



EMODnet



European Marine
Observation and
Data Network

EMODnet Thematic Lot n° 4 – Chemistry

EASME/EMFF/2016/1.3.1.2

Start date of the project: 06/03/2017 - (24 months)

EMODnet Phase III – Quarterly Progress Report (7th)

Reporting Period: 01/10/2018 – 31/12/2018



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1 Highlights during the reporting period

Summary of the key achievements and/or events within this reporting period in each of the tasks specified in Section 1.4.1 of the [Tender Specifications](#):

The highlights for the reporting period correspond to Task 2, with a close relation to Task 3, Task 4 and Task 5. In fact, we developed and released new products for contaminants (with regional harmonized, aggregated and validated data collections) and marine litter (new maps for seafloor and beach litter were evaluated by the MSFD Board of experts for their approval. Considering the sensitivity of the task, this procedure was defined to get endorsement by the Board of Experts and as a consequence by the TG ML).

In particular, the highlights for the period October-December 2018 are listed below:

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

- All data providers were active in populating EMODnet Chemistry data infrastructure (numbers of restricted and unrestricted supplied data are listed in Indicator 2), to make data interoperable, findable and accessible. The highest contribution is recorded in **marine litter data, which has grown from 132 CDIs to almost 20.000 CDIs (Trend 14,900%)**, covering all European coasts and open seas areas. In addition, during the last quarter much more users have downloaded data (CDIs). These involve more user countries, including in this period also Industry users.

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

- Harmonized, aggregated and validated data collections of contaminants in biota were generated and provided to EEA for all sea regions, taking into consideration the remarks obtained to the first release. Part of the communication is reported below as an Annex.
- The first harmonized, aggregated and validated data collection of beach litter and sea-floor litter was provided to JRC for Baselines computation. Following their request, the collection was covering the official monitoring data only, in all sea regions. After a first analysis by JRC, beach litter data from Slovenia were taken out and partially replaced while Italian data were also included (even if these were collected using a different list of categories).
- In addition, mid-November the first official release of Marine Litter maps for beach litter and seafloor litter was released to the Board of MSFD experts for their evaluation and possibly endorsement.

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

- Machine-to-machine connection to data and data products is provided for the validated, harmonised and aggregated data collections, now including also contaminants in biota matrix. The first Baselines marine litter dataset is exchanged with TG ML for further analysis and harmonisation, which are needed before to set machine-to-machine data access.

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

- The EMODnet Chemistry web portal is continuously updated with new content, extra news and events, media and papers released, project documents and use cases. To note for the reporting period that in plotting of data products (functionality provided in Ocean Browser viewing service) there is a **big increase of plotting** the layer Water body dissolved cadmium and Water body dissolved oxygen concentration, and a **big increase of map visualisations for the available marine litter layers** (related to metadata only), e.g. trend 675% of the layer “Sampling effort. Temporal coverage of beach litter surveys”.

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. Further contacts with INFO/RAC were attempted during the trimester to finalise the Collaboration Agreement aiming to improve marine data management in the Mediterranean region by adopting and adapting EMODnet Chemistry standards and tools and by encouraging data sharing from additional data centres.

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

- EMODnet Chemistry finalised the contribution to three Community White Papers on EMODnet, on FAIRness of data and on marine debris observations submitted to OceanObs’19 international conference. As part of this interaction, we are discussing marine litter data exchange with the World Animal Protection community, who is willing to share ghost gear/ALDFG data.

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

- In the reporting period, we tuned with TRUST-IT and EMODnet Secretariat the Indicators to be reported and improved the process of indicators creators. Unfortunately, during the reporting period Matomo was not working properly and did not record actions on the EMODnet Chemistry portal.

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

- The help desk is kept operational, according to the rules set in the Tender Specifications. We receive on average one support question via the Help desk and one via personal e-mail or phone call per month. These are handled within a few hours.

It has to be underlined how, during this reporting period, intense interaction continued with EMODnet Chemistry stakeholders for the following crucial use cases:

1. The data exchange with EEA continued, and EEA has informed to the Eionet National Reference Centers representatives that data on contaminants and nutrients will no longer be requested via the WISE SoE data call, but can be collected through EMODnet Chemistry or ICES infrastructures (Nov 2018). EMODnet Chemistry provided the updated harmonized, aggregated and validated data collections for contaminants in biota to EEA, following their requirements in terms of data format and metadata.

