Indicators and assessment of biodiversity in the Baltic Sea

Maria Laamanen, HELCOM Professional Secretary

NOWPAP/NEASPEC Joint Workshop
13-14 March 2013, Toyama, Japan

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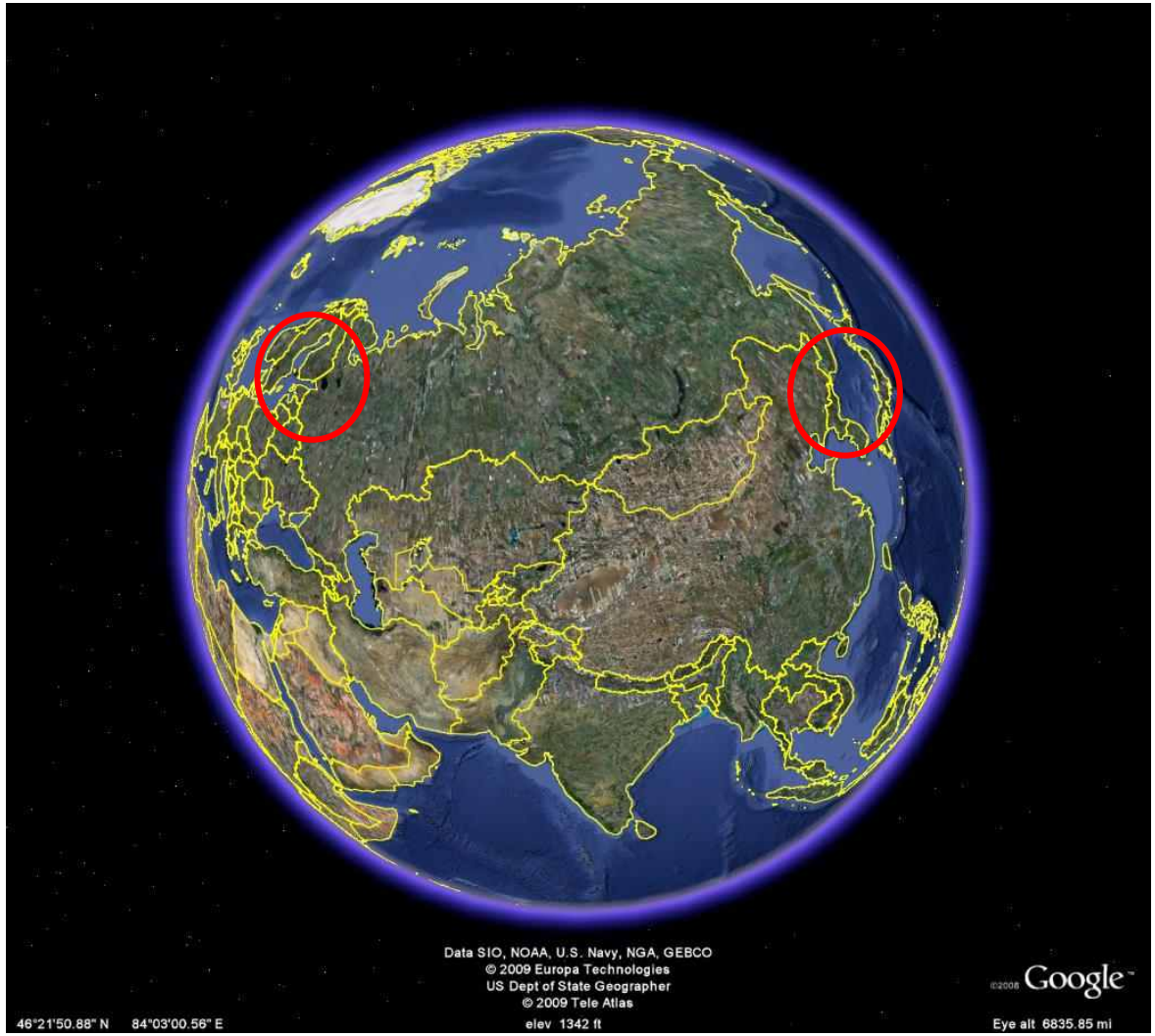
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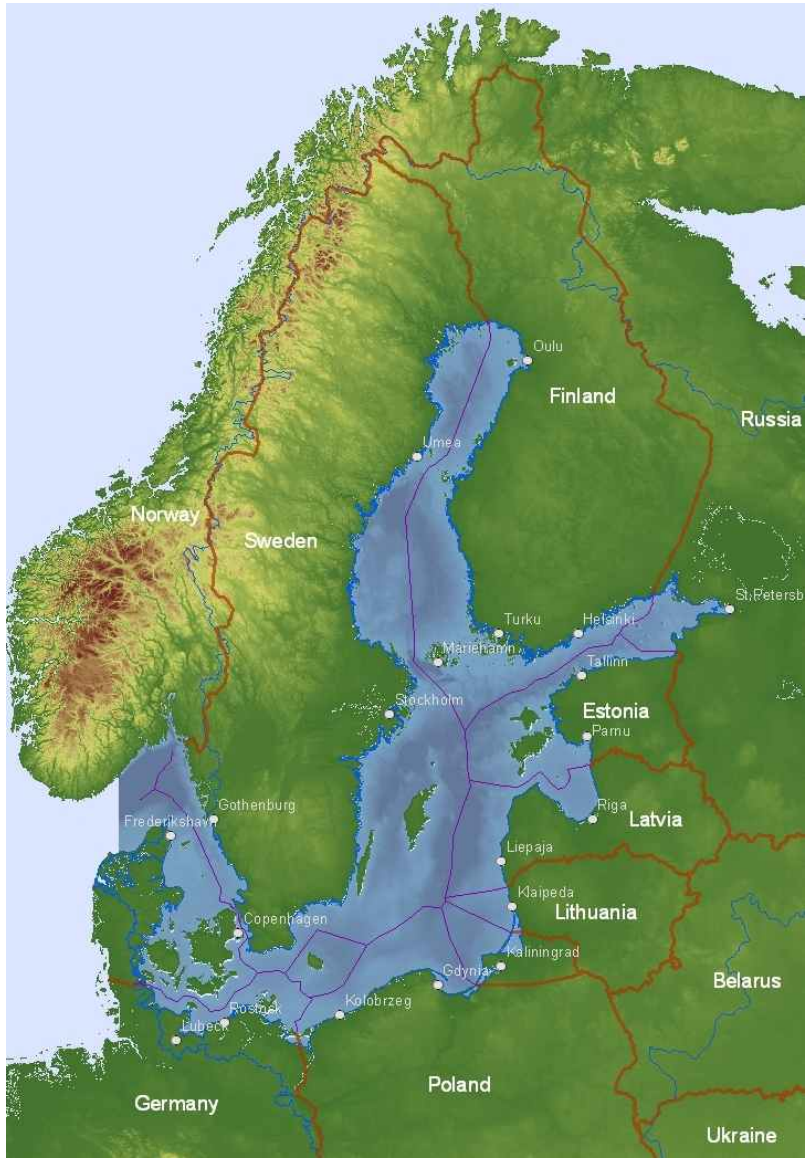

