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 (4)

Reporting Period: 01/07/2022 – 30/09/2022

Contents

Disclaimer

1.   Highlights in this quarter

*[**List 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 and status. Max 2 pages]*

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

- In response to the widening thematic scope in this most recent phase to include coastal wetlands, we have produced a guidance document, primarily aimed at members of the project consortium, which clarifies what is within the scope of 'coastal wetlands' for the purposes of this contract, including which classification schemes. This was produced to support D2.08, which was delivered last quarter, and will ensure that consortium members can more easily recognise whether a dataset is within the scope of EMODnet Seabed Habitats or not.

- A common method of access to data includes using standard vocabularies for describing the subject of the data. Until now, the global Ramsar Classification System for Wetland Type was only available to view online in Word and PDF documents. To ensure the use of a standard vocabulary for wetlands, we submitted the Ramsar classification to the NERC Vocabulary Server, which has now been published as collection M28 and M29 (D2.09). This provides a definitive set of terms in both human- and machine-readable formats.

- Additional value can be extracted from classified data such as habitats and wetlands if they can be translated into other classification schemes that are tied to policy and legislation. While there are existing translation tables between several seabed habitat classification schemes, there were no known translation tables for coastal wetland classifications. Therefore, we have produced the first known translation table between the Ramsar Classification System for Wetland Type and Annex I of the Habitats Directive (D2.07), which will ensure that data classified according to one scheme may be reused for other purposes.

- As part of our long-term plan to submit all point observations of habitats directly to EurOBIS, we requested that VLIZ set up all ESH partners with accounts on the 'Integrated Publishing Toolkit' for EurOBIS data providers. This will enable us to upload data and reformat it ready for integration into EurOBIS (D4.08).

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

- Based on DHI operational Hydrodynamic 3D Model DKBS2hd model run results, a point dataset describing for each year the probability of a certain seabed location in the Baltic Sea being located below the deep halocline has been created (D1.09). The spatial coverage is the Baltic Sea. The spatial resolution is 5km. The temporal coverage is 20 years (2001-2020). This new dataset will be used in the development of the EUSeaMap product, more specifically in modelling the spatial distribution of the biological zones 'circalittoral' and 'offshore circalittoral'. Indeed, according to the EUNIS habitat classification, in the Baltic Sea the circalittoral is above the halocline, while the offshore circalittoral is below.

- In previous phases the ESH consortium has put substantial work into modelling the hydrodynamic conditions at the seabed, using hydrodynamic models from CMEMS and the digital elevation model from EMODnet Bathymetry as the inputs. Now, we have produced the first draft of a Python script

that, once published, will allow anybody to do the same, for an area and time period of interest (D1.14).

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

- Nothing to report.

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

- In September we carried out our second of four six-monthly bulk updates of data to the ESH portal. For the first time, this has include maps of Essential Fish Habitats, which is a new sub-theme in this phase. Note that the other new sub-theme, coastal wetlands, is not treated separately to seabed habitats because there is no clear distinction between them. A summary of the new data and products available is provided here:
  - Environmental variables that influence habitat type: nine new models for the Caspian Sea – two of which have been used to update Europe-wide layers (part of D4.13)
  - Individual habitat maps from surveys (essential fish habitats): 20 classified maps and four models (part of D2.10)
  - Individual habitat maps from surveys (seabed habitats and coastal wetland): 17 new and one updated (part of D2.01)
  - Survey sample points: 12 datasets – 2,311 points (part of D2.02)
  - Modelled maps of specific habitats: three models (part of D2.05)
- We continue to work closely with the CP team to facilitate the optimum display of ESH data and products on the CP map viewer, finding solutions to issues as they arise in a timely manner.

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

- We continue to work closely with the CP team to ensure that all static content is transferred from the ESH website to the relevant pages on the central website.

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

- Over the summer we have provided additional support to the OSPAR data call for threatened and/or declining habitats.

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

- We were contacted by the chair of the MSFD Technical Group on Seabed Integrity (TG Seabed) in July to discuss some queries from some Member States about the use of EMODnet products such as EUSeaMap in MSFD assessments. In September we attended their meeting and presented on EUSeaMap and the EUNIS habitat classification to address some of the questions (part of D5.07).

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

- We receive instant alerts about web performance problems and resolve them as necessary.
- We have received several pieces of feedback through our web form and always respond and resolve any issues promptly (see User Feedback table).

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

- We have continued to maintain the existing thematic web portal for even longer than 6 months.

