



# EMODnet



European Marine  
Observation and  
Data Network

## **EMODnet Thematic Lot n° VI – Biology**

**EMFF/2019/1.3.1.9/Lot 6/Sl2.837974 -EMODnet -Biology**

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

### **EMODnet Phase IV – Quarterly Progress Report (QR18)**

**Reporting Period: 01/07/2021 – 30/09/2021**



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## Disclaimer

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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 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	Sep 2021 TBC 2022	15th SC meeting attended 10th WG meeting attended	
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	WP2	31/12/2022		

data/information available via the Portal (M20)				
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 QR17 task 2) Delivered (see QR18 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	Delivered (see QR18 task 3)	There was a slight delay in making the questionnaire available due to the holiday period. More details in the Task 3 section
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

The inventory of possible historical data resources within the consortium was initiated over the Summer, requesting all partners to provide an overview of in-house historical datasets. The inventory includes information on the current file format, the geographical, taxonomic and temporal scope and the type of data. After completion of this Deliverable, a selection of the listed datasets will be used to test online citizen science platforms, where these datasets can potentially be digitised to flow to the EMODnet Biology Portal.

The collaborations outside of the current partnership are ongoing and agreements have been made with PANGAEA, Data Publisher for Earth & Environmental Science (Germany). PANGAEA is now in the process of compiling an inventory of their marine biological data. This inventory will then be fine-tuned, upon which the actual data flow to EMODnet Biology will be based. The Belgian partner within the European Seabirds at Sea initiative is taking the first steps in making the ESAS data compatible with DarwinCore, to allow for a smooth data flow to EMODnet Biology in the near future.

The main activities for WP2 still focus on a continuous data flow from the partners to the EMODnet Biology portal, as well as improving and fine tuning these data flows and setting up new ones where relevant. In July, a second Phase IV data harvest was carried out, thereby including 36 new datasets and updates of 24 existing datasets. Data came not only from partners, but also from Phase III data grant holders and ad-hoc submissions (more details can be found on the indicators file- Indicator 3 Data Providers sheet and in the dataset list included in the Annexes). This action brought the total number of available occurrence records to 26.5 million, originating from a total of 1.143 datasets.

### 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

Work is progressing on the development of products using multiple data sources to map the distribution and quality of parameters in time and space. Specifically, products on the presence and absence of benthic species have been developed for the Black Sea and the Mediterranean. This will greatly expand the spatial coverage of products developed in the previous phase.

The update of zooplankton products with improved data and workflows is ongoing and collaborations across lots are being developed to construct products combining biological data with environmental noise and ship's densities (collaboration with EMODnet Physics and Human Activities) and with seabed habitats (collaboration with EMODnet Seabed Habitats). The improvement of the tools EMODnet Biology has developed, to access data from multiple EMODnet lots in the previous phase (<https://github.com/EMODnet/EMODnetWFS>), is also ongoing, and it will form the foundations of new data product development.

An initial comparison of distribution, temporal trends, and diversity of seabirds obtained using data directly from hosted in EMODnet Biology, with highly processed distribution maps has been conducted to test the feasibility of building robust seabird products within EMODnet.

A quarterly call with data product partners was held on 2021-09-22. Partners gave updates on progress in developing new products, and new links were made between partners (e.g. zooplankton data experts from MBA and those generating spatial and temporal maps of zooplankton distributions from ULiège), and between EMODnet lots (e.g. ensuring complementarity between a planned macroalgae distribution product from EMODnet Biology and related work in EMODnet Seabed Habitats). The involvement of external experts to improve documentation, workflow, and functionality of products was presented, and planning for the 2022 annual workshop was begun.

### **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 Geonetwork update is ongoing and. due to it being a version from gim.be, some customisations (mainly Dutch hard-coded displays) are being removed and standardised to fit the EMODnet needs. This version will be installed as a Docker container so multiple identical instances can be launched (i.e. for the Central Portal as well as EMODnet Biology), but with different content and layout/templates.

The EMODnet Secretariat's has done a review of the Biology webservices and concluded that 5 out of 5 services available are implemented and operational.

