

Targeted monitoring in offshore wind farms

The need to understand cause-effect relationships in the marine benthos

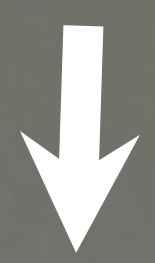
Degraer S., Dannheim J., Gutow L., Birchenough S., Boon A., Brey T., Coates D., Dauvin J.-C., de Roton G., Derweduwen J., Gill A.B., Janas U., Kerckhof F., Krone R., Lozach S., Martin G., Mohn C., Reichert K., Reubens J., Robertson M., Rostin L., Steen H. & Wilhelmsson D.

participants at the

ICES Workshop on Effects of Offshore Wind Farms on Marine Benthos (WKEOMB) Facilitating a closer international collaboration throughout the North Atlantic Region

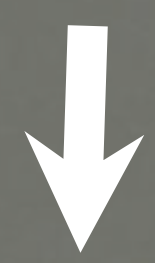
A two-track monitoring strategy needed...

Offshore wind farm monitoring should ideally comprise two parallel and complementary monitoring tracks.



Baseline monitoring

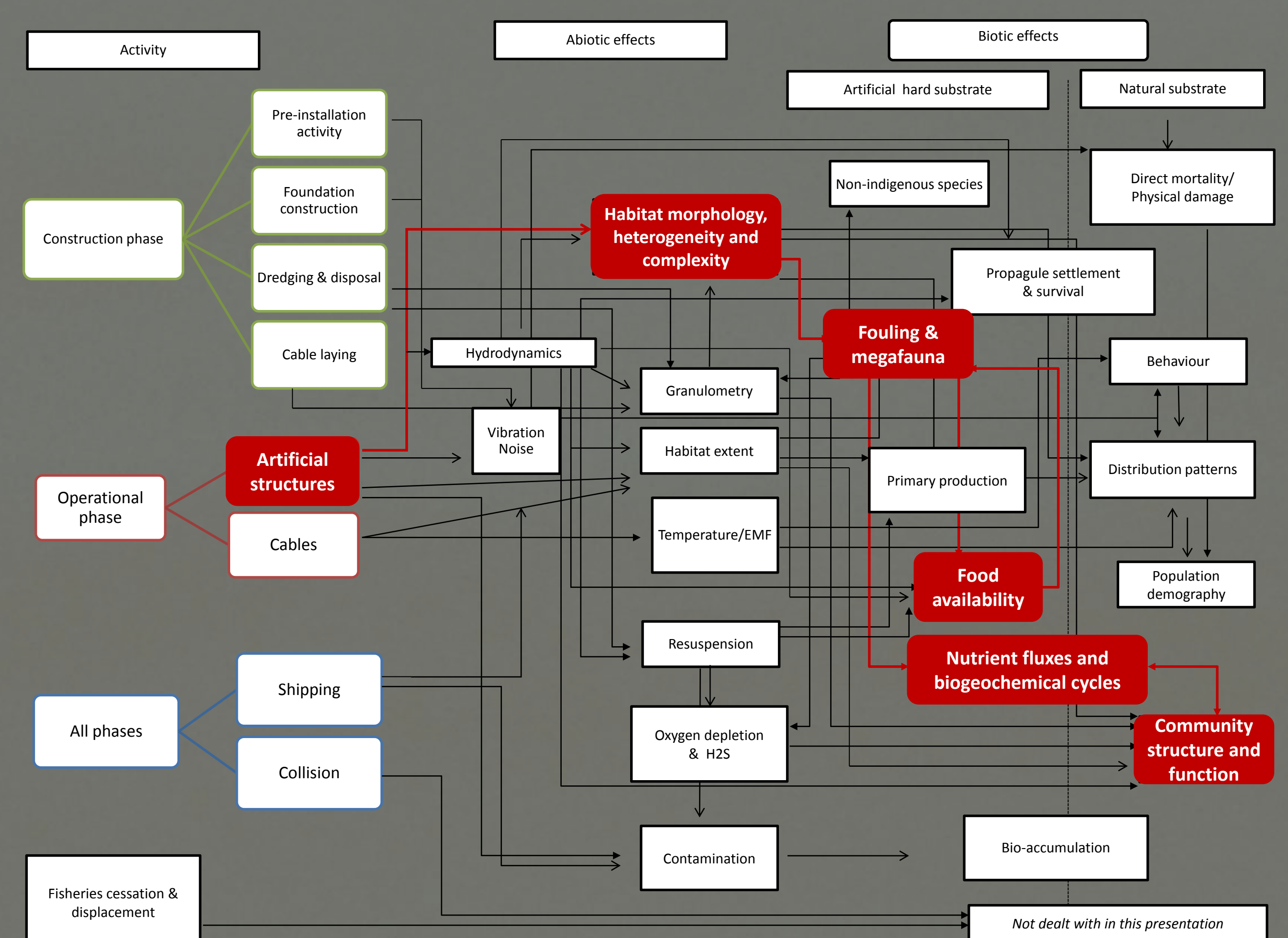
- Focus on *a posteriori* resultant effect quantification
- Observing rather than understanding impacts
- Basis for halting activities
- Spatial area-specific
- Most often mandatory



Targeted monitoring

- Focus on cause-effect relationships of selected, *a priori* defined impacts
- Understanding rather than observing impacts
- Basis for mitigating activities
- Spatially generic
- Most often not mandatory

Disentangling possible cause-effect relationships...



