

Coastal data for Integrated Maritime Policies LOCHET Corine Shom

**Maritime Spatial Planning Conference
Addressing Land-Sea Interactions
St Julian's, Malta – 15 & 16 June 2017**



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Protection against erosion and marine flood



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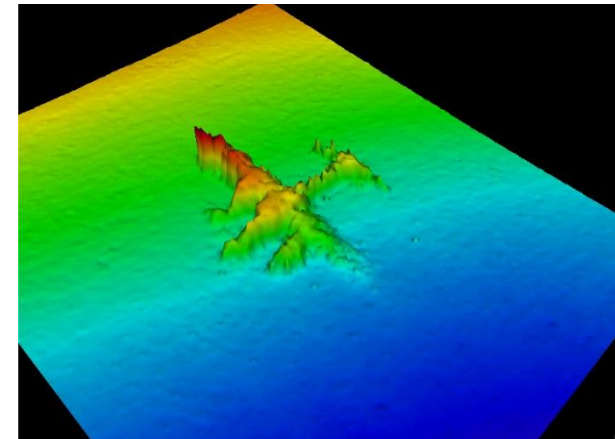
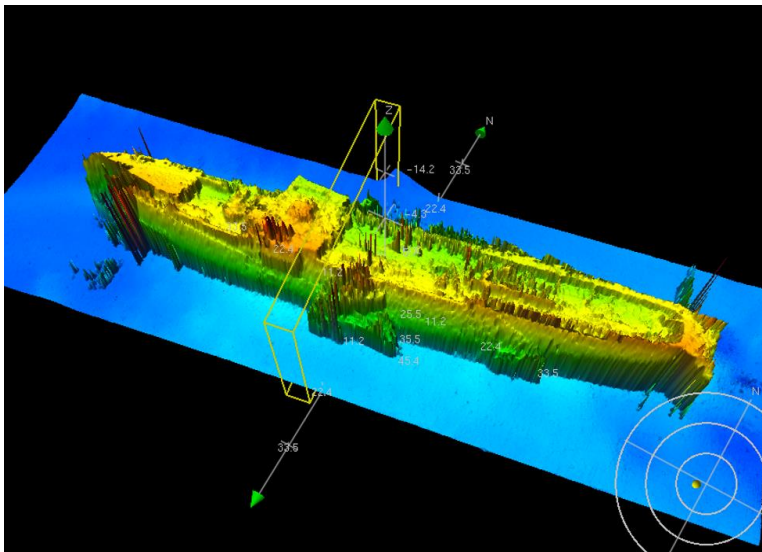
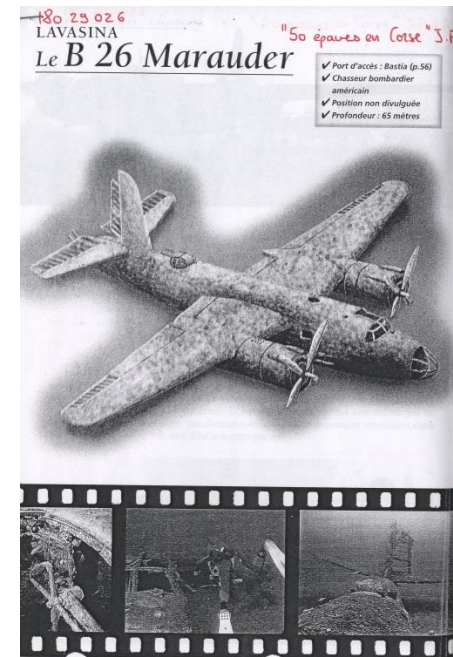
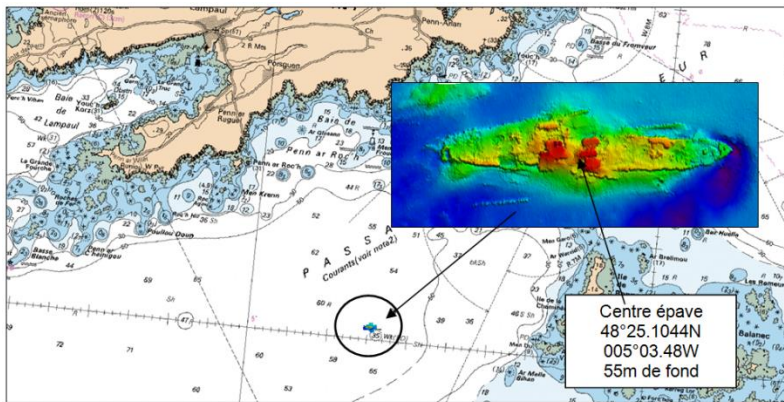
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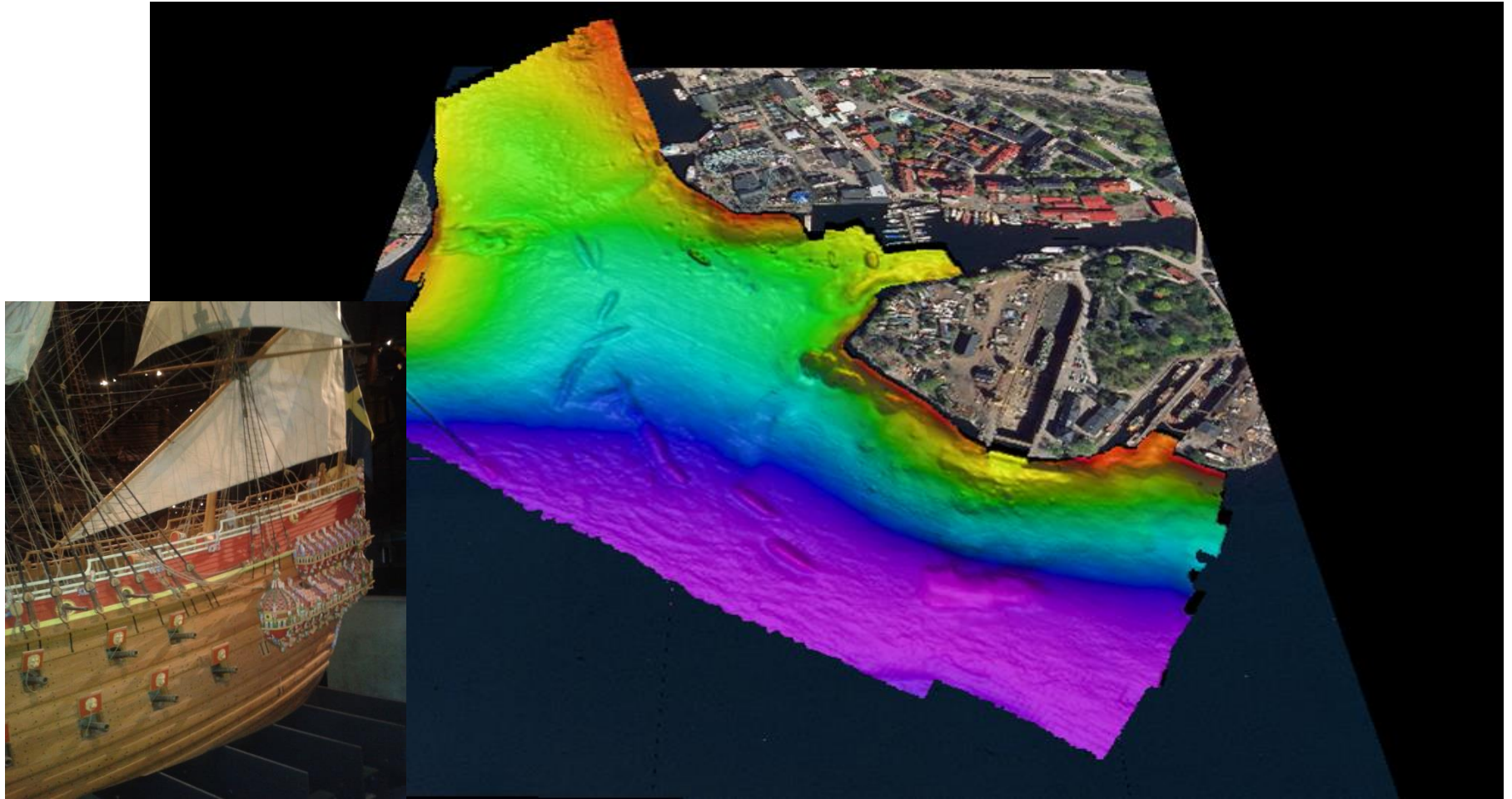
Link between different data scales and methods



