EMODnet ingestion and safe-keeping of marine data

CINEA/EMFAF/2021/3.4.10/02/SI2.868290

Start date of the project: 30/03/2022 (48 months)

Centralisation Phase

Quarterly Progress Report (11)

Reporting Period: 01/10/2024 – 31/12/2024

Contents

Disclaimer

1. Highlights in this quarter

Task 1: Maintain, further develop and migrate a web-portal

<u>Migration to Central Portal</u>

The migration implementation plan for the Submission Service, which includes the division between the backend and frontend components, has progressed further. The backend, encompassing the database, cloud storage, and API, will remain on the servers of HCMR. In contrast, the frontend will be hosted on the CP servers at VLIZ, for both testing and production environments.

Actions:

- The integration of ECAS as the authentication mechanism has progressed. The development efforts for adjusting the MarineID centric backend model, as well as user/role management, to ECAS user schema has been completed.
- Access to ECAS endpoints for the additional development environment (https://ingestion2.getmap.gr/ingestion/) has been granted. The integration of these endpoint has been completed and it is used.
- Testing is ongoing to ensure the new application functions as intended, including the ECAS login scenario. This includes unit tests, integration tests, and user acceptance testing.
- The operational testing environment, available at https://submission-test.emodnet-ingestion.eu/, remains unchanged until the migration procedure is fully accepted and operational, to facilitate active Ingestion Service activities.
- MEDIN integration has moved forward and enters the testing face.
- All EMODnet Ingestion ambassadors, who can be assigned to incoming submissions for further processing, have been informed about the planned migration from MarineID to ECAS AAI and have been requested to establish an ECAS account and to provide details for matching with the existing MarineID, so that they can continue working in the Submission Service with their accounts and assigned submissions, once the EMODnet Ingestion migration has been completed.
- For existing users a dialogue solution has been set-up at the front-end to make the aware of the use of ECAS and facilitating them to make the switch and coupling for their submissions. This dialogue will become active, once the EMODnet Ingestion migration has been completed and become operational.

Soon to finish is the drafting the narrative of EMODnet Ingestion, that will be published at the EMODnet Central Portal. Following the earlier defined structure, texts are drafted for each section, trying to comprise and cover major content of the stand-alone website. Once ready, the full narrative will be discussed at a CP migration meeting for following publishing at the EMODnet development server.

Summarizing, the migration is now depending on completing the testing of the new submission service and its integration with ECAS AAI service, the migration of existing EMODnet Ingestion network partners (ambassadors) from Marine-ID to ECAS accounts, and finalizing the narrative. Based upon the current status and progress, the actual migration could take place end of March 2025.

Task 2: Implement pathways for delivering data to final repositories

The total number of received submissions increased from 1745 to 1806, while the number of processed and published data submissions increased from 1583 to 1643, and of which, the number of fully elaborated data submissions went from 727 to 740 data. The KPI excel sheet provides more details. The Viewing Service is synced every time with the Central Products Catalogue service at the EMODnet Portal. This implicates that all 1643 submissions at the end of Q4 2024 were also present in the Central Products Catalogue. Only remaning issue is that the Products Catalogue does not publish the full contents, while the XML file is complete. This

issue has been reported a few times to the CP team together with suggestions to improve the overall publishing (search and layout) of the Products Catalogue entries. CP team plans to deploy a new version of GeoNetWork to solve this.

Task 3: Facilitate machine-to-machine transfers

During the reporting period, the team continued working on ingesting new data sources, supporting the CP to include the Ingestion activities and layers. The inclusion of the source "as is" (phase one) involves the adoption of machine-to-machine technologies, ranging from FTP file access to web APIs for real-time exchange. It also involves the adoption of services like the Data Access Broker (DAB) or ERDDAP.

The "ingestion-erddap.emodnet-physics.eu/erddap" platform provides users with an easy way to interact with the latest ingested real-time (RT) collections, which reached 2513 datasets during the reporting period. However, not all of these datasets are immediately visible in the Central Portal under the new "Ingestion – as is" section. New data streams need to be integrated into the metadata-controlled collections, which may take some time. Once a new dataset is integrated into these controlled collections, it is offered to the Central Portal under a specific WMS layer.

