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QUALITY STATUS REPORT 2023

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COMMISSION

Strategy for the Protection of the Marine Environment of the North-East Atlantic (NEAES) 2030 with a focus on OSPAR's Quality Status Report 2023

Eutrophication Case Study Highlights

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Nutrients policy coordination at the regional level: Experiences from Regional Seas Conventions & Action Plans

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OSPAR is the mechanism by which 15 Governments & the EU cooperate to protect the marine environment of the North-East Atlantic.

OSPAR NORTH-EAST ATLANTIC ENVIRONMENT STRATEGY 2030 – TACKLING BIODIVERSITY LOSS, POLLUTION, AND CLIMATE CHANGE

Strategic objective 1. Tackle eutrophication, through limiting inputs of nutrients and organic matter to levels that do not give rise to adverse effects on the marine environment;

- S1.O1: By 2022 OSPAR will implement an automated eutrophication assessment
- S1.O2: By 2022 OSPAR will determine the maximum inputs of nutrients for relevant assessment areas which prevent deterioration and enable the achievement of non-problem area status throughout the North-East Atlantic.
- S1.O3: By 2024 OSPAR will identify and quantify relevant sources, including transboundary transport, and agree nutrient reduction needs …
- S1.O4: By 2028 OSPAR will ensure that sufficient measures are taken to achieve the necessary input reductions to prevent coastal and offshore eutrophication in the North-East Atlantic
- S1.O5: By 2030 OSPAR will ensure that nutrient reduction targets and measures are sufficient to avoid adverse eutrophication effects in a changing climate.
- S1.O6: By 2030 OSPAR will develop and implement a regional approach to applying nature-based solutions……..

https://www.ospar.org/convention/strategy

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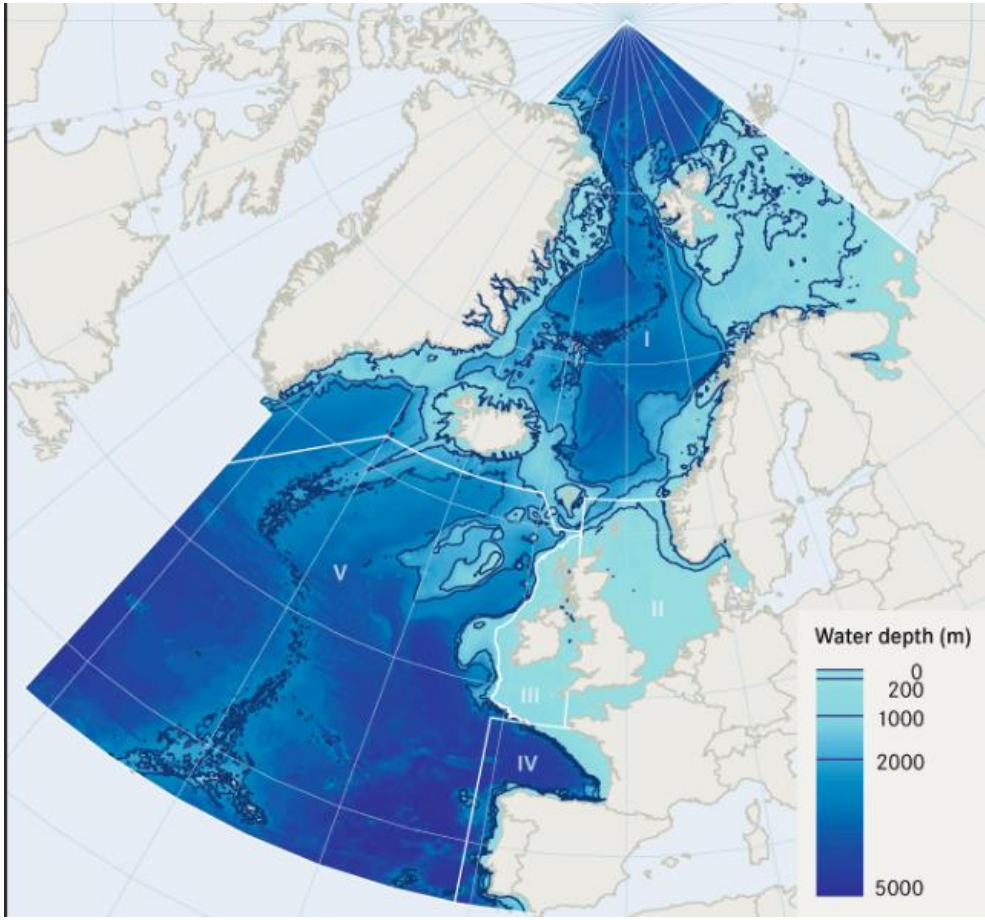
The QSR (Quality Status Report) 2023 in a nutshell

