

HELCOM policy framework for prevention of contamination by hazardous substances



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HELCOM

Hazardous substances in BSAP

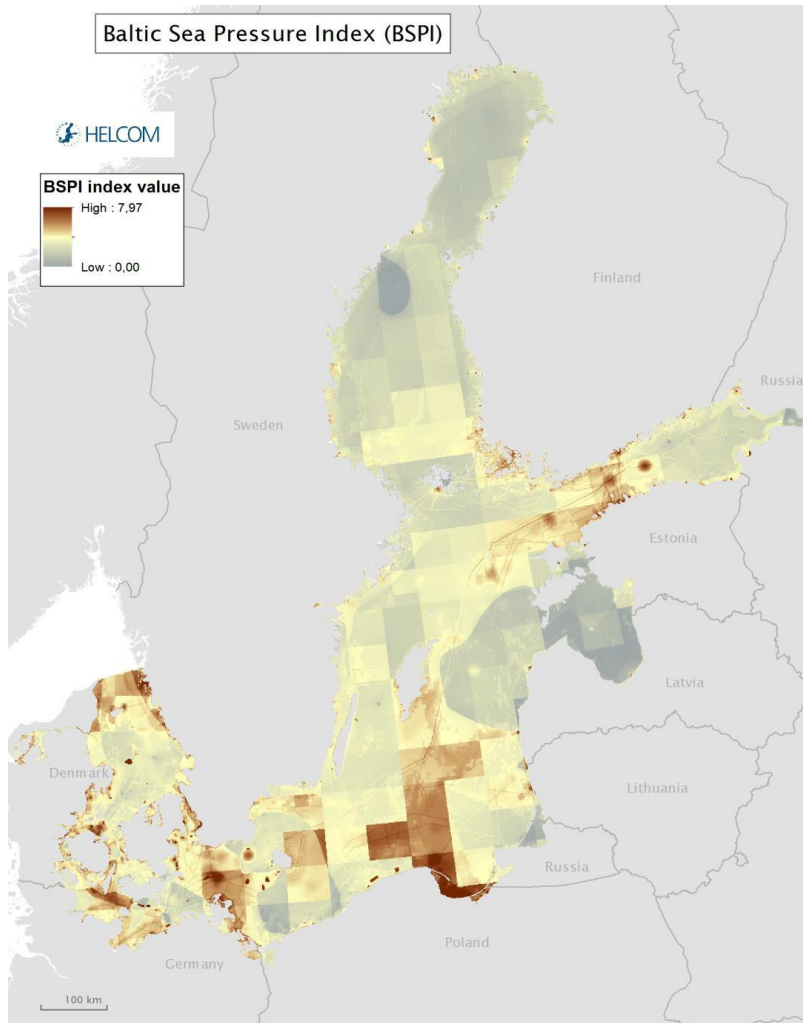
The agreed goal of HELCOM on hazardous substances is a Baltic Sea undisturbed by hazardous substances.

The goal is described by the ecological objectives:

