



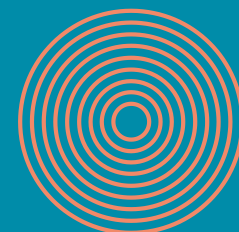
MARITIME INDUSTRY WORKSHOP

23 JANUARY 2020

*Get updated on the LifeWatch services
for science and industry!*



Vlaams Instituut voor de Zee vzw
Flanders Marine Institute





Policy



Industry



Science



Citizens

Vlaams Instituut voor de Zee vzw
Flanders Marine Institute

MARINE
POLICY

Development and underpinning of
biodiversity indices

TECHNOLOGY SECTOR &
MARITIME INDUSTRY

Technological spillovers

Innovative marine observation
capacity

Underpinning and support for
marine NID/Blue Growth projects

R&I
POLICY

Internationalisation and
multiplier effect

SOCIETY

Ocean literacy

Users of Belgian LifeWatch infrastructure

E-SCIENCE INFRASTRUCTURE AND SERVICES FOR



SCIENCE



INDUSTRY

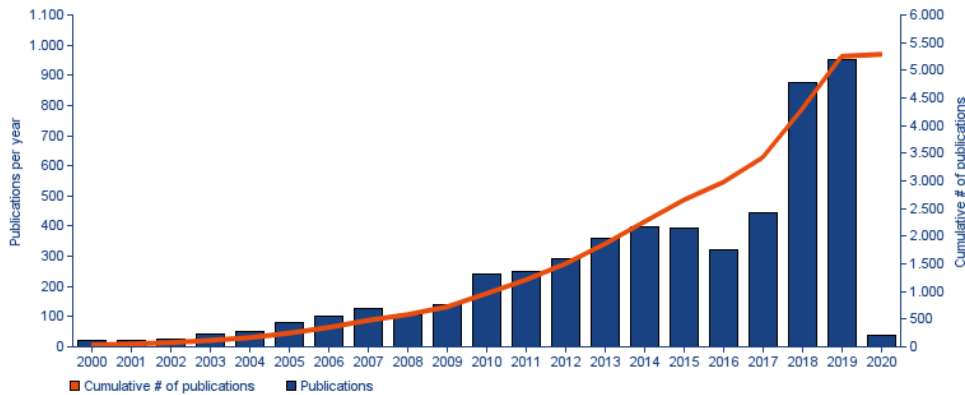


POLICY



CIVIL SOCIETY

Publications acknowledging LifeWatch Belgium 5.297 publications (3.896 peer reviewed)



User stories



Tracking the fish trails



Schip position



WoRMS featured in Blue Planet II



Understanding mass mortality in saiga antelope population



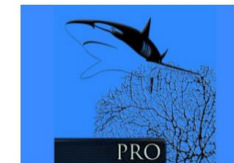
Promoting microbial culture collections with mars.biodiversity.aq



Identifying African bushmeat for sale in Brussels using DNA



Fisheries data initiatives



Reef Life Pro app



Finding Ocean Health in a sea of data

....



Example Industry use cases

- Use of the systems: Species Information Backbone
- Use of long term observation data
- Collaborations and projects



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- Use of the systems: Species Information Backbone
- Use of long term observation data
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Use of existing systems: Species Information Backbone

- World Register of Marine Species 
- Used to standardise private environmental databases
 - Taxonomy is always up-to-date
 - Avoid possible confusion with synonyms, old names
- Used as reference database, e.g. regional species lists
 - 248 institutes/organisations receive monthly copy of WoRMS
 - 75 institutes/organisations make use of the available **web services**



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Use of existing systems: Species Information Backbone

- MarineRegions
- Used to determine if the position of a ship is within international waters (>12 NM)
 - For tax rates (combined with other resources)
 - For communication frequencies
- boundaries can be downloaded
- used by **web services**



