

COCKLES

Co-Operation for Restoring Cockle Shellfisheries
and its Ecosystem-Services in the Atlantic Area

COCKLES GIS viewer:

Integrating new and existing knowledge on cockles

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FINAL VIRTUAL CONFERENCE

March 2021

● GIS DATABASE

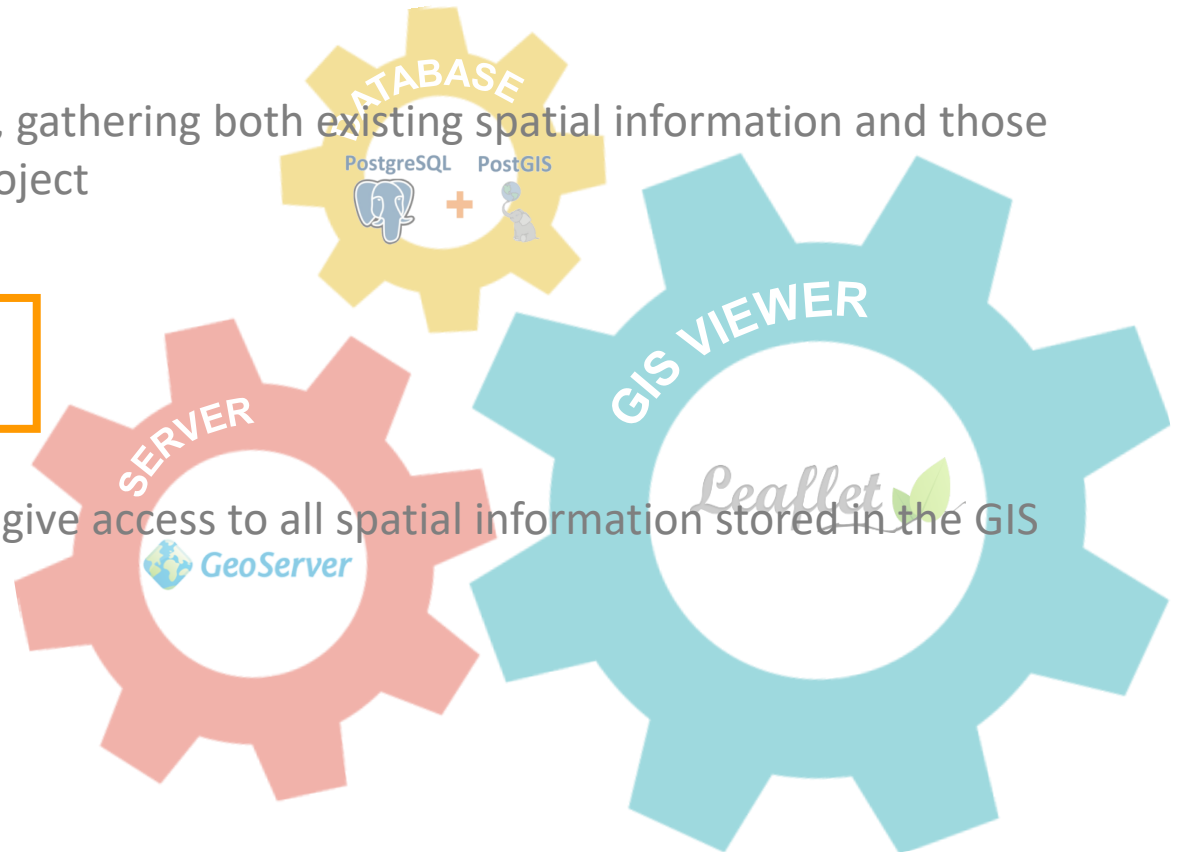
A spatial database was created, gathering both existing spatial information and those generated in the framework project

● GIS DATA SERVER

A GIS server was developed, to give access to all spatial information stored in the GIS database.

