



EMODnet Thematic Lot n°3 – Seabed Habitats

EASME/EMFF/2020/3.1.11/Lot3/SI2.843624

Start date of the project: 25/09/2021 (24 months)

Centralisation Phase

Quarterly Progress Report (8)

Reporting Period: 01/07/2023 – 30/09/2023

Contents

1. Highlights in this quarter	3
2. Identified issues: status and actions taken	15
3. Communication assets	Error! Bookmark not defined.
4. Monitoring indicators	22
5. Annex: Other documentation attached	24

Disclaimer

The information and views set out in this report are those of the author(s) and do not necessarily reflect the official opinion of the CINEA or of the European Commission. Neither the CINEA, nor the European Commission, guarantee the accuracy of the data included in this study. Neither the CINEA, the European Commission nor any person acting on the CINEA's or on the European Commission's behalf may be held responsible for the use which may be made of the information.

1. Highlights in this quarter

[List the quarterly progress for each of the tasks specified in Section 1.4.1 of the Tender Specifications; provide an explanation for any tasks in which progress has not been noted. Provide in the table a list of all Milestones and Deliverables as from the technical workplan in numerical order, the date due, status and date delivered. Max 2 pages]

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

We have further refined our guidance for the submission of point data to EMODnet Biology following feedback from partners and EMODnet Biology (D2.12). We have also mapped the OSPAR Threatened & Declining data to the OBIS Darwin Core schema (D2.14) however since OBIS will not accept datasets without occurrence data, OBIS is not a suitable long term storage solution for this dataset. It has therefore been agreed that the OSPAR datasets will continue to be made available through EMODnet Seabed Habitats instead (D2.15).

During this quarter we have also published a new vocabulary for Essential Fish Habitats on the NERC vocabulary server (D2.09)

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

A new version of EUSeaMap, named EUSeaMap 2023, has been developed. In this new iteration, EUSeaMap has been extended to the Caribbean Sea and the Caspian Sea. In mainland Europe progress lies in the integration of new data on seabed substrate (including EMODnet Geology seabed substrate product version 2023), bathymetry (EMODnet Bathymetry DTM 2022), wave energy and probability of occurrence of the halocline at the bottom of the Baltic Sea.

New combined, harmonized data products for the extent of wetland type (D3.05) and the Essential Ocean Variable (EOV) mangrove cover (D3.06) have been created. Furthermore, the three existing EOVs datasets (seagrass, macroalgae and hard corals) were updated with new data and where appropriate extended to the Caribbean Sea region (D3.03,D3.04,D3.05) and a report detailing their production produced (D3.12). The coralligenous (D3.08) and biogenic substrate (D3.09) composite layers has also been updated and reports (D3.10,D3.11) produced.

Task 3: Develop procedures for machine-to-machine connections to data and data products

During this quarter we have developed a list of point datasets, maps and models available via machine-to-machine connections (D2.16), and criteria to assess whether these should be accessed via machine to machine connection or downloaded and ingested into the EMODnet Seabed Habitats holdings directly.

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

We continue to work closely with the CP team to facilitate the optimum display of ESH data and products on the CP map viewer. During this quarter we have worked with the CP team to update the previous output (D5.11) summary of data and data products deliverable from ESH web servicesever. We have also delivered

presentations and posters at conferences and cross-cutting themes (D5.13), which, alongside a co-ordinated and sustained online presence (D5.12), has highlighted the availability of and access to EMODnet products. We have recorded all promotion and outreach material in our project logs (D5.15).

In September we carried out our third of four six-monthly bulk updates of data to the ESH portal (D4.13). A summary of the new data and products available is provided here: 7 classified essential fish habitat model datasets; 88 new individual habitat maps from surveys (seabed habitats and coastal wetland); 34 new survey sample point datasets including two submitted to EMODnet Biology; and 25 new and updated composite products.