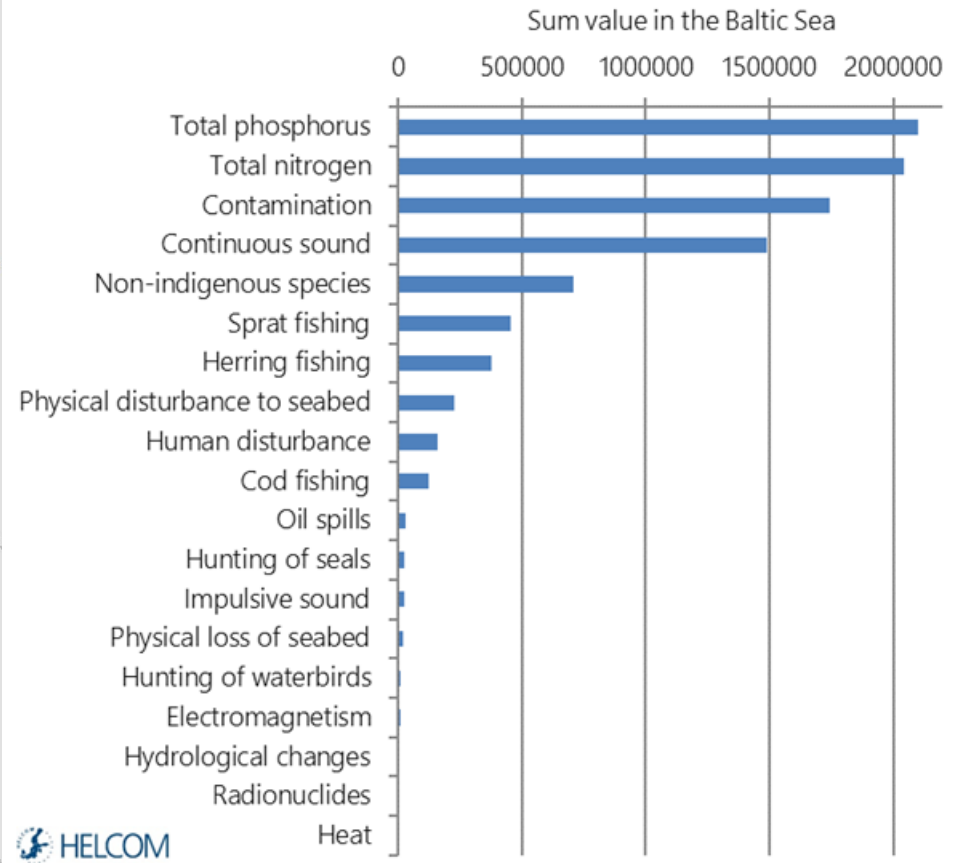
- Concentrations of hazardous substances close to natural levels,
- All fish safe to eat
- Healthy wildlife



The list of substances or substance groups of specific concern to the Baltic Sea was established.



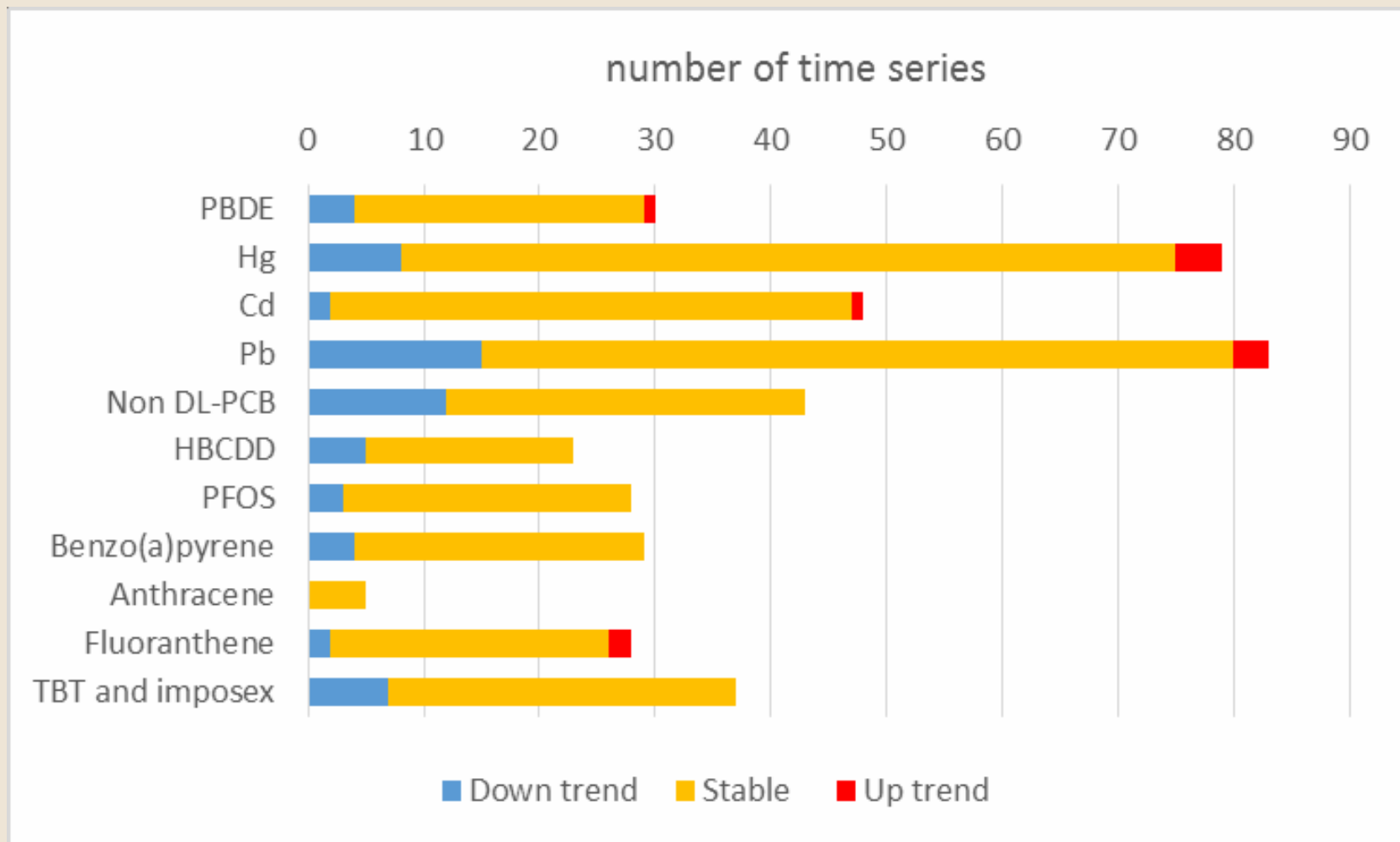
Pressures causing the cumulative impacts at regional scale



