



# Common goals to reach the Baltic Sea in a good environmental status – working together with the agriculture

Mikhail Durkin, HELCOM

**A Greener Agriculture for a Bluer Baltic Sea  
- Visions for nutrient management**

Helsinki, Finland

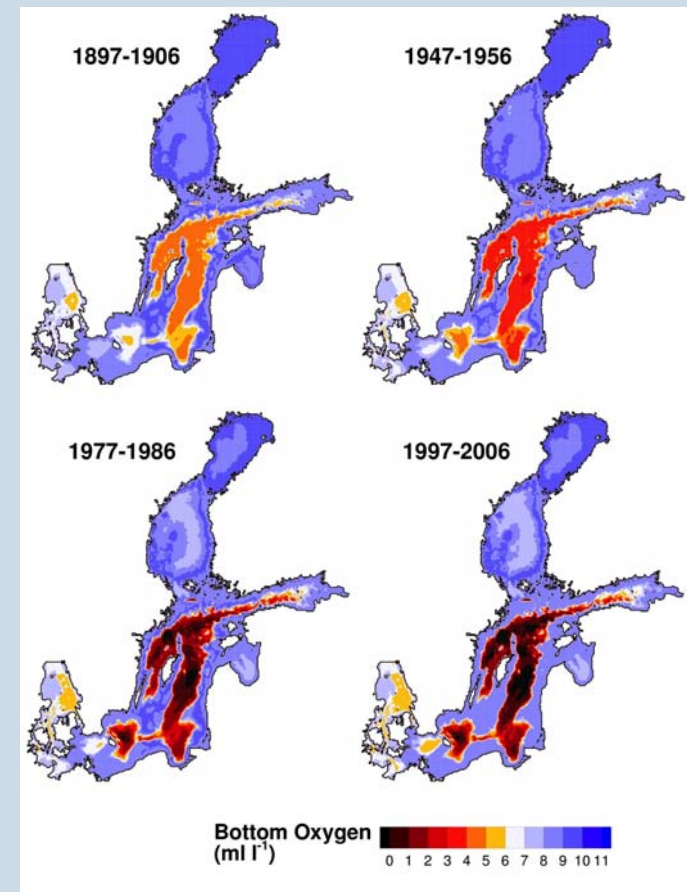
27-28 August 2013



# Is it the future we want for the Baltic?



## Anoxic, “dead” bottoms



(Seifert and Kayser [1995](#))



HELCOM

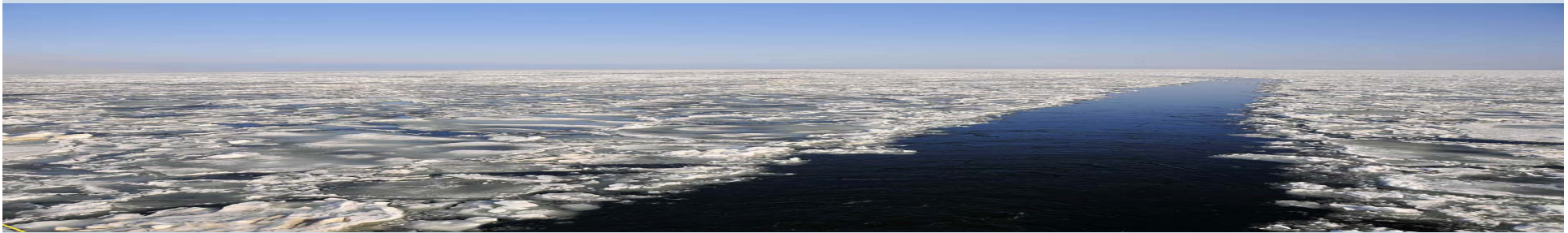
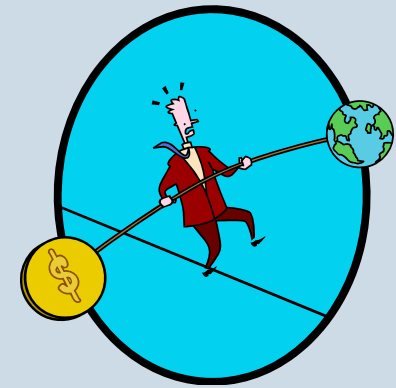
# What is good ecosystem health of the Baltic Sea?

- The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way.

*(UN Convention on Biodiversity)*

- A marine environment, with diverse biological components functioning in balance, resulting in a good environmental/ecological status and supporting a wide range of sustainable human economic and social activities

