



*Your gateway to marine data in Europe*

# TEG: Improving the visualization of EMODnet MSP Layer EMODnet Human Activities Portal

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Hugo Regalado, Andrej Abrámic, Michael Arrigan, Yannick Leroy, Jean-Baptiste Suzanne,  
Kamil Rybka, Nick Boxen, Nathalie Dees, Yolanda Irawan and Jose L. Santiago



[jsantiago@cetmar.org](mailto:jsantiago@cetmar.org)

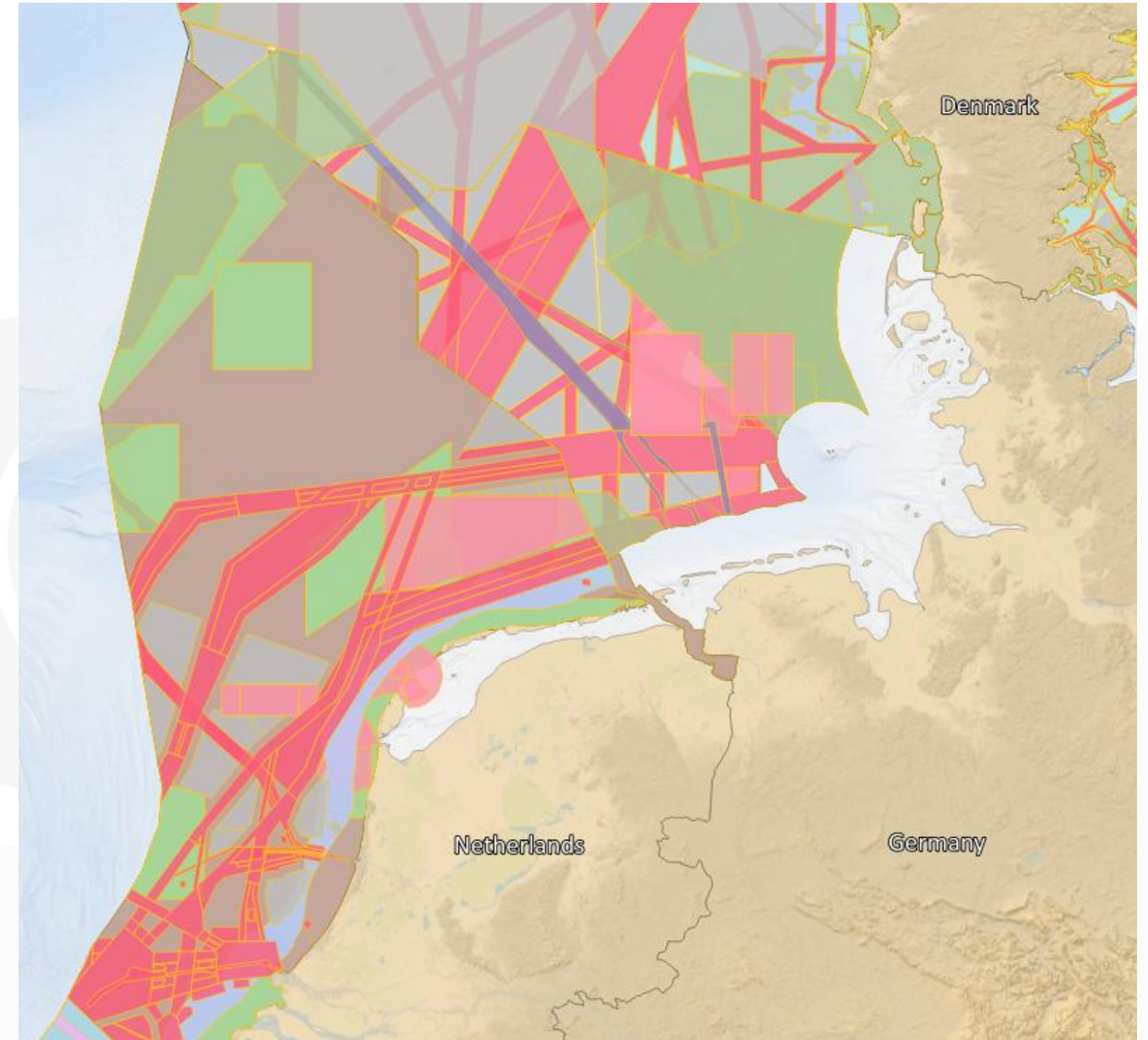
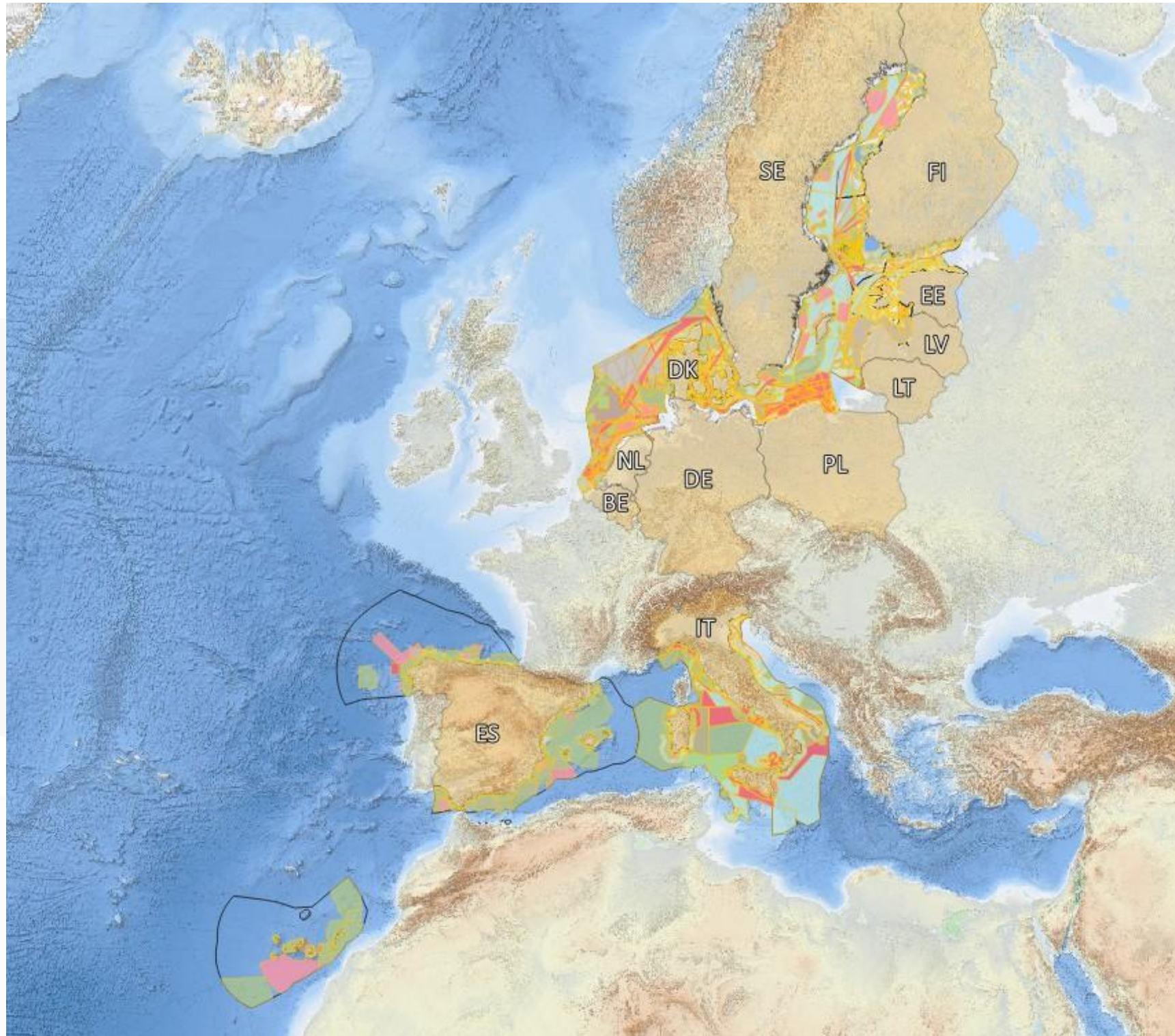
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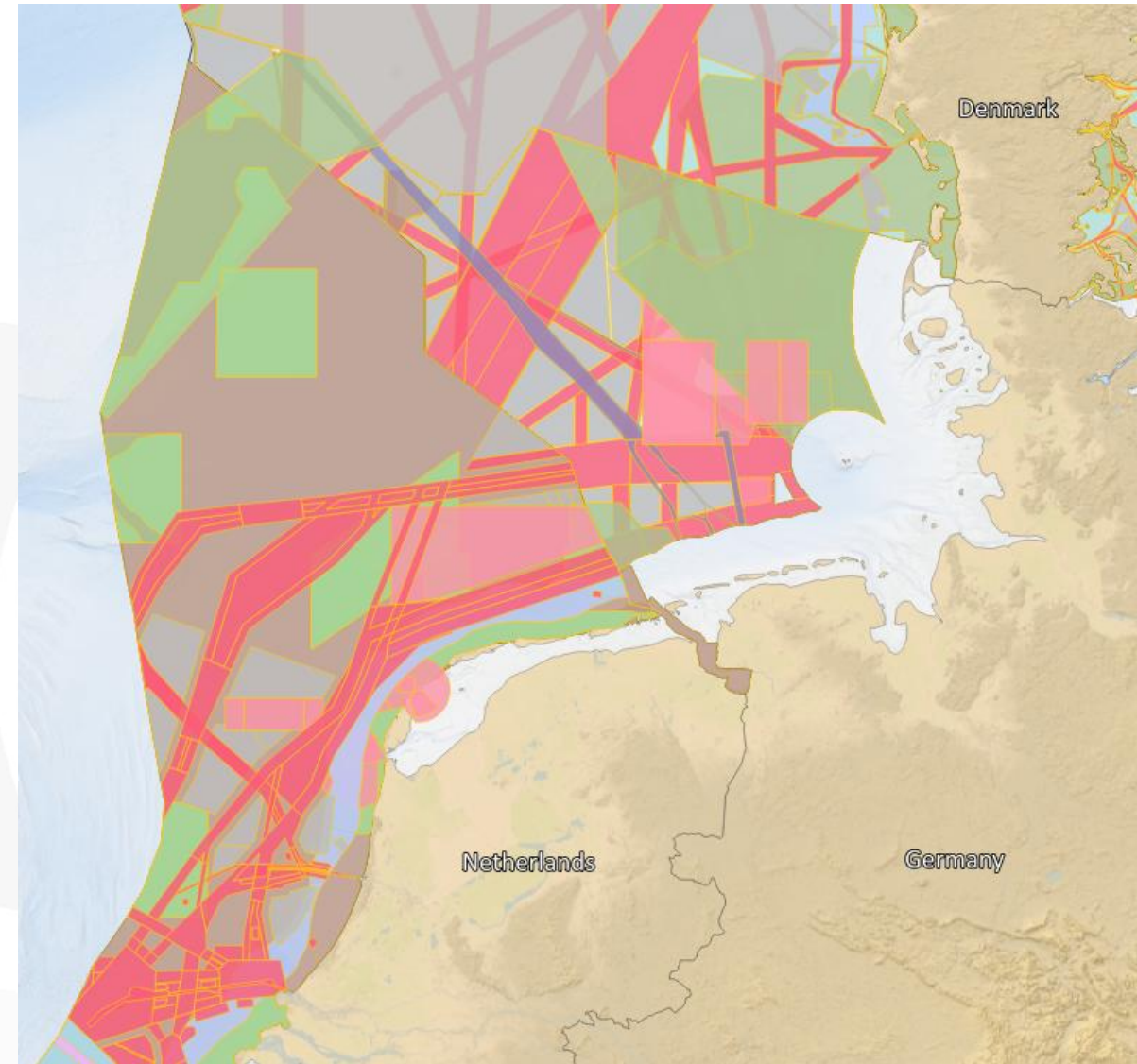
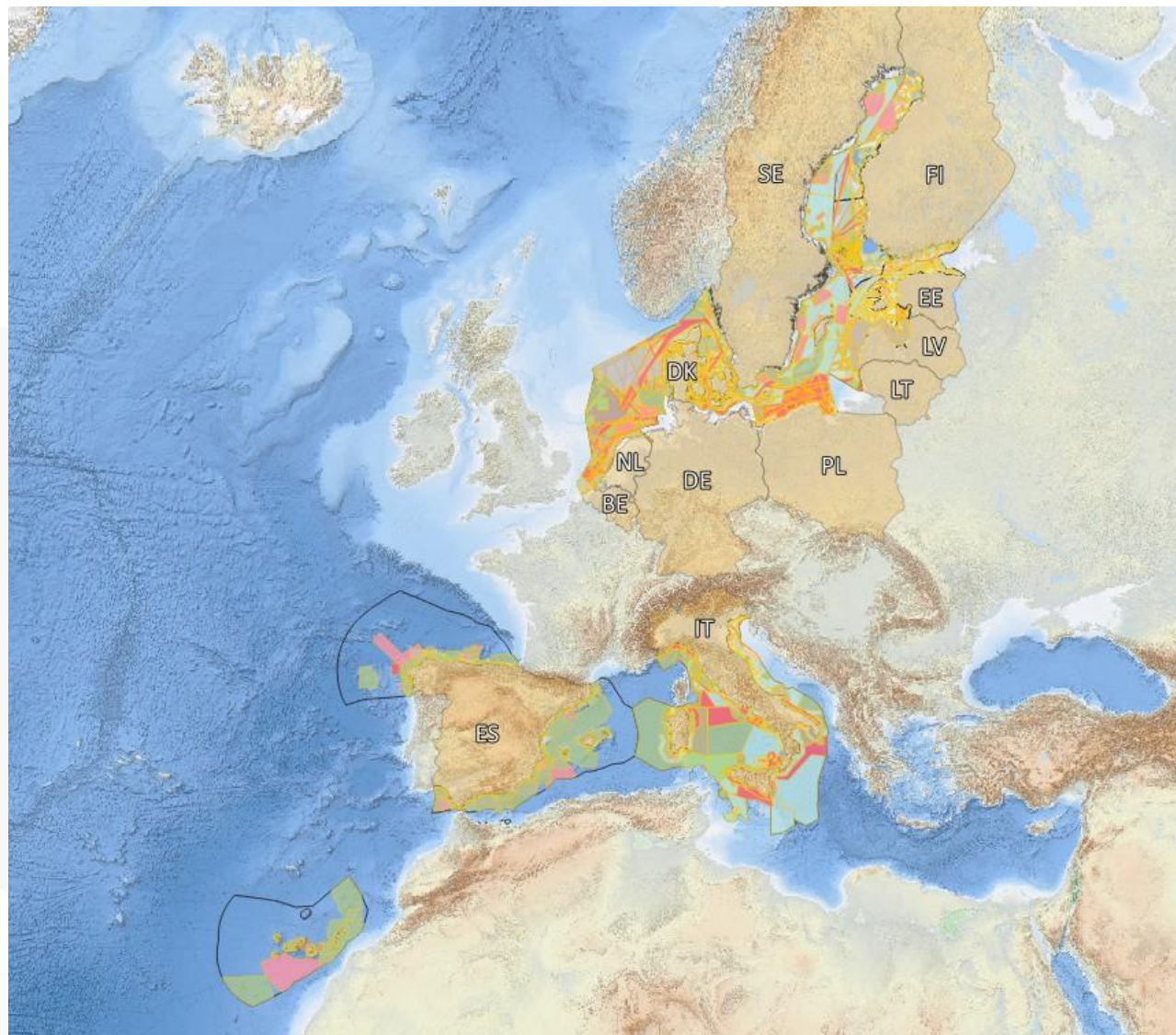
**EMODnet**



