

# M **MARINE PROTECTED AREAS EUROPE** PA

EU Caribbean Marine  
Scientific Cooperation

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CLIMAZUL 





MPA Europe will map optimal locations for **Marine Protected Areas in European seas** for a network that includes as high **biodiversity of species, habitats, and ecosystems** as possible, and **blue carbon** stores so both can be considered in **Marine Spatial Planning** in a changing **climate**.

## Outcomes

-  Map with optimal locations for protecting **biodiversity** for all European seas to support transboundary **Marine Spatial Planning**.
-  **Improve the basis for national authorities** to include marine areas in **climate change mitigation plans** and **design optimal MPAs** including expanding Special Areas of Conservation and increasing levels of protection in existing areas.
-  **Maximisation of species, habitats, and ecosystems inclusion** within 30% of the area.



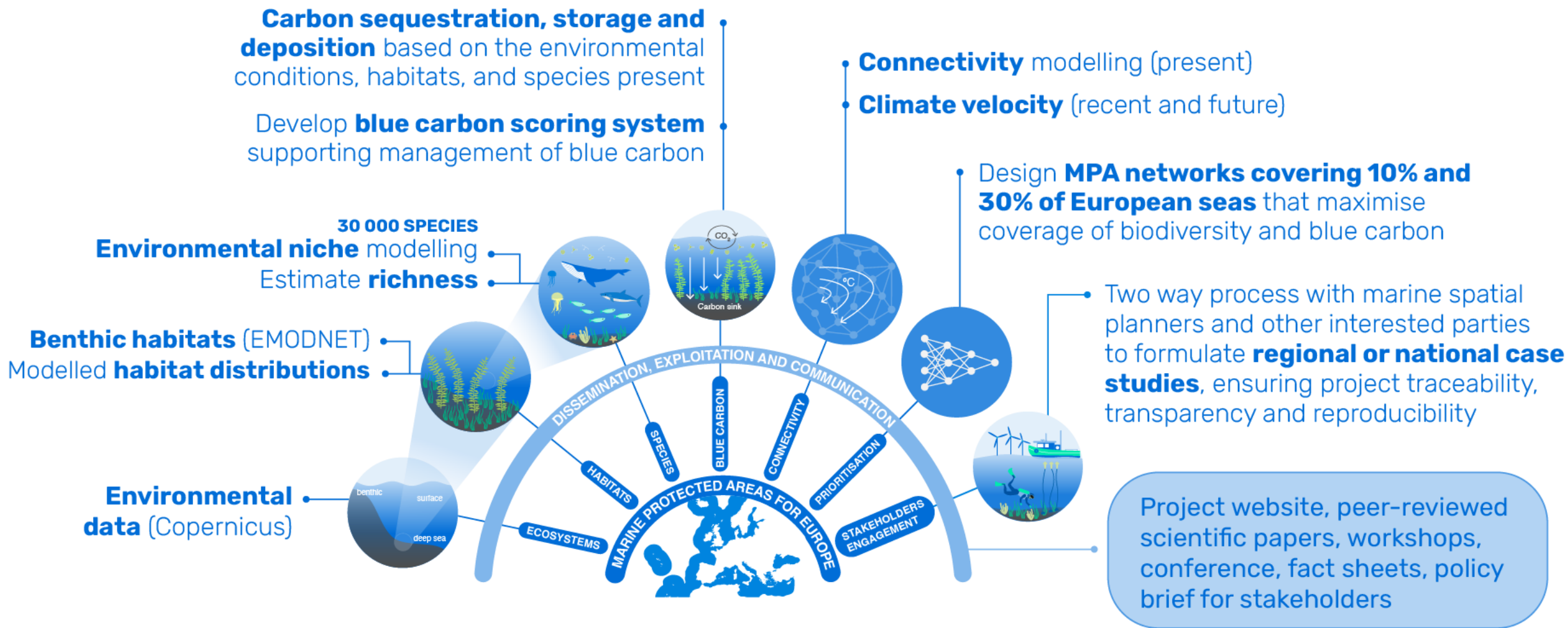
Study area of the project.