Manage the safety of navigation and the marine archeology



Stockholm coastal management: the Vasa history



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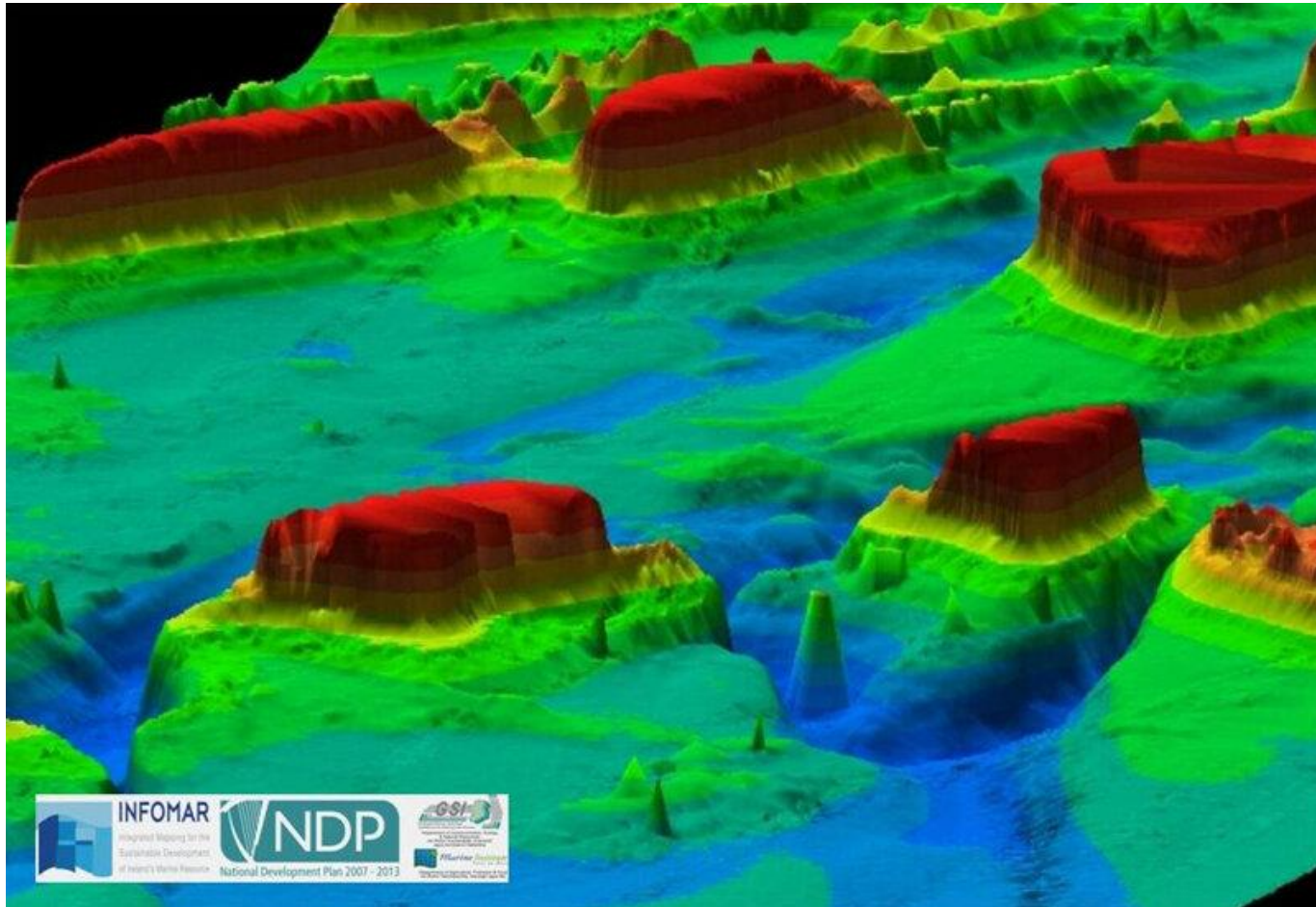
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