EMODnet Thematic Lot n° 5 - Biology

EMODnet Phase III - Quarterly Report

Reporting Period: 01/10/2017 – 31/12/2017

Date: 22/01/2018

Contents

1. Highlights in this 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

WP 1: Project management (Lead partner VLIZ)

- An open call for grants to become an EMODnet Biology associated data partner closed on 15/10/2017. We received 10 submissions from new partners to contribute to the project and fill gaps of the EMODnet biology data system. The submissions were evaluated by the EMODnet Biology Steering Committee. Nine out of the ten submissions were approved. The new partners will receive a grant to participate in the general project meetings and to contribute data to EMODnet biology, using the same standards and data format. This work will be coordinated under WP2 and WP3. Some of the new submissions, will be using the EMODnet data ingestion facility to provide data and metadata to EMODnet biology. The new associate data partners are:
  o Black Sea:
    ▪ Bulgarian Academy of Sciences - Bulgarian Phytoplankton
    ▪ Odessa National I.I. Mechnikov University - Black Sea phytoplankton
  o Mediterranean Sea:
    ▪ CoNISMA – Local Research Unit of Lecce: Sightings of gelatinous plankton along the Italian coasts
  o Baltic Sea:
    ▪ Tallinn University of Technology - Estonian marine biological monitoring
  o Atlantic Basin:
    ▪ Agri-Food and Biosciences Institute (AFBI), Northern Ireland- Northern Ireland monitoring commercial benthic species
    ▪ Roscoff Marine Station, France: Benthos & Plankton from Roscoff Station
    ▪ Universidad de Cantabria - North Spanish Macroalgae
  o Norwegian Sea
    ▪ Norwegian Institute for Water Research (NIVA) - Norway national monitoring benthos
  o North Sea
    ▪ Royal Belgian Institute of Natural Sciences (RBINS) - Belgian Marine Monitoring

- A date and venue for the next General meeting was decided by the EMODnet Biology Steering Committee: the meeting will take place 3 and 4 May, 2018 in Trieste, Italy. The meeting will be hosted by OGS.

- Participation and co-organisation of the EMODnet Open Sea Lab Hacketon – 15-17 November 2017, Antwerp.

- Participation to the London stakeholder workshop (see WP5)

- Participation to the TGDATA Meeting – 9 and 10 November, 2017 EEA

WP2: Data Management (Lead partner VLIZ)

- The data management team has created a metadata record for all the datasets that will be delivered through WP2. For some of these metadata records, the last details will be fixed when the data is actually delivered. All datasets can now be discovered through the EMODnet Biology Data Catalogue (http://www.emodnet-biology.eu/data-catalog).

- To ensure a smooth submission of all the datasets to VLIZ, a prioritization has been made, based on the content of the datasets. As WP4 – Data product creation – is dependent on the work of WP2, priority is given to the processing of benthic datasets, as these have been indicated by WP4 as the most important ones in the creation of the first benthic data products. An overview of all the datasets, their level of priority and the status of their progress can be found at
  https://docs.google.com/spreadsheets/d/1iK-b7s0j0F-
  3ULeKG0in0TWedj_1fl7p7ADlvG7agfE/edit#gid=2028958388

  Based on the inventory, we have subdivided all the datasets into 4 categories:
  (1) Only benthic data
  (2) Benthic data in combination with non-benthic data
  (3) Non-benthic data
  (4) Datasets that are already in the system, but need an update

  Since September 2017, we focus on the first and the second group, making sure that these are completely integrated by Month 12 (=April 2018), so WP4 can start on the creation of benthic-related data products. Due to the large amount of data, the processing of priority 1 and priority 2 datasets have been spread over several months, allowing both the providers and the data management team enough time for the processing. The proposed deadline for the delivery of the priority 1 datasets is set for the end of January 2018. The deadline for the priority 2 datasets is set April 2018.