MPA Europe will **enable stakeholders, including national and regional authorities,** to optimise the inclusion of **biodiversity, blue carbon, and ecosystem services** through **Marine Spatial Planning**.



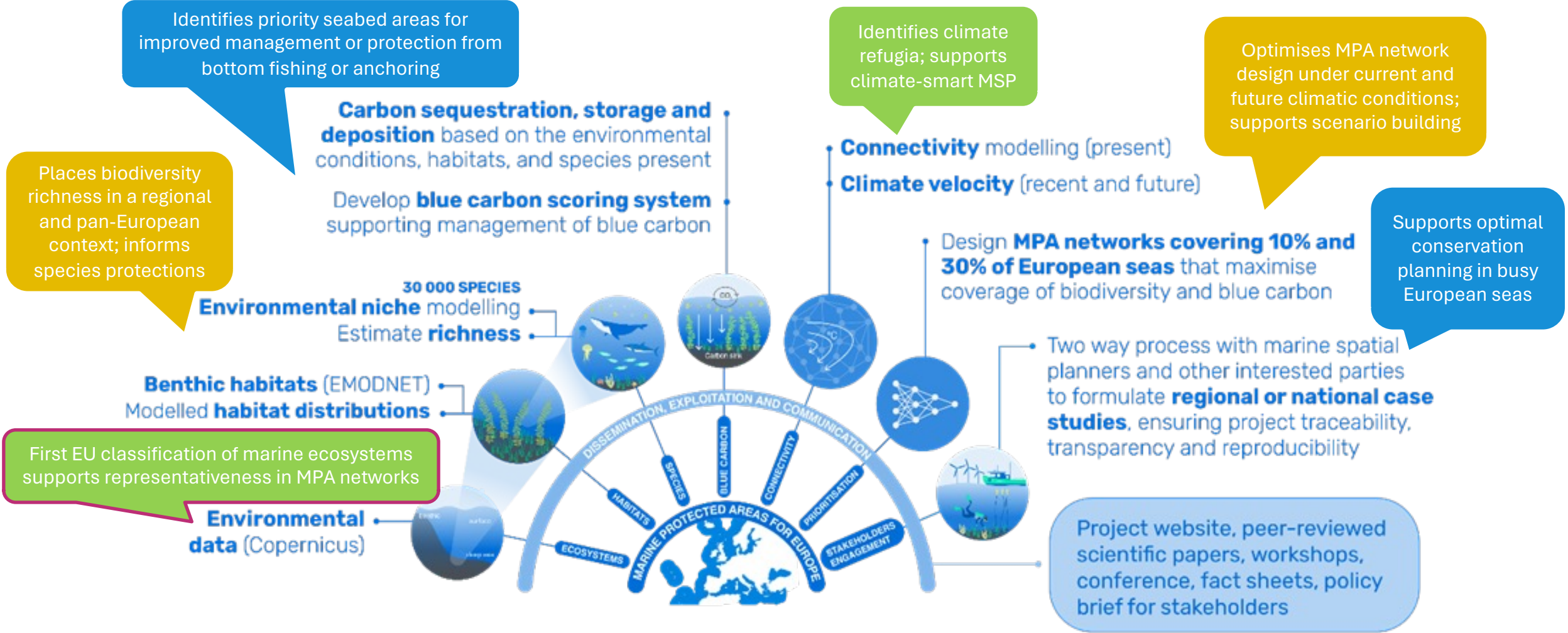
The MPA Europe project is co-funded by the European Union under the Horizon Europe program (grant agreement no. 101059988).





