



EMODnet

Thematic Lot n° 7 – Human Activities

EMODnet Phase 2 – Annual (interim) report

Reporting Period: 17/09/2013 – 01/08/2014

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1. Highlights in this reporting period

- The Human Activities **thematic portal went live** on 4 April 2014: www.emodnet-humanactivities.eu
- **10 data themes are available for download.** Two more (“ocean energy facilities” and “cultural heritage”) will be added by the end of the first year. With the implementation of the interactive map and of the data catalogue (“Search data” page), Human Activities has become a **fully-fledged geoportal.**
- Data collection is at an advanced state, and for some datasets is **already complete.**
- Even though the project is still at an early development stage, **some organisations and professionals are already using Human Activities data.**
- EMODnet Human Activities has been presented to a series of **international events**, and a few more are in the pipeline
- The consortium is evaluating the possibility to integrate **new datasets** such as fisheries data and hydrocarbon licence blocks.

2. Summary of the work done

Human Activities is a new lot and was not included in EMODnet phase 1. Therefore the work during this first year mostly focused on building the thematic portal and start data collection.

The contract was signed in September 2013, but while data collection started immediately thereafter, the development of the thematic portal begun only in January 2014. This is because, before starting developing the portal, it was necessary to wait for a Steering Committee meeting which took place in December 2013 – where important details concerning the common layout of all EMODnet portals had to be discussed.

However, the Human Activities team worked hard to catch up with existing lots, and went live with its data portal in April 2014, far before the contractual deadline of September 2014. The portal is now complete and features seven sections:

1. **View data:** this section consists of the interactive map that displays data on all the Human Activities data themes. It is believed that this section may be the one in which users are most interested, hence particular attention was paid to making it easily accessible. Indeed, by visiting Human Activities home page, users can access the interactive map with just one click.
2. **Search data:** the “data catalogue” is the last developed section and makes all datasets available for search and download. Generally speaking, data can be downloaded in different formats, proprietary and non-proprietary, to reach the widest possible range of users. It is also possible to access Human Activities data via Web Map Service (WMS) and/or Web Feature Service (WFS), This section also makes available INSPIRE-compliant metadata.
3. **Submit data:** this section consists of a form through which users can contact the Human Activities team to integrate their data into EMODnet. Although no data have been received through this form so far, it is important to place the necessary emphasis on this section, since it testifies how EMODnet is a collaborative process that aims to make available as much data as possible.
4. **Help:** at the moment this section only includes a list of frequently asked questions, plus a generic contact form. In the future, further material will be made available, including a guide and a video tutorial on how to use the map.
5. **About:** this section provide information on EMODnet in general, on Human Activities, on current data providers, and on the partners of the consortium in charge of the Human Activities lot.
6. **Documents:** this is an archive of all documents produced during the project, e.g. progress reports and, yearly reports
7. **News:** an archive with all news related to the Human Activities lot. Generally, a news article is released when new data or a new report is made available, or to announce that EMODnet Human Activities will be presented at an international conference.

As regards data collection, the contract with DG MARE requires that a complete set of data and metadata is made available for at least three sea basins by the end of the first year, i.e. in our case 16 September 2014. For the first year, the Consortium decided to focus on the Baltic Sea, the Bay of Biscay and Iberian coast, and the Western Mediterranean Sea.

So far, the following datasets have been collected and made available:

- Aggregate extraction (also covering the North Sea and the Northern Adriatic)
- Dredging
- Fishery zones (FAO’s zones cover the whole world)
- Hydrocarbon extraction (all sea basins plus Norway and Montenegro, with only a few countries missing)

- Main ports (all EU, plus Norway)
- Mariculture (France, Ireland, Italy, Netherlands, UK)
- Other forms of area management/designation (whole EU)
- Protected areas (whole EU)
- Waste disposal (including some countries in the North Sea and the Northern Adriatic)
- Wind farms

The data themes “Pipelines and cables” and “Commercial shipping, recreational shipping” will be added at a later stage because negotiation with data providers is still ongoing. The data theme “Cultural heritage” should be available – at least part of it – by the end of the first year.

As can be seen, for some datasets, data collection is already ahead of schedule.

Last but not least, it should also be noted that EMODnet Human Activities was presented to a number of events across Europe, including the Maritime Day in Bremen and the Baltic MSP Forum in Riga. The decision to start presenting the project during important relevant events stemmed from the acknowledgment of how fundamental it is to raise potential users’ awareness of EMODnet, as a key factor to its success. Despite its enormous potential as the entry point for marine data in Europe, EMODnet – and all the more so Human Activities” – is relatively little known to stakeholders.

Although there is still a long way to go before the completion of the project, Human Activities has managed to catch up with the other lots during its first year, and with the development of the data catalogue may now be regarded as a fully-fledged geoportal.

3. Challenges encountered during the reporting period

Delayed start: although the contract was signed in September 2013, the development of the website started only in January 2014, mainly because the 1st Steering Committee meeting took place in mid December 2013. During the 1st Steering Committee meeting some important details concerning the layout of the thematic portals had to be discussed, in order to make them consistent with each other. This late start considerably reduced the time to develop the website. The Consortium however managed to go live before the expected deadline (end of first year).

Some data sources are unwilling to cooperate: generally speaking, several data sources approached did not cooperate. Either they refused to share their data, or they simply did not answer emails. Some other sources stated they were willing to cooperate, but then did not send any data, despite multiple reminders. Although it is not possible to give a single explanation for all sources, it is quite likely that the lack of cooperation may be due, inter alia, to the fact that data sources are not partners of the consortium. Differently from the other EMODnet lots, Human Activities' consortium does not include any data providers. Some data providers, thus, may not have any incentives in cooperating with EMODnet, and probably believe that cooperation would entail additional workload. This may also explain why some data sources, despite being public bodies in charge of data collection in their respective countries, asked for a form financial compensation. The Human Activities team will continue trying to establish cooperation with data provider, possibly explaining that sharing data with EMODnet would not entail any workload, because, as a general rule, any additional data processing should remain up to the Human Activities team. Should the Consortium realize that it is very unlikely to retrieve certain datasets by the end of the project, together with DG MARE it will be evaluated whether it is the case to buy data from an information provider. For the time being, the Consortium has decided not to purchase or pay for data.

Data harmonisation: generally speaking, the collection of marine data in Europe has been carried out in an uncoordinated way. Different Member States and sources across Europe collect the same data, often adopting different data types, attributes, coordinate systems, languages, and unit of measurement. This situation of course presents many a challenge when it comes to collate this data and harmonise it into a single dataset. For this reason, whenever possible, the Human Activities team has gone after a single source of data that could provide information for the whole EU – as happened in the case of “protected areas”, where data are provided by the European Environment Agency. However, for many other data themes, a single source at EU level is not available. In the case of “hydrocarbon extraction”, for instance, the Human Activities team had to collate data on offshore oil and gas wells from a different source for each Member State. This activity slowed down the work, because a great amount of time is spent to establish rules for harmonisation that can apply to all sources and are suitable to produce interoperable data.

Accessing data via WMS/WFS: EMODnet Human Activities does not aim to build a new centralised database with marine data, but rather tries to establish the principle that data should remain where they are now, with the Human Activities portal only being a common “entry point” for data stored elsewhere. To do so, it is necessary to access data via Web Map Service (WMS) and/or Web Feature Service (WFS) directly from sources' databases. However, during the first year it turned out that this may be very difficult for a number of reasons. First of all, several data sources do not offer WMS/WFS or are in the process of implementing it. In addition, when dealing with datasets originating from different sources (see challenge above), the Human Activities team are harmonizing the data before publishing it in such a way to produce a single dataset with common attributes. This implies that if we want to access data from sources' databases, sources have to adopt our data format, otherwise, by accessing data via WMS/WFS, users would get a series of heterogeneous and not interoperable datasets. During the second and third year of the project, the Consortium will try to persuade the widest possible number of sources to adopt a single data format, so that data could possibly be accessed via

WMS/WFS. However, it should be noted this may be very difficult to achieve on a merely voluntary basis. In theory, there are INSPIRE data specifications that should guarantee a certain degree of uniformity. In practice, we have found out that in many cases there is no uniformity at all across different sources, each one collecting and representing data according to their own model.

Metadata: according to the contract, together with data it is also requested to provide INSPIRE-compliant metadata. However, during data collection it soon emerged that most sources do not compile INSPIRE-compliant metadata. The Human Activities team thus had to compile metadata instead of data sources. To do so, it was decided to use the official INSPIRE metadata editor available online at: <http://inspire-geoportal.ec.europa.eu/editor/>.

4. Allocation of project resources

It is estimated that around 20% of resources were spent during the first year of the project. This reflects the fact that the development of the website started with some delay – and thus some activities will inevitably take place during the second year – as well as that data collection and harmonisation for some data themes (“commercial shipping, recreational shipping” and “pipelines and cables”) could not start, due to the reasons explained in Section 6 of this Report.

A greater amount of resources is envisaged to be spent over the second and third year, as the result of the completion of data collection, the analysis of data and creation of data products, an increase of outreach and communication activities, as well as the feedback monitoring campaign.