*(HELCOM Baltic Sea Action Plan)*

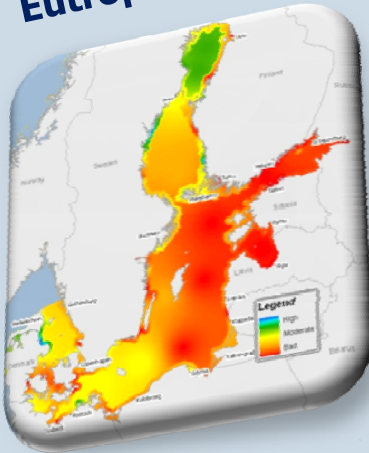


HELCOM

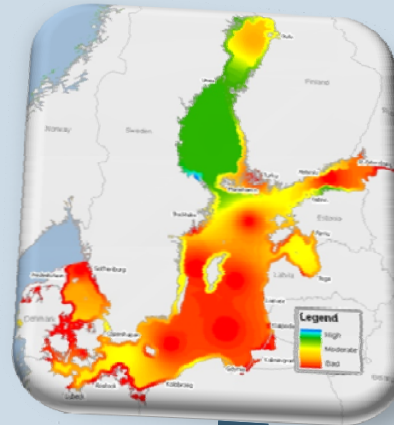


# What is current Ecosystem Health of the Baltic Sea?

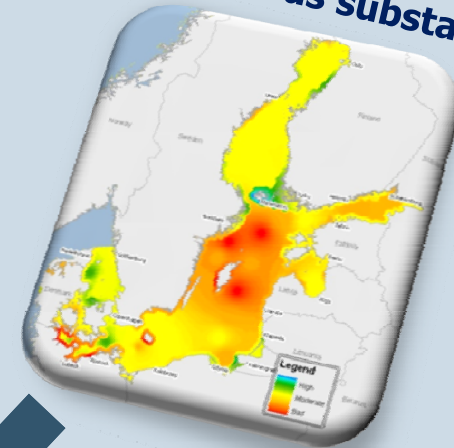
**Eutrophication**



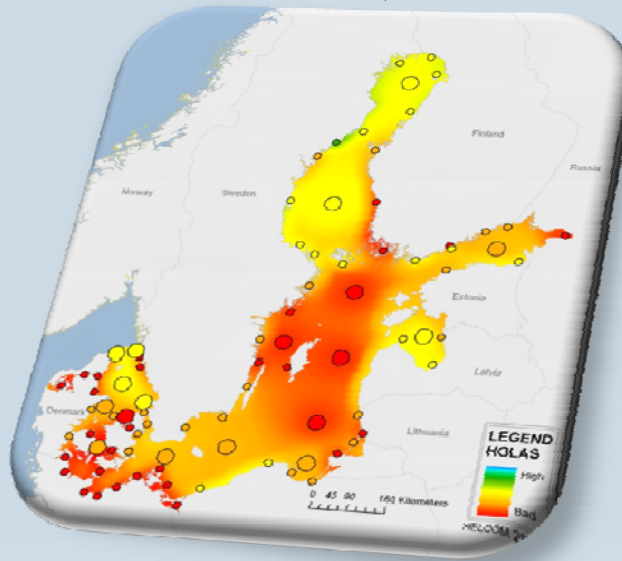
**Biodiversity**



**Hazardous substances**



- An overview of the ecosystem health of the Baltic Sea in 2003-2007, including status, pressures and economic analysis

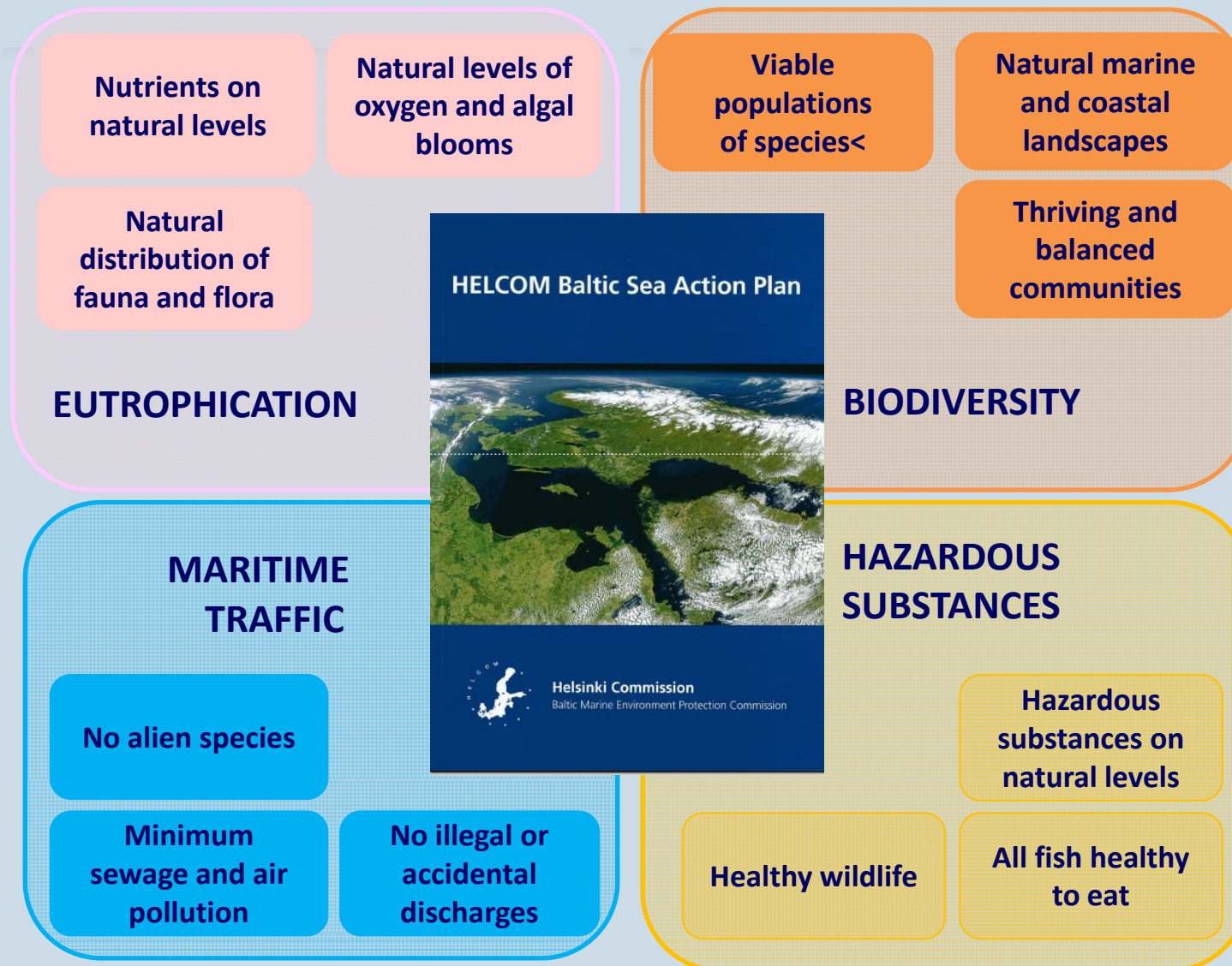


- A baseline for assessing the effectiveness of the implementation of the measures of the HELCOM BSAP



