

EMODnet
European Marine
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Data Network

Your gateway to marine data in Europe

MSP and EMODNET


;-Coastal Mapping Strategy- News - Land-Sea Interaction for MSP

-Innovative uses of EMODNET portals ; « Transnational MSP Checkpoints »

EMODNET SC ROMA Sept 2017

Lochet Corine | Shom

The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) No 509/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund.




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Coastal mapping project

- Overview and state of art of High Resolution bathymetric data in EU for maritime policies in coastal zones
- Evaluation of Gaps and propositions to fill it

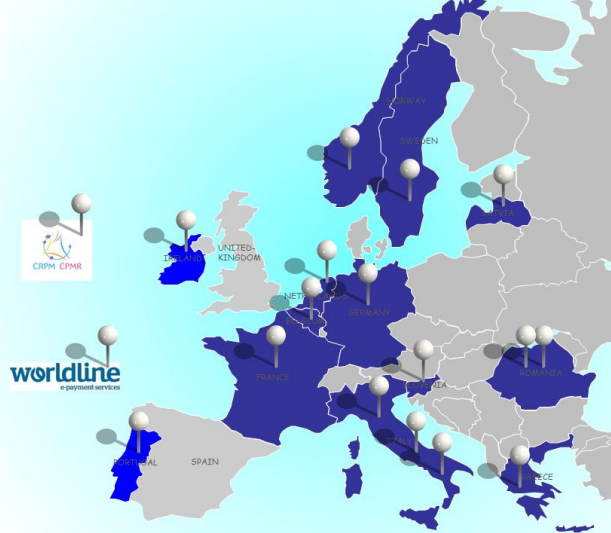
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


European Commission

Consortium

- **Hydrographic offices :**
FRANCE – BELGIUM – GERMANY – GREECE – IRELAND – ITALY – LATVIA – NORWAY – PORTUGAL – SLOVENIA – SWEDEN
- **Regions :**
CPMR – Regione Lazio
- **Public Bodies :**
ISPRA – RWS - GeoEcomar – DDNI
- **IT company :**
Worldline







Protection against erosion and marine flood



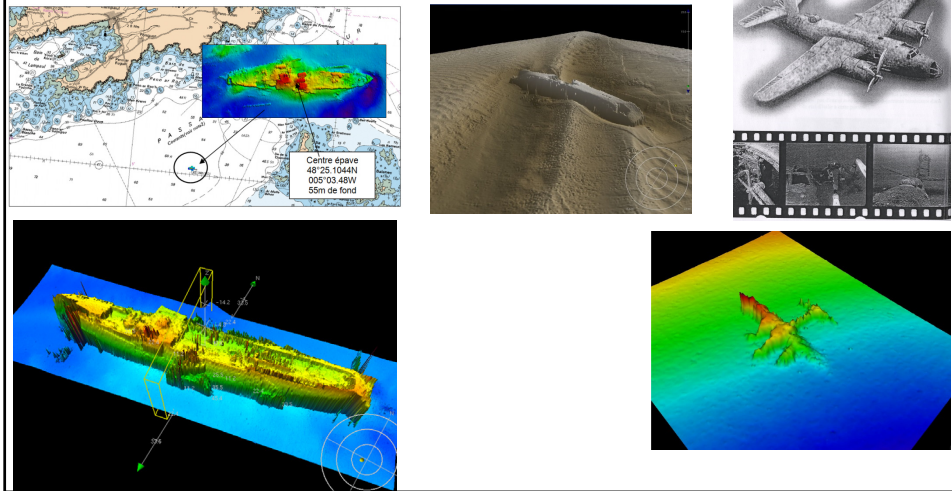
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Manage the safety of navigation and the marine archeology