5. Meetings held since last report

Date	Location	Topic	Short Description
4-5 July 2013	Copenhagen	Nineteenth meeting of Marine Observation and Data Expert Group (MODEG)	
4 December 2013	Rome	Meeting at the Italian Ministry for Economic Development	Discussion on the possible transmission of data on hydrocarbon extraction
16-17 December 2013	Bruxelles	1st Steering Committee Meeting	
19-20 February 2014	Ostend	Inauguration of EMODnet Secretariat	Updates from EMODnet thematic lots, sea-basin checkpoints and the Secretariat
30 April 2014	Vigo (Spain)	Waste disposal (dumped munitions)	The chief of the Navy Commander of Vigo was interviewed to obtain the shape files for the dumped munitions layer.
4-5 June 2014	Rome	2nd Emodnet Steering Committee	

6. Work package updates

WP1 – Project Management

There are no particular updates concerning project management. Starting from the second year, a cloud-based platform will be implemented to share data, metadata, and all types of document related to the project. The platform will also serve as a powerful management tool, in that it will make it possible to assign tasks and deadlines to team members, thus monitoring the progress of the work. An issue tracker will also be deployed together with the platform.

The platform will thus be an online repository that the EU Commission and the Secretariat will be allowed to access as well. Although data and metadata can already be downloaded from Human Activities portal (<http://www.emodnet-humanactivities.eu/search.php>), the new platform will also contain test data that are in the process of being validated. This will make it possible to monitor the progress of the project virtually in real time. A semantic research system will make it very easy to retrieve the information requested.

WP2 – Development of the portal and maintenance

Initial Set-up:

- Indicators were proposed to measure portal statistics.
- The URL <http://www.emodnet-humanactivities.eu/> was registered by Lovell Johns. It was initially set-up to forward to the Central Portal.
- The harmonisation discussion document and EMODnet Style Guide were received.
- Two versions of a landing page were submitted to the Secretariat, the second of which was accepted.
- The written content was created/collated for the static pages. This included written content about:
 - EMODnet and Human Activities
 - Submitting Data
 - Support
 - Sources
 - Partners
- The e-mail address contact@emodnet-humanactivities.eu was set-up (forwarding to select Lovell Johns and Cogea e-mail addresses). This is used to send any messages and attachments sent via online forms (feedback; contact; submit data).

First Stage Development:

Initial investigation and development was undertaken in a local environment:

- The Human Activities web pages use responsive design, allowing the pages to resize to fit different devices.
- Initial mapping page created with limited datasets and functionality.
- The map portal uses MapServer and OpenLayers technology.
- Google Aerial/Hybrid is used as the base mapping.
- The map portal includes tools for navigation and identifying features.

- The portal initially served data for passenger port traffic and hydrocarbon extraction wells (limited coverage). Basic returning of attribute information was implemented.
- Successful internal testing of reading and writing of Web Feature Services (WFS) using the latest version of MapServer.
- Test data for Fishery zones (FAO) was successfully served from a live WFS. This data is also dynamically filtered into different layers.
- Static pages and initial textual content were implemented.
- Dynamic content was created for sending messages from the feedback tab, submit data page and the contact page.
- Databases and dynamic content were created for managing documents and news articles.
- Implementation of Google Analytics to analyse user statistics.
- The 'Search Data' section was marked as 'coming soon', and the register section was removed, awaiting guidance from the Secretariat.

Launch:

- EMODnet Human Activities was launched 4th April 2014.

Further Development:

- Many new datasets were added and updated
- The live site currently uses an outdated version of MapServer. The web server is to be upgraded to the newest version of MapServer to allow WFS/WMS to be served to the appropriate standards, as well as general performance improvements.
- 'Search Data' page was scoped and developed (<http://www.emodnet-humanactivities.eu/search.php>):
 - The metadata has been created and converted for website searching and display
 - Data and metadata is available for download
 - Data can be viewed directly in 'View Data' page from the search results (i.e. the correct layer will switch on)
 - Before data or metadata is download, users are asked for organization name and country (both non-mandatory), and sector (mandatory). This information will be stored and included in statistical results.

Next Steps:

- Make Live the 'Search Data' page and implement links
- Upgrade of the Lovell Johns web server (in work)
- WFS/WMS to be implemented on live WebServer and tested
- New data and metadata will be replaced/added as it becomes available
- Minor functionality issues have been identified to address in priority order
- Implement RSS from news feed
- Improvements from feedback to be implemented (e.g. search by place name, legend improvements)
- Help section to be further developed to include help on using the map portal
- At present some symbols on the map are not visible at all scales. This is due to the fact some datasets (e.g. hydrocarbon extraction) contain a wide number of points and may slow down data plotting on the map. However, during the second year, this issue will be sorted out, since many users have found it difficult to correctly visualise data.

- Further options to plot subsets of data will be implemented, based on their feasibility and added value to the information displayed.
- Developing a common sign-in procedure with other EMODnet Portals. A series of meeting has been held to develop such a procedure, and several proposals have been put forward. A final decision is likely to be made during the second year.

WP3 - Design and implementation of the GIS database

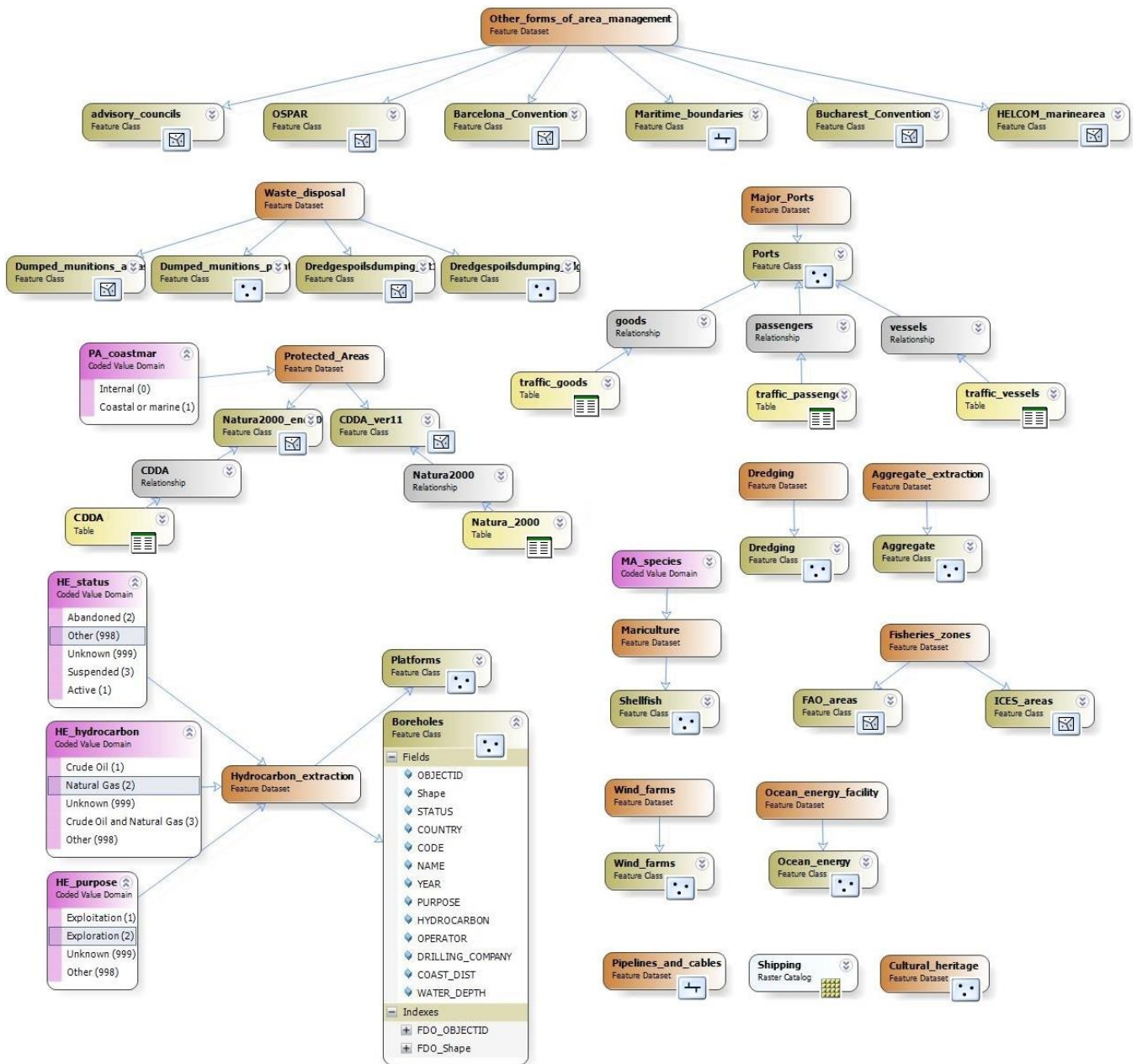
The design and implementation of the geographical database started with identifying appropriate representations for each data theme (points, lines, polygons, rasters etc.). 13 feature datasets and 1 raster catalogue have been edited in the database, defining their spatial domain and coordinate system (WGS84). Each feature dataset has been conceived to be a collection of spatially- or thematically-related feature classes that share a common coordinate system. The raster catalogue has been created for the data theme “Commercial shipping, recreational shipping” to display adjacent, fully overlapping, or partially overlapping raster datasets.