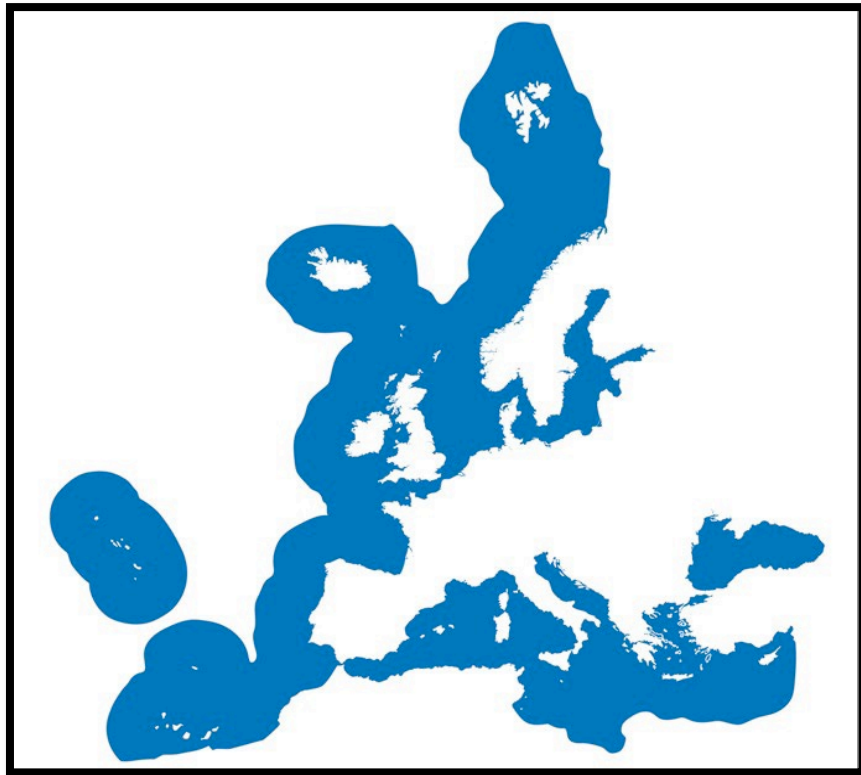


Improve the science basis for national authorities to include marine areas in **climate change mitigation and marine spatial plans**, and **design optimal MPAs** including expanding Special Areas of Conservation and increasing levels of protection in existing areas








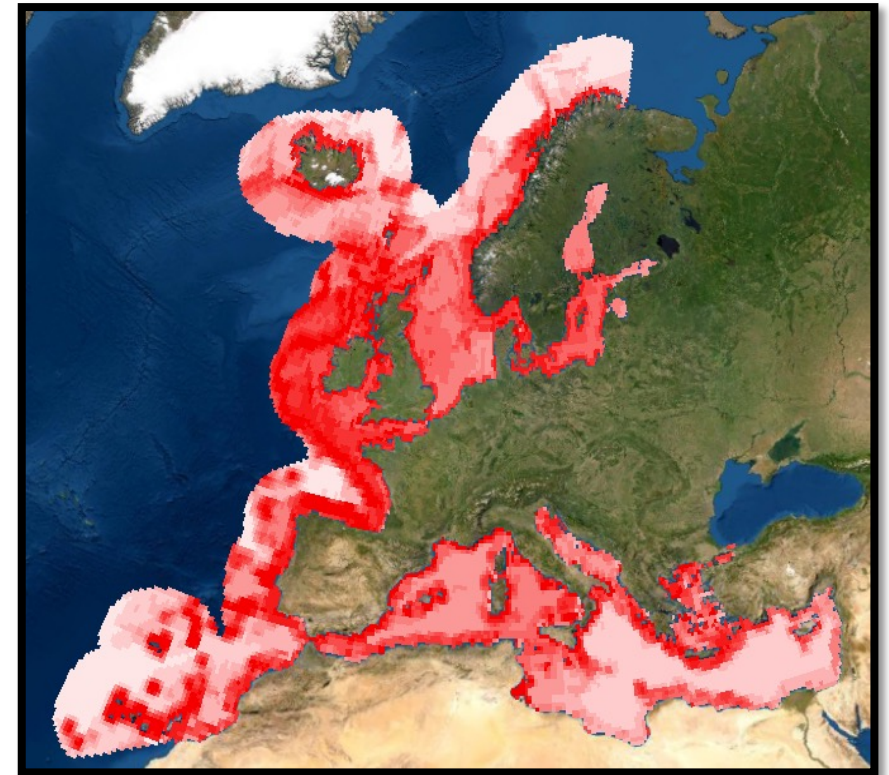
Standardised and complete  
data layers



SCP  
approach



Design **MPA networks covering 10% and 30% of European seas** that maximise coverage of biodiversity and blue carbon



