

Efficient nutrient management as a measure to reduce the input to the Baltic Sea

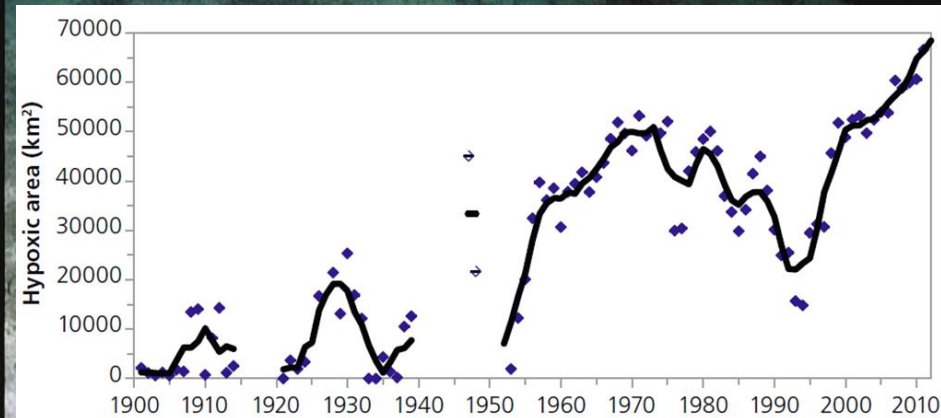
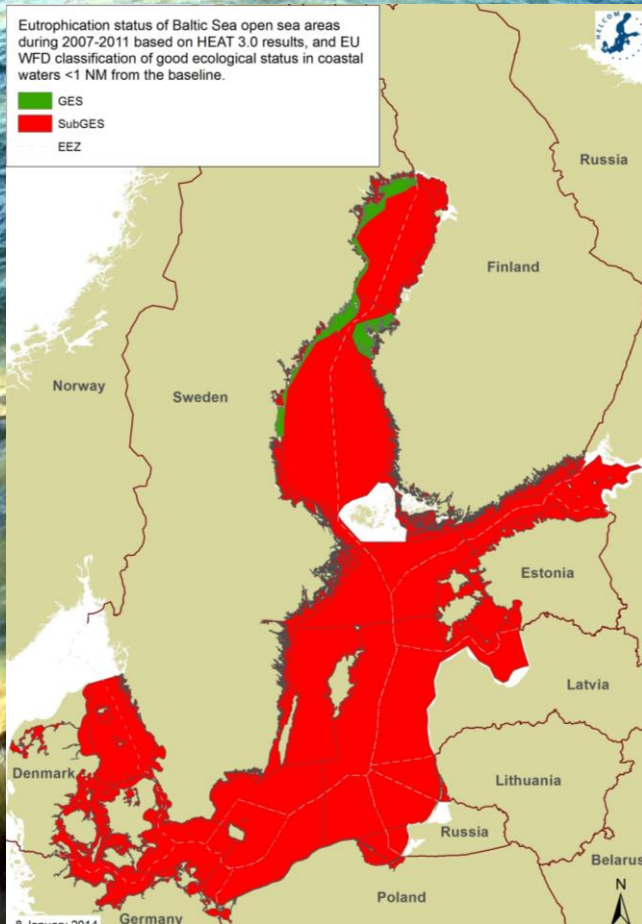


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Above and beneath the Baltic waves: still a lot to do!



Oxygen depleted area
is greater than ever



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Helsinki Commission (HELCOM)

- Intergovernmental organisation
- 9 coastal countries & EU
- Marine area:
 - 415,000 km²
- Catchment area:
 - 1.72 million km²
(4 x size of the sea area)
 - 14 countries
 - 85 million people

Baltic Marine Environment Protection Commission



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Nutrient reduction scheme of the BSAP consists of two parts

MAI

Maximum allowable inputs: the basin-wise maximal nitrogen and phosphorus inputs that will result in a development towards reaching the ecological targets