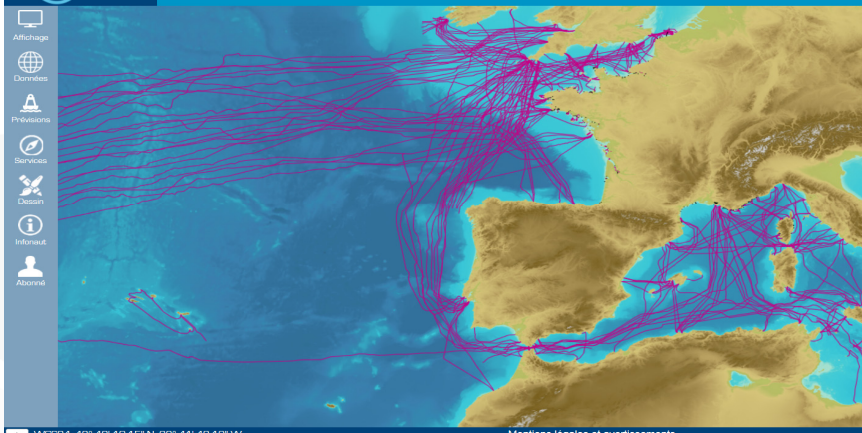


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Geostrategy and cables


SHOM L'édition de référence

DATA.SHOM.FR Information géographique maritime et littorale de référence

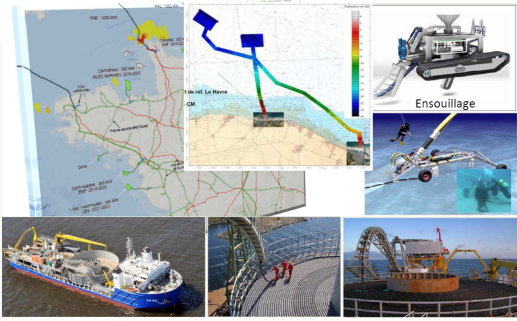


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 **Laying of submarine cables**

Principe de l'installation de câbles sous-marins

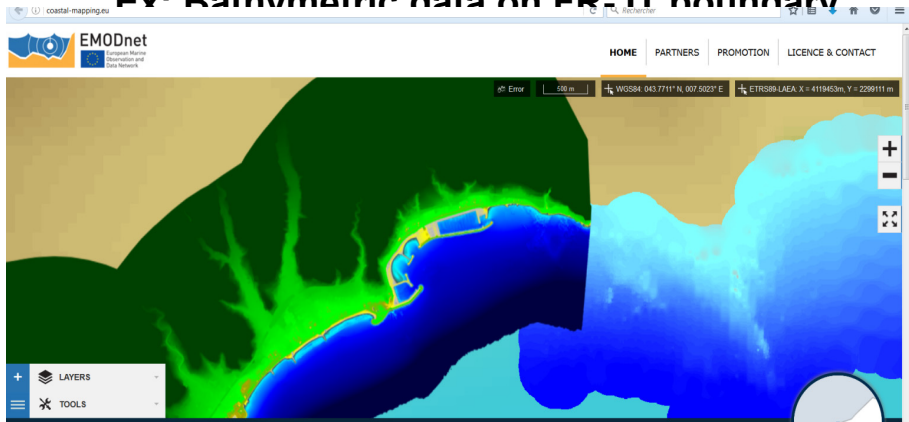


5 Navire Câblier ation des câbles de Chargement du câble puis Déroulage en mer

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**EBA needs transboundary information
Ecosystems don't stop on administrative
limits..**

Ex: Bathymetric data on FR-IT boundary



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Diving/Habitat protection

Impression 3D des sites de plongée




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Reunion plénière du Pôle Metiers Mer & Littoral – CRIGE PACA – 12 mai 2015

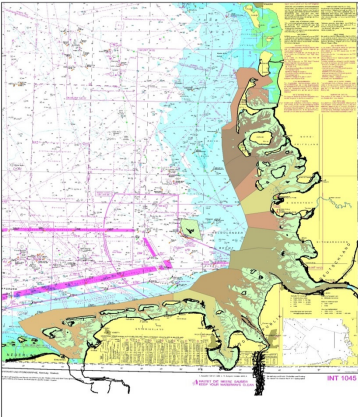
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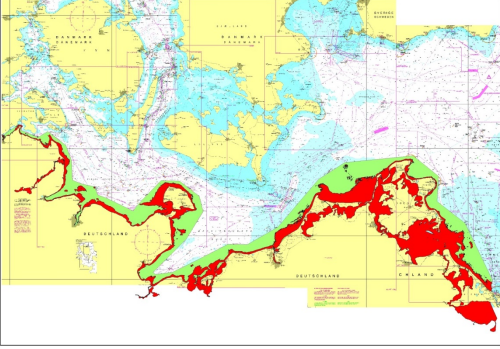
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Analysis of the needs and means in Europe for the acquisition of bathymetric data in coastal areas; more than **175 000 km²** of acquisition to do, only for the panel countries


- Ex; German coastal zone: North Sea (intertidal zone in light green) & Baltic Sea (Bathymetric Lidar in red) Result;



Stand: Juni 2016



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Towards a European strategy for HR bathymetric data

Through collating all the results, a proposition of EU Strategy has been produced, approved by all the partners and presented to the DG MARE. This strategy is based on three axes and should be implemented by three pillar actions.