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]	1	25/05/2023	To do		
D1.02: Confidence layer for modified substrate data product published	1	25/05/2023	To do		
D1.03: A ready-to-use DTM for EUSeaMap	1	25/05/2023	To do		
D1.04: Confidence layer for the DTM product published	1	25/05/2023	To do		
D1.05: EUNIS-style habitat classification in the Caspian Sea for broad-scale habitat mapping	1	25/09/2022	Delayed		A first workshop between GeoEcoMar and Ifremer was organised in Constanta in May 2022. Good progress was made, but more work was required. A second workshop will be held in early November 2022 in Bucharest with the objective of finalising the definition of the broad habitat types by the end of the workshop. We do not envisage any onward delays as we have made enough progress to allow us to make decisions about the data requirements, and the final classification of the map will be at the end of the project. Expected due date: 2022 Q4.
D1.06: EUNIS-style habitat classification in the Caribbean Sea for broad-scale habitat mapping	1	25/12/2022	To do		
D1.07: Environmental layers for the Caspian Sea ready for EUSeaMap	1	25/12/2022	To do		
D1.08: Environmental layers for the Caribbean Sea ready for EUSeaMap	1	25/12/2022	To do		
D1.09: Halocline layer for the Baltic Sea ready for EUSeaMap	1	25/05/2022	Delivered	25/08/2022	Delivered
D1.10: Thresholds for Caspian, Caribbean, Baltic, and Mediterranean Seas	1	25/05/2023	To do		

Deliverable					
D1.11: Broad-scale seabed habitat map for Europe, Caribbean Sea, and Caspian, in EUNIS 2019 and MSFD broad habitat classifications, including a column that describes the habitat descriptor classes	1	25/09/2023	To do		
D1.12: Confidence assessment for updated broad-scale seabed habitat map in all considered classifications	1	25/09/2023	To do		
D1.13: Confidence associated to all environmental layers published	1	25/09/2023	To do		
D1.14: A R script automating the calculation of environmental layers at the seabed from a CMEMS product archives	1	25/09/2022	Delayed		A first version of scripts was developed, but did not pass all the tests. Bugs are being fixed. This is a standalone deliverable and no other deliverables are dependent upon it. Expected due date: 2022 Q4.
D1.15: Technical report published	1	25/09/2023	To do		
D1.16: Well-documented R code and ArcGIS models used to construct the broad-scale seabed habitat map	1	25/09/2023	To do		
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]	1	25/12/2022	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	2	25/2/22-25/8/23	To do		
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	2	25/2/22-25/8/23	To do		
D2.03: Updated and integrated templates for habitat map data exchange formats	2	25/11/2021	Delivered	30/06/2022	Delivered

D2.04: Webinars, tutorials or other forms of training material on the EMODnet Seabed Habitats data submission process	2	25/12/2021	Delivered	31/03/ 2022	Delivered
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	2	25/2/22- 25/8/23	To do		
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	2	25/09/2023	To do		
D2.07: Translation tables for coastal wetland types into one or more standard classifications	2	25/01/2022	Delivered	30/09/ 2022	Delivered
D2.08: A data submission process and protocol for coastal wetlands types maps and points	2	25/01/2022	Delivered	30/06/ 2022	Delivered
D2.09: Controlled vocabulary lists for classification systems published on NERC Vocabulary Server, as required	2	25/12/21- 25/08/23	To do		
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	2	25/2/22- 25/8/23	To do		
D2.11: A data submission process and protocol for Essential Fish Habitats maps	2	25/01/2022	Delivered	30/06/ 2022	Delivered
D2.12: Formal protocol for data sharing and identification of relevant benthic data between EMODnet Biology and EMODnet Seabed Habitats	2	25/09/2022	Delivered	03/10/ 2022	Delivered
D2.13: Updated data model and guidance for benthic point data	2	25/09/2023	To do		
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	2	25/09/2022	Delayed		2022 OSPAR T&D database won't be published until 2023 Q2. In addition, there are plans to overhaul the schema of the OSPAR T&D database to better align it with other schemas, which is not due to be completed before the end of this project. Therefore it may not be

					possible or, at least, sensible, to complete this internal deliverable. If not, then it would also impact D2.15. However, these two deliverables were additional 'bonus' activities proposed by the consortium and are therefore not considered to be essential for the delivery of the tasks dictated by the technical specification.
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	2	25/09/2023	To do		
D2.16: List of point datasets, maps and models available via machine-to-machine connections	2	25/11/21-25/8/23	To do		
D2.17: Progress log for the ingestion of point data, maps and models	2	25/10/21-25/09/23	Delivered	31/10/2022	Delivered
D3.01: A list of products to be created or updated and product specifications	3	25/03/2022	Delayed		Most of the data products to be created or updated were defined in the project proposal; however, we also explained that we could produce additional products if required by stakeholders such as Regional Sea Comissions. The review of stakeholder requirements is ongoing (part of WP5) and so the final list that includes additional products has not yet been finalised. The work to produce such products was always going to take place in year 2, so this should not cause any onward delays. Expected due date: 2023 Q4.
D3.02: A combined, harmonized data product showing the best evidence for extent and distribution of the Essential Ocean Variable "Live hard coral cover" in Europe, with metadata (updated)	3	25/08/2023	To do		
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)	3	25/08/2023	To do		