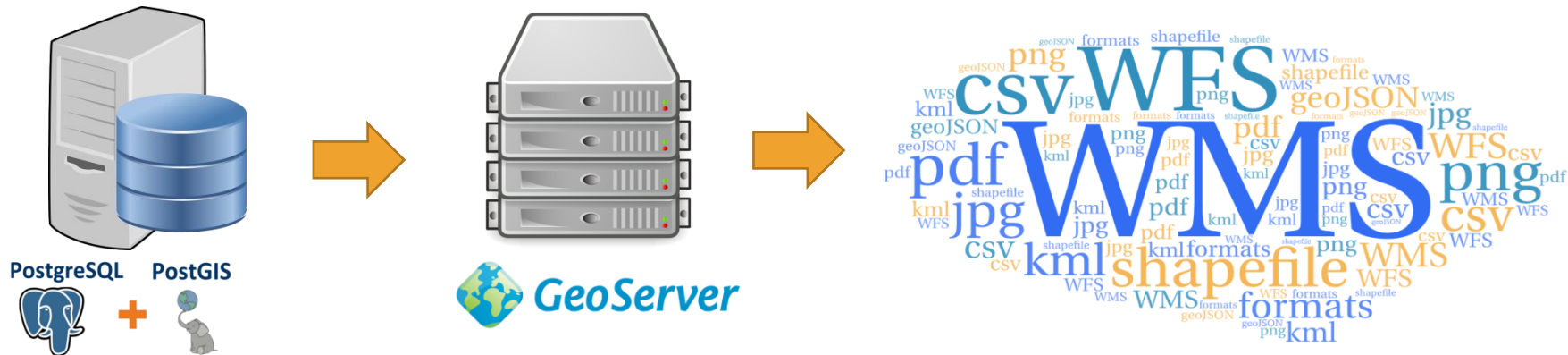
● GIS VIEWER

Web Map Application was developed, creating a user-friendly interface to show all information of the database to users without GIS skills.



● COCKLES DATA SERVER

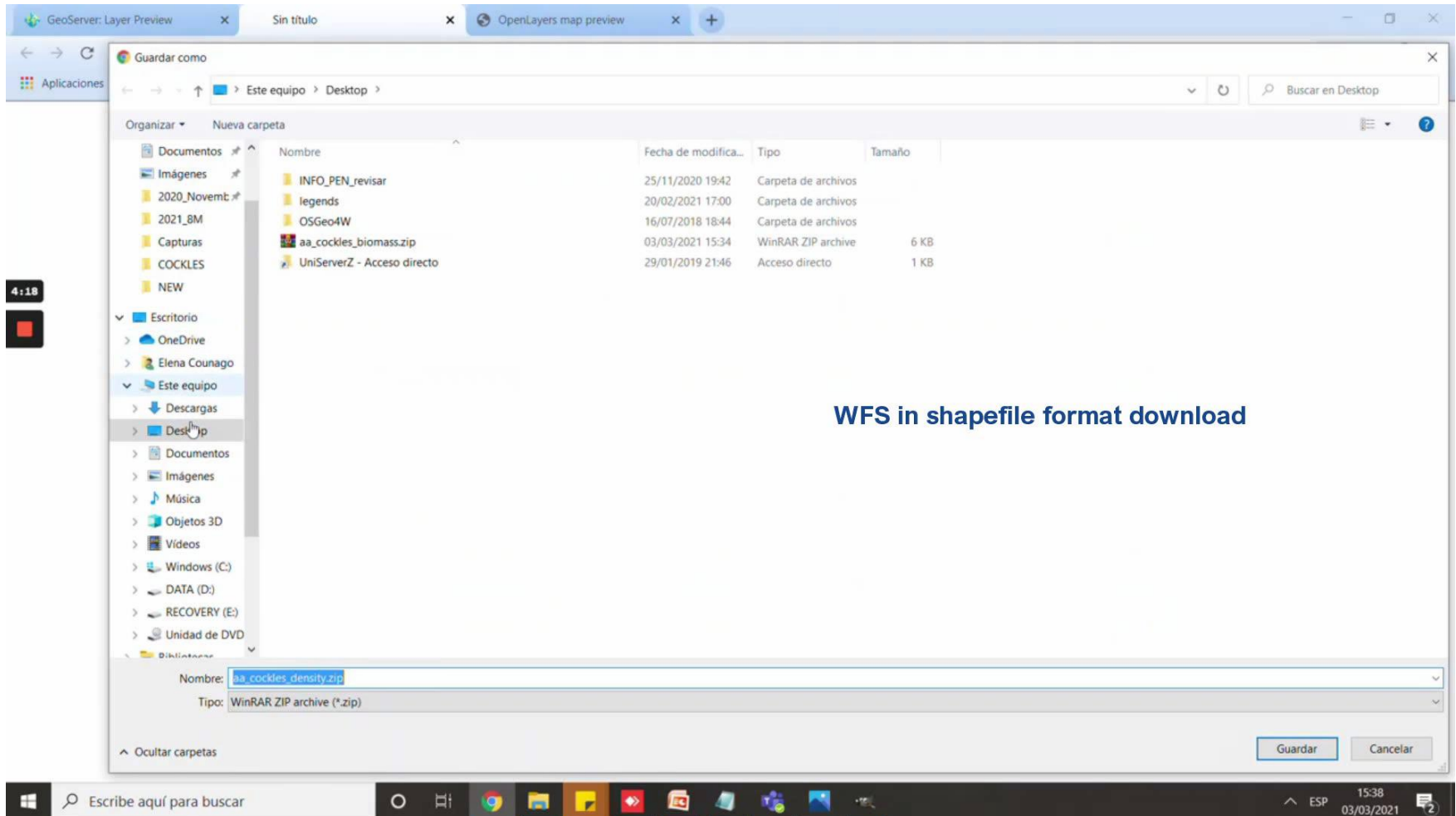
- **Open source server** (Geoserver) give access to all spatial information stored in COCKLES project database. It can be directly used by users with GIS skills.
- Data can be accessed with by means of different **standards (WMS and WFS), and formats (image, shapefile, csv...)**.