Why?

To provide the necessary **scientific knowledge** to identify the priority elements **for actions** to achieve OSPAR's vision of *a clean, healthy and biologically diverse North-East Atlantic Ocean, which is productive, used sustainably and resilient to climate change and ocean acidification.*



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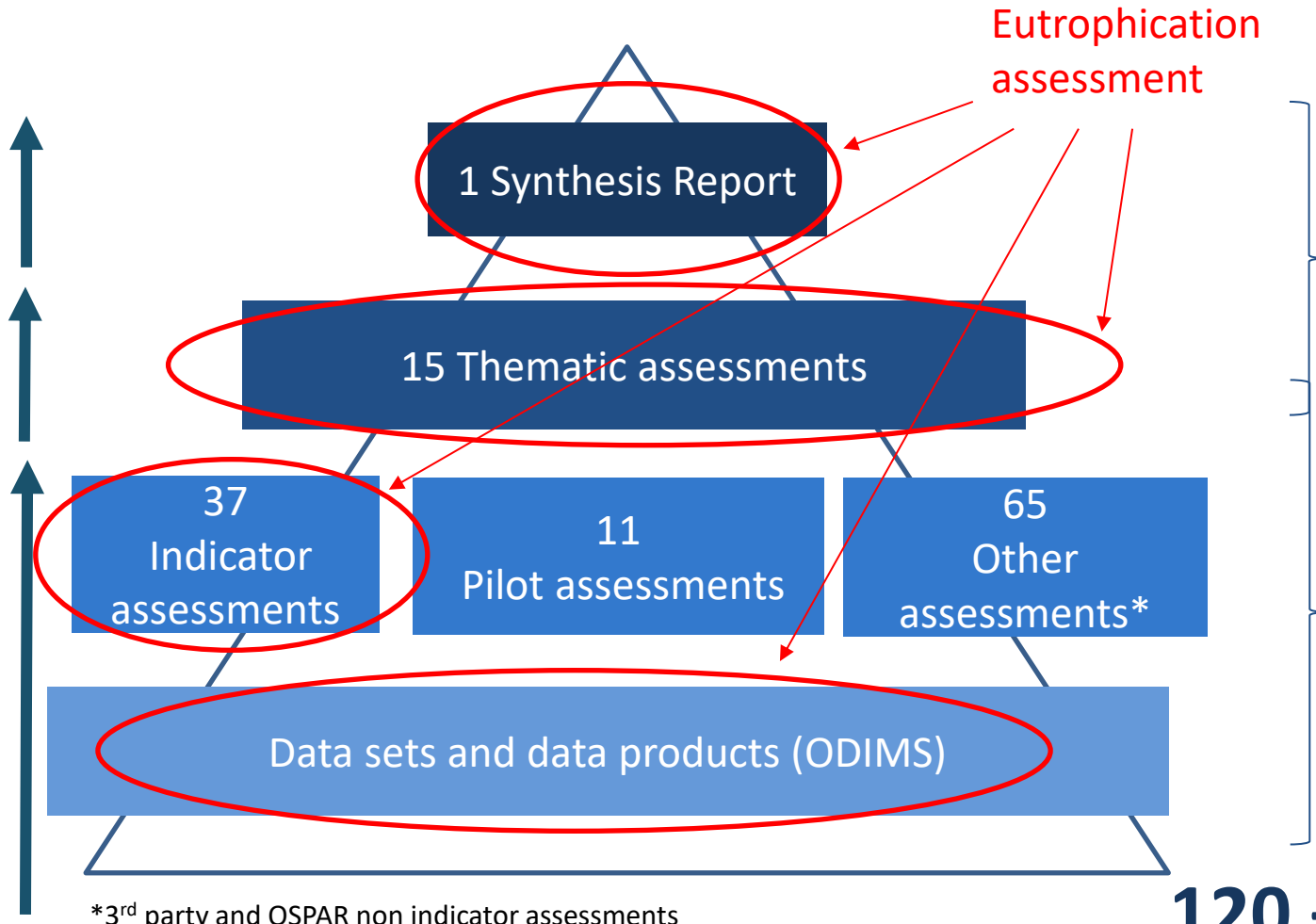
https://oap.ospar.org/en/ospar-assessments/quality-status-reports/qsr-2023/thematic-assessments/eutrophication/