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)	3	25/08/2023	To do
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)	3	25/04/2023	To do
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)	3	25/08/2023	To do
D3.07: Evaluation of EFH approaches to determine map suitability to combine into products useful for fisheries management and biodiversity conservation	3	25/05/2023	To do
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)	3	25/08/2023	To do
D3.09: An updated combined, harmonized data product showing the best evidence for the extent of biogenic substrate in all regions, with metadata (updated)	3	25/01/2023	To do
D3.10: Report detailing the construction of the biogenic habitat data product (updated)	3	25/05/2023	To do
D3.11: Report(s) detailing the construction of the data products defined by stakeholder needs (new)	3	25/09/2023	To do
D3.12: Report detailing the construction of the Essential Ocean Variable data products (updated)	3	25/09/2023	To do

D4.01: A web portal including a digital map, facilities for downloading data, metadata search and technical information	4	25/09/2021	Delivered	25/09/2021	Delivered
D4.02: Contribute to EMODnet Technical Working Group as necessary	4	As necessary	To do		
D4.03: Minutes & actions from Technical Working Group within 1 month of meeting	4	Within 1 month of each meeting	To do		
D4.04: Ad hoc changes to website and visual identity, as requested by Secretariat	4	25/10/21-25/03/22	Delivered	30/09/2022	Delivered
D4.05: A set of data schema standards for the provision of habitat data, built upon international standard.	4	25/09/2021	Delivered	25/09/2021	Delivered
D4.06: Method for indirect cascading of problematic external services prior to onward publication	4	25/12/2022	To do		
D4.07: Habitat ground-truthing data from EurOBIS extracted via web services	4	25/12/2021	Delayed		As explained in the previous quarter; progress is pending some changes to the EurOBIS toolsets, but we are on track for the revised delivery date of 2023 Q3.
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	Delivered
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	Delivered
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	Delivered
D4.12: A GeoNetwork INSPIRE-compliant metadata instance with OGC CSW capabilities	4	25/09/2021	Delivered	25/09/2021	Delivered
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	To do		

D4.14: Website liaison and training node between lot partners/content creators and central portal team.	4	25/09/2021	Delivered	25/09/2021	Delivered
D4.15: Transfer of key habitat mapping resources from the thematic portal to the central portal	4	25/09/2022	Delivered	25/09/2022	Delivered
D4.16: Direct link to the HELCOM Mapping and Data Service, and similar services from other Regional Sea Conventions where feasible	4	25/03/2022	Delivered	30/06/2022	Delivered
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	Delivered
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	Delivered
D4.19: Abstracts submitted for annual INSPIRE conference and participation in community forum where relevant.	4	depends on conference dates	To do		
D4.20: Publication of relevant products, datasets and services through EOSC and EUODP	4	25/12/2022	To do		
D4.21: Live operation of help desk 9-5, Mon-Fri	4	25/10/2021	Delivered	25/09/2021	Delivered
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	Delivered
D4.24: Statistics from OGC webservice usage - to be guided by secretariat.	4	25/12/2021	Delivered	31/09/2021	Delivered
D5.01: Evidence of efforts to ensure maximum coherence with data delivery to and from regional sea conventions	5	25/09/2023	To do		
D5.02: Updated review of RSC needs	5	25/01/2022	Delayed		Limited feedback to date from RSCs following outreach from ESH consortium representatives. More work needed to produce a new report that contains enough new information to build on the existing report on RSC needs. This has contributed to the delay in D3.01 but should not delay any onward work. Expected due date: 2022 Q4.

