

The role of HELCOM in implementing ecosystem approach in the Baltic Sea

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HELCOM Secretariat



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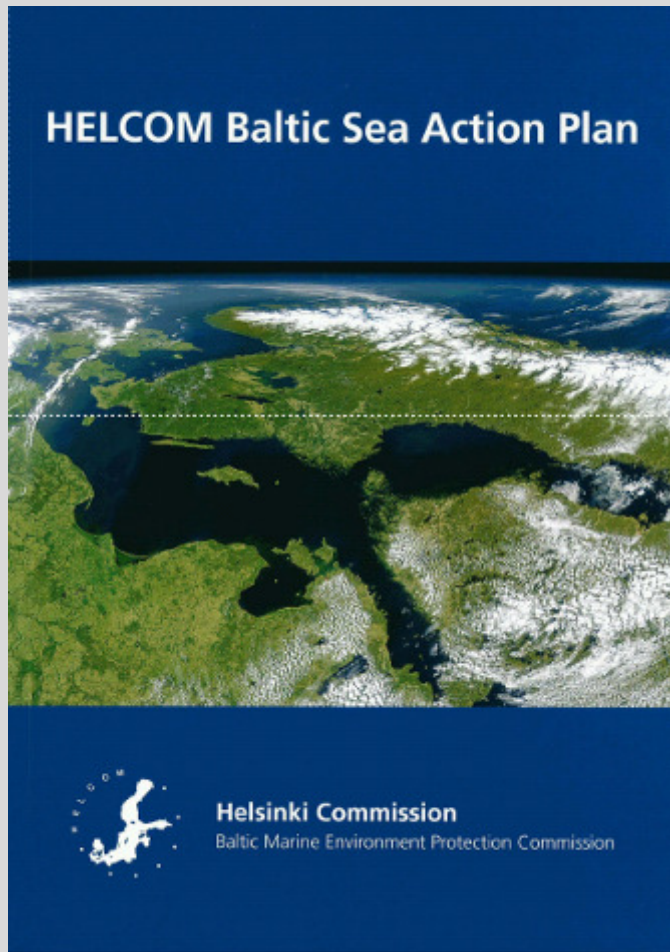
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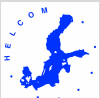
HELCOM's role in the Baltic



HELCOM Baltic Sea Action Plan

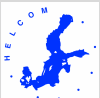
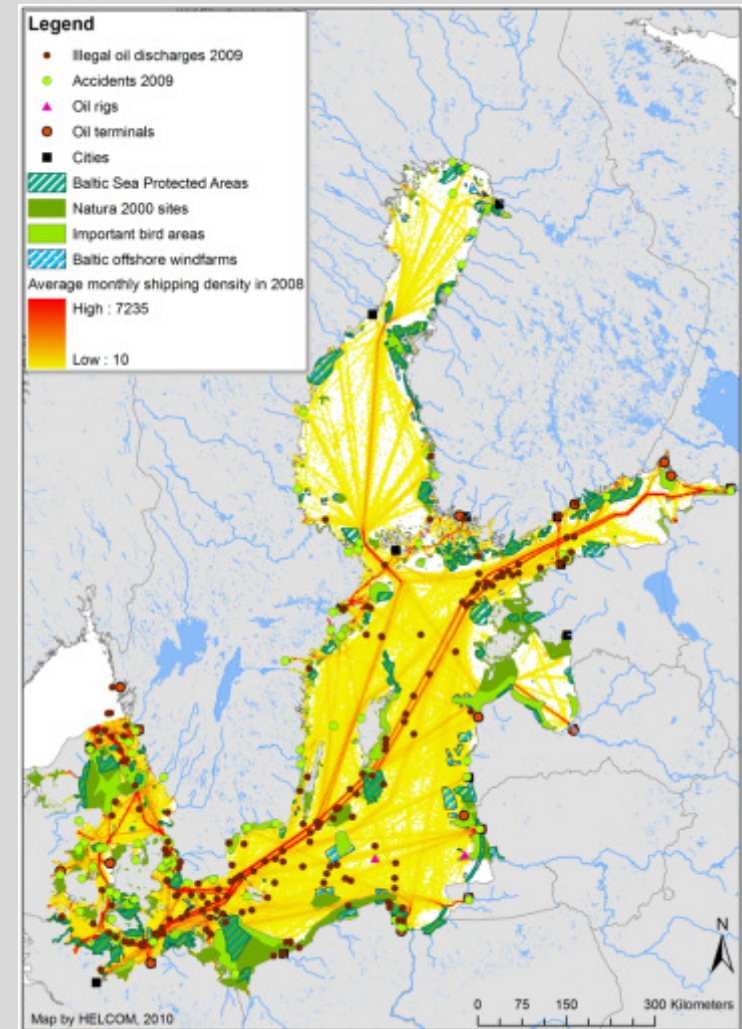