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

This task is already in progress, by providing the WMS & WFS endpoints to the EMODnet Central Portal Catalogue (through GeoNetwork), however it is known that the current metadata does not meet the Central Portal needs (i.e. INSPIRE). Once task 3 has been completed, metadata will be improved and in line with the Central Portal requirements.

### **Task 5: Contributing content to dedicated spaces in Central Portal**

Two meetings were held with the Central Portal Technical Team during the reporting period, one in mid-July and the other in mid-September.

In the first meeting, the discussion focused on how to make the Biology products and data available through the Central Portal and an initial overview of the essential functionalities that Biology requires for the data visualisation and download tool. This thematic lot also raised the fact that one of the Phase IV deliverables is expected to be an interactive connectivity map of the partner network and a brief discussion ensued on how to best implement this on the Central Portal, taking into consideration the European Commission's requirements for content hosted in the Europa domain. No further work was developed since, as this was an initial conversation that will be followed up closely by the Secretariat, as Biology starts developing this map. It was also highlighted that this can eventually be expanded to the other thematic lots.

The September meeting focused mostly on the static content and by the end of that month, a review of the content mapping was done by the Secretariat; the thematic lot suggested some changes and added missing information. The next step will involve re-thinking of the content to be added to the Central Portal prior to the completion of the centralisation process. Clarification was sought on the data products' format

and the various ways in which they can be made available in the Central Portal, in order to report back to the Biology partners during internal meetings.

#### **Task 6: Ensure the involvement of regional sea convention**

From previous stakeholder and end user engagement activities it is apparent that each Regional Sea Convention are at differing stages of technical development and have a wide range of available resources. As such it is not possible to pursue a “one size fits all” approach in the development of data, products and services to meet their needs. Bespoke engagement is therefore essential and will vary over time.

Through the development of deliverable 4.2 (see table with Status of the Milestones and Deliverables listed in the workplan) we will develop a standardised map of interactions for EMODnet Biology partners, allowing the targeted engagement and removing potential duplication of effort. This will be supported through specific actions exemplified by such recent activity as engagement with the Black Sea focused DOORS and BRIDGE-BS projects and the development of invasive species data products for the OSPAR/HELCOM community.

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

The questionnaire developed for deliverable 4.1 (see Status of the Milestones and Deliverables listed in the workplan) was made available to key stakeholders involved in the implementation and development of EU legislation and wider groupings including MBON, OBIS and US and Canadian colleagues. The responses from the questionnaire will be analysed to inform future development and ensure the data, published through EMODnet Biology, and the derived data products support the aims and activities of these participants.

The questionnaire was built and shared using the Alchemer web application which allows for sophisticated reporting and visualisation of responses. These will be shared initially within the EMODnet Biology Consortium but will also form the basis of future communication and engagement with all of our stakeholders.

The questionnaire was available until October 8th and an analysis of the feedback received will be done in the following months and a brief summary included in the next Quarterly Report.

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

The reporting period covered the summer months and there was a decrease in activities not only within the thematic lot but also in the interactions with other lots and the Secretariat. The main support provided during the quarter is listed below:

- Support with final agenda setting and minute taking and reviewing of the EMODnet Technical Working Group meeting held in early September
- Feedback provided, to the EMODnet Secretariat, on the ODYSSEA report
- Content provided for the September EMODnet newsletter
- Participated, alongside Human Activities and TG-NOISE, in a meeting organised by EMODnet Physics, where a first brainstorm was had around ship noise and biodiversity (focusing on target cetacean species). Further developments will ensue and information will be added to future reports as and when available

During the reporting period, user feedback emails were received and dealt with as soon as received as much as possible. In two instances, due to the holiday period and some emails being targeted to



individuals within the EMODnet Biology team and not the generic project email account ([bio@emodnet.eu](mailto:bio@emodnet.eu)), the response took longer to address. More details are provided in section 3.

The user monitoring information was collected with Matomo. During the reporting quarter, the portal received 1.858 visits which resulted in 3.712 unique pageviews. Figures 4 and 5 (included in the Annex) present the variation of visits over the three-month period and the main statistics retrieved from the analysis.

The GeoHealth Check monitoring tool was implemented to report on the operability and reliability of the OGC services. The analysis of Figure 6, included in the Annexes, indicates that Biology OGC services continue to comply with INSPIRE requirements.

