



BEEs

The LifeWatch ERIC Biodiversity & Ecosystem eScience Conference

Seville
22-24/05/23



Threats and challenges to biodiversity and ecosystem conservation from an eScience perspective



UNIÓN EUROPEA
Fondo Europeo de Desarrollo Regional
Una manera de hacer Europa

The LifeWatch Species Information Backbone: an update and perspectives

Stefanie Dekeyzer, Leen Vandepitte, WoRMS Data Management Team, EurOBIS Data Management Team, Marine Regions Data Management Team

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The Flanders Marine Institute (VLIZ), InnovOcean Campus, Jacobsenstraat 1, 8400 Oostende, Belgium





LifeWatch Species Information Backbone

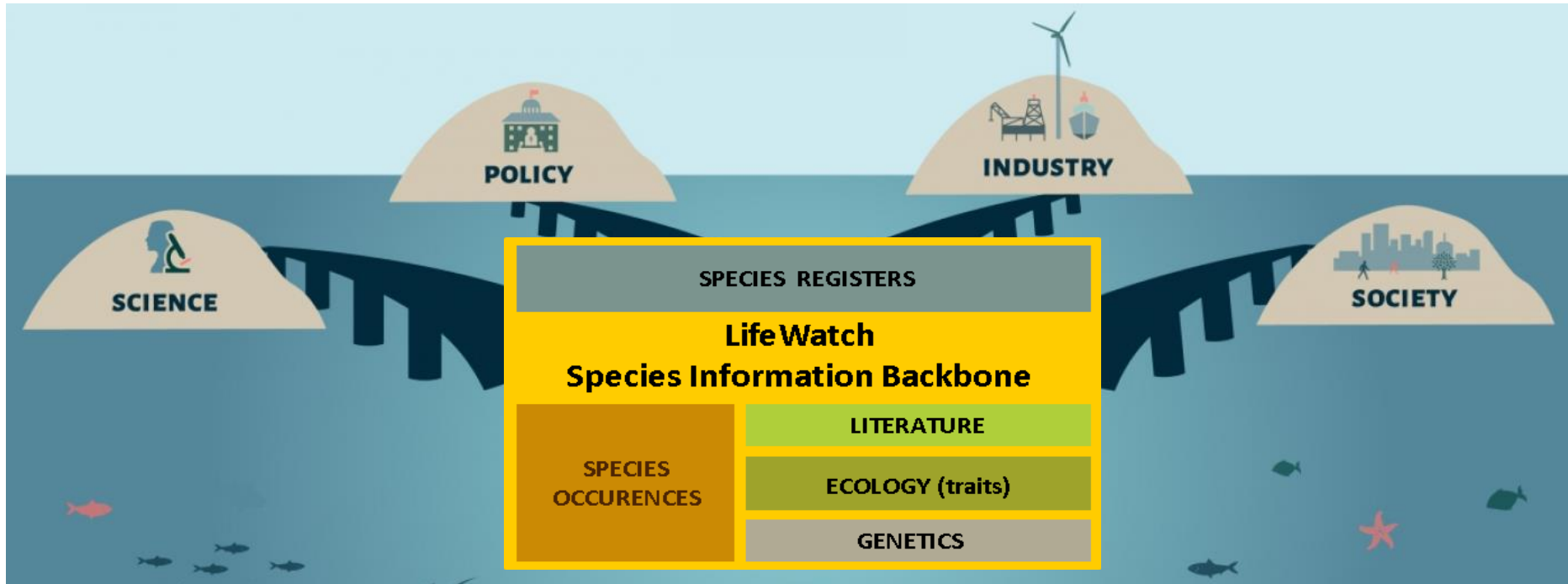
Refreshing our memory...

- Builds on expert validated and literature-based info
- Facilitates standardization of species data
- Facilitates (virtual) integration of distributed data repositories & operating facilities
- Driving force behind the species information services of the Belgian LifeWatch.be e-Lab.

