLLAS II assessments.
- 4.9 The Meeting agreed that the assessment methodology and the procedure of its elaboration should be discussed at the expert meeting.
- 4.10 The Meeting took note of the information by CCB on the physical loss and damage to the sea floor: marine sediment extraction in the Baltic Sea (doc. 4-4), including the call for better coordination in this respect by HELCOM Subsidiary bodies and a proposal for revision of relevant HELCOM assessment products and requirements.
- 4.11 The Meeting also took note of the information provided by CCB to consider available information, i.a., the ICES report “Effects of extraction of marine sediments on the marine environment 2005-2011” published in 2016 ([http://www.ices.dk/sites/pub/Publication%20Reports/Cooperative%20Research%20Report%20\(CRR\)/crr330/CRR%20330.pdf](http://www.ices.dk/sites/pub/Publication%20Reports/Cooperative%20Research%20Report%20(CRR)/crr330/CRR%20330.pdf)).
- 4.12 The Meeting took note of the information by the countries that some data on extraction of sand and gravel at the sea floor are available in the countries, but that the data set is not complete against the requirements of HELCOM Recommendation 19/1.
- 4.13 The Meeting agreed on the need to update HELCOM Status Report on Marine sediment extraction in the Baltic Sea (1999), based on reliable, comprehensive, geo-referenced national data and agreed to conduct the reporting on marine sediment extraction in the Baltic Sea according to HOLAS II needs, and, subsequently, consider the need of regular reporting and revision of Recommendation 19/1. Denmark informed that they will inform the Secretariat on the data which are available for this assessment.

## Agenda Item 5

### Draft HELCOM Recommendation on sewage sludge handling

Documents: 5-1

- 5.1 The Meeting took note of the Draft HELCOM Recommendation on Sewage Sludge Handling as presented by the Secretariat (doc. 5-1).
- 5.2 The Meeting took note of the study reservation by Germany and Poland on the draft HELCOM Recommendation on sewage sludge handling.
- 5.3 The Meeting agreed on the new version of the draft Recommendation for further submission to the upcoming meeting of the Heads of Delegation.
- 5.4 The Meeting agreed to withdraw Annex 2 “Tentative limit values” from the draft, due to existing various national regulations identifying the limit values and taking into account regional chemical parameters of soils. The Meeting also encouraged the Contracting Parties to work further on the development of the national limit values for concentrations of unwanted substances in sewage sludge and to exchange this information within the HELCOM group.
- 5.5 The Meeting agreed on the draft HELCOM Recommendation as contained in **Annex 2** to this Outcome. The Meeting also agreed that the Contracting Parties will make a final check of the agreed draft Recommendation and inform the Secretariat ([dmitry.frank-kamenetsky@helcom.fi](mailto:dmitry.frank-kamenetsky@helcom.fi)) by 2 May 2016, whether



information on the hazardous substances at HELCOM, EU or at national levels, e.g. revision of HOLLAS II, WFD, etc. The revision should integrate all the collected information. Sweden informed on the ongoing national investigation and suggested to postpone the revision of the Recommendation 31E/1 at least till spring 2017.

6.13 The Meeting agreed with the suggestion by Finland, Poland and Sweden to postpone the review of Recommendation 31E/1, the definitions and the purpose of its attachments, until the latter part of year 2017 and in the meantime continue the work on collecting information on hazardous substances.

6.14 The Meeting suggested that the future PLC reporting should pay more attention to the hazardous substances. The Meeting requested the RedCore Drafting Group to consider the results of the questionnaire and elaborate a proposal for the Contracting Parties to compile more detailed national information on the substances which were prioritized.

6.15 The Meeting encouraged Poland to provide the information for the questionnaire.

6.16 The Meeting took note of the updated information by CCB on the situation around the landfill of toxic wastes Krasnyi Bor and the suggestions for the way forward for resolving the situation.

6.17 The Meeting took note of the information on the current conditions and the state of environmental measures at the toxic waste landfill provided by the director of the enterprise Polygon Krasnyi Bor (**Presentation 5**) and an expert from LLC "Tehnoterra" (**Presentation 6**). The Meeting discussed the current state of wastewater treatment facilities and maintenance of embankments or walls and construction of landfill and the drainage system.

6.18 The Meeting expressed the concern regarding the efficiency of the WWTP, current emissions to air, surface and ground water, the current environmental monitoring at the surroundings of the landfill and the fate of the hazardous wastes generated by the enterprises after the landfill has been closed. The Russian delegation presented information on the efficiency of WWTP and clarified that the monitoring is organized on weekly basis and involves regular sampling of surface and ground water. The Meeting was also informed that the current amount of the toxic waste generated at the industrial facilities of St. Petersburg and nearby regions is considerably lower than in the past, and that other locations and options for environmentally safe waste management and for landfilling are to be found in the region.

6.19 The Meeting took note of the statement by Estonia regarding readiness for cooperation to prepare an appropriate project proposal for the remediation of the Polygon (**Annex 3**).

6.20 The Meeting took note the statement by Finland on its preparedness to cooperate and share experience and expertise on handling hazardous waste.

6.21 The Meeting welcomed the preparedness of the Russia for an open and transparent dialogue on the current situation around the landfill and on sustainable and cost-efficient ways of resolving the problem. The Meeting also noted the intention of the Russian Federation to involve international experience as well as international financial tools into the remediation work of the area and deletion of the hot spot from the HELCOM list.

6.22 The Meeting took note of the information on the national funds allocated in the Regional and Federal budgets to mitigate the most acute environmental risks posed by the landfill and the plan to remediate the area.

6.23 The Meeting thanked the Russian delegation for the transparency in presenting the current situation and expressed the preparedness for cooperation and assisting Russia to identify potential external funding sources to mitigate environmental risks and to eliminate environmental damage caused by the landfill.

6.24 The Meeting suggested arranging a study visit of international experts to the landfill in cooperation with HELCOM in order to evaluate the current situation at the polygon and to outline the ways towards elimination of the hot spot. The Meeting agreed that the study visit would boost international cooperation aimed at elimination of the HELCOM hot spot.

6.25 The Meeting requested the Secretariat together with Russia to prepare appropriate suggestions for the study visit and inform the Pressure Group contacts on the suggested dates. The Meeting also requested the Secretariat to facilitate communication between the Russian authorities and international organizations, experts, and financial institutions.

#### **Agenda Item 7** **Thematic session on input of nutrients**

Documents: 7-1, 7-2, 7-3, 7-3-Corr.1, 7-4, 7-5, 7-6, 7-7, 7-8, 7-9, 7-10, 7-11, 7-12, 7-13

##### Overall planning of PLC-based assessment products

7.1 The Meeting considered document 7-3, Proposal for procedures for releasing the reported PLC water data and accepting the filled-in and consolidated dataset as part of the steps to elaborate PLC products.

7.2 The Meeting took note the statement by Poland regarding mandatory approval of the results of processing of national data and their further use in assessment procedures. Thus the last bullet point of the document was rephrased accordingly. The Meeting agreed on the revised version of the document as presented in the **Annex 4**.

7.3 The Meeting emphasized the importance of the involvement of the Pressure group in the process of approval of the assessment results.

7.4 The Meeting took note of the German position that the CART assessment should not be performed annually, but due to the fact that the assessment is based on the annually reported data, this product is included into the annual workflow.

7.5 The Meeting considered the suggestion on the roadmap for PLC-7 and PLC-8 assessments (doc. 7-7) and tasked the RedCore DG to update the Roadmap.

7.6 The Meeting discussed the timeframe for the PLC-8 assessment and was of the opinion that the results should cater for the reporting under the EU regulations for the EU member states. From this point of view, the suggestion for the timeframe of the PLC-8 assessment can also be discussed by GEAR 14-2016 (10-11 May). The Meeting also noted that Germany needs the assessment data latest in summer 2023. The Meeting agreed on a preliminary timeframe for the PLC-8 assessment, proposed by Germany at HOD 49-2015, as 2021 for monitoring and the assessment in 2023.

7.7 The Meeting also noted that the position of Germany regarding the contents of the PLC-7 and the timeframe and contents of PLC-8 will be clarified at HOD 50-2016, due to ongoing national consultation.

7.8 The Meeting decided to include a pilot exercise on assessment of inputs of nitrogen and phosphorus from seven major rivers into the PLC-6 periodical assessment and, consequently, to include this assessment product into both PLC-7 and PLC-8. The Meeting noted that the input by these rivers contribute about 50% of the total input of nutrients and might be used for an assessment on the effectiveness of measures in the long-term perspective.

7.9 The Meeting took note of the information on harmonizing source apportionment methodology and agreed that PLC-6 will contain a compilation of the methodologies used for source apportionment in the countries. The compilation will be ready by spring 2017. PRESSURE 6-2017 will discuss the overview of the methodologies and agree on further steps towards its harmonization, including a proposal for the project. Thus, the Meeting was of the opinion that the better harmonized approach to application of the national methodologies would be applied for PLC-8 at the earliest.

7.10 The Meeting pointed out that all the countries use national models taking into account specific natural parameters and conditions. Hence there is no intention to unify the models but make modelling results comparable. The Meeting also noted the importance of cooperation with OSPAR regarding methodological aspects of catchment modelling and source apportionment.

7.11 The Meeting also noted that it is not essential that intercalibration be done in 2017. Early 2018 is also acceptable if analysis methodology remains unchanged.

7.12 The Meeting agreed that the project proposal for PLC-7 can be submitted to HOD 50-2016. The Meeting requested RedCore to elaborate the project proposal.

#### PLC-6 assessment

##### *An outline of the PLC - 6 assessment and the project implementation*

7.13 The Meeting considered the updated roadmap for implementation of the PLC-6 project (doc.7-1) and approved it, as presented by the Project Coordinator. The Meeting considered the overall structure of the PLC-6 assessment (doc. 7-2) and provided guidance on the contents. In particular, the Meeting expressed concern regarding the overlapping of information in some chapters with the existing HELCOM documents, e.g. PoM, and recommended to avoid this in the future. The Meeting also recommended to keep balance in selecting good examples of effective measures between the countries.

7.14 The Meeting was of the opinion that the PLC-6 team has an ambitious plan and probably will need support from the Contracting Parties. The Meeting also expressed concern in the feasibility of compiling reliable information on the measures and consequently in the evaluation of their effectiveness.

7.15 The Meeting agreed in general on the contents of the PLC-6 report, which had been prepared by the RedCore DG and the PLC-6 project team.

7.16 The Meeting took note of and discussed the implementation of the tasks on assessment of effectiveness of measures and potential reduction in nutrient inputs of the PLC-6 project. The Meeting pointed out difficulties with the assessment of effectiveness of the measures addressing diffuse sources. The Meeting also emphasized that assessment of effectiveness of measures is an important but a rather challenging task, noting that the questionnaire which had been circulated by the Project Team was the first attempt to collect information. The Meeting recommended to the PLC-6 team to consider revising and simplifying the document taking into account the feedback by PRESSURE 4-2016 and replies by countries.

7.17 The Meeting took note of the progress in the compilation of background and supporting data for the assessment report of the Sixth Baltic Sea Pollution Load Compilation (PLC-6), presented by Sweden (doc. 7-5).

7.18 The Meeting took note of the status of the 2013-2014 annual PLC data reporting (doc. 7-11) and the status of the 2014 periodic PLC data reporting (doc. 7-13), provided by the PLC Data Manager. The Meeting was informed on the state of play of the reporting by all the countries.

7.19 The Meeting expressed great concern on the feasibility of elaboration of the assessment products due to the delay of the data reporting.

#### Follow-up of the HELCOM nutrient reduction scheme

##### *Preparation of policy message product on CART*

7.20 The Meeting considered the initial suggestions for the CART assessment 2016, collected views from the Contracting Parties on the contents of the policy message product, and discussed the scope of the assessment and the approaches to elaborate its results.

7.21 The Meeting exchanged views on the various aspects of the final products of the CART assessment and in general supported the current structure of the scientific report. Nonetheless, the Meeting was of the opinion that the scientific report should recommend a unified assessment methodology to avoid deviation in interpretation of the assessment data.

7.22 The Meeting suggested several methods to assess the progress towards national reduction targets, e.g. using a 3- or 5-year averaging period or statistically adjusted data on the last year of the assessment. The Meeting noted that the Contracting Parties are not fully satisfied with the clarity of the policy message of the assessment 2015.

7.23 The Meeting noted that countries are in favour of different averaging periods but agreed that the HELCOM policy message should be based on one agreed methodological approach.

7.24 The Meeting agreed that the following questions should be included into the policy message:

- Whether the reduction target is achieved?
- What is the distance from the target, e.g. in tons?
- What is the trend in inputs?

7.25 The Meeting agreed to arrange a workshop dedicated to MAI/CART assessment methodologies in autumn 2016. The Meeting pointed out that the workshop should be organized when the recent assessment results are as ready as possible in order to use its outcomes for e.g. MSFD reporting. The workshop will outline the policy message.

7.26 The Meeting requested the RedCore DG to prepare the agenda for the workshop and invited the Contracting Parties to provide input to the agenda of the workshop.

7.27 The Meeting also encouraged the Contracting Parties to attend the workshop.

#### *Accounting for extra reductions*

7.28 The Meeting took note the information on a methodology for accounting an extra reduction in CART follow-up (**Presentation 7**).

7.29 The Meeting discussed how the approach can be used for the MAI/CART assessment and the constraints involved in applying this approach.

7.30 The Meeting took note of the information by Finland on an example of using extra reduction in the Archipelago Sea. The use of extra reduction is also important for several Contracting Parties to reach the reduction targets.

7.31 The Meeting also noted that restoration measures in coastal waters could be considered as measures to reduce inputs to the offshore Baltic Sea and this could be taken into account in future work.

7.32 The Meeting requested RedCore to elaborate more detailed documentation describing the methodology and limits for its application as well as provide examples. The Meeting also suggested to include the theme into the agenda of the workshop in the autumn 2016.

#### *Technical solutions for improving reporting and assessment procedures*

7.33 The Meeting took note of the information on the major products of the PLUS Project which was completed in the end of 2015.

7.34 The Meeting agreed that the tools are helpful for the PLC reporting procedures and agreed that the targets of the Project were achieved and the tasks were accomplished.

7.35 The Meeting was of the opinion that there is a need to organize a sufficient maintenance of the project products in the future.

7.36 The Meeting thanked the Project Team, the Project Coordinator Sriram Sethuraman and the Secretariat for the successful implementation of the Project.

7.37 The Meeting took note of the progress in implementation of the HELCOM Project MAI-CART OPER 2015-2017. The Meeting agreed that the implementation of the Project is in line with the recommendations of the kick-off workshop and the agreed timeframe (**Presentation 8**).

7.38 The Meeting expressed the concern that the funding of the Project has still not been completely secured. The Meeting encouraged the Contracting Parties to consider funding the remaining 30% (20 thousand euros) of the Project.

### **Agenda Item 8**

### **Any other business**

Documents: 8-1, 8-2

8.1 The Meeting checked and updated the Contact Lists of the Pressure Working Group (document 9-1), attached as **Annex 5** to this Outcome.

8.2 The Meeting took note of the information by Germany on the activities at Leibniz Science Campus Phosphorus Research Rostock and encouraged countries to take part in the workshop.

8.3 The Meeting took note of the information by PA NUTRI on the outcomes of stakeholder's seminar organized in Gdansk on 14 April 2016 and the suggestion for a joint seminar (PA Hazards, PA Nutri, PA Bioeconomy) at the EUSBSR Forum in Stockholm, 8-9 November 2016.

8.4 The Meeting also took note of the information on an activity on taking a stock of the national policies related to recycling of phosphorus, launched by the Agri Group, and that the first results are expected to be obtained by the autumn 2016. The Meeting supported the initiative of Agri group and invited national experts to cooperate with the drafting group.

8.5 The Meeting noted that PA Nutri had encouraged national representatives to attend the PA Nutri Steering Committee meeting on 26 April 2016.

8.6 The Meeting took note of the information by Russia on the need to revise some of the HELCOM Recommendations falling under the Pressure group ToR, and that Russia is ready to prepare a relevant overview. The Meeting agreed to include the issue into the agenda for PRESSURE 5-2016.

#### **Agenda Item 9 Future work and meetings**

Documents: 9-1

9.1 The Meeting welcomed the offer by Poland to host PRESSURE 5-2016 in Warsaw on 25-27 October 2016 in the premises of the National Water Management Authority.

9.2 The Meeting emphasized that the PRESSURE 4-2016 was well structured and organized but pointed out that the preliminary timetable should be circulated at least three weeks in advance in order to enable participants to plan their attendance and take part in the relevant discussions.

9.3 The Meeting took note of the suggestion by Germany to arrange the Pressure and State&Conservation Groups' meetings having at least two weeks between them, if feasible, allowing sufficient time for national preparations.

9.4 The Meeting suggested that PRESSURE 6-2017 will take place during the week 24-28 April 2017.

9.5 The Meeting thanked the host, the Swedish Agency for Marine and Water Management, for the excellent arrangements and generous and hospitality during the Meeting.

#### **Agenda Item 10 Outcome and closing of the Meeting**

Documents: 10-1

10.1 The Meeting adopted the draft Outcome of the Meeting (document 10-1).

10.2 The Outcome of the Meeting will be finalized by the Secretariat in cooperation with the Chair and made available in the HELCOM Meeting Portal together with the documents and presentations given during the Meeting.