Three axes

1


Set up coordinated programmes

2

Seize opportunities with EU funds

3

Promote good practices



Recommendations from the "Coastal Mapping Partnership" representing 13 countries, 160 Maritime Regions, on all the EU maritime basins:

Standardised, safe, authoritative, and high resolution data is a prerequisite for reusable data by all stakeholders. IHO¹ rules must be used; no data should be gathered without an assessment of defined standards of data acquisition. The final certification should be the responsibility of the relevant country.

It is strongly recommended that standards should be mandatory when bathymetric data is acquired using EU funds in the context of maritime policies and research. It would be pragmatic that bathymetric specialists be involved in the preparation of EU programmes with maritime objectives. This would facilitate the use of standards, to which the IENWG² could be associated.

The partnership supports the pooling of these data in EMODNET products, to permit the implementation of all EU maritime Directives, particularly for the transnational cooperation needed for an integrated coastal management approach.

The coastal mapping project has developed different tools to assist planners. The coastal mapping portal, the algorithm for choosing the acquisition technology and a tool for better costing need further development but would be fundamental in supporting European programme development in relevant areas.

A cost-benefit analysis approach could demonstrate the interest to Europe of a secured mechanism of acquisition and sharing of coastal bathymetric data, and the "coast benefit" of the Strategy proposed here.

1- International Hydrographic Organization <http://iho.int/>
2- IHO - EU Network Working Group

Three pillar actions to support the strategy

- 1- Set up coordinated programmes for data acquisition at maritime basin scale.
- 2- Seize opportunities for bathymetric data acquisition in the framework of the EU operational programmes and funds, and ensure that those data are standardized and capitalised.
- 3- Promote good practices to produce bathymetric data from multiple sources, standardised for re-use by all coastal stakeholders for maritime policies.

Each maritime management plan begins with acquiring HR bathymetric data and it should be considered as a public service.

The coastal area is a key zone for blue growth, ecosystems and habitats and high risk climate change areas; however due to different conditions, it is necessary to take into account numerous localized requirements in the future acquisition strategy for coastal data.

Establish a European steering committee on Strategy

Establish standards and hydrographic practices for all potential contributors acquiring these data

Establish a partnership with coastal stakeholders using high resolution bathymetric data in Europe

9/15/2017



MAPPING EU'S COASTS

A KEY TOWARDS SUSTAINABLE BLUE DEVELOPMENT

7 FEB 2017 / 14:00-16:00 H
EUROPEAN PARLIAMENT / ASP 501

GÉSINE MEISSNER PRESIDENT OF THE INTERGROUP
RICARDO SERRÃO SANTOS VICE-PRESIDENT FOR MARINE KNOWLEDGE

WWW.SEARICA.EU

ORGANISED WITH THE SUPPORT OF CPMA - SECRETARIAT OF THE INTERGROUP
FOR REGISTRATION AND ACCESS BASES PLEASE CONTACT
LUCAS.BUSSIER@CPMA.DG / +33 (0)2 89 35 48 91





European Union
Seas, Rivers, Islands
Coastal Areas
Maritime and Fisheries Fund

Coastal Mapping



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- *Standardized and high resolution data are the conditions of re-usability of data by the national and local authorities and stakeholders for the national and EU maritime policies; precision for decisions for management of activities and juridical situations.*

We should climb a step with the use of standards in EU funded projects.

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RECOMMANDATIONS FROM COASTAL MAPPING PARTNERSHIP

- BE COMPLIANT WITH INSPIRE DIRECTIVE
- CONSIDER THE MUTUALIZATION OF ACQUISITION OF DATA USEFUL FOR COASTAL MANAGEMENT AND AS A PUBLIC SERVICE
- TRANSFORM THE DATA IN FEEDS WMS/WFS...

