

# Multiple drivers for Earth system changes in the Baltic Sea region

The HELCOM perspective

Baltic Earth Workshop on Multiple drivers for Earth system  
changes in the Baltic Sea region

# State of the Baltic Sea

*Summary report  
with complete overview  
and key messages*

## STATE OF THE BALTIC SEA REPORT

*Method descriptions and  
more detailed results*

### **HOLAS II Supplementary material**

- Thematic assessment of eutrophication
- Thematic assessment of hazardous substances
- Thematic assessment of biodiversity
- Thematic assessment of cumulative impacts
- Thematic assessment – Economic and social analyses

### **Other supporting HELCOM assessments**

- Maritime assessment
- Pollution load compilation
- Thematic assessment of coastal fish
- Ecological coherence of MPA network
- Red List of Baltic Sea species
- Checklist of Baltic Sea macrospecies

*Indicator approaches and  
assessments, data sources*

### **Core indicator reports**

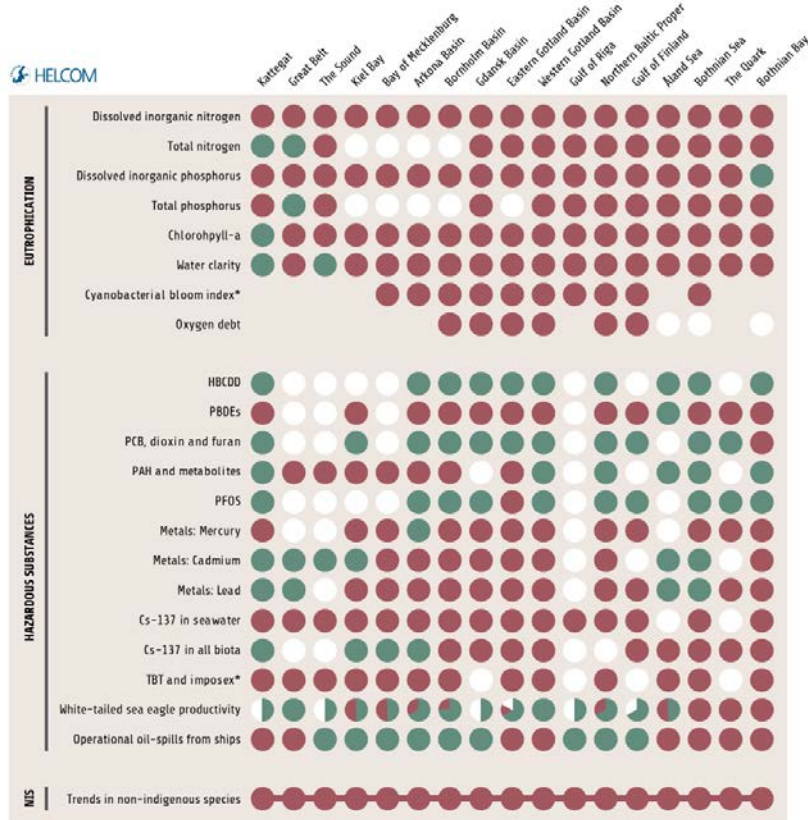
### **Spatial data fact sheets on**

- human activities