Baltic Sea

- Semi-enclosed
- Sub-basins
- Average depth only 52 m
- Brackish water, up to 12 PSU
- Size of catchment is four times the sea area with 85 million people
- Water residence time about 30 years

Helsinki Commission (HELCOM)

- Governing body of Helsinki Convention
- 10 Contracting Parties: Denmark, Estonia, European Union, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden
- Observers:
  - Belarus, Ukraine, Various organisations
- HELCOM Secretariat assists and facilitates

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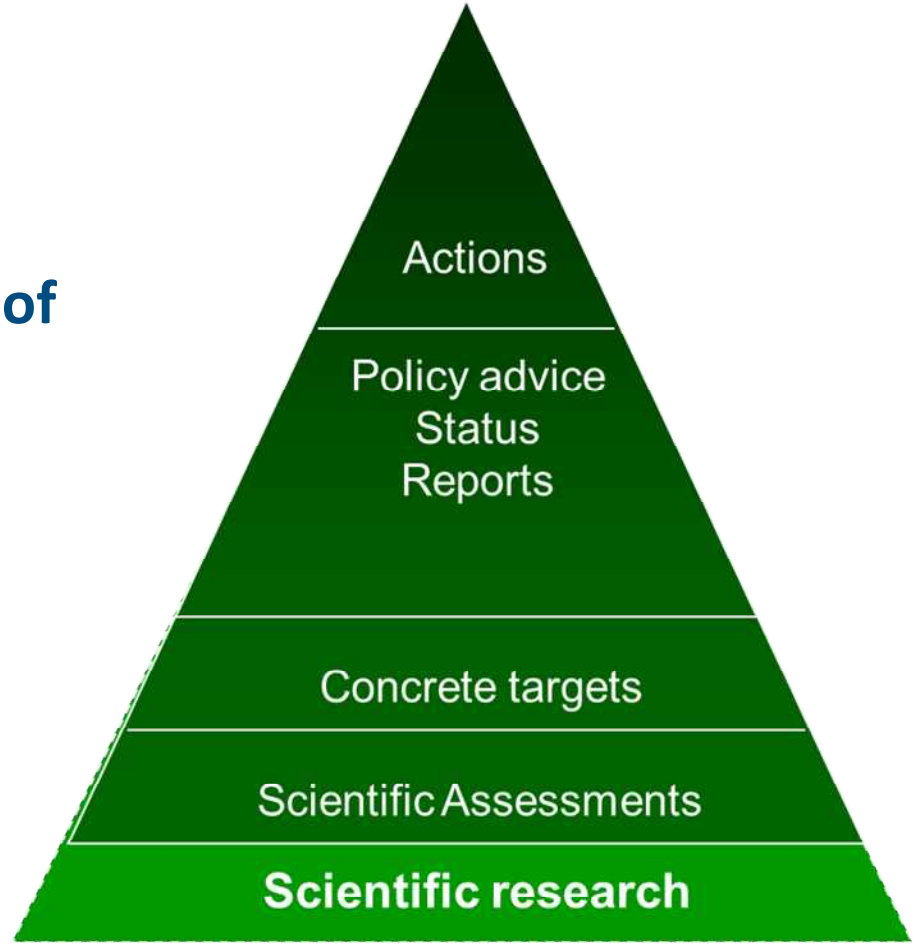
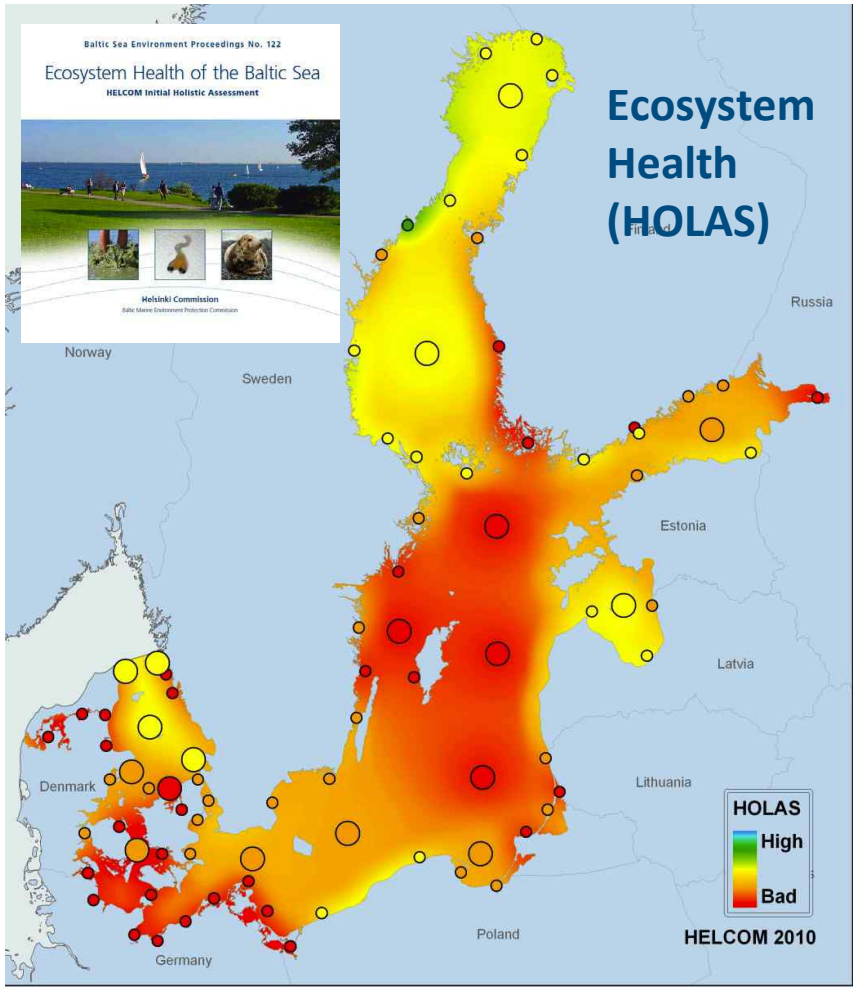
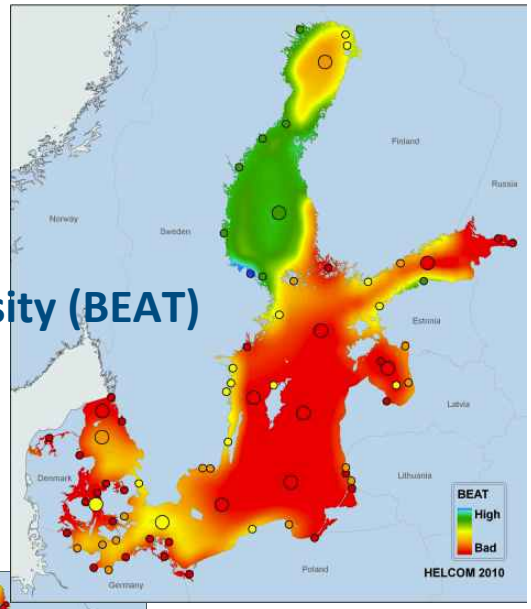
Intergovernmental science-based cooperation for good environmental status of the Baltic Sea