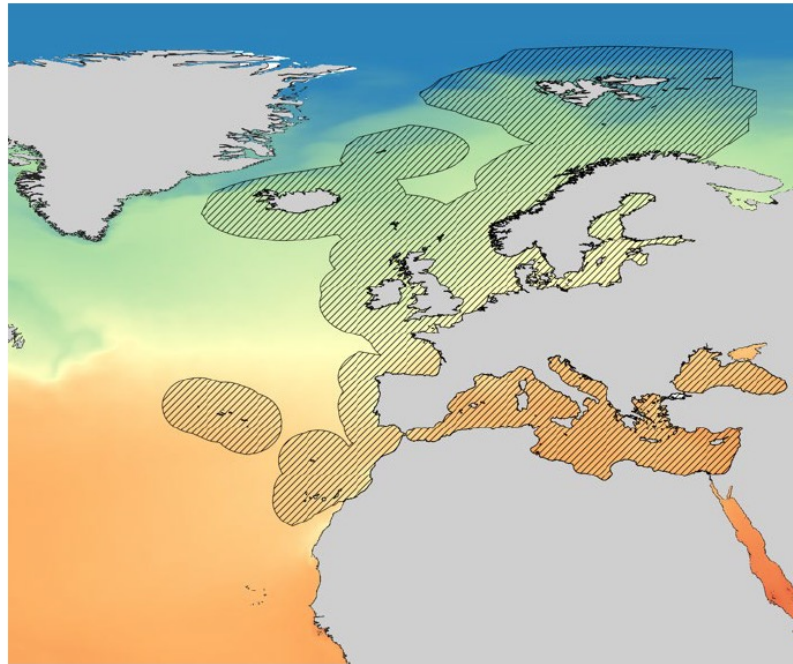
Example of prioritised areas. Red shading illustrates how cells of biodiversity may appear when prioritised (i.e. darker red being higher priority).



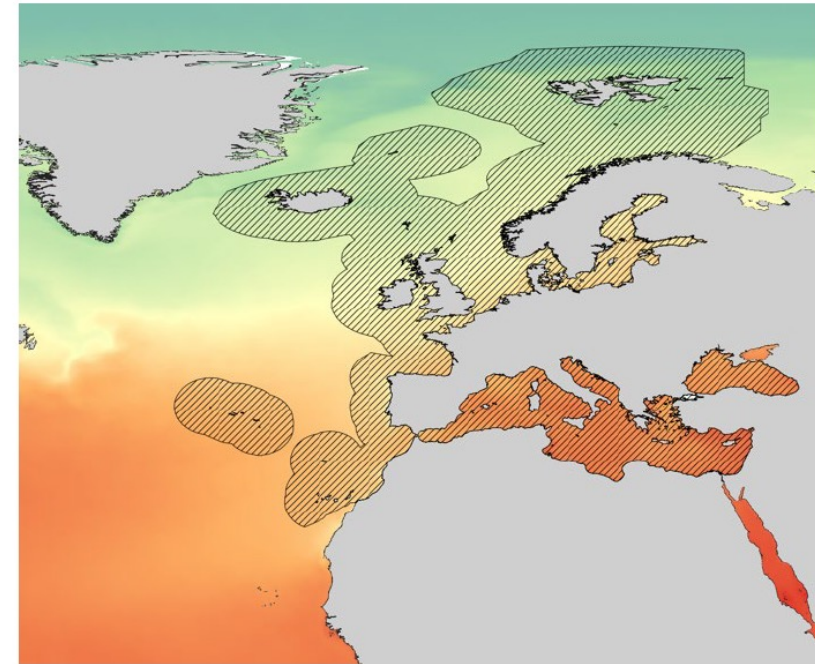


# ENVIRONMENTAL DATA

Variable
Temperature
Salinity
Sea Ice Cover
Sea Ice Thickness
Sea Water Velocity
Mixed Layer Depth
Diffuse Attenuation Coefficient
PAR
PAR at bottom
Oxygen
pH
Iron
Phosphate
Nitrate
Silicate
Total phytoplankton
Chlorophyll
Topographic (slope)
Topographic (roughness)
EMODnet Bathymetry
Sedimentation Rates
Seabed Substrates
Distance to coast
Distance to closest port