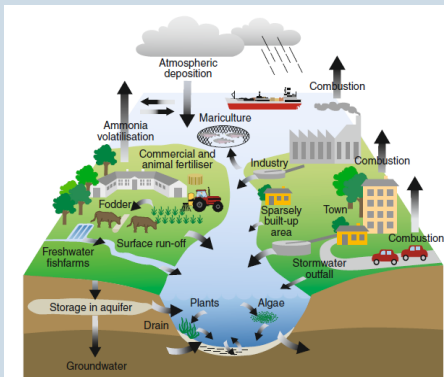
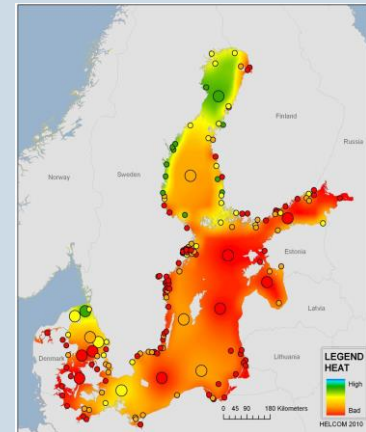


Figure 1-2 Different sources of nutrients to the sea and examples of nitrogen and phosphorus cycles
(Source: Ertebjerg et al. 2003).

(P. C-5)

CART

Country-wise allocation of reduction targets: the necessary nutrient input reduction distributed per Country according to agreed principles



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BSAP nutrient reduction targets

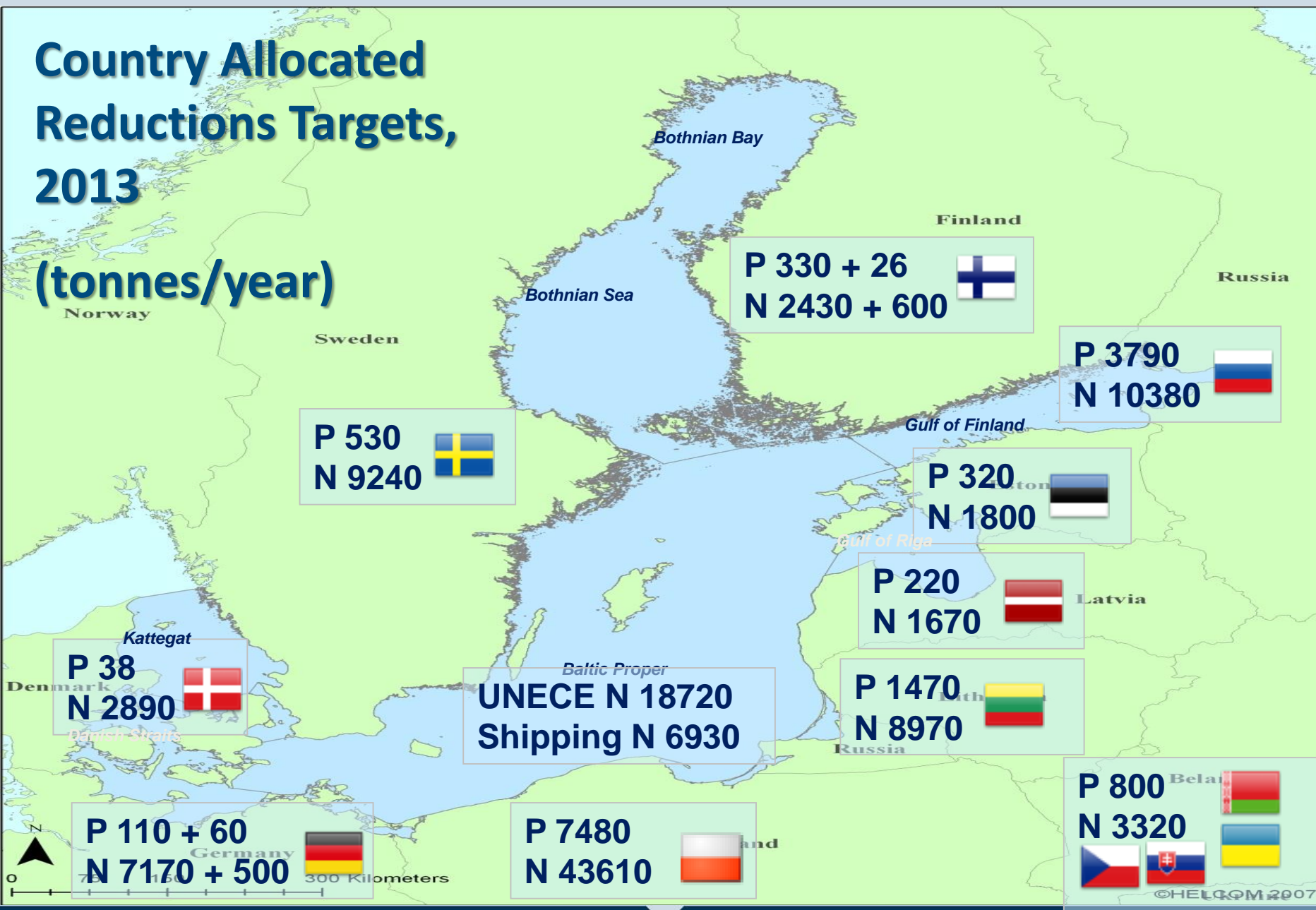
Baltic Sea Sub-basin	Maximum Allowable Inputs (2013)		Reference inputs 1997-2003		Needed reductions	
	TN tons	TP tons	TN tons	TP tons	TN tons	TP tons
Kattegat	74 000	1 687	78 761	1 687	4 761	0
Danish Straits	65 998	1 601	65 998	1 601	0	0
Baltic Proper	325 000	7 360	423 921	18 320	98 921	10 960
Bothnian Sea	79 372	2 773	79 372	2 773	0	0
Bothnian Bay	57 622	2 675	57 622	2 675	0	0
Gulf of Riga	88 417	2 020	88 417	2 328	0	308
Gulf of Finland	101 800	3 600	116 252	7 509	14 452	3 909
Baltic Sea – revised figures (2013)	792 209	21 716	910 344	36 894	118 134	15 178



