ODYSSEA

Creating products and knowledge
for the Mediterranean

MARINOMICA END-USER SERVICES & CONTRIBUTION TO POLICY PROCESSES

Final Conference

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727277

Mediterranean policy challenges

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- Vulnerable ecosystems
- Overexploitation
- Pollution
- Climate change
- Extreme events
- Limited coastal protection

Images taken from UNEP/MAP MedQSR 2017

Knowledge base for policy processes

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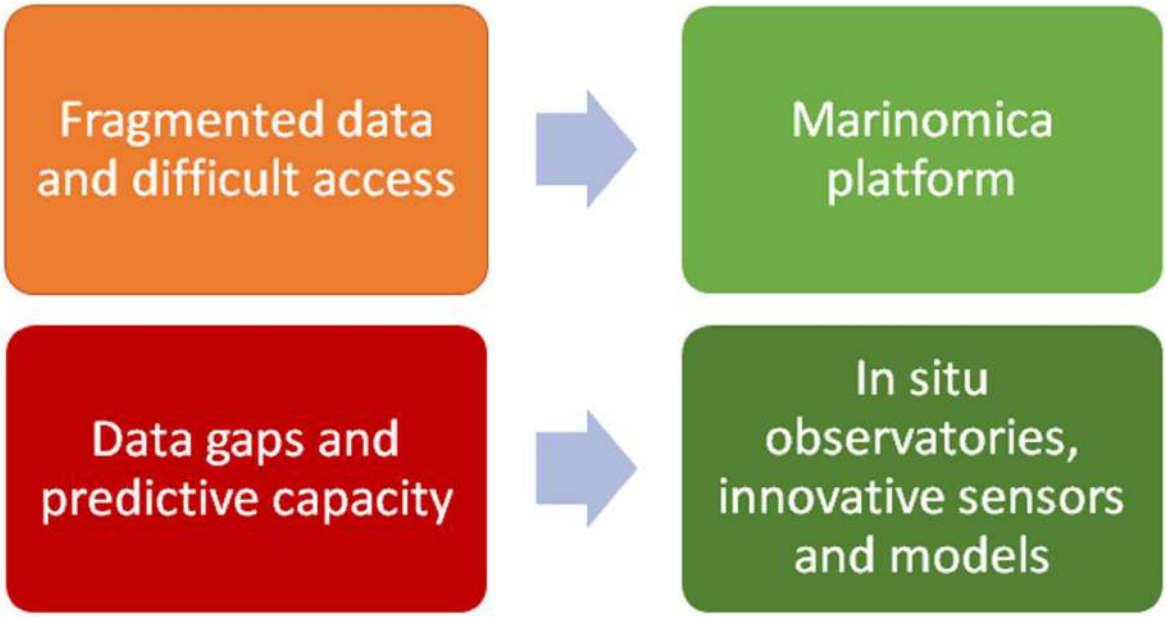

- Accessible
- Comprehensive
- Predictive

Contribution to policy challenges

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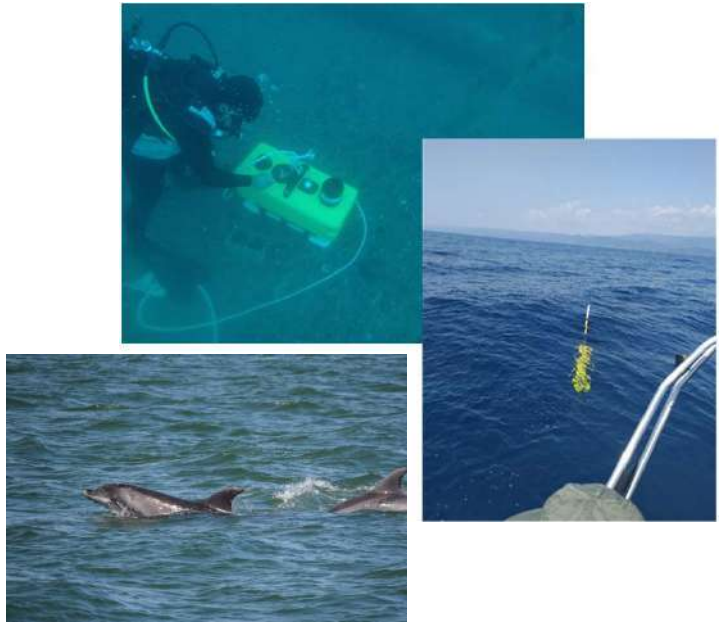
Ecosystem resilience

- Jellyfish biophysical model
- Understanding seagrass habitats
- Bioacoustics for marine mammals



