

Assessing the state of marine biodiversity in the Northeast Atlantic

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North East Atlantic project
on biodiversity and eutrophication
assessment integration
and creation of effective measures



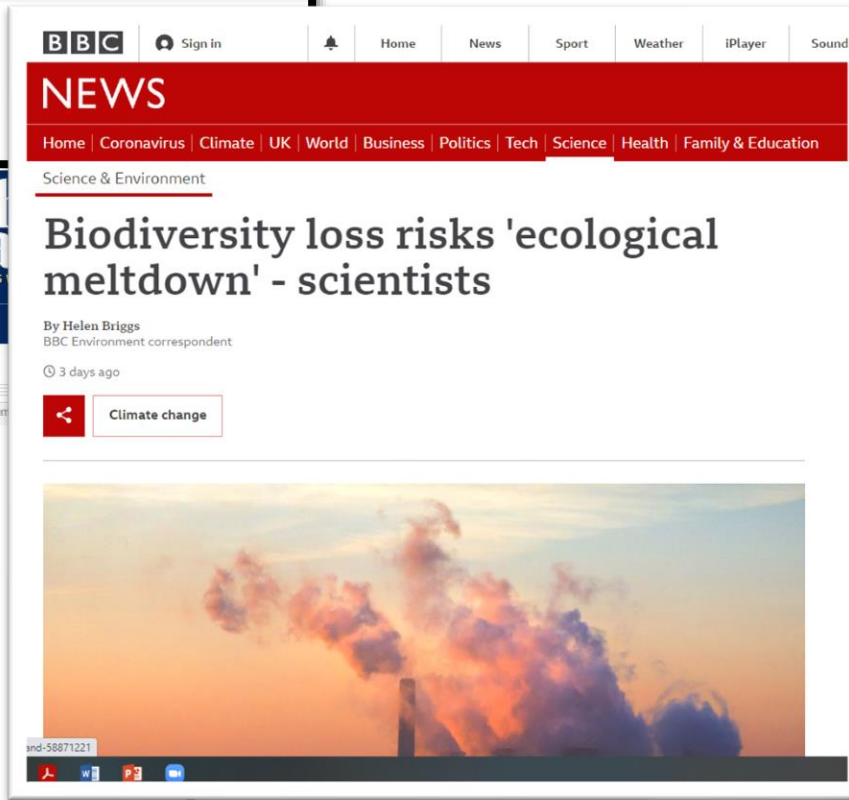
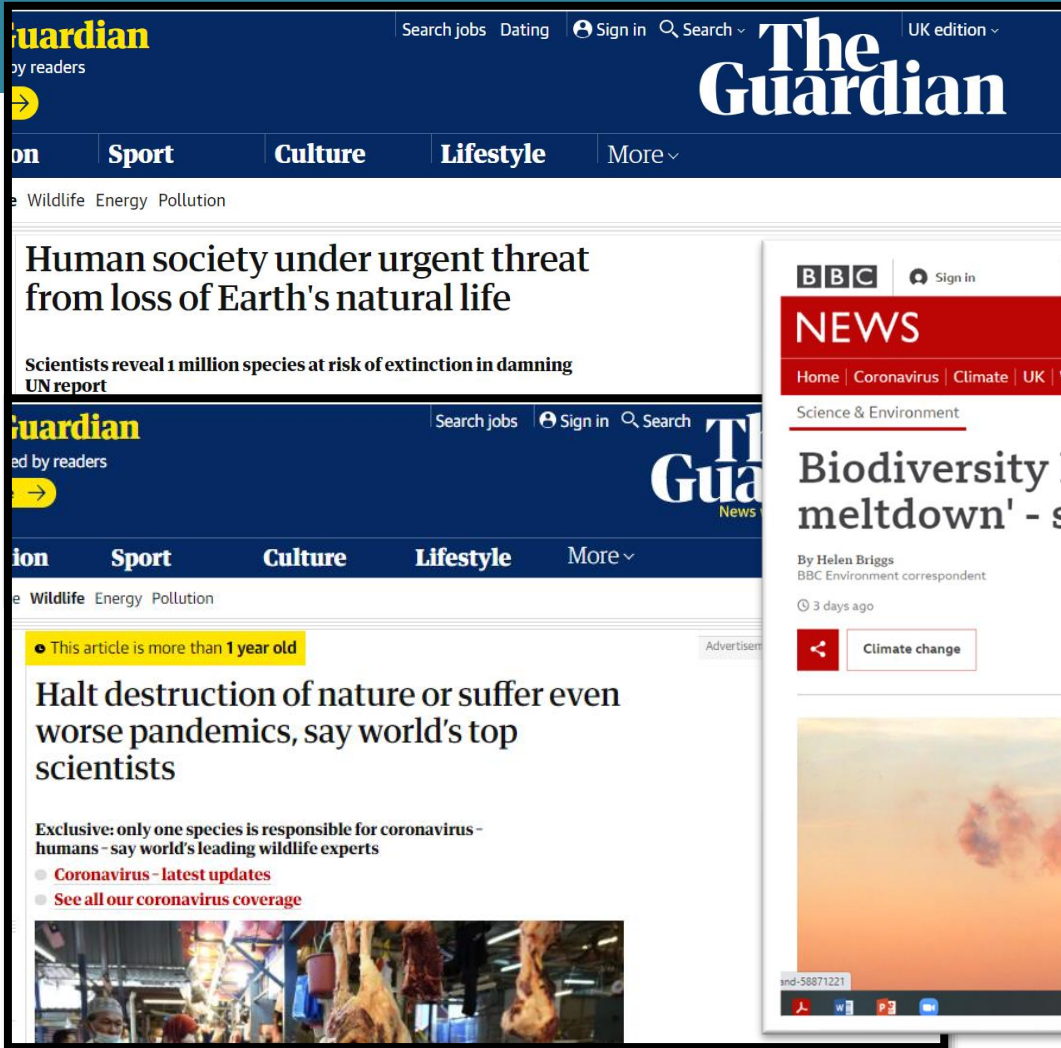
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Key messages