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

The EMODnet Biology Portal is operational and no issues were detected during the reporting period. No new developments were done or implemented.

## 2. Identified issues: status and actions taken

<b>A. Priority issue(s) identified and communicated by CINEA/ DG MARE/ SECRETARIAT</b>				
Priority issue	Status (Pending/Resolved)	Action(s) taken / remaining actions planned	Date due	Date resolved
Including in metadata records online resources	Pending	More information from the Secretariat 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 (more details included in task 3)	QR18	
Report compliance, completeness and quality				
Update Spreadsheet progress indicators	Resolved	The spreadsheet used for QR17 was the last version as sent by the Secretariat. Unclear what errors (links to external sources) were detected. No action was taken by the thematic lot.		
Assessment of performance				
Status of the archaeological data part	Resolved	Archaeological data (phase III WP3) is now included in WP2. Whenever archaeological data are harvested they will be highlighted in the quarterly report. For QR17, 4 NIMRD datasets fit this category		
The use of the term "archaeological data" is incorrect	Resolved	This term is not incorrect, as it is also used for old data that are not available in digital format. The term was also used in Phase III and Phase IV proposals, therefore, for consistency's sake, will continue to be used throughout this phase.		

<b>European Marine Regions shapefile</b>	Resolved	Shapefile is fully implemented and will continue to be used throughout Phase IV unless new requirements are published		
<b>Progress solving identified issues</b>				
<b>EM-83 - Biology - Web Services MetadataUrl and DataUrl</b>	Pending	Resolution is planned to take place in the second half of 2021 or early 2022		
<b>EM-78 - Biology to report on status or plans to support INSPIRE Compliant CSW</b>	Ongoing	Customised GeoNetwork (DCAT and INSPIRE compliant) upgrade in progress. Currently debugging and fixing some problems caused by the customisation of the version VLIZ had access to (more details in task3).		

#### 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
<b>Change of staff at HCMR</b>	Resolved	Handover was done so that co-lead responsibilities and overall workplan were shared with the HCMR team. No delays or constraints occurred	QR18	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
2021-08-18	Sustainable Digital Finance	Making Oceans Count in the Nordic financial system - initiative	email (forwarded by the EMODnet secretariat)	1 day	Resolved	Provided information on how user can query our holdings (catalogue and data)	
2021-08-04	IMBRSEA	EMODNET Data Access	email	2 weeks (email received during the holiday period and send to an individual, not the team's email)	Resolved	Directed user to the WFS R package GitHub and the EMODnet Biology WebServices documentation	
2021-08-04	UCSD	Pulling metadata from VLIZ	email	5 days (email received during the holiday period and send to an individual, not the team's email)	Resolved	Directed user to the EMODnet Biology API documentation	

2021-07-14	IPMA	Request for Dead planktonic foraminifera faunal data from NE Atlantic multinet hauls dataset to be added to EMODnet Biology	Submission form	1 day	Resolved	Emailed user to inform that data would be added to the database in due time	
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## 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.)
12/07/2021	Online	Meeting	No	A	BRIDGES-BS kick off meeting. Project title “Advancing Black Sea Research and Innovation to Co-Develop Blue Growth within Resilient Ecosystems”  >150 participants  Assess where/how EMODnet Biology (who is not a partner) can provide support to data management
14/07/2021	Online	Meeting	Yes	A	ODIN Black Sea (IODE) SG IX  Attended by a partner
02/09/2021	Online	Meeting	No	A	UNEP/MAP on the 2023 Mediterranean Quality Status Report (QSR)  Attended by a partner, where the interest to strengthen dialogue between EMODnet Biology and various stakeholders was highlighted.
13/09/2021	Online	External training	No	A	Interview for the micro-credential course based on MOOC (Innovative methods for assessment of marine ecosystems distribution) ran by University of Cantabria, University of Bologna,

					University of Coimbra and the Spanish Co Telefonica Educacion Digital
8-9/09/2021	Hybrid	EMODnet Steering Committee meeting	Yes	A	Meeting held to discuss progress within EMODnet, with the presence of the MKEG group, DG MARE and CINEA
9-10/09/2021	Hybrid	EMODnet Technical Working Group meeting	Yes	A/O	Meeting held to discuss technical details related with the different thematic lots, EMODnet Ingestion and EMODnet Central Portal
<b>SUM</b>				<b>O</b>	<b>Total # of meetings organised = 1</b>
<b>SUM</b>				<b>A</b>	<b>Total # of meetings attended = 6</b>