Present-day sea surface temperature

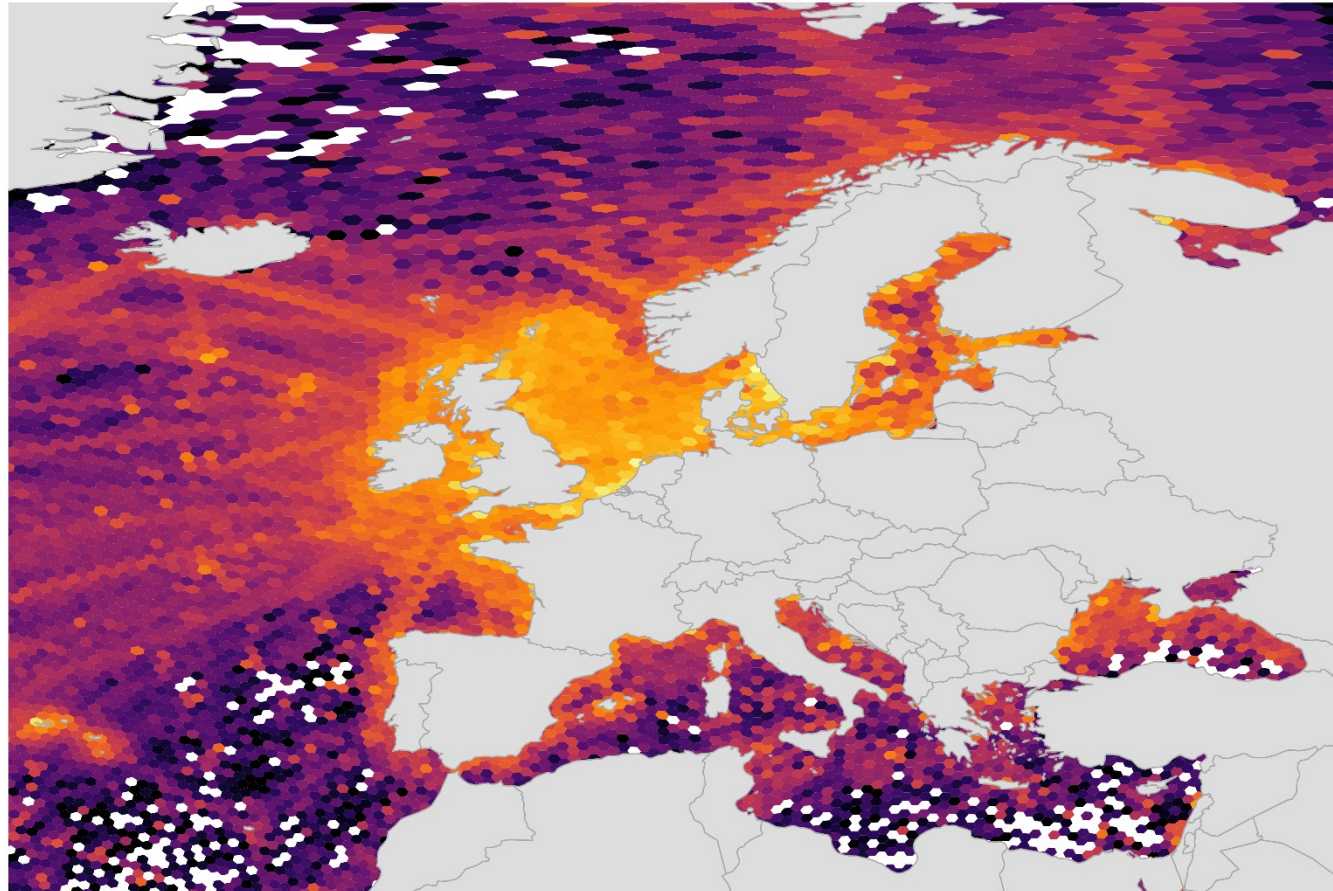


Future (decade 2090) sea surface temperature

Example of data layer produced for the European Seas.  
Colour gradients reflect spatial differences in environmental conditions



# SPECIES DATA



Example of species data coverage in OBIS. The density of marine species distribution data already available in OBIS, including ca. 30,000 species from 1526-2021 (yellow is more, purples is fewer records).

