

EMODnet



European Marine
Observation and
Data Network

EMODnet Thematic Lot n° VI - Biology

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

EMODnet Phase IV – Quarterly Progress Report (QR20)

Reporting Period: 01/01/2022 – 31/03/2022



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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)	Date delivered	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	30/06/2021	
D1.2 Quarterly progress reports (scheduled defined in the tender) (M3-M24)	WP1	QR17 (15 Jul 2021)	Delivered	15/07/2021	
		QR18 (15 Oct 2021)	Delivered	15/10/2021	
		QR19 (15 Jan 2022)	Delivered	15/01/2022	
		QR20 (15 Apr 2022)	Delivered	15/04/2022	
		QR21 (15 Jul 2022)			
		QR22 (15 Oct 2022)			
		QR23 (15 Jan 2023)			
		QR24 (15 Apr 2023)			
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	Delivered	08/09/2021	
		Apr 2022	Pending	26-28/04/2022	
		TBC 2022			
		TBC 2023			
D2.1 Inventory of possible historical data resources within the consortium (M6)	WP2	29/10/2021	Delivered	18/11/2021	
D2.2 Technical implementation of data flows for the new project partner (M6)	WP2	29/10/2021	Delivered	18/11/2021	
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	25/02/2023			
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 Delivered Delivered Delivered (merged with Workshop 1, See Task 2)	18-19/05/2021 22/09/2021 10/12/2021 Week of 28/02/2022	
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)	Delivered	Week of 28/02/2022	
D3.3 Publish R package to link EMODnet biology data with data from other EMODnet sources (M12)	WP3	19/04/2022	Delivered		This package remains in development and features will continue to be added

					over the remainder of the contract period
D3.4 Develop method to use Phase III presence-absence maps to display time series of distribution change (M12)	WP3	19/04/2022	Delayed		See Task 2 for details
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	06/09/2021	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)	Delivered (see task 5)	31/01/2022	
D5.1 User portal operation and maintenance (M0-M6)	WP5	19/10/2021	Delivered		
D5.2 Webservices operation and maintenance (M0-M24)	WP5	19/04/2023			
D5.3 Technology stack upgraded (M12)	WP5	19/04/2022	Delivered (see Task 3)		
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

Work is ongoing for D2.3: Report on efforts undertaken in rescuing historical data through citizen science, with several citizen science platforms explored. The criteria examined were relevant both to the citizen scientist's (free usage, technical support, easy-to-follow tutorials etc) and the data manager's perspective (data output, multiple contributors' option, easy-to-build workflow). Two platforms, Zooniverse (<https://www.zooniverse.org/>) and DoeDat (<https://www.doedat.be/>) were selected as the most suitable according to the aforementioned criteria.

The backbone workflow for each platform was setup and tests, carried out by specific collaborators, were carried out in order to gain feedback on their feasibility. To this end, conversations with the platforms' technical support teams is ongoing in order to improve the initial setup. As a second step, the inventory of historical datasets provided by Biology's partners were evaluated for inclusion the citizen science digitisation projects, that will be created in the selected platforms. The final selection of appropriate datasets will be based on their easily it is to understand the information they contain and the level of curation. Datasets in various languages (e.g. English, French and German) were also added in order to increase the participation of non-native English-speaking contributors. The next steps include: finishing the workflows, having them reviewed on behalf of the platforms' technical support teams and advertising the projects in time of launch to the wider public.

The D2.5: Feasibility study for recognition of specific ecological traits and/or sampling devices/methodologies in text (M22), has under discussion during internal WP2 meetings. Updates on this deliverable's progress will be included in future reports

During the reporting period (Jan 1st-March 31st 2022), two data harvests were completed. In January, 25 new datasets were published and 5 updates of pre-existing datasets were done. In March, 8 new datasets were published, and one dataset was updated. As in the previous harvests, data did not come exclusively from EMODnet Biology Partners, but also from Phase III data grant holders and ad-hoc submissions. This action brought the total number of available occurrence records to 29.7 million, originating from a total of 1.213 datasets. An overview of the new datasets is available in the Annex, alongside with maps with the geographical distribution and functional group overview.

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

The annual WP3 workshop (D3.2) was held online over four days between 28/02 and 03/04/2022. The decision to hold the workshop fully online was made in January 2022 given ongoing restrictions on travel due to varying COVID regulations in different countries and considering the preferences of all partners. The online workshop was structured around 6 scheduled online plenary sessions, with space between them for intensive product development by individual partners or small collaborative teams. Plenaries included expert tutorials on improving documentation and reproducibility of products, as well as updates on the ongoing EMODnet centralisation process. These plenaries constituted the quarterly Community Call (D3.1) for QR20.

At the workshop initial plans were developed for the position paper required by M24 under D3.5: Produce position paper outlining questions that can be addressed using EMODnet data, together with remaining gaps, and strategies for filling these. A draft structure was shared and partners are now considering how to maximise the impact of this paper.

Significant progress during the workshop and over the whole Quarter has been made on the EMODnetWFS R package (<https://github.com/EMODnet/EMODnetWFS>), which builds on the package created in the previous EMODnet Biology phase and fulfils D3.3: Publish R package to link EMODnet biology data with data from other EMODnet sources. The package remains in active development as more functionality is added and issues (e.g. with spatial queries) are addressed. This development will continue over the remainder of the Tender period, and will include a submission for review by the ROpenSci community. In addition, an independent developer has been sub-contracted to add the ability to query and access gridded data via WCS, via the ows4R package (<https://github.com/eblondel/ows4R>), which will mean many more EMODnet data are available to R users and product developers.

