EMODnet Thematic Lot n° V - BIOLOGY

EASME Identifier

Start date of the project: 19/04/2017- (24 months)

EMODnet Phase III – Quarterly Progress Report (4)

Reporting Period: 01/01/2018 – 18/04/2018

The European Marine Observation and Data Network (EMODnet) is financed by the European Union under Regulation (EU) No 508/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund.

Contents

Disclaimer

1 Highlights during the reporting period

Provide a short summary of the key achievements and/or events of interest to a wider audience within this reporting period you wish to highlight. **Please make sure that progress in each of the tasks specified in Section 1.4.1 of the Tender Specifications is covered. For those tasks not experiencing significant progress, please state so.** You can also consider the indicators or any other of the reporting sections.

Task 1: a common method of access to data held in repositories (WP2; WP3)

During this reporting phase, a major update of the EMODnet biology database took place. 30 datasets, identified at the WP2 data inventory, were made available representing 2,183.747 records and 3 major dataset updates (including the Continuous Plankton recorder with observation data till 2016), representing 2,862.808 records were executed. After one year of the project, we see that about 50% of the identified datasets in WP2 are now made freely available through the EMODnet Biology dataportal.

In addition, 45 datasets were added to EurOBIS and ingested into EMODnet Biology, representing 1,558.923 records and 17 datasets were updated representing 75,053 records. Important to mention is a major contribution from the UK Oil and Gas industry through the contribution of the RSMP baseline dataset. This work was funded by the aggregates industry, and carried out by contractors on their behalf. The dataset was compiled for the Regional Seabed Monitoring Plan (RSMP) baseline assessment and comprises of 33,198 macrofaunal samples covering large parts of the UK continental shelf. 38 datasets were provided through OBIS-Seamap and contain data mainly from Birds, Mammals and Turtles both form the Atlantic Ocean and from the Mediterranean.

WP2 on data archaeology provided during this reporting period the deliverables D3.1, D3.2 and D3.3. published at http://www.emodnet-biology.eu/deliverables

D3.1 Scientific document presenting the data archaeology and rescue strategy of the project. The key ideas are:

- to enter data in an electronic format that mimics the layout of the document as much as it is possible: it facilitates data cleaning and data entry quality control (comparison of the data as in the original document and the digitized data).
- to customize data entry templates through a cooperative work between the data provider and MedOBIS.
- to transform/copy the digitized data in a pseudo-relational data schema represented by the customized templates.
- to match the customized templates with the DwC through a cooperative work between the data provider and MedOBIS.
- to leave the final production of the DwC file under the MedOBIS IPT from a clean, standardized, and quality-controlled dataset (whatever the starting format is).

D3.2: Report on the digitization of 3 datasets under the modified procedure:

- Two datasets for "archaeology" and one dataset for "rescue" were tested for further adjustments of the data entry workflow.
- Although in general the datasets could be entered according to the procedure, some points were highlighted, mainly for old datasets for archaeology: the metadata are clearer for the recent ones for rescue because usually data providers can still be contacted.

- Metadata entry is a step where data providers must be strongly guided, but detailed templates may be confusing. The direct oral help by an OBIS node manager would be the most cost-efficient solution in many case.
- Introduction/narrative of expeditions/campaigns must be carefully read because they contain much information on how were made the report of stations and specimen collections/observations.
- Perform quality control at each step (esp. for measurements), not only at the final stage just before integration in an OBIS node.

D3.3: Update of the list of the 76 datasets along with a list of selected datasets for digitization

- Fifty new potential datasets were found, including in the grey literature.
- Search have targeted the north-eastern Atlantic as the Mediterranean was covered exhaustively during EMN2, and it was difficult to spot new ones (among those already recorded).
- Some patterns in the results lead us to several conclusions.
- Grey literature and technical reports should be reviewed extensively. Language is a barrier to search in documentary repositories, and national partners should be involved.
- Sixty additional sources of potential datasets were collated from FP-funded European Projects and from the European Environment Agency (not only species occurrences for the latter). A systematic review of other potential sources in European Agencies should be conducted in collaboration with WP2.
- With the development of the web indexing facilities, the question is not anymore to find opportunistically datasets to be digitized, but rather to develop digitization programmes in collaboration that systematically exhaust the catalogues already assembled by institutes and initiatives, in collaboration with libraries, museums, fisheries institutes, marine stations.

Task 2: products constructed from one or more data sources (WP4)

From the overview of **EOVs (**Essential Ocean Variables), available data sets potentially underlying their description, and available work flows, the following priorities have been identified for work in the Work Package:

- **Trait based analyses**. Trait databases for fish and benthos in the N.Atlantic are ready and the production of maps showing the spatio-temporal distribution of different trait types is being prepared. Work flows are being developed for the derivation of traits from distribution data (e.g. temperature tolerance) and the description of how they evolve over time. Trait-based analysis of marine birds and mammals is in preparation. Fig. 1 shows the application of the work flow for trait-based groups of macrobenthos in the Dutch EEZ. Four life-history based trait groups have been distinguished, that show distinct spatial distributions linked to environmental factors. These environmental factors have not been used as co-factors in this analysis, but this could be envisaged for further (extrapolation) mapping. The main purpose of the trait-based maps is to reduce the species diversity to a manageable number of species groups that will be as informative as possible about the environment.

