Baltic Sea Basin Check Point (BSCP) project – a fit4purpose assessment of marine data

Kristine S. Madsen and Jun She

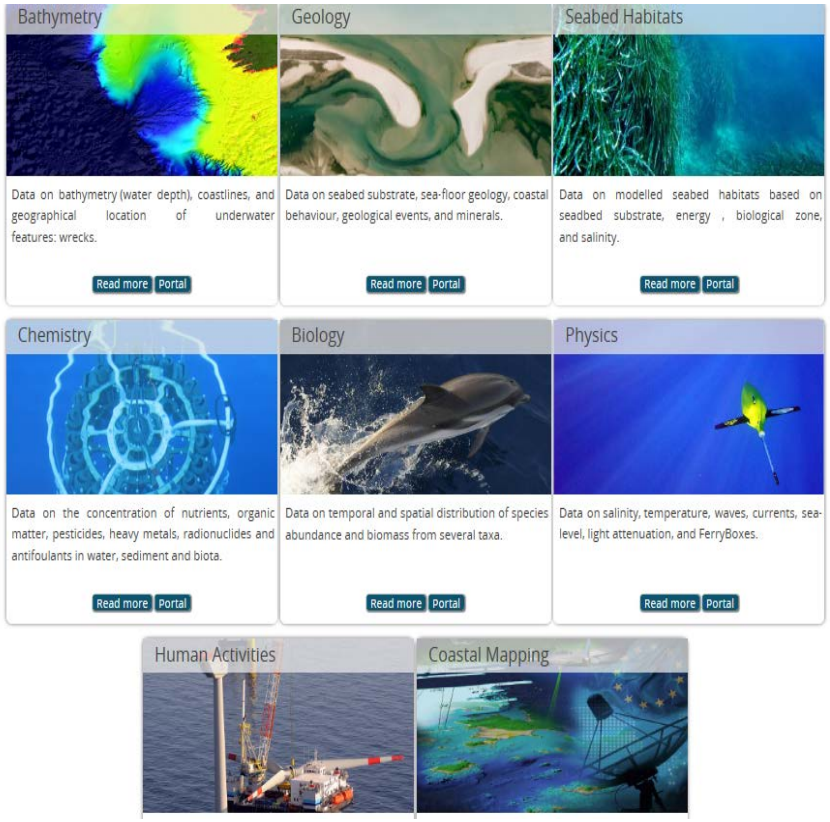
Danish Meteorological Institute

kma@dmi.dk & js@dmi.dk

EMODnet – European Marine Observation Network

Collect marine data once, use it many times

- Seven Data Lots:

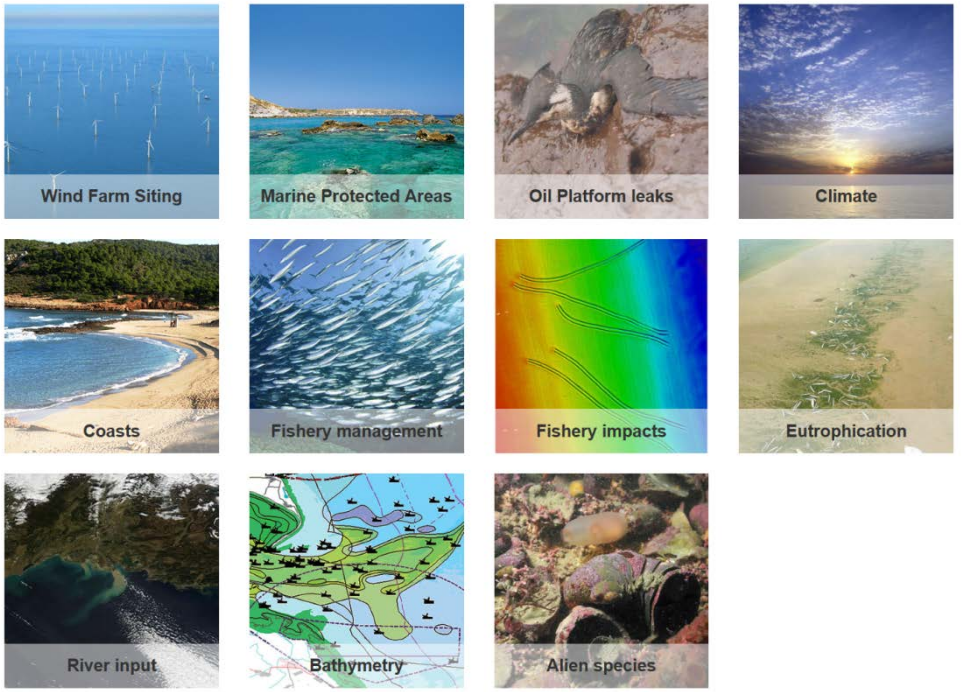


- Six Sea Basin Checkpoint projects

Rational of Baltic Sea Checkpoint project

- The value of data will be realised only when thay are used
- The motivation of data investors is to maximize the value of data
- Data value depends on the efficiency of the data usage and quality of data, in many cases, an integrated use of multiple datasets
- The purpose of the project is to answer ”do the existing marine data in the Baltic Sea fit for the purpose of major applications?”

- **11 Challenge areas**



Observational networks assessed

- Operational monitoring BOOS
- Environmental monitoring HELCOM
- Fishery monitoring (open water, coastal fisheries)
- National Geological Servey
- Baltic Sea Hydrological Committee
- Research data (BONUS, Interreg, H2020)
- Commercial data

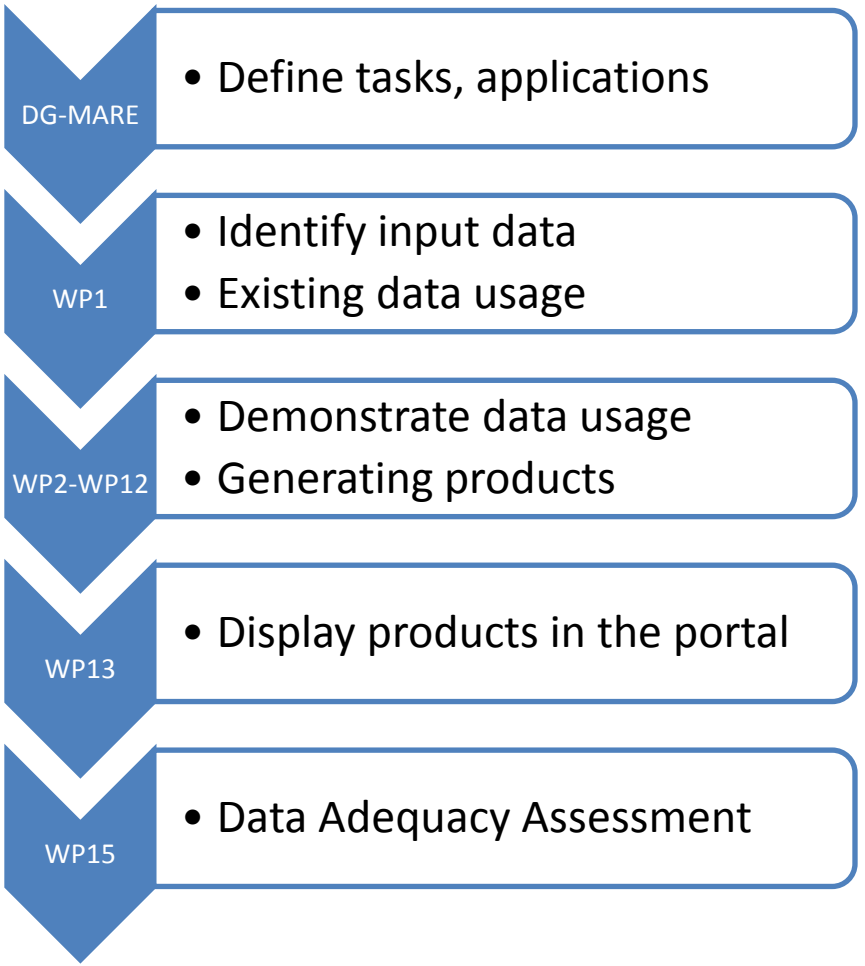
- In-situ Observations
  - Air
  - Water
  - Biota
  - Sea bed
  - Human activity

- Modelling tool and satellite data are **integrated** with in-situ data to fit for the purpose