Marineregions.org

a standard for georeferenced marine names



12 NM:
Territorial Sea



Example Industry use cases

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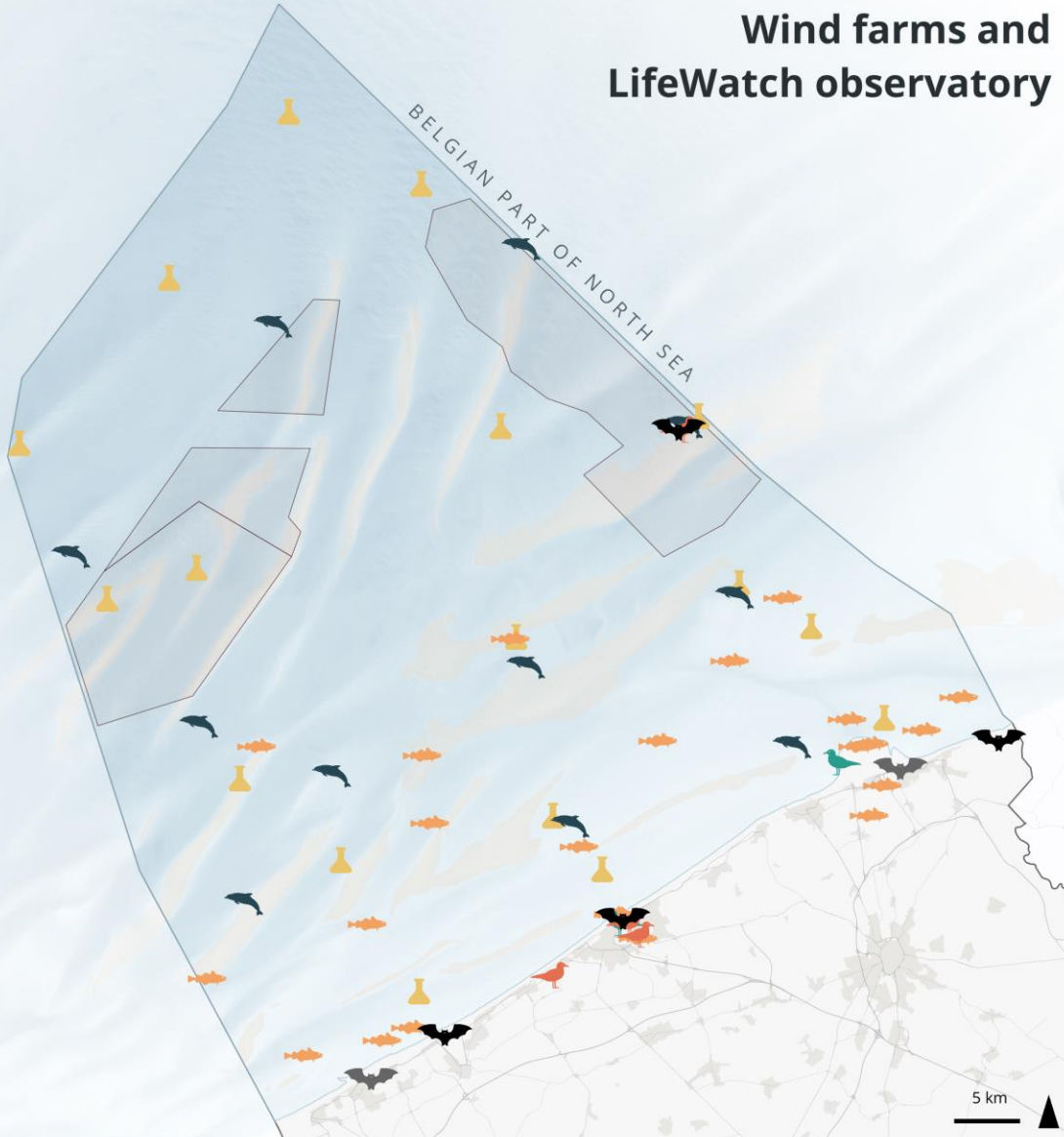
Use of long term observation data

- General background data
 - Nutrients
 - Pigments
 - Temperature, salinity, SPM
- Sound
 - Acoustic underwater recording system (installation summer 2020)
- Phyto- and zooplankton
 - Monthly & seasonal campaigns
 - Flowcam, fcm, zooscan, vpr
- Fish
 - Fish acoustic receiver network
- Marine mammals
 - Cetacean passive acoustic network
- Avifauna
 - Gps-tagged birds
- Bats
 - Bat detection network










