EMODnet Thematic Lot n°5 - Chemistry

EASME/EMFF/2020/3.1.11/Lot 5/SI2.846161

Start date of the project: 03/10/2021 (24 months + 24 months)

Centralisation Phase

Quarterly Progress Report (9th)

Reporting Period: 01/10/2023 – 31/12/2023

Contents

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

EMODnet Chemistry uses SeaDataNet infrastructure to provide integrated and harmonised access to marine datasets managed by its network of expert data centres. During the reporting period, EMODnet data centres maintained their efforts in incorporating fresh datasets into the EMODnet Chemistry databases. This included both the distributed system responsible for managing eutrophication, pollutant, and microlitter data, and the centralized system handling beach and seafloor litter data. CDI metadata was systematically generated for all datasets, ensuring their accessibility through the CDI Data Discovery and Access Service. Simultaneously, a constant dialogue is maintained with NAUTILUS, REMEDIES and other projects willing to share their collected data and engaged through EMODnet Ingestion platform.

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

During the reporting period, additional efforts are dedicated to finalise the publishing of the DIVA interpolated maps for eutrophication, the marine litter WPS/WFS layers and four new types of contaminants maps in the Central Portal Map Viewer. In total, 43 new layers were successfully moved to production while the eutrophication maps are still in the testing environment. Five new maps produced with webODV for the eutrophication and contaminants aggregated and validated data collections are waiting approval for publication.

The new version of the regional aggregated, validated and harmonised data collections for eutrophication and pollutants are published in the central portal (with new Sextant entries for the Products Catalogue and updated descriptions in the narrative part).

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

All EMODnet Chemistry datasets are accessible through the CDI Data Discovery & Access Service via the central portal. To increase user experience, dedicated OGC WMS-WFS services with dataset locations per chemical group (P36) are available in the Map Viewer of the central portal. This allows users to click on map objects leading them back to the corresponding group records within the CDI service interface.

HCMR is responsible for creating and managing the new version of the contaminants maps. Therefore, as of this quarter, all EMODnet Chemistry data products are hosted by ULiege (for the Ocean Browser eutrophication maps), HCMR Geoserver (for the contaminants maps) and IFREMER Geoserver (for the marine litter maps). These map layers are easily accessible as OGC layers via the Map Viewer of the central portal.

For all these new products, metadata records have been included in the EMODnet Chemistry products catalog, which is based on the SeaDataNet sextant catalogue. An OGC CSW service is in operation for the Sextant product catalogue, which is used by the central portal to add metadata records of data products to the CP product catalogue.

In the framework of the HE Blue-Cloud 2026 project, recently an upgrade has been launched of the data cloud component of the SeaDataNet CDI Data Discovery and Access service. The cloud system has been modernized

and optimised, for instance making the import and synchronization process faster. As a consequence of the upgrade all directly connected data centres have to amend the configuration of their RM instance, which is an easy job and has been communicated to all technical contacts. In practice, there is a good follow-up of this request, which is needed to facilitate import of new CDI submissions.

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

During the reporting period, two EMODnet Chemistry catalogues were kept updated: 1) the CDI Catalogue, that facilitates the discovery and access of datasets, serving as an 'external' service accessible through the narrative area and CDI map layers in the CP Map Viewer; 2) the Sextant Product Catalogue, updated with metadata records for new data products (DIVA maps v23, eutrophication and contaminants data collections v23, and marine litter maps v23). The central portal collects this content for inclusion in the Products Catalog, making associated data products directly downloadable.

The Ocean Browser service is going to be refreshed with new DIVA eutrophication maps in the Map Viewer. Marine litter maps and contaminants maps were made available through IFREMER's and HCMR's OGC WMS-WFS Geoserver services, respectively.

The webODV service for viewing, extracting, and exploring was also updated with the latest eutrophication and contaminants data collections. It operates as an 'external' service accessible through the narrative. The publishing of a new map category, "Contaminants/Eutrophication (webODV service)" in the CP Map Viewer has been finalised in the CP staging server and awaits moving to the CP production server. It features five map layers illustrating the potential of webODV services for creating scientific data maps, accessible via the GetCapabilities service at https://emodnet-chemistry.webodv.awi.de/api/wms? SERVICE =WMS& REQUEST =GetCapabilities).

Ongoing improvements and the introduction of new products or services are tracked and reported through JIRA tickets to enhance functionality for users.

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

EMODnet Chemistry continuously revises the narrative section and contributes to both news updates and the monthly newsletter in accordance with the specified guidelines.

Task 6: Ensure the involvement of regional sea conventions:

During the reporting period, the EMODnet Open Conference and Jamboree 2023 took place, which was a fantastic opportunity to engage with the RSCs.