Task 5: Contribute content to dedicated spaces in the Central Portal

During this quarter we have identified 2 new Use Cases which can be published to the central portal as required. This brings to 16 the number of Use Cases identified during this current phase (D5.10). We have also updated the summary of EMODnet Seabed Habitats data and data products on the central portal following the September upload (D5.11).

Task 6: Ensure the involvement of regional sea conventions (RSC)

We continue to collaborate with OSPAR and have agreed to continue to host and make available the Threatened and Declining datasets going forward.

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

Nothing to report.

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

We receive instant alerts about web performance problems and resolve them as necessary. During this quarter we resolved a key issue impacting a large number of our Geoserver layers following the critical upgrade in the previous quarter. We have received several pieces of feedback through our inbox and via the JIRA helpdesk and have always respond and resolve any issues promptly. For example, advising on access to EUSeaMap 2021 and timelines for the publication of EUSeaMap 2023.

Task 9: Maintain the existing thematic web portal for a maximum of 6 months from the start of the project

Nothing to report

Status of the Milestones and Deliverables listed in the workplan

Milestone/Deliverable in numerical order	WP	Date due	Status (To do/ Delivered/ Delayed)	Date delivered	If Delayed: reason for delay and expected delivery date
D1.01: Modified substrate data product including biogenic substrate and data not possible to include in EMODnet Geology product, but which would improve the broad-scale seabed habitat map for Europe (EUSeaMap) [dependent on new product from Geology]		125/05/2023	Delivered	02/08/2023	
D1.02: Confidence layer for modified substrate data product published		125/05/2023	Delivered	02/08/2023	
D1.03: A ready-to-use DTM for EUSeaMap		125/05/2023	Delivered	31/03/2023	
D1.04: Confidence layer for the DTM product published		125/05/2023	Delayed		Slight delay with publication due to some issues spotted during final QC. Very compressed timelines due to late delivery of input data from other lots. Anticipated to be published by mid October
D1.05: EUNIS-style habitat classification in the Caspian Sea for broad-scale habitat mapping		125/09/2022	Delivered	31/12/2022	
D1.06: EUNIS-style habitat classification in the Caribbean Sea for broad-scale habitat mapping		125/12/2022	Delivered	31/12/2022	
D1.07: Environmental layers for the Caspian Sea ready for EUSeaMap		125/12/2022	Delivered	30/09/2022	
D1.08: Environmental layers for the Caribbean Sea ready for EUSeaMap		125/12/2022	Delivered	31/12/2022	
D1.09: Halocline layer for the Baltic Sea ready for EUSeaMap		125/05/2022	Delivered	25/08/2022	
D1.10: Thresholds for Caspian, Caribbean, Baltic, and Mediterranean Seas		125/05/2023	Delivered	31/03/2023	
D1.11: Broad-scale seabed habitat map for Europe, Caribbean Sea, and Caspian,		125/09/2023	Delayed		Slight delay with publication due to some issues spotted

in EUNIS 2019 and MSFD broad habitat classifications, including a column that describes the habitat descriptor classes					during final QC. Very compressed timelines due to late delivery of input data from other lots. Anticipated to be published by mid October
D1.12: Confidence assessment for updated broad-scale seabed habitat map in all considered classifications	125/09/2023	Delayed			Slight delay with publication due to some issues spotted during final QC. Very compressed timelines due to late delivery of input data from other lots. Anticipated to be published by mid October
D1.13: Confidence associated to all environmental layers published	125/09/2023	Delayed			Slight delay with publication due to some issues spotted during final QC. Very compressed timelines due to late delivery of input data from other lots. Anticipated to be published by mid October
D1.14: A R script automating the calculation of environmental layers at the seabed from a CMEMS product archives	125/09/2022	Delivered	25/10/2022		
D1.15: Technical report published	125/09/2023	Delayed			Slight delay due to the delay in finalisation of EUSeaMap 2023. Anticipated to be published in October
D1.16: Well-documented R code and ArcGIS models used to construct the broad-scale seabed habitat map	125/09/2023	Delayed			Slight delay due to the delay in finalisation of EUSeaMap 2023. Anticipated to be published in October
D1.17: For Swedish waters, a modelled habitat map based on Geology's novel type of seabed substrate map for habitat modelling [dependent on applicability if this new type of map to habitat modelling]	125/12/2022	Cancelled	NA		Cancellation of this deliverable accepted by CINEA and DG MARE on 14 September 2022.

