

COCONET PROJECT (Towards COast to COast NETWORKS of marine protected areas)

The architecture of a common Geodatabase for Marine Data Management and synthesis

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Introduction: COCONET Project

COCONET is an European project that will produce guidelines to design, manage and monitor networks of Marine Protected Areas and Offshore Wind Farms. The project covers a high number of countries and involves researchers covering a vast array of subjects, developing a timely holistic approach and integrating the Mediterranean and Black Seas scientific communities. Within this project we aim at providing a common framework for marine data management and a final synthesis of the outcomes of different scientific topics from heterogeneous sources. An integrated Geodatabase and a WebGIS system is the linking tool for all partners, regions and thematic research. COCONET involves the entire consortium at different levels in topics such as data provision and integration, GIS products, GIS interpretation, data archiving and data exchange. We are following the INSPIRE Directive and the Seadatanet Standard and Softwares to homogenize metadata, data and database structures.

Geodatabase architecture

We designed the architecture of Geodatabases storing data about the major INSPIRE Directive "themes" useful for the COCONET Project (example in Figure 1): Protected sites, Habitat and Biotopes, Threats, Geology, Biodiversity, Offshore Wind Farms, etc. Each theme is developed as a UML schema (Figure 2) and implemented in a dedicated Geodatabase (Figure 3) with layers and related tables.

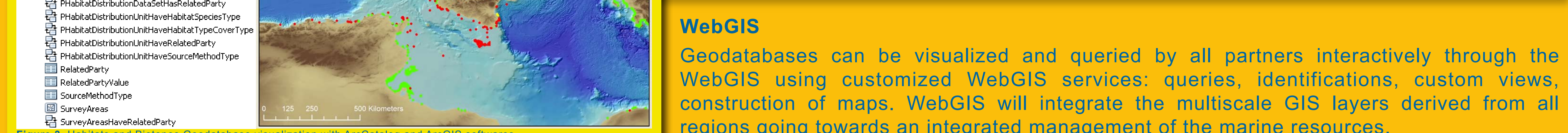
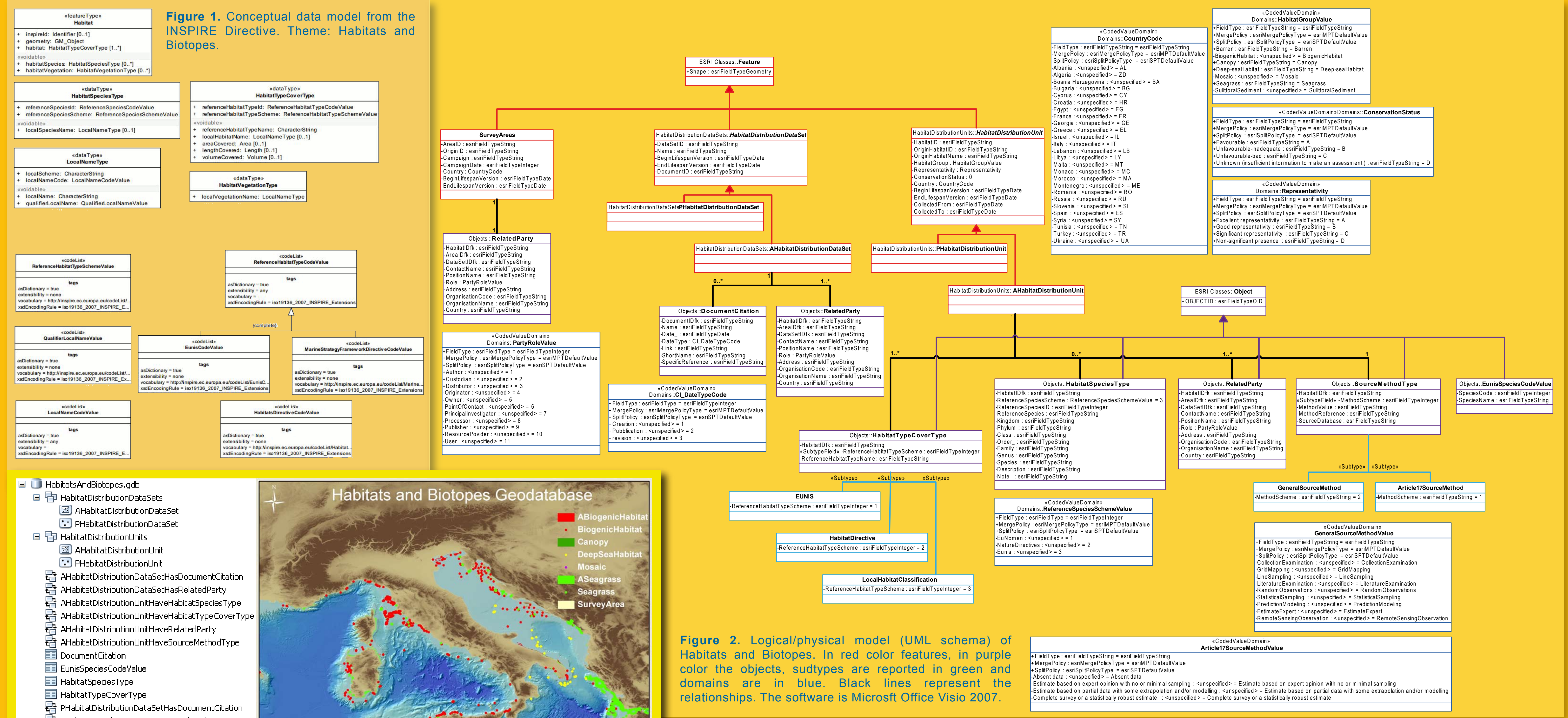


