MareGraph
Towards an Interoperable
Marine Knowledge Graph

# NCP Flanders

November 2023

Funded by
the European Union

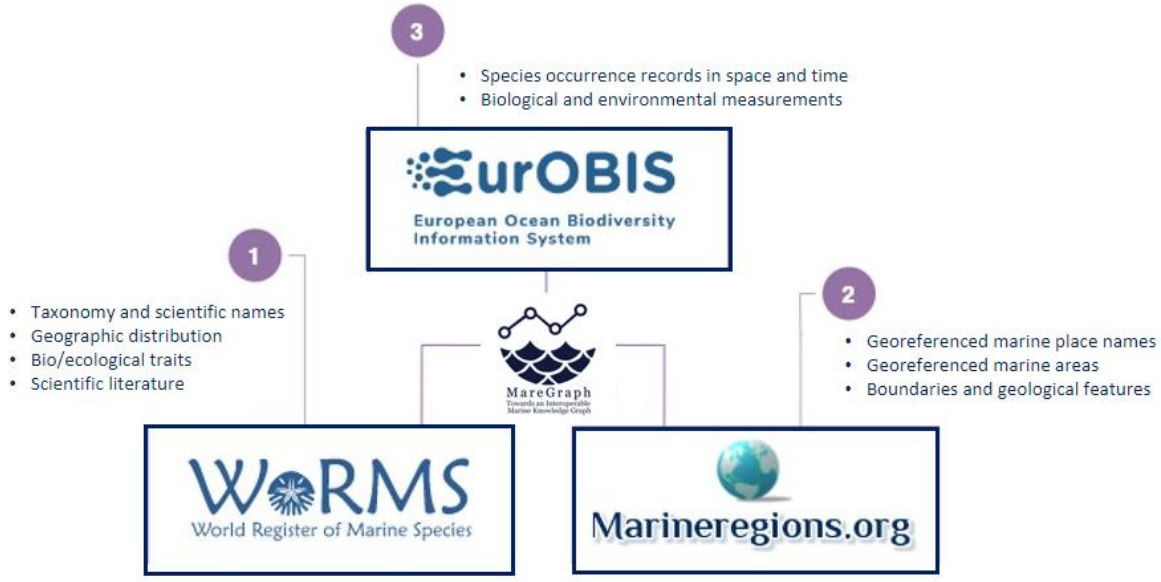
NCP FLANDERS

MareGraph
Towards an Interoperable
Marine Knowledge Graph

With MareGraph, we aim to support the EU and its Member States in the achievement of ambitious marine-themed objectives by semantically enriching, interlinking, and providing high-value and foundational datasets. These currently power the "effective biodiversity and conservation knowledge products" of today and will enable building the knowledge products of the future, where knowledge graphs and AI closely interact to support the marine public sector in making and building open knowledge on marine biodiversity. MareGraph answers the call DIGITAL-2022-CLOUD-AI-02 under the topic OPEN-AI – Public Sector Open Data for AI and Open Data Platform and fits under the Digital Europe framework. MareGraph began in January 2023 and will run until December 2025, for a total of 36 months.

The objective of DIGITAL-2022-CLOUD-AI-02 is to increase the easy availability, quality, and usability of public sector information in compliance with the requirements of the Open Data Directive, to boost the re-use and combination of open public data across the EU for the development of information products and services, including AI applications. Under MareGraph we will increase the semantic, technical, and legal interoperability of three selected high-valued datasets (HVDs) all maintained by the Flanders Marine Institute (VLIZ):

- a taxonomic dataset World Register of Marine Species - WoRMS
- a geospatial dataset Marine Regions
- a biogeographic dataset EurOBIS