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Country Allocated Reductions Targets, 2013

(tonnes/year)

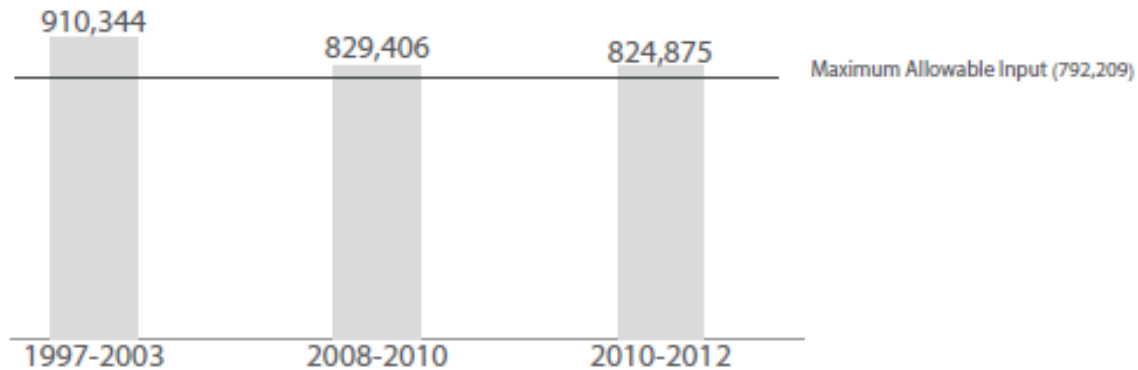


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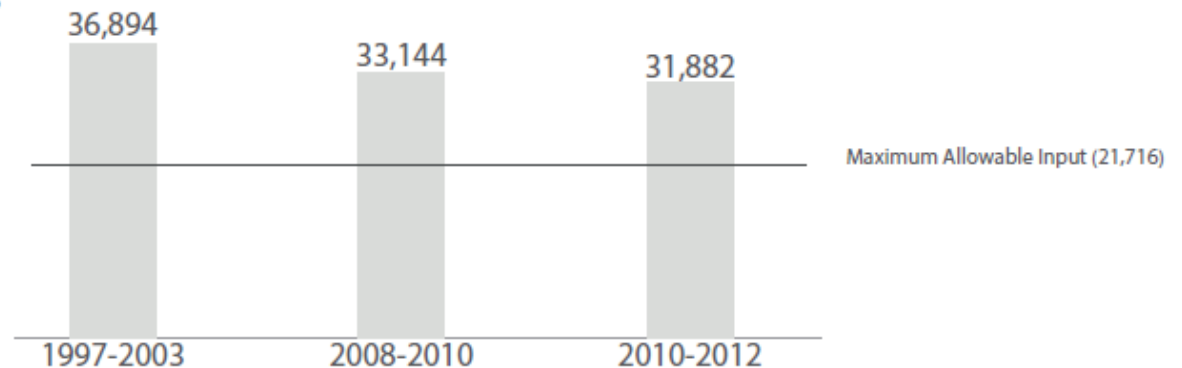
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Nutrient input reductions in tonnes from reference period (1997-2003) to the latest available assessment periods.