Projects & development– Wind farms

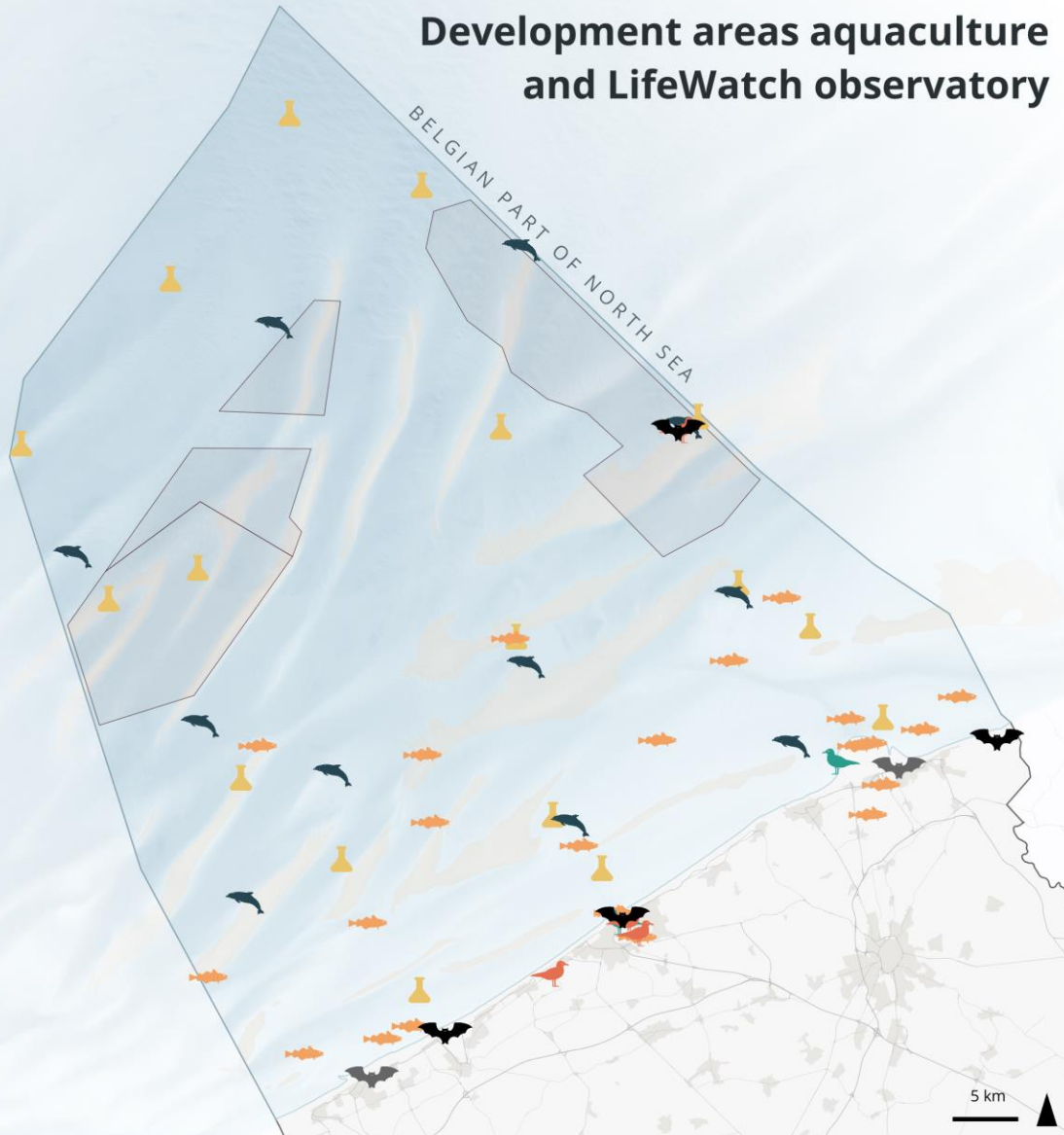
Wind farms and LifeWatch observatory










LifeWatch receiver network

-  Bat passive acoustic network
-  Bat tracking network Motus - Antennas
-  Cetacean passive acoustic network
-  Bird tracking GPS network - Antennas
-  Monthly and seasonal marine stations
-  Fish acoustic receiver network
-  BirdCam stations

