

Status assessments based on multiple sources of data

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Coordinated by:



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Water Management

Partners:



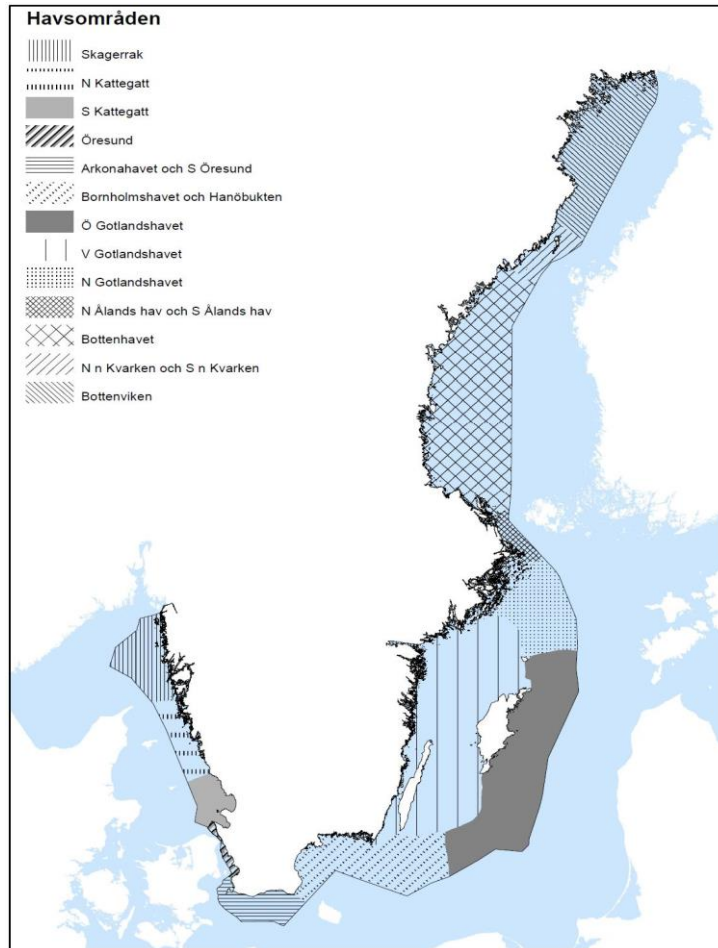
Hafok AB



SMHI

TOXICON AB

Study objectives



- Examine the feasibility to use both national and more local monitoring data to assess the ecological status of 12 sea areas and 38 water types
- Develop a script-based procedure to facilitate annual data quality and status assessments

Swedish national data centres

Data centre	Environments (samples)	Parameters
SMHI	Coastal and marine waters	Hydrographic, chemical, biological
SLU	Inland waters	Chemical, biological
SLU	Inland and coastal waters	Fish stock
IVL	Biota	Contaminants
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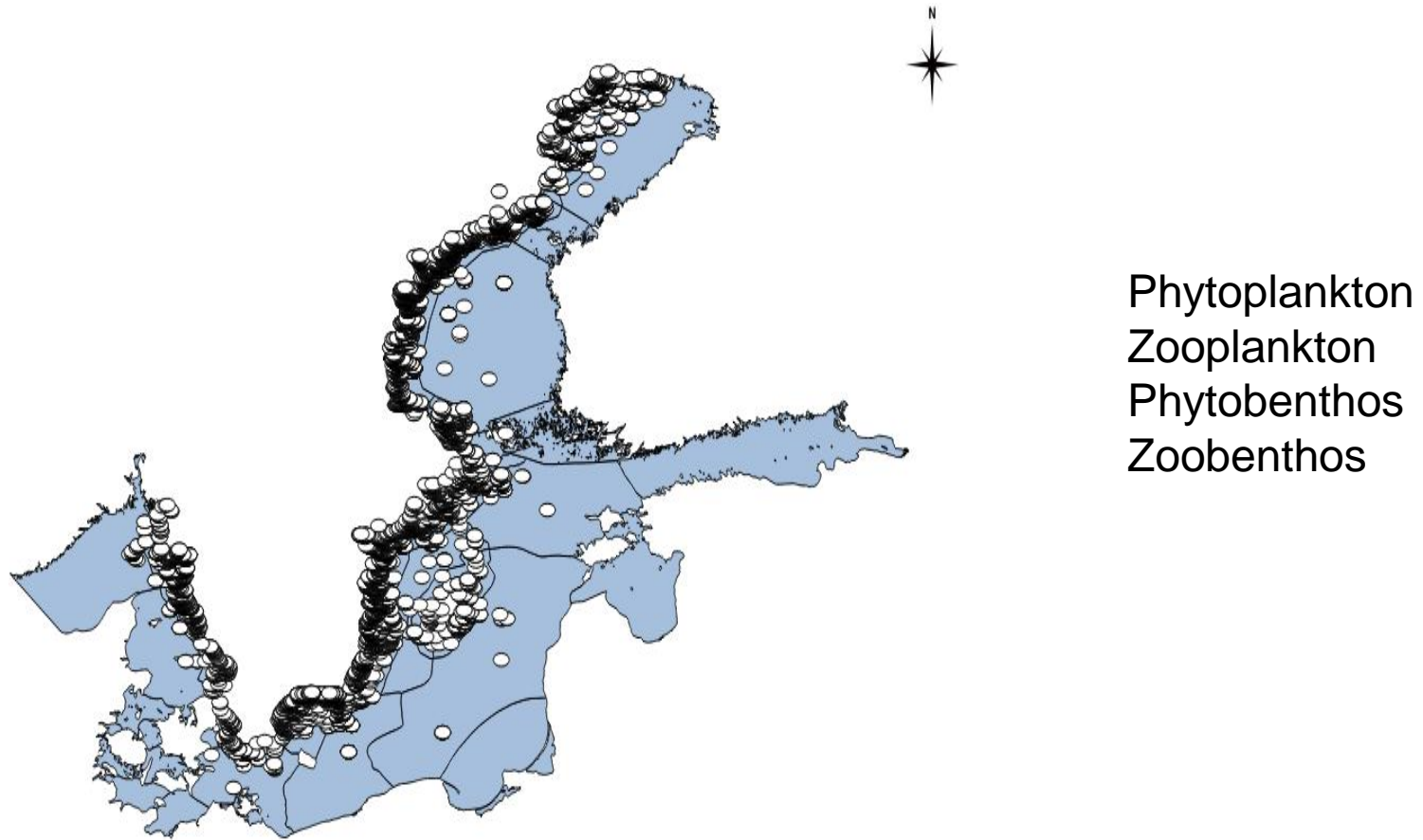