HELCOM

# HELCOM Baltic Sea Action Plan → 2021



HELCOM

# Common goal: Baltic unaffected by eutrophication



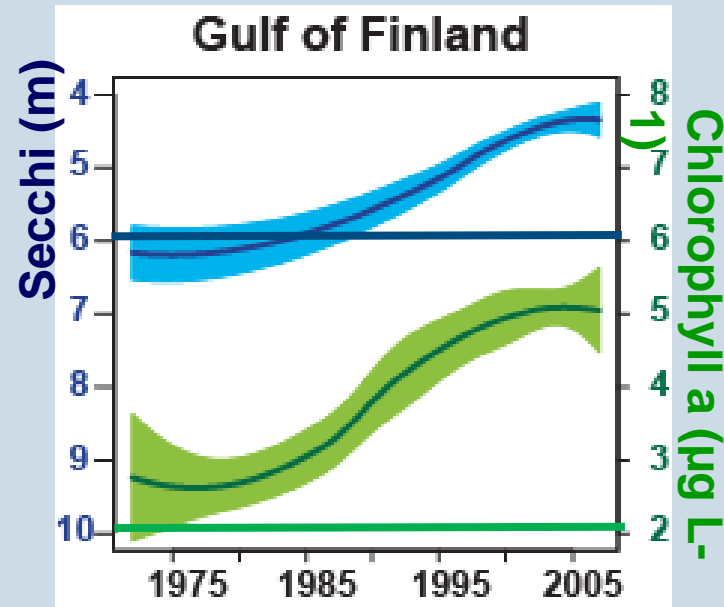
**Non-  
eutrophicated  
water**

**Eutrophicated  
water**



**HELCOM**

# Ecological objective for eutrophication - Clear water



HELCOM



# BSAP nutrient reduction targets

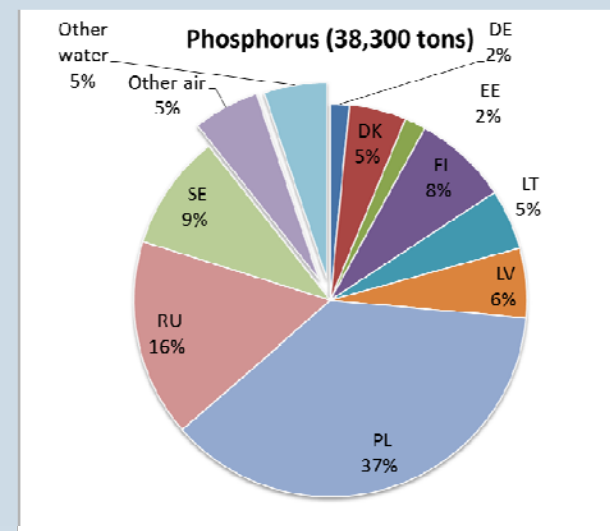
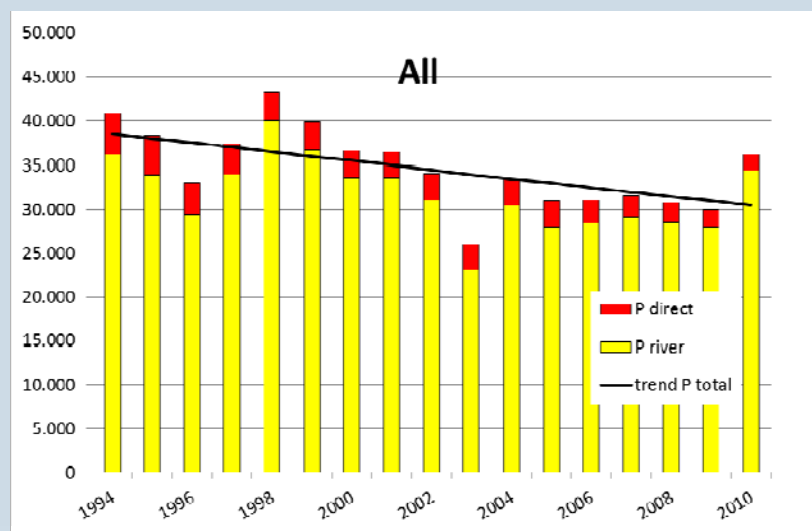
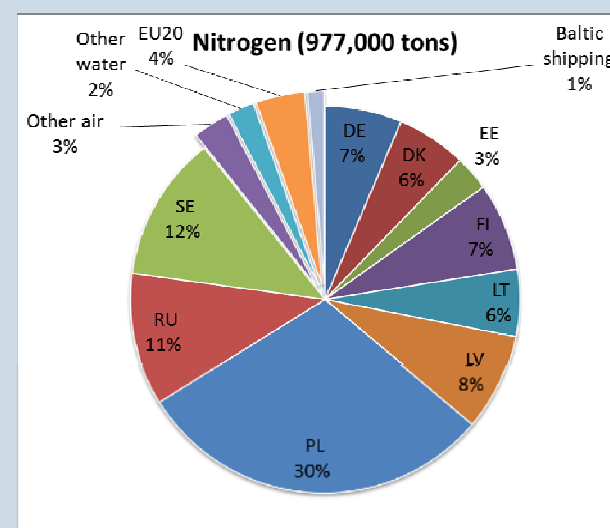
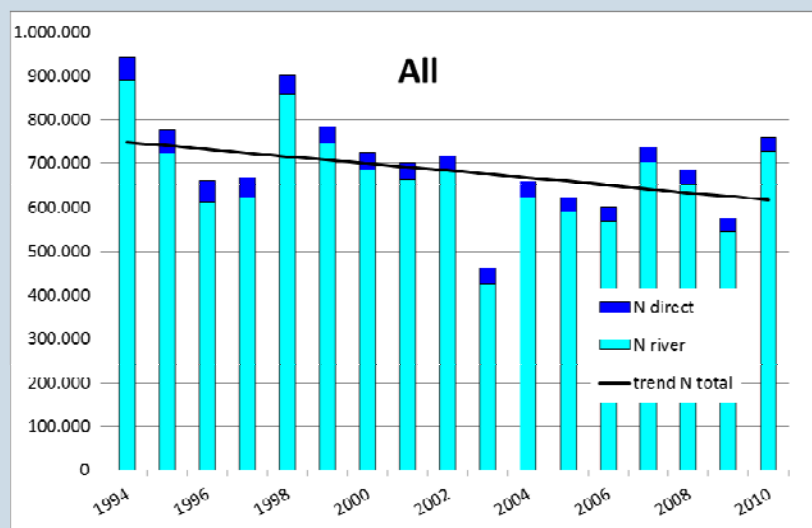
Baltic Sea Sub-basin	Maximum Allowable Inputs (2013)		Reference inputs 1997-2003		Needed reductions	
	TN tons	TP tons	TN tons	TP tons	TN tons	TP tons
Kattegat	74 000	1 687	78 761	1 687	4 761	0
Danish Straits	65 998	1 601	65 998	1 601	0	0
Baltic Proper	325 000	7 360	423 921	18 320	98 921	10 960
Bothnian 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