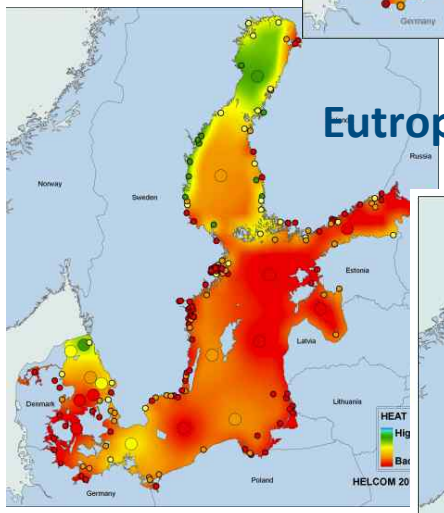
What is the status of the Baltic Sea?

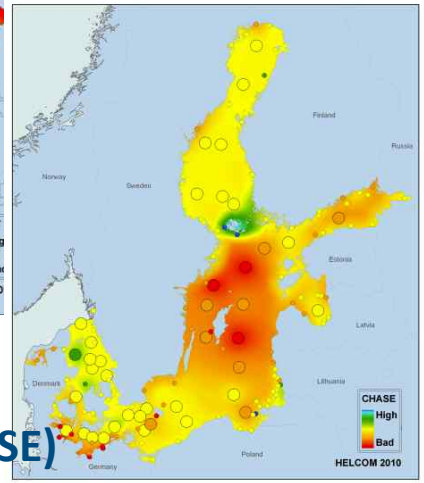


Biodiversity (BEAT)



Eutrophication (HEAT)





Contamination (CHASE)

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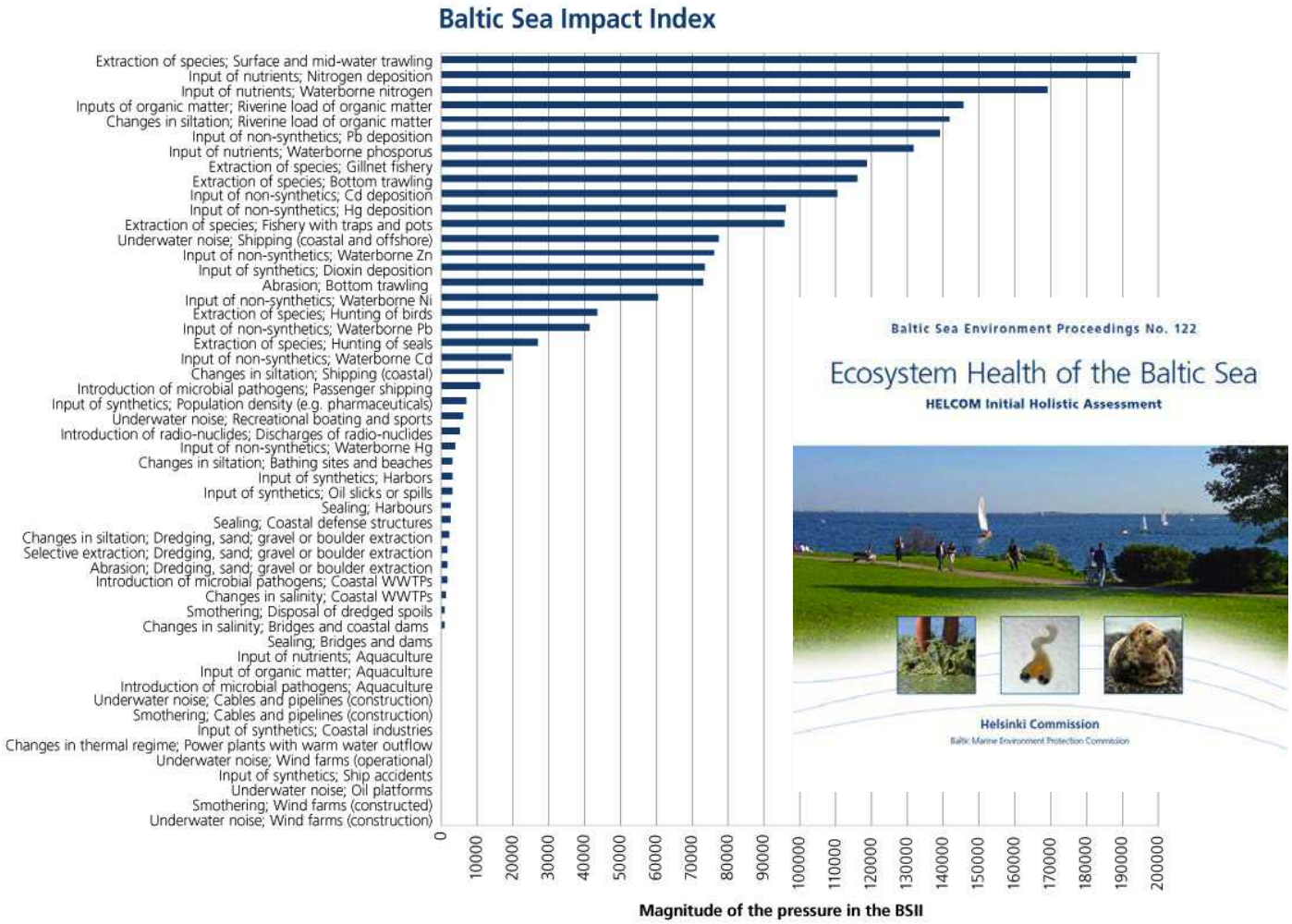
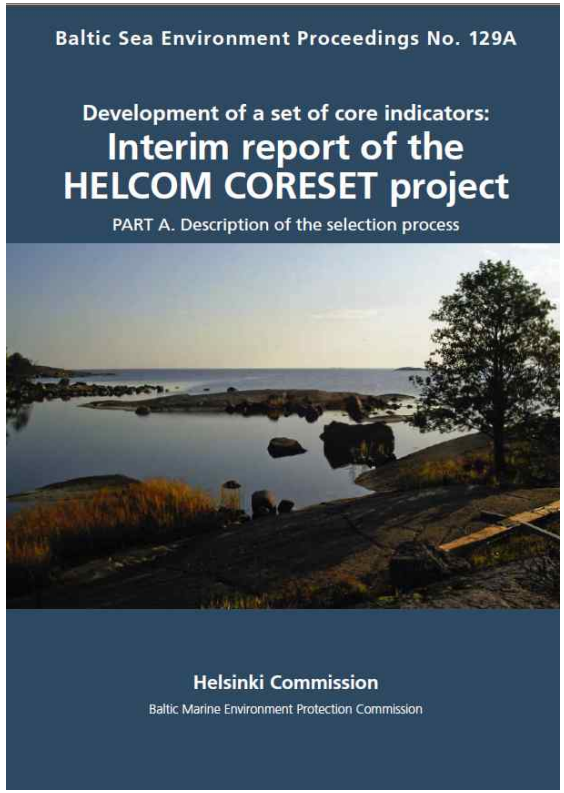
Which human activities cause pressures?