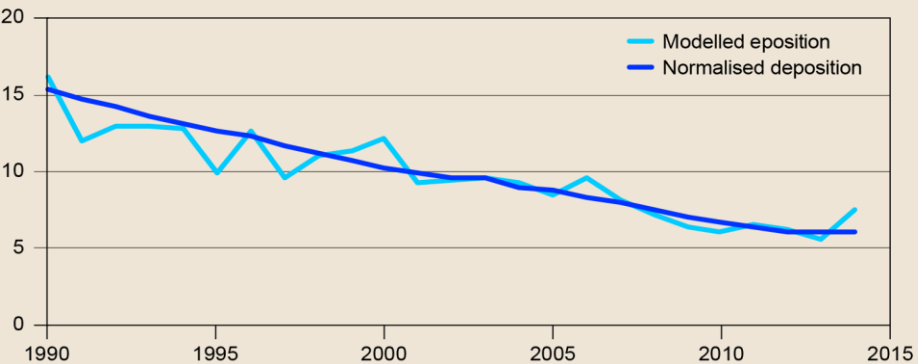
HELCOM Indicators on hazardous substances

Core indicator	HBCDD	PBDE	PAH and metabolites			PFOS	Metals						PCB, dioxin and furan		TBT and imposex			Radioactive substance			
Substance			benzo(a)pyrene	anthracene	fluorant hene		Hg	Cd			Pb			non-DL PCB	dioxin	imposex	TBT		Cs-137		
Matrix B-biota, S-sediment, W-water	B	B	B	S	B	B	B	B	S	W	B	S	W	B	B	B ²	S ²	W	B	W	
Bothnian Bay							i		i		i	i		i							
The Quark																					
Bothnian Sea	F	F				F	F+i		i		F+i	i		F+i							
Åland Sea									i			i									
Northern Baltic Proper	F	F	F		F	F	F				F			F							
Gulf of Finland																					
Western Gotland Basin	F	F				F	F		i		F	i		F							
Eastern Gotland Basin	F	F					F	F			F			F							
Gulf of Riga							i		i			i									
Gdansk Basin			i		i		i		i	i	i	i	i								
Bornholm Basin	F	F				F	F		F+i	i	F	F+i	i	F							
Arkona Basin	F	F+i	F+i	i	F+i	F	F+i	F+i	F+i	i	F+i	F+i	i	F				i			
Bay of Mecklenburg			i		i		i	i	F		i	F									
Kiel Bay		F		i			F		F		F	F		F							
Great Belt				i					i			i				F					
The Sound			F+i	i	F+i		i	i	i		i	i				F					
Kattegat	F	F		i		F	F		i			i		F		F					

