

# ***LifeWatch ERIC***

***Marta Copado García***

***Head of Water Quality Service at Guadalquivir River Basin Authority  
Ministry for the Ecological Transition-Spain***



GOBIERNO  
DE ESPAÑA

MINISTERIO  
PARA LA TRANSICIÓN ECOLÓGICA

CONFEDERACIÓN  
HIDROGRÁFICA DEL  
GUADALQUIVIR, C.A.

**“EURO-RIOC 2018”  
Seville (Spain), October 2018**

How do changes affect the provision of ecosystem services

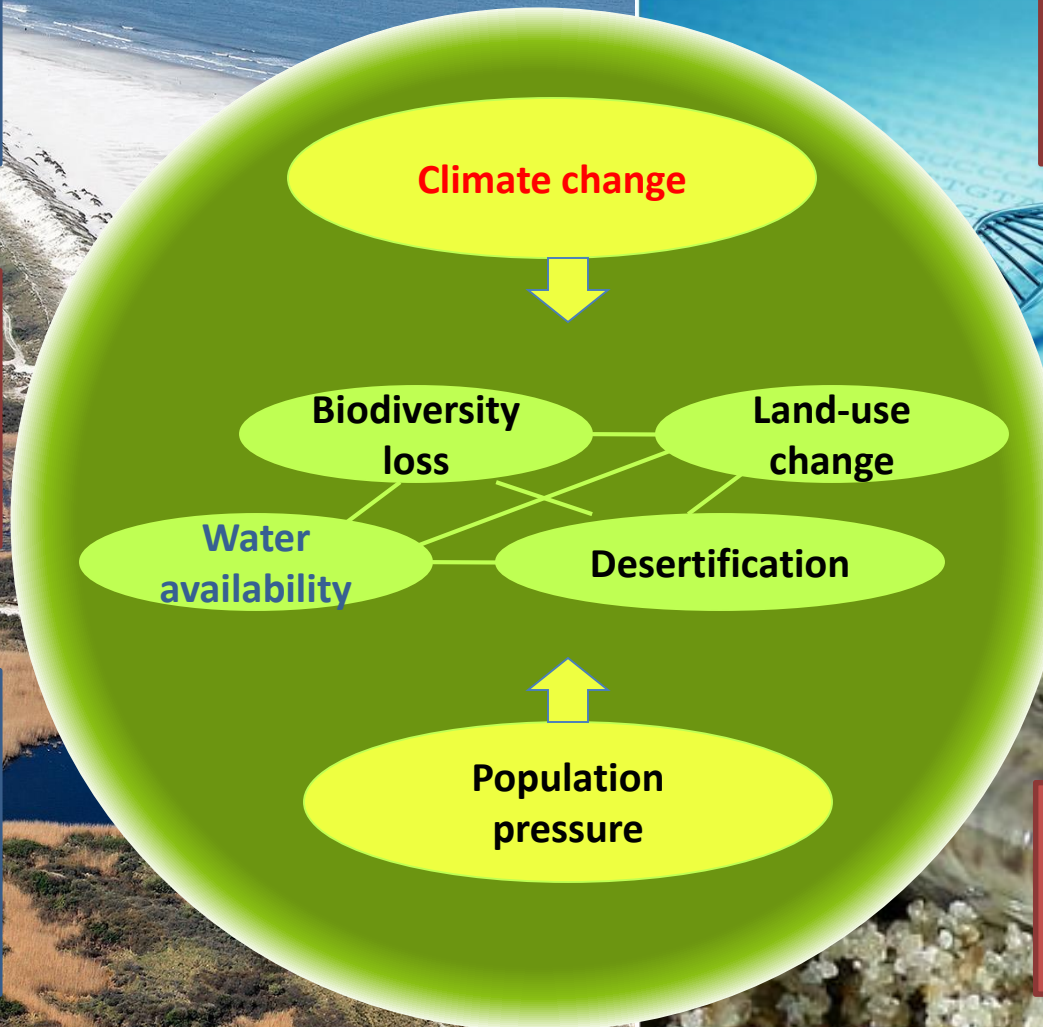
Where are the thresholds in ecosystem structures and functions