- pressures
- ecosystem components



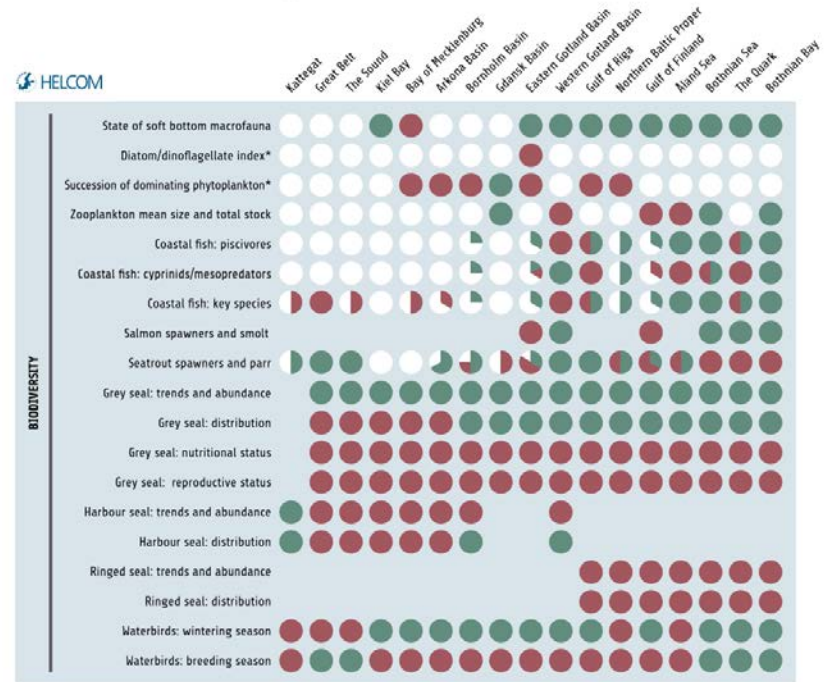
# State of the Baltic Sea

Status of pressure-based core indicators in the sub-basins of the Baltic Sea



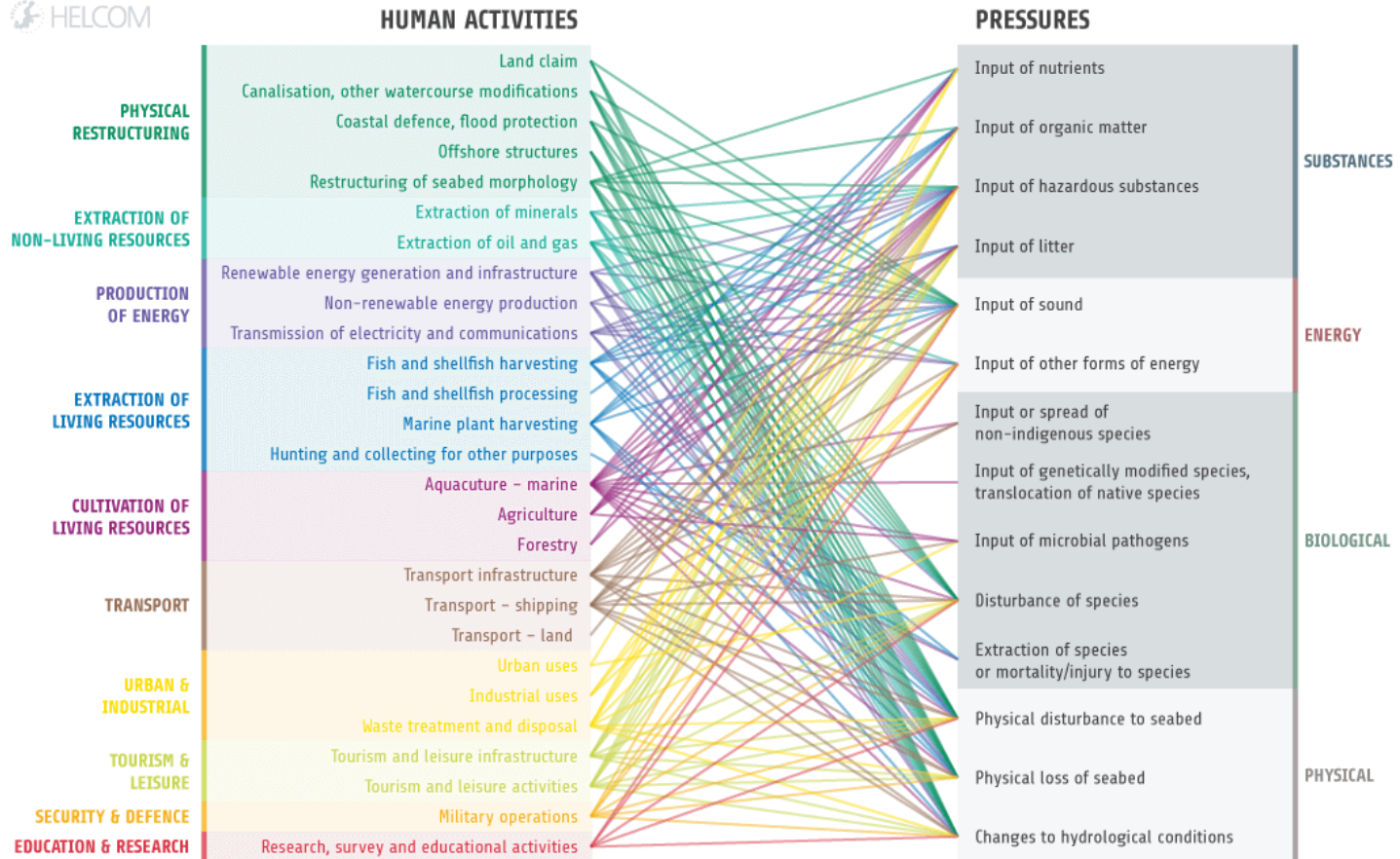
\* Included as test

Status of biodiversity core indicators in the sub-basins of the Baltic Sea



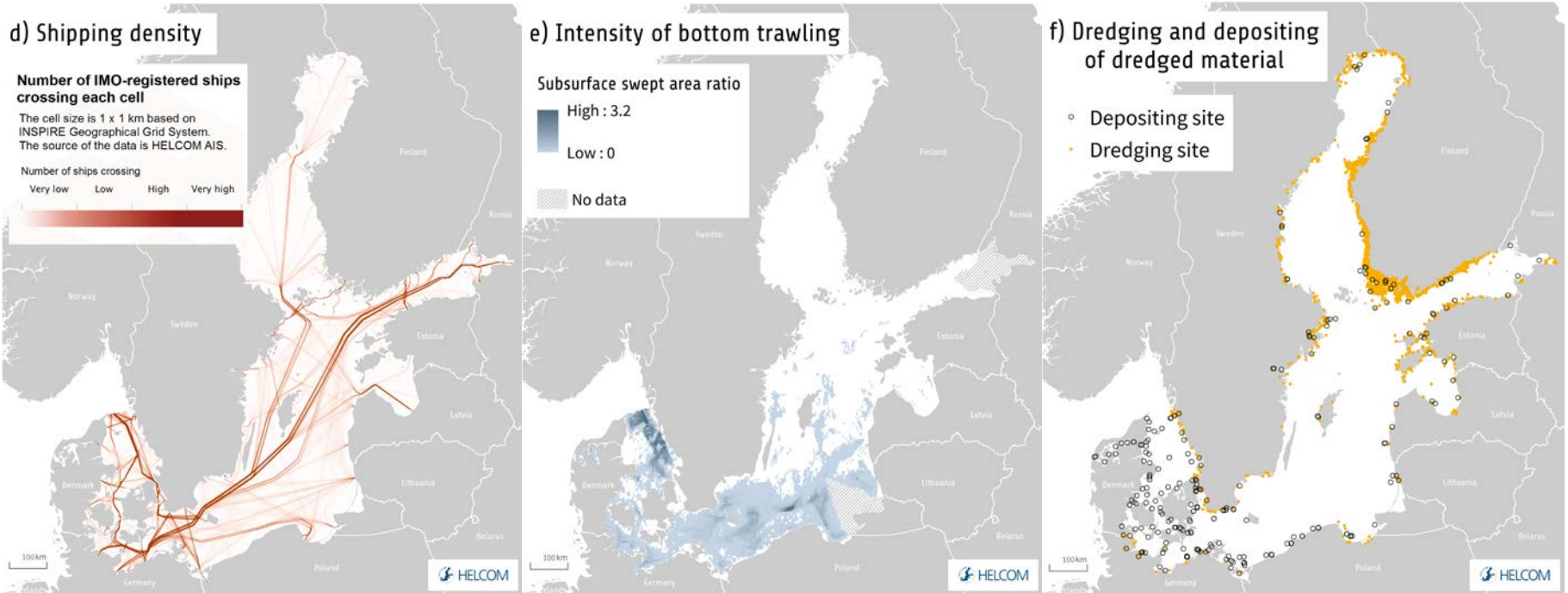