- During this reporting period, 2 skype meetings were organised:
  - SMHI on 22th November 2017 at 10h
    Present: Daphnis De Pooter, Arnold Andreasson, Lisa Sundqvist, Nills Nexelius

  - Deltares on 16th October 2017
    Present: Daphnis De Pooter, Willem Stolte

- Datasets already provided and included in the Portal:
  - Microphytobenthos monitoring in the Trieste harbour, North Adriatic Sea (Port Authority) in 2015
    http://www.emodnet-biology.eu/data-catalog?module=dataset&dasid=5737
  - Microphytobenthos monitoring in the Mar Piccolo of Taranto. 2013-2014
    http://www.emodnet-biology.eu/data-catalog?module=dataset&dasid=5735
  - Microphytobenthos in mussel farms - North Adriatic Sea (SosteMiTS Project) 2008-2009
    http://www.emodnet-biology.eu/data-catalog?module=dataset&dasid=5740

- Datasets already provided but still to be integrated in the Portal:
  - Dutch long term monitoring of macrobenthos in the Dutch Continental Economical Zone of the North Sea. http://www.vliz.be/en/imis?module=dataset&dasid=5759
  - All ICES datasets

WP3: Data archaeology and rescue (Lead partner HCMR)

- The reorganization of servers in HCMR/Crete continued, but the MedOBIS IPT (ipt.medobis.eu) was available all time. However, some fine-tuning remains to be done in collaboration with the IT service of HCMR/Crete.

- Stamatina Nikolopoulou (HCMR) participated to the training workshop on the OBIS-ENV-DATA standard, and on the new OBIS data access and QC tools (based on OBIS R packages and WoRMS/LifeWatch tools) organized by UNESCO/IOC/IODE in Ostend, Belgium, 27 Nov. – 1 Dec. 2017. Some adjustments are required in the MedOBIS database to be strictly compliant.

- D3.1 Scientific document presenting the data archaeology and rescue strategy of the project:
  - The document on the reviewed workflow was improved, but not published yet. Urgent action.
  - Waiting for the actual start of the data grants to experiment further the reviewed protocol.

- D3.2: Report on the digitization of 3 datasets under the modified procedure
  - The datasets were digitized, but the reports are to be produced. Urgent action.

- Activities under D3.4: Policy report on biodiversity data management sent to research organizations
  - ICES had to postpone the digitization work and delivered a new work plan starting in at the beginning of 2018.
  - OGS has tried the quality control tools developed in the framework of the LifeWatch Taxonomic Backbone by LifeWatch Belgium on a dataset already harvested by VLIZ. The test was not successful for our dataset and feedback and suggestions have been sent to

LifeWatch – VLIZ. The new OBIS validation service seems very important then and will be tested.

- o NIMRD engaged in thorough QC with VLIZ on Black Sea zoobenthos and phytoplankton. Which datasets are WP2 and WP3 will have to be sorted out during the next General Meeting. Also we have to engage with the OBIS Black Sea node to be the eventual repository of these datasets (currently in EurOBIS).

WP5: Data product creation (Lead: Deltares)

- During the reporting period, inventories have been made of (a) data sets that are available as basis for data products in the Atlas (b) work flows and analyses needed for the preparation of data products (c) data product needs by user communities, including regional seas commissions and (d) environmental data layers that can be used as the basis for Species Distribution Models.

- As far as WP4 is concerned, the main result of the workshop on data needs with end users (London, October 2017, organized by WP5) was twofold: on the one hand a concentration and structuring of the data products based on Essential Ocean Variables for biodiversity, on the other hand concentration on variables that can be of interest for the Regional Seas Commissions. Contacts with both OSPAR and HELCOM showed that they are not interested in 'ready-made' data products from EMODNET, as they want to keep full (political) control on the process of the preparation of crucial data products, e.g. related to the selection of protected areas or the designation of species with special protection status. The most useful contribution from EMODNET is the production of underlying data layers, which are usually covered by the EOVs. We will therefore not concentrate on special products for the Commissions, unless explicitly asked to do so (and how).

