



# EMODnet



European Marine  
Observation and  
Data Network

## EMODnet Thematic Lot n° 6 - Human Activities

EASME/EMFF/2017/1.3.1.2/03/SI2.789002

Start date of the project: 03/03/2019 - (24 months)

**EMODnet Phase III – Interim/Final Report**

Reporting Period: 03/03/2019 – 02/03/2021



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## Disclaimer

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## Executive summary

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The objective of EMODnet Human Activities is to become the entry point for data on human activity in EU waters. Special attention is thus given to collating accurate data from official sources, as well as to making user experience as smooth as possible.

In the current phase of EMODnet, the focus is on further developing its operational service where marine data and data products are made interoperable and freely available. EMODnet Human Activities is mandated to build the following data themes:

- Aggregate extraction
- Cultural heritage
- Dredging (e.g. navigational)
- Fisheries zones
- Oil and gas extraction
- Ports (traffic and waste)
- Aquaculture (including freshwater)
- Ocean energy facility
- Spatial planning zones
- Pipelines and cables
- Protected areas
- Waste disposal
- Wind farms

Furthermore, even though not requested by the contract, the Human Activities team have also made available a number of additional datasets, such as:

- Algae production facilities (including spirulina)
- State of bathing water
- Fish catches
- Fishing effort
- Fishing intensity
- Lighthouses
- Military areas
- Monthly first sales of fish
- MSFD Reporting Units
- Nuclear power plants
- Oil and gas licences
- Urban wastewater treatment

Moreover, one of the key objectives of the current phase is to make available a series of vessel density maps. The vessel density maps were released in March 2019 and quickly became EMODnet Human Activities most downloaded data set (or products). At the time of writing vessel density maps are available from 2017 to 2019, and 2020 maps are being prepared (the first three months are ready).

The EMODnet Human Activities team also released a [publication](#) with the detailed method to create vessel density maps. The method is completely original and presents an innovative approach to mapping vessel density. Lately, it has been adopted by the US National Geo-Spatial Intelligence Agency (NGA), which is kicking off a new project with an aim to map shipping traffic globally. The NGA will use the method developed by EMODnet Human Activities, which will ensure compatibility between the EU and the US efforts.

In December 2019, the vessel density maps developed by EMODnet Human Activities were complemented by the release of route density maps, prepared by EMSA.

In May 2020, when Europe was slowly getting out of the first COVID-19 outbreak, the EMODnet Human Activities team used EMSA's route density map to [estimate the impact of COVID-19 on fishing activity](#). The estimations were then used by the STECF in their Annual Economic Report on the EU Fishing Fleet to forecast the performance of the EU fishing fleet over the rest of 2020.

In February 2021, the much-awaited data set on Maritime Spatial Planning was released. The data model is the product of a joint effort carried out by the EMODnet Human Activities team and an MSP Data Expert Group set up by [EASME \(now CINEA\) and DG MARE](#).

Besides collecting and making available data, other activities have also been carried out.

The team have compared EMODnet data models with INSPIRE's, in view of increasing compliance with INSPIRE standards. In 2020, this work culminated with the publication of a report that identifies 17 different INSPIRE application schemas as potentially applicable to 66 EMODnet HA datasets, with more or less direct alignment depending on the themes. Other issues related with uncomplete codelists and inconsistent semantic definitions are also pointed out. The report is available at this [link](#), and, based on its findings, in the next phase of EMODnet INSPIRE-compliant data models will be developed.

In view of fostering cooperation with Regional Sea Conventions, a series of meetings took place between 2017 and 2018. The Human Activities team met the organisations responsible for the implementation of Regional Sea Conventions and discussed how to better liaise in the future to mutual benefit. A structured form of cooperation was formally presented to the Black Sea Commission at their meeting in October 2018. Follow-up meetings are scheduled to take place between March and April 2021.

Web statistics show that new users visit the portal each month. Since the second half of 2020, the percentage of users from industry has increased to 40%, which may lead to conclude that providing harmonised and interoperable data is contributing to generating value added in the blue economy.

# 1. Introduction

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The contract for the current phase of EMODnet Human Activities was signed in March 2017 and renewed in March 2019. The consortium that was awarded the contract is the same that developed the portal in the previous phase:

- Cogea (lead company), Italy
- AND International, France
- AZTI Tecnalia, Spain
- CETMAR, Spain
- Eurofish International Organisation, Denmark
- Lovell Johns, UK

EMODnet Human Activities has been a member of the EMODnet family since September 2013. Since it was not included in the first EMODnet phase from 2009 to 2012, in the previous EMODnet phase (2013-2016) its main objective was to quickly build a base of data, so as to catch up with the other portals.

With the new phase of EMODnet, the focus is on further developing the operational service where marine data and data products on the spatial extent and intensity of human activities in the ocean are made interoperable and freely available. According to the contract, EMODnet Human Activities is mandated to build the following data themes:

- Aggregate extraction
- Cultural heritage
- Dredging (e.g. navigational)
- Fisheries zones
- Hydrocarbon extraction
- Ports
- Aquaculture (including freshwater)
- Ocean energy facility
- Spatial planning zones
- Pipelines and cables
- Protected areas
- Waste disposal
- Wind farms

Compared with the previous phase, there are some new datasets, such as freshwater aquaculture, waste collected in ports and spatial planning zones. Furthermore, even though not requested by the contract, the Human Activities team have also made available a number of additional datasets, such as:

- Algae production facilities (including spirulina)
- State of bathing water
- Fish catches
- Fishing effort
- Fishing intensity

- Lighthouses
- Military areas
- Monthly first sales of fish
- MSFD Reporting Units
- Nuclear power plants
- Oil and gas licences licences
- Urban wastewater treatment

Moreover, one of the key objectives of the new phase is to make available a series of vessel density maps. This was also a requirement of the previous EMODnet phase, when in fact it turned out impossible to obtain the necessary data to compile the maps. For this reason, with new phase it was decided to purchase a set of data from a commercial provider. Vessel density maps went live in March 2019 and have been updated regularly ever since. Moreover, in December 2019, these were complemented with 'route density maps' – measuring the number of ship routes per square kilometre per month – created by EMSA.

The general objective of EMODnet Human Activities is to become the entry point for maritime data on the spatial extent and intensity of human activity in the ocean. For this reason, the team developing the pay special attention to collating accurate data from official sources, as well as to making user experience as friendly as possible. With a view to increase EMODnet visibility, a blog was launched in the previous phase of EMODnet to increase awareness on the work of the Human Activities team and on how its data could be used.

The current phase of EMODnet also takes on some new challenges, such as improving compliance with INSPIRE standards, analyse standards and protocols of non-EU organisations involved in similar initiatives, and better coordinate with Regional Sea Conventions.

Last but not least, special attention is now placed on developing "use cases" to better understand how EMODnet Human Activities creates value for its users.

## 2. Update on the Tasks

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### **Task 1: develop a common method of access to data held in repositories**

All the data sets listed in the Tender Specifications received an update once a year, or were built from scratch. This is the case of vessel density maps and Maritime Spatial Planning areas, which were not included in the previous EMODnet contract. In addition, some new data sets were made available:

- Algae production facilities (including spirulina)
- State of bathing water
- Fish catches
- Fishing effort
- Fishing intensity
- Lighthouses
- Military areas
- Monthly first sales of fish
- MSFD Reporting Units
- Nuclear power plants
- Oil and gas licences licences
- Route density maps (via EMSA)
- Urban wastewater treatment

There remains more than a challenge related to the coverage of certain data sets, namely aquaculture, pipelines, and cables. Despite the effort put in place, it seems impossible to obtain complete coverage of EU waters in the short run, because there are no data sources available in many countries and / or data are confidential. The coverage of pipeline and cables has improved considerably in the past two years, whereas aquaculture has increased at a slower pace. In the future phase of EMODnet, an attempt will be made to improve coverage by using satellite images.

### **Task 2 - Construct products from one or more data sources that provide users with information about the distribution of parameters in time and space**

EMODnet Human Activities is mandated to develop vessel density maps of the EU, and to do so a set of AIS data has been purchased from a commercial provider.