<b>B. Meetings/events planned in the future</b>				
Date	Location	Type event (meeting, training (workshop), etc.)	Meeting to be attended (A) / organised (O)	Short description and main expected outcomes
07/10/2021	Online	Webinar	A	Offshore Biodiversity Data and Monitoring - What have we yet to learn?
12/10/2021	Online	Webinar	A	EU Biodiversity: IBAT and ENCORE: 2 key biodiversity data sources for screening purposes
19/10/2021	Online	Webinar	A	EU Biodiversity: The use of remote sensing as a specific source of biodiversity data
20-21/10/2021	Hybrid	Workshop	A	Hack4Oceans
26/10/2021	Online	Webinar	A	EU Biodiversity: Innovative developments in the field of biodiversity data collection
28/10/2021	Online	Webinar	A	EU Biodiversity: Looking ahead: Future developments in the biodiversity data landscape
28/10/2021	Online	Webinar	A	Genetic Data and OBIS
23/11/2021	Online	Workshop	A	Towards a Coordinated European Observing System for Marine Macroalgae

				EMODnet Biology invited to give a presentation of macroalgae data and products, plans for the future.
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## 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)
Sep 2021	Video	Interview on the topic: Challenges in sharing marine ecosystem information	Awareness/Outreach /Education	The video is part of the MOOC "Sustainable Marine Ecosystems" delivered by the Universities of Bologna, Coimbra, Cantabria and the Spanish Co Telefonica Educacion Digital. All content and materials will be open source
QR18	Tweets	49 tweets about published datasets and project related information	Awareness/Outreach /Education	
QR18	News 16/07/2021  02/09/2021  06/09/2021  10/09/2021	<a href="https://www.emodnet-biology.eu/news?p=show&amp;id=8833">https://www.emodnet-biology.eu/news?p=show&amp;id=8833</a>  <a href="https://www.emodnet-biology.eu/news?p=show&amp;id=8857">https://www.emodnet-biology.eu/news?p=show&amp;id=8857</a>  <a href="https://www.emodnet-biology.eu/news?p=show&amp;id=8862">https://www.emodnet-biology.eu/news?p=show&amp;id=8862</a>  <a href="https://www.emodnet-biology.eu/news?p=show&amp;id=8866">https://www.emodnet-biology.eu/news?p=show&amp;id=8866</a>	Awareness/Outreach /Education	EMODnet Biology Website

B. Planned communication products			
Date	Communication material	Short description (of the material, title, ...) and/or link to the asset	Main results expected
QR19	Tweets		Awareness/Outreach/Education
QR19	News		Awareness/Outreach/Education

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)



## 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	Internal system	The fluctuation in numbers since the previous quarter reflect the July data harvest in which several new datasets were added and several others were updated.
B) Usage of data in this quarter	Internal system	There was a slight decrease in the amount of data downloaded during the reporting period. Most likely due to the holiday period where a decrease in activity is observed
2. Current status and coverage of total number of data products A) Volume and coverage of available data products	Internal system	Two external products (submitted via EMODnet Ingestion) were added to the catalogue. The coverage presented only includes the products developed by EMODnet Biology partners. This coverage has not changed since the last report
B) Usage of data products in this quarter	Matomo	There was a significant decrease in the uptake of data products during the quarter. This could mostly have been due to the holiday period, where a decrease in activity in our main users is detected.
3. Organisations supplying/approached to supply data and data products within this quarter	Internal system	Three providers were not associated with the project and volunteered their data, the remaining were either Phase III data grant holders or project partners
4. Online 'Web' interfaces to access or view data	Matomo	The number of data available via the map viewer has increased in the reporting period. Two external products were added to the product catalogue. All data and products are freely and openly available for download through the portal.
5. Statistics on information volunteered through download forms	Internal system	All users requesting data provide details used for this sheet. The trend in type of users has not changed, with the majority being from academia/research and followed by business and private sector. The main data usage is research, followed by GIS analysis. 88% of all our users were from european