SMHI: Swedish Meteorological and Hydrological Institute

SLU: Swedish University of Agricultural Sciences

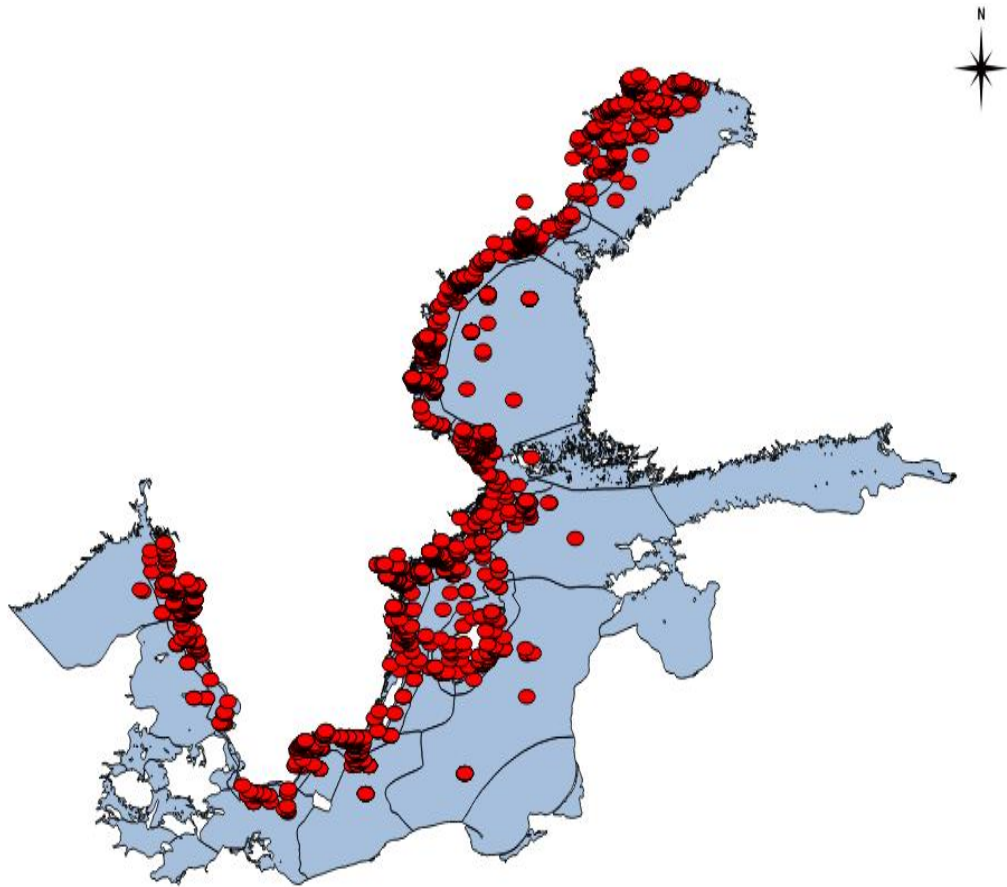
IVL: Swedish Environmental Institute

SHARK: marine biological data



Sampling sites visited at least once