QSR 2023 Structure & Components



Target audience

Policy makers & General public

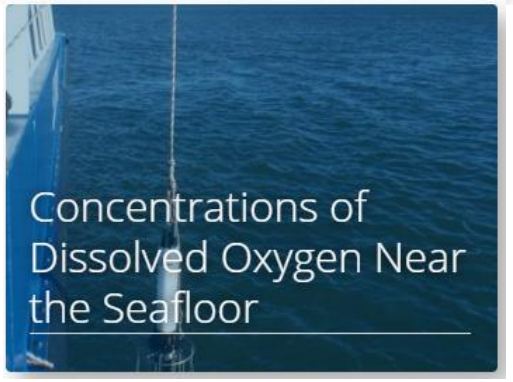
Experts and administrations

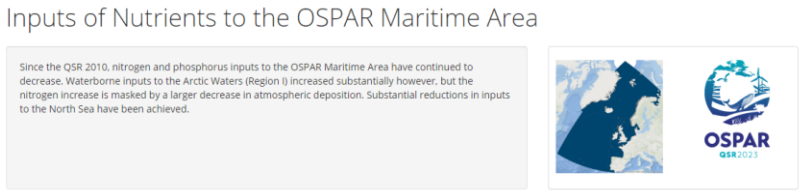
*3rd party and OSPAR non indicator assessments

120 + assessments

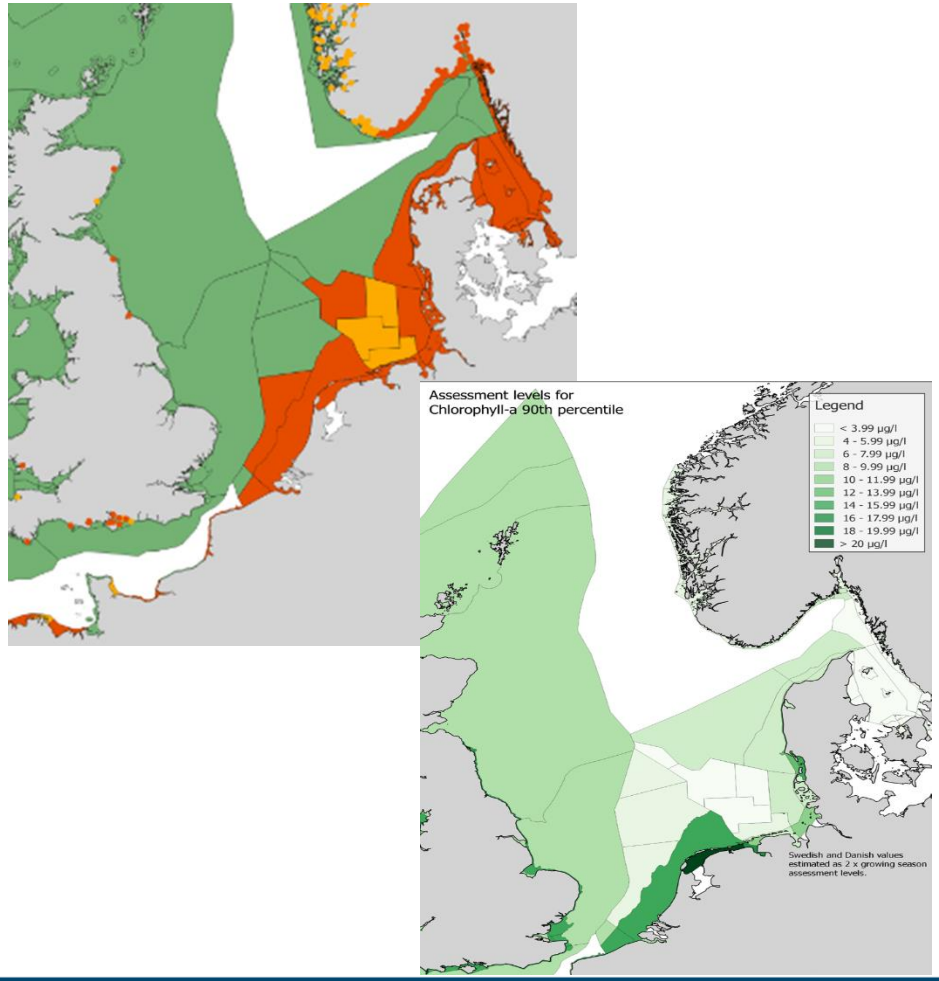
How do we measure eutrophication?

