EMODnet Thematic Lot n°4 - Chemistry

EASME/EMFF/2018/1.3.1.8

Start date of the project: 03/10/2020 - (24 months)

EMODnet Phase IV – Quarterly Progress **Report (2nd)**

Reporting Period: 01/01/2020 – 31/03/2020

Contents

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1. Highlights in this reporting period

[Provide a short summary of the key achievements and/or events of interest to a wider audience within this reporting period you wish to highlight. Please make sure that progress in each of the tasks specified in Section 1.4.1 of the Tender Specifications is covered. For those tasks not experiencing significant progress, please state so. In addition, you can (but not required) also consider the indicators or any other of the reporting sections. Max 2 pages]

This report covers the first quarter of 2020. During this period, DG MARE and EMODnet Secretariat undertook a performance assessment of the Chemistry data portal. The Coordinators were invited to a number of web meetings with EU and Secretariat at 31/1/2020, 14/2/2020, 6/3/2020, and 13/3/2020 to discuss these. EMODnet Chemistry replied, providing technical details and a document with a specific scheduling for fixing all issues as highlighted in the monitoring and assessment summary delivered by EMODnet Secretariat. The document of EMODnet Chemistry received further comments and recommendations from the Secretariat and these are taken into account by EMODnet Chemistry in its actions for improving the portal. Concerns were mainly addressed to EMODnet Chemistry portal, being not clear in the objectives and not services oriented, as well as to the viewing and access services. Therefore, ongoing actions are dedicated to reshuffling the site map of the EMODnet Chemistry portal, simplifying the homepage, **placing the products for specific chemical substances and their services more centrally as major output, and further integrating the different services for access, viewing, and downloading aggregated data collections and maps, by GUIs and OGC web services.**

In parallel, EMODnet Chemistry partnership actively engaged its main stakeholders with videoconference meetings, discussing progress of activities for the current contract as well as brainstorming about the future perspective of EMODnet as published by the EU. There was a Chemistry Project Group web meeting held at 11 and 12 March 2020. Following the **EEA** request, an interim harvesting was done in January 2020 on eutrophication and will be done in April 2020 on contaminants in order to produce and to deliver regional QC datasets for eutrophication and contaminants by end May 2020 to EEA. A joint EMODnet Chemistry - **CMEMS INSTAC** meeting was held on 12-13 February 2020, to share expertise and biogeochemical data, to plan joint products and solve metadata issues. As follow-up to the proposal for a joint EMODnet-Copernicus MSFD portfolio (presented at the Copernicus Marine for MSFD workshop, Brussels, 2nd October, 2019), the 1st draft has been prepared and will be shown by Mercator at the next annual meeting in April, 2020. EMODnet Chemistry as member of **TG ML**, continued to act as European data portal for Marine Litter (gathering data from MS through its NODCs). Thanks to this positive interaction, EMODnet Chemistry has been asked by JRC and EEA to aspire such a central role as European data portal also for Contaminants, gathering data input from MS.

In the following the highlights for the period January - March 2020 are outlined for each of the tasks specified in Section 1.4.1 of the Tender Specifications:

Task 1: Develop a common method of access to data held in repositories:

- Raw chemistry data sets for eutrophication, ocean acidity, contaminants and marine macro litter are gathered from many data sources and are findable, accessible, interoperable and reusable thanks to the adoption by EMODnet Chemistry of the SeaDataNet Common Data Index (CDI) data discovery and access service. While marine litter data for beach litter and seafloor litter, also coming from different sources, are managed in two central databases, involving a lot of efforts for validation, classification, and metadata documenting. Due to the high heterogeneity of the source data, dedicated data formats have been developed and deployed, able to hold all needed metadata and data elements. The

gathering is a continuous process while at specific instances, raw chemistry data sets are harvested and thereafter analysed, quality controlled and aggregated into harmonized and validated data collections for eutrophication, contaminants and marine litter. These are then made accessible as major products of EMODnet Chemistry for viewing and downloading at the EMODnet portal, supported by metadata. The data gathering activities are continuous while in the reporting period additional activities were dedicated to exploring options for handling marine micro litter in a comparable way and how to enrich metadata with additional info on project type, platform, and regions.

