



Service Contract No MARE/2012/10

***Knowledge Base for Growth and Innovation in Ocean Economy:
Assembly and Dissemination of Marine Data for Seabed Mapping***

Lot 7: Human activities

1st Progress Report



Consulenti per la Gestione Aziendale



Introduction

Lot 7 “Human activities” is a new lot which was not covered by the first phase of EMODnet. Our contract was signed on the 17th of September 2013, and at present the Consortium is still in the process of developing the portal.

It was not possible to start developing the portal right after the beginning of the project, because the first Steering Committee meeting had to take place first, in order to define a series of rules for the harmonisation of existing portals. The meeting eventually took place on the 16th and 17th of December 2013, and the portal is now being developed. We expect that it will be online showing the first datasets by the time the next Progress Report is released.

In the three months between the signature of the contract and the first meeting of the Steering Committee, however, even though it was not possible to work on the portal, a few steps ahead were made and are reported in the next sections.

Meetings held

Nineteenth meeting of Marine Observation and Data Expert Group (MODEG): Copenhagen 4/5 July 2013

Conference call between Consortium partners: 28 October 2013

Conference call with EMODnet Secretariat: 22 November 2013

Meeting with Nicola Santocchi of the Italian Ministry of Economic Development, to establish data transmission on offshore “hydrocarbon extraction” in Italy: 4 December 2013

1st Steering Committee Meeting: Bruxelles 16/17 December 2013

Work packages and task updates

WP 1 - Project Management

The project officially started on the 17th of December 2013...

The activities for which we are expected to collect data are the following:

Activity	Type/format	Attribute	Partner in charge
cultural heritage	point		AND
mariculture	point	species of fish and shellfish; production tonnage per year	AND
aggregate extraction	point (may also include polygon)	gravel extracted per year, area of activity	AZTI
dredging (e.g. navigational)	polygons	Status (years operational), purpose	AZTI
ocean energy facility	point	type (tide, wave, thermal gradient etc), status (planned, under construction, operational)	AZTI
other forms of area management/designation	polygon	National or international formal basis	CETMAR
waste disposal (solids, including dredge	polygon or point	Status (years operational)	CETMAR

material, dumped munitions, marine constructions

wind-farms	point (may also include polygon)	number of turbines, generation capacity, status (planned, under construction, operational)	CETMAR
fisheries zones	polygon	ICES and FAO nomenclature	COGEA
hydrocarbon extraction	point	status (exploration, exploitation)	COGEA
pipelines and cables	line	types of cable or pipeline, width	COGEA
protected areas	point (may also include polygon)	legal basis for protection	COGEA
commercial shipping, recreational shipping	grid	average number of vessels per year within a grid cell	Eurofish
major ports	point	traffic	Eurofish

WP 2 - Development of the portal and maintenance

Indicators have been proposed to measure portal statistics.

The harmonisation discussion document and EMODnet Style Guide have been received.

The URL <http://www.emodnet-humanactivities.eu/> has been registered by Lovell Johns.

A high resolution image of Alpha Ventus (also used on the central portal and proposed leaflet) has been sourced.

Next Steps:

Configuration of the domain, and forwarding to Lovell Johns hosted server (London).

Creation of temporary holding page (under construction / coming soon)

Collation of content (project information, partner logos & description etc.)

To start the construction of the static site (landing page and core information pages) on a separate development URL, based on:

- agreed nomenclature (Human Activities);
- proposed style guide;
- proposed flow between entry and thematic portals (proposed scenario 2);
- proposed concept design of landing page.

Set-up of News RSS feed for landing page.

Sourcing of further images (if and when required).

Investigate possible base map services.

Investigate filtering of WFS, and re-serving of WFS using MapServer.

Build initial map portal with base mapping, navigation and restricted number of datasets.

WP 3 - Design and Implementation of the GIS database

The GIS database design started with deciding what geographic representations will be for each dataset. According to the list of activities included in Lot 7, and due to needs for adding a base map and other features that in future might be useful to

perform spatial analysis (e.g. coastal base line, Nomenclature of Units for Territorial Statistics, etc.) individual geographic entities will be represented as:

- Feature classes (sets of points, lines, and polygons);
- Imagery and rasters (base map);
- Continuous surfaces represented using rasters;
- Attribute tables for descriptive data.