Project deliverables and workflow

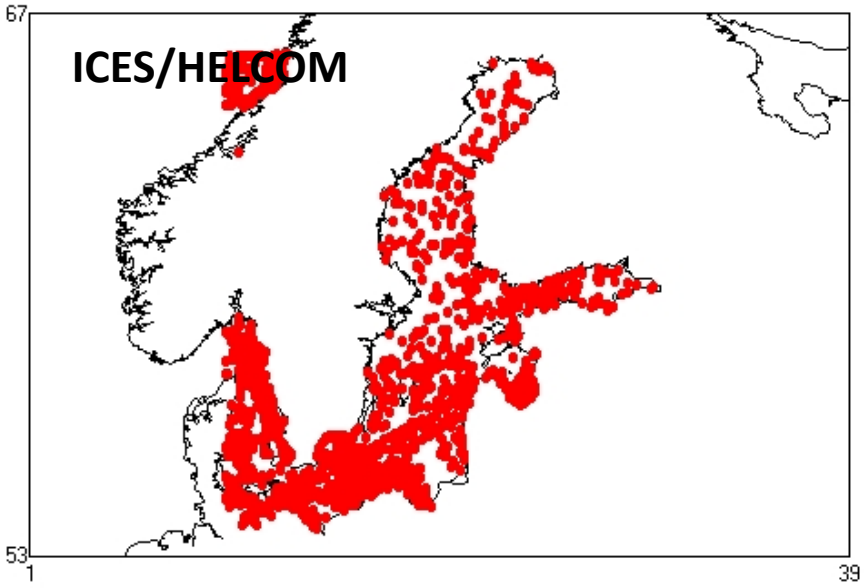
- Literature review report: a review on the existing data and usage in Baltic Sea (delivered)
- Products in 11 challenge areas, e.g.,
  - Wind, wave, current, ice conditions in Baltic Sea
  - Marine protected areas
  - Sea level change in past 100 years in Baltic coast
  - Oil leak drift predictions
  - Eutrophication maps for past 10 years
  - Fishery landings, discard time series
  - Alien species
- Data adequacy report_I (ready in Sep. 2016)
- Data adequacy report_II (ready in Dec. 2017)
- Above deliverables should be accessible from BSCP web portal

http://www.emodnet-baltic.eu/



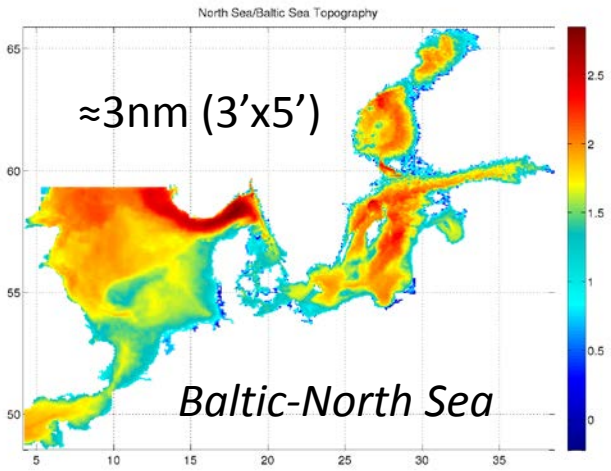
Physical observations (T/S, sea level, sea ice)

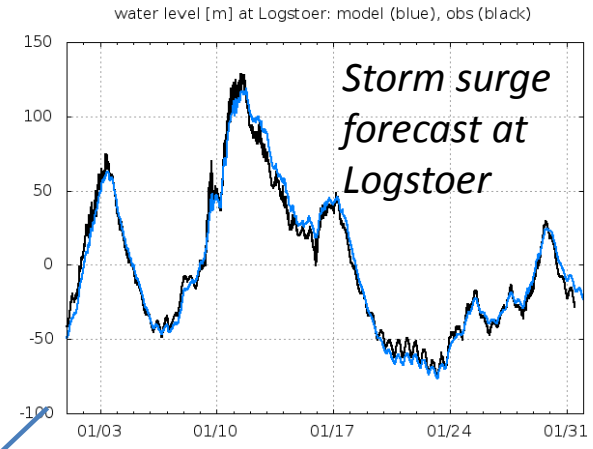
- SST: satellite and BOOS (esp. Ferrybox) complement each other
- T/S: BOOS (mainly coastal) and Helcom/ICES (mainly offshore) observations complement each other
- Sea level: satellite and BOOS tidal gauge network complement each other
- Ice chart mainly from satellite (CMEMS), lack of ice thickness data



