EMODnet Stakeholder Conference & Sea-basin Workshops

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Biology theme

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On behalf of all Ckeckpoints

Species stress test: Time series of three phytoplankton species for basin-wide trend analysis - Baltic

Four specie: two spring bloom species and two summer bloom cyanobacterium

Dataset	Problems identified
ICES/HELCOM	Lots of missing data & pending data
EMODnet	Trend analysis is impossible to accomplish. This is because the target species is not always observed in all samples taken
SMHI Sharkweb	Data partly in ICES
Estonian EEZ	Locally available, not in ICES
LHEI	Only a few stations are in ICES
Finland	All monitoring data are freely available, but there is no web-page to download these
Poland	Even though the monitoring data should be freely available, the response to the data request was not always positive.
Project data	CHARM dataset: 1973-2001 THRESHOLDS dataset: Baltic Sea-wide 1966-2008 Unfortunately, it is not easy to get access to these databases, no on-line access

Biomass stress test: Chl-a for eutrophication- Baltic

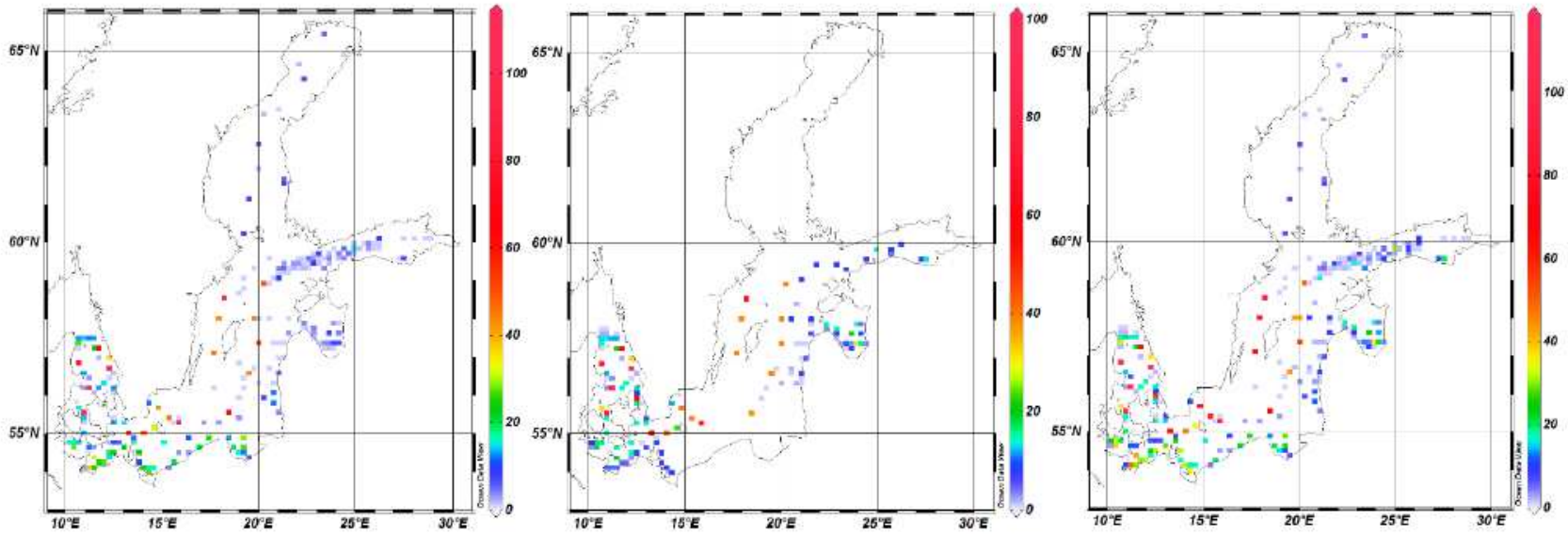
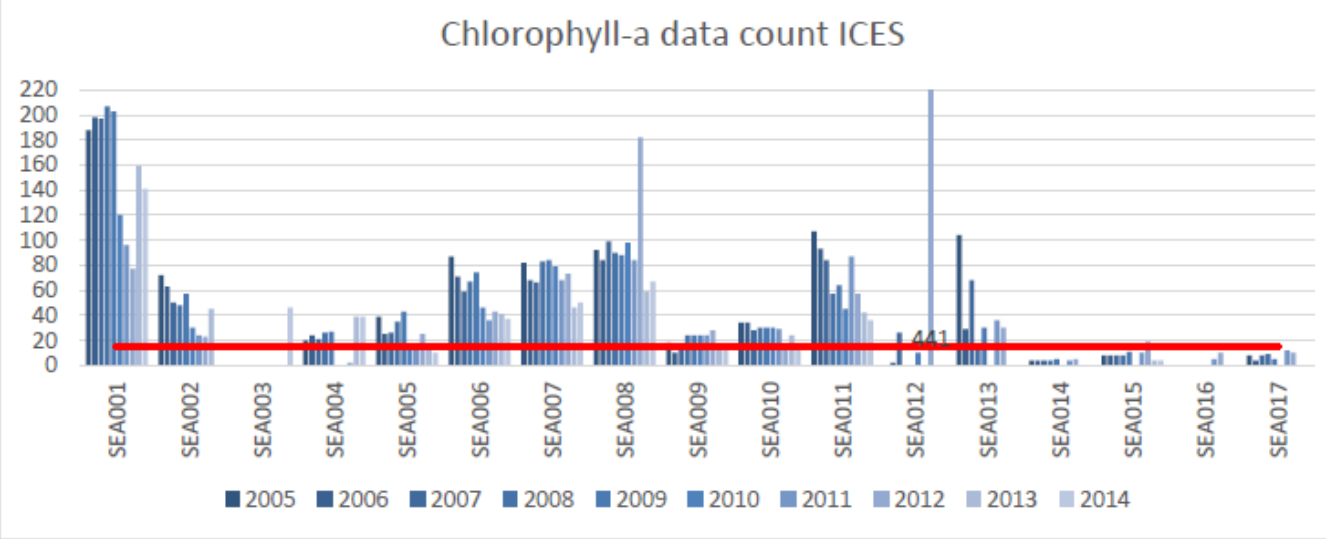
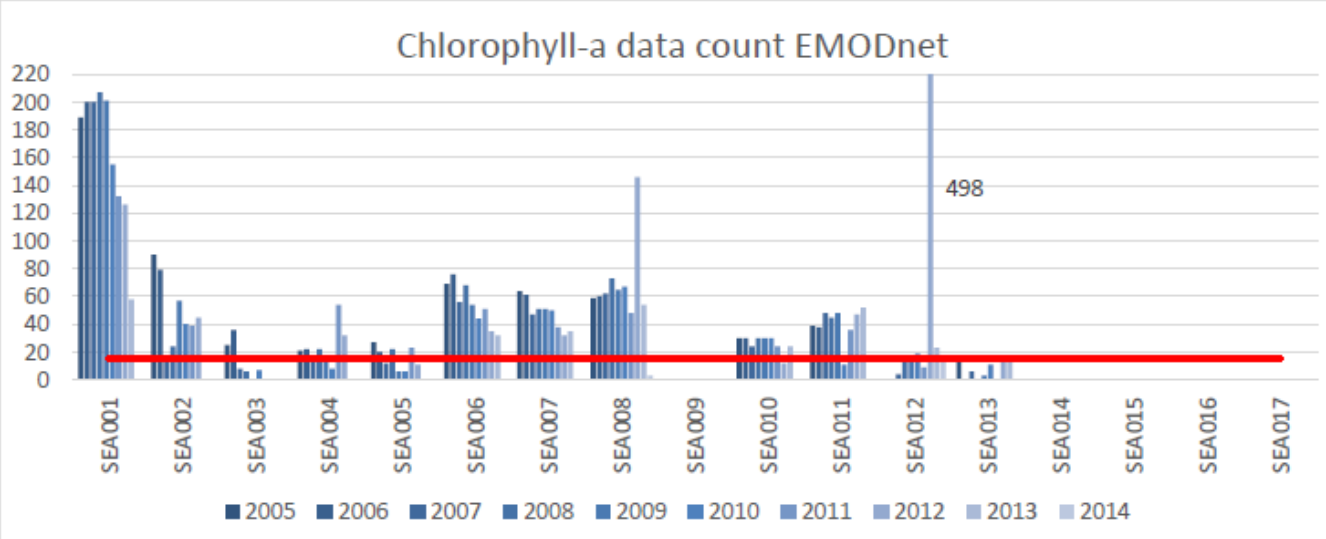