Connected sources keeps providing new data on operational base and during the reporting period 6771 new data sets were made available from the connected platforms. The table 1 gives an overview.

platform_type_longname	Newly integrated	As is	As is from INSTAC
XBT or XCTD Profiles	3778		
Fishing Vessels	1184	1	
Sea Mammals	603		
Argo/Profiler	292		
ADCP	237		237
Thermosalinographers	176		176
Mooring	122		24
Drifting Buoys	107		59
Argo BGC	78		
Gliders	70	20	
Bottle Data	67		67
River Station	41		
Tide Gauge	10	10	
Ferrybox/Ship	5		5
Voluntary Observing Ships	1	1	

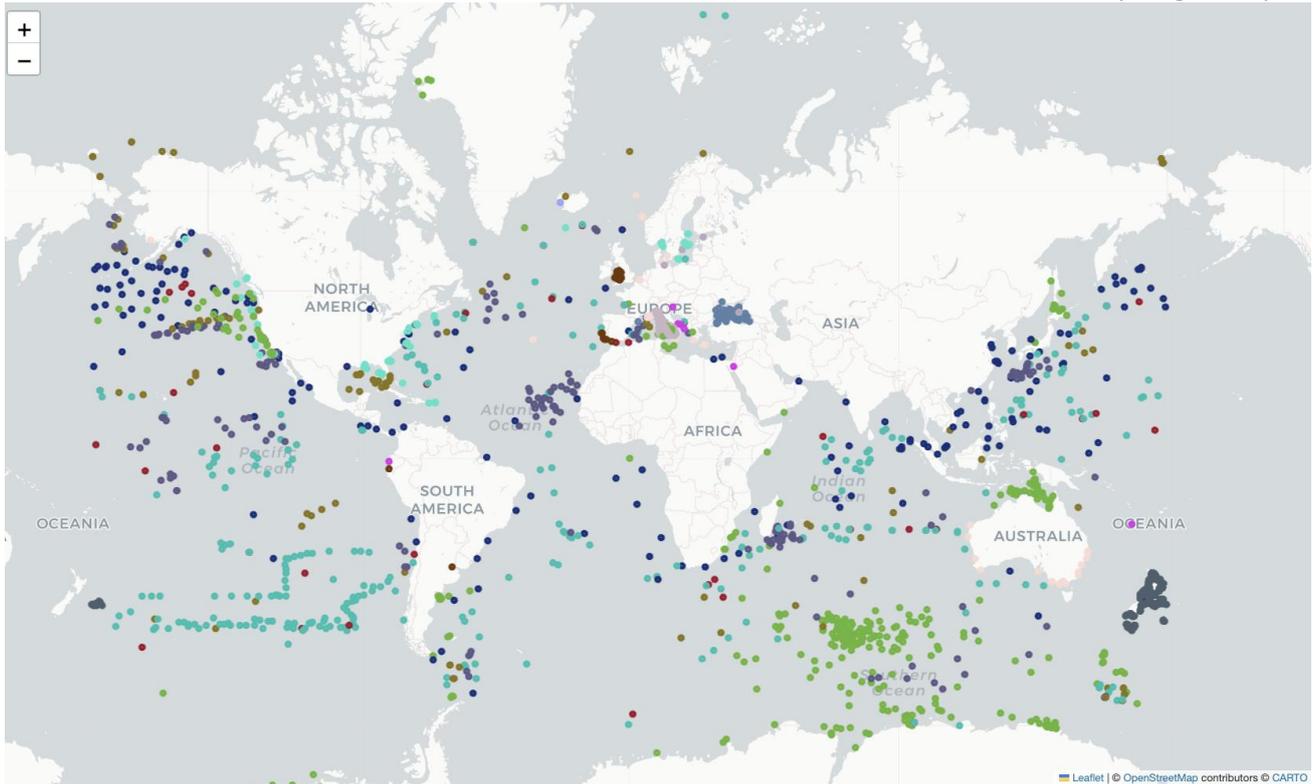*Table 1. new data sets added to EMODnet Physics*

Figure 1. newly integrated platforms[1] During the reporting period it was possible to link many sea mammals-based data (green), fishing vessels data (dark green), glider data (cyan) and data from ships (fishing vessels/XBT) (dark pink)

Some data were directly integrated into the CMEMS INSTAC validated collections, mostly coming from Coriolis (GDAC). Notably, when CMEMS directly includes data into operational collections, it may happen that metadata are not fully updated. As described in the previous reports, data that are integrated in Physics via the CMEMS – CORIOLIS/GDAC may miss some metadata that the EMODnet Physics workflow needs for proper management. These data are considered "as is".