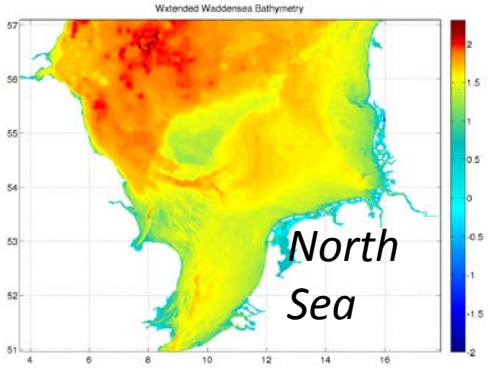
EMODnet European Marine Observation and Data Network

A two-way nested system for Baltic Sea modelling

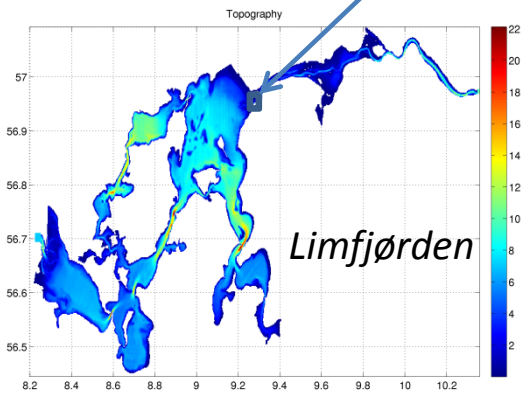




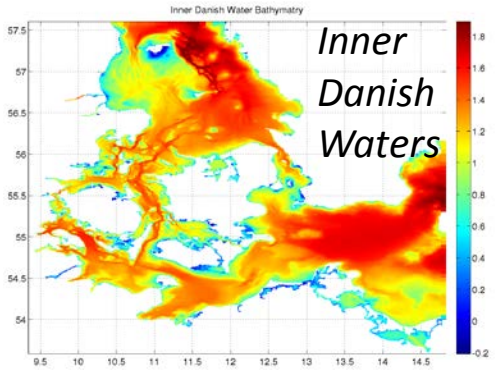
≈1nm (1'x1.66')



≈0.1nm ≈185m (5''x10'')



≈0.5nm (30''x50'')



Physical modelling has reached such high quality and resolution that it becomes an efficient and necessary part of monitoring

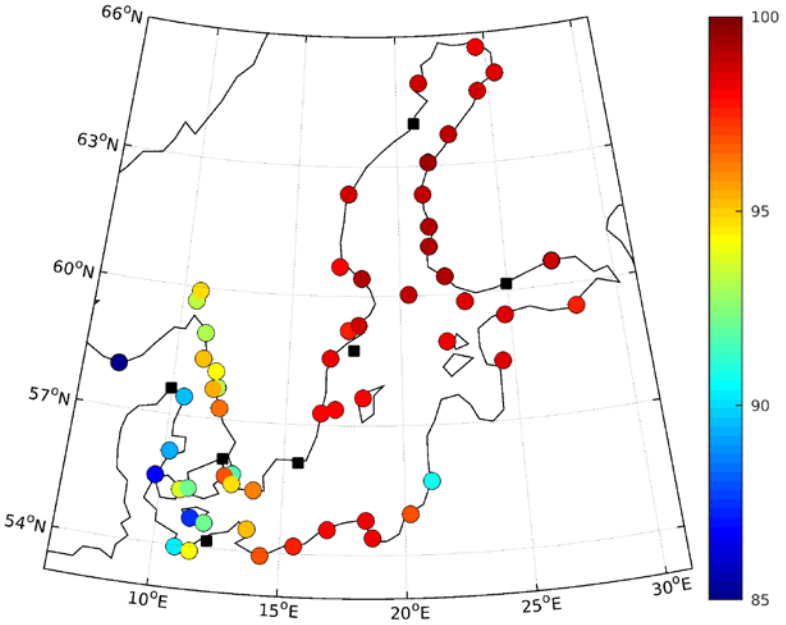
Modelling is an efficient and necessary part in monitoring

reconstruction of 100yr Baltic Sea level

- Problem: Users need 100y sea level data everywhere in the Baltic Sea. Gaps exists.