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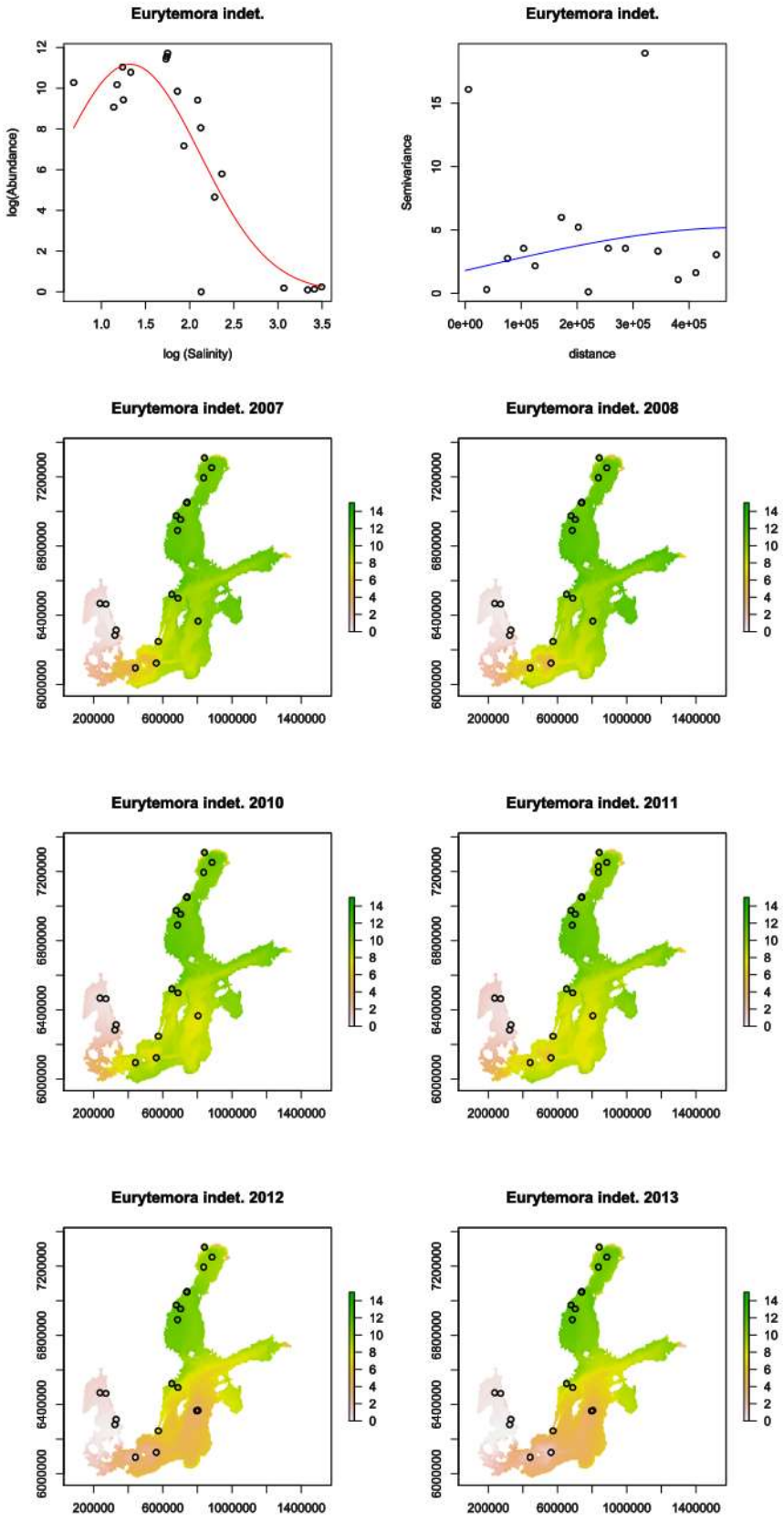

- **Basic Species Distribution Models**. Workflows for taking into account **essential environmental layers** for interpolation maps have been developed using kriging; a DIVA version is under development. Example datasets have been worked out, but are currently being completed. This Figure shows the example of a brackish water copepod (zooplankton) species from the Swedish zooplankton dataset. Kriging is performed using salinity of the water (derived from EMODNET Physics) as a co-factor. Similar analyses have been performed for 43 zooplankton species. Currently we are combining Finnish, Polish and Danish datasets on zooplankton to test for compatibility with the Swedish dataset, and for increasing the spatial resolution of the maps. Related to the species distribution modelling, the first version of the deliverable 4.2: Set of relevant baselayers from EMODnet projects for environmental modelling has been published.

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Time series of phytoplankton and zooplankton. A workflow has been devised to analyse and present long-term single-station datasets on plankton, taking LTER Trieste as an example. The data product is being finished and will be extended using other available data, especially from the Mediterranean. An interactive web-based product, that allows to inspect the different species in the data set, evaluate their temporal evolution in the long term and over the season, and situates the species (in a multivariate analysis) within the general trends of the community is under development.

- Distribution maps of benthos in the North Sea, Celtic Seas and Baltic Sea are being prepared. This makes use of already developed workflows using DIVA for interpolation. At present, difficulties in reconciling diverse data sets, from a taxonomic and methodological point of view, have to be solved before the final products can be made.

Task 3: Machine-to-machine connections (WP6)

The data download section of the EMODnet Biology website has been restructured in order to improve direct access to the data. There are now three subsections under data download:

- Data Download toolbox: the toolbox allows to easily subselect and download data by performing metadata and data queries. The user can select by keyword, spatial, temporal and taxonomic search. A datafile will be generated that can be downloaded as a csv-file or can be accessed via a webservice. The query itself can also be stored as a JSON-file.
- EMODnet Biology API: this page describes how the data can be accessed as a WFS service, for example if some user or developer wants to develop an online App using marine biology data from EMODnet biology. The page is intended for users that know how to work with webservices and can access data using the OGC protocols.
- IPT resources: this points to the datasets of EMODnet biology as available in Darwin Core Archive through a IPT. The Integrated Publishing Toolkit (IPT) is a free open source software tool written in Java that is used to publish and share biodiversity datasets through the GBIF, EurOBIS and OBIS network. The IPT can also be configured with either a DataCite or EZID account in order to assign DOIs to datasets transforming it into a data repository.

Task 4: Web Portal (WP6)

The data download section has been restructured (see task 3), and the help desk function (see task 8) has been embedded into the web portal.

Furthermore, a lot of effort is going in order to redevelop the data download toolbox and map viewer in order to deal with the new dataformat (OBIS Env). We expect to have the interface adapted by the next reporting period.

Task 5: coherence with efforts of regional sea conventions (WP5)

The WP5 team and key stakeholders in the US prepared and submitted an abstract for the Ocean Obs 19 conference. The regional sea commissions were invited to participate in this submission. Furthermore, regionals sea commission representatives were invited to participate in the next general meeting. We explore the possibilities to set up a webex connection.

