



EMFF/2019/1.3.1.9/SI2.837974 – *EMODnet Thematic Lot n°VI - Biology*

Quarterly Progress Report QR17



EMODnet



European Marine
Observation and
Data Network

EMODnet Thematic Lot n° VI – Biology

EMFF/2019/1.3.1.9/Lot 6/SI2.837974 -EMODnet -Biology

Start date of the project: 18/04/2021 - (24 months)

EMODnet Phase IV – Quarterly Progress Report (QR17)

Reporting Period: 01/04/2021 – 30/06/2021

Contents

1.Highlights in this quarter.....	3
2.Identified issues: status and actions taken	9
3.User feedback (Contact Us form, online chat & other communication means)	11
4.Meetings/events held/attended & planned	12
5.Communication assets.....	15
6.Monitoring indicators	18
7.Annex: Other documentation attached	20

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1. Highlights in this quarter

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
D1.1: Help desk operational and contact details published online (M3)	WP1	QR17 (30 Jun 2021)	Delivered	
D1.2 Quarterly progress reports (scheduled defined in the tender) (M3-M24)	WP1	QR17 (15 Jul 2021) QR18 (15 Oct 2021) QR19 (15 Jan 2022) QR20 (15 Apr 2022) QR21 (15 Jul 2022) QR22 (15 Oct 2022) QR23 (15 Jan 2023) QR24 (15 Apr 2023)	Delivered	
D1.3 First interim report after phase (M12)	WP1	19/04/2022		
D1.4 Final report (M24)	WP1	19/04/2023		
D1.5 Attend Steering Committee and Technical Working Group meetings (M0-M24)	WP1			
D2.1 Inventory of possible historical data resources within the consortium (M6)	WP2	29/10/2021		
D2.2 Technical implementation of data flows for the new project partner (M6)	WP2	29/10/2021		
D2.3 Report on efforts undertaken in rescuing historical data through citizen science (M18)	WP2	15/10/2022		
D2.4 At least 3 linkages with initiatives outside of the original Consortium, resulting in extra data/information available via the Portal (M20)	WP2	31/12/2022		
D2.5 Feasibility study for recognition of specific ecological traits and/or sampling devices/methodologies in text (M22)	WP2	25/02/2022		

D2.6 Report on the standardisation and integration of the proposed new and updated datasets (M24)	WP2	19/04/2023		
D3.1 Quarterly WP3 community calls; call leader or other nominated team member to produce summary report of each call for publication on EMODnet website (M3-M24)	WP3	Call QR17 (30 Jun 2021) Call QR18 (30 Sep 2021) Call QR19 (31 Dec 2021) Call QR20 (31 Mar 2022) Call QR21 (30 Jun 2022) Call QR22 (30 Sep 2022) Call QR23 (31 Dec 2022) Call QR24 (31 Mar 2023)	Delivered (see task 2)	
D3.2 Annual intensive workshops, in person with online participation options. Workshops involve collaborative product development on one or more targeted themes derived from WP4 user needs questionnaire (M12-M22)	WP3	Workshop 1 (19 Apr 2022) Workshop 2 (28 Feb 2023)		
D3.3 Publish R package to link EMODnet biology data with data from other EMODnet sources (M12)	WP3	19/04/2022		
D3.4 Develop method to use Phase III presence-absence maps to display time series of distribution change (M12)	WP3	19/04/2022		
D3.5 Produce position paper outlining questions that can be addressed using EMODnet data, together with remaining gaps, and strategies for filling these (M24)	WP3	19/04/2023		
D3.6 Add/update data product metadata in the EMODnet Biology catalogue (M24)	WP3	19/04/2023		
D4.1: Questionnaire to inform cross-lot product development (M3)	WP4	30/07/2021		
D4.2: EMODnet Biology connectivity 'map' of projects, institutes, initiatives and networks to inform targeted engagement (M12)	WP4	19/04/2022		

D4.3 EMODnet Biology participation in each of the RSCs to inform and advise of available data products and mechanisms to access and influence the development of data, products, tools and services (M12)	WP4	19/04/2022		
D4.4 "Launch" of the European MBON node (M24)	WP4	19/04/2023		
D4.5 Creation of engaging and informative use-cases for EMODnet Biology to illustrate uptake and utility of data products across a range of stakeholders across the quadruple helix of engagement (M6, M12, M18, M24)	WP4	Use case 1 (29 Oct 2021) Use case 2 (19 Apr 2022) Use case 3 (15 Oct 2022) Use case 4 (19 Apr 2023)		
D5.1 User portal operation and maintenance (M0-M6)	WP5	19/10/2021		
D5.2 Webservices operation and maintenance (M0-M24)	WP5	19/04/2023		
D5.3 Technology stack upgraded (M12)	WP5	19/04/2022		
D5.4 Evaluation and implementation of bulk data transfer technologies (M24)	WP5	19/04/2023		

Task 1: Maintain and improve a common method of access to data held in repositories

With the start of EMODnet Biology Phase IV, the Work Package 2 (WP2) partnership has slightly changed. Not only has there been a change in participating partners compared to Phase III, Phase IV also saw the merge of the Phase III WP2 and WP3 into a single WP (WP2), meaning that archaeological data are now an integral part of this WP and task.

