



## **Eutrophication and contaminant data management for EU marine policies: the EMODnet Chemistry infrastructure.**

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The European Marine Observation and Data Network (EMODnet) initiative has the following purposes: to assemble marine metadata, data and products, to make these fragmented resources more easily available to public and private users and to provide quality-assured, standardised and harmonised marine data. EMODnet Chemistry was launched by DG MARE in 2009 to support the Marine Strategy Framework Directive (MSFD) requirements for the assessment of eutrophication and contaminants, following INSPIRE Directive rules. The aim is twofold: the first task is to make available and reusable the big amount of fragmented and inaccessible data, hosted in the European research institutes and environmental agencies. The second objective is to develop visualization services useful for the tasks of the MSFD.

The technical set-up is based on the principle of adopting and adapting the SeaDataNet infrastructure for ocean and marine data which are managed by National Oceanographic Data Centers and relies on a distributed network of data centers. Data centers contribute to data harvesting and enrichment with the relevant metadata. Data are processed into interoperable formats (using agreed standards ISO XML, ODV) with the use of common vocabularies and standardized quality control procedures. Data quality control is a key issue when merging heterogeneous data coming from different sources and a data validation loop has been agreed within EMODnet Chemistry community and is routinely performed.

After data quality control done by the regional coordinators of the EU marine basins (Atlantic, Baltic, North, Mediterranean and Black Sea), validated regional datasets are used to develop data products useful for the requirements of the MSFD. EMODnet Chemistry provides interpolated seasonal maps of nutrients and services for the visualization of time series and profiles of several chemical parameters. All visualization services are developed following OGC standards as WMS and WPS.

In order to test new strategies for data storage, reanalysis and to upgrade the infrastructure performances, EMODnet Chemistry has chosen the Cloud environment offered by Cineca (the Consortium of Italian Universities and research institutes) where both regional aggregated datasets and analysis and visualization services are hosted. Finally, beside the delivery of data and the visualization products, the results of the data harvesting provide a useful tool to identify data gaps where the future monitoring efforts should be focused.