\* Included as test

# Human activities and pressures

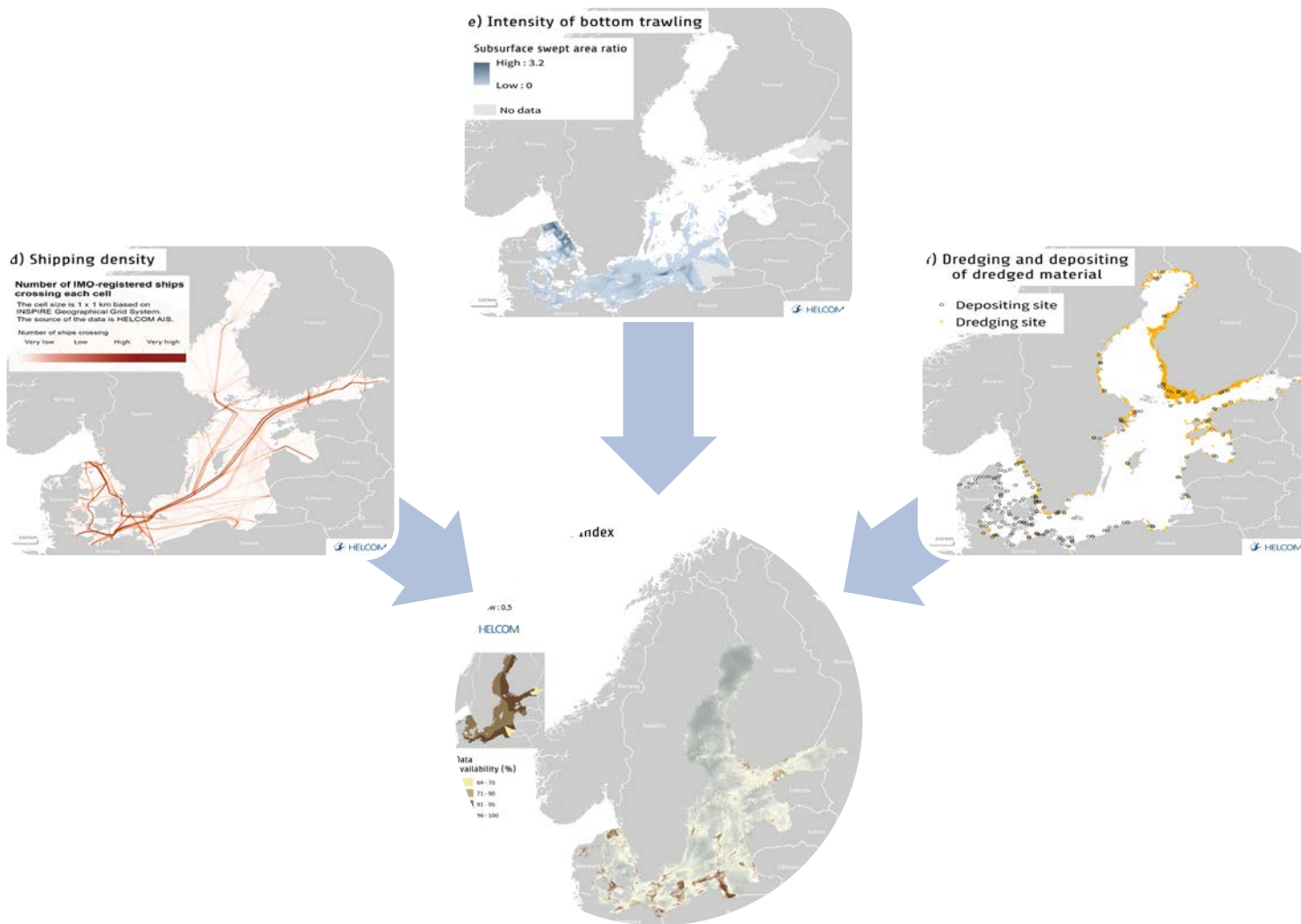




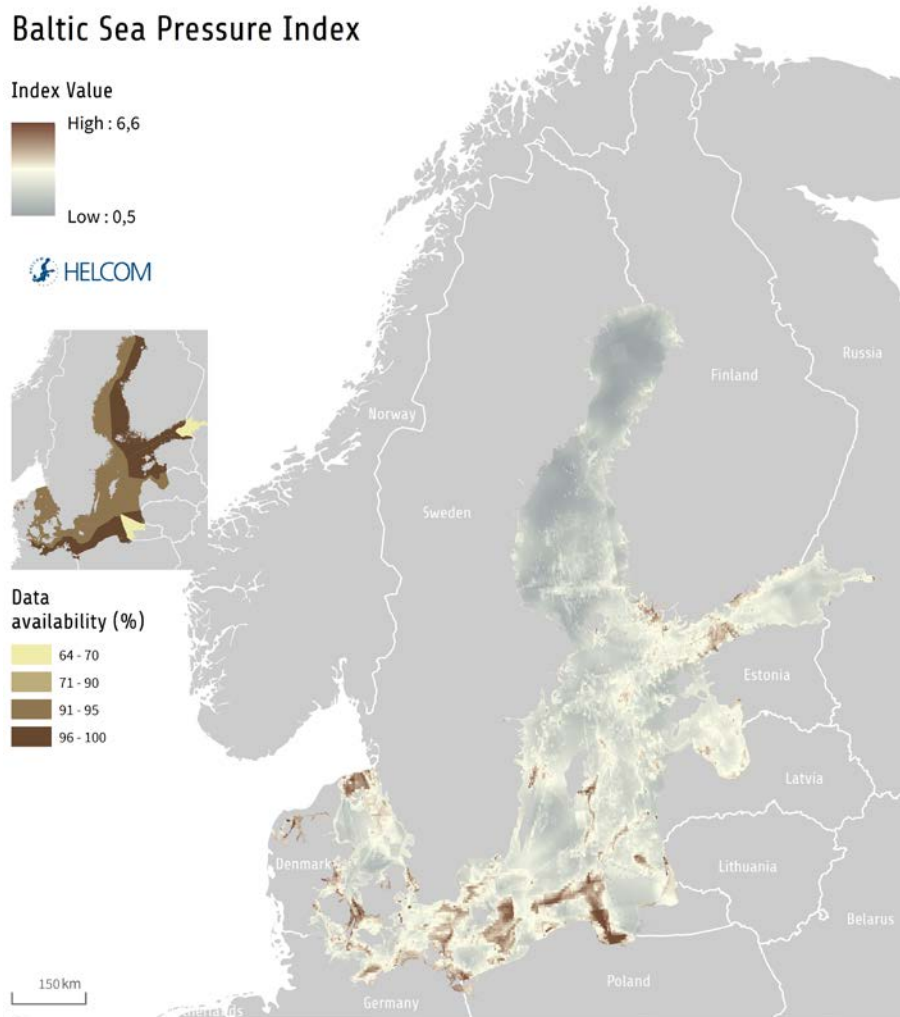
# Pressures in the Baltic Sea



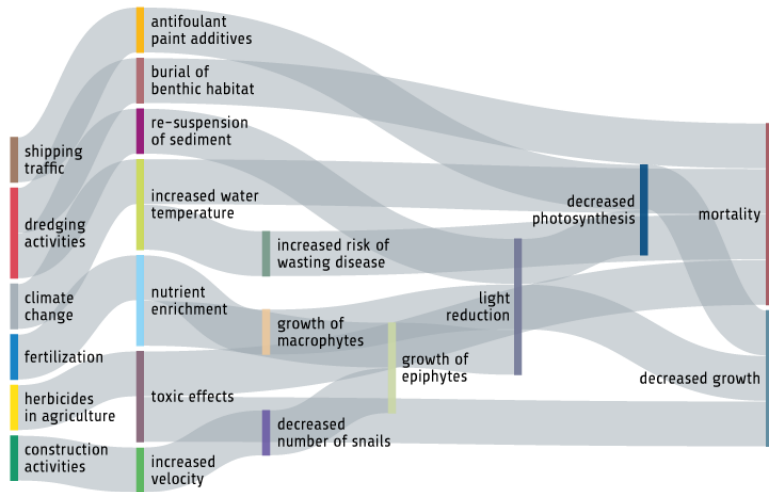
# Baltic Sea Pressure Index (BSPI)



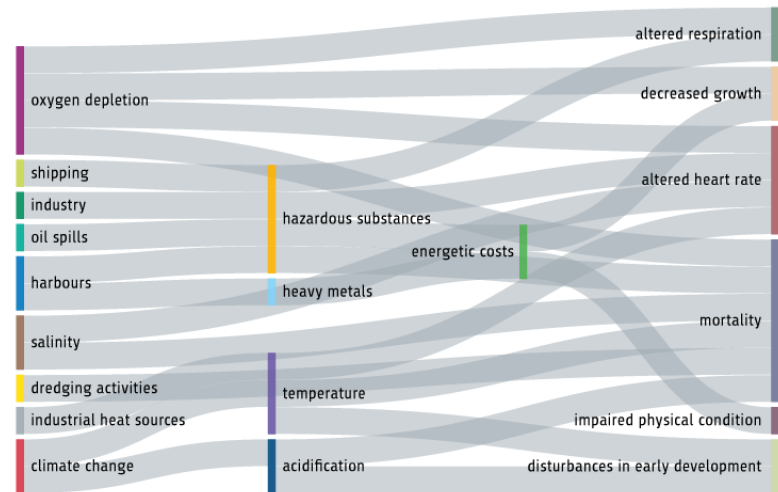
# Baltic Sea Pressure Index (BSPI)