This WP consortium welcomes 2 new partners: UkrSCES and IH Cantabria. There had been previous collaboration with both institutes during Phase III through the data grant process, and this work is now being further formalised by their inclusion as partners. Following the merge of the Phase III WP2 and WP3 into a single WP with a focus on data access, the WP leadership is shared between the previous WP2 and WP3 leads, allowing a thorough integration of recent, historical and archaeological data.

First steps have been taken towards the initiation of collaborations outside of the current partnership. The following initiatives have been approached, and meetings have taken place or are planned in the coming months: European Seabirds at Sea - via their Belgian partner - and PANGAEA - Data Publisher for Earth & Environmental Science - in Germany.

The main activities for WP2 will focus on a continuous data flow from the partners to the EMODnet Bio portal, as well as improving and fine-tuning these data flows and setting up new ones where relevant. In May, a first Phase IV data harvest was carried out, thereby including 30 new datasets and updates of 14 existing datasets. Data came not only from partners, but also from Phase III data grant holders and the EMODnet Ingestion project (more details can be found on the indicators file-

Indicator 3 Data Providers sheet). This action added more than 350,000 occurrence records, bringing the total number of available datasets to 1,107. Table 2, included in the Annexes list the datasets harvested during QR17 and Figures 3 to 5 the geographic coverage as well as Marine Region and Functional Group coverage for the QR17 data.

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

Progress towards this task began with discussions between the WP3 lead and all WP3 partners during the Phase IV kick-off meeting in May 2021. This functioned as the first quarterly community call for WP3 and served to begin to define the set of products to be developed during this phase, to build collaborations between partners, and to identify the technical barriers to overcome. Products designed to fulfil this task will include extensions of Phase III high quality presence/absence, numerical abundance, and interpolated distribution products. The focus will be on extending beyond the North Sea / Baltic / NE Atlantic focus of the initial products into the Mediterranean and Black Sea - as far as the data allow; this will therefore proceed in partnership with WP2. In addition, a temporal dimension will be added to existing spatial products, and an aim to expand the taxonomic scope, with a particular focus on whether existing EMODnet Biology data on seabirds and marine mammals are sufficient to make robust inferences about spatial distribution and temporal trends. Progress achieved in Phase III will be built upon, to make products better documented and to improve their reproducibility.

During the first two weeks of April several Phase III data products were published, details can be found in Table 3 of the Annexes

Task 3: Develop a complete and robust machine to machine (M2M) interface to transfer data and products in bulk, which is easily accessible for other machines and initiatives

The implementation of a new GeoNetwork version (3.8.3) with the DCAT (Data CATalogue vocabulary) plugin (1.1) was initiated. The DCAT Application profile for data portals in Europe (DCAT-AP) is a specification based on W3C's (World Wide Web Consortium) DCAT for describing public sector datasets in Europe. Its basic use case is to enable a cross-data portal search for datasets and make public sector data better searchable across borders and sectors. This can be achieved by the exchange of descriptions of datasets among data portals. Further updates will be provided in the next Quarterly Report.

Task 4: Contribute data, data products and content to a central portal that allows users to find, view and download data and data products

EMODnet Biology Phase IV started in 2021-04-18 and the first meeting with the Central Portal (CP) Technical Team to discuss the centralisation process and deadlines was held on 2021-05-19. It was agreed that Biology would provide an inventory of the datasets and data products available online. This task was completed on 2021-06-18 and is included in the handover and pre-existing rights documents that were submitted with the Phase III final report.

In April 2021, several Phase III products were published and made available to the Central Portal catalogue when applicable (note that not all products developed in Phase III are typical, queryable products), as noted in task 2 and Table 3 in the Annexes.

Task 5: Contributing content to dedicated spaces in Central Portal

In the meeting held with the CP team on 2021-05-19, a number of tasks were agreed. The Biology website sitemap and the link to the Biology documents (i.e. reports, images, etc) were shared during the meeting for the CP team to analyse.

A new meeting is scheduled to take place during QR18 (mid-July) and more information on the progress of work will be done at that time.

Task 6: Ensure the involvement of regional sea convention

In preparation for the EMODnet Biology Phase IV kick-off event and as contribution to Deliverables 4.2 and 4.3, information on the EMODnet Biology partners who are engaged with the activities of the Regional Sea Conventions and the nature of their interaction was collated. Through these linkages it is ensured that EMODnet Biology tools, services and data are fit for the range of data needs within the RSC's and their key stakeholders. An initial overview is presented in Table 1.

Table 1. Initial overview of partners connections with RSC

Regional Sea Convention	Partners
HELCOM	Aarhus University, Syke, ICES
OSPAR	Aarhus University, Cefas, ILVO, IPMA, ICES
Barcelona Convention	Instituto Español de Oceanografía (IEO), OGS
Black Sea Commission	National Institute for Marine Research and Development (NIMRD), Ukrainian Scientific Centre of Ecology of the Sea (UkrSCES)

Task 7: Contribute to the implementation of EU legislation and broader initiatives for open data

Within the context of the [ENVRI-FAIR](https://envri.eu/home-envri-fair/) (<https://envri.eu/home-envri-fair/>) and the [European Open Science Cloud-Life](#) projects, the VLIZ Marine Data Centre (VMDC) developed a tool to assess the FAIRness of metadata records it holds in its datasets catalogue. This tool will be used to run checks on all EMODnet Biology metadata records and, following internal guidance based on FAIR principles and their application, they will be improved whenever the tool reports that the information is of insufficient quality. This process will take place over the coming months and progress will be included in coming reports.