D2.01: An expanded library of maps of communities, biocenoses, biotopes and habitats for all of Europe, Caribbean Sea and Caspian Sea ingested and converted to a standard format, with metadata for every map	225/2/22-25/8/23	Delivered	01/09/2023	
D2.02: An expanded collation of point records of communities, biocenoses, biotopes and habitats for all of Europe, Caribbean Sea and Caspian Sea ingested and converted to a standard format, with metadata for every dataset	225/2/22-25/8/23	Delivered	01/09/2023	
D2.03: Updated and integrated templates for habitat map data exchange formats	225/11/2021	Delivered	30/06/2022	
D2.04: Webinars, tutorials or other forms of training material on the EMODnet Seabed Habitats data submission process	225/12/2021	Delivered	31/03/2022	
D2.05: An expanded library of modelled maps of specific habitats for all of Europe ingested and converted to a standard format, with metadata for every dataset	225/2/22-25/8/23	Delivered	01/09/2023	
D2.06: Evidence of use of the EMODnet Ingestion and safe-keeping of marine data facility for ingesting data points, maps and models from third parties	225/09/2023	Delivered	22/09/2023	
D2.07: Translation tables for coastal wetland types into one or more standard classifications	225/01/2022	Delivered	30/09/2022	
D2.08: A data submission process and protocol for coastal wetlands types maps and points	225/01/2022	Delivered	30/06/2022	
D2.09: Controlled vocabulary lists for classification systems published on NERC	25/12/21-225/08/23	Delivered	17/08/2023	

Vocabulary Server, as required				
D2.10: A library of maps of Essential Fish habitats maps for major fish species in the Mediterranean, North East Atlantic and Baltic Sea ingested and converted to a standard format, with metadata for every map	225/2/22-25/8/23	Delivered	01/09/2023	
D2.11: A data submission process and protocol for Essential Fish Habitats maps	225/01/2022	Delivered	30/06/2022	
D2.12: Formal protocol for data sharing and identification of relevant benthic data between EMODnet Biology and EMODnet Seabed Habitats	225/09/2022	Delivered	03/10/2022	
D2.13: Updated data model and guidance for benthic point data	225/09/2023	Delivered	22/09/2023	
D2.14: A standard transformation between OSPAR T&D data schema and OBIS Schema to enable import into OBIS, including a test pilot run using the 2022 OSPAR T&D database	225/09/2022	Delivered	21/09/2023	
D2.15: Agree a protocol with the OSPAR commission for the continued archiving of the public database within the OBIS network, pending success of D2.14	225/09/2023	Delivered	24/09/2023	
D2.16: List of point datasets, maps and models available via machine-to-machine connections	25/11/21- 225/8/23	Delivered	26/08/2023	
D2.17: Progress log for the ingestion of point data, maps and models	25/10/21- 225/09/23	Delivered	31/10/2022	
D3.01: A list of products to be created or updated and product specifications	325/03/2022	Delivered	19/10/2022	
D3.02: A combined, harmonized data product showing the best evidence for extent and distribution of the Essential Ocean Variable "Live hard coral	325/08/2023	Delivered	18/09/2023	