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[1]https://data-erddap.emodnet-
physics.eu/erddap/tabledap/EP_PLATFORMS_METADATA.csv?PLATFORMCODE%2Ccall_name%2Clatitude%2Clongitude%2CdataFeatureType%2Cfirst
DateObservation%2ClastDateObservation%2Cdata_owner_longname%2Cdata_owner_country_code%2Cdata_assembly_center_longname%2Cplatfo
rm_type_longname%2Cintegrator_id%2CIntegrationDate%2Cingestion%2Cofficial_repository%2Cparameters_group_P33%2Cparameters%2Cparame
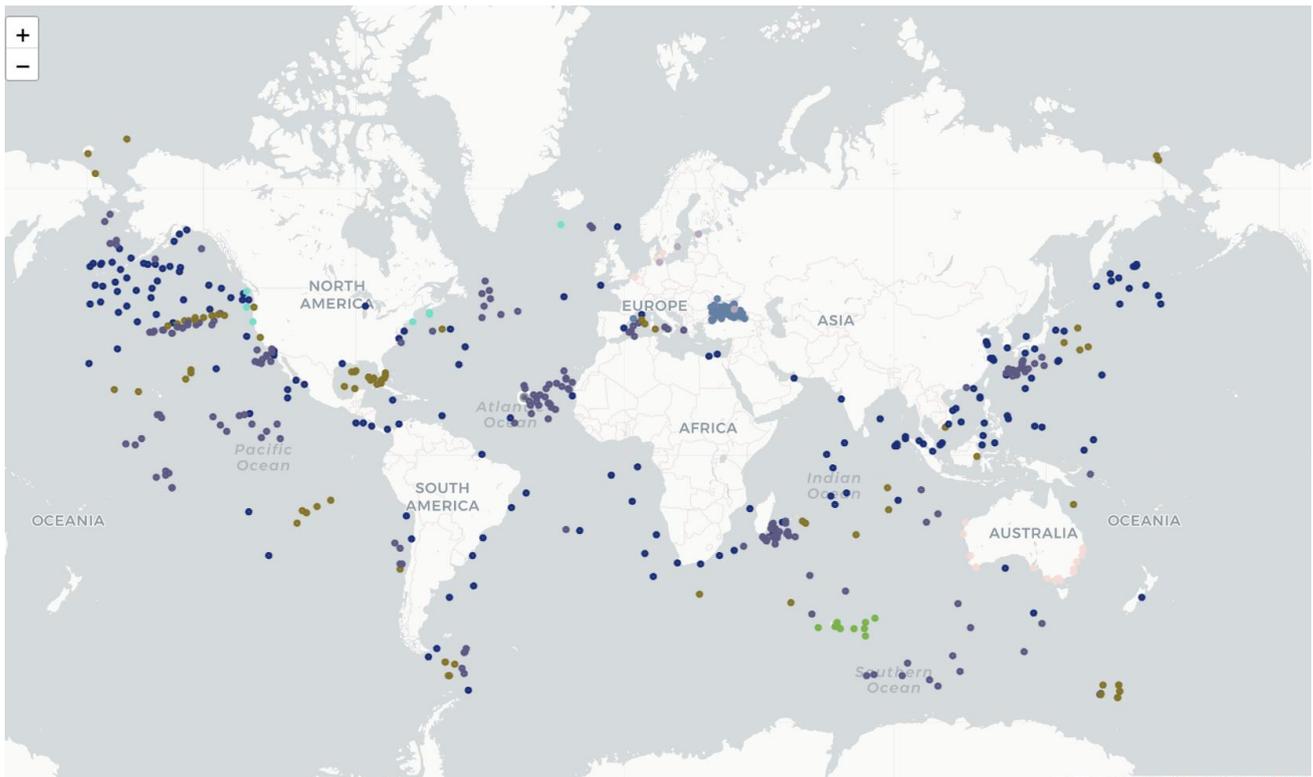ters_P01&IntegrationDate%3E=2024-09-01

Figure 2. new data integrated in CMEMS INSTAC

Task 4: Operate a help-service for users to provide their data in the most appropriate format

Users can either email their questions or ask for a call back. All queries are saved and tracked in the Open-source Ticket Request System (OTRS) at Ifremer. In the reporting period three questions were received and answered. As part of the migration the proprietary system at Ifremer will be replaced by using the CP help forms, which are assigned to Thematics / Ingestion by the EMODnet Secretariat. Responses will then be given through JIRA tickets.