Sustainable fisheries

- Ecosystem status assessment
- Fish species distribution dynamics

Contribution to policy challenges

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Pollution monitoring

- Microplastics sensor
- Ballast water monitoring
- Eutrophication indices

Coastal protection

- Shoreline evolution and coastal erosion indices
- Tracking extreme events

Mitigating climate change impacts

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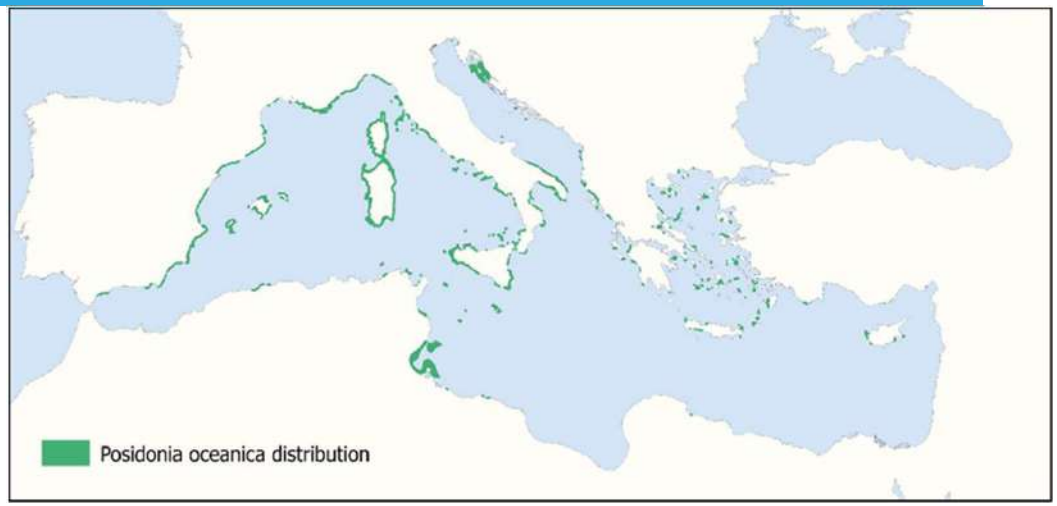
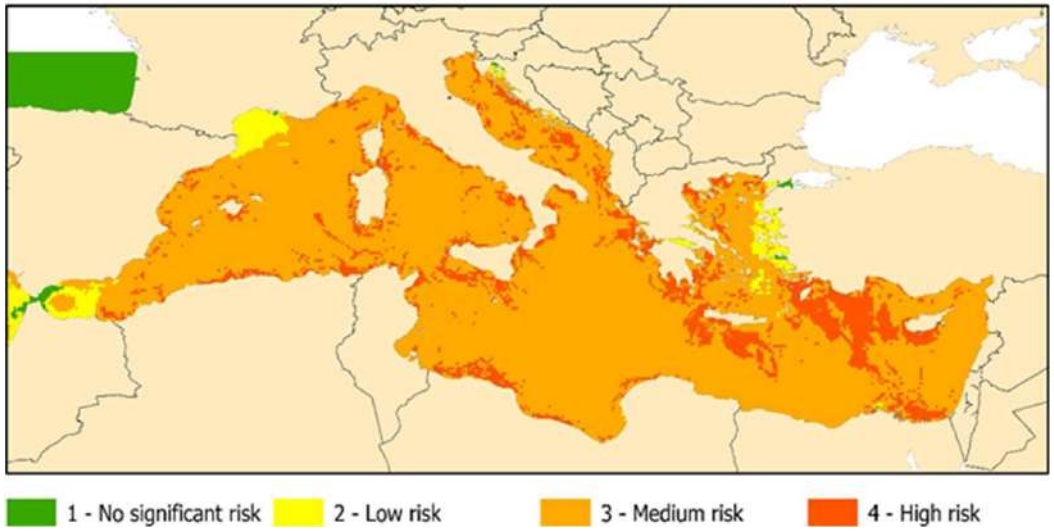
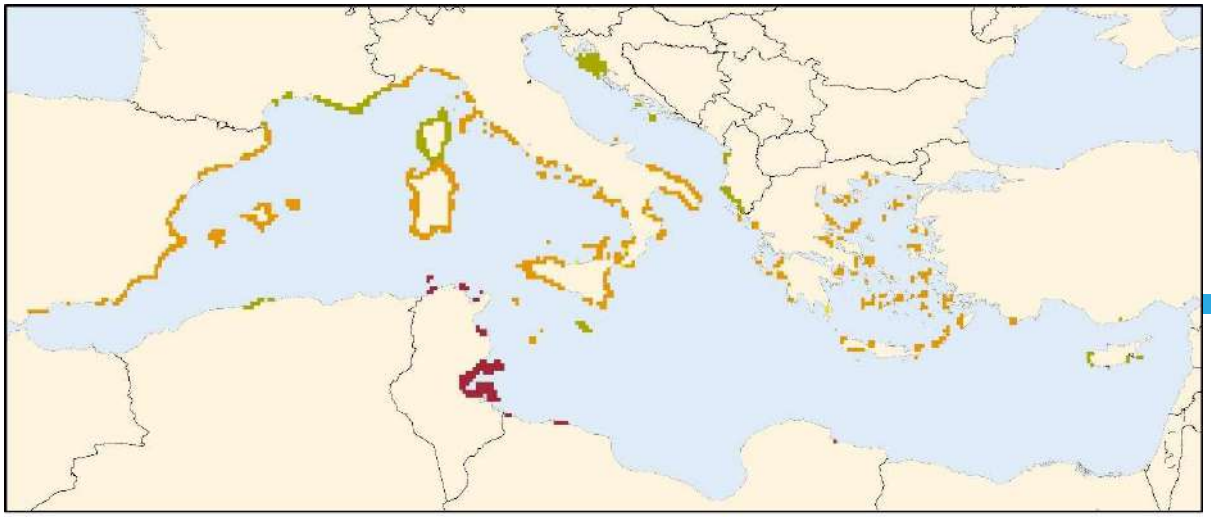
Applying Environmental Sensitivity Mapping to the potential impact of marine heatwaves on seagrass in the Mediterranean



