CONNECT
local COastal moNitoriNg sErviCe for PorTugal

Sessão de demonstração serviço CONNECT

Lot 4 - Coastal marine (pre)operational services around the European Atlantic Ocean including the North Sea and the Arctic Ocean (22050L04-COP-INNO USER-9000) of the tenderer
Copernicus Marine – User – EU Coastal Monitoring Pilot Demonstrations (22050-COP-INNO USER)

Laboratório Nacional de Engenharia Civil (LNEC)
Faculdade de Ciências da Universidade de Lisboa (FCUL) - Associação para a Investigação e Desenvolvimento de Ciências (FCID)

13/03/2024

COASTNET

COASTAL MONITORING NETWORK

Rede de Monitorização Ambiental

Ana C. Brito

www.coastnet.pt • coastnet@mare-centre.pt

MARE | Ciências ULisboa | UNIVERSIDADE DE ÉVORA

COASTNET
COASTAL MONITORING NETWORK

Promoters

MARE

CoastNet is a MARE research infrastructure that results from a partnership between Ciências (MARE-UL) and the University of Évora (MARE-UÉ).

Ciências ULisboa

UNIVERSIDADE DE ÉVORA

COASTNET
COASTAL MONITORING NETWORK

Implementation Team

José Lino Costa
Coordinator

Ana Brito
Implementation Team

Bernardo Quintella
Implementation Team

Henrique Cabral
Implementation Team

Luís da Costa
Implementation Team

Paola Castellanos
Implementation Team

Paula Chainho
Implementation Team

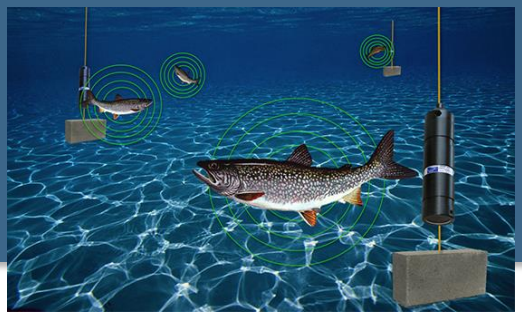
Susana França
Implementation Team

COASTNET
COASTAL MONITORING NETWORK

Funding, Networks and Associations

Cofinanciado por:

Included in the Portuguese Roadmap of Research Infrastructures (RNIE Environmental Sciences)



COASTNET
COASTAL MONITORING NETWORK

Mission

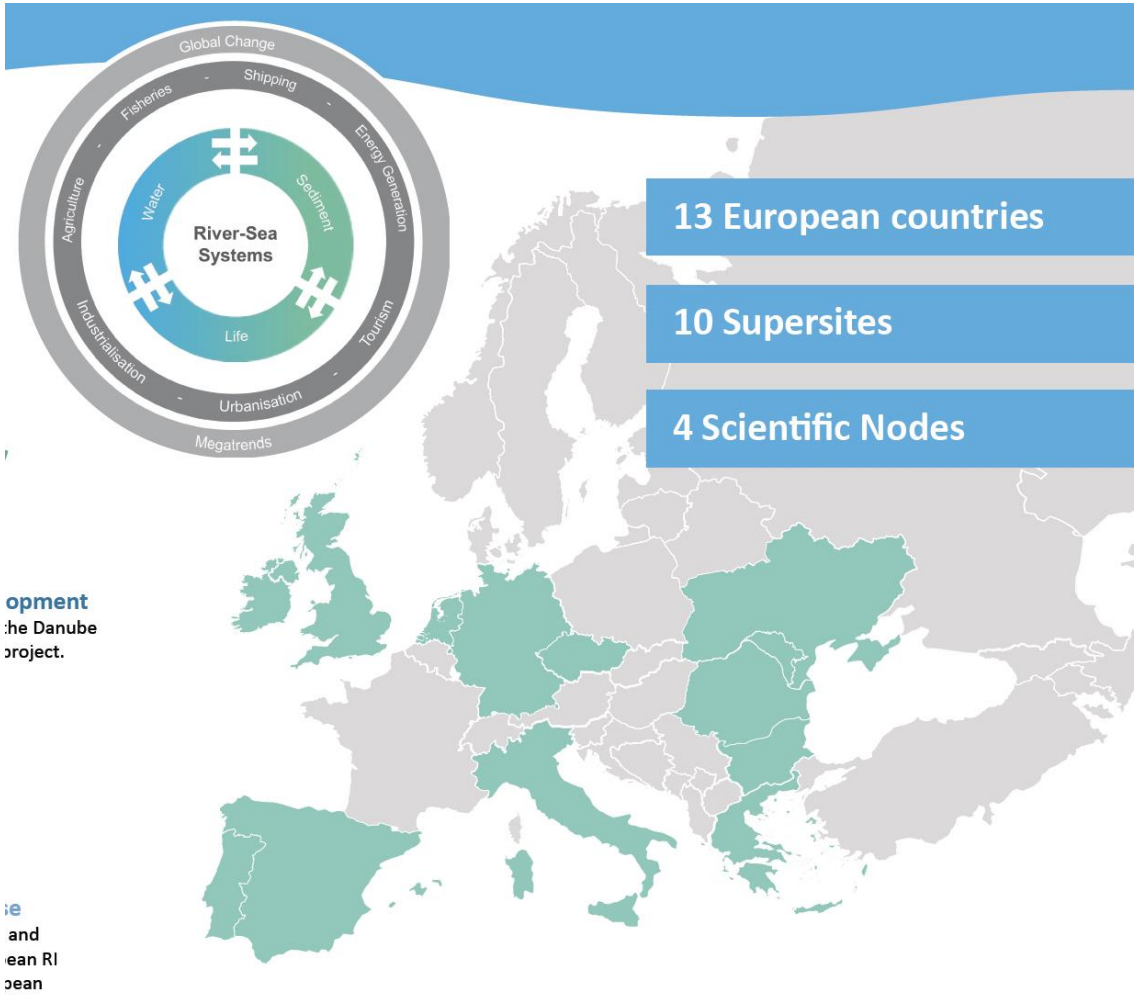
CoastNet is a research infrastructure dedicated to studying the functioning of ecosystems and promoting the sustainable use of the coastal zone.

COASTNET
COASTAL MONITORING NETWORK

Funding, Networks and Associations

CoastNet is now part of the EU **DANUBIUS** Research Infrastructure (**DANUBIUS-RI**)

COASTNET
COASTAL MONITORING NETWORK



opment
he Danube
roject.

e
and
ean RI
pean

DANUBIUS-RI

Mission: facilitate and contribute excellence science to the continuum from river to sea

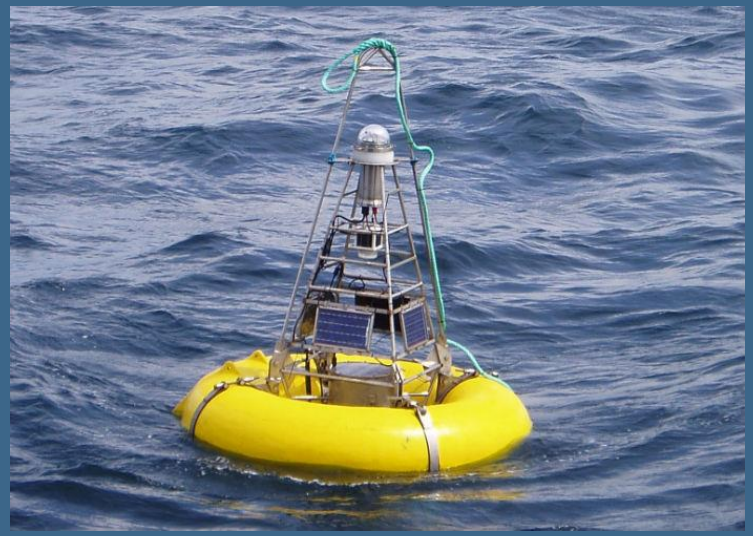
Vision: achieve healthy River-Sea Systems and sustainable use