EMODnet Biology partners contributed to the 3-day [EuropaBON stakeholder workshop](#) to ensure marine data infrastructures were represented and integrated into the EU biodiversity monitoring coordination roadmap. Additionally, there was a strong representation of EMODnet Biology partners within the 26th session of the IOC Committee on IODE taking place 20-23rd April 2021, with the wider EMODnet network being highlighted as an exemplar and foundational infrastructure that can act in support of the UN Decade of Ocean Science for Sustainable Development and its associated actions and programmes. EMODnet Biology partners are represented in a number of the UN Decade programmes announced during this reporting period including MarineLife 2030, BOON, and ObsCoDe (<https://oceandecade.org/resource/166/Announcement-of-the-results-of-the-first-endorsed-Decade-Actions-following-Call-for-Decade-Actions-No-012020>).

Task 8: Monitor quality/performance and deal with user feedback

The reporting period was quite busy with the end of Phase III but also the start of Phase IV, therefore two meetings were organised and held as online events in May. The meeting reports will be published on the Biology portal during QR18.

User feedback received during QR17 is listed on section 3 and was dealt with within a reasonable time. EMODnet Biology contributed to the following requests from the EMODnet Secretariat:

- Support with agenda setting and minute taking at EMODnet TWG meeting
- Support with the EMODnet Open Conference, e.g. assist as a rapporteur
- EMODnet Biology presentations for the EMODnet Open Conference and Jamboree

The user monitoring information was collected via Matomo. In Figures 6 and 7 the number of visits over time and the detailed visits overview are presented. During the reporting period EMODnet Biology had 2,522 visits with an average of 28 visits per day.

The GeoHealth Check monitoring tool reports the operationality and reliability of the OGC services, the analysis of Figure 8, included in the Annexes, indicates that Biology OGC services are complying with INSPIRE requirements. The detailed assessment of the OGC services, as provided by the EMODnet Secretariat, is also included in Table 4.

A task that has been addressed during QR17 is the re-definition of the European Marine Regions used for the reporting indicators. The European Environmental Agency (EEA) European Seas shapefile was used as the basis for this work but had to be customised for the Biology lot, as we have coastal data that would not be mapped to the correct area if we used the EEA shapefiles as they stand (the land border is the coastline). To this effect, a buffer zone with 250km was defined to capture any “inland” records. This buffer allows us to capture any data we might have or receive that are collected inside the longest European fjord (Sognefjorden, Norway). The polygon for the EMODnet Regions can be found in <https://marineregions.org/gazetteer.php?p=details&id=63392> and the details for each region are included in Table 5 in the Annexes.

Task 9: Maintain the existing thematic web portal for a maximum of six months from the start of the projects

Due to the start of Phase IV, website content was updated to reflect new information. Content available via the About tab in the main menu (Background, Work Packages, Deliverables and Partner pages). Updates were also done in the Atlas of Marine Life due to the publication of data products in the first two weeks of April 2021.

2. 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
Including in metadata records online resources	Pending	More information is needed on what the expected end result should be		
Implementing Marine-ID	Pending	Review of potential alternatives (QR10 report feedback)		
Including data and metadata URL in web services of data products	Ongoing	Formats in the metadataURL's of the newest layers have been updated and verified by the EMODnet Secretariat. Remaining issue is caused by a bug in the current GeoNetwork version (undergoing an update to a more recent version, implementation is expected during QR18)	QR18	
Assessment of performance				
Portal specifies the schedule for publication of the products	Resolved	Provisional dates will be agreed for the publication of Phase IV products and will be shared with the EMODnet Secretariat in order to agree on the communication strategy for each product. Similar procedure to what was done for Phase III products		
It is recommended that the new delivery dates for the 'delayed datasets' would be listed in the Biology Final Report, so that these can be known as they are part of Phase III (and the Biology lot is now in Phase IV), so as to ensure delivery in the near future	Resolved	All Phase III data will be referred to as such in future reports	QR17	
There was not update provided on this task in the report. As indicated in the previous assessment report, Secretariat recommends to	Resolved	This refers to Phase III Task 5 and Phase IV Task 6. An update was provided in the final report and will always be	QR17	

have a discussion between CINEA/DG MARE and all thematic coordinators at the next Steering Committee meeting in September 2021 to formulate guidance and to understand the objectives of the collaboration (per RSC if possible and per thematic node), and so gain a priority perspective and targeted way forward.		included in future reports under the appropriate task.		
Observations in view of Section 1.7 of the Tender Specifications on Performance and Quality Requirements				
Indicator 5: - The Secretariat noted some data entry errors in the excel table, i.e., 206 users giving information, vs. 23 total users for quarterly period. It was therefore not possible to interpret the results and perhaps clarify this in the final report which is still due.	Resolved	This was most likely a typo and should read 206 total users for the quarterly period		
Summary of the data and data products available should be included in the portal	Resolved	The portal was updated with the publication of all Phase III products (e.g. https://www.emodnet-biology.eu/blog). Summary of data and products can be done within the context of the centralisation	QR17	

