SemantyFish

Advancing Visibility, Interoperability and Exploitability of FishBase

semantyfish.github.io

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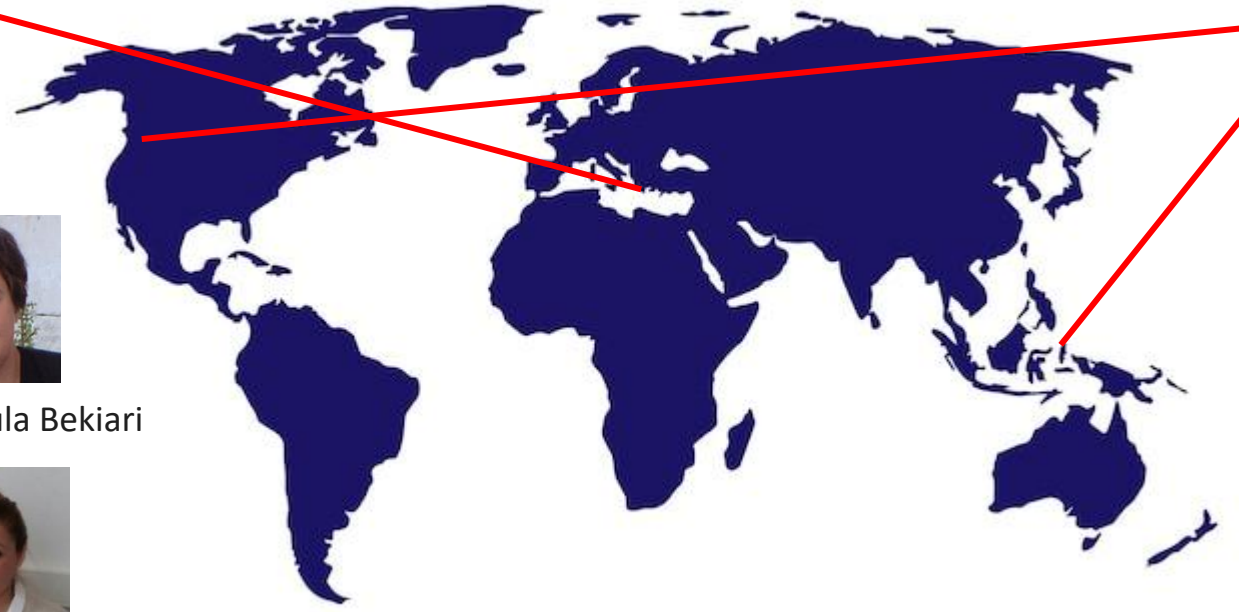
SemantyFish – In a nutshell

- Duration: 24 months [**Oct `24 – Sep `26**]
- Effort: **86 PMs**
- Funded by: **OSCARS 1st Open Call for Open Science Projects**
- Deliverables summary: **5 internal + 3 external**
- EAB: **9 members proposed**
- **Main Objectives**
  - Transform FishBase into a Knowledge Base
    - Towards opening FishBase and making it more interoperable
  - Support the discovery and access through a dedicated API
    - The main problem of FishBase now, is the lack of standard APIs to access it
  - Enhance the visibility and collaboration
    - Through various dissemination activities (participation in events, hackathons, etc.)
    - By establishing synergies with EOSC and RIs

OSCARS
Open Science Clusters' Action for Research & Society

SemantyFish Team

FORTH
FOUNDATION FOR RESEARCH AND TECHNOLOGY - HELLAS
non-profit Research org



Q-quatics
non-profit NGO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WPs and Timeline