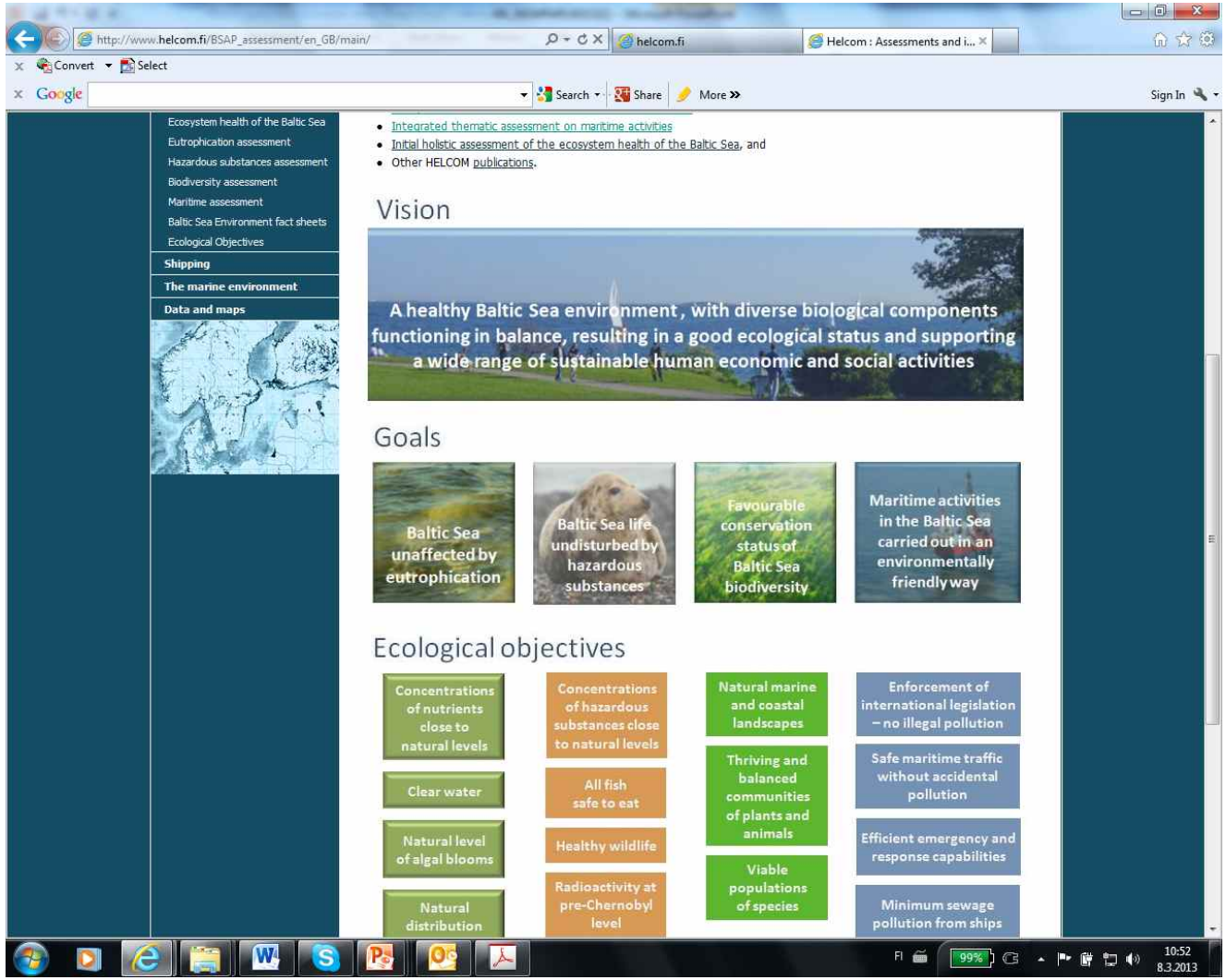
Development of core indicators: HELCOM CORESET project 2010-2013

- Task: to produce indicators with targets for the follow-up of the Baltic Sea Action Plan implementation and EU Marine Strategy Framework Directive purposes
- Focus: biodiversity and hazardous substances but also eutrophication
- Interim report in 2012:
  - ✓ Part A. Selection process.
  - ✓ Part B. Description of indicators.