2. EMODnet Chemistry provided JRC and TG ML with the first European beach litter database to be used for Marine Litter Baselines computation at EU scale, following their needs in terms of data format and data aggregations. As further step, JRC proposed to extend the collaboration to new beach litter data (data collected in 2017 and 2018), to sea-floor litter and micro-litter. Additional possible compartments that have been highlighted by JRC are floating macro-litter and sea-floor litter data monitored with different media.
3. EMODnet Chemistry, in synergy with SeaDataCloud, is promoting the application of INSPIRE Data Specifications to model chemical data on operation basis, aiming to obtain the compliance with the INSPIRE directive. A further dialogue has taken place with the INSPIRE team from JRC at the TG-DATA meeting in December 2018 in which MARIS and OGS participated. At the meeting JRC indicated to undertake measures for making the INSPIRE implementation more flexible and forthcoming to change requests as heard from several communities in order to achieve more success. This seems to be positive for the change requests that have been submitted together by the SeaDataCloud and EMODnet Chemistry projects.

It has taken considerable time and efforts to come to the present situation that targeted stakeholders such as EU DG Environment, EEA, EU JRC, and Regional Sea Conventions show great interest in the EMODnet Chemistry activities and products and have submitted special requests for amended products which are used as input for specific use cases in support of the MSFD implementation. The dialogue and cooperation in use cases and in TG-ML and TG-DATA have laid a basis for long term collaboration and a promising role for EMODnet Chemistry. However, it is now crucial that on short term more information becomes available from EU DG MARE and EASME about the sustainability of EMODnet Chemistry by means of a new tender phase. Otherwise we might lose the gained momentum as stakeholders might seek alternative solutions.

2 Challenges encountered during the reporting period

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, is provided in the following table.

Main challenge	Measures taken
Endorsement of data collections for eutrophication and contaminants by EEA and RSCs	Open dialogue with EEA (through ICES) to evaluate requests plus definition of actions for EMODnet Chemistry consortium. Tuning in data format and metadata to be included in the data collections, adjustment of ODV, Common Vocabularies and tools.
Endorsement of Marine Litter maps by stakeholders	Strengthen communication with TG ML, JRC and MSFD Board of Experts to get feedback, taking into consideration the high sensitivity of the information. Implementation of suggested improvements prior official release, despite the time pressure for marine litter data delivery.
Revision of beach litter data to be used for Baselines	Additional efforts dedicated to debug and harmonise beach litter data, in communication with data providers.
Maintain a long-term perspective with the stakeholders despite the termination of the contract	Evidence the challenge as an issue to Secretariat and DG MARE. Keep the link with on-going data infrastructures (SeaDataCloud and EOSC).
Monitoring Indicators	Dialogue with TRUST.IT and Secretariat to overcome the gap in the statistics that we obtain despite all the efforts to collect information on the reason for downloading.

3 User Feedback

List of any useful feedback received on Chemistry portal, our activities or those of other EMODnet projects/activities. Any suggestions we have received for EMODnet case studies and/or future products/activities/events is also provided in the table.

Date	Organisation	Type of user feedback (e.g. technical, case study, etc.)	Response time
25/10/18	ICM-CSIC	Email: possible collaboration	46 minutes
09/11/18	Private	Email: technical	25 minutes
28/11/18	ICES	Chat: technical	124 minutes
30/11/18	Mercator Océan	Email: technical	7 minutes

4 Meetings held/attended since last report

The internal and external meetings held/participated by the contractant (e.g. meeting, conference, training (workshop), etc.) since the last quarterly report are listed. At the bottom of the table, the total number of events organised and events participated is provided.

Table: Meetings organised and attended.

Date	Location	Type event (meeting, training (workshop), etc.)	Attended (A) / Organised (O)	Short description and main results (# participants, agreements made, etc.)
1-2/10/2018	Brussels	Meeting	A	4 th EMODnet Technical Working Group
3-5/10/2018	Cagliari	Conference	A	DATA REVOLUTION, Open Data panel
16-17/10/2018	Isola dei Pescatori	Meeting	A	SeaDataCloud scientific committee to present how EMODnet Chemistry is using SeaDataNet data infrastructure
31/10/2018	On-line	Meeting	O	Data products videoconference. *
5-7/10/2018	Barcelona	Conference	A	International Conference on Marine Data and Information Systems
12/11/2018	On-line	Meeting	O	Videoconference to internally review marine litter maps
15/11/2018	On-line	Meeting	A	Virtual Meeting with Deloitte to present EMODnet Chemistry results and usage
19-20/11/2018	Brussels	Meeting	A	EMODnet Steering Committee
20-21/11/2018	Brussels	Meeting	A	GOOS DataMEQ to present EMODnet Chemistry products and discuss interaction with Copernicus
21-23/11/2018	Brussels	Conference	A	EOOS Conference
27/11/2018	On-line	Meeting	O	Data products videoconference. *
3-4/11/2018	Copenhagen	Meeting	A	TG DATA to present EMODnet Chemistry work on INSPIRE and discuss the possible use of EMODnet Chemistry platform for MSFD data reporting by MS
13/12/2018	On-line	Meeting	O	MSFD board of experts: Marine Litter online workshop to evaluate marine litter maps
27/11/2018	On-line	Meeting	O	Data products videoconference. *
SUM of O			5	(Total # of meetings organised)
SUM of A			9	(Total # of meetings attended)

* Data products videoconferences are periodic working events to align the regional data aggregation and validation activity. Consultation on results and open issues faced by the regional leaders preparing the data products.