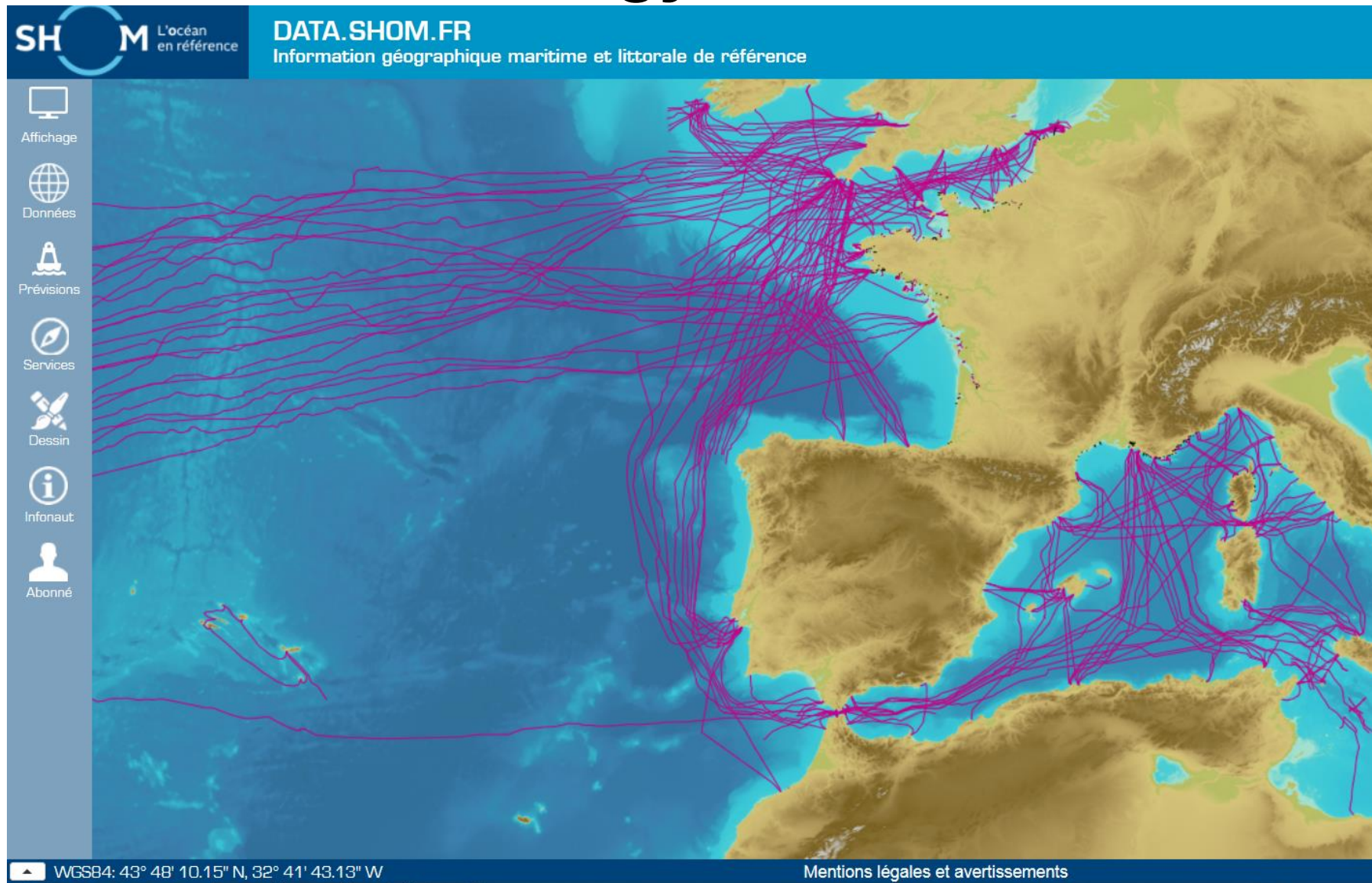


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Safety of navigation in Ireland



Geostrategy and cables

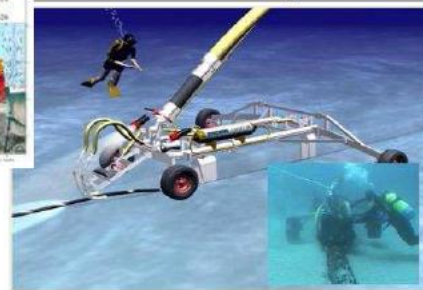
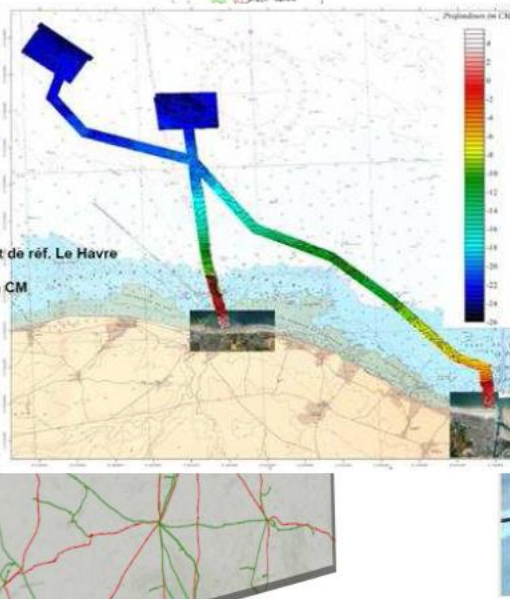