- Adopted at ministerial level in 2007
- To reach Good Environmental Status of the Baltic Sea by 2021
- Ecosystem-based approach to management of human activities
- Ecological goals and objectives
- Measures and actions for:
 - Eutrophication
 - Hazardous substances
 - Maritime activities
 - Biodiversity and nature conservation
- National Implementation Programmes
- cf. EU Strategy for the Baltic Sea Region



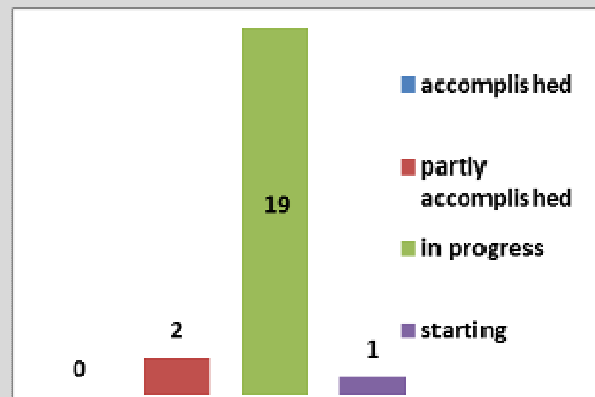
Other regional coordination platforms and activities of HELCOM

- The joint HELCOM-VASAB Working Group on Maritime Spatial Planning:
 - establishment of coherent MSP processes in the Baltic
 - practical application of the ecosystem approach in MSP
 - minimum international legal requirements for transboundary MSP
 - MSP spatial data requirements
 - Consideration of outcomes of MSP projects e.g. HELCOM PLANBOTHNIA project and BaltSeaPlan project
- HELCOM Agriculture and Environment Authorities (AGRI/ENV) Forum
- HELCOM Fisheries and Environment Authorities (FISH/ENV) Forum
- Cooperation Platform for Port Reception Facilities
- Coordination and activities related to the EU Strategy for the Baltic Sea Region (EU SBSR)