Figure 10.2.3.1. Chlorophyll-a assessment data distribution (sample count per station) for 2005-2014. From left to right: 1) ICES/HELCOM data; 2) EMODnet Chemistry data; 3) ICES/HELCOM and EMODnet Chemistry data pooled. Please note the different scales.

Biomass stress test: Chl-a for eutrophication- Baltic





Species stress tests: Other regions

Black Sea	– **Phytoplankton generic biomass and zooplankton wet weight biomass are not adequate, not up-to-date.** – **Chlorophyll & Bird taxonomy are partly adequate**
Mediterranean	– Chlorophyll: availability "fully adequate", appropriateness: "partly adequate" – Bird counts: visibility not adequate; appropriateness "not adequate"
Arctic	– Mostly on chlorophyll and not on individual species. – There are gaps in both time and space of monitored areas when it comes to individual species of phytoplankton. The data found was not up-to-date. – The IUCN offers to deliver data on species distribution on their website. but multiple requests were not responded to.
North Sea	– The Wind Farm challenge identified limitations of using biological and ecological data, particularly fisheries data and information on the migration routes for birds and marine mammals. Data available from ICES, OSPAR and CEFAS. The main data gaps were in spatial datasets for ecology and fishing activities. Data need to be made more discoverable. – MPA challenge: Biology Portal - data over short periods or in relation to specific species in target locations, not useful for basin-wide analysis. – No basin-wide studies were found which looked at the connectivity of species between MPAs. It is recommended that a list of 'priority' species be drawn up for analysis of MPA connectivity. – Lack of spatial information on larval dispersal patterns within the MPAs. – The Oil Platform challenge identified gaps in the data supporting distribution of seabirds and marine mammals, also fisheries activity on a timescale shorter than a whole year. – Overall, data concerning fisheries and marine species (and bird) migration was a recurring inadequacy across the challenges. It is recommended that this be made a priority area for attention.

Stress test: migration from rivers

Arctic	– **There is no ready-to-use information on fish migration from and to the Arctic rivers. Only combining results from monitoring programs in and outside rivers gives an impression of the fish migration.**
Baltic	- The data on salmon smolt production, number of spawners and other data from national monitoring is brought by the national representatives to the annual meeting of the ICES Working Group for Baltic Sea Salmon and Sea Trout (WGBAST). - The data is documented in the reports of the group, currently no common database. - The stock data from Kattegat originates from the HELCOM SALAR project report - River surveys include: parr density estimates, smolt trapping, monitoring of spawning runs and river catches. - Sea surveys include: catch data, fishing effort data and catch composition estimates. - Joint river and sea surveys include: tagging data (tagging in rivers, recaptures from sea and river fishery).
North Sea	– **The River Inputs challenge found that the data, for species of salmon and eel, only the UK (specifically England) held comprehensive datasets that included abundance of the fish.** – **Several datasets were not fully useable due to the lack of metadata detailing location or dates of collection. Where data was not geo-referenced it was difficult to determine if it was useful for the challenge.**

Alien species stress test: Baltic Sea

Table 13.1. Data requirement assessment for the Challenge Alien Species; n/r – not relevant