Nitrogen

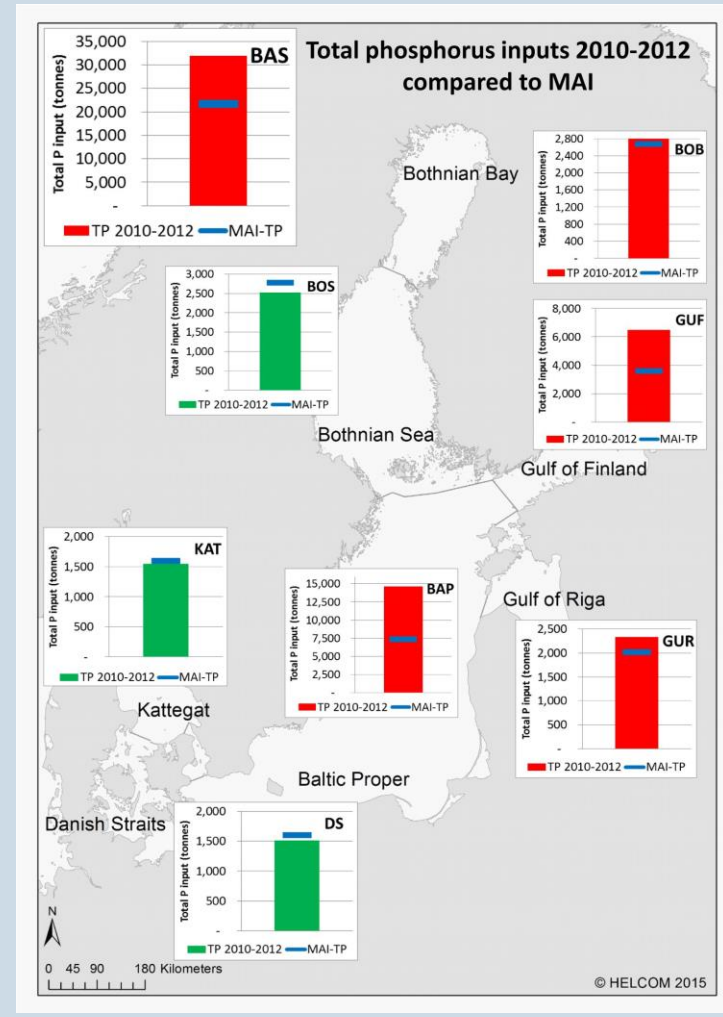
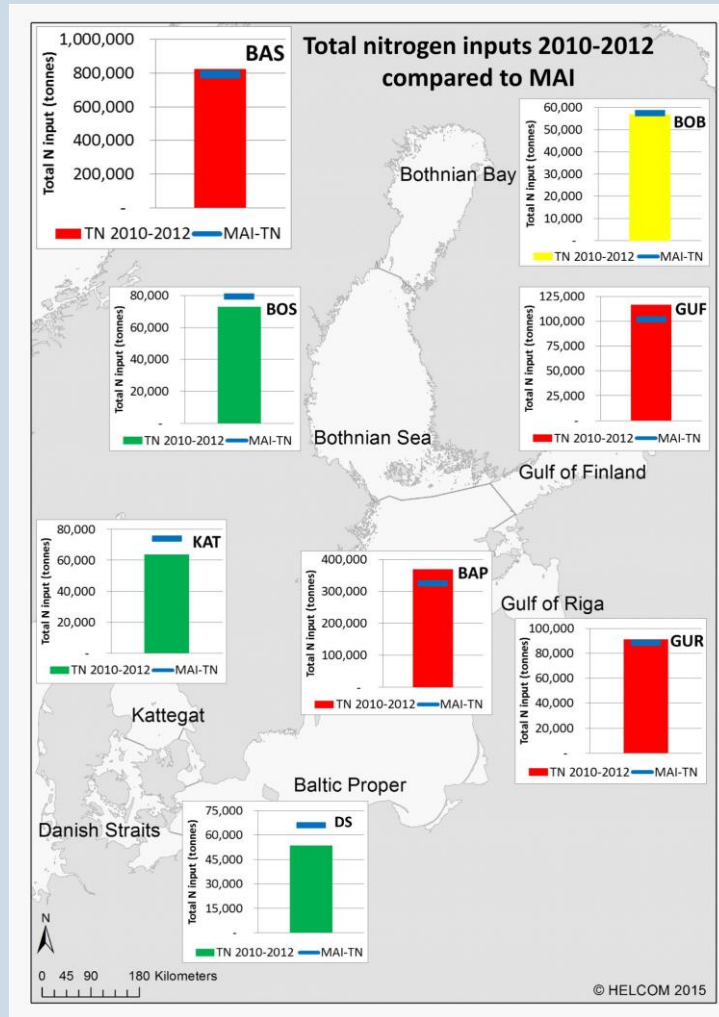