cover" in Europe, with metadata (updated)				
D3.03: A combined, harmonized data product showing the best evidence for extent and distribution of the Essential Ocean Variable "Seagrass cover" in Europe, with metadata (updated)	325/08/2023	Delivered	21/09/2023	
D3.04: A combined, harmonized data product showing the best evidence for extent and distribution of the Essential Ocean Variable "Macroalgal canopy coral cover" in Europe, with metadata (updated)	325/08/2023	Delivered	18/09/2023	
D3.05: A combined, harmonized data product showing the best evidence for the extent of wetland type in Europe, Caspian Sea and the Caribbean, with metadata (new)	325/04/2023	Delivered	23/05/2023	
D3.06: Data contributed to a harmonized data product showing the best evidence for extent and distribution of the Essential Ocean Variable "Mangrove cover and composition", with metadata (new, if required)	325/08/2023	Delivered	19/08/2023	
D3.07: Evaluation of EFH approaches to determine map suitability to combine into products useful for fisheries management and biodiversity conservation	325/05/2023	Delivered	30/06/2023	
D3.08: Combined, harmonized data products showing the best evidence for extent and distribution of habitats defined in other classifications in all regions, with metadata, depending on stakeholder needs (new)	325/08/2023	Delivered	18/09/2023	
D3.09: An updated combined, harmonized data product showing the best	331/05/2023	Delivered	12/06/2023	

evidence for the extent of biogenic substrate in all regions, with metadata (updated)					
D3.09: An updated combined, harmonized data product showing the best evidence for the extent of biogenic substrate in all regions, with metadata (updated)		325/01/2023	Delivered	12/06/2023	
D3.10: Report detailing the construction of the biogenic habitat data product (updated)		325/05/2023	Delivered	30/09/2023	
D3.11: Report(s) detailing the construction of the data products defined by stakeholder needs (new)		325/09/2023	Delivered	30/09/2023	
D3.12: Report detailing the construction of the Essential Ocean Variable data products (updated)		325/09/2023	Delivered	25/09/2023	
D4.01: A web portal including a digital map, facilities for downloading data, metadata search and technical information		425/09/2021	Delivered	25/09/2021	
D4.02: Contribute to EMODnet Technical Working Group as necessary		4As necessary	Delivered	04/05/2023	
D4.03: Minutes & actions from Technical Working Group within 1 month of meeting		Within 1 month 4 of each meeting	Delivered	05/05/2023	
D4.04: Ad hoc changes to website and visual identity, as requested by Secretariat		25/10/21- 425/03/22	Delivered	30/09/2022	
D4.05: A set of data schema standards for the provision of habitat data, built upon international standard.		425/09/2021	Delivered	25/09/2021	
D4.06: Method for indirect cascading of problematic external services prior to onward publication	4	25/12/2022	Delivered	11/11/2022	
D4.07: Habitat ground-truthing data from EurOBIS extracted via web services	4	25/12/2021	Delayed		This deliverable is dependent on EMODnet Biology making technical enhancements to their

					infrastructure to allow habitat only data to be stored and extracted as web services. We had originally hoped that this would be complete by September 2023 however EMODnet Biology have not had capacity to do this and do not yet have the work scheduled in. Request cancellation of this deliverable.
D4.08: IPT (or alternative) infrastructure for the publication of habitat data into EurOBIS	4	25/08/2023	Delivered	30/09/2022	
D4.09: Internal database of unpublishable habitat data for use in WP1 and to aid public discoverability	4	25/09/2021	Delivered	25/09/2021	
D4.10: A GeoServer web-server for the provision of OGC spatial web-services (WMS, WFS, WCS)	4	25/09/2021	Delivered	25/09/2021	
D4.11: A plan of action for the provision of key habitat datasets as attributed raster data	4	25/08/2022	Delivered	26/09/2022	
D4.12: A GeoNetwork INSPIRE-compliant metadata instance with OGC CSW capabilities	4	25/09/2021	Delivered	25/09/2021	
D4.13: Publication to the central portal of relevant data and products collected and created under WP1 and WP2	4	25/03/22 with updates at least every 6 months	Delivered	22/09/2023	
D4.14: Website liaison and training node between lot partners/content creators and central portal team.	4	25/09/2021	Delivered	25/09/2021	
D4.15: Transfer of key habitat mapping resources from the thematic portal to the central portal	4	25/09/2022	Delivered	25/09/2022	
D4.16: Direct link to the HELCOM Mapping and Data Service, and similar services	4	25/03/2022	Delivered	30/06/2022	