WHEN EU FUNDS ARE USED

GIVE STANDARDS FOR ACQUISITION OF BATHYMETRY AND OTHER DATA TO THE PARTNERS OF THE PROJECTS

FILL NATIONAL MSDI AND EMODNET ONE WITH VALIDATED DATA




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DG-MARE IHO-IENWG

CROWD-SOURCED BATHYMETRY WORKING GROUP (CSBWG)
Terms of Reference
(as adopted by IRCC-7, June 2015)

1. Preamble
The 5th Extraordinary International Hydrographic Conference (EIHC-5) considered Proposal 4 on Crowd Sourced Bathymetry (CSB) and decided by Decision 8 to task the IRCC to establish a Working Group (WG) to prepare a new IHO publication on policy for trusted crowd-sourced bathymetry, taking into account EIHC-5 Proposal 4 and the comments made during the Conference.

2. Objectives

- a. Prepare a draft IHO publication on policy for trusted crowd-sourced bathymetry for consideration and endorsement by the 8th meeting of the IRCC in 2016.
- b. The draft IHO publication on policy for trusted crowd-sourced bathymetry should provide guidelines on the collection and assessment of CSB data, not only for potential use for charting purposes but also for its wider use in non-navigational applications. The WG should:
 - (1) take into account EIHC-5 Proposal 4 and the comments made during the Conference;
 - (2) take into account the ongoing work to enhance the IHO Data Centre for Digital Bathymetry (DCDB) as a data discovery and upload/download portal for Crowd-Sourced Bathymetry;

English


CROWD-SOURCED BATHYMETRY WORKING GROUP (CSBWG)

Chair: Jennifer JENCKS (USA)
Vice-Chair: Serge GOSSELIN (Canada)
Secretary: David WYATT (IHO, Monaco)

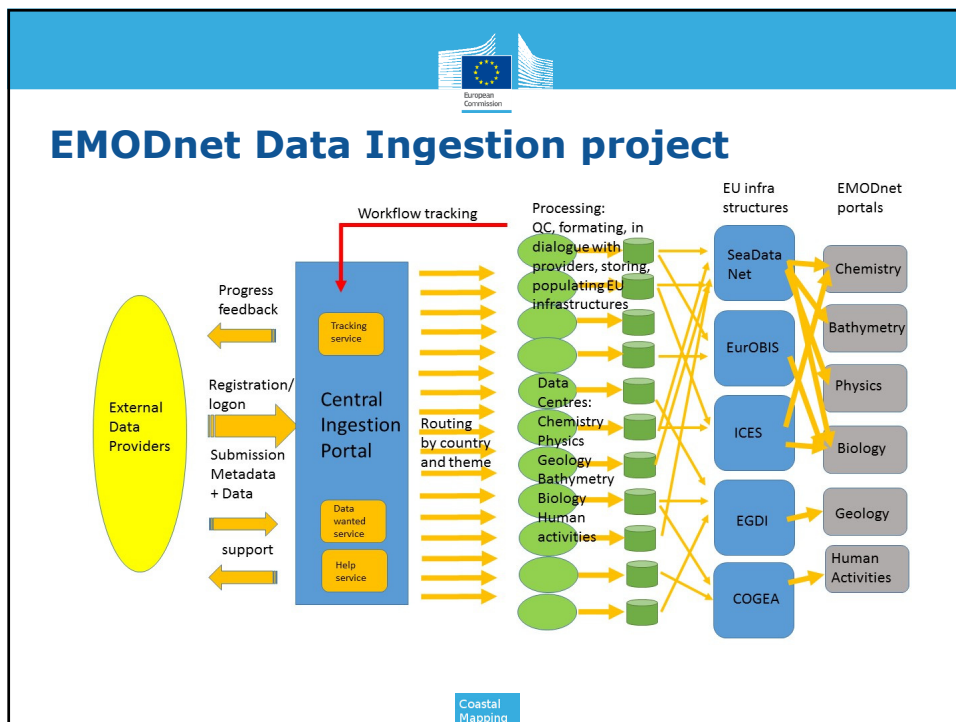
Objectives:
As a result of Decision 8 of the Extraordinary International Hydrographic Conference 5, the IHO Inter-Regional Coordinating Committee established a Crowd-sourced Bathymetry Working Group (CSBWG) at its 7th meeting in Mexico City.
The CSBWG will examine how best to incorporate, manage and use bathymetric data acquired by other than conventional means and develop principles and guidelines to enable the appropriate collection and use of crowd-sourced bathymetry for the benefit of all stakeholders interested in knowing the shape and nature of the seafloor and its depths.
The CSBWG will draft an IHO publication on policy for trusted crowd-sourced bathymetry including guidelines on the collection and assessment of CSB data, not only for potential use for charting purposes but also for its wider use in non-navigational applications. The publication will take into account the work to enhance the IHO Data Centre for Digital Bathymetry (DCDB) as a data discovery and upload/download portal for Crowd-Sourced Bathymetry and lessons learned and specifications created during the IHO CSB pilot projects. See Terms of Reference and Work Program for further information.