HELCOM

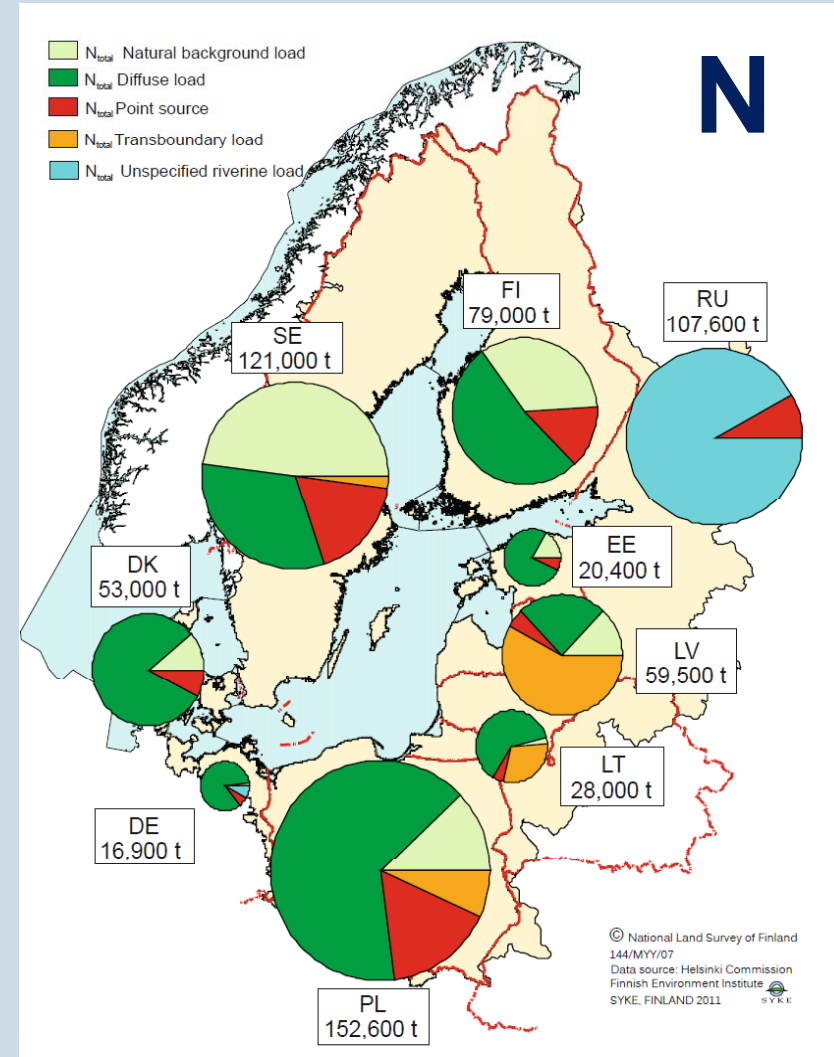
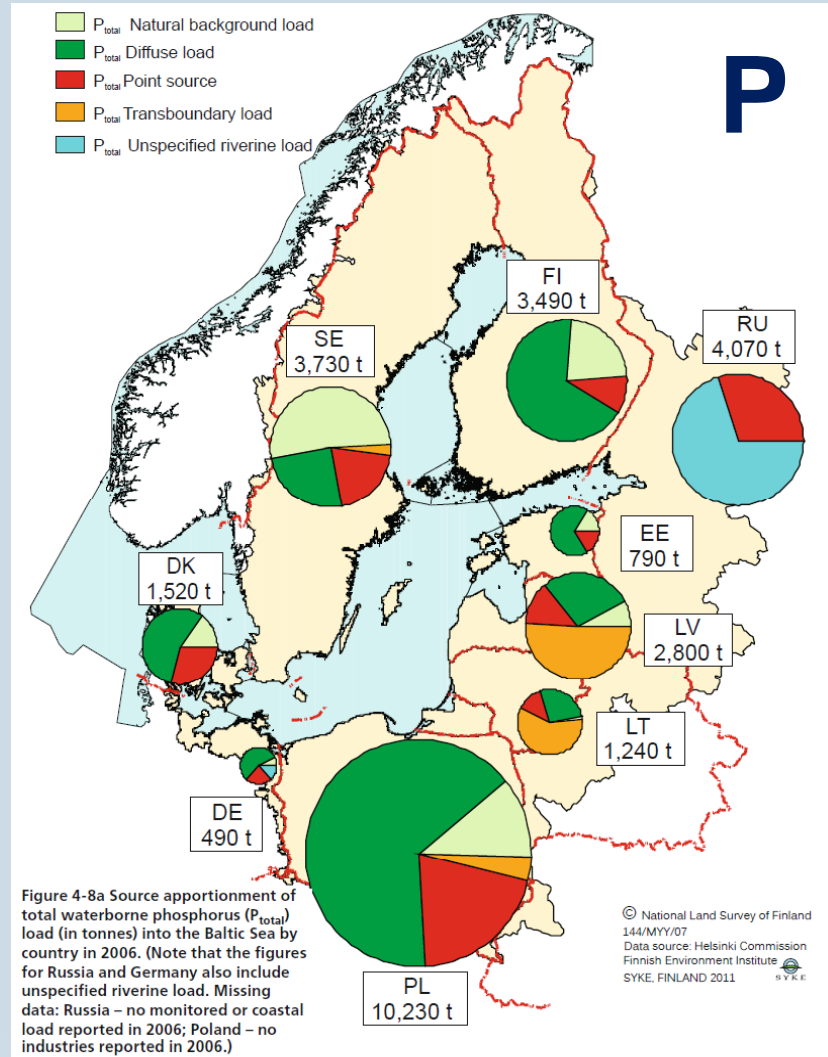


