

LifeWatch ERIC

Marta Copado García

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



GOBIERNO
DE ESPAÑA

MINISTERIO
PARA LA TRANSICIÓN ECOLÓGICA

CONFEDERACIÓN
HIDROGRÁFICA DEL
GUADALQUIVIR, O.A.

**“EUROPE-INBO 2018”
Seville (Spain), October 2018**

How do changes affect the provision of ecosystem services

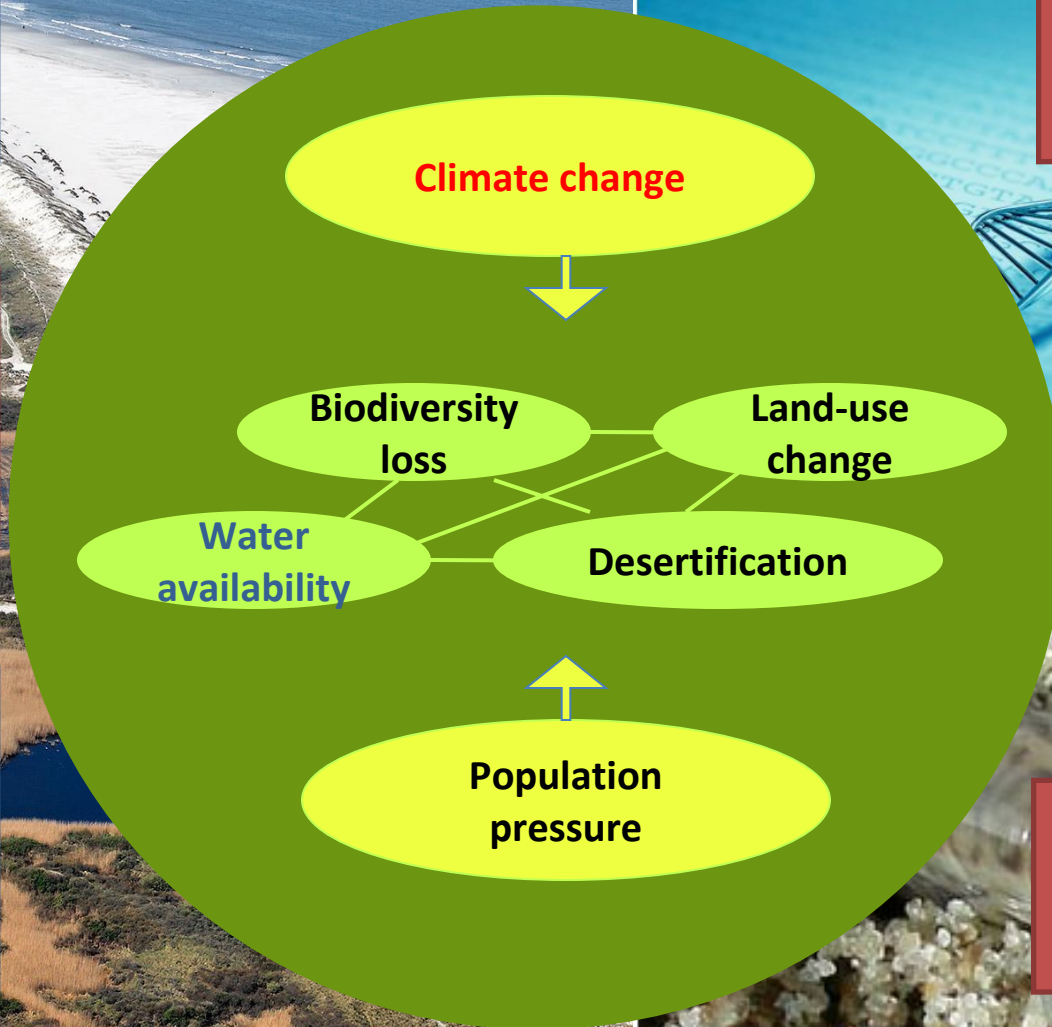
Where are the thresholds in ecosystem structures and functions

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):