Goal: to overcome fragmentation of science,knowledge, data & management

COASTNET
COASTAL MONITORING NETWORK

COASTNET
COASTAL MONITORING NETWORK

Objectives



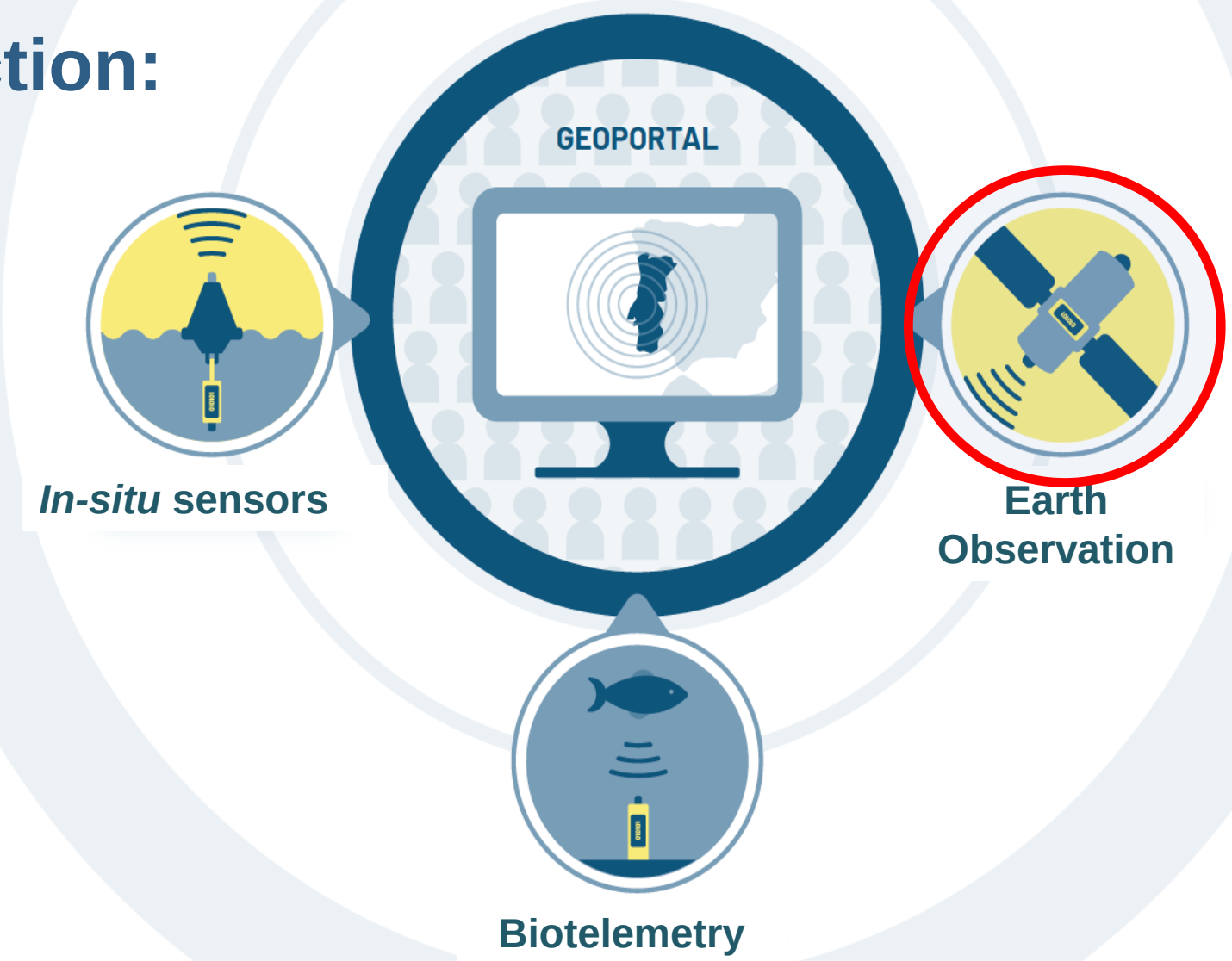
- ✓ **Promote observations and measurements on the Portuguese coast, either remotely or on the water, predominantly continuously;**
- ✓ **Integrate and allow the visualization of the data obtained;**
- ✓ **Allow free and near real-time access to the data collected, as well as to historical data compiled;**
- ✓ **Develop a set of products and indicators for the coastal zone;**

COASTNET
COASTAL MONITORING NETWORK

Action Lines

1. The Coastal Remote Sensing System (CRSS)
2. The Portuguese Tracking Network (PTN)
3. The Environmental and Biological Monitoring System (EBMS)
4. Web-based CoastNet Platform (WBCP) (Geoportal)

Lines of Action:



COASTNET
COASTAL MONITORING NETWORK

Coastal Remote Sensing System (CRSS)

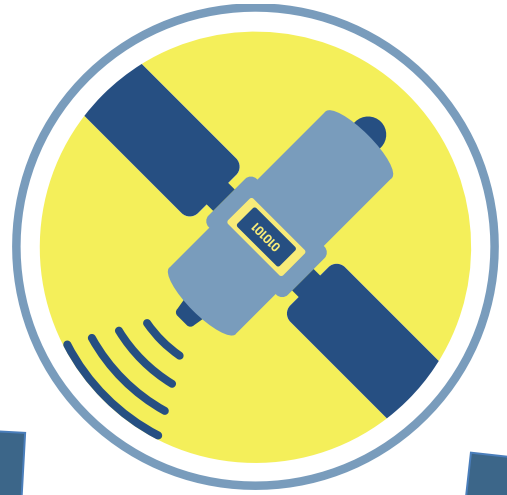
Objectives

- ✓ Aggregate satellite data for the PT coastal region and make them available – *Standard*
- ✓ Develop new products for our coastal zone (UI), freely available from Geoportal – *indicators*
- ✓ Temporal dataseries (~20/30 years worth of data) vs NRT monitoring

COASTNET
COASTAL MONITORING NETWORK

Coastal Remote Sensing System (CRSS)

Data Providers



Sentinel Data Hub

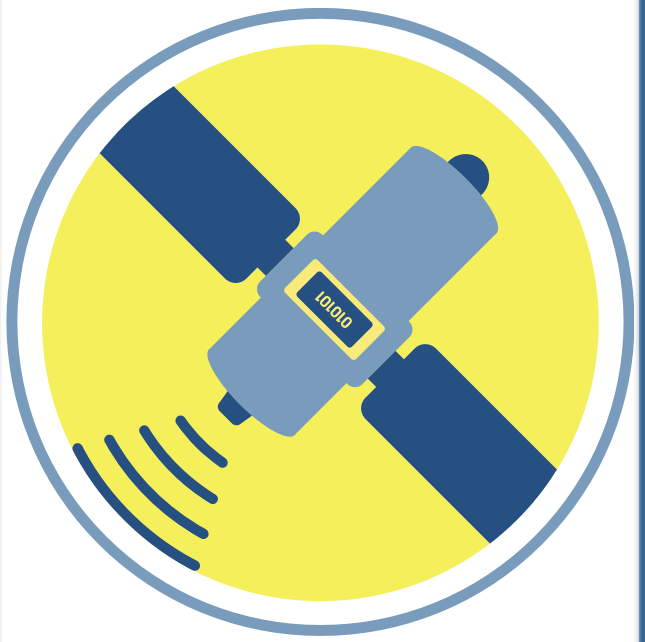
Copernicus Marine Environment Monitoring Service (CMEMS)

SMOS data

COASTNET
COASTAL MONITORING NETWORK

Coastal Remote Sensing System (CRSS)

Products available (*standard*)

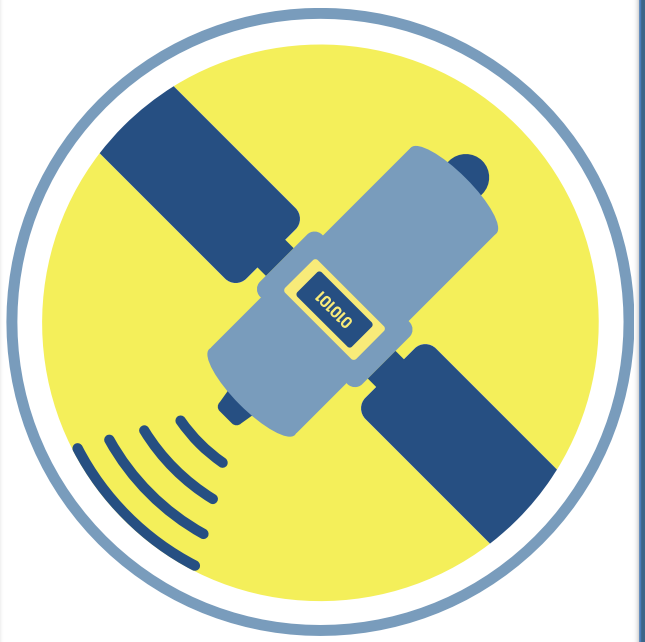


- Temperature (SST)
- Chlorophyll *a*
- Sea Surface Height
- Wind Speed/Stress
- Sea water velocity
- Salinity

COASTNET
COASTAL MONITORING NETWORK

Coastal Remote Sensing System (CRSS)

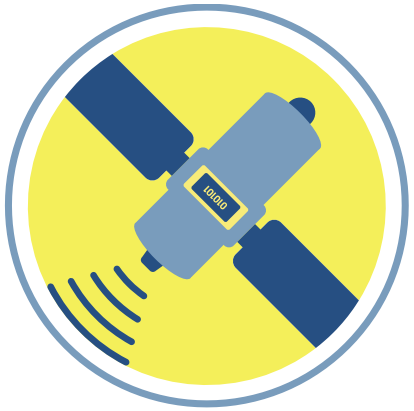
New products (*indicators*)



- **Upwelling Index**
- **Fronts**
- ***Phytoplankton size class***
- **Water Quality Index**

COASTNET
COASTAL MONITORING NETWORK

Coastal Remote Sensing System (CRSS)