The data consists of messages sent by automatic tracking systems installed on board ships and received by terrestrial and satellite receivers alike. The dataset covers a period from 2017 to 2020 for an area covering all EU waters. The messages have been imported in a database as points. From the points, we have created a segment every two consecutive positions of a vessel. The segments have then been intersected with a grid with 1 km<sup>2</sup> cells. For each ship we have calculated the total time spent in a cell by calculating the portion of segment intersecting the cell, dividing it by the total length of the segment and multiplying the result by the total time of the segment. Density is expressed in terms of hours spent by ships in a cell over a month. The longer the time, the higher the density. Ships have been grouped according to the following types: cargo, dredging or underwater operations, high speed craft, fishing, military and law enforcement, passenger, pleasure craft, sailing, service, tanker, tug and towing, other, unknown.

The method used to calculate vessel density is completely original and has been developed by the Human Activities team together with the JRC, and is [available online](#).

The data set was made live on 11 March 2019 and quickly became EMODnet Human Activities' most downloaded product. In December 2019, route density maps were also made available, courtesy of EMSA. These maps measure density as the number of routes that cross a grid cell (same resolution as the vessel density maps) in a month. As such, they complement the vessel density maps, by providing a slightly different measurement of shipping density.

**Task 3 - Develop procedures for machine-to-machine connections to data and data products:** all of EMODnet Human Activities' datasets can be served via webservices (WFS and WMS). Web Feature Services (WFS) were migrated from MapServer to GeoServer to allow greater compatibility with the central portal. Vessel and route density maps are the only raster datasets available on EMODnet Human Activities, and are served via WMS and WCS.

New short web service URLs were implemented, using the domain [ows.emodnet-humanactivities.eu](https://ows.emodnet-humanactivities.eu). Service Metadata URL, Metadata URL and data URL links were added to the webservice get capabilities.

Last but not least, we are looking into the GeoNetworks catalogue application, as part of an action from the Technical Working Group. This has not yet been implemented, as with the new contract the current server will be migrated from the UK to Germany and a massive update will follow. It is thus proposed to fix this issue, once the new server is up and running.

#### **Task 4 - Develop a web portal allowing users to find, visualise and download data**

New features for the map viewer went live: setting layer transparency, printing maps, searching, and exporting tabular data by drawing a rectangle on the map. The latter feature was introduced because many users are not familiar with GIS data formats, and prefer tabular (e.g. csv) data instead.

The portal was transferred to a new Linux server for increased performance and security with the latest versions of GeoServer and PostgreSQL. A wildcard SSL certificate was also implemented to allow the publishing of the portal and web services via https.

The website was made fully compliant with EASME's privacy and data protection policy. Further to the invalidation of the EU-US privacy shield by the Court of Justice, http compression was turned off, users's email addresses are not collected anymore after the Brexit transition period (the server is currently located in the UK), and Apache web server logs were disabled.

#### **Task 5 - Ensure the involvement of Regional Sea Conventions**

in order to establish a structured form of cooperation with regional sea conventions, 4 meetings (one for each convention) took place between 2017 and 2018. The meetings were used to discuss the progress of EMODnet Human Activities, what actions should be taken to ensure that our work is consistent with the work of the RSCs, and what could be improved to make EMODnet Human Activities team more useful to them. A structured form of cooperation on data exchange was formally presented to the Black Sea Commission at their meeting in October 2018. Follow-up meetings have been arranged with RSCs: an interview with UNEP-MAP is scheduled on 19 March 2021. The EMODnet HA team will also attend the Black Sea Commission's annual meeting in April 2021. In the meantime, the Black Sea Commission has provided



written feedback on the use of EMODnet HA. The Black Sea Commission reported that EMODnet's data sets are being used by their experts during the preparation of relevant publications of regional nature. The data sets are believed to be reliable and timely. Increasing efforts are being put in place to persuade BSC's members to make more data available via EMODnet. OSPAR and HELCOM have also been contacted for an interview; while they gave a positive feedback, they have not yet confirmed a date for an interview.

#### **Task 6 - Facilitate interoperability with data distributed by non-EU organisations**

This task has proved to be rather challenging, as there are not many initiatives similar to EMODnet Human Activities outside the EU. No significant progress has been made compared with the period 2017-2019 when UNESCO's MSP inventory and the US Marine Cadastre were benchmarked. There is an important exception, though. In February 2021, we learned that the US National Geo-Spatial Intelligence Agency (NGA) is kicking off a project to map shipping traffic globally. To do so, they will develop vessel density maps, based on the method published by the EMODnet Human Activities team. In a meeting with EMODnet HA and the European Commission, the NGA announced they will set up a peer-review group to validate their work, and experts from EMODnet HA will sit in it. Furthermore, it was proposed to sign a Memorandum of Understanding between the NGA and the European Commission to increase cooperation on this issue. Potentially, the results of this strengthened cooperation are quite interesting, in that they will allow to map shipping traffic globally in a consistent fashion.

**Task 7 - Install a process to monitor performance and deal with user feedback:** user feedback is monitored constantly, either through the help desk (see next paragraph) or through the download forms that users fill out upon downloading data. The form requests to insert an email address and to specify the type of organisation. A non-mandatory field allows to elaborate on the reason(s) for download. Further to the invalidation of the EU-US Privacy Shield, e-mail addresses are no longer collected. However, over the past two years it has been possible to gather useful insights as to what users download EMODnet HA's data for. In particular, it has emerged that many companies download data in the preliminary phase of their ocean projects – be it wind farms, pipelines or cables – to quickly screen areas that hold potential and to quickly identify any conflicts that might arise. A list of 'reasons for download' is regularly shared with the European Commission and with the Secretariat for an early identification of potential use cases.

Over the past year, the share of industry users has increased considerably, reaching around 40% of total downloads. These are mostly small and medium enterprises (many engineering consultancies), but large corporations are well represented as well. Most companies are from the UK and the EU. Outside Europe, US companies seem to be using EMODnet Human Activities as well.

**Task 8 - Operate a help desk offering support to users:** a help-desk service was set up shortly after the signature of the contract. The telephone and live-chat help-desk services are manned Monday through Friday during business hours. Users seem to still prefer email though, as no one has requested help via telephone and very few have used live chat. E-mail requests are generally addressed with 1.5 half days; telephone and chat requests are addressed in real time. The live chat web service was discontinued towards the end of 2020, as the servers of the company providing the service are located in the US. This was utterly unfortunate, as live chat was by far users' preferred method to reach out with the EMODnet HA's team, because it offered help in real time. Recently, the company providing the live chat plugin used on EMODnet HA has started offering its users the possibility to choose between an EU or a US server,



upon opening a new account. It is thus highly recommended to consider implementing a live chat service again in the new EMODnet phase, especially in view of the forthcoming centralisation of EMODnet portals.

### 3. Work Package updates

Status of the Milestones and Deliverables listed in the workplan				
Milestone/Deliverable	WP	Date due	Status (Delivered/Delayed)	If Delayed: reason for delay and expected delivery date
e.g. M1: xxx	WP1	Dd/mm/yyyy		
e.g. D1.1: xxx				

N.B. the workplan does not include milestones, so the table above cannot be completed.

#### **WP1 – Project management**

EMODnet Human Activities is managed by Cogea, who coordinates a group of 5 more partners. Internal coordination is mostly ensured through Teamwork, a project management platform used by the EMODnet Human Activities team. The Technical Coordinator and the GIS Coordinator (both from Cogea) assign tasks to each partner and give deadline for completion. Teamwork is thus used to keep track of the progress of the project. The platform also serves as a repository of documents and data.

An internal meeting takes place every year to assess the progress of the project, identify potential challenges and find new solutions. In 2020 the internal meeting took place remotely, due to the COVID-19 outbreak.

#### **WP2 – Data collection**

This WP refers to “Task 1: develop a common method of access to data held in repositories”, and “Task 2: Construct products from one or more data sources that provide users with information about the distribution of parameters in time and space”.

The WP focuses on the optimal procedures for data collection from different sources. All EMODnet Human Activities’ data sets are updated at least once a year. Data collection is thus a continuous process that requires contacting data sources, obtaining data, quality control them. A complete list of sources is available in the metadata on the portal, and it is not reported here for the sake of brevity.

To be noted that this WP also deals with the collection of data for the vessel density maps (Task 2).