B. Issues / challenges identified by the thematic assembly group itself

Priority issue / challenge	Status (Pending/Resolved)	Action(s) taken / remaining actions planned	Date due	Date resolved
Re-definition of Phase IV Marine Regions as specified in the tender	Resolved	EEA shapefile was adapted for Biology purposes. More details can be found in Task 8	QR17	QR17
GeoNetwork update	Pending	New version has been updated and is being tested before being made operational	QR18	

3. 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
09/06/2021	Ifremer	Enquiry about JERICO datasets data downloads	email	1 working day	Resolved	EMODnet Biology does not collate this information at dataset/data provider level. Pointed to OBIS stats as a proxy of EMODnet Biology downloads. Also noted that EMODnet Biology downloads are approximately 1% of those observed in OBIS (for datasets that flow via EurOBIS)	
07/05/2021	SeaBed Habitats	Enquiry about data grants	email	1 working day	Resolved	Reply informing the user that no data grants are expected during Phase IV	

4. 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.)
12-14/04/2021	Online	External/ Conference	Yes (poster titled 10 Years of EMODnet Biology: Past, Present and Future)	A	IMDIS
19/04/2021	Online	Internal/Meeting	Yes	A	EMODnet Steering Committee meeting
20-21/04/2021	Online	Internal/Meeting	Yes	A/O	EMODnet Technical Working Group meeting
17/05/2021	Online	Internal/Meeting	Yes	O	EMODnet Biology end of Phase III meeting
18/05/2021	Online	Internal/Meeting	No	A/O	Meeting with EMODnet Seabed Habitats lot Discussed the recent ingestion of habitat data to EMODnet Biology and future steps, including collaboration in drafting guidance to data providers, in drafting a use case and showcasing this work to the wider network
18-21/05/2021	Online	Internal/Meeting	Yes	O	EMODnet Biology Phase IV kick off meeting
19/05/2021	Online	Internal/Meeting	No	O	Meeting with EMODnet Central Portal technical team
26-28/05/2021	Online	External/Workshop	No	A	EuropaBON First Stakeholder Workshop: Biodiversity Data User, Provider & Policy Needs Initiative is mainly terrestrial focused and there was an acknowledgement that the marine environment was not as well addressed. Several working groups met and discussed various topics. EMODnet Biology highlighted the need for better collaboration with existing marine initiatives and clarified several aspects related not only with the marine topic (e.g. EU directives) but also the role of the EMODnet network and how we (especially

					the Biology lot) could better support/collaborate with EuropaBON
31/05/2021 and 03/06/2021	Online	External/Conference	No	A	All-Atlantic DATA & POLICY Forum
14-6/06/2021	Online	External/Conference	Yes (EMODnet Biology presentation and poster titled: A decade of EMODnet Biology-What the future entails)	A	EMODnet Open Conference
02/07/2021	Online	External/Conference	No	A	All-Atlantic2021-MBON Side Event Descriptions and use-cases of how MBON has brought together communities of practice in support of an all-Atlantic solution, aligned with the aims and actions within the UN Ocean Decade. Examples from the Caribbean, Western Atlantic and African coast were given, and particular mention given to how EMODnet Biology represents a successful mechanism for the promotion of standards and engagement with stakeholders.
17-18/06/2021	Online	External/Workshop	No	A	EMODnet Jamboree Ocean Best Practices and Citizen Science Sessions
18/06/2021	Online	External	No	A	EC European Ocean Observation event 98 participants
SUM				O	Total # of meetings organised = 5
SUM				A	Total # of meetings attended = 10

B. Meetings/events planned in the future				
Date	Location	Type event (meeting, training (workshop), etc.)	Meeting to be attended (A) / organised (O)	Short description and main expected outcomes
12-13/07/2021	Online	Meeting	A	BRIDGES-BS kick off meeting. Project title “Advancing BlackSea Research and Innovation to Co-Develop Blue Growth within Resilient Ecosystems” Assess where/how EMODnet Biology can provide support to data management
15/07/2021	Online	Meeting	A/O	Meeting with Central Portal Technical team to discuss aspects related with centralisation
7-9/09/2021	Online/In Presence?	Meeting	A/O	EMODnet Steering Committee and Technical Working Group meetings

5. Communication assets

A. Communication products				
Date	Communication material	Short description (of the material, title, ...) of the asset	Main results	Name of event at which material was disseminated (if applicable)
QR17	Tweets	Online dataset, Product publication, Events attended, etc	79 tweets Increase in # followers	NA
QR17	News	Data harvest results, meetings, deliverables published, etc	10 items	NA