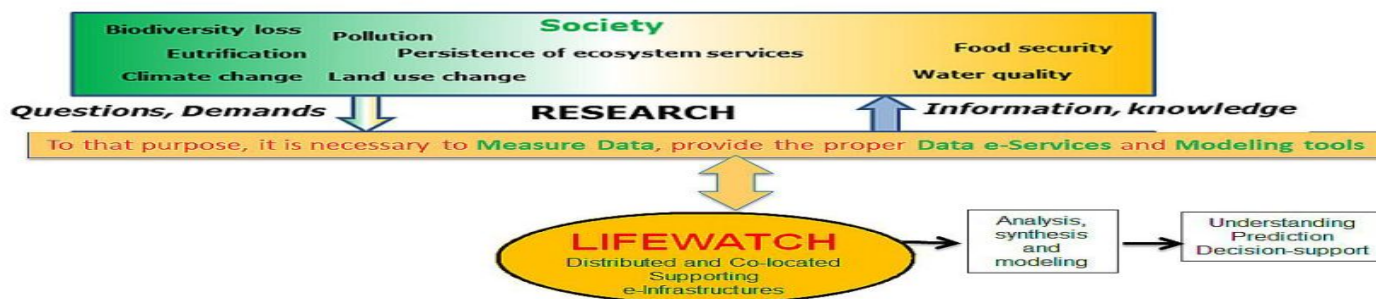
ESFRI identifies Priority Research Topics

- 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)

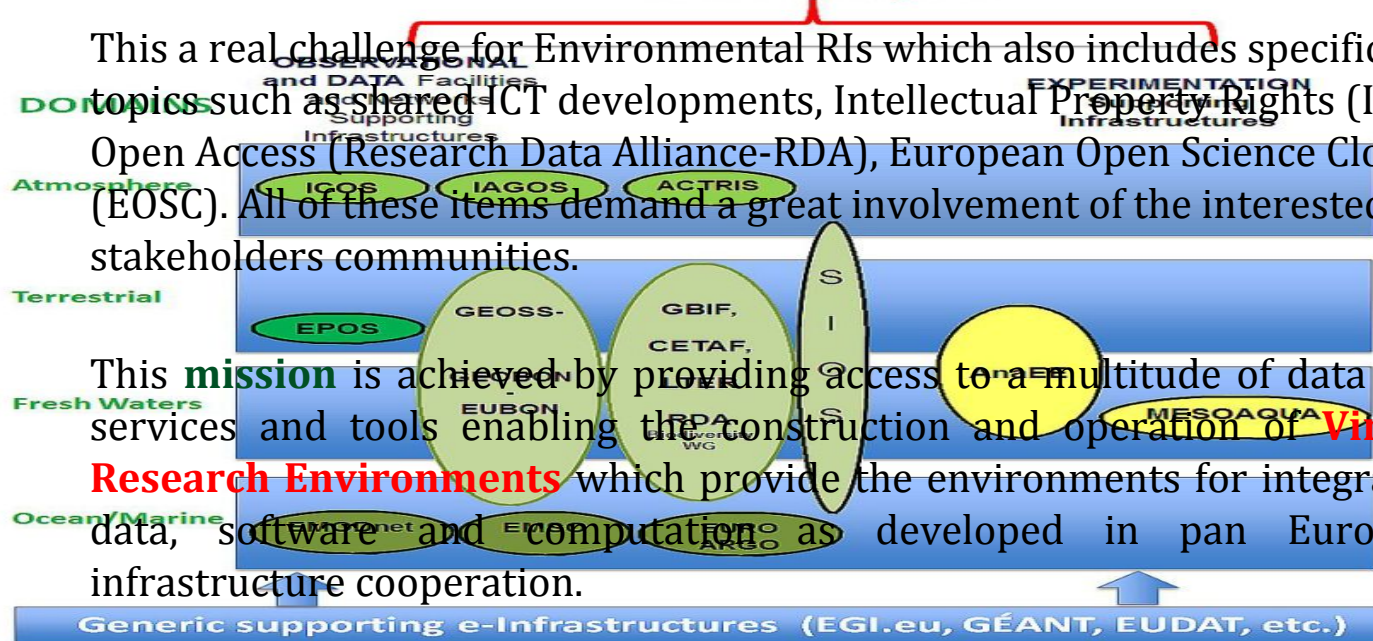
ESFRI identifies pan-European research infrastructures that meet the long-term needs of European researchers in all scientific areas

- **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



HOWEVER... How to integrate across scales? ...and stakeholders needs?