- First ever holistic assessment of Northeast Atlantic marine biodiversity showed widespread degradation of species and habitats
- Gaps in data and knowledge challenge indicator assessment
- Science-policy synergy is crucial for delivering holistic ecosystem assessment



We are in a biodiversity emergency!



One in four species are at risk of extinction

Species assessed by the IUCN Red List



Amphibians
40%



Conifers
34%



Reef corals
33%



Sharks and rays
31%



Selected crustaceans*
27%



Mammals
25%



Birds
14%

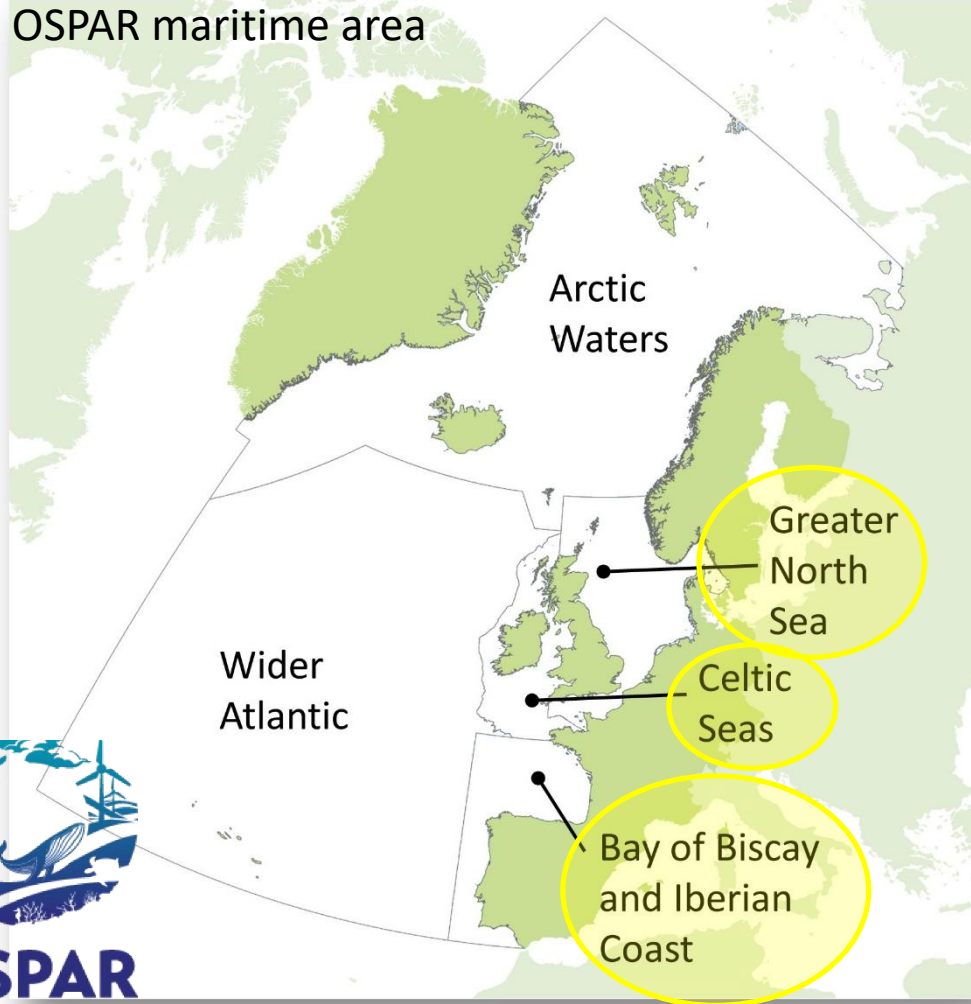
*Assessed species include lobsters, freshwater crabs, freshwater crayfishes and freshwater shrimps