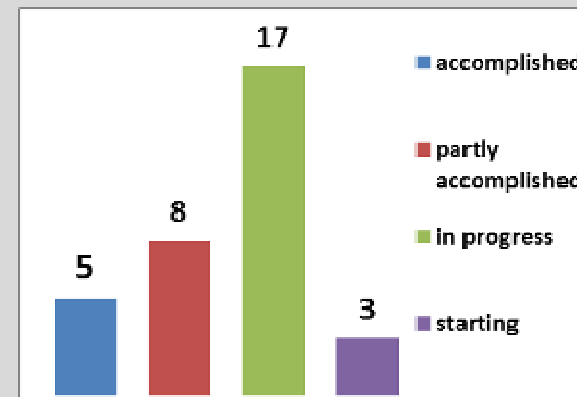


Progress with BSAP

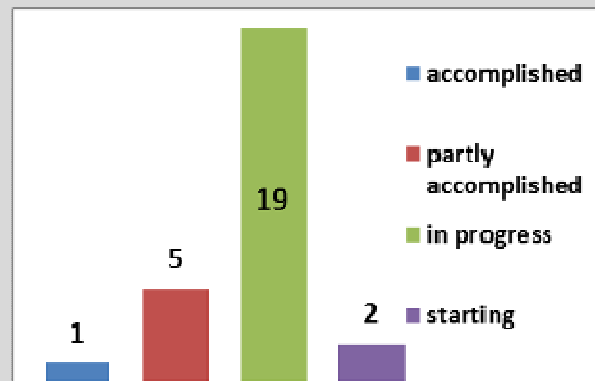
Eutrophication



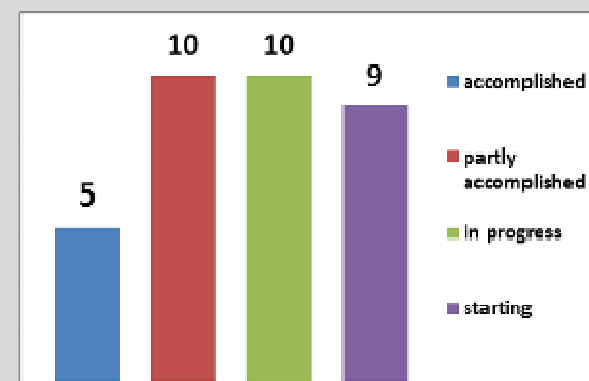
Biodiversity



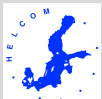
Hazardous substances



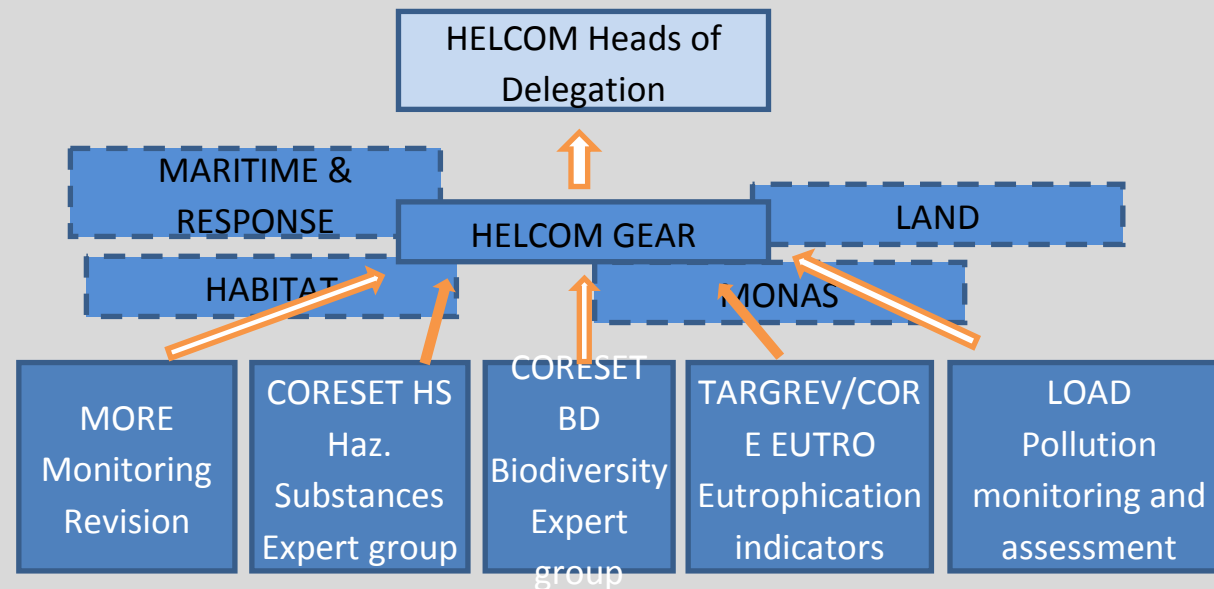
Maritime and response



Status of the implementation of the BSAP 114 actions in spring 2012



HELCOM GEAR: Group for the implementation of the Ecosystem Approach

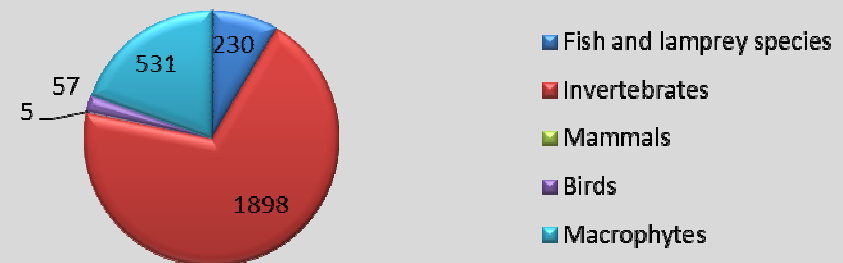


Enhanced knowledge basis: Red lists and classification of Baltic habitats (HELCOM RED LIST)

- First products:
 - Comprehensive checklist of Baltic macro species
 - Red list of Baltic Breeding Birds
- Development of a EUNIS compatible habitat classification for the Baltic Sea as a basis for the work on habitats
- Assessment of the threat status of Baltic macro species and habitats by the early 2013, using IUCN criteria



Total number of species per group



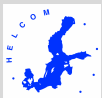
HELCOM core indicators

HELCOM CORESET project had the task to develop core indicators for the follow-up of BSAP and support implementation of MSFD (descriptors 1, 2, 4, (5), 6, 8, 9)

Proposed core indicator	1.1/1.2	1.3	2.1	4.1	4.2	4.3	8.1	8.2	9.1
PAH metabolites									
Tributyltin (TBT) and imposex									
Eelpout and amphipod embryo malformations									
Lysosomal Membrane Stability – a general stress									
Fish diseases– a fish stress indicator									
Micronuclei test– a genotoxicity indicator									
9 HS concentration indicators									