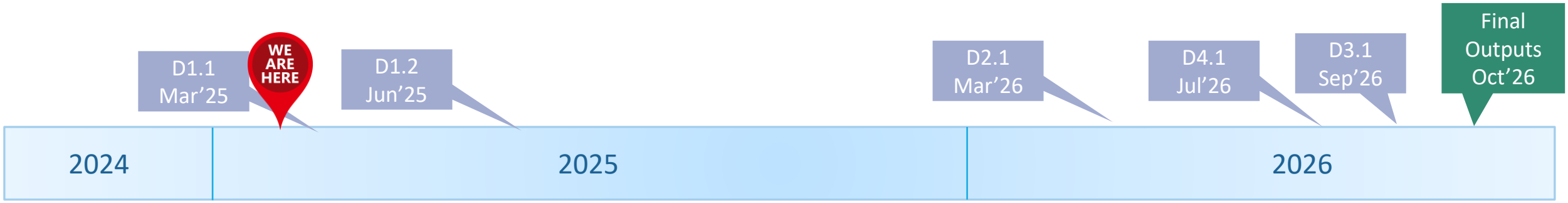
- **WP1 – FishBase Knowledge Base**
- **WP2 – FishBase KB API**
- **WP3 – Exploitation and Dissemination**
- **WP4 – Synergies with RIs and EOSC**

Internal Delvierables

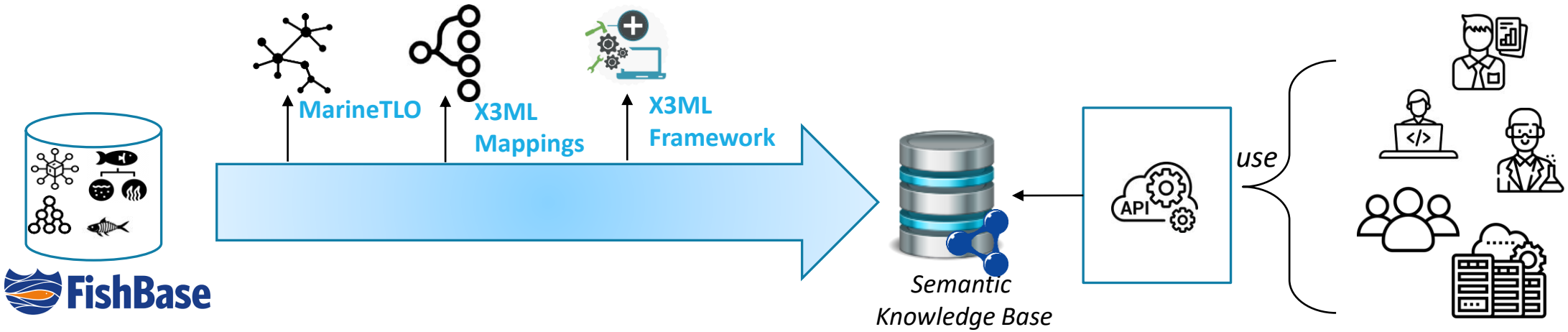
- D1.1 Ontology and Schema Mappings [M6]
- D1.2 FishBase RDF resources [M9]
- D2.1 FishBase KB API [M18]
- D4.1 Report on Synergies with RIs [M22]
- D3.1 Final Project Report and Presentation [M24]

External Deliverables

- Final Outputs (Summary, Report, Poster) [M25]