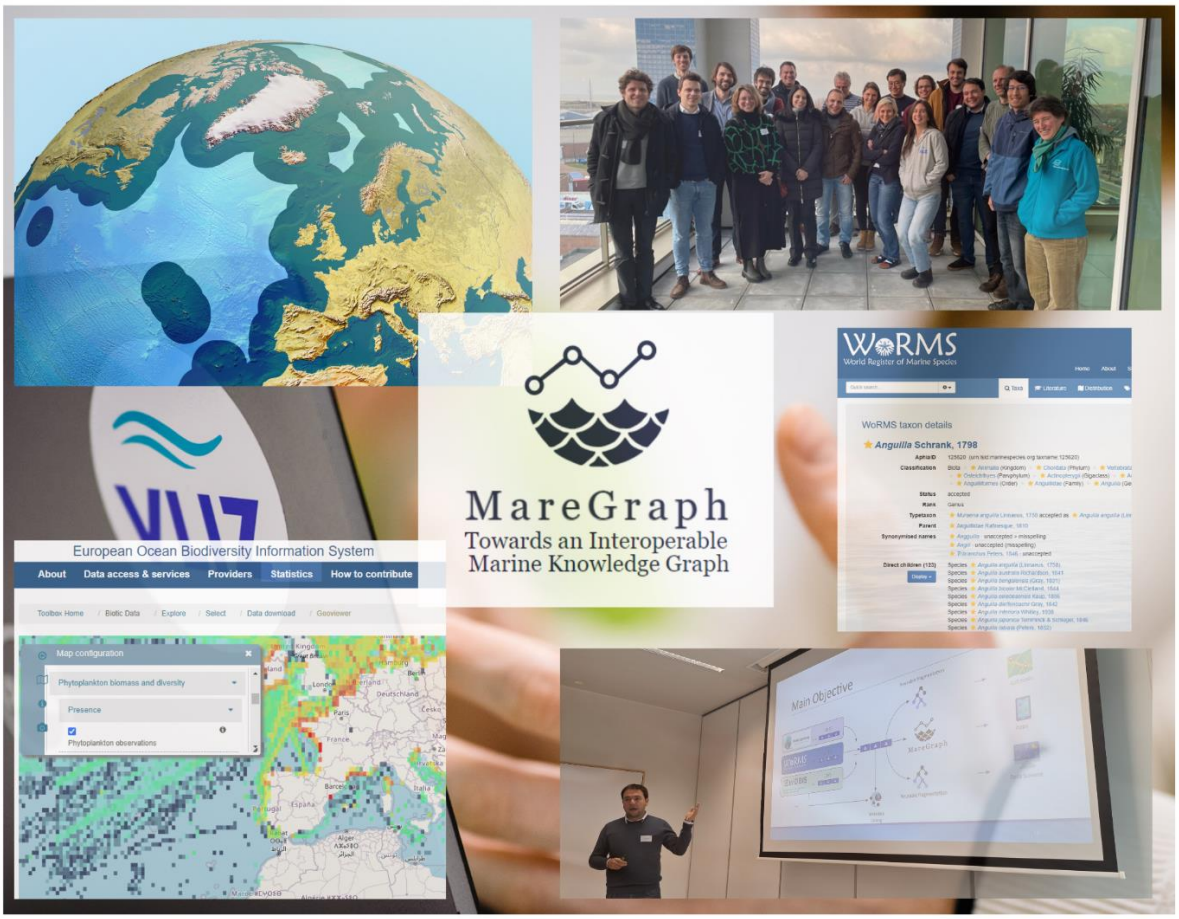



This will allow the onboarding of essential marine datasets in the Common European Data Spaces. As such MareGraph will provide a structural component in the digital transition of the marine landscape.

The consortium has 4 partners from Digital Flanders, IMEC-IDLAB, the National Research Council of Italy (NRC – ISTC), and the Flanders Marine Institute (VLIZ). By building upon the well-established methodology based on principles of openness, VLIZ partnered with Digital Flanders to implement their OSLO framework (Open Standards for Linked Organizations). The OSLO framework has already led to the development of many data standards in different domains. The ontology engineering is led by NRC-ISTC and will lay the foundations for semantic interoperability through the establishment of formal, reusable, and extensible

semantic data models for representing and linking together marine biodiversity information. Finally, with IMEC-IDLAB's assistance, we will reapply the LDES (linked data event streams) specifications adopted by VLIZ to the Linked Open Data (LOD) publication of Marine Regions.

The policy impact of Maregraph and the semantic and interoperable uplifting of these high-valued datasets can contribute to the United Nations World Ocean Assessment II (WOA-II) and various policy reports. The WOA-II assessment reflects the current condition of the oceans and seas globally. Marine Regions maritime boundaries are used by international policy organizations such as the UN International Seabed Authority and in the European Parliamentary Research Service document. All three datasets are well established on both regional and international scales and reach users spread across the 4 groups of the quadruple helix: scientists, policymakers, industry, and the public at large. The numerous impacts of the project will benefit our seas globally in old and new ways to come.




For more information, please visit MareGraph.eu or contact info@maregraph.eu.

The Consortium

VLIZ
National Research Council of Italy
DIGITAAL VLAANDEREN
Vlaamse overheid
imec
Funded by the European Union
NCP FLANDERS
MareGraph
Towards an Interoperable Marine Knowledge Graph