Your Tweets earned **100.3K impressions** over this **91 day** period

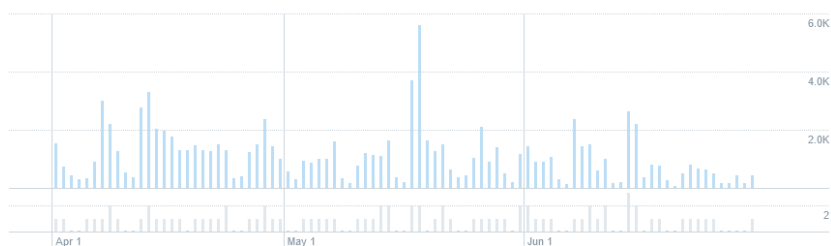


Figure 1. Tweet impressions for @EurOBIS_VLIZ during QR17 (via Twitter analytics)

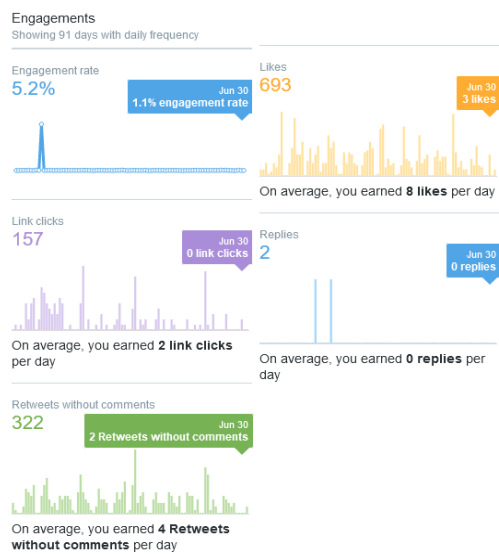


Figure 2. @EurOBIS_VLIZ twitter account engagements during QR17 (via Twitter analytics)

B. Planned communication products

Date	Communication material	Short description (of the material, title, ...) and/or link to the asset	Main results expected
QR18	Tweets	Online dataset, Product publication, Events attended, etc	Increase exposure
QR18	News	Data harvest results, meetings, deliverables published, etc	Increase exposure

List of known publications using EMODnet data or data products				
Date	Type and name of journal, conference, ...	Publication title including DOI (if known)	Author(s)	Organisation(s)
QR17	IMDIS 2021	Wake up, safeguard & share your marine data with EMODnet-Ingestion.EU	Schlesse Marianne ¹ , Strobbe Francis ² , Schaap Dick ³ , Iona Sissy ⁴ and Beja Joana ⁵	1. Belgian Marine Data Center, OD Nature, Royal Belgian Institute of Natural Sciences, Vautierstraat 29, 1000 Brussel, Belgium 2. EMODnet Secretariat, InnovOcean site, Wandelaarkaai 7, 8400 Oostende, Belgium 3. MARIS, Gildeweg 7 A, 2632 BD Nootdorp, Netherlands 4. Hellenic Centre for Marine Research–HCMR, Institute of Oceanography, P.O. Box 712, 190 13 Anavyssos, Greece 5. Flanders Marine Institute (VLIZ), InnovOcean site, Wandelaarkaai 7, 8400 Oostende, Belgium
QR17	IMDIS2021	10 years of EMODnet Biology: past, present & future	Joana Beja ¹ , Leen Vandepitte ¹ , Ruben Perez Perez ¹ , Gizem Poffyn ¹ , Dan Lear ² , Vasilis Gerovasileiou ³ , Peter Herman ⁴ , Bart Vanhoorne ¹ , Lennert Tyberghein ¹ , EMODnet Biology consortia	1. Flanders Marine Institute (Belgium) 2. Marine Biological Association (UK) 3. Hellenic Centre for Marine Research (Greece) 4. Deltares (The Netherlands)

6. 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 If you don't use the provided sea-basin figures, please indicate why you do not use them, as from when, and what do you use instead and why?	Internal tools collected data for the downloads and # records	The numbers were calculated using the regions as explained in the word document (task 8). In short, the EEA European Seas shapefile was adjusted to account for coastal records. Comparison between QR17 and QR16 numbers should be done carefully as the regions do not have the same extent.
B) Usage of data in this quarter	Internal tools collected data for the downloads and # records	There was a decrease in the number of data downloads, evidenced not only by the number of downloads but also the total volume downloaded
2. Current status and coverage of total number of data products A) Volume and coverage of available data products If you don't use the provided sea-basin figures, please indicate why you do not use them, as from when, and what do you use instead and why?	Internal inventories	Table A lists all the products currently available via the portal. Note that some products are not queryable as they either don't fit the original product definition or they are in a format that doesn't allow for this procedure to be made. Coverage calculations are based on 24 queryable products (sum for each product regional coverage/functional group).
B) Usage of data products in this quarter	Matomo	No products were downloaded via the thematic portal during the reporting period
3. Organisations supplying/approached to supply data and data products within this quarter	Internal inventories	All but one organisation are related to the project, be it due to the data grants or as full partners. One EMODnet Ingestion datasets was also integrated in the DB and several datasets were updated to the OBIS ENV format, allowing for increased interoperability. All data are freely and openly available in the thematic portal

