

Black Sea water quality database within the EMBLAS project

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The EMBLAS project.

The overall objective of the project is to improve the protection of the Black Sea environment. The project is addressing the overall need for support in protection and restoring the environmental quality and sustainability of the Black Sea.

The specific objectives: are as follows:

- Improve availability and quality of data on the chemical and biological status of the Black Sea, in line with expected MSFD and Black Sea Strategic Action Plan needs;
- Improve partner countries' ability to perform marine environmental monitoring along MSFD principles, taking into account Black Sea Diagnostic Report.

The overall aim of the “web-based Black Sea Water Quality Database” (BS WQDB) project activity is to further develop the database, put it on-line and promote its sustainable update, maintenance and use by stakeholders. It will allow storage of the monitoring data already collected and newly collected during the project, with focus on upgrade of the Black Sea Information System (BSIS). The data are being collected through the Data Collection Templates that are customized to the Black Sea JOSS and NPMS cruises.

The database.

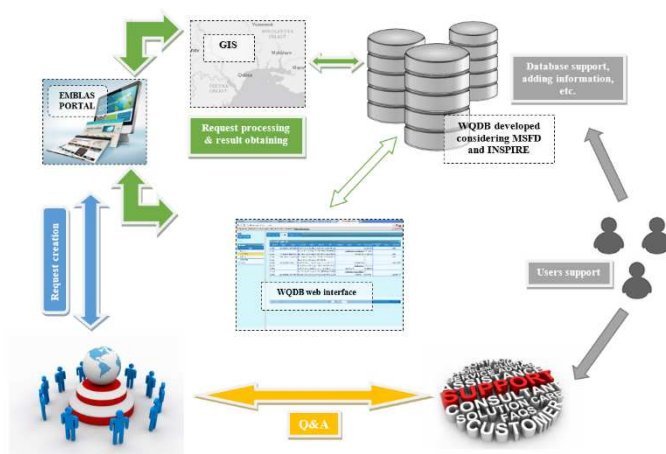


Figure 1: WQDB data flow

The large volumes of data were collected During the lifespan of the Project from the different sources including scientific marine monitoring cruises, observations aboard of the ships, etc. The information received on the following features: biological parameters (Phytoplankton, Zooplankton, Zoobenthos),

chemical parameters (Pollution in water, bottom sediments, biota), indicators of eutrophication, marine litter, marine mammals and birds observations.

Database developed using the Microsoft SQL Server software with respect to the Marine Strategy Framework Directive requirements. Due to the use of the modern approach and methods during the development it became possible to provide different interactive map integration (interactive map services publication by means of ESRI ArcGIS) and data exchange services integration (data sets automation for the EMODNET and SeaDataCloud marine data exchange Projects from the BS WQDB). The processed data of the surveys are inserted into the specially developed templates by the researchers and later uploaded into the WQDB using parser software also developed within the project.

User friendly web interface developed for the convenient search and query from the WQDB.

The web interface.

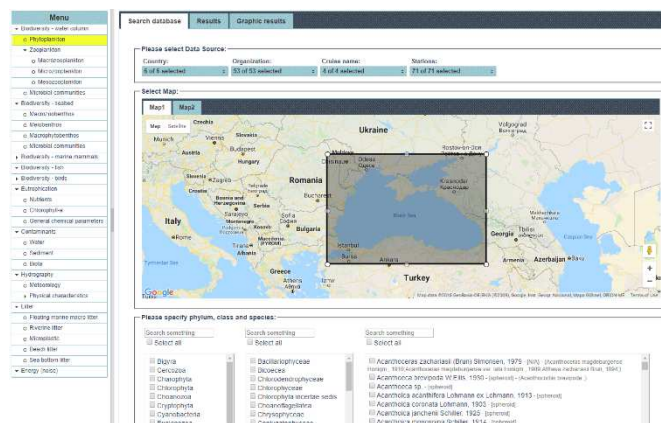


Figure 2: WQDB web interface (data query)

Various development tools like HTML, CSS, PHP, Ajax, JQuery, Google Maps API were selected to build the web interface. Interface contains main menu (allows to display filters set for the required features) and work space divided in to 3 functional areas – filters set, results display and monitoring station display.

Web interface key features:

- Specific criteria data query filters;
- Results table view;
- Different formats of the data export (Excel, CSV, etc.);
- Query results for monitoring stations display on map (Query results for monitoring stations displaying on map);
- Displaying main statistical parameters;

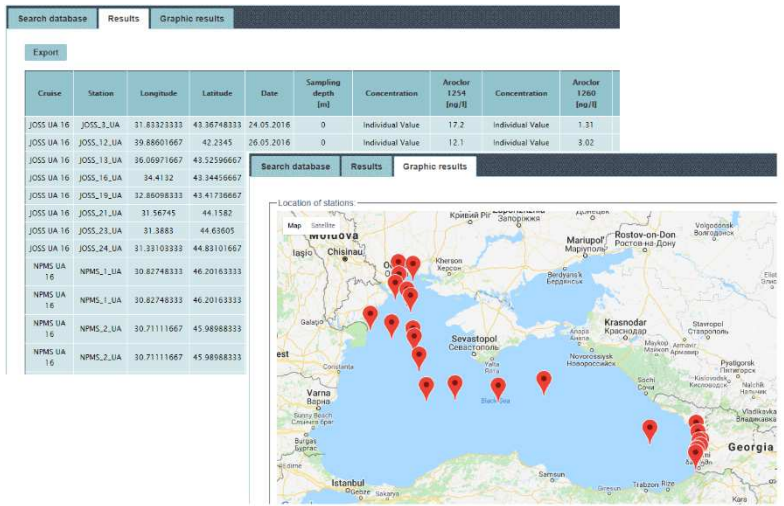


Figure 3: WQDB web interface (query result and stations map)