## Annex 1 List of Participants

Delegation	Name	Organization	E-Mail
<b>CHAIR</b>			
Chair of Pressure Group	Lars Sonesten	Swedish University of Agricultural Sciences	Lars.Sonesten@slu.se
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**Annex 2      Draft HELCOM Recommendation on Sewage Sludge Handling**

HELCOM Recommendation xx/yy

[Adopted XXXXX]

having regard to Article 20, Paragraph 1 b) of the Helsinki Convention

**SEWAGE SLUDGE HANDLING****THE COMMISSION,**

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

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

**RECALLING** Article 5 of the Helsinki Convention, in which the Contracting Parties undertake to prevent and eliminate pollution of the marine environment of the Baltic Sea caused by harmful substances,

**RECALLING ALSO** the Baltic Sea Action Plan (BSAP) adopted at the HELCOM Ministerial Meeting 2007 (Krakow) that calls for urgent actions to reduce the discharges of nutrients and hazardous substances to the Baltic Sea Area,

**RECALLING FURTHER** that the HELCOM Ministerial Meeting in 2010 (Moscow) and the high-level segment of the Helsinki Commission meeting in 2011 highlighted the need to improve resource efficiency and recycling of nutrients through utilization of sewage sludge,

**RECALLING AS WELL** that the 2013 HELCOM Ministerial Meeting called for sustainable use of nutrients, enhancement of phosphorus recycling (especially in agriculture and waste water treatment) and promoting development of appropriate methodologies;

**RECOGNISING** that phosphorus as a limited resource was included into the list of critical raw materials by the European Commission, thus its economically feasible recycling from sewage sludge is of particular importance,

**RECOGNISING FURTHER** the Circular Economy Package adopted by the European Commission on 2 December 2015 and the potential contribution of sustainable utilization of the energetic potential of sewage sludge into the development of alternative sources of energy,

**RECOGNISING ALSO** that sewage sludge may be a sink for unwanted and hazardous substances including new substances – and that sewage sludge, thus, can be harmful for plants, animals and humans, and that there is concern in contracting parties about this resource, and that reuse and disposal of sewage sludge shall not cause any harmful effects, including accumulation and interactions of harmful substances and its degradation products, on humans, animals, vegetation, soil and waters in either the short or longer term,

**RECOGNISING FURTHER** that addition of sewage sludge to agriculture may often have a positive effect on microorganisms in the soil, and that treatment of sewage sludge has found to be necessary before it is used in agriculture,

**RECOGNISING ALSO** that measures to reduce content of unwanted substances in incoming wastewater to wastewater treatment plants at the source are necessary in order to obtain i.e. the best possible quality of the sewage sludge,

**TAKING NOTE** of that recirculating sludge to agricultural land is a strong driving force raising awareness of the society on control of waste water quality at the source, resulting in both a better sludge quality and a better quality of the treated wastewater discharged into the environment,

**NOTING** that for the purpose of this Recommendation, the definition of sewage sludge should be the same as in the Council Directive 86/278/EEC of 12 June 1986 on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture,

**NOTING** that the waste management hierarchy set in the EU Waste Framework Directive 2008/98/EC is applicable also for sewage sludge management and contains the following steps: prevention; preparing for re-use; recycling; recovery (including energy recovery); and disposal,

**DESIRING** to recycle the nutrients, especially plant available phosphorus, in the sludge; to make use of its valuable properties and energetic potential and to dispose of it safely, efficiently and sustainably,

**RECOMMENDS** to the Governments of the Contracting States to the Helsinki Convention to apply the Guidance (Annex 1) for sustainable sewage sludge handling in the Baltic Sea region,

**RECOMMENDS ALSO** that the Contracting Parties establish a programme, or any other appropriate instrument, for the implementation of this Recommendation and that they provide the Helsinki Commission with information on the programme at the latest by [30 June 2017],

**RECOMMENDS** to the Governments of the Contracting States to the Helsinki Convention to encourage development of innovative “green” power industry based on production of solid, liquid or gas fuel as a result of sewage sludge treatment processes,

**RECOMMENDS ALSO** to the Governments of the Contracting Parties to promote research and development of the sustainable cost-effective solutions, especially for phosphorus recovery from the sewage sludge and products of its treatment.

**RECOMMENDS FURTHER** that the Contracting States report to the Helsinki Commission every three years starting at the end of [2016] with data from [2015], according to Annex 2 and measured parameters as stated in Annex 1,

**RECOMMENDS FURTHER** that the Contracting Parties review the present Recommendation and reconsider it in [2021] taking into account the implementation and review of the HELCOM Baltic Sea Action Plan as well as new developments on national or international and EU level for Member States or earlier if it is needed.

## Guidance for sustainable sewage sludge handling in the Baltic Sea region

This document provides guidance to promote the application of sustainable and ecologically sound techniques and handling practices for sewage sludge with the aim to ensure maximum effective sustainably managed use of valuable substances and energy potential, while taking into account that the Baltic Sea is a vulnerable ecosystem which environmental status requires intensive efforts towards improvement. Furthermore, this guidance is supposed to enhance cooperation and provision of economic incentives while aiming at limiting potential environmental impacts of sewage sludge. As untreated sewage sludge is not to be applied at any kind of land, application of sewage sludge treatment, in the context of this Recommendation always refer to treated sewage sludge.

### **A Overall recommendations regarding sewage sludge handling**

1. Endeavour, when applying techniques and practices for sustainable handling of sewage sludge to ensure maximum recycling or recovery of phosphorus and other useful substances and compounds, if possible competitively, as well as utilization of its energetic potential and avoidance of the negative impact on the environment.
2. In the case when sewage sludge is used for mixing with other raw materials (organic material of plant or animal origin or clay, sand, etc.) to produce fertilizing materials, the amount of unwanted substances in the mixed product should not exceed the limits established by international or national legislation. The fact that sewage sludge may contain other harmful substances than those falling under international or national legislation should be taken into consideration when determining the mixing ratio.
3. Landfilling of untreated sewage sludge should be avoided; in case of landfilling sewage sludge, it has to be pre-treated in accordance, for instance, with the regulations of Directive 1999/31/EC (landfill directive) for EU Member States, bearing in mind that sewage sludge may contain harmful substances not falling under this legislation.
4. Ensure also that leaching of the nutrients to the environment as well as emissions and leakages of substances polluting the environment are prevented when the sewage sludge handling procedure includes temporary storage of the sewage sludge or products of sewage sludge treatment.
5. Ensure that possible negative impacts from sewage sludge handling processes will not hinder the achievement of a good environmental/ecological/chemical status of the Baltic Sea, as agreed upon in the HELCOM BSAP and relevant national and international legislation.
6. Reuse or recycling of nutrients, especially phosphorus, from the sewage sludge as well as utilisation of its energetic potential should also be considered in the perspective of designing new facilities or reconstruction of waste water treatment plants (WWTP). However, waste water treatment, sludge treatment and recycling of sludge should ideally be looked in an integrative manner.
7. Incineration of sewage sludge could serve as final solution in cases where Contracting Parties consider the hazardous potential of sewage sludge even after treatment as being too high for application on land as fertilizer. In this case, phosphorus should be recovered from the incinerated material as far as viable technical are available.

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8. The principle of substitution to decrease, whenever possible, loads of pollutants i.e. heavy metals, pharmaceuticals or organic micropollutants entering the WWTP should be applied to ensure high quality of resulting sewage sludge.
  9. Whenever possible, loads of pollutants, i.e. heavy metals, organic micropollutants and pharmaceuticals entering the WWTP should be decreased, *inter alia*, through mandatory pre-treatment of the waste water released into the sewage system to ensure quality of sewage sludge and prevent release of pollutants to the aquatic environment.
  10. If unwanted substances are identified, sufficient source control measures should be established by polluters. Environmental authorities and/or waste water operators should establish a plan on how to prevent the unwanted substances to enter the sewage network.
  11. Techniques and practices of sewage sludge handling should prevent or, at least, minimize all kinds of emissions to the air, in accordance with national and international legislation, especially in case of thermal treatment. If possible, gas produced via anaerobic sludge digestion should be collected and used for energy production.
  12. An effective and transparent permitting and reporting system should be established in the cases when the application of sewage sludge or products containing sewage sludge needs permits.
  14. International dialog and cooperation, exchange of scientific and knowledge experience up to transfer of especially new environmentally friendly technologies and practices as well as information on concentration of the unwanted substances in the sludge, should be facilitated, as mutually agreed, while considering comparable, possibly compatible harmonized action for the benefit of the Baltic Sea region including effective monitoring and control mechanisms.

## **B Overall restrictions regarding handling of sewage sludge**

1. Sewage sludge from other WWTPs than those for treatment of domestic waste water or waste water which does not have similar composition as domestic waste water should not be applied on or used in soils.
2. Avoid any sewage sludge application in drinking water protection areas in order to prevent contamination with harmful substances such as pathogenic components, pharmaceuticals, endocrine disrupters and other anthropogenic micropollutants, unless otherwise provided in the national legislation.
3. Sewage sludge must not be applied on land during the cultivation of fruits and vegetables nor on land intended for cultivation of fruits and vegetables within one year before harvest.
4. Sewage sludge must not be applied on permanent grassland or crops which are used as animal feed and could be contaminated with pathogenic components and/or harmful substances, such as e.g. micropollutants, unless safe application is ensured by national legislation.
5. Sewage sludge application in forestry has to follow national legislation. Sewage sludge must not be applied on agriculturally or horticulturally used soils in nature reserves, nature benchmarks, national parks, protected parts of the landscape and other areas of special interest, or according to national legislation.
6. Sewage sludge must not be applied in wetlands, potential flooded areas, water protected zones or closer than 10 meters from water bodies or according to national legislation.

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**C Recommendations regarding agricultural and horticultural use**

1. Before treated sewage sludge is applied for the first time the soil has to be analyzed on at least the following parameters:
  - Heavy metals: Cd, Cu, Ni, Pb, Zn, Hg, Cr
  - Nutrients: P, N, K
  - pH and other parameter as required according to national legislation
2. Analysis of the soil should be repeated whenever necessary or according to national legislation.
3. The application of treated sewage sludge on/in soil has to be critically considered if the soil analyses show that the content of the above listed parameters exceed, at least, one of the limit values established by national legislation.
4. Treated sewage sludge or its products like other fertilizers should not be applied on soil if the phosphorus and nitrogen content in the soil is sufficient for crop cultivation.
5. On arable land used for growing feed or sugar beet, insofar as the sugar beet foliage is used as feed, it shall only be allowed to apply treated sewage sludge before sowing and with subsequent deep-turn tillage. On arable land used for growing silo and green maize, the sewage sludge must be worked into the soil before sowing.
6. If the treated sewage sludge is to be used in agriculture or horticulture, it has to be hygienized according to national legislation
7. Representative samples should be taken from treated sewage sludge or the product containing sewage sludge that will be used on arable land and analysis of the sewage sludge should be made.
8. The application of treated sewage sludge on/in soil has to be critically considered if the sludge analysis show that the concentration of heavy metals or other unwanted substances exceed the limit values established by the national legislation.
9. The quantity of treated sewage sludge should be regulated in such a way that the accumulation of unwanted substances are limited by the following parameters:
  - the average amount of five tons dry sewage sludge added per hectare in three years or according to national legislation;
  - the limit values for the particular substances according to international, EU and national legislation, if they are established;
  - exemptions should be possible, if a lack of special nutrients e.g. copper or zinc is proven in the soil. Contracting Parties may also decide to set stricter limits or to ban the use of sewage sludge in agriculture, horticulture and home gardening, if they consider the hazardous potential of sewage sludge as too high even after treatment.

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**D Recommendations regarding use in forestry, green areas, landscaping and land reclamation**

1. Application of sewage sludge or mixed products containing sewage sludge at the lands used for forestry is a matter of competent authority.
2. The sewage sludge or mixed products containing sewage sludge can be used in construction and maintaining urban green areas, landscaping including rail and road slopes as well as other elements of road infrastructure to prevent their erosion and land reclamation, if concentration of unwanted substances in the applied materials do not exceed limit values established by national legislation for these types of land.
3. If the treated sewage sludge is to be used in landscaping, land reclamation and green areas it has to be hygienized to assure that no problematic pathogens exist in the product and it satisfies the same criteria as item C6.
4. Other recommendation regarding using treated sewage sludge or sewage sludge products green areas, landscaping and land reclamation is a matter of competent authority.

**E Recommendations regarding incineration, construction and other applications**

1. If sewage sludge is incinerated after removal of phosphorus and other valuable components, in line with requirements for their potential application the produced energy has to be collected and used.  
If it is not possible to remove phosphorus from the sludge or ashes directly and the content of phosphorus is considerably high, the ashes should be stored temporarily in mono-landfills to remove phosphorus later when viable techniques are available. The use of best available techniques and best environmental practices for mono-landfills should be applied.
2. Ash after sewage sludge incineration can be considered as material for production of construction materials e.g. additive for pavement, ceramic tile, border stone, building mixes etc.
3. If sewage sludge is used as a part of construction material for industry, valuable substances, especially phosphorus, should be recovered from the sewage sludge before application when viable techniques are available, if the substances are not needed in the construction material and are lost for further reuse.

## Annex 2

## Reporting Format for HELCOM Recommendation x/y on Sewage Sludge Handling

<b>REPORTING FORMAT FOR HELCOM RECOMMENDATION CONCERNING SEWAGE SLUDGE HANDLING</b>			
Lead Country: Germany/ Sweden			
Country:		Year:	
<b>A. Waste water from origins</b>			
1. Have actions been taken to improve the waste water quality from origins before it reach WWTP (source reduction)?	Yes	No	Unknown/ comments
2. Is improved waste water quality from origins a matter for the central, regional or local governments?	Yes	No	Unknown/ comments
<b>B. Sewage sludge handling</b>			
1. Generated sewage sludge, dry mass, t/a			
2 Used for biogas generation dry mass, t/a			
2. Usage of sewage sludge	Amount, dry mass, t/a	Number of installations	
a) incineration, co-combustion			
b) incineration, mono			
c) landfilling			
d) landfilling, mono			
e) landscaping/green areas/land reclamation			
f) agriculture/horticulture			
g) forestry			
h) other usages			
5. Have actions been taken to reduce the leakage of nutrients from sludge handling?	Yes	No	Unknown/ comments
6. Describe how the Recommendation concerning sewage sludge handling has been implemented; new legislation, amendment to existing legislation or other means.			
7. Do your country technically recover phosphorus from	Yes	No	Percentage of total amount
a) waste water,			
b) sewage sludge or			
c) sewage sludge ashes?			

Information on national limit values for hazardous substances, pathogens and other relevant parameters in sewage sludge and soil.

Information on the amount of phosphorus recovered from the sewage sludge or products of its treatment.



**Annex 3            Estonian statement on HELCOM PRESSURE 4-2016 in regard of State Unitary Environmental Enterprise Polygon Krasny Bor, Russia**

*We received the documents presenting information on the status of the State Unitary Environmental Enterprise Polygon Krasny Bor, Russia, which indicates poor status of the facilities and urgent need for actions in order to guarantee the environmental safety.*

*We herewith express our readiness for cooperation to work with interested partners such as NEFCO or other contributing institution to prepare needed project and implement necessary measures for State Unitary Environmental Enterprise Polygon Krasny Bor.*

*Ministry of the Environment of Estonia has during the last decade managed a number of environmental projects of similar nature in Estonia. Sillamäe radioactive waste depository project included investigations, preparation of design and implementation of reshaping, covering and water management of 50 hectares area. Closure of two semicoke waste depositories in Kohtla-Järve and Kiviõli included the same measures in the area of 114 hectares. In addition to that, a new modern seepage water treatment plant project has been implemented in hazardous waste collection center in Vaivara. There are also new complex projects under preparation, e.g. cleaning up the past pollution of Purtse river basin and rehabilitation of Kukruse mining waste facility.*

*There are relevant experts available in Estonia for implementation of Krasny Bor project. Ministry of the Environment of Estonia has besides international cooperation experience in implementation of the environmental projects.*

On behalf of Estonian Delegation,

Silver Vahtra,

Head of Estonian Delegation

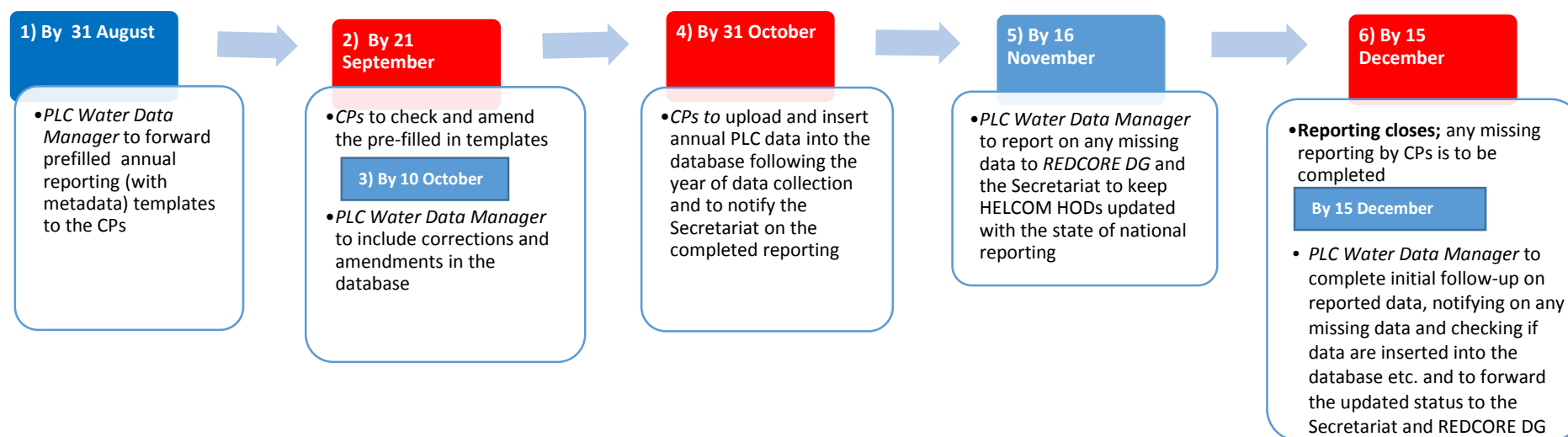
Ministry of the Environment of Estonia

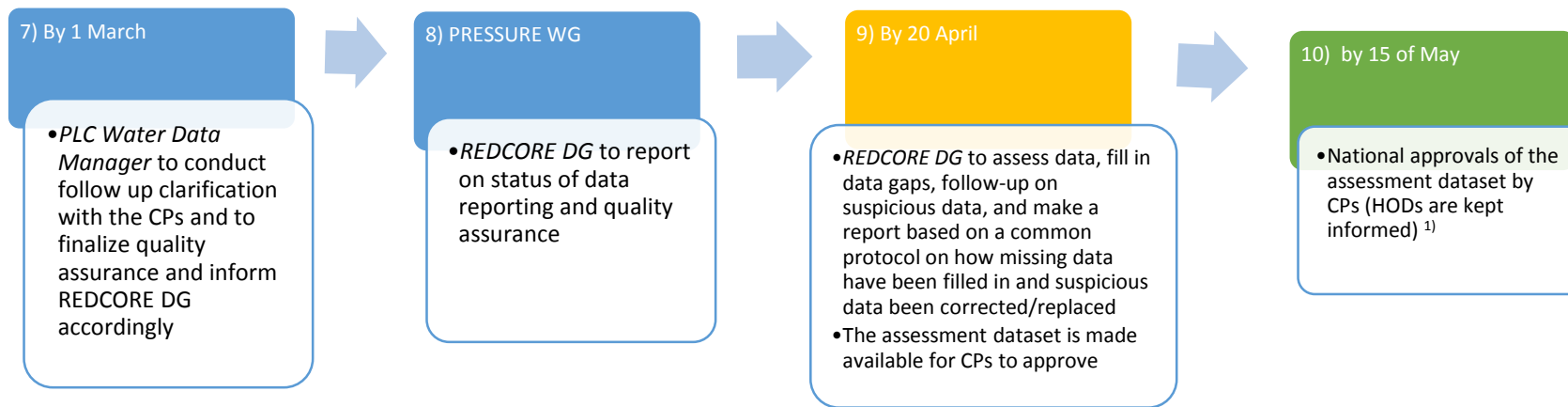
## Annex 4 Procedures for releasing the reported PLC water data and accepting the filled in and consolidated dataset as part of the steps to elaborate PLC products

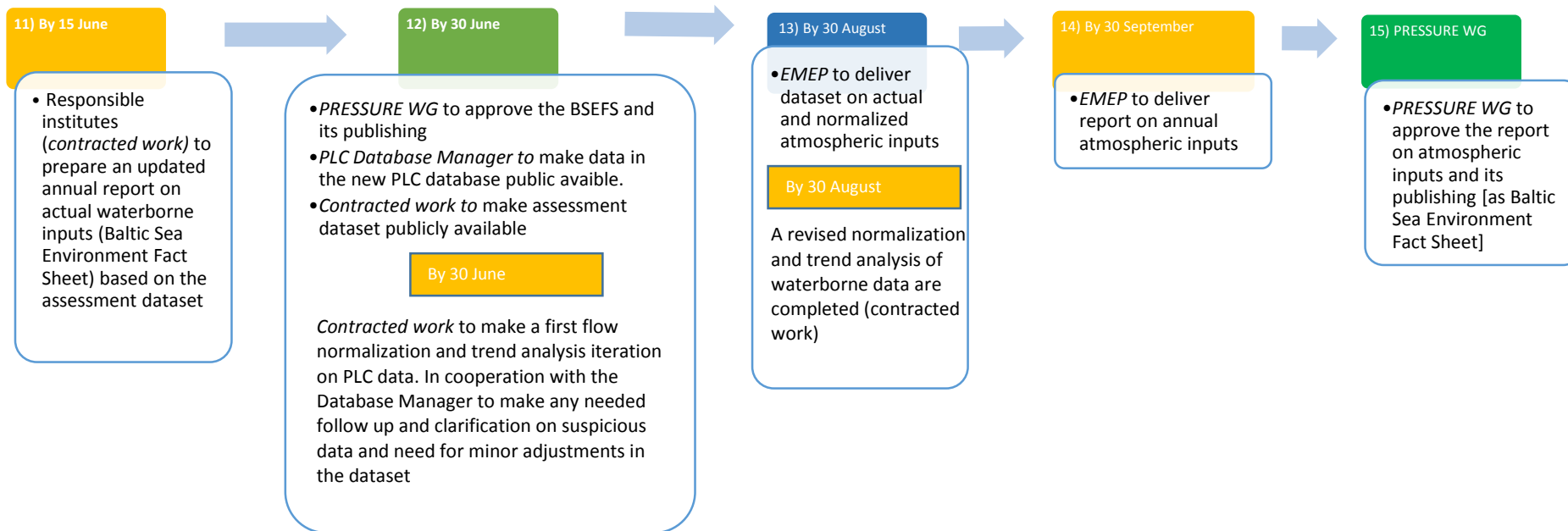
Color categories:

- Red color indicates CPs to report;
- Blue color indicates data processing;
- Green color indicates data/product approval by CPs;
- Yellow color indicates procedure of input assessment based on reported data.