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	Delivered
D5.04: Tutorials for creating new maps from existing data	5	25/03/2023	To do		
D5.05: Promotion of simple procedural guidelines for creating alternative data formats from existing data formats	5	25/03/2023	To do		
D5.06: Tutorial on how to format habitat maps using templates and to simplify the data submission process.	5	25/03/2023	To do		
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	Delivered
D5.08: Minutes of meeting(s) with EMODnet biology	5	25/03/2022	Delivered	31/03/ 2022	Delivered
D5.09: Communications plan	5	25/01/2022	Delivered	31/03/ 2022	Delivered
D5.10: New use cases on the EMODnet central portal	5	25/10/21-25/09/23	To do		
D5.11: A prominent summary of the data and data products available from EMODnet seabed Habitats web services	5	25/09/2022	Delayed		Whilst we have already published a summary of our data products, the plan from our proposal was to expand on this to better highlight some of our products. With the portal centralisation we decided to put this on hold in case a more coordinated approach was developed that would highlight prominent data and products across all lots. Expected due date: 2023 Q3.
D5.12: Co-ordinated and sustained online presence: news stories, blogs, tweets, etc.	5	25/10/21-25/09/23	To do		
D5.13: Presentations and posters at conferences and cross-cutting meetings	5	25/10/21-25/09/23	To do		
D5.14: ESRI story maps / Infographics	5	25/03/2022	Delivered	31/12/ 2021	Delivered
D5.15: Record of all promotion and outreach activities	5	25/10/21-25/09/23	To do		

D6.01: Project management plan and project initiation document	6	25/10/2021	Delivered	30/11/ 2021	Delivered
D6.02: Project quality management plan and project audit document	6	25/10/2021	Delivered	30/06/ 2022	Delivered
D6.03: Consortium Agreement	6	25/10/2021	Delivered	31/03/ 2022	Delivered
D6.04: Participation in EMODnet SC meetings as necessary	6	As necessary	To do		
D6.05: Minutes & actions from Steering Committee meetings within 1 month of meeting	6	Within 1 month of each meeting	To do		
D6.06: Progress meeting 1 - WP leads	6	25/03/2022	Delivered	31/03/ 2022	Delivered
D6.07: Minutes & actions from progress meeting 1	6	Within 1 month of meeting	Delivered	31/03/ 2022	Delivered
D6.08: Progress meeting 2 - whole consortium	6	25/03/2023	To do		
D6.09: Minutes & actions from progress meeting 2	6	Within 1 month of meeting	To do		
D6.10: Quarterly progress report to EASME, DG-MARE and EMODnet Secretariat	6	15 Jan, 15 Apr, 15 Jul & 15 Oct each year	To do		
D6.11: Interim report	6	25/09/2022	Delayed		We misunderstood the terms of the contract and thought this was not due until 60 days after 25/09/22. Expected due date: 31/10/22.
D6.12: Submission of the invoice for the interim payment	6	25/09/2022	Delayed		We misunderstood the terms of the contract and thought this was not due until 60 days after 25/09/22. Expected due date: 31/10/22.
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 (Table A) - 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	a few outstanding actions remain, which are being investigated	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 and we have encountered several hurdles. We are now in talks with a company who may be able to provide GeoServer support and hosting on behalf of JNCC. This company has more experience and resources available to devote to solving the problems.	none	
EM-339 (Sub-task) Collect names of Portal editors	resolved		none	29/11/2021
EM-347 (Sub-task) Collect fields/forms used on Seabed Habitats Thematic Portal	resolved		none	26/01/2022
EM-350 (Bug) Missing attribute in eusm2019_full_800 layer of Seabed Habitat WMS service	resolved		none	07/10/2021
EM-363 (Sub-task) Seabed Habitats to report on number and volume of downloaded data and data products by 29th of October 2021	resolved		none	21/01/2022
EM-383 (Task) SBH Grafana dashboard stopped tracking webpage Search Metadata	resolved		none	14/02/2022

EM-384 (Sub-task) SBH to produce an inventory of products	resolved		none	21/06/2022
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-422 (Sub-task) Log4Jshell Update from SBH	pending	ongoing	none	
EM-495 (Sub-task) Seabed Habitats to report on number and volume of downloaded data and data products	resolved		09/02/2022	09/02/2022
EM-531 (Sub-task) SBH - EMODnet Catalogue Tags	resolved	we provided the requested feedback so consider this issue resolved. status according to JIRA: In Review	none	26/04/2022
EM-539 (Task) Seabed Habitats products' centralisation	pending	almost complete	none	
EM-543 (Task) Adding Seabed Habitats' layers to metaGIS	resolved		06/05/2022	29/09/2022
EM-558 (Bug) Seabed Habitats Catalogue no longer has any public records	resolved		none	03/05/2022
EM-570 (Sub-task) Feedback on CP Main Menu	resolved		30/06/2022	27/04/2022
EM-591 (Task) SBH Layers in the Map Viewer Content Management System	pending		04/07/2022	
EM-611 (Task) Centralisation Checklist for review	resolved	JNCC completed this checklist for SH, so consider this to be resolved. status according to JIRA: In Review	none	15/09/2022
EM-639 (Sub-task) Standardise the navigation menu on left hand side of page	resolved	JNCC responded to this on behalf of SH, so consider this to be resolved. status according to JIRA: In Review	none	10/10/2022
EM-644 (Sub-task) Seabed Habitats to provide input to the Tools & Guidlines section	pending		none	
EM-652 (Sub-task) Seabed Habitats to review layer legends and add units where they are missing	resolved		none	11/10/2022