5 Outreach and communication activities

All the relevant communication/outreach activities or products we 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.) are listed in the table below. At the bottom, a total number for every type of communication activity you have developed/executed (e.g. total # of press releases, total # of presentations given, etc.) is provided.

Table: Communication activities.

Date	Communication action/material	Short description (of the material, title, ...) and/or link to the activity	Main results (# participants, # views, # press clippings, etc.)
16-17/10/2018	Oral presentation	SeaDataCloud scientific committee	The usage of SeaDataNet data infrastructure by EMODnet Chemistry was presented together with the main results achieved.
07/11/2018	Oral presentation	Enlarging the EMODnet Chemistry focus with the EU marine litter data challenge	Presentation was printed in the conference book and uploaded to the conference website
05/11/2018	Poster	Eutrophication and contaminants Black Sea data management in the framework of EMODnet Chemistry.	Presentation was printed in the conference book and uploaded to the conference website
05/11/2018	Oral presentation	Mentioned in "The SeaDataCloud Virtual Research Environment: researching the sea from the cloud"	Presentation was printed in the conference book and uploaded to the conference website
05/11/2018	Oral presentation	Mentioned in "Preparation of oceanographic data for international projects"	Presentation was printed in the conference book and uploaded to the conference website
06/11/2018	Oral presentation	An example of adopting and adapting SeaDataCloud and INSPIRE data models to map EMODnet nutrients data	Presentation was printed in the conference book and uploaded to the conference website
05/11/2018	Oral presentation	Mentioned in "Assessment of existing services and new services provided by the Copernicus Marine In Situ Thematic Assembly Centre (INSTAC)"	Presentation was printed in the conference book and uploaded to the conference website
13/11/2018	Oral presentation	Long-term changes of hydrological and chemical regime including water pollution indices for the Black Sea North-Western part coastal regions. - In: VII All-Ukrainian Scientific Conference "Problems of Hydrology, Hydrochemistry and Hydroecology"	Abstract was printed in the conference book

20-21/11/2018	Oral presentation	EMODnet Chemistry products were presented to GOOS DataMEQ	Agreement on further collaboration and data exchange
3-4/11/2018	Oral presentation	Presentation of EMODnet Chemistry work on INSPIRE	Agreement on further use of EMODnet Chemistry platform for MSFD data reporting by MS
13/12/2018	Oral presentation	MSFD board of experts: Marine Litter online workshop	Marine Litter maps evaluation before the official publication
SUM of oral presentations	10		(Total # of oral presentations)
SUM of posters presented	1		(Total # of poster presented)

Relevant scientific and/or popular publications (scientific papers, book chapters, conference papers, ...) published by EMODnet Chemistry or of which we know that have been published using/referring to EMODnet Chemistry data or data products during this reporting period are also reported here in the table.

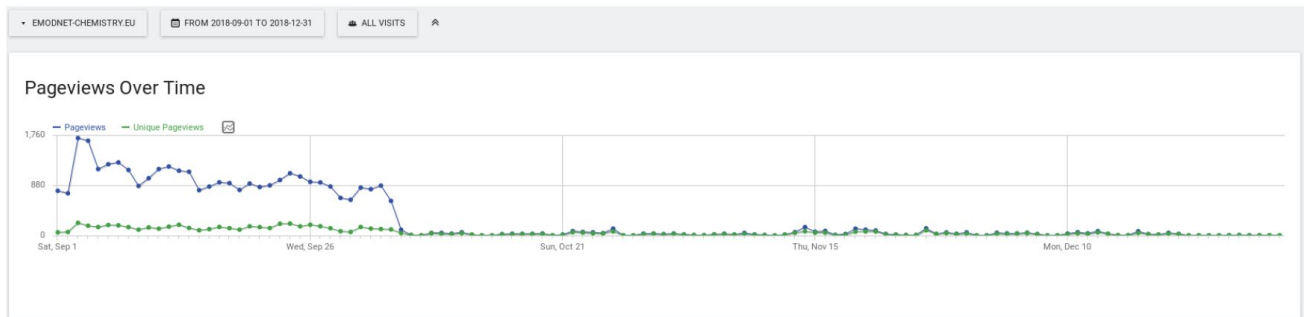
Table: List of known publications using EMODnet data or data products.