Objectives in BSCP	Task	Data type	Spatial & temporal coverage
1. Collate and verify information on the Baltic Sea alien species taxonomy and their introduction history.	Taxonomy	Expert judgement, DNA sequence	Entire Baltic Sea; years, decades
	Introduction history	Published source, observation	
2. Compile and analyse data on alien species impacts on ecosystem and economy.	Impacts on ecosystem and economy	Published source, BPL index	Entire Baltic Sea, different sub-regions
3. Produce a digital map of alien species distribution in the Baltic Sea area.	Digital map	In-situ record (geographical coordinates)	Entire Baltic Sea
4. Identify knowledge gaps in relation to alien species and identify most suitable indicators to determine their impacts on marine ecosystem and economy.	Indicators	Published source	n/r
5. Review new technologies allowing early detection and more accurate identification of alien species.	New technology	Published source	n/r

EMODnet Sea-basin Checkpoints Results
THEME-Biology

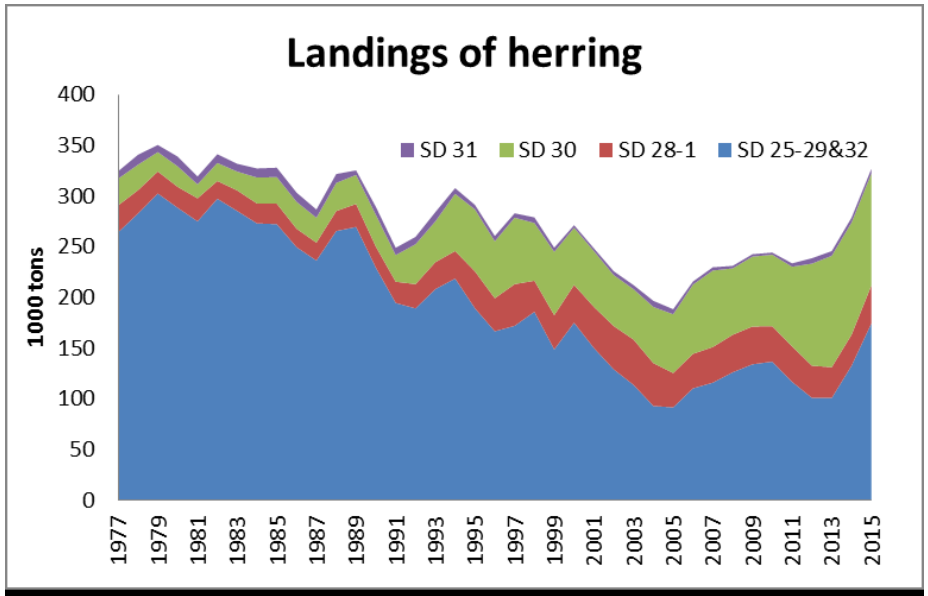
- AquaNIS (2016) contains in public access data on 992 species involved in 2933 introduction events in > 50 regions around the World.
- Taxonomic information and 10 life forms can be retrieved for all species registered in the Baltic Sea
- Currently at least some geo-referenced data is available for 49 species, i. e. for 56% all established NIS (non-indigenous species) and CS (cryptogenic species).
- It is recommended that point information should be completed by empirical modelling to show the areas where NIS are already present and may spread in the future.

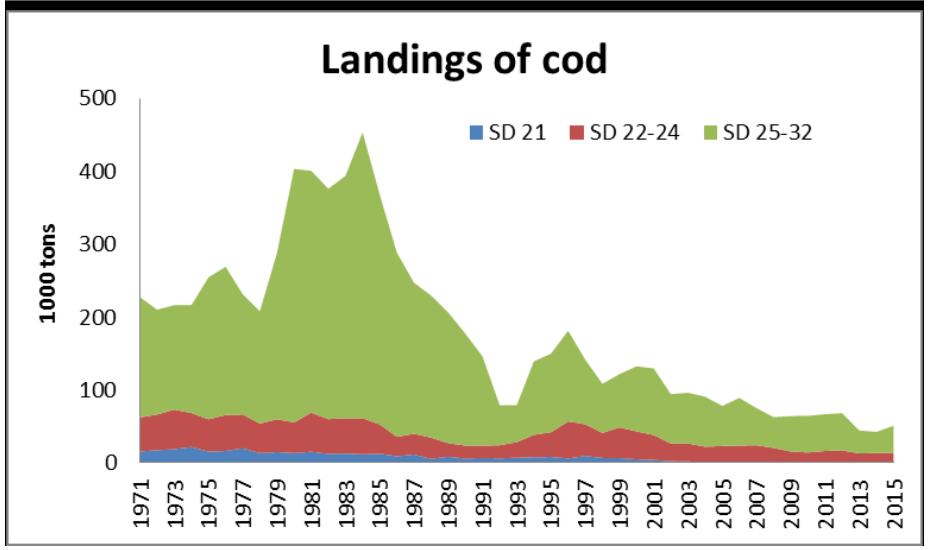
Alien species stress test: Other regions