- From the overview of EOVs, available data sets potentially underlying their description, and available work flows, the following priorities have been identified for work in the Work Package:
  - o Trait based analyses. Trait databases for fish and benthos in the North 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.
  - o 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 (Baltic Sea zooplankton, Baltic Sea phytoplankton).
  - o 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.

- o Distribution maps of benthos in the North Sea, Celtic Seas and Baltic Sea are being prepared
- o With respect to environmental layers, an (as yet incomplete) overview of data layers from the Chemistry, Physics and Habitats lot has been prepared, and most of these layers have been incorporated into work flows for Species Distribution Modelling. Further specification of the list will take place in the coming months.

- The benthic trait data compilation is still ongoing until the acquisition of all occurrence data sets from the project partners, due by the end of January. In the meantime, a query program aiming to homogenize the combination of different occurrence data sets was designed. A general problem inherent to benthology is the heterogeneous organism taxonomic levels of identification. Whereas some organisms are identified at the species level, some others are identified only at the genus or family level among different samples of even within a same sample. Such constraints are expected when merging the different occurrence data sets so that the program, design under R, will adjust taxonomic levels among samples. For instance, if a large majority of faunal occurrences of a given genus are defined at the species level, the species level will be kept, and the few occurrences defined at the genus level will be discarded. This procedure is conditioned by the representativity of the adjusted data sets regarding the proportional biomass or individual density conserved when compared to those of the raw data set.

WP 5 : Outreach & Uptake (Lead partner MBA)

- This reporting period saw the completion of D5.1 – A workshop to investigate the scope of data products and applicability to end users. Representatives from all four regional sea commissions, transatlantic partnerships, industry, conservation and management organisations met in London on the 10th October 2017 for an EMODnet Biology meeting to steer the development of key biological data products. The full workshop report can be found on the EMODnet Biology website - http://www.emodnet-biology.eu/sites/emodnet-biology.eu/files/public/documents/EMODnet_Biology_III/Data%20product%20workshop_London_2017/WP5WorkshopReport_Final.pdf

- Prior to the workshop all participants were invited to submit responses to a series of questions relating to the current use and requirements for biological data products, to inform the discussion on the day. Following an initial set of presentations from EMODnet Biology partners to provide context and explain the current infrastructure and product provision, key stakeholders gave short presentations outlining the approaches to biological data use in their organisations, and the gaps and requirements that EMODnet Biology could possibly address. The sessions were broadly structured around three areas; Regional Sea Commissions, Global & Transatlantic Initiatives and Conservation & Management. The issues that were identified

shared many common elements, including the lack of interoperability, the degree of patchiness and heterogeneity across the data holdings and a lack of products to support key reporting requirements.

- All participants recognised the value of such a workshop and expressed a desire to remain engaged and informed in the development of data products that is being delivered by WP4. This continued engagement will be realised through the next stage of WP5, and D5.2 - A report and peer-reviewed publication on comparison of data formats, standards and guidelines in the transatlantic area. WP5 partners and key stakeholders have been contacted and agreed to contribute to the development of D5.2, which will be the focus of activity for the next reporting period. Other WP5 activities in this reporting period include the liaison with EMODnet Seabed Habitats to facilitate closer working and co-development of data products and the engagement and participation with the OSPAR COBAM Data Stream workshop.

- Following the workshop WP5 partners met with the WP4 lead and the EMODnet Biology co-ordinator to summarise the workshop discussions and discuss how the requirements of stakeholders could be implemented (see WP5).