Figure 1: Annual dataset. Deadlines are set for the year following the year of data collection.







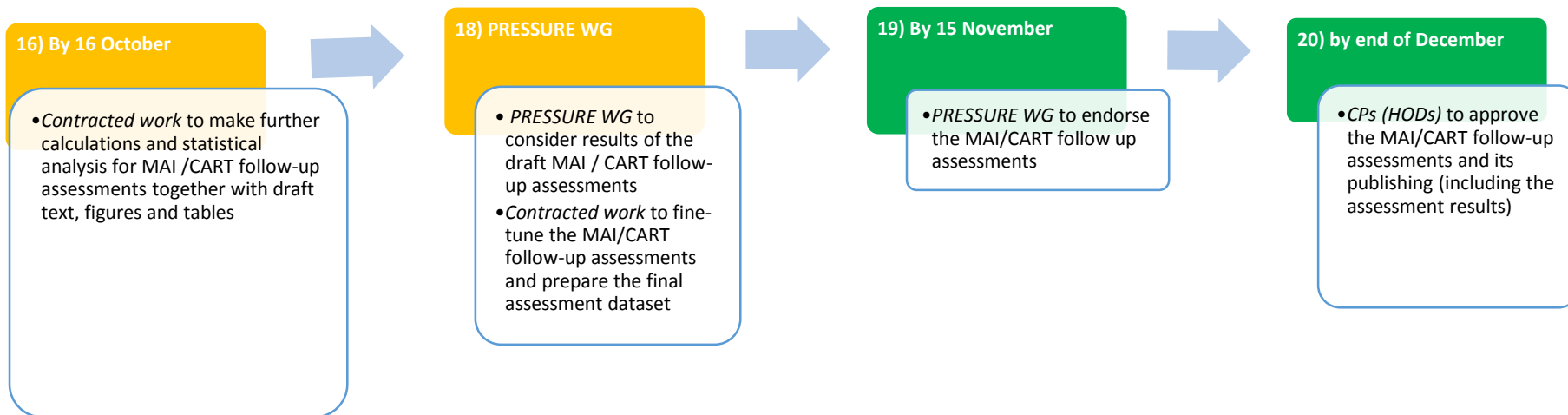
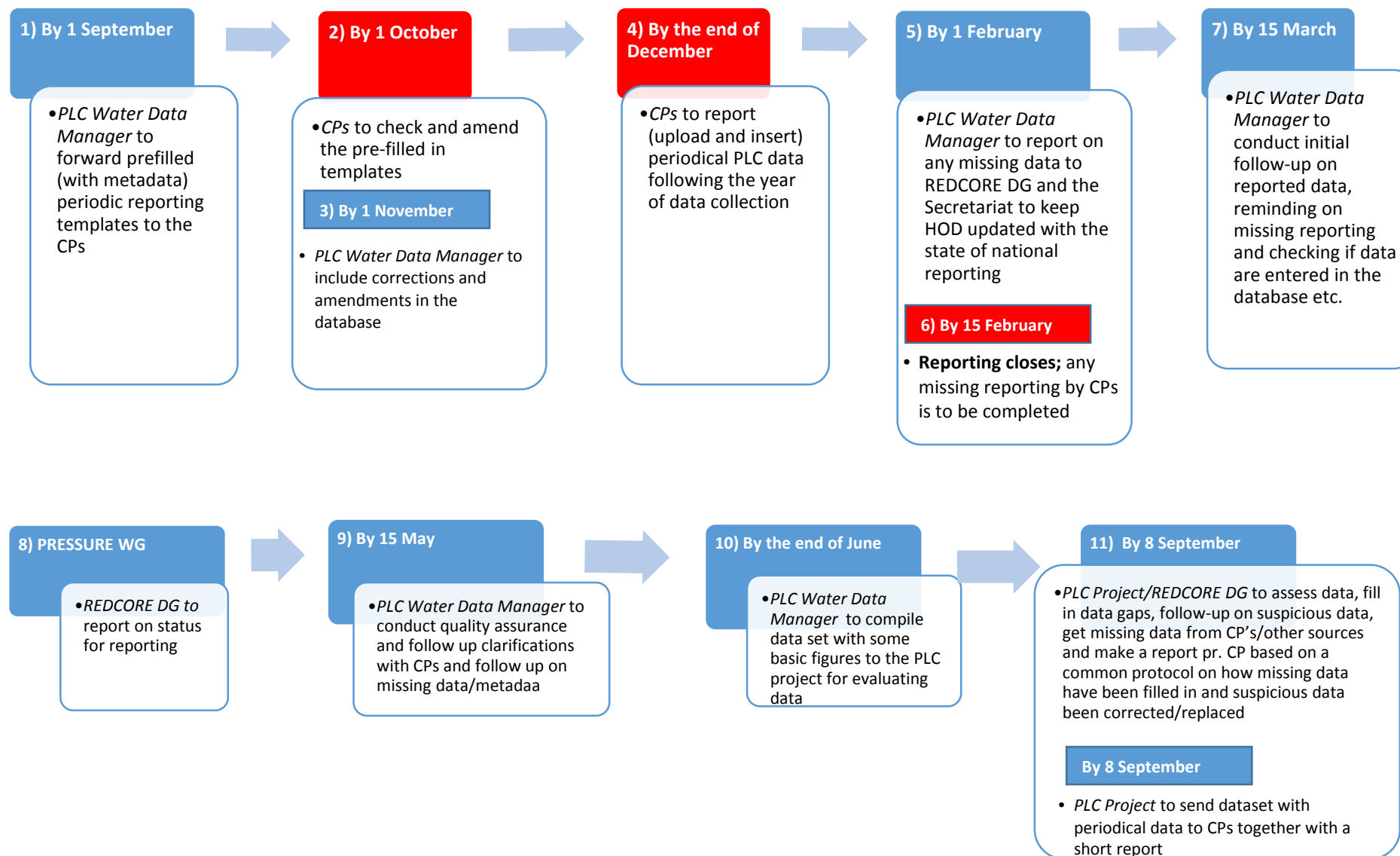
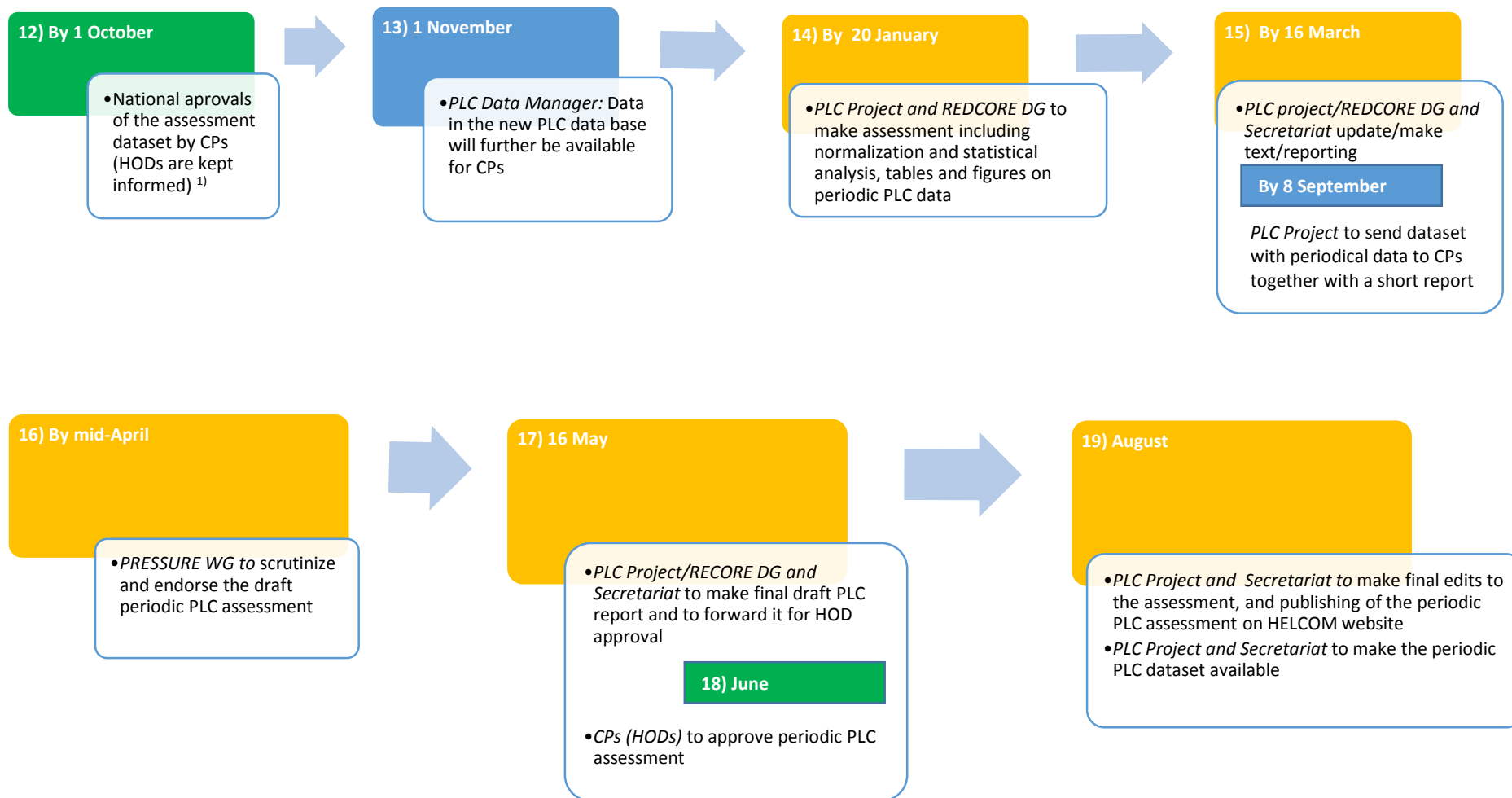


Figure 2. Periodical dataset (data not included in the annual dataset). Deadlines are set for the year following the year of data collection.





1) How the Contracting Parties approve the assessment data set

- The data set for the assessment is based on the data uploaded and reported by the CP's.
- The PLC database contains quality assurance procedures which request CP's to correct data/metadata and provide necessary information to enter the data in the PLC database.
- Further the quality procedures will check data against former reported data and make other automatic quality control forcing CP's to consider questionable/suspicious data and decide if they are valid or should be changed.
- PLC Water Data Manager will also check the data and discuss the reported data with the CPs including following up on missing data and metadata.
- RedCore DG will afterwards make quality assurance of the data, fill in data gaps and correct suspicious data to ensure a consistent and complete data set. The procedures for correcting and filling in data gaps will follow written protocols developed RedCore DG/PLC project and agreed by the CP, and RedCore DG will elaborate a short report on possible changes in reported data to each Contracting Party.
- Therefore CP's should be able to accept the assessment dataset for annual reports, PLC assessment and the MAI and CART follow-up assessment within 2-3 weeks. If a Contracting Party cannot agree on some corrections or filled in data gaps, it is obliged within the deadline to provide reliable data or the missing data, which can pass and fulfil the quality assurance check for entering data in the PLC database and which can be agreed upon by the RedCore DG for the assessments.
- If no agreement can be reached with the given timeframe, RedCore DG will evaluate if it is anyway possible to finalize the assessment. PRESSURE and HOD will be notified on the lacking agreements and on how it will affect the elaboration of a complete assessment. The data not agreed upon from the CP's will not be inserted in the PLC database.
- The assessment dataset will be available on HELCOM website after HOD approval of the assessment product.

There is a need to clarify how and where to store the PLC assessment dataset filled in and/or changed by RedCore DG and "lock it" to allow future use. Contracting Parties should also agree on how to mark the filled in and changed data, and data with lacking agreements.



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<b>Document title</b>	Accounting for extra reductions to follow up CART assessment
<b>Code</b>	8-3
<b>Category</b>	DEC
<b>Agenda Item</b>	8 - Pollution load compilation
<b>Submission date</b>	4.10.2016
<b>Submitted by</b>	RedCore DG
<b>Reference</b>	

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### Background

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. That is why the HELCOM nutrient reduction scheme, updated by the Ministerial declaration 2013, implies an option to account in proportion the effect of extra reductions on a neighboring basin with reduction targets. This methodology can be applied for the assessment of the progress towards implementation of the country wise allocated reduction targets.

PRESSURE 4-2016 discussed a methodology for accounting an extra reduction as well as approaches and constrains for its application in CART follow-up. The meeting emphasized that accounting of extra reduction is important for several Contracting Parties to reach the reduction targets.

PRESSURE 4-2016 requested the RedCore DG to elaborate more detailed documentation describing the methodology and limits for its application as well as provide examples.

This document contains a description of the methodology to account extra reduction for CART assessment. It provides a scientific background, an overview of the main principles to account the effect of extra reduction for neighboring basins, and tables with the co-efficients used to calculate the effect of extra reduction. The document also contains examples calculated for Denmark, Estonia, Finland, Germany and Sweden.

### Action requested

The Meeting is invited to consider the methodology, provide feedback on the document, including the parameters for equivalent reduction, and endorse testing the methodology in the assessment of progress towards CART in the frame of PLC-7 project.

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## 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.

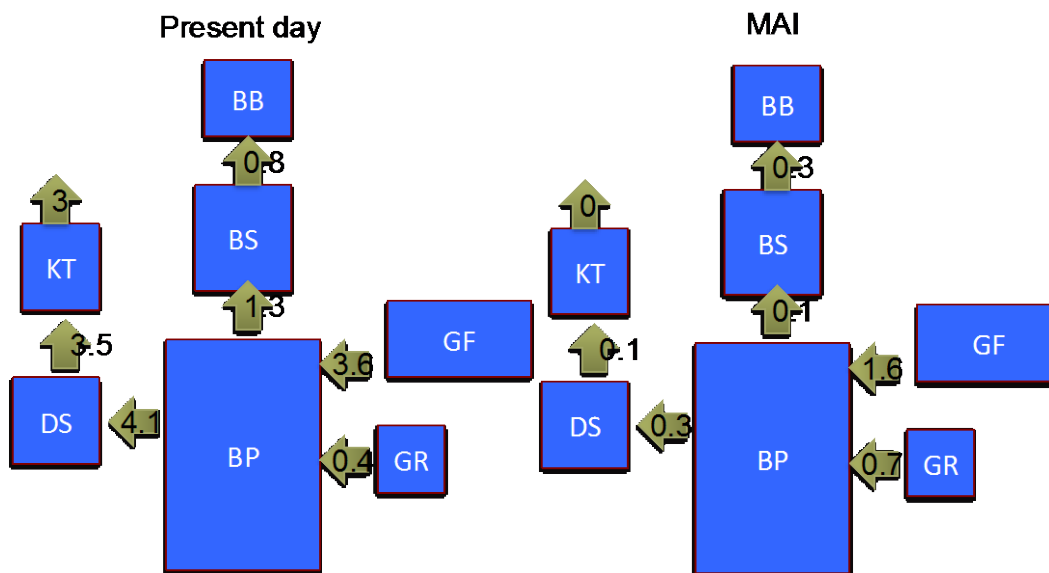


Figure 1: The average fluxes of phosphorus between the Baltic Sea sub-basins at present day (to the left) and when Baltic Sea adjusted to MAI (to the right). Unit is kTon/yr.

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.

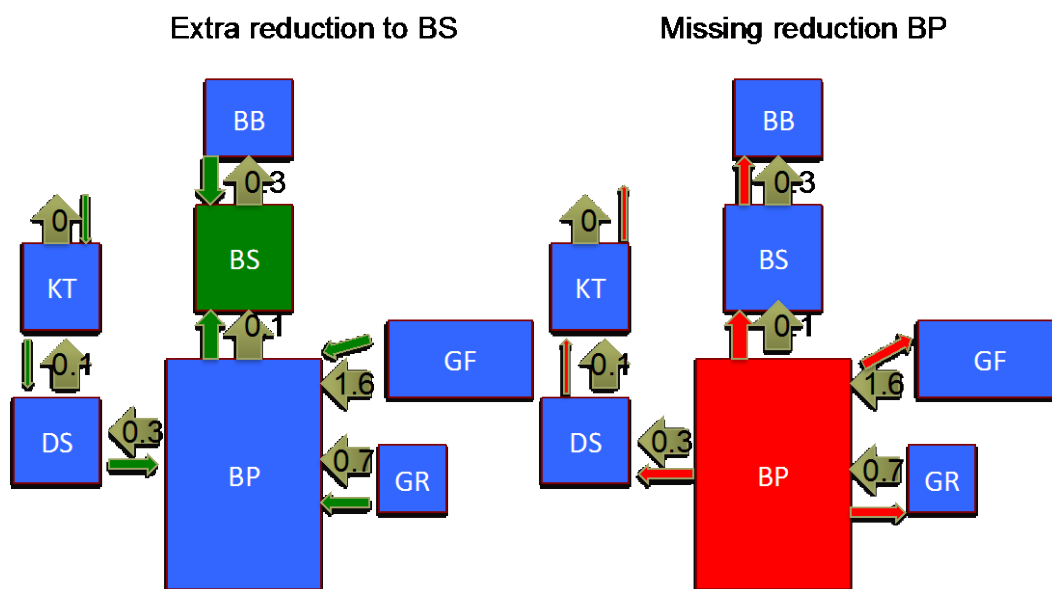


Figure 2: Illustration how extra reduction and missing reduction changes the phosphorus fluxes between the basins. To the left it is illustrated with green arrows how an extra reduction to the Bothnian Sea cause additional flux from the Baltic Proper and decreased flux to Bothnian Bay, and how these 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<sup>1</sup> 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.