Satellite Data

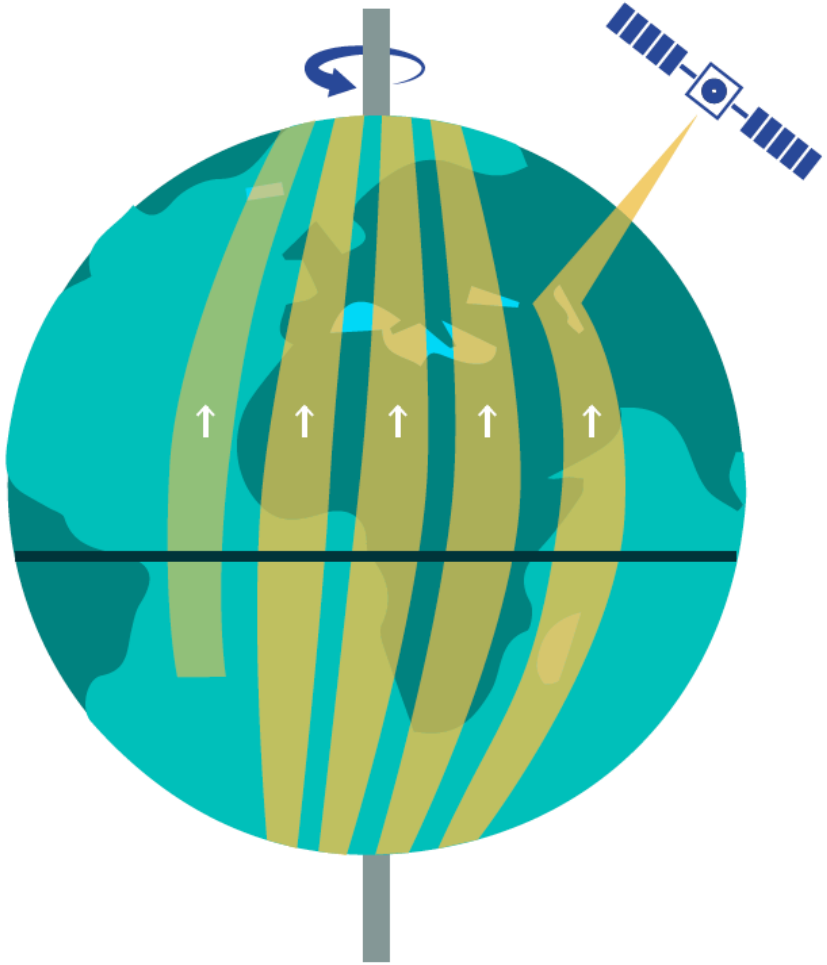
Access to data, download and processing using:
INCD Cluster (National Distributed Computing Infrastructure)

All data available in the CoastNet's Geoportal

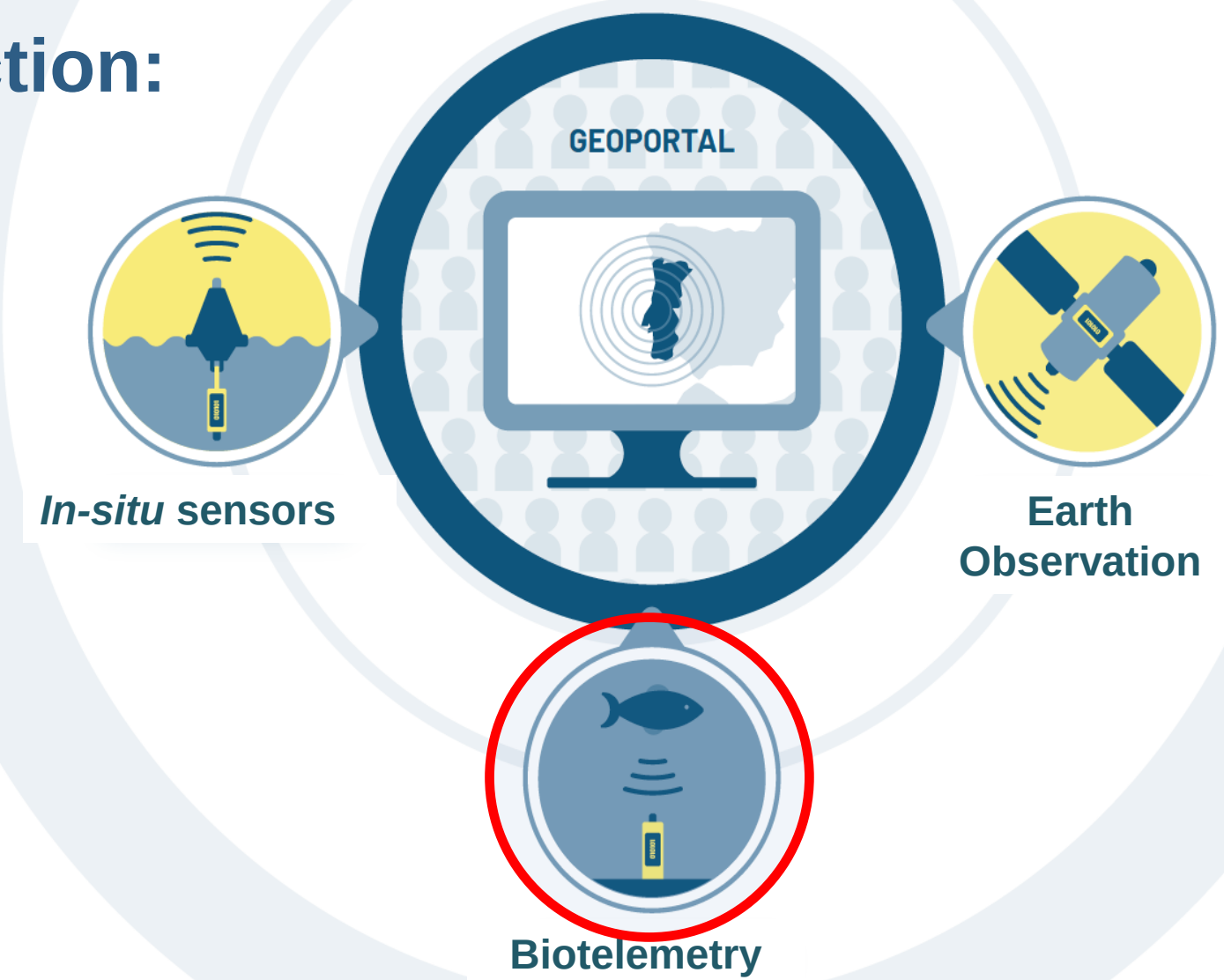
COASTNET
COASTAL MONITORING NETWORK

Importance of RS data in Coastnet

- Time-series & NRT data
- Development of new products to comply with EU Directives (e.g. WFD, MSFD)
- Integration of different data sources: **i)** satellite; **ii)** in-situ sensors; **iii)** biotelemetry receivers; **iv)** historical data



Lines of Action:



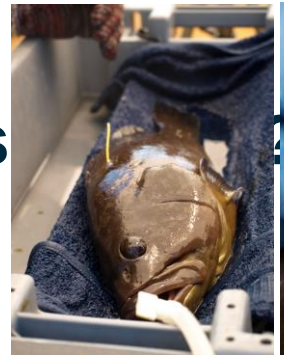
COASTNET
COASTAL MONITORING NETWORK

Portuguese Tracking Network

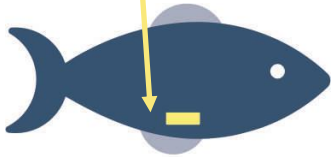
- **For what?** Monitoring movement of aquatic organisms;
- **Where?** Coastal zone, estuaries and rivers;
- **How?** Record of acustic signal transmitted by animal tags