SemantyFish – The Workflow

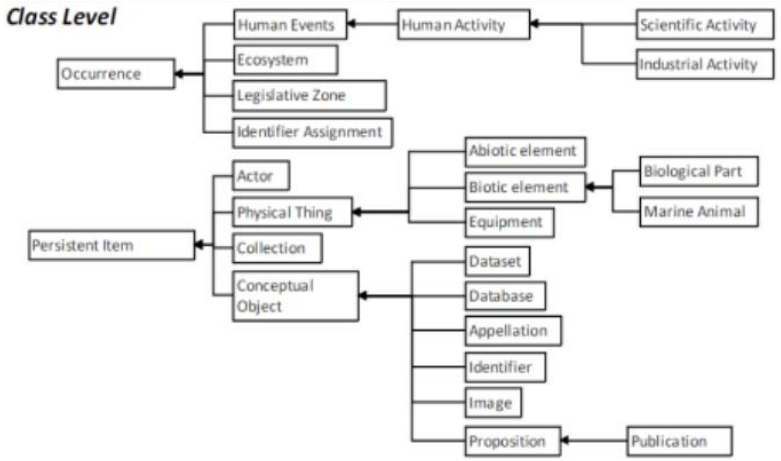


SemantyFish – FishBase-related

- FishBase is huge
  - 171 tables
  - 5-30+ columns per table
  - 35,000+ species
  - 330,000+ common names of species
- …and
  - Species families
  - Reproduction
  - Ecology
  - Geographic distribution
  - many more…

SemantyFish – Our Arsenal [MarineTLO]

- It is a top level ontology for the marine domain offering fundamental abstractions for querying. It is therefore appropriate for using it as the conceptual backbone for information integration (the adoption of a TLO implies reduced effort for improving and evolving, and reduced effort for constructing mappings).
- Originally developed in the context of the FP7 project iMarine
  - Exploited in several projects
    - EU LifeWatch
    - H2020 BlueBRIDGE, BlueCloud
    - Horizon Europe Blue-Cloud2026
    - The Global Record of Stocks and Fisheries (GRSF)