# Total water- and airborne loads, 1994-2010



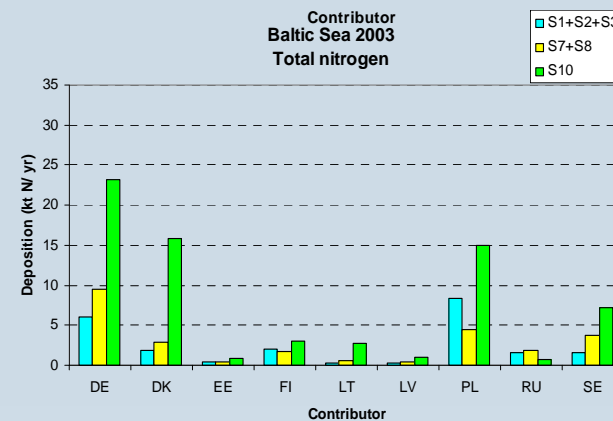
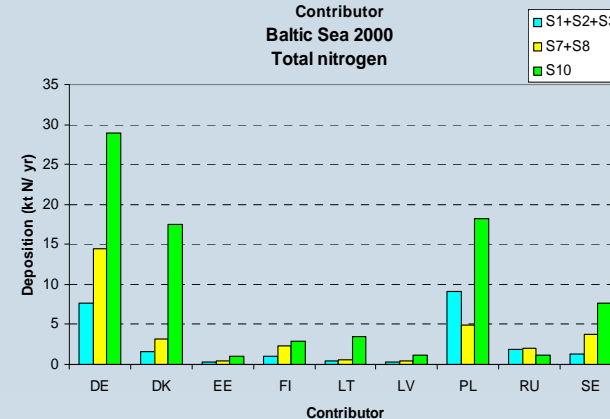
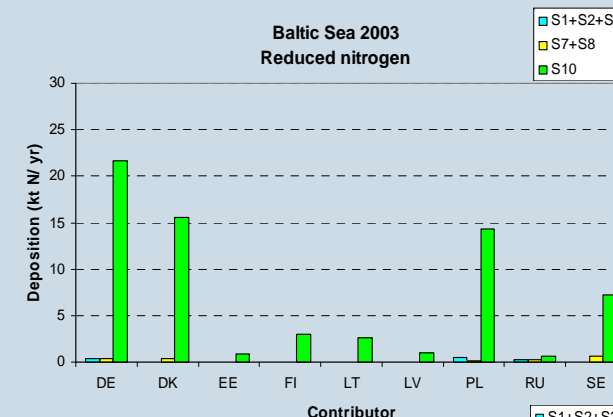
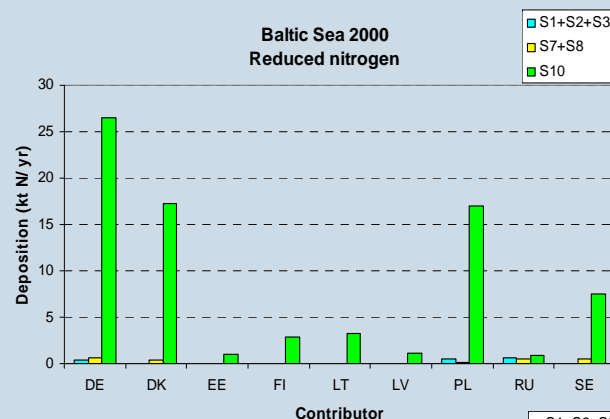
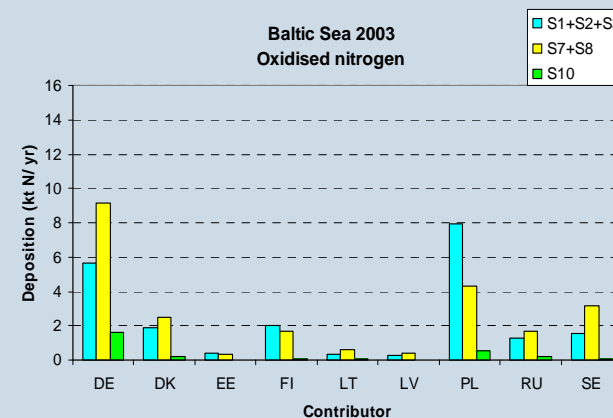
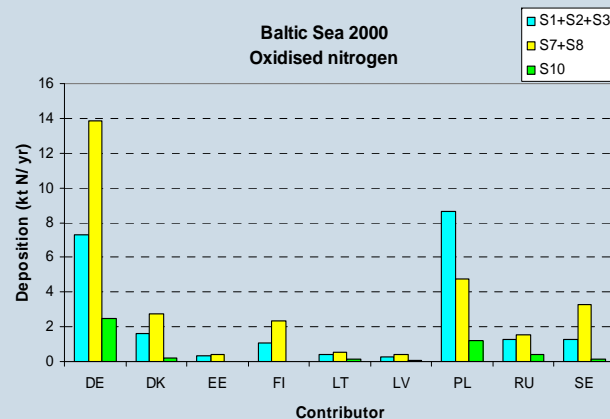
HELCOM