SHARK: marine biological data

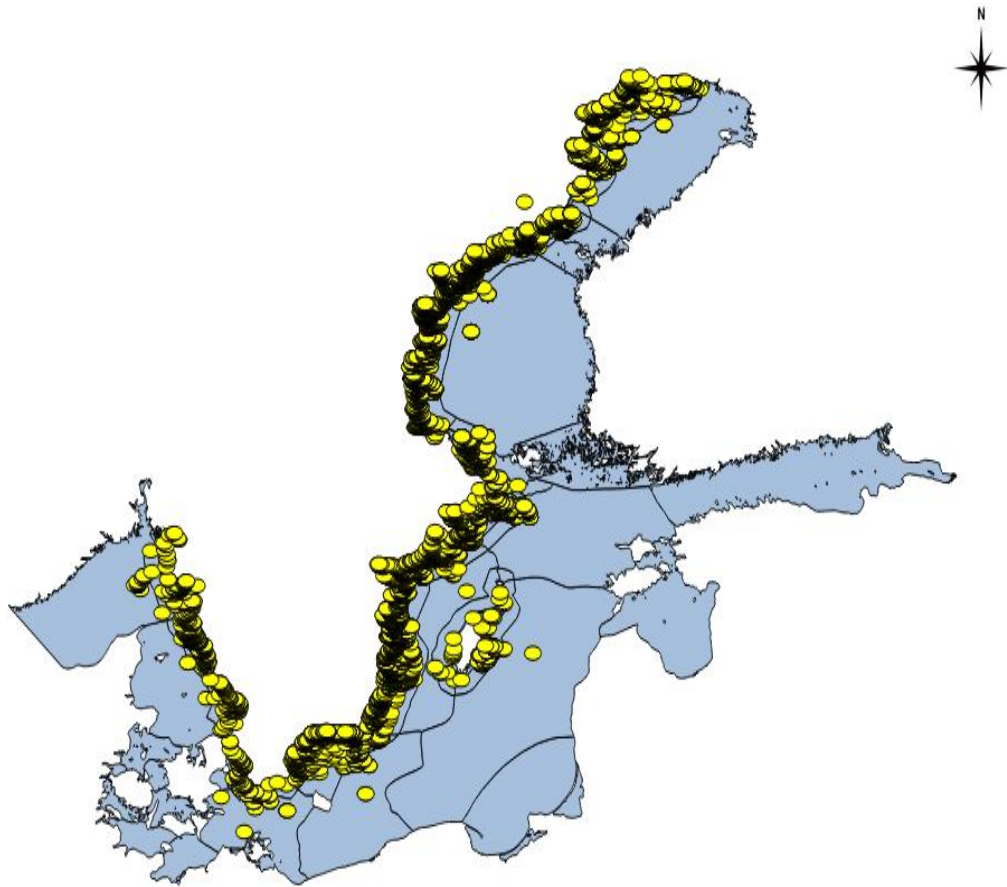


Phytoplankton
Zooplankton
Phytobenthos
Zoobenthos

Monitoring
ordered by
SEPA or
SwAM

Sampling sites visited at least once

SHARK: marine biological data

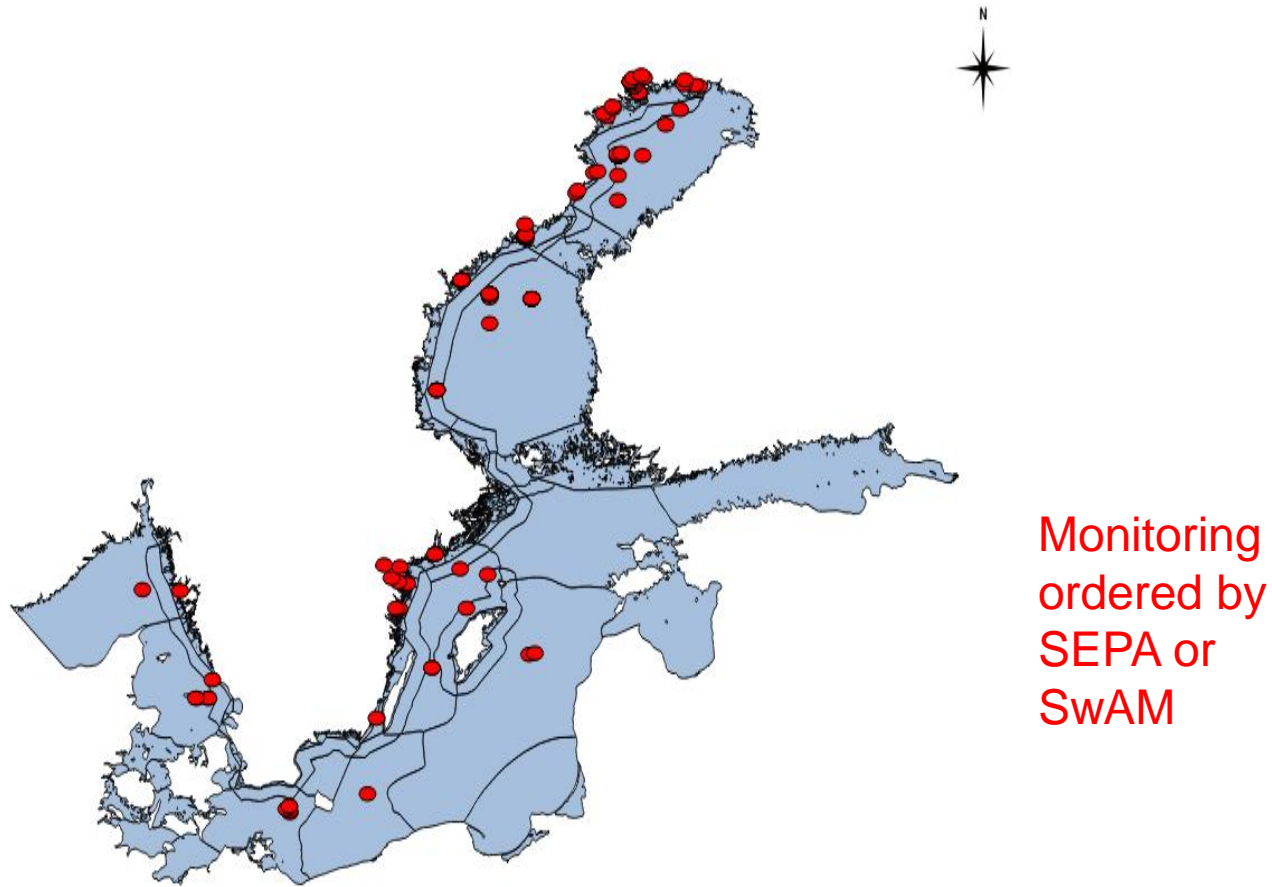