Common principles for core indicators

- Compiled and updated by the Contracting Parties
- Science-based and describing scientifically sound phenomena
- Each indicator is linked to anthropogenic pressure(s)
- Policy relevance
- Suitability for use with assessment tools (HEAT, BEAT, CHASE, HOLAS), including a target level for good environmental status
- Suitability for measuring progress in implementing BSAP/MSFD
- Textual background report with a status map, trends for sub-regions, technical information, incl. data sources and methods
- Baltic Sea-wide whenever possible
- Core indicator reports are commonly agreed and published on the HELCOM web site
- Data produced with join coordinated monitoring to maintain the indicators
- Methods are harmonised
- Confidence levels are defined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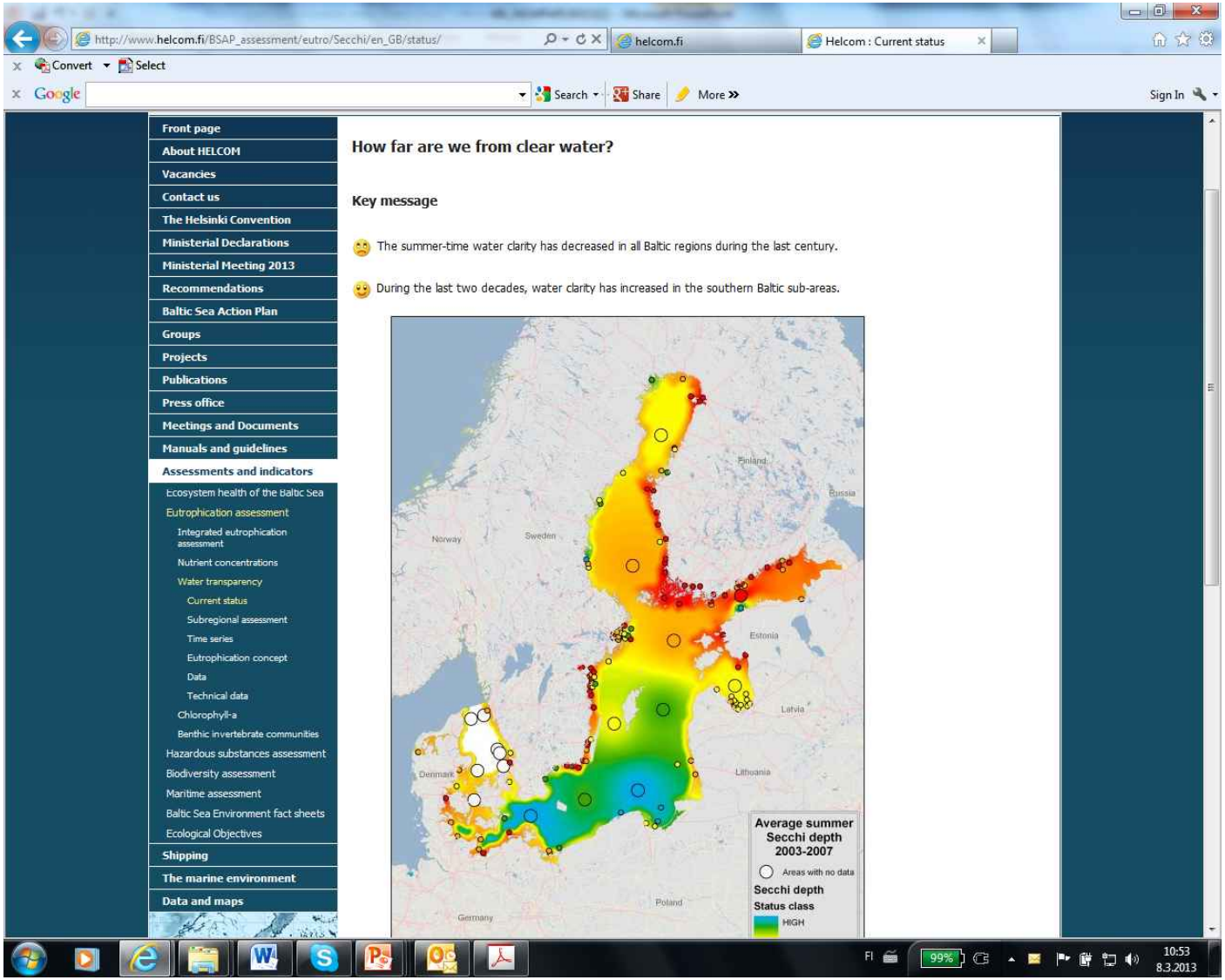
Ecosystem health of the Baltic Sea
Eutrophication assessment
Hazardous substances assessment
Biodiversity assessment
Maritime assessment
Baltic Sea Environment fact sheets
Ecological Objectives
Shipping
The marine environment
Data and maps
Integrated thematic assessment on maritime activities
Initial holistic assessment of the ecosystem health of the Baltic Sea, and
Other HELCOM publications.
Vision
A healthy Baltic Sea environment, with diverse biological components functioning in balance, resulting in a good ecological status and supporting a wide range of sustainable human economic and social activities
Goals
Baltic Sea unaffected by eutrophication
Baltic Sea life undisturbed by hazardous substances
Favourable conservation status of Baltic Sea biodiversity
Maritime activities in the Baltic Sea carried out in an environmentally friendly way
Ecological objectives