		countries, and the remaining from other continents. VLIZ test users and those users that experienced errors in the data download (18 in total) were excluded from this analysis
6. Published use cases	Matomo	No new use cases were published during the reporting period. The uptake has not significantly changed when compared with the previous quarter
8.1. Technical monitoring	Matomo	The response times are compliant with the imposed thresholds and the portal had a 100% uptime during the reporting period
8.2. Portal user-friendliness (Visual harmonization score)	Collated by Trust_IT	The score is the maximum possible and indicates that EMODnet Biology is fully complying with the visual guidelines in place
9. Visibility & Analytics for web pages	Matomo	There was no significant change in the trend when compared with the previous reporting period
10. Visibility & Analytics for web sections	Matomo	There is a continuous decrease in the visibility of the Download toolbox and Portal whereas the Geoviewer and Blog maintain a fairly constant trend. The results might reflect the holiday period in which there is a decrease in activity in several activity sectors
11. Average visit duration for web pages	Matomo	There was no significant change in the trend when compared with the previous reporting period

*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

Below is included a table with a list of all datasets harvested during the reporting period, including information on their status (New/Update), the Phase and the organisation they originate from

Dataset	New/Update	Phase	Origin
<a href="#">70 samples data of Kiel Bay</a>	Update	Phase IV	VLIZ
<a href="#">Arctic soft-sediment macrobenthos</a>	Update	Phase IV	VLIZ
<a href="#">Bay of Puck dataset</a>	Update	Phase IV	VLIZ
<a href="#">Benthic Fauna of the Evvoia Coast and Evvoia Gulf.</a>	New	Phase IV	HCMR
<a href="#">Benthos Gironde Estuary</a>	Update	Phase IV	VLIZ
<a href="#">BIOMAERL.Maerl Biodiversity.Functional Structure And Antropogenic Impacts (1996-1998).</a>	New	Phase IV	HCMR
<a href="#">Biomôr 1 dataset. Benthic data from the Southern Irish Sea from 1989-1991</a>	Update	Phase IV	VLIZ
<a href="#">Cetacean monitoring data collected along fixed transect using ferries as platforms in the Strait of Gibraltar, 2018, FLT Med Network.</a>	New	Phase III	Nereide (data grant)
<a href="#">Comparative study of the organismic assemblages associated with the demosponge <i>Sarcotragus foetidus</i> Schmidt, 1862 in the coasts of Cyprus and Greece</a>	New	Phase IV	HCMR (archaeology)
<a href="#">Danish Kattegat herring fishery, 1520-1899</a>	New	Phase IV	Ad hoc (Norfish)
<a href="#">Danish Limfjord herring fishery, 1518-1835</a>	New	Phase IV	Ad hoc (Norfish)
<a href="#">Danish Sound herring fishery, 1368-1790</a>	New	Phase IV	Ad hoc (Norfish)
<a href="#">Dolphins and sea turtle monitoring in the Pelagie Archipelago (Italy) from 2004 to 2006</a>	New	Phase III	Gaia (data grant)
<a href="#">Dutch herring fishery, 1512-1790</a>	New	Phase IV	Ad hoc (Norfish)
<a href="#">Dutch-Icelandic cod fishery, 1520-1852</a>	New	Phase IV	Ad hoc (Norfish)
<a href="#">English herring fishery, 1520-1790</a>	New	Phase IV	Ad hoc (Norfish)