4. Online 'Web' interfaces to access or view data		# products available via all interfaces has increased due to the publication of new Phase III products. All data and products are freely and openly available for download through the portal.
5. Statistics on information volunteered through download forms	Information collected via download form fields and anonymised for reporting purposes	All users provided information as the download form includes mandatory fields (purpose, organisation type and country). More than half of users come from the academia/research sector, with the half from NGOs and civil society. Almost all the users that have downloaded data have a European affiliation. The main purpose of data usage is research or other uses (not detailed).
6. Published use cases	Tool developed by Trust-IT	Most use cases had an increase in views, especially the one related with citizen science, which had a 30% increase in views
8.1. Technical monitoring	Tool developed by Trust-IT	Average response time of 544 ms Lower than QR16 (686 ms) and uptime of 100%
8.2. Portal user-friendliness (Visual harmonization score)	Tool developed by Trust-IT	No changes since the last report. Portal is complying with all guidelines
9. Visibility & Analytics for web pages	Tool developed by Trust-IT	There were no significant changes observed in the trends since the last quarter
10. Visibility & Analytics for web sections	Tool developed by Trust-IT	A slight decrease on the Toolbox and geoviewer pages was observed, but the remaining kept a stable trend, with no changes identified
11. Average visit duration for web pages	Tool developed by Trust-IT	Average daily visit duration remained fairly constant and below 2 minutes for all pages. Quarterly duration also remained fairly constant with all pages under 2h of total visit duration

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), and if so, must be reported in the table above. Each system uses different technical approaches and therefore has its strengths and shortcomings. Therefore, results are indicative and care should be taken when 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.

7. Annex: Other documentation attached

Task 1: Maintain and improve a common method of access to data held in repositories

Table 2. Inventory of datasets harvested during the reporting period (in alphabetical order)

Dataset	Details
2009 University of Plymouth Wave Hub, Cornwall towed underwater video baseline benthic survey	Phase III
2010 University of Plymouth Guernsey towed underwater video benthic survey	Phase III
2011 University of Plymouth Falmouth towed underwater video maerl and associated epifauna survey	Phase III
2012 University of Plymouth Falmouth towed underwater video maerl and associated epifauna survey	Phase III
2012 University of Plymouth Jersey towed underwater video Epifauna survey	Phase III
2012-2013 University of Plymouth Falmouth maerl bed infauna and sediment survey using diver cores	Phase III
2013 University of Plymouth Flamborough Head (UK) Special Area of Conservation (SAC) towed underwater video condition assessment of epibenthic communities and biotopes	Phase III
2013 University of Plymouth Thanet Coast (UK) Special Area of Conservation (SAC) towed underwater video condition assessment of epibenthic communities and biotopes	Phase III
Amrum Bank and inner German Bight Benthos	*
Biological dataset for Pagrus pagrus fished along Southern Brazil	Phase IV
Data collected during the expeditions of the e-learning projects Expeditie Zeeleeuw and Planeet Zee	Phase III
Eastern Channel dataset	*
Fish larvae from May to June '95 of the "Capricórnio" campaign in the Republic of Guinea Bissau	Phase IV
GAIA ADRION FLT Network-ANPA 2014-2018: Adriatic and Ionian Sea mega-fauna monitoring employing ferry as platform of observation along the Ancona-Igoumenitsa-Patras lane, from December 2014 to December 2018	Phase III
GAIA IONIAN 2008-2018: Ionian Sea mega-fauna monitoring employing a sailing vessel along random tracks from 2008 to 2018	Phase III
Garfish morphology in Adriatic Sea 2003-2007	Phase III
Macrobenthos data from the Norwegian Skagerrak coast	*
Macrobenthos from the eastern English Channel in 1999 and 2001	*
Macrobenthos samples collected in the Scottish waters in 2001	*
Microzooplankton, National Pilot Monitoring Studies August 2017, EMBLAS-II	Phase III
Microzooplankton, National Pilot Monitoring Studies Phyllophora April 2017, EMBLAS-II	Phase III
Microzooplankton, National Pilot Monitoring Studies Phyllophora August 2017, EMBLAS-II	Phase III
Microzooplankton, National Pilot Monitoring Studies Phyllophora July 2017, EMBLAS-II	Phase III

Dataset	Details
North Sea Benthos Survey	Phase III
Occurrence of Eukaryotes in the size fraction >200 micrometres, collected worldwide during the Tara Oceans expedition (2009-2013) using a WP11 net and analysed on a ZooScan imaging platform.	Phase III
Occurrence of Eukaryotes in the size fraction >680 micrometres, collected worldwide during the Tara Oceans expedition (2009-2013) using a Régent net and analysed on a ZooScan imaging platform.	Phase III
Phytoplankton, National Pilot Monitoring Studies August 2017, EMBLAS II Project	Phase III
Phytoplankton, National Pilot Monitoring Studies Phyllophora July 2017, EMBLAS II Project	Phase III
Plankton community in Bongo net (300µm), Tara Oceans cruise	Phase III
Plankton community in Bongo net, MOOSE-GE cruises, North-Western Mediterranean Sea	Phase III
Plankton community in Juday-Bogorov (330µm) net, Point B, Villefranche-sur-Mer, France	Phase III
Plankton community in Multinet (300µm), Tara Oceans cruise	Phase III
Plankton community in Régent (680µm) net, Point B, Villefranche-sur-Mer, France	Phase III
Plankton community in WP2 net (200µm), DYFAMED point, Ligurian Sea, France	Phase III
Plankton community in WP2 net (200µm), PNMIR cruises, Parc Naturel Marin d'Iroise, France	Phase III
Plankton community in WP2 net (200µm), Point B, Villefranche-sur-Mer, France	Phase III
Presence of sea turtles collected through Fixed-Line-Transect monitoring across the Western Mediterranean Sea (Civitavecchia-Barcelona route) between 2013 and 2017	Phase III
Romanian Black Sea Phytoplankton data from 1961 to 1970	Phase III
Romanian Black Sea Phytoplankton data from 1975 to 1980	Phase III
Romanian Black Sea Phytoplankton data from 1981 to 1990	Phase III
SHARK - National marine bacterioplankton monitoring in Sweden since 1989	Phase III
SHARK - National phytoplankton monitoring in Sweden since 1983	Phase III
SHARK - National zoobenthos monitoring in Sweden since 1971	Phase III
SHARK - National zooplankton monitoring in Sweden since 1979	Phase III