# Improving the visualization of EMODnet MSP Data Layer Introduction



# Improving the visualization of EMODnet MSP Data Layer Introduction



**SeaUseName** defines the different planned marine uses that are in an area.

#### MSP Zoning Areas

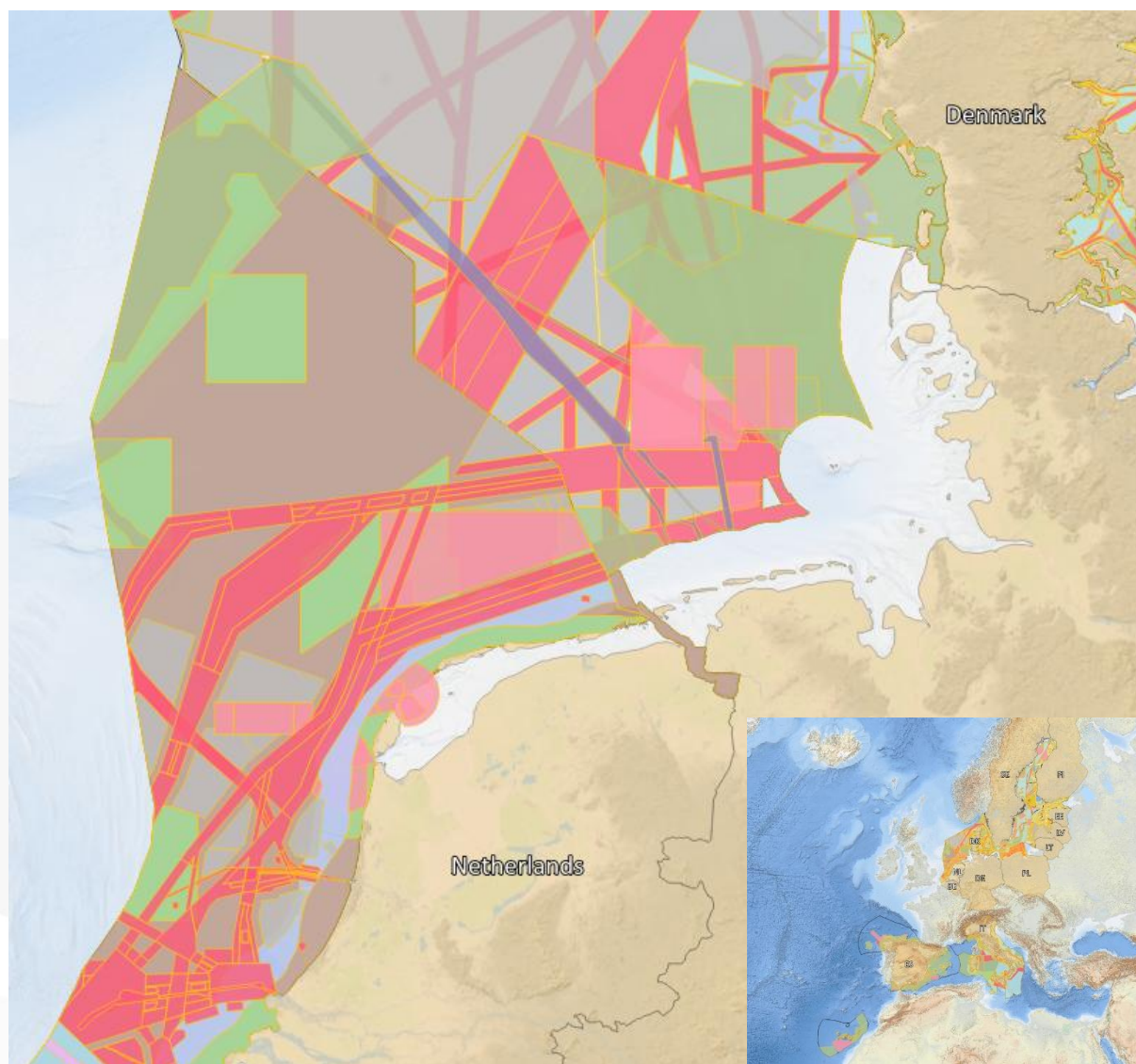
-  Aquaculture
-  Boundaries
-  Cables
-  Cultural heritage
-  Disposal areas
-  Fishing areas
-  Maritime Traffic flows
-  Military areas
-  Nature Protection Conservation
-  Ocean Energy Facilities
-  Oil and Gas
-  Other/miscellaneous
-  Pipelines
-  Ports
-  Raw material extraction
-  Scientific research
-  Tourism and recreation
-  Wind Farms

#### MSP Spatial Plan Area

-  Belgium
-  Denmark
-  Estonia
-  Finland
-  Germany
-  Latvia
-  Lithuania
-  Netherlands
-  Poland
-  Spain
-  Sweden

# Improving the visualization of EMODnet MSP Data Layer

## Introduction



**SeaUseFunction** defines if a planned marine use is allowed, restricted, forbidden... in an area.

Function categories:

- Priority - Planned marine use has priority to be done in a given sea area.
- Reserved - Planned marine use is given a specific weight in relation to other uses in a specific sea area.
- Allowed - Planned marine use is allowed to be done in a given sea area.
- Potential - Planned marine use has potential development opportunities in a given sea.
- Restricted - Planned marine use has some kind of restriction to be done (in specific circumstances) in a given sea area.
- Forbidden - Planned marine use is forbidden to be done in a given sea area.

# Improving the visualization of EMODnet MSP Data Layer Introduction



MSP Zoning Areas  
Aquaculture  
Boundaries

**WHAT IMPROVEMENTS WOULD YOU MAKE TO THE CURRENT EU MSP LAYER ON THE EMODNET VIEWER?  
SIMBOLOGY, VISUALIZATION, FILTERS...**



Fish  
Raw material extraction  
Scientific research  
Tourism and recreation  
Wind Farms  
Spain  
Sweden

- Unique categorisation with **SeaUseName attribute** (or MS in the case of Spatial Plan Area). And **SeaUseFunction??**
- Difficulty in visualising sea uses due to the **lack of transparencies or colours that are very similar** to each other.

## Improving the visualization of EMODnet MSP Data Layer TEG's Steps

- Review of **current initiatives** (e.g. BASEMAPs – HELCOM-; Maraconesian Plans –ULPGC-; SHOM...)
- Survey** on needs of visualization to decision-makers at International/European level and National level
- Alpha proposal** developed within the **expert group**
- Beta proposal** developed in a **dedicated workshop** (f2f or hybrid) (San Simón Island)
- ➔ Presentation to the **TEG**, validation and elaboration of the final version



# Improving the visualization of EMODnet MSP Data Layer

## Review of current initiatives



INSPIRE Directive (Infrastructure for Spatial

**NO SPECIFIC SIMBOLOGY IS CURRENTLY SPECIFIED FOR THE CARTOGRAPHIC REPRESENTATION OF VARIOUS USES FOUND IN THE MARINE ENVIRONMENT!!**







information within the European Community.