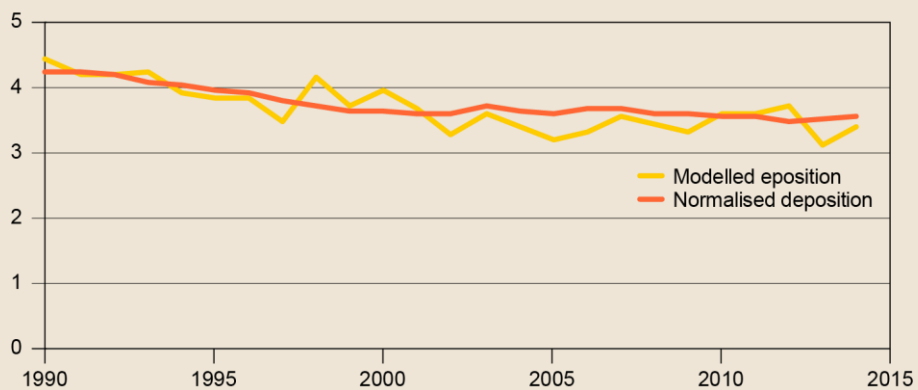
Trends in the hazardous substances groups, shown as counts of time series assessed at the monitoring stations



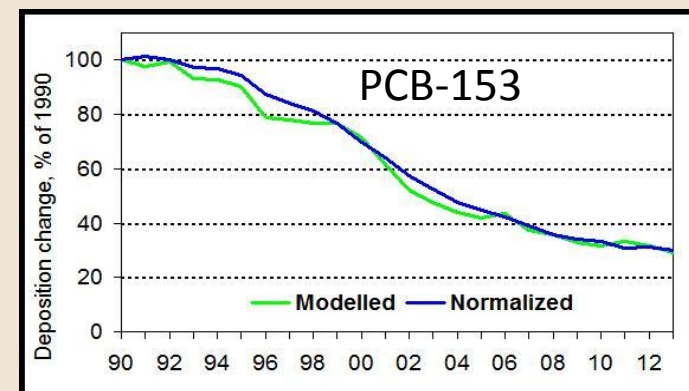
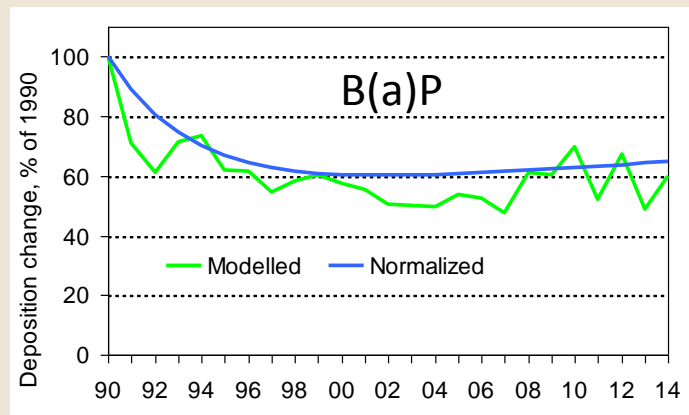
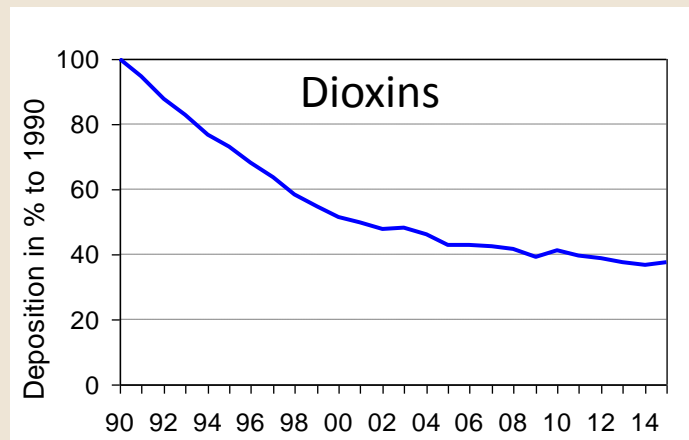
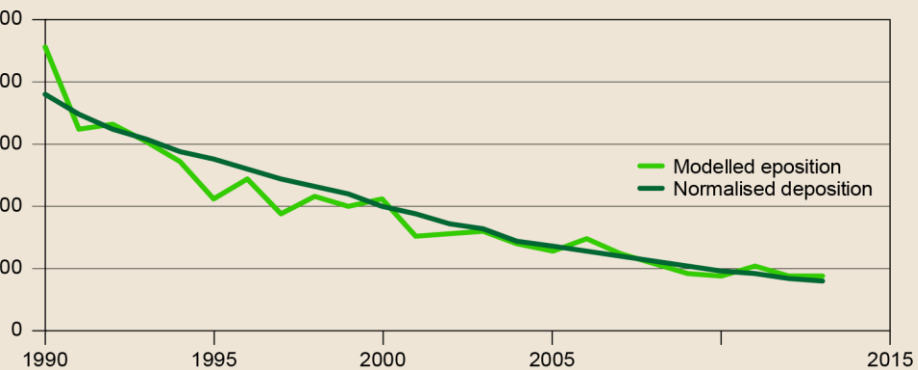
Atmospheric cadmium deposition 1990-2014 (tonnes/year)