Projects & development- Aquaculture



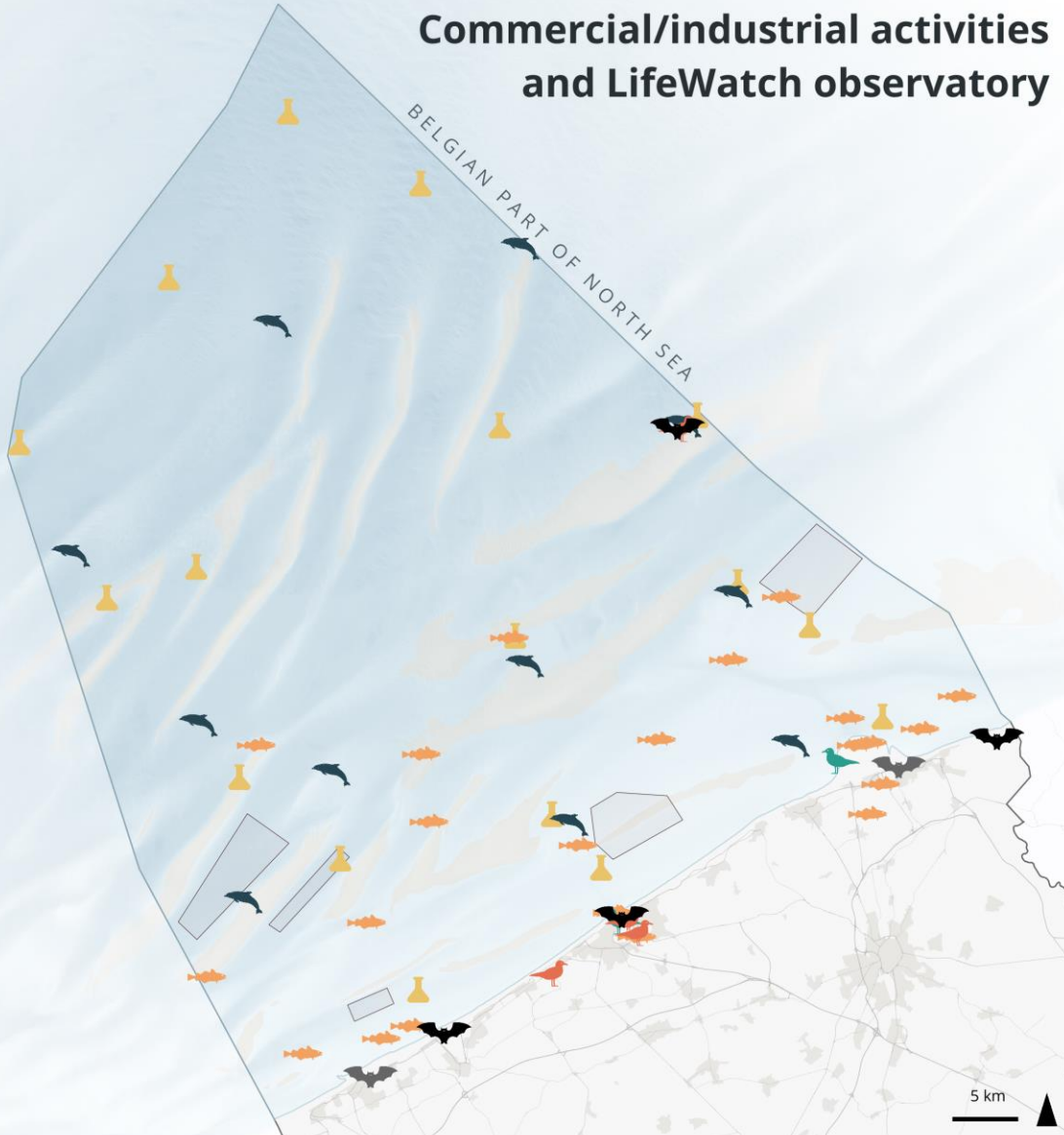
LifeWatch receiver network

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Projects & development– Industrial activity zones



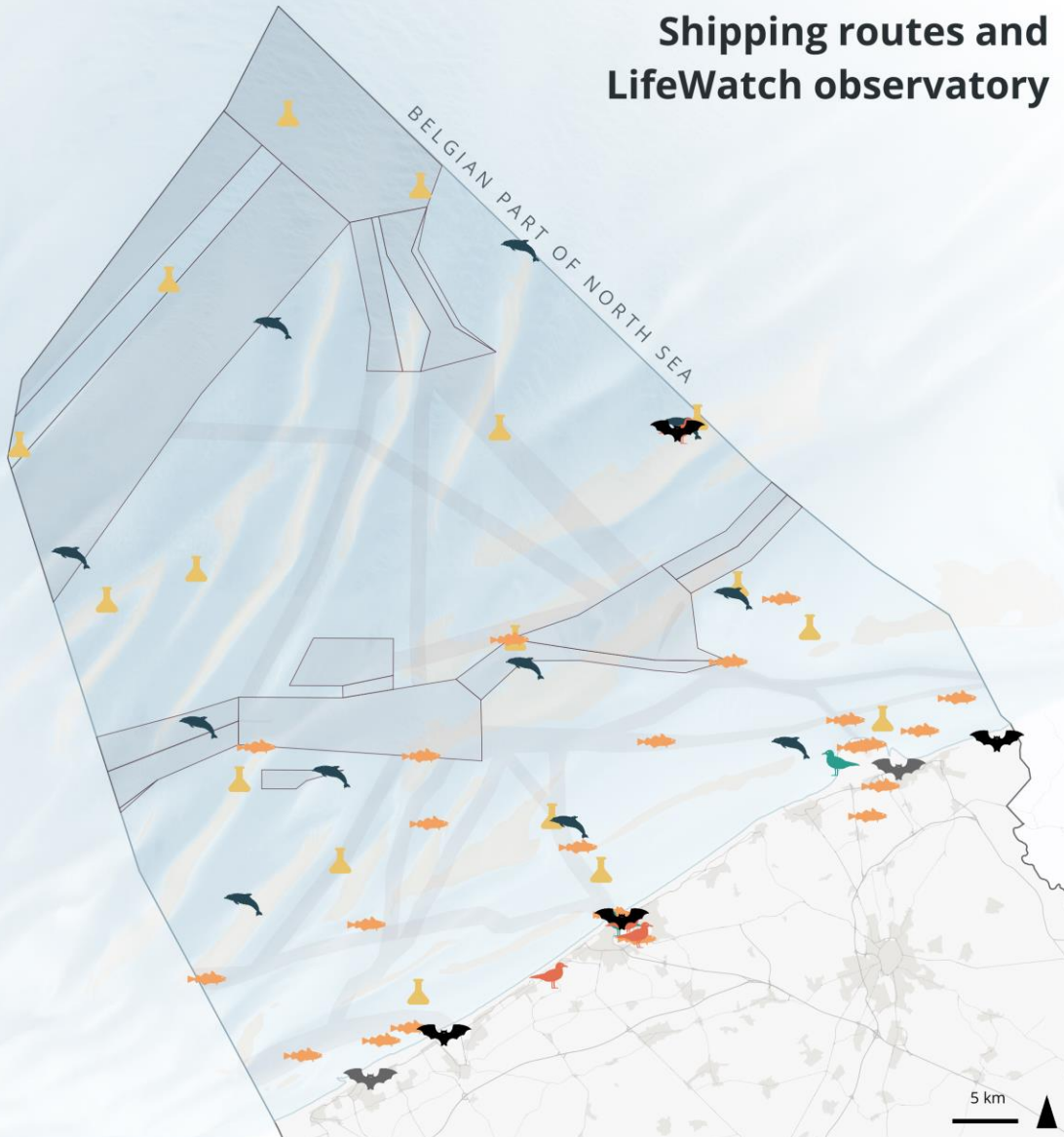
Commercial/industrial activities and LifeWatch observatory










