

EMODnet essential data needs and gaps: a comparative review of the Atlantic, Black Sea and Medsea Checkpoints

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Costs of ocean observation are huge and – in Europe - are largely carried by Member States. The resulting data is stored in a myriad of national, regional and international databases. EU Programmes and Directives have been taken to collect observations, to harmonize data and services and to assemble data both for assessing health of the marine environment and for a sustainable Blue Growth.

Now, the overarching aim of the Marine Knowledge philosophy (Marine Knowledge 2020) is to “collect once and use many times”.

However do the existing monitoring systems fit the user needs? If no, what is-it due to?

To answer these questions, the European Marine Observation and Data network (EMODnet) checkpoints have been committed with the assessment of marine monitoring systems with a view to supporting sustainable Blue Growth in European Sea Basins.

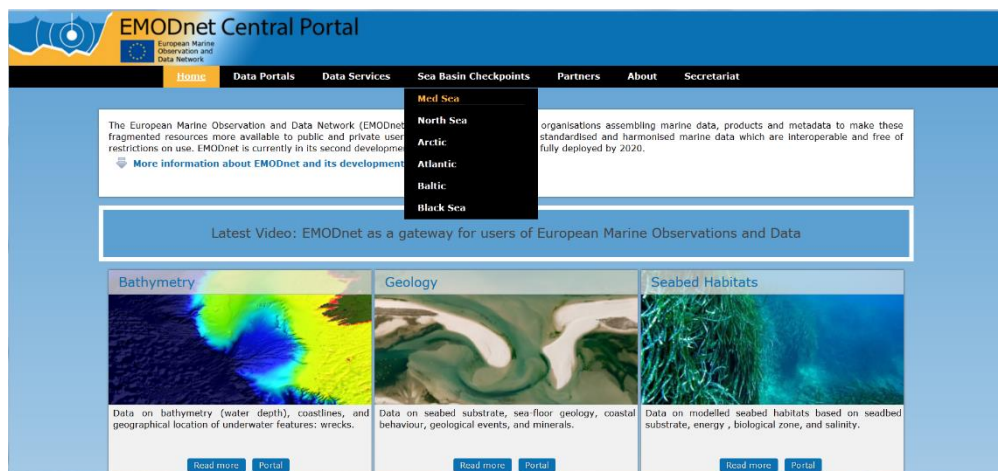


Figure 1: EMODnet Central portal (<http://www.emodnet.eu/>) : Sea Basin checkpoints

To do so, a series of end-user applications (“challenges”) of paramount importance for:

- the Blue Economy sector (offshore industries, fisheries);
- the marine environment variability and change (eutrophication, river inputs and ocean climate change impacts);
- emergency management (oil spills);
- and preservation of natural resources and biodiversity (Marine Protected Areas)

have been selected by the EU Directorate-General for Maritime Affairs and Fisheries (also known as DG MARE).

The purpose of these challenges is to develop innovative products from existing data sources and to assess the fitness for use of these data for these applications.

The results are designed for:

- Institutional stakeholders for decision making on observation and monitoring systems
- Data providers and producers to know how their data collected once for a given purpose could fit other user needs
- End-users interested in a regional status and possible uses of existing monitoring data

The approach initiated by the Medsea checkpoint and adopted by the Atlantic and Black Sea checkpoints involves the development of information and indicators based on a common reference framework : the Geographic Information standards for Data Product Specifications, Data Quality and Metadata (ISO 19131, ISO 19157 and ISO 19115 respectively) and Common Vocabularies : environmental matrices and SeaDataNet lists of Parameter Groups (PO3), of Discovery Parameters (P02) and of BODC Parameter Usage (P01) ensuring consistency of the gap analyses of input data sources between the basins.

The fitness for use of the input datasets are assessed using 2 categories of criteria to determine how these datasets fits the user requirements which drive them to select a data source rather than another one and to show performance and gaps of the present monitoring systems :

- data appropriateness i.e. the extent to which data (“what”) fits the user needs in term of “completeness”, “consistency” and “accuracy”
- data availability i.e. the extent to which data can be discovered and obtained by users (“how”) in term of “visibility”, “accessibility” and “performance”

The initial tasks of the challenges have been of three types:

- setting up a list of characteristics (parameters and objects of interest for the challenge) based on partners knowledge and conceptual representation of their challenges;
- listing the monitoring systems used by the checkpoints: data sources are informed in a “many to many” relationship with the characteristics.
- giving an insight into the quality of the data sources (in terms of data availability and appropriateness in relation to each challenge).

The comparison between the three basins is made on the basis of simple statistics which have been produced thanks to the harmonization of the quality concepts and metadata as well as the adoption of common vocabularies.

This work was performed inter alia on three basins, the Black Sea, the Mediterranean and the Atlantic. The results revealed discrepancies in the way basins are covered by existing monitoring systems and why for, but also by the way people approach a challenge from a basin to the next (due to environmental differences, different contexts or cultures etc.).

As a conclusion, most salient data gaps were already identified. They will be further investigated as the project draws on by performing a full download of each data set needed by the challenges, by describing data quality and by thoroughly reporting it in two successive “Data adequacy reports”. The final aim of this endeavour is to provide the Commission with a detailed overview of data gaps and redundancies enabling a more focused data acquisition policy to open existing monitoring systems to a wider community of users.