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International Hydrographic Organization
Organisation Hydrographique Internationale





COASTAL MAPPING STRATEGY NEXT STEPS

- Consultation among HOs, partners of coastal mapping, DGs to design a way of work for acquisition strategy
Autumn 2018

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Coastal data for Integrated Maritime Policies LOCHET Corine Shom



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Supporting Implementation of Maritime Spatial Planning in the Celtic Seas



Component 1: Supporting Implementation of MSP

Component 1.2.2: Data and Information requirements for MSP
Deliverable 4: Analysis of Data Needs and Existing Gaps – Specifically Relating to Transboundary Working



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SIMCelt Partners



The Scottish Government
Riaghairtas na h-Alba



L'océan en référence



UNIVERSITY OF LIVERPOOL



UCC
Coláiste na h-Uí Chonaire Ceiligh, 200
Shannon College of the Shillong, Ireland



Marine Institute
Párlaí na Mara



Department of Agriculture, Environment and Rural Affairs
www.dae.gov.uk



AGENCE FRANÇAISE POUR LA BIODIVERSITÉ
Gouvernement français - Ministère de l'Environnement

Other Members of the Task Group on Data



United Kingdom Hydrographic Office



Marine Management Organisation



Direction Départementale de la Mer
MORBIHAN-LOIRE-ATLANTIQUE

Deliverable Title: Analysis of Data Needs and Existing Gaps – Specifically Relating to Transboundary Working

Deliverable Lead Partner: Shom

Deliverable i.d.: SIMCelt-C1-C1.2.2-D4



Participants to the working group for Data, Data needs, Data gaps, for MSP
SIMCEL T PROJECT



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"Data and information requirements for MSP", WMS WFS...

- A technical study **to identify, analyse and address technical challenges and gaps** on data and information, occurring when displaying and disseminating relevant Maritime Spatial Planning data on both sides of a maritime boundary.
- The types of data searched are online with the data study for MSP approved by the EU MSP Expert group
- Gaps are analysed in particular against INSPIRE standard compliance, according to its identification as the ideal format for data to be compliant with
- WMS, WFS, feeds were identified

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Marine Renewable Energies SIMCELT data report



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SIMCelt-C1-C1.2.2-D4

Marine Renewable Energies: selection of datasets

Theme	Layers	Area	Producer	SDI	Inspire metadata	Diffusion	Openness
Wind energy	Wind Farms	Europe	EMODnet Human activities	EMODnet Human activities	yes	WFS	Open
Wind energy	Wind Lease Sites	Scotland	The Crown Estate	Marine Scotland NMPI	No	WMS	Open
Ocean energy	Ocean energy facilities	Europe	EMODnet Human activities	EMODnet Human activities	yes	WFS	Open
Ocean energy	Galway Bay 1/4 Scale Wave Energy Test Site Atlantic Marine energy full scale test site	Ireland	Marine Institute	Ireland's Marine Atlas	Yes	WMS	Open
Ocean energy	Wave lease Sites Tidal Lease Sites	Scotland	The Crown Estate	Marine Scotland NMPI	No	WMS	Open
Wind & ocean energies	OSPAR Offshore Renewable Energy Developments	Europe	OSPAR Commission	OSPAR Data Portal	Yes	WFS	Shared

Table 9 - Marine Renewable Energies: selection of datasets

Assets

- Some data harmonisation work already initiated with EMODnet Human activities project and OSPAR commission
- Data partly comes from SIMCelt partner which will make it easier to provide updates to datasets.

Barriers

- Some datasets only viewable on MSDI and not available by web services (ex: Wales)
- Heterogeneity in data models, object types, licencing, etc between the different sources.