Work has started on D3.4: Develop method to use Phase III presence-absence maps to display time series of distribution change. Proof-of-concept gridded maps of turnover (species lost v species gained) in presence-absence of macrobenthos have been developed for five time comparisons, determined by data availability: pre-1990s v 1990s, 1990s v 2000-2004, 2000-2004 v 2005-2009, 2005-2009 v 2010-2014, and 2010-2014 v post-2015. This used Phase III presence-absence maps which covered the Greater North Sea and NW European shelf (<https://www.emodnet-biology.eu/data-catalog?module=dataset&david=6617>). Further development of this product has been paused to allow for the completion of a significant upgrade of the Phase III presence-absence maps that will encompass all European seas, with c. 250,000 distinct sampling stations covering c. 10,000 macrobenthic taxa. A product showing temporal distribution change using these updated maps is now under development. In parallel, new and updated products are under development that will meet this deliverable include improved modelling of gridded abundance of key zooplankton species in space and time, distribution change in invasive macroalgae, and plankton diversity products.

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

During the reporting period, effort was put into improving the M2M interfaces, with a focus on aligning with the EMODnet centralisation work, more specifically:

- Final technical modifications on the customised GeoNetwork installation were applied, making it ready to be deployed in a production environment (mainly CSS, layout and templating issues)
- Technical assistance to properly reformat a number of existing data products was provided, in order for them to be included in the Central Portal's ERDDAP instance. (see Task 4)
- The work to capture additional types of data (e.g. images, genetics) was initiated. By the end of the reporting period, only internal database changes have been implemented
- Work is ongoing to allow for the delivery of occurrence (real) absence data

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

The development of use cases is grouped under 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. More details can be found in Task 5.

Work has been done to make the Phase III (renewal stage) products available through the Central Portal. As such the products were reformatted to CF compliant NetCDF and testing is underway to assess whether the Central Portal systems can deal with the products' complex file structure.

Task 5: Contributing content to dedicated spaces in Central Portal

During the first quarter of 2022, work towards centralisation of the Biology thematic lot continued. Two meetings took place during the first three months, on January 10th and February 28th. Work is progressing at a good pace both from the Central Portal side as well as from the Biology team. A review of the CP viewer in development was made and essential functionalities that were missing or not working were identified and communicated to the CP team. All the items were updated and functionalities (e.g. layer animation) are working as expected.

The first review of the Biology static content pages was submitted in late March and will be followed up by the EMODnet Secretariat.

One use case was published in the Central Portal at the end of January, with the title '[Holistic, standards-based access and interoperability for marine biodiversity data](#)', showcasing the collaboration between EMODnet Biology and Seabed Habitats in developing guidance for habitat data submission to EMODnet Biology. A second use case was submitted to the EMODnet Secretariat for publication by the end of March, but there was a slight delay in its publication. It is now expected that this new use case will be available in the Central Portal within the two first weeks of April. An update will be given in the next Quarterly Report.

In addition to the work described above, we have provided the following information upon the EMODnet Secretariat's request:

- Information for January, February and March EMODnet newsletters
- Feedback for EMODnet monitoring indicators spreadsheet
- Feedback for new EMODnet Associated Partner Applications

Task 6: Ensure the involvement of regional sea convention

During the reporting period we have initiated a joint engagement with the Regional Sea Conventions alongside EMODnet Seabed Habitats. Leveraging the EMODnet Biology connectivity map (D4.2: EMODnet Biology connectivity 'map' of projects, institutes, initiatives and networks to inform targeted engagement), we have identified partners with existing interactions and relationships to facilitate the dialogue. Meetings are being arranged, with most taking place in the next quarter.

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

EMODnet Biology Work Package Leads (WP2 & WP4) have initiated discussions with the global OBIS team to improve access to, and reduce duplication of data held by downstream biodiversity aggregators, including GBIF and the central OBIS portal. The 'publish once, harvest many times' paradigm is being promoted to facilitate improved access to marine biodiversity data, in support of the UN Decade of Ocean Science, however care is needed to ensure existing data flows are honoured. By proactively engaging with the wider open data community, the EMODnet Biology consortium are ensuring their position of influence and key role in data distribution is maintained.

Work has also started towards improving the FAIRness of our metadata records. A VLIZ developed in-house tool that assess the FAIR level of each dataset has been used in the EMODnet Biology datasets and a first overview of areas that can be improved is now being analysed by the team so that a workplan can be defined. More details will be provided in subsequent reports.

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

An analysis of the GeoHealth Check tool indicates that EMODnet Biology's webservices were compliant with INSPIRE guidance, with a reliability of 99.5% and 100% operational (note that this tool's monitoring period includes the period since it was implemented. Figure 6 in the Annex is a screenshot of the monitoring dashboard for Biology.

The website received 3.104 visits, with an average of 35 visits per day. In Figures 7 and 8 included in the Annex, it is possible to visualise the visits evolution and overview details.

During the reporting period 5 users provided feedback, in the form of requests or enquiries. A summary is included in Section 3. All user feedback was resolved within 1 working day.

As mentioned in the previous report, an update to the marine regions' shapefiles used for EMODnet Biology's reporting purposes was finalised. The updates included:

- A coastal buffer of 3km inland in the Other Seas region so that all coastal records are correctly captured (small gaps due to different coastlines were identified)
- Inclusion of the Caribbean Seas in the Atlantic region
- Minor gaps between the different polygons closed and mapped to the appropriate regions

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

Portal is operational and no major technical changes have been done. Main updates relate to new content being added in the form of news or deliverable publication.