<https://utmar.cetmar.org/geoserver/web/>

GIS DATA SERVER

<https://utmar.cetmar.org/geoserver/web/>



● GIS WEB VIEWER



- **Web Browser App** : Allow Access to all spatial information created in the framework of COCKLES project. No GIS knowledge needed. Tested on Firefox and Chrome.



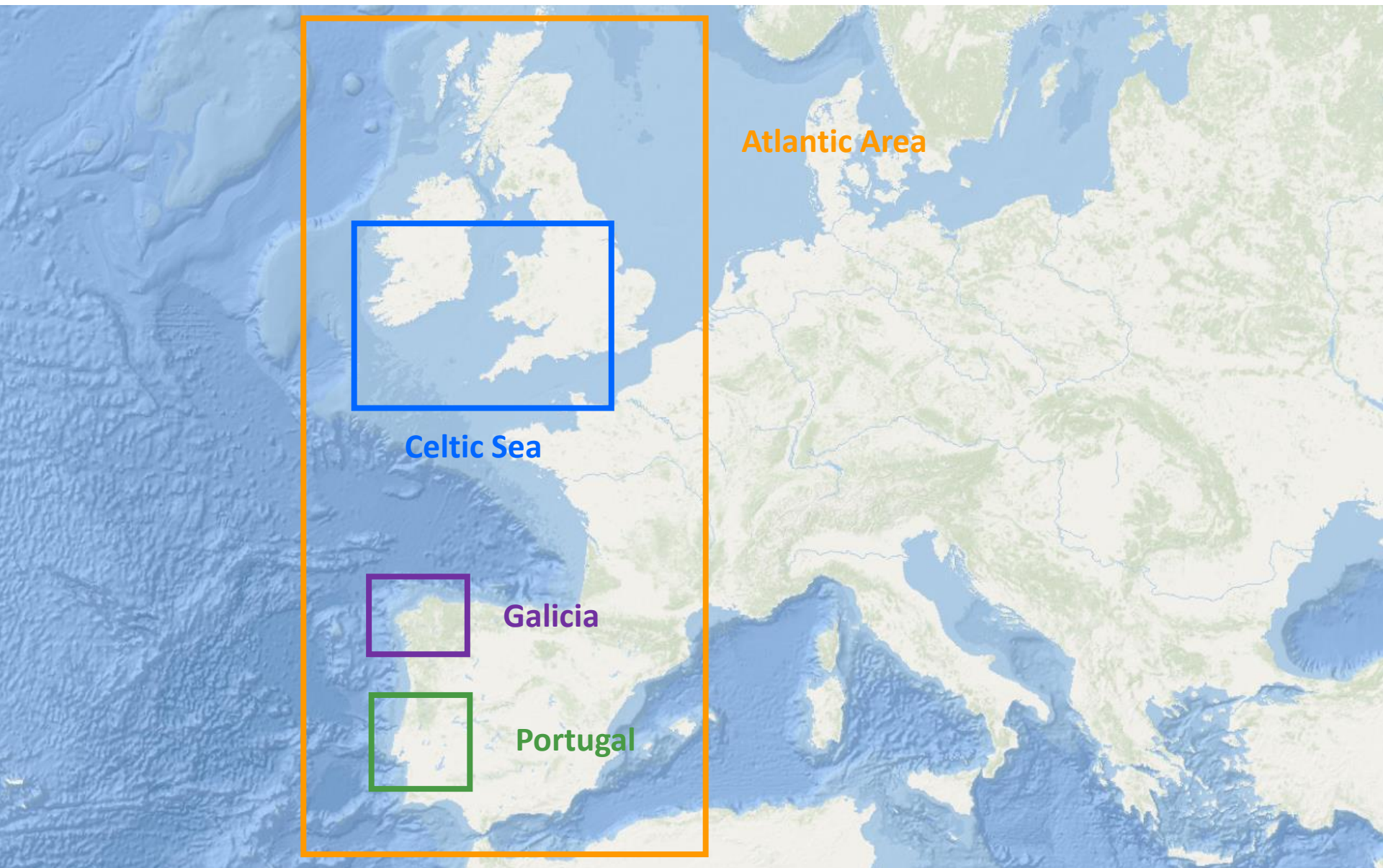
- **Total 57 layers:**
 - BaseMaps (4 Layers)
 - Auxiliary Layers
 - Project Outputs (4 Case Study, 5 Topics)