WP 6: Technical update EMODnet biological portal & machine to machine connections (Lead VLIZ)

- Based on requirements from the growing EMODnet and EurOBIS community to manage data deriving from novel biological sensors and datasets that combine biological, physical and chemical measurement, an extended data scheme and new standard has been proposed. The new scheme builds on the Darwin Core Archive (DwC-A) standard and on practices adopted by the Global Biodiversity Information Facility (GBIF). It consists of a DwC Event Core in combination with a DwC Occurrence Extension and a proposed enhancement to the DwC MeasurementOrFact Extension. This new structure enables the linkage of measurements or facts - quantitative and qualitative properties - to both sampling events and species occurrences, and includes additional fields for property standardization. We also embrace the use of the new parentEventID DwC term, which enables the creation of a sampling event hierarchy. Therefore, a major update on the data scheme of the geospatial infrastructure of EMODnet Biology has been made. Now, we are in the process of developing a new user interface, through the data download toolbox, which will allow to easily query and retrieve the different data types including habitat observations, different biotic quantifications and descriptors, sediment characteristics and other environmental parameters, collected during biological observations.

- The new website template, developed by TrustIT and the EMODnet Secretariat has been implemented on the EMODnet Biology website, in order to increase the harmonization of the different EMODnet portals. The EMODnet pay-off is 'Dive into data on Europe's Marine Life.

- A new page including data statistics: http://www.emodnet-biology.eu/statistics has been embedded into the EMODnet Biology website. This page contains the number of:

    o The number of marine biological dataset descriptions (metadata)
    o The number and evolution of datasets integrated and available through the system
    o The number and evolution of occurrence records, and the number of quality controlled records
    o Number of available data products
    o Number of species names per higher taxonomic group linked to the World Register of Marine Species (WoRMS)

- More input has been given to the biological webservices description page of the EMODnet Biology API, published at: http://www.emodnet-biology.eu/emodnet-biology-api

2. Specific challenges or difficulties encountered during the reporting period

- The stakeholder workshop, important to define the requirements of the regional seas and the international networks for the construction of biological data products was switched from M3 to M6. Therefore, the development of the data products was a bit delayed, but the deliverables are still feasible within the proposed timeline.

- A number of partners seem to struggle with the before-mentioned deadline of the end of January, but have informed us on this. Two partners (CEFAS & IOF) have not yet responded at all to our requests to inform us on their status in relation to the data delivery process. If there is no reply of them in the coming week – including the data delivery – then the data management team cannot guarantee a timely processing of these priority 1 datasets, and their processing will need to be done together with the processing of the priority 2 datasets (by April 2018).

- There are small delays in the deliverables from WP 3 – D3.1, D3.2 and D3.3. Although most information is available the reports still has to be published. We are setting up a plan to make sure all these 3 deliverables will be ready by the Year one reporting. There is no close communication & collaboration with the WP3 lead to follow up.

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.

[Provide information in table - attach the documentation/full user feedback to the report]

Date	Name	Organization	Type of user feedback (*e.g. technical, case study etc.*)	Response time to address user request
05/10/2017	/	DMARE	EMODnet biology was invited to provide input on the Blue Cloud Initiative	The email was forwarded to the project consortium and around 10 partners participated in the survey
18/10/2017	/	HELCOM	Communications with HELCOM on zoolpankton data products and how it could be used in the HELCOM process	Provide example Baltic products to HELCOM to highlight what kind of data EMODnet biology can produce
19/10/2017	/	HELCOM	Request to integrate the HELCOM Red list species into EMODnet biology	The list was added as a 'trait' to the WoRMS database
25/10/2017	/	CEFAS	Integrating long term UK Benthic data collected by Oil and Gas industry	Currently working on integration of dataset
9-10/11/2017		EEA	Invitation to participate on TGDATA Meeting	Attending TGDATA Meeting
09/11/2017		JNCC	Request on trait data to develop BH1 Indicator on benthic organisms in the UK	Communications on data exchange and approach
05/12/2017		OSPAR	Invitation from OSPAR to attend the ICG-COBAM Meeting	We participated in the benthic and the NIS working group. Methodologies to calculate benthic indicators were exchanged, from the NIS working group we learned they are using WRIMS as a data source and we

				discussed the possibility that national reporting data on NIS could flow bac to WRIMS

Annex 1 Updates on Progress Indicators

Using the indicator as a header list the metrics collated and the time interval. If there was no activity to report leave the section under the indicator header blank.