Atmospheric mercury deposition 1990-2014 (tonnes/year)

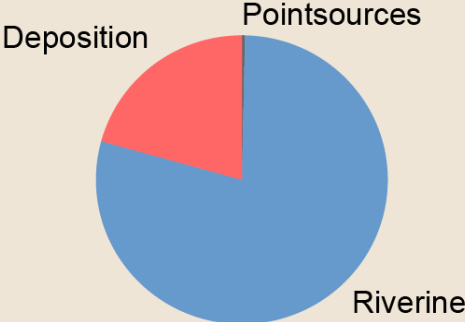


Atmospheric lead deposition 1990-2013 (tonnes/year)

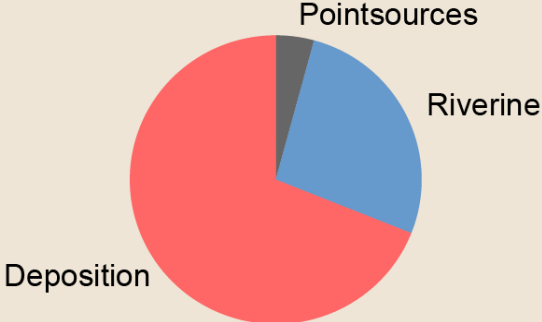


Pathways of heavy metals to the BS environment