from other Regional Sea Conventions where feasible					
D4.17: A direct data link to the ICES VME database, providing access to vulnerable marine ecosystem data	4	25/03/2022	Delivered	31/03/2022	
D4.18: Tracked issues and suggestions regarding the portal and services, and improvements made as a result.	4	25/09/2021	Delivered	25/09/2021	
D4.19: Abstracts submitted for annual INSPIRE conference and participation in community forum where relevant.	4	depends on conference dates	Cancelled	NA	
D4.20: Publication of relevant products, datasets and services through EOSC and EUODP	4	25/12/2022	Delivered	30/06/2023	
D4.21: Live operation of help desk 9-5, Mon-Fri	4	25/10/2021	Delivered	25/09/2021	
D4.22: Collated anonymous questions and answers published on the portal and through RSS (or alternative mechanism after portal retirement).	4	25/10/2021	Cancelled	NA	
D4.23: Provision of Matomo (or similar as steered by secretariat) web analytics information to secretariat for reporting	4	25/09/2021	Delivered	25/09/2021	
D4.24: Statistics from OGC webservice usage - to be guided by secretariat.	4	25/12/2021	Delivered	30/09/2021	
D5.01: Evidence of efforts to ensure maximum coherence with data delivery to and from regional sea conventions	5	25/09/2023	Delivered	25/09/2023	
D5.02: Updated review of RSC needs	5	25/01/2022	Delivered	16/12/2022	
D5.03: Liaise with ICES in advance of annual WG meetings to ascertain products they require for reporting on ToRs	5	25/05/2022, 25/05/2023	Delivered	31/08/2022	

D5.04: Tutorials for creating new maps from existing data	5	25/03/2023	Delivered	26/03/2023	
D5.05: Promotion of simple procedural guidelines for creating alternative data formats from existing data formats	5	25/03/2023	Delivered	26/03/2023	
D5.06: Tutorial on how to format habitat maps using templates and to simplify the data submission process.	5	25/03/2023	Delivered	31/03/2022	Delivered in advance of original planned date due to dependency with D2.04
D5.07: Evidence of engagement with relevant working groups and expert groups to gather feedback and needs of habitat data requirements and products that will help Member States to fulfil reporting obligations	5	25/01/22- 25/09/23	Delivered	30/09/2022	
D5.08: Minutes of meeting(s) with EMODnet biology	5	25/03/2022	Delivered	31/03/2022	
D5.09: Communications plan	5	25/01/2022	Delivered	31/03/2022	
D5.10: New use cases on the EMODnet central portal	5	25/10/21- 25/09/23	Delivered	25/09/2023	
D5.11: A prominent summary of the data and data products available from EMODnet seabed Habitats web services	5	25/09/2022	Delivered	22/09/2023	
D5.12: Co-ordinated and sustained online presence: news stories, blogs, tweets, etc.	5	25/10/21- 25/09/23	Delivered	25/09/2023	
D5.13: Presentations and posters at conferences and cross-cutting meetings	5	25/10/21- 25/09/23	Delivered	25/09/2023	
D5.14: ESRI story maps / Infographics	5	25/03/2022	Delivered	31/12/2021	
D5.15: Record of all promotion and outreach activities	5	25/10/21- 25/09/23	Delivered	25/09/2023	
D6.01: Project management plan and project initiation document	6	25/10/2021	Delivered	30/11/2021	

