



MareGraph

Towards an Interoperable Marine Knowledge Graph

Transforming & Exploiting High Value Datasets:
Synergies in EU Open Data Projects

November 19, 2024

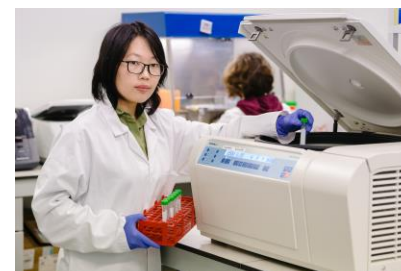
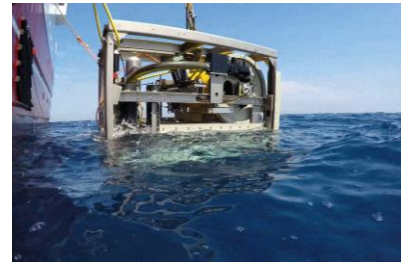
Lennert Tyberghein – Project Coordinator



Flanders Marine Institute



- Gain scientific knowledge about the **ocean, seas and coast** and ensure it is shared and used by policy, industry, research and the public.
- Providing services and facilities for marine researchers and innovators: complementary to other research groups or our own
- Point of contact for quality and reliable marine data
VLIZ Marine Data Center accredited as an **IODE National Oceanographic Data Center**
- Est. 1999 – 180 VTE
- Oostende, Belgium



MareGraph

Towards an Interoperable Marine Knowledge Graph



- DIGITAL-2022-CLOUD-AI-02 (DIGITAL SIMPLE)
- €1.46M
- Jan 2023 - Dec 2025
- Main goal: **semantically enriching, interlinking and providing high value and foundational datasets**



HIGH VALUE DATASETS




Marineregions.org
towards a standard for georeferenced marine names

GAZETTEER

Placenames (~70k), typology,
geometries, relations.

*Since 2021: LOD + LDES
(collab with KNoWS / IMEC)*

<https://marineregions.org/>



WORMS
World Register of Marine Species

TAXNAME REGISTER

Names (~500k),
Classification, Vernaculars,
Documented (Proof),
Habitats, Traits

<https://marinespecies.org/>



urOBIS
European Ocean Biodiversity
Information System

BIODIVERSITY DATA

Occurrences (~30M), Date&Geo
Bound, Events, CDT
Measurements

Workflow for DWC-A ingest and
publication

<https://eurobis.org/>

NOTE: VLIZ is also working on marineinfo.org -- an LOD publication of the content in IMIS/MDA