<sup>1</sup> <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<sup>1</sup>. 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<sup>1</sup>. 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 where 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

**Table 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  $15 \times 1.6 = 24$  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 Fifth Meeting of the Working Group on Reduction of Pressures from the Baltic Sea Catchment Area (HELCOM PRESSURE 5-2016)

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## Outcome of the Fifth Meeting of the Working Group on Reduction of Pressures from the Baltic Sea Catchment Area (HELCOM PRESSURE 5-2016)

### Introduction

0.1 In accordance with the decisions by PRESSURE 4-2015 (Outcome, paragraph 9.1) and HELCOM HOD 50-2015 (Outcome, paragraph 4.71), the Fifth Meeting of the HELCOM Working Group on Reduction of Pressures from the Baltic Sea Catchment Area (PRESSURE 5-2016) was held by invitation from the National Water Management Authority of Poland, in Warsaw, on 25-27 October 2016.

0.2 All the Contracting Parties to the Helsinki Convention attended the Meeting. Observers from Coalition Clean Baltic (CCB), the Federation of European Aquaculture Producers (FEAP) and WWF Poland, as well as invited guests from the Baltic Nest Institute (BNI), Nordic Environment Finance Corporation (NEFCO), EUSBSR-PA Hazards, EUSBSR-PA Nutri and representatives of the Krasnyi Bor Landfill and TechnoTerra. The Data Consultants EMEP MSC-W and MSC-E also attended the Meeting. The List of Participants is contained in **Annex 1**.

0.3 Ms. Adriana Dembowska welcomed the participants to the Meeting on behalf of the host, the National Water Management Authority.

0.4 HELCOM Executive Secretary, Ms. Monika Stankiewicz expressed her gratitude for the increasing attention to the important issues, such as hazardous substances, dredging, marine litter and underwater noise.

0.5 The Chair of the Group acknowledged that this is the first time in the Pressure Group's lifetime that all the Contracting Parties are represented at the Group's meeting.

0.6 The Meeting was chaired by Mr. Lars Sonesten, Chair of the Pressure Group, and Ms. Monika Stankiewicz. Mr. Dmitry Frank-Kamenetsky, assisted by Ms. Marta Ruiz and Ms. Leena Heikkilä, from the HELCOM Secretariat acted as secretary of the Meeting.

### **Agenda Item 1 Adoption of the Agenda**

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

### **Agenda Item 2 Matters arising from other HELCOM work**

2.1 The Meeting took note of the information on the outcomes of other HELCOM meetings of relevance to Pressure Group (doc. 2-1) and decided to make use of the presented information under relevant items, as appropriate.

### **Agenda Item 3 Marine litter**

3.1 The Meeting took note of the outcome of the Workshop on Implementation of the Regional Action Plan (RAP) on Marine Litter (ML) in general (doc 3-3) and discussed the progress in implementation of the RAP ML. The Meeting approved the updated table to follow up implementation (Annex 3 of doc. 3-3). The Meeting noted that there are still problems for the Contracting Parties to take a lead even in small actions. The Meeting welcomed that Poland will take a lead action RL13.

3.2 The Meeting took note of a suggestion by Germany to have regular workshops on implementation of the RAP on ML, e.g. back-to-back with Pressure group meetings.

3.3 The Meeting took note of the information on cooperation between European Regional Sea Conventions (RSC) (doc.3-1).

3.4 The Meeting took note that the next meeting of RSCs may be held in Germany and invited HELCOM members to participate in the RSCs cooperation.

3.5 The Meeting noted that the cooperation should serve for SDG goals and that cooperation between the secretariats of the RSC should be strengthened.

#### **Microplastics**

3.6 The Meeting took note of the information on concrete ways of reducing microplastics in stormwater and sewage (doc. 3-2) presented by CCB.

3.7 The Meeting considered the need to update HELCOM Recommendations 23/5 “Reduction of discharges from urban areas by the proper management of storm water systems” and 18/4 “Managing wetlands and freshwater ecosystems for retention of nutrients”, respectively, addressing stormwater management systems and use of wetlands, with a view to promote BAT/BEP and application of ensure synergistic and cost-efficient solutions. The Meeting also considered a potential revision of HELCOM Recommendations 28E/5 “Reduction of discharges from urban areas by the proper management of storm water systems”.

3.8 The Meeting invited the HELCOM EN-Marine Litter to investigate the possibilities to update the Recommendations and come up with the concrete suggestions and timeline. The Meeting decided to include a possibility to revise the Recommendations into the Work Plan of the Pressure group.

#### **Agenda Item 4 Underwater noise**

4.1 The Meeting considered documents on the two HELCOM indicators on underwater noise: on Impulsive sound – candidate indicator on ‘Distribution in time and space of loud low- and mid-frequency impulsive sounds’ (doc. 4-3-Rev.1) and on Continuous sound – pre-core indicator on ‘Continuous low frequency anthropogenic sound’ (doc. 4-4-Rev.1), noting that the documents have been submitted also to STATE&CONSERVATION 5-2016 (7-11 November) with a request to the Contracting Parties to provide a consolidated final response. The indicators will be used for the HOLAS II assessment through a descriptive approach.

4.2 The Meeting welcomed the progress of the indicators work and supported to shift the status of the indicator ‘Distribution in time and space of loud low- and mid-frequency impulsive sounds’ to pre-core indicator.

4.3 The Meeting took note of the concern by Finland regarding the lack of monitoring of impulsive noise and that the discussion should be continued at the upcoming State&Conservation meeting.

4.4 The Meeting further considered the proposed indicator concept for continuous sound presented in document 4-4-Rev.1 and the proposed assessment protocol.

4.5 The Meeting took note of the position of Denmark that the assessment protocol follows a very precautionary approach, since the first step of the assessment proposed also applies to areas where no sensitive species are present.

4.6 The Meeting agreed that the formulation should be fine-tuned at STATE & CONSERVATION 5-2016 to clarify that this first step only applies to areas where sensitive species are present. The Meeting also agreed that national Pressure group experts will contact experts in the State&Conservation group to elaborate a consolidated position.

4.7 The Meeting took note of the Swedish suggestion, supported by Germany, to expand the frequency bands to include higher frequencies bands up to 200 kHz in the planned monitoring. Germany also informed about the setting up of a research and development project measuring also frequency bands especially effecting harbour porpoises in German waters of the North and Baltic Sea.

4.8 The Meeting took note of the progress in reporting data to the impulsive noise register (doc. 4-5). The Meeting invited the Contracting Parties to provide additional information regarding upcoming data reporting to the registry by **11 November** to the Secretariat ([marta.ruiz@helcom.fi](mailto:marta.ruiz@helcom.fi)).

- 4.9 The Meeting noted that lacking of impulsive events are to be reported as zero values to the registry.
- 4.10 The Meeting took note of the information on Resolutions from the 8th Meeting of the Parties to ASCOBANS (doc. 4-6 and 4-6-Annex 1) and invited the Contracting Parties to share and use it nationally, as appropriate.
- 4.11 The Meeting invited the HELCOM EN-Noise to cooperate in updating the CMS Family Guidelines on Environmental Impact Assessments for Marine Noise-generating Activities and agreed to include the task in the HELCOM EN-Noise ToR.
- 4.12 The Meeting took note of the Outcome of the HELCOM BalticBOOST Workshop on Underwater Noise, held on 5-6 October 2016 (doc. 4-7).
- 4.13 Based on the Outcome of the Workshop, the Meeting:
- considered the recommended principles for establishing good environmental status (GES) for impulsive and continuous noise (Annex 5 and Annex 6 of the Outcome, respectively) noting that in the future they may need to be amended based on new knowledge;
  - supported improvement of the regional registry of impulsive events.
- 4.14 The Meeting took note of the study reservation by Russia and suggestion to consider the recommended principles further at the meeting of State&Conservation group. The Meeting invited Russia to lift the study reservation within two weeks (**by 11 November**) and inform the Secretariat accordingly ([marta.ruiz@helcom.fi](mailto:marta.ruiz@helcom.fi)).
- 4.15 The Meeting took note of the Danish position that, since the draft Commission decision on GES assessment under MFSD state that the threshold values and threshold levels should be agreed upon at union level, Denmark is of the opinion that final decision on GES principles and threshold values should be consolidated at EU-levels in accordance to the draft Commission decision. Therefore, Denmark is not in the position to support the presented GES principles at the moment and makes a study reservation on Annex 5 of doc. 4-7.
- 4.16 The Meeting took note of the information that the discussion on the issue related to implications of the latest version of the revised GES decision will be held at the upcoming GEAR meeting.
- 4.17 The Meeting took note that Germany cannot agree with principle one in Annex V of the document with regard to harbour porpoises. The Meeting agreed that a new proposal for this specific principle will be circulated via the HELCOM EN Noise and delivered to the upcoming GEAR meeting for consideration.
- 4.18 The Meeting agreed that the suggested principles are a fruitful way forward and that the discussion regarding consistency of principles for defining GES in EU, OSPAR and HELCOM areas should be continued at GEAR group. The Meeting also agreed to include the corresponding item into the ToR for HELCOM EN-Noise.
- 4.19 The Meeting agreed to support national testing of the recommended decision-support trees for ambient and impulsive noise (Annex 3 and Annex 4 of doc. 4-7) and tasked the HELCOM EN-Noise to further develop them according to the conclusions from the workshop, taking into account a two week's study reservation (**by 11 November 2016**) by Russia.
- 4.20 The Meeting also took note that Denmark can support the "decision-support trees" are developed further with the understanding that this is a working process and that it will be a possibility for the Contracting Parties to evaluate the final approach.
- 4.21 The Meeting considered the Terms of Reference (ToR) for the HELCOM EN-Noise for the period 2017-2018 (doc. 4-1). The Meeting recalled that HELCOM 37-2016 adopted the Regional Baltic Underwater Noise Roadmap 2015-2017 and that the HELCOM EN-Noise work has so far focused on facilitating the implementation of the Roadmap.

4.22 The Meeting noted the view by Russia on the need to amend the ToR to stress the need of cooperation with Maritime group as well as closer coordination with IMO activities. The Meeting also took note of the position of Denmark that the timeline set (2016) for certain items in the ToR is not feasible. The Meeting also took note of the views of Sweden to include ambient noise data handling in the ToR.

4.23 The Meeting agreed on the revised ToR as contained in document 4-1/Rev. 1, taking note of the study reservation by Germany, Denmark and Russia for national consultation of the revised ToR by **21 November**. The remaining Contracting Parties are given the same time to confirm the revised ToR.

4.24 The Meeting considered the underwater noise mitigation report (doc. 4-2). The Meeting noted that Germany will provide clarification regarding national information included in the document and that the report will be amended based on the comments received, including during the last Maritime group meeting.

4.25 The Meeting decided to take into account the document as a contribution towards a further development of a regional action plan on underwater noise in 2017/18.

4.26 The Meeting welcomed the election of Mr. Peter Sigray, Sweden, as Chair for the HELCOM Expert Network for Underwater Noise.

## **Agenda Item 5 Dredging/depositing operations and mining on the sea floor**

5.1 The Meeting took note of the overview of the data on dredged material reported in 2016 (doc. 5-6) and encouraged those countries which have not reported data to inform about the reasons of delay and timing of reporting the missing data. The Meeting also noted that there is still a need for further verification of the reported data and approval of the dataset by national experts.

5.2 The Meeting took note that Russia will report the data by the end of November and that Latvia is collecting the data and will report as soon as possible.

5.3 The Meeting took note the position of Finland and Estonia that the way the overview is presented requires revision in future and invited the Secretariat to elaborate a new approach to visualize the completeness of the reported data.

5.4 The Meeting considered the proposed updates to the HELCOM reporting format on dredged material (doc. 5-1 and 5-1-Att.1). The Meeting supported in general the suggested updates and agreed on the submission of updates to the "HELCOM Guidelines on sustainable handling of dredged material" to HOD 51-2016 for endorsement and to further use for annual reporting round in 2017 and onwards.

5.5 The Meeting took note of the suggestion by Russia to remove the category "beneficial" from the drop menu of the "placement/beneficial use" column of table 3 "details of activity". The Meeting took note that Denmark is not in the position to report data on dredging operations and suggested to include a statement regarding their optional character into the document, in order for Denmark to agree on updated reporting format to be included in the HELCOM Recommendation 36/2.

5.6 The Meeting agreed that the Secretariat will circulate the updated format to the Contracting Parties not later than 31 November for *tacit approval* by **4 November 2016**.

5.7 The Meeting took note of the suggestion by the expert group on dredged material regarding a procedure to verify reported data on dredged material (doc. 5-2) and agreed that the procedure to report annual data as well as their verification and approval by the national expert should be automated.

5.8 The Meeting concluded that design and development of the verification procedures as well as software for data reporting, approval, and storage require remarkable resources and invited the Secretariat to investigate opportunities for a project application to support this work. The Meeting invited the Contracting Parties to consider an opportunity to lead the project.

5.9 The Meeting considered document 5-5, Draft methodology for assessment of impact by dredging/depositing operations, presented by the Secretariat and agreed to use it for the purposes of the HOLAS II assessment and further assessments based on annually reported data. The Meeting highlighted that the methodology could be utilized by HOLAS II for the calculation of the Baltic Sea pressure index and Baltic Sea impact index.



- 5.10 The Meeting agreed that the Secretariat will make a first assessment based on the methodology and that the methodology might be updated after expert consideration.
- 5.11 The Meeting agreed on the need for establishing a time-limited expert group on dredging/depositing operations at sea and discussed a proposal for Terms of Reference for Expert Group for Dredged Material (doc. 5-5).
- 5.12 The Meeting emphasised that the expert group should assure integration with OSPAR, ICES and Emodnet.
- 5.13 The Meeting noted that Denmark is not in the position to allocate resources for preparation of any materials within the group but only to provide the data and comments on the documents, and that Germany is not in the position to lead the group but ready to contribute to its work.
- 5.14 The Meeting took note of the comments by countries on the draft ToR and agreed on the proposed revised version contained in **Annex 2**.
- 5.15 The Meeting considered the suggestion on the structure of the Regional status report on exploitation of mineral resources on the sea floor (doc. 5-3) and agreed on its contents.
- 5.16 The Meeting discussed the use of the information on exploitation of mineral resources on the sea floor and agreed that the information is quite relevant to support MSFD reporting for the EU member states and HOLAS II assessment, as well as to contribute to the economic and social assessment and to be utilized for maritime spatial planning.
- 5.17 The Meeting agreed to initiate the process to compile information and prepare the regional Status report on exploitation of mineral resources on the sea floor in accordance with the suggested structure, but noted also that some data might have confidential character. The Meeting took note of the remark by CCB that the part of the report devoted to the assessment of impact by these activities on the marine environment should be strengthened.
- 5.18 The Meeting invited the countries to consider a possibility to lead the work on the Status report and discussed the use of the information.

#### **Agenda Item 6 Draft HELCOM Recommendation on sewage sludge handling**

- 6.1 The Meeting recalled that HOD 50-2106 had requested PRESSURE 5-2016 to consider the further elaborated version of the Draft HELCOM Recommendation on Sewage Sludge Handling.
- 6.2 The Meeting considered the revised Draft HELCOM Recommendation (doc. 6-1-Rev.1.), which incorporates all comments received by 18 October 2016.
- 6.3 The Meeting noted the general points, as provided by Sweden, that there is a need to emphasize the purpose of the Recommendation, which aims at improving water quality and finally to improve the status of the Baltic Sea, emphasising the link to the circular economy.
- 6.4 The Meeting agreed to submit the draft Recommendation to HELCOM HOD 51-2016 for further consideration and approval.
- 6.5 The Meeting took note of the study reservation by Germany on the new text and that Germany will strive to lift it before HELCOM HOD 51-2016.
- 6.6 The Meeting emphasised that the Recommendation identifies general principles for sustainable handling of sewage sludge and upstream measures to improve the quality of the sludge and paves the way for a regional dialog to elaborate regionally agreed parameters assuring maximum utilization of the valuable components of the sludge and minimise potential negative effects.

#### **Agenda Item 7 Hazardous substances**

##### State of the HELCOM hot spot Krasnyi Bor

- 7.1 Representatives of the Krasnyi Bor landfill introduced the current activities at the Krasnyi Bor landfill and future steps to remediate the area (doc. 7-5, **Presentation 1**). The presented information also

included response to the questions raised by CCB in document 7-8. The Meeting was once again assured that the landfill has not been accepting any wastes since January 2014 and has no plans accepting any wastes in the future or establishing any on-site waste incineration facilities.

7.2 The Meeting also took note of the information and reviewed the progress of the measures undertaken to prevent current environmental risks posed by the landfill.

7.3 The Meeting also noted that the construction of the coverages for the reservoirs on the landfill is to be completed by the end of the year 2016, according to the plan announced during the study visit to the site in July 2016. The Meeting took note of a suggestion by NEFCO to visit the landfill after the construction of the coverages for the open reservoirs.

7.4 The Meeting took note of the information on monitoring the situation around Krasnyi Bor toxic waste landfill (doc.7-6) and the comments regarding the current situation and activities on Krasnyi Bor landfill (doc.7-8), as presented by CCB.

7.5 The Meeting took note of the position of CCB that the information about ongoing activities on this environmentally dangerous site, i.e. about selected remediation options, monitoring programme, etc. should be more openly communicated to the general public and civil society in Russia and in countries bordering Russia.

7.6 The Meeting took note of the information on the results of the environmental monitoring in the vicinity to the landfill (**Presentation 2**).

7.7 The Meeting concluded that the site is still posing an environmental risk which has been proved by the monitoring observation. The Meeting in general supported the recommendations provided in the presentations and also suggested to include the HELCOM priority substances into the updated monitoring programme, as well as to develop a GIS-based information system compiling the available information and indicating the state of the environment around the site. The Meeting also supported the suggestion to develop a number of risk scenarios, which could be applicable for either environmental monitoring or management purposes.

7.8 The Meeting also noted that one of the possible and cost-efficient ways to remediate the site would be on-site remediation and not transporting the waste for long distances.

7.9 The Meeting took note of the joint position of Estonia, Finland and Sweden regarding increasing cooperation with Russia in remediation of the landfill Krasnyi Bor and management of toxic wastes in NW Russia in general. The Meeting noted that NEFCO (the Nordic Environment Finance Corporation) has a long experience in supporting various environmental projects and invited NEFCO to consider possibilities to:

- establish cooperation with Russia, with the local authorities of St. Petersburg and other stakeholders,
- coordinate potential international support in project preparation, and
- inform HELCOM Pressure Group on the actions taken and progress made.