Indicator 1 - Volume of data made available through the portal

Date	Records	Name Dataset	Dataprovider	Country
22/12/2017	18375	Type locality distributions from the World Register of Marine Species	WoRMS Steering Committee	NULL
15/12/2017	9024	Norman and Florence Hammond records. Seawatch and coastal survey records	Cumbria Biodiversity Data Centre	GRB
15/12/2017	23071	Echinoderm specimens of Museum d'Histoire Naturelle, France	National Natural History Museum Paris	FRA
15/12/2017	9274	Ecoscope Balbaya Database	Institut de Recherche pour le Développement	FRA
15/12/2017	374	Coastal and marine species	National Biodiversity Data Centre	EIR
15/12/2017	7721	Chondrichthyans Of Ireland	National Biodiversity Data Centre	EIR
15/12/2017	10534	Biological Reference Collections ICM CSIC	Institute of Marine Sciences	ESP
15/12/2017	6215	Zariquiey Collection. Biological Reference Collections ICM CSIC	Institute of Marine Sciences	ESP
15/12/2017	2839	Rocky Shore Macroalgae	National Biodiversity Data Centre	EIR

15/12/2017	122	Microphytobenthos monitoring in the Trieste harbour, North Adriatic Sea (Port Authority) in 2015	National Institute of Oceanography and Experimental Geophysics	ITA
15/12/2017	120	Fucus virsoides distribution in 1992-1993. Gulf of Trieste, North Adriatic	National Institute of Oceanography and Experimental Geophysics	ITA
15/12/2017	3086	Microphytobenthos in mussel farms - North Adriatic Sea (SosteMiTS Project) 2008-2009	National Institute of Oceanography and Experimental Geophysics	ITA
22/11/2017	18277	Type locality distributions from the World Register of Marine Species	WoRMS Steering Committee	NULL
23/10/2017	18074	Type locality distributions from the World Register of Marine Species	WoRMS Steering Committee	NULL
Total for second quarterly reporting: 14 datasets – 127,106 records				

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

Organisation	Country	Type	#
Cumbria Biodiversity Data Centre	UK	Research	1
National Natural History Museum Paris	France	Research	1
Institut de Recherche pour le Développement	France	Research	1
National Institute of Oceanography and Experimental Geophysics (OGS)	Italy	Research	3
Spanish Council for Scientific Research	Spain	Research	2
WoRMS SC	Int	Research	3
National Biodiversity Data Centre	Irl	Research	3

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

None

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

| Date	Number of downloads
01/10/2017 – 31/12/2017	263 data downloads

Indicator 5 - Organisations that have downloaded each data type

Organizations (distinct)= 35
Abo Akademi
Azores University, Portugal
BRL Ingenerie, France
CCMAR, Portugal
Deltares, Netherlands
Individuals
DUKE, USA
FCT-UNL, Pt
Finnish Environment Institute, Fl
Freelance
Gardine

Heriot-Watt University
IMAR, Portugal
INGV, Italy
International Seabed Authority
IRTA (Sp. Company)
JNCC, UK
Merkator.com, Belgiu
Marine Insitute (Irl)
New Zealnd
NIOZ, Netherlands
OGS, Italy
OGSL, Canada
PANGAEA, Germany
Ramboll (Int Company)
Santiago de Compostela University, Spain
Sheffield Univerity, UK
SINAY (Int Company)
SOCIB, SPain
SYKE, FInalnda
Thales
UFRN
Ugent, Be
UNESCO, Int, Int
UN-IHE Delft