Targeted monitoring: Major challenges...

How to identify key issues?

- Not all cause-effect relationships are expected to have an equal weight.
- International discussion fora, combined with a real-time knowledge sharing facilitate the selection of the most relevant issues to be researched.

How to include flexibility within mandatory monitoring programmes?

- Mandatory monitoring programmes generally focused on baseline monitoring
- Yet, flexibility in scientific scope should be granted
 - To be dealt with at the legal foundations of the monitoring programmes

How to avoid duplication of work?

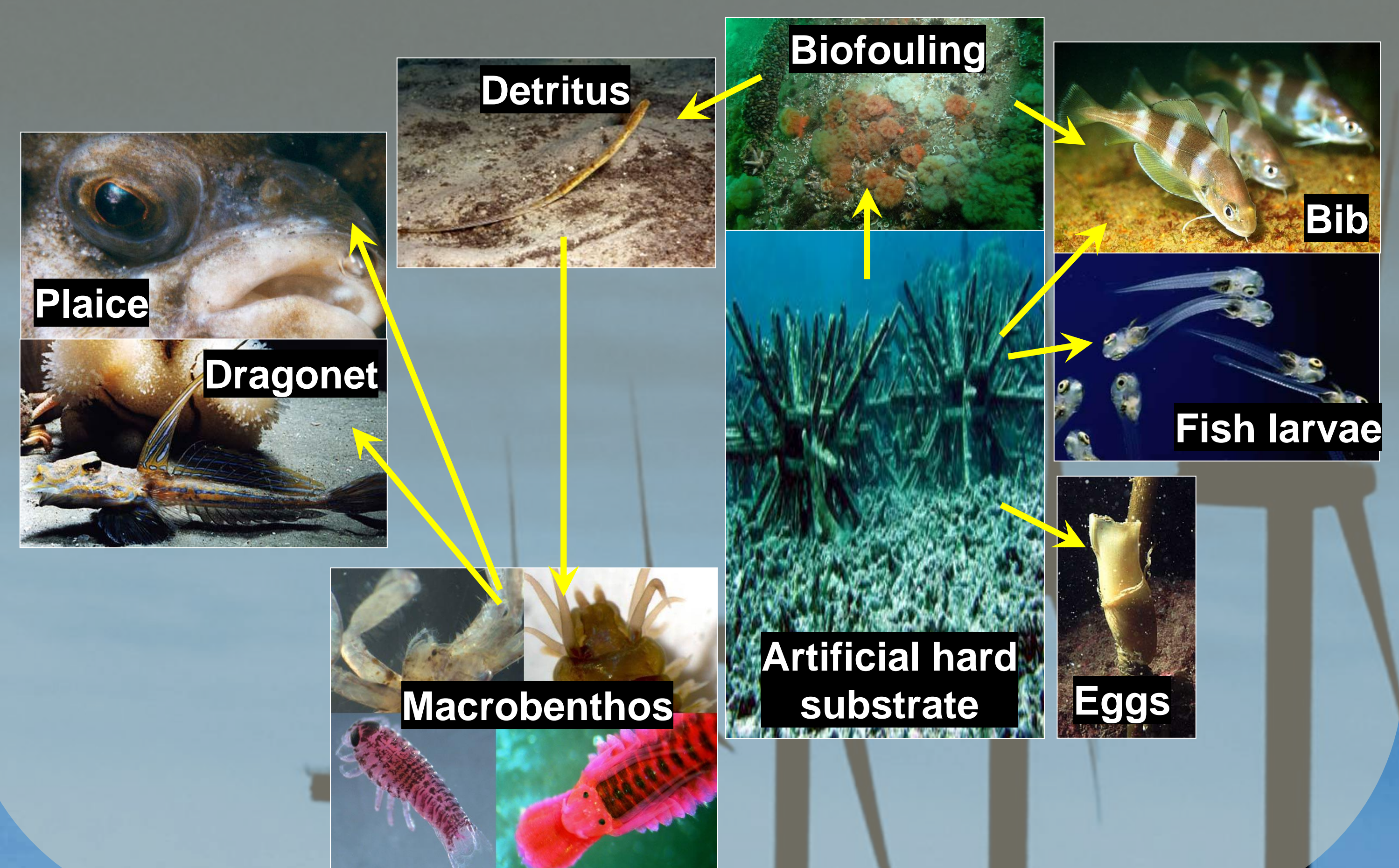
- Monitoring programmes are dealt with at a national level.
- International scientific interaction should glue national monitoring programmes
 - To be taken care of in organisations such as ICES

How to ensure a proper knowledge sharing?

- The wind farm industry often treats monitoring data as trade secrets.
- Yet, knowledge should be shared to the maximum as to ensure steady progress within science
 - To be dealt with at the legal foundations of the monitoring programmes

Zooming into targeted monitoring: An example...

Next to the baseline monitoring, the targeted monitoring aims at unravelling and hence understanding the underlying causes of a selected set of priority effects, such as the reef effect of offshore wind farms.



Management support... The understanding of alterations is inevitable for future predictions of ecological implications in the benthic system. The integrative approach of targeted combined with baseline monitoring will lead to scientifically sound advices for possible mitigating measures for existing, but also future offshore wind farms.