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
Lack of an EMODnet DEM in the Caspian Sea for broad-scale habitat mapping. It is well known that a vital input layer into the broad-scale habitat map (EUSeaMap) is a digital elevation model provided by EMODnet Bathymetry. However, in this phase of the project Seabed Habitats has been asked to produce a broad-scale habitat map for the Caspian Sea, while Bathymetry were not asked to produce a DEM for that sea. As a result, we are forced to use GEBCO, which is of low resolution and quality in the Caspian Sea. We will be able to deliver the deliverable of a broad-scale habitat map for the Caspian Sea, but its quality will not be high.	resolved	raised at the April Steering Committee meeting. It was confirmed with Bathymetry and CINEA that Bathymetry would not be producing a DEM and that ESH should use GEBCO.	none	30/09/2 022
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-514 (Improvement) Return custom feature/pixel information when user clicks on a feature/pixel in the map	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-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-317 (Improvement) 'Seabed Habitats' missing from list of Topics on Newsroom	pending	This is a issue/suggestion that SBH made related to the functionality of the CP	none	
EM-316 (Improvement) reorder EMODnet Themes on Reports page to force the 'active' themes to the top of the list	resolved	This is a issue/suggestion that SBH made related to the functionality of the CP	none	16/09/2 021
In the project proposal we proposed that we subcontract the 'Mid Atlantic Environmental Research Institute' (MAERI) to carry out data collation, preparation and outreach in the Caribbean. At the time of bidding MAERI was not an operational	pending	Pending approval from CINEA, we now plan to subcontract another MAERI partner, SAERI, who are better set up for contracts such as these - both with the financial mechanisms in place and personnel	31/10 /2022	

entity but a partnership between Anguilla Community College (ACC), Department of Natural Resources (Anguilla), South Atlantic Environmental Research Institute (SEARI) and JNCC. However, the intention was to establish MAERI as a standalone entity. Developments were hindered by the pandemic and, as such, MAERI still only exists as a partnership between these organisations. In the bid, we proposed that ACC be the partner that is the official subcontractor representing MAERI and throughout year 1 of the project we have had many exchanges with both ACC and DNR about how to arrange this subcontract. Over the summer it became apparent that there were going to be too many administrative obstacles to be able to set up a contract with ACC and get any meaningful input from them before the end of the contract and so we decided we needed another option.		who can be deployed at relatively short notice. We are currently discussing the finer details but they have confirmed their interest and availability for the contract. Before formalising this arrangement we intend to seek permission from CINEA to change the Caribbean subcontractor from ACC to SEARI. A more comprehensive description of the issue and a business case can be presented to CINEA at this time if required.		

3. User feedback

[Provide a list of all user feedback received in the reporting period in chronological order. Indicate the type of the feedback received, a clear description of the query, and the actions undertaken to resolve the issue (e.g. update of metadata, fixing a particular issue with the map viewer). Indicate the status of the query, and if not provide an explanation why. List any feedback you received on the portal that can be used to build EMODnet use cases.]

Overview of user feedback and/or requests received in this quarter							
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	Means of contact	Response time	Status of user query (Resolved/ Pending)	Measures taken to resolve the query	Status: if not (yet) resolved/ pending, explain reason why and expected timeline
09/08/2022	Archipelagos Institute of Marine Conservation	technical - Their organisation has some habitat maps they would like to contribute to EMODnet and were asking a question about unique identifiers.	web form	1 day	resolved	Responded with the required information and reached out to understand more about the data they have to submit.	resolved
03/09/2022	University of Aberdeen	technical - Is looking to use the Light (PAR) at seabed data layer (accessible from EMODnet Seabed Habitat data portal) however is struggling to find the resolution of the layer and can only find information on the scale in ICES Metadata Catalogue. Ask to confirm the layer's resolution	email	15 minutes	resolved	replied that the resolution of the grid is 0.0010416667 decimal degrees, correponding to approx. 100m.	resolved
05/09/2022	Natural Power	technical - They had a question about WMS legend	web form	1 hour	resolved	Responded to explained how to see the legend	resolved
22/09/2022	Red Electrica	technical - The description of attributes in the EUSeaMap download did not exactly	web form		pending	Responded with questions to better understand the problem.	awaiting response from user.