Task 6: interoperability with non EU organizations (WP5)

Following the successful completion of D5.1, work commenced on the next activity within WP5, the development of a report and peer-reviewed publication on the comparison of data formats, standards and guidelines in the transatlantic area. Building on the stakeholders and discussions and ideas generated at the D5.1 workshop in London, an outline for the documents has been developed. Section leads have been identified and an outline document prepared. The manuscript will be completed over the next few months, with a planned submission in July 2018. The paper will focus on the data, standards and protocols needed to support the development of Essential Ocean and Biodiversity Variables (EOVs and EBVs), and how to further develop linkages and integration with transatlantic and global initiatives including AtlantOS, the Ocean Data Interoperability Platform (ODIP) and the developing Marine Biodiversity Observation Network (MBON).

Task 7: monitor performance (WP1)

Feedback on the newly developed performance indicators has been provided to TrustIT.

EMODnet Biology has been added to the Central EMODnet Piwik/Matomo instance.

Task 8: help desk (WP1)

The EMODnet Biology help-desk was being published in the mean menu at: http://www.emodnet-biology.eu/help-desk . The help desk contains a direct email to which all queries can be sent

- By email: bio@emodnet.eu
- A telephone number: +32-(0)59-34 01 59
- An automatic feedback from
- Links to information on data, standards, procedures and functionalities at the EMODnet Biology tutorials page

Finally, the subcontracts with nine new associated data partners were signed during this reporting period. (Bulgarian Academy of Sciences; Odessa National I.I. Mechnikov University; CoNISMA – Local Research Unit of Lecce; Tallinn University of Technology; Agri-Food and Biosciences Institute; Roscoff Marine Station, France; Universidad de Cantabria; Norwegian Institute for Water Research; Royal Belgian Institute of Natural Sciences). The subcontracts started 15/01/2018 and will run for 12 months.

2 Challenges encountered during the reporting period

Provide an overview of the main challenges encountered during the reporting period and the measures taken to address them, including those related to technical and data provision issues.

Main challenge	Measures taken
Delay deliverables WP3	With extra effort, the expected deliverables of WP3 are now all delivered.
Some delays in data publishing as we switch to a new data scheme OBIS Env	Most of the partners are now switching to the new data scheme. The data systems are now also being updated to be able to provide data in the new scheme. Although there were some delays, we see that the M12 deadline however was met for most of the data providers. This new scheme will also allow for example to store habitat observation data and pool data per sample, a request that has been made several times by different communities (EEA, DGENV, Sea basin checkpoints).
Most of the data records that do not pass the QC, are due to taxa that have not (yet) been matched to the World Register of Marine Species (WoRMS), the taxonomic backbone for EurOBIS.	The Data Management Team (DMT) is still working with the providers to sort these out, as it mostly concerns 'dubious matches', which means that the scientific name is in use for more than one species and the authorship of the scientific name needs to be added to be able to distinguish between the different species, and to make correct assumptions when mapping these names to WoRMS.
Other issues with the data are linked to the use of non DarwinCore parameters, which may need more standardization by using BODC vocabularies.	The DMT is committed to helping the providers with this. This task has largely been delayed due to time constraints, as too many datasets being delivered too close to the deadline date. These remaining issues will be picked up in the coming months and the data providers are expected to help the DMT with this.
We had no permission to make available the fishery data from IOF (Croatia). The organisation had no permission to exchange them. Among these data, the largest sets were collected through projects funded by EU DG-Mare DCF (MEDITS, DEMON, PELMON, MEDIAS). Unfortunately, contrary expectation the project partner got no permission for exchange of these data from our Ministry. Explanation was that permission for data exchange collected in the framework of above projects should be requested by VLIZ as the lead partner in the project.	We provided this information back to DGMARE.

3 User Feedback

List any useful feedback you received on your portal, your activities or those of other EMODnet projects/activities. Also provide any suggestions you have received for EMODnet case studies and/or future products/activities/events.

Date	Name	Organization	Type of user feedback (e.g. technical, case study etc.)	Response time
10/01/2018	Sophie Johnston	University of St Andrews in Scotland	Data request: a project that aims to collect biodiversity data and build a global time series database. The project is called BioTIME.	2 days
23/01/2018	--	SMHI	Technical: How is data transferred to EurOBIS and OBIS	1 day
23/02/2018	--	NOI	Data request: I am looking for data about zooplankton abundance and I bumped into the "OOPS - Copepods: ICES Operational Oceanographic Products and Services - Gridded Copepod abundance data" which might be exactly what I am looking for - Purpose of my work is to use copepod data to assess fish stocks status in space and time, as part of my PhD.	1 day
16/03/2018	Dr.Arzu Javadova	Caspisnccs	Data request: I am interested in marine ostracods. Please help to find an electronic photo atlas of ostracods, if such data base is exist.	1 day
14/03/2018	Bruna Campos	Birdlife	Request to Birdlife to share their seabird tracking data with EMODnet Biology	Pending at the moment
	--	JNCC	Request to ESAS to share their bird data with EMODnet Biology	Pending: UK data will be delivered, other data is pending.
23/03/2018	--	University Lisonne	Data request: In the context of thesis work, I would like to access all Azores biological data available at EMODnet. The main goal is to integrate species and environmental data so that distribution models can be automatically executed and the corresponding results can be updated when new data arrives.	1 day

4 Meetings held/attended since last report

List here the internal and external meetings held/participated by the contractor since the last quarterly report. Please add short description on the meeting as well as the nature and volume of the audience.