Phytoplankton
Zooplankton
Phytobenthos
Zoobenthos

Monitoring
ordered by
other
organisations

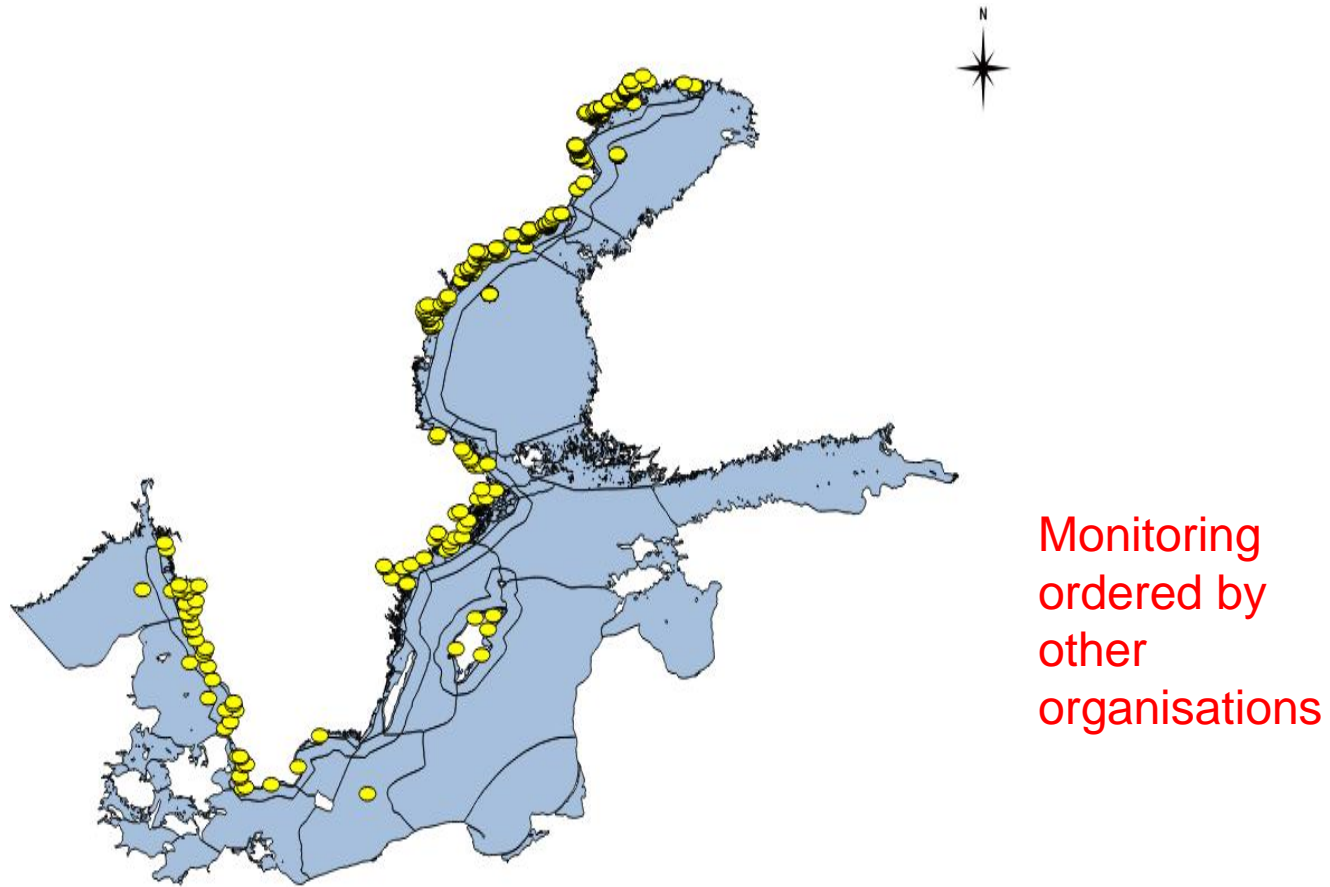
Sampling sites visited at least once

SHARK: phytoplankton data



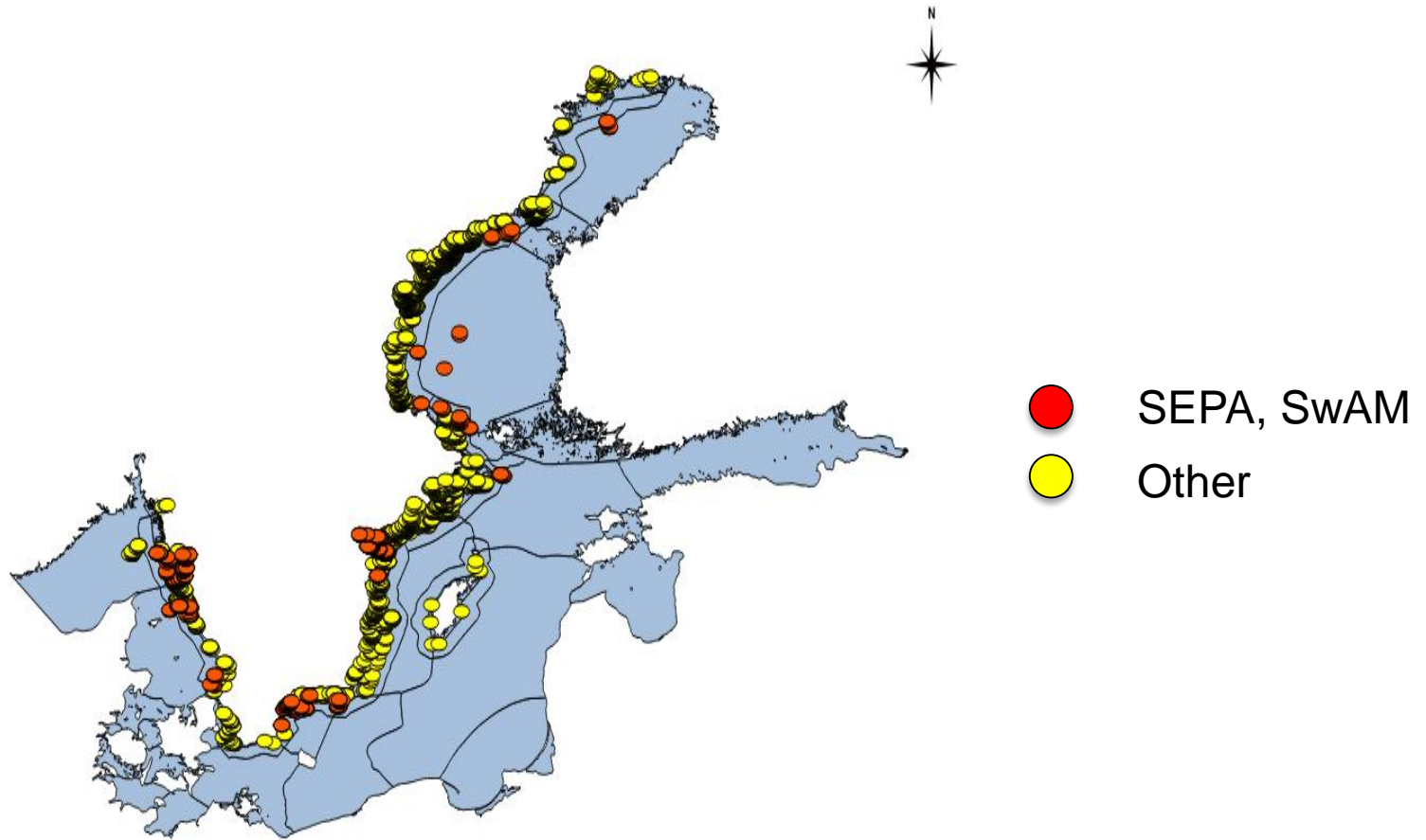
Sampling sites visited at least once