		match the attributes present in the attribute table. They requested an updated description of attributes.					
16/06/2022	University of St Andrews	technical - The user was asking why there was substrate information missing from some coastal areas (e.g. Orkney Islands) in EUSeaMap 2021 when it was present in EUSeaMap 2016.	web form	2 hours	resolved	Responded to explain that this information disappeared from the EMODnet Geology seabed substrate layer and that JNCC were planning to discuss the issue with BGS	resolved
21/06/2022	Intertek	technical - The user informing us that the OSPAR points layer doesn't have a symbology in the legend for Oceanic Ridges	web form	1 day	resolved	The legend graphic was updated to show the missing habitat	resolved
20/09/2022	nationalpark authority in Schleswig Holstein	technical - A bit surprised that in German North Sea there are many differences with respect sediment in EUSeaMap 2021 compared to version 2016	email	7 days	resolved	Gave a contact at EMODnet Geology	resolved
03/10/2022	Instituto Espanol de Oceanografia (IEO)	technical - They were responding to an offer from ESH to provide data formatting assistance to members of OSPAR who were preparing data submissions for the 2022 data call for OSPAR threatened and/or declining habitats.	email	2 days	resolved	Explained that the deadline for OSPAR data submissions had passed but that we welcome data submissions to EMODnet at any time and enquired about the volume of data available.	resolved
13/10/2022	Envision	technical - There was a problem download the Habitat point observations dataset from the download page.	web form	1 day	resolved	Sent them an alternative link and promised to resolve the problem on the download page.	resolved

4. Meetings/events held/attended & planned

[List organisational meetings/events held/participated (incl. presentations, lectures, trainings, demonstrations, workshops, etc.) since the last quarterly report and planned in the future. Please add a short description on the meeting as well as the nature and volume of the audience.

When listing a meeting, please indicate whether it was an internal (i.e. within your partnership/lot) or external meeting (i.e. outside your partnership/lot).]

A. Meetings/events organised and attended in the quarter					
Date	Location	Type event (internal or external meeting; training/ workshop)	Was a presentation given? (yes/no + short description)	Meeting attended (A) / organised (O)	Short description and main results (# participants, agreements made, etc.)
12/07/22	Web	External Meeting	No	A	Ifremer was invited at a meeting organised by people in charge of MSFD assessment in France to provide guidance on the use of EUSeaMap. 6 participants.
13/07/22	Web	External Meeting	No	A	European Marine Board Working Group on Marine Habitat Mapping. Catch-up on the drafting of a Future Science Brief on Marine Habitat Mapping in Europe. 9 participants.
13/07/22	Web	External Meeting	No	A	Meeting with new chair of MSFD EU TG Seabed about EUSeaMap. 5 participants. For TG Seabed to understand why the definition of mud and sand differs between EUNIS and EUSeaMap and for a general introduction

14/07/22	Web	External Meeting	No	O	Meeting with the hosts of the NERC Vocabulary Server, BODC, to discuss to addition of new vocabularies for habitat classification systems. 4 participants.
18/07/22	Web	External Meeting	Yes. Highlights	A	DG/MARE invited thematic coordinators to a meeting directly after the submission of the thematic quarterly reports, to check the state of play of EMODnet's centralisation and the overall progress of our common work. 15 participants.
16/8/22	Aalborg, DK	Conference	Yes. GEUS Mapping Integration	A	Meeting with all marine researcher in Denmark, presenting the results of the habitat mapping in the North Sea including the EUNIS / Broad habitat map using the model developed by ESH Lot in 2019. In Danish/English.
29/08/22	Web	External Meeting	No	A	ICES Working Group on Marine Habitat Mapping. 15 participants. To investigate the applicable uses of Habitat maps in policy / MSFD.
05/09/22	Web	Internal Meeting	Yes. WP Updates	O	EMODnet Seabed Habitats Project Management Group Meeting. 6 participants. Updates from each WP on the current phase and identification of issues regarding the deliverables.
13/09/22	Cork, IE	External Meeting	No	A	IE OSPAR delegation meeting . 30 participants. To promote EUSeaMap and enhance engagement of ICES WGS/ EGS with ESH
14/09/22	Web	External Meeting	Yes. EUSeaMap and EUNIS	A	Technical Group on seabed habitats and sea-floor integrity (TG SEABED). ~30 participants. To present and answer questions on EUSeaMap and EUNIS so that Member States understand how to use EMODnet seabed habitat maps for MSFD reporting and assessment.