7.10 The Meeting also noted that NEFCO, owned by the five Nordic Governments, indicated its preparedness to study options to promote environmentally sound solutions at the Krasnyi Bor hazardous waste dump already at the HELCOM annual meeting in 2016.

7.11 The Meeting welcomed the preparedness of the Russian Federation to cooperate with international expert society and involve international expertise into finding the most cost-efficient solutions to remediate the site.

#### Collecting information on hazardous substances to identify HELCOM priorities

7.12 Data Consultant MSC-E presented a draft report on the atmospheric supply of cadmium, mercury, BaP and PBDE to the Baltic Sea in the period 1990-2014 (doc.7-3 and fact sheets 7-3\_atts 1-4) (**Presentation 3**).

7.13 The Meeting thanked EMEP for the regularly provided valuable information on the airborne input of substances. The Meeting emphasized that the significant reduction of the input of pollutants was achieved in the 90's and almost levelled off after 2000, which is worrying.

7.14 The Meeting noted a remark by CCB that one of the most important sources of the airborne input of these pollutants are the large combustion plants (LCPs) and that this input might be reduced through introduction of new BREF/BAT Conclusions under EU IED for such installations. Also, the EMEP's data and ongoing IED negotiations prove the need to come back to discussions on limiting emissions from combustion sources within HELCOM Area.

7.15 The Meeting discussed the results of the assessment and decided on the substances for the assessment in 2017: Cd, Pb, Hg and dioxins. The Meeting welcomed the offer by EMEP to provide a short overview of the potential airborne input of PFOS as an additional information to the annual contract.

7.16 The Meeting took note of the reservation by Denmark, Germany and Poland on publication of the BSEFs and the report for more thorough consideration of the documents. The reservation will be lifted and comments on the fact sheet reports will be provided to MSC-E, with copy to the Secretariat ([dmitry.frank-kamenetsky@helcom.fi](mailto:dmitry.frank-kamenetsky@helcom.fi)) **by 11 November 2016**.

7.17 The Meeting noted that Finland had provided comments on the first draft of the fact sheets and that the fact sheets have already been updated accordingly. The Meeting endorsed the fact sheets and technical report for publication on the EMEP and HELCOM websites, pending the reservations.

### Pharmaceuticals

7.18 The coordinator of EUSBSR PA Hazards informed the Meeting about the results of a joint process of HELCOM and PA Hazards, namely the highly valued Status report on pharmaceuticals in the Baltic Sea (doc. 7-10) which was finalized in August 2016 (**Presentation 4**).

7.19 The Meeting took note of the information by Sweden regarding release of a report on WWT techniques to remove pharmaceuticals and by CCB on the plan to be involved in promotion of the take-back system and other upstream measures and on the carried out [international conference on obsolete pharmaceuticals](#) in Minsk, Belarus. The Meeting also noted the information by Finland regarding ongoing activities aimed at WW from medical institutions and treatment techniques. Lithuania and Latvia informed on ongoing and planned activities aimed at monitoring of medical substances in the aquatic environment.

7.20 The Meeting considered the draft Terms of Reference for the expert group on pharmaceuticals (doc. 7-2). After having exchanged views on the possible tasks and targets for the expert group, as well as its working procedures and timeline, the Meeting endorsed the Draft ToR for the Correspondence Group on Pharmaceuticals (HELCOM CG PHARMA) as contained in **Annex 3** to this Outcome, to be submitted to HOD 51-2016 for approval.

7.21 The Meeting took note of the information on the screening study on PFAS presented by Sweden (doc. 7-9 and **Presentation 5**) and discussed the next practical steps towards assessment on the input of the organic pollutants of high concern into the Baltic Sea.

7.22 The Meeting considered the results of the section of the questionnaire to the Contracting Parties dedicated to persistent organic pollutants (POPs) and other hazardous substances (doc. 7-4) and discussed (tour-de-table) what may be reported by the Contracting Parties, i.e., which substances and what kind of monitoring data are available (loads for areas or individual rivers, only screening studies, only concentrations, etc.):

- Sweden: plans a screening study including PFAS and phenolic substances estimation in ten rivers during 2017 and that the report on 500 new sites contaminated by PFAS;
- Russia: no information on the requested substances except screening activity in Kaliningrad area;
- Poland: monitoring of the regulated substances only;
- Lithuania: monitoring of hazardous substances under 2013/39/EU at 16 sites, including, where appropriate, PFAS and phenols; an additional monitoring campaign has been launched at 23 stations;
- Latvia; monitoring of the 15 priority substances. PFAS was monitored in biota;

- Germany: currently no information regarding monitoring in water due to the absence of the German expert on hazardous substances; Germany also stated that they have doubts in the validity of the prioritization and that the substances identified to be of major concern might just be the ones for which currently sufficient information exists;
- Finland: screening data on phenols, PFAS is planned by 2018;
- Estonia: there is no systematic monitoring in place, some data on PFAS are available from previous screening studies;
- Denmark; data on concentrations in sediments and results from screening studies.

7.23 The Meeting agreed that the next practical step to collect information on waterborne input of POPs is a questionnaire focused on the three identified substances (nonyl phenol, octyl phenol, PFAS) of major concern; to collect information on the character of the available data and their usability for mapping of a potential input of these substances into the aquatic environment in the region.

7.24 The Meeting agreed that the questionnaire will be prepared by Sweden in cooperation with PA Hazards and with assistance by the Secretariat. The questionnaire will be circulated to the Contracting Parties by the end of January 2017 with an intention to report the preliminary results to PRESSURE 6-2017.

#### Micropollutants in effluents from WWTPs

7.25 Sweden presented information on an ongoing project “Advanced wastewater treatment as a measure to reduce chemical pollution of the Baltic Sea” (doc.7-7 and **Presentation 6**). The Meeting took note of the project findings and encouraged the Contracting Parties to utilize them for the implementation of the HELCOM action on micropollutants in effluents from wastewater treatment plants.

7.26 The Meeting agreed on the next practical steps and the timeframe:

- Step 1: Compilation and assessment of available information and data on micropollutants of concern for Contracting Parties in the Baltic Sea – during 2016 (PRESSURE)
- Step 2: Compile information from Contracting Parties on treatment techniques and experiences—during 2016/7
- Step 3: Summary report on advanced treatment techniques, including consideration of feasibility, costs, good practice and management options – during 2017.

7.27 The Meeting considered the results of the section of the questionnaire dedicated to micropollutants (doc. 7-1), agreed on the substances of “high concern” and discussed (tour-de-table) what may be reported by the Contracting Parties on identified priority substances:

- Denmark: expressed high concern on PFAS and informed that a mixture of information on concentrations, estimated pollution loads of areas and screening studies can be reported for the substances of concern;
- Estonia: for some WWTP only data on HM are available from permit-based monitoring;
- Finland: supported the identified substances of high concern. Data are available from several WWTPS;
- Germany: informed that there is a national project running to develop national strategy on micropollutants in the aquatic environment to be finished in summer, ending in the middle of 2017. More information on the micropollutants of high concern will be provided until PRESSURE-6 meeting. Data on concentrations in effluents are available; Germany has doubts in the validity of the prioritisation and that the substances identified to be of major concern might just be the ones for which currently sufficient information exists;
- Latvia: mainly HM are monitored and quite little information on the other substances. A screening studies have been launched and some data might be available;

- Lithuania: mainly HM are reported to national sewage discharge inventory. The screening project, which includes observation of relevance for particular situations hazardous substances in effluents from WWTP, has been launched and the data will be partly available;
- Poland: has only legally regulated substances monitored. Poland is not in the position to provide any data on micropollutants;
- Russia: has only legally regulated substances monitored. Data regarding HELCOM priority substances are available only for WWTP of Vodokanal of St.Petersburg for 2009-2012;
- Sweden: data obtained by screening campaigns on PFAS, pharmaceuticals and microplastics.

7.28 The Meeting agreed that the questionnaire will be prepared by Sweden in cooperation with the Secretariat and that the questionnaire might include also information on available information on the WWT technologies applied in the different countries, as well as the possibility to indicate the further micropollutants of high concern. The questionnaire will be circulated to the Contracting Parties by the end of January 2017 with an intention to report the preliminary results to PRESSURE 6-2017.

## **Agenda Item 8      Pollution Load Compilation**

8.1 The Meeting took note of the annual EMEP report Atmospheric supply of nitrogen to the Baltic Sea in the period 1990-2014 (doc. 8-4 and 8-4\_atts 1-2). The Draft EMEP report for HELCOM is available on the EMEP web page: [http://emep.int/mscw/mscw\\_publications.html](http://emep.int/mscw/mscw_publications.html) (**Presentation 7**).

8.2 The Meeting noted that the use of the new EMEP model which identifies higher deposition of nitrogen in the past years, changed the data on the reference period which would have implications for MAI/CART that need to be further discussed. The Meeting invited EMEP to include into the report a chapter briefly explaining the changes in the model and consequent changes in the results.

8.3 The Meeting took note of information by Germany that the data on ammonia emissions used in Germany differ from that which are used by EMEP, and that discrepancy will be clarified in dialog with EMEP as soon as possible.

8.4 Finland introduced the comments to EMEP Draft Technical Report 1/2016 (doc. 8-12). The Meeting took note of the comments and discussed the quality of EMEP reports and actions to improve the quality.

8.5 The Meeting noted that Finland had provided comments also on the first drafts of the fact sheets on nitrogen deposition and that the fact sheets have already been updated accordingly. The Meeting invited all Contracting Parties to address their comments to the MSC-W, with a copy to the Secretariat ([dmitry.frank-kamenetsky@helcom.fi](mailto:dmitry.frank-kamenetsky@helcom.fi)) by **11 November 2016**.

8.6 Meeting endorsed the fact sheets and the Technical report for publication on the EMEP and HELCOM websites after corrections in accordance with the comments by the Contracting Parties. The Meeting noted the comments by Finland and that the report should be streamlined and requested RedCore DG in cooperation with EMEP centers to discuss and propose a revised structure of the Technical report by EMEP - to make it more reader friendly and avoid multiple errors. The suggested format will be endorsed by PRESSURE 6-2017 and further used as an annex to the annual contract between HELCOM and EMEP centers.

8.7 The Meeting took note of the information in document "Note - Data on emissions from international shipping" (doc. 8-7) that the FMI emissions from shipping are higher than the official CEIP data currently used by EMEP. The Meeting also took note that EMEP will suggest a combination both methodologies when assessing to incorporate FMI data on ship emissions in the future.

### Methodologies for PLC-6 assessment

8.8 The Meeting took note of the progress of the Sixth Baltic Sea Pollution Load Compilation (PLC-6) project and the upcoming deadlines for the data reporting and information on PLC-6 product releases (doc. 8-9).

8.9 The Meeting took note that, provided the revised timelines can be met, Germany can still use the data for MSFD reporting (public consultation starts already in October 2017), but this requires that the products are released in sequence as already foreseen in the new timeline.

8.10 The Meeting considered the methodology and provided feedback on the accounting for extra reductions to follow up CART assessment (doc. 8-3).

8.11 The Meeting took note that Sweden and Finland need the option to be credited with the extra reduction in order to meet their CARTs.

8.12 The Meeting 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 that are not due to measures implemented since the reference period but result from basins that have no reduction targets.

8.13 The Meeting noted that the extra reduction can be used by all the countries where applicable, not only by those which are exemplified.

8.14 The Meeting noted that FEAP asked for the scientific basis of the calculations. The extra reduction for phosphorus in "Danish Straits" in document 8-3 is calculated as 17 tons, earlier it was 134 tons. The answer was that new point sources had been detected and two more years of inputs were added and break point analyses applied.

8.15 The Meeting noted that Denmark supports the use of the methodology and its principles, but without the 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.

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

8.17 The Meeting agreed that the methodology will be used for a trial calculation in the PLC-6 assessment.

8.18 The Meeting considered the suggestions for the contents of the CART assessment policy message and the Contracting Parties expressed the views on the contents of the policy message product to be further elaborated by RedCore DG and finalized at the MAI/CART workshop:

- Denmark suggests that the CPs should be able choose individually which of three methods presented in the document should be used to evaluate CART, and furthermore informs that Denmark is in favour of using a 5-year averaging period for the assessment;
- Sweden is of the opinion that the CART assessment should be based on 3-year average, when uncertainty can be calculated by trend analyses. Sweden also expressed a doubt regarding using break points in the trend analyses, as three years is a too short period, as 25 yrs is too short a time series if there is no prior information explaining the position and reason of the trend break;
- Russia supports the idea to include into the message an estimation of a period when the CART could be achieved by the country;
- Germany supports including the data on missing reduction into the policy product and also supports distinguishing of air- and waterborne input reduction. Germany also suggests to use 5-year average period but understands that other compromise approaches are possible. It supports the further use of break points in trend analysis, which might enable more accurate future projection;
- Finland does not object using 3-year assessment period but would be in favour of 5-year period;
- Poland supported the use of 3-year period but that is not the final position;

- Denmark suggested to avoid using colours to indicate progress but only numbers with white background of the table sells. Denmark also suggested to include information on economic aspects of the undertaken measures into the policy message.

8.19 The Meeting noted a remark by observer (WWF) regarding pending lack of commitment by some Contracting Parties on CARTs and the need for parallel work leading to the official acceptance of CARTs by all Contracting Parties.

8.20 The Meeting took note of a clarification by the Chair that the break point should only be used when there is information to support changing trends.

8.21 The Meeting also recalled that the assessment data will be available for each country to utilize them nationally irrespectively of a content of the policy messages.

#### MAI/CART Workshop

8.22 The Meeting took note of the agenda of the workshop on MAI/CART prepared by the RedCore DG and invited all Contracting Parties to ensure the attendance by relevant participants representing different target groups and stakeholders in the workshop.

8.23 The Meeting suggested that the workshop lasts at least two full days to have a proper discussion on all the suggested agenda items and requested the RedCore DG to organize the agenda in such a way to enable the technical and policy sessions of the meeting be attended by different experts. The Meeting also agreed that the workshop will be held on 6-7 March 2017.

8.24 The Meeting took note of a suggestion by Lithuania to pay specific attention on the matters related to proper estimation of the transboundary load and also to include into the agenda a discussion on application of reasonable retention coefficients in MAI/CART follow-up assessments.

8.25 The Meeting suggested that the Contracting Parties could invite to the workshop national representatives in the river basin commissions.

8.26 The Meeting also suggested to utilize PLC-6 meetings as much as possible to discuss technical aspects with national experts and invited the Contracting Parties to attend the PLC-6 project meetings.

#### PLC-7 Project proposal

8.27 The Meeting took note of and welcomed the PLC-7 project proposal based on the concept note agreed by the HOD 50-2016 and exchanged views on the project structure, deliverables and timeline. The Meeting also welcomed the idea to split the outcome of the project to several relatively independent products which will be released in sequence. The Meeting also emphasized that the part related to hazardous substances should be better described in the main part of the project proposal.

8.28 Germany expressed concern about the report on the effectiveness of measures, due to difficulties in getting the relevant data, and suggested to return to the contents of this part when results of the PLC-6 are available. Germany also sees the need to further investigate possibilities of harmonizing the PLC data requirements with data collected for WFD reporting. Germany will inform the PLC-7 project team accordingly.

8.29 Sweden supported the concern by Germany regarding the contents of the section devoted to the effectiveness of measures but informed on national modelling to identify where the measures are to be implemented.

8.30 PA Nutri informed on the planned activities on assessment of measures and environmental instruments applied to manage nutrient reduction, particularly from agriculture around the Baltic Sea region which could be brought into the report.

8.31 Poland highlighted the importance of keeping the proposed timetable which is bound with the already made national arrangements.

8.32 The Meeting proposed Lars M. Svendsen at DCE to act as the PLC-7 project manager.

8.33 The Meeting invited the Secretariat to circulate the letter with the project proposal updated in accordance with the recommendation of the Meeting and the table with suggested timeline and man/month by **4 November 2016**, with the invitation to identify leadership of the particular products of the project. The Meeting invited the Contracting Parties to respond the letter identifying a potential leadership of the particular products by 19 November 2016 ([dmitry.frank-kamenetsky@helcom.fi](mailto:dmitry.frank-kamenetsky@helcom.fi)).

*Internal loading of phosphorus in the Baltic Sea*

8.34 After a presentation by BNI on internal load of nutrients (**Presentation 8**), the Meeting exchanged views regarding the potential role of sea-based measures to mitigate eutrophication of the Baltic Sea (doc. 8-12).

8.35 The Meeting took note of the information presented on the joint position of environmental NGOs - CCB and WWF, on internal loading in the Baltic Sea (doc. 8-6) pointing at the necessary focus to be put at causes of eutrophication, as external loading of phosphorus reductions before entering the sea.

8.36 The Meeting pointed out that the internal load has been already taken into account in the calculation of maximum allowable input.

8.37 The Meeting also pointed out the continued importance of implementation of measures to reduce external loading with the understanding that achievement of the GES is a long process. The Meeting also was of the opinion that the methods and technologies aiming at reduction of internal load should not be implemented without an appropriate impact assessment.

8.38 The Meeting also pointed out that the measures to manage internal load should not be excluded from consideration and supported further research activities to create a knowledge base, highlighting that the research should also take into account a potential adverse effect of measures. The Meeting also noted a view of Germany that there is no need to apply measures to reduce internal phosphorus loads for the Baltic Sea to achieve GES.

8.39 The Meeting took note of a call from both PA Nutri and PA Hazards for better national consultation and more active involvement of national representatives in the work of the policy areas, particularly in evaluation of project proposals.

8.40 Germany brought to the attention of the Meeting two project proposals on measures to reduce internal loads and the Meeting requested the opportunity to comment on those until 4 November 2016.

8.41 The Meeting took note of the information by CCB regarding potential nutrient losses from port facilities handling fertilizer cargo and also noted the invitation to the Contracting Parties to share relevant information on this matter.

8.42 The Meeting took note the statement by Estonia that all operation with fertilizers in port facilities are regulated by environmental permits.

8.43 The Meeting also noted the concern by Germany of the problem of transportation of fertilizers by sea with regard of potential accidents as well as potential input of nutrients and hazardous substances when cleaning the cargo holds.

8.44 The Meeting requested the Maritime group to provide information regarding the input of nutrients and hazardous substances with cargo ships, particularly concerning the above mentioned cleaning of cargo holds.

8.45 The Meeting invited RedCore DG to investigate the issue and invited the Contracting Parties to share the information with the national experts participating the RedCore DG. The work should be done in cooperation with the Maritime group, particularly in the part related to the operations at sea.

8.46 The Meeting took note of the information documents presented by FEAP on its negative position regarding the report by ECA. FEAP pointed out that both WWF/CCB and HELCOM referred to the report in their papers.



8.47 The Meeting pointed out that according to the outcomes of the HOLAS I the Baltic Sea, including the Kattegat, is in eutrophic status. The HOLAS II will provide new information regarding the status of the sea and the data will be available by June 2017.