Extensive information on Tasks 1 and 2 is reported in the previous section.

## **WP3 – Data harmonisation**

As data are collected from multiple sources, harmonisation is an important process in our workflow. This basically entails harmonisation at the level of the data model (establishing common fields, attributes, units of measurement and language) and harmonisation at the level of the coordinate system (different data sources might use different coordinate systems).

A set of guidelines has been drafted by the GIS coordinator, and all members of the team in charge of collecting data need to follow the rules laid down in the documents.

Specifically in the past two years, two important activities have been carried out:

1. Inspired by the approach followed by Macaronesian Maritime Spatial Planning (MARSP) project and Baltic Marine Environment Protection Commission – Helsinki Commission (HELCOM), consisting in using the INSPIRE “Land Use” theme as a basis for harmonising Marine Spatial Planning data, a similar work on EMODnet marine human activities datasets has been performed. This work involves the transformation of original EMODnet human activities data sets to cope with the requirements of INSPIRE “Sampled Land Use” application schema. The result is a unique point-type dataset including the location, and the identification (according to the HILUCSLandUse reference codelist) of all the human activities included so far in EMODnet Human Activities, along with their validity period (if available from source), and some additional information stacked in the INSPIRE “localid” and “specificlanduse” attributes. This work was presented at the virtual workshop “Exploring and applying INSPIRE principles within Maritime Spatial Planning” on 12 June 2020). All the outcomes and resources derived from this work, including the report with all technical details and the generated dataset, are available online in the following [link](#)
2. Together with the Data Expert Group on MSP set up by [EASME \(now CINEA\) and DG MARE](#), the EMODnet Human Activities team developed a common data model. Essentially the data model takes stock of existing initiatives developed by MarSP, HELCOM-VASAB, and EMODnet Human Activities, and aims for full compatibility with the nomenclatures developed by each project. A document describing the data model is attached to this report.

## **WP 4 - Design of the GIS database**

A geodatabase can effectively store and manage geometric elements (spatial data) and alphanumeric data in the same system. Specifically, spatial and descriptive elements share the same table. For our specific needs an object-relational database management system (ORDBMS) will be developed to manipulate, i.e. import, store, sort and retrieve data in a geodatabase. It is similar to a relational DBMS, but with an object-oriented database model: objects, classes and inheritance are directly supported in database schemas and in the query language. The advantages of a geodatabase built with the chosen DBMS can be summarised as follows:

- All data are stored in one place, which reduces the possibility of redundancy and data misalignment;
- Vector objects of the same type are grouped in a feature table (or feature class or object class), stored in the ORDBMS in a table compliant with all the specifications of the relational model;
- Storage and management of raster data (including a Digital Terrain Model as a basemap dataset);
- Efficient query, standard range interfaces (i.e. SQL) and spatial query;
- Easy data sharing between users, on the basis of a set of access privileges;

- Possibility to access and modify data concurrently by various users; - high security standards, and guarantee of data integrity.

## ***WP 5 - Population of the database***

As of today, most data sources have not agreed to adopt EMODnet data models and serve data via web services. Therefore, data are retrieved, harmonised and uploaded manually by the EMODnet Human Activities team. In practical terms, populating the database implies:

- a) converting the harmonised shapefile or geodatabase feature class to the final geodatabase feature class;
- b) converting or importing an input table to a dBASE or a geodatabase table;
- c) loading multiple raster datasets into a geodatabase or raster catalogue
- d) mosaicking multiple input rasters into a single raster dataset (the target raster must be an existing raster dataset, which can be an empty raster dataset or one already containing data.) e) Importing data or schema from an XML document into a geodatabase.

As mentioned above, each data set receive at least one yearly update, so this operation is performed at least once a year for each data set. Some data sets, such as density maps and wind farms, receive more frequent updates.

## ***WP 6 – Maintenance of the portal***

See Task 4 in the previous section.

## ***WP 7 - Development of data products***

See Task 2 in the previous section.

## ***WP 8 - Involvement of Regional Sea Conventions***

See Task 5 in the previous section.

## ***WP 9 - Analysis of standards and protocols used by non-EU organisations***

See Task 6 in the previous section.

## ***WP 10 - Monitoring of effectiveness in addressing users' needs***

See Task 7 in the previous section.

## ***WP 11 - Setting-up and operation of a help-des***

See Task 8 in the previous section.

## 4. Identified issues: status and actions taken

A. Priority issue(s) identified and communicated by EASME/ DG MARE/ SECRETARIAT				
Priority issue	Status (Pending/Resolved)	Action(s) taken / remaining actions planned	Date due	Date resolved
Consider adding a Catalogue Web Service (CWS) for the user.	Pending	Starting with the next contract a new webserver will be set up in Germany. It is proposed to install the CWS on the new webserver.	Q2 2021	
Disable live chat service	Solved	Disabled		26/10/2020
Stop collecting users' email addresses	Solved	Form removed	Q4 2020	06/01/2020
Disable Apache web server logs	Solved	Disabled	Q4 2020	06/01/2020
INSPIRE metadata fields (metadata url - pointing to an xml end-point record - and data url - pointing to predefined download link) should be filled	<del>Solved</del> Pending	The Service Metadata URL, Metadata URL and Data URL links have been added to the webservice get capabilities. <u>The issue is not fully resolved, though</u>	<u>Q2 2021</u>	<u>Q1-2020</u>
Switching off HTTP_compression on HTTPS websites	Solved	HTTP compression switched off	Q1 2020	Q1 2020
Include metadata in web services	Solved	Included	Q2 2019	Q4 2019
WCS not exposed for the density maps	Solved	WCS exposed	Q2 2019	Q3 2019
Implement more user-friendly web service URLs	Solved	URL name changed to ows.emodnet-humanactivities.eu	Q2 2019	Q3 2019
Implement wildcard SSL certificate	Solved	Implemented	Q2 2019	Q3 2019

<b>B. Issues / challenges identified by the thematic assembly group itself</b>				
Priority issue / challenge	Status (Pending/Resolved)	Action(s) taken / remaining actions planned	Date due	Date resolved



## 5. Allocation of project resources

Information on the allocation of project resources	
Categories	Resource usage <sup>1</sup> (%)
Making data and metadata interoperable and available	39%
Preparing data products	16%
Preparing web-pages, viewing or search facilities	18%
Managing user feedback	3%
Project management	5%
Outreach and communication activities	5.5%
Involvement of Regional Sea Conventions	1.5%
Analysis of standards and protocols used by non-EU organisations	2%
Others	10%

<sup>1</sup> Provide the workings of your calculations, *i.e.* percentage allocation of the total amount awarded.

## 6. User feedback (Contact us form, online chat & other communication means)

Overview of user feedback and/or requests received in this quarter							
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	Means of contact	Response time	Status of user query: resolved/pending	Measures taken to resolve the query	Status: if not (yet) resolved/pending, explain reason why and expected timeline
06/03/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
07/03/2019	University of York	Enquiry on data	Live chat	Immediate	Solved	n.a.	
12/03/2019	JRC	Technical	Live chat	Immediate	Solved	n.a.	
12/03/2019	Individual	Enquiry on data	Live chat	Immediate	Solved	n.a.	
12/03/2019	ISMAR	Technical	Live chat	Immediate	Solved	n.a.	
13/03/2019	Cathie Associates	Technical	E-mail	Same day	Solved	n.a.	
13/03/2019	Maritime Institute in Gdańsk	Technical	Live chat	Immediate	Solved	n.a.	
19/03/2019	Individual	Technical	Live chat	Immediate	Solved	User redirected to EMODnet Bathymetry	
20/03/2019	Gavin Doherty & Geosolutio	Enquiry on data	Live chat	Immediate	Solved	n.a.	