# Linking pressures to state



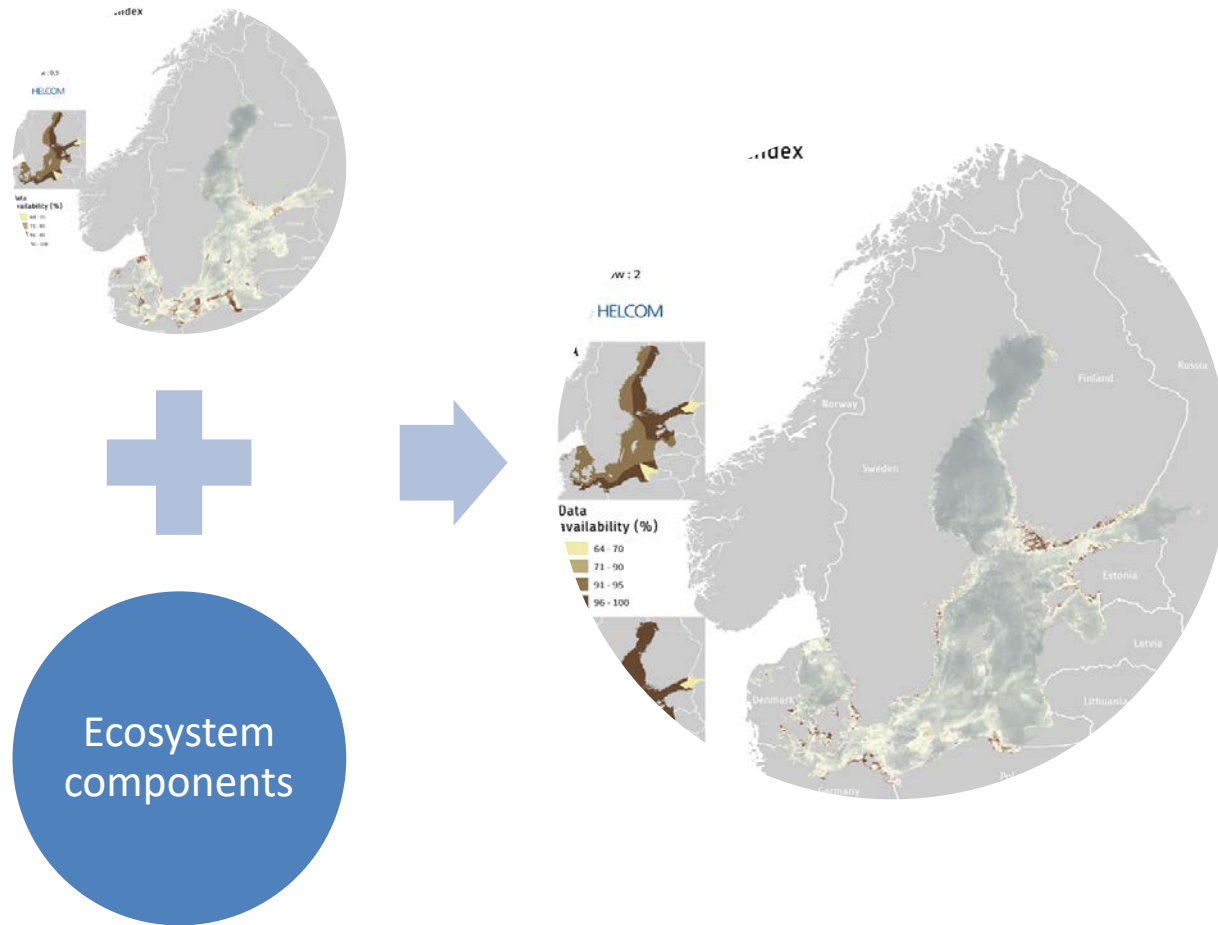
Effects of selected human activities on seagrass meadows.  
Based on systematic literature review using the LiACAT tool  
(HELCOM 2016, Eilers et al. 2018).