- **INSPIRE's technical guidelines** sometimes recommend **specific styles** depending on the **subject matter**. For example: **Oceanographic geographical features**




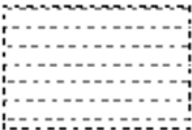




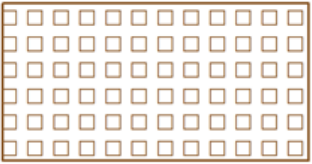

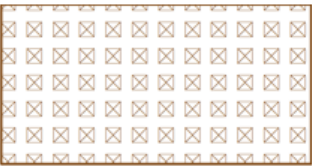
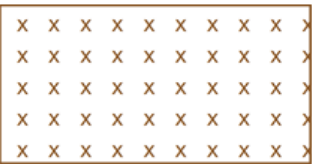
# Improving the visualization of EMODnet MSP Data Layer








## Map Styling in MSP

Category	Colour
1_Primary Production	
2_Secondary Production	
3_Tertiary Production	
4_Transport, Networks, Logistics And Utilities	
5_Residential Use	
6_Other Uses	

**1\_PrimaryProduction**

	1_3_4		1_4_1_3
	1_4_1_1		1_4_3
	1_4_1_2		1_4_4

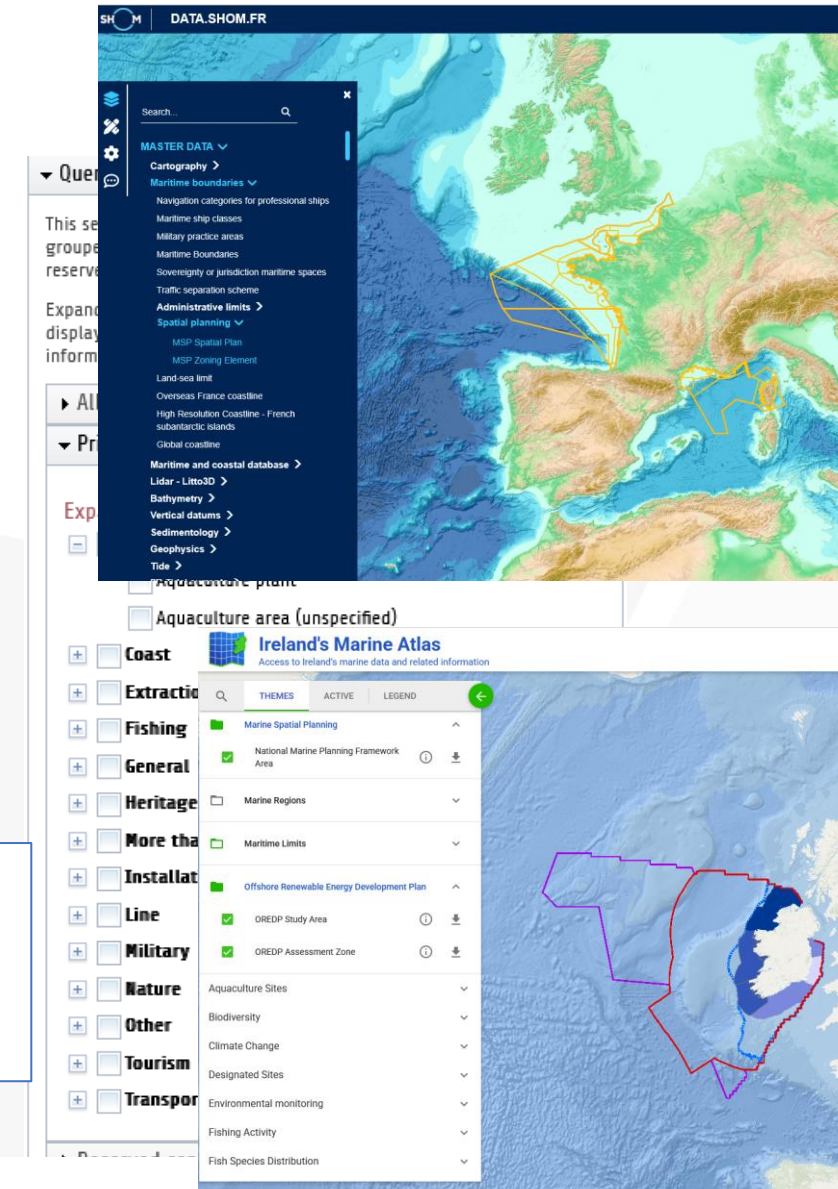
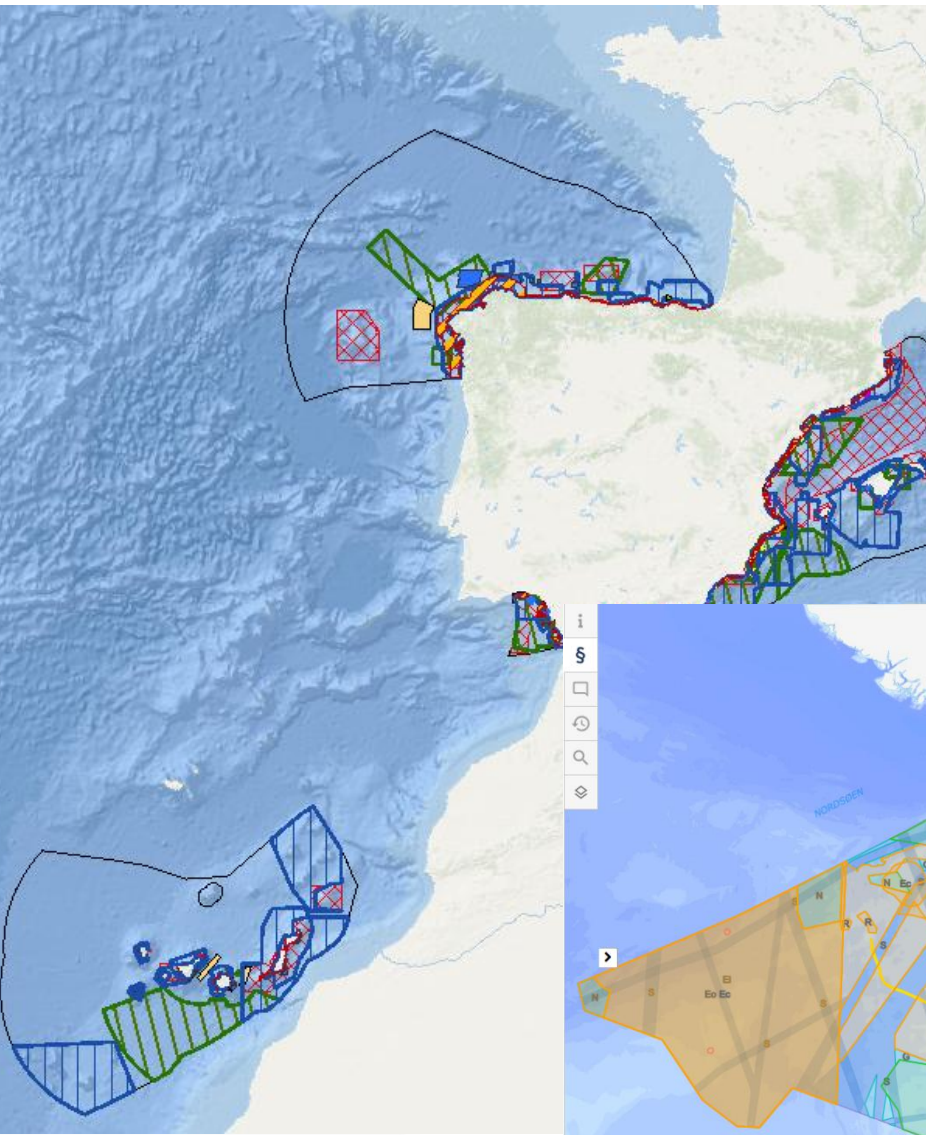
Category	Sketch or Pattern
3_4_6_MaritimeServices	
3_4_6_1_NauticalSports	
3_4_6_2_Beaches	
3_4_6_3_CoastalTourism	

Sea Use Function	Colour
Priority	
Reserved	
Allowed	
Restricted	
Forbidden	
Potential	
No Function Defined	

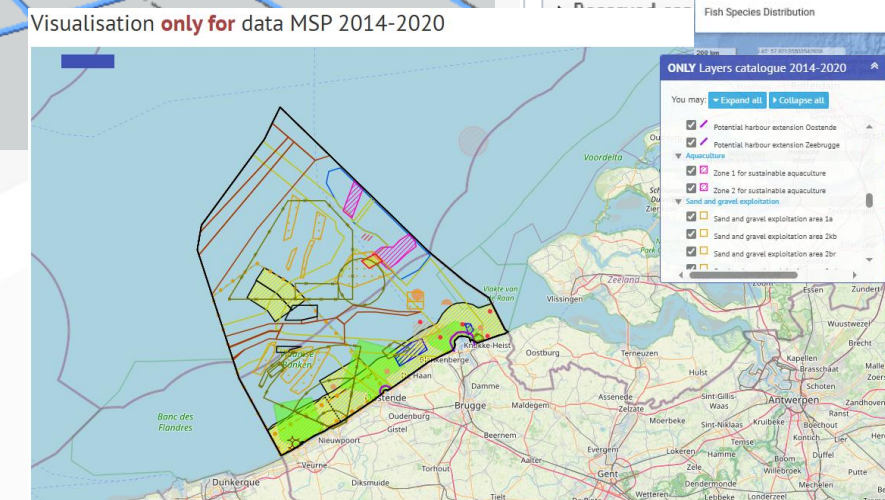
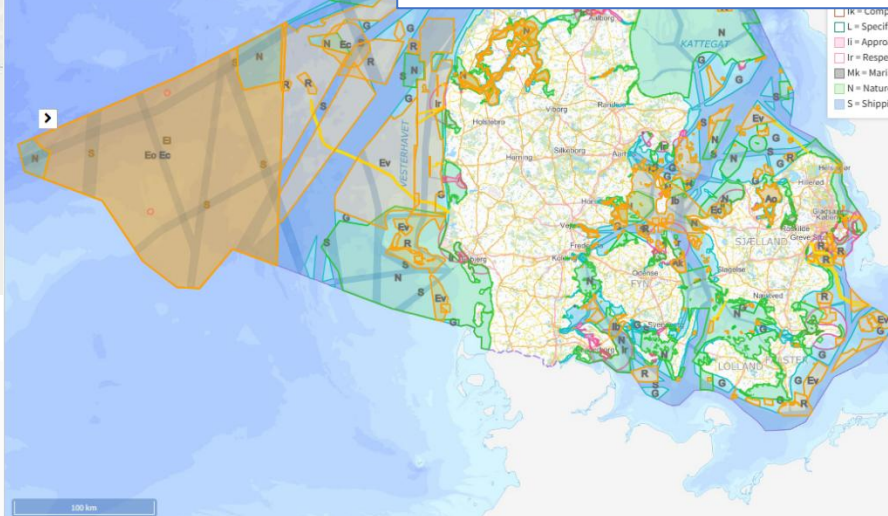
In case of MSP, styling can be based in marine uses and the type of permissions of each area (sea use function) by combining information, colours and transparencies.