<a href="#">English North-East Atlantic cod fishery, 1520-1790</a>	New	Phase IV	Ad hoc (Norfish)
<a href="#">Faroes cod fishery, 1520-1807</a>	New	Phase IV	Ad hoc (Norfish)
<a href="#">Fauna Bentonica</a>	Update	Phase IV	VLIZ
<a href="#">Flemish herring fishery, 1386-1790</a>	New	Phase IV	Ad hoc (Norfish)
<a href="#">French herring fishery, 1520-1790</a>	New	Phase IV	Ad hoc (Norfish)
<a href="#">French North East Atlantic Cod Fishery 1520-1829</a>	New	Phase IV	Ad hoc (Norfish)
<a href="#">Garfish morphology in Adriatic Sea 2003-2007</a>	Update	Phase IV	VLIZ
<a href="#">German Herring Fishery 1520-1790</a>	New	Phase IV	Ad hoc (Norfish)
<a href="#">Groundfish Survey Invertebrate Data</a>	New	Phase III	Marine Institute (data grant)
<a href="#">Helfer H. 1936. The fishery grounds near Alexandria. VIII Pantopoda. Notes et memoires No 16</a>	New	Phase IV	HCMR (archaeology)
<a href="#">Iceland Cod Landings 1520-1871</a>	New	Phase IV	Ad hoc (Norfish)
<a href="#">IOW Macrozoobenthos monitoring Baltic Sea (1980-2005)</a>	Update	Phase IV	VLIZ
<a href="#">Irish Herring Fishery 1520-1790</a>	New	Phase IV	Ad hoc (Norfish)
<a href="#">Jalta-Black Sea</a>	Update	Phase IV	VLIZ
<a href="#">Kalamitsi</a>	Update	Phase IV	VLIZ
<a href="#">Kelp occurrences in the Azores (northeast Atlantic)</a>	New	Phase IV	ad hoc (IMAR)
<a href="#">Kongsfjorden/Spitsbergen - soft bottom fauna</a>	Update	Phase IV	VLIZ
<a href="#">Laspibay-Black Sea</a>	Update	Phase IV	VLIZ
<a href="#">LBMRev</a>	Update	Phase IV	VLIZ
<a href="#">LifeWatch observatory data: zooplankton observations in the Belgian Part of the North Sea</a>	Update	Phase IV	VLIZ
<a href="#">Macrobenthos of the Western Scheldt (Ossenissee, Valkenisse, Terneuzen and Vlissingen) on 27 and 28 September 1978</a>	Update	Phase IV	VLIZ

<a href="#">MegFeod-Black Sea</a>	Update	Phase IV	VLIZ
<a href="#">Mollusca fauna from the Mediterranean reef ecosystem (1170 habitat)</a>	New	Phase IV	HCMR
<a href="#">Mytilini</a>	Update	Phase IV	VLIZ
<a href="#">National Marine Monitoring Programme data set</a>	Update	Phase IV	VLIZ
<a href="#">National Monitoring Programme for Phytoplankton Species occurrence in Aquaculture Production Areas</a>	New	Phase III	Marine Institute (data grant)
<a href="#">North Atlantic and Arctic Cumacea sampled during the IceAGE (2011) and PASCAL (2017) project</a>	New	Phase IV	Ad hoc (Senckenberg)
<a href="#">Norway Cod Fishery 1520-1850</a>	New	Phase IV	Ad hoc (Norfish)
<a href="#">Norway West Coast Herring Fishery 1520-1850</a>	New	Phase IV	Ad hoc (Norfish)
<a href="#">Norwegian/Swedish Bohuslän Herring Landings 1520-1808</a>	New	Phase IV	Ad hoc (Norfish)
<a href="#">Occhipinti dataset</a>	Update	Phase IV	VLIZ
<a href="#">Painted Comber morphology in Adriatic Sea 2001-2002</a>	New	Phase III	IZOR
<a href="#">Plymouth sound dataset. Soft sediment macrobenthos from the Plymouth Sound from 1995</a>	Update	Phase IV	VLIZ
<a href="#">Polish Arctic Marine Programme</a>	Update	Phase IV	VLIZ
<a href="#">REDIT 1</a>	Update	Phase IV	VLIZ
<a href="#">SARONIKOS</a>	Update	Phase IV	VLIZ
<a href="#">Scottish Herring Fishery 1466-1790</a>	New	Phase IV	Ad hoc (Norfish)
<a href="#">SHARK - Regional monitoring, recipient control and monitoring projects of phytoplankton in Sweden since 1985</a>	New	Phase III	SMHI
<a href="#">SHARK - Regional monitoring, recipient control and monitoring projects of zoobenthos in Sweden since 1972</a>	New	Phase III	SMHI
<a href="#">Shetland Cod Fishery 1520-1796</a>	New	Phase IV	Ad hoc (Norfish)
<a href="#">Spanish and Basque Newfoundland Cod Fishery 1520-1790</a>	New	Phase IV	Ad hoc (Norfish)