Phosphorus



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Progress in implementation of the HELCOM nutrient reduction scheme for the sub-basins of the Baltic Sea

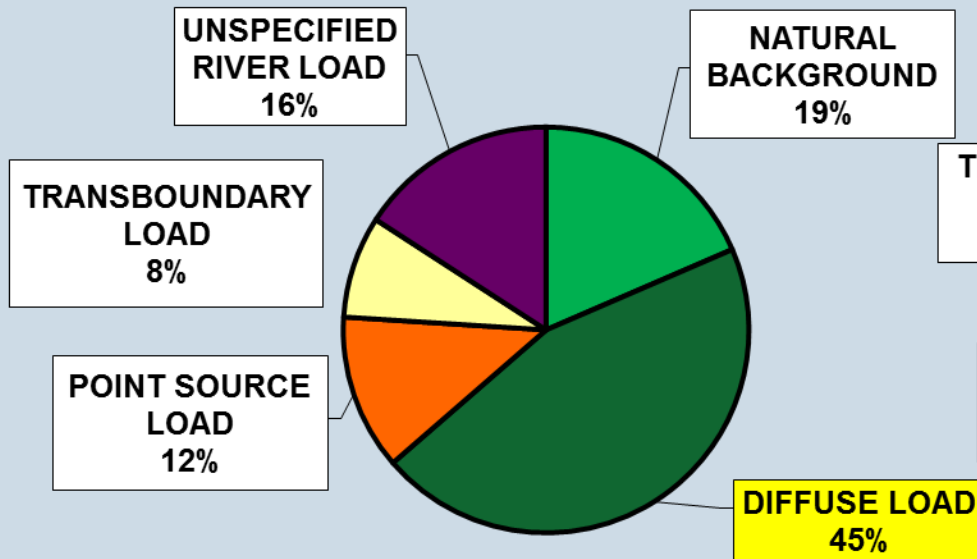


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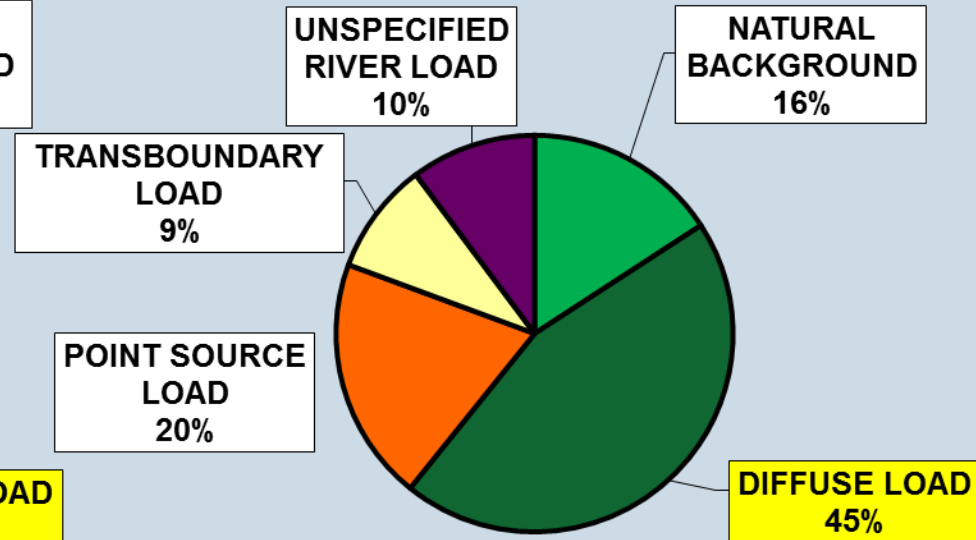
Agricultural sector contribution to the nutrient load to the Baltic Sea