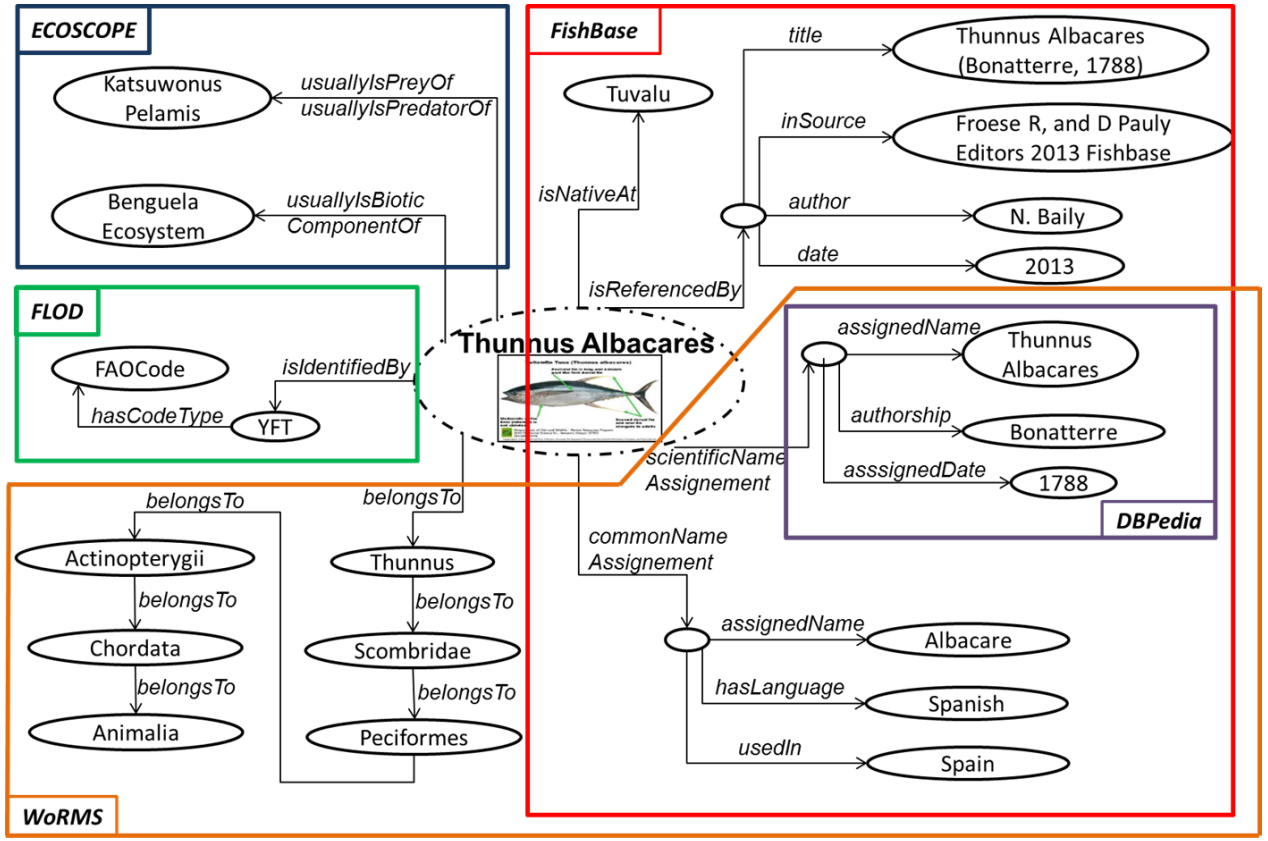


Tzitzikas, Y., Allocca, C., Bekiari, C., Marketakis, Y., Fafalios, P., Doerr, M., Minadakis, N., Patkos, T. and Candela, L., 2016. Unifying heterogeneous and distributed information about marine species through the top level ontology MarineTLO. Program, 50(1), pp.16-40.

projects.ics.forth.gr/isl/MarineTLO

SemantyFish – Our Arsenal [MarineTLO]