Figure 3. Habitats and Biotopes Geodatabase visualization with ArcCatalog and ArcGIS softwares.

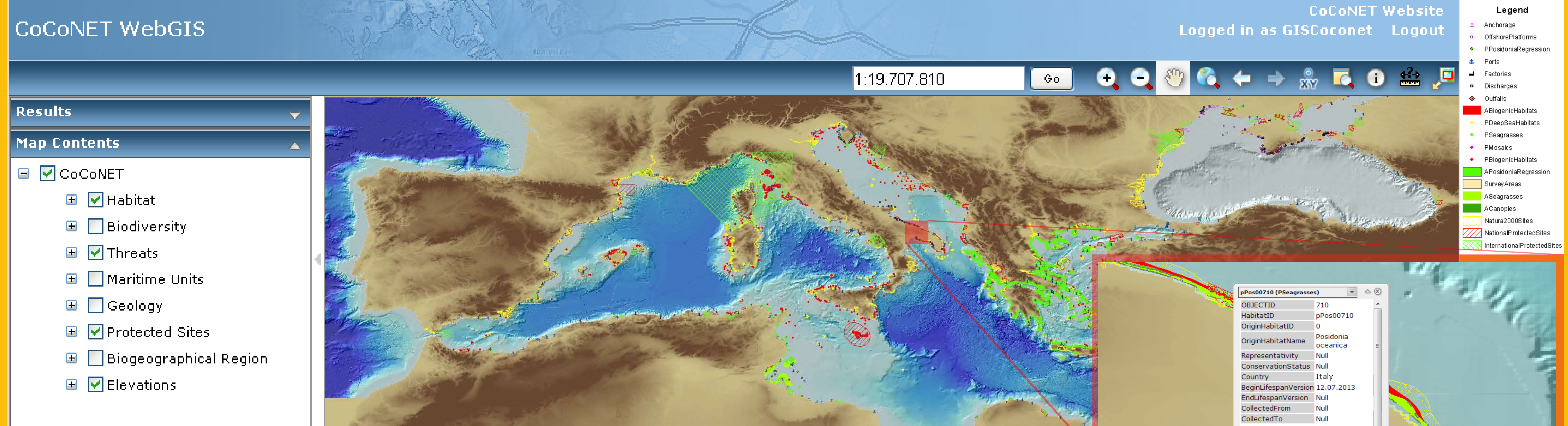


Figure 4. WebGIS view. An overview of the three Geodatabases: ProtectedSites, Habitats and Biotopes, Threats. The bathymetry (500 m resolution) comes from the EMODNet Hydrography portal. In red box a zoom of the South Adriatic Sea with an example of data query.

Conclusion

The integrated Geodatabase will be a fundamental tool to produce the guidelines to design, manage and monitor networks of Marine Protected Areas and an enriched wind atlas for both the Mediterranean and the Black Seas. The COCONET Data Model is one of the first current application of the INSPIRE conceptual data model to marine environmental data. The Geodatabase architecture is effective to homogenize, integrate, manage and analyze data coming from a wide variety of data sources in the marine environment. The use of Seadatanet standards and repository, for implementing and storing COCONET Metadata, will increase the access to these data resources from a wider marine scientific community across Europe, contributing to improve the understanding of the marine environment.