Photo: S. Korpinen



The HELCOM core indicators for hazardous substances

Proposed core indicators

Polybrominated biphenyl ethers (PBDE): BDE-28, 47, 99, 100, 153 and 154

Hexabromocyclododecane (HBCD)

Perfluorooctane sulphonate (PFOS)

Polychlorinated biphenyls (PCB) and dioxins and furans: CB-28, 52, 101, 118, 138, 153 and 180; WHO-TEQ of dioxins, furans +dl-PCBs

Polyaromatic hydrocarbons and their metabolites: US EPA 16 PAHs / selected metabolites.

Metals (lead, cadmium and mercury)

Radioactive substances: Caesium-137 in fish and surface waters

Tributyltin (TBT) and imposex

Pharmaceuticals: Diclofenac, EE2 (+E1, E2, E3 + in vitro yeast essay?)

Lysosomal Membrane Stability – a general stress indicator

Fish diseases– a fish stress indicator

Micronuclei test– a genotoxicity indicator

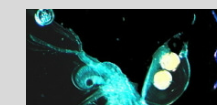
Reproductive disorders: Malformed eelpout and amphipod embryos



Photo: Metsähallitus

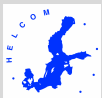
HELCOM biodiversity core indicators

Proposed core indicator	1.1/1.2	1.3	1.4/1.5	1.6	1.7	2.1	2.2	4.1	4.2	4.3	5.3	6.1	6.2	8.2
Population growth rates, abundance and distribution of marine mammals														
Pregnancy rates of marine mammals														
Nutritional status of seals														
Number of drowned mammals and waterbirds in fishing gears														
White-tailed eagle productivity														
Abundance of waterbirds in the wintering season														
Abundance of waterbirds in the breeding season														
Number of waterbirds being oiled annually														
Abundance of key fish species														
Abundance of fish key functional groups														
Proportion of large fish in the community														
Abundance of sea trout spawners and parr														
Abundance of salmon spawners and smolt														
Zooplankton mean size and total abundance														
State of the soft-bottom macrofauna communities														
Lower depth distribution limit of macrophyte species														
Population structure of long-lived macrozoobenthic species														
Cumulative impact on benthic habitats														
Extent, distribution and condition of benthic biotopes														
Trends in arrival of new non-indigenous species														



BSAP follow-up system

Populations + habitats	Alien species	Commercially exploited fish	Food web	Eutrophication	Contaminants	Litter	Noise
Mammals [3]	New NIS [1]	Fish stocks [3]	Seals [1]	Oxygen [1]	POPs [8]	Floating, seabed, beaches, micro, ingested	Impulsive + Background noise
Birds [3]			Birds [1]	Transparency [1]	Metals [1]		
Coastal fish [1]			Fish community [1]	Nutrients [1]	Cs-137 [1]		
Anadromous fish [2]			Coastal fish [1]	Chlorophyll [1]	Bioeffects [4]		
Macrozoobenthos [2]			Zooplankton [1]				
Macrophytes [1]							
Habitats [2]							



Core indicators inform of anthropogenic impacts

NUTRIENT INPUTS

- Nutritional status of seals
- Fish functional groups
- Macrofauna diversity and abundance
- Macrophytes
- Benthic biotopes
- Zooplankton

FISHING (target catches)

- Large fish in fish community
- Key fish species
- Fish functional groups
- Salmon abundance and recruitment
- Sea trout abundance and recruitment
- Nutritional status of seals
- Zooplankton

HAZARDOUS SUBSTANCES

- Populations of marine mammals
- Pregnancy rate of mammals
- White-tailed eagle productivity
- Amphipod and eelpout embryos
- Imposex of snails by TBT
- LMS, MN test, Fish diseases

FISHING (bycatch)

- Population growth rate
- Drowned mammals and waterbirds
- Waterbird abundance (2 indicators)
- Sea trout abundance and recruitment

SHIPPING AND OIL SPILLS

- New non-indigenous species
- Oiled waterbirds

BENTHIC DISTURBANCE

- Benthic biotopes (2 indicators)
- Macrofauna (2 indicators)
- Macrophytes

HUNTING

- Populations of marine mammals
- Waterbirds (2 indicators)

How the core indicators cover BSAP EcoO's ?

AT LEAST...