8.48 The Meeting was of the opinion that fish farming may have a significant local effect, especially in the areas with low nutrient load. Some Contracting Parties also pointed out to the Ministerial Declaration 2013, where the Contracting Parties have committed to implement nutrient reductions to improve environmental status even if no reduction requirements were established for certain basins.

#### **Agenda Item 9 Follow-up of HELCOM Recommendations: implementation, reporting and revision**

9.1 The Meeting considered the parts relevant to Pressure group of the implementation status of the ministerial commitments and other information included in the HELCOM Baltic Sea Action Plan follow-up (doc. 9-1), and agreed to include items 8 and 10 into the Work Plan and discuss the perspective to implement the commitments.

9.2 After a discussion the Meeting decided to include the unaccomplished actions into the Work Plan of Pressure Group for 2017-2018.

#### **Agenda Item 10 Any other business**

10.1 The Meeting considered the information on the compliance of the Kehra Pulp and Paper plant to the existing environmental requirements and concluded that the hot spot No. 27 "Kehra Pulp and Paper" could be deleted from the list of HELCOM Hot Spots and a document submitted to HOD 51-2016.

10.2 The Meeting welcomed the progress achieved by Estonia in reducing the negative environmental impact by the site and invited Estonia to provide the requested information by HOD 51-2016.

10.3 The Meeting took note of the invitation by WWF Poland to the first international conference of MARELITT, Baltic project on derelict fishing gear in the Baltic Sea, on 1 December 2016 in Malmö, Sweden, and invited the Contracting Parties to contribute to the event.

10.4 The Meeting checked and updated the Contact Lists of the Pressure Working Group (document 10-1).

#### **Agenda Item 11 Election of Chair and Vice-Chair(s)**

11.1 The Meeting re-elected Mr Lars Sonesten, Sweden, as the Chair of Pressure Group for the next two-year period (2017-2019).

11.2 The Meeting postponed the election of Vice-Chair(s) to the next meeting of the Group.

#### **Agenda Item 12 Future work and Meeting**

12.1 The Meeting discussed the future work of the Pressure Group in the light of developments and considered the Work Plan for Pressure Group for 2017-2018 (doc. 12-1).

12.2 The Meeting updated the draft Work Plan (doc. 12-1) as contained in **Annex 4**.

12.3 The Meeting welcomed the preliminary invitation of Russia to host the next meeting of Pressure Group (PRESSURE 6-2017) in St. Petersburg on [25-27] April 2017.

12.4 The Seventh Meeting of the Group (PRESSURE 7-2017) will be held during week 43/2017 and the Meeting invited the Contracting Parties to consider hosting of the meeting on 23-27 October 2017.

#### **Agenda Item 13 Outcome of the Meeting**

13.1 The Meeting adopted the draft Outcome of the Meeting (doc. 13-1).

13.2 The Outcome of the Meeting will be finalized by the Secretariat in cooperation with the Chair and made available in the HELCOM Meeting Portal together with the documents and presentations given during the Meeting.

## Annex 1 List of Participants

\*) Head of Delegation

Delagation	Name	Organization	Email address	Phone number
<b>CHAIR</b>				
Chair of the Group	Lars Sonesten	Swedish University of Agricultural Sciences	Lars.Sonesten@slu.se	+46 18673007
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## **Annex 2      Terms of Reference for the HELCOM Expert Network on dredging/ depositing operations at sea (HELCOM EN DREDS)**

Depositing of dredged material is one of the pressures that is to be considered within the holistic assessment of the ecosystem health of the Baltic Sea. The HELCOM Baltic Sea Impact Index (BSII), which is used for the assessments, reflects the spatial distribution of human induced pressures and impacts on different ecosystem components, including benthic species and biotopes. Dredging/depositing operations is one of the human activities which impacts on the ecosystem components.

HELCOM Recommendation 36/2, adopted by HELCOM 36-2015 on 4 March 2015, recommends that the Contracting Parties follow the HELCOM Guidelines for Management of Dredged Material at Sea and that the Contracting Parties report on the national data on management of dredged material according to the Reporting Format of the HELCOM Guidelines.

The Marine Strategy Framework Directive (MSFD) of the European Union included seafloor integrity into the list of descriptors for determining good environmental status. The MSFD also identified the physical loss and physical damage to the marine environment and human activities which cause them e.g. dredging/disposal of dredged material; impact on the seabed of commercial fishing, boating, anchoring; exploration and exploitation of living and non-living resources on seabed and subsoil.

### **Objective**

The HELCOM Expert Network on dredging and subsequent depositing operations at sea (hereinafter – EN DREDS):

- supports reporting and validation of data on dredging/depositing operations at sea;
- facilitates the work of the Pressure Group in terms of assessment of environmental pressure caused by dredging/depositing operations at sea.

### **Timeline**

The expert network is established for two years (2017-2018).

### **Tasks**

The HELCOM EN DREDS will

- a. follow up the implementation of HELCOM Recommendation 36/2 including reporting formats and providing suggestions on updates of the documents when it is relevant;
- b. review and verify the annually reported data on dredging/depositing activities at sea according to HELCOM Recommendations 36/2 and an established verification procedure;
- c. provide methodological support for the development of the HELCOM information resources on dredging/depositing operations at sea (development pending availability of resources);
- d. guide the assessment of dredging/depositing operations at sea with the use of the agreed methodology and based on reported data, with the immediate need to provide input to HOLAS II (e.g. data to the Baltic Sea Pressure Index),
- e. suggest further developments of the methodology;
- f. implement any other specific tasks related to the expertise of the group by requests of the HELCOM Pressure Group;
- g. coordinate their activities with corresponding reporting and assessments activities of OSPAR, with the Contracting Parties members to the two RSC serving as a liaison and utilizing information exchange between the secretariats, as well as with ICES and EMODNET.

### Deliverables of the network shall be (among others)

- a. The further developed methodology for the assessment of dredging/depositing operations at sea;
- b. The HELCOM database on dredging/depositing operations at sea (pending availability of resources);
- c. Validated annual datasets on dredging/depositing operations at sea;
- d. Updates of the data reporting formats on dredging/ depositing operations at sea as may be needed;
- e. Regular reporting to HELCOM Pressure Group;
- f. Verification procedures.

### Working procedures and timeline

The EN DREDS will report to HELCOM Pressure Group and will assist other subsidiary bodies and projects of HELCOM with requested information.

The EN DREDS will meet as often as necessary and will utilise video-/teleconferencing as the major working method, though physical meetings are possible, if appropriate as agreed by the Pressure group.

The Secretariat will provide administrative support during the meetings. The EN DREDS will record the outcomes of the meetings in form of short memos.

The EN DREDS will identify tasks that may require additional resources, or are long-term tasks and may come up with proposals for projects.

The mandate of HELCOM EN DREDS will last until the end of 2018.

### Resources needed

The Contracting Parties are to nominate their representatives to the Expert Network, and the work will rely on expert participation and contribution of the Contracting Parties. Additional resources will be sought for through various projects. HELCOM Secretariat will provide GIS expertise.

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## Annex 3      **Terms of Reference for the HELCOM Correspondence Group on Pharmaceuticals (HELCOM CG PHARMA)**

### Background

In the 2010 HELCOM Ministerial Declaration, the Contracting Parties of HELCOM agreed to 'further assess the environmentally negative impacts of pharmaceuticals and other substances that are not monitored regularly, with the aim as a first step to assess in a coordinated manner their occurrence in the Baltic Sea and evaluate their impacts on the Baltic biota' (HELCOM 2010). The commitment was followed up by the 2013 Ministerial Declaration, in which the Contracting Parties agreed 'to collect more information and assess the state of contamination with pharmaceuticals and their degradation products of the aquatic environment' (HELCOM 2013).

The EU directive 2013/39/EU considers the contamination of water with pharmaceutical residues as an emerging environmental concern (European Commission 2013). Diclofenac, 17-beta-estradiol (E2), 17-alpha-ethinylestradiol (EE2) and estrone (E1), a breakdown product of E2, and three macrolide antibiotics erythromycin, clarithromycin and azithromycin are included on the first 'watch list' under the EU Directive 2013/39/EU.

HOD 50-2016 approved the publication of the Status report on pharmaceuticals in the Baltic Sea region and noted that the Status report has to be followed by elaboration of measures addressing reduction of input of pharmaceuticals into the environment. PRESSURE 4-2016 had decided to establish an expert group to work further in order to suggest further actions on pharmaceuticals in the Baltic Sea region.

### Objective

The HELCOM Correspondence Group on Pharmaceuticals (hereinafter - CG PHARMA):

- provide a scientific background for the regional environmental policy regarding pharmaceuticals in the environment;
- provide a scientific background of suggestions on the regional actions to minimise environmental impact by release of pharmaceutical substances
- serve, in cooperation with PA Hazards of EUSBSR, as a platform for regional dialog on the various environmental aspects of the use of pharmaceutical substances and treatment of the wastes and other matters containing pharmaceuticals in the Baltic Sea region.

### Tasks (to be amended as necessary)

The CG PHARMA will

- a. elaborate suggestions on prioritization of pharmaceutical substances against their impact on the environment with the view to include them into the HELCOM priority list;
- b. facilitate HELCOM work on assessment of the environmental impact by pharmaceutical substances;
- c. elaborate suggestions on regional needs in monitoring of pharmaceutical substances in the environment and thus provide input to the work of State & Conservation Group;
- d. provide regional guidance on methods and technics for monitoring of the selected pharmaceutical substances in the aquatic environment and thus provide input to the work of State & Conservation Group;
- e. guide collection of national data to fill in gaps in regional knowledge on sources and pathways of pharmaceuticals into the environment;



- f. elaborate suggestions on research needs to identify threats posed by pharmaceutical substances to the environment;
- g. elaborate suggestions on regional recommendations and guidelines on upstream measures to prevent/minimise input of pharmaceutical substances into the environment e.g. promotion of take-back systems, handling medical waste, public awareness, etc.;
- h. establish a dialog with relevant stakeholders, organize regional stakeholder meeting(s) and elaborate suggestions on environmental practices and technical solutions for waste water management to prevent/minimise input of pharmaceutical substances into the environment;
- i. cooperate with regional and global projects in the sphere of the expert group expertise;
- j. cooperate with international organizations acting in the field of the group expertise, in particular, PA Hazards/EUSBSR, UNESCO, UNEP, SAICM, etc.;
- k. follow up implementation of measures aimed at prevention/minimizing of impact by pharmaceutical substances on the environment;
- l. ...

#### Deliverables of the group shall be (among others)

- a. priority list of pharmaceutical substances posing risk for the environment in the HELCOM area;
- b. recommendations, guidelines and other regional documents regarding monitoring of pharmaceutical substances in the environment for consideration by State & Conservation Group;
- c. overviews of the regional data, filling in informational gaps;
- d. regional projects aimed at filling in gaps in knowledge on environmental effects of pharmaceutical substances;
- e. suggestions for regional action plans to minimize environmental impact by pharmaceutical substances;
- f. regular reports to HELCOM Pressure Group.

#### Working procedures and timeline

The CG PHARMA will report to Pressure Group and will assist other subsidiary bodies and projects of HELCOM with requested information.

The CG PHARMA will assure cooperation with HELCOM State&Conservation group regarding the issues related to the methodologies and technics used for monitoring of the pharmaceutical substances in the marine environment through involvement of the representatives of this HELCOM group and submission of the relevant materials to the group for consideration.

The CG PHARMA will coordinate activities related to elaboration of HELCOM core indicators on pharmaceutical substances through close cooperation with the network on hazardous substances.

The CG PHARMA will involve experts of various specializations to provide relevant expertise to fulfil the task of the correspondence group.

The CG PHARMA group will meet as often as necessary and will utilise video-/teleconferencing as the major working method, though physical meetings are possible, if appropriate.

The Secretariat will provide administrative support during the meetings. The CG PHARMA group will focus on elaboration of proposals, documents and products, and will record the outcomes of the meetings in the form of short memos.

The CG PHARMA group will identify tasks that may require additional resources and may come up with proposals for projects.

The mandate of the CG PHARMA group will last for an initial period of 3 years which can be extended for further years.

#### Resources needed

The Contracting Parties are to nominate their representatives to the group, and the work will rely on expert participation and contribution of the Contracting Parties. Additional resources will be sought for through various projects.

## Annex 4 Draft Work Plan of the Working Group on Reduction of Pressures from the Baltic Sea Catchment Area 2017-2018

No.	ACTION	LEAD/RESPONSIBLE IN HELCOM	INTERLINKED ACTIVITIES	TIME FRAME
<b>Action 1 Guide Pollution Load Compilations (PLCs) and prepare related reports meeting policy needs, including core indicators<sup>1</sup></b>				
1.1	Annual compilation of air- and waterborne inputs of nitrogen, phosphorus and hazardous substances to the Baltic Sea: <ul style="list-style-type: none"> <li>- Produce annual report and BSEFS<sup>2</sup></li> <li>- Review and develop a revised structure of the annual report</li> <li>- Consider inclusion of new and/or rotation of already covered substances in accordance with the HELCOM priorities and data availability</li> </ul>	Data reporting by CPs PLC-Air Centre EMEP RedCore DG and EMEP		- Annually - continuously
1.2	Compilation of PLC 7 data (monitoring in 2017): <ul style="list-style-type: none"> <li>- updated PLC-Water Guidelines;</li> <li>- quantification of the sources and pathways of inputs of nutrients;</li> <li>- assessment of input of selected hazardous substances, their sources and pathways</li> </ul>	PLC-7 project RedCore DG		- 2019 data available - 2020
1.3	Regular update of the HELCOM information resources to collect, store and provide access to the data on input of nutrients and selected hazardous substances into the Baltic Sea including reporting web applications and relevant HELCOM GIS map services.	BNI (Database Host) PLC Data Manager Secretariat RedCore DG		Continuous
1.4	Improve PLC data on nutrient inputs from upstream sources incl. transboundary watercourses, retention co-efficient, as well as municipal and industrial point	RedCore DG	PA Nutri	2019

<sup>1</sup> Coordinate and organize the monitoring and assessment activities of HELCOM related to waterborne and airborne discharges, emissions and inputs of nutrients and hazardous substances: Guide Pollution Load Compilations (PLCs) (Water, and Air in cooperation with EMEP) and continuous work on improving data reporting and quality, as well as prepare assessment reports meeting policy needs, and in relation to PLC be responsible for that:

- HELCOM core indicators for pressures on marine environment are developed and operationalized (in cooperation with EMEP) to serve e.g. holistic assessments according to the goals and objectives of the Baltic Sea Action Plan, HELCOM Ministerial Declarations, and the EU Marine Strategy Framework Directive for those Contracting Parties also being EU Member States;
- PLC-associated technical guidelines for quality assurance are developed and updated to ensure confident monitoring and assessment results for inputs of nutrients and hazardous substances, taking into account the existing international guidance documents;
- PLC database is developed and maintained;

Further develop and maintain additional pressure indicators, e.g. concerning inputs to the marine environment of noise, litter and hazardous substances and other emerging issues

<sup>2</sup> Baltic Sea Environment Fact Sheet

	sources in the whole catchment e.g. via cooperation with relevant river basin commissions and non-CPs.			
<b>Action 2 Follow-up of HELCOM nutrient reduction scheme<sup>3</sup></b>				
2.1	Update the core pressure indicator on nutrient inputs for assessing progress towards the maximum allowable inputs (MAI)	RedCore DG		Possibly annually 2017
2.2	Regularly assess progress towards country-wise allocated nutrient reduction targets (CART), both scientific assessment and policy document Development of the methodological background for the assessment	BNI Sweden RedCore DG PLC-7, MAI-CART OPER possible support by project		workshop in 2017 next CART in 2017 and thereafter as decided
2.3	Identify how to cooperate more closely with relevant river basin management commissions in order to engage them to consider the environmental targets for the Baltic Sea in river basin management plans	[Lead countries(s)] RedCore DG	Regular meetings of the Executive Secretaries of the European Water Commissions PA Bioeconomy HELCOM Agri group	continuous work
2.4	Assess potential effects of implementation of sea based measures to mitigate internal load of phosphorus in the Baltic sea and possible adverse effect of these measures on the marine environment.	BNI Sweden [Lead country]	PA Nutri	continuous
2.5	Assess effects and as far as possible, effectiveness of measures to reduce input of nutrients and identify sources which have a reduction potential.	PLC-6 and PLC-7	In cooperation with Agri Group PA Nutri	2017

<sup>3</sup> Monitor and assess the implementation of the HELCOM nutrient reduction scheme, as well as support the review of the scheme based on the best available scientific knowledge in cooperation with other relevant subsidiary bodies and institutes and modeling centres, as may be necessary: Develop and maintain a system to evaluate progress by the HELCOM countries in meeting their country-allocated nutrient reduction targets of the HELCOM nutrient reductions scheme, follow-up on the progress and prepare reports and recommendations for improved implementation; Cooperate to address nutrient emissions and inputs from non-Contracting Parties to meet the expected reductions according to the HELCOM nutrient reduction scheme, e.g. in relation to the Gothenburg Protocol under the UN ECE CLRTAP as well as EU NECD, the work of river basin management commissions/bodies; Identify and prioritize needs for further reduction of nutrients, with the aim to bridge the gap in translating the nutrient reduction scheme into area or site-specific implementation, with a view to, among others, pointing to investment needs

<b>Action 3 Pollution prevention from waste water treatment, including sustainable handling of sewage sludge<sup>4</sup></b>				
3.1	Finalize HELCOM Recommendation on sustainable handling of sewage sludge	Co-Lead: Russia		2017
3.2	Follow-up on full implementation of HELCOM Rec. 28E/5 and 28E/6 on sewage treatment	CPs reporting		continuous
3.3	Follow up implementation of the HELCOM Recommendation on sustainable handling of sewage sludge in terms of compilation of the reported data and discussion on the best available technics and practices to utilize its valuable properties minimising a potential adverse environmental effect.	[Lead countries]	Contribution to the implementation of the EU circular economy package.	continuous
3.4	Implementation of the new HELCOM action on Micropollutants in effluents from wastewater treatment plants.	[Lead countries]	In possible cooperation with OSPAR and other RSC Contribution by Baltic Eye through project	2018
3.5	Consider policy relevant proposals raised by PA Nutri of EUSBSR	Finland and Poland are leading		continuous
<b>Action 4 Solutions for limiting emissions and losses of hazardous substances<sup>5</sup></b>				
4.1	Revision of the strategy to implement the HELCOM objective for hazardous substances priorities outlined by the HELCOM Recommendation 31E/1 "Implementing HELCOM's objective for hazardous substances".	[Lead countries] Projects [CG PHARMA]	PA Hazard	2019
4.2	Follow up knowledge gathering and development of relevant legislation of hazardous substances. Based on this, identify substances and scope areas for which joint actions might be needed, such as atmospheric inputs and pharmaceuticals	[Lead country] Projects RedCore [CG PHARMA]	PA Hazards Work on core indicators on hazardous-substances WFD Watch list	2019

<sup>4</sup> Cooperate on pollution prevention from waste water treatment, including sustainable handling of sewage sludge

<sup>5</sup>Share best practices and solutions for limiting emissions and losses of hazardous substances from existing sources and exchange information of EU BAT, BEP, REACH and other legislation and of activities concerning new and emerging substances (e.g. pharmaceuticals)