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.



This **mission** is achieved by providing access to a multitude of data sets, services and tools enabling the construction and operation of **Virtual Research Environments** which provide the environments for integrating data, software and computation as developed in pan European infrastructure cooperation.

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

The LifeWatch Marine Virtual Research Environment

The Environment launched marine virtual lab and e-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 interface. At the top, there is a navigation menu with 'Access', 'Analyze', 'Develop', and 'About' options. Below the menu, the page is divided into three main sections, each featuring an icon and a brief description:

- Access:** Represented by a computer monitor icon with a downward arrow. The text reads: "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:** Represented by a computer monitor icon with a network diagram. The text reads: "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:** Represented by a computer monitor icon with a document and flowchart. The text reads: "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.



What are the benefits that CHG, as a watershed agency, sees in incorporating its work into the Lifewatch?

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

Data

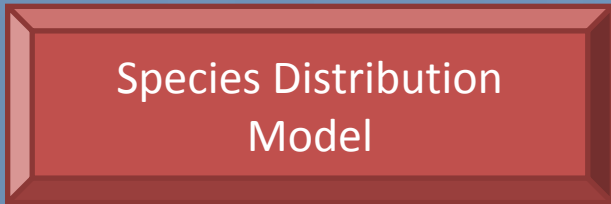
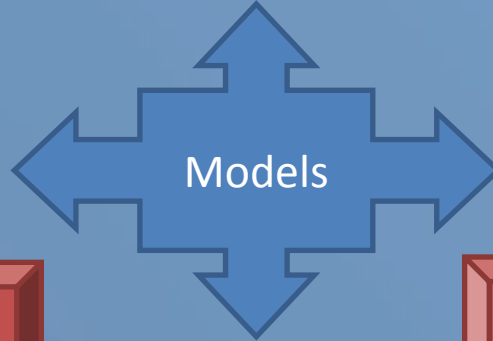
Integration within the structure of the Lifewatch

Incorporation 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)
- National/International requirements in others domains (Emission reduction measures, River basin management in a changing climate, International Cooperative Programmes for the assessment of the effects of atmospheric pollution on rivers and lakes)