Concentrations of hazardous substances close to natural levels

8 HS concentration indicators

Healthy wildlife

6 HS bioeffect indicators, WT-eagle, Pregnancy rate

All fish safe to eat

9 HS concentration indicators

Radioactivity at pre-Chernobyl levels

1 HS concentration indicator

Viable Populations of species

4 mammal, 4 bird and 3 fish, 2 bioeffect indicators

Thriving and balanced communities of plants and animals

2 fish, 1 zooplankton and 3 benthos indicators

Natural landscapes and seascapes

1 biotope and 1 cumulative impact indicator

Natural distribution and occurrence of plants and animals

1 fish, 3 benthos and 1 zooplankton indicators

No illegal pollution

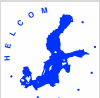
1 bird indicator

Safe maritime traffic without accidental pollution

1 bird indicator

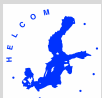
No introductions of alien species

1 NIS indicator



Revision of HELCOM monitoring strategy

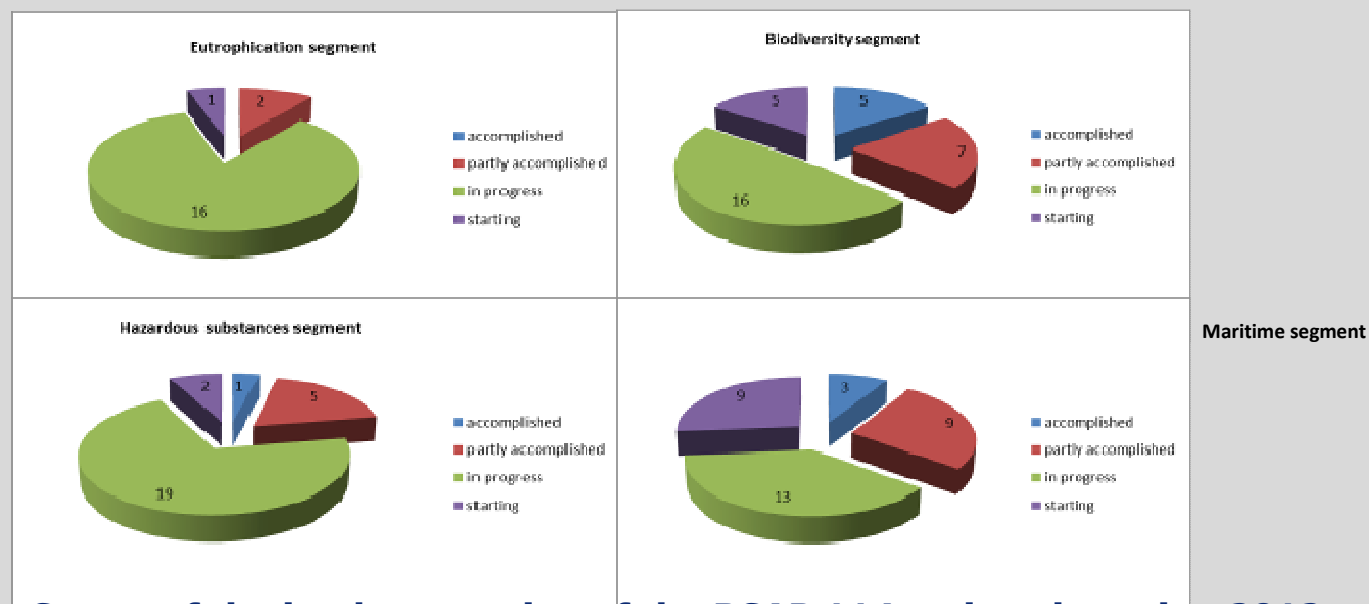
- 2005 Monitoring and Assessment Strategy
(http://www.helcom.fi/groups/monas/en_GB/monitoring_strategy/)
- 2004 Data and Information Strategy
(http://www.helcom.fi/groups/monas/en_GB/datastrategy/)
- Objectives in the revision process:
 - Support monitoring of core indicators (←new parameters)
 - Cost-efficiency: joint cruises, specialization of institutes, responsible expert groups (updates, data flows, quality control, assessment products)
 - Thematic assessments, assessment tools
- Leads to revised monitoring guidelines (COMBINE)
- Timeline: s...ady in m..., then to t...



Adaptive management is part of the BSAP

Next HELCOM Ministerial Meeting to be held in autumn 2013:

- Evaluation of the implementation of the BSAP
- Scrutiny of the effectiveness of the BSAP national implementation programs
- Assessment of progress towards ecological objectives and GES
- **Based on the above, adjustment of the BSAP and update of targets**



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**Special thanks to those over hundred experts giving
their valuable knowledge into the use of the project!**