Date	Location	Title	Internal/External + Short Description
12-13/02/2018	Brussels	TGDATA Meeting	Attending TGDATA meeting with presentation on how EMODnet biology deals with data on species distributions and where EMODnet biology and INSPIRE uses the same vs. different standards
31/01/2018	Skype	ICES-EMODnet Biology	Discussion on current and future link and data transfer between EMODnet Biology and ICES
3-6/04/2018	Liege	DIVA data product workshop	Participation in DIVA workshop, creation of gridded abundance data products.
14/03/218	London	JericoNext Data managmenet meeting	Jerico Next Biological data management and link with EMODnet Biology
28/03/2018	Brussels	EMODnet biology data management, RBINS	Meeting on ingestion biological data RBINS into EMODnet Biology
2/02/2018	Skype	Data management EMODnet biology and EMODnet Seabed habitats (JNCC, ISPRA, VLIZ)	Meeting on how habitat data can be described using the OBIS ENv datascheme
08/04/2018	Skype	Teleconference on status WP3	Discuss WP3 progress
13/04/2018	Skype	Teleconference on INSPIRE-EMODnet	Discuss compatibility of EMODnet data with INSPIRE. We discussed the possibility if INSPRIE could adopt the standards used by EMODnet Biology (Darwin Core data scheme, WoRMS, OBIS Env)

5 Outreach and communication activities

Please list all the relevant communications activities or products you have developed/executed during this period (including presentations, lectures, trainings, demonstrations and development of communication materials such as brochures, videos, etc.).

Relevant scientific and/or popular articles you know have been published using/referring to EMODnet must also be reported here.

Date	Media	Title	Short description and/or link to the activity
25-26/04/2018	Lifewatch User meering	EMODnet Biology and links with the Lifewatch taxonomic backbone infrastructure	On January 25-26 2018, the LifeWatch.be Users & Stakeholders meeting was organized at the Flanders Marine Institute (VLIZ) in Ostend. The meeting was open to all known users and stakeholders of the Belgian LifeWatch infrastructure. In total, 87 participants from a multitude of Belgian research institutes and universities, registered for this very interesting and successful event. http://lifewatch.be/nl/node/529
21/03/2018	VLIZ Marie Science Day	EMODnet	EMODnet was presented at the VMSD The VLIZ Marine Science Day has become an established event for all marine and coastal scientists in Flanders and its neighbouring regions. On Wednesday 21 March 2018 we would like to welcome you in MEC Staf Versluys in Bredene for a fascinating program, full of presentations and demos on the latest research and initiatives.
6/03/2018	JPI, Marine Board, EMODnet, VLIZ Meeting	EMODnet	EMODnet and EMODnet biology data infrastructure was presented at the meeting between JPI, Marine Board, EMODnet and VLIZ
8/03/2018	EOOS Forum		Participation at the EOOS Forum
08/03/2018	Oceanteacher EMODnet course	EMODnet biology data manamangemnt tutorial	An online tutorial on how to quality control and update biological data into EMODnet Biology is under construction in the Oceanteacher, global Academy training course from IODE.

6 Annex: Other documentation attached

None

7 New monitoring indicators

Indicator 1.1: Volume and coverage of available acquired data

Template:

1.1. Volume of available acquired data	*1/1/2018-19/4/2018*[1]	*Biology*[2]	*Datasets*[3]					*Total Volume*[4]	*Trend*[5]
Sea basins (area in Km^2)→	Atlantic	Arctic	Baltic	Black Sea	Med Sea	North Sea	*Other Seas*	*Total Volume per theme*	*Trend*
Sub-theme[6]:									
Benthos	7 (1,132.604)	1 (3039)	5 (859.082)	3 (4973)	1 (407)	6 (1,192.041)	1 (18.987)	22 (2,085.225)	
Birds	4 (185.342)	2 (2077)	0	0	2 (111962)	0	1 (56)	7 (187.475)	

[1] Date is the reporting date, preferably on the 1st day of the month

[2] Portal is the portal's name

[3] Unit is a short description of the volume unit of measurement: "records", "data sets", or "platforms". The full unit description can be found in the monitoring support document.

[4] Total volume measures the total amount of available data without redundancy. Redundancy notifies if some units of volume are counted twice in the table. For example, if a dataset covers 2 sea basins, or several themes, it should be counted multiple times. As a consequence, adding up all the numbers on a row would give an overestimation of the total volume per theme.

[5] Trend compares the reported total volumes with their corresponding total volumes reported 3 months earlier (in %).

[6] The list of sub-themes is provided later on in this paragraph

Fish	0	0	0	0	1 (298)	1 (273.002)	0	2 (273200)	
Mammals	14 (412.973)	0	0	3 (686)	14 (134.522)	1 (35)	3 (1100)	33 (437.354)	
Reptiles	7 (1130)	0	0	0	11 (598)	0	1 (539)	18 (2156)	
Micoroganisms	0	0	0	0	4 (3381)	0	0	4 (3381)	
Phytoplankton	1 (203.464)	0	1 (452.549)	0	6 (38791)	1 (452.549)	0	8 (694.804)	
Zooplankton	1 (88.701)	0	1 (210.683)	0	4 (20.483	0	0	6 (319.867)	

Theme	Sub-themes
Bathymetry	Bathymetry
Geology	Seabed Substrate, Sea-floor Geology, Coastal Behavior, Geological event and probabilities, Mineral Occurrences
Seabed habitats	Seabed habitats (littoral, sublittoral and deep sea), Chemistry (Dissolved gasses), Physics (Optical properties, Temperature at the seabed, Salinity at the seabed, Currents at the seabed, Waves at the seabed)
Physics	Temperature in the water column, Salinity in the water column, Sea surface currents, Water Optical properties, Sea Level, Atmospheric parameters, Water Conductivity/Biogeochemical, Waves, Winds, River, Underwater noise, Ice coverage
Chemistry	Acidity, Antifoulants, Chlorophyll, Dissolved gasses, Fertilizers, Hydrocarbons, Heavy metals, Organic Matter, Polychlorinated biphenyls, Pesticides and biocides, Radionuclides, Silicates

Biology	Benthos, Birds, Fish, Mammals, Microorganisms, Phytoplankton, Reptiles, Zooplankton
Human Activities	Aggregate Extraction, Cultural Heritage, Dredging, Environment, Fisheries, Hydrocarbon Extraction, Main Ports, Aquaculture, Ocean Energy Facilities, Other Forms of Area Management/Designation, Pipelines and Cables, Waste Disposal, Wind Farms

Portal	Measurement unit	Redundancy	Reported unit
Bathymetry	Number of CDIs = Number of datasets	No	Datasets
Geology	Count records (1 record = 1 data file), including the data needed to build data products.	No	Records
Seabed habitats	Number of data records, meaning the total number of lines of all data sets	No	Records
Physics	Count number of platforms. Total volume counts the total number of platforms without redundancy. The temporal aspect of data is removed from this indicator.	if one platform measures x parameters (=themes), then it is counted x times in the break down table.	Platforms
Chemistry	Number of CDIs = Number of datasets	Yes, one CDI can cover several themes	Datasets
Biology	Count datasets (***number of records between brackets***)	No	Datasets
Human Activities	Add up points, lines and polygons. For points, lines and polygons linking to a related table, also count records from related tables add append below the number of parent records. Temporal, automatically acquired, new records are counted.	No	Records (+*Relational records when relevant*[7])

Indicators 1.2: Number and coverage of acquired external data products

Template:

[7] The human activities datasets are composed by objects and related tables that store records (relational databases). Each year new records are added to each of these tables. So it is more accurate to report both the number of the objects and the number of new records.