Overview of user feedback and/or requests received in this quarter							
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	Means of contact	Response time	Status of user query: resolved/pending	Measures taken to resolve the query	Status: if not (yet) resolved/pending, explain reason why and expected timeline
22/03/2019	4COffshore	Technical	Live chat	Immediate	Solved		
25/03/2019	Individual	Technical	Live chat	Immediate	Solved	User redirected to EMODnet Bathymetry	
26/03/2019	Next Geosolutions	Technical	Live chat	Immediate	Solved	n.a.	
26/03/2019	European Subsea Cables Association	Data policy issue	E-mail	Same day	Solved	Data set removed	
27/03/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
29/03/2019	Columbia University	Enquiry on data	E-mail	Same day	Solved	n.a.	
02/04/2019	PhD student (via EMODnet Secretariat)	Case study	E-mail	Same day	Solved	n.a.	
03/04/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
03/04/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
03/04/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
04/04/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
07/04/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
09/04/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	

Overview of user feedback and/or requests received in this quarter							
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	Means of contact	Response time	Status of user query: resolved/pending	Measures taken to resolve the query	Status: if not (yet) resolved/pending, explain reason why and expected timeline
10/04/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
11/04/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
25/04/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
03/05/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
09/05/2019	University of York (via EMODnet Secretariat)	Technical	E-mail	Same day	Solved	n.a.	
17/05/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
22/05/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
24/05/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
30/05/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
31/05/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
04/06/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
11/06/2019	Individual	Enquiry on data	Live chat	Immediate	Solved	The user needed information from EMODnet Bathymetry	
12/06/2019	Oceana	Case study	Live chat	Immediate	Solved	n.a.	
14/06/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
27/06/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	

Overview of user feedback and/or requests received in this quarter							
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	Means of contact	Response time	Status of user query: resolved/pending	Measures taken to resolve the query	Status: if not (yet) resolved/pending, explain reason why and expected timeline
27/06/2019	Individual	Case study	Live chat	Immediate	Solved	The user needed information from EMODnet Physics	
27/06/2019	Intern from CEREMA and World Bank	Case study	E-mail	1 day	Solved	n.a.	
10/7/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
10/7/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
12/07/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
19/07/2019	Scottish Government	Technical	Live chat	Immediate	Solved	n.a.	
23/07/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
26/07/2019	ISMAR	Technical	Live chat	Immediate	Solved	n.a.	
29/07/2019	Mocean energy	Technical	Live chat	Immediate	Solved	n.a.	
02/08/2019	Scottish Association for Marine Science	Technical	Live chat	Immediate	Solved	n.a.	
30/08/2019	Vattenfall	Technical	E-mail	Same day	Solved	n.a.	
02/09/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
03/09/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
14/09/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	

Overview of user feedback and/or requests received in this quarter							
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	Means of contact	Response time	Status of user query: resolved/pending	Measures taken to resolve the query	Status: if not (yet) resolved/pending, explain reason why and expected timeline
20/09/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
22/09/2019	Shell	Technical	Live chat	Immediate	Solved	n.a.	
23/09/2019	CTAqua	Technical	Live chat	Immediate	Solved	n.a.	
24/09/2019	Individual	Technical	E-mail	Same day	Solved	n.a.	
27/09/2019	INGV	Technical	Live chat	Immediate	Solved	n.a.	
01/10/2019	Individual	Technical (shellfish aquaculture)	E-mail	Same days	Solved	n.a.	
04/10/2019	Individual	Enquire on data (algae production)	Live chat	Immediate	Solved	n.a.	
07/10/2019	Individual	Technical	Live chat	Immediate	Solved	n.a.	
10/10/2019	Individual	Enquiry on data (submerged archaeology)	Live chat	Immediate	Solved	n.a.	
16/10/2019	Individual	Enquiry on data (vessel density)	E-mail	Same day	Solved	n.a.	
18/10/2019	Individual	Enquiry on data (main ports)	Live chat	Immediate	Solved	n.a.	
18/10/2019	Individual	Enquiry on data (vessel density)	Live chat	Immediate	Solved	n.a.	
22/10/2019	EMODnet Secretariat	Technical (map viewer down)	Live chat	Immediate	Solved	Restarted	

Overview of user feedback and/or requests received in this quarter							
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	Means of contact	Response time	Status of user query: resolved/pending	Measures taken to resolve the query	Status: if not (yet) resolved/pending, explain reason why and expected timeline
23/10/2019	Individual	Technical (use of web services)	Live chat	Immediate	Solved	Restarted	
24/10/2019	Individual	Technical (vessel density)	Live chat	Immediate	Solved	n.a.	
25/10/2019	Individual	Enquiry on data (vessel density)	Live chat	Immediate	Solved	n.a.	
25/10/2019	Individual	Enquiry on data (vessel density)	Live chat	Immediate	Solved	n.a.	
25/10/2019	Individual	Technical (vessel density)	Live chat	Immediate	Solved	n.a.	
06/11/2019	Individual	Technical (vessel density)	Live chat	Immediate	Solved	n.a.	
18/11/2019	Individual	Information on controlled vocabularies	Live chat	Immediate	Solved	n.a.	
20/11/2019	Individual	Technical (tabular data download)	Live chat	Immediate	Solved	n.a.	
10/12/2019	Individual	Technical (vessel density)	Live chat	Immediate	Solved	n.a.	
12/12/2019	Individual	Enquiry on data (vessel density)	Live chat	Immediate	Solved	n.a.	
18/12/2019	Individual	Information on website	Live chat	Immediate	Solved	n.a.	

Overview of user feedback and/or requests received in this quarter							
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	Means of contact	Response time	Status of user query: resolved/pending	Measures taken to resolve the query	Status: if not (yet) resolved/pending, explain reason why and expected timeline
21/12/2019	Individual	Technical (vessel density)	E-mail	Same day	Solved	n.a.	
30/12/2019	Individual	Feedback	E-mail	Same day	Solved	n.a.	
02/01/2020	Individual	Technical (cables)	Live chat	Immediate	Solved	Question answered	
08/01/2020	Individual	Technical (route density map)	Live chat	Immediate	Solved	Question answered	
08/01/2020	Individual	Technical (vessel density)	Live chat	Immediate	Solved	User asked whether vessel density data could be made available for the period 2010-2015. It was explained that there is no such plan for the time being.	
09/01/2020	Individual	Technical (symbolizing raster files in QGIS)	Live chat	Immediate	Solved	Explained how to do it.	
17/01/2020	Individual	Enquiry on data (wind farms)	Live chat	Immediate	Solved	Explained how to download data	
23/01/2020	Individual	Technical (main ports)	Live chat	Immediate	Solved	Fixed an issue with download of ports data set.	



Overview of user feedback and/or requests received in this quarter							
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	Means of contact	Response time	Status of user query: resolved/pending	Measures taken to resolve the query	Status: if not (yet) resolved/pending, explain reason why and expected timeline
27/07/2020	EU Commission	Technical	Live chat	Immediate	Solved	Explained how to insert legend a scale on a map	
01/02/2020	Individual	Enquiry on data (vessel density)	E-mail	Same day	Solved	Provided an explanation	
03/02/2020	Individual	Technical (vessel density)	Live chat	Immediate	Solved	Fixed a bug with WFS	
05/02/2020	Individual	Technical (aquaculture)	E-mail	Same day	Solved	Provided an explanation	
05/02/2020	Individual	Enquiry on data (wind farms)	E-mail	Same day	Solved	Fixed a bug with WFS	
12/02/2020	Individual	Enquiry on data (vessel density)	Live chat	Immediate	Solved	Provided an explanation	
14/02/2020	Individual	Enquiry on data (vessel density)	Live chat	Immediate	Solved	Provided an explanation	
15/02/2020	Individual	Technical (vessel density)	E-mail	Same day	Solved	Provided an explanation	
17/02/2020	Individual	Technical	Live chat	Immediate	Solved	Provided an alternative link to download pipelines and cables	
02/03/2020	Individual	Information on data (wind farms)	Live chat	Immediate	Solved	Clarification on wind farms status	

Overview of user feedback and/or requests received in this quarter							
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	Means of contact	Response time	Status of user query: resolved/pending	Measures taken to resolve the query	Status: if not (yet) resolved/pending, explain reason why and expected timeline
03/03/2020	Individual	Technical (download of route density maps)	Live chat	Immediate	Solved	Explained how to do it	
12/03/2020	Individual	User needed raw AIS data	E-mail	Same day	Solved	Explained this is not possible	
13/03/2020	Individual	Technical (how to display country names in English on the map viewer)	E-mail	Same day	Solved	Explained this depends on browser language settings	
18/03/2020	Individual	Technical (how to symbolize raster files in QGIS)	E-mail	Same day	Solved	Explained how to do it	
01/04/2020	Individual	Technical (how to download route density maps)	Live chat	Immediate	Solved	Explained how to do it	
08/04/2020	Individual	Data: user looked for environmental parameters around aquaculture sites	Live chat	Immediate	Solved	Redirected user to the relevant EMODnet portals	
13/04/2020	Individual	How to cite EMODnet (Coastal mapping report)	Live chat	Immediate	Solved	Redirected user to the Secretariat (question not related to EMODnet HA)	