A full schema defines not only the physical structure of the database, but also the rules, relationships, and properties of each dataset. For this reason we started the data collection together with the database schema design. As data were being collected, it was possible to understand what types of information common to all Member States were actually available, in such a way as to create attribute fields in each feature class. In this way it was possible to define mandatory fields, as specified in TOR, as well as additional attributes, which are continuously updated.

Once the database schema was defined, we edited the feature classes of each dataset containing mandatory and additional fields. Field types (text, double or long integer), domains and subtypes were added to each feature class.

Data were uploaded into the database and into their feature classes after the harmonisation process. Harmonisation mainly consists in projecting datasets in a common coordinate system, and in editing the attributes of collected shapefiles or tables. This procedure made it possible to feed the database and – when necessary, based on the findings from data collection – modify its schema at the same time. The current state of the database is outlined in the figures below:

Figure 1 – Database schema



11 data themes are currently populated with vector data of one or more geometry types. Each feature class is a collection of geographic features that share the same geometry type (such as point, line, or polygon) and the same attribute fields for a common area.

Generally speaking there are two ways to organise feature classes:

1. E.g. in the case of Hydrocarbon Extraction, after the harmonisation process, data were loaded in their feature class (boreholes or platforms, both point type) where they are automatically organised according to fields properties and several coded values domains.
2. E.g. In the case of Major Ports, given the amount of information contained in each dataset (passengers, goods and vessels traffic) it was decided to keep the geometric (i.e. points representing main ports) and

the alphanumeric (i.e. tables containing attributes) component separate. Subsequently, through a relationship class (one-to-many) it was possible to correlate the geometric and the alphanumeric component using a common key field.

WP4 – Data collection

A table with an overview of data collection by country and dataset is provided in Annex I at the end of this Report.

Aggregate extraction

Abstract: This dataset is the result of the aggregation and harmonisation of data provided by several sources from all across the EU on aggregate extraction. Each point has the following attributes: Id (Identifier), Position Info (Estimated, Original, Polygon centroid of dredging area, Polygon centroid of dredging polygon), Country, Sea basin, Extraction Area, Area of activity (km²), Year (last year in which extraction was carried out based on available data), Permitted Amount (m³), Permitted Amount (t), Requested Amount (m³), Requested Amount (t), Extracted Amount (m³), Extracted Amount (t), Extraction Type (Marine sediment extraction), Purpose (Commercial, Others, N/A), End Use (Beach nourishment, Construction, Reclamation fill, N/A), Notes, Link to Web Sources.

Sources: HELCOM; ICES WGEXT; IFREMER (France); Ministerio de Agricultura, Alimentación y Medio Ambiente – MAGRAMA (Spain); Management Unit of the North Sea Mathematical Models - MUMM, The Royal Belgian Institute of Natural Sciences (Belgium); Regione Lazio, Direzione ambiente, Centro di Monitoraggio GIZC / ISPRA (Italy); The Crown Estate (UK).

Coverage: Up to date, the database contains points representing aggregate extraction areas in the following countries: Belgium, Denmark, Finland, France, Germany, Italy, Poland, Spain and the United Kingdom.

Main challenges: Data collection was carried out slowly because no answer was obtained from some of the contacted institutions and some others send the data in formats that needed to be adapted to our database.

Next steps: Data collection and harmonisation will continue in order to cover all European sea basins.

Commercial shipping, recreational shipping

Abstract: this data theme will produce a grid of EU waters with the average number of vessels per year, per grid cell.

Sources: the proposed source is the European Maritime Safety Agency (EMSA), which, through SafeSeaNet, has Automatic Identification System (AIS) data and can record vessels' position.

Coverage: All EU waters

Main challenges: EMSA is evaluating our request to acquire and process AIS data. The whole process may require a very long time, as several different authorities need to be consulted before accessing the data.

Next steps: waiting for EMSA reply and, based on it, processing data.

Cultural heritage

Abstract: The dataset will register the location of different elements of underwater heritage, among which archaeological sites or objects and wrecks of ancient ships. Lighthouses, ports of historical importance and other human constructions located on the coastline, initially investigated, are finally considered out of the scope.

Sources: the proposed sources are the SPLASHCOS database (underwater archeological sites) and the MACHU database (wrecks). Both projects are EU funded and managed by networks of scientist from different Member States.

Coverage: SPLASHCOS is intending to cover all the EU waters. At present, Spain, Italy and Greece are not or very partly covered. MACHU is intending to cover all the EU waters. At present, the Channel and the North Sea are best covered than other sea basins

Main challenges: Contacts with project managers have taken time. Scientists in charge of the projects are reluctant to disseminate detailed information (precise location of sites, which is considered “mapping the treasure”, according to the coordinators of the MACHU project) or incomplete information (missing data on historically important areas, according to the coordinators of the SPLASHCOS project). The historical periods covered by the project may let aside important cultural sites.

Next steps: Negotiation with project leaders on the feasibility of transmitting data. Datasets have to be obtained, harmonised and, if necessary, completed.

Dredging

Abstract: This dataset is the result of the aggregation and harmonisation of data provided by several sources from all across the EU on dredging area. Each point has the following attributes: Id (Identifier), Position Info (Estimated, Original, Polygon centroid of dredging area, Polygon centroid of dredging polygon), Country, Sea basin, Extraction Area, Year, Permitted Amount (m³), Permitted Amount (t), Extracted Amount (m³), Extracted Amount (t), Extraction Type (Harbour dredging, Estuary dredging, Sea lane), Purpose (Maintenance dredging, Capital dredging, Others), End Use (Beach nourishment, Commercialization, Confined deposit, Construction material, Embankment, Filling material, Land deposit, Reuse, Sea disposal, Wetland restoration), Notes, Link to Web Sources.

Sources: OSPAR (Dumping of Wastes or Other Matter at Sea); HELCOM; Centre d'études techniques maritimes et fluviales – CETMEF (France); APA-APFF, Direção de Gestão de Espaços, Ambiente e Infraestruturas (Portugal); Puertos del Estado (Spain); Ministerio de Agricultura, Alimentación y Medio Ambiente – MAGRAMA (Spain).

Coverage: Up to date, the database contains points representing dredging sites in the following countries: Denmark, Estonia, Finland, France, Germany, Latvia, Lithuania, Poland, Portugal, Spain and Sweden.

Main challenges: As in the Aggregate extraction dataset, data collection was carried out slowly.

Next steps: Data collection and harmonisation will continue to cover all the European sea basins.

Fishery zones

This dataset includes:

FAO Major Fishing Areas for Statistical Purposes These are arbitrary areas, the boundaries of which were determined in consultation with international fishery agencies on various considerations, including (i) the boundary of natural regions and the natural divisions of oceans and seas; (ii) the boundaries of adjacent statistical fisheries bodies already established in inter-governmental conventions and treaties; (iii) existing national practices; (iv) national boundaries; (v) the longitude and latitude grid system; (vi) the distribution of the aquatic fauna; and (vii) the distribution of the resources and the environmental conditions within an area. The

rationale of the FAO Major Fishing Areas has been that the areas should, as far as possible, coincide with the areas of competence of other fishery commissions when existing. This system facilitates comparison of data, and improves the possibilities of cooperation in statistical matters in general.

ICES Statistical Areas delineate the divisions and subdivisions of FAO Major Fishing area 27. The ICES Statistical Areas are used as bounding areas for calculation of fish statistics, e.g. catch per unit effort (CPUE) and stock estimates.

Sources: FAO and ICES

Coverage: FAO's areas cover the whole world, while ICES's areas delineate the division and subdivisions of FAO Major Fishing Area 27.

Main challenges:

Next steps: the possibility to add data on fish catches by fishing area will be explored. During past meetings and events, many users have informally asked whether the Human Activity portal would also cover data on fisheries. For this reason, a connection with the Atlas of the Seas, the European Market Observatory for Fisheries and Aquaculture products (EUMOFA), and EUROSTAT will be established. A specific meeting with the JRC will be established to explore forms of cooperation between the Atlas of the Seas and Human Activities. If the project scope ends up including fisheries data, it will be proposed to rename this dataset as "Fisheries".

Hydrocarbon extraction

Abstract: The geodatabase on offshore hydrocarbon extraction is the result of the aggregation and harmonization of datasets provided by several sources from all across the EU (plus Norway and Montenegro). It is updated every six months, and contains points representing offshore hydrocarbon boreholes drilled in the following countries: Denmark, Cyprus, Greece, Ireland, Italy, Latvia, Montenegro, Netherlands, Norway, Poland, Portugal, Spain, and UK. For Germany, points represent platforms, because data on boreholes are not available. Each point has the following attributes: status (active, abandoned, suspended, unknown, other), country, code, name, year (spud date), purpose (exploration, exploitation, other, unknown), fluid type (oil, gas, other, unknown), operator, drilling company, coastal distance (in metres) and water depth (in metres).

Sources: Department of Communications, Energy and Natural Resources (Ireland), Department of Energy & Climate Change (UK), Directorate General for Energy and Geology (Portugal), Dutch Ministry of Economic Affairs, (Netherlands), Federal Maritime and Hydrographic Agency (Germany), Danish Energy Agency (Denmark), Geological Survey of Montenegro (Montenegro), Geological and Mining Institute of Spain (Spain), Latvian environment geology and meteorology centre (Latvia), Ministry of Economic Development - Directorate-general for mineral and energy resources (Italy), Ministry of Energy, Commerce, Industry and Tourism (Cyprus), Ministry of Environment, Energy and Climate Change (Greece), Norwegian Petroleum Directorate (Norway), Polish Geological Institute (Poland).