LifeWatch receiver network

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-  Monthly and seasonal marine stations
-  Fish acoustic receiver network
-  BirdCam stations

Projects & development – Shipping






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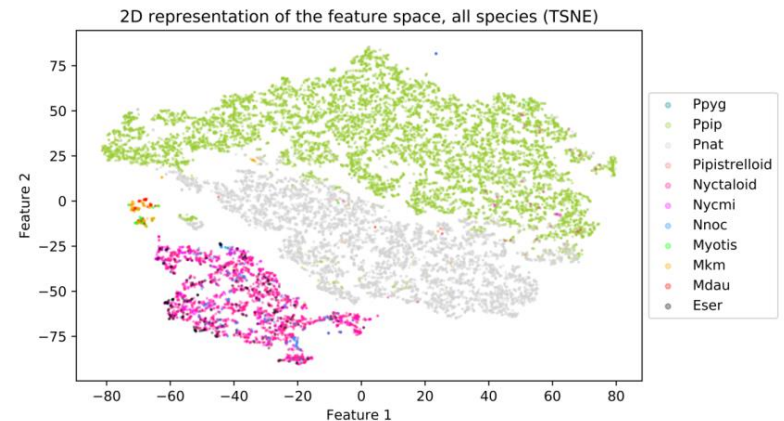
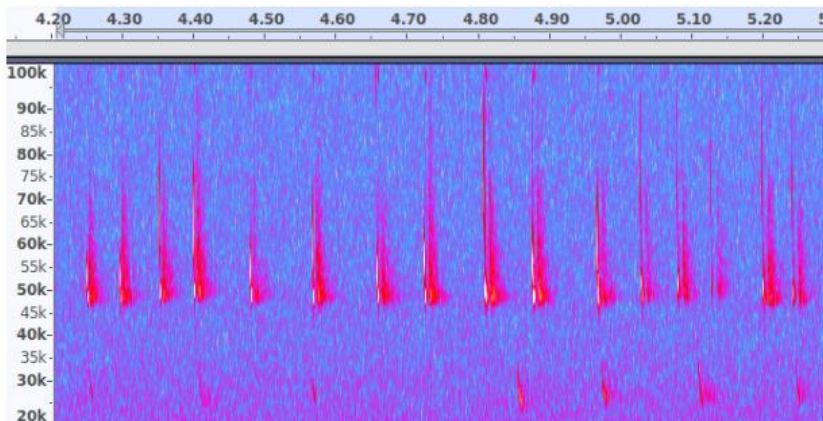


Use of long term observation data

- LifeWatch Plankton time series: 
 - Study mollusc eggs and larvae dynamics
 - To determine potential for biogenic reefs / building with nature
- Lifewatch acoustics – mammals and fish  
 - Study ecosystem functioning & food web interaction on biogenic reefs