Action needed

- No action plan defined yet

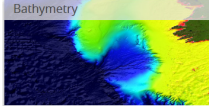


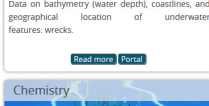
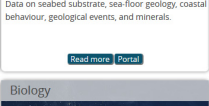
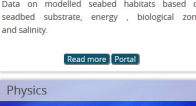
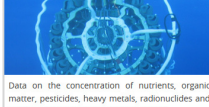



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EMODNET CONSTELLATION

 <p>Bathymetry</p> <p>Data on bathymetry (water depth), coastlines, and geographical location of underwater features: wrecks.</p> <p>Read more Portal</p>	 <p>Geology</p> <p>Data on seabed substrate, sea-floor geology, coastal behaviour, geological events, and minerals.</p> <p>Read more Portal</p>	 <p>Seabed Habitats</p> <p>Data on modelled seabed habitats based on seabed substrate, energy, biological zone, and salinity.</p> <p>Read more Portal</p>
 <p>Chemistry</p> <p>Data on the concentration of nutrients, organic matter, pesticides, heavy metals, radionuclides and antifoulants in water, sediment and biota.</p> <p>Read more Portal</p>	 <p>Biology</p> <p>Data on temporal and spatial distribution of species abundance and biomass from several taxa.</p> <p>Read more Portal</p>	 <p>Physics</p> <p>Data on salinity, temperature, waves, currents, sea-level, light attenuation, and FerryBoxes.</p> <p>Read more Portal</p>
 <p>Human Activities</p> <p>Data on the intensity and spatial extent of human activities at sea.</p> <p>Read more Portal</p>	 <p>Coastal Mapping</p> <p>Building a joint European Coastal Mapping Programme.</p> <p>Read more Portal</p>	



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Supporting Implementation of MSP in the Celtic Seas SIMCelt-C1-C1.2.2-D4

Types of habitats

We can identify two types of data when dealing with marine habitats: data collected from surveys, and predictive maps based on models. When surveys bring accurate data on focused areas of interest, models try to extrapolate in order to provide regional maps. For the needs of SIMCelt portal demonstrator, predictive maps providing complete coverage of the project area is relevant.

Coverage
A complete map of marine habitats in Europe, therefore covering the Celtic Seas, is made available through EMODnet Seabed Habitats project.

**INSPIRE DIRECTIVE
DATA AND FEEDS
WMS/WFS/WPS...**

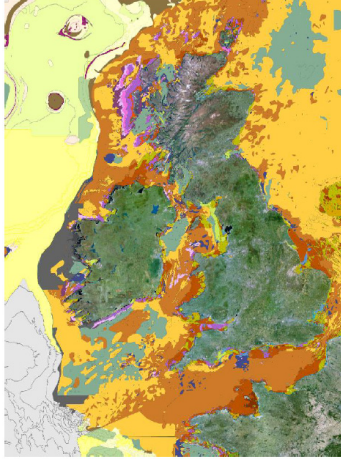




Figure 4 - Marine Habitats

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Types of habitats: selection of datasets

Theme	Layers	Area	Producer	SDI	Inspire-compliant	Diffusion	Openness
Habitats	EUSeaMap2 (2016) Broad-Scale Predictive Habitat Map	Europe	EMODnet Habitats	EMODnet Habitats	Yes	WMS	shared

Table 4 - Types of habitats: selection of datasets

Assets


- One reference layer for the whole project area

Barriers

- Limit of confidence of modelled habitats maps


Action needed

- No action needed



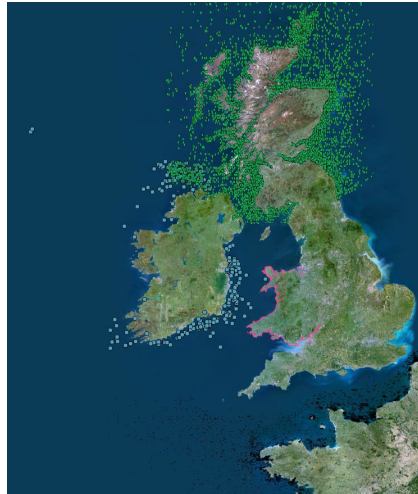
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Underwater cultural heritage



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SIMCelt-C1-C1.2.2-D4

Underwater cultural heritage: selection of datasets

Theme	Layers	Area	Source	SDI	Inspire Metadata	Diffusion	Openness
Wrecks	Epaves et obstructions	France	Shom	data.shom.fr	Yes	WMS	Shared
Wrecks	Infomar seabed survey shipwrecks	Ireland	INFOMAR Project	Marine atlas	Yes	WFS	Open
Wrecks	Losses Vessels designated as Controlled Sites under the Protection of Military Remains Act 1986	Scotland	RCAHMS	Marine Scotland NMPI	No	WMS	Shared
Sites of Interest	Historic Marine protected areas World heritage sites	Scotland	Historic Environment Scotland	Marine Scotland NMPI	No	WMS	Shared

Table 17 - Underwater cultural heritage: selection of datasets

Assets

- Data partly comes from SIMCelt partner which will make it easier to provide updates to datasets.