Coverage: So far it has been possible to map boreholes drilled in 14 different countries: Ireland, UK, Portugal, Netherlands, Germany, Denmark, Montenegro, Spain, Latvia, Italy, Cyprus, Greece, Norway Poland. The data collection is almost complete for all sea basins (in Finland, Estonia, Belgium, Slovenia, and Iceland no offshore hydrocarbon extraction takes place, while in Sweden and Lithuania data is available only in paper format), apart from the Black Sea.

Main challenges: the main challenge encountered was probably related to the fact that there isn't a single source of information at EU level with geographic data on offshore oil and gas wells. Apart from private companies, whose data couldn't be used in EMODnet for obvious reasons, this information is currently scattered across several countries. Data collection has so far been carried out in an uncoordinated way. Hence the need for harmonising all the data collected by the Human Activities team. This was made possible by

identifying a limited number of attributes that were common to data from all sources, and then harmonising them according to a single nomenclature and a single coordinate system.

In addition, several sources were reluctant to cooperate at first. At present, the main challenge is to retrieve some data for the Black Sea; the only sea basin for which no data are currently available.

Next steps:

- Update the information already available
- Continue data collection and cover missing countries and sea basins (France, Malta, part of Greece, Faroe Islands, and the whole Black Sea)
- Plot data also according to the type of fluid extracted, besides status.

Major ports

Abstract: this data theme consists of three datasets with information on passenger, goods and vessel traffic in EU main ports. EUROSTAT GISCO Ports feature class is related to the following datasets.

Passenger traffic: Quarterly data (2001 – 2012) expressed in 1000 passengers (excluding cruise passengers) for passenger traffic by direction (inwards and outwards) and type of traffic (national and international).

Goods traffic: data (2001 – 2012) expressed in 1000 tonnes (gross weight) for goods traffic by direction (inwards and outwards), type of traffic (national and international) and type of cargo (Liquid bulk goods, Dry bulk goods, Large containers, Ro-Ro, mobile self-propelled units, Ro-Ro, mobile non-self-propelled units, Other cargo not elsewhere specified). For 2013, quarterly data (where available) have been collected, for the same parameters/variables.

Vessel traffic: data (2006 – 2012) expressed in number of vessels and gross tonnage (1000 tonnes) by direction (inwards only), size (24 vessel sizes) and type (13 vessel types).

Source: Eurostat.

Coverage: All EU sea basins. Data are available from 2001 to 2012 for passenger and goods traffic, and from 2006 to 2012 for vessel traffic.

Main challenges: the management of the dataset was particularly time-consuming because of its size. In addition, EUROSTAT's data only contains statistical and not georeferenced information. As a consequence, a correlation had to be created between a geographical dataset (GISCO Ports feature class) and EUROSTAT Maritime Transport (mar) datasets. A new field (port code) was added to mar datasets, in order to correlate each record to a single port.

Next steps: To collect updated data (2013 and 2014).

Mariculture

Abstract: This data theme consists of two main datasets: shellfish aquaculture sites (molluscs and crustaceans) and finfish aquaculture sites. Only sites operated at sea will be integrated. Salted water rearing devices located on the shore (as an example, Halibut rearing tanks) are out of the scope, such as extensive aquaculture operated in coastal lagoons. Production sites will be located using points. The main species reared (oysters, mussels...) and the type farms (cages, tanks, ponds, open...) will allow differentiating the sites (by different shapes or colour of points).

The datasets will aggregate data from different sources and countries (no EU database being available on mariculture).

Sources: national sanitary registers for aquaculture, EUROSHELL project database, national mariculture database (Scotland, Spain, France), datasets collected for specific sea basin projects (Aquafima project in the Baltic sea)

Coverage: So far, datasets have been collected in the three sea basins (Baltic Sea, Iberian Coast and Bay of Biscay, and Western Mediterranean Sea). The countries with data are Denmark, Finland, Germany, Poland, France, The Netherlands, UK, Italy and Spain. At present, only datasets from Euroshell (FR, IT, NL, IE, UK) are online.

Main challenges: The main challenges concerned the lack of EU datasets and the necessity to collect data in each Member State, the high number of farms in some particular areas (shellfish farming), the quality and reliability of national registers (in particular sanitary registers).

Next steps: The next steps will consist in achieving data collection in Member States where no datasets are easily available (Sweden, Portugal), in validating and harmonizing datasets and in integrating harmonized metadata, concerning the type of farm, the species reared and the products (eggs, fry, juveniles, fish for consumption...).

Pipelines and cables

Abstract: these data theme will map submarine pipelines (oil and gas) and cables (telecom and power).

Sources: in the technical proposal it was suggested to purchase data from a private information provider, as no public data are available at EU level, except for some countries. The Human Activities team has got in touch with DG ENERGY and DG MOVE which have a GIS portal with this data, albeit only for internal use. Alternative sources for cable data have been contacted, such as Telegeography, or Greg's cable map. Both sources however have only schematic representation of cable routes, and not georeferenced data.

Coverage: all EU waters

Main challenges: there is no single source of public data at EU level. Information is available either from private information providers or from a limited number of Member States. In the first case, it should be understood to what extent the information purchased could be made available for download on EMODnet. In the second case, besides covering only a very limited number of countries, what often happens is that pipelines and cable routes are not consistent with each other in the different countries.

Next steps: At the end of 2014 the DG ENERGY and DG MOVE will renegotiate the contract they have with a private information provider. The data they have is currently only for internal use. If possible, they will ask that a subset of data can be shared with EMODnet, and published online both for viewing and download. As regards cables, the Human Activities team is currently working on Telegeography's submarine telecom data to make them available on the portal. This data will be integrated with data on submarine cables available on the web.

Protected areas

Abstract: The dataset on marine and coastal protected areas is entirely based on the European Environment Agency's (EEA) datasets "Natura 2000" and "CDDA polygons" (i.e. nationally designated areas).

Natura 2000 is an ecological network composed of sites designated under the Birds Directive (Special Protection Areas, SPAs) and the Habitats Directive (Sites of Community Importance, SCIs, and Special Areas of Conservation, SACs).

The Common Database on Designated Areas (CDDA) is more commonly known as Nationally designated areas. The inventory began in 1995 under the CORINE programme of the European Commission. It is now one of the

agreed Eionet priority data flows maintained by EEA with support from the European Topic Centre on Biological Diversity. It is a result of an annual data flow through Eionet countries. The EEA publishes the data set and makes it available to the World Database of Protected Areas (WDPA). The CDDA data can also be queried online in the European Nature Information System (EUNIS).

EEA's data have been filtered by Cogea to show only maritime areas (i.e. areas entirely at sea), and coastal areas (i.e. internal areas that intersect and/or are tangent to the coast).

Sources: European Environment Agency

Coverage: This dataset covers the whole EU (except Croatia) in the case of Natura 2000 data, and Albania, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Great Britain, Greece, Ireland, France, Germany, Iceland, Italy, Kosovo under UNSC Resolution 1244/99, Latvia, Liechtenstein, Lithuania, the former Yugoslav Republic of Macedonia, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden and Switzerland in the case of CDDA polygons.

Main challenges: in order to identify coastal and maritime protected areas, we geoprocessed EEA's data using a spatial query to search for features based on their relation to the EEA coastline shapefile.

Next steps: keep the dataset updated.

Ocean energy facilities

Abstract: This dataset is the result of the aggregation and harmonisation of data provided by several sources from all across the EU on ocean energy (e.g., tidal currents, wave) project sites. Each point has the following attributes: Id (Identifier), Position Info (Estimated, Original, Polygon centroid), Country, Sea basin, Location, Device/Project name, Start year, End year, Resource (Tidal currents, Tidal range, Wave, OTEC, Salinity gradient), Technology (Based on www.aquaret.com/; Wave: Attenuators, Point absorbers, Oscillating Wave Surge Converters (OWSC), Oscillating Water Columns (OWC), Overtopping devices, Submerged Pressure Differential Devices; Tidal: Horizontal Axis Turbines, Vertical Axis Turbines, Reciprocating Hydrofoils, Venturi Effect Devices), Project Scale (Test site, Commercial, Prototype, Array), Device scale (Full scale, prototype), Project capacity (KW), Project promoter, Link to Web Sources, Web Page and Availability of metadata.

Sources: SOWFIA Project Database; TETHYS Database; IEA-OES GIS Map of Ocean Energy Installations.

Coverage: The database contains points representing ocean energy facilities in the following countries: Denmark, France, Italy, Portugal and Spain.

Main challenges:

Next steps: Data collection and harmonisation will continue to cover all the European sea basins.

Wind Farms

Abstract: we have identified and collected all data from the first 3 sea basins, regarding existing and planned wind farms in seven countries with a total of 22 polygons and 509 turbines.