Use of long term observation data

- LifeWatch bat sensor networks: 
 - Sensitivity to human stressors
 - Development of automated data transfer 
 - Automatic call classification



Use of long term observation data data accessibility

LifeWatch Data Explorer



Bat passive acoustic network



Bat tracking network Motus - Antennas



Cetacean passive acoustic network



Bird tracking GPS network - Antennas



Monthly and seasonal marine stations



Fish acoustic receiver network

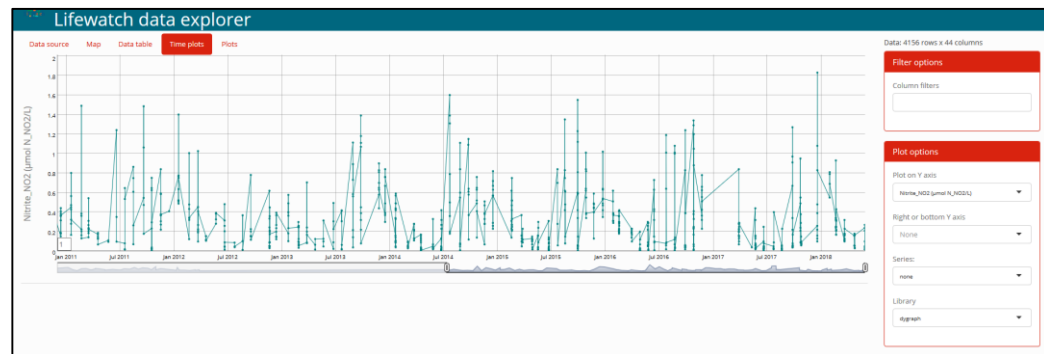
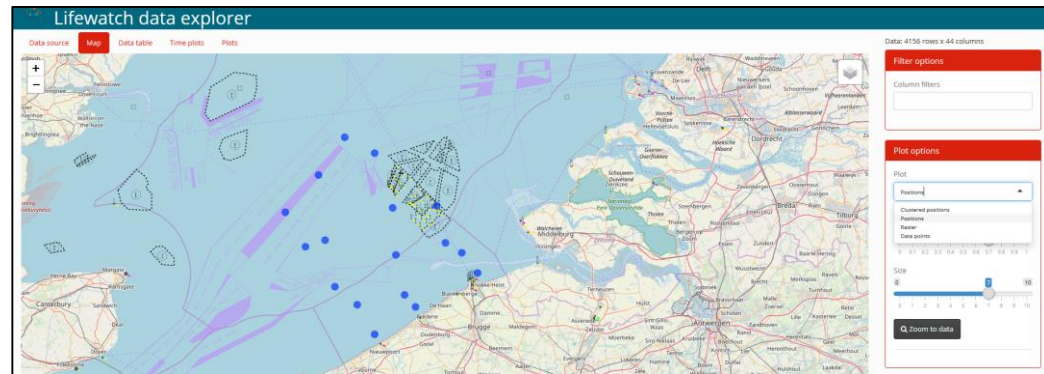
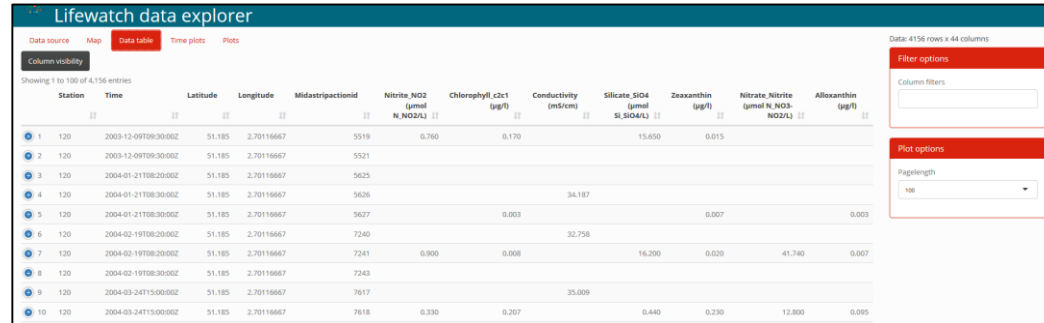


BirdCam stations

info@Lifewatch.be



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Example Industry use cases

- Use of the systems: Species Information Backbone
- Use of existing observation data
- Collaborations and projects



Collaborations and projects

- PC4C: Gathering ecological data on movement behaviour of Atlantic cod in support of gas and oil

MENU

E&P SOUND & MARINE LIFE PROGRAMME

THE E&P SOUND & MARINE LIFE JOINT INDUSTRY PROGRAMME

The Joint Industry Programme, or JIP, supports research to help increase understanding of the effect of sound on marine life generated by oil and gas exploration and production activity. The research helps governments make regulatory decisions based on the best science and the industry develop effective mitigation strategies. This helps us supply much needed energy to people around the world. Deliverables of the JIP can be found [here](#)

