Mitigating nutrient load on the Baltic Sea from removal to recycling

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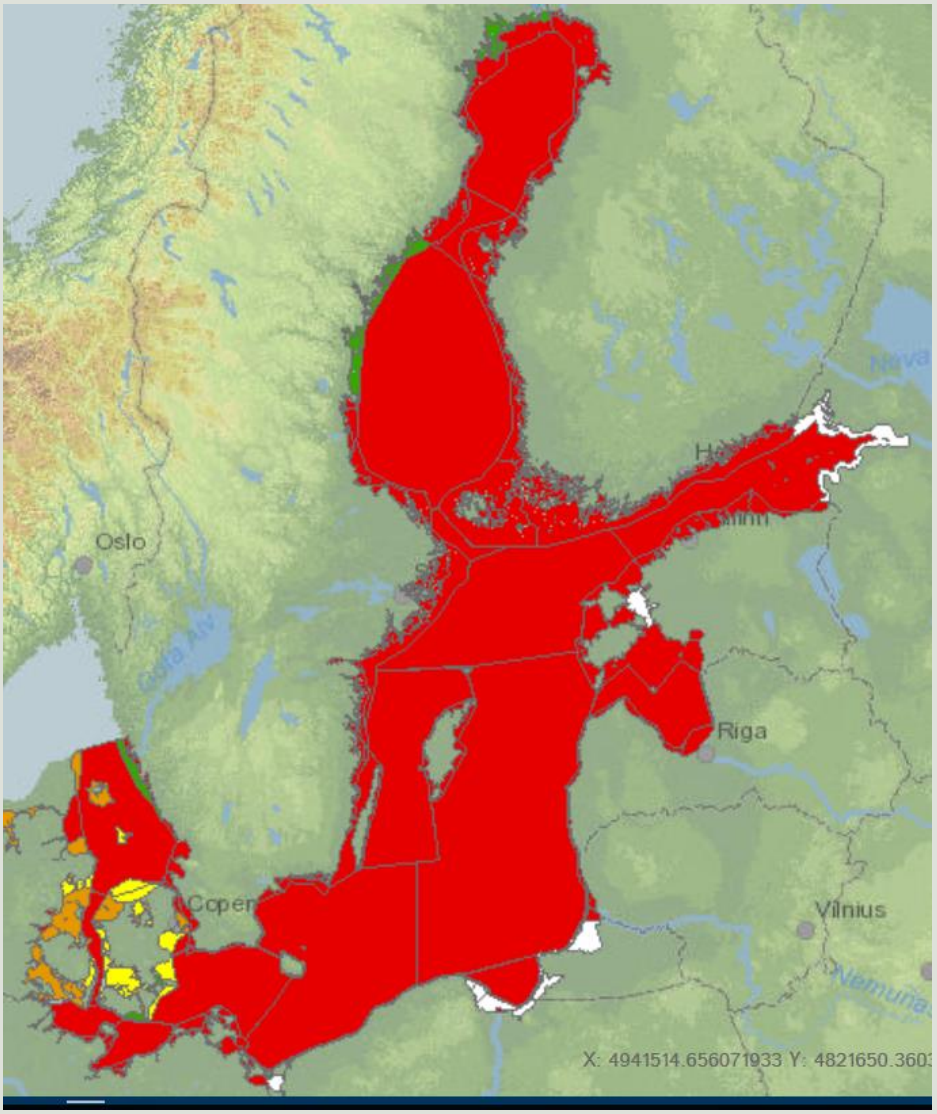
HELCOM

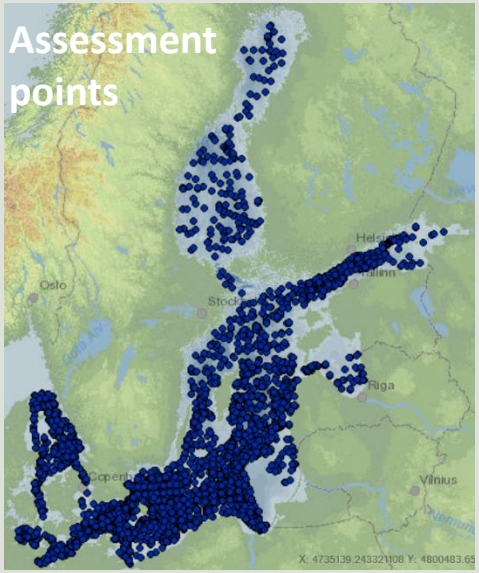
Integrated eutrophication status assessment



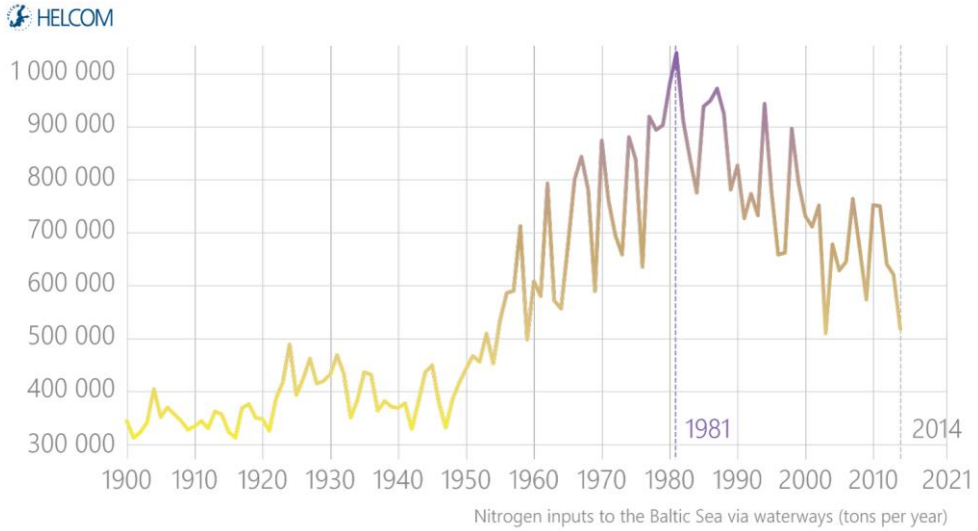
BSAP goal:
Baltic sea unaffected by eutrophication

assessment
- Good
- Not good
- Not assessed
- WFD: Good
- WFD: Moderate
- WFD: Moderate potential
- WFD: Poor
- WFD: Bad