Date	Name of journal, conference, ...	Publication title	Authors	Organisation(s)
13-14 November 2018	VII All-Ukrainian Scientific Conference "Problems of Hydrology, Hydrochemistry and Hydroecology", Dedicated to 100th Anniversary Since the Foundation of the National Academy of Sciences of Ukraine	Long-term changes of hydrological and chemical regime including water pollution indices for the Black Sea North-Western part coastal regions.	ILYIN Y.P., ILYIN D.Y., ILYINA O.I., KLEBANOV D.O.	UHMI, Kyiv
5-7 November 2018	Bollettino di Geofisica teorica ed applicate, vol. 59, SUPPL. 1, IMDIS 2018 International Conference on Marine Data and Information Systems	Enlarging the EMODnet Chemistry focus with the EU marine litter data challenge	M. Vinci, A. Giorgetti, M.E. Molina Jack, A. Brosich, M. del Mar Chaves Montero, A.M. Addamo, G. Hanke and F. Galgani	OGS, JRC, Ifremer
5-7 November 2018	Bollettino di Geofisica teorica ed applicate, vol. 59, SUPPL. 1, IMDIS 2018 International Conference on Marine Data and Information Systems	Eutrophication and contaminants Black Sea data management in the framework of EMODnet Chemistry	L. Buga and G. Sarbu	National institute for Marine Research and Development "Grigore Antipa" (Romania)
5-7 November 2018	Bollettino di Geofisica teorica ed applicate, vol. 59, SUPPL. 1, IMDIS 2018 International Conference	The SeaDataCloud Virtual Research Environment: researching the sea from the cloud	M. Buurman, P. Thijssse, S.H. Vathsavayi, S. Mieruch, G. Leblan,	Deutsches Klimarechenzentrum GmbH, MARIS, Tieteen Tietotekniikan

	on Marine Data and Information Systems		G. Santinelli and A. Barth	Keskus OY, AWI, Ifremer, Deltares, University of Liege
5-7 November 2018	Bollettino di Geofisica teorica ed applicate, vol. 59, SUPPL. 1, IMDIS 2018 International Conference on Marine Data and Information Systems	Preparation of oceanographic data for international projects	A. Mikheev and E. Viazilov	ALL-Russian Research Institute of Hydrometeorological Information - WDC
5-7 November 2018	Bollettino di Geofisica teorica ed applicate, vol. 59, SUPPL. 1, IMDIS 2018 International Conference on Marine Data and Information Systems	An example of adopting and adapting SeaDataCloud and INSPIRE data models to map EMODnet nutrients data	E. Partescano, A. Giorgetti, A. Sarretta and D. Schaap	OGS, ISMAR, MARIS
5-7 November 2018	Bollettino di Geofisica teorica ed applicate, vol. 59, SUPPL. 1, IMDIS 2018 International Conference on Marine Data and Information Systems	Assessment of existing services and new services provided by the Copernicus Marine In Situ Thematic Assembly Centre (INSTAC)	P. de la Villéon Loïc, P. Sylvie and the CMEMS INSTAC partners	Ifremer, CMEMS INSTAC partner
13 November 2018	ABSTRACTS - Kyiv, UHMI, 2018, VII All-Ukrainian Scientific Conference "Problems of Hydrology, Hydrochemistry and Hydroecology", Dedicated to 100th Anniversary Since the Foundation of the National Academy of Sciences of Ukraine (Kyiv, Ukraine, 13-14 November 2018)	Long-term changes of hydrological and chemical regime including water pollution indices for the Black Sea North-Western part coastal regions	ILYIN Y.P., ILYIN D.Y., ILYINA O.I., KLEBANOV D.O.	UHMI

6 Comments about the monitoring indicators

The yellow worksheets are provided by external organisation (TRUST-IT) in accordance with the Secretariat. For the reporting quarter, the monitoring system was not working. The figure below shows a complete lack of action recording since 5/10. Investigations started only when the statistics were provided by TRUST-IT (since 14/01/2019).



Volume of available acquired data (Indicator 1.1) shows an **exceptional increase on marine litter data**, which are all made available through EMODnet Chemistry portal.

AWStats numbers are used to report Indicator 6:

Unique visitors			Visits		
Actual	Last	Trend(%)	Actual	Last	Trend(%)
2295	1416	62.1%	4350	4463	-2.5%

Please note that we compare to Awstats metrics for the previous report, not the previously published Matomo metrics. It would be wrong comparing the metrics of these two different software.