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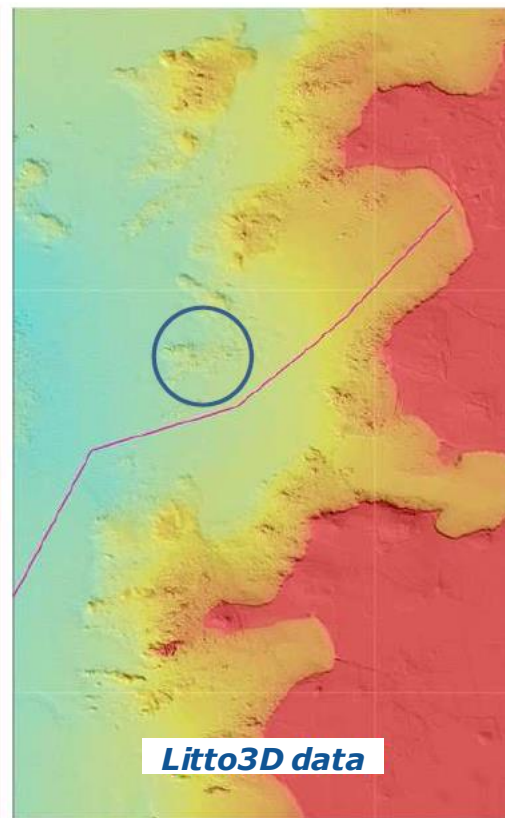
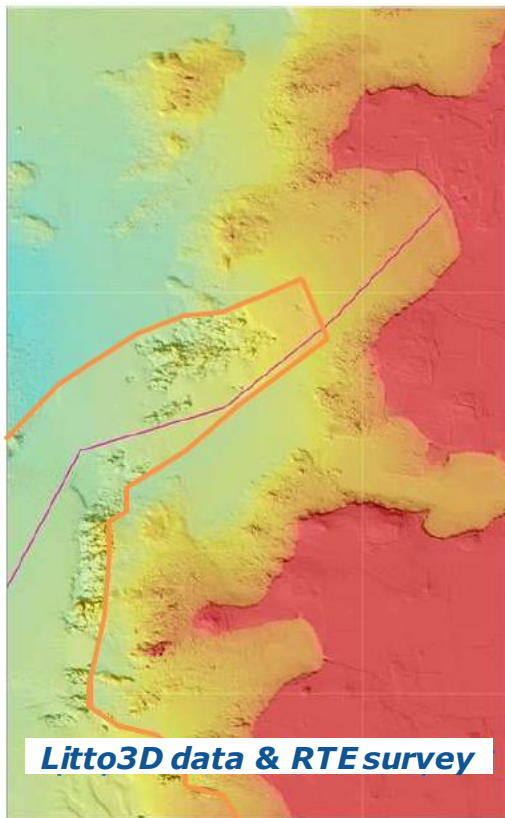




Cable loading & unloading at sea

Cables for energy: FR-UK, FR-SP

Litto3D : use of data by RTE

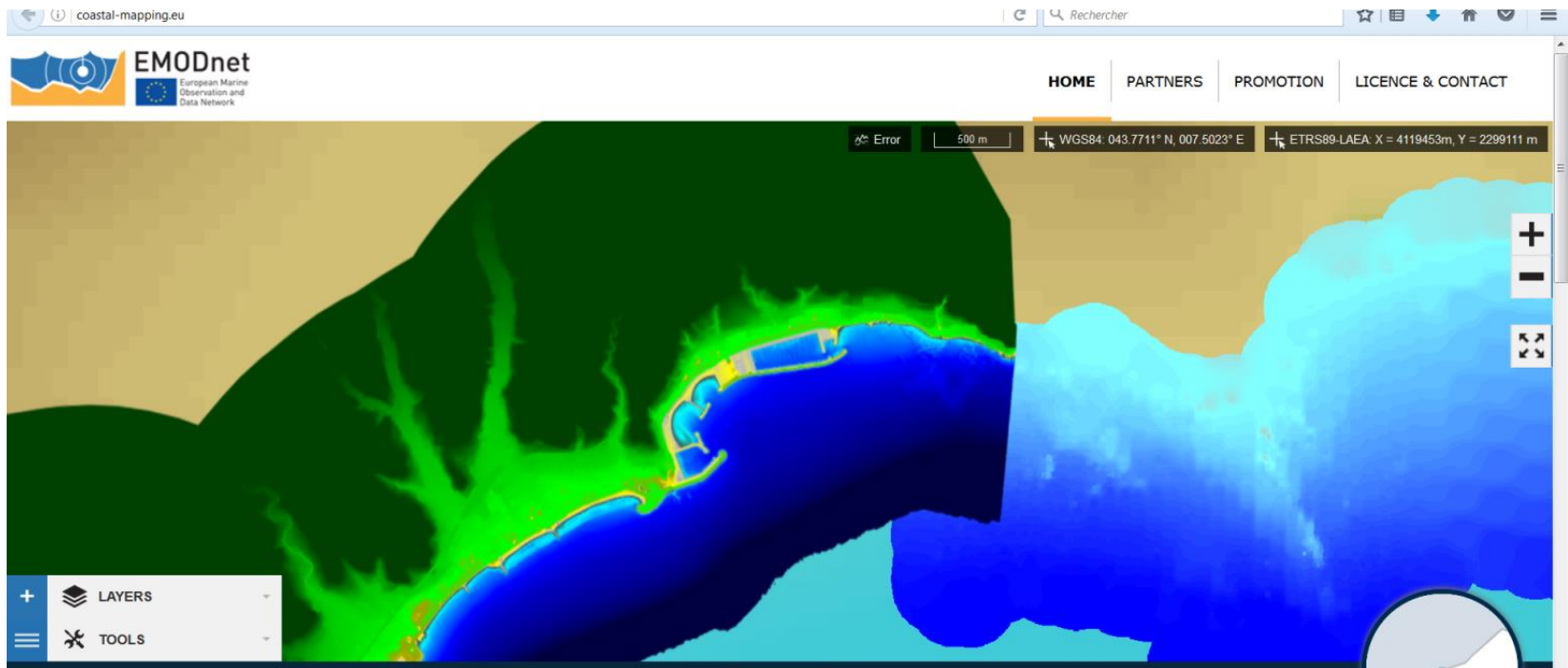


Use of Litto3D data:

- to identify rocky areas
- to optimize the survey road.