2. Identified issues: status and actions taken

A. Priority issue(s) identified and communicated by CINEA/ 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 from the Secretariat is needed on what the expected end result should be		
Including data and metadata URL in web services of data products	Ongoing	No changes since the last QR	QR18	
Assessment of performance				
In the previous reporting period, a survey was done and it was reported that a brief summary would be included in this quarterly report. However, no details on the survey results were provided	Resolved	There was no mention of a survey done in the previous report (QR19). An internal survey was done to capture all partner's involvement with different RSC's, international initiatives, EU Working Groups, the outcome of which will be made available via a connectivity map of the network, included in D4.2	QR20	QR20
Indicator 2: Status/Volume and coverage of total number of products.	Resolved	The indicator units is correct as we monitor the products that are downloaded, each download equates to one request	QR20	QR20
Indicator 3: The thematic lots should not provide an exhausting list of their contributing partners	Resolved	This indicator only includes the partners that have in fact contributed with data during the reporting period. Data providers (internal or external) have always been listed in the QR when their data were published within the period in consideration	QR20	QR20
Progress solving identified issues				
EM-83 - Biology - Web Services MetadataUrl and DataUrl	Pending	Resolution is planned to take place in the second half of 2021 or early 2022		

EM-78 - Biology to report on status or plans to support INSPIRE Compliant CSW	Ongoing	Customised GeoNetwork (DCAT and INSPIRE compliant) upgrade in progress. Fixing and debugging is almost complete, however the Log4j bug that was identified worldwide at the end of 2021 also needs to be addressed for this piece of software		
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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
Updates to EMODnet reporting regions polygons	Resolved	Summary of changes described in Task 8	QR20	2022-01-18
Users do not have access to absence occurrences	Ongoing	Species' absence in surveys can provide invaluable information for data product creation and overall ecosystem knowledge. Within the thematic lot, there are a number of datasets where data providers have reported true absences (species were looked for but not found) or derived absences (i.e a list of species was defined for the project and systematically used throughout. When a species is absent from the data submitted, we know that this is because such individuals were absent from the samples). Work is underway to allow for these data to be available to users.	QR22	
Delays due to situation in the Ukraine	Ongoing	The partner in questions, UkrSCES is based in Odessa and contributes to WP2. Situation is being followed up within the project. The ongoing conflict might mean that the partner is unable to supply the data within the project's deadlines, as initially agreed		
Updates to Webservices to allow users to download habitat data that are not linked to biological occurrences	Ongoing	The inclusion of ingestion of habitats data, that resulted from a collaboration between Seabed Habitats and Biology, was successful. A constraint in accessing the data was identified for those records that are not linked to biological records. Ongoing work is being done to allow for all data to be available to users via Web Services.	QR22	
EMODnet Biology products added to CP viewer	Ongoing	The complexity of the Biology product structure needs special attention not only from the thematic lot (ie assess and implement the best way to structure the product files) but also on the CP technical team as, from initial tests, it's not clear that Biology products will be made available in the same way as for the other lots.	QR24	

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
11/02/2022	RWS	Government Request to provide a presentation at the NCK open day	email	1 working day	Resolved	Invitation received on March 2 nd , presentation will be given on QR21	
14/02/2022	MNCN-CSIC	Government Access to Mediseh Posidonie shapefile	email	1 working day	Resolved	Directed user to the downloadable files	
17/02/2022	DFMR	Government Information on how to share data	email	1 working day	Resolved	User asked about registration to share data. All information provided, no response received	
11/03/2022	UGent	Academia/Research EMODnet Biology aanleveren datalayers- bivalve reefs	email	1 working day	Resolved	Request forwarded by EMODnet Secretariat. Data Products seem to be a better fit for Seabed Habitats, however the user was encourage to submit the data behind the maps to Biology as well	
23/03/2022	CSIC	Government IPT credentials – associatedMedia field missing	email	1 working day	Resolved	Informed user that this is a known issue with missing fields in files available to users. This is part of our infrastructure updates for 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.)
14/01/2022	Online	External Webinar	No	A	Marine Biodiversity Networking Fridays: Marine indicators for the Convention on Biological Diversity Permanent link: https://www.aircentre.org/netfridays-marine-biodiversity-02/
14/01/2022	Online	External Meeting	No	A	Meeting with Central Portal Technical team Discuss centralisation workplan and work required by thematic lot to comply with CP requirements
26/01/2022	Online	External Meeting	No	A	JERICO Image data management follow up Aim was to share JERICO updates and discuss the best way forward in implementing a solution for image data management that fits not only JERICO's but also EMODnet Biology's objectives
02/02/2022	Online	External Workshop	No	A	Black Sea CONNECT Innovation Workshop Aim was feature successful stories and best practices from different blue economy sectors, allowing the meeting of nascent maritime and innovation clusters in the Black Sea with more developed European counterparts and driving their collaborative development of blue innovations for the region
04/02/2022	Online	External Meeting	No	A	MarineLife2030 Co-design and Stakeholder Engagement Meeting

					Initial meeting to discuss previous activities and potential roles in developing engagement activities around the MarineLife2030 UN Decade programme.
09-11/02/2022	Online	External Conference	No	A	One Ocean Summit Commission initiative to promote a cleaner, healthier and safer ocean
11/02/2022	Online	Internal meeting	No	O	EMODnet Biology Coordination Board meeting Progress updates, project information exchanged within all WPs through their leads
14-16/02/2022	Hybrid (Sopot, Poland)	External Conference	Yes	A	Ocean Data Conference > 200 participants Oral presentation titled 'EMODnet Biology: A European initiative with global influence' and partner poster titled 'Dive into MedOBIS: an Open and FAIR Biogeographic Information System for the Mediterranean Sea'
17/02/2022	Online	External Meeting	No	A	Meeting with Trans Europe Marinas and European Boating Industry Follow up of a request forwarded by the EMODnet Secretariat. Discussion on how these organisations can foster ocean outreach within its members but also contribute with data and use EMODnet's data/products. Colleagues from EMODnet Ingestion and Physics were also present
28/02/2022	Online	External Meeting	No	A	Meeting with Central Portal Technical Team Discuss centralisation workplan and work required by thematic lot to comply with CP requirements
28/02- 03/03/2022	Online	Internal WP3 workshop	Yes	O	WP3 data product workshop Internal workshop to discuss, organise Phase IV Biological data product creation
02/03/2022	Online	External Meeting	No	A	MarineLife2030 Capacity Building and Citizen Science Volunteers