HELCOM core indicators used for the Integrated eutrophication status assessment

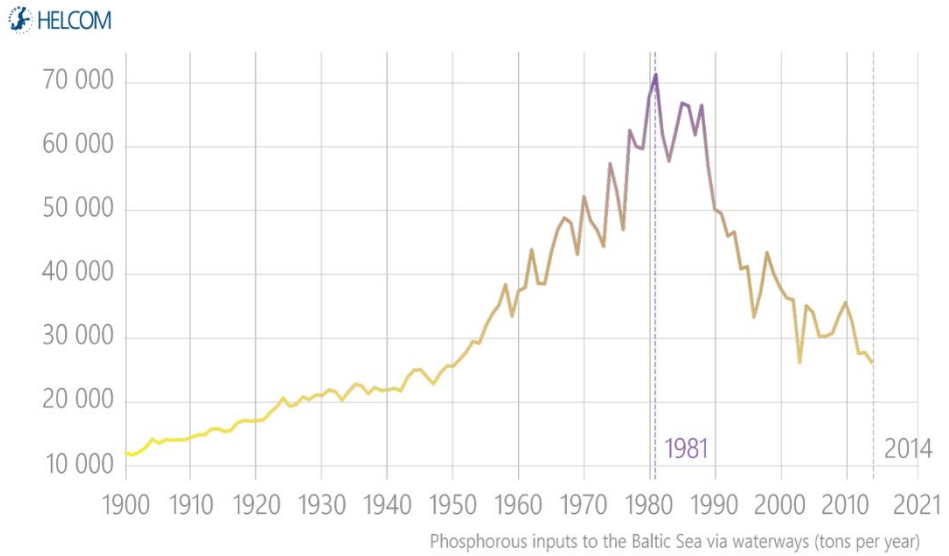


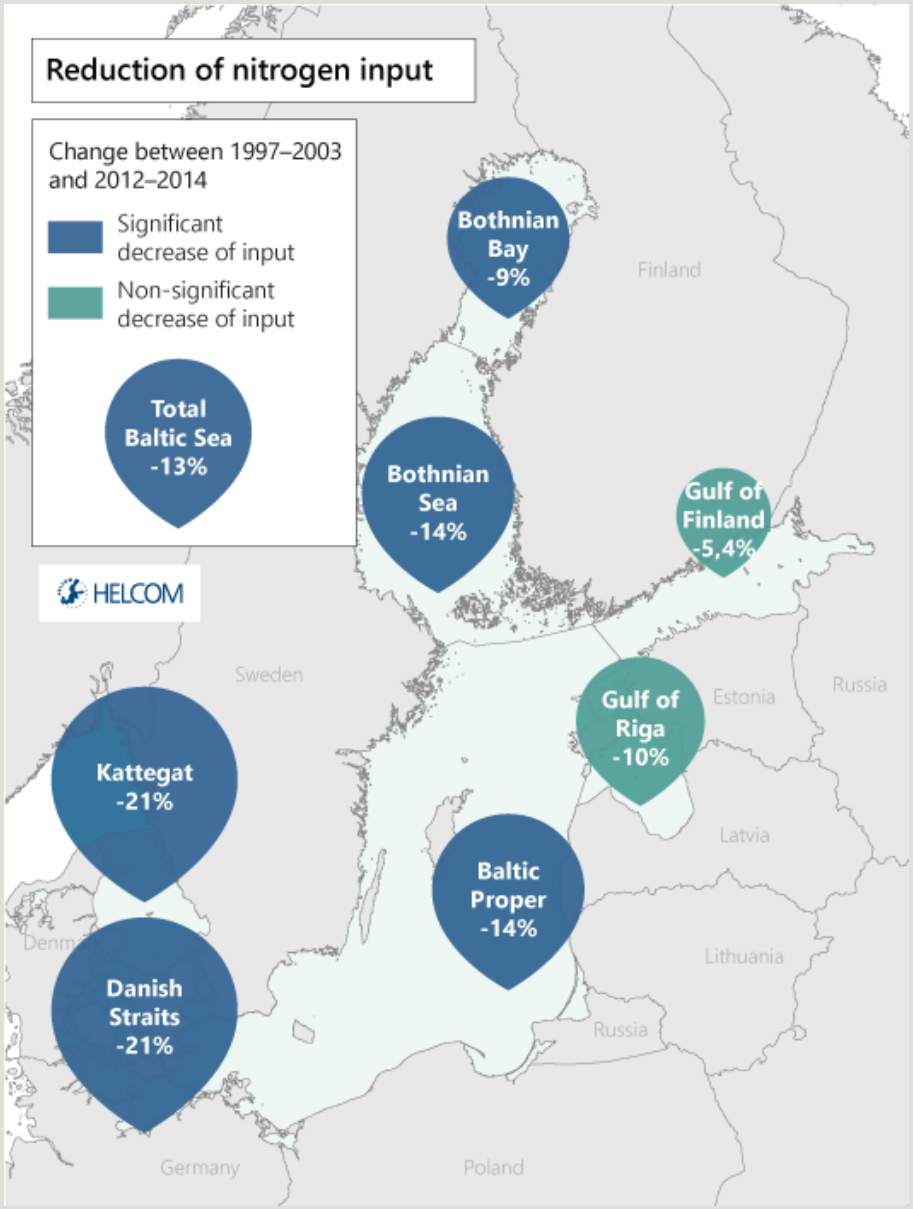
Assessment unit	Core indicator results									Integrated status assessment
	Nutrient levels				Direct effects			Indirect effects		
	DIN	TN	DIP	TP	Chla	Secchi	Cyano*	O_2	Zoob*	
	Dec–Feb	All year	Dec–Feb	All year	Jun–Sep	Jun–Sep	20 Jun–31 Aug	All year	May–Jun	
Kattegat	↔	↔	↔	↔	↘	↔	N	N		↔
Great Belt	↘	↔	↔	↔	↘	↘	N	N		↘
The Sound[11]	↗	↔	↔	↗	↘	↔	N	N		↗
Kiel Bay	↘		↔		↔	↘	N	N		↔
Bay of Mecklenburg	↔		↔		↔	↔	↗	N		↔
Arkona Basin	↔		↔		↔	↔	↔	N		↔
Bornholm Basin[12]	↗		↔		↗	↔	↔	↔		↗
Gdansk Basin	↘	↔	↘	↔	↘	↔	↘	↔		↘
Eastern Gotland Basin	↔	↔	↔		↘	↔	↔	↔		↔
Western Gotland Basin	↔	↔	↔	↔	↘	↔	↔	↔		↔
Gulf of Riga	↗	↔	↗	↗	↗	↔	↗	N		↗
Northern Baltic Proper	↗	↔	↗	↘	↗	↔	↔	↔		↗
Gulf of Finland	↔	↔	↔	↗	↗	↔	↔	↔		↗
Åland Sea	↔	↔	↗	↔	↘	↔	N			↔
Bothnian Sea	↔	↔	↗	↔	↔	↗	↔			↗
The Quark	↔	↔	↗	↔	↔	↔	N	N		↗
Bothnian Bay	↔	↔	↔	↔	↔	↗	N			↔