Source: IUCN Red List of Threatened Species



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Biodiversity assessment in NE Atlantic – Marine Strategy Framework Directive



- Objective: to achieve Good Environmental Status (GES) of Europe's seas
- Indicator approach to assessing environmental targets
- OSPAR leading biodiversity assessment process for Northeast Atlantic

OSPAR IA2017

- Focus on North Sea, Celtic Seas, Bay of Biscay
- 2017 Intermediate Assessment (IA2017) -> first ever biodiversity assessment on this scale!
- 200 scientists and 40 policy-makers involved
- 52 biodiversity indicator assessments



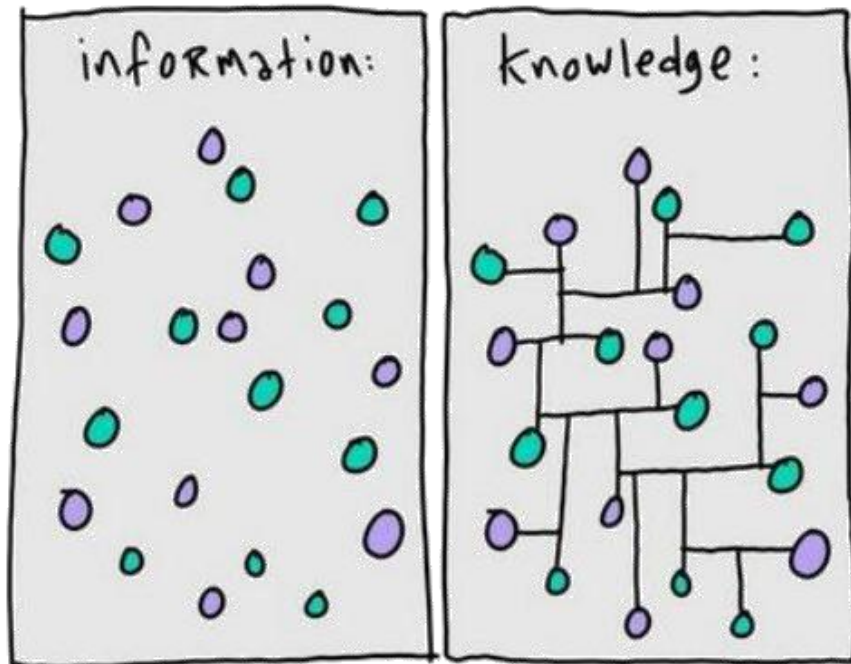
IA2017 – GES or not?