<a href="#">Steinbock (1937) Turbellaria XIV. The fishery grounds near Alexandria. Notes and Memories of the Fisheries Directorate of Egypt, No. 25</a>	New	Phase IV	HCMR
<a href="#">Strelbay</a>	Update	Phase IV	VLIZ
<a href="#">Zooplankton studies at a fixed station (West-Hinder) in the North Sea between 1977 and 1979</a>	New	Phase IV	VLIZ (archaeology)



Figure 1: Map display of gridded occurrences added to EMODnet Biology during the reporting period

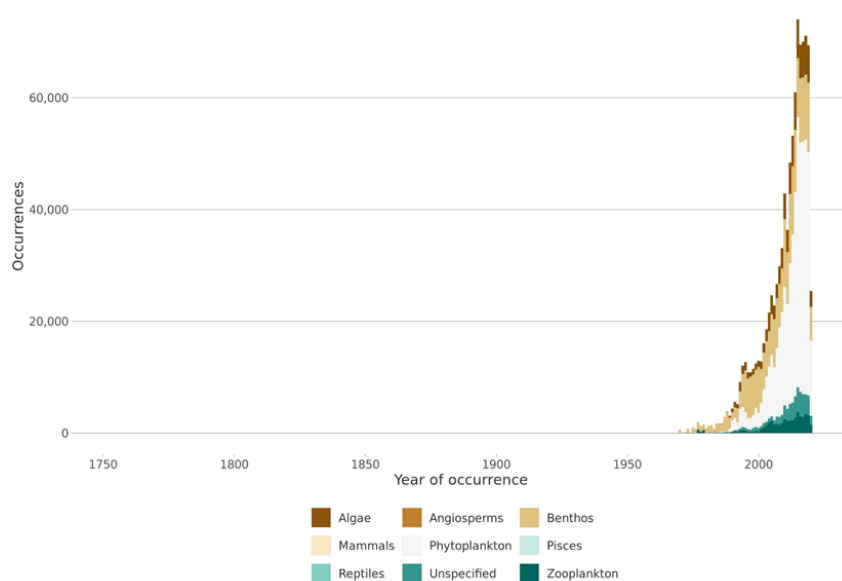


Figure 2: Number of occurrences per year of sample and sub-theme added to EMODnet Biology during the reporting period

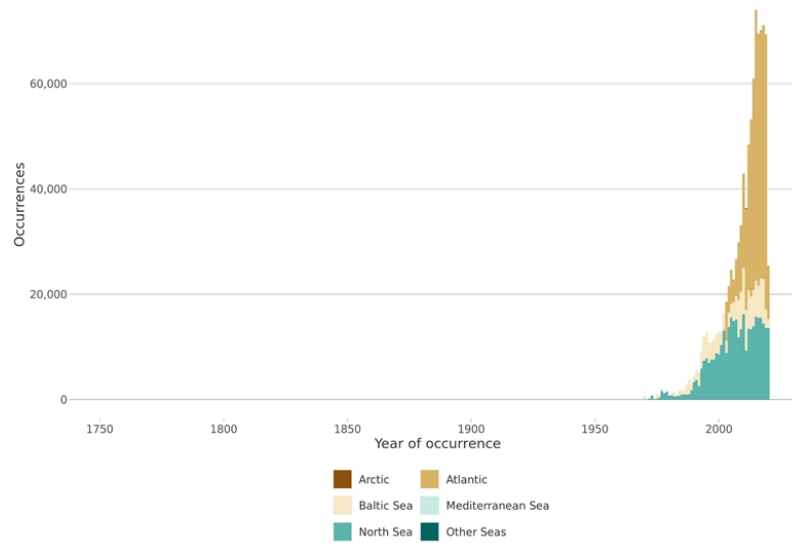


Figure 3 Number of occurrences per sample year and marine region added to EMODnet Biology during the reporting period