D6.02: Project quality management plan and project audit document	6	25/10/2021	Delivered	30/06/2022	
D6.03: Consortium Agreement	6	25/10/2021	Delivered	31/03/2022	
D6.04: Participation in EMODnet SC meetings as necessary	6	As necessary	delivered	23/05/2023	
D6.05: Minutes & actions from Steering Committee meetings within 1 month of meeting	6	Within 1 month of each meeting	delivered	23/06/2023	
D6.06: Progress meeting 1 - WP leads	6	25/03/2022	Delivered	31/03/2022	
D6.07: Minutes & actions from progress meeting 1	6	Within 1 month of meeting	Delivered	31/03/2022	
D6.08: Progress meeting 2 - whole consortium	6	25/03/2023	Delivered	14/12/2022	
D6.09: Minutes & actions from progress meeting 2	6	Within 1 month of meeting	Delivered	14/12/2022	
D6.10: Quarterly progress report to EASME, DG-MARE and EMODnet Secretariat	6	15 Jan, 15 Apr, 15 Jul & 15 Oct each year	Delivered	14/10/2023	
D6.11: Interim report	6	25/09/2022	Delivered	24/10/2022	
D6.12: Submission of the invoice for the interim payment	6	25/09/2022	Delivered	23/11/2022	
D6.13: Final report	6	25/09/2023	To do		
D6.14: Submission of the invoice for the final payment	6	25/09/2023	To do		

2. Identified issues: status and actions taken

[Provide an **overview of issues** identified by CINEA/ DG MARE/ Secretariat (Table A) in the past quarter - new as well as pending ones, the status of those issues, and actions taken to address them and/or roadmap with remaining actions planned to resolve the issues. In Table B, provide information about any issues and challenges identified by yourself.]

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
EM-88 (Sub-task) Seabed Habitats - Web Services MetadataUrl and DataUrl fields	pending	All metadata url issues resolved. No current outstanding problems but issue remains open as regular checks occur	none	
EM-146 (Sub-task) Seabed Habitats Quality of Service Monitoring: Several of the services did not meet the 99% availability this quarter, and one of the WMS didn't meet the performance requirement of 5 sec.	pending	substantial work has gone into investigating the causes of the performance issues and the development of a solution (the so-called 'self-healing' GeoServer. However, this solution is relatively novel as has come across several hurdles. Our next steps are to instigate a data cleansing process to find and eliminate any geometry issues and to add an additional Geoserver instance to help share the load.	none	
EM-391 (Sub-task) SBH review of the new CP Map Viewer	pending	tasks complete to date but this issue remains open for future requests for SBH to review the CP	none	
EM-644 (Sub-task) Seabed Habitats to provide input to the Tools & Guidelines section	pending	Tools and guidelines have been added to the central portal. Report uploads are in progress	none	

EM-665 (Task) TWG12 - CP & SBH to investigate if CP viewer can dealwith layer group styles	pending	we have investigated this but it does not resolve the duplicated legend issue for group layers in the central portal. A temporary solution has been proposed and work is underway.	none	
-------------------------------------------------------------------------------------------------------	---------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------	--

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
EM-412 (New Feature) In the layer catalogue on new central portal, indicate which layer groups contain active layers	pending	This is a issue/suggestion that SBH made related to the functionality of the CP	none	
EM-513 (New Feature) In the layer catalogue, add the ability toggle entire layer groups on or off	pending	This is a issue/suggestion that SBH made related to the functionality of the CP	none	
EM-515 (New Feature) Ability to filter habitat layers by habitat type or map ID	pending	This is a issue/suggestion that SBH made related to the functionality of the CP	none	
EM-621 (Improvement) manual sorting of layers, rather than alphabetically	pending	This is a issue/suggestion that SBH made related to the functionality of the CP	none	
EM-623 (Improvement) improve access to metadata and download	pending	This is a issue/suggestion that SBH made related to the functionality of the CP	none	
EM-688 (Improvement) correction to a use case	resolved	This is a issue that SBH flagged with one of the use cases which had been reported by a user. CP have corrected so just needs to be reviewed by us	none	30/09/2023