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

Ex; Bathymetric data on FR- IT boundary 2017





Supporting Implementation of **M**aritime 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



Other Members of the Task Group on Data



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 SIMCELT PROJECT



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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 FLUXES
WMS/WFS/WPS...**

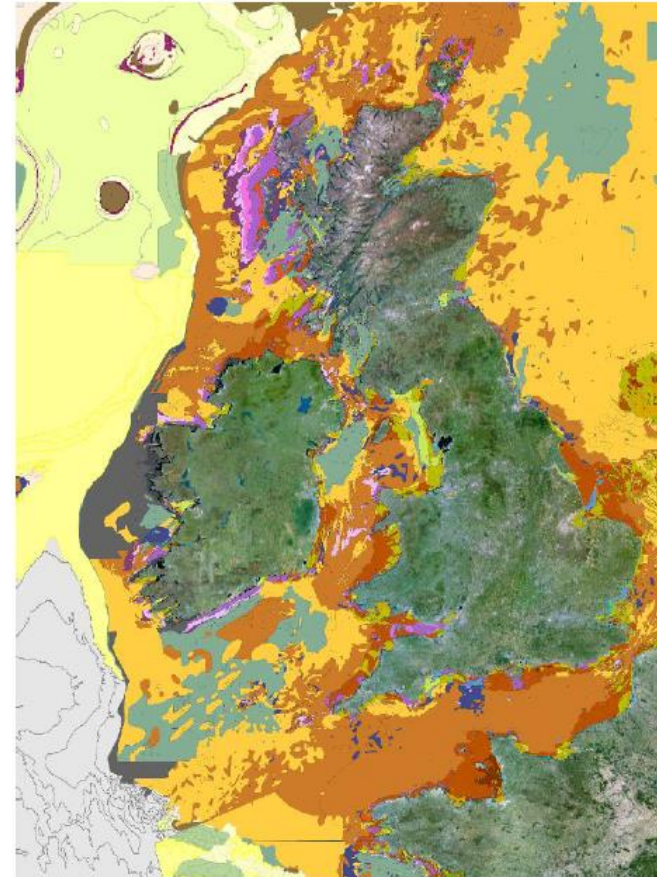


Figure 4 - Marine Habitats

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

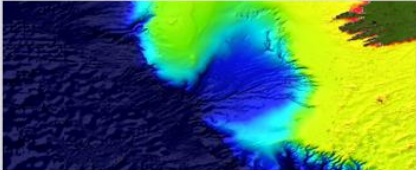
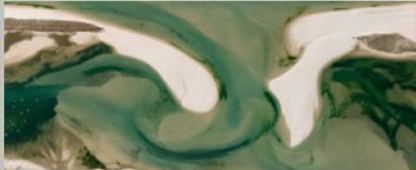
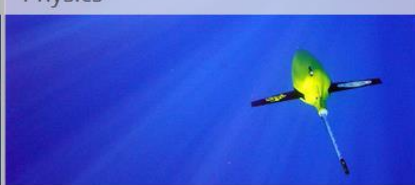
Barriers

- Limit of confidence of modelled habitats maps

Action needed

- No action needed

EMODNET CONSTELLATION

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

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Marine Renewable Energies SIMCELT data report



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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.

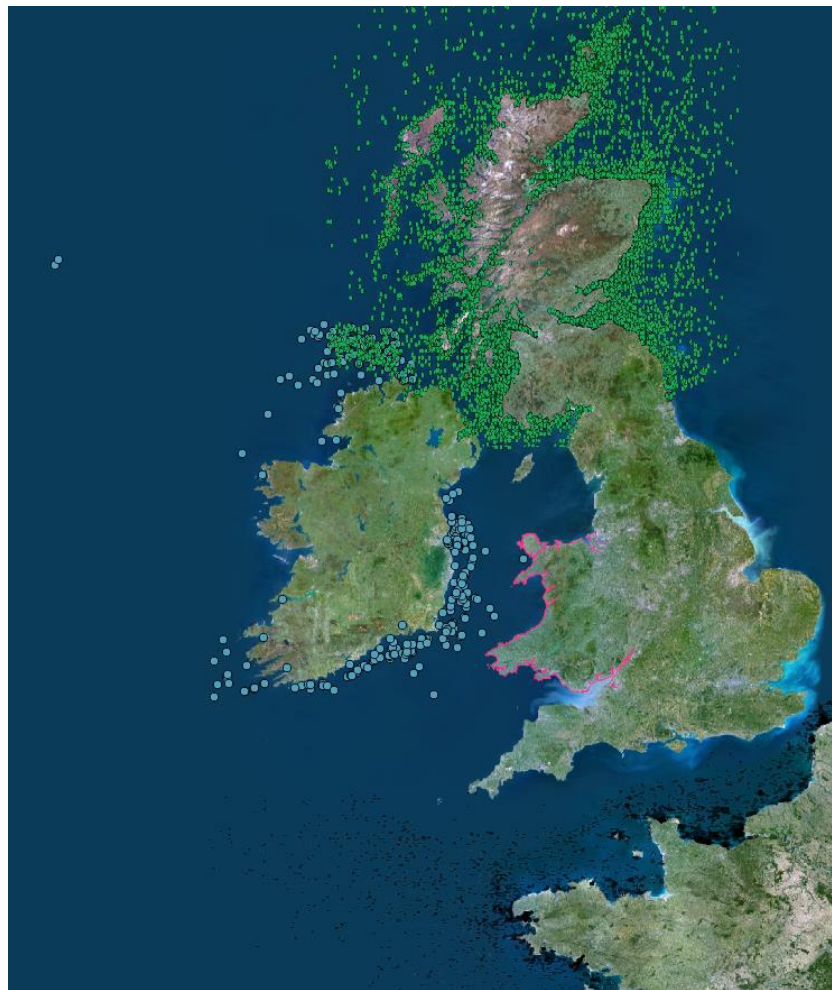
Barriers

- 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

Underwater cultural heritage SIMCELT Data report



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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