Each of these geographic entities will be available in the web gis service. Geographic representations will be organized in a series of data themes (*thematic layers*). Each data theme will be a collection of common geographic elements such as: a pipelines network, a dataset containing specific management objectives areas, aquaculture types, an interpolated and continuous surface, satellite imagery for a certain date, well locations, and so on. Since the various independent themes will be spatially referenced, they will overlay each other to be combined in a common map display. In addition, GIS analysis operations, such as overlay, will combine information between themes to obtain different data products.

In our GIS, the updating of thematic layers is one of the main organizing principles for GIS database design. As a public service, EMODnet Human Activities distributes its GIS data identifying these site locations in several different file formats. It is our intention to use the data published via Web Feature Service (WFS) or Web Map Service (WMS) in compliance with INSIPRE view and downloading services. In this way, users will be allowed to access and download the data stored in external servers directly through our portal, by performing location and/or attribute queries. The guiding principle is that data should "remain where they are", without building a new centralised database. Web services include OGC Compliant Web Map Services, OGC Compliant Web Feature Services, and Keyhole Markup Language (KML) format.

KML Service

- Allows users to draw points, lines and polygons and publish them for consumers to use

Web Map Service

- Allows users to view images of maps

Web Feature Service

- Allows users to view geographic data and perform analyses on them

WP 4 - Data collection

Activity: fisheries zones

Thematic layer requested are FAO statistical areas for fishery purposes and ICES statistical areas

Source	Thematic layers	Geographic coverage	Sea-basin	Contacted persons/office	Answer/Status	Type of service or data available	Link to Web Sources
FAO	FAO statistical areas for fishery purposes	All MSs	All	Emmanuel Blondel	Positive. Tested in a map document	WFS	Geonetwork
ICES	ICES statistical areas	Atlantic MSs	Baltic Sea, Celtic Seas, Iberian Coast and Bay of Biscay, Greater North Sea, Macaronesia, Norwegian Sea	Neil Holdsworth Hans Mose Jensen	Positive. Tested in a map document. Needs of R&D testing during the the development phase of the web to see if it is fit for our purpose because ICES have not had a lot of interaction with users of the WFS service until now	WFS	Geoserver

Activity: hydrocarbon extraction

Thematic layer requested are offshore wells

Source	Thematic layers	Geographic coverage	Sea-basin	Contacted persons	Answer/Status	Service or data available	Link to Web Sources
Ministero dello sviluppo economico (MISE), Direzione generale per le risorse minerarie ed energetiche, Divisione I	Offshore wells	IT	Adriatic Sea, Ionian Sea and Central Mediterranean Sea, Western Mediterranean Sea	Nicola Santocchi Ombretta Coppi Ilaria Antoncecchi	Positive. Meeting held in Rome with GIS manager of offshore oil and gas datasets. Needs of R&D/testing during the development phase of the web portal to confirm the KML	KML	DGRME
Ministerio de Industria, Energía y Turismo, Secretaría de Estado de Energía, Dirección General de Política Energética y Minas, S.G. de Hidrocarburos	Offshore wells	ES	Iberian Coast and Bay of Biscay, Macaronesia, Western Mediterranean Sea	Sergio López Pérez	Pending	WFS	SIGEOF
Ministry of Environment Energy and Climate Change	Offshore wells	GR, Ionian Sea	Ionian Sea and Central Mediterranean Sea	N/A	Pending	Shapefile	YPEKA
Bureau de Recherches Géologiques et Minières	Offshore wells	FR	Iberian Coast and Bay of Biscay, Western Mediterranean Sea	BRGM, Centre scientifique et technique	Pending	WFS	Portail d'accès aux données pétrolières nationales
Department	Offshore wells	UK	Celtic Seas,	Jerry Carnell	Pending	Shapefile	Oil and gas:

Source	Thematic layers	Geographic coverage	Sea-basin	Contacted persons	Answer/Status	Service or data available	Link to Web Sources
of Energy & Climate Change			Greater North Sea				offshore maps and GIS shapefiles
Federal Maritime and Hydrographic Agency of Germany (Bundesamt für Seeschifffahrt und Hydrographie, BSH), CONTIS	Offshore wells	DE	Baltic Sea, Greater North Sea	Nico Nolte Johannes Melles Bettina Käppeler	Positive. As regards oil and gas extraction only two platforms are currently existing in German waters: Oil: "Mittelplate" in North Sea coastal waters of the Federal State of Schleswig-Holstein, Gas: "A6/A" In the EEZ of the North Sea. BSH will send a data set with the positions of these shortly. They are planning to provide WFS for most of the data sets within the GeoSeaPortal, including CONTIS, during the next year (2014)	Shapefile	GeoSeaPortal
Geological Survey of Denmark and Greenland (GEUS)	Offshore wells	DK	Baltic Sea, Greater North Sea	Jørgen Tulstrup Mikael Pedersen	Pending	WFS	GEUS Oil and Gas Database
Department of	Offshore wells	IE	Celtic Seas	Oonagh	Pending	WFS services are	Petroleum Affairs