## SOURCE OF ADDITIONAL SPECIES DATASETS (into OBIS)

- Peer
- BioTIME
- GBIF
- Dryad
- Literature
- ...







Mapping optimal locations for Marine Protected Areas in all European seas for a network including high biodiversity of species, habitats, and ecosystems, and blue carbon stores for improving Marine Spatial Planning in a changing climate, from January 2023 to April 2026.

### Progress to date:

- Compiling a compendium of environmental and habitat data;
- Adding over 3 million species records into OBIS;
- Engaging with stakeholders in the Baltic, Black Sea, Atlantic/North and Mediterranean ocean sea basins;
- Compiling a new database on sediment organic carbon stocks in European regional seas;
- Calculating wave exposure for all European coasts.

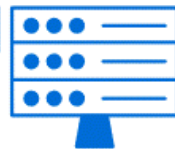
**80** CONTRIBUTORS



**33** DATASETS



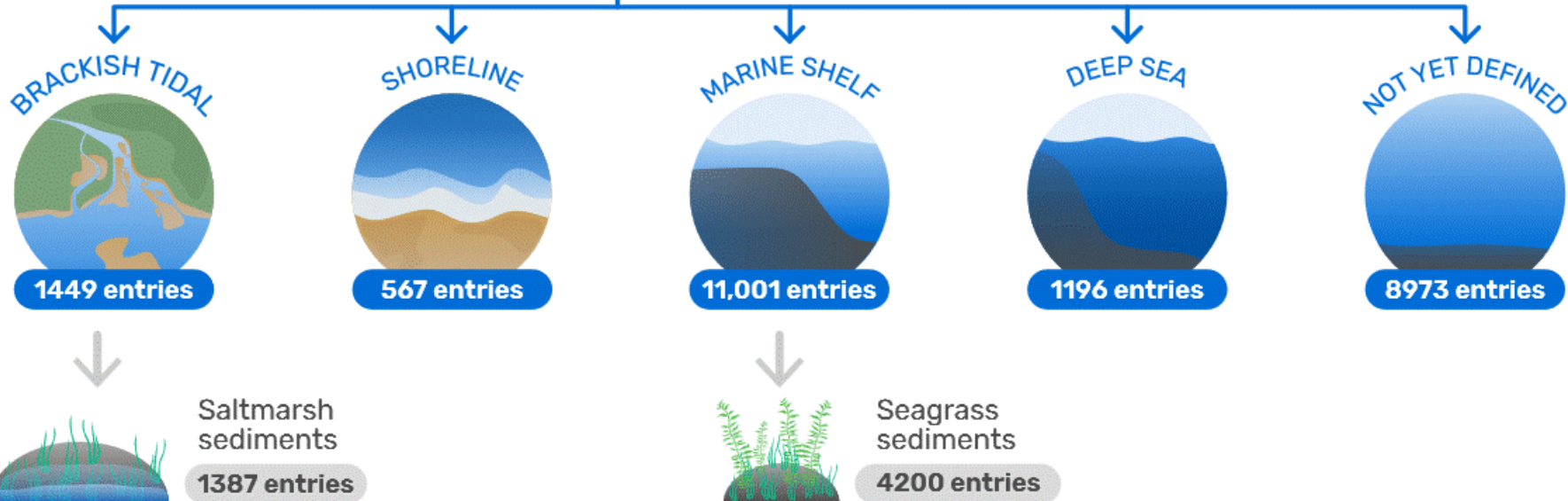
**33,650**  
ENTRIES



**5156** Locations



- 19 EU countries
- 11 Non-EU countries
- High Seas







## STAKEHOLDERS

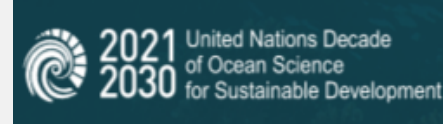
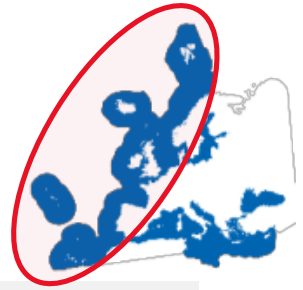
*By seabasin*