Concentrations of nutrients close to natural levels
Clear water
Natural level of algal blooms
Natural distribution
Concentrations of hazardous substances close to natural levels
All fish safe to eat
Healthy wildlife
Radioactivity at pre-Chernobyl level
Natural marine and coastal landscapes
Thriving and balanced communities of plants and animals
Viable populations of species
Enforcement of international legislation – no illegal pollution
Safe maritime traffic without accidental pollution
Efficient emergency and response capabilities
Minimum sewage pollution from ships
FI
99%
10:52
8.3.2013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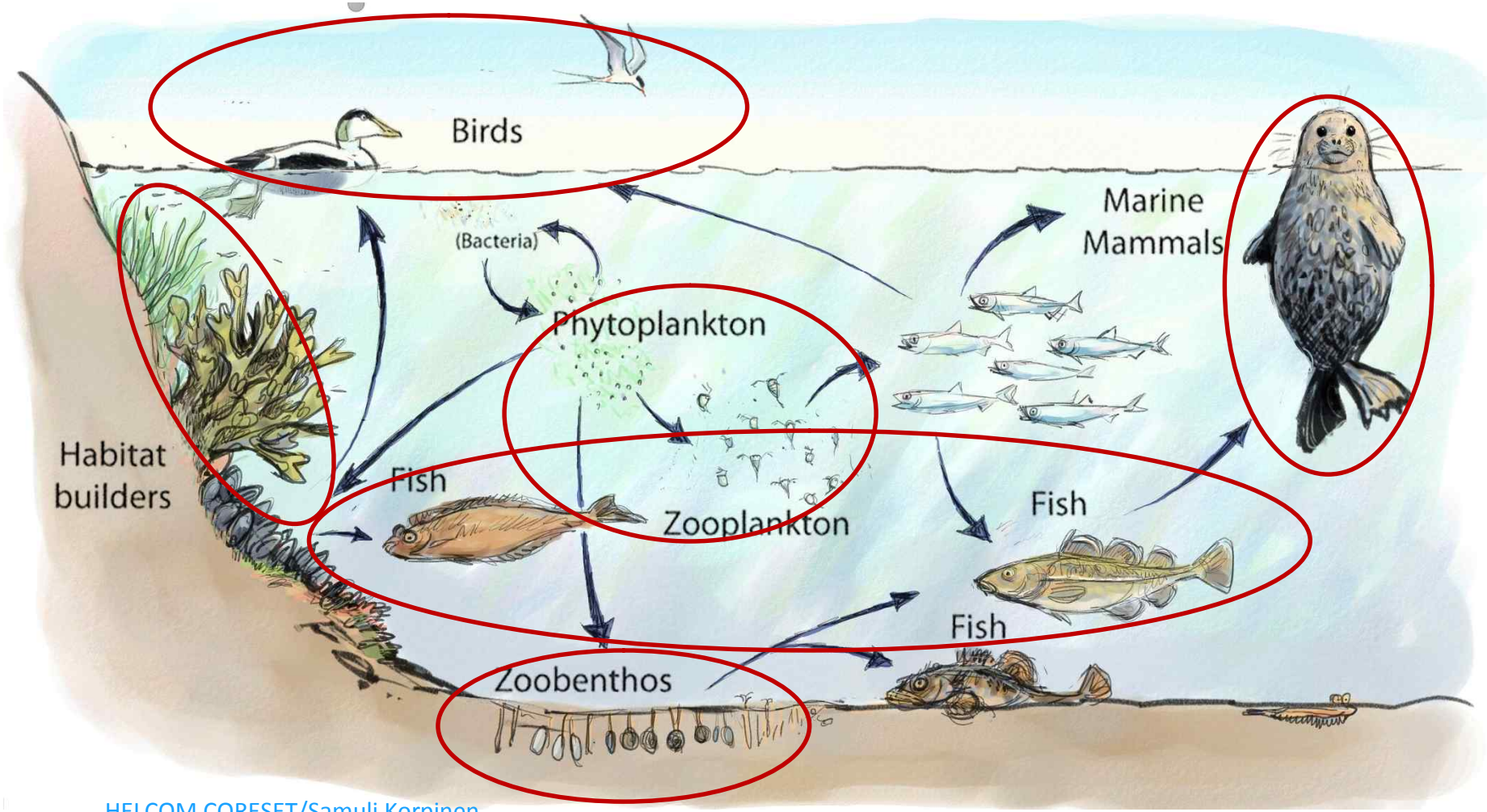
The Helsinki Convention
Ministerial Declarations
Ministerial Meeting 2013
Recommendations
Baltic Sea Action Plan
Groups
Projects
Publications
Press office
Meetings and Documents
Manuals and guidelines
Assessments and indicators
Ecosystem health of the Baltic Sea
Eutrophication assessment
Integrated eutrophication assessment
Nutrient concentrations
Water transparency
Current status
Subregional assessment
Time series
Eutrophication concept
Data
Technical data
Chlorophyll-a
Benthic invertebrate communities
Hazardous substances assessment
Biodiversity assessment
Maritime assessment
Baltic Sea Environment fact sheets
Ecological Objectives
Shipping
The marine environment
Data and maps
How far are we from clear water?
Key message
The summer-time water clarity has decreased in all Baltic regions during the last century.
During the last two decades, water clarity has increased in the southern Baltic sub-areas.
Finland
Russia
Norway
Sweden
Estonia
Latvia
Lithuania
Denmark
Poland
Germany
Average summer Secchi depth 2003-2007
Areas with no data
Secchi depth
Status class
HIGH
FI
99%
10:53
8.3.2013