					Introductory meeting to develop the MarineLife2030 UN Decade programme activities related to Citizen Science and associated data flows.
11/03/2022	Online	External Meeting	No	A	Marine Biodiversity Networking Fridays Ocean Observation: strengthening collaboration among the marine biodiversity Ocean Decade Actions Range of presentations highlighting UN Decade actions
SUM				O	Total # of meetings organised = 2
SUM				A	Total # of meetings attended = 11

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
05-04-2022	Online	Workshop	A	EATiP-OBPS Best Practises in Aquaculture workshop
11-04-2022	Online	Webinar	A	NCK Data Day
20 to 21-04-2022	Hybrid/Paris	Conference	A	Digital Ocean Forum
26 to 28-04-2022	Hybrid/Oostende	Meeting	A/O	EMODnet Steering Committee and Technical Working Group Meetings
04 to 05-05-2022	Hybrid/Oostende	Meeting	O	Annual project meeting
19 to 20-05-2022	Ravena, Italy	Conference	A	European Maritime Day

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)
January	Tweets	18 tweets	Increase visibility Outreach Follower engagement	NA
January	Use case	Holistic, standards-based access and interoperability for marine biodiversity data (https://emodnet.ec.europa.eu/en/use-case/holistic-standards-based-access-and-interoperability-marine-biodiversity-data)	Increase visibility Outreach	NA
February	Tweets	24 tweets	Increase visibility Outreach Follower engagement	NA
February	News	New Use case- combining species and habitats data		NA
March	Tweets	16 Tweets	Increase visibility Outreach Follower engagement	NA
March	News	WP3 Data Product Workshop complete		

The following Figures are taken from Twitter analytics for the EurOBIS account, where EMODnet Biology information is shared. During the quarter, the tweets published earned 27.1K impressions.

Your Tweets earned **27.1K impressions** over this **90 day** period

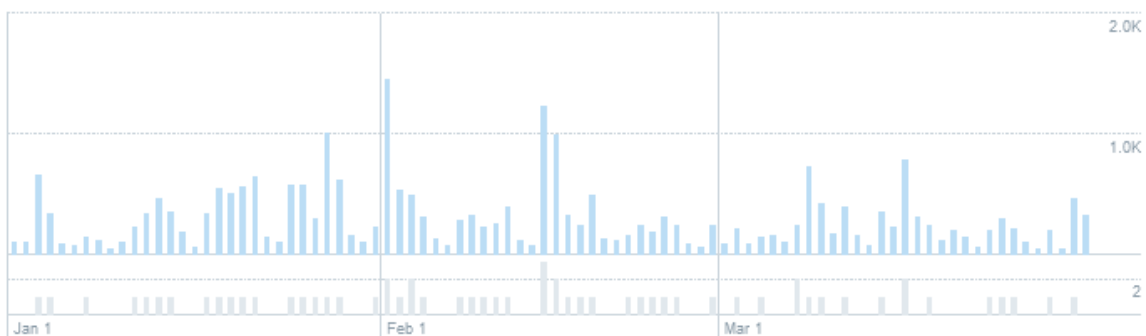


Figure 1. Twitter analytics impressions for the EurOBIS account during the reporting period

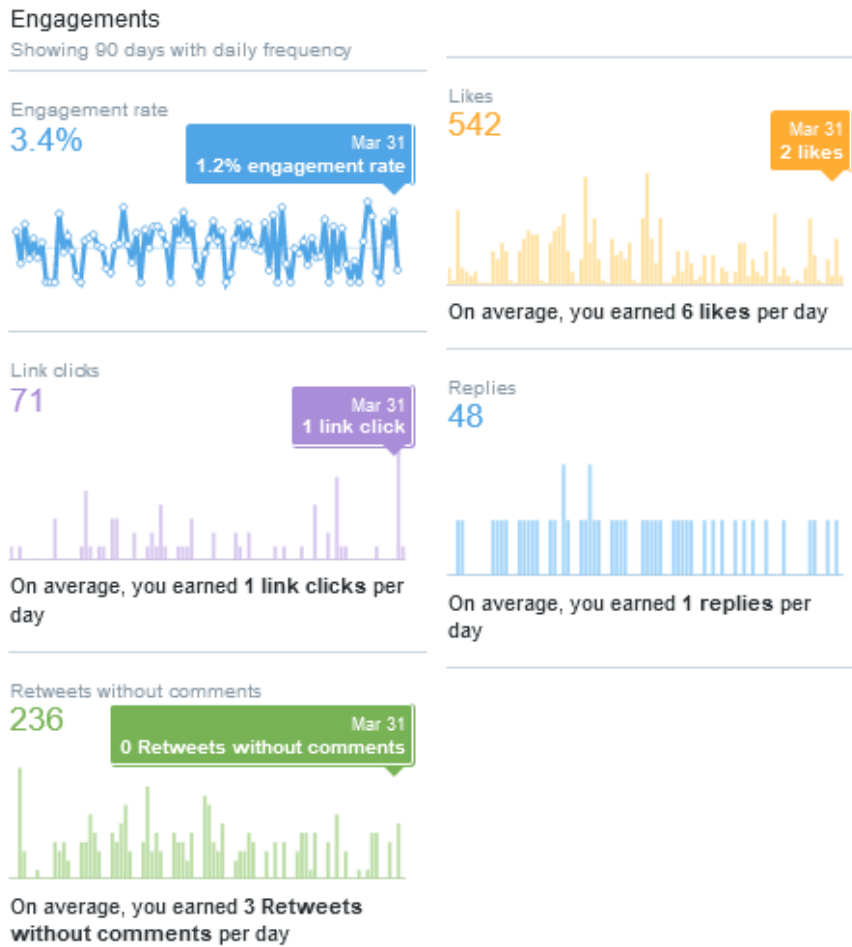


Figure 2 Twitter analytics engagement metrics for the EurOBIS account during the reporting period