1.2. Number and coverage of available acquired data products	*Date*[8]	*Portal*[9]			*Total Number of external data products*[10]	*Trend*[11]
Sea basins[12] (area in	Atlantic	Arctic	Baltic	...	All sea basins	Trend
Sub-theme [13]						
/	/	/	/	/	/	/

Indicators 2: Organisations supplying data and data products

Template:

2. Organisations supplying each type of data	*Date*[14]	*Portal* [15]			

[8] Date is the date of measurement, preferably on the 1st of each month

[9] Portal is the portal's name

[10] Total number measures the total amount of external data products without redundancy. Redundancy notifies if some external data products are counted twice in the table. For example, one data product could cover several sea basins. The column named "All sea basins" expects the number of external data products of each theme. It is not equal to the row sum in case of redundancy (one product covering several sea basins)

[11] Trend compares the reported total volumes with their corresponding total volumes reported 3 months earlier (in %)

[12] Sea basins are: Atlantic, Arctic, Baltic, Black Sea, Med Sea & North Sea.

[13] Theme and sub-themes are the same of Indicator 1.1

[14] Date is the date of measurement, preferably on the 1st of each month

[15] Portal is the portal's name

	Type[16]	Country	Data *or* Data product *or* Both	Themes	% of restricted data[17] (or #restricted/# not restricted)
Finnish Environment Institute	Research	Fi	Data	Benthos	Open data
Institute of Marine Research	Research	No	Data	Benthos	Open data
Institute of Oceanography and Fisheries	Research	Cr	Data	Phytopl	Open data
Instituto Português do Mar e da	Research	Pt	Data	Benthos	Open data
Instituut voor landbouw- , visserij en voedingsonderzoek	Gov	Be	Data	Benthos	Open data
International Council for the Exploration of the Sea	Research	Int	Data	Benthos plankton	Open data
Koninklijk Nederlands Instituut voor Onderzoek der Zee	Research	Nl	Data	Fish	Open data
Marine Biological Association of the UK	Research	UK	Data	Benthos	Open data
National Institute for Marine Research and Development "Grigore Antipa" Constanta	Research	Ro	Data	Benthos	Open data

[16] Type is the organization type. A list of organization types is available in the Glossary.

[17] Restricted data is data not public.

National Institute of Oceanography and Experimental Geophysics	Research	It	Data	Phytoplankton	Open data
Rijkswaterstaat	Gov	Nl	Data	Benthos	Open data
SMHI	Gov	Sw	Data	Benthos	Open data
The Sir Alister Hardy Foundation for Ocean Science	Research	UK	Data	Zoo/phytoplankotn	Open data
Centre for Environment, Fisheries and Aquaculture Science	Research	UK	Data	Benthos	Open data
Observatoire Océanologique de Villefranche sur Mer	Research	FR	Data	Zooplankton	Open data
Norwegian Institute for Water Research	Research	Nor	Data	Benthos	Open data
WoRMS Steering Committee	Research	Int	Data	All	Open data

Via OBIS-Seamap: (College of the Atlantic Allied Whale; ALNITAK Marine Research Centre; Association Chene Associazione; Culturale Scientifica Ketos; University of Southern Maine Bioscience Research Institute; Canadian Federal Government Canadian Wildlife Service; University of California, Santa Cruz Costa Lab; Technical University of Valencia; Dominica's Sea Turtle Conservation Organization Inc.; Fisheries Bycatch Research Group; Fondazione Cetacea Fundación para la Conservación y Recuperation de Animals Marinos; Granadilla Environmental Observatory; Greenland Institute of Natural Resources; Instituto Canario de Ciencias Marinas; Università degli Studi di Pavia Interdisciplinary Centre for Bioacoustics; International Fund for Animal Welfare; University of Pisa Islameta Group; University of Haifa Israel Marine Mammal Research and Assistance Center; Jonian Dolphin Conservation; Kélonia; L'Association Tunisienne de Taxonomie; Duke University Marine Geospatial Ecology Lab; Marine Turtle Research Group; Mediterranean Association to save the sea turtles; National Institute of Oceanography and Experimental Geophysics; Spanish Council for Scientific Research Norwegian Institute for Water Research; Université de La Rochelle Observatoire Pelagis; OceanCare; Proyecto Aegina; Rijksuniversiteit Groningen; University of St Andrews Sea Mammal Research Unit; Israel Nature and Parks Authority Sea Turtle Rescue Center; Federal Government of the United States of America Southeast Fisheries Science Center; Tethys Research Institute; United Kingdom Hydrographic Office; University of Liverpool	Various	All	Data	Birds, Mammals, Reptiles	Open data

Indicators 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

Template: We contacted Birdlife to check if they are willing to contribute their Seabird tracking database to EMODnet biology. The request was re-iterated by DMARE. At the moment we are waiting for their response. They mentioned it might be difficult as it is not an open database. One reason behind it is that the data is collected by different people across the BirdLife partnership and a lot of this research might not be published yet.