Provides a measure of a relevant part of the ecosystem

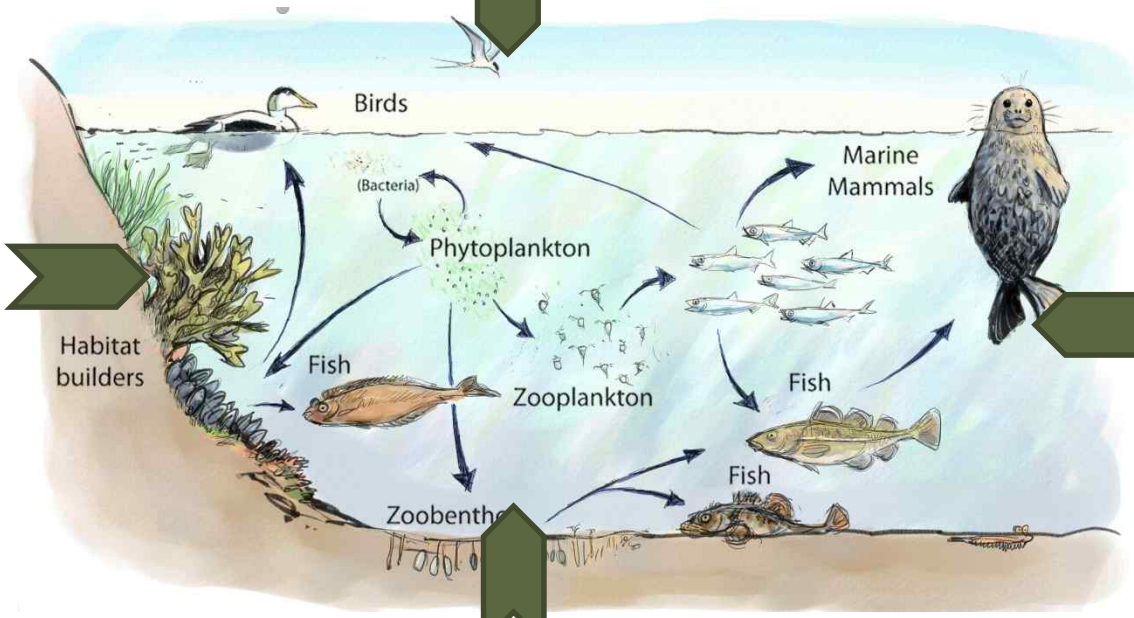


HELCOM CORESET/Samuli Korpinen

Reflects anthropogenic pressures on the ecosystem

Eutrophication

Fishing

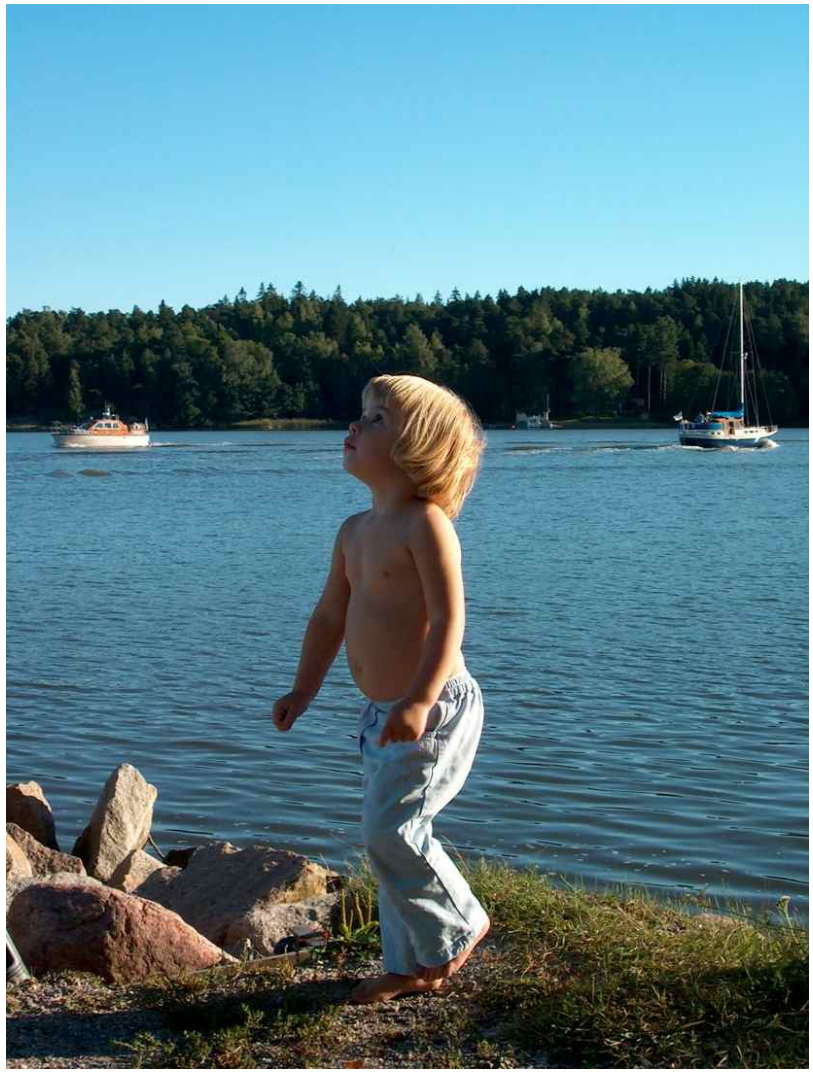


Other pressures

Hazardous substances

Selection criteria

- Baltic Sea **functional groups**
- **Predominant habitats** (e.g. from HELCOM RED LIST)
- List of Baltic Sea **key species** identified by biodiversity experts
- Anthropogenic pressures (cf. also Baltic Sea Pressure/Impact Index)
- Monitoring, whether existing or needed

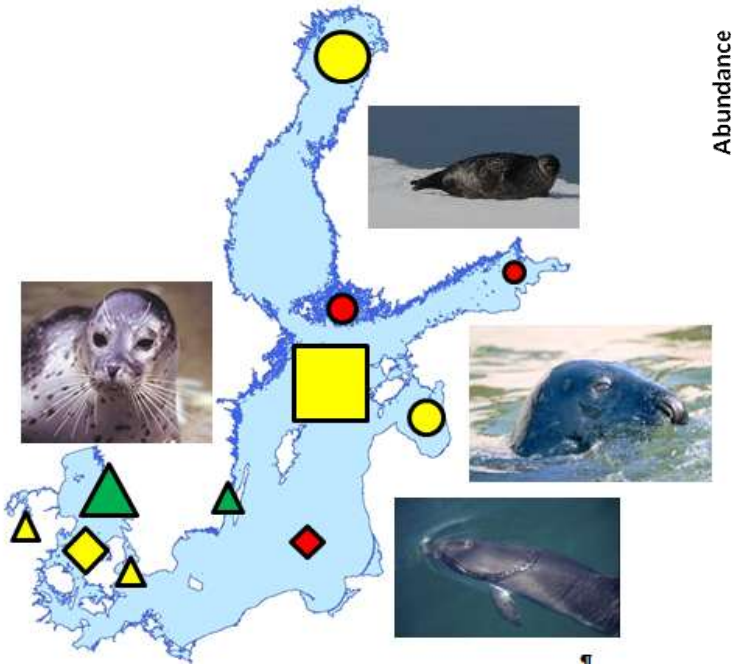


Proposed core indicators

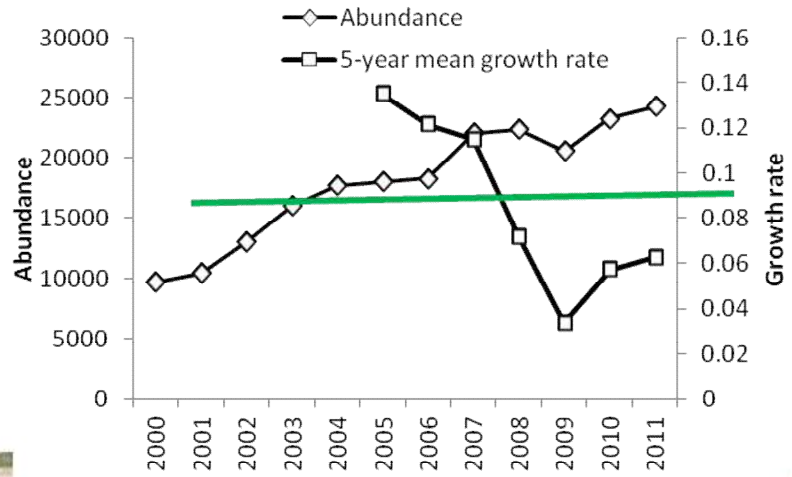
	Proposed core indicators
14.	Population growth rates, abundance and distribution of marine mammals
15.	Pregnancy rates of marine mammals
16.	Nutritional status of seals
17.	Number of drowned mammals and waterbirds in fishing gears
18.	White-tailed eagle productivity
19.	Abundance of waterbirds in the wintering season
20.	Abundance of waterbirds in the breeding season
21.	Number of waterbirds being oiled annually
22.	Abundance of key fish species
23.	Abundance of fish key functional groups
24.	Proportion of large fish in the community
25.	Abundance of sea trout spawners and parr
26.	Abundance of salmon spawners and smolt
27.	Zooplankton mean size and total abundance
28.	State of the soft-bottom macrofauna communities
29.	Lower depth distribution limit of macrophyte species
30.	Population structure of long-lived macrozoobenthic species
31.	Cumulative impact on benthic habitats
32.	Extent, distribution and condition of benthic biotopes
33.	Trends in arrival of new non-indigenous species