In addition, EMODnet Chemistry participated in the online session of the MSFD Technical Group on Marine Litter (15 December), where all RSCs meet together with Member States to agree on ML reporting. EMODnet Chemistry plays a crucial role in the standardisation, collection and aggregation of marine litter data.

Finally, EMODnet Chemistry keeps dialogue with the ICES Database on the Marine Envrironment (DOME) to agree on the data flow for microlitter in HELCOM and OSPAR areas.

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

The EMODnet Open Conference and Jamboree 2023 demonstrated how EMODnet Chemistry is actively contributing to the implementation of EU legislation and global data sharing initiatives. EMODnet Chemistry co-chaired the EMODnet and EU Policy Townhall discussion, which demonstrated EMODnet Chemistry's strong commitment to supporting the MSFD and WFD. The use of EMODnet data and data products for EU policy (MSFD, MSP, Birds and Habitats Directive, others) was confirmed by presentations from JRC, HELCOM

and EEA. In addition, EMODnet Chemistry's contribution to global initiatives, including ocean best practises and global ocean data services for the UN SDGs, was presented.

During the reporting period, dialogue continued with PANGAEA to discuss the technical aspects of data exchange and the adoption of the SeaDataNet CDI service for validated datasets.

Task 8: Monitoring quality/performance and dealing with user feedback:

Since centralisation, the visualisation of the website is monitored via Europa Analytics and the EMODnet secretariat provides quarterly statistics. Chemistry has developed a new tool (Greylog) to monitor the viewing and downloading of EMODnet Chemistry data products from their sources (notably Ocean Browser, IFREMER Geoserver, HCMR Geoserver and DOI landing pages). Chemistry is currently in the process of sharing the software and configuring it on each of the partner servers to count the various log files and generate the overall download statistics for reporting in the quarterly reports. EMODnet Chemistry Helpdesk is also centralised: all user interactions are recorded by the EMODnet Secretariat Helpdesk and redirected to the lots via JIRA tickets. Relevant JIRA tickets are answered immediately.

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

This Task refers to the first project phase. No activity is reported for the renewal period, as the previously existing thematic web portals were shut down in January 2023.

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
D1.1 Quarterly concise progress reports	1	M3, M6, M9, M12, M15, M18, M21	Delivered (M3)	15/01/2024	
D1.2 Annual Interim report	1	M13			
D1.3 Final report	1	M26			
D1.4 Handover plan for service continuity	1	M26			
D1.5i Short minutes/action list of project meetings	1	M1, M6, M12, M18,M23	Delivered (M1)	28/11/2023 (PFG meeting)	
D1.6 Providing content to the central portal	1	Continuously	Delivered		
D2.2i Training activity for DC	2	M4			
D2.2i Data harvested for eutrophication, including rivers	2	M3, M12			

D2.3i Data harvested for contaminants	2	M4, M14			
D2.4i Data harvested for beachand seafloor	2	M7, M17			
D2.5i Data harvested for microlitter	2	M7, M17			
D2.6i Data harvested for newlitter types	2	M16			
D2.7 Updates on marine litterguidelines	2	M6			
D3.1 Validated pan-European collections for eutrophication, including rivers	3	M7, M19			
D3.2 Validated collections forcontaminants	3	M7, M19			
D3.3 Validated collections forbeach and seafloor litter	3	M11, M21			
D3.4 Validated collections formicrolitter	3	M11, M21			
D3.5 Validated collections fornew litter types	3	M20			
D3.6 High-resolution DIVAmaps near river mouths	3	M21			
D3.7 New maps for contaminants	3	M15			
D3.8 New pan-European and regional DIVA maps foreutrophication	3	M21			
D3.9 New maps for microlitter	3	M17			
D3.10 New maps for beach andseafloor litter	3	M17			
D4.1 Standard machine-to- machine services deliveredfor common functionalities	4	M3			
D4.2 Dedicated machine- to- machine services and APIs	4	M9			

adapted / delivered for special functionalities					
D4.3 Upgraded databases for new litter types	4	M12			
D4.4 Improved services for eutrophication	4	M10			
D4.5 Improved services for marine litter	4	M10			
D4.6 Improved services for contaminants	4	M12			
D4.7 Improved webODV tool and integration in central portal	4	M18			
D4.8 Monitoring data about visits and usage	4	Continuously	Under development		
D5.1 Operate Help-desk via Jira tickets	5	Continuously	Delivered		
D5.2 Meetings of Board of MSFD experts	5	M16, M18,M22			
D5.3 International cooperation and interoperability	5	Continuously	Delivered		
D5.4 Promotional material and up-to-date thematic space at central portal	5	Continuously	Delivered		
D5.5 Presentations at relevant conferences	5	Regularly	Delivered		