- Trends of nutrient inputs
- 3 common indicators:
  - winter nutrient concentrations (DIN, DIP)
  - chlorophyll-*a* concentrations & oxygen concentrations near the seabed
- Integration: one out-all out on effects
- Common procedure for eutrophication assessment (COMP agreement):
  - Cross country - Definition of indicators, threshold values, assessment scales and seasons
  - Monitoring and reporting guidelines





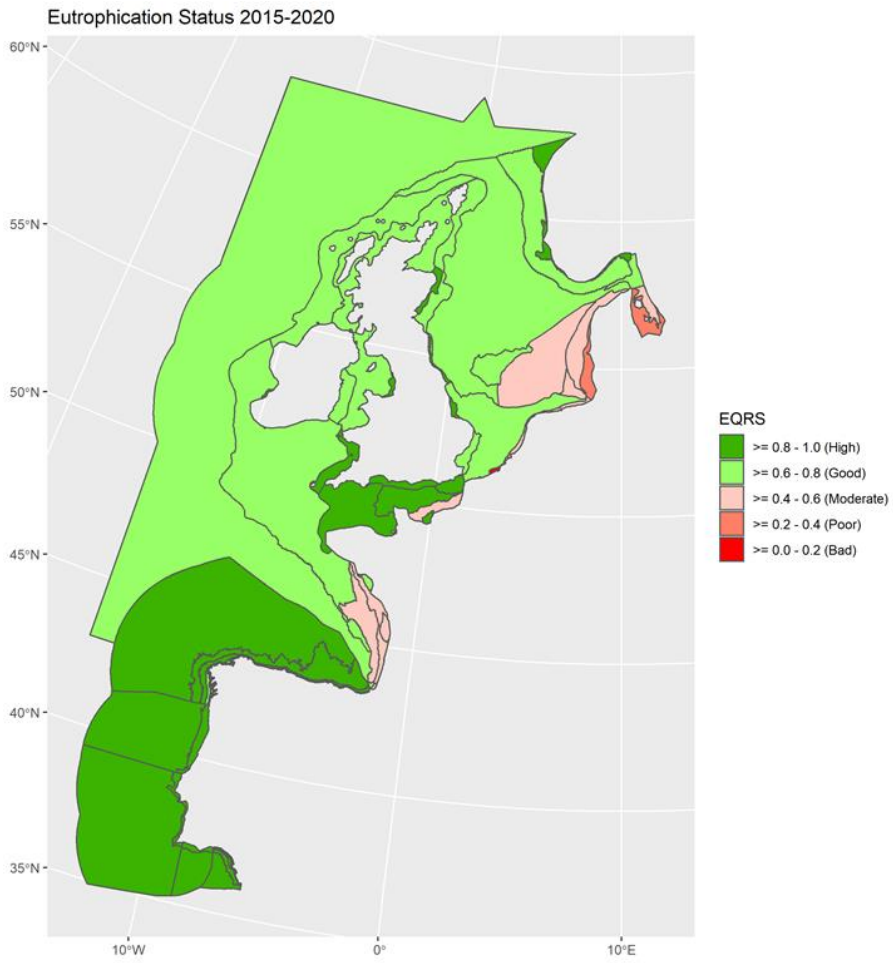
Eutrophication assessment until 2017



Issues:

- Incoherent threshold values hence assessment outcomes across country borders
- Assessment areas established per country
- Different sampling and analytical procedures *in situ* chlorophyll-*a* data
- COMP Agreement: balancing between harmonisation and practices/policy institutions are used to
- Data gaps *in situ* monitoring (time and space)

Eutrophication assessment QSR 2023



Harmonisation for 14 countries.