Overview of user feedback and/or requests received in this quarter							
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16/04/2020	Individual	Technical (how to download the wind farms data set)	Live chat	Immediate	Solved	Explained how to do it	
20/04/2020	ANFACO-CECOPESCA	Data: where to get quantity of algae produced	Live chat	Immediate	Solved	The data are not available from our provider	
24/04/2020	Individual	Technical: how to extract vessel and route density data for area around ports	Live chat	Immediate	Solved	Explained how to do it	
04/05/2020	Individual	Data: user allegedly found missing data in the wind farm data set	Live chat	Immediate	Solved	User was looking at the wrong data set	
07/05/2020	Individual	Data: user was looking for data on EEZ	Live chat	Immediate	Solved	Explained where to find data on EMODnet HA	
13/05/2020	Individual	Technical: user couldn't retrieve vessel density data via WMS in ArcGIS	Live chat	Immediate	Solved	Explained how to do it	
14/05/2020	Individual	Technical: user needed assistance on WMS for vessel density (same user as 13/05, but with a different issue)	Live chat	Immediate	Solved	Explained how to do it	

Overview of user feedback and/or requests received in this quarter							
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	Means of contact	Response time	Status of user query: resolved/pending	Measures taken to resolve the query	Status: if not (yet) resolved/pending, explain reason why and expected timeline
18/05/2020	Individual	User had issues downloading the wind farms data set	Live chat	Immediate	Solved	Download link seemed to be working properly. An archive was sent via email anyway.	
26/05/2020	Individual	Technical: user was looking for a WMS link to show all of EMODnet HA data sets	Live chat	Immediate	Solved	Explained how to do it	
28/05/2020	Individual	Data: user asked for daily vessel density data	Live chat	Immediate	Solved	Explained this is not possible	
17/05/2020	Individual	Technical: user was looking for a shapefile of main ports	Live chat	Immediate	Solved	Explained how to get it	
11/05/2020	Individual	Data: user asked for vessel density data at 50m resolution	E-mail	Same day	Solved	Explained this is not possible	
16/05/2020	Individual	Re-use: user asked whether they can use screenshots from the portal on their publication	E-mail	Same day	Solved	Explained EMODnet data policy	
17/05/2020	Equinor	Data: user wanted to know the source of	E-mail (via Secretariat)	Same day	Soled	Explained	

<b>Overview of user feedback and/or requests received in this quarter</b>							
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	Means of contact	Response time	Status of user query: resolved/pending	Measures taken to resolve the query	Status: if not (yet) resolved/pending, explain reason why and expected timeline
		Norwegian offshore infrastructure data					
18/06/2020	Individual	Technical: user asked how to open a file geodatabase (fishing intensity) in QGIS	Live chat	Immediate	Solved	Explained how to do it	
19/06/2020	Individual	Data: user asked what months the seasonal route density maps cover	Live chat	Immediate	Solved	Explained and redirected user to metadata page	
22/06/2020	Individual	Technical: user didn't know how to open a file geodatabase	Live chat	Immediate	Solved	Explained how to do it	
23/06/2020	WWF	Re-use: user wanted to know if data could be used for their project	E-mail	Same day	Solved	Explained EMODnet data policy	
24/06/2020	Individual	Technical: user wanted to know how to extract information from ship density data on how many ships take the Northern Route	Live chat	Immediate	Solved	Explained this is not possible. The route falls outside of EMODnet geographic scope	
29/06/2020	Individual	Technical: user asked for a link to download wrecks data	Live chat	Immediate	Solved	Explained this is not possible, as the data source never	

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						agreed to provide files for download	
08/07/2020	Individual	Technical: user asked whether vessel density maps before 2017 would ever be made available	E-mail	Same day	Solved	Explained that for the moment there are no plans to make historical data available	
08/07/2020	Individual	Technical: user asked how to download vessel and route density in vector format	E-mail	Same day	Solved	Explained that these are raster data and they are not available in vector format, because files would be too large with 20 million cells. Explained how to convert small areas from raster to vector.	
20/07/2020	Individual	Technical: importing vessel density data into ArcGIS	Live chat	Immediate	Solved	Explained how to do it	
31/07/2020	Individual	Technical: user was using an old permalink to the algae production facilities data set, which	Live chat	Immediate	Solved	Explained how to generate a new map	

Overview of user feedback and/or requests received in this quarter							
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	Means of contact	Response time	Status of user query: resolved/pending	Measures taken to resolve the query	Status: if not (yet) resolved/pending, explain reason why and expected timeline
		linked to an old version of the data set					
26/08/2020	Individual	Citation: user wanted to know how to cite shipping density maps	Live chat	Immediate	Solved	User redirected to general citation statement	
26/08/2020	Individual	Technical: user asked to be given access to raw AIS data	E-mail	Same day	Solved	Explained this is not possible	
27/08/2020	Individual	Technical: user is working on an assessment of COVID-19 impact on NO <sub>2</sub> emissions in Europe and asked whether vessel density maps would receive an update with 2020 data	E-mail	Same day	Solved	Explained when the update will be made available. User was told to use route density maps in the meantime.	
02/09/2020	Individual	Technical: user asked how to download the oil and gas boreholes data set and how to view only boreholes in the Danish EEZ	Live chat	Immediate	Solved	Explained how to do it	
02/09/2020	Individual	Technical: user asked why fishing intensity	Live chat	Immediate	Solved	Explained that fishing intensity is not in the remit of	

Overview of user feedback and/or requests received in this quarter							
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	Means of contact	Response time	Status of user query: resolved/pending	Measures taken to resolve the query	Status: if not (yet) resolved/pending, explain reason why and expected timeline
		data are not available for the Baltic Sea				the current EMODnet HA mandate, and for now only the North Sea is covered. However, a link to ICES data was provided	
06/09/2020	Individual	Technical: user wanted to know the difference between vessel density and route density	Live chat	Immediate	Solved	Explained	
10/09/2020	Individual	Technical: user downloaded data set on first sale of fish and asked clarification on certain fish sizes	E-mail	Same day	Solved	Pointed user to EC regulation	
30/09/2020	Individual	Technical: user asked whether there is a standard classification of marine aggregates	E-mail	Same day	Solved	Explained that there is none	
09/10/2020	Individual	Technical: user couldn't download the fishing intensity data set.	Live chat	Immediate	Solved	The problem was at user level. A file was sent to solve the issue.	



<b>Overview of user feedback and/or requests received in this quarter</b>							
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	Means of contact	Response time	Status of user query: resolved/pending	Measures taken to resolve the query	Status: if not (yet) resolved/pending, explain reason why and expected timeline
11/10/2020	Individual	Technical: user couldn't view the boreholes data set in QGIS	Live chat	Immediate	Solved	Explained how to do it.	
14/10/2020	Individual	Technical: user didn't know how to retrieve coordinates of ports in QGIS	Live chat	Immediate	Solved	Explained how to do it.	
20/10/2020	Individual	Technical: user didn't know how to download the data set on protected areas	Live chat	Immediate	Solved	Sent a link.	
21/10/2020	Individual	Technical: user didn't know how to download vessel density data.	Live chat	Immediate	Solved	Explained how to do it.	
02/10/2020	Individual	User wanted to reach out to OSPAR to obtain more information on unexploded ordnance	E-mail	Same day	Solved	Told whom to contact.	
05/10/2020	Individual	Technical: user wanted to have Natura 200 areas in shapefile format	E-mail	Same day	Solved	Explained that the data set is only available in file geodatabase format. Explained how to import it.	