| VLIZ |
| Wageningen University |

Indicator 6 - Using user statistics to determine the main pages utilised and to identify preferred user navigations routes
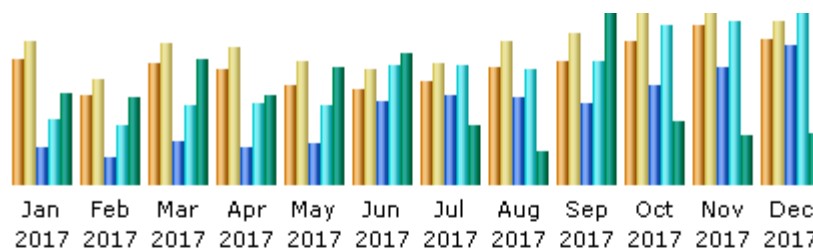
Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2017	12,160	13,967	34,040	60,675	77.02 GB
Feb 2017	8,590	10,185	25,107	54,461	73.38 GB
Mar 2017	11,792	13,818	38,941	73,689	104.37 GB
Apr 2017	11,201	13,255	33,669	75,280	74.58 GB
May 2017	9,704	11,896	37,543	73,930	97.66 GB
Jun 2017	9,264	11,223	77,365	110,955	110.74 GB
Jul 2017	9,999	11,816	81,866	110,548	49.59 GB
Aug 2017	11,360	13,883	79,654	106,429	28.17 GB
Sep 2017	11,884	14,660	75,554	113,748	151.05 GB
Oct 2017	13,878	17,004	91,637	146,623	52.79 GB
Nov 2017	15,571	17,527	107,520	151,386	41.46 GB
Dec 2017	14,039	15,882	129,195	166,678	42.47 GB
Total	139,442	165,116	812,091	1,244,402	903.28 GB

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

Purposes data download (distinct)	**Category**

Algorithms research	*Research*
Analysis of global introduced marine algae	*Assessment*
Belgian Census	*Assessment*
Check on reported trends in benthos north sea	*Assessment*
Client project	*Consultation*
College Work	Research
Community composition study	Research
Compilation of biodiversity data	Research
Consultation	*Consultation*
Creating map	*Training & testing*
Data Managment Training	*Training & testing*
data products emodnet biology	*Product devleopment*
dataset check	*Training & testing*
Dontwanttosay	Unknown
education	*Training & testing*
EEA biodiversity assessment	Assessment
emodnet biology data products	*Product devleopment*
EMODNET Biology data products development	*Product devleopment*
EMODnet III	*Product devleopment*
Etude des communautés benthiques sur la façade mer du Nord. Comparaison avec mes données.	Research

Etude privé	Research
Exploration	Research
Exploration of where Mathasterias glacialis lives (in the North Sea)	Research
For analysis gis	Research
For data analyse	Research
For gis Analysis	Research
Gis	Research
Gis data	Research
I am a postdoc in UN_IHE Delft. I am developing a tool to evaluate coastal sustainability for Barcelona coasts	Product develoment
I am doing a master thesis in this area.	Research
investigating emodnet biology data products	*Product devleopment*
Je réalise une étude de suivi sur l'espèce Sardinella aurita" sur l'europe."	Research
Location of the sp. for PhD knowledge	Research
Mapping generating	Research
My thesis support	Research
OpenSeaLab	Product development
OTGA data management course class actvity	*Training & testing*
PhD knowledge, know the location of the sp.	Research
preparing data products for Emodnet biology	*Product devleopment*
project ATLAS	Research
R test data	*Training & testing*

RDM-training course	*Training & testing*
Research	Research
Research (ecological time series analysis)	Research
Research study on long-term changes in cross-trophic communities composition in the Baltic Sea	Research
Research	Research
Scientific research	Research
Scientific research	Research
seems to forget	Unknown
Supported my thesis development	Research
Teaching activity	*Training & testing*
Test	*Training & testing*
test the service	*Training & testing*
Test/ data manipulation	*Training & testing*
Testing	*Training & testing*
testing model development	*Training & testing*
These data will be used to support the CBD EBSA workshop for the Baltic Sea in February 2018.	Assessment
Thesis support	Research
To check the database structure and field name	*Training & testing*
Training course	*Training & testing*

Use for excersice	*Training & testing*

Indicator 8 - List of web-services made available and user organisations connected through these web-services

Description of webservices updated at:

http://www.emodnet-biology.eu/emodnet-biology-api