Coastal Mapping Project

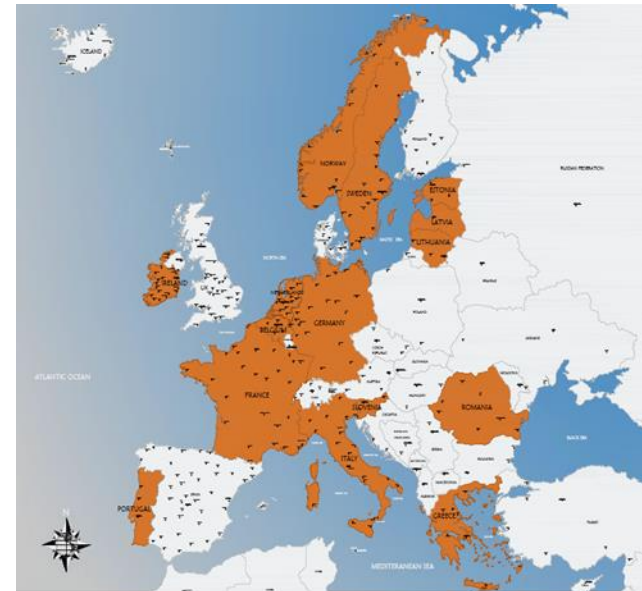
**ACQUISITION OF *HIGH
RESOLUTION* COASTAL
BATHYMETRIC DATA**

***TOWARD A EUROPEAN
STRATEGY?***

Bathymetric data in coastal zones: A common basis for the coastal and maritime policies (integrating land-sea interface)

A chance for innovation in blue growth

- FRANCE – Naval Hydrographic and Oceanographic Service (SHOM)
- BELGIUM – Coastal Division (MDK)
- ESTONIA – Estonian Maritime Administration (EMA)
- GERMANY – Federal Maritime and Hydrographic Agency (Bundesamt für Seeschifffahrt und Hydrographie) (BSH)
- GREECE – Hellenic Navy Hydrographic Service (HNHS)
- IRELAND – Geological Survey of Ireland (GSI)
- ITALY – Institute for Environmental Protection and Research (ISPRA)
- ITALY – Italian Hydrographic Institute (Istituto Idrografico della Marina) (IIM)
- ITALY – Latium Region (LAZIO)
- LATVIA – Maritime Administration of Latvia (MAL)
- LITHUANIA – Lithuanian Maritime Safety Administration (LMSA)
- THE NETHERLANDS – Rijkswaterstaat
- NORWAY – Norwegian Hydrographic Service (NHS, NMA)
- PORTUGAL – Instituto Hidrográfico (IHPT)
- ROMANIA – Danube Delta National Institute for Research and Development (DDNI)
- ROMANIA – National Institute for Marine Geology and Geo – ecology (GeoEcoMar)
- SLOVENIA – Geodetic Institute of Slovenia (GIS)
- SWEDEN – Swedish Maritime Administration (SMA)



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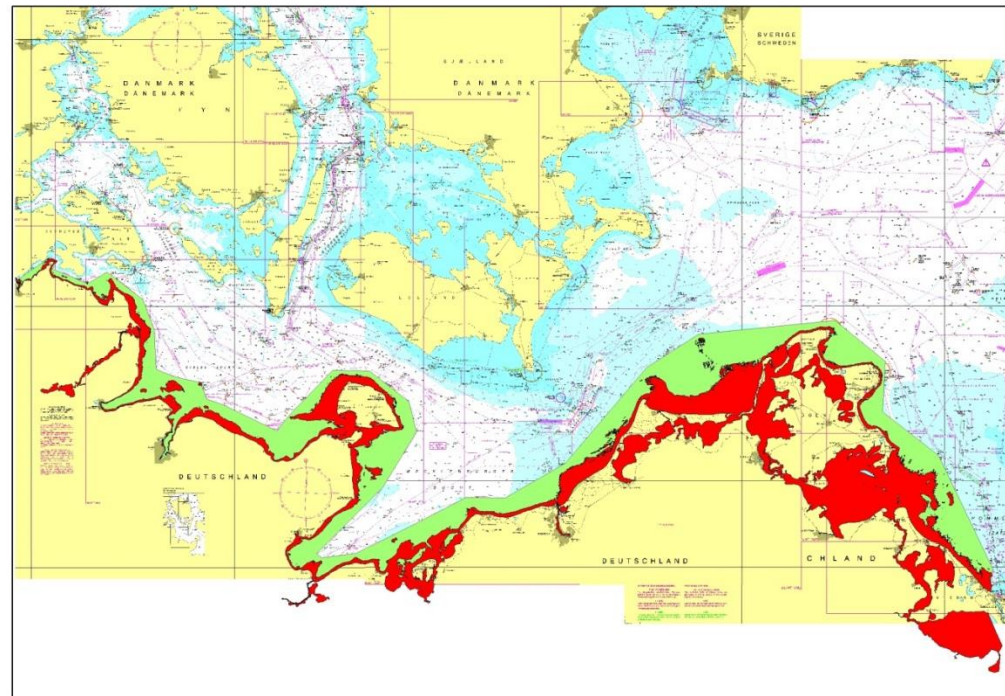
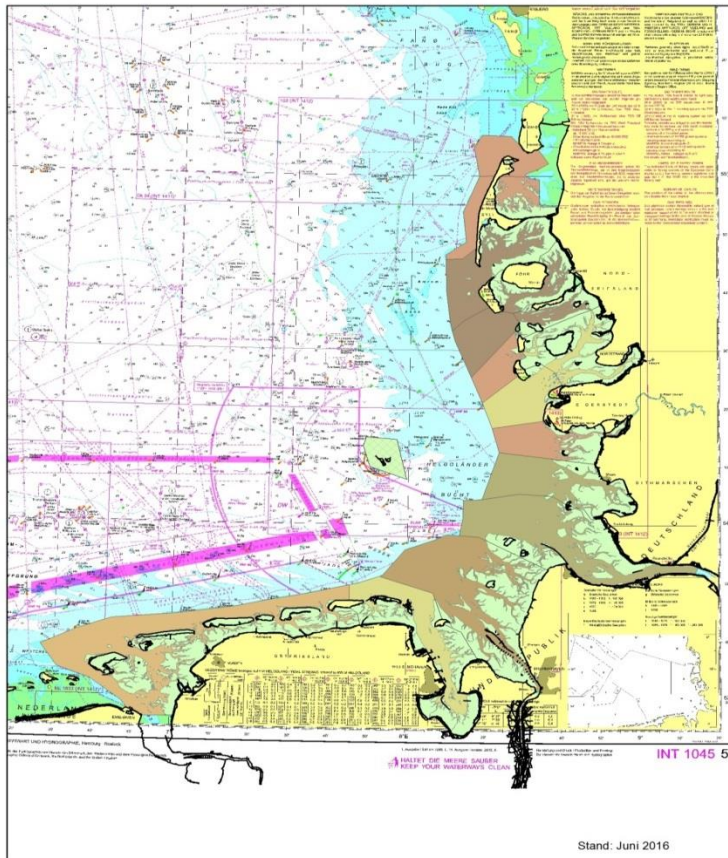
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Analysis of the needs and means in Europe for the acquisition of bathymetric data in coastal areas