Coordination by VLIZ, at 3 levels

1. System architecture & development
= setting up the LW-Species Information Backbone
2. Data management
= completing and updating taxonomic & related data (DMT)
3. Community support
= organize & mobilize (taxonomic) experts

LifeWatch Species Information Backbone









Outside VLIZ

@VLIZ






Marineregions.org
towards a standard for georeferenced marine names
[About](#) [Gazetteer](#) [Maritime Boundaries](#)

SPECIES REGISTERS

Life Watch
Species Information Backbone

SPECIES OCCURENCES	LITERATURE
	ECOLOGY (traits)
	GENETICS

Aphia	IMIS
Aphia	
Aphia	


Australian Biological Resources Study

ZooKeys
A peer-reviewed taxonomy journal
ZooBank


 Biodiversity Heritage Library



 polytraits










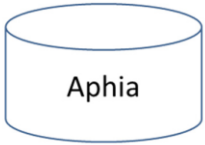

OBIS OCEAN BIODIVERSITY INFORMATION SYSTEM



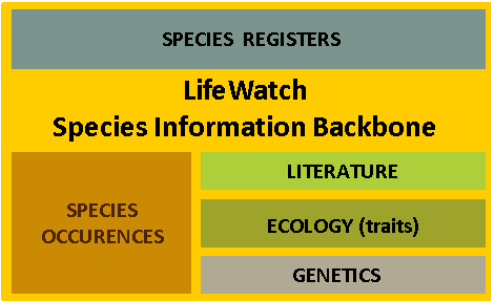




WoRMS: current data flows



- Taxonomy
 - Distribution
 - Attributes
 - Specimen
 - Vernacular names
 - Identification keys
 - Notes
 - Links
 - Images
 - Internal database management
- Sources



- Accepted marine species**
242 386 (98% checked)
- Marine species names, including synonyms**
498 581
- Species with image**
42 241 (61% checked)
- WoRMS editors**
319
- Registered institutional users**
421
- Webhits**
94 636 312 (In 2022)
- Citations**
7461

<https://marinespecies.org/aphia.php?p=webservice>

WoRMS: new tools and perspectives



New tool: Traits Data Explorer

<https://rshiny.vsc.lifewatch.be/traits-data/>

A screenshot of the 'Lifewatch Data Explorer' web application. The interface is clean and modern, with a white background and blue accents. At the top, there's a navigation bar with 'About' and 'Build data frame' links, and a 'Sign in' button. The main content area is divided into several sections: 'Taxon' with a dropdown menu, 'Restrict to life stage' with a dropdown menu, 'Include traits from child taxa' with a checked checkbox, 'Restrict to species found in these regions' with a text input field, 'Traits' with a text input field, 'Output' with 'Add classification' (checked) and 'Compact traits in one row' (unchecked) checkboxes, and 'Include' with 'ANY of selected traits' (selected) and 'ALL of selected traits' (unselected) radio buttons. A 'Reload' button is located below the checkboxes. At the bottom, there's a 'summary' section with the text 'Empty data frame' and a footer with the 'Lifewatch BELGIUM' logo and the text 'This service is powered by LifeWatch Belgium Learn more»'.

Next steps:

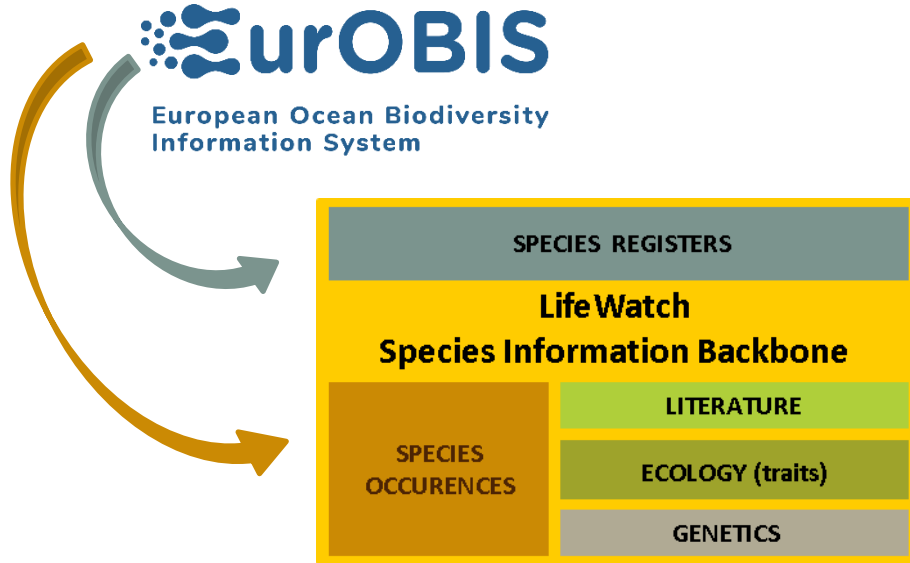
Continue what we are already doing:

- System maintenance and improvements.
- Data management.
- Support the society.

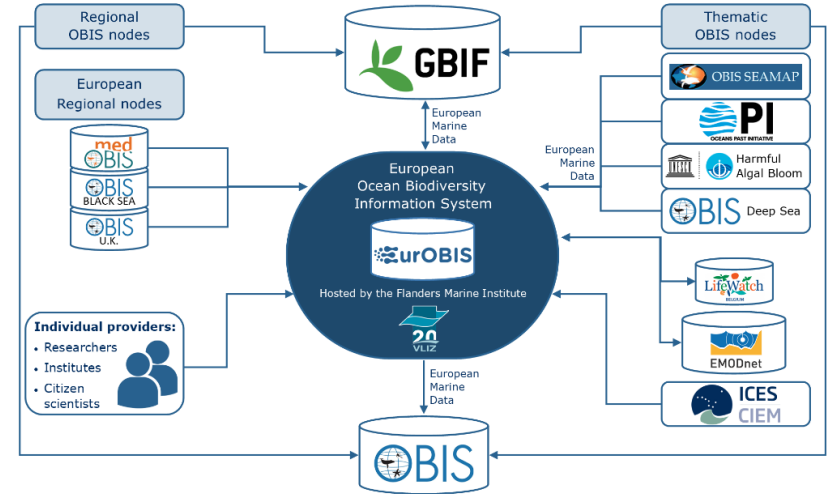
And more:

- Collect essential species trait information.
- Focus on commercially and ecologically relevant species.
- Make deep links with major genetic data resources.
- Incorporate (established) temporary names

EurOBIS: current data flows



https://eurobis.org/data_access_services



Next steps:

- Preparations to include genetic data.
- Match with BODC (parameter vocabs) to standardize the eMOF of the Darwin Core.
- Continuous efforts to make the data FAIR.

Marine Regions: current data flows

Distribution records



Marineregions.org

towards a standard for georeferenced marine names

About Gazetteer Maritime Boundaries



Aphia

SPECIES REGISTERS

Life Watch

Species Information Backbone

SPECIES OCCURENCES

LITERATURE

ECOLOGY (traits)

GENETICS

Aphia

Aphia

Aphia



European Ocean Biodiversity Information System

Aphia

<https://marineregions.org/webservices.php>

Why the LW SIBb? Establishing workflows

Example questions to be answered by the LifeWatch Species Information Backbone:

- *Where does species X appear?*
- *Which (macro)benthic species live in the North Sea at depths between 50-100m?*
- *Which alien species are known to occur in the Mediterranean Sea?*
- *How does my marine species list relate to the African Register of Marine Species?*
- *Which species from the Habitat/Bird Directive are on the IUCN Red List?*

LifeWatch data services available (or in development) to answer these questions.