Barriers

- Data portrayal: Each layer has its own symbology
- Issues with WMS layers coming from ArcGIS Server: white background

Action needed

- No action plan defined yet



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Physical, chemical & biological information

Physical characteristics

Physical characteristics include information about seabed like bathymetry and geology, but also data concerning the water column and surface: temperature, salinity, waves, currents, etc. For the most part of these parameters, it is possible to identify sources of information covering the whole project area and available by web service.

Coverage

For many physical parameters, it is possible to identify sources of information covering the whole project area and available by web service. Shom, known as a reference producer and partner in SIMCelt project, can provide some physical parameters datasets updated on a daily basis.

Supporting Implementation of MSP in the Celtic Seas

SIMCelt-C1-C1.2.2-D4

Physical parameters: selection of datasets

Theme	Layers	Area	Producer	SDI	Inter-compliance	Diffusion	Openness
Bathymetry	EMODnet Bathymetry EMODnet Bathymetry source references	Europe	EMODnet Bathymetry	EMODnet Bathymetry	Yes	WMS - WFS	Open
Geology	Carte sédimentaire mondiale	World	Shom	data.shom.fr	Yes	WMS	shared
Other parameters	Courant Température eau de mer Salinité eau de mer Vitesse et direction du vent Hauteur significative et direction mer totale Période mer totale	Europe	Shom	data.shom.fr	Yes	WMS	Open

Table 3 - Physical parameters: selection of datasets

Assets

- Usually possible to find one reference layer for the whole Celtic seas area for each physical parameter
- Data partly comes from SIMCelt partner which will make it easier to provide updates to datasets.

Barriers

- No barrier identified

Action needed

- No action needed.

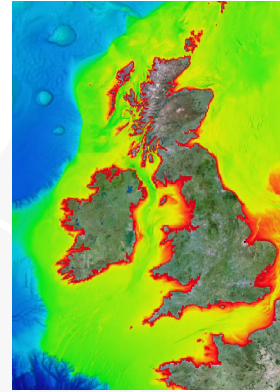


Figure 3 - Physical parameters, example of Bathymetry



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Biology

Supporting Implementation of MSP in the Celtic Seas

SIMCelt-C1-C1.2.2-D4

Biological characteristics

Marine SDI dedicated to maritime spatial planning in Celtic seas, especially in Ireland and Scotland, provide a wide range of datasets focused on species distribution. The EMODnet Biology project also releases datasets on taxa distribution, but provided information appears to be less accurate compared to datasets available on other Celtic Seas marine portals.

For the purpose of this report, it was not possible to commit on the analysis of the full list of available datasets for biological characteristics. The choice was thus made to focus on 2 species i.e. Grey Seal and Nephrops, with different relevance to the maritime economy e.g. one being a tourist attraction / hazard to fishing gear / nuisance to finfish aquaculture and the other being of major commercial relevance to the Irish Sea fishing industry.

Coverage

Access to data about species distribution, spawning and nursery grounds is most difficult on the French sea part of the SIMCelt project area. No WMS or WFS layers were found available for these species.

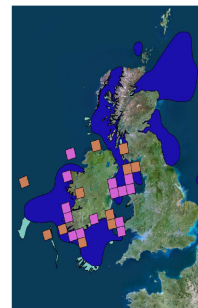


Figure 4 - Biological characteristics

Biological Characteristics: selection of datasets

Theme	Layers	Area	Source	SDI	Inter-compliance Metadata	Diffusion	Openness
Nephrops	Nephrops Ground	Ireland	Marine Institute	Ireland's Marine Atlas	Yes	WFS	Open
	Nephrops Underwater Television Survey Stations						
	Nephrops Spawning Grounds						
Nephrops	Nephrops Nursery grounds	UK & Ireland	Marine Scotland	Marine Scotland NMPI	No	WMS	Shared
	Nephrops Spawning Grounds						
Grey Seal	Observations of Grey Seal	Ireland	Irish Wales and Dolphin Group	Ireland's Marine Atlas	Yes	WFS	Open
	Abundance of Grey Seal						
Grey Seal	Search of Grey Seal	Celtic Seas	Marine Scotland	Marine Planning Evidence	No	SOAP	
	Range of Grey Seal						
Grey Seal	Seal Density	Scotland	Sea Mammal Research Unit	Marine Scotland NMPI	No	WMS	
Grey Seal	Grey Seal Popping Sites	Wales	Natural Resources Wales	Wales Marine Planning Portal	No	WFS	