- **Available on:**

<https://utmar.cetmar.org/cockles-viewer>

<http://cockles-project.eu/gis-viewer>





ATLANTIC AREA

Auxiliary layers

- Project Regions
- Bathymetry
- Substrate
- Marine Protected Areas

Cockles Distribution

- Cockles Historical Presence
- Cockles Beds Distribution
- Cockles Averaged Density
- Cockles Averaged Biomass
- Cockles Sex Ratio

Cockle Genetics

- Genetic populations K2
- Genetic populations outliers K2
- Genetic populations outliers K10

Threats to cockles

- Mortality Events
- Pathogens
- Non Indigenous Species (NIS)

Larvae Tracking models

- Currents (1m, 15m, 30m)
- Larvae Connectivity (1m, 15m, 30m, Averaged)
- Larvae Release Zones

Ecosystem services

- Archaeological Presence
- Landings Amount
- Market Values
- Potential Ecosystem Services Value

GALICIA

Auxiliary layers

- Bathymetry
- Substrate
- Cockle beds

Larvae Tracking models

- Currents (March, April, May, June)
- Larvae Connectivity
- Larvae Release Zones
- Tracking downwelling
- Tracking upwelling

Ecosystem services

- Landings before *Marteilia*
- Landings after *Marteilia*

PORTUGAL

Auxiliary layers

- Substrate
- Cockle Beds

Threats to Cockles

- NIS and Cockle co-occurrence

CELTIC SEA

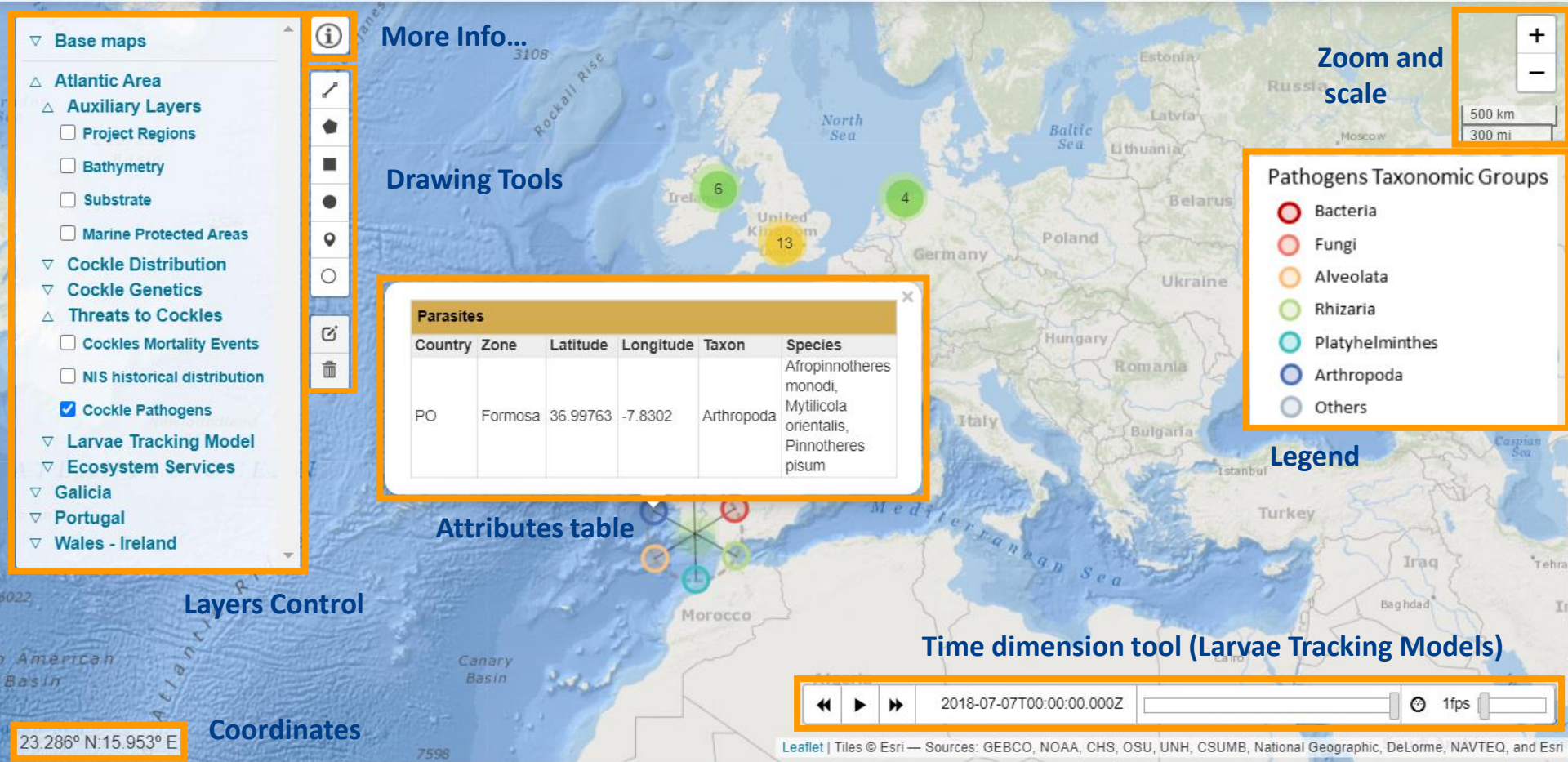
Auxiliary layers

- Substrate
- Cockle Beds





Larvae Tracking models

- Currents (May, June)
- Larvae Connectivity
- Larvae Release Zones
- Tracking May





CO-OPERATION FOR RESTORING COCKLE SHELLFISHERIES
AND ITS ECOSYSTEM SERVICES IN THE ATLANTIC AREA (AA)