- Solution: 20 year model reanalysis is used to establish a statistical model to reconstruct the 100yr sea level time series on the model grid.

- Coloured circles (validations): correlation with independent gauges [%]

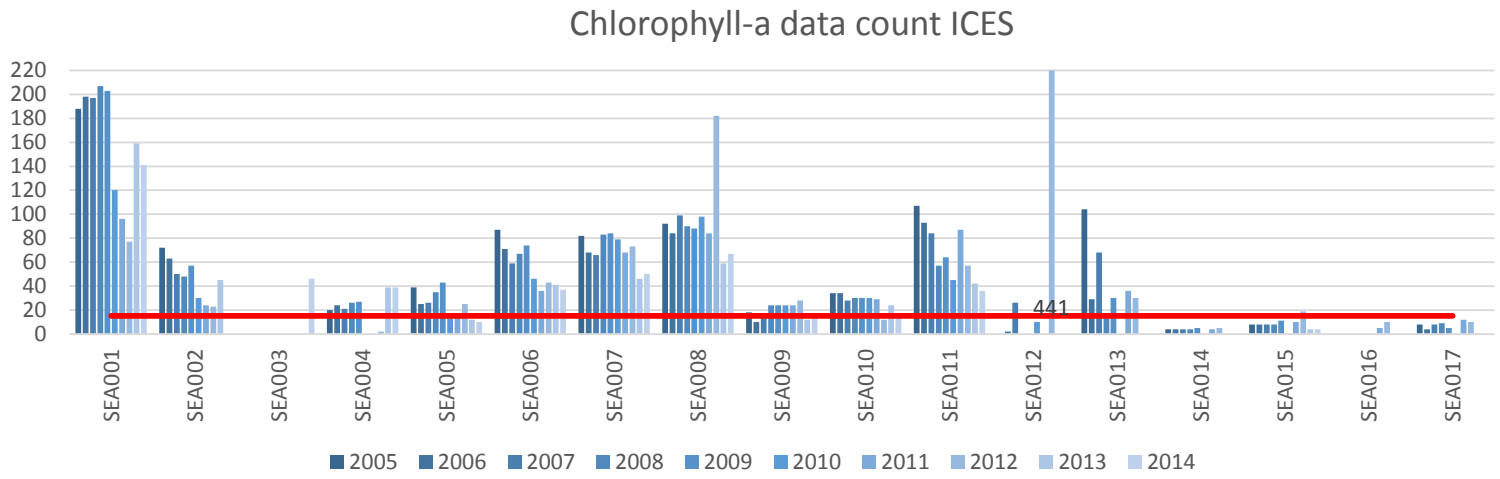


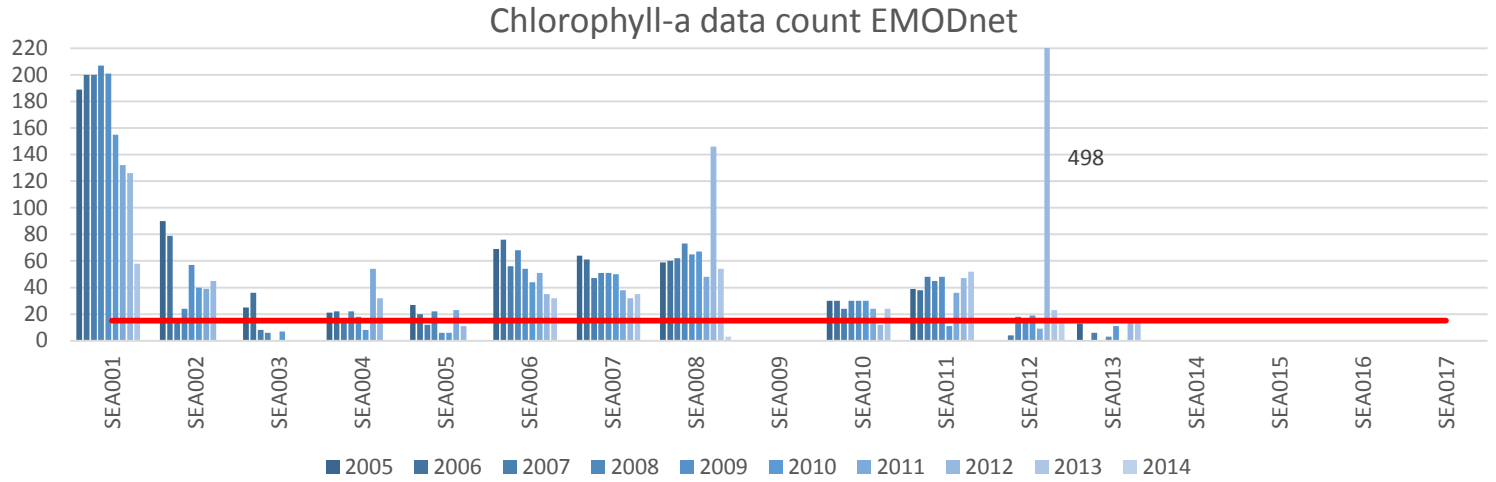
Biogeochemical data from satellite for challenge areas

- There is a lack of in-situ data of suspended sediment, secchi depth and chl-a for
  - coastal erosion,
  - marine protected areas
  - Eutrophication assessment
  - Algae biamass
- An integrated use of satellite and in-situ data is needed in above areas