SHARK: phytoplankton data



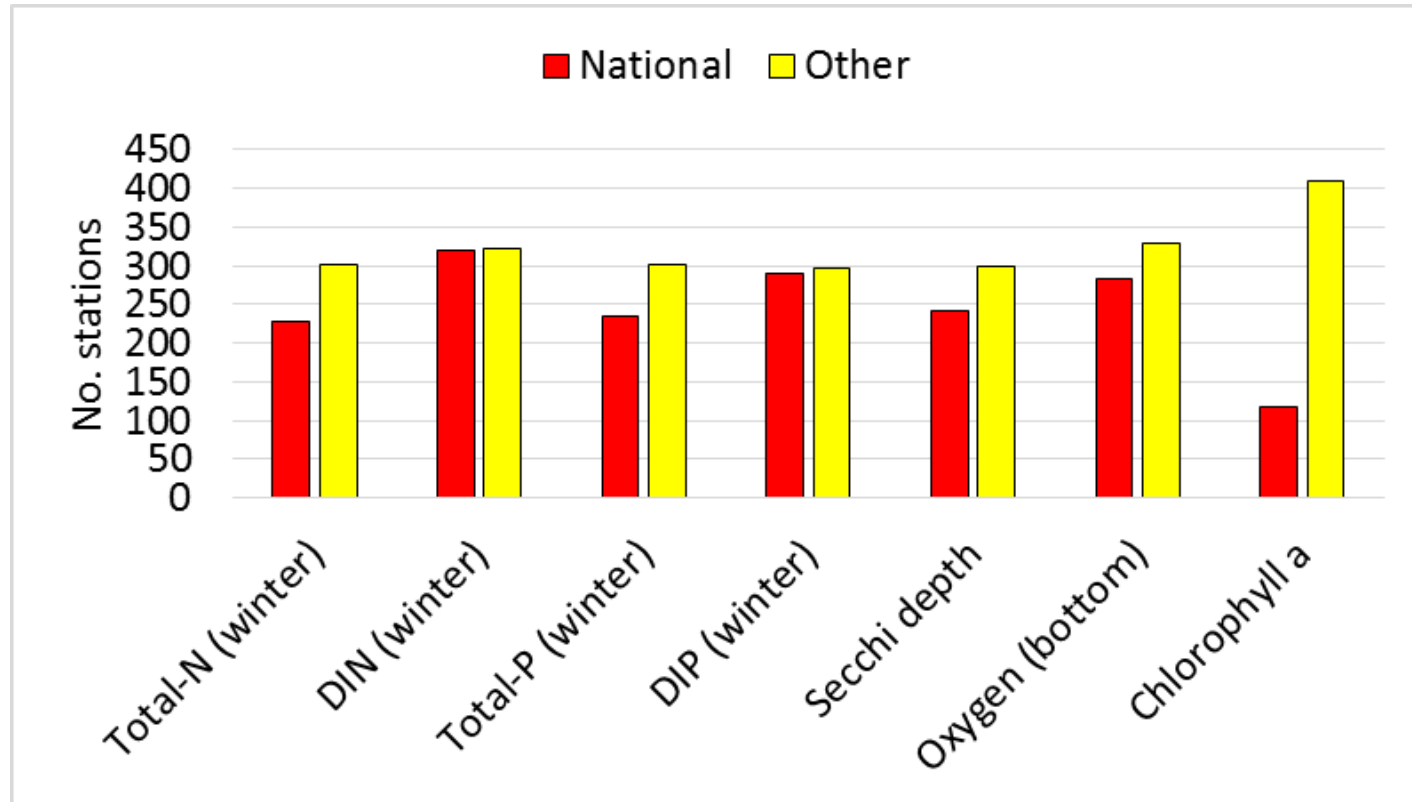
Sampling sites visited at least once

SHARK: phytobenthos data



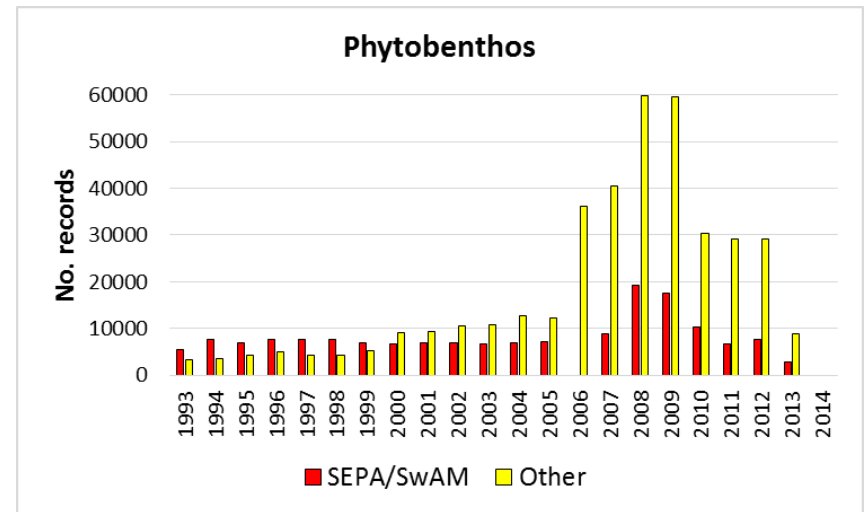
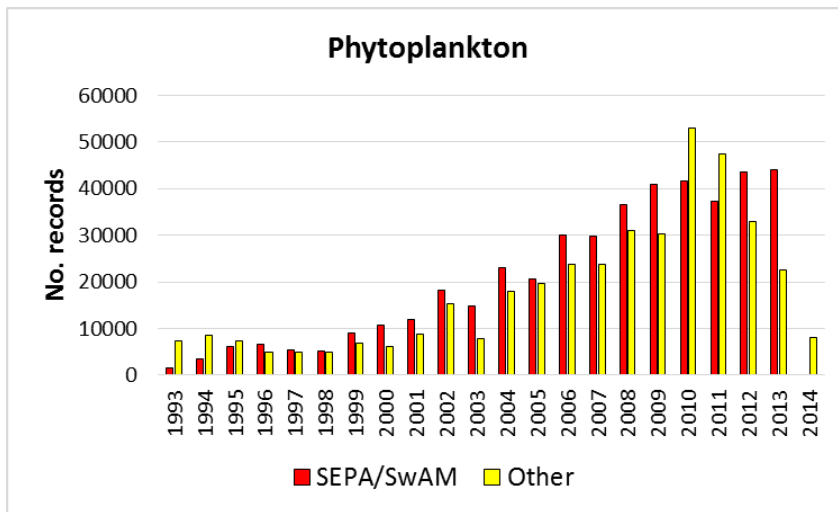
Sampling sites visited at least once