- 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



Qualitative information is related to biodiversity climate change

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



Interrelation with other national/international networks

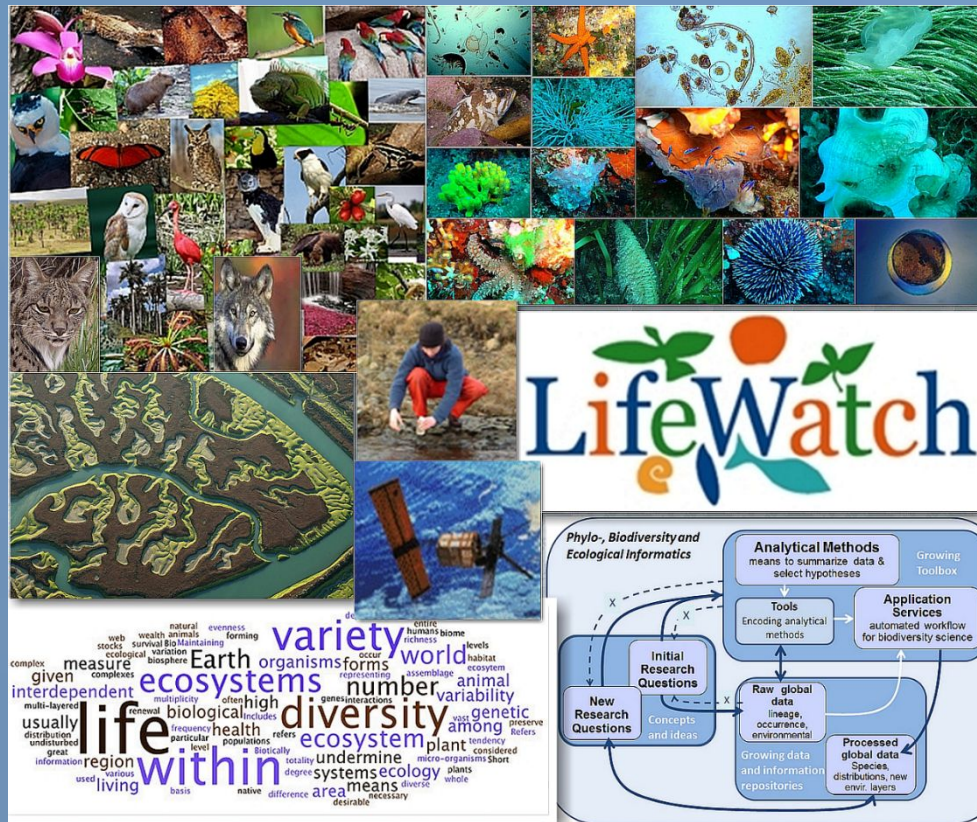
To share the information obtained in the management of the basin (data/models) with that of other research infrastructures.

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

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 Virtual Research Environment on Integrated Water Resources Management for Biodiversity and Ecosystem Research.



Thank you very much ! – Merci beaucoup !

¡ Muchas gracias !

<https://www.lifewatch.eu>

marta.copado@lifewatch.eu

PAÍSES PARTICIPANTES



Committed countries



Belgium



Greece



Italy



Portugal



Romania



The Netherlands



Spain

Observer countries



Finland



France



Hungary



Slovakia



Slovenia



Sweden

Stakeholders from other countries



Norwegian
Institute for
Nature Research

Common facilities



Spain

- ERIC Country Host
- Statutory Seat
- Coordination and management of distributed construction operations
- ICT e-Infrastructure



Italy

LifeWatch
Service Centre



The Netherlands

Virtual
Laboratories
and Innolabs

ESTRUCTURA INTERNACIONAL

ASAMBLEA GENERAL

COMITÉ EJECUTIVO

INSTALACIONES COMUNES

SEDE ESTATUTARIA- ESPAÑA

Administración y servicios
financieros.

Coordinación de la
e-infraestructura.

SEDE DE SERVICIOS- ITALIA

Conexión
Científica con
usuarios finales

SEDE LABORATORIOS VIRTUALES- HOLANDA

Coordinación de
herramientas
específicas

INSTALACIONES DISTRIBUIDAS

Redes científicas
Centros colaboradores de otros países
Etc.

Sede estatutaria y oficinas centrales TIC: **ESPAÑA.**

- ✓ Coordinación relaciones institucionales.
- ✓ Gestiones administrativas, legales y financieras.
- ✓ Acuerdos con proveedores de datos y servicios electrónicos.
- ✓ Diseño, implementación, coordinación y mantenimiento de la e-infraestructura y servicios electrónicos.

Sede de servicios: **ITALIA**

- ✓ Responsable de la comunicación entre la Comunidad Científica en Biodiversidad y las necesidades del usuario final y gestor de políticas.
- ✓ Facilitar el acceso y uso de instalaciones del LifeWatch al ususario final.

Sede de Laboratorios Virtuales: **HOLANDA**

- ✓ Coordinarán y gestionarán análisis de requerimientos y necesidades, diseño e implementación de herramientas de estudio y simulación para necesidades detectadas en LifeWatch.

ESTRUCTURA ESPAÑOLA: JRU- LIFEWATCH SPAIN

- La Oficina española del LifeWatch tiene 3 administraciones impulsoras (Stakeholders):

- MINECO
- Confederación Hidrográfica del Guadalquivir
- Junta de Andalucía.