B. Planned communication products			
Date	Communication material	Short description (of the material, title, ...) and/or link to the asset	Main results expected
QR21	Tweets	Tweets on published datasets, project information, participation in meetings/events	Increase visibility Outreach Follower engagement
QR21	News articles	Published deliverables Project information	Increase visibility Outreach

A. (Co-)Authored peer-reviewed publications in the quarter					
Date of publication	Type of publication	Full reference	ISBN	DOI	Is it open access? Yes/No
20/01/2022	Paper	Beauchard O, Mestdagh S, Koop L, Ysebaert T, Herman PMJ (2022) Benthic synecology in a soft sediment shelf: habitat contrasts and assembly rules of life strategies. Mar Ecol Prog Ser 682:31-50.	Online ISSN: 1616-1599	https://doi.org/10.3354/meps13928	No

B. Other/non-peer reviewed types of publications (co-)authored in the quarter					
Date of publication	Type of publication	Full reference	ISBN	DOI	Is it open access? Yes/No
2022		Pierucci A et al (2022) Working Group on Fisheries Benthic Impact and Trade-Offs (WGFBIT; outputs from 2021 meeting).		http://doi.org/10.17895/ices.pub.10042	Y

For a compressive overview of publications referring to/making use of EMODnet data and/or data products, please consult Google Scholar.

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?	In-house system	38 datasets were published during the first quarter of 2022. There was a mix of new data and updates to existing datasets, but the overall trend was of an increase of data, meaning that even for the updated datasets, more data were added. Data added covered all marine regions. For the Atlantic and North Sea, datasets included data from all sub-themes, whereas for the other regions, only a few sub-themes had an increase in published data. Note that the regions used for reporting are described in www.marineregions.org under EMODnet Biology Reporting Areas
B) Usage of data in this quarter	In-house system	Data usage decreased during the reporting period by 25%, with a slight decrease in the volume of data 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?	In-house system	There were no new products published during the reporting period, therefore no changes to report since the previous report Note that the regions used for reporting are described in www.marineregions.org under EMODnet Biology Reporting Areas
B) Usage of data products in this quarter	Matomo	No products were downloaded during the reporting period
3. Organisations supplying/approached to supply data and data products within this quarter		Data providers were a mix of project partners, Phase III data grant holders and volunteered data submissions. The first seven organisations are project partners with whom we have defined data submission protocols (link included in the table). Information on licenses can be found in this document in the Annex and more detailed information on sea basin and sub-theme can also be found through the dataset's metadata records whose links are also included in the Annexes section.
4. Online 'Web' interfaces to access or view data		There was no change to the services available since the last reporting period
5. Statistics on information volunteered through download forms		No relevant changes on the type of users, their regions of origina and data usage when compared with the previous quarter.

6. Published use cases		At the time of reporting, only four use cases were available via the Grafana tool. The recently published use case stats were retrieved from Matomo
8.1. Technical monitoring		The monitoring of the website's response time and uptime indicate that the portal was compliant with the INSPIRE requirements
9. Visibility & Analytics for web pages	Matomo	No recognisable changes in the number of average daily pageviews, but there was a slight decrease in the total number of pageviews during the quarter
10. Visibility & Analytics for web sections	Matomo	There was a visible decrease in number of total pageviews for the toolbox and geoviewer pages during the reporting period
11. Average visit duration for web pages	Matomo	Visit duration also decreased during the 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

Dataset	New/ Update	Phase	Organisation	License
Biocean	Update	ad hoc	IFREMER	Attribution (CC BY)
LifeWatch observatory data: phytoplankton observations by imaging flow cytometry (FlowCam) in the Belgian Part of the North Sea	Update	Phase IV	VLIZ	Attribution (CC BY)
Type locality distributions from the World Register of Marine Species	Update	Phase IV	VLIZ	Attribution (CC BY)
Zooplankton data collected in the Romanian Black Sea waters between 1961 and 1969	New	Phase III	NIMRD	Attribution-NonCommercial (CC BY-NC)
Zooplankton data collected in the Romanian Black Sea waters between 1956 and 1960	New	Phase III	NIMRD	Attribution-NonCommercial (CC BY-NC)
CETUS: Cetacean monitoring surveys in the Eastern North Atlantic	Update	Phase IV	CIIMAR	Attribution (CC BY)
Mesozooplankton, National Pilot Monitoring Studies 2017, EMBLAS-II	Update	Phase III	UkrSCES	CC 0 (No Rights Reserved)
Marine alien species in Eastern Sicily (year 2019)	New	Phase III	Marecamp	Attribution (CC BY)
Marine fauna in underwater monitoring (years 2015-2016)	New	Phase III	Marecamp	Attribution (CC BY)
Stable isotope ratios of C and N in benthic macrofauna from Mediterranean seagrass litter accumulations from Calvi Bay in 2011-2012	New	ad hoc	U Liège	Attribution (CC BY)
Benthic Haploniscidae (Isopoda) collected around Iceland during the BIOICE, IceAGE, IceAGE2, IceAGE RR and IceAGE3 expeditions in 1992-2020	New	ad hoc	Senckenberg	Attribution (CC BY)
Phytoplankton North Adriatic-Gulf of Trieste C1 – LTER time-series from 2010 onwards	Update	Phase IV	OGS	Attribution-NonCommercial (CC BY-NC)