SHARK: physical and chemical data



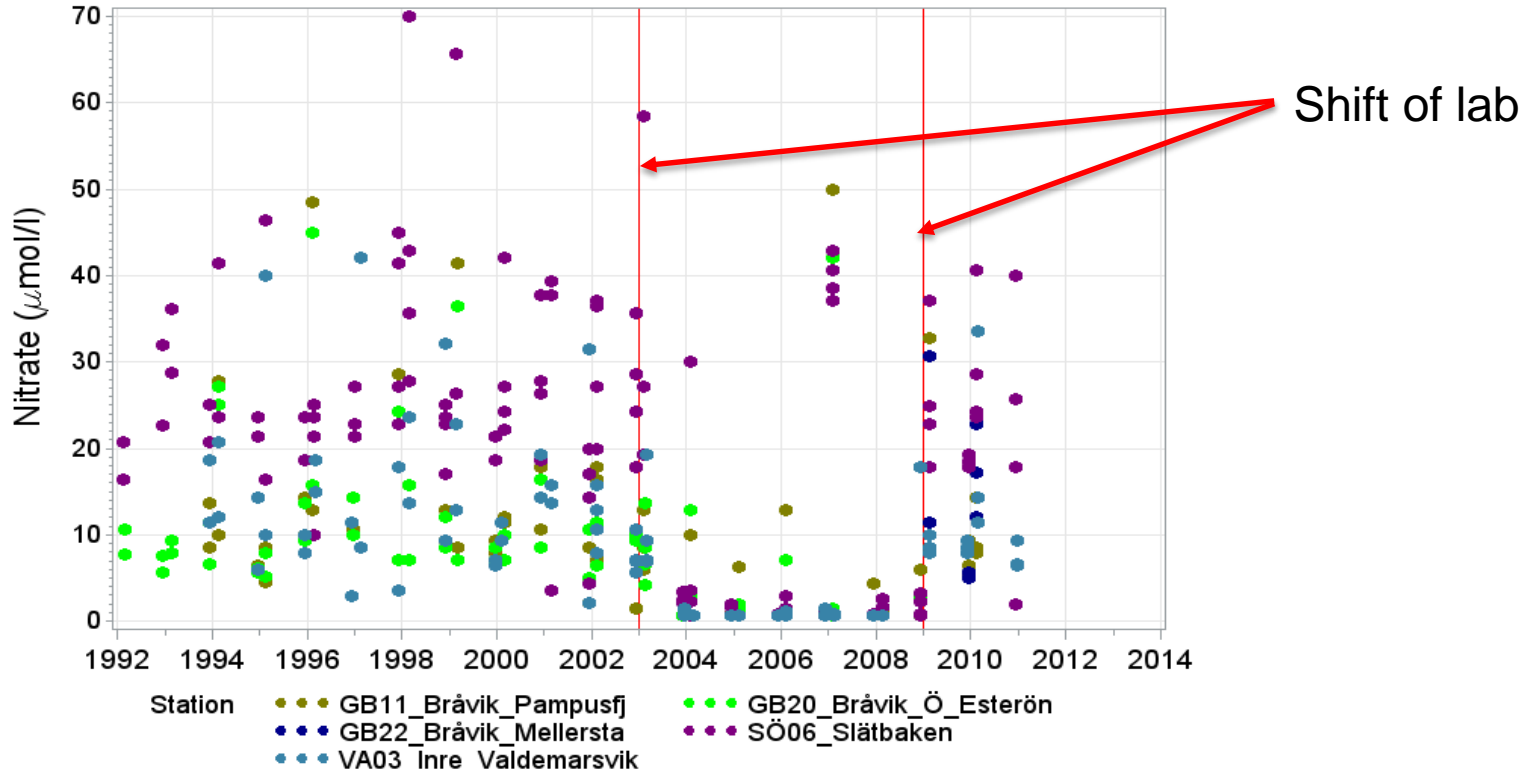
SHARK: data quality - completeness

Data available for downloading in January 2015



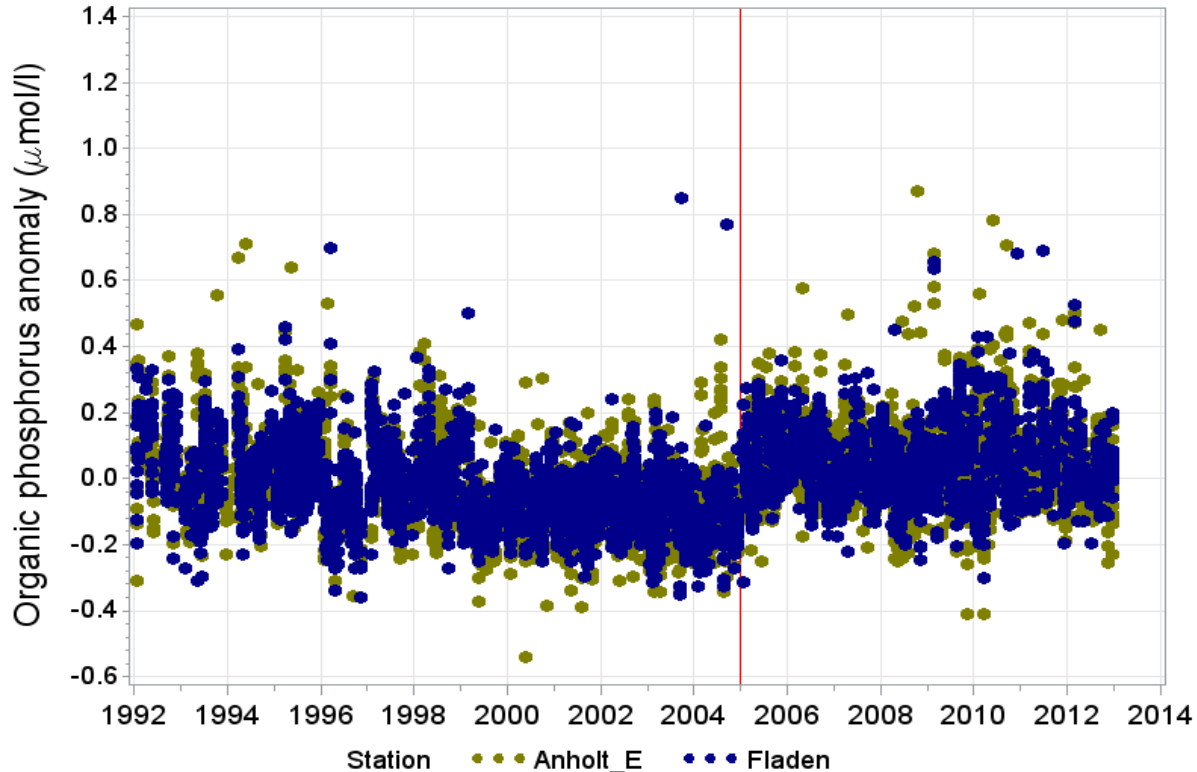
SHARK: data quality – unlikely level shifts

Winter levels of nitrate in coastal waters in the county of Östergötland



SHARK: data quality – unlikely level shifts

Deseasonalized and depth-normalized differences between total phosphorus and phosphate in the Kattegatt



Closer analysis of the level shift showed that it could be attributed to lab or sampling procedures

SHARK: data quality – format errors

Non-unique variable names

Characters in numerical fields

Non-standardized missing value codes

Latitude and longitude errors

Non-standardized latitude and longitude formats

Unclear sample IDs

...