SCROLL TO DIVE INTO THE ISSUE ▼

TOP
THE OCEAN
SOUND IN THE SEA
THE SCIENCE
OUR RESEARCH
COLLABORATION
INNOVATION

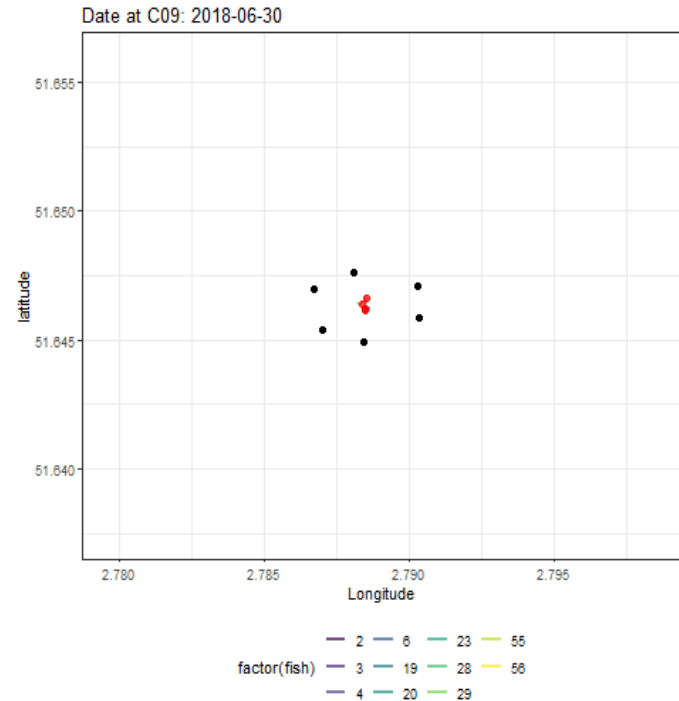
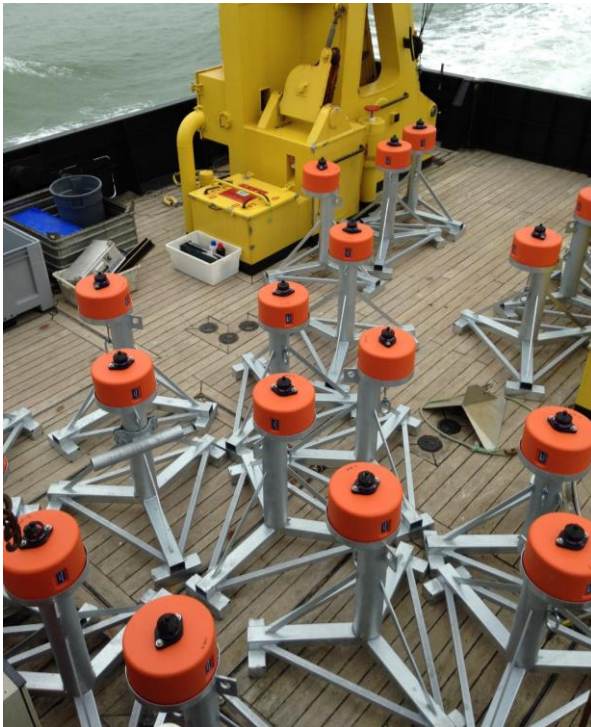
INSTITUTE OF BIOLOGY LEIDEN