# Improving the visualization of EMODnet MSP Data Layer

## Map Styling in MSP

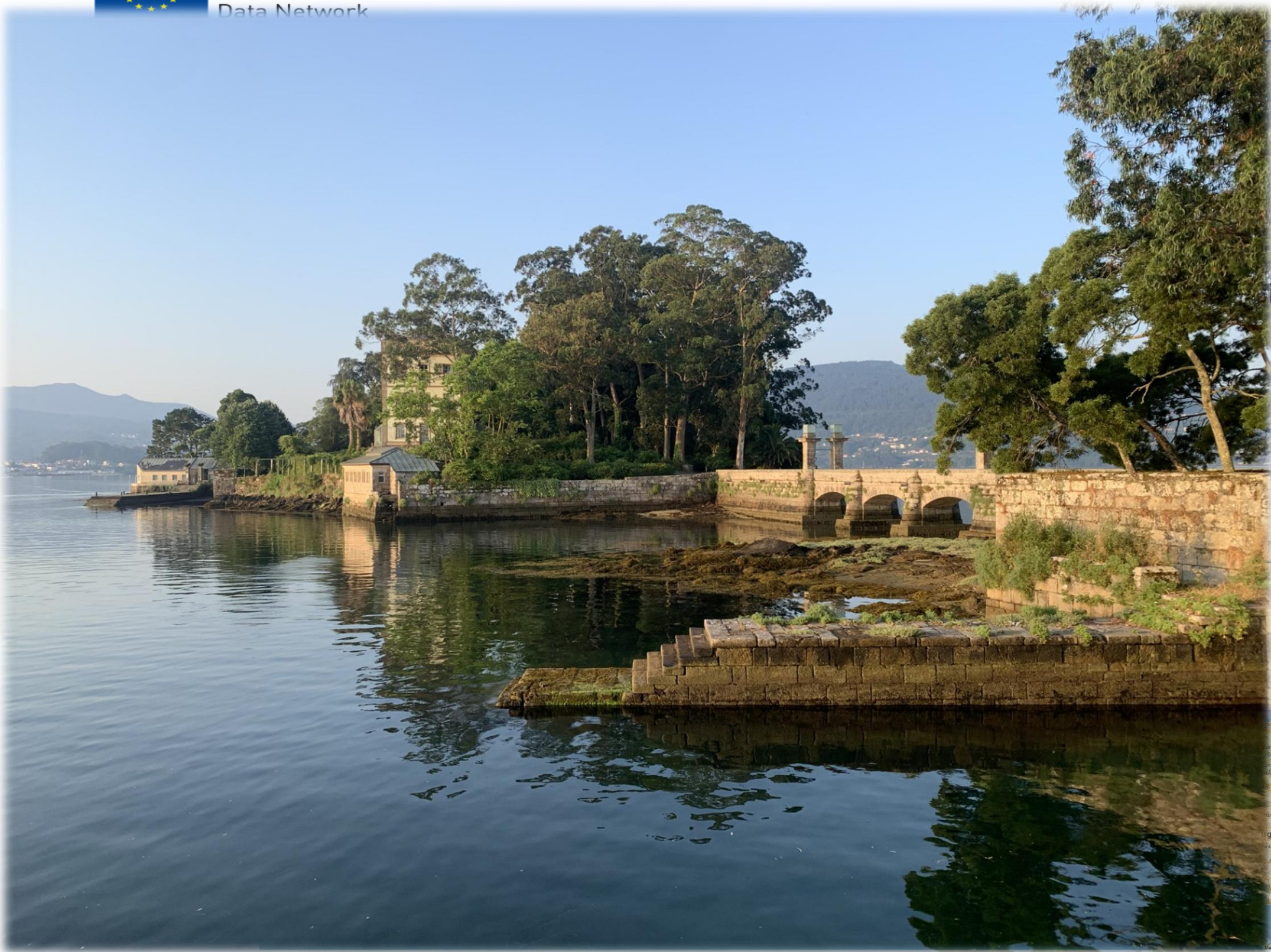


COMBINATION OF COLOURS AND TRANSPARENCIES AND THE INFORMATION DISPLAYED



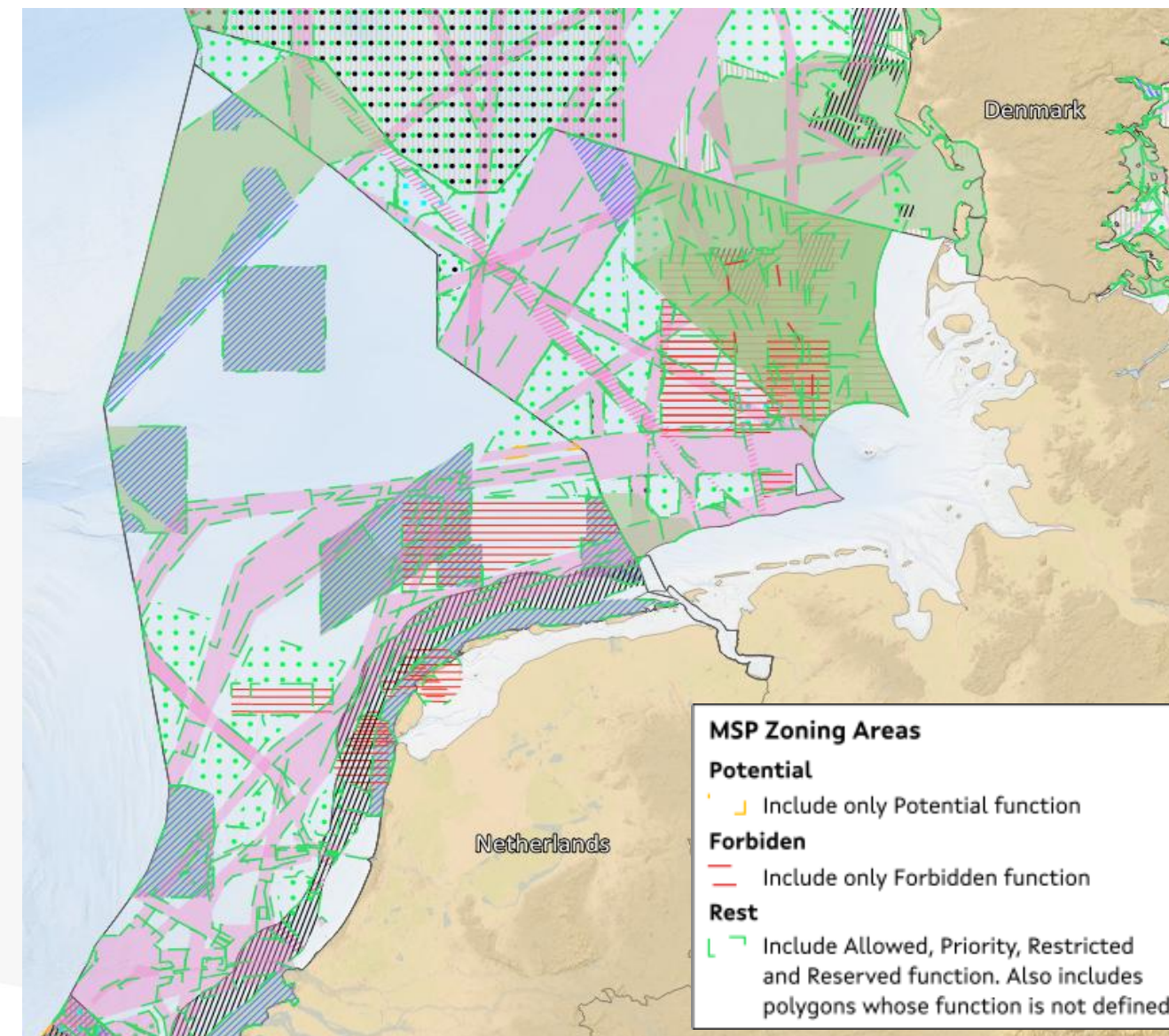
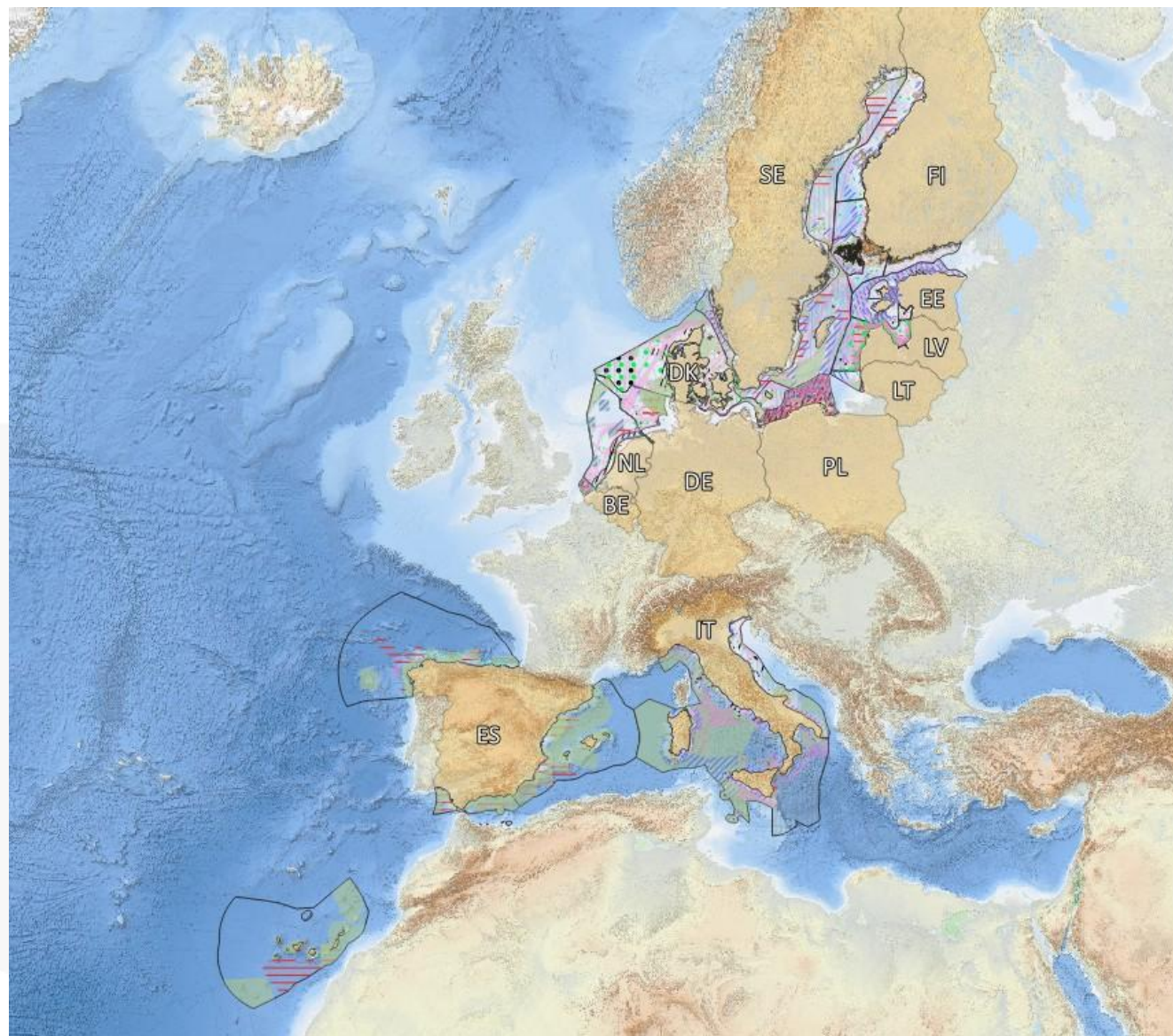


# Improving the visualization of TEG Workshop in San Simón Isl



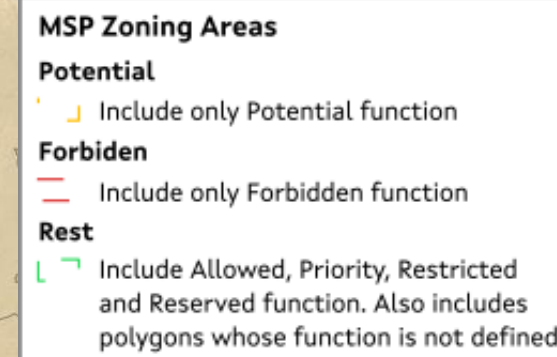
# Improving the visualization of EMODnet MSP Data Layer