# Baltic-wide Pollution Load Compilation: Sources of waterborne P and N (2006)



# Contributions of selected emission sectors from individual HELCOM countries to depositions of nitrogen to the entire Baltic Sea (2000)

■ combustion  
■ transportation  
■ agriculture





# Baltic Sea Action Plan: Eutrophication

## 1. Point sources / Sewage

- Stricter municipal wastewater treatment
- Enhancement of wastewater collection from single houses and in scattered areas
- introduction of phosphorus-free detergents
- sewage from shipping

## 2. Diffuse sources / Agriculture

- Renewed set of requirements - Annex to the Convention
- A palette of agri-environmental measures to support compliance with requirements for large agri-industries
- Environmentally sound manure management
- Focus on areas that are critical for nutrient pollution
- Policy dialogue between agriculture and environment authorities

## 3. Airborne deposition

- Reduction of N emissions from shipping and other sources



# Harvesting ideas and solutions



HELCOM

# So, where we are with reaching the targets?

Basins/ inputs in tons	Required reduction with new MAI (2013)		Reductions since reference period	
	Total N	Total P	Total N	Total P
Bothnian Bay	0	0	4 023	108
Bothnian Sea	0	0	8 611	306
Baltic Proper	98 921	10 960	36 928	2 435
Gulf of Finland	14 452	3 909	5 457	1 000
Gulf of Riga	0	308	2 974	-381
Danish Straits	0	0	10 417	108
Kattegat	4 762	0	12 528	175
Baltic total	118 136	15 177	80 937	3 751

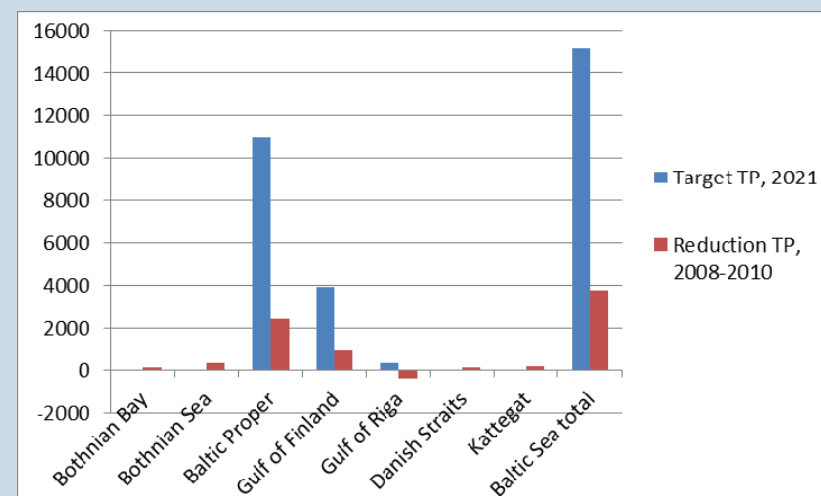
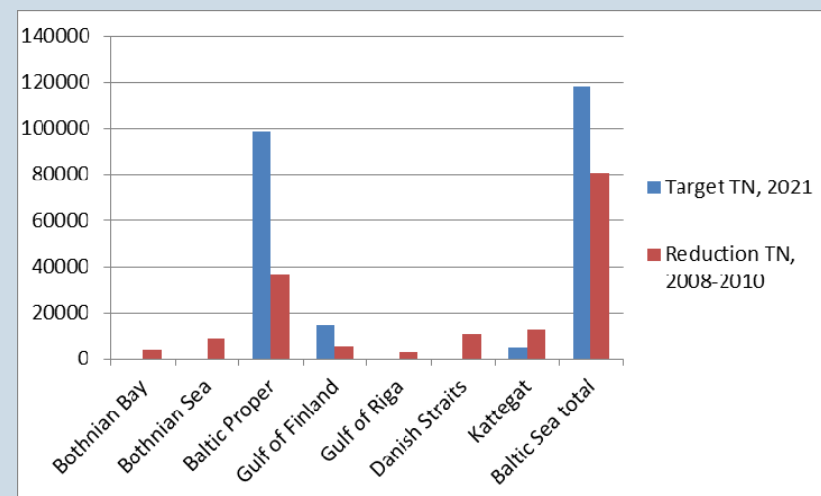
**10% reduction in total phosphorus inputs**