Agriculture contribution to the diffuse load
- 70-90% for nitrogen and 60-80% for phosphorus

Total nitrogen



Total phosphorus



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CONVENTION ON THE PROTECTION OF THE MARINE ENVIRONMENT OF THE BALTIC SEA AREA, 1992 (HELSINKI CONVENTION)

Annex III

the Contracting Parties shall apply the measures described below and take into account Best Environment Practice (BEP) and Best Available Technology (BAT) to reduce the pollution from agricultural activities.



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Agri-environment measures by 2013 HELCOM Ministerial

✓ *Smart nutrient management to address nutrient losses*

- ➔ *National measures to reduce nutrient surplus in fertilization practices to reach nutrient balanced fertilization (2018)*
- ➔ *Advance towards annual nutrient accounting at farm level (2018)*
- ➔ *Full utilization of nutrient content of manure in fertilization practices*
- ➔ *To establish by 2016 national guidelines or standards for nutrient content in manure and to develop by 2018 guidelines/recommendation on the use of such standards*



Work Plan for HELCOM Group on Sustainable Agricultural Practices (Agri Group) 2014-2016

The group will respond to the need to find solutions how the sector could further contribute to reaching Good Environmental Status of the Baltic Sea by 2021.

Action 3. Annual accounting at farm level:		
I. Workshop & Stocktaking of the ongoing activities related to the nutrient accounting including balance sheet at farm level	Germany to lead	I. workshop in spring 2015
II. [Outlining country-wise steps and requirements & National roadmaps]		II. by 2018
Action 4. Guidelines or standards for nutrient content in manure		
Development of national standards for nutrient content in manure to enable better use of manure nutrients for fertilization practices:	Finland to lead, with involvement of Denmark	
I. Baseline data collection		I. in 2015 (presentation at AGRI 2-2015)
II. Development of national manure standards where not existing		II. 2016
III. Guidelines/recommendations for the use of standards		III. 2018



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HELCOM Workshop on status of nutrient bookkeeping in the Baltic Sea countries

Chamber of Agriculture Lower Saxony
Federal Environment Agency in Germany

Nutrient bookkeeping is a tool for documentation of the nutrient flows at the farms. It also integrates reporting the data for aggregation at local and national level, which forms a background for sustainable use of nutrients in various types of agricultural production.

One of the main obstacles:

uncertainties **of standard values on manure excretion**, uptake of crops, grassland yields **and nutrient content in manure** as well as data on nitrogen fixation, denitrification, leaching under different conditions etc.



U.S. Department of Agriculture



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Among the other the following steps for promoting nationally nutrient bookkeeping were suggested:

- development of methodology and equipment for simple and quick methods **to analyse nutrient content in manure** in the field;
- stocktaking and harmonization **of the standard values for manure excretion, nutrients content in manure**, crop uptake and the others



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Outcome of the First Meeting of the
Group on Sustainable Agricultural Practices
(AGRI 2-2014)

Session on development of national guidelines
or standards for nutrient content in manure

- The Meeting was of the opinion that all the countries around the Baltic Sea region **are developing in the similar direction which creates a good possibility for regional cooperation.**
- The Meeting agreed that the aim of cooperation in the Agri group should be **to identify, or jointly develop methodologies that could be recommended for use in the Baltic Sea region when establishing standards for nutrients content in manure nationally.**
- The Meeting agreed to start with **comparing existing standards in the countries and analysing the similarities and differences in the methodologies used**, and that this work should be carried out on an expert level.



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