Real-life Airgun
Exposure of Tagged
Fish and Local
Animal Community



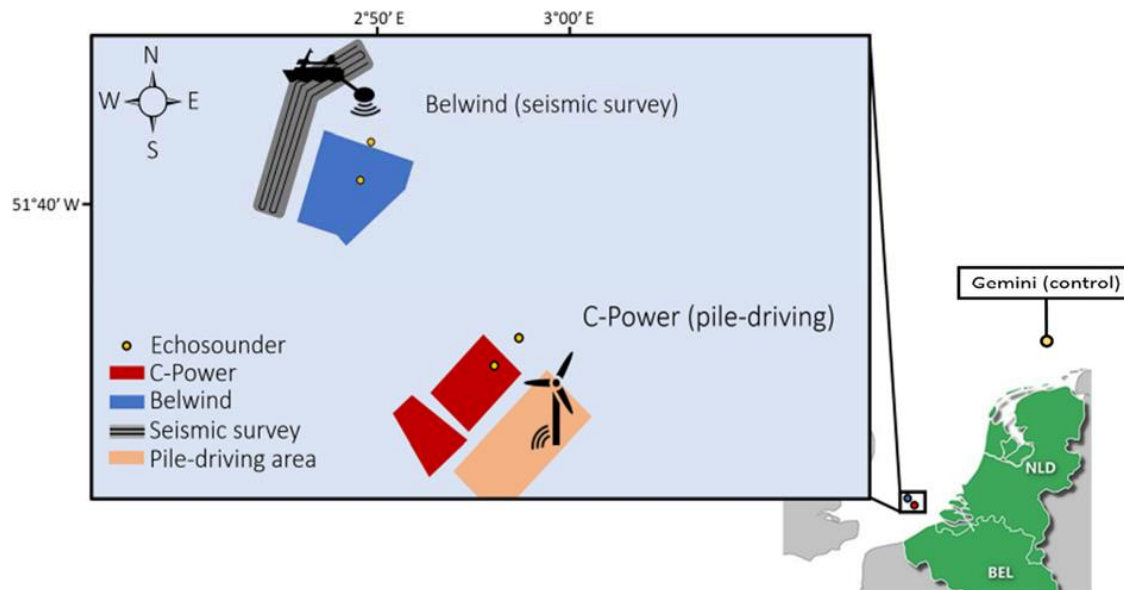
Collaborations and projects

- PC4C: Gathering ecological data on movement behaviour of Atlantic cod in support of gas and oil



Collaborations and projects

- VisZion: to study the impact of man-made sound on pelagic fish behavior and zooplankton
 - Bottom moored echosounders
 - Highly dynamic conditions: high turbidity, strong currents





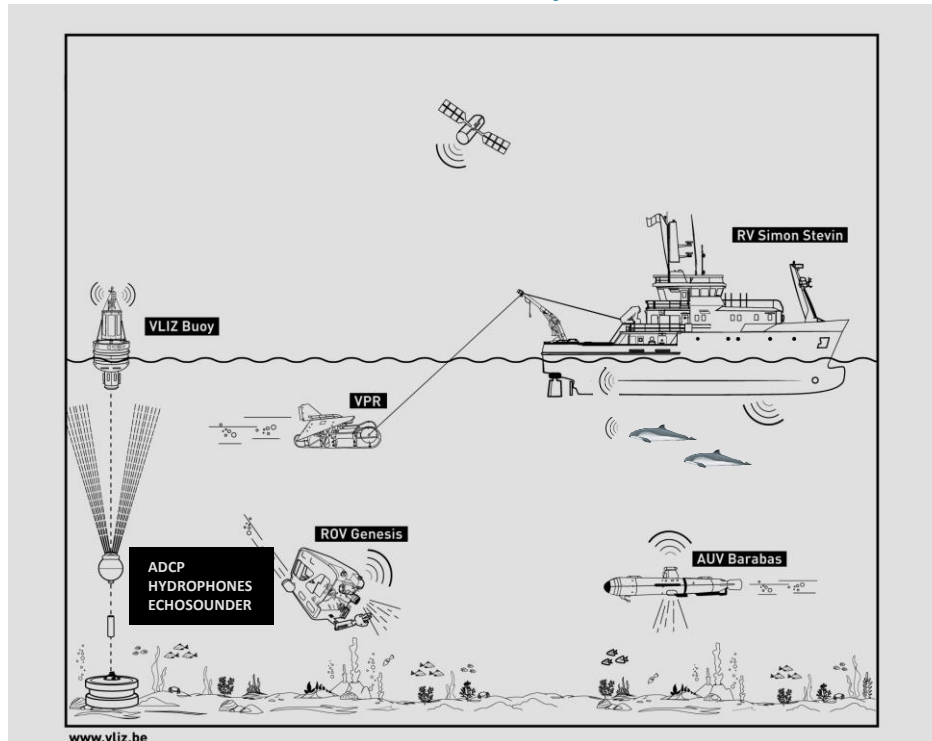
Collaborations and projects

- **GEANS: Genetic tools for Ecosystem health Assessment in the North Sea region**
 - Pilot project coordinated by vliz on non-indigenous species
 - Combining metabarcoding and imaging
 - Collaboration with Gemeentelijk Havenbedrijf Antwerpen
 - Improvement of OSPAR HELCOM protocol
 - Observations, data processing and management are supported by LifeWatch infrastructure



Collaborations and projects

- Lifewatch acoustics
 - Several deployment options, near real-time, high resolution
 - To determine soundscape, sound sources,...





LifeWatch for Maritime Industry

- Data
 - Time series
 - (New) observations
- Expertise:
 - At/in sea
 - innovative sensors and analysis (AI)
 - data systems
- (web) services:
 - Standardisation of biological datasets:
 - LifeWatch Species Information Backbone
 - LifeWatch Data Explorer
 - LifeWatch e-lab