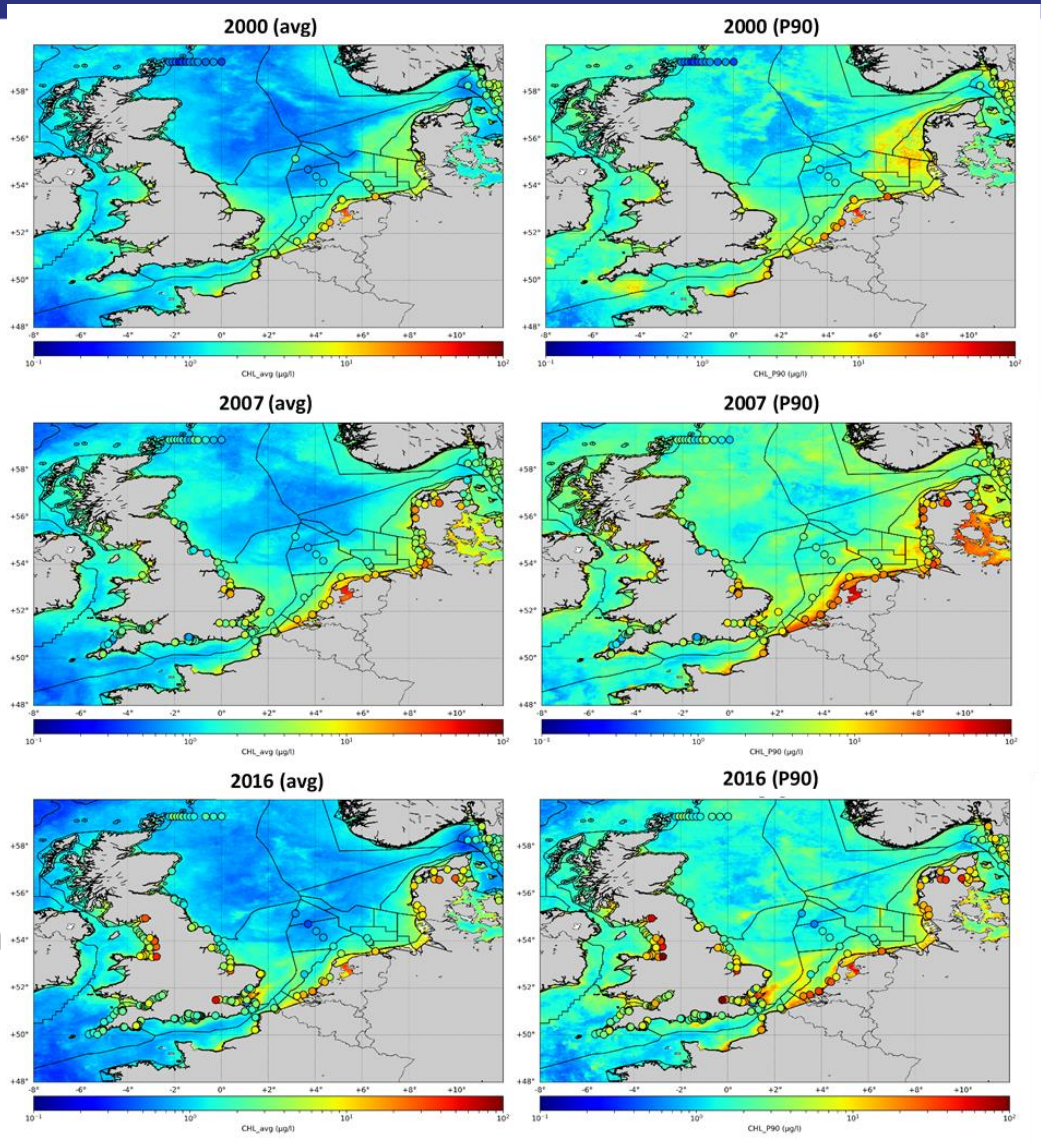
Results

- coherent threshold values hence assessment outcomes across country borders
- Ecologically relevant assessment areas
- Incorporation of satellite data next to *in situ* data
- COMP Agreement is now a more precise description of assessment procedure
- Satellite observations solve data gaps for chlorophyll-*a*, not for the other parameters