Arctic	– **There are about 94 alien species which invaded the Arctic Ocean.** – **Some invasive species in the Arctic altered the habitat locally.**
Atlantic	– The European Union lacks a comprehensive framework to address the threats posed by NIS. – Current efforts are fragmented and suffer substantial gaps in coverage. One of the problems is the lack of standardisation of terminology and metrics to describe the status of biological invasions, influenced, in turn, by quality, validity and potential bias of the underlying data. – At present, data are rarely if ever gathered through standardized surveys specifically designed to detect NIS. Poorly studied NIS taxa, NIS in poorly-studied habitats and regions, small-bodied species and additional lacunae impede our understanding of NIS diversity. – Existing data suffer from being referenced a lot in publications, so although data are easily found and get 75% of easy download, responsiveness and readiness are low. – Data policy and its visibility are very low, probably due to the absence of these indicators in web sites dealing with this topic which are still in their early development.
Black Sea	– There is no comprehensive data set for alien species in the Black Sea.

Fishery management stress test: Baltic Sea

- Objectives: to establish time series of whole sea-basin of:
  - Mass and number of landings of fish by species and year (cod, herring and sprat).
  - Mass and number of discards and bycatch (of fish, mammals, and seabirds) by species and year
- For open waters:
  - Fish landing data are adequate for stocks where relevant/available and used for stock assessment and subject to continuous improvements of sampling programs.
  - Fish discard data are acceptable for stocks where used in stock assessment and subject to uncertainty check.
  - No regular monitoring on the fish bycatch, the data generally adequate for the purpose when available and availability limited.





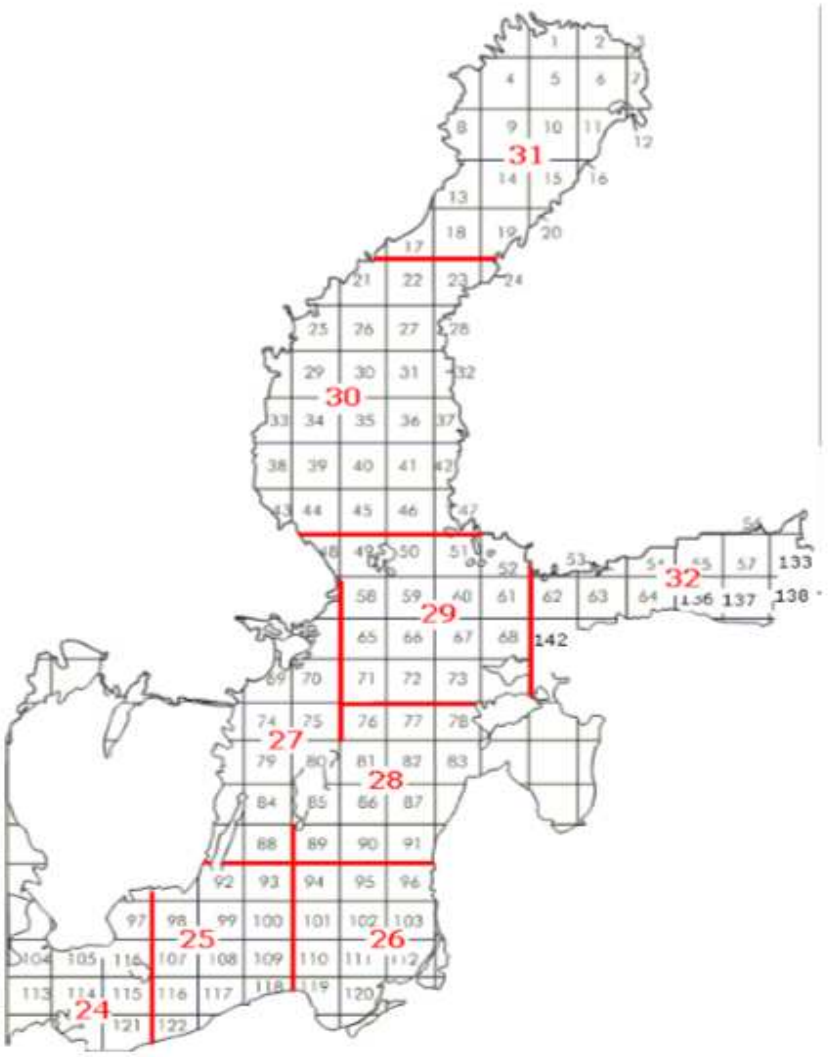
EMODnet
European Marine Observation and Data Network