In Denmark: nine polygons. The first one dating back to 1991

In Sweden: 6 polygons. The first one dating back to 1998

In Germany: 2 polygons. One has been operating since 2011, and the other is under construction (2015)

In Finland: 2 polygons. The first one dating back to 2008

In Portugal: 1 polygon since 2011

In France: 1 polygon is planned

In Spain: 1 polygon is planned

Sources: Building on “OSPAR Database offshore wind farms” we have identified 34 official sources in each target country. Nevertheless the “European Wind Energy Association is the most suitable source of information. Considering that they have collaborated with DG-Mare for the Atlas of the Sea, there would be options for the most favourable transmission of data (web-service or ftp) and a smooth transmission procedure. We have also used the information of the 6th edition of the “Major Wind Farms Map” (February 2013).

Coverage: we have covered the first 3 sea basins (Baltic Sea, Iberian Coast and Bay of Biscay, and Western Mediterranean Sea. The countries with data are Denmark, Sweden, Germany, Finland, France, Portugal and Spain.

Main challenges: EWEA has been contacted several times to obtain a formal authorisation for the access and use of data, but to no avail. As a contingency plan, we have contacted Offshore Energy. Finally, the consortium decided to contact DG MARE and has obtained the authorisation to access and use the data on the European Atlas of the Sea.

Next steps: We consider the information of EWEA very important in order to advance in the progress, particularly with specific issues such as the number of turbines in each platform. Although we still have not received any answer from EWEA, we will continue trying to contact this organisation, and the Administrations responsible for wind farms in each country.

Waste Disposal

Abstract: so far this data theme consists of two different datasets: i) deposit sites for dredge material and ii) dumped munition sites.

In both cases, we have collected data from three priority sea basins. Although we have received data from many consulted countries, not all of these countries have sent data. Some of the collected data was not geo-referenced or was incomplete. We have verified whether the data was also collected by OSPAR and HelCOM. So missing information was filled by information available through the maps of these institutions.

The data was sent by public institutions in different formats and files.

- i) Deposit sites for dredge material:
 - Denmark: 103 points
 - Estonia: 35 points
 - Finland: 7 points
 - France: 105 points
 - Germany: 37 points
 - Italy: 74 points
 - Latvia: 16 points
 - Lithuania: 2 points
 - Norway: 14 points
 - Poland: 31 points
 - Portugal: 13 points; 2 polygons
 - Russia: 7 points
 - Spain: 280 points; 2 polygons
 - Sweden: 144 points

- ii) ii) Dumped munition sites:
 - Latvia: 2 points
 - Germany: 2 points
 - Denmark: 8 points
 - France: 69 points and 14 polygons
 - Spain: 17 polygons and 4 points
 - Italy: 156 polygons

Sources: Ministry of the Environment (Finland), Ministry of Transport and Communications - Finnish Transport Agency (Finland), Ministry of Defence (Latvia), Ministry of the Environment (Lithuania), Ministry of Defence - Hydrographic Office of the Polish Navy(Poland), Ministry of Science and Higher Education - The Institute of Oceanology(Poland), Ministry of the Environment (Poland), Ministry of the Environment (Portugal), Ministry of Defence - Hydrographic Office (Spain,) Ministry for Infrastructures Development (Spain), The Swedish Agency for Marine and Water Management (Sweden), Foundation “James Martin Center for Nonproliferation Studies”, The Baltic CHEMSEA project.

Coverage: we have identified and collected several data sets from the first three sea basins. Baltic Sea, Iberian Coast and Bay of Biscay and West Mediterranean). We have data or datasets from public portals of nine countries. Data and information were uploaded to the GIS database. Nowadays, the countries with own specific data on the issue are Germany, Finland, France, Portugal, Spain, Latvia, Lithuania, Poland.

We have also received info from the Greater North Sea and from the Celtic Seas basins.

Countries with data are:

- i) Deposit sites for dredge material: Denmark, Estonia, Finland, France, Germany, Italy, Latvia, Lithuania, Norway, Poland, Portugal, Russia, Spain and Sweden
- ii) Dumped munition sites: Latvia, Germany, Denmark, France, Spain and Italy.

Main challenges: The geographical position of data from France and Italy has been obtained by geo-referenced images in a very small scale. Access data in GIS format would be desirable. Most of the countries of the Baltic Sea have not sent any data. According to the work plan, several contacts have been made with key institutions in the rest of the countries at the marine basins of interest.

Next steps: we have to continue requesting data from the rest of the basins, but at the same time, it is necessary to complete the data gathered from the previous three basins, since there are still missing data. We are going to modify the contact protocol in order to get response and collaboration from the related institutions

Other forms of area management/designation (Others)

Abstract: we have received data from different type of activities due to the “miscellaneous nature” of this dataset. We have data related to maritime boundaries from international conventions of HELCOM, OSPAR, Barcelona and Bucharest regarding the maritime scope of these Conventions. The new approved Advisory Councils –ACs– (former Regional Advisory Councils) at European level. The information obtained regarding the maritime scope of ACs was from North-western waters Advisory Council, South-western waters Advisory Council, North Sea Advisory Council, Mediterranean Sea Advisory Council, Baltic Sea Advisory Council and Long Distance Advisory Council

Complete data on Maritime Administrative boundaries of all Countries in all Sea basins are also available.

Other collected data refers to a specific maritime site in Galicia: “Marine Protected Areas of fisheries interest”. There are two of them in Galicia with geo-referenced data from legal documents.

Data on Maritime Spatial Planning is collected from Germany, Netherland and Belgium.

Sources: The European Environmental Agency (EEA), HELCOM, OSPAR, Barcelona and Bucharest Conventions, European Atlas of the Seas.

Coverage: we have covered all the sea basins for the following data set: Maritime administrative boundaries; Advisory Councils; and International Conventions. As regards Maritime Spatial Planning, we have only covered the North Sea (Belgium, Germany, Netherlands).

Main challenges: we have found it difficult to obtain direct and valid data from the mentioned contacts due to the lack of knowledge on this specific matter and because the obtained information cannot be classified as “others”. The difficulty in achieving geo-referenced data turns this task into a complex search.

Next steps: as this is a miscellaneous group, public authorities do not generally have available information on these specific designated areas, thus we will continue searching and identifying these data and their geo-referenced positions. For this purpose, we will send a new cover letter with more specific criteria on detailed data required and categorised as “others”.

Another dataset is under constructions: Marine Protected Areas of fisheries interest”.

WP5 – Data harmonisation

Aggregate extraction

The minimum information requested for aggregate extraction dataset was: location (latitude, longitude), year of extraction, extracted amount and end use of the extracted material (e.g., beach nourishment, commercialization). Concerning location of the extraction areas, when a polygon was provided, its centroid was used as the location point, and when a wider area of extraction (e.g., including different extraction polygons) was provided, a central point was used to represent the area. Coordinates that were not in CGS-WGS84, were converted into this system.

Commercial shipping, recreational shipping

Harmonisation will be carried out after collecting data.

Cultural heritage

Harmonisation will be carried out after collecting data.

Dredging

Data was harmonised as in the Aggregate extraction dataset.

Fishery zones

No harmonisation was needed.

Hydrocarbon extraction

The data were collected from several sources, and so had heterogeneous attributes, languages and coordinate systems. A basic set of common attributes was defined, and then raw data were harmonised accordingly.

Major ports – Passenger traffic

No harmonisation was needed. Data is already harmonised by EUROSTAT.

Mariculture

Harmonisation of data from different sources is needed. The largest common denominator has to be found for splitting mariculture sites into different types (species, type of production, size...)

Pipelines and cables

Harmonisation will be carried out after collecting data.

Protected areas

No harmonisation was needed. Data is already harmonised by the European Environment Agency.

Ocean energy facilities

The minimum information requested for ocean energy dataset was: location (latitude, longitude), resource used (e.g., tidal currents, waves), project scale (e.g., commercial, test site, prototype) and status (e.g., planned, under constructions, operational). As in the Aggregate extraction and dredging datasets, coordinates that were not in CGS-WGS84, were converted into this system.

Waste disposal

Depending on the diverse criteria and types of “dataset”, about 25-30 data sets have been acquired and integrated in our GIS tool. Datasets on waste disposal have been provided in different formats, mostly as PDF, Word, Excel files, showing basic information on coordinates and types of waste. On the other hand, some contacts have sent links to thematic digital atlases or geoportals. Only in some cases, shapefiles have been provided.

We organised the information as follows:

In Portugal:

-3 Excels files (OSPAR_Amount_Permits) for 2007, 2008 and 2009, showing “Details of categories, origin of dredged material, dredging operation, deposit sites and dumping amounts”.

-Dredged material deposit (2012) in pdf plus shp file. And 2 Excels files “OSPAR_Portugal_AMOUNT12” + “OSPAR_Permit_AMOUNT12”) only for the Alentejo coast.

In Spain: A group of jpg files showing 4 maps with “Explosives disposal zones”.

In Sweden: information about waste disposal at this official site: <http://www.sgu.se/kartvisare/kartvisare-miljoovervakning-sediment-sv.html>

In France: information about marine chart with localisation of munitions disposal, by the SHOM. And dredge material dumping sites, from reports from CETMEF (2009-2013).

In Finland, a pdf file showing “Dredging disposal” from the Finnish Transport Agency. In addition, two Excel documents on “Details of deposit sites at sea, dredging methods and disposal methods, 2011, 2012 Finland”. Ministry of the Environment: “Report on Chemical Munitions Dumped in the Baltic Sea” (Helcom).