## Symbology proposal from San Simón Workshop



Marine renewable energy

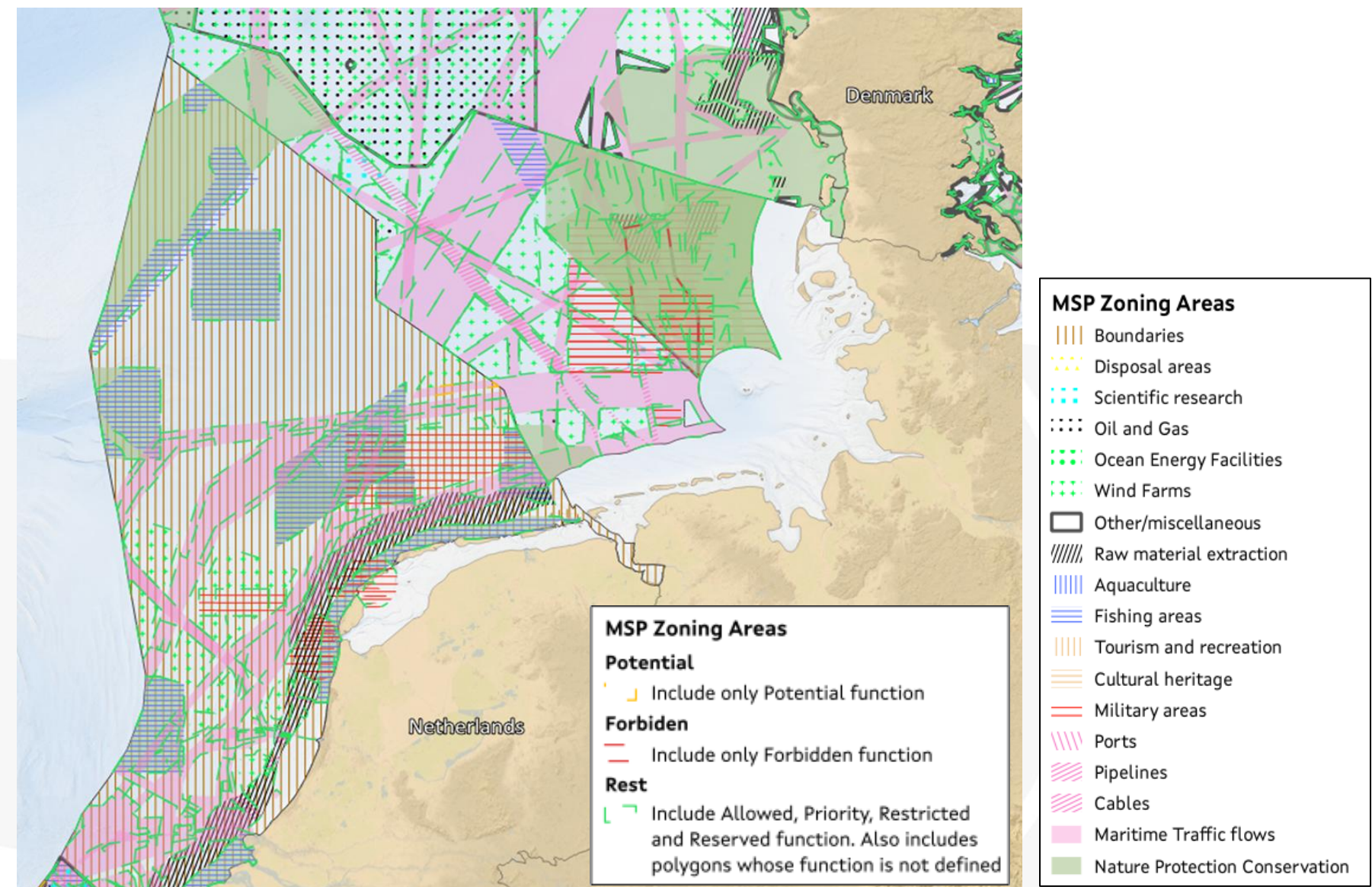
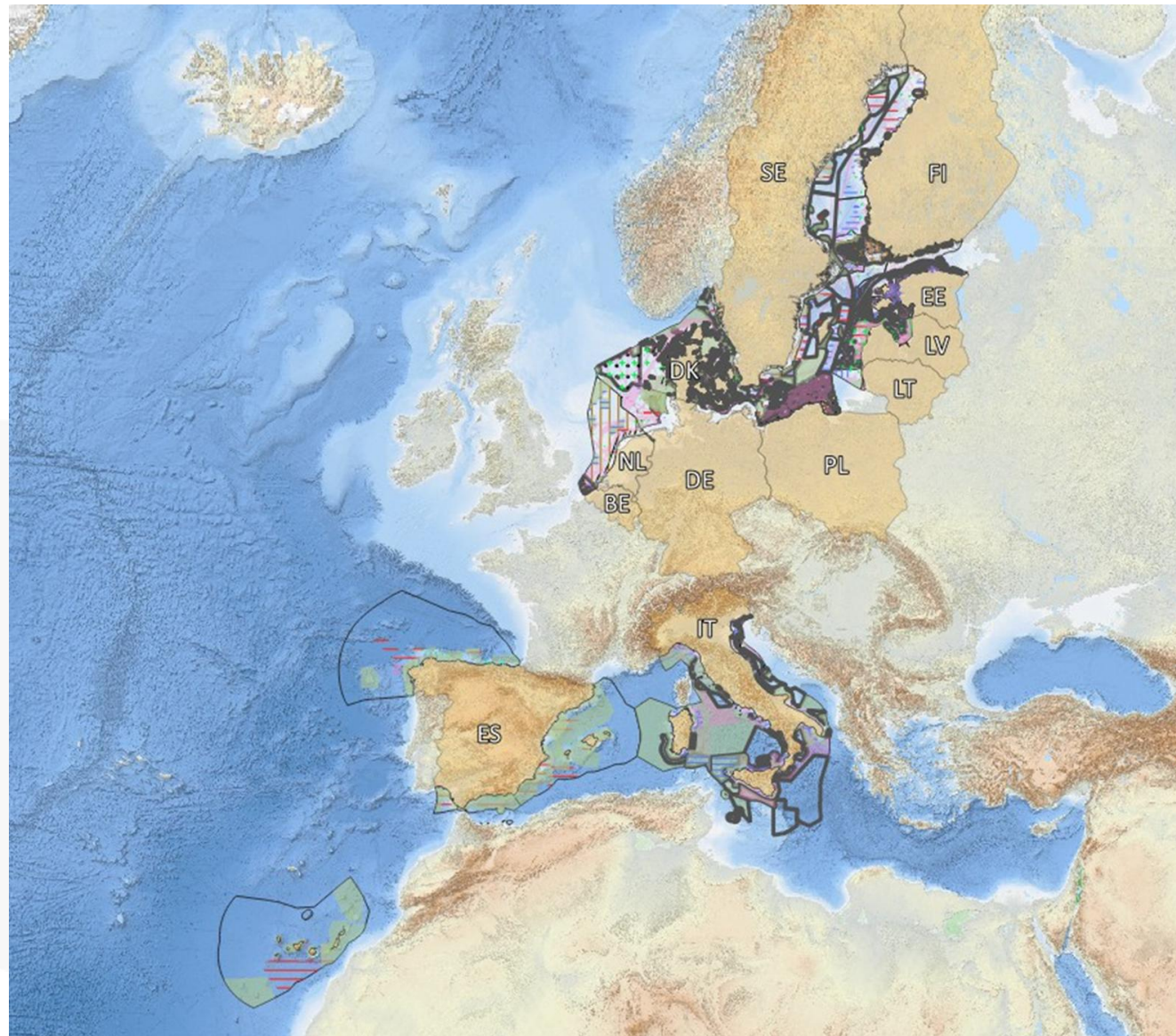
Marine living resources



- Double categorisation with **SeaUseName** and **SeaUseFunction** attributes.
- Classification of **sea uses** by groups to establish colours (**Blue Economy Sectors Classification**). Inside the groups, detailed differentiation by shape. Similar for **functions** (Classified into groups).

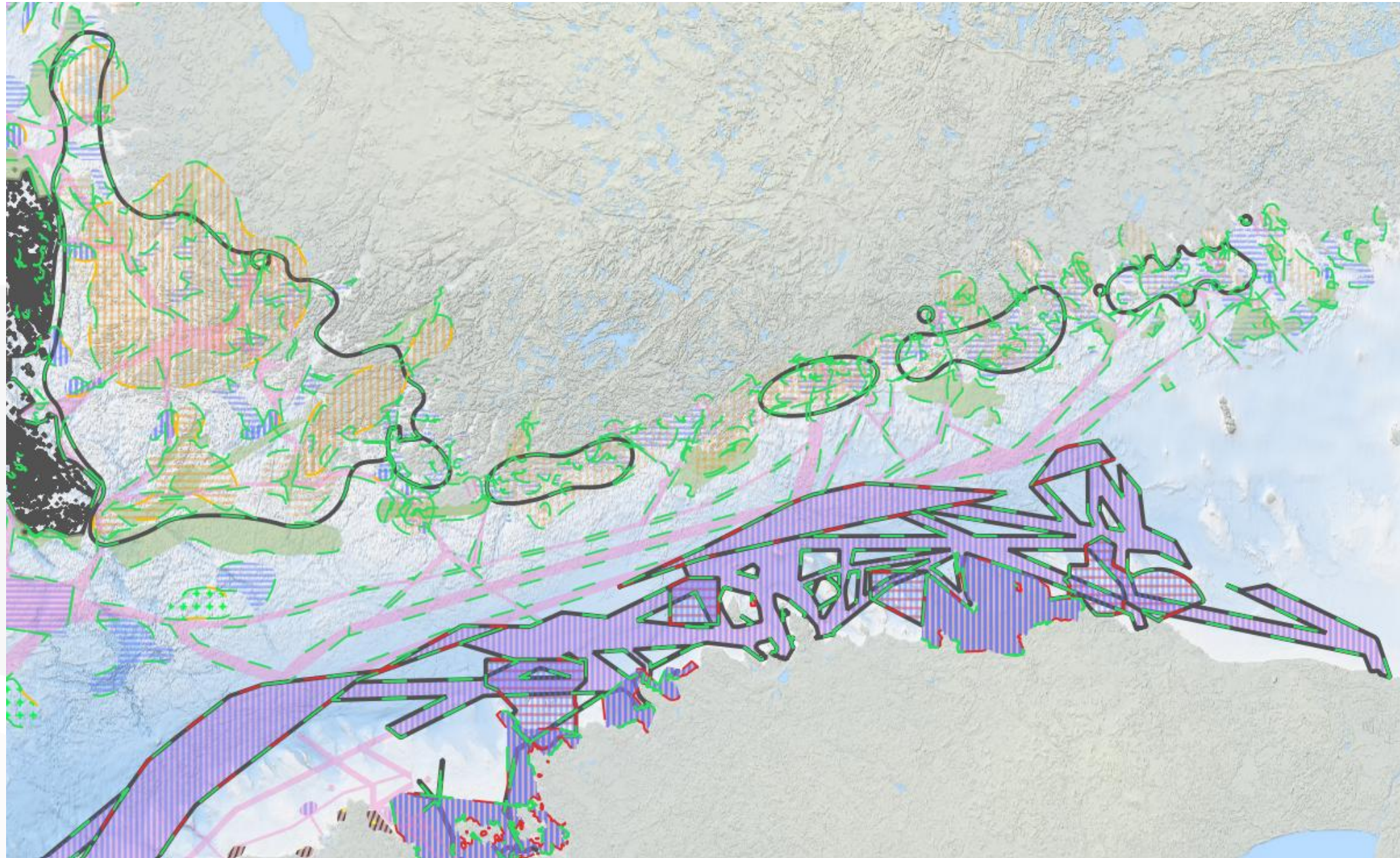
# Improving the visualization of EMODnet MSP Data Layer