Task 5: Allow providers of data to track the progress of their data from submission through to their storage in a repository

Data providers can follow the processing of their data submissions in the Submission Service, which is done in several steps each indicated by a status field. Data providers are contacted by assigned data centres, in case there are additional questions about the ingested data sets.

Task 6: Participate in discussions with EMODnet partners in order to improve the efficiency of the whole collection, assembly and dissemination process

All coordinators of EMODnet Thematic projects are partners in EMODnet Ingestion which guarantees a mutual tuning with EMODnet Ingestion. Moreover, EMODnet Ingestion coordinators are involved in the communication of the EMODnet Steering Committee and Technical Working Group.

Task 7: Maintain a summary record of data delivered

This function is offered by the View Submissions service. Each completed submission is migrated to that service for publishing as part of a discovery and access service. Distinction is made in phase I and II which is one of the search facets. Editing activities take place aimed at replacing so-called orphan data for organizations from free text into controlled EDMO terms, orphan data for projects into controlled EDMERP terms, and orphan terms

for Cruises into controlled Cruise Summary Reports (CSR) terms in order to improve the integrity and richness of the metadata.

Task 8: Engage in outreach activities towards significant holders of marine data whose data are not yet available.

The central document compiling all outreach activities and events of partners promoting the project is being continuously updated with input by all the partners. A full overview will be given in the interim and final reports. The current document is available here[2].

Colleagues of EMODnet Ingestion participated to the EU FAIR-EASE project annual meeting where EMODnet materials (flyers, stickers) were brought for communication to participants, who included scientists and data scientists from around Europe, and representatives of different Italian scientific and policy bodies.

RBINS updated twelve 2023 EMODnet success stories to highlight them on the website of the European Commission. Texts and pictures were updated with links and references for all the twelve use cases, which are now available online[3], also thanks to the support of the EMODnet secretariate. These twelve Success stories will be used for communication about EMODnet on social medias (publication one by one every 15 days) from January 2025 onward. Also, a start was made with planning again a workshop for EU funded RTD projects, explaining them how to share their data output with EMODnet. Like before, this could be organised together with the EMODnet secretariate. It would be good to have this Workshop after the full migration of EMODnet Ingestion into the EMODnet Portal, so possibly after May 2025 to be safe.

RBINS started working on the update of the EMDODnet sticker to design a new version for printing. They plan to re-use a combination of visuals extracted from the videos available on the EMODnet YouTube channel. RBINS also organised a networking event on the topics of digitalisation and sharing of data in the frame of the DiSSCo Belgium Federal project, including EMODnet communication. Participants included Belgian scientists, curators, data scientists and members of the European Commission.

The material to be finalised by March 2025 includes updating the data ingestion poster, including the EMODnet centralised portal, and updating the current stickers for new printing. Furthermore, new success stories/use cases will be identified and developed, including concerning EU RTD projects.

MARIS as EMODnet Ingestion coordinator presented EMODnet and its appeal to industry for sharing data at the Ocean Data Action Day, an initiative led by HUB Ocean, Microsoft, and Accenture. The Ocean Data Action Day took place in Oslo, Norway, focused at opening industrial ocean data and its potential role in promoting ocean health. MARIS presented the EMODnet Ingestion vision on enriching Open Ocean Data Repositories with Industrial Data. He highlighted how EMODnet is targeting and having success with industry, but also emphasised that EMODnet Ingestion could use help with achieving more data sharing from industry, for instance via HUB Ocean becoming a mediator for EMODnet Ingestion. This will be follow-up by a meeting between representatives of HUB Ocean, EMODnet Ingestion, SeaDataNet , and EurOBIS. More information can be found in the EMODnet news article[4].

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[2] https://docs.google.com/document/d/1cwuwM1oZYon1vAPwqLqSguLdSkSlt4ioR9MKh7cN9Yw/edit

[3] https://emodnet.ec.europa.eu/en/data-sharing-success-stories

[4] https://emodnet.ec.europa.eu/en/emodnet-presented-ocean-data-action-day-hub-ocean

MARIS also presented EMODnet and EMODnet Ingestion at the GeoBuiz Summit Europe forum by joining the panel on Hydrospatial-Advancing Blue Economy. More info can be found in another EMODnet news article[5].