In Latvia: notes (coordinates) on munitions extracted from a report in the web from Hydrographical Institute.

In Lithuania: “Dredging and dredged material dumping in Lithuanian territorial waters”

In Poland: “Dumping grounds on the Polish National Waters”; The CHEMSEA Geodatabase; Link to GIS layers about aggregates deposits in Polish Geological Institute - National Research Institute

In Germany: we took info from the Geosea Portal of the BSH (Bundesamt für Seeschifffahrt und Hydrographie), the CONTIS link leading to maps showing Dumping Grounds / Dredged Material, in use / Ammunition, out of use / Dredged Material, in use / Dredged Material, out of use / Ammunition, out of use.

Other datasets (shape files sets) for GIS layers have been downloaded from OSPAR and HELCOM.

Other data: Chemical Weapon Munitions Dumped at Sea. An Interactive Map, from the Foundation “James Martin Centre for Nonproliferation Studies. Combating the spread of weapons of mass destruction with training & analysis”: http://cns.miis.edu/stories/090806_cw_dumping.htm.

All datasets

In order to calculate coastal distance, where relevant, first we projected data into the Europe Lambert Conformal Conic Projection, then we used the “Near” tool to determine the distance from each input feature to the nearest feature. We ran this tool for each country subset of data as input feature and we used the national coastline coming provided by OpenStreetMap project as near feature. As a result we were able to calculate in a new field coastal distance (in metres) for each record in the feature class. Once the calculation was done we reprojected data into WGS84 geographic coordinate system and we renamed the coast distance field.

WP 6 – Population of the database

The database is being populated as data are collected and harmonised. So far, the following datasets have been loaded:

1. Aggregate extraction
2. Dredging
3. Fishery zones
4. Hydrocarbon extraction
5. Major ports
6. Mariculture
7. Ocean energy facilities

8. Other forms of area management/designation
9. Protected areas
10. Waste disposal
- 11. Wind farms**

7. User Feedback

Date	Name	Organization	Type of user feedback (e.g. technical, case study etc)	Response time to address user request
11/02/14	Olivier Beauchard	Netherlands Institute for Sea Research	Case study	The user is collecting data for the Devotes project, and wanted to know when Human Activities data would be available. He was made aware of the timeline of the project. In the meantime, he was invited to ask for what kind of data are of interest for his project. Even though the portal is not live, we could be able to provide some data.
03/02/14	Duncan Hume	Marine Management Organisation	Case study	Duncan informed us that at the MMO they are working on shipping and vessel traffic. They developed a methodology as well as open source tools to extract AIS data and produce GIS products. Albeit limited to the UK, their work on shipping is akin to ours. It was agreed to keep each other posted on future developments of our projects. Duncan also asked to review the work they did, but this turned out to be impossible, as we haven't yet analyzed any AIS data.
08/04/2014	Magnus Wallhagen	Hydrographic Office. Swedish Maritime Administration	[Informative] He advises the project responsible to establish an agreement with the International Hydrographic Organization (IHO) to get information a data as a central organization for Hydrographic Offices around the world.	Acknowledgments sent immediately.
07/05/2014	Robert Åman Karlsson	Student at the University of Uppsala	Robert needed a shapefile with coastal and marine protected areas in the Baltic sea.	Data download was not available at the time Robert contacted us, so data were sent to him via ftp.
27/06/2014	Trine Christiansen	EEA	Trine says the EEA are quite interested in Human Activities, but	Reply sent immediately, informing that data download will soon be available [Update: data has been

			laments the fact that at present data cannot be downloaded from the portal	made available for download in the meantime].
14/07/2014	Fabio Ballini	World Maritime University (Monalisa Project)	Fabio contacted us to obtain several datasets related to the Baltic Sea, to be used for the Monalisa Project.	Data download was not available at the time Fabio contacted us, so data were sent to him via ftp.

8. Outreach and communication activities

Date	Media	Title	Short description and/or link to the activity
March 2014		ICES Working Group on Marine Renewable Energy meeting	The EMODnet database on Ocean Energy was presented in the meeting, since this Working Group wants to gather all the databases available to help choose the most appropriate (depending on the user's interest).
19-20 May 2014		European Maritime Day	Cogea had a stand at the European Maritime Day in Bremen, and presented several projects, among which was EMODnet – Human Activities
17-18 June 2014	PPT presentation	Baltic MSP Forum	EMODnet – Human Activities was presented at the Baltic MSP Forum in Riga, during the session “e-MSP: data needs for proper maritime planning”
9 July 2014	EUROSHHELL website		http://www.euroshell-fp7.eu/News/EUROSHHELL-data-will-be-soon-integrated-into-the-EMODNET-portal
15 July 2014	PPT presentation	Adriatic MoS Master Plan	EMODnet – Human Activities was presented at the Adriatic MoS Master Plan in Rome, during the Round Table “Synergy and cooperation in the Adriatic Sea through the EU projects”

9. Updates on Progress Indicators

Indicator 1 -Volume of data made available through the portal

Activity	Type/format				
	Points	Lines	Polygons	Related tables/records	Raster tiles/cells
Cultural heritage					
Mariculture	565				
Aggregate extraction	638				
Dredging (e.g. navigational)	2.042				
Ocean energy facility	20				
Other forms of area management/designation		137	15		
Waste disposal (solids, including dredge material, dumped munitions, marine constructions)	966		160		
Wind farms	21				
Fisheries zones			387		
Hydrocarbon extraction	22.864				
Pipelines and cables					
Protected areas			111.769		
Commercial shipping, recreational shipping					
Major ports	2.201			3 related tables containing 1.510.564 records	

Indicator 2 -- Organisations supplying each type of data based on (formal) sharing agreements and broken down into country and organisation type (e.g. government, industry, science).

Name	Country	Type
APA-APFF, Direção de Gestão de Espaços, Ambiente e Infraestruturas	PT	Government
Associazione Mediterranea Acquacoltori	IT	Producers' Association
BSH Federal Maritime and Hydrographic Agency of Germany	DE	Government
CEDEX	ES	Government
Centre d'études techniques maritimes et fluviales (CETMEF)	FR	Government
Comité National de la Conchyliculture	FR	Producers' Association
Coordination Centre for Integrated Coastal Zone Management	BE	Government
Danish Nature Agency	DK	Government
Department of Communications, Energy and Natural Resources	IE	Government
Department of Energy & Climate Change	UK	Government
Directorate General for Natural Resources, Safety, and Maritime Affairs	PT	Government
Environment Protection Agency	LV	Government
EU Commission – DG MARE – Atlas of the Seas	EU	EC DG
European Environment Agency	EU	EC Agency
EUROSHELL	EU	7FP Project
Eurostat	EU	EC DG
FAO		International Organisation
French Naval Hydrographic and Oceanographic Service	FR	Government
Geological Survey of Montenegro	ME	Government
HELCOM		Science
Hydrographic Office (Ministry of Defence)	ES	Government
Hydrographic Office of the Polish Navy (Ministry of Defence)	PL	Government
ICES	DK	Science
IEA-OES Ocean Energy Installations		
IFREMER	FR	Science
IGME	ES	Science
Joint Research Centre (JRC)	EU	EU Commission
Management Unit of the North Sea Mathematical Models (MUMM), The Royal Belgian Institute of Natural Sciences	BE	Science
Marine institute	IE	Government
Ministerio de Agricultura, Alimentación y Medio Ambiente	ES	Government
Ministero dello Sviluppo Economico	IT	Government
Ministry of Defence	PL	Government
Ministry of Defence	ES	Government
Ministry of Defence- UK Hydrographic Office	UK	Government
Ministry of Economic Affairs	NL	Government
Ministry of Economy	LV	Government
Ministry of Energy	CY	Government
Ministry of Environment	FI	Government
Ministry of Environment, Energy & Climate Change	EL	Government

Name	Country	Type
Ministry of Environment, Spatial Planning and Energy	PT	Government
Ministry of Environmental Protection and Regional Development	LV	Government
Ministry of Public Works and Transport	ES	Government
Ministry of Science and Higher Education (Institute of Oceanology)	PL	Government
Ministry of the Environment	LT	Government
Ministry of Transport and Communications	FI	Government
Norwegian Petroleum Directorate	NO	Government
OSPAR	UK	Science
PBL Netherlands Environmental Assessment Agency	NL	Government/Research
Polish Geological Institute	PL	Government
Puertos del Estado	ES	Government
Regione Lazio, Direzione Regionale Infrastrutture, Ambiente e Politiche Abitative, Centro di Monitoraggio GIZC / ISPRA	IT	Government
SOWFIA Project		Science
Swedish Agency for Marine and Water Management	SE	Government
TETHYS		Science
The Crown Estate	UK	Government
The Polish Geological Institute (Ministry of the Environment)	PL	Government
The Swedish Agency for Marine and Water Management	SE	Government

Indicator 3 -Organisations that have been approached to supply data with no result, including type of data sought and reason why it has not been supplied.