Overview of user feedback and/or requests received in this quarter							
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	Means of contact	Response time	Status of user query: resolved/pending	Measures taken to resolve the query	Status: if not (yet) resolved/pending, explain reason why and expected timeline
08/10/2020	Individual	Technical: user found that the coordinates of the Poseidon pipeline, off the coast of Andalucia, were different from those reported by the Andalucia government	E-mail	Same day	Pending	Issue can't be solved easily: we use the same source (Junta de Andalucia), but the coordinates are reported differently in two different portals!	
11/10/2020	Individual	Technical: user didn't manage to download data through the 'download data in tabular format' feature	E-mail	Same day	Solved	The problem was at user level. A file was sent instead.	
27/10/2020	Individual	User wanted to know where to download wind farm data from	E-mail	Same day	Solved	Explained how to do it from EMODnet HA	
30/10/2020	Individual	User wanted to know if route density data are available also for years before 2019	E-mail	Same day	Not solved	Explained that this data set originates from EMSA.	
05/11/2020	Individual	Technical: user noticed that data on protected areas was clearly offset and didn't match the coastline in Wales	E-mail	Same day	Solved	The issue was due to an error when updating the data set. It was immediately fixed.	

Overview of user feedback and/or requests received in this quarter							
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	Means of contact	Response time	Status of user query: resolved/pending	Measures taken to resolve the query	Status: if not (yet) resolved/pending, explain reason why and expected timeline
09/11/2020	Individual	Technical: user wanted to download vessel density data in tabular format	E-mail	Same day	Solved	Explained this is not possible because vessel density is a raster data set. It can be converted into a feature data set, but it's not practical to do so.	
01/12/2020	Individual	Technical: user wanted to add their algae production facility to our data set	E-mail	Same day	Solved	User was put in touch with the JRC who are curating the data set.	
03/12/2020	Individual	Citation: user wanted to cite EMODnet in a paper	E-mail	Same day	Solved	Explained how to do it.	
03/12/2020	Individual	Technical: user wanted to download vessel density data before 2017	E-mail	Same day	Not solved	Vessel density maps are available from 2017 onwards.	
08/12/2020	Individual	Technical: user want to download EMODnet Human Activities data from EMODnet Geology by drawing a polygon.	E-mail	Same day	Solved	Explained that the Geology portal is managed by a different contractor.	
05/01/2020	Individual	Technical: how to open the port data set	E-mail	Same day	Solved	User was expecting a shapefile. Explained how to	

Overview of user feedback and/or requests received in this quarter							
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	Means of contact	Response time	Status of user query: resolved/pending	Measures taken to resolve the query	Status: if not (yet) resolved/pending, explain reason why and expected timeline
						open a geodatabase.	
08/01/2021	Individual	Technical: extracting ship routes from tiff files	E-mail	Same day	Solved	Explained it is not possible to extract ship routes from vessel density maps	
12/09/2021	Individual	Enquiry on data: fishing intensity for regions other than the North Sea	E-mail	Same day	Solved	Explained that fishing intensity is not in the remit of the current mandate. Redirected user to ICES data.	
14/01/2021	Individual	Technical: wind farms	E-mail	Same day	Solved	User couldn't see Baltic wind farms in the WFS. Explained that they were using the wrong WFS.	
19/01/2021	Individual	Technical: vessel density maps	E-mail	Same day	Solved	User didn't know how to open tiff files. Explained how to do it.	
26/01/2021	Individual	Technical: user wanted to (i) access raw AIS data; (ii) know when	E-mail	Same day	Solved	Explained that: (i) raw AIS data can't be accessed; (ii)	

Overview of user feedback and/or requests received in this quarter							
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	Means of contact	Response time	Status of user query: resolved/pending	Measures taken to resolve the query	Status: if not (yet) resolved/pending, explain reason why and expected timeline
		2020 data would be made available; (iii) convert route density data into shipping hours				2020 data would soon be made available; (iii) it is not possible to convert route density data into shipping hours.	
<b>28/01/2021</b>	Individual	Technical: web services were down	E-mail	Immediate	Solved	Restarted geoserver	
<b>03/02/2021</b>	European Space Agency	Data policy	E-mail	Same day	Solved	Explained that EMODnet data come with no restrictions to use	
<b>04/02/2021</b>	Individual	Enquiry on historical vessel density map	E-mail	Same day	Solved	Explained that at the moment there are no plans to make available historical density maps.	
<b>11/02/2021</b>	Individual	Enquiry on data: wrecks data set can't be downloaded	E-mail	Same day	Solved	Explained that the data provider never agreed to make the data available for download	

<b>Overview of user feedback and/or requests received in this quarter</b>							
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	Means of contact	Response time	Status of user query: resolved/pending	Measures taken to resolve the query	Status: if not (yet) resolved/pending, explain reason why and expected timeline
<b>23/02/2021</b>	Royal Belgian Institute of Natural Sciences	Enquiry on data: how to submit data on the Belgian spatial plan	E-mail	Same day	Solved	Explained how to do so	
<b>26/02/2021</b>	Individual	Enquiry on data: raw AIS data	E-mail	Same day	Solved	Explained it's not possible to access raw AIS data	

## 7. Meetings/events held/attended & planned

A. Meetings/events organised and attended					
Date	Location	Type event (internal or external meeting, training/workshop)	Indicate if a ppt was given (yes/no + short description)	Meeting attended (A) / organised (O)	Short description and main results (# participants, agreements made, etc.)
14-15/03/2019	Tenerife (ES)	MarSP 2nd Capacity Building Workshop: MSP INSPIRE data model	Yes	A	Technical workshop to discuss INSPIRE data models for MSP
15/3/2019	n.a.	Webinar	No	O	Webinar on how to use the vessel density maps. 46 participants
26/3/2019	Vigo (ES)	EMODnet HA partners meeting	No	O	The meeting aimed to assess the progress of the project and to discuss potential developments. 12 participants.
24/06/2019	Athens	SEALINES Workshop	Yes	A	Presentation of EMODnet Human Activities to Mediterranean stakeholders. No of participants: 35
17/05/2019	Lisbon	Digitalisation, AI & Big Data for Maritime Applications: workshop	Yes	A	Discussion on how the vessel density map was built on big data, and what can be done with it. No of participants: unknown
17/05/2019	Lisbon	MarSP: EMD2019 Workshop	Yes	A	EMD2019 Workshop - Innovative tools & transferability in MSP EASME projects. No of participants: unknown
3/10/19	Brussels	Workshop on data for MSP implementation	Yes	A	Presentation of EMODnet HA

<b>A. Meetings/events organised and attended</b>					
Date	Location	Type event (internal or external meeting, training/workshop)	Indicate if a ppt was given (yes/no + short description)	Meeting attended (A) / organised (O)	Short description and main results (# participants, agreements made, etc.)
2-3/09/2019	Ghent	EMODnet Steering Committee meeting	Yes	A	
4-6/09/2019	Ghent	OpenSeaLab	No	A	Coaching
21/05/2020	Remote meeting	Meeting with EMSA	NO	A	Discussion on how to publish the work on the impact of COVID-19 on fishing and shipping
28/05/2020	Remote meeting	Technical Expert Group on MSP	Yes	A	Action plan for the harmonized nomenclature to be used for the MSP data set
02/06/2020	Remote meeting	Internal meeting	No	O	Discussion on how to make the MSP data set INSPIRE-compliant
06/06/2020	Remote meeting	Meeting with the French Directorate for Marine Fisheries and Aquaculture	Yes	O	State of play of data collection and dissemination (shellfish and finfish production sites) by French authorities
16/06/2020	Remote meeting	Coastal workshop: EMODnet and CMEMS	Yes	A	Presentation of EMODnet HA
30/06/2020	Remote meeting	TEG MSP Data	Yes	A	Presentation of the work on INSPIRE
22/09/2020	Remote meeting	Webinar	Yes	A	Timeline with EMODnet's main achievements
9-10 October 2020	WEBEX meeting	EMODnet Steering Committee meeting	Yes: overview of the most significant updates	A	