Innovation example

Added value of satellite data

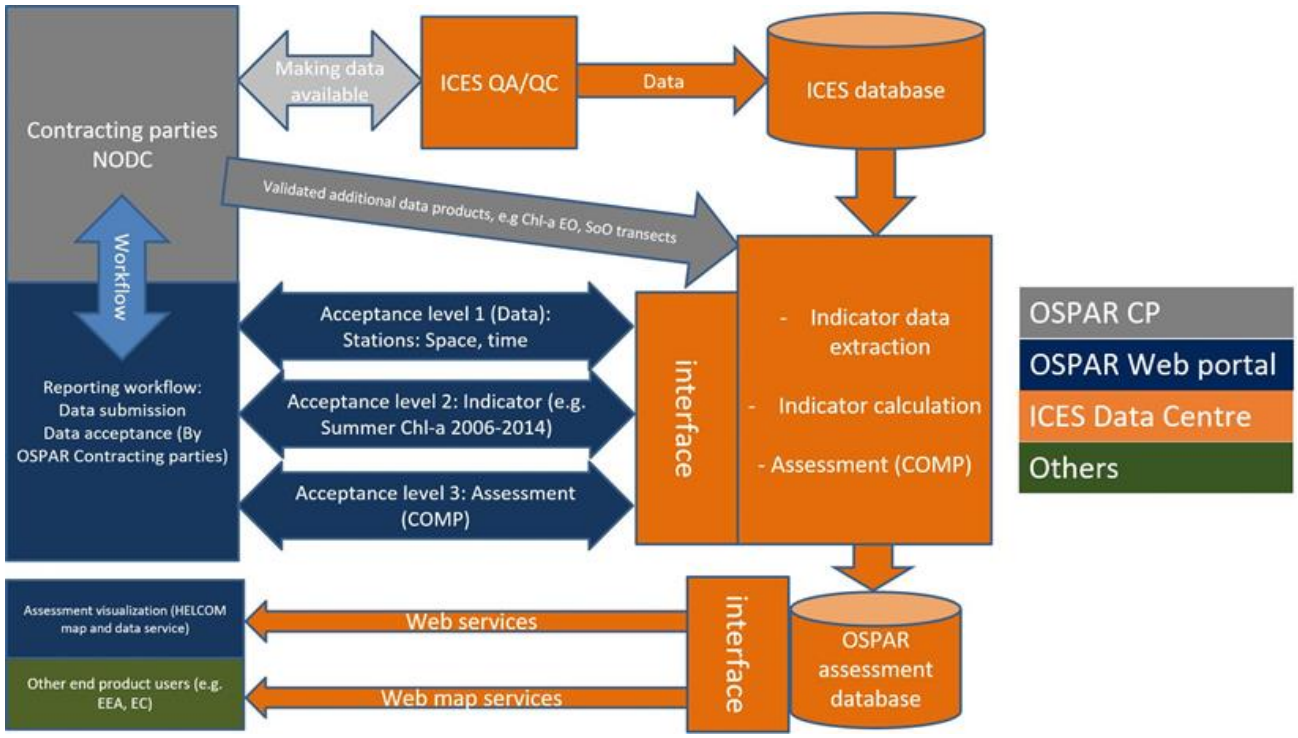
- >20 years of chlorophyll-*a* satellite data not being used
- Reasons: system based on *in situ* data, limited knowledge of EO, data management and assessment system not ready
- Policy push & technology pull
- Multiple iterations between science and policy



