

HarmoNIA project: Searching for data and tools to support pollution assessment and response

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HarmoNIA project

The Adriatic and Ionian Seas are crucial for the blue growth of both EU and non-EU coastal states. However, increased human use of the marine and coastal space might compromise marine ecosystems through several kinds of physical, chemical and biological disturbances.

In order to promote the sustainable use of the seas, the Marine Strategy Framework Directive (MSFD) and the Protocols for the Protection of the Mediterranean Sea against Pollution of the Barcelona Convention require EU Member States and all UNEP/MAP Contracting Parties to take measures to maintain or achieve Good Environmental and Ecological Status in the European seas by 2020. However, the level of coherence in the Adriatic – Ionian (ADRION) marine subregions in relation to the implementation of the environmental policies is considered low, particularly in the case of pollution from hazardous substances.

In this framework, the Interreg project HarmoNIA has focused on improving available information related to pollution by hazardous substances in the ADRION area and on implementing tools to support pollution assessment and response.

Pollution assessment

Due to the legal regulations in place for the Mediterranean, there is already a wide coastal and marine monitoring undertaken in the Adriatic and Ionian Seas. However, there is a high heterogeneity in the elements related to contaminants sampling and measurements.

Environmental assessment needs information about monitoring protocols applied in the station network of the different countries, in order to evaluate the comparability of the data that are actually being collected.

In order to facilitate understanding of the specific sampling procedures in a marine region (e.g. variables measured, monitoring purpose, frequency of observations, type of sampling stations...), the analysis of metadata from monitored stations is needed.

Regional data collections contain a substantial amount of information from an area, provided in a harmonised way. Within HarmoNIA project, a QA/QC dataset focused on contaminants, composed of all unrestricted data available for the Adriatic – Ionian Seas and data specifically gathered during the project, was produced. The metadata of this collection were analysed and processed to obtain information about the sampling efforts in the ADRION area.

GIS tools to gather information about sampling stations

Visualisation is a useful tool to organize and synthesize monitoring data to produce practical and understandable information for several kinds of stakeholders and decision makers. The production of informative and visually engaging outputs is as important as monitoring and data management.

The use of geoprocessing operations to manipulate the metadata of the sampling locations can derive information addressed to cover needs from different users or stakeholders: monitoring/research purpose, sampled matrix, group of substances, sampling frequency.

The structure and the information considered useful was defined according to the needs and suggestions of HarmoNIA partnership and taking into account best practices adopted in the framework of Regional Sea Conventions (e.g. Barcelona Convention, OSPAR, HELCOM).

The format of the initial QA/QC controlled dataset was ODV transposed, decomposed spreadsheet file. One file for each matrix (water, sediment and biota) was composed using the profile and timeseries files, in order to have only one file for each matrix. The datasets were processed to harmonise the information about time and depth. A join of the datasets with information about water body types using EEA reference spatial datasets was performed.

Once data processing was finished, information was aggregated for each station. The identification of stations based on position is challenging because SeaDataNet formats have a different definition for the concept of station. However, the labelling of the long-term sampled stations is relevant for stakeholders. For this reason, an aggregation of the data to obtain single information for each sampling position was performed.

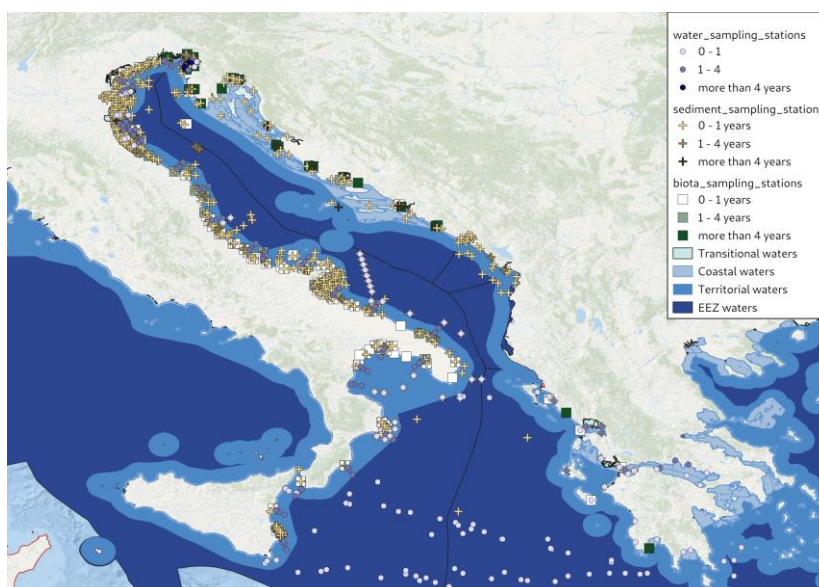


Figure 1: Sampling stations of the Adriatic-Ionian sub-region

The final layers can be displayed in different visualisation systems and overlapped with other layers of information such as human activities, vulnerable areas... This process will yield new information that will contribute to increase the knowledge of the area as well as to evaluate the appropriateness of the current monitoring network.