**9% reduction in total nitrogen inputs**

**BUT**

**24% of phosphorus target for sub-basins**

**46% of nitrogen target for sub-basins**



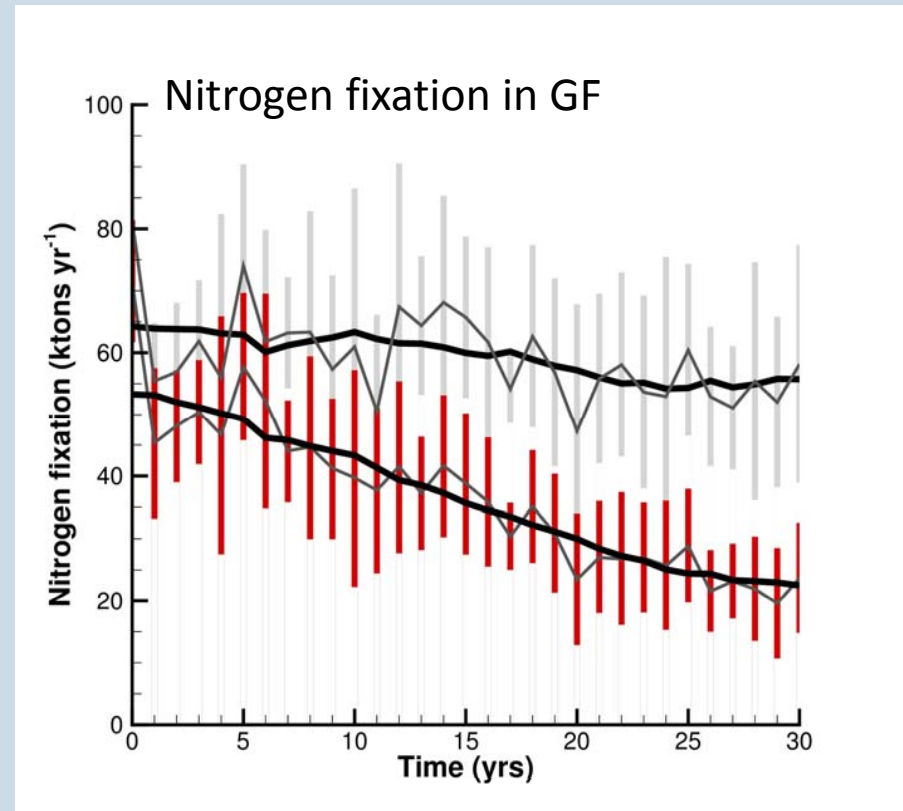
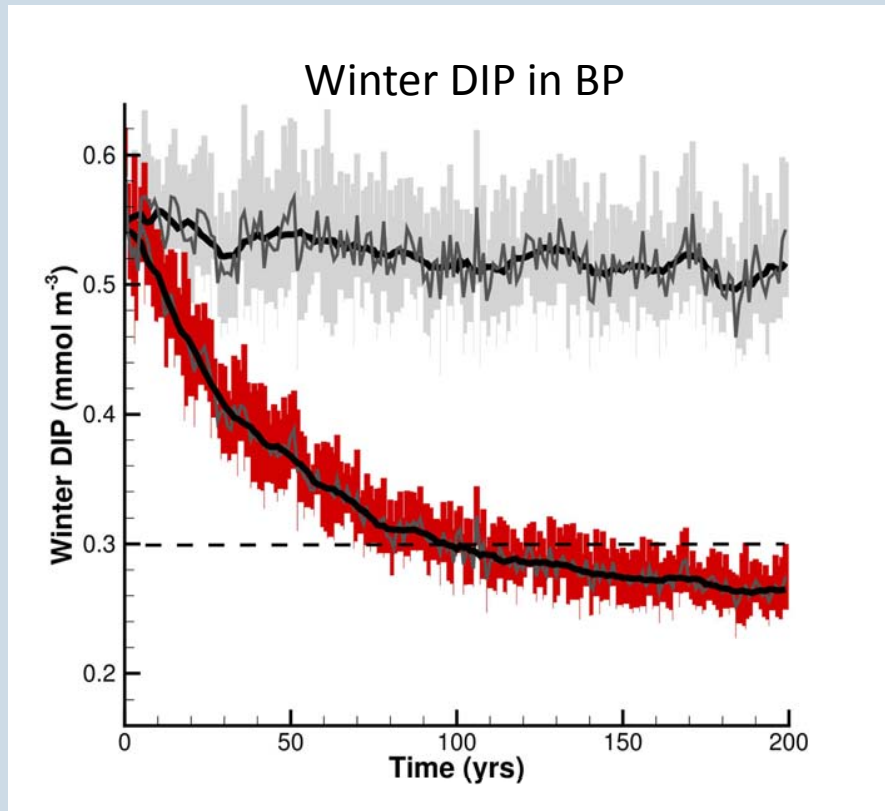
**HELCOM**



# When will Baltic Sea be healthy?

Long time before targets are reached (up to 100 years)

Significant improvement within decades, perhaps even shorter



MAI is implemented year 0; An ensemble of 10 runs with different weather indicates variability