It is interesting to note the proportion of views related to EMODnet Chemistry products is split between the viewing service (Ocean Browser) and the catalogue service (Sextant) and how both promote data products.

Page	Views	Unique views
OceanBrowser	698	464
Sextant	401	245

Ocean Browser unique views is almost the double of Sextant, evidencing the importance of the viewing services.

The most popular portal content is product, showing a **positive trend of 64%**, while policy was almost not navigated in the quarter. EMODnet Chemistry portal was mostly used with desktop devices, confirming the scientific focus of the portal users.

7 Annex: Issues and solutions for Contaminants

This Annex provides the list of remarks given by EEA through its Thematic Centre to the first release of contaminants data, covering contaminants in biota in the Mediterranean and Black sea, together with the solution suggested by EMODnet Chemistry, jointly agreed and implemented.

Issues	Suggested solution and status
<p>Each EMODnet geographical region has a buffer (around it), which doesn't correspond to the same EEA CSI indicator regions so in processing had to merge all 4 EMODnet regions and then classify those into the EEA regions.</p>	<p>EMODnet uses overlapping regions for products generation and keeps the dataset integrity (even if observation data exit the region). EMODnet has decided to provide EEA subsets of data per EEA region.</p>
Eutrophication	
<p>The EMODnet quality control by regional product leaders has not been performed consistently. As an example the value of depth, oxygen, nutrients and chlorophyll parameters can be minus without being flagged as bad. Likewise the parameter Nitrate+Nitrite can be bigger than Nitrate alone without being flagged as bad.</p>	<p>EMODnet undertakes a standard QC procedure with ODV, shared by the six regional products leaders and customised to the environmental characteristics. Based on users' feedback, EMODnet continuously improves the quality of the original data. For any additional error highlighted by EEA, EMODnet has decided to review all eutrophication dataset to find and correct remaining errors.</p>
<p>The file format delivered by each EMODnet regional product leader even within a given region is not consistent and doesn't follow the ODV spreadsheet format is therefore challenging in reading the files into a usable format. i.e [bottom-depth] allowed 'missing' values are 0 or null, however there were -9999 or -9 or 0 or null or 999999!</p>	
<p>At ICES we are only using profile data for the assessment. However it seems like EMODnet have included other kinds of data but there is no instrument information going along with the data.</p>	<p>Solution: Filter for data without instruments identified or include from CDI into ODV file (there is a field for it). EMODnet will take action on this issue.</p>
Contaminants	
<p>ODV spreadsheets files for Black Sea and Mediterranean Sea contains 588 unique P01 codes with the P01 codes listed as separate columns. For</p>	<p>To respond EEA needs (large number of P01 codes), EMODnet requested a new tool inside ODV software which now allows to</p>

<p>the Black Sea there are for example 347 P01 columns. The grouping of data into the columns uses the local variable name which sometimes result in repeated columns with the same P01 code (with or without the same unit).</p> <p>It is suggested to transform the ODV formatted data into a long/vertical format, so that instead of having one column per P01 code, each P01 measurement will become a record line in the format. For traceability the local variable names can be maintained, but P01 is the primary information.</p>	<p>“harmonize” P01 expressed with different local variable names and expressed with different measurement units. The new tool converts different units into “preferred units” (according to 2013/39/UE; Comm. Dec. EU 2017/848) and merges P01 entries (same P01 but different local variable names) now with the same units. Besides, the full name of the variables is obtained hovering over P01 codes. To improve the quality checks, ODV marks P01 that are not aggregated.</p> <p>EMODnet is currently working to split P01 terms in subcomponents and transform the data into an ODV format with multiple rows, each row having a P01 with its subcomponent (substance, matrix relationship, biological entity, ..) and measurement to become a row in the new format. E.g., P01, S06, S27, S02, S25, S07, S26,..., P06, measurement, QC flag.</p> <p>EMODnet Chemistry will provide an example of the transformed dataset from the ODV software</p>
<p>Data processing is difficult because the important information on species, chemical substance, matrix, basis of determination etc. is contained in a single local variable / P01+P06 code that will need to be deconstructed before further processing</p>	<p>EMODnet decided to use the P01 codes and its separate parts of information relevant for contaminants in biota data (substance, matrix relationship, biological entity, ..). Each part would be listed as an additional column in the output format.</p> <p>EMODnet Chemistry has taken action on this issue in the transposed dataset they are working on.</p>

8 New monitoring indicators

Please consult and look at the designated excel template.

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.