## Modified symbology proposal, following contributions after San Simón workshop



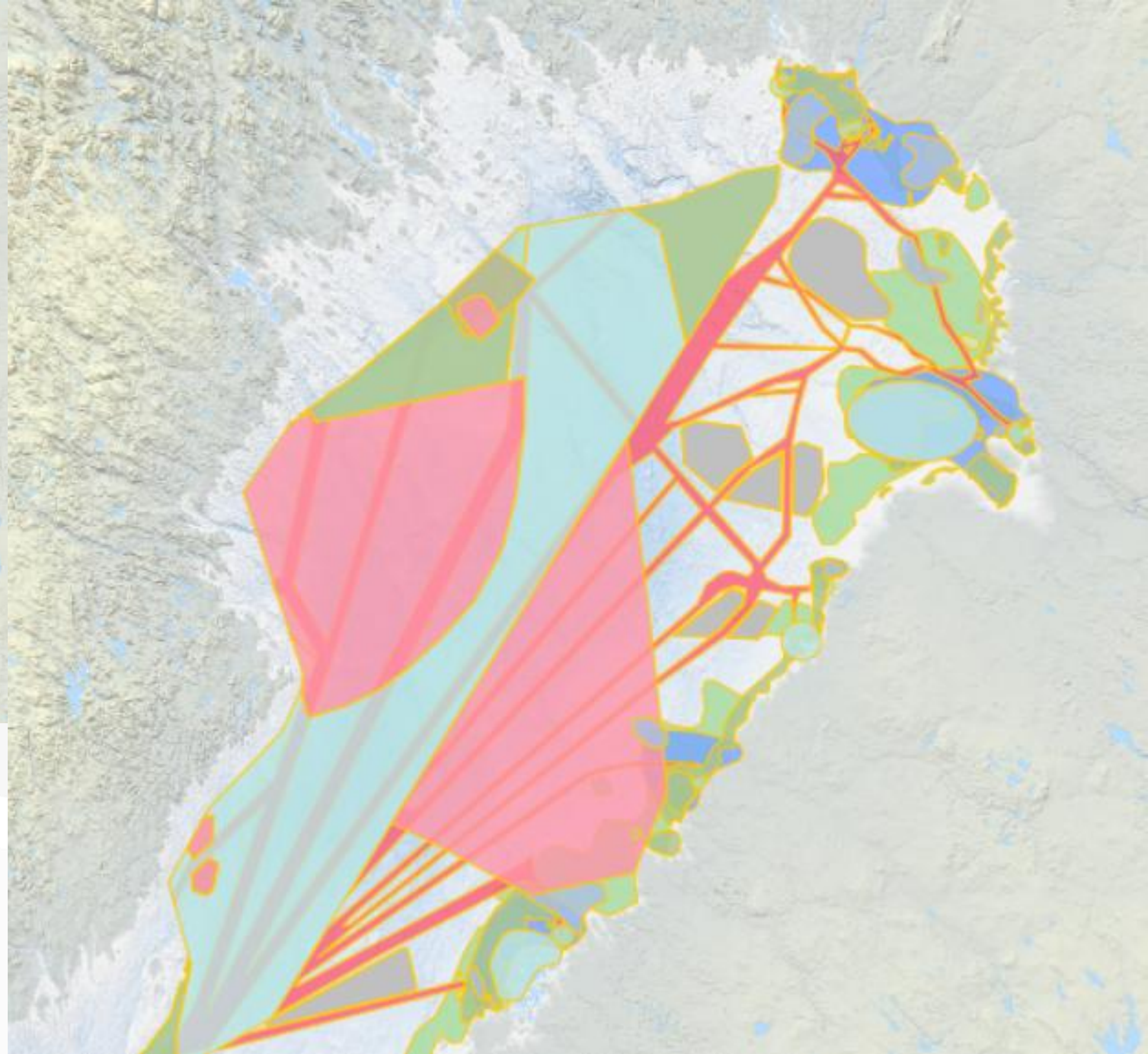
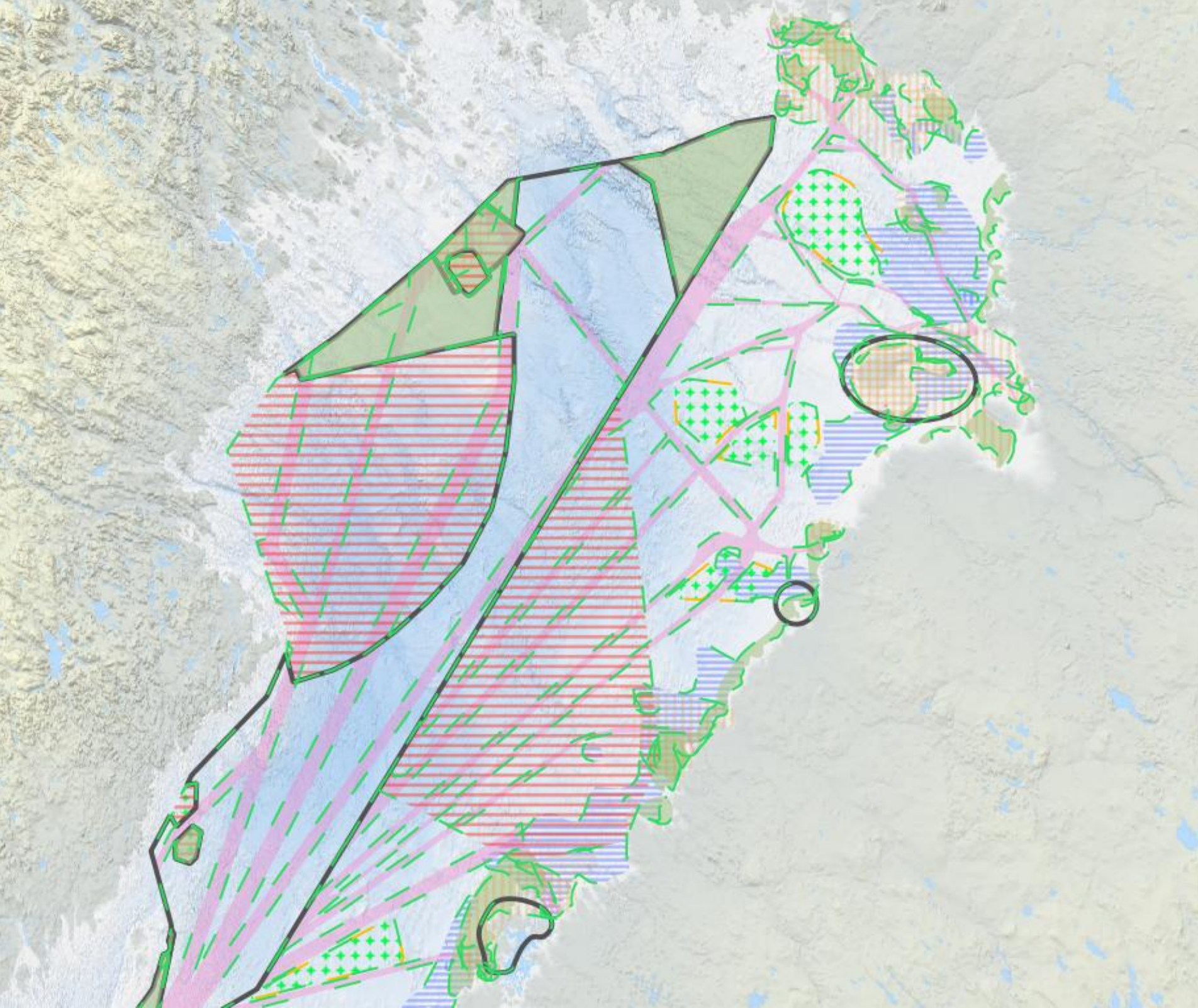
- Maintain the main idea: Double categorisation with **SeaUseName** and **SeaUseFunction** attributes.
- Application of different modifications: Shape between inner **sea uses groups**, interchange of style of **Boundaries and Other/miscellaneous uses**.