MareGraph

Towards an Interoperable Marine Knowledge Graph

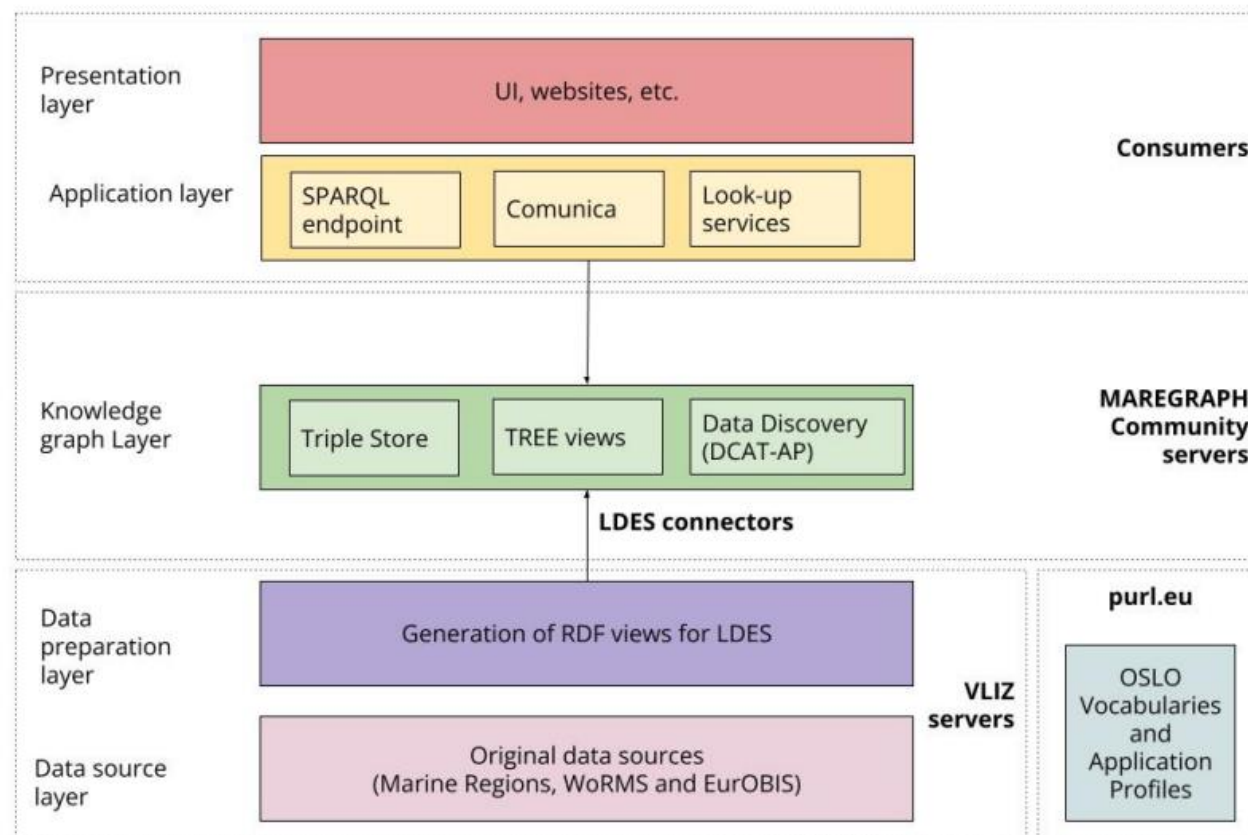


- To create easy **availability**, **quality**, and **usability** of public sector information.
- Ontology design and engineering.
- HVDs published via **APIs in a machine-readable format** (RDF applying community vocabs and change feed LDES)
- Boost the **re-use** and combination of **open public data** across the EU for the development of information products and services, including AI applications (Data Spaces)