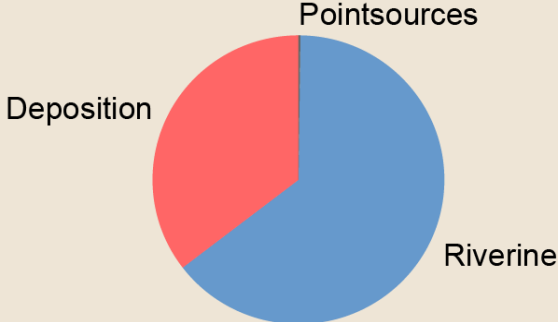
Cadmium



Mercury

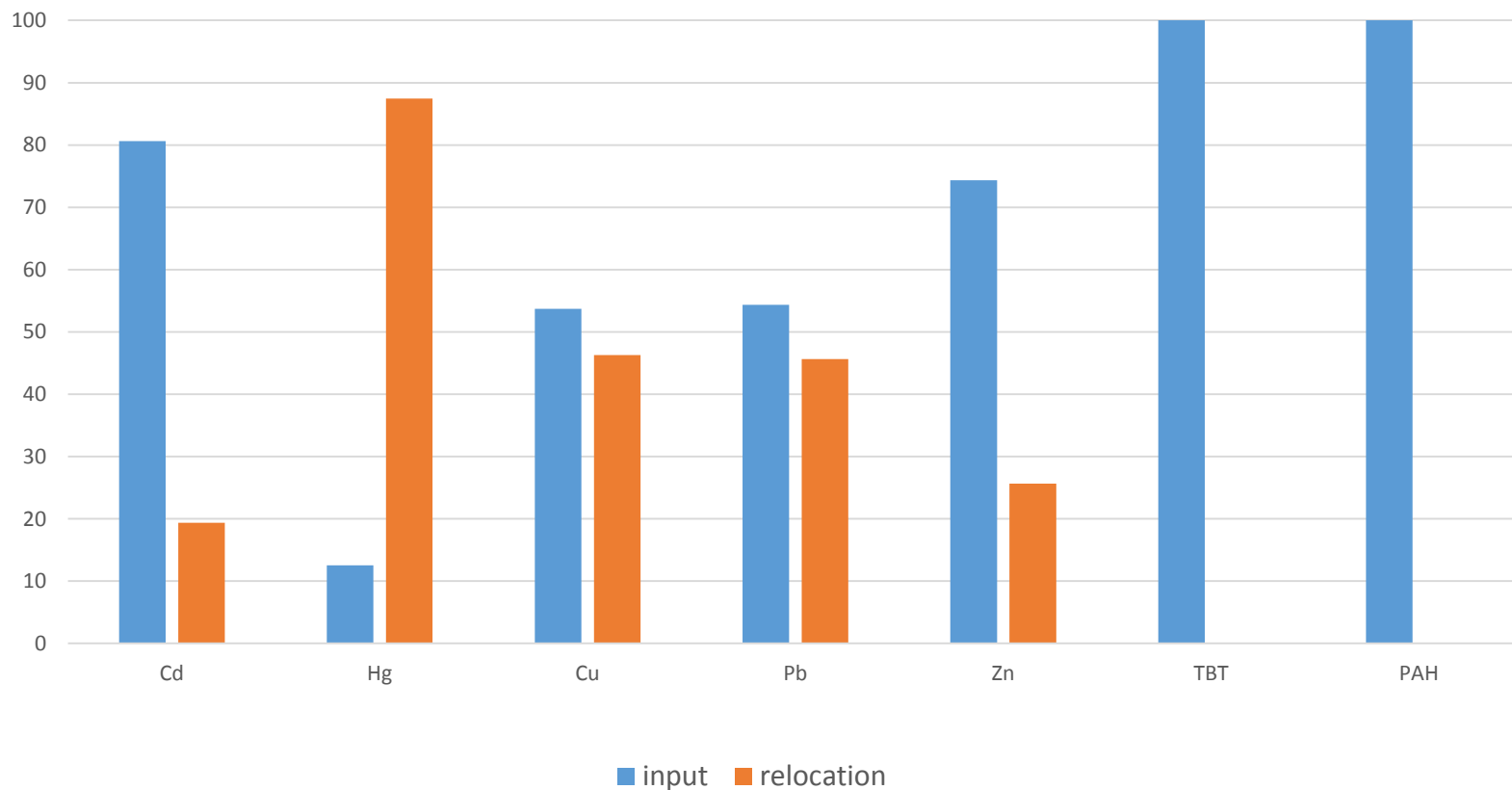


Lead



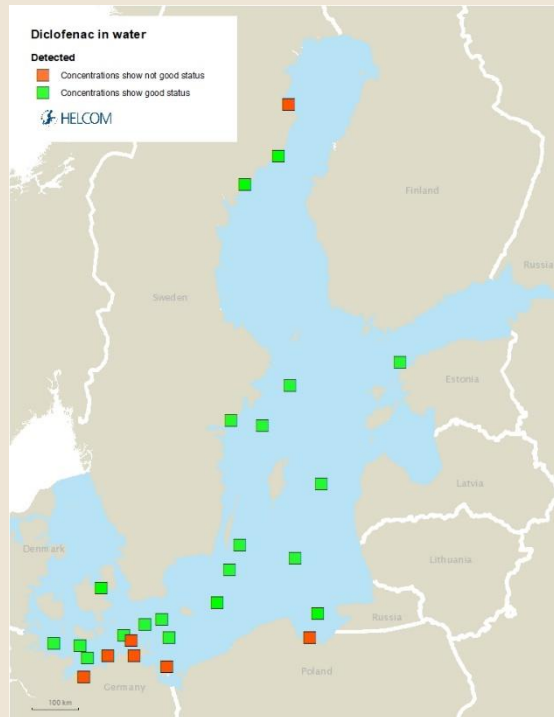
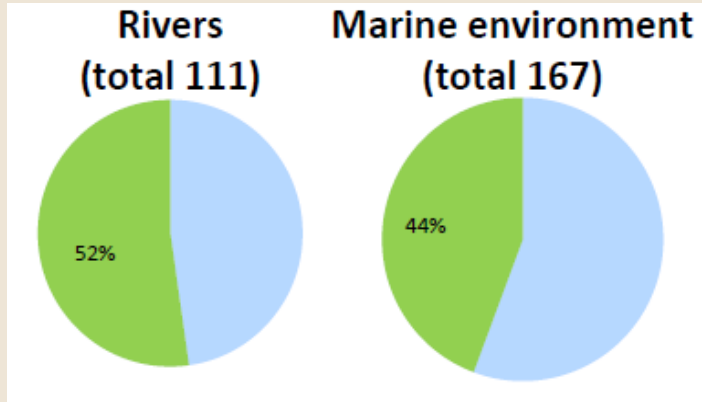
Hazardous substances in sediments deposited at Sea