Susceptibility of Posidonia oceanica to marine heatwaves





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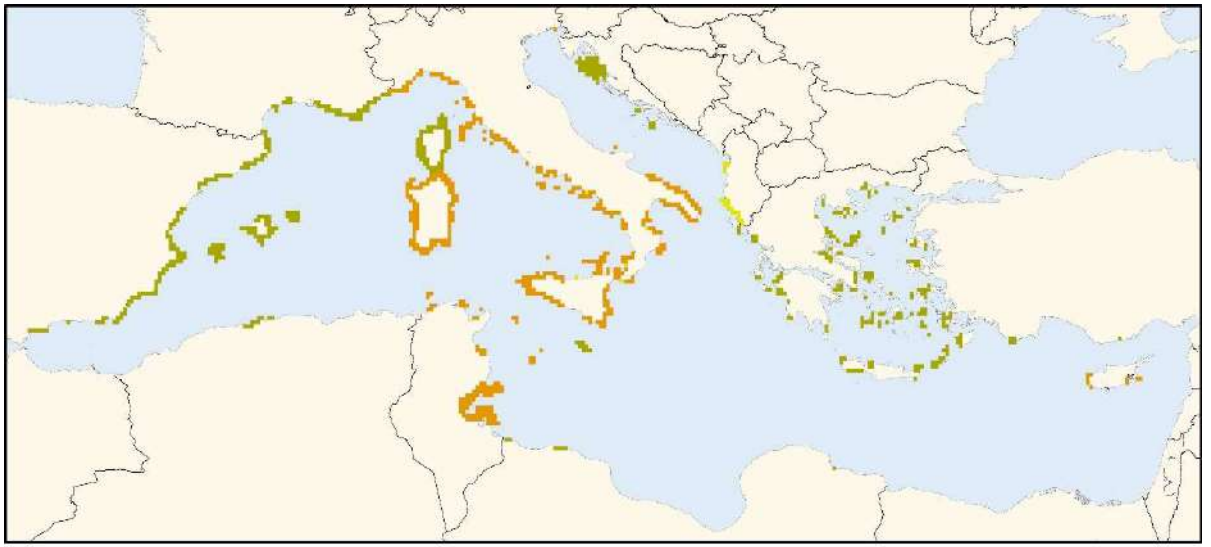
Environmental Sensitivity: Fisheries

- Very high
- High
- Moderate
- Low



Environmental Sensitivity: Coastal hazards

- High
- Moderate
- Low

Engagement at three levels

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Regional policy processes

- Monitoring under UNEP/MAP Integrated Monitoring and Assessment Programme (IMAP) and EU Marine Strategy Framework Directive (MSFD)
- Knowledge base for BlueMed

2017 QSR clusters	IMAP Ecological Objectives	IMAP Common Indicators	ODYSSEA data, sensor systems and models
Biodiversity and ecosystems	Biodiversity and ecosystems (EO1)	Species distributional range of marine mammals (CI3 MM)	In situ sensor: hydrophone
Land and sea-based pollution	Eutrophication (EO5)	Chlorophyll a concentration in the water column (CI14)	In situ sensor: Chlorophyll a Delft3D-WAQ water quality model
	Marine litter (EO10)	Trends in the amount of litter in the water column including microplastics and on the seafloor (CI23)	In situ sensor: microplastic count and classification
			Delft3D-PART plastic dispersion model, MEDSLIK-II plastics/ microplastics tracking model
Land and sea interactions and processes	Hydrography (EO7)	Location and extent of the habitats impacted directly by hydrographic alterations (CI15)	Delft3D-FLOW hydrodynamic model, Delft3D-WAQ-SPM suspended sediment model
			Machine learning: Seagrass dynamics and distribution

Engagement at three levels

ODYSSEA

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Local authorities

- Port Authorities, Spain: ballast water
- Environmental Protection Agencies, Italy: microplastics