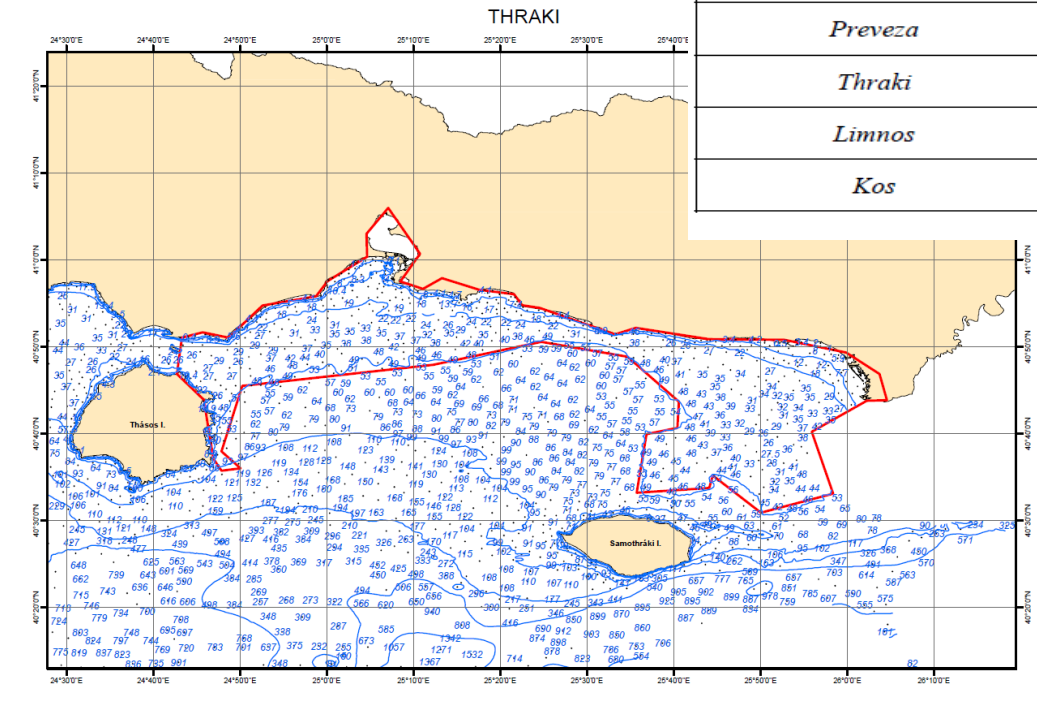
German coastal zone: North Sea (intertidal zone in light green) & Baltic Sea (Bathymetric Lidar in red)



Analysis of the needs and means in Europe for the acquisition of bathymetric data in coastal areas

Example of Greece

<i>Suggested Areas</i>	<i>Depths</i>	<i>Surface(km²)</i>
<i>Kerkyra</i>	<i>0 to 50m</i>	<i>365</i>
<i>Preveza</i>	<i>0 to 50m</i>	<i>410</i>
<i>Thraki</i>	<i>0 to 50m</i>	<i>2200</i>
<i>Limnos</i>	<i>0 to 50m</i>	<i>625</i>
<i>Kos</i>	<i>0 to 50m</i>	<i>235</i>



STUDY OF THE GAPS TO FILL HR BATHYMETRIC DATA IN COASTAL ZONES

Representativity of the partnership; all the EU maritime basins were considered, more than 50% of the maritime EU Countries

Result; **more than 175 000 km²** of acquisition to do, only for the panel countries

It is necessary to take into account the specificities of the maritime basins in the future acquisition strategy for coastal data (depth) and not take only one definition for coastal zone, coast line, coastal population.



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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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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 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 standardised and capitalised.
- 3 - Promote good practices to produce bathymetric data from multiple sources, standardised for re-use by all coastal stakeholders for maritime policies.

Three pillar actions to support the strategy

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



Through stakeholders experiences in the coastal zone, all maritime policies, their integrated management and environmental approach need standardised and validated, high resolution bathymetric data.

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.

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

How to fill the gaps with a European Strategy ?

Three axes proposed

- **AXIS 1:** Set up coordinated programmes for data acquisition at maritime basin scale;
- **AXIS 2:** Increase the opportunities for bathymetric data acquisition in the framework of the EU operational programmes and funds;
- **AXIS 3:** Promote the production of bathymetric data from multiple sources, usable by different categories of coastal users for maritime policies.