- WoRMS was on of the main sources that were used for constructing MarineTLO



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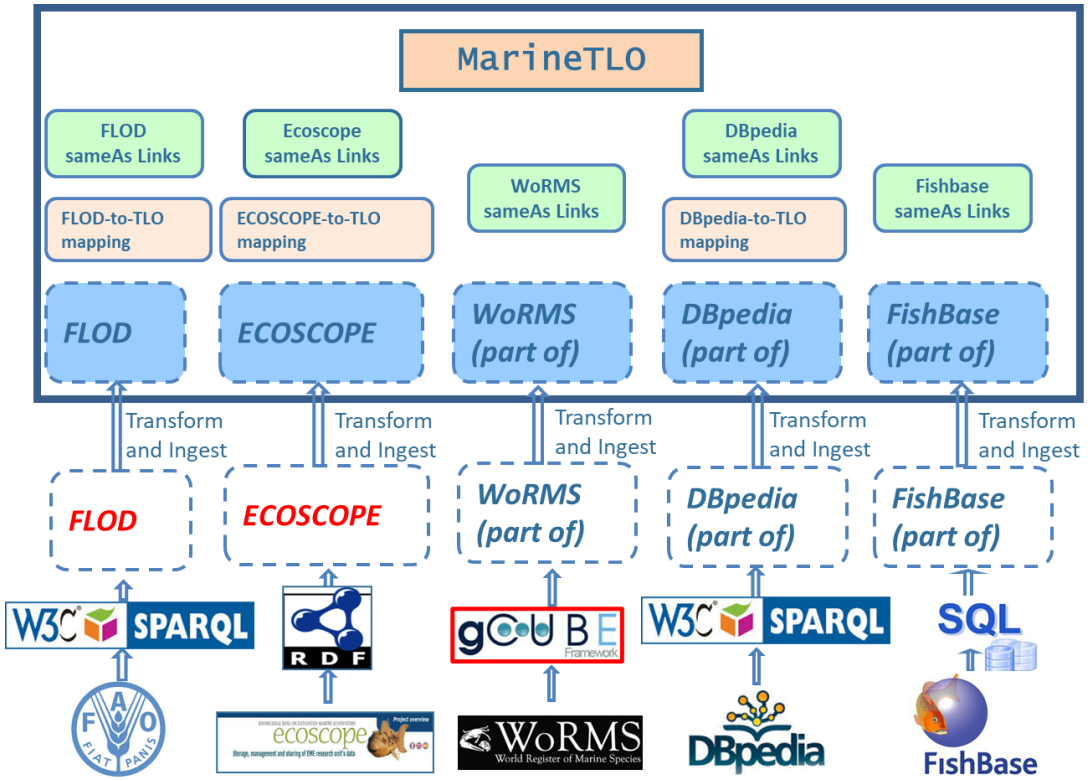
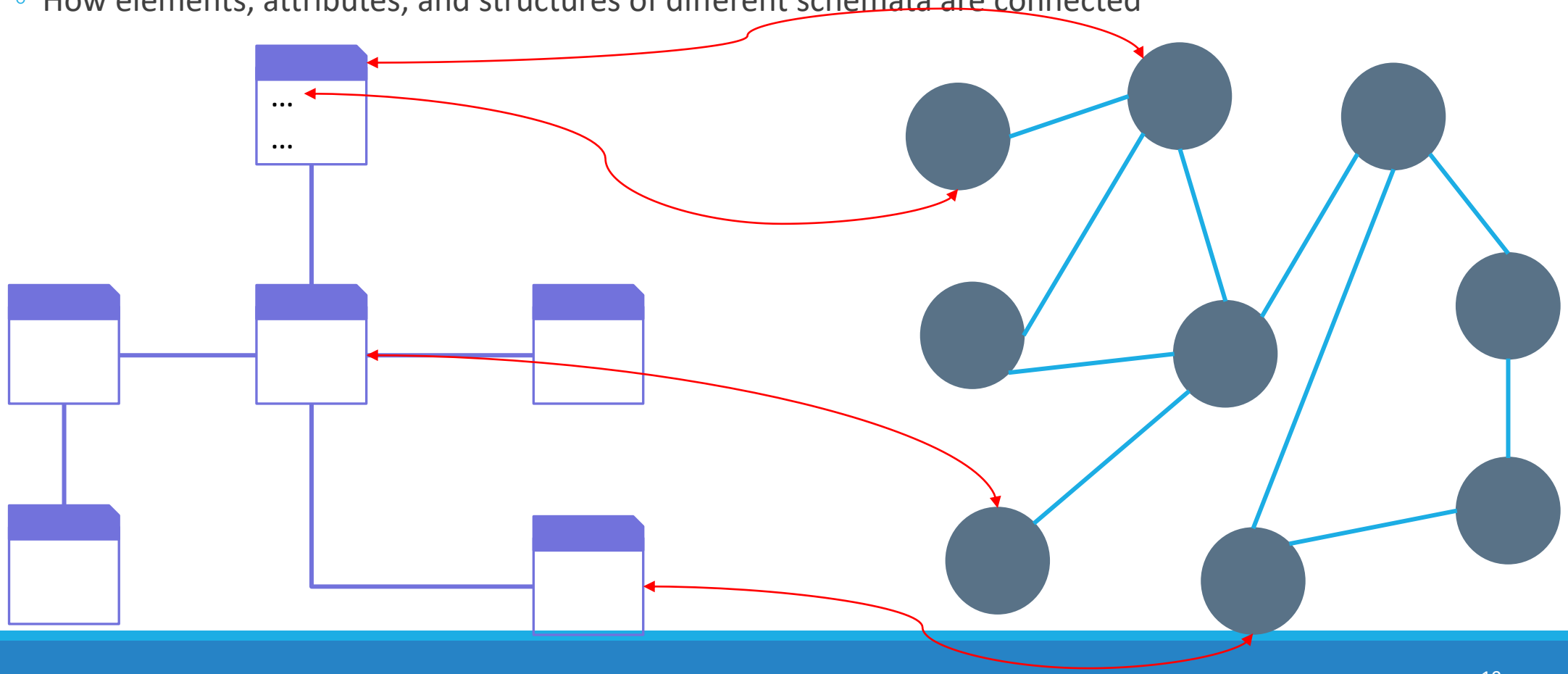