Engagement at three levels

ODYSSEA

Regional policy processes

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Blue Economy sectors

- Oil and gas
- Aquaculture
- Marine renewables

Criteria for successful platforms

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odysseaplatform.eu

Recommendations for Marinomica's future

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- Demonstrate clearly applied public and private **use cases**
- Continue to **report on uptake** to demonstrate relevance
- Ensure **transparency** on methodologies and data sources
- Communicate **authoritativeness**
- Conduct further **user testing** to check usability
- Align more closely with **policy needs** (e.g. IMAP indicators)

Marinomica Services

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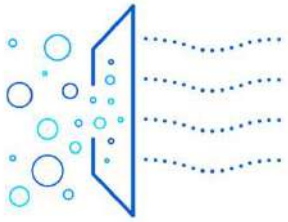

Ocean Data Access

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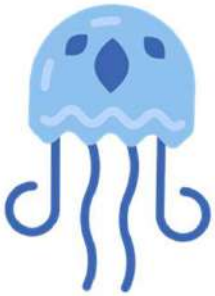
Water Quality



Jellyfish

Waves & Currents

Wave and Wind Power

Balllast Water

Coastal Erosion

Ocean Data Access

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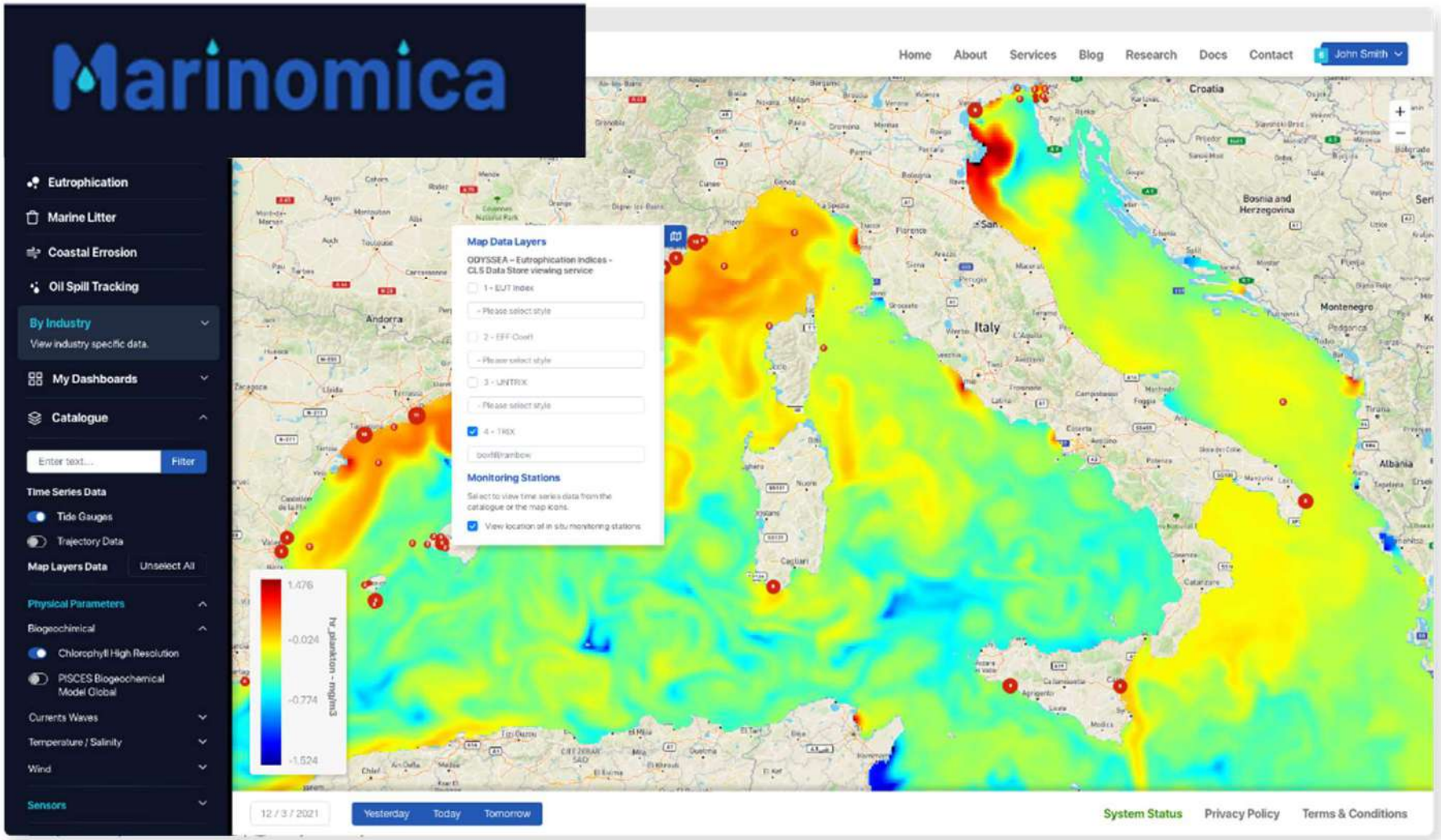