Input and relocation of total contaminants 2015 (%)



Emerging challenges

45000 measurements reported



<http://www.helcom.fi/Lists/Publications/BSEP149.pdf>

HELCOM Baltic Sea Action Plan – Hazardous Substances

HELCOM RECOMMENDATION 31E/1

Adopted 20 May 2010,

IMPLEMENTING HELCOM'S OBJECTIVE FOR HAZARDOUS SUBSTANCES

ATTACHMENT 2

Appendix I

List of substances of possible concern

(to be further developed and completed on basis of the list of potential substances of concern to be considered by HELCOM, as contained in Recommendation 19/5 and Annex I of the Helsinki Convention)

Appendix II

List of Priority Hazardous Substances

(to be updated)

Hazardous substances prioritised by RECOMMENDATION 31E/1

Substances	Usage	HELCOM policy	Assessment of contamination level	Input assessment
1. Dioxins (PCDD), furans (PCDF)	Combustion product	Core indicator	2010, sub GES status	EMEP monitoring
2. Tributyltin compounds (TBT) (TPhT)	Prohibited	Core indicator	2010, variable data	no data
3. Pentabromodiphenyl ether (pentaBDE)	Prohibited	Core indicator	GES exceeded	EMEP report
4. Perfluorooctane (PFOS) (PFOA)	restricted use	Core indicator	2013, shows GES	no data
5. Hexabromocyclododecane (HBCDD)	used	Core indicator	tentative evaluation 2013 show GES	Assessed as 300-700 kg/year
6. Nonylphenols (NP), Nonylphenol ethoxylates (NPE)	restricted use		no assessment	no data
7. Octylphenols (OP)	used		no assessment	no data,
8a. Short-chain chlorinated paraffins (SCCP, C10-13)	banned or limited		no assessment	no data
8b. Medium-chain chlorinated paraffins (MCCP, C14-17)	used		no assessment	no data
9. Endosulfan	banned		no assessment	no data
10. Mercury	restricted	Core indicator	2011, concentrations close to the targets	EMEP monitoring PLC monitoring
11. Cadmium	restricted	Core indicator	2013 show sub-GES for some points	EMEP monitoring PLC monitoring

Not included in BSAP

Substances	HELCOM policy	Assessment of contamination level	Input assessment
Lead	Core indicator GES agreed	tentative evaluation 2005-2010 indicate concentrations in some areas exceed GES.	EMEP monitoring PLC monitoring
Polyaromatic hydrocarbons (PAH) and their metabolites (benz/a/pyrene)	Core indicator GES suggested for	Low concentrations of Benz/a/pyrene were indicated	EMEP monitoring
Pharmaceuticals	Diclophenac and estrogen were suggested as pre-core indicators	Diclophenac detected almost in all compartments of the BS environment Estrogen – very scarce data.	The Status report on pharmaceuticals.

HELCOM agreed to launch a review and possibly revision of the HELCOM Recommendation 31E/1 in the latter part of year 2017 and in the meantime continue the work on collecting information on hazardous substances.