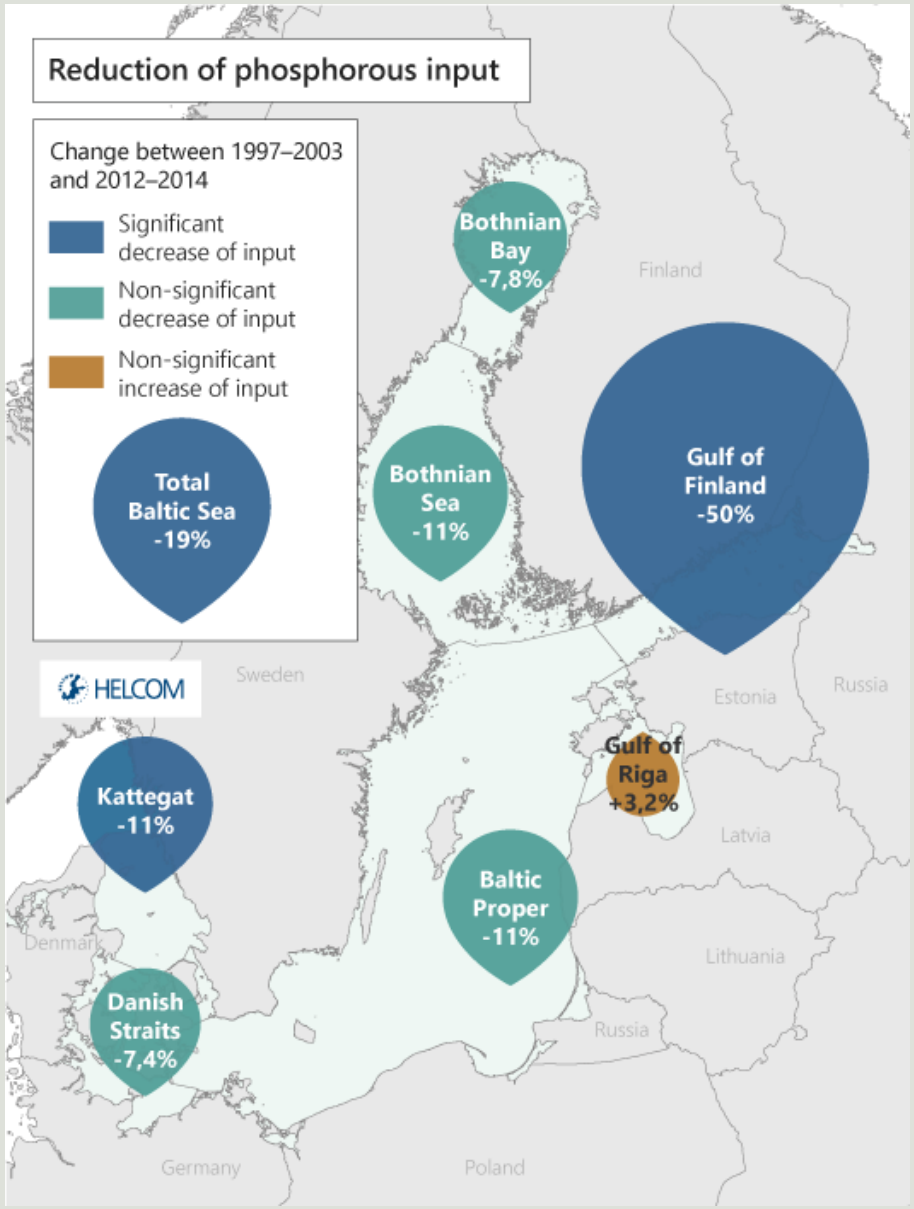


Long-term trends of riverine input of nutrients into the Baltic Sea 1900-2014

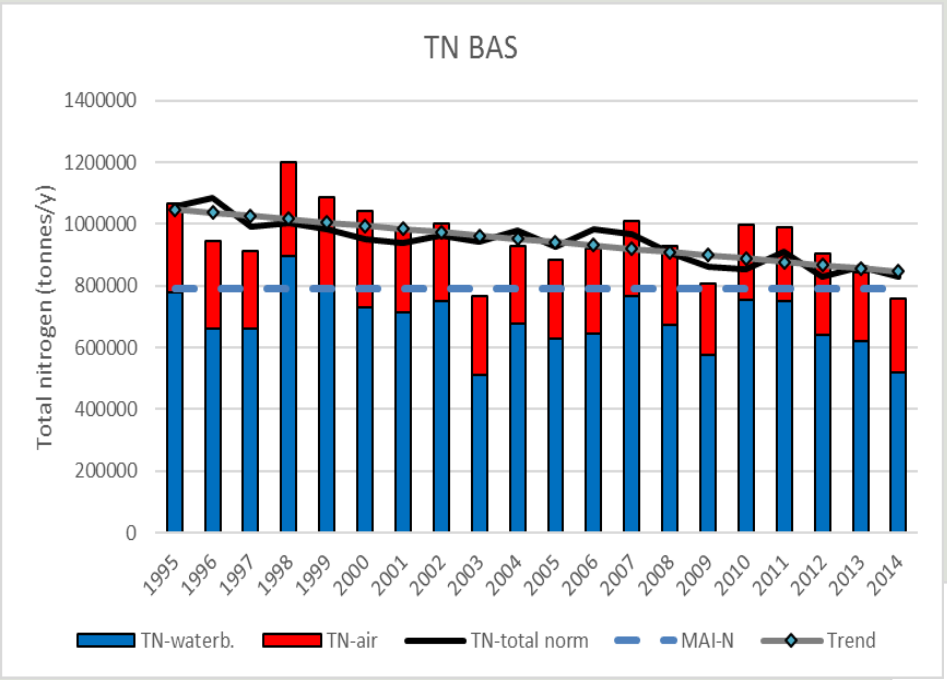
HELCOM Nutrient reduction scheme is a part of the Baltic Sea Acton plan



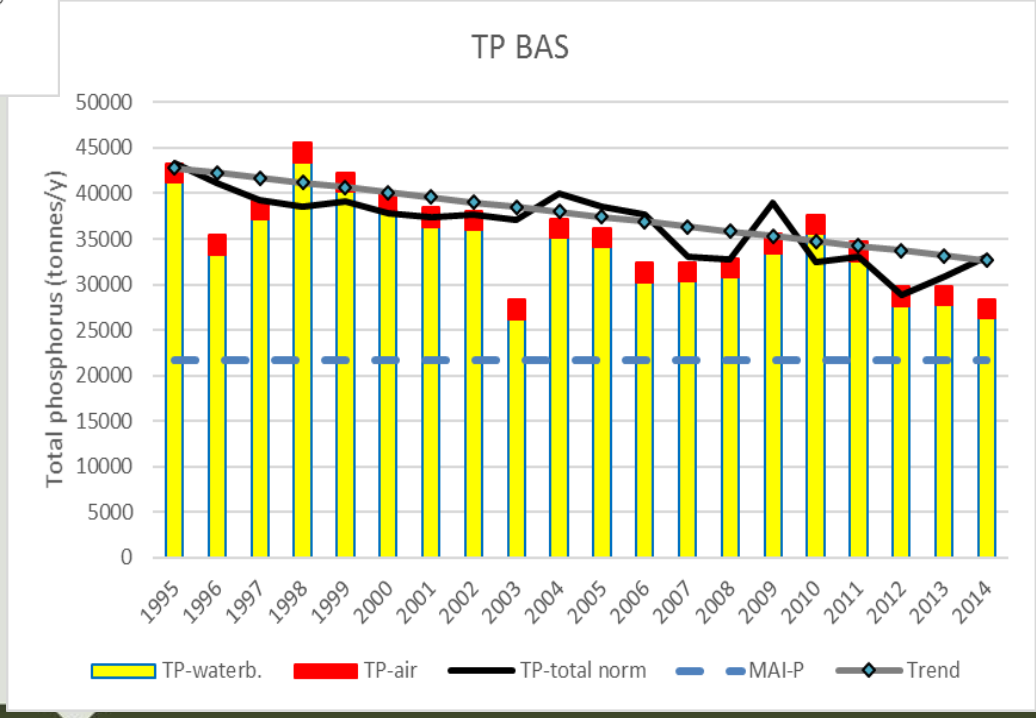




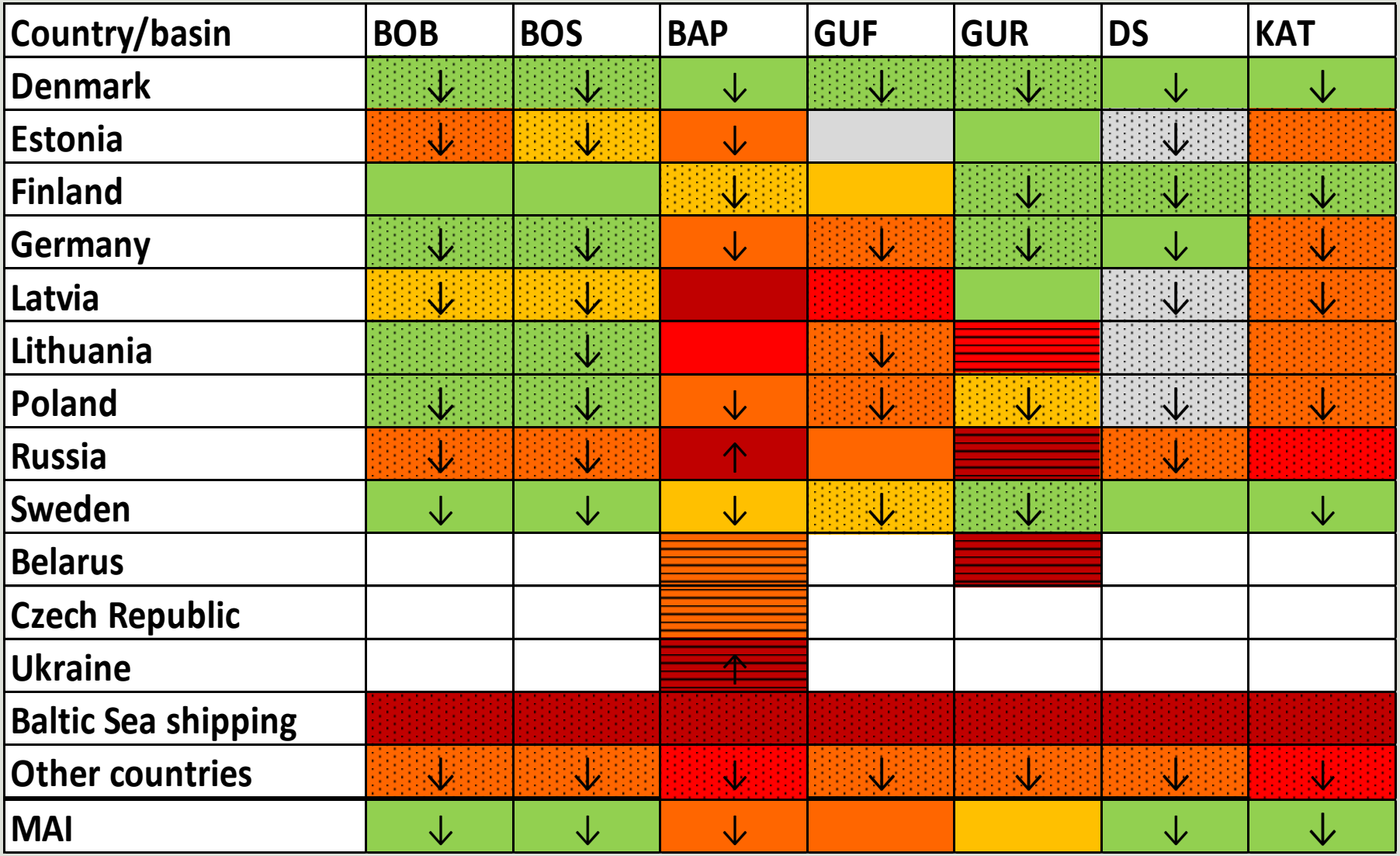
HELCOM Baltic Sea Action Plan – Eutrophication