Water Quality

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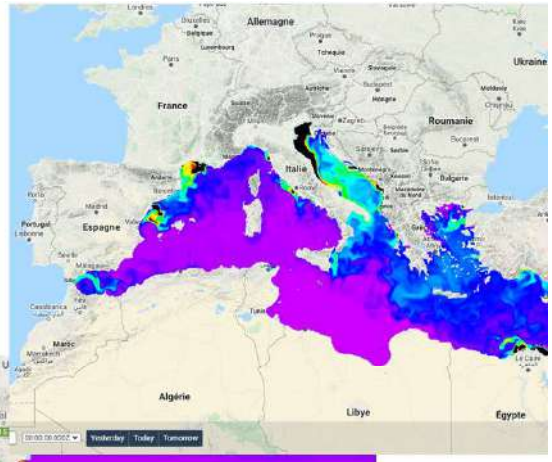
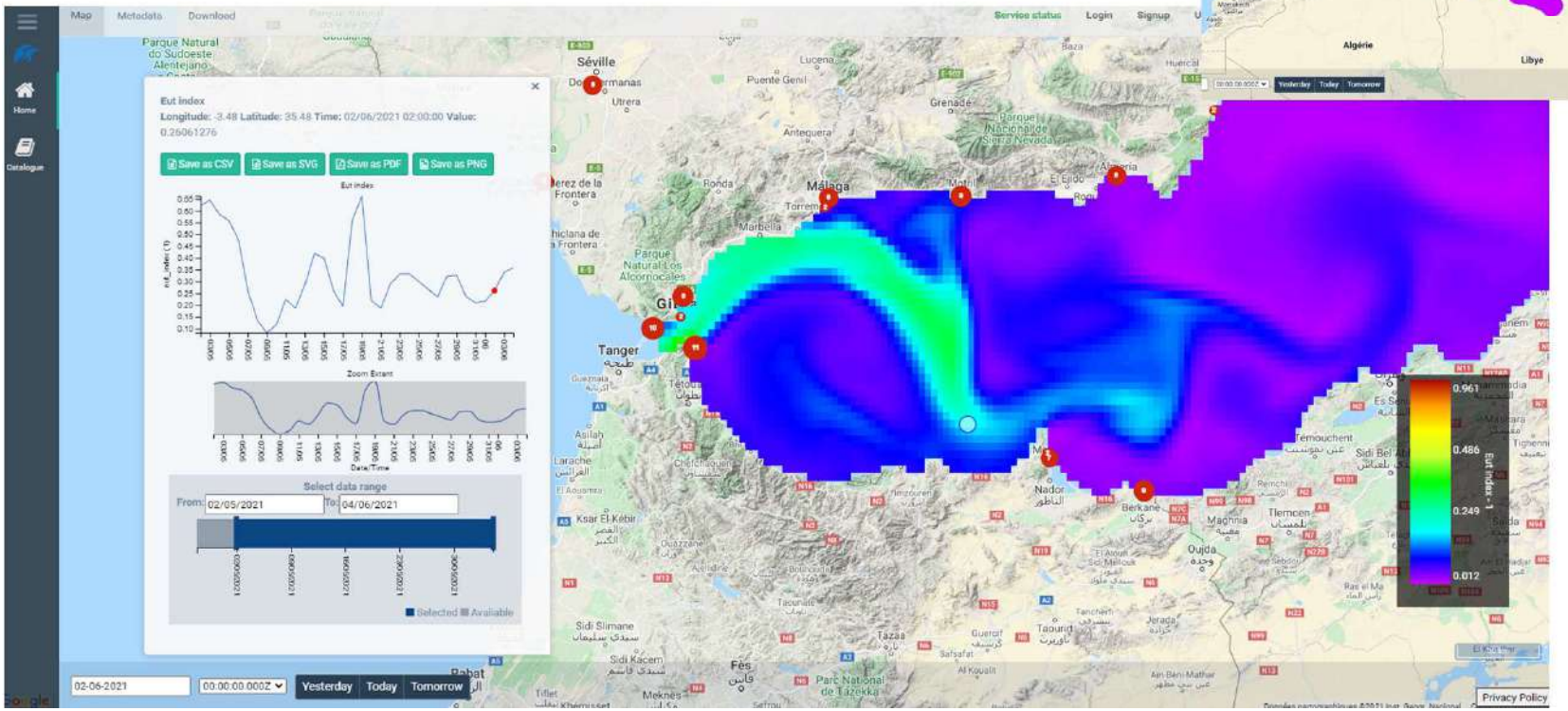
Eutrophication index TRIX

Indicator about the trophic state of the coastal water

- ❑ High = eutrophic = nutrients ++ -> algae ++ > oxygen --
- ❑ Low = oligotrophic = nutrients - -