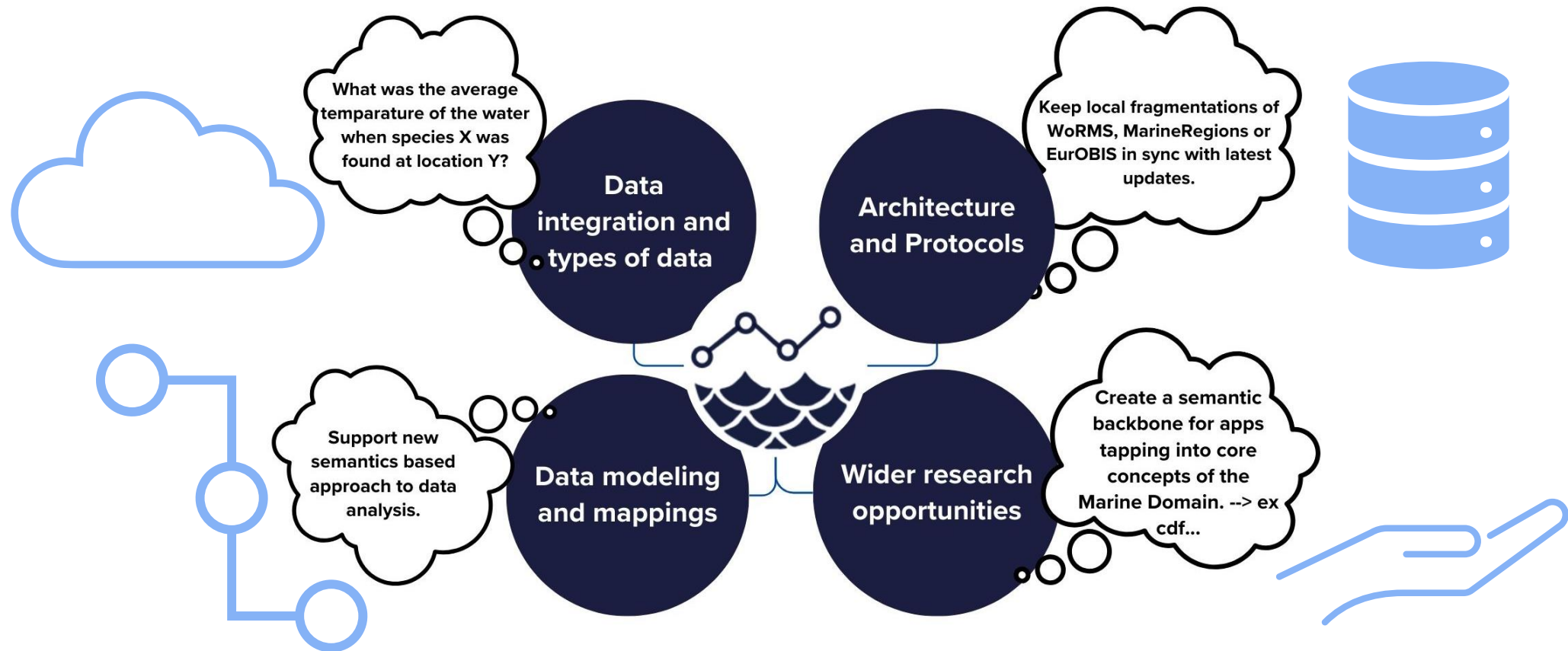




Reference Architecture



Potential



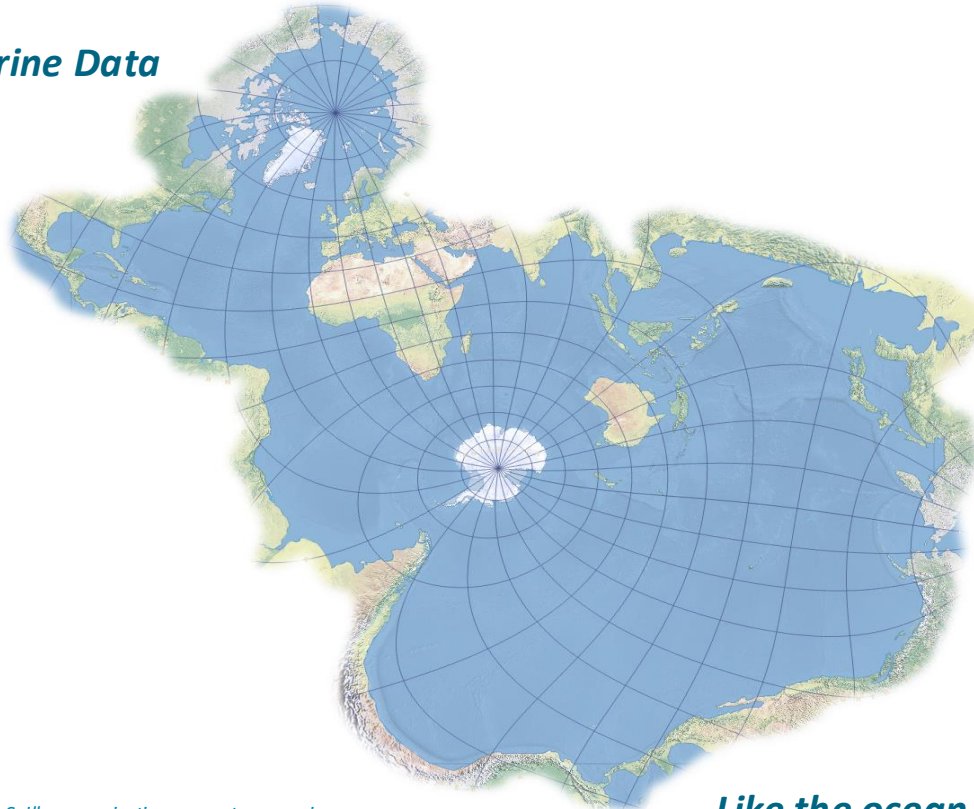
Use Cases

Marine Knowledge Graph: Integrated Data Query Capabilities

Being able to query the taxonomic data of WoRMS to get the taxonomic information for the commercial designations information system

The image displays two web interfaces. The top interface is the European Commission's 'Commercial designations and sustainability indicators' page. It features a navigation menu with 'Home', 'Commercial designations', 'Sustainability indicators', 'Contact and help', and 'About this site'. The main content area is titled 'Information on fishery and aquaculture products' and provides information on commercial designations and sustainability indicators for fishery and aquaculture products marketed in the EU. It includes two main sections: 'Commercial designations' (with a 'Search commercial designations' button) and 'Sustainability indicators' (with a 'Calculate sustainability indicators' button). Below these is a search bar with 'COMMERCIAL DESIGNATION' and 'SCIENTIFIC NAME' tabs. The right sidebar shows a list of 'Commercial designations' with columns for Country, Commercial designations, and Names accepted or permitted locally or regionally. It lists 'Czech Republic' with 'Rejnok' and 'Portugal' with 'Raia'. Below this are sections for 'Production methods and fishing gears', 'Conservation measures', 'Species distribution and habitat', and 'Species description'. The 'Species description' section provides detailed information for *Bathyraja tursae*, including its scientific name, author (Stehmann, 2005), rank (Species), and FAO code (BHV). It also includes a morphological description and a taxonomic classification tree: Class Elasmobranchii, Order Rajiformes, Family Aethynobalidae, Genus Bathyraja, and Species Bathyraja tursae. The bottom interface is the WoRMS (World Register of Marine Species) website. It features a navigation menu with 'Home', 'About', and 'Subregisters'. A search bar is present, along with tabs for 'Taxa', 'Literature', 'Distribution', and 'Specimen'. The main content area is titled 'An authoritative classification and catalogue of marine name' and includes several images of marine species. The bottom right corner shows a list of species, including 'Macpherson, 2024' (Added: 2024-11-14) and 'Kerkia sinjana (Kuščer, 1933)'.

Connecting Marine Data



Spilhaus projection – courtesy arcgis.com

***Like the ocean
connects the globe***



[Maregraph.eu](https://maregraph.eu)



info@maregraph.eu



github.com/MareGraph-EU



zenodo.org/communities/maregraph