- Challenges:
 - Scale of assessment
 - Methodological or data limitations
 - Novel approaches
 - Uncertainties around state-pressure relationships
 - No assessment thresholds for many indicators
- Most indicators were not assessed for GES, but biodiversity change was merely described



Our aim








- To assess the state of biodiversity across the 52 IA2017 indicators



Biodiversity status?



Spatial distribution of indicators

Ecosystem component	Greater North Sea	Celtic Seas	Bay of Biscay
 Pelagic habitats	3	2	3
 Benthic habitats	3	2	2
 Marine birds	3	3	0
 Marine mammals	6	6	3
 Food webs	2	2	2
 Non-indigenous species	1	1	1
 Fish	3	3	1

- Not all indicators assessed/applicable in all regions due to political or ecological reasons



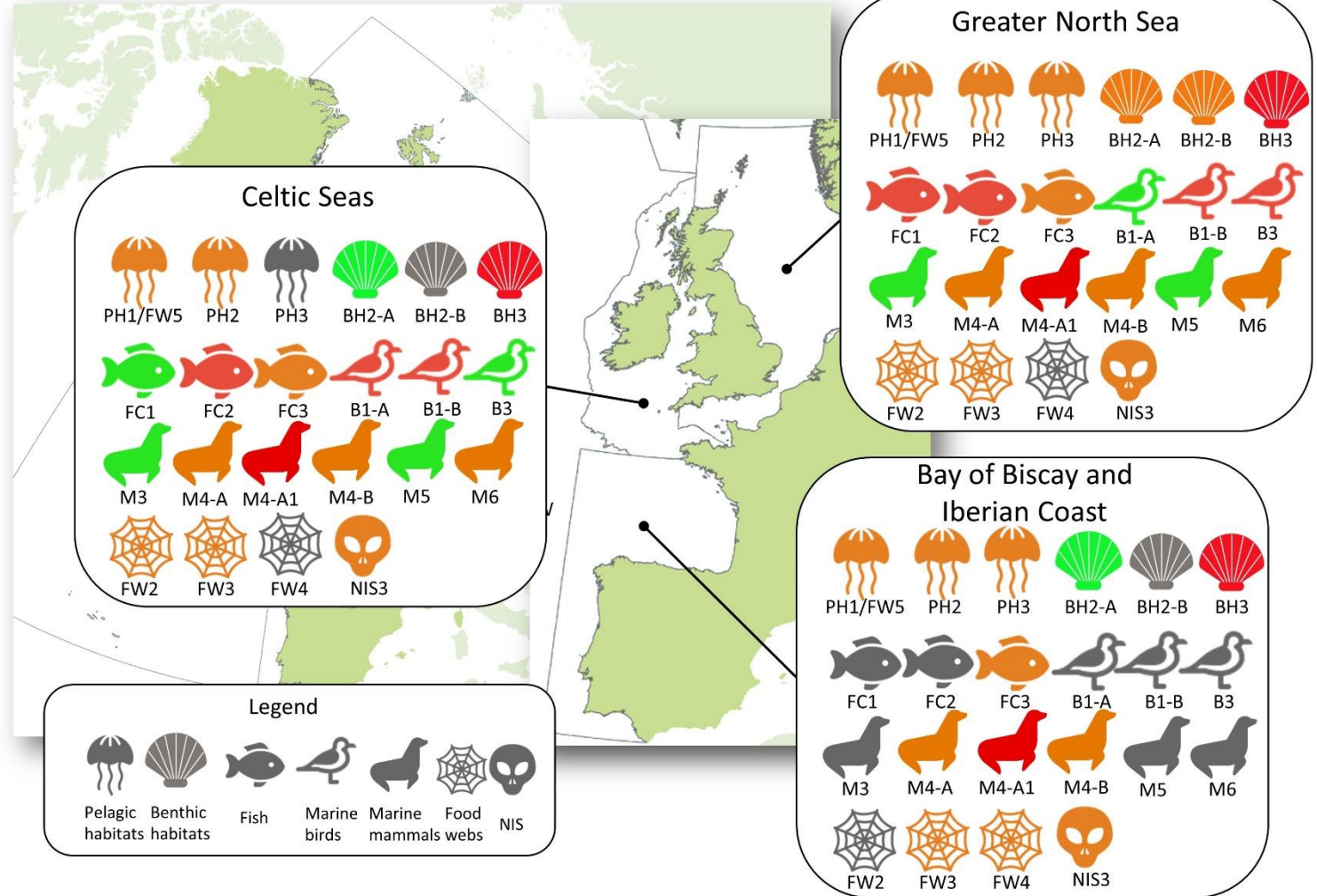
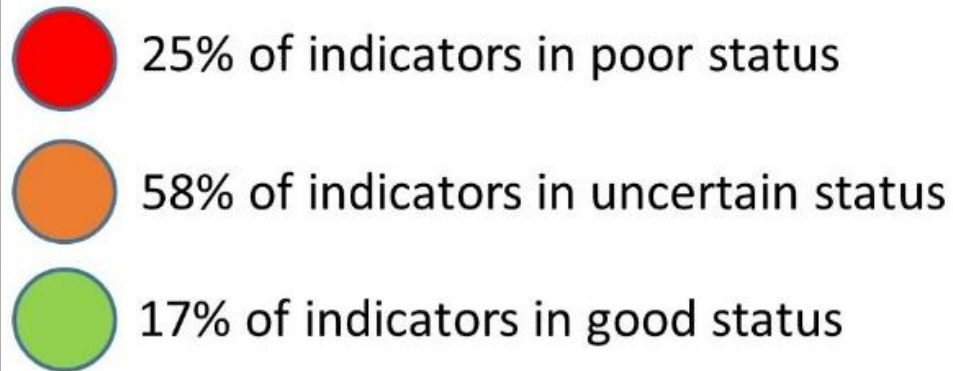
Determining biodiversity status