In the first half of 2025 there will be several events of interest for the marine and ocean communities. EMODnet Ingestion has submitted EMODnet abstracts, among which the "International Ocean Data Conference of the UN IODE, and the EGU 2025. .

Task 9: Improve and document the availability of data provided for coastal and offshore licensing.

Selection of Pilot Cases

Deltares has received confirmation from Malta (Department of Fisheries and Aquaculture) and Estonia (Consumer Protection and Technical Regulatory Authority) of their willingness to serve as pilot cases and collaborate on formulating the roadmap for harmonizing data management in offshore licensing procedures. The goal is to secure a total of four pilot cases. To this end, Deltares is actively engaging with other countries, including The Netherlands, United Kingdom, France, Bulgaria, and Romania, to encourage their participation as pilot cases. The selection process has proven to be more challenging than anticipated, primarily due to the demanding schedules of government level stakeholders. This has resulted in a slight delay in finalizing the selection of pilot cases. Nevertheless, Deltares remains confident that this issue can be resolved in the near future, as the planning includes some flexibility to accommodate for these delays.

Annotated Outline for Roadmap

Deltares has prepared an annotated outline detailing the structure of the Roadmap for Harmonization. This approach aims to offer greater clarity and insights into the key outcomes of this activity. Please note that the annotated outline serves as a basis for discussion, the final outline may be adjusted based on stakeholder preferences or new insights gained from the results of interviews and workshops.

1. Introduction
   - Why? Explaining the urgency for a roadmap
   - Introduction of type of offshore license: Aquaculture
   - Introduction of type of offshore license: Offshore Renewables
2. Background
   - EMODnet Ingestion Phase III results
     o Introduction of phases used in offshore licensing procedures
       ▪ Site Selection
       ▪ Licensing and planning
       ▪ Construction and Installation

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[5]https://emodnet.ec.europa.eu/en/emodnet-presented-geobuiz-summit-europe

- ▪ Operation and Maintenance
- ▪ Decommissioning
   - o European Data Standards
   - o Fair Principles
   - o Current landscape: Existing data practises
3. Roadmap
   - Practical examples and use cases.
      - o Case study 1: Including interview and workshop results
      - o Case study 2: Including interview and workshop results
      - o Case study 3: Including interview and workshop results
      - o Case study 4: Including interview and workshop results
   - Actionable insights for implementation
      - o Aquaculture
         - ▪ Low regret actions
         - ▪ Must haves / nice to haves for better data management
      - o Offshore renewables
         - ▪ Low regret actions
         - ▪ Must haves / nice to haves for better data management
4. Conclusion
   - Summary
   - Call to action

Planned Activities for the Upcoming Period

Several activities are planned for the coming months. These are outlined below:

- Finalize Selection of Pilot Cases: Deltares aims to finalize the selection of pilot cases by the end of February 2025
- Conduct Pilot Case Interviews: Interviews will be conducted with each confirmed pilot case. Deltares is currently coordinating the initial interviews with the first two cases. The entire interview process is scheduled for completion by June 2025, in accordance with the workplan timeline
- Organize Pilot Case Workshop: Following the completion and processing of all pilot case interviews, a dedicated joint workshop will be held with all pilot cases. This workshop is planned for November 2025, as per the workplan schedule.

Task 10: Service continuity during operation and for transition

Coordination of the consortium is undertaken by MARIS and HCMR to ensure the continuity of the EMODnet Ingestion portal and its array of services. The Q10 report has been prepared and submitted which was accepted by the EU.

EMODnet Data Ingestion joined four EMODnet Vision 2035 Drafting Group (VDG) on-line meetings for contributing and sharing perspectives to shape the future evolution of EMODnet (29 October 2024; 12 November 2024; 25 November 2024; 27 November 2024) and two EMODnet Governance meetings (9 October 2024; 29 November 2024).

During this reporting period, also two meetings took place with the EMODnet Central Portal (CP) technical team (11 November 2024 and 29 November 2024) to overview and discuss the further progress of the migration of the Submission service to the CP, in particular the adoption and integration of ECAS.

Moreover, EMODnet Ingestion participated in the EMODnet SC and TWG meetings (7-9 October 2024) in Brussels – Belgium, and the closed SC meeting (13 November 2024).