Dataset	New/ Update	Phase	Organisation	License
Biometric measurements of the seagrass <i>Zostera noltii</i> in the Mira channel of the Ria de Aveiro throughout the year 2020	New	ad hoc	CIIMAR	CC 0 (No Rights Reserved)
HELCOM/OSPAR Ballast water observations	New	Ingestion	HELCOM OSPAR	- CC 0 (No Rights Reserved)
HELCOM/OSPAR Lithuania ports water sampling	New	Ingestion	HELCOM OSPAR	- CC 0 (No Rights Reserved)
Long-term cetacean monitoring in the Azores based on whale watching observations (2009-2020)	New	ad hoc	ARDITI	Attribution-ShareAlike (CC BY-SA)
HELCOM/OSPAR Netherlands ports water sampling	New	Ingestion	HELCOM OSPAR	- CC 0 (No Rights Reserved)
HELCOM/OSPAR Spain ports water sampling	New	Ingestion	HELCOM OSPAR	- CC 0 (No Rights Reserved)
Assessment of zooplankton at the site of the sinking of the N.R.P. "S. Miguel"	New	Phase IV	IPMA	Attribution-NonCommercial (CC BY-NC)
Dolphins validated sightings reported in the Mediterranean Sea from 2019 onwards by avvistAPP users	New	Phase IV	OGS	Attribution-NonCommercial (CC BY-NC)
Gelatinous zooplankton validated sightings reported in the Mediterranean Sea from 2019 onwards by avvistAPP users	New	Phase IV	OGS	Attribution-NonCommercial (CC BY-NC)
Sea turtles validated sightings reported in the Mediterranean Sea from 2019 onwards by avvistAPP users	New	Phase IV	OGS	Attribution-NonCommercial (CC BY-NC)
Living and Quaternary mollusca collected along the coast of Libya (Tripolitania) in spring 1913	New	Phase IV	OGS	Attribution-NonCommercial (CC BY-NC)
Marine Recorder Snapshot extract of surveys entered by JNCC	New	Phase IV	MBA	Attribution (CC BY)
Marine Recorder Snapshot extract of surveys entered by National Museums Northern Ireland (NMNI)	New	Phase IV	MBA	Attribution (CC BY)
Marine Recorder Snapshot extract of surveys entered by NRW	New	Phase IV	MBA	Attribution (CC BY)

Dataset	New/ Update	Phase	Organisation	License
Marine Recorder Snapshot extract of surveys entered by SeaSearch	New	Phase IV	MBA	Attribution (CC BY)
Marine Recorder Snapshot extract of surveys entered by NatureScot	New	Phase IV	MBA	Attribution (CC BY)
Marine Recorder Snapshot extract of surveys entered by Natural England	New	Phase IV	MBA	Attribution (CC BY)
Marine Recorder Snapshot extract of surveys entered by The archive for marine species and habitats data (DASSH)	New	Phase IV	MBA	Attribution (CC BY)
Marine Recorder Snapshot extract of surveys entered by Wildlife Trusts	New	Phase IV	MBA	NULL
Marine Recorder Snapshot extract of surveys entered by Kent Wildlife Trust	New	Phase IV	MBA	Attribution (CC BY)
Marine Recorder Snapshot extract of surveys entered by Sussex Wildlife Trust	New	Phase IV	MBA	Attribution (CC BY)
HELCOM/OSPAR Estonia ports water sampling	New	Ingestion	HELCOM OSPAR	CC 0 (No Rights Reserved)
The marine algae of Alexandria. I. A report on some marine algae collected from the vicinity of Alexandria by A. H. Nasr (1940). Notes and Memoirs No. 36	New	Phase IV	HCMR	CC 0 (No Rights Reserved)
Circalittoral faunal turf occurrences on the Azores shelves (central north Atlantic) from 2005 to 2018	New	ad hoc	IMAR	Attribution-NonCommercial-NoDerivatives (CC BY-NC-ND)
Black coral occurrences on the Azores shelves (central north Atlantic) from 1991 to 2019	New	ad hoc	IMAR	Attribution-NonCommercial-NoDerivatives (CC BY-NC-ND)
Rhodolith occurrences in the Azores (central north Atlantic) between 1998 and 2018	New	ad hoc	IMAR	Attribution-NonCommercial-NoDerivatives (CC BY-NC-ND)
Biometric measurements of the seagrass <i>Zostera marina</i> in the Mira channel of the Ria de Aveiro from December 2019 to August 2020	New	ad hoc	CIIMAR	CC 0 (No Rights Reserved)