Effects of human activities on blue mussels.  
Based on systematic literature review using the LiACAT tool  
(HELCOM 2016, Eilers et al. 2018).



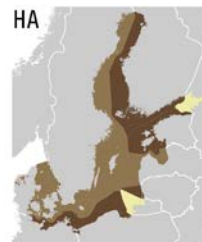
# Baltic Sea Impact Index (BSII)



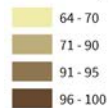
# Baltic Sea Impact Index

## Baltic Sea Impact Index

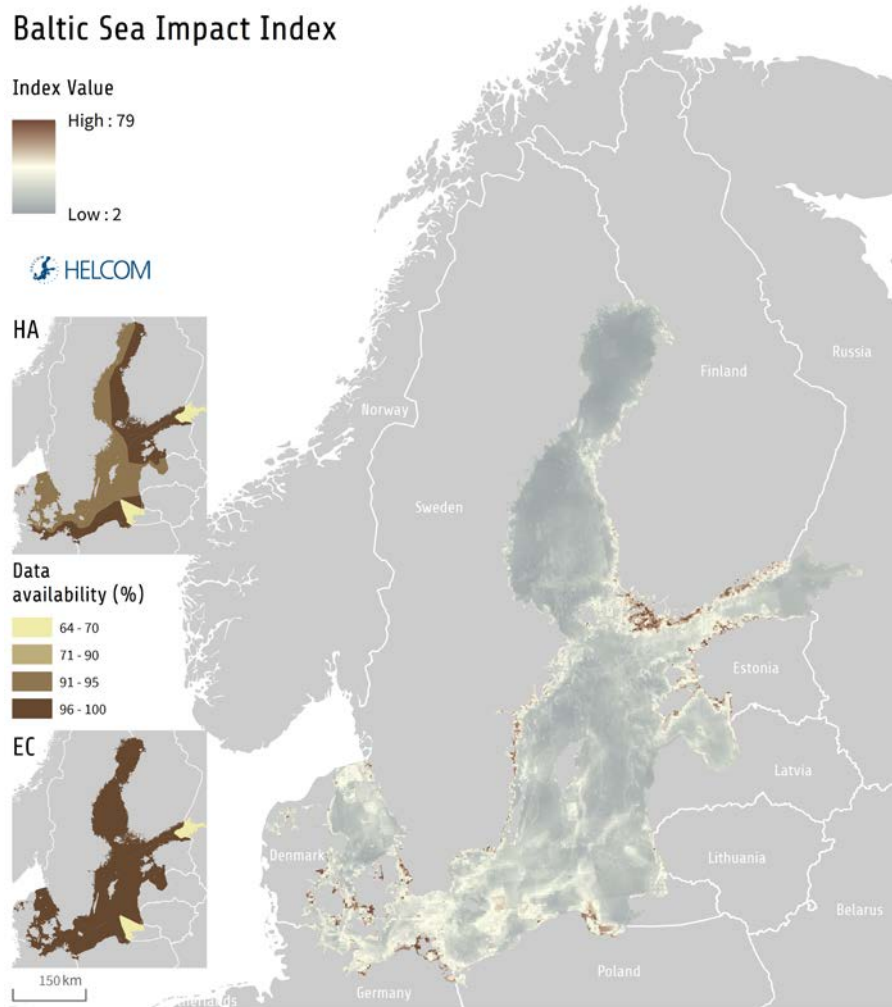
Index Value



Data availability (%)