Time series of total N and P inputs to the Baltic Sea and Baltic Proper



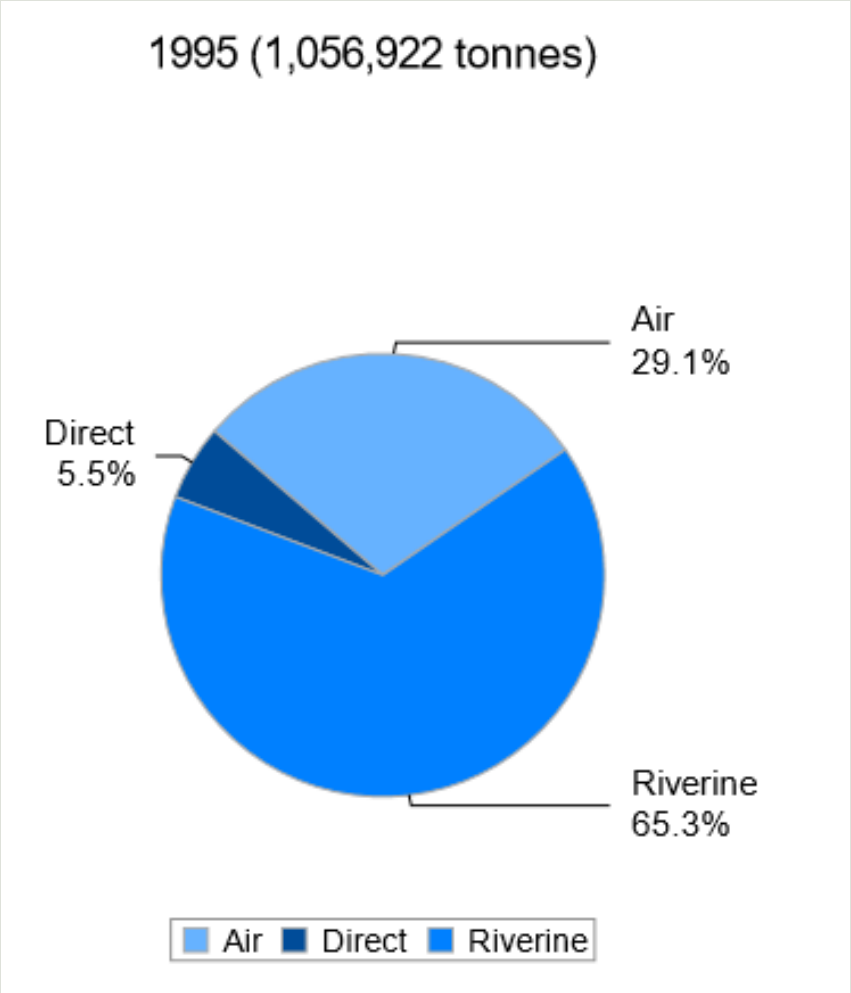
Progress towards national reduction targets for nitrogen input in 2012-2014.

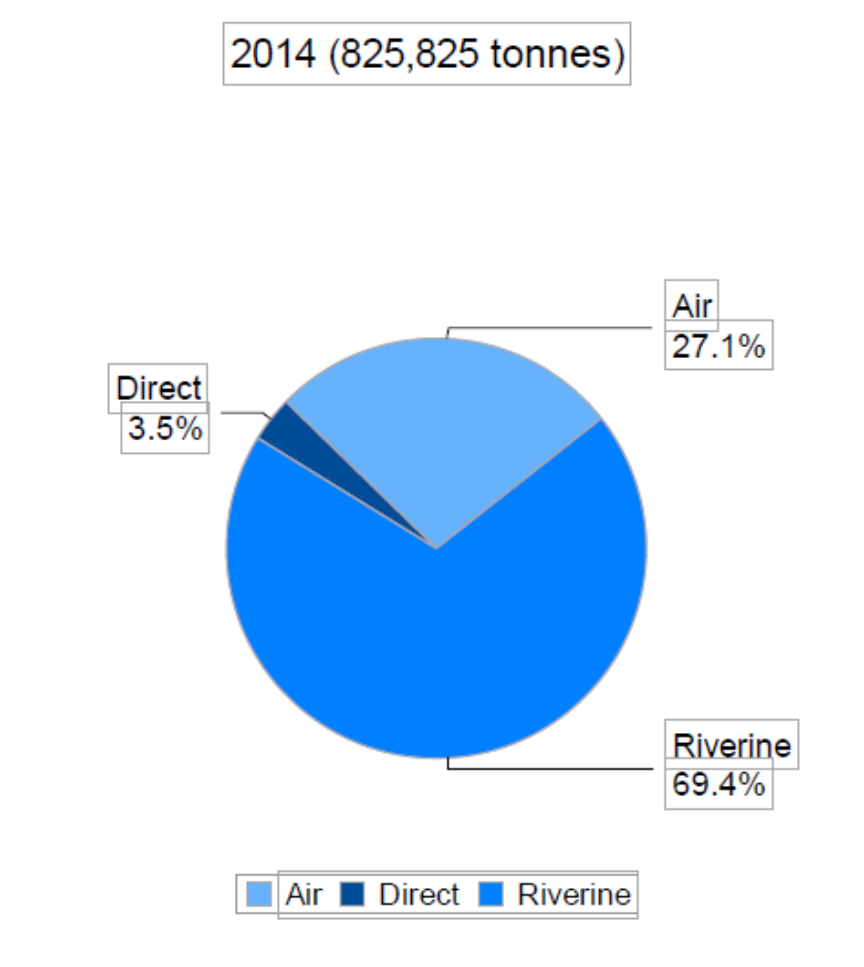


Progress towards national reduction targets for phosphorus input in 2012-2014.

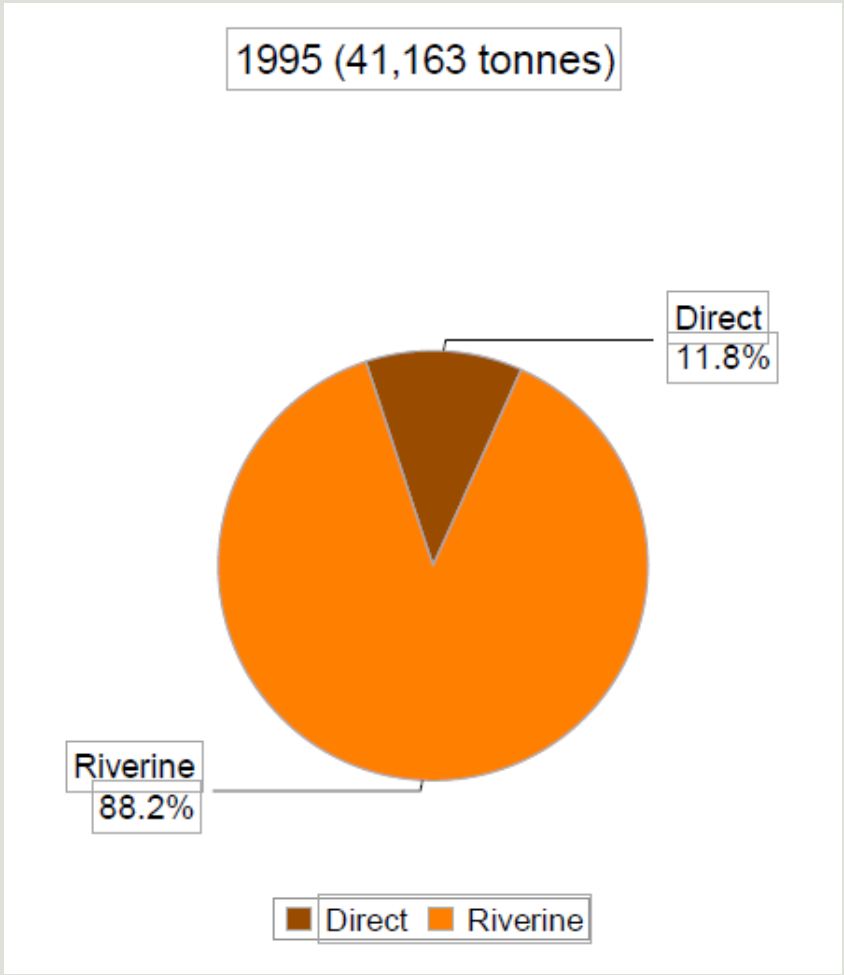
Country/basin	BOB	BOS	BAP	GUF	GUR	DS	KAT
Denmark			↓				↓
Estonia				↓			
Finland	↓						
Germany							
Latvia							
Lithuania			↓		↓		
Poland							
Russia			↑	↓			
Sweden		↓	↓			↓	
Belarus							
Czech Republic							
Ukraine			↑				
Baltic Sea shipping							
Other countries							
MAI				↓			↓