Task 2: Construct products from one or more data sources that provide users with information about the distribution of parameters in time and space:

- Aggregated data collections are produced for eutrophication and contaminants, interpolated basin maps are produced for selected eutrophication parameters, while dedicated maps are produced for marine litter. All products can be viewed and interrogated in the OceanBrowser service and are described in the Sextant product catalogue. For eutrophication also maps are included displaying the distribution of data locations, and giving information on the number of observations related to a single parameter (e.g. water body pH map). By clicking on the dots representing the sampling stations, access is given to time series or vertical profiles. In the reporting period, efforts were aimed at loading the latest eutrophication data collection in the EMODnet Chemistry database and improving the integration with the OceanBrowser to optimise the viewing and access functionality. Moreover, activities were undertaken by the Regional Coordinators for processing the latest eutrophication harvest in response to the interim request by EEA, while processing of contaminants will follow in April – May 2020. For the latter, activities took place for improving data sets with known issues in preparation of a new harvest of contaminants data. Moreover, attention was given to improving the workflow for analysis, handling, and publishing of contaminants data collections, and derived maps.

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

- Machine-to-machine connections to data and data products are upgraded following the [Technical Guidance for the implementation of INSPIRE View Services](#). EMODnet Chemistry products catalogue provides the INSPIRE metadata fields requested for enabling machine-to-machine connections, by including information on OGS services and data URL. The [INSPIRE validator tool](#) is used for validating the service. All MetadataURL point to standard XML and to a human readable text.

Task 4: Develop a web portal allowing users to find, visualise and download data:

- The EMODnet Chemistry portal is under review and restyling following the observations received from EMODnet Secretariat. In the new set-up, the section DATA will provide quick and easy access to the harmonized and validated data collections which can be downloaded in ODV csv file, while additional export formats and subsetting functionality are considered to make access easier for users; the section PRODUCTS will allow the user to browse, visualise and download data products. News and events are continuously updated (two additions for the period). In the reporting period, a Technical Working Group web meeting took place at 10 March 2020 to discuss the new portal set-up, the further integration and well-functioning of all services, establishing a common downloading mechanism for all different products, and solving the INSPIRE compliance requirements.

Task 5: Ensure the involvement of regional sea conventions:

- Dialogue with four Regional Sea Conventions has been maintained through the participation in the MSFD Technical Groups (on Data and Marine Litter), where a regular dialogue is established, and through the MSFD Board of experts, consulted prior to the release of new products. RSCs expressed interest to be part of the Advisory Forum.

Task 6: Facilitate interoperability with data distributed by non-EU organisations:

- EMODnet Chemistry started contacts to set data sharing with WOD, beginning with oxygen data. As EMODnet Chemistry builds upon the SeaDataNet pan-European infrastructure, it has strategic links and long-standing communication with non-EU countries and in particular with Australia, Canada, and USA. EMODnet Chemistry vocabularies and metadata directories are also adopted by non-EU organisation, enabling interoperability and data sharing.

Task 7: Install a process to monitor performance and deal with user feedback:

- Procedures are up and running. COVID-19 emergency did not affected the functionality. No new progress to report.

Task 8: Operate a help desk offering support to users:

- The helpdesk is kept operational in the reporting period. COVID-19 emergency did not affected the functionality. All support requests received via the Help desk are listed in Section 4.

2. Challenges encountered during the reporting period

[Provide an overview of the main challenges encountered during the reporting period and the measures taken to address them, including those related to technical and data provision issues. Provide information in the table]

List of all challenges encountered during the reporting period	
Main challenge	Measures taken
Add metadata requested by EEA for contaminants and eutrophication	Evaluate extension of the CDI metadata with additional metadata and analyse if these can be retrieved from other SeaDataNet directories such as Cruise Summary Reports (CSR) and projects (EDMERP) using the Linked Data principle.
Marine Litter data handling	Plan the updating of the data management tools to format and validate marine litter data
Keep the involvement and motivation of data providers	Set regional virtual meetings in the second half of June 2020. Promote the full group meeting in September 2020.
Deal with CMEMS requirements for data exchange	Check if C17 ship codes can be added to CDIs using CSRs where applicable and completed
Management of KPI, in particular indicator 4	Develop a web service to streamline the processing of KPIs
Make data the discovery and access easier for different users	Adopt and adapt webODV for discovery, sub-setting, visualisation, and export in a number of formats, focused on eutrophication first and in a second step on contaminants. For the latter, to include decomposition of P01 parameters into their components for easier sorting and handling by EEA experts.
Handle Seafloor Litter Images and Videos	To analyse and draft a suitable metadata format and feasible data handling system for Seafloor Litter Images and Videos, considering available examples and set-up