15/09/22	Web	External Meeting	No	A	How best to use EUSeaMap for MSFD reporting. 3 participants. Combine best available data from ESH library of maps and models (with EUSeaMap as a base) to create a new map covering the extent of the Marine Reporting Unit used in Irish MSFD assessments.
19/09/22	Genova, IT	Conference	No	A	Marine Key Habitats and Non-indigenous Species Symposia. The main objective of Symposia is to gather available knowledge on Marine Key Habitats at Mediterranean level.
19/09/22	Dublin, IE	Conference	Yes. EUSeaMap	A	ICES Annual Science Conference. 500 participants. To promote EUSeaMap and enhance engagement of ICES WGS/ EGS with ESH
21/09/22	Web	External meeting	Yes. ESH Portal Update	A	EMODnet Technical Working Group.
26/09/22	Web	External meeting	No	A	European Marine Board Working Group on Marine Habitat Mapping .
26/09/22	Web	Internal Meeting	Yes. EMODnet overview	O	Making progress on setting up the subcontract with the South Atlantic Environmental Research Institute. 4 participants.
SUM				O	**Total # of meetings organised = 3**
SUM				A	**Total # of meetings attended = 13**

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
03/10/22	Brussels, BE	External Meeting	O	Seabed Habitats-Biology common topics. Discuss progress on common work areas between the two projects.
11/10/22	Web	External Workshop	O	Copernicus Biodiversity and coastal ecosystems workshop. Promote EMODnet (SH+Biology) data and products of use for coastal biodiversity protection.
20/10/22	Web	External Vessel Launch	A	EMODnet for Business workshop: offshore renewable energy sector (Med & Black Sea).
20/10/22	Web	External Workshop	A	European Marine Board Working Group on Marine Habitat Mapping .
12/12/22	Manchester, UK	External Workshop	O	EMODnet Seabed Habitats Project Management Group Meeting. Updates from each WP on the current phase and identification of issues regarding the deliverables.
13/12/22	Manchester, UK	External Meeting	O	EMODnet Seabed Habitats Whole Consortium Meeting. Relationship-building, better understanding of procedures and purposes, ideas for next phase
15/12/22	Manchester, UK	Internal Meeting	O	EMODnet Seabed Habitats WP3 planning and knowledge exchange. A more concrete plan for delivering composite data products under WP3, and transfer of knowledge/processes/scripts from JNCC to CCMAR

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5.   Communication assets

[List all the relevant communication and dissemination products and assets you have developed in the reporting period (e.g. brochures, videos, press releases, newsletters, blogs) and are planning to do. At the bottom of the table, provide a summary from the actions on Twitter from (e.g. Twitter Analytics: number of Tweets and followers of Twitter account).]

A. Communication products developed				
Date	Communication material	Short description (of the material, title, …) of the asset	Main results	Name of event at which material was disseminated (if applicable)
05/07/22	Newsletter Item	EMODnet Seabed Habitats participation in Geohab	Promotion of ESH products and relevance of EMODnet to the wider EU research community	NA
20/09/22	Newsletter Article	EMODnet Seabed Habitats Modelled Map Collection	Promotion of ESH Library of Habitat Maps and availability	NA
30/09/22	Newsletter Item	EMODnet Seabed Habitats Modelled Map Collection	Promotion of ESH Library of Habitat Maps and availability	NA
21/09/22	Tweet	EUSeaMap Evolution Talk promotion	Engagement with EUSeaMap presentation at ICES ASC 2022 and engagement with RSC	ICES ASC 2022

B. Planned communication products			
Date	Communication material	Short description (of the material, title, …) and/or link to the asset	Main results expected
Oct 22	Newsletter Item	ESH at ICES ASC 2022	Promote EUSeaMap and ICES/ RSC Engagement
Nov 22	Newsletter Item	INFO on Portal Decomissioning	Promote EMODnet Seabed Habitats Portal
Nov 22	EMODnet Central Tweet	ESH website winding down & Publication of all ESH spatial data and data products via Central Portal	Promote EMODnet Central Portal
Dec 22	EMODnet Central Tweet	Publication to the central portal of relevant data and products collected and created under WP2	Promote EMODnet Seabed Habitats Products on CP