Indicator 4: Quality Control and Quality Assurance steps

Template:

4. Quality Control & Quality Assurance	*19/04/2018*[18]	*Biology*[19]		
QA /QC steps	✔[20]	Short Description	By whom?	Automatic/Semi-automatic/Manual
Metadata curation	x	The data management team at VLIZ has created a metadata record for all the datasets that were promised to be delivered through WP2.	The data management team at VLIZ & data provide	M

[18] Date is the date of measurement, preferably on the 1st of each month

[19] Portal is the portal's name

[20] Portals are asked to flag the steps they perform. If a step is flagged, portals should provide a short description of what they do, who performs the step, and say if the step is automatic, semi-automatic or manual.

Data standards compliance checks	x	taxon is matched with World Register of Marine Species (www.marinespecies.org) taxon is at genus or (sub)species level	VLIZ/data provider	A/S-A/M
Geographic Location Control	x	latitude & longitude are different from zero		A
Error Detection thanks to thematic expertise	x	latitude & longitude are within possible boundaries (-90 < lat. < +90 & -180 < lon. < +180)		A
Quality Index / Accuracy				
Data aggregation				
Other				
Harmonization	x	See other rows in table		M/A/S-A
Language	x	Translate to English if necessary	Dataprovider	M
Units	x	Using BODC vocabularies.	DMT	M
Terminology	x	Using BODC vocabularies.	DMT	M
Coordinate Systems	x	Transform to WGS 84	DMT	A

Data format	x	Match data with Darwin Core data	DMT	S-A

Indicator 5.1: Number and coverage of built data products

Template:

5.1. Number and coverage of built data products	*19/04/2018*[21]	*Biology*[22]	*Unit*			*Total Volume*	*Trend*
			#data products				
Sea basins[23] (area in Km^2)→							
Sub-themes	Atlantic	Arctic	Baltic		...	All sea basins	Trend
products will be released in M12-M24							

Indicator 5.2: List of data product releases by the portal

Template:

5.2. Data Product	*19/04/2018*[24]	*Biology*[25]	*#of EMODnet data products*[26]

[21] Date is the date of measurement, preferably on the 1st of each month

[22] Portal is the portal's name

[23] Sea basins are: Atlantic, Arctic, Baltic, Black Sea, Med Sea & North Sea.

[24] Date is the date of measurement, preferably on the 1st of each month

Releases			
EMODnet data product name	Last release date (< 3 months only)	Creation or Update	Description
products will be released in M12-M24			

5.2. Data Product Releases	*Date*[27]			
Portal	Last release date (< 3 months)	3 - 12 months	12 - 24 months	> 24 months
Bathymetry				
Geology				
Seabed habitats				
Physics				
Chemistry				

[25] Portal is the portal's name

[26] Number of data products created or updated in the reporting period

[27] Date is the date of measurement, preferably on the 1st of each month

Biology	products will be released in M12-M24			
Human Activities				

Indicator 6.1: Portal & Social Media visibility

Template:

6.1.1 Visibility & Analytics	*Date*[28]	*Portal*[29]	*Analytics tool*[30]				
	01/01/2018 23/03/2018	*Biology*	*Matomo*				
Pages[31]	Page views		Trend	Unique page views		Trend	Exit Rate
	Last Report	Actual Report	%	Last Report	Actual Report	%	%
Data download (landing page)	n.a.	942	n.a.	n.a.	366	n.a.	59%
Data catalogue	n.a.	1835	n.a.	n.a.	462	n.a.	69%
Map Viewer	n.a.	115	n.a.	n.a.	56	n.a.	49%

[28] Date is the date of measurement, preferably on the 1st of each month

[29] Portal is the portal's name

[30] Matomo (ex Piwik) or Logs

[31] For each portal, the most relevant webpages that need to be monitored have to be identified. The Support Guidelines document provides an initial list.

Product Gallery	n.a.	273	n.a.	n.a.	94	n.a.	34%
Contribute	n.a.	84	n.a.	n.a.	64	n.a.	56%
Landing pages[32]	Number of visits		Trend	Number of unique visitors		Trend	Bounce Rate
	Last Report	Actual Report	%	Last Report	Actual Report	%	%
Home Page	n.a.	707	n.a.	n.a.	525	n.a.	46%

6.1.2 Social Media performance	*Date*[33]	
	01/01/2018 *23/03/2018*	
	# in the reporting period	Trend[34]
Twitter followers	2305	n.a.
Twitter impressions	102.8K	n.a.
Twitter engagement rate	1,1%	n.a.
Twitter Likes	185	n.a.
Facebook Likes	58	n.a.

[32] By landing page we mean pages that mainly redirect users to other pages.

[33] Date is the date of measurement, preferably on the 1st of each month

[34] Trend compares the reported total numbers with their corresponding total numbers reported 3 months earlier (in %)

LinkedIn connections	n.a.	n.a.

6.1.3 SEO assessment – brand monitoring	*Date*[35]		
	01/01/2018 *23/03/2018*		
URL	BM scores[36]	Total Mentions	Mentions with backlinks
No mentions yet			

6.1.4 SEO assessment - Acquisitions	*Date*[37]				
	Acquisitions			*Behavior*	
	Visits	Visits %	Bounce rate	Action/visit	Average time on website
Direct	633	49,3%	41%	4.6	00:06:00
Referral	435	33,9%	29%	4.8	00:05:34
Organic Search	215	16,8	49%	4.4	00:05:06

[35] Date is the date of measurement, preferably on the 1st of each month

[36] Measures the domain's authority on a 100-point scale, based on SEMrush's Domain Score.

[37] Date is the date of measurement, preferably on the 1st of each month

6.1.5 SEO assessment - performances	*Date*[38]	*Portal*					
Keyword	CPC[39]	Volume[40]	Portal Positioning	Marine.copernicus.eu			
Gridded abundance diva	n.a.	n.a.	1	n.a.			
Biomass	2,9	33,100	n.a.	n.a.			
Abudance	0,74	90,500	n.a.	n.a.			

Indicator 6.2: Efforts to increase visibility (newsletters, press releases, events)

Template:

6.2. Efforts to increase visibility	*Date*[41]	*Portal*
	Quantity	*Main results*
Number of events organized		#participants, #new contacts established, etc.

[38] Date is the date of measurement, preferably on the 1st of each month

[39] The average minimum price that advertisers pay for a user's click on an AdWords ad that popped up for a given keyword

[40] The average number of search queries per month for the queried keyword over the last 12 months.