3. Identified issues: status and actions taken

[Provide an overview of the issues identified by EASME (Table A), if any, during the reporting period, the status of those issues and actions taken to address them and/or roadmap with remaining actions planned to resolve the issues. You may also provide information about issues you identified yourself, but these need to be covered in a separate table (B)]

A. Priority issue(s) identified and communicated by EASME/ DG MARE/ SECRETARIAT			
Priority issue(s)	Status (Pending/Resolved)	Action(s) taken / remaining actions planned	Date due
Make data easier to access, with interfaces, also fit for non-professionals, to visualise data	Pending	Adopt and adapt webODV components for discovery, subsetting by a number of criteria, visualising and exporting the subsets in a number of formats, all in an easy way and fast	7/2020
Improve the user focus of portal (less info, more services)	Pending	Review and reshuffle the portal, placing the products and their services more centrally as major output from EMODnet Chemistry	5/2020
INSPIRE metadata fields (metadata and data url) should be filled in order to facilitate discovery and usage of OGC Web services (WMS, WFS, WCS)	Resolved	[EMODnet Chemistry products catalogue](#) provides the requested INSPIRE metadata fields. The products include a **data URL** and a **metadata URL** and this metadata description provides users with **OGC services** available on the product, as WMS and WFS services.	3/2020
Compliance with applicable data protection rules	Resolved	The action plan for achieving the compliance has been implemented. New data protection notice and cookies notice were posted on the Chemistry portal. Google Analytics is removed.	3/2020

B. Other priority issue(s) identified by the thematic assembly group itself			
Priority issue(s)	Status (Pending/Resolved)	Action(s) taken / remaining actions planned	Date due

4. User feedback

[Provide a list of all user feedback received on your portal in chronological order within the reporting period. 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 (i.e. has the query been resolved or not yet), and if not provide an explanation why. List any useful feedback you received on your portal, your activities or those of other EMODnet projects/activities. Also provide any suggestions you have received for EMODnet case studies and/or future products/activities/events. Provide information in the table. If you wish to include the full user feedback in the report you can attach it in Annex]

Overview of user feedback and/or requests received during the reporting period						
Date	Organisation	Type of user feedback (e.g. technical, case study, etc.) and short description of the feedback received	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
08/01	JRC	Technical via **email**: looking for EMODnet report on micro-litter	1 day	Resolved	Upload the requested document on the Chemistry portal and send by e-mail	-
13/01	Nationalpark und Meeresschutz Schleswig-Holstein	Technical via email: expertise to develop a numbering system for the Joint List of Litter Categories	1 day	Resolved	Communication and provide ideas	.
16/01	University of Bologna (Italy)	Technical via **email**: Query for a missing data required for a master thesis.	11 days	Resolved	Contacting the author of the data collection (One of EMODnet Chemistry Regional Leaders)	-
22/01	JRC	Technical via **email**: Long time-series (1990-2017) data of	3 days	Resolved	Dataset release	-

		dissolved oxygen for the Baltic Sea and Greater Norther Sea				
24/01	University of Oldenburg (Germany)	Technical via **email**: Query for a missing data required for a master thesis.	2 days	Resolved	Contacting the author of the data collection (One of EMODnet Chemistry Regional Leaders)	-
04/03	EEA	Technical via **email**: Set a discussion forum for with EMODnet Chemistry, EEA and ICES	Hours	Resolved	GitHub project board for EMD Chemistry + ICES -> EEA WISE data flows	-
19/03	EMODnet Secretariat	Technical via chat: testing the chat service.	1 minute	Resolved	Simple response	-