*International science to policy*

*Regional Seas Conventions and Strategies*

*MSP and MPA national authorities*

*Institutes, projects and NGOs*



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Public Works and Administration



REPUBLIC OF SLOVENIA  
MINISTRY OF NATURAL RESOURCES AND SPATIAL PLANNING



MINISTRY OF  
ENVIRONMENT  
& ENERGY





## MARITIME SPATIAL PLANNING IN THE EU



Source:  
EU MSP  
Platform

**15** Maritime Spatial Plans by  
Member States in 2021





**FAIR  
SEAS**



GOVERNO  
DOS AÇORES



**FRCT**

FUNDO REGIONAL DA CIÊNCIA E TECNOLOGIA



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BALTIC**  
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Public Works and Administration

**BLUEMISSION AA**

# TIMELINE

- Plan or Report ● ◆ Dissemination & Communication materials
- Paper ● ▲ Databases & maps

2023

JANUARY

FEBRUARY

JUNE

AUGUST

- WP1 ● Data management plan
- WP1 ● Kick-off meeting report
- WP7 ● Website & social media

- WP2 ● Marine environmental data compilation
- WP3 ▲ New data published into OBIS
- WP7 ● DEC Plan

- WP2 ● Paper on European coast's wave exposure index

START OF PROJECT

- WP2 ● Marine ecosystem classification for near seabed waters
- WP3 ▲ Maps and models of biogenic habitats distributions published into EMODnet
- WP4 ▲ Carbon storage in marine biogenic habitats database
- WP4 ▲ Carbon storage in marine non-biogenic sediment habitats database

- WP2 ● Marine ecosystem classification for surface waters
- WP3 ▲ Maps and models of species environmental niches and geographic distributions published into OBIS

2024

FEBRUARY

- WP2 ● Depth-integrated marine ecosystem classification
- WP4 ● Carbon storage within and beyond biogenic habitats

APRIL

- WP2 ● Paper on marine ecosystem classification for surface and near seabed waters of Europe
- WP3 ▲ Species and habitats conservation status database
- WP4 ● Scoring system for carbon storage within and beyond marine biogenic habitats

JUNE

- WP4 ▲ Map of carbon storage capacity in European marine habitats

- WP5 ▲ Marine environment and ecosystem, species distribution and habitats, and blue carbon layers ready for prioritisation analysis
- WP2 ● Current connectivity maps of European seas

AUGUST

- Climate velocity map for European seas under current conditions
- Paper on the spatial relationships between measures of biodiversity and environmental conditions
- Dissemination articles for children

DECEMBER

2025

FEBRUARY

- WP5 ▲ Prioritisation analysis based on biodiversity variables

APRIL

- WP2 ▲ Climate velocity map for European seas under future climate change scenarios
- WP5 ▲ Prioritisation analysis based on blue carbon scores
- WP6 ● Four regional case studies synthesising stakeholder views identified and outlined, meeting end user needs

JUNE

- WP3 ● Paper on marine species and habitat distribution models
- WP5 ▲ Prioritisation analysis based on biodiversity variables and blue carbon
- WP7 ● Four dissemination videos

2026

APRIL

END OF PROJECT

- WP1 ● International cooperation report
- WP1 ● Final data management plan
- WP7 ● Impacts of DEC activities and updated DEC plan

DECEMBER

- WP5 ● Paper on the MPA networks in European seas based on the prioritisation analysis for biodiversity conservation and blue carbon
- WP6 ● Policy brief on how the proposed MPA network supports MSP in Europe regarding biodiversity and blue carbon

International Conference on MPA and MSP

OCTOBER

- WP2 ● Paper on how the proposed MPA network accommodates connectivity through current and climate velocities, now and under climate change scenarios
- WP5 ▲ Online atlas for MSP

JULY



# THANK YOU

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