BASEMAPS

-  EMODnet Bathymetry
-  Open Street Map
-  ESRI Satellite
-  ESRI Ocean Map

PROJECT REGIONS

-  1 Atlantic Area
-  2 Galicia
-  3 Portugal
-  4 Wales - Ireland



-  1 Atlantic Area
-  1 Auxiliary Layers
-  2 Cockle Distribution
-  1 Cockle Historical Presence

Cockle Historical Presence layer shows the historical geographic distribution of cockles along the Atlantic Area. Data were obtained from the bibliographic review carried out in the framework in the 'Baseline historical survey of common cockle (*Cerastoderma edule*) populations in the Atlantic Area'. All records about cockles' presence, apart from archaeology, were included in order to determine its geographical distribution range.

References were obtained from a wide range of sources, from local knowledge to grey and published literature. Presence records ranged from 1893 to 2017.

Layer attributes:

Name	Description
Source	Bibliographic reference of the record
Latitude	Record latitude in WGS84 decimal degrees
Longitude	Record longitude in WGS84 decimal degrees

This layer was created as a GIS output for WP4 in the 'COCKLES: Co-Operation for Restoring Cockle Shellfisheries and its Ecosystem-Services in the Atlantic Area (AA)' project.

LET'S SEE THE COCKLES GIS VIEWER

Kate Mahony (UCC)

Cockle Distribution

Sara Cabral (FCUL)

Threats to Cockles

Manuel Vera (USC)

Cockle Genetics

Sophie B. Wilmes (BU)

Cockle Larvae Spatial Behaviour

Mathilde Bue (UKCEH)

Cockle Ecosystem Services