5. Meetings held/attended & planned

[List here the internal and external meetings held/participated by the contractant (e.g. meeting, conference, training (workshop), etc.) since the last quarterly report, and any important meetings or events planned in the future. Please add a short description on the meeting as well as the nature and volume of the audience. At the bottom of the table, provide the total number of events organised and events participated. Provide information in the two table]

A. Meetings organised and attended				
Date	Location	Type event (meeting, training (workshop), etc.)	Meeting to be attended / organised	Short description and main expected outcomes
21-23/1/2020	Venice	Workshop	A	UN Regional Workshop "The Mediterranean Sea We Need for the Future We Want"
3-6/2/2020	Dresden	Conference	A	ENVRI week & ENVRI-FAIR annual meeting
12-13/2/2020	Brussels	Meeting	O	Joint EMODnet Chemistry-CMEMS INSTAC meeting
20/2/2020	Remote	Meeting	O	Progress in the alignment of EMODnet and MLW systems to mutually contribute
24/2/2020	Remote	Meeting	O	Video-conference with RL to check status of Eutrophication data products
10/3/2020	Remote	Meeting	O	EMODnet Chemistry TWG to plan technical developments
11-12/3/2020	Remote	Meeting	O	EMODnet Chemistry PG to agree and plan activities
SUM			**O**	**Total # of meetings organised = 5**
SUM			**A**	**Total # of meetings attended = 2**

B. Meetings planned in the future				
Date	Location	Type event (meeting, training (workshop), etc.)	Meeting Attended (A) / Organised (O)	Short description and main results (# participants, agreements made, etc.)
17/4/2020	Copenhagen	EEA Marine Litter Workshop	A	Show progress and plan joint activities
29-30/4/2020	Nantes	MSFD D8+D9 Workshop	A	Show results and plan joint activities

9-10/6/2020	Rome	9th TG-DATA meeting	A	Plan data collection and data sharing, show webODV
9-12/6/2020	Split	15th TG ML meeting	A	Plan Marine Litter data collection
20-21/10/2020	Trondheim	EATIP-Copernicus Marine-EMODnet workshop on data for aquaculture	A	To explore opportunities and applications for marine environmental data to support aquaculture sector
26-28/10/2020	Amsterdam	International Conference on Marine Data and Information Systems	A	Disseminate EMODnet Chemistry results

6. Outreach and communication activities

[Please list all the relevant communication/outreach activities or products you have developed/executed during this period (including presentations, lectures, trainings, demonstrations, workshops, etc., and development of communication materials such as brochures, videos, press releases, newsletters, etc.). At the bottom of the table, provide a total number for every type of communication activity you have developed/executed (e.g. total # of press releases, total # of presentations given, etc.). If you have planned any important outreach and/or communication activity, then please list these with their expected outcome. Provide information in the tables A for actions done and B for planned activities]

A. Outreach and communication activities			
Date	Communication action/ material	Short description (of the material, title, …) and/or link to the activity	Main results
20/1/2020	Oral contribution to the discussion	IOC/IODE IWG SODIS	Agreement on the way forward
21-23/1/2020	Oral presentation	Co-convener for WG VI A transparent & accessible Mediterranean Sea	Agreement on the need for a programme for an ocean data and information system conceived as an e-environment of existing data portals where users can discover data, data products, data services, information, information products and services was quite clear and EMODnet would represent a fundamental piece in the Mediterranean. Extension to socio-economic data, fisheries and coastal data was mentioned as well as the strengthening of the national systems. Data policy and data quality are always critical.
3-6/2/2020	Poster presentation	EMODnet Chemistry platform	Communicate EMODnet results to ENVRI-FAIR community. Discuss how to enhance FAIRness for RIs (multiple ERDDAP). EMODnet Chemistry & CMEMS as integrators, ingesting data from RIs and giving feedback on data.
12-13/2/2020	Oral presentation and further communication	Joint EMODnet Chemistry-CMEMS INSTAC meeting	To identify datasets of interest to start the collaboration; To share experiences especially in QC procedures; To identify and set up data exchanges
17-19/3/2020	Oral contribution to the discussion	HarmoNIA workshop	Set synergies with the INTERREG ADRION HarmoNIA project

B. Planned outreach and communication activities			
Date	Communication action/ material	Short description (of the material, title, …) and/or link to the activity	Main results expected
	Poster	Poster on Marine Litter	Promote results
	Paper	Aggregated and validated datasets for the European Seas: the contribution of EMODnet Chemistry	Promote results
	Video	Tutorial for webODV, Map viewer, and Products catalogue	Explain usage and promotion

[Relevant scientific and/or popular publications (scientific papers, book chapters, conference papers, …) you published or of which you know they have been published using/referring to EMODnet data or data products during this reporting period must also be reported here. Provide information in the table.]