Snapshot of quality controlled multi-mission multi-algorithm satellite observations of chlorophyll-*a* concentrations

From van der Zande et al, EU project JMP EUNOSAT

Role of ICES data centre - COMPEAT



- Quality controlled eutrophication *in situ* and satellite data since 1990/1998
- Automated application of COMP assessment rules
- Accessible and transparant

ICES: ensuring independent science - OSPAR: frequent interaction with policy makers

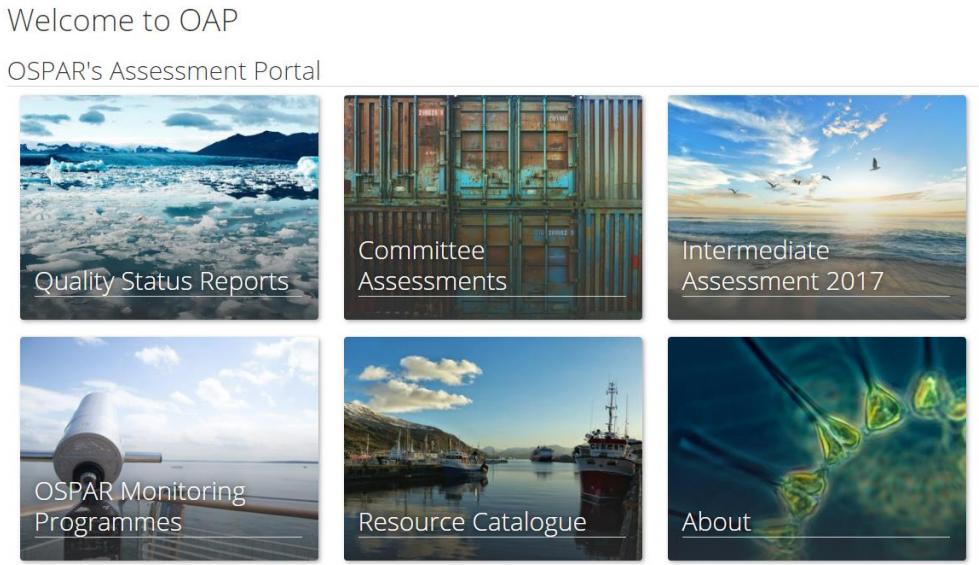
Remaining science needs

- QSR 2023 knowledge gaps
  - How do changes in nutrient status in phytoplankton affect optical properties and satellite observation?
  - How to improve estimates of biomass/carbon using chl a as a proxy?
  - How to combine chl a observations from various observing systems (in situ, satellite, ferryox) that differ in temporal and spatial resolution and precision?
  - Improving hydrodynamic and low trophic level modelling, taking into account gradients, for better threshold values
  - Linking pelagic community to shifting nutrient imbalances.
- Upcoming OSPAR science agenda 2024: full list of knowledge gaps and priorities based on OSPAR's strategic objectives (North-East Atlantic Environment Strategy 2030)
- Get inspired

https://www.ospar.org/work-areas/cross-cutting-issues/science-agenda

The connections between science and policy

- Investigate science needs and link the questions behind the question
- Seek/understand momentum (policy push)
- Liaise with policy makers to overcome the fear for new techniques and show (potential) policy consequences



- Respect continuity and experience (to some extent...)
- Be innovative yet realistic

More info on our website

www.ospar.org

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