Table 5 - Biological characteristics: selection of datasets

Assets


- Data partly comes from SIMCelt partner which will make it easier to provide updates to datasets.

Barriers

- Some issues when trying to combine data coming from different protocols (WMS vs SOAP)
- Information less accessible in France
- Some missing information about licences.

Action needed

- No action plan defined yet



AQUACULTURE

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Activities / uses

Aquaculture

With respect to aquaculture, EMODnet Human Activities European program provides layers of information about finfish and shellfish production areas. These datasets are the result of harmonisation work at a European scale, partly based on previous projects, like [EUROSHELL](#), regarding shellfish production sites. There is no seaweed culture dataset coming from EMODnet Human activities program, so national datasets for Ireland, Scotland and France were added.

Coverage

EMODnet datasets for finfish and shellfish production areas seem to be accurate enough for United Kingdom and Ireland, and to provide less information for France, especially for finfish farming sites. Regarding seaweed culture, data for Scotland, Ireland and France can be accessed by web




Figure 7 - Aquaculture

Supporting Implementation of MSP in the Celtic Seas SIMCelt-C1.2.2-D4

Aquaculture: selection of datasets

Theme	Layers	Area	Producer	SDI	Inspire Metadata	Diffusion	Openness
Shellfish	Shellfish production areas	Europe	EMODnet Human activities	EMODnet Human activities	yes	WFS	Open
Finfish	Finfish farming sites	Europe	EMODnet Human activities	EMODnet Human activities	yes	WFS	Open
Seaweed	Seaweed by culture type	Ireland	DAFM	Ireland's Marine atlas	Yes	WMS	Closed
Seaweed	Seaweed by species type						
Seaweed	Current green seaweed harvesting methods Current kelp harvesting methods Current red seaweed harvesting methods Current wakame harvesting methods Proposed future resource harvesting locations Resource maps	Scotland	Marine Scotland	Marine Scotland NMPI	No	WMS	Shared
Seaweed	Lieux de pêche de laminaires du Finistère	France	DDTM29	Géobretagne	Yes	WFS	Open

Table 7 - Aquaculture: selection of datasets

Assets

- Datasets harmonisation work initiated through EMODnet and Euroshell projects
- Shellfish and finfish: data accessible in WFS for the whole project area
- Data partly comes from SIMCelt partner which will make it easier to provide updates to datasets.


Barriers

- Completeness: EMODnet layers don't take into account seaweed culture
- Seaweed: Heterogeneity in datasets structures

Action needed

- No action plan defined yet

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INNOVATION WITH DG MARE PROJECTS THE MSP CHECKPOINTS ! WMS WFS..

- The objective is not to get data but find feeds to design a first approach and picture BUT
- The URL are not permanent and the validity of such a work/report is not very long..
- EU "Lobby" is necessary to explain the necessity to provide WMS and WFS feeds AND to find a way to keep the same URL or give the new one when using the previous one in case of change!
- The final objective of this research of data could/will be to establish *cumulative impacts maps* to help the planification decision in transnational area and Ecosystem based approach
- A lot of cumulative impacts tools are emerging but the common basis they will have will be the data
- The transnational situation is specially sensitive and the data must be officially and strongly validated
- **EMODNET is really useful for transnational data search for MSP and perhaps for a lot of Directives**
 - Caution with the type of validation of data or models; (legal situations)
 - Caution with the language

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FUTURE “MSP CHECKPOINTS” ; SIMNORAT, SIMWESTMED, SEANSE projects

- The Shom is coordinating the same type of work in these projects and it will be the occasion of ;
 - A “multi-basins exercise” to obtain a first picture of the MSP needs for transnational declination of the MSP Directive
 - A first idea of the use of EMODNET for this
 - This will be a first approach useful for Ecosystem Based Approach too
- ***See you during the next steps...***

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