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AXIS 2

Increase the possibilities for coastal bathymetric data acquisition in the framework of the Interreg programs, H2020, EMFF, LIFE

-A lot of marine bathymetric data produced in the EU projects suffers a lack of visibility, common standards and mutualisation (EMODNET). Therefore, this data is lost *leading to a waste of energy, finances and data*

- Promotion of the use of international standards for data production funded by EU funds (link with the HOs)
- Promotion of the need of pooling these data or their fluxes in the EMODNET databases
- Developing campaigns in homogeneous areas, sharing platforms and funds from the EU programs,



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RECOMMENDATIONS 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 FLUXES WMS/WPS... FORMAT

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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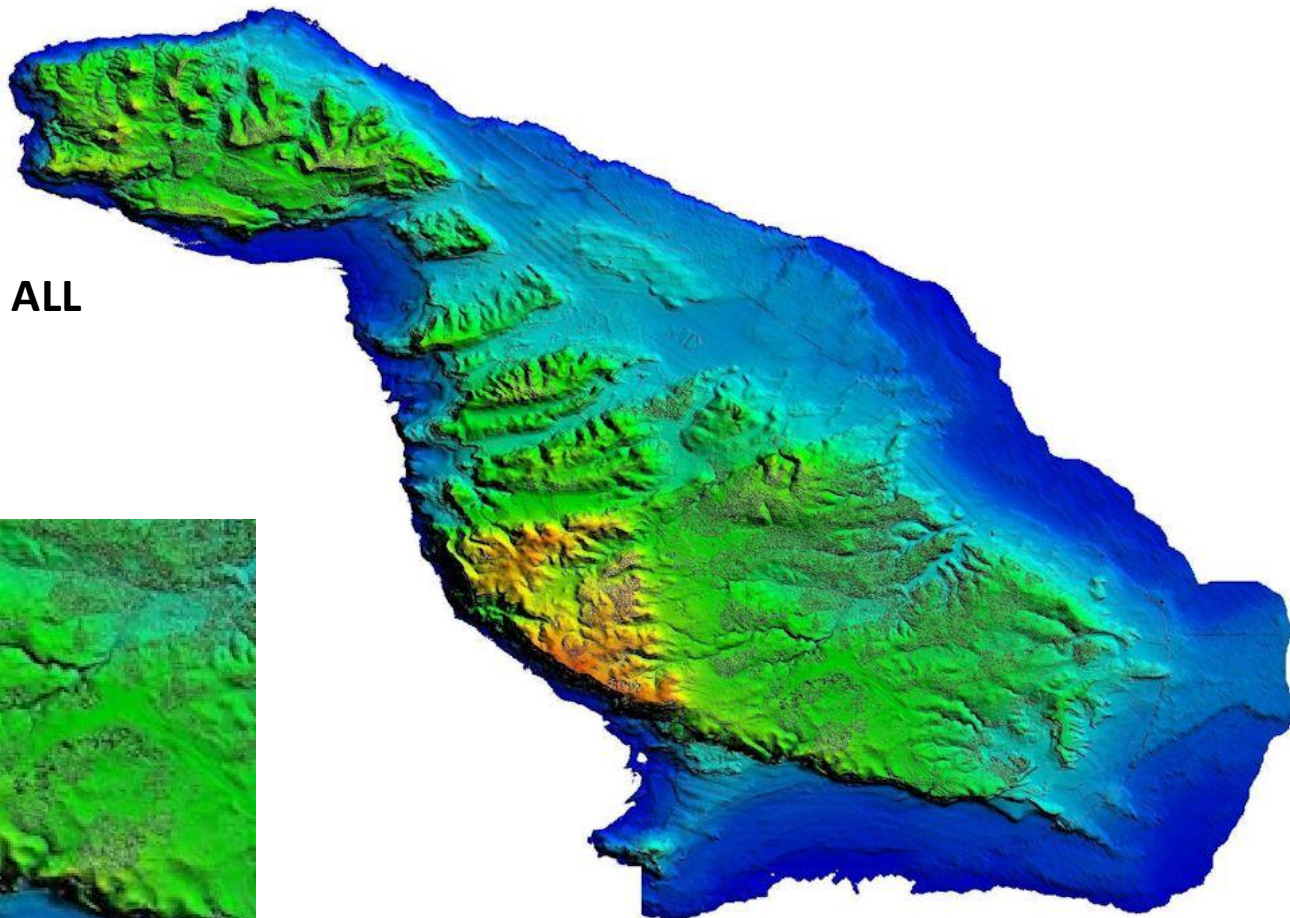
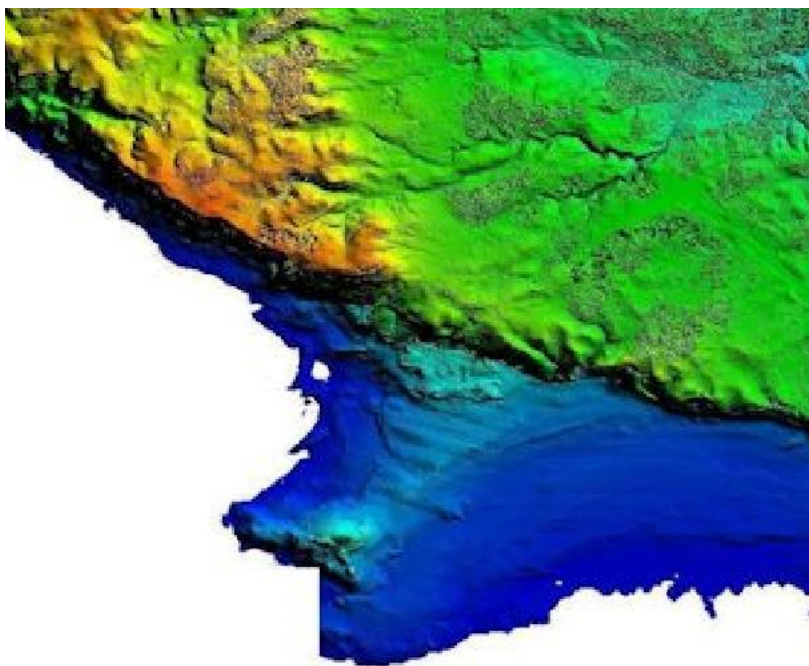
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MALTA LIDAR DATA

LAND-SEA DATA

**BATHYMETRY IS A BASIS OF ALL
OTHER INFORMATION**



THANKS!



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