Waves & Currents

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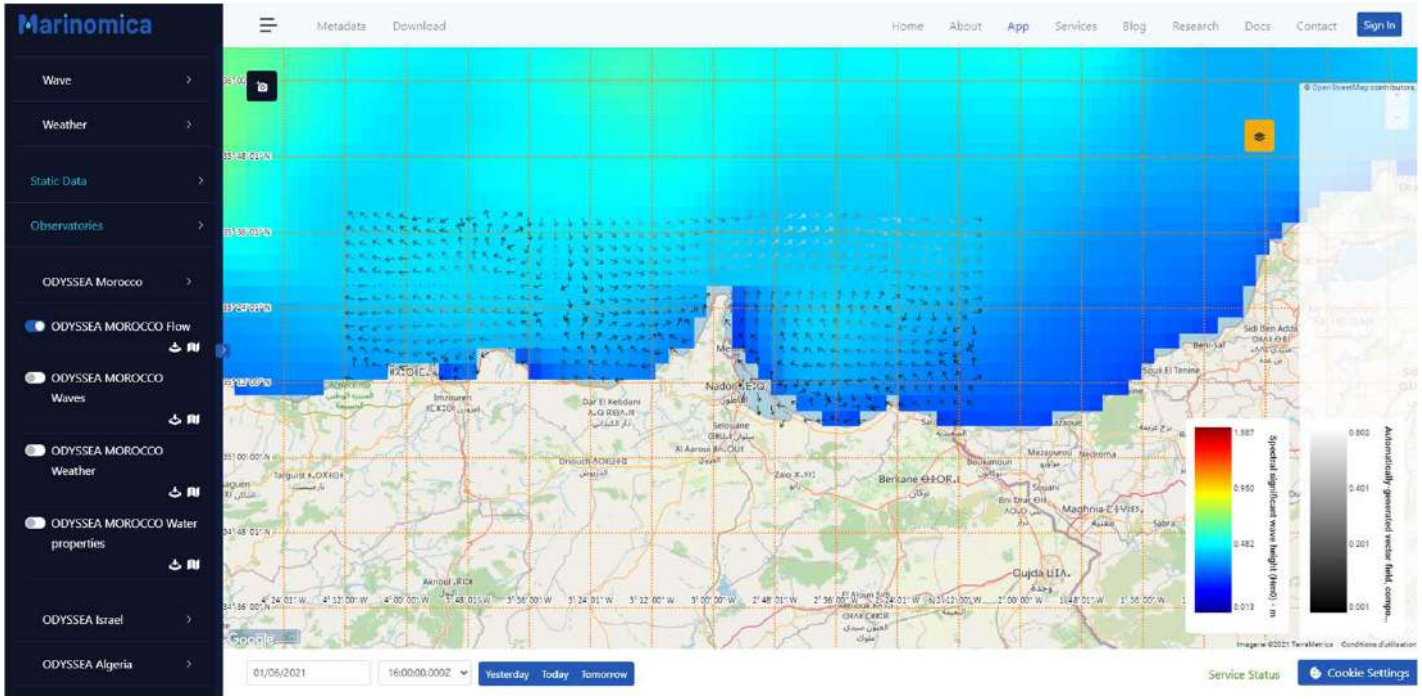
Observations and forecasts of sea surface state