The screenshot shows the LifeWatch SIBb interface. At the top, there is a navigation bar with the LifeWatch logo and menu items: PROJECT, SERVICES, DATA, SPECIES INFORMATION BACKBONE, ELAB, USAGE. Below this is a secondary navigation bar with tabs: DISCOVER, USE CASES, **RUN SERVICES**, RESULTS, USER GUIDE, and a user profile icon. The main content area is titled 'Upload file' and contains two numbered steps: '1. Upload your file' and '2. File options'. Step 1 includes instructions to select a demo or custom file and a dropdown menu for 'Select Demo File' with 'Marine' selected. Step 2 includes instructions to select file options and a checkbox for 'First row contains column names' which is checked. Below the steps is a 'NEXT' button and a 'Scroll To Top' link.

Name	Source	Description & webservice information
Data validation and QC services		
geoservices		
MarineRegions gazetteer services		
Other taxon services		
Taxon match services		
Taxon match services WoRMS Regional Species Databases		
Taxon match services WoRMS Thematic Species Databases		
Taxon observations		
Tidal services		
Geographical services - Administrative boundaries		
Geographical services - Bathymetry		
Geographical services - Biogeographical classification		
Geographical services - Environmental data		
Geographical services - Features		
Geographical services - Protected areas		
Geographical services - Total biological valuation		

<https://lifewatch.be/en/e-lab>
<https://lifewatch.be/data-services/>

<https://www.lifewatch.eu/thematic-services/>

Impact



Marinerregions.org

towards a standard for geographical nomenclatures

About Gazetteer Maritime Boundaries



OCEAN BIODIVERSITY INFORMATION SYSTEM



Assessing the state of the oceans



How WoRMS and OBIS guided BASF as a lighthouse



WoRMS featured in Blue Planet II



Marinerregions.org

towards a standard for geographical nomenclatures

About Gazetteer Maritime Boundaries



Global Fishing Watch

Sea Around Us

Fisheries data initiatives



SCIENCE



POLICY



INDUSTRY



SOCIETY

SPECIES REGISTERS

LifeWatch

Species Information Backbone

SPECIES OCCURENCES

LITERATURE

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GENETICS

<https://lifewatch.be/en/users>

Ongoing use case: MareGraph

Towards an Interoperable Marine Knowledge Graph



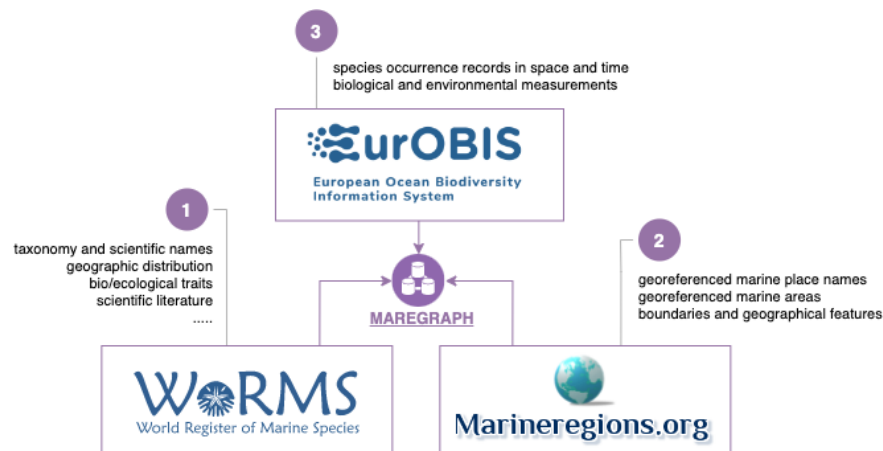
MareGraph

DIGITAL EUROPE framework – DG CNECT

Goals:

- Easy availability, quality, and usability of public sector information.
- Complying with requirements of the Open Data Directive.
- Boost the re-use and combination of open public data across the EU for the development of information products and services, including AI applications.

Grants will support public administrations at local, regional and national level in **increasing semantic, technical and legal interoperability and data portability** of the High Value Datasets:



Thank you for listening! Questions?



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@LifeWatchVLIZ



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@marineregions



BEeS

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Thank you! | www.lifewatch.eu/bees-2023