What are the impacts of changes in climate, pollution and land/sea-use on biodiversity

Can we adapt to environmental change

How to manage multi-functional land/sea-scapes

Which actions to ensure long-term sustainability



## The European Strategy Forum on Research Infrastructures (ESFRI):

### ESFRI identifies Priority Research Topics

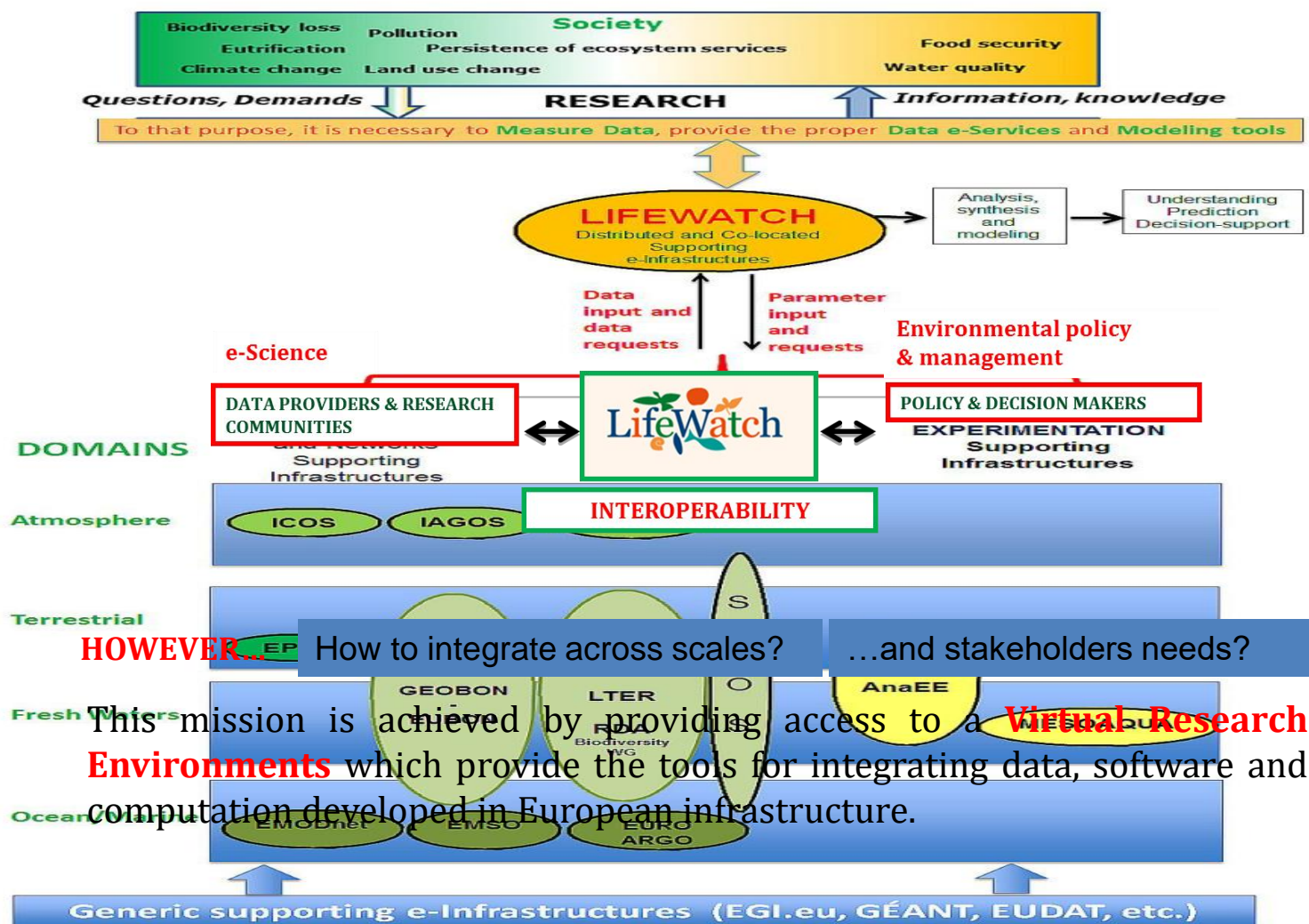
- Atmosphere
- Oceans, including ice (dynamics, biology)
- Earth (hydrology, soils), Water cycle
- Climate and paleoclimate
- Earth Sciences
- Environmental Engineering and technology
- **Biodiversity and ecosystem services**