* These datasets were added to the database in previous phases and were updated from Occurrence to EventCore



Figure 3. Map display of gridded occurrences added to EMODnet Biology during the reporting period.

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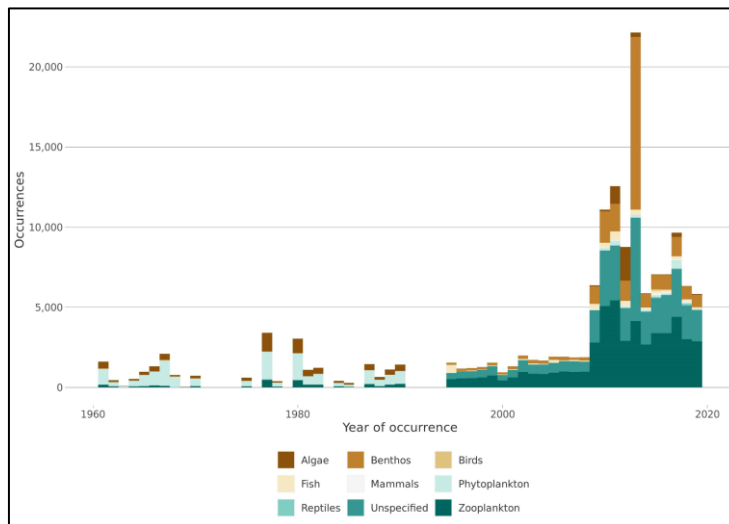


Figure 4. Number of occurrences per sample year and sub-theme added to EMODnet Biology during the reporting period

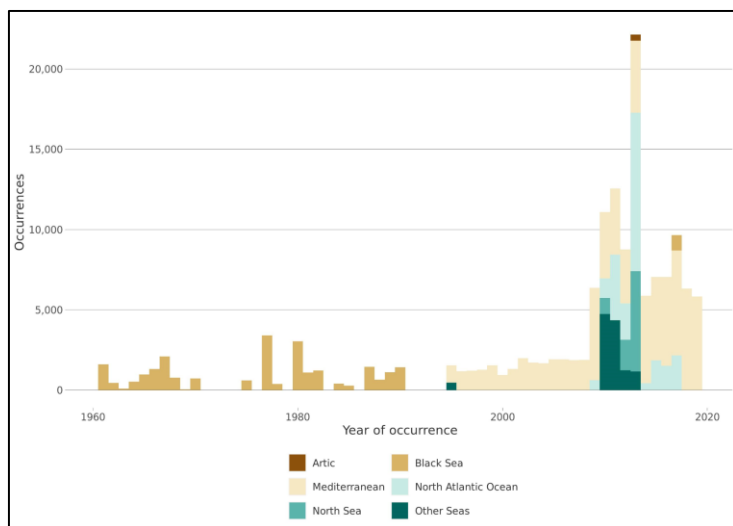


Figure 5. Number of occurrences per sample year and marine region added to EMODnet Biology during the reporting period

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

Table 3. Phase III product details published in April 2021

Name	Details
Physico-chemical and commercial shellfish species data to illustrate potential vulnerability to ocean acidification Directory structure	Proof of concept. Further development expected during Phase IV
Probability maps for different phytoplankton species in the North Sea	
Presence/Absence maps of phytoplankton in the Greater North Sea	
Probability maps for different benthos species in the North Sea	
Summary presence/absence maps of macro-endobenthos in the greater North Sea, based on nearly 100,000 samples from 65 assembled monitoring data sets.	