Poor	Indicator value is below assessment threshold, or change in indicator represents a declining state, or indicator change is linked to increasing effect of anthropogenic pressures (including climate change), or indicator shows no change but state is considered unsatisfactory
Uncertain	No assessment threshold and/or unclear if change represents declining or improving state, or indicator shows no change but uncertain if state represented is satisfactory
Good	Indicator value is above assessment threshold, or indicator represents improving state, or indicator shows no change but state is satisfactory
Unassessed	Indicator was not assessed in a region due to lack of data, lack of expert resource, or lack of policy support.

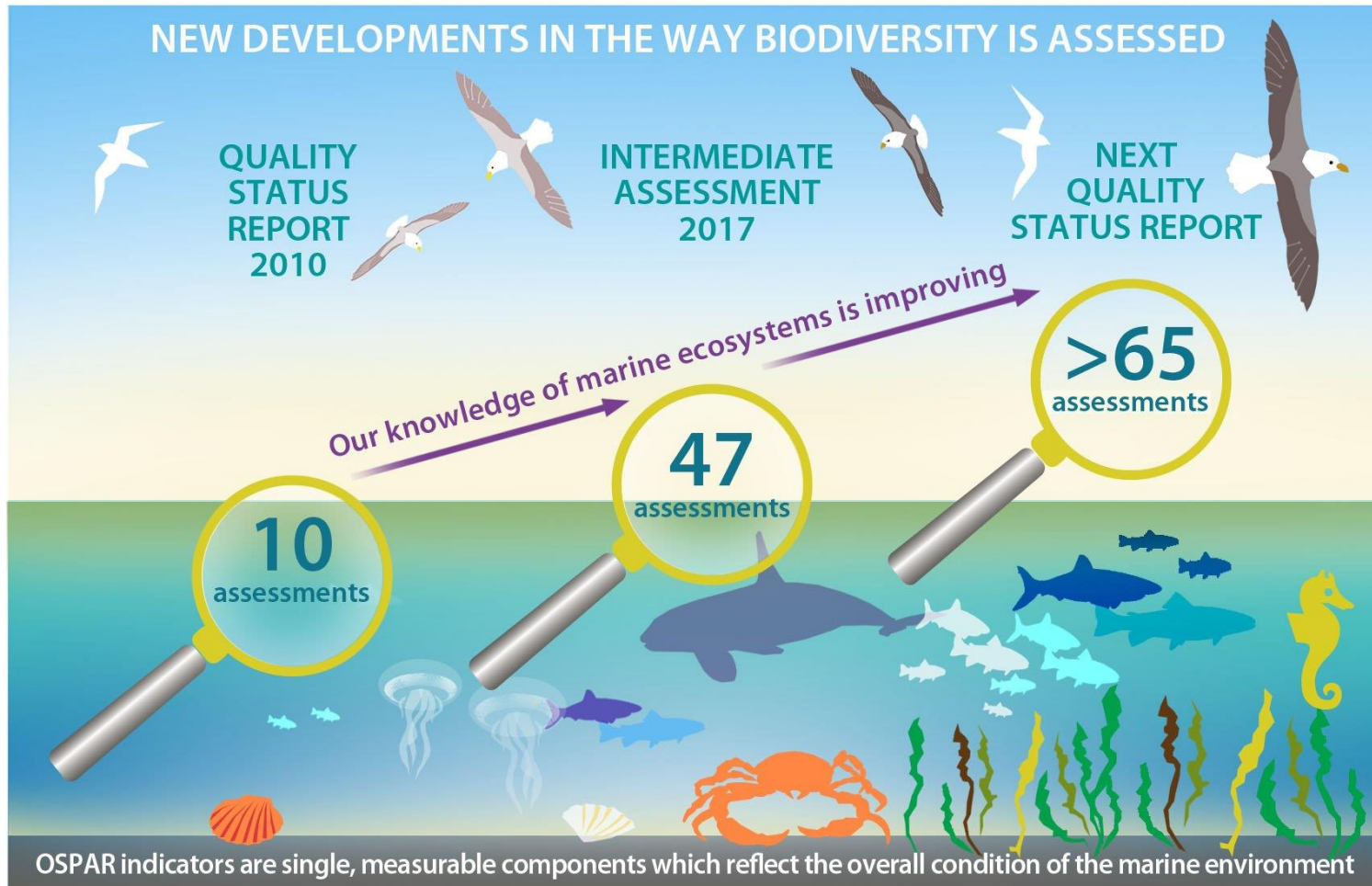
- Semi-quantitative method
- Thresholds used where available (i.e. some birds, some fish)
- Expert opinion/weight of evidence used in absence of thresholds



Northeast Atlantic biodiversity is not in a good state



Next steps



- OSPAR QSR2023
- More data + more indicators = better evidence
- Huge advances in knowledge since IA2017
- Actually classing indicators as in GES or not --> big step!



Thank you!

Assessing the state of marine biodiversity in the Northeast Atlantic