**Since March 2017 LifeWatch is considered European Research Infrastructure Consortium (ERIC)**

### ESFRI identifies pan-European research infrastructures that meet the long-term needs of European researchers in all scientific areas

- **EMSO**: European Multidisciplinary Seafloor Observatory
- **EURO-ARGO**: Research Infrastructure for Ocean Science and Observations
- **IAGOS**: In-Service Aircraft for a Global Observing System
- **ICOS**: Integrated Carbon Observing System
- **LifeWatch**: e-Infrastructure for Biodiversity and Ecosystem Research
- **EISCAT\_3D**: The next generation European incoherent scatter radar system
- **SIOS**: Svalbard Integrated Arctic Earth Observing System
- **EPOS**: European Plate Observing System





<http://marine.lifewatch.eu/>

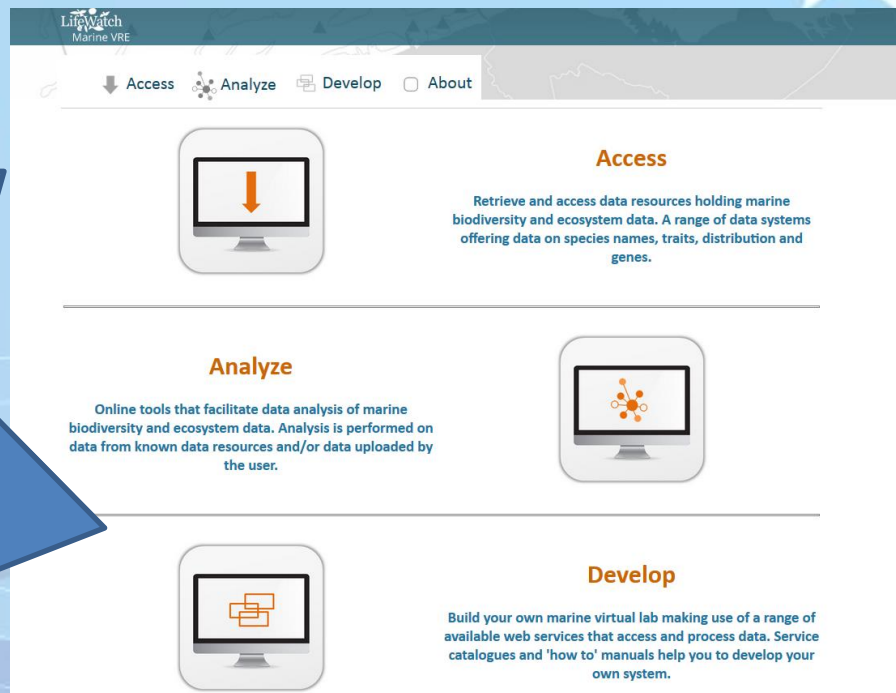
## The LifeWatch Marine Virtual Research Environment

The  
Env  
laun  
mar  
sv

botto  
potentia  
LifeWatch

### Develop:

Build your own marine virtual lab making use of a range of available web services that access and process data. Service catalogues and 'how to' manuals help you to develop your own system.