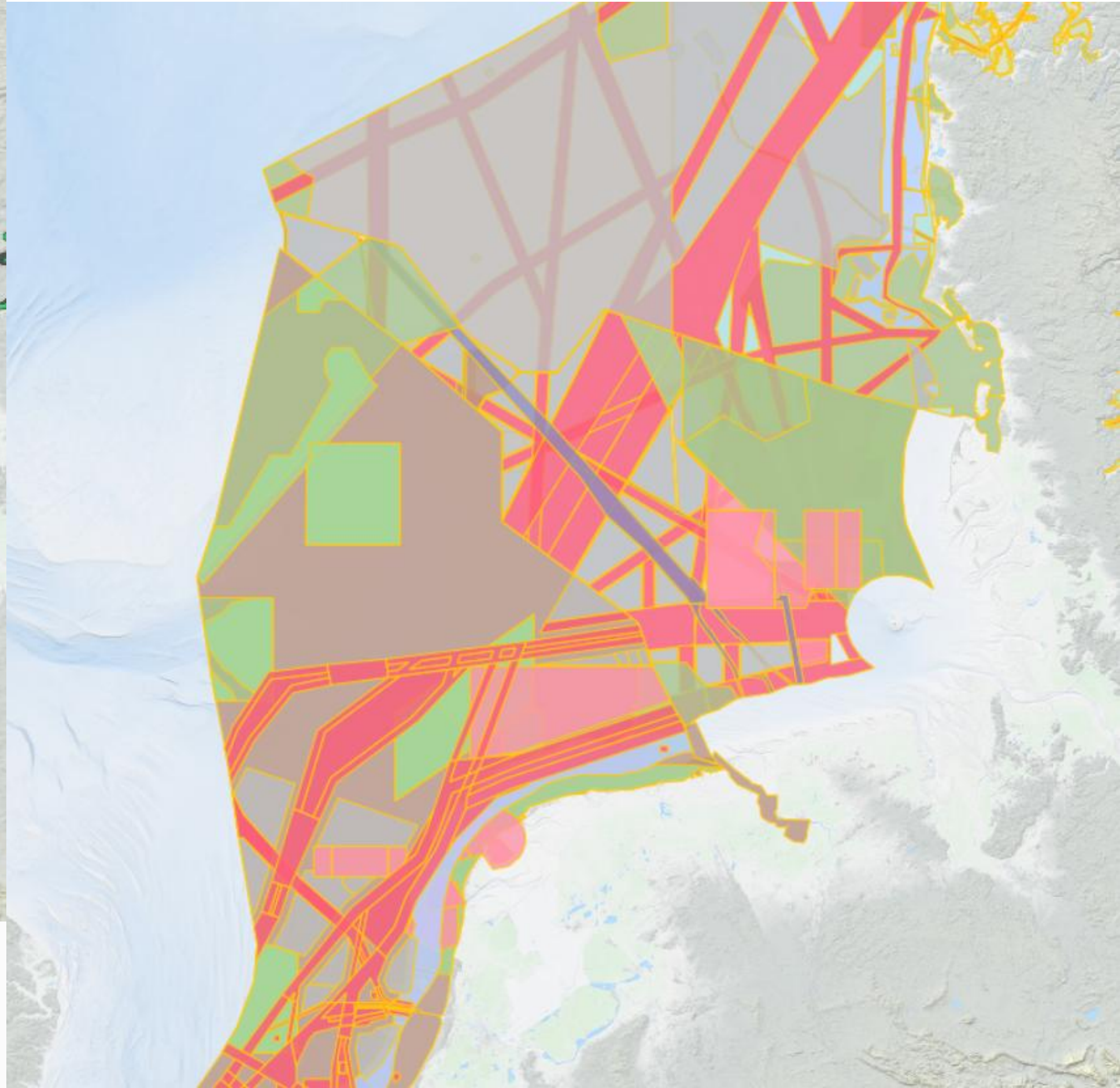
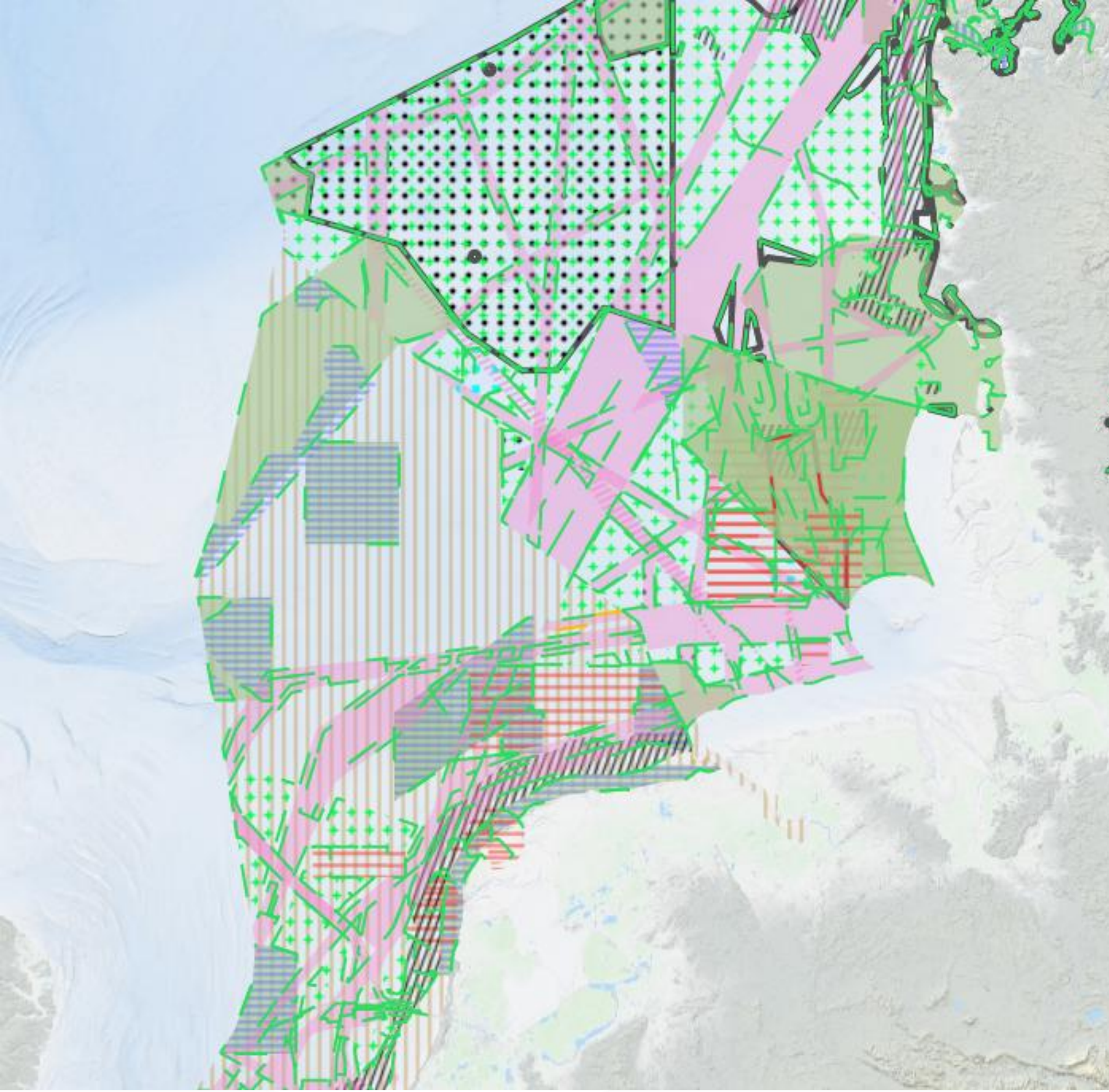
## Improving the visualization of EMODnet MSP Data Layer Modified symbology proposal, following contributions after San Simón workshop



### SeaUseFunction Legend Groups

- **Potential** (Include only Potential function) —
- **Forbidden** (Include only Forbidden function) —
- **Rest** (Include Allowed, Priority, Restricted and Reserved function. Also includes polygons whose function is not defined) —





# Improving the visualization of EMODnet MSP Data Layer

## Next Steps - IHO symbology

### IHO Geospatial Information Registry

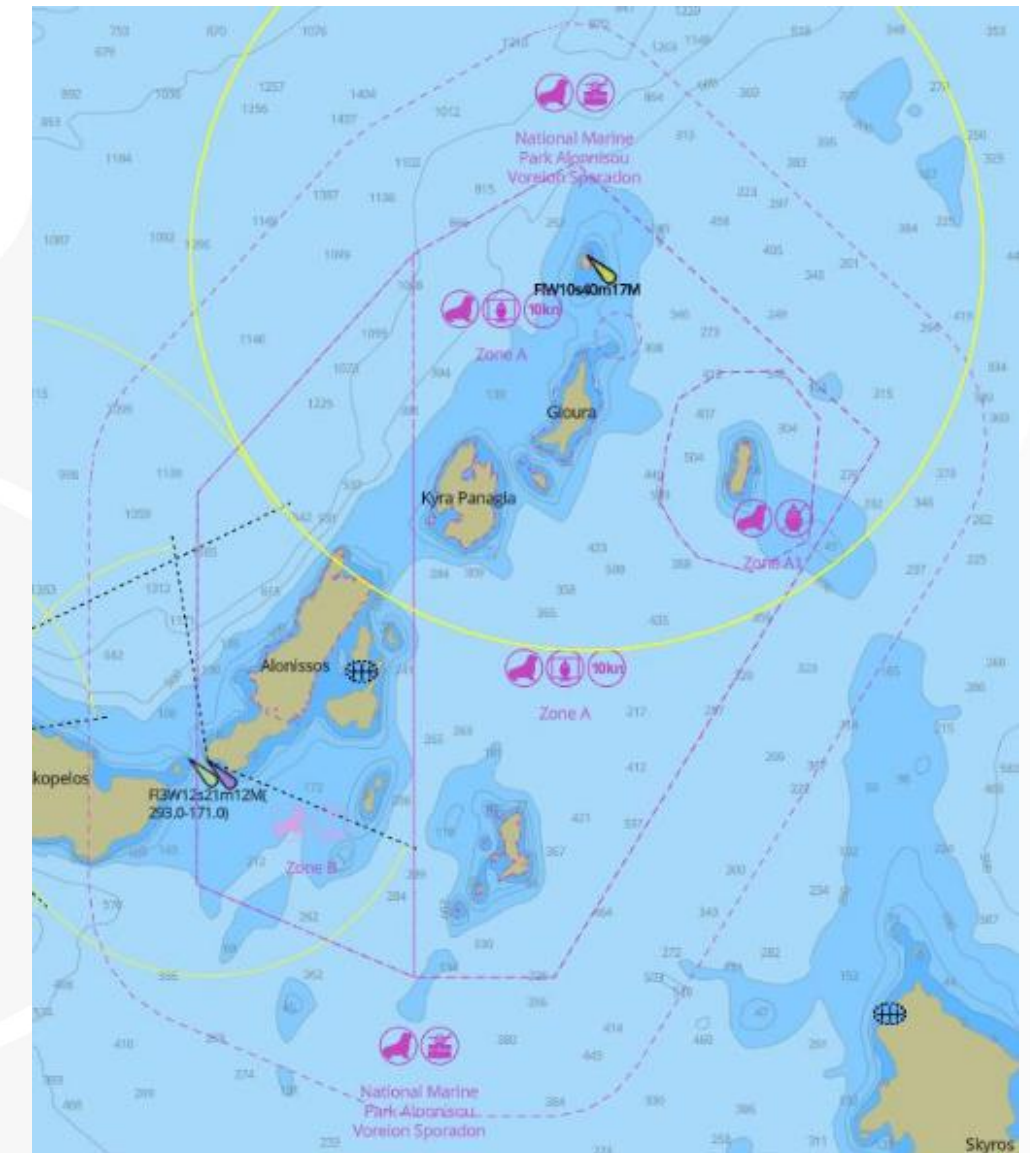
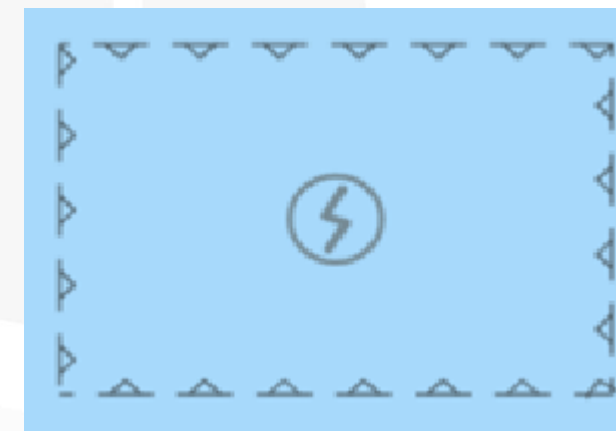
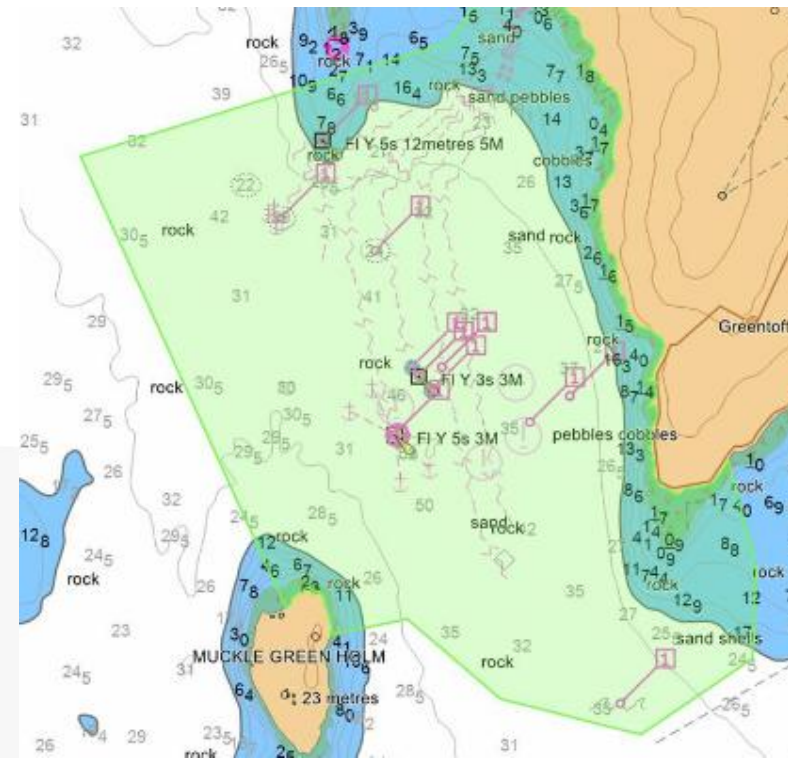
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Home / GI REGISTERS / Portrayal

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Domain ALL | Status Valid | Type name or definition | SVG Down