4.3	Early ratification of the UNEP 2013 Minamata Convention on Mercury and subsequently identification of possible joint actions for harmonized implementation			
4.4	Consider policy relevant proposals raised by PA Hazards of EUSBSR	Sweden leading in their capacity as Coordinator for PA Hazards		continuous
4.5	<ul style="list-style-type: none"> <li>Regularly compile data on dredging/depositing operations at sea reported in accordance with the Guidelines for Management of Dredged Material at Sea and regular assessment of dredging/depositing operations at sea with the use of the methodology to be further developed.</li> </ul>	[CPs to report Secretariat HELCOM Expert Network on dredging/depositing operations at Sea (EN DREDS)]	Harmonized with OSPAR	continuous
4.6	Development of the system for reporting, verification and storing the data on dredging/depositing operations as well as tool for visualizing.	[HELCOM EN DREDS] [Project]	In cooperation with OSPAR	2019
4.7	Assessing the state of threat to the Baltic Sea marine environment posed by input of pharmaceuticals, filling in data and knowledge gaps, prioritization of measures with aim to elaborate regional policy in terms of pharmaceuticals in the region.	[HELCOM CG PHARMA] Sweden in the capacity as Coordinator for PA Hazards [Lead country(s)] Projects	In cooperation with UNESCO Cooperation with the other RSC.	Workshop(s) 2019
<b>Action 5 Coordinate implementation of Regional Marine Litter Action Plan <sup>6</sup></b>				
5.1	Development of HELCOM core indicator(s) related to marine litter in the Baltic Sea environment	Indicator leads: Poland-beach litter; Finland-microliter. Denmark and Sweden co-lead litter on the seafloor	STATE related to development of core indicators and joint monitoring In cooperation with OSPAR and Barcelona Conventions	2018

<sup>6</sup> Lead regional implementation of the Regional Marine Litter Action Plan and coordinate its implementation with relevant subsidiary bodies to enable their substantial contribution

5.2	Coordinate and follow up implementation of the Regional Action Plan on Marine Litter	Leads countries, PRESSURE (HELCOM EN-Marine Litter) in cooperation with STATE&CONSERVATION, MARITIME and FISH	Exchange information with OSPAR and the other RSCs.	Continuous
5.3	Consider potential amendments of relevant Recommendations to address marine litter			
<b>Action 6 Lead the work on underwater noise<sup>7</sup></b>				
6.1	Implementation of Regional Baltic Underwater Noise Roadmap 2015-2017 aiming at preparing a knowledge base towards a RAP on underwater noise in 2017/2018.	PRESSURE (HELCOM EN-Noise) in coordination with STATE&CONSERVATION and MARITIME	Contribute to MSFD for EU Member States, and relevant legislation of Russian Federation Cooperation with OSPAR Intersessional group on noise and EU TG Noise	2018
6.2	Contribute to development of core indicators on underwater noise	PRESSURE (HELCOM EN-Noise) in coordination with State&Conservation [a project] Indicator Leads: Poland-continuous sound; Germany-impulsive sound.	In coordination with OSPAR to the extent it is appropriate.	2017

<sup>7</sup> Lead the work on underwater noise, including evaluating inputs of noise to the marine environment with the view to developing regional action on underwater noise as far as necessary, in coordination with relevant subsidiary bodies.

<b>Action 7 Assess individual or newly identified point sources of pollution<sup>8</sup></b>				
7.1	Consider, and where applicable agree on, the elimination of remaining hot spots on the JCP list	Contracting Parties		Hot Spots included in the BSAP NIPs should be removed by 2018
7.2	Identify current and emerging issues related to point sources of land based and other pollution and assess the effectiveness of the measures being adopted and the need for any additional or different measures			On-going
<b>Action 8 Reporting on implementation of BSAP and HELCOM recommendations in the remit of PRESSURE</b>				
8.1	Regular reviewing the state of implementation of the HELCOM agreements; follow up implementation of national actions. Further contribute to the HELCOM Explorer (indicator-based follow up system for BSAP) as may be decided	CPs to report		continuous
	Review the status of implementation of HELCOM Recommendation 24/4 on iron and steel industry and 28E/8 on small-scale combustion			2018
8.2	Establishing a long-term plan on revision of the HELCOM agreement which falls under the ToR of the group			continuous

<sup>8</sup> Respond to the requests to assess individual or newly identified point sources of pollution as may be needed; Identify current and emerging issues related to point sources of land based pollution and assess the effectiveness of the measures being adopted and the need for any additional or different measures, including in relation to remaining hot spots from the list of the Joint Comprehensive Environmental Action Programme



## Memo of RedCore DG 8-2015

**Tuesday-Wednesday, 1-2 September 2015 at HELCOM Secretariat, Helsinki, Finland**

**Chair:** Lars M. Svendsen (DK).

**Participants:** : Dietmar Koch (DE), Lars Sonesten (SE), Antti Raike (FI), Seppo Knuuttila (FI), Pekka Kotilainen (SYKE), Adriana Dembowska (Ministry of Environment, Poland), Karina Makarewicz (Ministry of Agriculture Poland), Tomasz Kowalkowski (Nicolaus Copernicus University, Poland), Marianna Pastuszek (National Marine Fisheries State Research Institute, Poland), Dmitry Frank-Kamenetsky (Secretariat), Sriram Sethuraman (Secretariat).

Bo Gustafsson (BNI) via Skype.

### **1. Adoption of agenda**

The agenda was adopted.

### **2. Information from participants and from HELCOM Secretariat**

The issues of relevance for the group have been discussed. In particular, the group was informed about the HOLAS II project (agenda item 4), progress in preparation of the status report on pharmaceuticals and questionnaire on national methodologies of heavy metal monitoring (agenda item 5).

### **3. Preparation for the PRESSURE 3/2015 meeting**

*a. CART follow-up assessment – follow up on questions and comments from Contracting Parties and request from HOD48/2015. Further status on dataset. Remaining activities, timetable and responsibilities*

The document prepared by Lars M. Svendsen, Bo Gustafsson and the Secretariat was discussed. The document contains compilation of all the questions regarding the CART follow up assessment raised at the HOD 48-2015 and written comments received after HOD 48-2015. The meeting agreed about the answers given to the questions and also clarified the questions from Finland on some discrepancies in the Finnish data in the assessment compared with Finnish compilations, and on the methodology of taking extra reduction into account assessing the input to the other Baltic Sea sub-basins.

Lars M. Svendsen will by 4. September 2015 slightly update some paragraph on the used statistical methodology used in the assessment, and make the key message more clear for readers.

The meeting discussed excel tables prepared by Lars M. Svendsen with the most important data on nutrient inputs from the countries to the sub-basins which were used for the last CART assessment. The experts agreed that the tables can be published together with the CART follow up assessment being complemented with the reference input data for sub-basins. Lars M. Svendsen will elaborate the tables by 4. September. The Secretariat will then upload the revised CART follow-up assessment and the spreadsheet with assessment data.

*b. Future production of PLC assessment and frequency of these was discussed as well as the document for submission for PRESSURE3/2015.*

The meeting decided to update the PLC strategic document (doc 3-2 HOD 48-2015) by substantiation of the assessment periods. Pros and cons for the proposed assessment periods will be identified, as synergy with the other reporting periods e.g. MSFD and WFD in order to avoid double work. Lars Sonesten and Lars M. Svendsen will prepare the document for submission for Pressure 3-2015 in due time.

The meeting also welcomed suggestion of the BNI and DCE to perform a comparison of the results of 3 and 5 year assessment period when updating the MAI and CART follow-up assessment with 2013 and 2014 data.

*c. The meeting considered a proposal by the Chair for procedures for releasing the reported PLC water data and accepting the filled in and consolidated dataset as part of the steps to elaborate PLC products and in general agreed with the proposed procedures. The document was amended according to the suggestions of the participants which recommended to integrate the items describing circulation of the prefilled templates and informing Pressure group meetings. The meeting requested the Secretariat to develop the document further integrating a graphical presentation of the agreed procedures, and to circulate the document for a short commenting round in REDCORE DG before the document are submitted to PRESSURE 3 by 16<sup>th</sup> September.*

The meeting also noted that the protocol of correction and approving the data reported by the contracting parties and filling up data gaps should be developed.

*d. The project on operationalization project of the nutrient reductions scheme follow up as agreed by HOD48/2015 was discussed. The participants agreed that the full automation should be performed in 2 phases. The data processing procedures which are to be urgently automated should be included to the phase 1. The list of these procedures was provided to the HOD 48-2015 in the document 3.29. The meeting was of the opinion that not all the procedures can be automated. There are a number of procedures which required expert analysis and manual data handling. Nevertheless, the programme application/expert toolbox automatically performing the standard procedures of retrieving data from the PLC data base, statistical data processing, flow normalization and inputs calculation should be one of the deliverables of the first phase of the project.*

The meeting agreed with the proposal that the assessment data should be kept separately from the PLC database. The technical solution should be clarified whether the assessment data could be in separate tables in the PLC database or in another database.

The meeting agreed that the workshops focused on identification of the needs for data presentation, access to download of assessment data and public tools for PLC data handling as well as optimal technical solutions should be organized at the first phase of the project implementation. The phases 1 should also include proposal for contents of the second phase of the project and resources required for its implementation assessed.

The meeting requested BNI, DCE together with the Secretariat to elaborate particular technical aspects and working plan of the project implementation. The working plan is to be reported to the Pressure 3-2015.

*e. Updating of recommendations on airborne and waterborne inputs (HELCOM Recommendation 24/1 and 26/2). The meeting thoroughly considered the updated documents presented by the Lars M. Svendsen. The participants requested the Secretariat to update preambles of the recommendations with the references to recent legal acts and HELCOM commitments. Lars M. Svendsen will further elaborate substantial parts of the documents taking into account the comments by the RedCore 8-2015 and consultations with experts in air quality monitoring (e.g. Ms. Tuija Ruoho-Airola FMI). The document have to be submitted to the Pressure 3-2015 for endorsement in due time.*

#### *4. REDCORE DG/PLC6 contribution to HOLASII – brief information by HOLASII project manager.*

The meeting took note the information on implementation of the HOLAS II project. The meeting discussed how the data on nutrients input could be integrated into the pressure index calculation. Bo Gustafsson (BNI) will investigate available technical and methodological options to present spatial distributed nutrients input to the Baltic Sea with a resolution higher than the one quantified for the assessment of the nutrient reduction scheme implementation. The information on possible solutions will be provided for the HOLAS II workshop which will be held 13 November in Helsinki.

#### *5. Status on the PLC6 project.*

The meeting was informed about that the PLC-6 Guideline are ready and can be published shortly. The meeting was informed about data on national methodologies of monitoring of heavy metals in rivers and noted high compatibility of the methodologies used in the reported countries. The meeting invited Finland and Germany to provide required information as soon as possible, and the Secretariat will also remind Lithuania, Poland and Russia to submit the questionnaires within one week.

The meeting was informed about results of annual reporting of 2013 PLC data. The meeting took note the information by PLC data manager Pekka Kotilainen regarding the state of the reported data. All the countries reported some data on nutrient inputs in 2013, but so far data sets of 6 countries have been verified. Data verification includes skype session with national data coordinators. 5 interviews have carried out (DE, EE, LT, LV and RU). The data received from DK, SE and FI are being verified. Corrections to the primarily reported data and after the skype interview were obtained from DE, EE, LT, LV and RU, but the received amendments/corrections haven't been verified. No response have been received from Poland. The data manager informed the meeting that in some cases the third round of data correction and filling data gaps will be needed.

Taking into account that the data on annual and periodic reporting 2014 are of high importance for further implementation of the PLC-6 project in accordance with the deadlines, the Chair of the RedCore DG recommended to prioritize preparation of the prefilled templates for 2014 reporting period compare to the correction 2013 data. The final prefilled templates for annual and periodic reporting 2014 including information on inland (indirect) sources have to be released in November 2015 by the week 46. The meeting requested the data manager by the end of week 36 to make a timetable for submission of prefilled annual and prefilled periodical templates and specify the procedure on when Country Parties can report data and how they will be notified about the correct version of the templates for reporting 2014 data. A plan for reporting 2014 data including deadlines has to be developed. The Chairman stressed that the Contracting Parties cannot report data later than by the agreed deadlines as the PLC6 assessment and the update of MAI and CART assessments cannot be delayed.

The procedures of correction and filling gaps in the 2013 dataset should be finalized by mid-October 2015. Thus, the assessment procedures are to be launched by the end of October 2015 striving to finalize the Baltic Sea Environmental fact sheets on nutrient input fact sheets 2013 by the end of January 2016.

#### *6. Status on PLUS project.*

The meeting was informed about implementation of the QA/QC procedures. The meeting noted that the QA procedures of the level 1 – format check – have been implemented and verified. At the same time the meeting noted that the QA level 2 – automatic statistical checks – still requires verification. The QA procedures level 3 and 4 have not been yet implemented. The meeting emphasized that the thorough description of the QA/QC procedures is strongly required and level 2 procedures need to be ready in October 2015 before Contracting Parties start reporting 2014 data. The meeting also stressed that the lacking documentation for the different QA levels should be provided.

#### *7. Presentation of the recent studies by Poland – document have been submitted, and we will have an expert discussion around the scientific points they raise.*

The meeting took note of presentations by Tomasz Kowalkowski (Nicolaus Copernicus University, Poland)[will be submitted later after internal validation] and Marianna Pastuszek (National Marine Fisheries State Research Institute, Poland)[Presentation 2] regarding the recent national studies on nutrient inputs by the rivers Vistula and Odra. The meeting highly appreciate the effort of Poland to obtain reliable data on nutrients input from the Polish territory to the Baltic Sea. The experts discussed some of the scientific aspects of the presented studies and especially noted the importance of a comprehensive holistic approach to the assessment of the state of the Baltic Sea presented by Marianna Pastuszek (this presentation is available at the HELCOM meeting portal). Polish experts expressed the opinion that there are many methodological inconsistencies during elaboration of the HELCOM nutrient reduction scheme e.g. flow normalization and lack of the account of global processes e.g regime shift. The experts also pointed out that the year 2010 was characterised by extremely high precipitation and rivers run of and consequently nutrient discharges. Thus,

Polish experts were of the opinion that this single year can not be used for evaluation of Polish impact on the Baltic Sea environment. Further Polish experts expressed the view that the HELCOM reduction targets proposed for Poland are not feasible and fulfilling such CART requirements will have very negative impact on Polish economy and agricultural sector in particular.

The participants also discussed questions raised in relation to the reference period (1997-2003) in BSAP, how the HELCOM nutrient reduction scheme was elaborated, methodology of the flow normalization and some of the statistical procedures. The meeting emphasized that the methodologies were also harmonized with the ones used in OSPAR area. Further it was clarified that a new dynamic model (BALTSEM) was used for the revised MAI and the new CART in the HELCOM 2013 Copenhagen Ministerial Declaration. The meeting also refer that a lot of reports and documentation are available on HELCOM website describing how the nutrient reduction scheme has been developed.

The participants highlighted that the pollution load compilation and consequent assessment are done based on data reported by the Contracting Parties (e.g. only annual data on flow and loads are reported). The participants urged that Polish experts provide the data they have used in their calculation to allow for comparison with data reported to the PLC database and also for comparing with some of the calculation made in the follow-up assessments of MAI and CART.

The REDCORE DG chair offered that some of the scientific issues raised by Poland could be further discussed within the PLC6 project (PLC 6 project meeting), on a workshop or at an extended REDCORE DG meeting.

*9. Planning: RedCore DG tentative working plan for the next half of the year by the PRESSURE 4-2016.*

The meeting conformed following meetings to be held at the HELCOM Secretariat:

REDCORE DG 9 –2015: 26<sup>th</sup> October 2015

PLC6 9-2015: 27-28 October 2015

PLUS 9-2015: 29 October 2015

Further the Chair promised to make an updated working plan for the work of REDCORE DG during the next period by the end of week 36.

## Memo of RedCore DG 9-2015

**Tuesday-Wednesday, 26 October 2015 at HELCOM Secretariat, Helsinki, Finland**

**Chair:** Lars M. Svendsen (DK).

**Participants:** Dietmar Koch (DE), Lars Sonesten (SE), Antti Räike (FI), Seppo Knuutila (FI), Peeter Ennet (EE), Pekka Kotilainen (SYKE), Dmitry Frank-Kamenetsky (Secretariat).

Bo Gustafsson (BNI) via Skype.

### **1. Adoption of Agenda**

1.1 The Agenda was adopted.

### **2. Information from participants and from HELCOM Secretariat**

2.1 Secretariat informed that the contract with EMEP centers for the years 2015-2017 has been signed but the updates of the list of the assessed pollutants are to be done after decisions by the PRESSURE 3-2015.

2.2 The Meeting was informed on the request by Finnish Ministry of the Environment regarding the attention that has to be paid on the effect of extra reduction of input to one sub-basin on other sub-basins.

2.3 The Meeting also took note the information by Estonia regarding a new national P measuring station established and that the measurements will be available for P input modelling.

### **3. Outcome of PRESSURE 3-2015**

3.1 The Meeting took note of the relevant outcomes of PRESSURE 3-2015 presented by the Secretariat.

#### **Marine litter**

3.2 The Meeting noted that the issues regarding riverine input of marine litter is still on the agenda of the RedCore group but will be discussed at a later stage.

#### **Organic pollutants**

3.3 The Meeting was of the opinion that there is a need to evaluate the availability of the data on riverine and air-borne input of organic pollutants to the Baltic Sea. For that purpose a questionnaire will be prepared. The questionnaire should contain questions regarding the pollutants of major concern by the Contracting Parties, as well as the information regarding national monitoring and screening campaigns and availability of data on emissions and discharges of the pollutants. A draft questionnaire will be prepared by Lars Sonesten by the next RedCore meeting and then circulated to the Contracting Parties with a view to have initial discussion on the issue at PRESSURE 4-2015. The Meeting discussed the EMEP reports on the assessment of the inputs of hazardous substances and requested the Secretariat to send a request to EMEP regarding more information on normalization procedures applied.

#### **Status of CART assessment**

3.4 The Meeting took note of the information by the Chair and the Secretariat on the current status of CART assessment. The particular questions raised at the HOD 49-2015 and then provided in writing have been answered and approved by national experts. The table of questions and answers together with the CART assessment document was circulated to HODs on 22 October 2015 for final approval via correspondence by 6 November 2015.

3.5 In connection with the procedure of approval of the CART assessment data, the Meeting noted the need in a more transparent procedure of obtaining of both assessment and raw data. Further description of the assessment methodology and algorithms should be easily available. The Meeting also emphasized that an approval procedure of the assessment results should be elaborated and endorsed (cf. Agenda item 5).

3.6 The Meeting took note the information by Finland that the Ministry of Environment is mainly interested in information regarding the achieved progress towards reduction targets. The options of 3 and 5 years averaging are to be considered. Baltic Nest Institute and Danish Centre for Environment and Energy (DCE) and Energy will compare these two averaging periods to assess their suitability to follow-up the implementation of nutrient reduction scheme.

3.7 The Meeting was also of the opinion that the next assessment will be improved through more thorough consideration of retention and transboundary input.