POPs and other substances of concern in the Baltic Sea area

Substance (group)	Air	Rivers
Dioxins (PCDD, PCDF, dioxin-like PCBs)	13	5
Other PCBs (other than dioxin-like)	6	6
Organotin compounds (TBT, TPhT, etc)	-4	7
PBDEs (pentaBDE, octaBDE, decaBDE)	6	9
PFAS (PFOS, PFOA)	6	10
HBCDD	2	6
Nonylphenols (NP, NPE)	-4	10
Octylphenols (OP, OPE)	-4	8
Short-chain chlorinated paraffins (C10-13)	1	4
Medium-chain chlorin. paraffins (C14-17)	-2	2
Endosulfan	2	3
DDTs (sum-DDT, DDE, etc)	4	6
PAHs (incl. metabolites)	15	9
BFRs (PBDEs etc)	3	6
HCHs (alpha, beta, gamma)	5	6
Heptachlor	0	1

Joint documentation of regional coordination of programmes of measures

HELCOM 37-2016 agreed on the Joint documentation to be finalized and made available by 31 March.

ACTION 4: Micropollutants in effluents from wastewater treatment plants

- *Step 1: Compilation and assessment of available information and data of micropollutants of concern for Contracting Parties in the Baltic Sea – during 2016 (PRESSURE)*
- *Step 2: Compile information from CPs of 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*

Micropollutants in effluents of the WWTP identified by the HELCOM counties.

Substance (group)	WWTP
Dioxins (PCDD, PCDF, dioxin-like PCBs)	3
Other PCBs (other than dioxin-like)	5
Organotin compounds (TBT, TPhT, etc)	6
PBDEs (pentaBDE, octaBDE, decaBDE)	4
PFAS (PFOS, PFOA)	8
HBCDD	4
Nonylphenols (NP, NPE)	12
Octylphenols (OP, OPE)	12
Short-chain chlorinated paraffins (C10-13)	5
Medium-chain chlorin. paraffins (C14-17)	3
Endosulfan	2
DDTs (sum-DDT, DDE, etc)	2
PAHs (incl. metabolites)	8
BFRs (PBDEs etc)	5
HCHs (alpha, beta, gamma)	4
Heptachlor	4
Heavy metals	14
Pharmaceutical residues	12
Herbicides (except listed above)	6
Fungicides (except listed above)	5
Insecticides (except listed above)	5
Endocrine disrupting substances (EDS, except listed above)	9
Animal/veterinary drug residues (except listed above)	2
Disinfectants (except listed above)	5

Substances discharged from urban areas (NonHazCity)

Compound	Chain Length	Industrial	Residential	Service	Stormwater	WWTP
PFBA	3	33%	0%	33%	6%	22%
PFBS	4	10%	0%	8%	28%	26%
PFHxA	5	0%	0%	0%	0%	22%
PFHpA	6	19%	0%	17%	44%	43%
PFHxS	6	45%	50%	17%	36%	63%
PFOA	7	67%	67%	58%	50%	96%
PFOS	8	38%	22%	17%	53%	76%

Samples	21	18	12	18	23
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Metal	Industrial	Residential	Service	Stormwater	WWTP
Cadmium	59%	59%	85%	58%	73%
Chromium	5%	6%	8%	0%	0%
Copper	100%	100%	100%	100%	100%
Nickel	77%	76%	85%	75%	82%
Lead	9%	6%	15%	17%	0%
Zinc	100%	100%	100%	100%	100%

Samples	22	17	13	12	11
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Compound Class	Industrial	Residential	Service	Stormwater	WWTP
Alkylphenol	28%	59%	64%	40%	75%
Bisphenol	100%	94%	100%	90%	92%
Pharmaceuticals	11%	59%	29%	10%	75%
Phthalates	94%	100%	86%	100%	100%

Samples	22	17	13	12	11
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HELCOM Ministerial Declaration 2018

that levels of hazardous substances continue to be elevated and a cause for concern;

WE AGREE:

to re-examine the effectiveness of measures and recommendations for legacy pollutants to identify the scale of problems of contaminants of emerging concern, including micro-pollutants in coastal and marine waters and, based on this knowledge, to consider possible cost-effective mitigation measures.

WE WELCOME the joint HELCOM-UNESCO-EUSBSR status report on pharmaceuticals in the aquatic environment in the Baltic Sea Region as the information basis for developing measures, as appropriate, to prevent pharmaceuticals from reaching the Baltic Sea, and also **WELCOME** the EU Strategy for the Baltic Sea Region (EUSBSR) regional cooperation platform to reduce pharmaceuticals in the Baltic Sea;



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THANK YOU