EM-798 (Task) Products catalogue - metadata not updated	pending	Issue flagged by SBHs whereby changes we implement to our metadata are not being carried through to the products catalogue. We have provided some examples for the central team to look at		
EM-802 (Task) New Ramsar and EFH layers for CP viewer	resolved	Mostly complete just awaiting SBHs review		10/07/2023
We have found a problem with the new version of the EMODnet DTM. There are areas, typically bays and estuaries, with depth values that are too high to a sometimes surprising degree. It appears that in all these areas GEBCO 2022 is used. This problem will lead to classification errors in EUSeaMap, and we cannot publish EUSeaMap with such classification errors (they cover too large an area).	pending	We have reported the problem to EMODnet Bathymetry and discussed it with them. Their view is that the problem should be solved by GEBCO first, and as a result future versions of the EMODnet DTM will de facto be corrected. Therefore, we will have to manually correct the classification errors of EUSeaMap in a post-processing step. We will discuss this with bathymetry in the next phase.		
We have submitted a number of habitat point datasets to EMODnet Biology during this phase, however since this lacks occurrence data it requires significant technical updates to the EMODnet Biology systems to facilitate the display of this data through their web services. Until this is done we cannot progress our plan to submit the	pending	Seabed Habitats and Biology have had a number of discussions on this and will continue the discussions at the Jamboree in November 2023.		

habitat point data via this route.				
------------------------------------	--	--	--	--

3. Communication assets

[In Table A, list peer reviewed publications directly (co-)authored by consortium and project partners in the reporting period. In Table B, list all non-peer reviewed publications (co-)authored. In all cases, indicate the type of publication, provide the full reference incl. title, volume and issue etc., and whether the publication is open or closed access.]

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
July 2023	Paper	Angiolillo, M.; Bertasi, F.; Grossi, L.; Loia, M.; Vani, D.; Rende, S.F.; Giusti, M.; Tunesi, L. Deep Aggregations of the Polychaete <i>Amage adspersa</i> (Grube, 1863) in the Ionian Sea (Central Mediterranean Sea) as Revealed via ROV Observations. <i>Diversity</i> 2023, 15, 906.		http://dx.doi.org/10.3390/d15080906	Yes
Aug 2023	Paper	Enrichetti, F.; Bavestrello, G.; Cappanera, V.; Mariotti, M.; Massa, F.; Merotto, L.; Povero, P.; Rigo, I.; Toma, M.; Tunesi, L. ; et al. High Megabenthic Complexity and Vulnerability of a Mesophotic Rocky Shoal Support Its Inclusion in a Mediterranean MPA. <i>Diversity</i> 2023,15, 933.		http://dx.doi.org/10.3390/d15080933	Yes
Aug 2023	Paper	Andersen, J.H., Al-Hamdani, Z. , Carstensen, J. et al. Are European Blue Economy ambitions in conflict with European environmental visions? <i>AMBIO A Journal of the Human Environment</i> (2023).		http://dx.doi.org/10.1007/s13280-023-01896-3	Yes
Sep 2023	Paper	Cross-Comparison of the “BathySent” Coastal Bathymetry to Sonar Measurements and Ratio Model Technique: Pilot Sites in the Aegean Sea (Greece). Paraskevi Drakopoulou , Ioannis P. Panagiotopoulos, Marcello de Michele, Vassilios Kapsimalis, Daniel Raucoules, Michael Foumelis, Ioannis Morfis, Isidoros Livanos, Dimitris Sakellariou and Dimitrios Vandarakis. <i>Water</i> 15(18):3168. 2023.		https://doi.org/10.3390/w15183168	Yes

Sep 2023	Paper	M Rodriguez, D Sakellariou , C Gorini, A Janin, E D'Acremont, L Le Pourhiet, N Chamot-Rooke, K Tsampouraki-Kraounaki, I Morfis, G Rousakis, P Henry, A Lurin, M Delescluse, P Briole, A Rigo, S Arsenikos, C Bulois, D Fernández-Blanco, A Beniest, C Grall, F Chanier, F Caroir, J-X Dessa, D Oregioni, A Nercessian, Evolution of the North Anatolian Fault from a diffuse to a localized shear zone in the North Aegean Sea during the Plio-Pleistocene, Geophysical Journal International, 2023.		https://doi.org/10.1093/gji/ggad364	Yes
----------	-------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	---------------------------------------------------------------------------------------	-----