COASTNET
COASTAL MONITORING NETWORK

How does



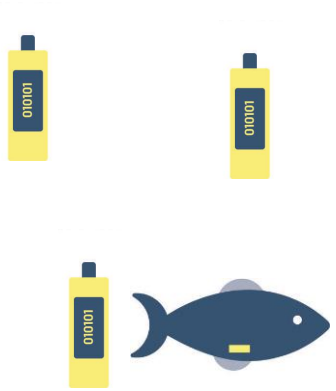
Acoustic Transmitter



Acoustic Receiver

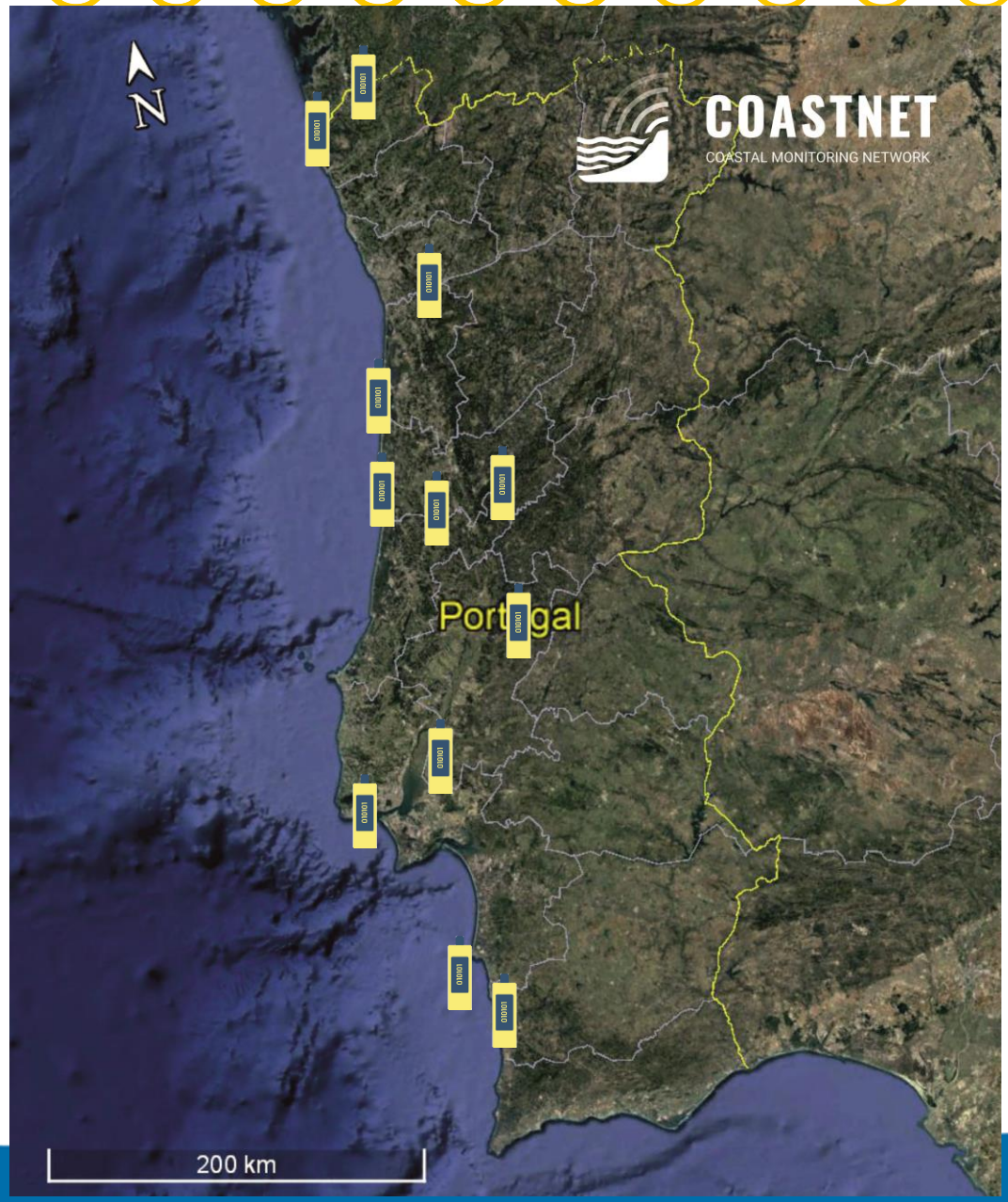
COASTNET
COASTAL MONITORING NETWORK

How does it work?