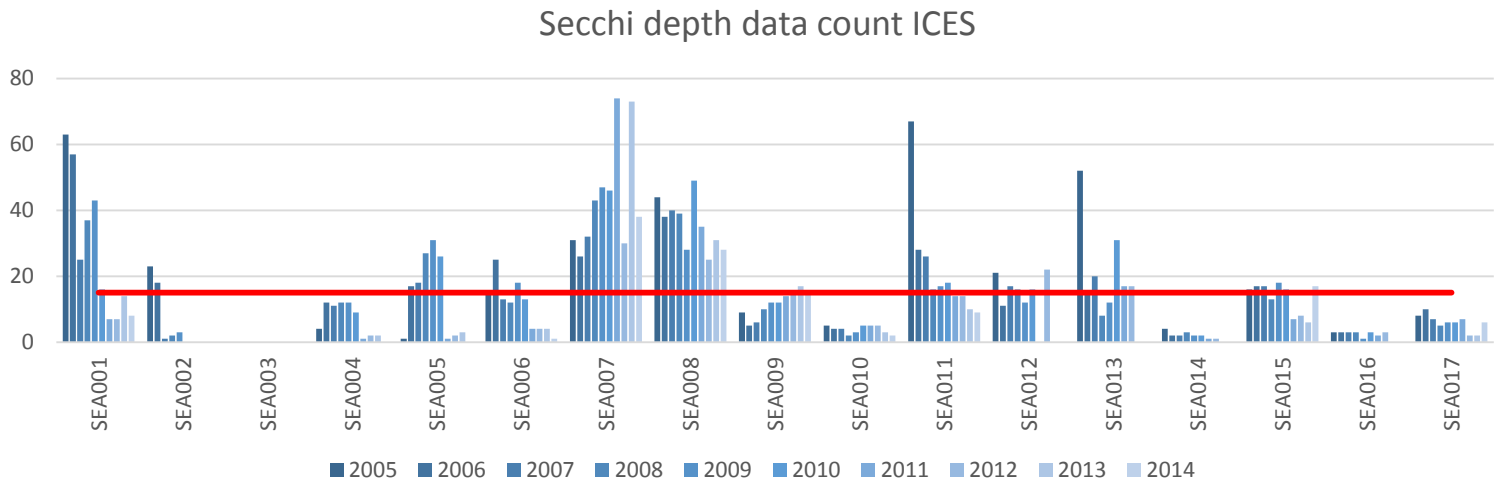
- Eutrophication assessment in BSCP

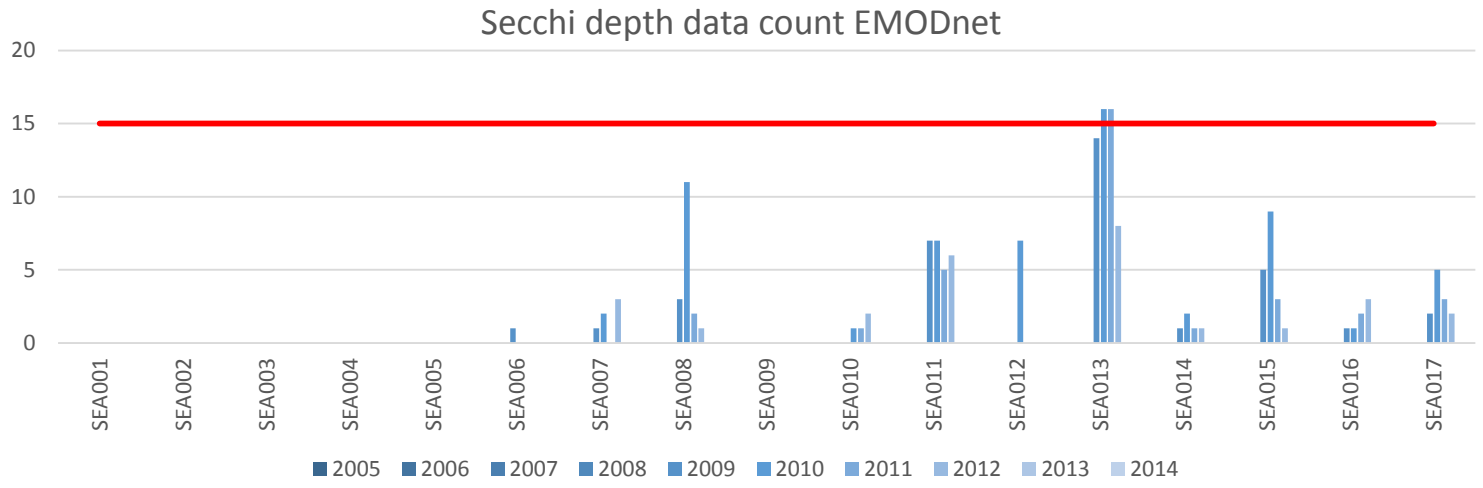
Chlorophyll-a data adequacy





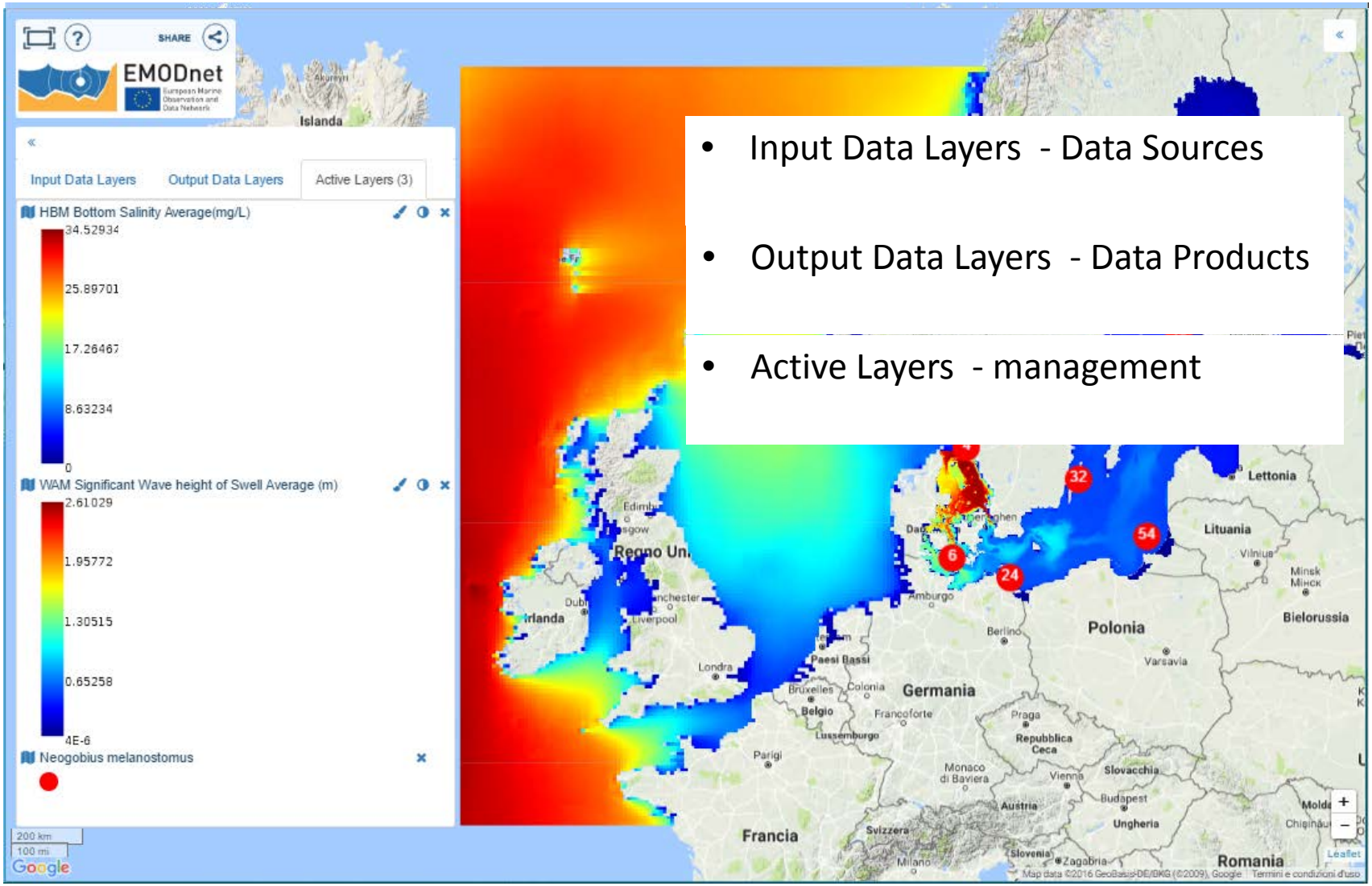
Secchi depth data adequacy





Interactive Map and data layers

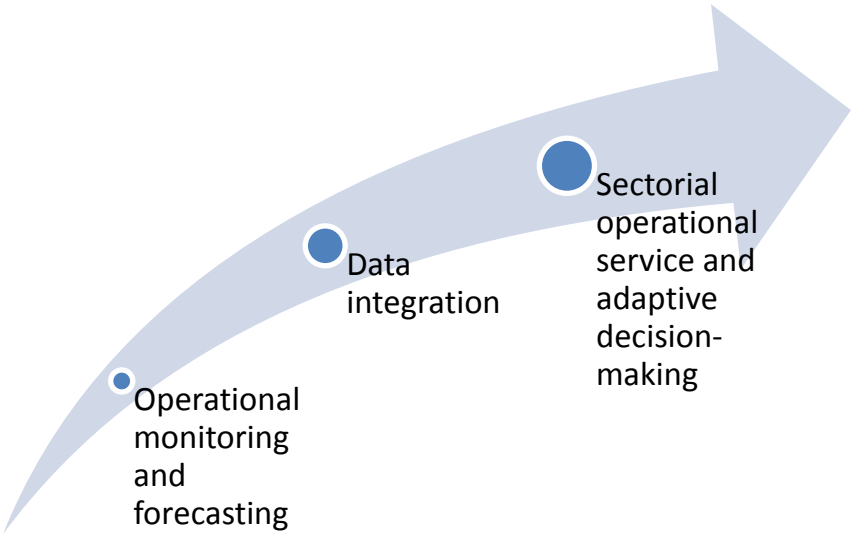
http://www.emodnet-baltic.eu/map



- Input Data Layers - Data Sources
- Output Data Layers - Data Products
- Active Layers - management

Outlook

- The Checkpoint assesses available data and gaps
- Operational and adaptive services are future directions
- Requires integrated products combining satellite & in situ observations and modelling, dedicated for the coastal region
- Increasing operational data delivery by shortening the delivery time of e.g. environmental data



Thank you for your attention!

For further information, please visit
http://www.emodnet-baltic.eu/map
or send email to
Jun She
js@dmi.dk
BSCP coordinator