[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
20/09/2022	Journal	Borja, Angel & Pouso, Sarai & Galparsoro Iza, Ibon & **Manca, Eleonora & Vasquez, Mickaël** & Lu, Wenhai & Yang, Lu & Uriarte, Ainhize. (2022). Applying the China's marine resource-environment carrying capacity and spatial development suitability approach to the Bay of Biscay (North-East Atlantic). 9. 10.3389/fmars.2022.972448.		http://dx.doi.org/10.3389/fmars.2022.972448	Yes
September 2022	Journal	**Horta e Costa, Barbara & Gonçalves, Jorge** & Gonçalves, Emanuel. (2022). UN Ocean Conference needs transparent and science-based leadership on ocean conservation. Marine Policy. 143. 105197. 10.1016/j.marpol.2022.105197.		10.1016/j.marpol.2022.105197	Yes
14/07/2022	Journal	Panayotidis, Panayiotis & Papathanasiou, Vasillis & Gerakaris, Vasilis & Fakiris, Elias & Orfanidis, Sotiris & Papatheodorou, George & Kosmidou, Maria & Georgiou, Nikos & Drakopoulou, Paraskevi & **Loukaidi, Valia**. (2022). Seagrass meadows in the Greek Seas: presence, abundance and spatial distribution. Botanica Marina. 65. 289-299.		http://dx.doi.org/10.1515/bot-2022-0011	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
Sept. 2022	Conference Paper	**Todorova, Valentina & Panayotova, Marina & Doncheva, Valentina & Zlateva, Ivelina**. (2022). ASSESSING THE PHYSICAL DISTURBANCE ON THE SEABED FROM FISHERIES IN THE BULGARIAN BLACK SEA AREA WITH REFERENCE TO BENTHIC HABITATS STATUS. 10.5593/sgem2021/3.1/s15.83.		http://dx.doi.org/10.5593/sgem2021/3.1/s15.83	Yes
Sept. 2022	Conference Paper	**Todorova, Valentina & Doncheva, Valentina**. (2022). BENTHIC HABITATS BIODIVERSITY STATUS IN THE BULGARIAN BLACK SEA IN 2019 -CLASSIFICATION AND SPATIAL ASSESSMENT UNDER THE MARINE STRATEGY FRAMEWORK DIRECTIVE. 10.5593/sgem2021/3.1/s15.86.		http://dx.doi.org/10.5593/sgem2021/3.1/s15.86	Yes

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

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6. Monitoring indicators

[Refer to the standardised monitoring tool, i.e. Matomo/ 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 Matomo/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	2nd of 4 6-monthly batch updates of data on the portal. This increase in volume of data comes from 12 new datasets. Reporting regions used: EMODnet Biology reporting regions, obtained from marineregions.org.
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 in year 2.
B) Usage of data in this quarter	Custom geoserver layers (including vocabulary keyword tagging), with python scripting, geoserver server-side logging and data download web forms.	Overall downloads, WMS and WFS requests lower than previous quarters - Reasons uncertain (no change in site or service), but follows trend with data products. Possibly because of summer holidays. Note that WFS request tracking is particularly susceptible to inflated numbers due to either erroneous or intentional repeated requests against type names (e.g. bots, security, feature stats), but this is difficult to discern in the data. It is possible that the previous reports figures have been exaggerated in this way, and we will continue to look for trends in the data in upcoming reports.

2. Current status and coverage of total number of data products A) Volume and coverage of available data products	Custom postgresql views and geoserver layers including vocabulary keyword tagging) with python scripting	2nd of 4 6-monthly batch updates of data on the portal. This increase in volume is a result of the addition of 24 essential fish habitat maps/models, 13 seabed habitat maps from survey, 7 new/updated environmental varible datasets, and 3 individual models. Reporting regions used: EMODnet Biology reporting regions, obtained from marineregions.org.
B) Usage of data products in this quarter	Custom geoserver layers (including vocabulary keyword tagging), with python scripting, geoserver server-side logging and data download web forms.	Overall downloads, WMS and WFS requests lower than previous quarters (apart from downloads of broad-scale mapping products, which have risen significantly) - Reasons uncertain (no change in site or service), but follows trend with data products. Possibly because of summer holidays. Note that WFS request tracking is particularly susceptible to inflated numbers due to either erroneous or intentional repeated requests against type names (e.g. bots, security, feature stats), but this is difficult to discern in the data. It is possible that the previous reports figures have been exaggerated in this way, and we will continue to look for trends in the data in upcoming reports.
3. Internal and external organisations supplying/approached to supply data and data products within this quarter	Tracking tables in sharepoint.	65 datasets or data products acquired in this quarter from 10 organisations.
4. Online 'Web' interfaces to access or view data	N/A	no changes since last quarter.
5. Statistics on information volunteered through download forms	Download data forms along with python scripting and geoserver layer tagging.	Marginally higher business and Private company proportion this reporting round compared to previous reporting rounds. Regional statistics remain consistent.
6. Published use cases	Grafana dashboard	Note that this list only includes use cases published on central portal. There are many more on the Seabed Habitats portal, which will need to be copied across as part of the centralisation process.
8.1. Technical monitoring	Grafana dashboard	acceptable response time, better than last quarter.

9. Visibility & Analytics for web pages	Grafana dashboard	Fairly consistent
10. Visibility & Analytics for web sections	Grafana dashboard	Fairly consistent
11. Average visit duration for web pages	Grafana dashboard	Fairly consistent

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