

The Belgian LifeWatch infrastructure

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LifeWatch was established as part of the European Strategy Forum on Research Infrastructure (ESFRI) and can be seen as a virtual laboratory for biodiversity research. Belgium contributes to LifeWatch with varied and complementary "in-kind" contributions. These are implemented under the form of long lasting projects by different research centers and universities spread over the country and supported by each respective political authority (www.lifewatch.be):

1. The **Flemish contributions** to LifeWatch are coordinated by the Flanders Marine Institute (VLIZ, marine part) and the Research Institute for Nature and Forest (INBO, freshwater-terrestrial part). This Flemish LifeWatch consortium is funded through the Hercules Foundation.

VLIZ is building a central Taxonomic Backbone (TB) to facilitate the standardization of species data and the integration of the distributed biodiversity facilities. The TB includes species information services (taxonomy access services, a taxonomic editing environment, species occurrence services and catalogue services), and brings together different component databases and data systems. Next to taxonomic information (taxonomic databases, species registers and nomenclatures), the TB will also include biogeographical data (species observations), ecological data (traits), genomic data and links to the available literature.

Furthermore VLIZ and INBO are also constructing a local marine-freshwater-terrestrial LifeWatch observatory. One of the first achievements within this observatory is the set-up of a GPS sensor network for large birds: the GPS tags are generating data since June 2013 and already revealed some interesting behavior and strange migration patterns. Furthermore, an acoustic fish receiver network is being set up in rivers and estuaries and in the Belgian part of the North Sea (BPNS). Numerous other sensors were purchased and made operational: a flow cytometer (to track real-time abundance, dynamics and distribution of phytoplankton in the BPNS), a ZooScan and Video Plankton Recorder (to identify and track zooplankton), and many more.

VLIZ and INBO also facilitate access to several internal and external databases and data systems through data services, data publication and data archeology activities.

2. The **Wallonia-Brussels Federation** is financing a collaborative research program between the Earth and Life Institute (Université catholique de Louvain) and the Biosystems Engineering Department (Université de Liège/Gembloux-ABT). The LifeWatch Wallonia-Brussels team has a strong experience in two complementary research fields: (1) land cover and land use mapping through integrated GIS analysis and remote sensing image analysis, and (2) biodiversity, ecosystem services and landscape ecology.
3. The **Federal** authority, in addition to the "in cash" annual LifeWatch contribution, supports the Royal Belgian Institute of Natural Sciences to develop an Antarctic Biodiversity Information System (AntaBIS). The federal authority also supports the Belgian Biodiversity Platform to set up and animate a LifeWatch scientific node.

During the VLIZ Young Marine Scientists' Day 2015, the Belgian LifeWatch infrastructure will be presented through an informative poster series, and through four interactive demo sessions:

1. The secret life of gulls revealed with high-tech GPS tags (Stienen *et al.*)
2. The acoustic receiver network: a sea of opportunities (Reubens *et al.*)
3. Building a digital zooplankton sample library as part of the LifeWatch marine observatory (Mortelmans *et al.*)
4. Improved technology facilitates new scientific opportunities: Implementation of an on-board flow cytometer as part of the LifeWatch marine observatory (Tyberghein *et al.*)