<b>A. Meetings/events organised and attended</b>					
Date	Location	Type event (internal or external meeting, training/workshop)	Indicate if a ppt was given (yes/no + short description)	Meeting attended (A) / organised (O)	Short description and main results (# participants, agreements made, etc.)
29 October 2020	WEBEX Meeting	Workshop	No	A	Subgroup 2- Harmonization of Terminology and Nomenclature for MSP Output Data Workshop
14 December 2020	Online	Workshop	No	A	Online participation workshop on maritime space management ( <a href="https://www.miteco.gob.es/es/costas/temas/proteccion-medio-marino/ordenacion-del-espacio-maritimo/default.aspx">https://www.miteco.gob.es/es/costas/temas/proteccion-medio-marino/ordenacion-del-espacio-maritimo/default.aspx</a> )
03/02/2021	Online	Meeting with US NGA	No	O	The US NGA is mapping shipping traffic globally, using the method developed by EMODnet Human Activities. The meeting aimed to coordinate this process. The NGA suggested an MoU be signed with the European Commission.
<b>SUM</b>				<b>O</b>	<b>Total # of meetings organised = 6</b>
<b>SUM</b>				<b>A</b>	<b>Total # of meetings attended = 15</b>

<b>B. Meetings/events planned in the future</b>				
Date	Location	Type event (meeting, training (workshop), etc.)	Meeting to be attended (A) / organised (O)	Short description and main expected outcomes
19/03/21	Online	Meeting with UNEP-MAP	O	Better coordination with Regional Sea Conventions
20-21/04/21	Online	Annual meeting of the Black Sea Commission	A	Better coordination with Regional Sea Conventions



## 8. Communication assets

A. Communication assets				
Date	Communication material	Short description (of the material, title, ...) and/or link to the asset	Main results	Name of event at which material was disseminated (if applicable)
15/3/2019	Webinar	Webinar on how to use the vessel density maps	46 participants	
21/3/2019	Blog post	Detailed method of EU vessel density map		
28/3/2019	Blog post	EMODnet Human Activities Data Facilitate Business Opportunities		
17/05/2019	Workshop at EMD 2019	Discussion on how the vessel density map was built on big data, and what can be done with it.		European Maritime Day
17/05/2019	Workshop at EMD 2019	EMD2019 Workshop – Innovative tools & transferability in MSP EASME projects.  No of participants: unknown		European Maritime Day
24/06/2019	SEALINES workshop	Presentation of EMODnet Human Activities to Mediterranean stakeholders.	35 participants	SEALINES workshop
18/07/19	Blog post	Why are there so many nuclear power plants located on the coast? <a href="https://www.emodnet-humanactivities.eu/blog/?p=1118">https://www.emodnet-humanactivities.eu/blog/?p=1118</a>		
19/09/19	Blog post	Where does our wastewater go? <a href="https://www.emodnet-humanactivities.eu/blog/?p=1159">https://www.emodnet-humanactivities.eu/blog/?p=1159</a>		
10/10/2019	Blog	New map tools allow greater flexibility when interrogating data <a href="https://www.emodnet-humanactivities.eu/blog/?p=1175">https://www.emodnet-humanactivities.eu/blog/?p=1175</a>		
20/12/2019	Press release	Traffic Density Maps for a better understanding of maritime traffic (published on EMSA's website)		
28/05/2020	Blog post	Blog post to show how to use route density data to try and estimate the impact of the COVID-19 outbreak on fishing	The STECF used the work in their Annual Economic Report on the	

			performance of the EU fishing fleet	
09/12/20	Video	The IATiP (Irish Aquaculture Technology and Innovation Platform) asked AND-International to participate in a series of short interviews	A short video that includes a presentation of EMODNet HA and the aquaculture dataset in particular	IATip website: <a href="#">Interviews - IATiP</a>
25/01/21	Blog post	Presentation of the new algae and spirulina data sets.		

### B. Planned communication assets

Date	Communication material	Short description (of the material, title, ...) and/or link to the asset	Main results expected

List of known publications using EMODnet data or data products				
Date	Type and name of journal, conference, ...	Publication title	Author(s)	Organisation(s)
<b>07/03/2019</b>	Marine Policy	Communicating Maritime Spatial Planning: The MSP Challenge approach	Abspoel L. et al.	Ministry for Infrastructure and Water Management (NL)
<b>24/04/2019</b>	Frontiers in Energy Research	Combined Exploitation of Offshore Wind and Wave Energy in the Italian Seas: A Spatial Planning Approach	Azzellino A., Lanfredi C., Riefolo L., De Santis V., Contestabile P., Vicinanza D.	Technical University of Milan, CoNISMa, University of Campania "Luigi Vanvitelli"
<b>August 2019</b>	Data in brief	Heterogeneous integrated dataset for Maritime Intelligence, surveillance, and reconnaissance	Ray C., Dréo R., Camossi E., Joussemle A.L., Iphar C.	Naval Academy Research Institute (France), CMRE,
<b>August 2019</b>	Marine Policy	Habitat mapping in the European Seas - is it fit for purpose in the marine restoration agenda?	Gerovasileiou V. et al.	Hellenic Centre for Marine Research et al.
<b>08/08/2019</b>	Journal of Operational Oceanography	Developing community marine data service for Blue Growth Sectors	She J., Murawski J.	Danish Meteorological Institute
<b>July 2019</b>		Havhingsten Fibre Optic Telecommunication Cable. Foreshore License Application for Cable Installation - Planning Report	Paula Daghli & Charlie Cameron	Intertek, ALCATEL SUBMARINE NETWORKS
<b>29/10/2019</b>	Scientific Reports	Recreational vessels without Automatic Identification System (AIS) dominate	Hermanssen L., Mikkelsen L., Tougaard J., Beedholm K., Johnson M., Madsen P. T.	Aarhus University,

List of known publications using EMODnet data or data products				
Date	Type and name of journal, conference, ...	Publication title	Author(s)	Organisation(s)
		anthropogenic noise contributions to a shallow water soundscape		
13/11/2019	Marine Drugs	Microalgal Carotenoids: A Review of Production, Current Markets, Regulations, and Future Directions	Novoveska L., Ross M.E., Stanley M., Pradelles R., Wasiolek V., Sassi J-F.	Scottish Association for Marine Science, Microphyt, CEA
01/12/2019	Applied Energy	The Techno-Economic Potential of Offshore Wind Energy with Optimized Future Turbine Designs in Europe	Dilara Gulcin Caglayan, Severin Ryberg, Heidi Heinrichs, Jochen Linßen, Detlef Stolten, Martin Robinus	
31/12/2019	Ecological Indicators	Assessing marine ecosystem services richness and exposure to anthropogenic threats in small sea areas: A case study for the Lithuanian sea space	Daniel Depellegrin, Stefano Menegon, Laura Gusatu, Sanjoy Roy, Ieva Misiune	
01/10/2020	Science of the Total Environment	The effects of COVID-19 induced lockdown measures on maritime settings of a coastal region	Depellegrin D., Bastianini M., Fadini A., Menegon S.	Renewable Energy Group, College of Engineering, Mathematics and Physical Sciences, University of Exeter, Cornwall Campus, Penryn, UK NR – National Research Council of Italy, ISMAR.
n.a.	DERC-MARESANUS project	Potential of Maritime Transport in the	Pagano D., Caserini S., Campo F., Cappello G., Grosso M.	Technical University of Milan

List of known publications using EMODnet data or data products				
Date	Type and name of journal, conference, ...	Publication title	Author(s)	Organisation(s)
		Mediterranean Sea for Ocean Liming and CO <sub>2</sub> Removal		
<b>July 2020</b>	Project report	PORTODIMARE: Spatial conflicts among human activities as well as with conservation priority areas in Western Greek waters	Maria Kikeri, Dimitrios Politikos, Stefanos Kavadas and Vassiliki Vassilopoulou, Stefano Menegon, Elisabetta Manea, Erika Porporato	HCMR, CORILA
<b>28/09/2020</b>	Project report	Supplementary material to ECOMAR: A data-driven framework for ecosystem-based Maritime Spatial Planning in Danish marine waters	Andersend, J.H. et al.	NIVA, Aarhus University, DTU, GEUS
<b>October 2020</b>	Sustainability – Open Access Journal	Assessing the Impact of Physical and Anthropogenic Environmental Factors in Determining the Habitat Suitability of Seagrass Ecosystems	Hastings R., Cummins V., Holloway P.	University College, Cork
<b>05/10/2020</b>	IMEKO TC-19 International Workshop on Metrology for the Sea	Integrating AIS and SAR to monitor fisheries: a pilot study in the Adriatic Sea	Galdelli A., Mancini A., Ferrà C., Tassetti A.N.	Technical University of Marche, CNR-IRBIM
<b>Not known</b>	ICES Expert Group Report	Working Group on Integrated Assessments of the North Sea (WGINOSE)	Belgrano A. et al.	ICES
<b>12/09/2020</b>	Renewable and Sustainable Energy Review	An integrated GIS approach for site selection of floating offshore wind farms in the	Diaz H., Guedes Soares C.	Centre for Marine Technology and Ocean Engineering (CENTEC),