Source	Thematic layers	Geographic coverage	Sea-basin	Contacted persons	Answer/Status	Service or data available	Link to Web Sources
Communications, Energy and Natural Resources, Geological (DCENR) Survey of Ireland (GSI)				O'Loughlin Maria Judge Ali Robinson		currently under maintenance	Division Exploration Data Viewer
Dutch Ministry of Economic Affairs TNO		NL	Greater North Sea	Sjoukje Rozeboom	The Portal is public but is managed by a private company. They have forwarded our request to the Ministry.	WFS	NL Olie en Gasportaal

Activity: pipelines and cables

pipeline and electricity cable infrastructures at sea

Source	Thematic layers	Geographic coverage	Sea-basin	Contacted persons/office	Answer/Status	Type of service or data available	Link to Web Sources
DG MOVE-ENER Unit SRD.4		All MSs	All	Mauro del Medico	Positive. Needs to understand the use of dataset, if will be limited to a DG MARE internal usage, or if it is planned to share with third parties or publish some of the information		Geonetwork

Activity: protected areas

Source	Thematic layers	Geographic coverage	Sea-basin	Contacted persons/office	Answer/Status	Type of service or data available	Link to Web Sources
EEA	National Protected Areas, Natura 2000 Network	All MSs except Croatia where the Natura 2000 Network is still missing	All	Sébastien Petit	Positive. Tested in a map document. Needs of R&D testing during the the development phase of the web	WFS	Geonetwork

Activities: aggregate extraction, dredging and waste disposal

Since many information sources for the activities “aggregate extraction”, “dredging” and “waste disposal” (to be collected by CETMAR) could be the same, CETMAR and AZTI agreed to prepare a common information request letter.

Sources contacted

Initially people involved in **MAGNET project** (COST ACTION 638, Investigating and managing the impacts of marine sand and gravel extraction and use) and/or **ICES WGEXT** (Working Group on the effects of extraction of marine sediments on the marine ecosystem) was selected to be contacted for information and contact request. Although some universities have been contacted, Ministries of Environment were the first choice for contact. In summary, 10 countries (Belgium, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Spain and Italy) and 2 conventions (OSPAR and Black Sea) have been contacted for information request in December.

Answers received

People contacted in the Spanish Ministry of Environment and in the Cork University (Ireland) answered very soon. The first one guided us to the data collection, while the second one advised on what provision has been made to compensate respondents for time spent in compiling the requested information.

Dataset acquired

HELCOM, OSPAR, IFREMER (France) and The Crown Estate (UK) have some information available in their web pages. The following files have been downloaded in order to examine the data available:

Source	File	Description
HELCOM	Dredging sites.shp	The Baltic Sea Dredging data set includes spatial information on all kinds of dredging (harbor maintenance, harbor capital, sea lanes, sand/gravel/boulder/maerl extraction).
	Sites of dredged spoils dumping.shp	The Baltic dumping data was created for the HELCOM HOLAS project with the aim to describe the extent of seabed disturbance in the HELCOM holistic assessment.
OSPAR	OSPAR_Dumping_of_Wastes-2011.mdb	Database: Dumping of wastes or other matter at sea (OSPAR area).
IFREMER	IFR_GRA_SITES_EXPLOITATION_20130613.shp	Concessions and exploration permits involved in exploitation of marine materials in France.
The Crown	Aggregates_Application_20131128.shp	Location of current Marine Aggregate Application Areas being progressed on Crown Estate owned

Estate		seabed.
	Aggregates_ExplorationAndOption_20131128.shp	Location of current Marine Aggregate Exploration and Option Areas issued on Crown Estate owned seabed.
	Aggregates_Licence_20131128.shp	Location of current Marine Aggregate Licence Areas issued on Crown Estate owned seabed.
	Aggregates_Option_20131128.shp	Location of current Marine Aggregate Option Areas issued on Crown Estate owned seabed

Activity Waste disposal (solids, including dredge material, dumped munitions, marine constructions)

Sources contacted.