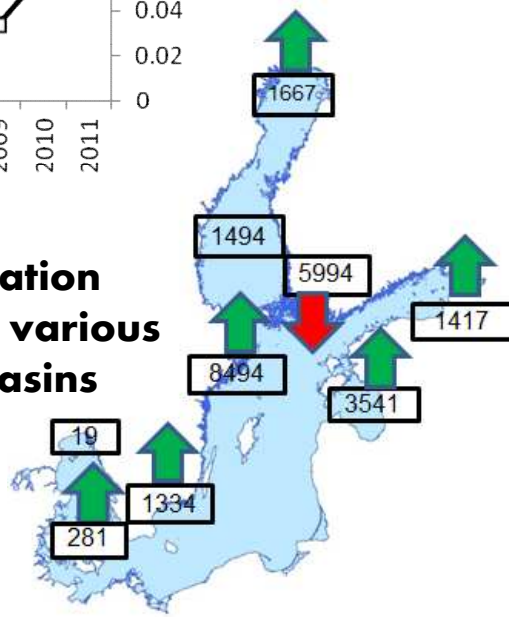
Multi-layered core indicator reports

Components of the reports for populations of marine mammals



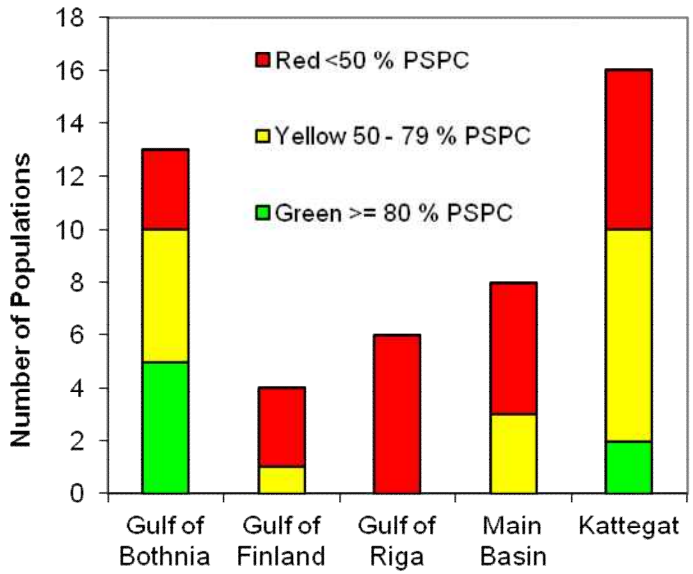
Status summary

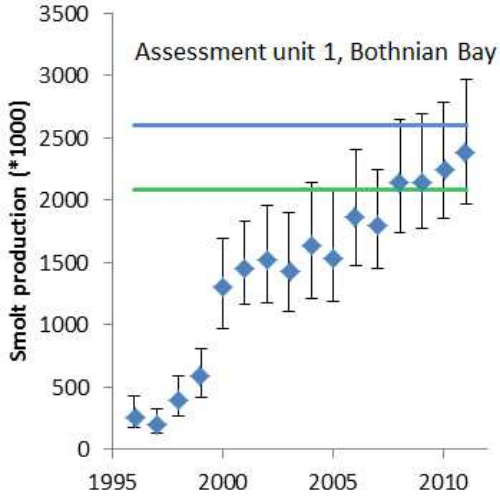


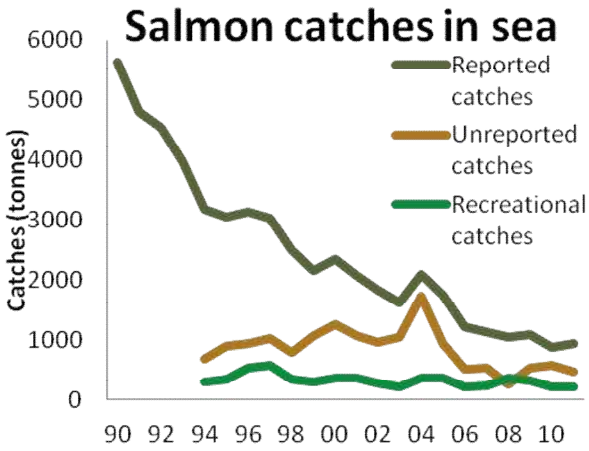


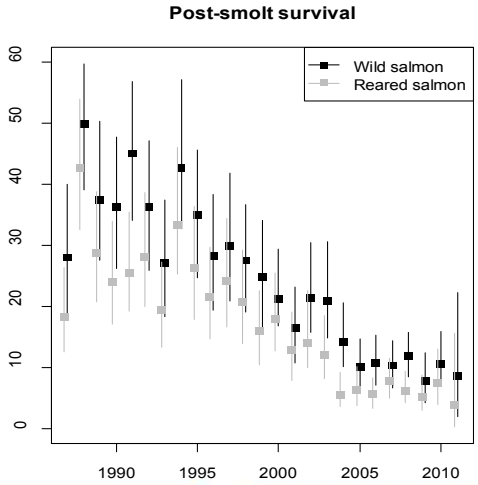
Population trends in various sub-basins

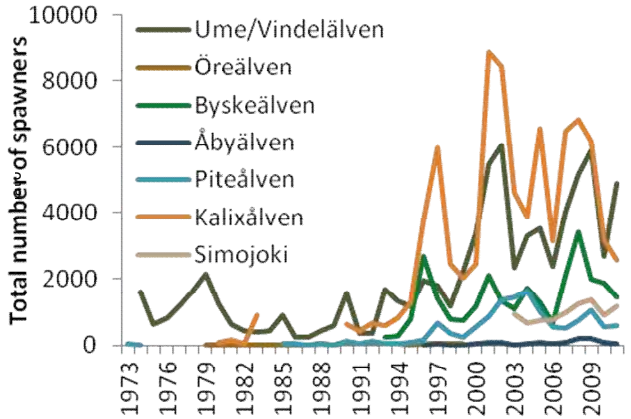
Components of the reports for salmon stocks











Launching the results

A set of core indicators agreed for HELCOM coordinated monitoring programme

Feeding to HELCOM MORE

Core indicators published on the HELCOM online follow-up system

Supporting 2013 Ministerial Meeting

Final report of the project evaluates the outcome

Giving a coherent overview of the core indicators and the process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