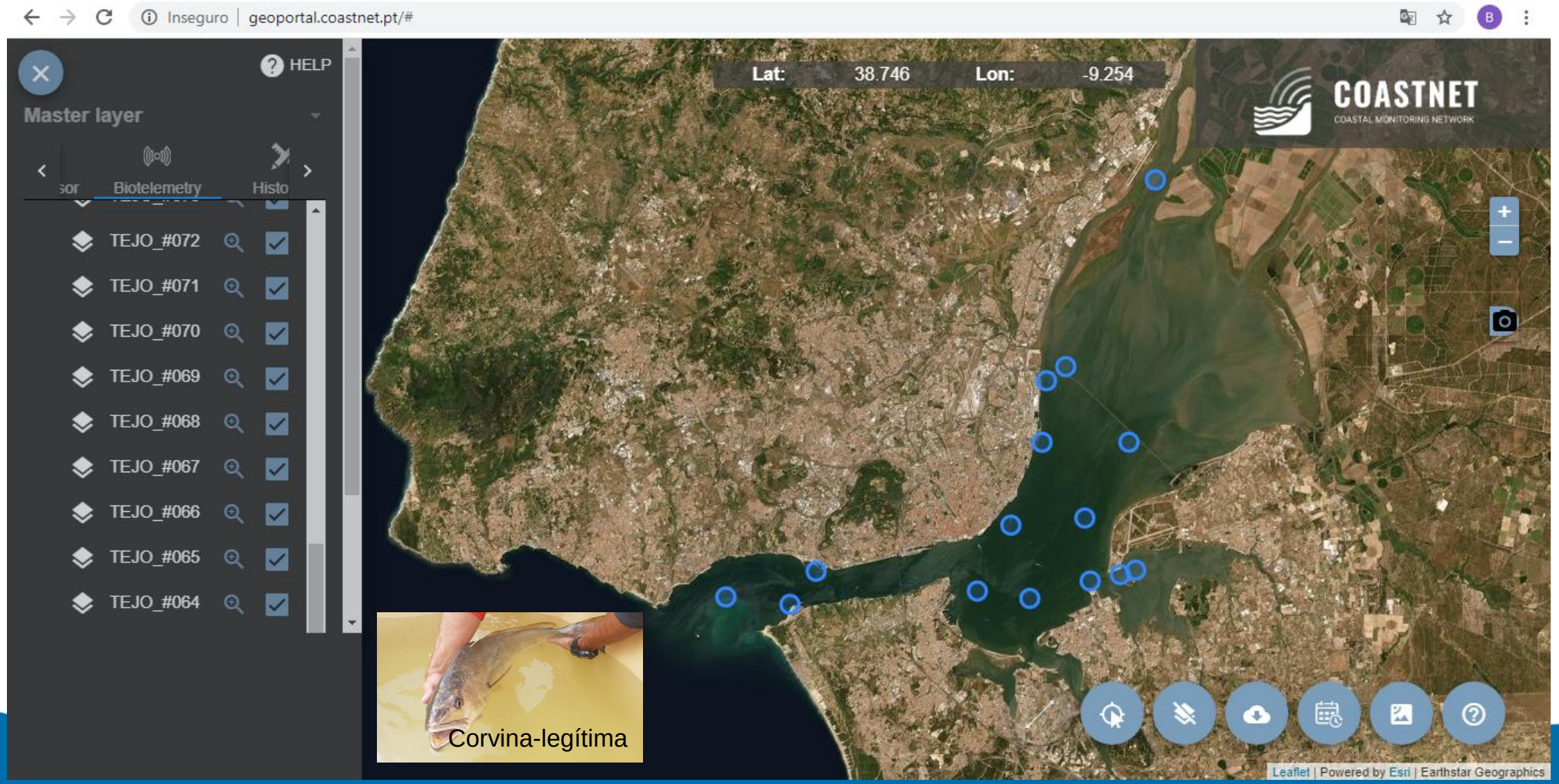
COASTNET
COASTAL MONITORING NETWORK

Portuguese Tracking Network



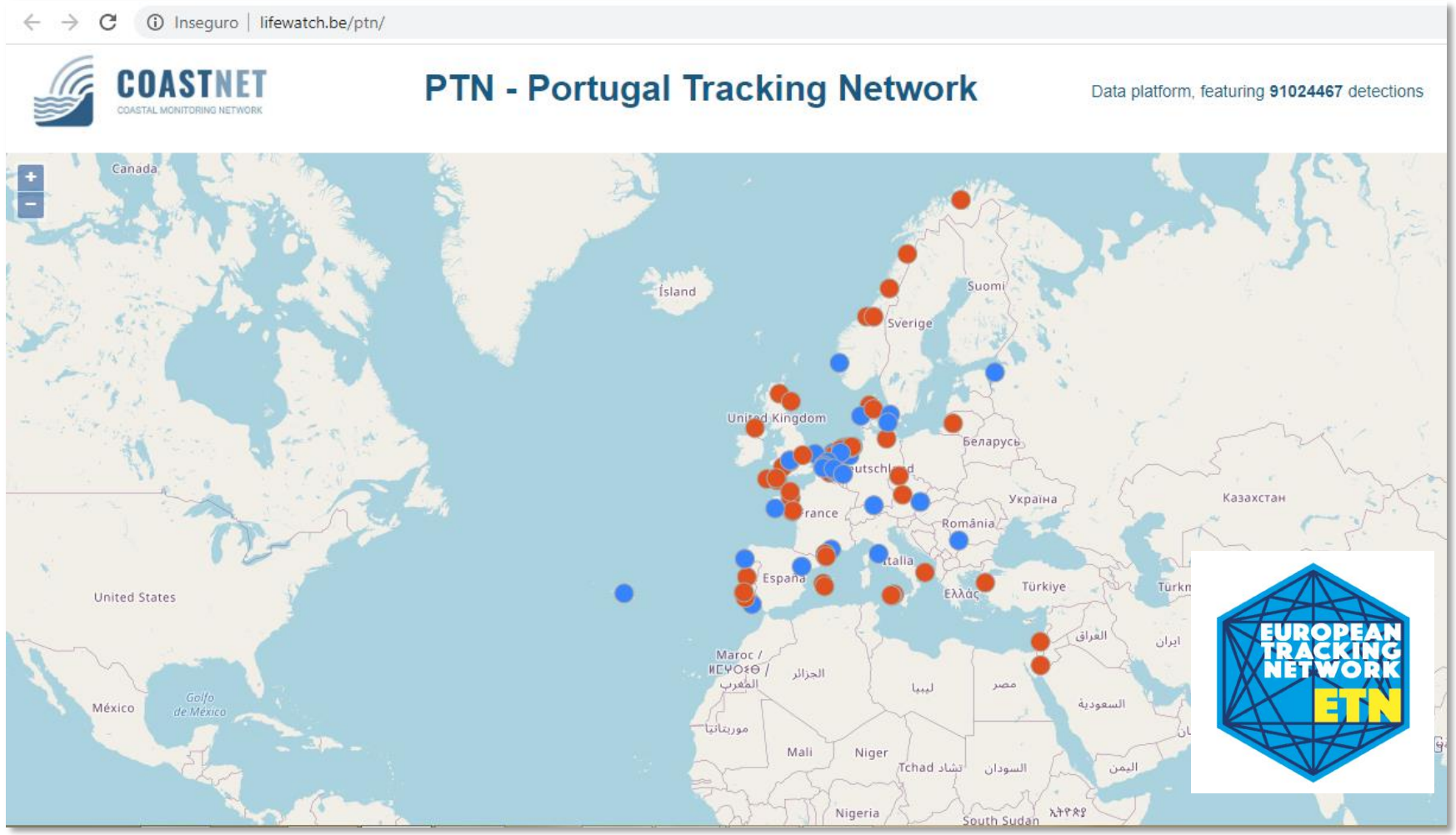
COASTNET
COASTAL MONITORING NETWORK

Tejo estuary - Local Network

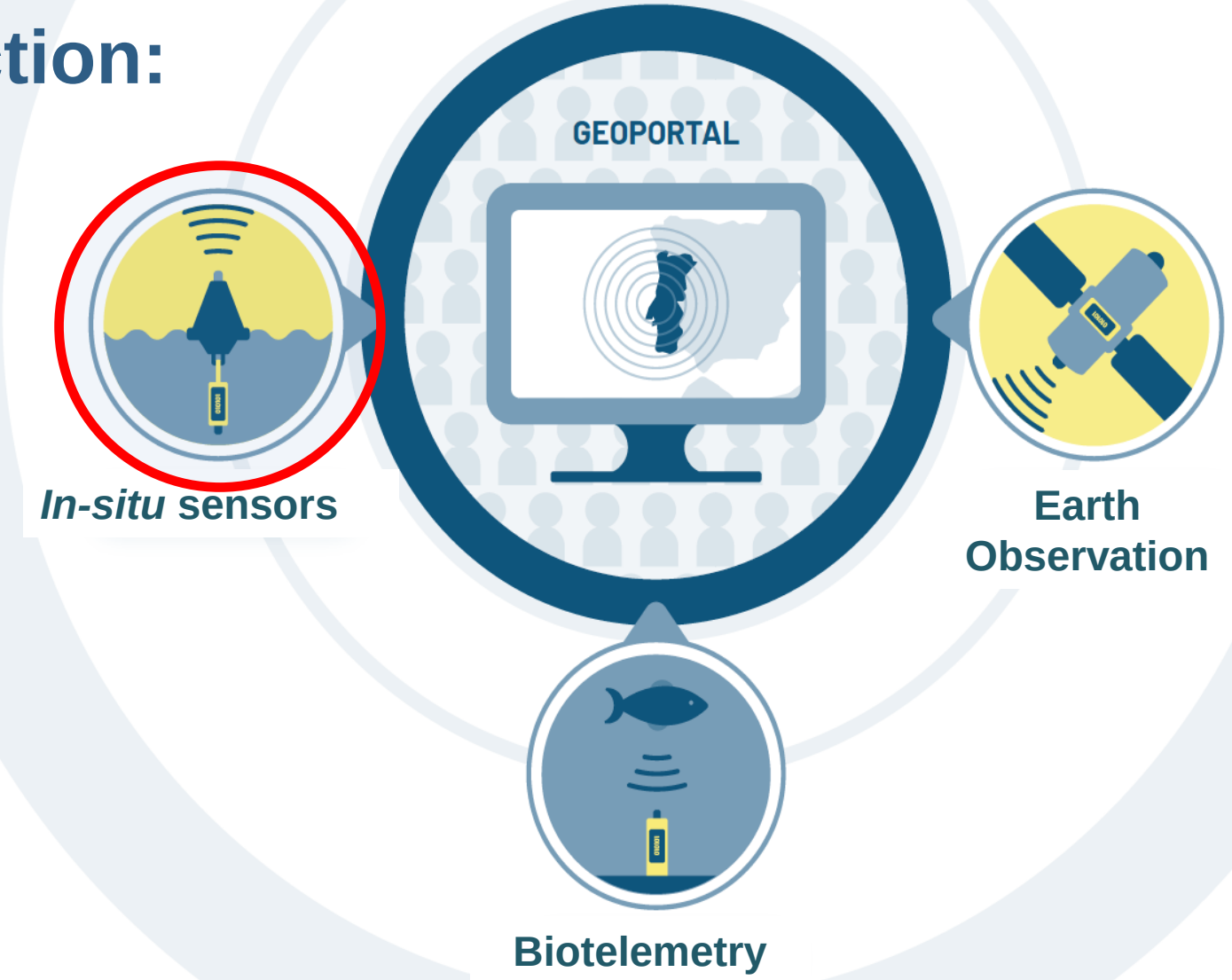


COASTNET
COASTAL MONITORING NETWORK

Data sharing Platform



Lines of Action:



COASTNET
COASTAL MONITORING NETWORK

Environmental and Biological Monitoring System (EBMS)

Objectives

- ✓ Continuous and autonomous measurement of environm. parameters
- ✓ Key parameters for studying the structure of aquatic biological communities
- ✓ 3 estuarine systems
- ✓ 3 buoys in each system that cover the salinity gradient