The screenshot shows the LifeWatch Marine VRE website. The header includes the LifeWatch logo and navigation links: Access, Analyze, Develop, and About. The main content area is divided into three sections, each with a computer icon and a description:

- Access:** Retrieve and access data resources holding marine biodiversity and ecosystem data. A range of data systems offering data on species names, traits, distribution and genes.
- Analyze:** Online tools that facilitate data analysis of marine biodiversity and ecosystem data. Analysis is performed on data from known data resources and/or data uploaded by the user.
- Develop:** Build your own marine virtual lab making use of a range of available web services that access and process data. Service catalogues and 'how to' manuals help you to develop your own system.

## ...THEREFORE:

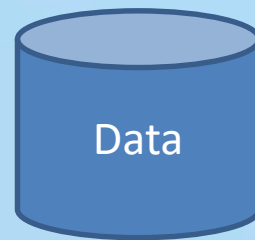
### ✓ LifeWatch ERIC:

- ✓ Capitalises-put in value already existing investments on IWRM Infrastructures
- ✓ Improving ICT developments that may be useful for biodiversity research and for other purposes
- ✓ Special attention is also placed to the expected impact in the regional-local industrial sectors
- ✓ **Allows Complex System Modelling related to the impacts of the Climate Change in relation with INTEGRATED WATER RESOURCE MANAGEMENT-IWRM by using BIG DATA & Blockchain paradigm technologies-based tools**
- ✓ As a result, the existing knowledge and services related with biodiversity & climate change and cooperating initiatives among territories should be better connected. This a real challenge for Environmental RIs which also includes specific topics such as shared ICT developments, Intellectual Property Rights (IPR), Open Access (Research Data Alliance-RDA), European Open Science Cloud (EOSC). All of these items demand a great involvement of the interested stakeholders communities.



As the CHG, as an organism of Cuenca, intends to incorporate its work into Lifewatch?

Challenge: How does climate change affect water resources and biodiversity?



## Integration within the structure of the Lifewatch

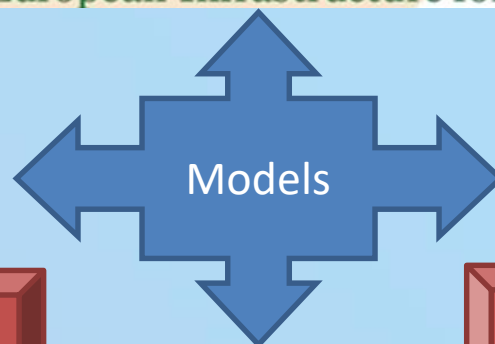
Standardization  
of existing data

Complying with a set of rules or criteria that allow their intercomparison with other information available

Scientific  
Infrastructure  
contribution

- Local requirements (resource management)
- National requirements (Water Law control networks, emission reduction measures)
- International requirements (International Cooperative Programmes for the assessment of the effects of atmospheric pollution on rivers and lakes)





Species Distribution  
Model

Scarcity/Regulation model

- Atlas of distribution of families linked to environmental variables
- AIR/water Transfer models
- Distribution model observing the sensitivity of different families to changes in water temperature and other environmental variables



- Quantitative model that allows analyzing the causes of scarcity, predict the effect of water regulation and other management

Quantitative information is related to biodiversity climate change



Interrelation with other national/international networks

### Objective

To share the information obtained in the management of the basin (data/models) with that of other research infrastructures.

- Climate change: ICP-WATER (UNECE), roofing Directive,...
- Biodiversity: GEOBON, GBIF,...
- Research: CSIC,...

### Advantages

1. To integrate the information obtained in the management of the basin in a European Research area: scientific and legislative value.
2. To Increase the data network available for management: spatially by including information North/south and temporarily by including longer historical series: Validation of management models

✓ **...WE SUGGEST-PROPOSE:**

**The co-design and establishment of an international LifeWatch ERIC-INBO RIOB Virtual Research Environment on Integrated Water Resources Management for Biodiversity and Ecosystem Research.**





*marta.copado@lifewatch.eu*