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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
D0.1: Quarterly concise progress reports	0.1	M4, M7, M10, M13, M16, M19, M22, M25	D0.1-a,b,c Delivered	M4, M7, M10	
D0.2: Interim report	0.1	M12	To do		
D0.3: Final report	0.1	M24	To do		
D0.4: Transition and hand over protocol	0.1	M24	To do		
D0.5i: Consortium Agreement and subcontracts	0.1	M1	Subcontracts done		
D0.6i: Short minutes - action lists of internal coordination meetings	0.1	Regularly			
D1.1: Migrated Ingestion site maintained at Central Portal	1.1	M6 – M24	Underway		
D1.2: Users migrated from Marine-ID to ECAS	1.2	M6	Underway		
D1.3: Migrated Data Submission Service operational	1.3	M6 – M24	Underway		
D1.4: Data tracking service operational	1.3	M1 – M24	Delivered	Operational since M0	

D1.5: Migrated View Submissions service operational	1.4	M1 – M24	Delivered	Operational since M0	
D2.1: Pathways operational	2.1	M1 – M24	Delivered	Operational since M0	
D2.2: Many submissions processed and published at phase 1 and phase 2	2.1	M12, M24	Underway		
D2.3: Help service operational	2.2	M1 – M24	Delivered	Operational since M0	
D3.1: Updated documentation, standards, tools, and procedure for NRT and RT data published	3.1	M12, M24	Will be integrated in Interim Report		
D3.2: Connections with new NRT and RT monitoring stations operational	3.1	M12, M24	Underway		
D3.3: Upgraded Viewing service for NRT and RT stations operational	3.2	M6 – M24	Done	M4	
D4.1: Inventory of data providers and use cases engaged in EMODnet Ingestion	4.1	M12, M24	Will be integrated in Interim Report		
D4.2: Updated promotion material	4.3	M12, M24	Will be integrated in Interim Report		
D4.3: Pilot cases selected for interviews about licensing data	4.2	M9	Underway		
D4.4: Interviews done with selected pilot case stakeholders	4.2	M16	To do		
D4.5: Pilot case Workshop hosted	4.2	M22	To do		
D4.6: Final Webinar hosted	4.2	M23	To do		

D4.7: Roadmap for harmonisation of Data Management within Offshore Licensing Procedures	4.2	M24	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.				
EM-768: An epic to collect together JIRA for the DIP centralisation	Pending	Folder to follow all DIP migration activities	Mid 2025	
EM-305/322 Content Inventory Data Ingestion	Pending	CP team has made a narrative compilation and composed a first Ingestion narrative at CP test site for check and completion by DIP; Ingestion is underway with a revised structure and drafting the narrative	End Feb 2025	

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-976 Not all details of Ingestion records are displayed in the HTML pages of the Central Products Catalogue	Pending	CP Team to check and update the presentation pages of the Central Products Catalogue	Mid 2025; will be solved by CP as part of deploying and customising new version of GeoNetWork	
EM-893 Setup EMODnet styled page for the submission service	Resolved	CP Team to create an example page with the EMODnet/Europa styling header/footer/page styling	Nov 2024	

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**
		so EMODnet Ingestion can test the php script and CSS for the submission form.		

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

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

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

4. 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	Submission Viewing service	The total number of new phase 1 + phase 2 submissions in the current quarter is 60 and of this 13 were elaborated to phase 2. The overall number of published submissions went from 1583 to 1643.
B) Usage of data in this quarter	Cloud storage of Submission Viewing service	The total number of download transactions is with 223 circa 25% less than in the previous quarter.
3. Internal and external organisations supplying/approached to supply data and data products within this quarter	Submission Viewing service	60 new data submissions were received and published from 35 organisations, mostly academic and research.
9) Visibility & analytics for web pages	Grafana	The visits to the Homepage and Submission service go slightly up, while the visits to the Viewing service are slighltly decreasing over the quarter. The homepage is most visited.
10) Visibility & analytics for web sections	Grafana	The Viewing Service which publishes the completed submissions generates most traffic, but is slighly decresing compared to the last quarter. Overall, there is no high traffic on the site, but is also not to be expected considering the function of EMODnet Ingestion in the EMODnet framework.
11) Average visit duration for web pages	Grafana	The average visit duration for the Homepage is about 35 seconds.

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