SemantyFish – Our Arsenal [X3ML Framework]

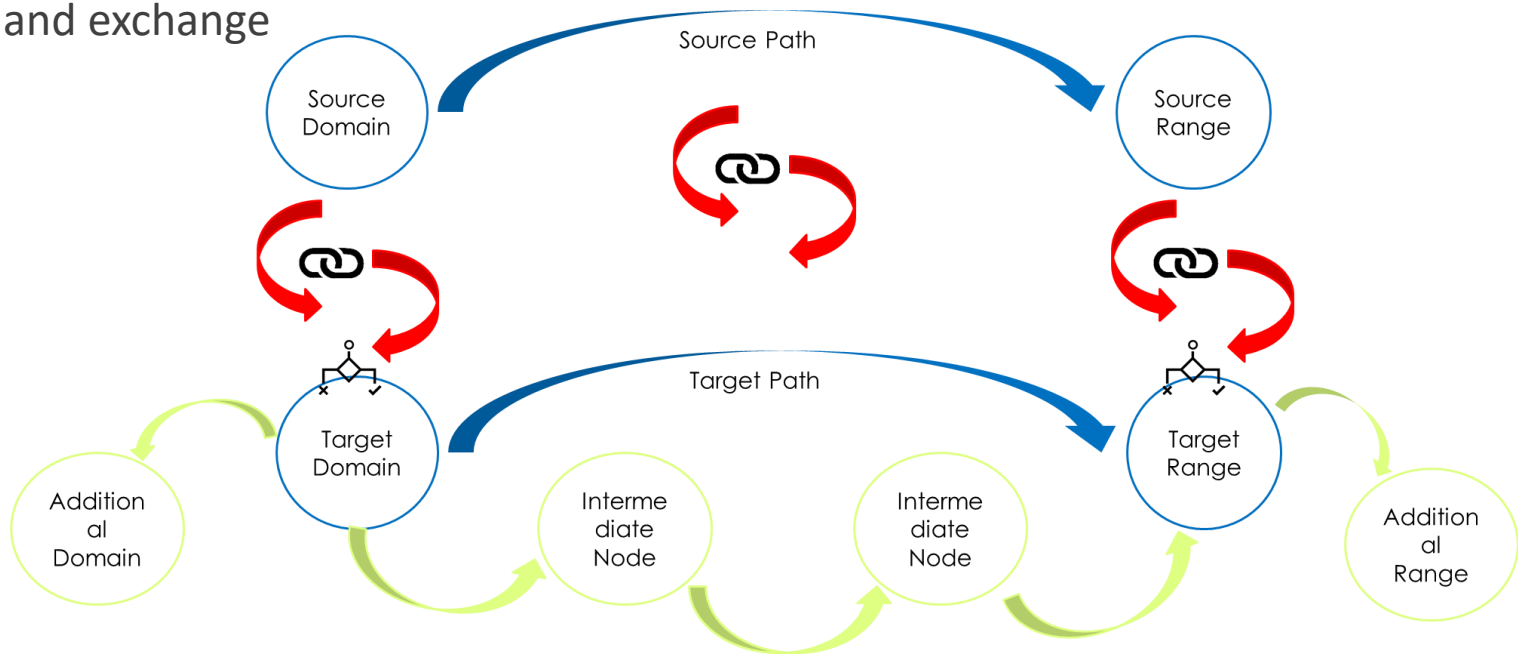
The rules or specifications that define the relationships between different schemas or data models

- How elements, attributes, and structures of different schemata are connected



SemantyFish – Our Arsenal [X3ML Framework]

- X3ML Mapping Definition Language
  - Describe schema mappings in a declarative manner
  - Focused on collaborative creation and exchange of mappings
  - Decoupled from URI and values generation
  - XML serialization for efficient storage and exchange