COASTNET
COASTAL MONITORING NETWORK

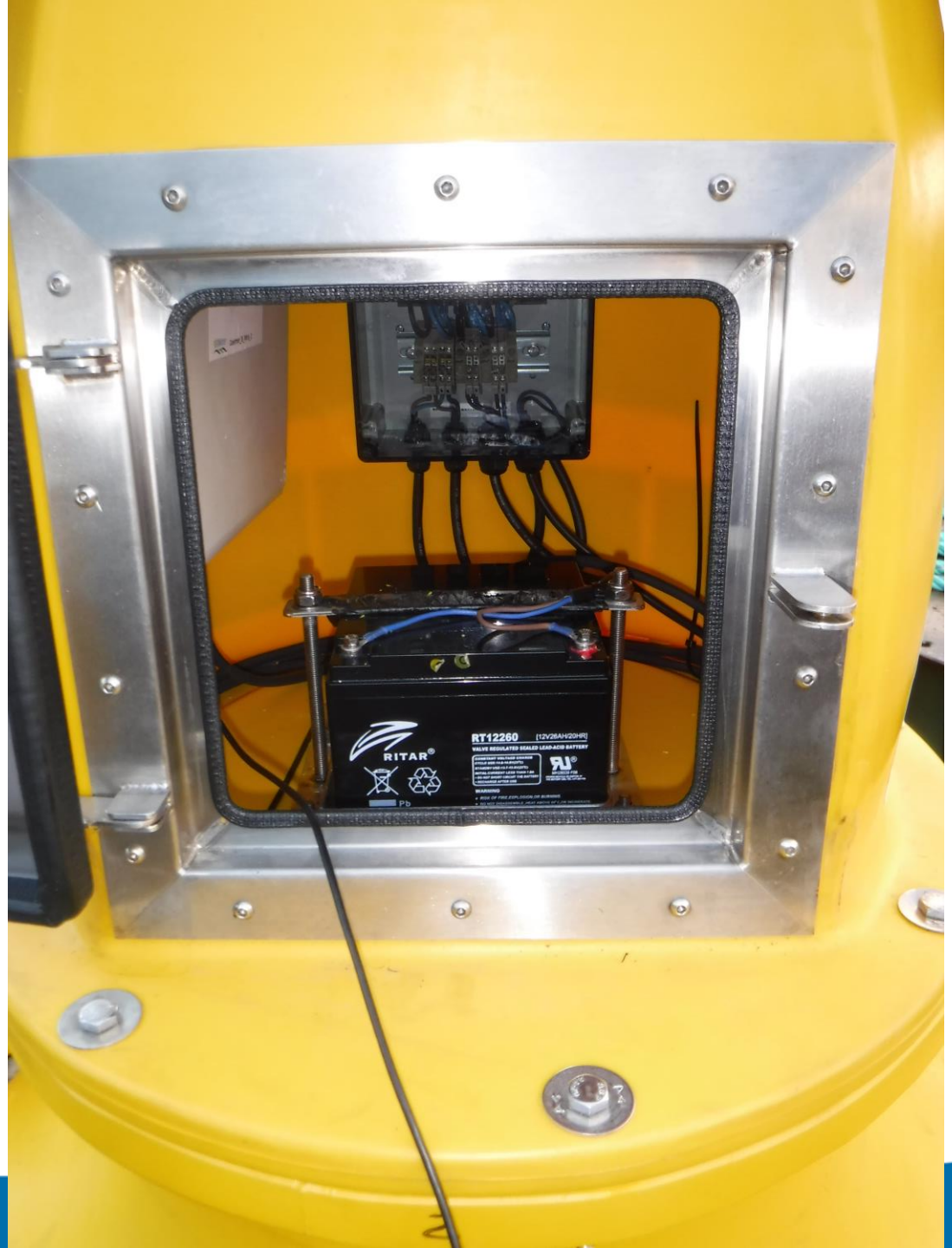
Mira Estuary – Location and Deployment

June 2019

2500
Super
Silent
COASTNET

Deployment of the EBMS-Mira in June 2019

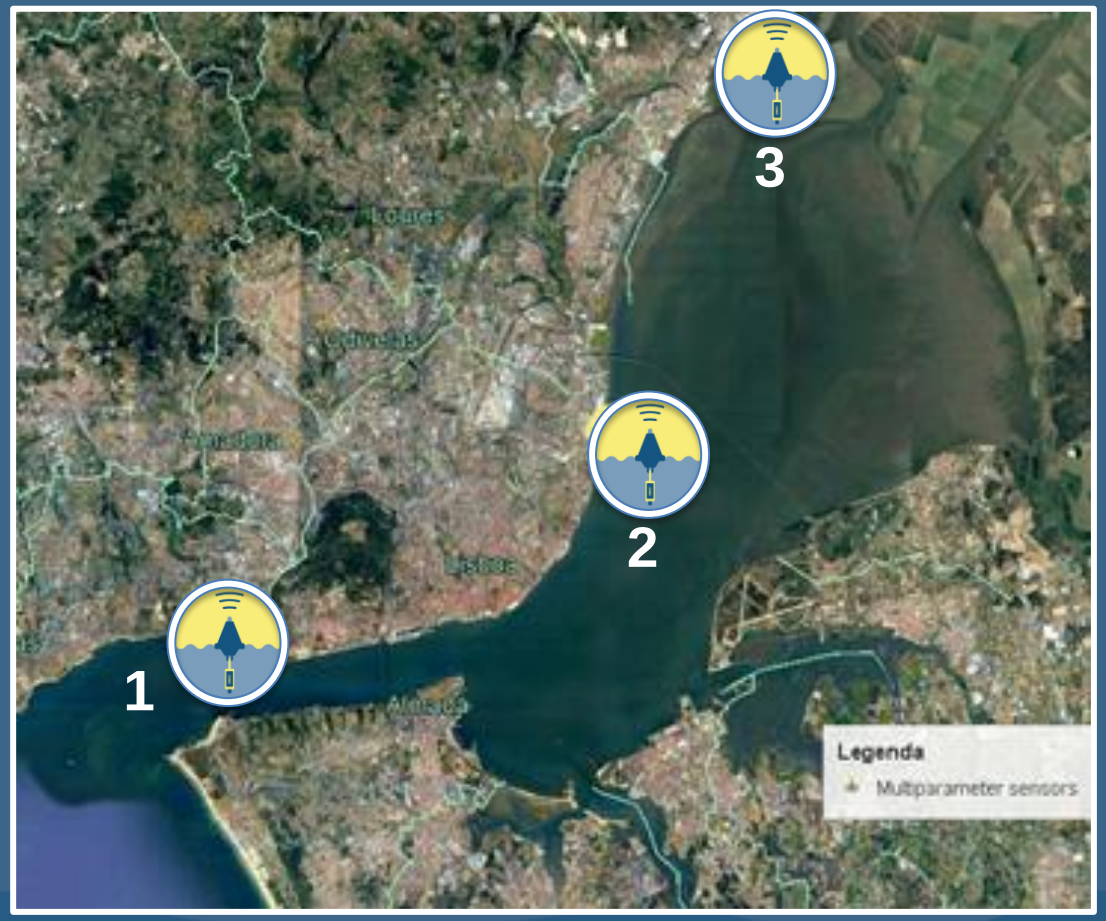
concrete anchors - 3 Tons


RITAR
RT12260
[12V26AH/20HR]

COASTNET
COASTNET
MARE
Ciências ULisboa

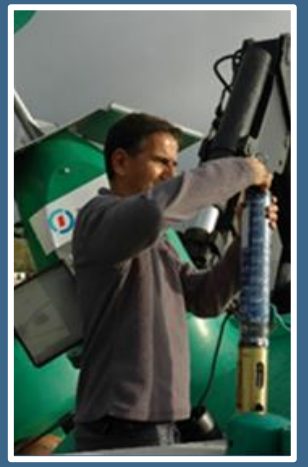
COASTNET
COASTAL MONITORING NETWORK

Tejo Estuary – Location and Deployment



Sept-Oct 2019

Porto de Lisboa



COASTNET

COASTAL MONITORING NETWORK

Porto de Lisboa

Deployment of the EBMS-Tejo in September 2019

COASTNET

COASTAL MONITORING NETWORK

Porto de Lisboa

COASTNET
COASTAL MONITORING NETWORK

Mondego Estuary – Location and deployment

Oct-Nov 2019

COASTNET
COASTAL MONITORING NETWORK

Environmental Parameters and System characteristics

- Salinity
- Temperature
- Dis. Oxygen
- pH
- Chlorophyll *a*

- Solar Panels
- GPS
- Off Station Alarm
- Always at surface (~0.5m)