List of known publications using EMODnet data or data products				
Date	Type and name of journal, conference, …	Publication title	Author(s)	Organisation(s)
05/02/2020	Frontiers in Earth Science	Baltic Sea Operational Oceanography—A Stimulant for Regional Earth System Research	Jun She, H. E. Markus Meier, Miroslaw Darecki, Patrick Gorringe, Vibeke Huess, Tarmo Kouts, Jan Hinrich Reissmann and Laura Tuomi	DMI
	JRC Technical Reports	EU Marine Beach Litter Baselines	Hanke, G., Walvoort, D., Van Loon, W., Addamo, A.M., Brosich, A., del Mar Chaves Montero, M., Molina Jack, M.E., Vinci, M., Giorgetti, A.	EU JRC

7. Monitoring indicators

[Please consult and complete the designated excel template on monitoring and progress indicators in annex, and provide a comment short explanation on numbers and trends in the table on for each indicator when possible/applicable. If any additional monitoring was done through other monitoring tools, please state clearly. Provide information in the table.]

Comments on the progress indicators in the excel template	
Progress indicator	Comment
1.1 Volume and coverage of all available acquired data	EMODnet Chemistry data volume is very high and this reduces the trend values calculated as growth rate (((ACTUAL-LAST)/LAST)*100). A positive increase is present for all subthemes, with the only exception of Marine Litter for a major revision by ICES of Seafloor DATRAS data. The corrected datasets are expected in the upcoming quarter.
1.2 Total number and the coverage of all built & external data products	Data products are available for all subthemes. Eutrophication shows higher numbers due to different seasons (4), sea basins (6) and additional layers produced by DIVA software. Marine Litter subtheme is more heterogenic.
2. Overview of all organisations supplying and approached to supply data and data products within reporting period	66 Data providers are listed, with related contributions. Numbers are stable.
3. Interfaces to access or view data	All interfaces available are listed.
4. Usage of data and data products per interface and per theme	There is a big increase in map visualisations of marine litter; contaminants map visualisations number is quite high compared to other subthemes. As discussed earlier with Secretariat it is not possible to monitor and report data volumes for CDIs. For Data Products we are developing a web service which will help providing these numbers
5. Distribution of users that have used the portal's data and data products per organisation type and country, and their main use cases	Academia and research users are prevalent (67 % for products, 70 % for data). Business and private companies prefers Map viewer and DOI landing page and less products catalogue.
6. External products (websites, apps, …) built on top of web-services: update since last quarterly report	All external websites known to us are listed.
7. Published use case and number of readings	The Use case of synergies between different initiatives has the highest number of readings (73) while EMODnet Chemistry support to the analysis of EU baselines has already 27 reading even thought it was just published.
8. Portal and Social Media visibility	The number of unique visitors is slightly increasing, Users comes directly
9.1 Technical monitoring	EMODnet Chemistry portal has 100% uptime and with optimal response time.

9.2 Portal user-friendliness	Visual harmonisation scores are highest possible
10. Visibility & Analytics for web pages	Visitors enters the portal from the Welcome page, navigating mostly to data search pages
11. Visibility & Analytics for web sections	Search pages are the most visited
12. Average visit duration for web pages	In this last period search chemicals by region gets more interest while users visits for less time the welcome page

The monitoring numbers reported as part of the progress monitoring of EMODnet performance are collected through Matomo. In some cases, numbers from other monitoring systems may also be reported (e.g. Awstats, Google Analytics). Each system uses different technical approaches and therefore has its strengths and shortcomings. Therefore, results are indicative and care should be taken with interpreting absolute numbers or comparing results from different tools. It is often more sensible to consider trends over time collected by the same monitoring tool.

8. Annex: Other documentation attached

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