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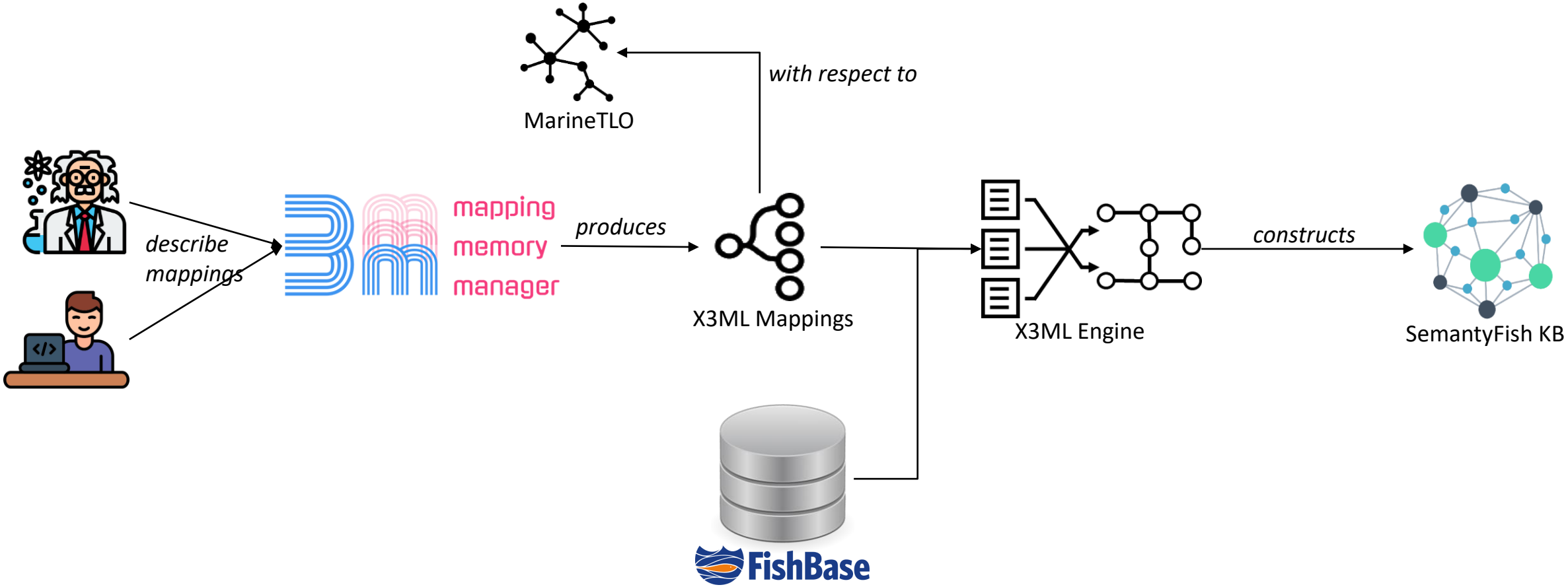

SemantyFish – References & Links

- Project
  - https://semantyfish.github.io
- Resources
  - https://projects.ics.forth.gr/isl/MarineTLO/
  - https://github.com/isl/x3ml
  - https://demos.isl.ics.forth.gr/3m/
- Related Publications
  - Marketakis, Y., Minadakis, N., Kondylakis, H., Konsolaki, K., Samaritakis, G., Theodoridou, M., Flouris, G. and Doerr, M., 2017. X3ML mapping framework for information integration in cultural heritage and beyond. International Journal on Digital Libraries, 18(4), pp.301-319.
  - Tzitzikas, Y., Allocca, C., Bekiari, C., Marketakis, Y., Fafalios, P., Doerr, M., Minadakis, N., Patkos, T. and Candela, L., 2016. Unifying heterogeneous and distributed information about marine species through the top level ontology MarineTLO. Program, 50(1), pp.16-40.