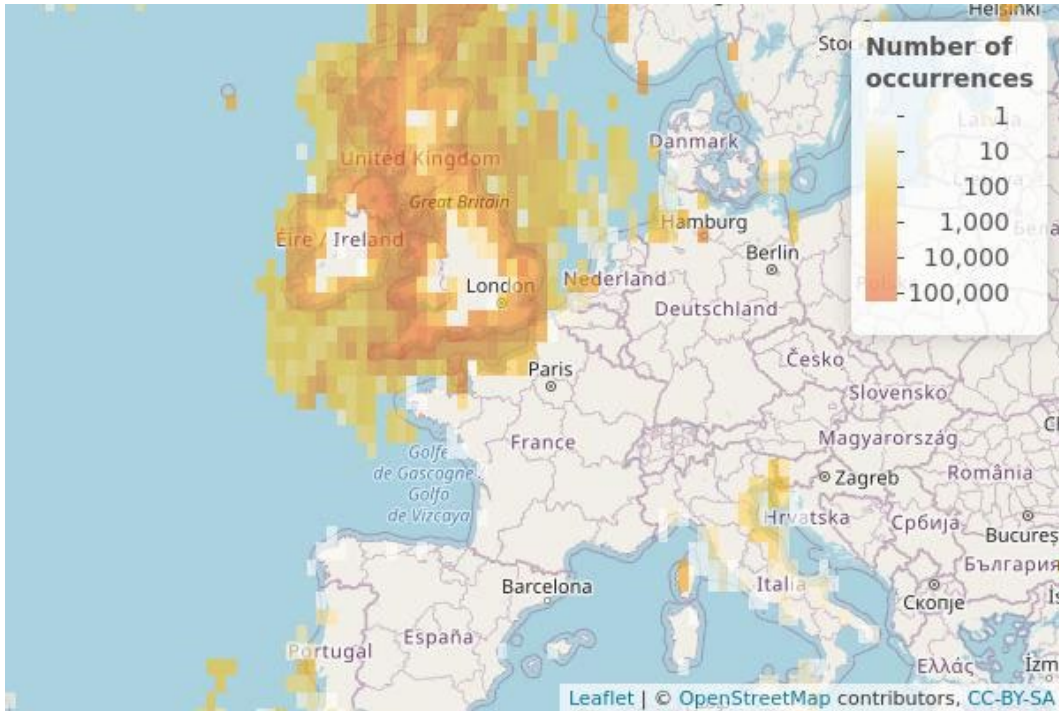


Figure 3. Map of gridded occurrences published by EMODnet Biology during the reporting period

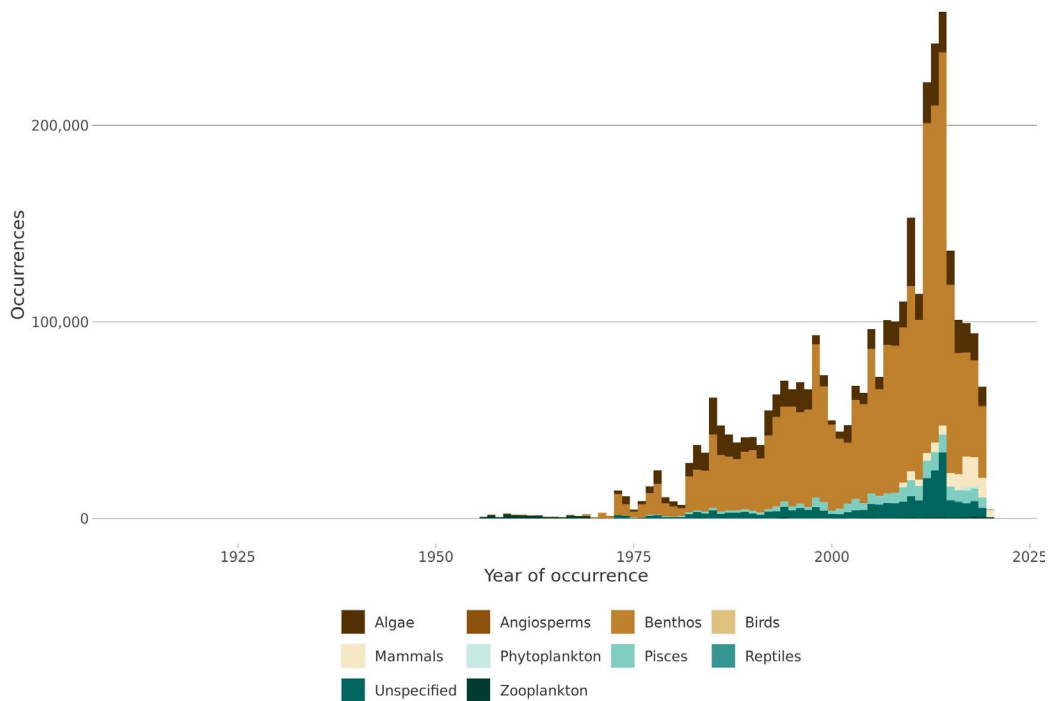


Figure 4. Number of occurrences, per year of sample and sub-theme, published by EMODnet Biology during the reporting period