150 km

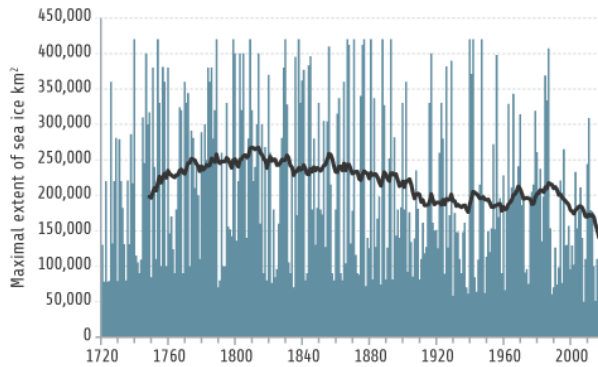


# Gaps

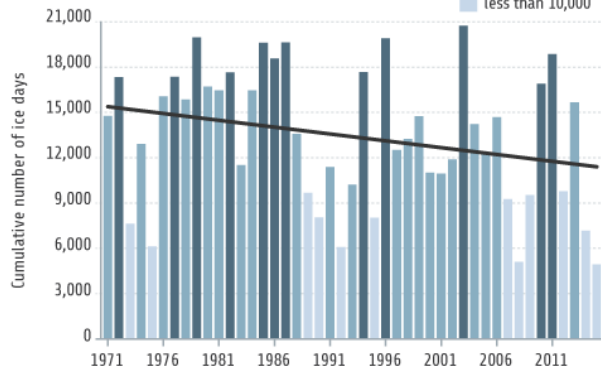
- Cumulative but not compounding or synergistic effects. The total effects of pressures may be larger than their parts.
- The intensity of the pressures in relation to the impacts they may cause on the environment is typically not incorporated.
- Shows current pressure only (no possibility to forecast and not including plans)
- Currently looking at a limited, aggregated, timeframe (6 years)
- Harmonisation of language and concepts
- Data coverage.
- Ecosystem components at a much more coarse scale and limited in number.
- Positive sideeffects of pressures not accounted for.
- **Climate change effects (current and future) not considered.**

# Climate Change

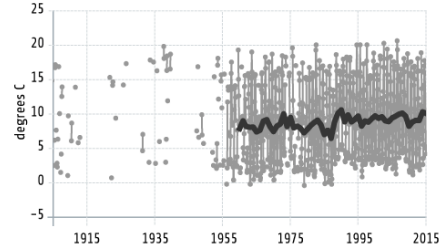
Maximal extent of sea ice



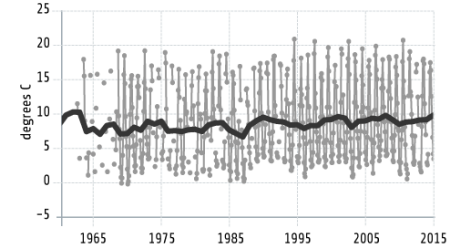
Cumulative number of ice days



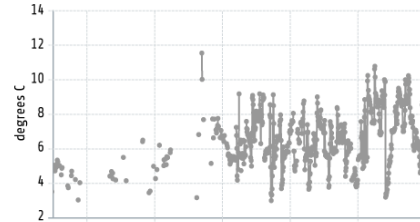
Sea surface temperature, BY5 Bornholm Deep



Sea surface temperature, BY15 Gotland Deep



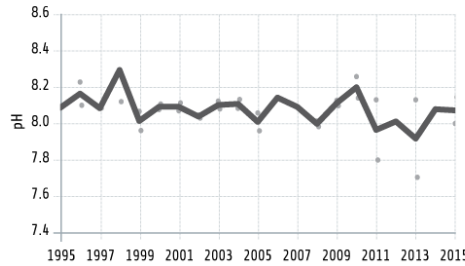
Bottom temperature ( $\geq 80m$ ), BY5 Bornholm Deep



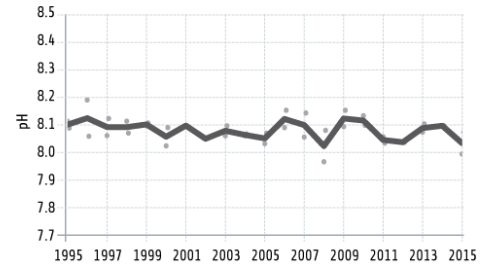
Bottom temperature ( $\geq 225m$ ), BY15 Gotland Deep



Sea surface winter pH, BY5 Bornholm Deep



Sea surface winter pH, BY15 Gotland Deep







# Conclusion

[State of the Baltic Sea Webpage](#)

State of the Baltic Sea Report

Thematic Assessment on Cumulative Impacts

[HELCOM Map and Data Services](#)





Baltic Marine Environment Protection Commission