[41] Date is the date of measurement, preferably on the 1st of each month

Number of events attended	4	#new contacts established, etc.
Number of news pieces written[42]		#views
Number of newsletters[43]		#views
Number of press releases		#press clippings

Indicator 7.1: Technical monitoring

Template:

7.1 Technical monitoring	*Date*[44]	*Portal*	
Portals	*Website availability*[45] *(Average value in the period)*	*Response time*[46] *(Average value in the period)*	*Responsiveness*[47] *(Average value in the period)*
Bathymetry	100%	149ms	99,851%
Geology	99,969%	504ms	98,388%
Seabed habitats	99,888%	672ms	98,980%
Physics	98.438%	1292ms	86,734%

[42] This will be reported by the Secretariat because it concerns only the Central Portal

[43] This will be reported by the Secretariat because it concerns only the Central Portal

[44] Date is the date of measurement, preferably on the 1st of each month

[45] usually calculated in percentage polling the website home page every minute, if there is no reply or an error message it's calculated as a downtime. Usually anything over 99.5% in a month should be acceptable

[46] The time to download the whole homepage. This measurement is affected by network connection speed

[47] Polling the website, if the homepage is slower than 1500ms (this value can be changed) the website is flagged as slow. Usually displayed as the percentage of the "not slow" requests

Chemistry	100%	228ms	99,583%
Biology	100%	270ms	99,865%
Human Activities	100%	1315ms	50,702%

Indicator 7.2: Portal user-friendliness

Template:

User friendliness

7.2 User-friendliness	*Date*[48]	*Portal*			
Page	*Average duration of visit*			Trend* (%)	*Page Type*[49]
Data download (landing page)	00:01:48			n.a.	Landing
Home page	00:01:19			n.a.	Landing
Data catalogue	00:01:16			n.a.	Form/Search
Map Viewer	n.a.			n.a.	Content
Product Gallery	00:00:33			n.a.	Navigation
Contribute	00:02:07			n.a.	Form/Search

[48] Date is the date of measurement, preferably on the 1st of each month

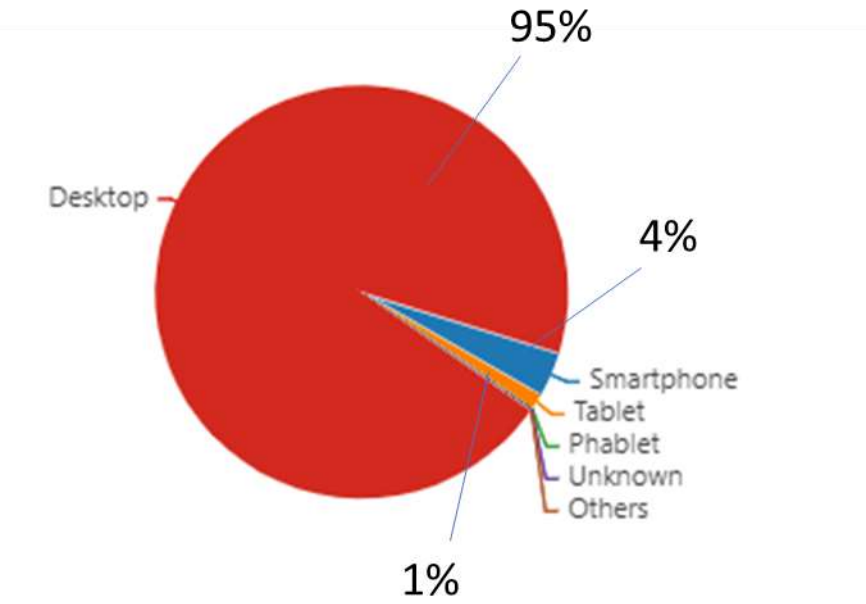
[49] Three different types of pages have been defined: content page [maps, tables, articles…], navigation page [menus, lists of links for services or other kinds of content…], landing page (see the Monitoring Support Document)

Blog	00:00:18	n.a.	Navigation
Statistics	00:02:06	n.a.	Content
About	00:00:32	n.a.	Content
Data infrastructure	00:02:42	n.a.	Content
Work packages	00:00:29	n.a.	Navigation
Workshops	00:01:45	n.a.	Navigation
Documents	00:02:03	n.a.	Navigation
Deliverables	00:02:02	n.a.	Navigation
Tutorials	00:02:46	n.a.	Content
Associated data partner	00:00:17	n.a.	Content
API	00:04:14	n.a.	Landing

Automatic user flow

Not yet available

Usage of the portals on different devices



Visual harmonisation score

7.2 Visual Harmonisation score		*Date*	*Portal*	*Visual harmonization score*	
		13 March 2018	*Biology*	*72*	
Harmonisation elements		*Description*		*Score*[50] *(3 1 0)*	*Trend* (+ - =)
Logo usage		*subtotal*		*12/12*	
	Logo position			*3*	(+ - =)
	Logo type			*3*	

[50] Compliant with the visual guidelines (3pt), Not completely compliant with the visual guidelines (1pt), Not compliant (0 pt)

	Logo size		*3*	
	Logo url		*3*	
Font usage		*subtotal*	*15/15*	
	Font type		*3*	(+ - =)
	Font usage (capital letters, etc.)		*3*	
	Font spacing		*3*	
	Font colour		*3*	
	Font justification		*3*	
Webportal header		*subtotal*	*16/21*	
	Pattern usage		*3*	
	Header size		*3*	
	Search box		*3*	
	Contact Us button	*Better if "Contact us"*	*1*	
	Submit Data button		*3*	
	Favicon		*0*	
	Stripline colour		*3*	
Footer structure		*subtotal*	*17/21*	(+ - =)
	Footer size		*3*	

	Footer elements	*Submit data should be added*	*1*	
	Footer visuals		*3*	
	EC Acknowledgment		*3*	
	EC flag	*Wrong flag*	*1*	
	Link to social media		*3*	
	Social Media icons		*3*	
Policy Privacy		*subtotal*	*3/6*	(+ - =)
	Presence		*3*	
	GDPR compliant	*Yes/No*		
Main menu		*subtotal*	*6/12*	(+ - =)
	User experience		*3*	
	Sub menu		*0*	
	Menu tabs terminology		*0*	
	Menu size		*3*	
Responsive			*3/3*	