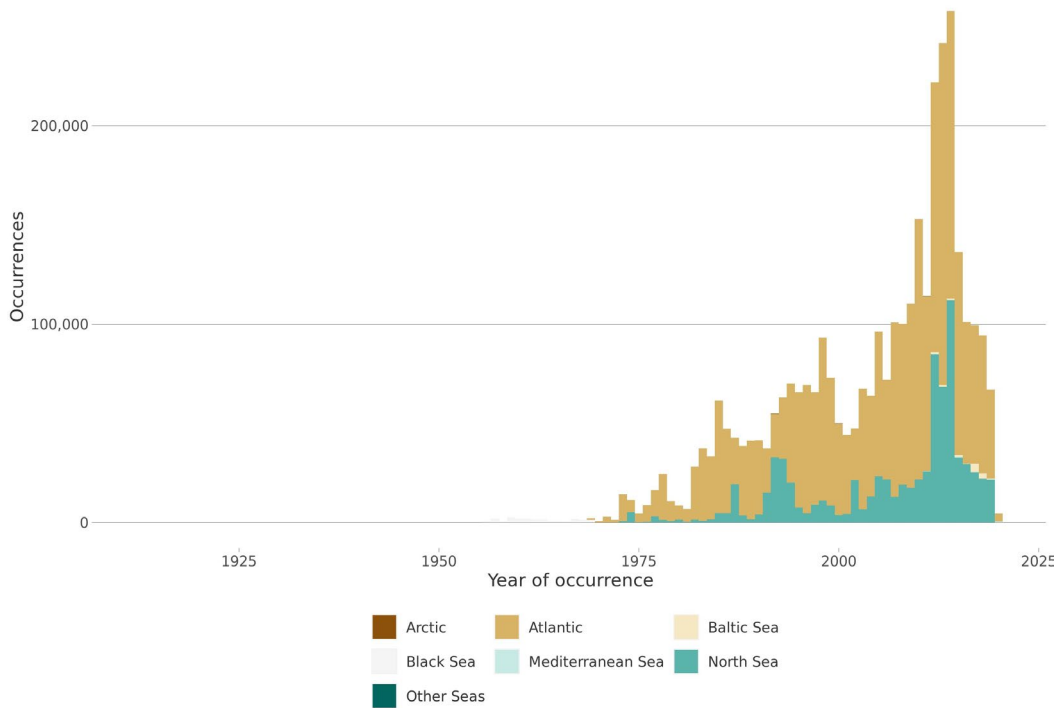


Figure 5. Number of occurrences, per sample year and marine region, published by EMODnet Biology during the reporting period

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

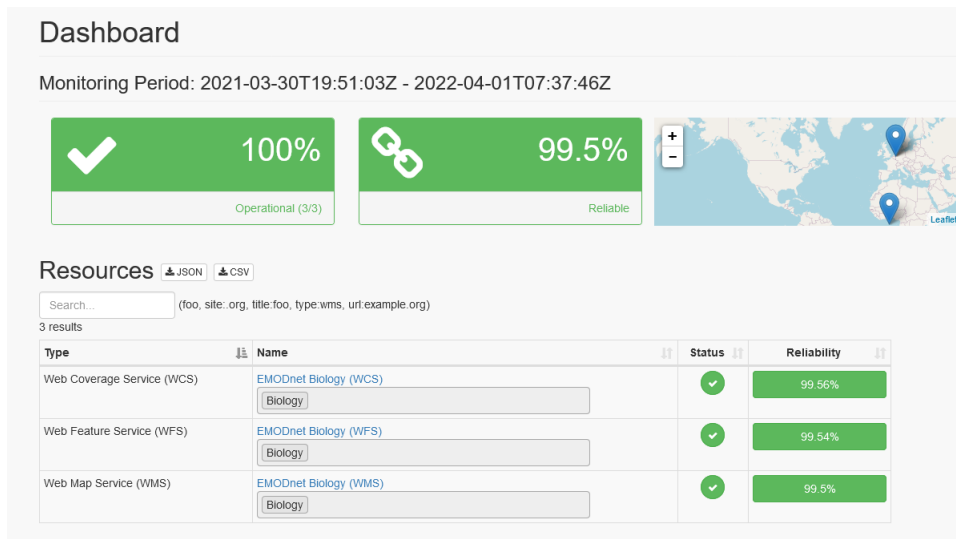


Figure 6. GeoHealthCheck overview for EMODnet Biology webservices monitoring covering the period from 2021-03-30 to 2022-04-01

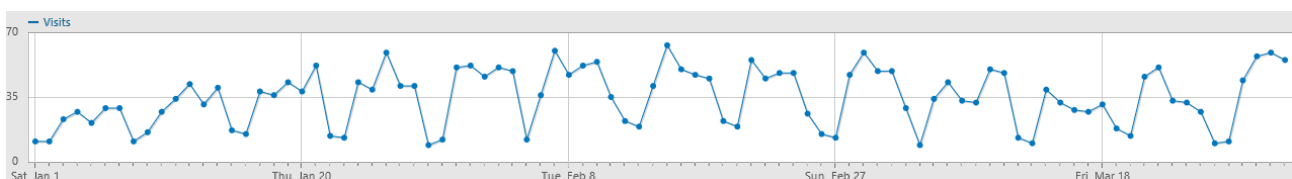


Figure 7. Website visits over time during the reporting period

Visits Overview

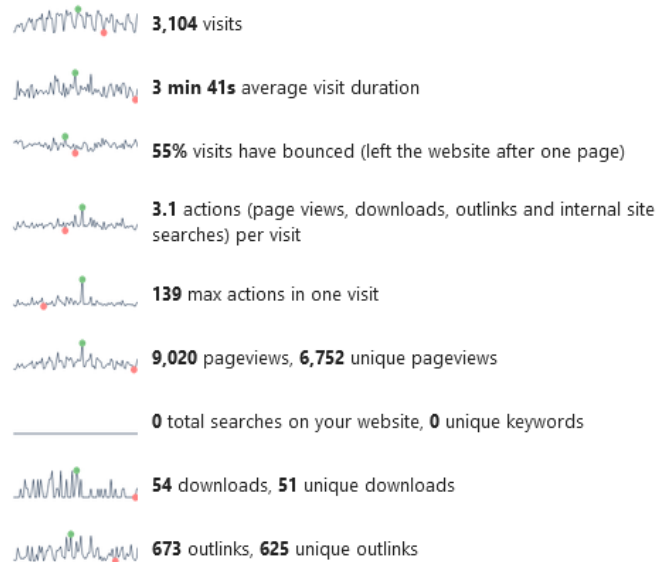


Figure 8. Website visits overview during the reporting period

Acronyms

WP- Work Package

WCS- Web Coverage Service

M2M- Machine to Machine

CSS- Cascading Style Sheets

CF NetCDF- Climate and Forecast Network Common Data Form

CP- Central Portal