The LifeWatch Taxonomic Backbone:

- what is it, how is it built?
- how can it help you with your research?
- how can you help to make it more complete?

Leen Vandepitte, Stefanie Dekeyzer, Bart Vanhoorne, Wim Decock, Daphnis De Pooter, Filip Waumans, Simon Claus, kevin Verfaille & Francisco Hernandez
LifeWatch?

- E-Science European Infrastructure for Biodiversity and Ecosystem Research
- Part of European Strategy Forum on Research Infrastructures (ESFRI)
- Legal status of a European Research Infrastructure Consortium (ERIC)

- Mission:
  - Advance Biodiversity & Ecosystem Research
  - Provide major contributions to addressing the big environmental challenges
  - Provide access through a pan-European distributed e-Infrastructure
  - Construction and operation of Virtual Research Environments (VREs)

- Virtual laboratory for biodiversity research:
  - Biodiversity observatories, databases, web services and modelling tools
  - Integration of existing systems, upgrades, new systems

- Belgium:
  - Taxonomic Backbone
  - Marine VRE
  => Based on existing data resources, web services, analysis services & tools
  - Observatory
LifeWatch Taxonomic Backbone?

- Facilitate the standardisation of species data
- (Virtually) bring together different component databases & data systems
- Offer better-quality data & try to avoid duplication of efforts

5 components:
- Taxonomy
- Geography
- Literature
- Ecology
- Genetics

3 pillars:
- System architecture & development
  = setting up the LW-TaxBB
- Data management
  = completing and updating taxonomic & related data (DMT)
- Community support
  = organize & mobilize (taxonomic) experts
LW-TaxBB: linking several systems

5 components, several data systems...
LW-TaxBB: linking several systems

Broader picture
How can this LW-TaxBB help you?

- **SPECIES REGISTERS**
  - LifeWatch Taxonomic Backbone

- **SPECIES OCCURRENCES**
  - LITERATURE
  - ECOLOGY (traits)
  - GENETICS

**LifeWatch**

**BELGIUM**

**VLIZ**
How can this LW-TaxBB help you?

- Easy access to data and information
- Opportunity to QC your own data
- Possibility to link ≠ data systems
  - Data-services/web-services
  - Combine services into workflows
  - R: building your own scripts
- Dois
How can this LW-TaxBB help you?

Biodiversity research

Van veen grab at x,y,t
Observation:
  Location X,Y
  Time t
  Depth: 20m
  Sediment: sand

Analysis:
  • Which species do we expect to find?
  • Which species are absent?
  • What are possibly wrong identifications?
  • What are common, what are rare findings?

Options:
  • Check with LifeWatch Taxonomic Backbone
How can this LW-TaxBB help you?

• Data-services
  – One-stop-shop: concatenation of services

  – Possible questions:
    • Where does species X appear?
    • I’m planning to take a Van Veen grab at a particular location. Which species can I expect to capture?
    • Which invasive planktonic species are known to occur in the Black Sea?
    • How does my North Sea species list relate to the African region?
    • ...

[Diagram showing species occurrence in the Belgian EEZ and how many times they were observed]
How can you help the LW-TaxBB?

SPECIES REGISTERS
- LifeWatch Taxonomic Backbone

SPECIES OCCURRENCES
- LITERATURE
- ECOLOGY (traits)
- GENETICS
How can you help the LW-TaxBB?

- Dynamic systems
- Driven by experts, largely on voluntary basis
- Needs user feedback:
  - Missing information
  - Possible errors / duplicates
- Follow-up by dedicated Data Management Teams

**SPECIES REGISTERS**

**LifeWatch Taxonomic Backbone**

**SPECIES OCCURRENCES**

**LITERATURE**

**ECOLOGY (traits)**

**GENETICS**

WoRMS – IRMNG – IPNI – ITIS – CoL - ...
How can you help the LW-TaxBB?

EurOBIS – OBIS - GBIF
- Dynamic systems
- Fed by voluntary contributions of scientists
- Needs user input:
  - Everyone can submit biogeographic data!
  - System only as good/complete as what goes in...
- Needs user feedback
  - No system is perfect...
  - Highlight (possible) incorrect information
- Follow-up by dedicated Data Management Teams
How can you help the LW-TaxBB?

- Literature – Ecological traits
  - Dynamic systems
  - Driven by experts, largely on voluntary basis
  - Needs user feedback:
    - Missing information
    - Possible errors / duplicates
  - Follow-up by dedicated Data Management Teams
How can you help the LW-TaxBB?

• Citation of/reference to the systems that you are using

• Scientific impact since construction phase start (2012):
  – Reference to LW-TaxBB related systems in 2,592 publications

- Taxonomy-related systems: 2,288 references
- (Bio-)geography-related systems: 111
- Multiple systems: 72
Thank you!

Questions?

www.lifewatch.be
www.lifewatch.be/data-services/
marine.lifewatch.eu
www.lifewatch.be/en/e-lab

@LifeWatchVLIZ