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
Aug 2023	Supplementary Material	Jesper H. Andersen. Zyad Al-Hamdani , Jacob Carstensen, Karen Edelvang, Josefine Egekvist, Berit C. Kaae, Kathrine J. Hammer, Eva Therese Harvey, Jørgen O. Leth, Will McClintock, Ciarán Murray, Anton S. Olafsson, Jeppe Olsen, Signe Sveegaard, Jakob Tougaard. Electronic Supplementary Material: Are European Blue Economy ambitions in conflict with European environmental visions?		https://www.researchgate.net/publication/373492132_ECOMAR_Supplementary_Material_Finalpdf	Yes
Sep 2023	Conference abstract	Salomidi, M. et al. Remarkable Sponge Communities in Coralligenous Banks Of The North Aegean Sea. 5th International Workshop on Taxonomy of Atlanto-Mediterranean Deep-Sea & Cave Sponges (Rapallo, Italy).		http://dx.doi.org/10.13140/RG.2.2.19258.36804	Yes

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

3. Monitoring indicators

[Refer to the standardised monitoring tool, i.e. Europa Analytics, to complete the indicators excel template, and provide a short explanation in the table below on the numbers and trends for each indicator when possible/applicable. Indicate clearly if monitoring was carried out using tools other than Europa Analytics.]

Comments on the progress indicators in the indicators spreadsheet		
Progress indicator	Means of collecting figures	Comment
1. Current status and coverage of total available thematic data A) Volume and coverage of available data	Custom postgresql views and geoserver layers including vocabulary keyword tagging) with python scripting	Final batch of Phase IV data added to the portal during this quarter. The increase in volume of data comes from 32 new datasets, most of which are in the Atlantic and North Sea but data also added in the Black Sea and Arctic.
What is your opinion on the data coverage within EMODnet for your thematic?		Point data coverage is concentrated in the EEZs of countries where project partners are based. There is likely to be much more data to be found in countries like Spain, Poland, Croatia, etc., which we may be able to target with dedicated subcontracts. We will also look to improve the coverage in areas such as the Caribbean during the next phase
B) Usage of data in this quarter	Custom geoserver layers (including vocabulary keyword tagging), with python scripting, geoserver server-side logging and data download logging	Data downloads are increased from last quarter. However the WMS, WFS requests and map visualisation are lower than last quarter perhaps as a result of the summer holidays.
2. Current status and coverage of total number of data products	Custom postgresql views and geoserver layers including vocabulary	Final phase IV updates of data to the portal during this quarter. This includes the addition of 7 new essential fish habitat models, 88 new individual habitat maps

A) Volume and coverage of available data products	keyword tagging) with python scripting	from survey (including new coastal wetlands datasets) mostly from the Caribbean and 25 new and updated composite datasets.
B) Usage of data products in this quarter	Custom geoserver layers (including vocabulary keyword tagging), with python scripting, geoserver server-side logging and and data download logging	Data downloads are much higher than in the last quarter. The reason for this is unclear. However the WMS requests and map visualisation are lower than last quarter perhaps as a result of the summer holidays. The WFS requests are more mixed with some much increased and others reduced.
3. Internal and external organisations supplying/approached to supply data and data products within this quarter	Tracking tables in sharepoint.	This quarter we have acquired 60 datasets and data products from 11 organisations
5.1 Daily number of page views of EMODnet Thematic entry page	Europa Analytics	Slightly reduced peaks compared to last quarter ~50 compared to over 80, but this may be due to the summer holidays. There are still a fairly regular pattern, usually over 35 views a day on week days.
5.2 Quarterly total number of visitors, page views, unique page views and percentage of returning visitors	Europa Analytics	Total number of visitors, page views and unique page views is slightly down on last quarter particularly during August. However this may be just the impact of the summer holiday period. The % of returning visitors remains fairly consistent between the quarters.

The monitoring numbers reported as part of the progress monitoring of EMODnet performance are collected through Europa Analytics, unless reported otherwise.

4. Annex: Other documentation attached

[List in Annex if you wish to provide any additional information.]