**Red:** MAI, **Grey:** Reference inputs

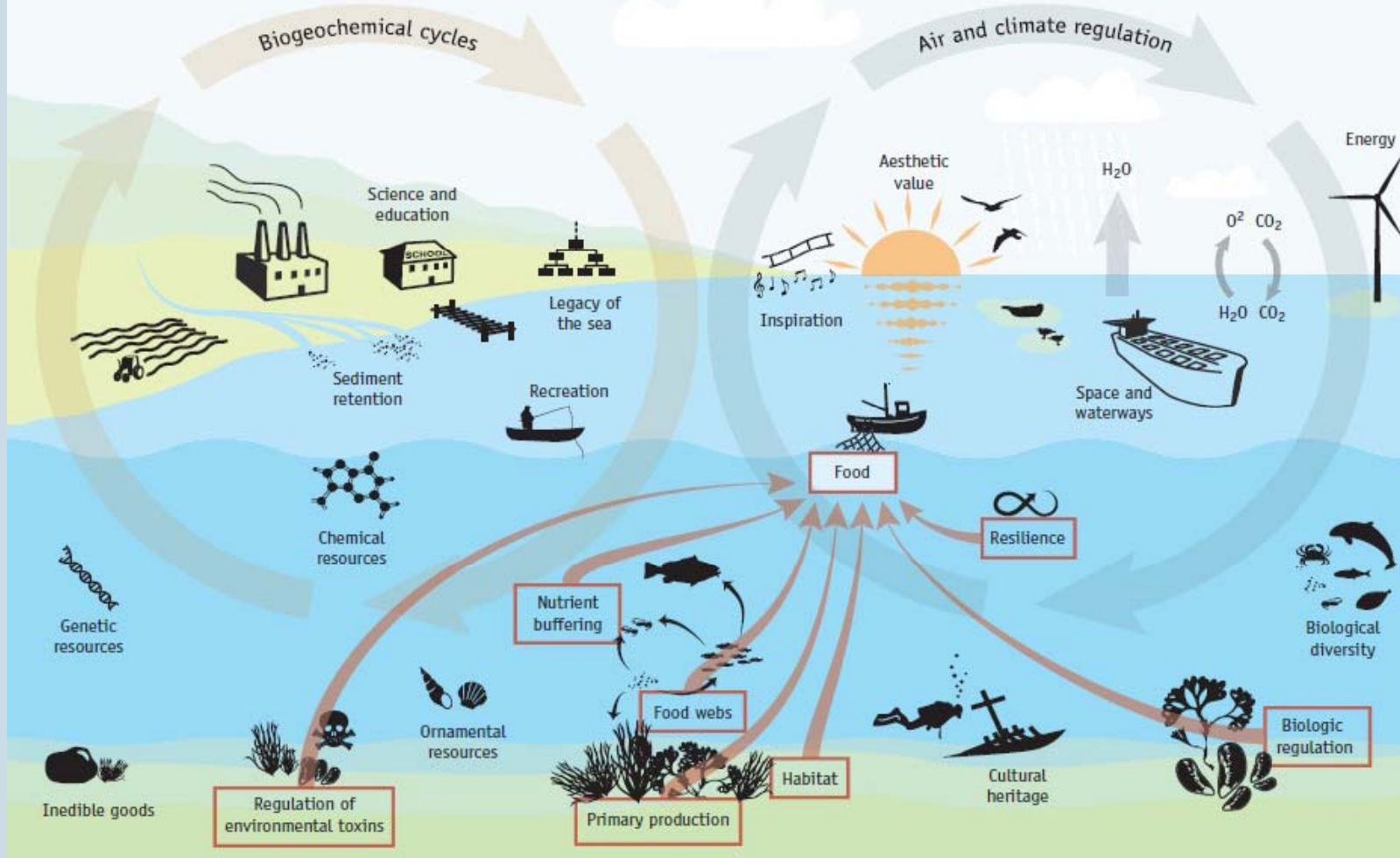
(Gustafsson et. Al, 2013)



HELCOM

# Is it feasible to save the Baltic Sea?

Benefits 3,8(5,0) B €/year – Costs 2,8 B €/year = Surplus 1(2,2) B €/year



BalticSTERN Final Report "The Baltic Sea - Our Common Treasure. Economics of Saving the Sea ", 2013)



HELCOM

# Coherent implementation

- 2010 Moscow, Ministerial Meeting  
National Implementation Programmes, overall progress
- 2011 High-level segment, HELCOM  
Identifying good examples and less-progress areas
- 2013 Copenhagen, Ministerial Meeting  
Efficiency of reaching the targets, additional needed actions





# Topical for 2013 HELCOM Ministerial Meeting

1. HELCOM Baltic Sea Action Plan and EU Marine Strategy Framework Directive are the instrument for reaching Good Environmental Status of the Baltic Sea
2. Eutrophication is one of the main problems of the Baltic Sea
3. Agriculture remains the main source of eutrophication, but also is crucial for regional economy and brings opportunities for green growth
4. There is a need for further actions in all relevant sectors (including agriculture) to reduce nutrient inputs below the Maximum Allowable Inputs



Photo: Linda Johansson, 2012



# HELCOM

## MINISTERIAL MEETING COPENHAGEN 3 OCTOBER 2013

### Six years of the Baltic Sea Action Plan

- How is the Baltic Sea ecosystem doing?
- Are we on the right track to reach good environmental status?
- What do we need to do next for a healthy Sea?
- How to best join efforts and pool resources for the Baltic common vision?



**Thank you for your attention!**

[www.helcom.fi/Ministerial2013](http://www.helcom.fi/Ministerial2013)