Indicator 8.1: Interfaces to access or view data

Template: Portals are asked to fill in three tables, one for Data, one for External Data Products and one for EMODnet Data Products

8.1.1 List of interfaces	**DATA**	*19/04/2018*	*Biology*		
	Manual download	**Map viewer**	**WCS**	**WFS**	**…**
Bathymetry	% of data available through services	or	✓: available ☐ : not available … : available in the next 6 months	or	any other suggestions?
Geology					
Seabed habitats					
Physics					
Chemistry					
Biology	100%	100%	Not available	Available	
Human Activities					

8.1.2 List of interfaces	**External DATA PRODUCTS**	*Date*	*Portal*		
	Manual download	**Map viewer**	**WCS**	**WFS**	**…**

Bathymetry	% of data products available through services	or	✓: available ☐ : not available … : available in the next 6 months	or	any other suggestions?
Geology					
Seabed habitats					
Physics					
Chemistry					
Biology	/	/	/	/	/
Human Activities					

8.1.3 List of interfaces	**EMODnet DATA PRODUCTS**	*Date*	*Portal*		
	Manual download	**Map viewer**	**WCS**	**WFS**	**…**
Bathymetry	% of data available through services	or	✓: available ☐ : not available … : available in the next 6 months	or	any other suggestions?

Geology					
Seabed habitats					
Physics					
Chemistry					
Biology	100%	100% On EMODnet Central Portal	None	Dataproducts available as WFS/WFS	As animation movies: http://www.emodnet-biology.eu/data-products
Human Activities					

Indicator 8.2: Usage of data and data products per interface and per theme

Template:

8.2 DATA/EXTERNAL DATA PRODUCTS /EMODnet DATA	06/04/2018[51]	Biology[52]	Redundancy[53]	Use of WMS for map viewer?[54]	
				If the portal uses WMS for the map view, answer "yes"	

[51] Date is the date of measurement, preferably on the 1st of each month

[52] Portal is the portal's name

[53] Redundancy notifies if some downloads are counted twice in the table. For example, one download could cover several themes and be counted in each of the themes.

[54] Use of WMS for map viewer: expected answer: yes or no. If yes, then map visualisations will be reported twice in the table. Once in "Number of map visualisations" counted with analytics, and once in "Number of WMS requests" counted with logs. The "Number of WMS requests" should be much larger than "the number of map visualisations", because one map visualisation can generate many WMS requests.

PRODUCTS							here			
	Downloadable Volume[55]	trend [56]	Number of manual downloads	trend	Number of WMS requests	trend	Number of map visualisations	trend	...	trend
Bathymetry										
Geology										
Seabed habitats										
Physics										
Chemistry										
Biology	213 data downloads (1/1/2018-6/4/2018)		213 data downloads (1/1/2018-6/4/2018)		Metrics not yet available		Metrics not yet available			
Human Activities										

[55] Downloadable Volume can be different from data volume reported in Indicator 1. The unit to measure downloadable volume should relate to the unit of downloads, so that one can expect more downloads when the downloadable volume increases. The ratio between "number of downloads" and "downloadable volume" should give an indication of the popularity of a theme or sea basin.

[56] Trend compares the result with previous period. There should be as many columns as services allowing to use data (not data products).

Indicator 9: Distribution of users that have used the portal's data and data products per organisations type and country, and their main use cases.

Template:

Date	*Portal*	Interfaces[57]	Means of information collection	Number of users giving information[58]	Total number of users[59]
Organization type[60]	**% of users**	**Main use cases and application areas[61]**			
		Research	101		
		Data exploration and testing	63		
		Product creation	10		
		Data research	9		
		Biogeogrpahy	6		
		other	6		
		Biodiversity Assessments	5		
		Species distribution modelling	5		
		Ecology research	4		
		Fisheries research	2		
		GIS analysis	1		

[57] Interfaces: Which portal interfaces are concerned by the table statistics: the map viewer? The data download service? Some interfaces like web-services are not well suited for user information gathering and can be reported in a separate table.

[58] Relevant to portal where the user form is optional

[59] Useful to know the robustness of the statistics.

[60] A list of organisation types is available in the Glossary.

[61] Compile a bullet-point list of use cases from user form or oral feedback. A few words per use-case suffice. These use cases can be repeated in each interface table.

EMODnet USER FORM

Compulsory fields for all portals:

- Organisation type (dropdown)

- Use case (free text)

- Email

Portal are also encouraged to insert in their forms the field "Country". So far many of them can track the geographical provenance of the users from the IP address.

Portals need also to add a sentence with the consensus for the Privacy Policy. The Data Privacy Disclaimer created by the Secretariat for the Central Portal will be circulated to the portals as an example. All the portals need to be aware that modifications may occur when the forthcoming GDPR regulation (May 2018) enters officially in action.

Indicator 10.1: External products (websites, apps,…) built on top of web-services

Template:

10.1 Organisations who built on top of EMODnet web-services	*Date*	*Portal*		
	Type	**Country**	**Web-service type**	**Link to product or short description of usage**

Indicator 10.2: Published use cases and number of readings

Template:

10.2 Published use cases and number of readings	*Date*	*Portal*	

Use case title	Release date	Number of views in reporting period	Appears in Central Portal
Exploiting citizen science for collecting data on marine biodiversity	n.a.	15	✓
Operational zooplankton data service: a long-term monitoring programme	n.a.	16	✓

Bonus Indicator: List of known publications using EMODnet data or products

Template:

Bonus Indicator: Known publications	*Date*	*Portal*		
Date of publication	Journal, conference...	Title	Authors	Organization
08/2017	Biodiversity Information Science and Standards (BISS)	Documenting Marine Species Traits in the World Register of Marine Species (WoRMS): Current status, Future Plans and Encountered Challenges	Leen Vandepitte, Simon Claus, Stefanie Dekeyzer, Sofie Vranken, Wim Decock, Bart Vanhoorne, Francisco Hernandez	