A list of sources has been made focusing at the beginning in public institutions dealing with marine issues: ministries of environment, ministries of infrastructures and transport, environmental agencies, water management agencies, environmental information and data management bodies, regional departments for those subjects, etc. Specific centres dealing with hydrographical and other sea-related issues have also been selected as initial sources to be contacted as data suppliers. At the moment the effort has been done mainly in establishing a complete network of public institutions as stated in the tender specifications, although some private organizations have also been listed and contacted. The task has started by first looking for potential public institutions/bodies and data providers in the following basins: Bay of Biscay and the Iberian Coast, Celtic Seas, North Sea, Baltic Sea and West Mediterranean Sea. The list -still in construction as long as it is intended to be dynamics and an on-going process- contains at the moment almost 150 sources contacts.

2. Answers received.

Fifteen formal requirements have been made to different public institutions through email, but we haven't received any answer from those institutions up to now.

3. Datasets acquired

No datasets acquired

4. Problems encountered.

Some problems have arisen when looking for sources in the official web sites of those institutions and public bodies: it is usual in many cases that the targeted sources do not offer key contacts elements like email of a responsible person, of a department, etc. In that cases there is only available a generic "info email" to send requests, or, worst, the institution does not show emails to contact and it just makes available a electronic mailbox as a form to send questions or requests. So, in those cases, we have had to make several phone calls to telephone numbers to ask for an official and reliable email address. Not all of them have disclosed an email address because of "internal protocols". Another problem faced has been that some email sent have not been delivered by the mailing system or server, which sends them back informing as "system failure".

Other problem regarding "waste disposal" was related to the contents of this topic. We had problems with such limited description, with no further specification. This lack of definition has arisen regarding the real concept and content of this term. Therefore, we will first introduce some ideas from the legislative European body and from the four main marine conventions operating in sea basins Europe, which we consider are necessary to take into account in order to delimitate and make clear the scope of this topic. Finally we decided, in the absence of any other decision by DG MARE, the following contents for "waste disposal":

- a) waste disposal: solids, ie. sunken vessels, solid waste from harbours, etc
- b) dredge material
- c) dumped munitions
- d) waste disposal of maritime constructions

Activity major ports

We have downloaded the following datasets from EUROSTAT:

- 1) Maritime transport - Passengers - Quarterly data - Main ports - by direction and type of traffic (national and international) [mar_pa_qm]
- 2) Maritime transport - Goods (gross weight) - Quarterly data - Main ports - One detailed table per each reporting country - by direction, partner entity and type of cargo (detailed classification) [mar_go_qm_det]
- 3) Maritime transport - Vessel traffic - Quarterly data - Main ports - Number and gross tonnage of vessels - by type and size of vessels - Direction: inwards only - year 2006 onwards [mar_tf_qm]

Each port in these dataset is identified by a unique code as per DG MARE's Master Data Register (which is on turn based on UN Locodes). We have geo-referenced this information with EUROSTAT shapefile on EU ports.

In this case the dataset will have to be hosted on a centralised database, as it is the result of an own elaboration by the Consortium.

Activities "common shipping, recreational shipping", "cultural heritage", "mariculture", "other forms of area management/designation", "pipelines and cables"

A specific proposal to better define the scope and attributes requested for these datasets has been presented to DG MARE, and is currently under discussion.

Difficulties encountered

1. The main difficulty has consisted in working without a portal. This has slowed down our activities because we have been unable to test the datasets collected in what will be their future environment. After the Steering Committee meeting, this difficulty should have been overcome, and we are now developing the portal
2. Several subjects contacted for data requests have not answered. To tackle this problem we have asked DG MARE to write a presentation letter that we can use when contacting sources to introduce the project and persuade them to cooperate.
3. Data have been found, but WFS is not available, or the organisations contacted to arrange the transmission have not answered. Although, WFS remains our preferred option for data transmission, our approach in this case will be to download the data and store them temporarily in our database, in such a way that users can view the datasets on the portal. In the meantime the Consortium will continue to seek to establish WFS connections.

Next steps

Now that the portal is being developed, the next steps will be to go online and start testing the product and offering data and data products to users. As soon as we are online, we plan to start showing the first data. Some datasets are already complete, while some others are at an advanced stage. Our idea is to update the portal on a regular basis as soon as new data are made available.

As regards data collection, we will seek to involve an increasing number of data sources, in order to cover the datasets for it has not been possible to collect any information so far.