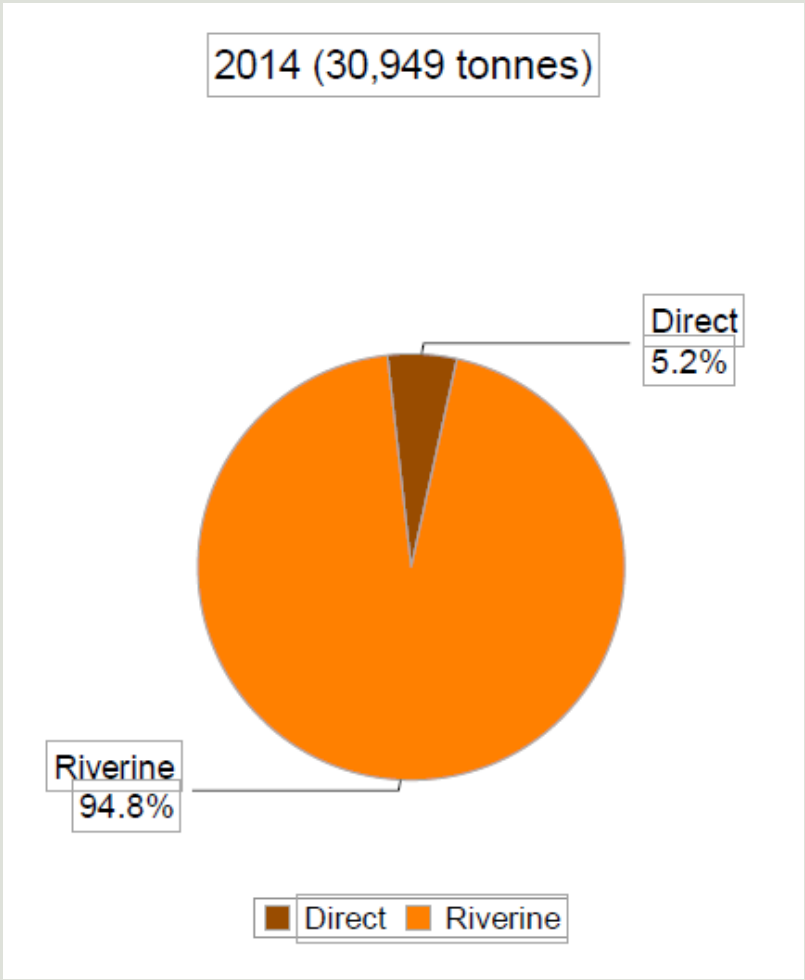
Major pathways of nitrogen to the BS





Major pathways of phosphorus to the BS





Municipal waste water treatment in accordance with HELCOM RECOMMENDATION 28E/5 removes 70-90% of phosphorus.

Quick calculation based on pessimistic assumptions on P content and recovery gives:

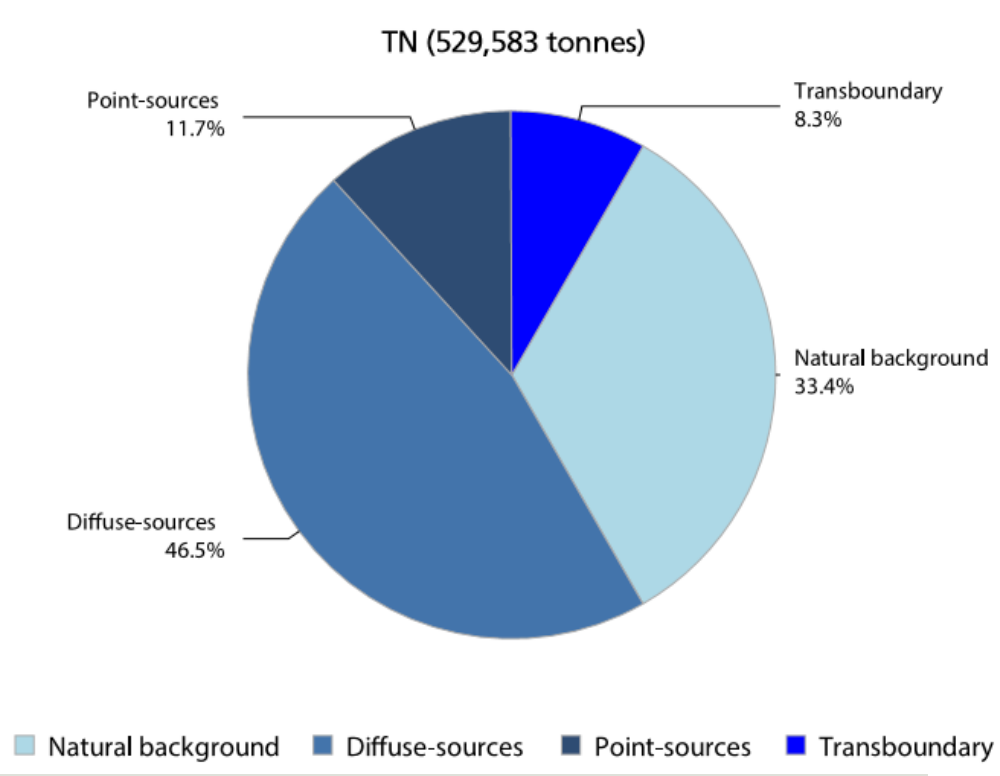
- **21 th. t/P per year**
- **270 th. t of phosphate rock**
- **30 mln. dollars**

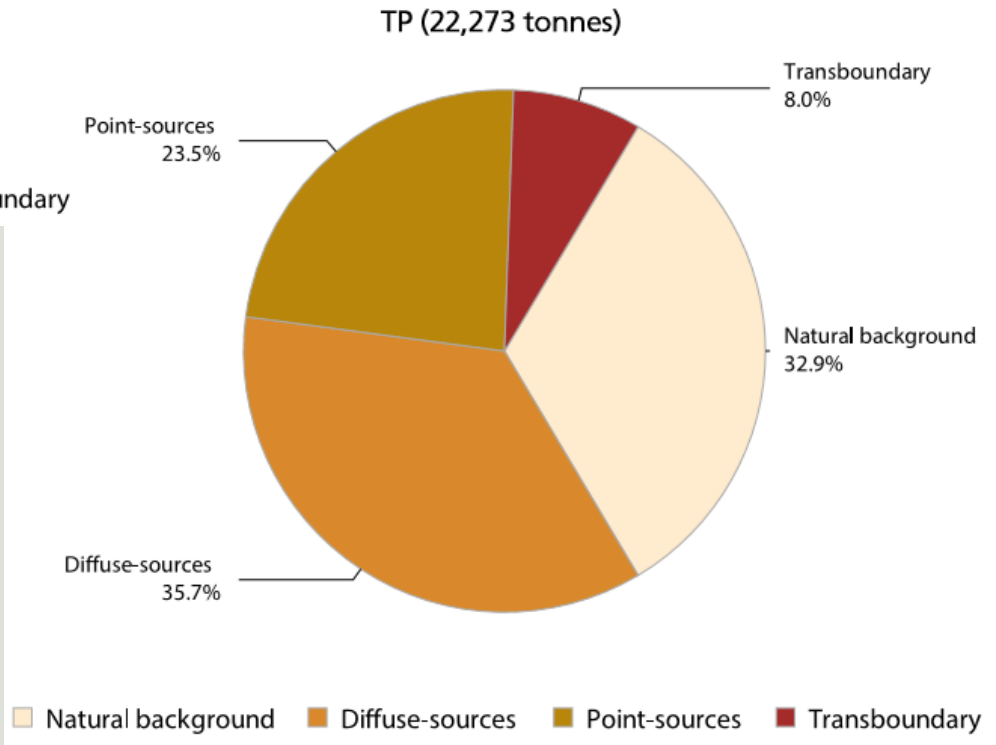
HELCOM Recommendation 38/1
on sewage sludge handling

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.