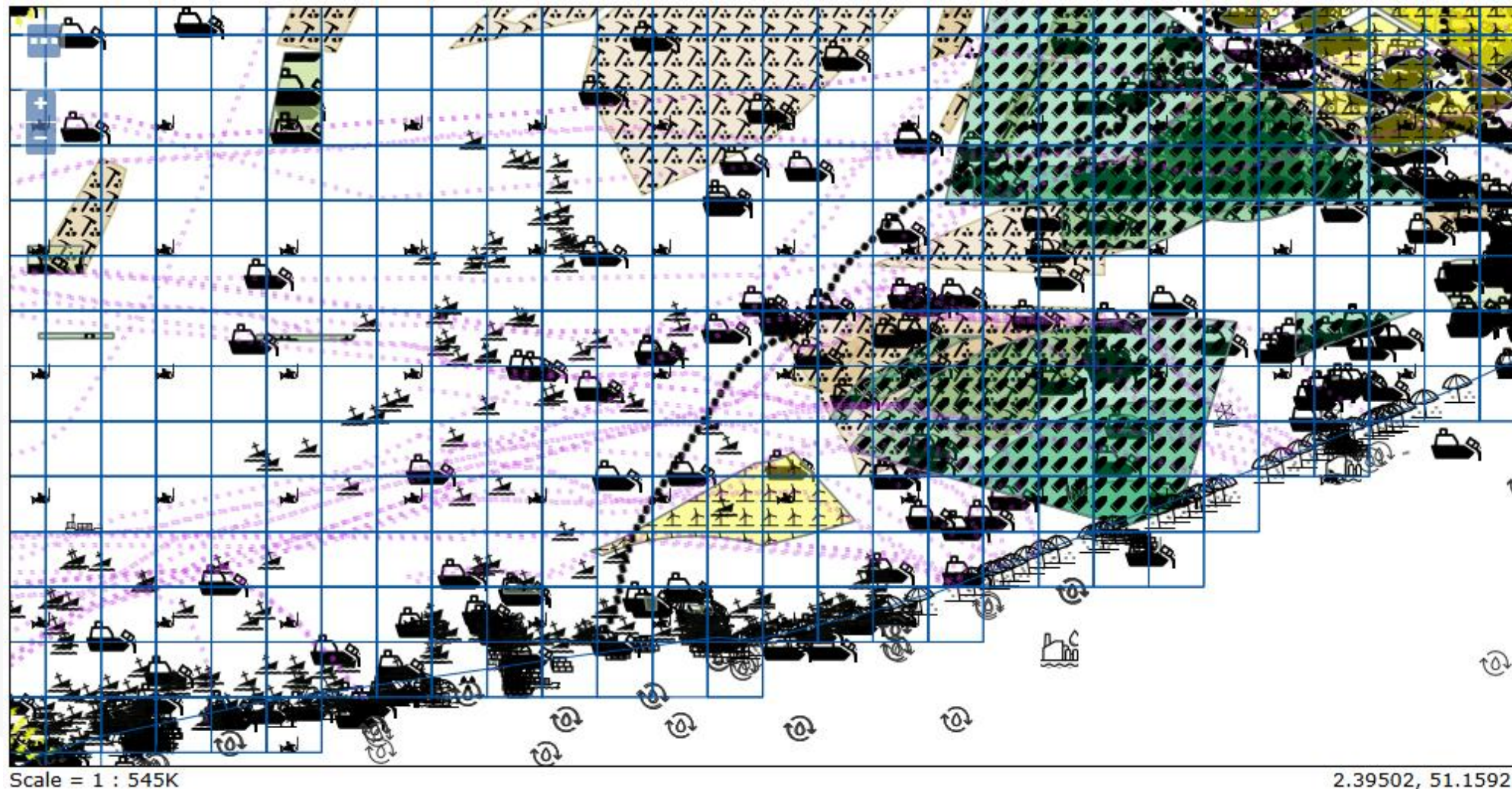
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1640		BOYSPH60	Spherical buoy – emergency wreck mark – paper-chart	symbol	Valid	2024-08-26
1632		NW01	Navigational Warning point symbol	symbol	Valid	2024-08-26
1631		NW02	Navigational Warning line and area symbol	symbol	Valid	2024-08-26
1628		WRECKS05	dangerous wreck, depth unknown	symbol	Valid	2023-11-30
1627		UWTROC03	dangerous underwater rock of uncertain depth	symbol	Valid	2023-11-30
1626		SPRING02	spring	symbol	Valid	2023-11-30
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1624		OBSTRN02	obstruction in the intertidal area	symbol	Valid	2023-11-30
1623		OBSTRN01	obstruction, depth not stated	symbol	Valid	2023-11-30
1622		FSHHA01	fish haven	symbol	Valid	2023-11-30
1621		DRGARE01P	dredged area	symbol	Valid	2023-11-30
1620		DANGER03	underwater hazard which covers and uncovers	symbol	Valid	2023-11-30
1619		DANGER02	underwater hazard with depth greater than 20 metres	symbol	Valid	2023-11-30


























- Own categorisation of sea uses for all types of geometries. Use in electronic navigational charts.
- Possibility to adapt to EMODnet MSP Data Layer (Create categorisation for SeaUseFunction...)?

# Improving the visualization of EMODnet MSP Data Layer




## Next Steps - EU-MUD symbology
















### SVG Symbols for EUMUD points

-  <http://data.europa.eu/ux2/nace2.1/0322>
-  <http://data.europa.eu/ux2/nace2.1/4291>
-  [https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/1\\_3\\_3\\_OtherMiningAndQuarrying](https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/1_3_3_OtherMiningAndQuarrying)
-  [https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/1\\_4\\_1\\_1\\_FinfishAquaculture.html](https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/1_4_1_1_FinfishAquaculture.html)
-  [https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/1\\_4\\_1\\_2\\_Molluscs%20Aquaculture.html](https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/1_4_1_2_Molluscs%20Aquaculture.html)
-  [https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/1\\_4\\_1\\_3\\_SeaweedAquaculture.html](https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/1_4_1_3_SeaweedAquaculture.html)
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-  [https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/4\\_3\\_5\\_2\\_SubmarineCableTelecom.html](https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/4_3_5_2_SubmarineCableTelecom.html)
-  [https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/6\\_8\\_MilitarArea.html](https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/6_8_MilitarArea.html)

### SVG Symbols for EUMUD lines (SVG pattern lines)

-  [https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/4\\_3\\_5\\_1\\_SubmarineCablePower.html](https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/4_3_5_1_SubmarineCablePower.html)
-  [https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/4\\_3\\_5\\_2\\_SubmarineCableTelecom.html](https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/4_3_5_2_SubmarineCableTelecom.html)
-  [https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/4\\_3\\_1\\_ElectricityGasAndThermalPowerDistributionServices.html](https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/4_3_1_ElectricityGasAndThermalPowerDistributionServices.html)

### SVG Symbols for EUMUD polygons (SVH pattern fill + 40% transparency)

-  <http://data.europa.eu/ux2/nace2.1/0322>
-  <http://data.europa.eu/ux2/nace2.1/4291>
-  [https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/1\\_3\\_3\\_OtherMiningAndQuarrying](https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/1_3_3_OtherMiningAndQuarrying)
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-  [https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/1\\_4\\_2\\_ProfessionalFishing.html](https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/1_4_2_ProfessionalFishing.html)
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-  [https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/2\\_4\\_2\\_FossilFuelBasedEnergyProduction](https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/2_4_2_FossilFuelBasedEnergyProduction)
-  [https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/2\\_4\\_4\\_1\\_RenewableEnergyProductionWind.html](https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/2_4_4_1_RenewableEnergyProductionWind.html)
-  [https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/2\\_4\\_4\\_RenewableEnergyProduction.html](https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/2_4_4_RenewableEnergyProduction.html)
-  [https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/4\\_3\\_3\\_5\\_MarineWasteDumping.html](https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/4_3_3_5_MarineWasteDumping.html)
-  [https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/6\\_8\\_MilitarArea.html](https://www.geoportal.ulpgc.es/registro/plannedLandUse/HilucsExt/6_8_MilitarArea.html)

- Sea Uses categorisation based on the eHilucs vocabulary or the EUROSTAT's NACE 2.1.
- Possibility to adapt to EMODnet MSP Data Layer (Create categorisation for SeaUseFunction...)?

# Improving the visualization of EMODnet MSP Data Layer

## Next Steps - MSPdF categorization

Marine & Coastal Environment	<a href="#">Data cluster 1</a>
Marine & Coastal Conservation and Designated sites	<a href="#">Data cluster 2</a>
Oceanographic characteristics and Climate	<a href="#">Data cluster 3</a>
Coastal <i>Land use</i> and Planning	<a href="#">Data cluster 4</a>
Operative maritime activities and Planning	<a href="#">Data cluster 5</a>
Socio-economic information	<a href="#">Data cluster 6</a>
Governance information	<a href="#">Data cluster 7</a>

### OPERATIVE MARITIME ACTIVITIES & PLANNING

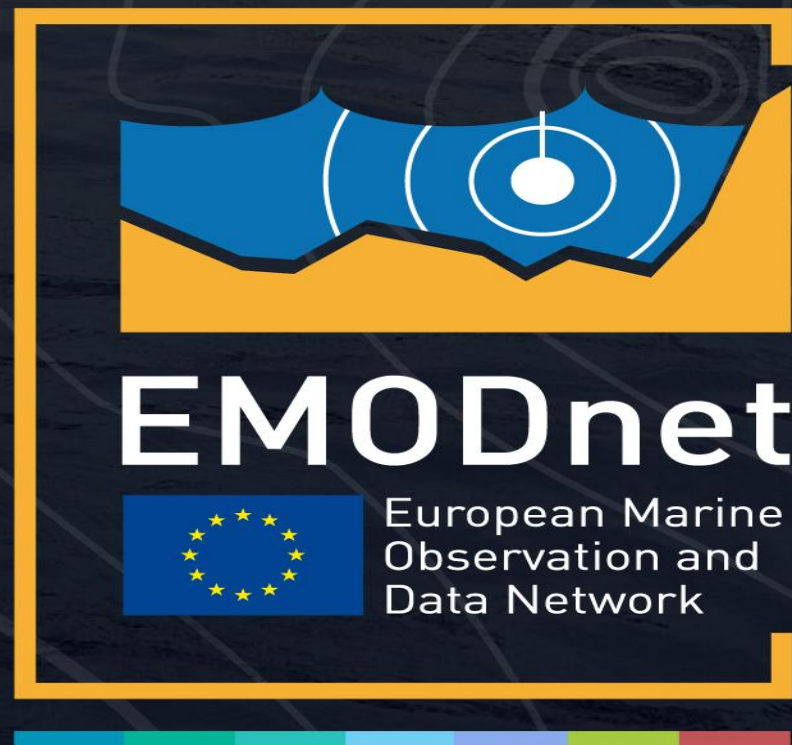
CATp5.1	CATp5.2	CATc5.3	CLA5.3.1	CLA5.3.2
<b>PRIMARY PRODUCTION</b>				
<i>Aquaculture (syn: fish farming)</i>				
<u>Marine farm/culture</u>				
Finfish production				
Shellfish/molluscs production				
Mussels production				
Hollow oyster production				
Flat oyster production				
Clam production				
Algae production				
Microalgae production				
Macroalgae production				
Seaweed production				
Freshwater finfish production				
Farming of new species				
<u>Regulatory marine farm zone (syn: aquaculture concession)</u>				
<i>Fisheries (syn: fishing)</i>				
<u>Professional fisheries/fishing (syn: commercial)</u>				
Fishing area				
Regulatory fishing zone (syn: fishing restriction)				
Fishing effort				

- Sea Uses categorisation based on the MSPdF clusters categorization.
- Possibility to adapt to EMODnet MSP Data Layer (Create categorisation for SeaUseFunction...)?

## Improving the visualization of EMODnet MSP Data Layer Next Steps

- Validation and elaboration of the **TEG's SLD**.
- Test other **different simbologies (SLD)**, such as:
  - IHO symbology
  - EU-MUD symbology
  - MSPdF categorization
- Link the results of the **TEG's eHilucs subgroup**.
- Publication in **EMODnet**.

# Thank you!



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