Name	Details
Benthic occurrences, habitat maps, and species traits	Analysis done using three products from EMODnet Biology, EMODnet Seabed Habitats and an external product

Task 8: Monitor quality/performance and deal with user feedback

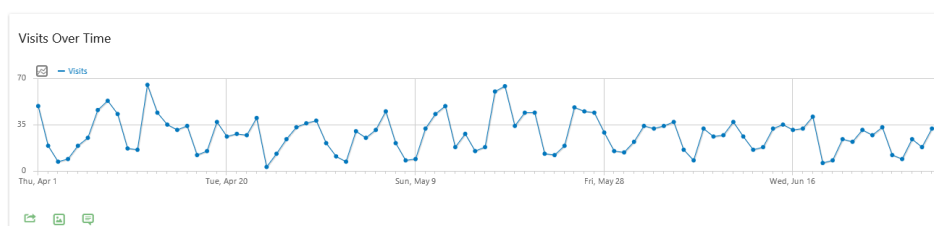


Figure 6. EMODnet Biology visits over time during the reporting period (data collated via Matomo)

Visits Overview

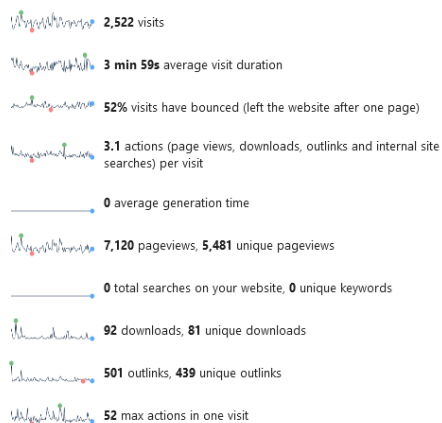


Figure 7. EMODnet Biology visits overview (data collated via Matomo)

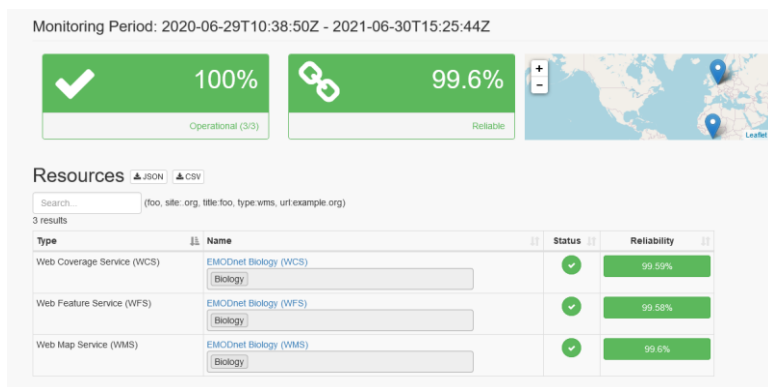
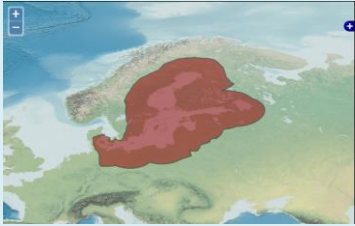
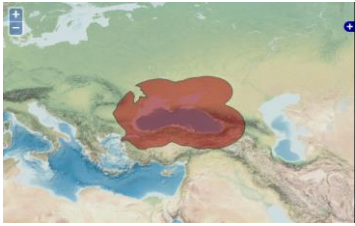


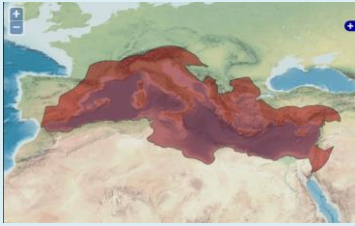

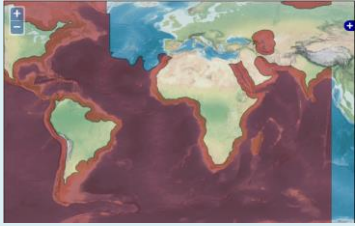
Figure 8. OGC monitoring indicators for EMODnet Biology from 2020-06-29 to 2021-06-30

Table 4. Summary of EMODnet Biology OGC services monitoring, as provided by the EMODnet Secretariat, for the period between 2020-06-24 to 2021-06-25

source title	url	resource type	Response time 90th percentile (s)	Availability (% of time)	Performance compliant	Availability compliant	INSPIRE minimal response time 90% of time (s)
EMODnet Biology (WCS)	https://geo.vliz.be/geoserver/Emodnetbio/wcs	OGC:WCS	0.892296	99.59257	TRUE	TRUE	10
EMODnet Biology (WFS)	http://geo.vliz.be/geoserver/Dataportal/ows	OGC:WFS	0.786044	99.58323	TRUE	TRUE	10
EMODnet Biology (WMS)	http://geo.vliz.be/geoserver/Dataportal/ows	OGC:WMS	0.90711	99.60153	TRUE	TRUE	5

Table 5. Reporting regions used in Phase IV

Marine Region	MRGID	Details
Atlantic	https://marineregions.org/gazetteer.php?pid=details&id=63397	 area= 10440725 km ²
Arctic	https://marineregions.org/gazetteer.php?pid=details&id=63394	 area= 7658253 km ²
Baltic Sea	https://marineregions.org/gazetteer.php?pid=details&id=63393	 area=1542992 km ²
Black Sea	https://marineregions.org/gazetteer.php?pid=details&id=63395	 area= 1487703 km ²

Marine Region	MRGID	Details
Mediterranean Sea	https://marineregions.org/gazetteer.php?&id=63396	 <p>area= 3942293 km²</p>
North Sea	https://marineregions.org/gazetteer.php?&id=63398	 <p>area= 1268680 km²</p>
Other Seas	https://marineregions.org/gazetteer.php?&id=63399	<p>This polygon includes all seas not in the above polygons</p>  <p>area= 64982597 km²</p>