Northeast Atlantic marine biodiversity is subject to intense human pressure.



Using spatial and time-series data, the status of 52 biodiversity indicators was assessed across the Northeast Atlantic. This process involved 188 scientists, as well as policy-makers from 15 countries.



- This first ever holistic assessment showed widespread degradation of Northeast Atlantic marine habitats and species.
- Gaps in data and knowledge challenge assessment of some indicators.
- Science-policy synergy is critical to delivering holistic ecosystem assessment.

- 25% of indicators in poor status
- 58% of indicators in uncertain status
- 17% of indicators in good status

Reference: McQuatters-Gollop, A., Guérin, L., Arroyo, N.L., Aubert, A., Artigas, L.F., Bedford, J., Corcoran, E., Dierschke, V., Elliott, S.A.M., Geelhoed, S.C.V., Gilles, A., González-Irusta, J.M., Haelters, J., Johansen, M., Le Loc'h, F., Lynam, C.P., Niquil, N., Meakins, B., Mitchell, I., Padegimas, B., Pesch, R., Preciado, I., Rombouts, I., Safi, G., Schmitt, P., Schückel, U., Serrano, A., Stebbing, P., De la Torre, A., Vina-Herbon, C. Assessing the state of marine biodiversity in the Northeast Atlantic. *Ecological Indicators*. <https://doi.org/10.1016/j.ecolind.2022.109148>



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