List of known publications using EMODnet data or data products				
Date	Type and name of journal, conference, ...	Publication title	Author(s)	Organisation(s)
		Atlantic continental European coastline		Instituto Superior Tecnico, Universidade de Lisboa
<b>24/01/2021</b>	Sustainability	Ecosystem-Based MSP for Enhanced Fisheries Sustainability: An Example from the Northern Adriatic (Chioggia-Venice and Rovigo, Italy)	Farella G. et al.	National Research Council (Italy) et al.
<b>29/01/2021</b>	Journal of Wildlife Diseases	Influence of pathogens, fish-related characteristics, and environmental factors on the development of skin ulcerations in wild common dab ( <i>Limanda limanda</i> ) from the North Sea	Vercauteren M., Van Hoey G., Decostere A., Boyen F., Ampe B., Devriese L., Chiers K.	University of Ghent, Flanders Research Institute for Agriculture, Fisheries and Food, VLIZ,



## 9. Monitoring indicators

Comments on the progress indicators in the excel template		
Progress indicator	Means of collecting figures	Comment
1. Current status and coverage of total available thematic data  A) Volume and coverage of available data		<p>It is not possible to provide figures by sea basin, because EMODnet HA mostly deals with discrete data. Therefore, it is impossible to tell how much of an area the current data sets cover. Furthermore, providing figures by sea basin is misleading, when dealing with discrete data. The number of planned wind farms decreased since March (many projects were cancelled); counting the number of wind farms by sea basin would point to reduced coverage of a sea basin, whereas it is exactly the opposite. <u>That said, overall coverage improved for all sea basins, even though it is not possible to quantify it for the above-mentioned reasons. The North Sea, the Atlantic and the Baltic are the areas where coverage is highest, with most data set close to 100% except pipelines, cables and aquaculture. The Black Sea is the sea basin with the lowest coverage, although contacts with the Black Sea Commission have been established and hopefully the situation will improve over the coming years.</u></p> <p>The volume and coverage of data sets generally increased. This is due both to improved data collection and to the addition of entirely new data sets. There are some exceptions. One is wind farms, where the total number of records decreased because many planned projects were cancelled, and because the data set was reorganised to avoid duplicates. Cables also decreased, because a source asked us to remove their data from EMODnet.</p>
B) Usage of data since the start of the project phase		Overall, the number of downloads and web service requests increased for most data sets.
2. Current status and coverage of total number of data products  A) Volume and coverage of available data products		Here it's possible to break down data by sea basin. Coverage is 100% as the grid used for the density maps was built to cover all EU waters.

		It's not possible to calculate a trend, because neither the vessel density maps, nor the route density maps were available when the last report was released.
B) Usage of data products since the start of the project phase		Same as above; it's not possible to calculate a trend. Suffice is to say that the vessel density maps are by far the most downloaded data set on EMODnet HA.
3. Organisations supplying/ approached to supply data and data products since the start of the project phase		Nothing to report
4. Online 'Web' interfaces to access or view data		Nothing to report
6. Statistics on information volunteered through download forms		<u>Percentage of users from industry on an upward trend. It used to be around 25% for most of the project. For a year it's been increasing considerably. For a great part of 2020 it was at about 40%. Most users are from Europe (UK), but a considerable share are from North America as well. To be noted that users volunteer information and there's no guarantee that they report it accurately.</u>
7. Published use cases		Besides what has been published online, a list of potential use cases has been shared with the Commission and with the Secretariat
9.1. Technical monitoring		Nothing to report
9.2. Visual Harmonisation score		Nothing to report
10. Visibility & analytics for web pages		Higher visibility probably due to the density maps
11. Visibility & analytics for web sections		Visibility and analytics have highly improved. This might be due again to the density maps and to the work on the impact of COVID-19 on fishing
12. Average visit duration for web pages		Nothing to report

*The monitoring numbers reported as part of the progress monitoring of EMODnet performance are collected through Matomo. In some cases, numbers from other monitoring systems may also be reported (e.g. Awstats, Google Analytics). Each system uses different technical approaches and therefore has its strengths and shortcomings. Therefore, results are indicative and care should be taken with interpreting absolute numbers or comparing results from different tools. It is often more sensible to consider trends over time collected by the same monitoring tool.*

## 10. Recommendations for follow-up actions by the EU

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- **Historical vessel density maps:** many users asked whether vessel density maps would be made available for years prior to 2017. At the moment, there are no plans to work on historical density maps, mainly because the underlying AIS data need to be purchased from a commercial provider and they tend to be rather expensive – though less expensive than recent data. That said, considering the number of requests received, it is recommended to look into this possibility in the future. At the same time, it should be considered that the coverage of satellite and terrestrial AIS data has improved considerably in the last few years, to the point that historical maps might not be comparable with recent ones.
- **Raw AIS data:** several users keep asking for raw AIS data. The EMODnet HA team is not in the position to provide them, because these are property of a commercial provider, who sells it with clear restrictions to use. Very little can be done in the short run, but considering the ever-increasing importance of this data, it is recommended to start thinking how they could be made available publicly. Terrestrial AIS data are currently collected by EMSA in the framework of SafeSeaNet. These could be made available, after removing confidential information. For satellite AIS data, it is necessary to set up an own constellation.
- **Live chat:** the live chat helpdesk used to be quite time-consuming, but at the same time it offered an invaluable service to EMODnet Human Activities' users. It had to be discontinued after the invalidation of the EU-US Privacy Shield, because the company providing the plug-in has their servers in the US. However, we have recently learned that they have introduced the possibility to choose an EU service, upon opening a new account. In the forthcoming EMODnet phase, the thematic portals will be phased out, and a live chat helpdesk might become even more useful to EMODnet users. It is thus recommended to consider introducing a live chat helpdesk again.
- **User-friendly map viewer features:** the EMODnet Human Activities team went at great lengths to introduce user-friendly features that make access to data easier for users that are not GIS-savvy. In particular, users are allowed to retrieve data in tabular format by simply drawing a rectangle on the map viewer and extract every feature within it. Other thematic groups have developed similar tools tailored to their user base. With a single map viewer, it might become challenging to retain all these bespoke features developed by the thematic groups; nonetheless, it is paramount to at least make an attempt, as user-friendly features have the potential to attract new users to EMODnet.

## 11. Annex: Other documentation attached

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Report on MSP data model attached as a separate file

## 12. List of abbreviations and acronyms

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AAC	Aquaculture Advisory Council
AIS	Automatic Identification System
BSC	Black Sea Commission
CDDA	Common Database on Designated Areas
CEO	Chief Executive Officer
CO <sub>2</sub>	Carbon Dioxide
CSV	Comma Separated Variable
EEZ	Exclusive Economic Zone
EMODnet	European Marine Observation and Data Network
EMSA	European Maritime Safety Agency
EU	European Union
EUMOFA	European Market Observatory on Fisheries and Aquaculture
FAO	Food and Agriculture Organisation
GIS	Geographic Information System
HA	Human Activities
HELCOM	Helsinki Commission
JRC	Joint Research Centre
MARPOL	Marine Pollution
MS	Member State
MSEG	Member States' Expert Group
MSFD	Marine Strategy Framework Directive
MSP	Maritime Spatial Planning
OSPAR	Oslo-Paris Convention/Commission
PCI	Project of Common Interest
RSC	Regional Sea Convention
SCR	Système de Coordonnées de Référence
SMEs	Small and Medium Enterprises
UNESCO	United Nation Educational, Scientific and Cultural Organization
WCS	Web Coverage Service
WFS	Web Feature Service
WGS	World Geodetic System
WMS	Web Map Service