COASTNET
COASTAL MONITORING NETWORK

Measurement and Data transmission

Measurements every 15 min

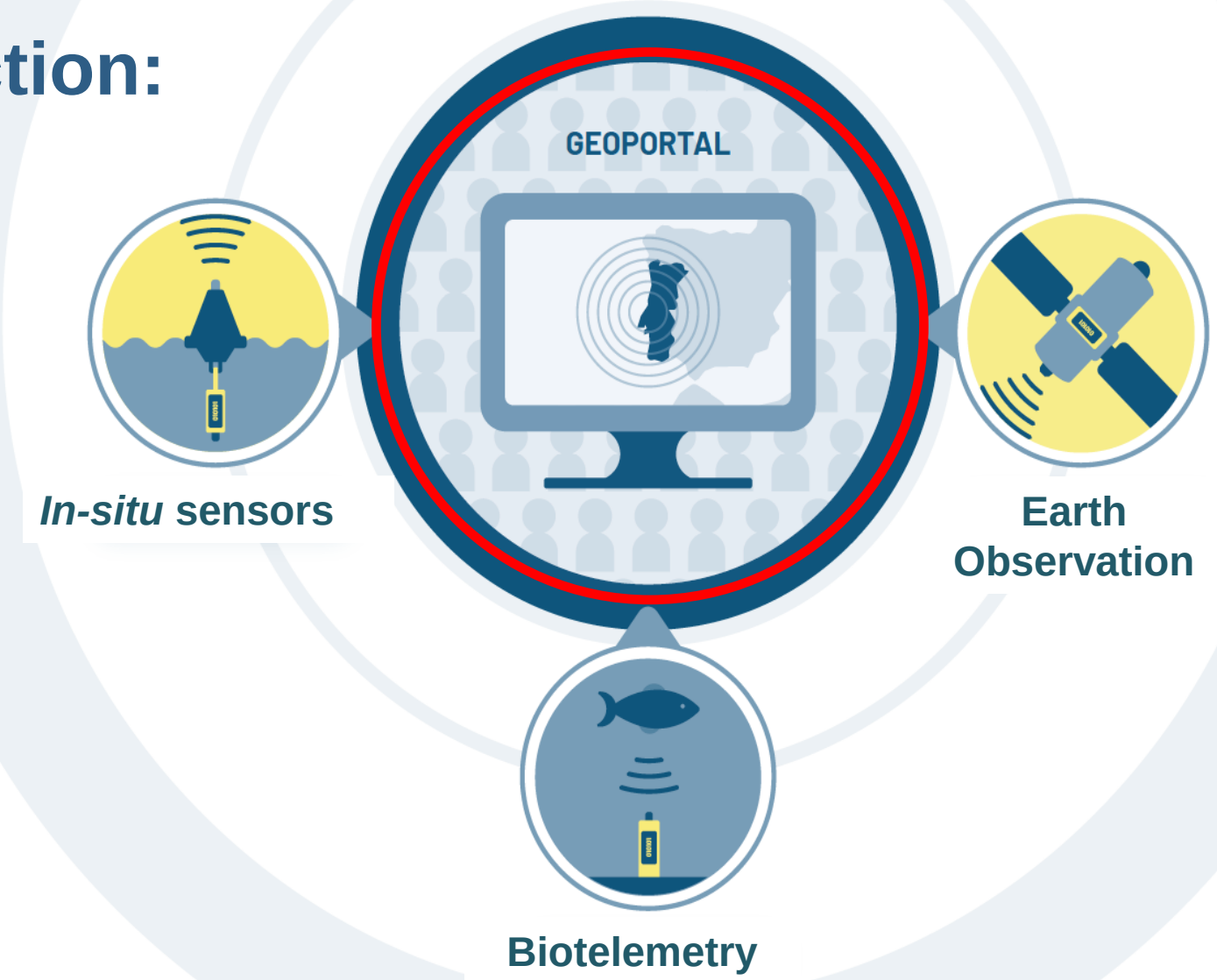
Data storage at logger

Data transmitted (GPRS) 4 times per day

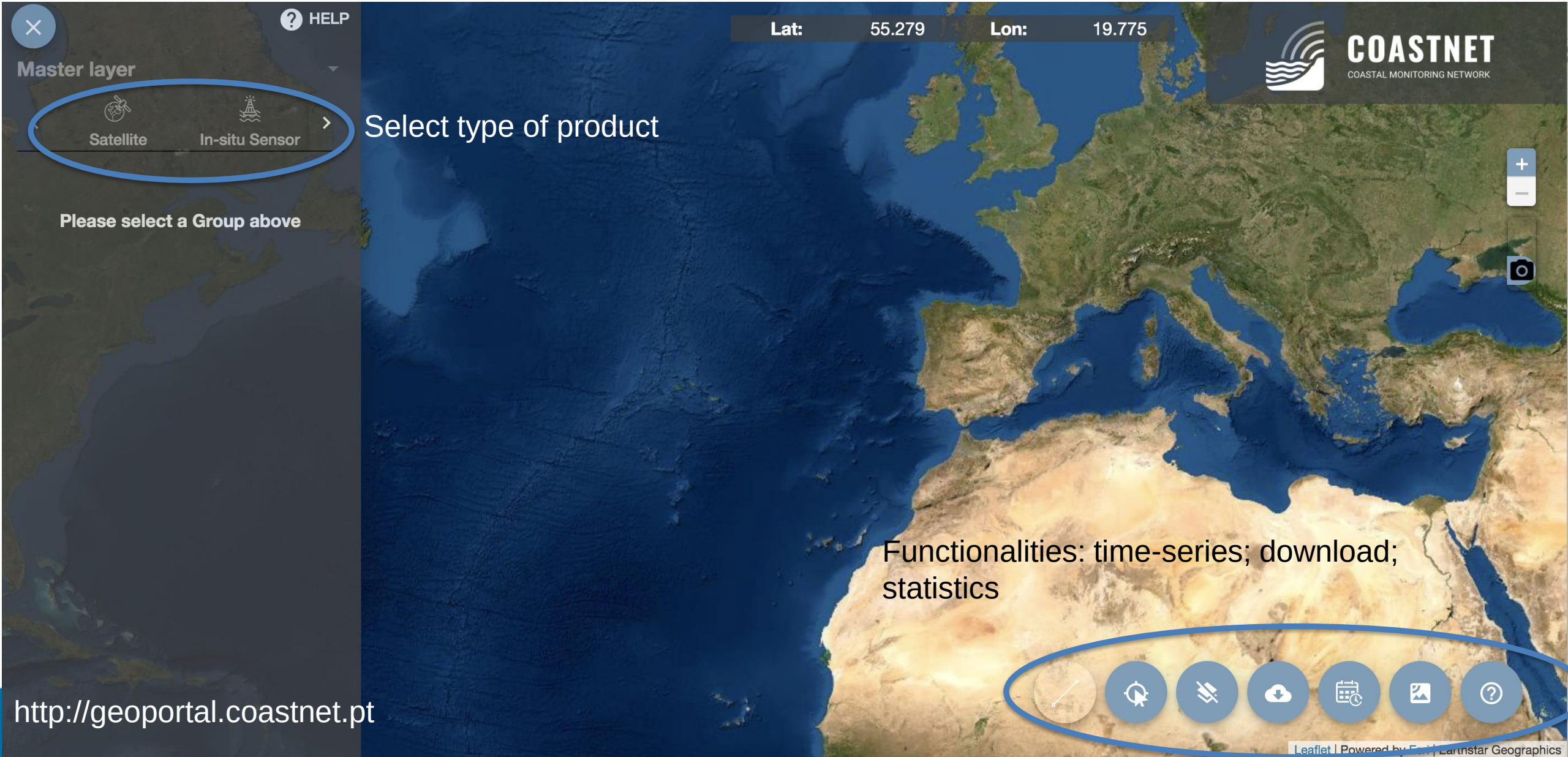
Data available in the Geoportal

- ✓ NRT (NRT)
- ✓ Time Series

Lines of Action:



COASTNET
COASTAL MONITORING NETWORK



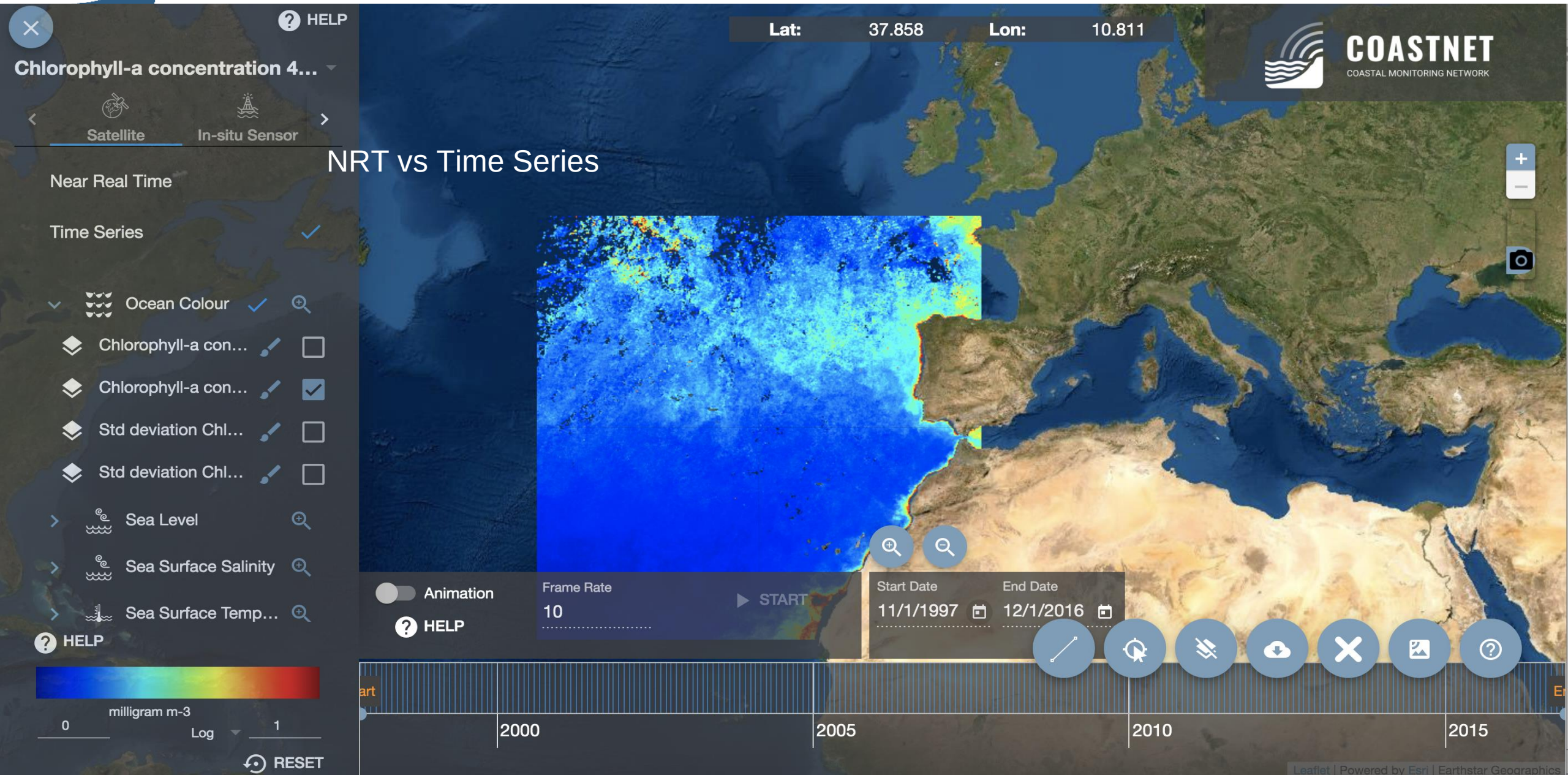
Select type of product

Functionalities: time-series; download; statistics

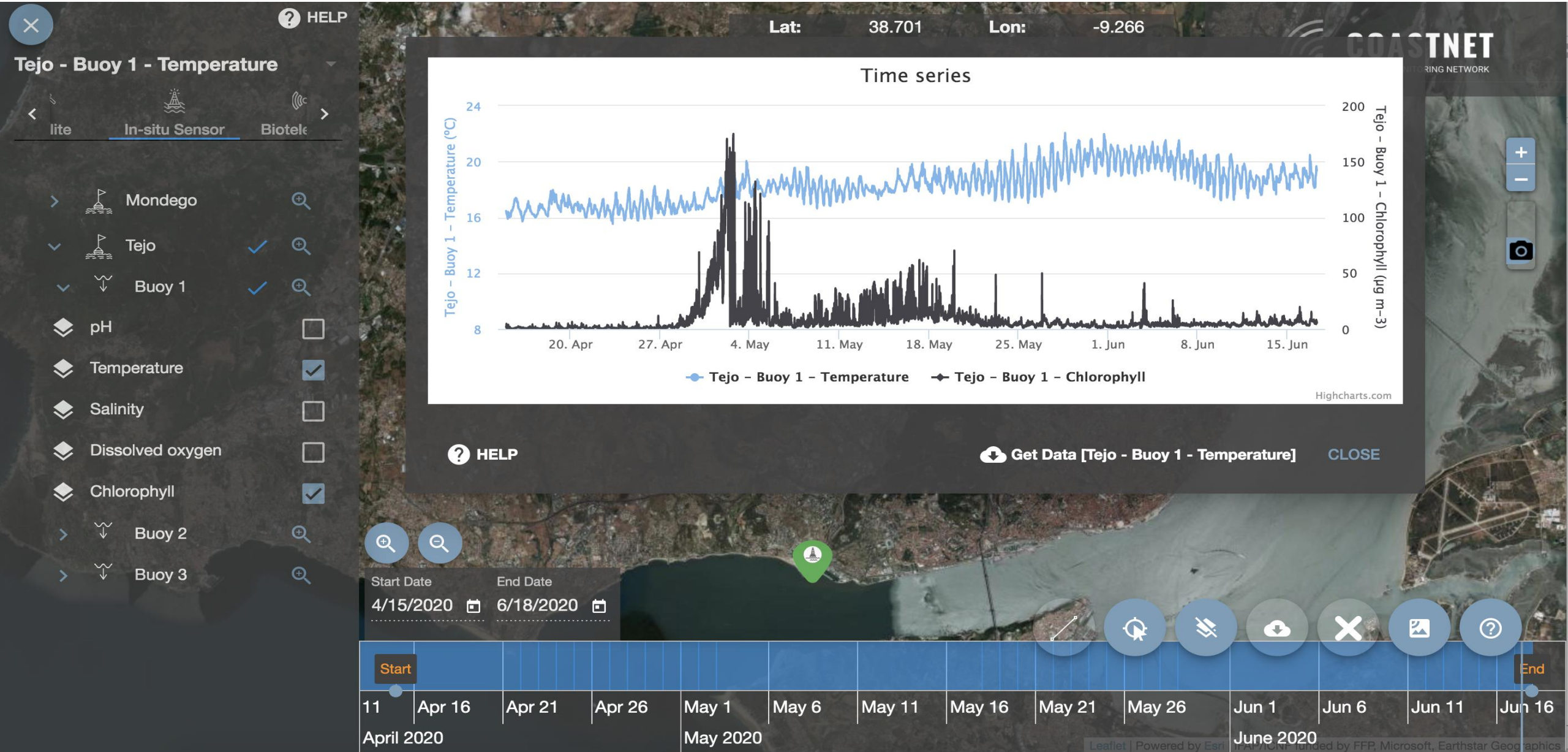
http://geoportal.coastnet.pt

COASTNET
COASTAL MONITORING NETWORK

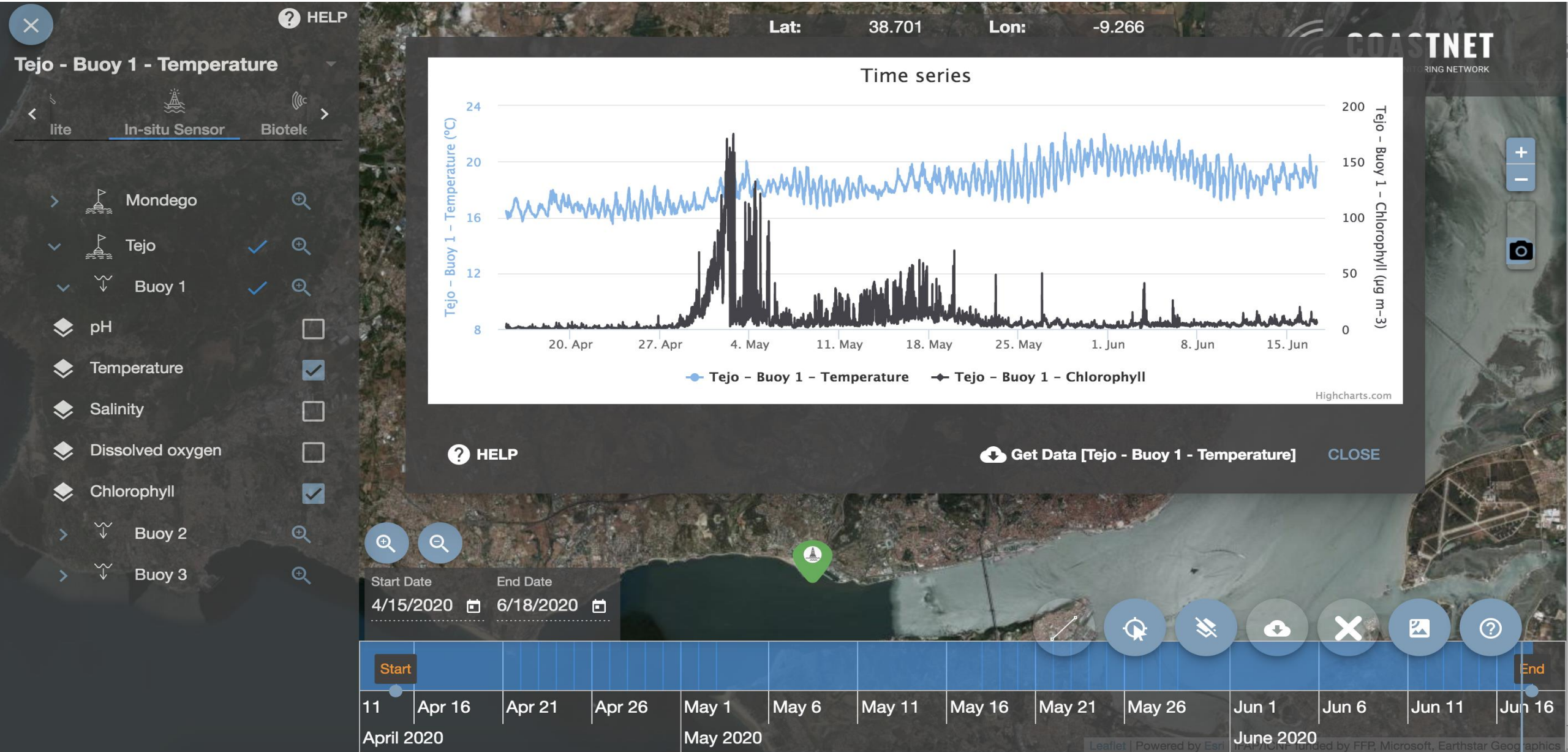
NRT vs Time Series



COASTNET
COASTAL MONITORING NETWORK

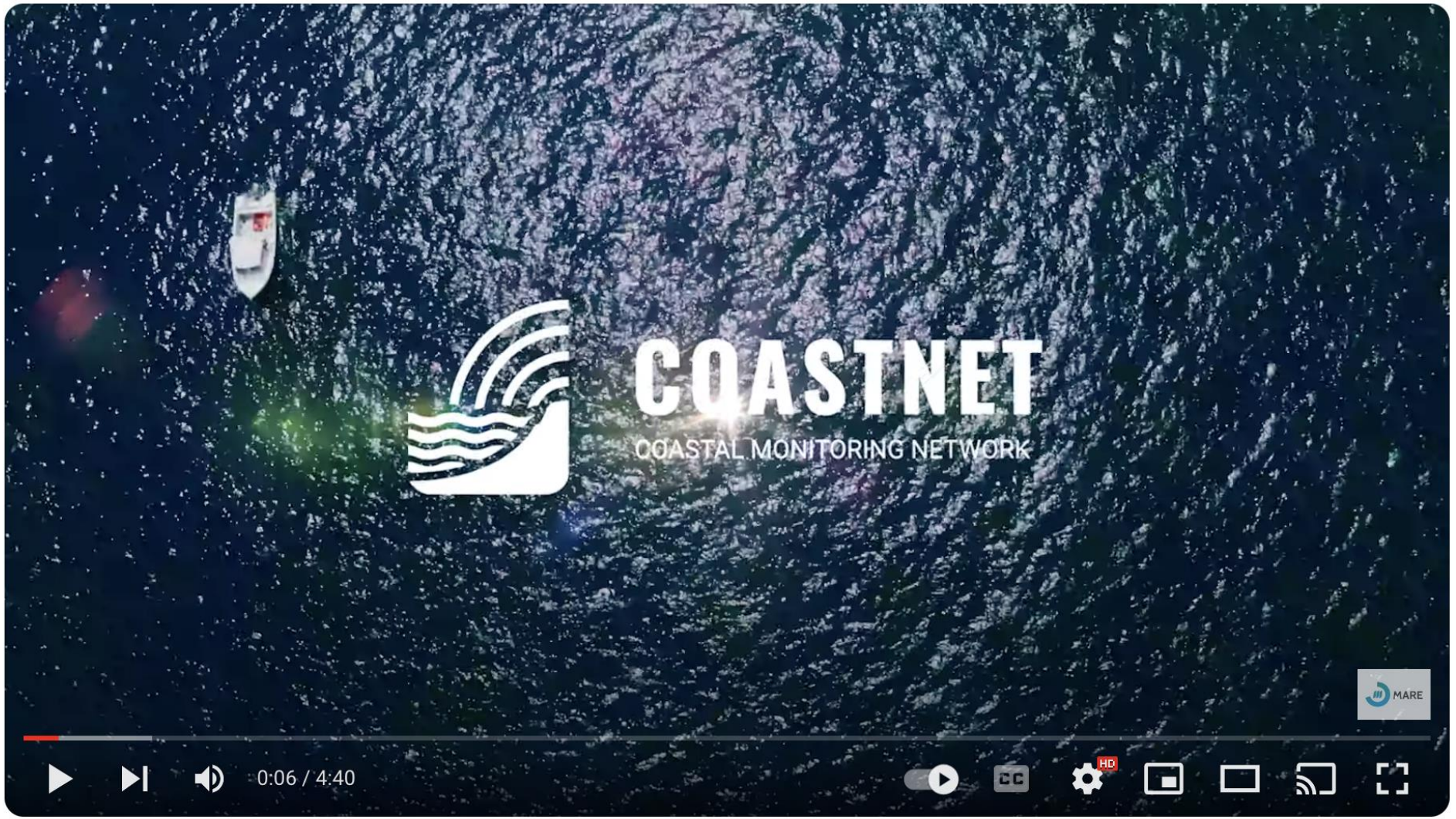


COASTNET
COASTAL MONITORING NETWORK



YouTube PT

Search



Conheça a Coastnet

https://www.youtube.com/watch?v=Zu22kCPUTxM

MARE - Centro de Ciências do Mar e do

364 subscribers

Subscribe

4

Share

Download

COASTNET
COASTAL MONITORING NETWORK

www.coastnet.pt • coastnet@mare-centre.pt

MARE

Ciências ULisboa

UNIVERSIDADE DE ÉVORA

Financiamento

FCT Fundação para a Ciência e a Tecnologia

Cofinanciado por:

PORTUGAL 2020

UNIÃO EUROPEIA
Fundo Europeu de Desenvolvimento Regional

Lisb@20[20]

ALENTEJO 2020

Muito obrigada !

acbrito@fc.ul.pt