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
Upgrading geoserver (EM-905, 2023-12-09)	Resolved	Updated	2023/12/04 (MARIS) 2024/01/05 (HCMR)	2023/12/04 (MARIS) 2024/01/05 (HCMR)
Monitor new Chemistry webservices, on new server (EM-887, 2023-11-14)	Resolved	Chemistry webservices list updated	n.a.	2023-12-07

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
As requested by the MSFD expert panel. IFREMER is aksed to change the name of the subfolder under the "Beach Litter" folder in the litter webservices under Chemistry from "Official monitoring" to "EU-MSFD monitoring (EM-895, 2023-11-24)	Resolved	Changed	n.a.	2023-11-27
No possibility to change the colour scale in the climatologies (EM-743, 2023-02-15)	Pending	Used the Third level menu available for viewer layers		2023-10-19
Chemistry Beach Litter - Grouping layers on the CP (EM-704, 2023-01-04)	Resolved			

Map Viewer - add new Subfolder for Chemistry - webODV maps (EM-894)	Pending	Waiting for the CP team to move the publishing of the 5 new WMS layers provided by the Chemistry group from staging to production.		
Publication of EMODnet Chemistry Eutrophication product on the CP (EM-801)	Pending	Populating the layers in production and moving them out of the test directory (CP team)		

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
30/10/2023	paper	French, M. A., & Lipizer, M. Improving data reliability to support marine pollution assessment according to MSFD Descriptor 8 in the European Seas: the contribution of EMODnet Chemistry. Frontiers in Marine Science, 10, 1275097.		https://doi.org/10.3389/fmars.2023.1275097	Yes
October 2023 (online version) **Dec 2023** (print version)	paper	Murray, C. J., van Bavel, B., Kideyş, A. E., Lusher, A. L., Reker, J., Šubelj, G., & Andersen, J. H. (2023). Development and testing of a prototype indicator-based tool for identification of potential problem areas for marine litter in Europe's seas. Science of the Total Environment, 905, 167096.		https://doi.org/10.1016/j.scitotenv.2023.167096	Yes
01/12/2023	paper	Molina Jack, M. E., Altenburger, A., Caer, G., Cociancich, A., Fortibuoni, T., Galgani, F., ... & Vinci, M. (2023). A Mediterranean Focus Overview of EU Marine Litter Data Management Performed in the Framework of the European		https://doi.org/10.3390/su152316490	Yes

		Marine Observation and Data Network Chemistry. Sustainability, 15(23), 16490.			

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
	e.g. paper; conference proceedings; book chapter; …				

For a compressive 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	*Please specify*	Several new data sets have been entered, resulting in a steady increase of data.
What is your opinion on the data coverage within EMODnet for your thematic?	*Please specify*	The data coverage is very good for all sea regions and there is a steady increase for most regions
B) Usage of data in this quarter	*Please specify*	The number of CDI downloads is quite comparable to the previous quarter.
2. Current status and coverage of total number of data products A) Volume and coverage of available data products	*Please specify*	"Total data product volume in GigaBytes" - EMODnet Chemistry has taken action to calculate this metric. Currently all producers (IFREMER, Uliege, OGS and HCMR) have worked on compiling the list of products and related information (UUID, download links, volume). This list will be continuously updated. In addition, ULiege proposed to compress the volume of DIVA products (netCDf files) to improve performance and facilitate downloading. We propose to do it with the next products release even if this will impact negatively on the indicator. The EMODnet TWG on 18/10/2023 decided it is still relevant.
B) Usage of data products in this quarter	*Please specify*	The CP is not monitoring the products views in the CP Map Viewer. We are currently working on installing a Graylog client (Logstash) on the EMODnet Chemistry partners' side. Considering that products are generated by 4 institutions in 3 countries, using different systems for data storage and download, we are still working to set the statistic

		collection system needed to then merge the download transaction logs from each partner.
3. Internal and external organisations supplying/approached to supply data and data products within this quarter	*Please specify*	New data has been supplied by several regular data providers. Also, one provider made corrections.
5.1 Daily number of page views of EMODnet Thematic entry page	Europa Analytics	The Chemistry section is visited every day with a maximum of 20 visitors per day. In this respect there is no difference between the current and previous quarter.
5.2 Quarterly total number of visitors, page views, unique page views and percentage of returning visitors	Europa Analytics	The numbers in the last quarter are somewhat (circa 30%) higher than in the previous quarter

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

5. Annex: Other documentation attached

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