Name	Country	Type of data sought	Reason
Aarhus University	DK	Multiple	No answer
Academy for Spatial Research and Planning	DE	Others forms of area management or designation	No answer
Agencia Pública de Puertos de Andalucía	ES	Dredging	No answer
Baltic Environmental Forum	LV	Multiple	No answer
Baltic Environmental Forum Deutschland	DE	Multiple	No answer
Baltic Environmental Forum Estonia	EE	Multiple	No answer
Baltic Sea Centre	SE	Waste disposal	They have only informed about links for searching information
Black Sea Convention		Dredging and aggregate extraction	No answer
BMUB	DE	Waste disposal	They replied referring to the Marine Strategy Framework Directive, and to the existing data collections within the regional seas conventions.
BONUS	FI	Waste disposal	BONUS does not possess the information. HELCOM has a rich GIS database of almost all parameters of interest for our project
BRGM	FR	Hydrocarbon extraction	Preliminary contact established, but data not supplied yet
Bureau de la gestion intégrée et de la planification stratégique. Direction de l'eau et de la biodiversité	FR	Waste disposal	They told that their resources are limited and they are not able to answer to our request. They suggested we contact the European Environment Agency.
CEDEX	ES	Dredging	No answer
CEDRE	FR	Waste disposal	Cedre is specialized in accidental water pollutions and is not involved in waste disposal

Name	Country	Type of data sought	Reason
CEREMA	FR	Waste disposal	They have data dredged material disposal sites (data + layers) to be provided as soon as possible. We replied and we are waiting for instructions.
Croatian Geological Survey	HR	Hydrocarbon extraction	No answer
Department of Spatial Planning, Housing and Immovable Heritage, Flemish Region (Ms.	BE	Others forms of area management or designation	No answer
DHI Water Environment Health	DK	Multiple	No answer
Direção Geral de Recursos Naturais, Segurança e Serviços Marítimos	PT	Dredging	No answer
Dirección General de Transportes, Costas y Puertos de la Región de Murcia	ES	Dredging	No answer
Direzione Generale per I Porti	IT	Dredging	No answer
Divisão de Recursos Hídricos do Litoral - Administração da Região Hidrográfica: Norte;Centro; Tejo; Alentejo; Geral	PT	Waste disposal	No information on the matter at hand.
ENEA	IT	Waste disposal	Waiting for data (they confirmed that they have some data available)
Estonia-Laboratory of Wave Engineering	EE	Ocean energy facilities	No answer
Federal Environment Ministry	DE	Multiple	No answer
Federal Ministry of Transport	DE	Multiple	No answer
Finnish Transport Agency	FI	Multiple	No answer
France Energies Marines	FR	Ocean energy	No answer
Generalitat Valenciana Conselleria de Infraestructuras, territorio y medio ambiente	ES	Dredging	No answer
Geological Institute of Romania	RO	Hydrocarbon extraction	No answer
Geological Survey of Estonia	EE	Hydrocarbon extraction	No offshore hydrocarbon extraction
Geological Survey of Finland	FI	Hydrocarbon extraction	No offshore hydrocarbon extraction
Geological Survey of Lithuania	LT	Hydrocarbon extraction	No answer
Geological Survey of Slovenia	SI	Hydrocarbon extraction	No offshore hydrocarbon extraction
Geological Survey of Sweden	SE	Hydrocarbon extraction	The information requested is stored on paper-based media
GEUS - Geological Survey of Denmark and Greenland	DK	Hydrocarbon extraction	No answer

Name	Country	Type of data sought	Reason
HELCOM	FI	Ocean energy facilities	No answer
Iceland GeoSurvey	IS	Hydrocarbon extraction	No offshore hydrocarbon extraction in Iceland
Institute of Meteorology and Water Management	PL	Multiple	No answer
Institute of Oceanology of the Polish Academy of Sciences	PL	Multiple	No answer
Instituto Hidrográfico	PT	Waste disposal	Not allowed to release the data.
Instituto Hidrográfico	PT	Others forms of area management or designation	No answer
IOW	DE	Waste disposal	They sent a link to the BSH with info on DREDGE MATERIAL DISPOSAL AND MUNITIONS (Munitionsversenkungsgebiete und Sedimentebringung). They recommended the BSH
ISPRA	IT	Waste disposal	They said they would send the data, but no data has yet been received.
Land planning and Regional Development	PT	Multiple	No answer
MAGRAMA. SG de Evaluación Ambiental - Dirección General de Calidad y Evaluación Ambiental y Medio Natural	ES	Waste Disposal	They suggested we get in touch with another Department
MEDDE- Commissariat Général au Développement Durable- Service de l'observation et des statistiques - Eider - Données régionales	FR	Waste disposal	A notification has been sent to the coastal zone specialist. No info yet.
Ministry for the Environment	DK	Multiple	No answer
Ministère de l'écologie, de l'énergie, du développement durable et de l'aménagement du territoire	FR	Others forms of area management or designation	No answer
Ministerio de Agricultura, Alimentación y Medioambiente MAGRAMA	ES	Others forms of area management or designation	They have no data about this topic. They only informed about marine protected areas as "others".
Ministerio de Economía y Competitividad. CSIC	ES	Waste Disposal	No data of interest for us.
Ministerio de Fomento - DG de la Marina Mercante	ES	Waste disposal	They have no obligation of collect this data

Name	Country	Type of data sought	Reason
Ministerio de Industria, Energía y Turismo	ES	Hydrocarbon extraction	No answer
Ministerio Fomento - CEDEX.	ES	Waste disposal	They suggested that we get in touch with other Authorities.
Ministry for Ecology, Sustainable Development and Energy and the Ministry for Higher Education and Research	FR	Multiple	No answer
Ministry for Environment	FI	Multiple	No answer
Ministry for Transport and Infrastructure	MT	Hydrocarbon extraction	No answer
Ministry of Agriculture and Forestry Department of Fisheries and Game Unit of Game and Reindeer Husbandry	FI	Others forms of area management or designation	No answer
Ministry of Agriculture, Environment and Rural Areas	DE	Multiple	No answer
Ministry of Defence	DK	Multiple	No answer
Ministry of Defence	FI	Multiple	No answer
Ministry of Defence	IT	Multiple	No answer
Ministry of Defence	LV	Multiple	No answer
Ministry of Defence	PT	Multiple	No answer
Ministry of Defence	SE	Multiple	No answer
Ministry of Defence	FI	Waste disposal	No answer
Ministry of Economy and Competitiveness	ES	Multiple	No answer
Ministry of Enterprise, Energy and Communications.	SE	Multiple	No answer
Ministry of Environment	LT	Multiple	No answer
Ministry of Environment	PT	Multiple	No answer
Ministry of Environment and Protection of Land and Sea	IT	Multiple	No answer
Ministry of Environment, Spatial Development and Energy	PT	Others forms of area management or designation	No answer
Ministry of Food, Agriculture and Fisheries	DK	Multiple	No answer
Ministry of Infrastructure and Development	PL	Multiple	No answer
Ministry of Infrastructure and Development	PL	Waste disposal	No data available
Ministry of Infrastructure and Transport	IT	Multiple	No answer

Name	Country	Type of data sought	Reason
Ministry of National Defence	LT	Multiple	No answer
Ministry of the Environment	EE	Multiple	No answer
Ministry of the Environment	PL	Multiple	No answer
Ministry of the Environment	EE	Waste disposal	They suggested that we get in touch with HELCOM
Ministry of Transport	LV	Multiple	No answer
National Information System on Water Resources	PT	Dredging	Suggested to contact other sources
Offshoreenergy.dk	DK	Ocean energy	No answer
OSPAR	UK	Aggregate extraction and dredging	OSPAR does not collect geographic data on aggregate extraction sites and dredging sites.
OSPAR	UK	Ocean energy facilities	OSPAR does not collect wave, tide or current energy data
Polish Geological Institute	PL	Hydrocarbon extraction	No answer
Ports de France	FR	Dredging	No answer
Portuguese Sea and Atmosphere Institute	PT	Aggregate extraction	They said they already provide data for the WGEXT Report (ICES)
Puertos de Cantabria	ES	Dredging	No answer
Puertos de Galicia	ES	Dredging	No answer
Puertos de Generalitat Catalana	ES	Dredging	No answer
Regione Emilia Romagna	IT	Dredging	No answer
Some Italian main ports (e.g., Ancona, Brindisi, Cicitavecchia, Genoa, La Spezia, Leghorn, Naples, Palermo, Piombino, Salerno, Trieste, Venice)	IT	Dredging	No answer
Swedish Agency for Marine and Water Management	SE	Waste disposal	They sent a link to info on waste disposal at the geoportal: http://www.sgu.se/kartvisare/kartvisare-miljoovervakning-sediment-sv.html (information is not in English). New data might be available in the future at http://www.sgu.se/kartvisare/kartvisare-miljoovervakning-sediment-sv.html .
the Baltic Sea Experiment	DE	Multiple	No answer
The Danish Coastal Authority	DK	Waste disposal	No answer

Name	Country	Type of data sought	Reason
The Institute for Baltic Sea Research in Warnemünde	DE	Multiple	No answer
The Institute for Coastal Research	DE	Multiple	No answer
The Royal Belgian Institute of Natural Sciences	BE	Hydrocarbon extraction	No answer
University of Tartu	EE	Multiple	No answer

Indicator 4 -Volume of each type of data and of each data product downloaded from the portal