Wave height and direction

Current intensity and direction at the surface and in the water column

Based on local measurements and forecasts from local and CMEMS models



Wave power

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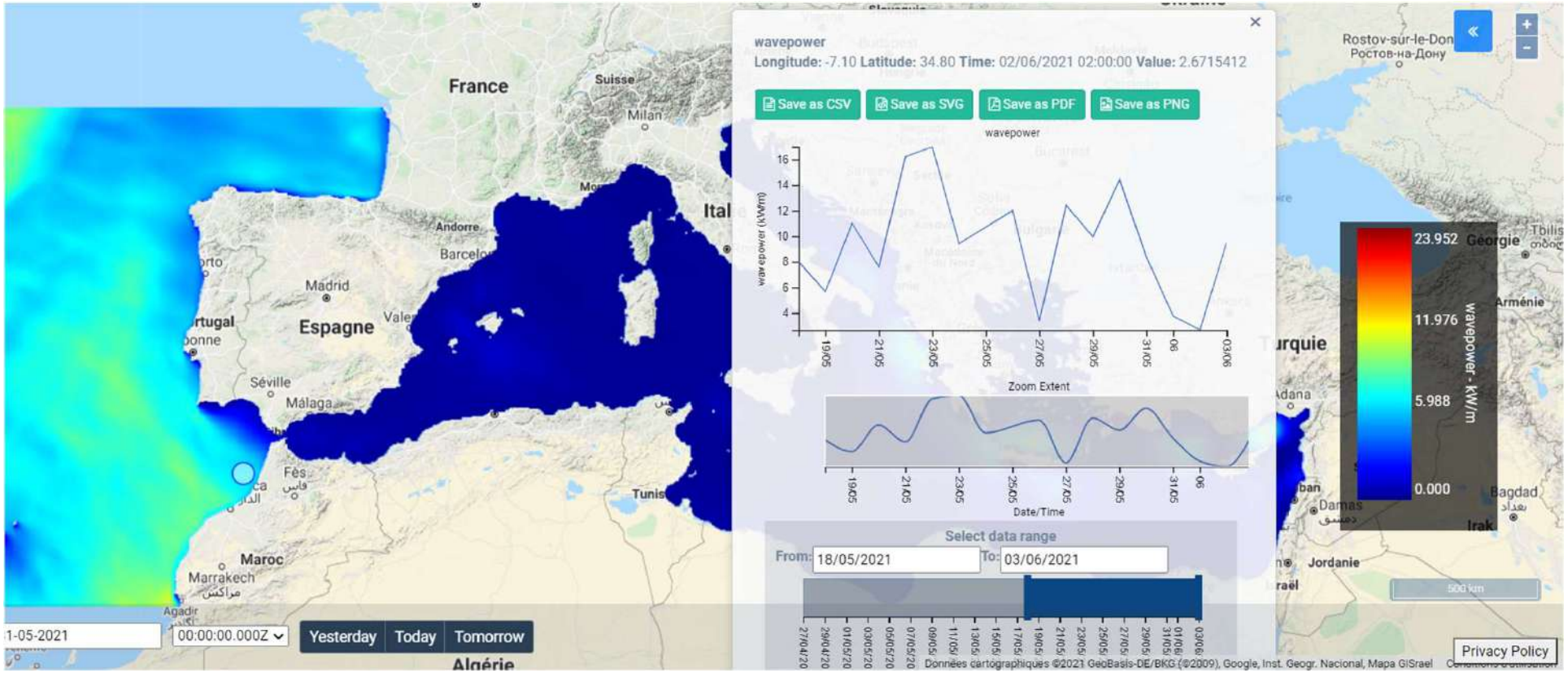
Energy released by waves

Local quantity of energy for designing the blue energy production infrastructures.



Coastal Erosion

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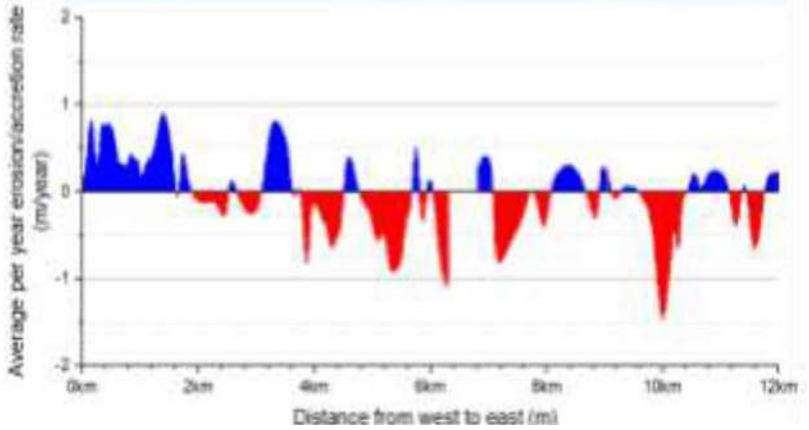
Coastline evolution rate

Identification of aras with high rate of erosion
Evaluation of wave energy acting on coastal areas
Estimation of sediment transport

Based on the combination of satellite image analysis, statistical calculation, analysis of historical wave observations and modeling (CMEMS, EMODNET)