Coastal fish data in Baltic Sea

	Vessels	Temporal resolution	Spatial resolution	Quality	Starting year	Parameters	Reporting delay
Finland & Sweden	<10m	monthly	ICES rectangles	Relatively high	FI:1989 SW:1999	Catches, effort etc in logbook	A few days
Estonia	<20m	monthly	ICES rect.	Improved recent years, high now	2007	Logbook	
Latvia	All	daily	ICES rect. after 2007		1993	Logbook	
Lithuania	All	daily	29 grids		1993	Logbook	1 month
Poland	<8m	monthly	ICES rect.	Skeptical	1995	Logbook	
Germany	<8m	monthly	9 districts in W. Pomerania	Fair		Catches only	
Denmark	<12m, 24h		As reported	Fair		Catch/area	

Fishery management stress test: Baltic Sea

- Monthly logbooks hamper the precision of the effort data
- There are no standard gears, implying that the differences in gears between fishermen and also in time might be considerable
- There is a huge amount of commercial catch and effort data of the coastal species available and new data is continuously accumulating into the national bases
- It is evident that this data source has not been fully utilized in assessments of the coastal fish stocks in the Baltic Sea.
- The data has certain shortages or restrictions compared to fishery independent data but it would be possible to overcome most of the shortages by thorough consideration and effective cooperation



Fishery management stress test: Other regions

Arctic	– **Collected data on fisheries discards and/or bycatch is less readily available than landings or catch data. It was therefore not possible to generate overall comprehensive overview of discards and bycatch in the Arctic area; only fragmented data has been found.** – **For fisheries catch data used in the checkpoint assessment it is not always clear whether it relates to commercial fisheries catch or fisheries landings.**
Atlantic	– Fisheries data are not covered by the EMODnet "Human activities" lot but by the Data collection framework mechanism (DCF). Data on discards and incidental bycatch (e.g. marine predators) are not available for many countries in the Atlantic and only available on special data call from Member States. More specifically, data on PETS (Protected, endangered and threatened species) – Bycatch is scarce. – In general there are no programs collecting landings in terms of number of fish, thus this information is not available in the DCF database, an issue for the "fisheries management" challenge which has to report these figures.
Black Sea	– The Challenge 06-Fisheries and Challenge 07-Fishery impact have the best scores, probably due to the fact that source of data is well defined and available.
Mediterranean	– Fishery data, such as fish catch and by-catch, fish abundance in the water column are **at the top of the list for their inadequate availability and appropriateness indicators.** The key inadequate quality attributes for this monitoring are: visibility, EU INSPIRE catalogue, data policy visibility, readiness, data delivery and data policy, horizontal and temporal coverage, temporal validity.

Thank you for your attention!