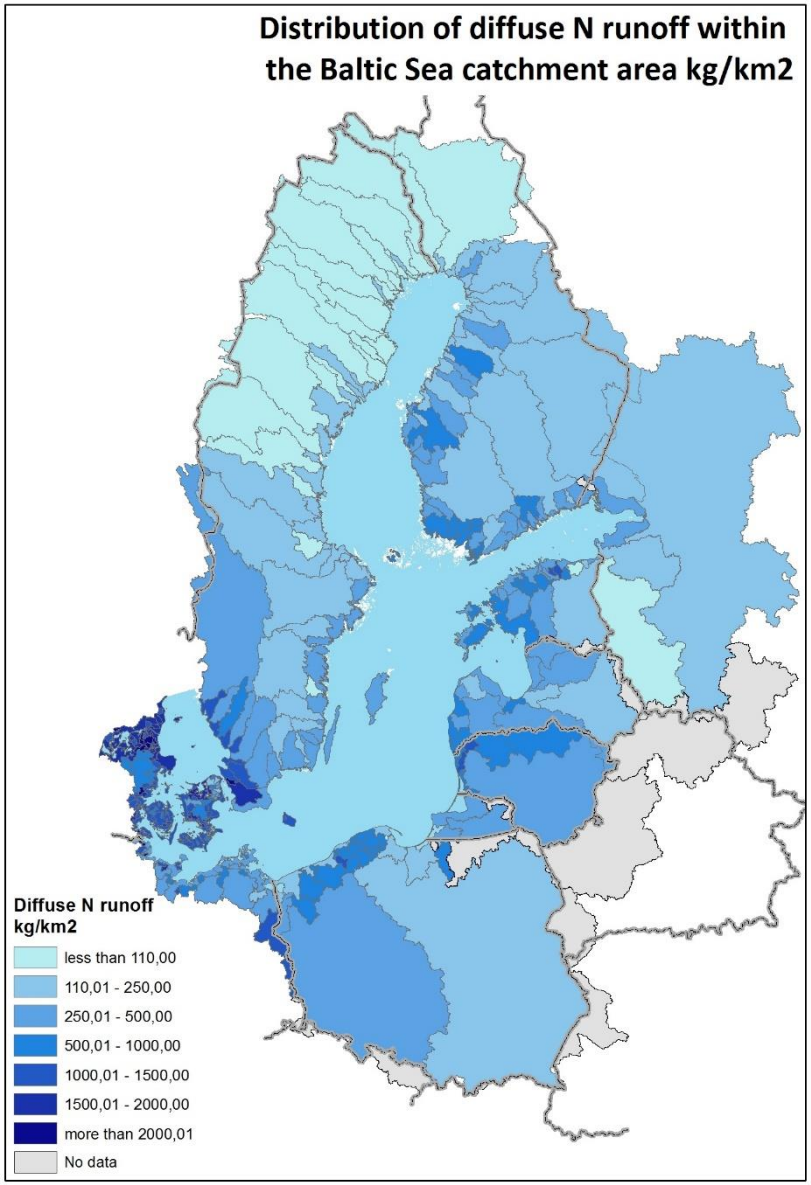
HELCOM 38-2017

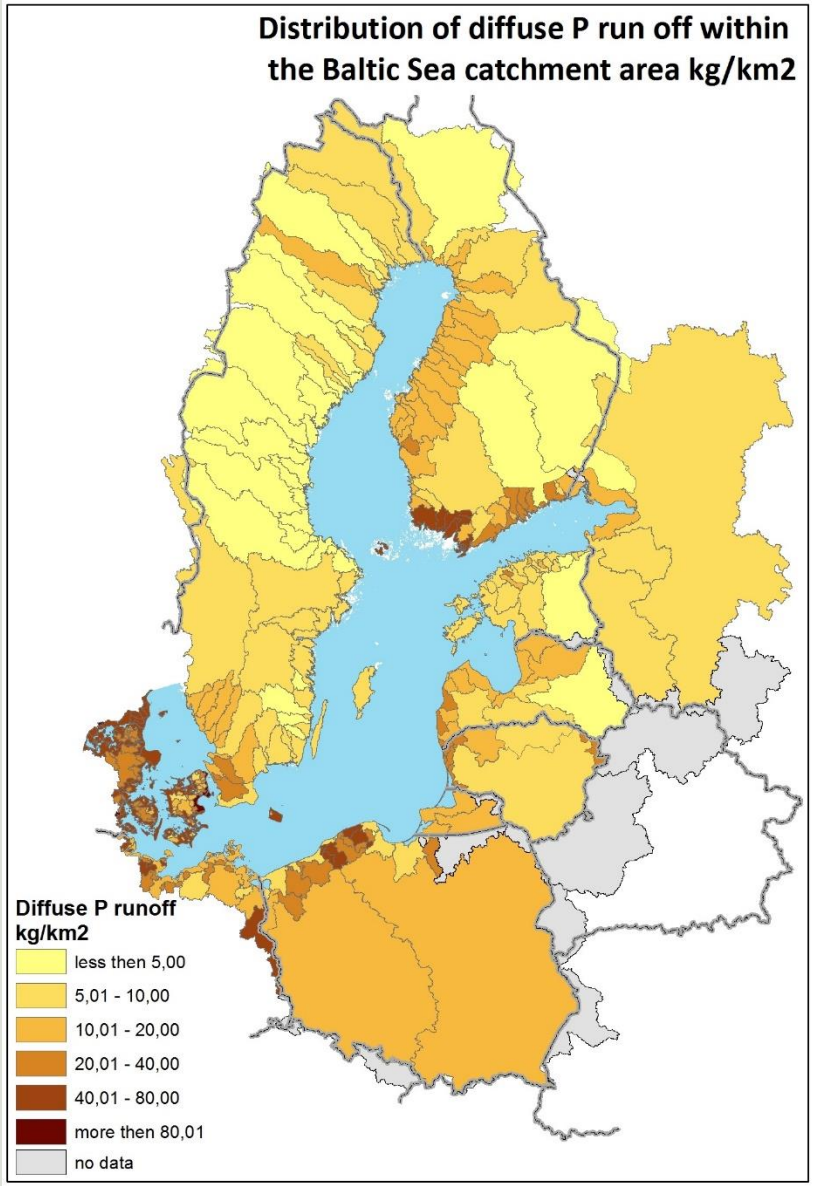
Contribution of various sources into riverine input of nutrients to the Baltic Sea in 2014





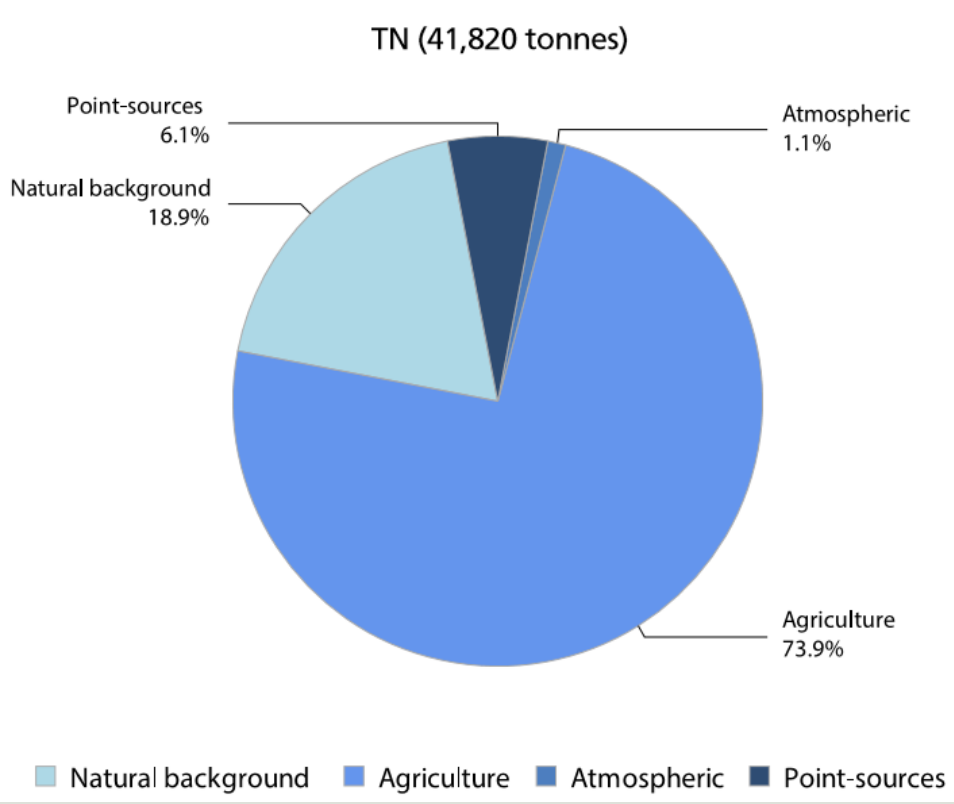
Distribution on N and P specific diffuse loads to the Baltic Sea in 2014