Jellyfish blooms

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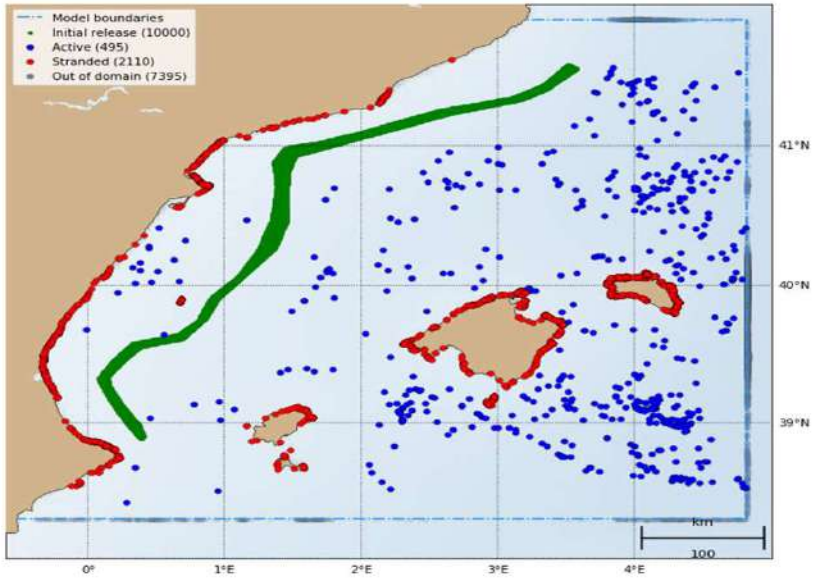
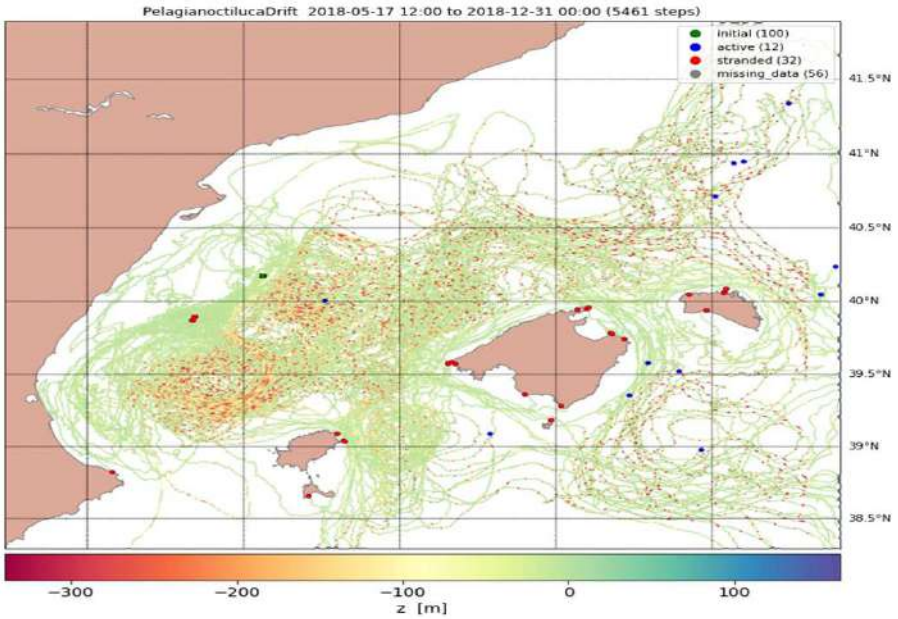
Early warning of jellyfish arrival

Distribution and probability of occurrence of the species Pelagia noctiluca

Prediction from a numerical model that simulates their behavior (ocean dynamics, geographical dispersion, life cycle)





Ballast Waters

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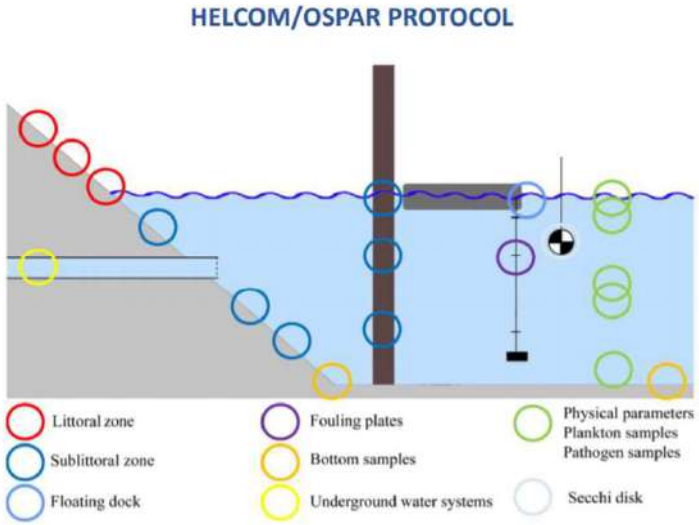
Risk assessment of arrival of invasive species

- Port measurements (in the water column and at the bottom)
- Realization of risk report by vessel
- Support to the certification of derogation in the framework of the Ballast Water Management convention in force since 2017

Based on biological surveys carried out in ports, on ODYSSEA environmental data



For whom?

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The users of the Mediterranean Sea depending and interacting with the sea on a daily basis

For whom?

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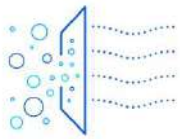
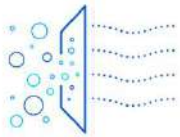
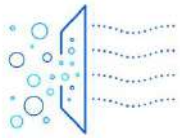
Ports



Fishing



Aquaculture



For whom?

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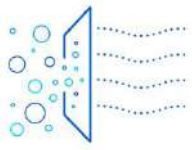
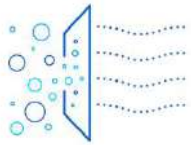
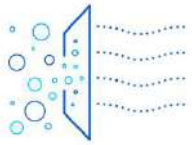
Nrj production



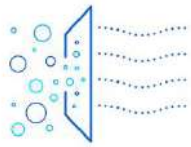
Industries



Beach resorts



Territories



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THANK-YOU

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727277