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

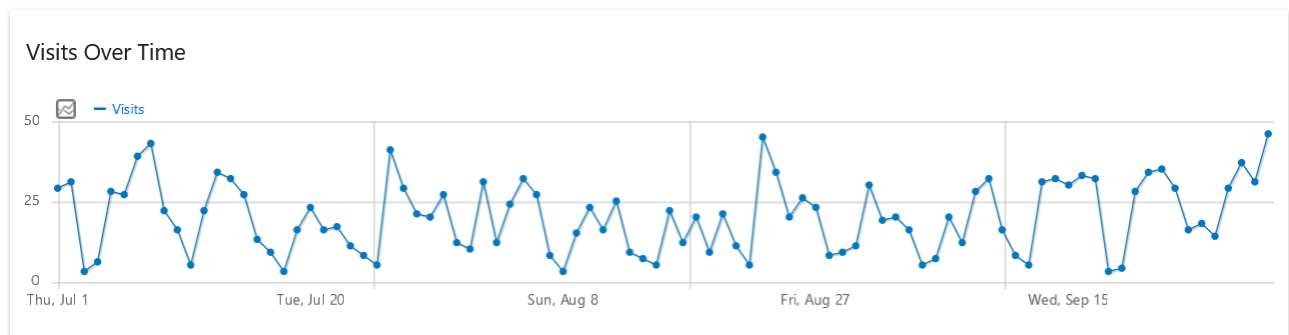


Figure 4. EMODnet Biology visits over time during the reporting period (data collated via Matomo)

### Visits Overview

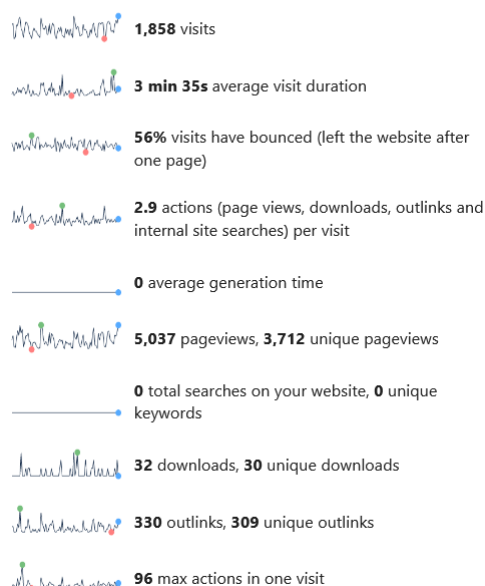


Figure 5. EMODnet Biology visits overview (data collated via Matomo)

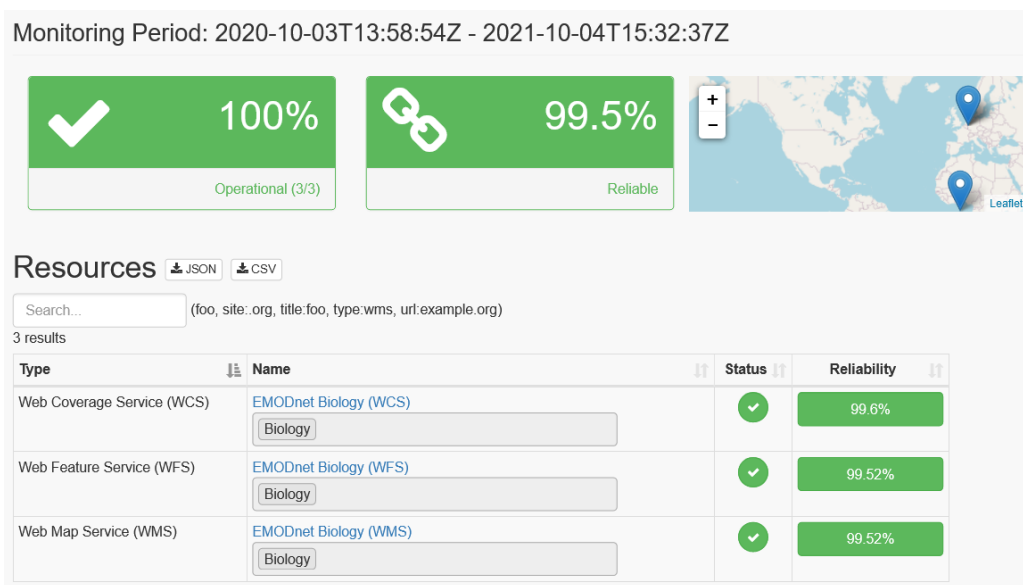


Figure 6. OGC monitoring indicators for EMODnet Biology from 2020-10-03 to 2021-10-04