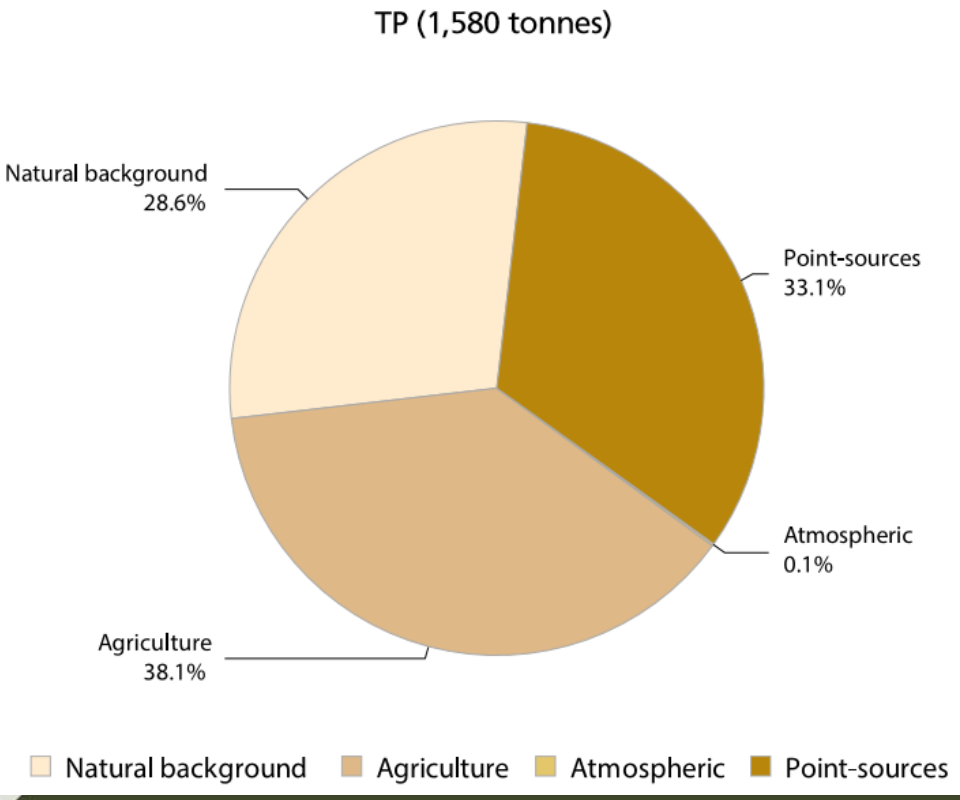




Sources of riverine load with dominating agricultural input

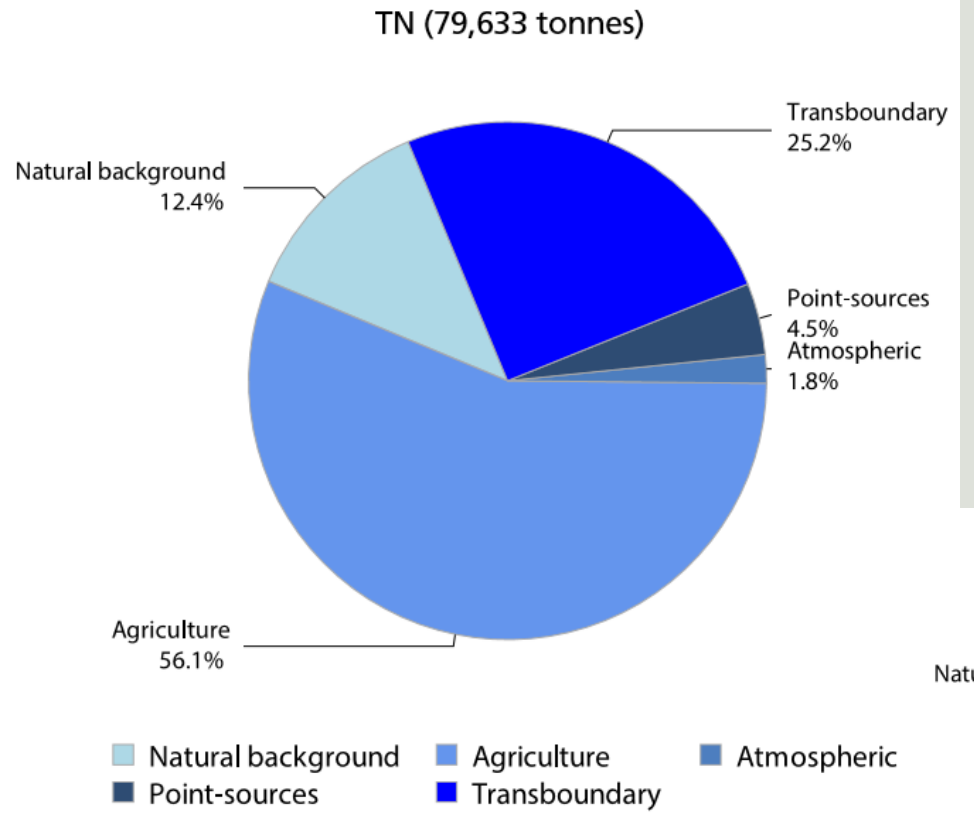
(example of Denmark 2014)

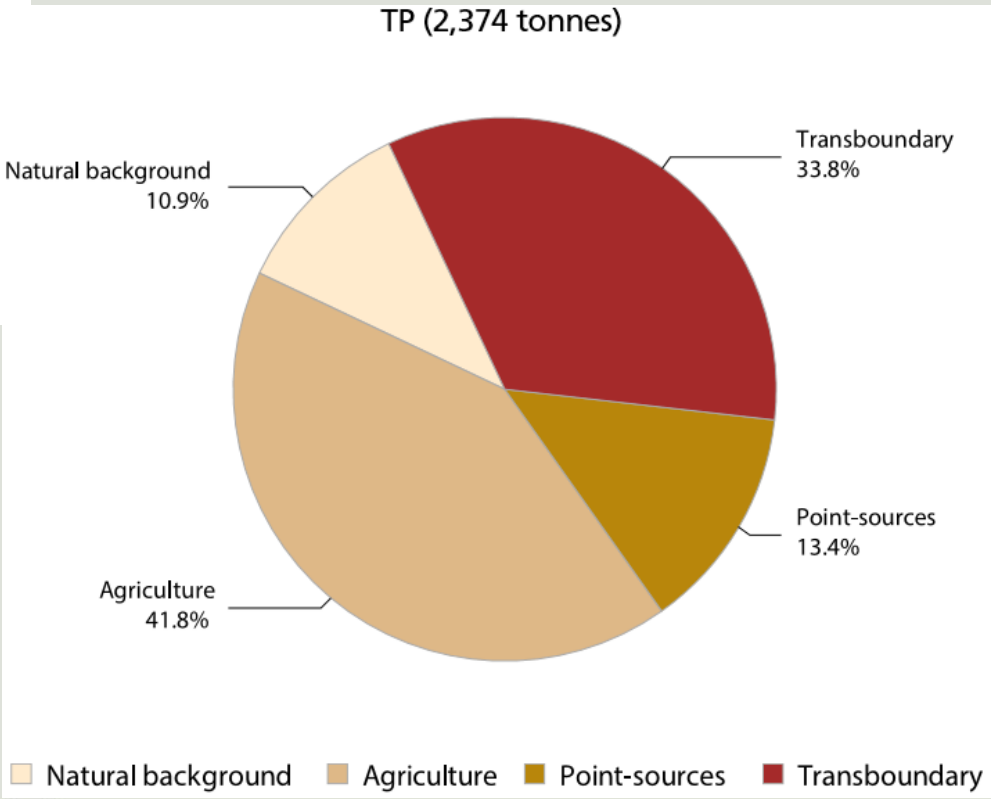




Sources of riverine load with large share of transboundary input

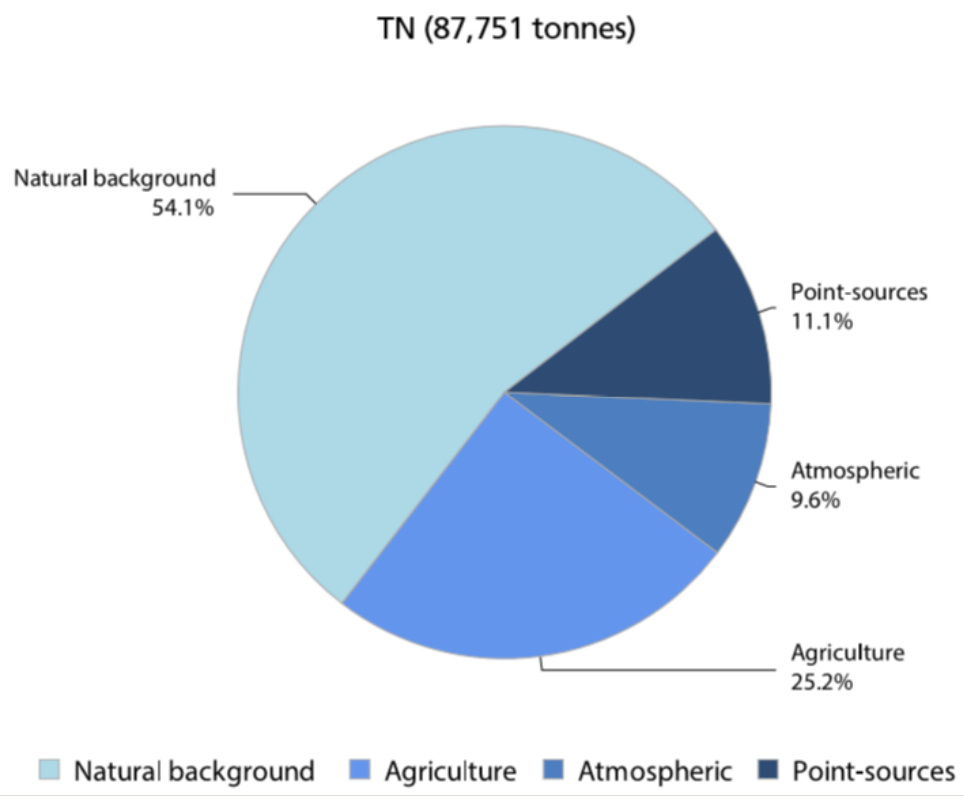
(example of Lithuania 2014)

