

The AMAre PLUS Geoportal, a tool for implementing networks of Marine Protected Areas in the Mediterranean Sea

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AMAre PLUS Geoportal

The geoportal (Figure 1) was developed in the framework of the INTERREG MED AMAre and AMAre PLUS projects with the aim to implement and scale up strategies and recommendations at transnational level connecting Marine Protected Areas (MPA) in the Mediterranean Sea.

This user-friendly web application is a common space accessible by different stakeholders and providing GIS tools for MPA managers and decision makers.

The geoportal is part of a spatial data infrastructure for managing multidisciplinary spatial data including:

- a data model following the INSPIRE Directive data specifications;
- a relational spatial database;
- a metadata catalogue describing all the resources accessible through the geoportal and the relative data policy;
- OGC web services with guarantee the interoperability.



Fig. 1. AMAre PLUS Geoportal main interface. Fine scale spatial data are accessible for 18 MPAs across the Mediterranean sea.

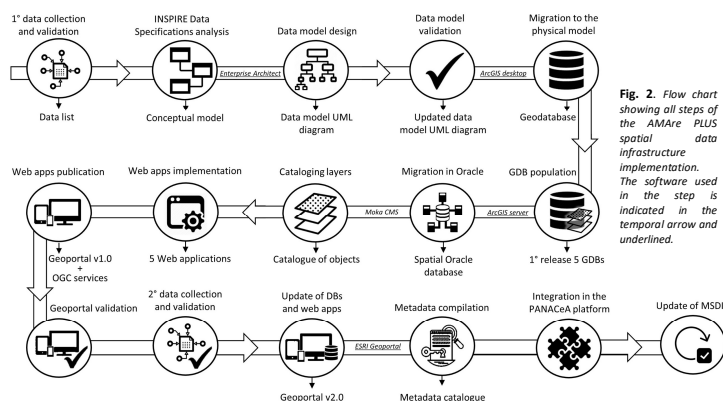


Fig. 2. Flow chart showing all steps of the AMAre PLUS spatial data infrastructure implementation. The software used in the step is indicated in the temporal arrow and underlined.

Workflow

Starting from the MPAs needs and focusing on fine scale data, a common **data model** was implemented (Figure 2); it is partially based on the INSPIRE Data Specification and adapted in order to better fit the MPAs needs obtaining a unique integrated structure. The common infrastructure homogenizes all the information collected, following MPA manager's opinion and international standards. The logical structure was modeled with Enterprise Architect software and implemented with ArcGIS software a **File geodatabase**. The geodatabases populated with the fine scale data were integrated in a Oracle database and published through the **AMAre PLUS Geoportal**. The layers and the digital objects in the geoportal are described with specific **metadata** managed through the Geonetwork metadata catalogue. The metadata contain also the links to **OGC services**, making maps and data available in an open, internationally known format.

Applications

The AMAre PLUS Geoportal is part of a set of methodologies, recommendations, and tools dealing with multiple stressors assessment, coordinated environmental monitoring, multi-criteria analyses, and stakeholders' engagement, to be adopted at transnational level to:

- **integrate** fine scale spatial;
- increase **knowledge** within and among MPAs about the distribution and the effects of human activities, monitoring of vulnerable habitats, environmental status, essential ocean variables and relevant management issues;
- improve the **management** of the MPAs with a coordinated approach, essential to introduce principles of maritime spatial planning and assess the effects of the protection;
- encourage the **communication** with stakeholders;
- foster a constructive **comparison** between MPAs;
- lay the foundations for developing a **common knowledge** across the Mediterranean Sea.

Figures 3, 4 and 5 show some examples of AMAre PLUS Geoportal applications.

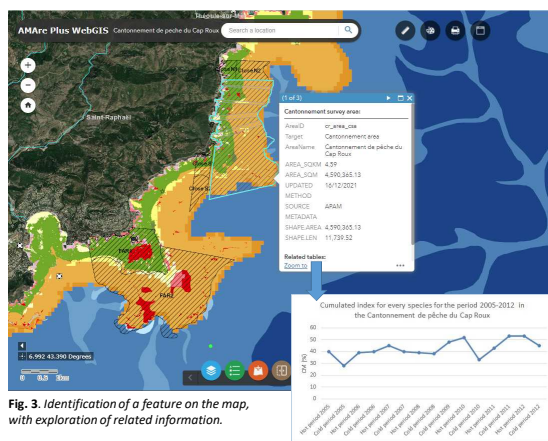


Fig. 3. Identification of a feature on the map, with exploration of related information.

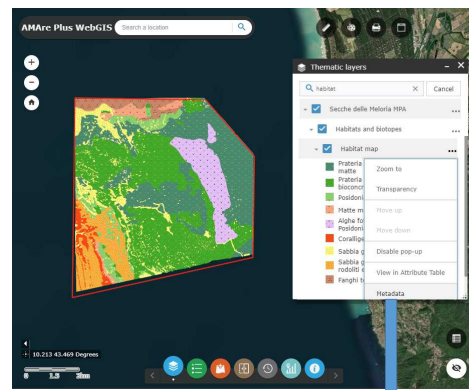


Fig. 4. Search of a layer in the Table of Contents (TOC) and visualization of the relative metadata.

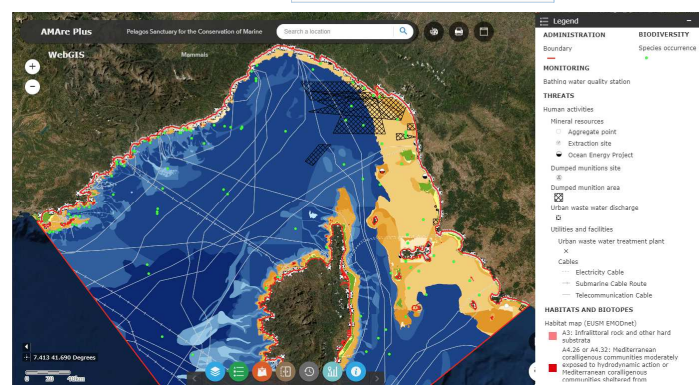


Fig. 5. Legend of the layers integrated and visualized on the map.