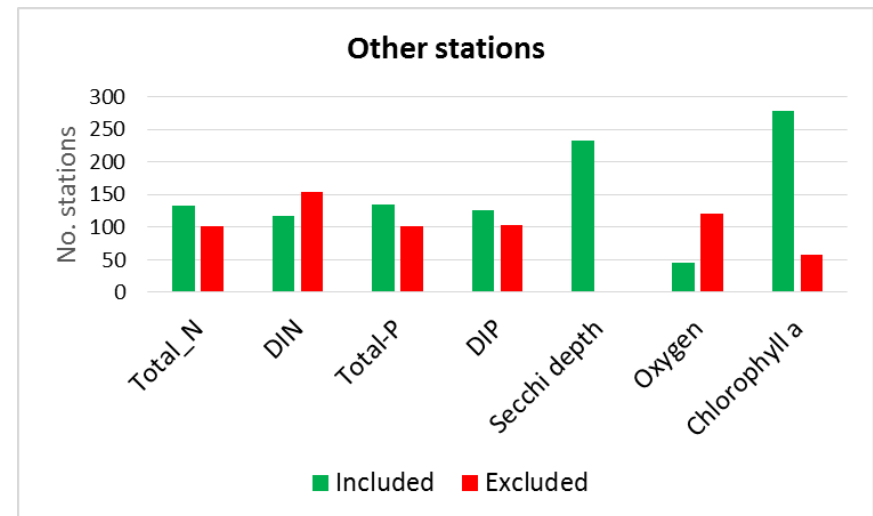
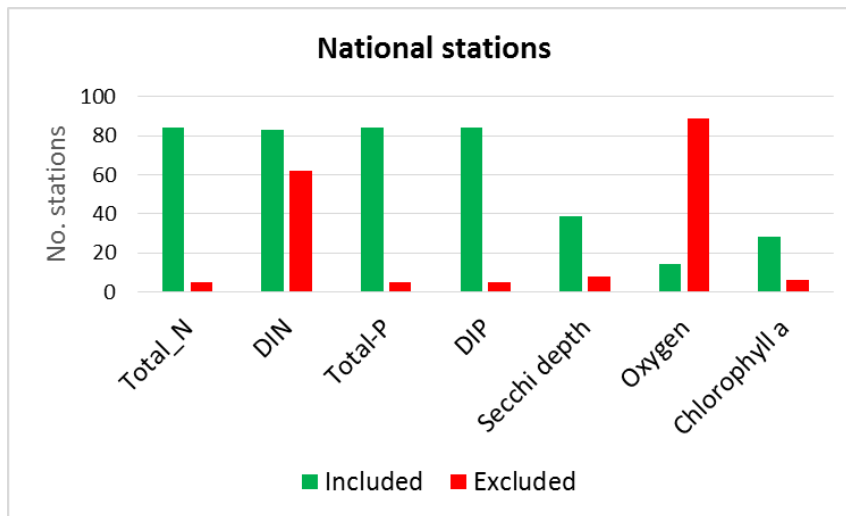
Hopefully removed in the new SHARK web being launched

SHARK: data quality – deviations from prescribed sampling procedures

Oxygen: Incorrect sampling depth or missing station depth

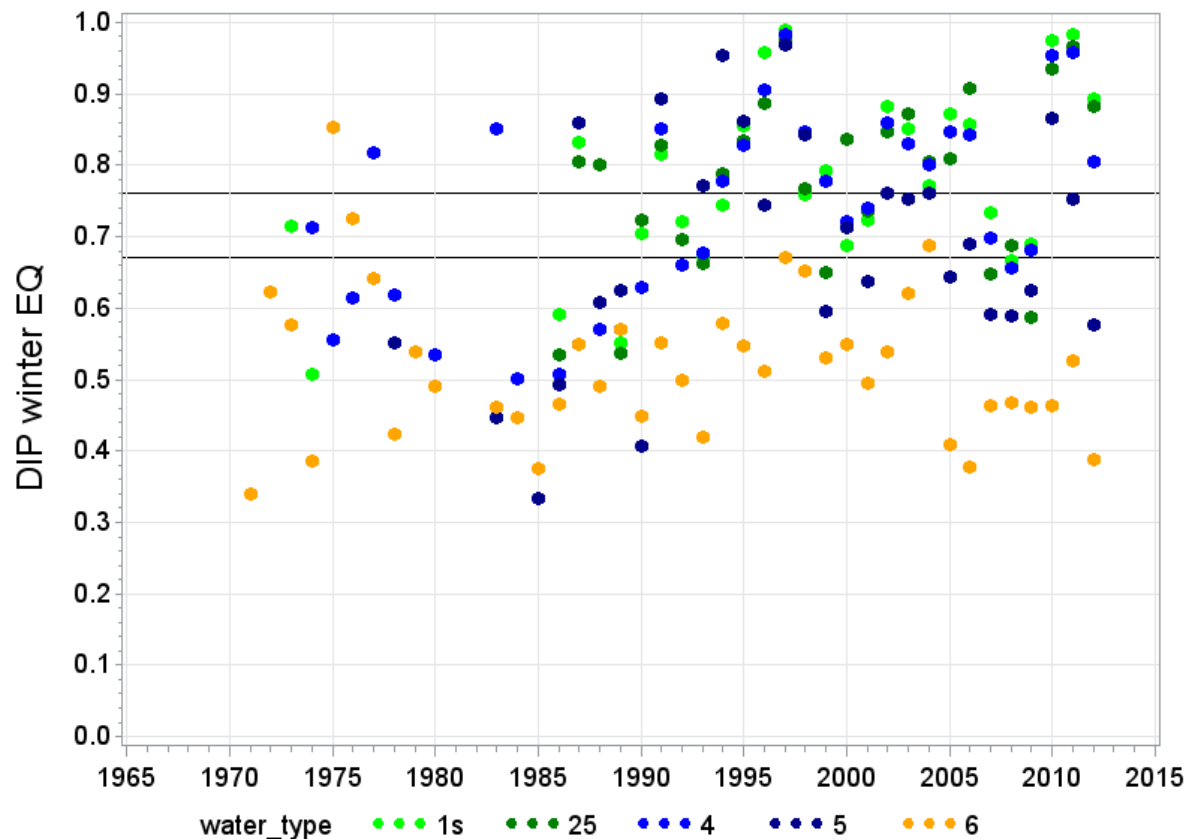
Nutrients: Incorrect temporal distribution

Chlorophyll a: Incorrect sampling depth



SHARK: data quality – spatial representativity

EQ values for DIP in Kattegat coastal waters



Conclusions

- It is desirable to use data from different sources to increase the spatial coverage of measured data
- Regardless of the data source, data quality assessments must be an integrated part of status assessments
- A script-based procedure enables transparent, semiautomated annual assessments of the ecological status of water types and sea areas

Reports (in Swedish)

- Moksnes P-O, Grimvall A and Elam J. (2015)
Samlad analys av regionala och nationella havsmiljödata. Havsmiljöinstitutet, Rapport Nr 2015:2
- Elam J and Grimvall A (2013)
Kvalitetsgranskning av fysikalisk-kemiska data från den regionala havsmiljöövervakningen. Havsmiljöinstitutet, Rapport Nr 2013:2