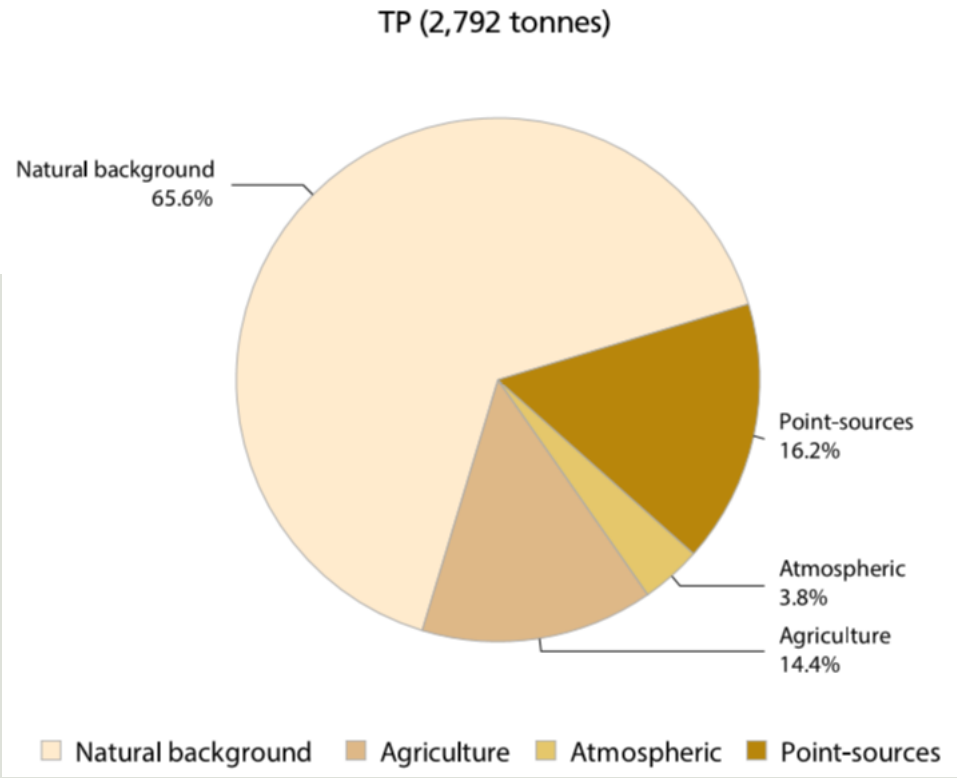


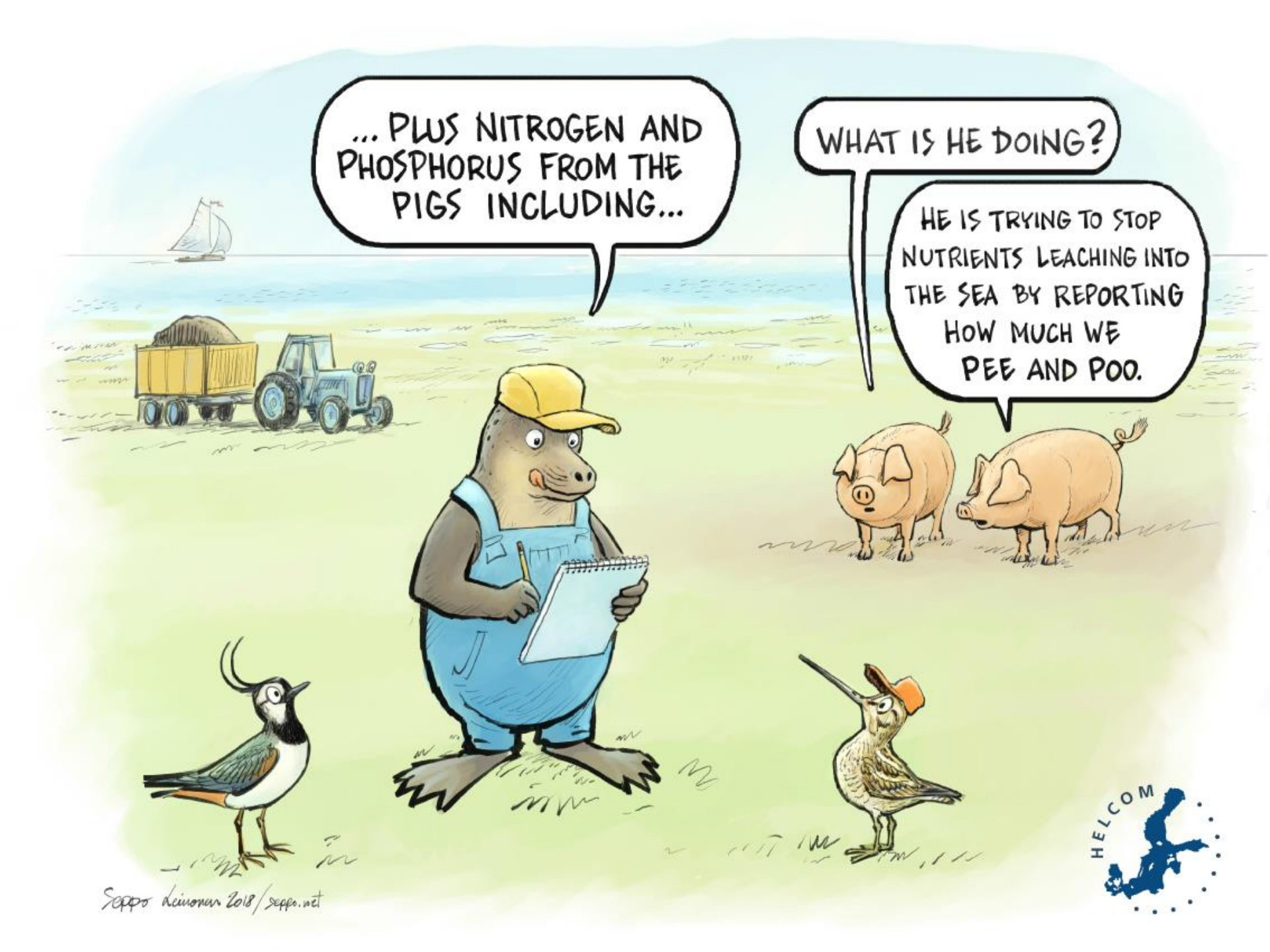


Sources of riverine load with large proportion of natural background

(example of Sweden 2014)






... PLUS NITROGEN AND PHOSPHORUS FROM THE PIGS INCLUDING...
WHAT IS HE DOING?
HE IS TRYING TO STOP NUTRIENTS LEACHING INTO THE SEA BY REPORTING HOW MUCH WE PEE AND POO.
HELCOM
Seppo Leinonen 2018 / seppo.net

Smart nutrients management in agriculture

- Advancing nutrient accounting at the farm level (MD2013).
- Advancing national standards of nutrients in manure (Manure standards project).
- Recommendation/guidelines on the use of national manure standards (MM 2013, Manure Standards project)

Manure Standards

Interreg Baltic Sea Region

EUROPEAN UNION

EUROPEAN REGIONAL DEVELOPMENT FUND


NUTRITIONALLY SPEAKING, IT'S NUTTY TO PUT NUTRIENTS IN THE SEA?
YEP! INSTEAD, WE NEED A STRATEGY TO RECYCLE THEM SAFELY.
HOORAY!
Seppo Leinonen 2018 / seppo.net
HELCOM

HELCOM Ministerial Meeting 2018:

Baltic Sea Regional Nutrient Recycling Strategy by 2020

- Aims for reduced nutrient inputs to and eutrophication of the Baltic Sea
- Focuses on measures at source rather than end-of-pipe solutions
- Nutrients especially from manure and sewage
- Possible nutrient recycling measures to be included in the updated Baltic Sea Action Plan


DEAR COLLEAGUES, THE COFFEE BREAK IS CANCELLED! WE NEED TO DISCUSS HOW TO REACH OUR COMMON GOAL OF A HEALTHY BALTIC SEA.
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BRUSSELS
MINISTERIAL MEETING 2018
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