3.8 The Meeting further discussed how the methodology on evaluating the fulfilment of reduction targets can be refined and improved and the possibility to included normalization at a finer scale (e.g. by river) to improve the CART assessment.

3.9 The Meeting took note that in accordance with the decision by PRESSURE 3-2015 the RedCore DG has to prepare a suggestion for visualization and improved transparency of the assessment data by PRESSURE 4-2015. BNI and DCE are to prepare initial suggestions for further discussion at the next RedCore DG. The participants are invited to provide their suggestions regarding visualization of the CART assessment. The Meeting emphasized the importance to account the effect of extra reduction of input to one sub-basin to the other sub-basins. The Meeting invited BNI to suggest a methodology for discussion at RedCore 10-2015. The Meeting also recognized the need to suggest a procedure on how extra reductions can be accounted for, in proportion to the effect on a neighboring basin with reduction targets, by the countries in reaching their CARTs.

3.10 The Meeting recognized that including of coastal areas into the assessment together with open sea as well as changing of division of sub-basin (e.g. Archipelago from Bothnian Sea and the Sound from Danish Straits) most likely will be postponed for the next update of the nutrient reduction scheme.

#### **Next PLC-7 assessment based on the comments by the Contracting Parties**

3.11 The Meeting took note of the information by the Secretariat on positions of the countries regarding the timeframe for PLC-7. Most of the Contracting Parties agreed with the suggestion on an assessment finalized in 2019, based on the monitoring data 2017 (assessment period 1995-2017). The participants also noted the position of Germany that some data, e.g. waterborne input of nutrients, will be needed already early in 2019. But in this case the step-wise approach can be applied by finalizing waterborne inputs in first half of 2019, and the evaluation of MAI and CART late in 2019, taking into account that deposition data on nitrogen input will be available only in 3<sup>rd</sup> quarter of 2019. The Meeting also took note the proposal by Finland to use 2019 data to be processed by 2021 when the MSFD Programme of Measures are to be updated. In addition PLC-7 would then also serve the following MSFD/HOLAS III assessment to be started in 2022 and completed in 2024.

#### **HOLLAS II workshop**

3.12 The Meeting noted that Lars M. Svendsen will attend the HOLAS II workshop on pressures on 13 November 2015 (in Helsinki) on behalf of the RedCore DG, and that Lars Sonesten might attend on behalf of the Pressure WG.

### **4. The project on operationalization of the follow up of the nutrient reduction scheme**

4.1 The Meeting took note the information on the working plan of the new project on operationalization of nutrient reduction scheme follow up, and was of the opinion that the project activities should be launched as soon as possible. The Meeting also agreed that the project workshop will be held 1 December 2015 and welcomed the offer by BNI to organize the workshop in Stockholm University. The Meeting requested the Secretariat together with DCE and BNI to prepare the invitation and circulate it together with the provisional agenda by 30 October 2015 to the Pressure WG contacts and observers as well as to PLC and RedCore DG contacts.

## **5. Elaboration of the PLC data assessment products**

5.1 The Meeting took note of the draft document regarding the process of elaboration of the PLC data assessment products and approval of the consolidated datasets prepared by the RedCore Chair and the Secretariat. The draft will be discussed in details at the PLC-6 9-2015 meeting, and afterwards RedCore DG will prepare a revised draft for PRESSURE 4-2016.

## **6. EMEP report on nitrogen deposition in 2013**

6.1 The Meeting also took note of the information that annual reporting by EMEP on nitrogen deposition in 2013 will be presented at the PLC 6 9-2014.

## **7. Progress in HELCOM PLUS project**

7.1 The Meeting took note the information regarding fulfilling the milestones and deadlines. The Meeting agreed that the key point of the further progress in PLUS project is implementation of QA procedures in the reporting applications, which enables automated reporting procedures by the countries. The Meeting noted that documentation on implemented QA procedures is not available. The Meeting took note that the data migration is almost completed but some improvement is still required.

7.1 Further, it was noted that the PLC2 2013 data is not entered into the PLC database.

## **8. Progress in reporting annual and periodic PLC data**

8.1 The Meeting took note of a brief information by the Data Manager on the status of updating the prefilled annual and periodical reporting templates 2014, and on the follow-up on missing already reported 2013 data. This issue will be further discussed at the PLC-6 9-2015 meeting.

8.2 The Meeting also noted the information by Finland that the annual data 2014 have been reported through the WEB application and passed all the QA procedures.

## **9. Planning and any other issues**

9.1 The next Meeting of the RedCore group will be held in Stockholm 30 November 2015. Tentatively the following meeting is scheduled for mid-February 2016.

9.2 The Meeting also took note the working plan of the RedCore DG, prepared by the Chair, and agreed on that with the remark that the item on development of the suggestion on visualization the PLC products should be included.

9.3 The Meeting also decided to arrange a workspace to exchange the documents and welcomed an offer by the Secretariat to set up the workspace at the HELCOM meeting portal by the RedCore DG 10-2015 meeting.

## Memo of RedCore DG 10-2015

**Monday, 09 February 2016 at the HELCOM Secretariat, Helsinki, Finland.**

**Chair:** Lars M. Svendsen (DK).

**Participants:** Bo Gustafsson (BNI), Dietmar Koch (DE), Peeter Ennet (EE), Lars Sonesten (SE), Antti Räike (FI), Seppo Knuuttila (FI), Pekka Kotilainen (SYKE), Dmitry Frank-Kamenetsky (HELCOM).

**On-line:** Adriana Dembowska (PL)

### **1. Adoption of Agenda**

The Agenda was adopted.

### **2. Information from participants and from HELCOM Secretariat**

The Meeting was informed about the decisions by HOD 49-2015. The Meeting requested the Secretariat to clarify with Germany the confirmation of endorsement of the HELCOM Recommendations on waterborne pollution input assessment and on monitoring of airborne pollution input.

The Meeting indicated the need for a workshop in autumn 2016 to anchor the results of the MAI CART assessment. The Meeting was also informed on the attendance of Lars Sonesten at HELCOM 37 -2016 to participate in the discussion on the implementation of the HELCOM nutrient reduction scheme.

The Meeting was informed about the Baltic Sea day 2016 which will be held in St. Petersburg, Russia, 22-23 March 2016 and the planned round table discussion devoted to the chemical pollution of the Sea. The Meeting noted that this round table is a good opportunity to discuss PLC 6 reporting with national experts and encouraged the members of the RedCore group to attend the event.

The Meeting was informed that uncertainties caused by water flow measurements are to be investigated in Sweden. The results will be available in the upcoming weeks.

Denmark informed the Meeting about a national "Feed and Agriculture Initiative" where amongst the initiatives farmers will be allowed to increase nitrogen fertilization whereas farmers today are allowed to fertilize 20 % less than economical optimal. General requirement of the 10 m buffer strips around streams and lakes will be removed. Regulations will be changed from general national rules to be based on regional needs. New targeted measures will be evaluated and applied at local level where they have an expected effect on nutrient losses. Up to 200 new river monitoring stations will be installed to monitor nutrient releases from sources and model nutrient dynamics and inputs to the sea. The former target for reducing nitrogen losses remains unchanged. The discussion of establishing new aquaculture plants is ongoing.

The Meeting also discussed the information by Estonia regarding the analysis of runoff from the territory which indicated a steady increase during the past 30 years.

The Meeting was also informed that the Secretariat has launched the work on elaboration of the documentation for PLUS products. The documentation will consist of two parts: technical documentation including description of database structure and automatic QA procedures and a user manual. The Meeting welcomed the initiative and offered required support. The Meeting also decided that in future all the updates of the database, reporting templates, and the QA procedures should be thoroughly documented and discussed at the RedCore group.

### **3. Compilation of PLC data.**

The Meeting was informed on the status of reporting the data 2013-2014. The data manager indicated that the most common problem with the reporting is that the reporters consider the uploading of the data as a reporting and do not run or finalize the QA procedure, i.e. make the data corrections and entering data into the database.



The Meeting discussed which templates to use for annual and periodic reporting. Annual data can be reported with periodic templates but not the other way around. The Meeting was of the opinion that the number of templates used has to be optimized in the future, probably through merging some of them.

Only two countries have already inserted data from annual templates on direct sources into the database, while the others ceased the reporting process at QA stage. Russia and Poland have not yet reported anything.

Regarding the periodic data on indirect point-sources loads, Latvia and Estonia also tried to insert data into the database but the insertion was rejected by the database. At the moment there is no clear understanding of the reason why data entering is rejected. Also other countries had tried to enter data with periodical templates without success. The Meeting indicated that using and testing the upload and entering -system is the only way how such bugs in the software can be revealed and fixed. Finland, Poland and Russia have not even started the reporting procedure.

The Meeting indicated that there is a procedure of reporting and approval of the PLC data. The Meeting emphasized that it would not be possible for the group to prepare the assessment by the end of 2016, if the data are not reported by the set deadlines. The Meeting encouraged the Chair of Pressure group to flag the importance of timely data reporting at HELCOM 37-2016.

The Meeting also stressed the importance of any assistance to the data reports from the PLC-6 team, in particular, by data manager and database administrator, such as on-line consultations, providing written instructions etc.

The Meeting decided to inform HELCOM 37-2016 that already now there is a high risk of delay of the PLC-6 products delivery, due to already delayed reporting of national data.

The Meeting also indicated that the most urgent data are flows and total N and P by rivers and from direct point sources, which are crucial for the MAI CART assessment. The data on source apportionment could be reported a bit later due to later deadline for the final product.

Quite often the reporting procedure faces a small bugs or conflicts in reporting templates. Nowadays, there is no tool to update individual templates at the reporting website. The Meeting invited the database administrator to develop a simple tool for updating of individual reporting templates and make it available for the data manager.

Germany informed the Meeting about an intention to partly update the data 2012.

The Meeting invited all the countries to inform about their plans to re-report national data which have been already reported in the past. The Meeting also invited the members of PLC-6 project being responsible for reporting national data to inform the PLC database administrator and data manager about all problems in using the reporting application and also at PLC 6 meetings.

The Meeting took note the information on a questionnaire regarding the effectiveness of measures on reducing nitrogen and phosphorus inputs. A questionnaire regarding input of the organic pollutants into the Baltic Sea was discussed. The Meeting decided that the documents are almost ready to be released, pending the discussion at PLC-6 10-2016, with the view to get responds from the Contracting Parties and discuss the results at PRESSURE 4-2016.

The Meeting welcomed a presentation on pharmaceuticals in the Baltic Sea environment and emphasized that the study has high importance for the scientific society and for further studies in the Baltic Sea. The participants decided to come back to the discussion on including the data into the PLC-6 report after circulation of the Status report and its consideration by HELCOM groups. The Meeting also indicated that such an extended study was carried out in a very short time using minimum resources.

#### **4. MAI and CART assessment.**

The Meeting was informed that the CART assessment 2015 was published at the HELCOM website. The Meeting invited Lars M. Svendsen to provide Excel spreadsheets with the assessment data in the end of the week 8 for publication at the HELCOM website. The Meeting encouraged the participants to check the

publication and inform the Secretariat if some minor corrections are still needed. The Meeting was informed that the Secretariat will publish the PLC-6 Guideline at the HELCM website by the 19<sup>th</sup> February.

The Meeting took note of the example of calculation of break points in the trends of input assessment presented by the Chair. The Meeting noted that integration break points into the trend analysis allows to distinguish periods with different trends which provide different message regarding the reduction of nutrients inputs and implementation of the nutrient reduction scheme comparing to the first CART assessment. The Meeting decided that the approach should be implemented in the next CART assessment but the demonstration requires the whole dataset to be analysed. Thus, the demonstration of the approach is relevant at the workshop on the assessment 2016.

The Meeting discussed a presentation of the MAI/CART assessment 2016. The background results are to be presented firstly as a standard scientific report. A popular public version of the scientific report can be published based on the scientific report. The formal political message should be elaborated separately.

BNI and DCE will prepare the document with initial suggestions on the presentation of the assessment results by 16 March and circulate it to the RedCore group with the commenting deadline by 22 March 2016. The final document should be ready for submission to PRESSURE 4-2016 by 29 March 2016.

The Meeting discussed basic approaches to accounting an extra reduction in neighbouring basins and invited BNI to prepare a document for consideration at PRESSURE 4-2016. The document should contain a table for transferring extra reduction to neighbouring basins as well as constraints for application of this methodology. The document for PRESSURE 4-2016 will be prepared following the same procedures and deadlines as the document regarding presentation of the assessment results.

The Meeting was informed about progress in MAI-CART OPER project. The Meeting decided that the report on implementation of the project will be submitted to PRESSURE 4-2016 jointly by BNI and DCE.

The Meeting discussed the results of the PLUS project and decided that the Secretariat in cooperation with BNI and SYKE will prepare a report for PRESSURE 4-2016 on the project outcomes. Public tools developed by the project team will be presented at PRESSURE 4-2016 by BNI.

The Meeting discussed other questions which are to be prepared for consideration at PRESSURE 4-2016. An overview of the state of reporting PLC data 2013-2014 is to be prepared by the data manager. A document on overall planning and expected preparatory work for PLC-6 and PLC-7 (as harmonizing methodology of source apportionment) is to be submitted by DCE. A document describing procedures to elaborate PLC products will be submitted for endorsement by PRESSURE 4-2016 with an intention to submit the document to HOD 50-2016 for adoption.

## **5. Planning and any other issues**

The Meeting agreed on the date of the next “physical” meeting for 22 April 2016 back-to-back with PRESSURE 4-2016 in Gothenburg in the premises of the Swedish Agency for Marine and Water Management.



## Memo of RedCore DG 12-2016

**Friday, 22 April 2016 at SwAM, Gothenburg, Sweden**

**Chair:** Lars M. Svendsen (DK).

**Participants:** Dietmar Koch (DE), Lars Sonesten (SE), Seppo Knuutila (FI), Bo Gustafsson (BNI), Rasmus Kaspersson (SE), Philip Axe (SE), Dmitry Frank-Kamenetsky (Secretariat)  
Pekka Kotilainen (SYKE) via Skype

### 1 Adoption of Agenda

1.1 The agenda was adopted.

### 2 Data reporting

2.1 The data manager could insert Polish data 2014 into the PLC database. Thus, this requires acceptance by Polish data reporters as well as involvement of the Polish expert in the correction of data rejected by the QA procedures. The 2013 data have already inserted into the database.

2.2 The Secretariat will inform all the Contracting Parties that the annual and periodic PLC data should be reported (uploaded and inserted) using only the WEB reporting application and that there are no resources for consultants foreseen in future to insert data into the database.

2.3 The data manager was requested to give a complete overview of missing annual reporting of flow, TN, TP and selected HM's to the PLC 11-2016 meeting, and of missing periodic reporting by Contracting Party.

2.4 The Meeting discussed difficulties with transboundary reporting and suggested to discuss it at the PLC-6 11-2016 where the Contracting Parties are better represented. When transboundary flows and loads have been reported the originator of the data is difficult to identify, and can only be defined by going back to the originally uploaded and inserted data files and compare them with the existing data in the database. In some cases double data have been reported on the same source by two countries sharing the drainage of a shared river. PLC-6 11-2016 is invited to discuss each case and find a compromise solution for reporting data on each transboundary river to avoid double-reporting.

2.5 The data manager is invited to present important examples on questionable cases related to reporting data on transboundary input to the Secretariat **by 13 May 2016**.

2.6 The data manager will provide RIVER\_CATCHMENT\_CODEs for the Danish national data reporter in order to enable the 1995-2012 annual data revision **by 15 May 2016**.

2.7 The Meeting highlighted that a tool for automatic generation of prefilled templates for each country should be enabled likely for the next reporting period and invited PLC-6 11-2016 to discuss its functionality.

2.8 The PLC-6 11-2016 meeting will discuss the procedure for QA3 and the Meeting invited BNI to check the user interface for manual verification of the data flags by the reporters.

2-9 The RedCore DG invited all the national reporters of PLC data to provide feedback on the reporting tools integrated into the PLC WEB reporting application to the PLC-6 11-2016 meeting. National representatives in the PLC-6 Project are also invited to identify what kind of assistance they would expect from the data manager.

### 3 Further steps forward

3.1 The project manager will update the infographic for the PLC-6 roadmap using Gant diagram and present it at the PLC-6 11-2016 meeting.

### 4 Questionnaire on measures undertaken and planned.

4.1 The replies on the questionnaire are expected from Sweden, Finland, Denmark and Germany **by 12 May 2016**. The questionnaire will be revised according to the feedback and accomplished with explanatory notes for the reporters. The PLC-6 project team will consider how to collate methodologies used by the Contracting Parties to estimate the effects of measures, and the cost of individual measures (pr. tons N and P).

4.2 It should be investigated whether the recently developed Joint documentation of programmes of measures could be used to evaluate the potential of future measures as well as the overview of the national policy-relevant document which is planned to be prepared by AGRI group.

### 5 Questionnaire on POPs

5.1 The results of questionnaire will be further elaborated by Sweden and presented to the PLC6 11-2016. Then the countries could be approached, if any clarification or additional information is needed to include the overview.

### 6 Accounting of extra reduction

BNI will prepare a description of the methodology for accounting extra reduction in the CART assessment and present it for discussion to the next RedCore DG meeting (meeting in September). The document will be supplemented by examples.

### 7 MAI-CART OPER

7.1 BNI will inform the next RedCore DG meeting on the progress in implementation of the project. The Meeting noted that only 2/3 of the project is financed, and further, and also the financing regarding updating MAI and CART follow-up is not clarified. BNI and DCE will discuss the issues with HELCOM Secretariat.

### 8 PLC-7 project proposal

8.1 The Secretariat will provide DCE a template for PLC-7 project proposal **by 29 April 2016**. A draft project proposal will be prepared by DCE **by 12 May 2016** and submitted to the Secretariat ([dmitry.frank-kamenetsky@helcom.fi](mailto:dmitry.frank-kamenetsky@helcom.fi)).

### 9 Preparation of the PLC6

9.1 The following issues will be discussed at the upcoming PLC-6 project meeting:

- The status of reporting data on flow and nitrogen and phosphorus inputs
- The status of reporting data on inputs of heavy metals (Cd, Hg and Pb)
- WEB based PLC reporting application and reporting template - feedback by data reporters
- Questionnaires on POP and measures
- Uncertainty of the reported flow and discharges
- Details of the content of PLC6 report
- Source-apportionment methodology including the state of data reporting.

### 10 Harmonization of the source apportionment methodologies.

10.1 As the first step, RedCore DG will discuss data and methodology reported by the national PLC representatives and prepare an overview.

11 Finalizing the PLC-water system tools and link to the MAI CART OPER.

11.1 The PLC reporting application, in particular, the quality assuring tools, need to be further developed to enable verification of the data against internal constraints of the database. At present, it is not clear which data have been inserted and which have been rejected. In some cases, the system likely accepts data which are obviously erroneous. Thus, more verification data procedures have to be introduced.

12 Planning and any other issues:

12.1 The next meeting of the RedCore DG will be held in the premises of the HELCOM Secretariat, Helsinki, Finland, on 6 September 2016. Tentatively, a Skype meeting can be arranged in June 2016.