Data download has been implemented only recently, and no statistics are available

Indicator 5 -Organisations that have downloaded each data type

As above

Indicator 6 -Using user statistics to determine the main pages utilised and to identify preferred user navigations routes

4th April 2014 to 27th July 2014

Page Views

Visits	1079
Average Visit Duration	00:04:41
Page Views	4,044
Unique Visitors	449
New Sessions	41.61%

Most Popular Pages

1	View Data	27.60%
2	Home	28.41%
3	About	11.75%
4	News	4.55%
5	Submit Data	4.52%
-	Other	23.17%

Most Popular Exit Pages

1	View Data	52.73%
2	Home	23.73%
3	About	13.25%
4	Documents	2.96%
5	Support	1.85%
-	Other	5.48%

Traffic Acquisition

1	Central Portal	62.18%
2	Direct (URL)	30.12%
3	Search Engine / Organic	2.14%
4	cogeaipa.it	1.46%
5	Wikipedia	1.66%
-	Other	2.44%

Visitor Location

1	Italy	31.51%
2	United Kingdom	23.26%
3	Spain	11.58%
4	Belgium	5.19%
5	Sweden	3.05%
=	Brazil	2.78%
=	France	2.68%
8	Denmark	2.41%
9	Germany	2.32%
10	Poland	2.13%
-	Other	13.09%

Indicator 7 -List of what the downloaded data has been used for (divided into categories e.g. Government planning, pollution assessment and (commercial) environmental assessment, etc.)

Data download has been implemented only recently, and no statistics are available

Annexes

Annex I – Summary table of data collection

	Aggregate extraction	Commercial recreational shipping	Cultural heritage	Dredging	Fishery zones	Hydrocarbon extraction	Main ports	Mariculture (shellfish)	Mariculture (finfish)	Ocean energy facilities	Other areas	Pipelines and cables	Protected areas	Waste disposal	Wind farms
BE	Complete	Awaiting reply	Awaiting reply		Complete	No extraction	Complete	No mariculture	No mariculture	No data	Complete	Awaiting reply	Complete		Partial
BG		Awaiting reply	Awaiting reply		Complete	No reply	Partial		No mariculture	No data	Complete	Awaiting reply	Complete		
CY		Awaiting reply	Awaiting reply		Complete	Complete	Complete			No data	Complete	Awaiting reply	Complete		
DE	Partial	Awaiting reply	Awaiting reply	Complete	Complete	Complete	Partial	Awaiting reply	Awaiting reply	No data	Complete	Awaiting reply	Complete	Complete	Complete
DK	Complete	Awaiting reply	Awaiting reply	Complete	Complete	Complete	Partial	Complete	Complete	Complete	Complete	Awaiting reply	Complete	Complete	Complete
EE		Awaiting reply	Awaiting reply	Complete	Complete	No extraction	Complete	No mariculture	Awaiting reply	No data	Complete	Awaiting reply	Complete	Complete	Complete
EL		Awaiting reply	Awaiting reply		Complete	Partial	Complete	Complete	Complete	No data	Complete	Awaiting reply	Complete		
ES	Complete	Awaiting reply	Awaiting reply	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Complete	Awaiting reply	Complete	Complete	Complete
FI	Complete	Awaiting reply	Awaiting reply	Complete	Complete	No extraction	Complete	Complete	Complete	No data	Complete	Awaiting reply	Complete	Complete	Complete
FR	Complete	Awaiting reply	Awaiting reply	Partial	Complete	No reply	Partial	Complete	Incomplete	Complete	Complete	Awaiting reply	Complete	Complete	Partial
HR		Awaiting reply	Awaiting reply		Complete	No reply	Complete	Complete	Complete	No data	Complete	Awaiting reply	Partial		
IE		Awaiting reply	Awaiting reply		Complete	Complete	Complete	Complete	Complete	No data	Complete	Awaiting reply	Complete		Partial
IT	Partial	Awaiting reply	Awaiting reply	No reply	Complete	Complete	Complete	Complete	Awaiting reply	Complete	Complete	Awaiting reply	Complete	Complete	Complete
LT		Awaiting reply	Awaiting reply	Complete	Complete	No extraction	Complete	No mariculture	No mariculture	No data	Complete	Awaiting reply	Complete	Complete	Complete
LV		Awaiting reply	Awaiting reply	Complete	Complete	Partial/No reply	Complete	No mariculture	No mariculture	No data	Complete	Awaiting reply	Complete	Complete	Complete
MT		Awaiting reply	Awaiting reply		Complete	No reply	Complete	Awaiting reply	Awaiting reply	No data	Complete	Awaiting reply	Complete		
NL		Awaiting reply	Awaiting reply		Complete	Complete	Complete	Complete	Complete	No data	Complete	Awaiting reply	Complete		Partial
PL	Complete	Awaiting reply	Awaiting reply	Complete	Complete	Complete	Complete	Complete	Complete	No data	Complete	Awaiting reply	Complete	Complete	Complete
PT	Partial	Awaiting reply	Awaiting reply	Partial	Complete	Complete	Complete	Awaiting reply	Awaiting reply	No data	Complete	Awaiting reply	Complete	Complete	Complete
RO		Awaiting reply	Awaiting reply		Complete	No reply	Partial	No mariculture	No mariculture	No data	Complete	Awaiting reply	Complete		
SE		Awaiting reply	Awaiting reply	Complete	Complete	No data	Complete	Awaiting reply	Awaiting reply	Incomplete	Complete	Awaiting reply	Complete	Complete	Complete
SI		Awaiting reply	Awaiting reply		Complete	No extraction	Complete			No data	Complete	Awaiting reply	Complete		
UK	Complete	Awaiting reply	Awaiting reply		Complete	Complete	Complete	Complete	Incomplete	Incomplete	Complete	Awaiting reply	Complete		Partial

Annex I – Summary of SPLASHCOS and MACHU

SPLASHCOS project¹

SPLASHCOS - Submerged Prehistoric Archaeology and Landscapes of the Continental Shelf - is a four-year research network (2009 to 2013) funded by the European Commission under its COST program (Cooperation in Science and Technology) as COST Action TD0902.

Its aim is to bring together archaeologists, marine geoscientists, heritage agencies, and commercial and industrial organizations interested in researching, managing and preserving the archives of archaeological and palaeoclimatic information locked up on the drowned prehistoric landscapes of the European continental shelf, and to disseminate that knowledge to a wider audience.

The main objectives of SPLASHCOS are to promote research on the investigation, interpretation and management of the drowned landscapes and prehistoric archaeology of the European continental shelf, stimulate the development of new interdisciplinary and international research proposals, and provide guidance to heritage professionals, government agencies, commercial organisations, policy makers and a wider public on the relevance of underwater research to a deeper understanding of European history, past paleoclimate and sea-level change, and the social relevance and likely future impact of these changes.

The scope of SPLASHCOS extends to all European coastal waters, and in some cases beyond. The website provides maps with geo-referenced underwater sites.

A first contact has been established with the project manager, Pr. Hauke Jöns. His answer on the feasibility of transferring dataset was as follow “At the moment SPLASHCOS has basic data of around 2500 submerged prehistoric sites in European marine waters collected. Unfortunately some important data from countries with big numbers of sites are not available, so we hesitated so far to publish our data on the web; they are still too incomplete to be used for spatial or statistical analyses. If the situation is improved (hopefully at the beginning of 2015), we have already discussed with Dick Shaap from Maris to get the Splashcos-data integrated in the SeaDataNet or GeoSeas”.

A new contact is planned in the first weeks of August for trying to find a solution.

MACHU project²

MACHU (Managing Cultural Heritage Underwater) aims to support new and better ways for effective management of our underwater cultural heritage and to make information about our common underwater cultural heritage accessible to researchers, policymakers and the general public

MACHU was originated as a three-year project involving seven countries sponsored by the European Union’s Culture 2000 programme. The project ran from September 2006 to August 2009.

As a result, the MACHU project initiated the development of a web-based GIS (MACHU GIS) application for management and research and an interactive website (Wrecks in Situ) designed to increase access to our underwater cultural heritage for the general public, enhancing public support for the protection of sites underwater.

¹ <http://www.splashcos.org>, http://www.splashcos.org/sites/splashcos.org/files/MoU_official_TD0902.pdf

² <http://www.machuproject.eu/WIS-viewer.htm>

MACHU GIS is developed within the MACHU-project as a tool to exchange and explore Underwater Cultural Heritage information. As a Geographic Information System, MACHU GIS offers the possibility to combine heritage information with other specific area related subjects, such as site research data, environmental data, legislative information and historic maps. MACHU GIS contains a number of standard map layers (web map services) provided by MACHU partners and third parties. Users can extend these map layers with new map layers for personal use. For instance to examine possible threats to specific UCH-sites.

Through the (sensitive) nature of the information (in particular the exact positions of sites), this application is only available for the scientific community and professional maritime stakeholders. Users have to [register](#) themselves first in order to obtain access.

The archaeology layer is based on information from the MoSS master management plan. A management plan could be seen as a collection of information-elements that applies to an archaeological object (or site). A selection of these information-elements (as described by the fields of the shapefile) forms the archaeology layer that can be presented and questioned by the GIS.

Contacts have been engaged through the website “contact tool”. No answer has been yet received.