



# EMODnet Ingestion and safe-keeping of marine data

10th Quarterly Report

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

Date: 15/01/2019

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## 1. Highlights in this reporting period

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- The number of **published data submissions** 'as is' in the **View Submissions service** (aka Summary Records service) has increased from **194 to 263 submissions** (metadata forms and related data sets) and of these **57** submissions (was **32**) have been elaborated **to Phase II** and their data sets are now also available at national and European portals;
- Partners have made further progress with promoting EMODnet Ingestion and encouraging data submitters. Next to the **263** published submissions **88** additional submissions are under processing and also further activities are underway for phase II elaboration on already published submissions;
- The ninth quarterly progress report was submitted at 15<sup>th</sup> October 2018 to EASME, EU DG MARE and EMODnet Secretariate.

## 2. Work package progress

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The EU Tender specifications requested the following Tasks:

Task 1	Construct a web-portal
Task 2	Implement pathways for delivering data to final repositories
Task 3	Facilitate machine-to-machine transfers
Task 4	Operate a help-service for users to provide their data in the most appropriate format
Task 5	Allow providers of data to track the progress of their data from submission through to their storage in a repository
Task 6	Include a 'data wanted' function that allows users seeking certain types of information to specify their needs
Task 7	Participate in discussions with EMODnet partners in order to improve the efficiency of the whole collection, assembly and dissemination process
Task 8	Maintain a summary record of data delivered
Task 9	Engage in outreach activities towards significant holders of marine data whose data are not yet already available
Task 10	Service continuity
Task 11	Project Management

The EMODnet Ingestion consortium proposed a Work Plan that groups specific tasks, comparable in nature, under the same Work Packages (WP), also to make the execution with the large consortium easier and more effective.

Work Package No.	Work Package title	Covering tasks	WP leader
WP0	Project Management	Task 7 – EMODnet tuning Task 10 – service continuity Task 11 – Project Management	MARIS
WP1	Construct and operate central Data Ingestion portal with services	Task 1 - web-portal Task 5 – tracking service Task 6 – data wanted service Task 8 – summary service	HCMR
WP2	Implement and operate pathways	Task 2 – pathways Task 4 – help service	IFREMER
WP3	Facilitate machine-to-machine transfers	Task 3 – machine-to-machine	ETT
WP4	Marketing and outreach	Task 9 - outreach	RBINS

Progress on the Work packages and related tasks are described in the following pages.

### ***WP0 – Project Management:***

As part of task 11 the coordinator prepared the 9th quarterly progress report which was accepted by the EU (EASME and DG MARE). In the 10th quarterly reporting period the coordinator of EMODnet Ingestion has participated in the following relevant meetings:

Date	Location	Topic	Short Description
1 - 2 October 2018	Brussels - Belgium	EMODnet Technical Working Group meeting	Contributing to discussions on tuning technical developments within the EMODnet network

Date	Location	Topic	Short Description
19 – 20 November 2018	Brussels - Belgium	EMODnet Steering Committee meeting	Contributing to discussions on overall progress of EMODnet and presenting progress of EMODnet Ingestion

### ***WP1 – Construct and operate central Data Ingestion portal with services:***

As part of task 1 (web-portal) the EMODnet Ingestion portal has been maintained in the present quarter. Moreover as part of task 8 (summary service) editing activities have taken place for the View Submissions service concerning replacing so-called orphan data for organisations from free text into controlled EDMO terms. This improves the integrity of the metadata of the published data submissions for searches, reports and detailed pages.

### ***WP2 – Implement pathways to forward submitted data to the appropriate repository:***

Concerning task 2 (pathways) the number of qualified data centres from the EMODnet Ingestion network and EMODnet Thematic networks that are included in the Data Centre Matrix of engaged data centres has consolidated at 49. Many of them have been actively involved in the processing of data submissions that were relevant for their expertise and country.

During the reporting quarter further progress has been made with achieving data submissions and with completing these by assigned data centres to be published ‘as is’ in the View Submissions service. The number of published submissions has increased from **194** to **263**. The features of these submissions will be further described under WP4 and its indicators. Moreover an increasing number have been elaborated and populated into European data infrastructures driving EMODnet portals, namely from **32** to **57** submissions.

Further progress was made with implementing a (semi-)automatic coupling of SEANOE and EMODnet Ingestion. Originally, SEANOE is a French national science ingestion portal ([www.seanoe.org](http://www.seanoe.org)) operated by IFREMER. SEANOE has been adopted as extra service at the SeaDataNet portal, inviting European scientists to publish their scientific papers and associated data collections in return for a DOI which will facilitate their wider citation. Moreover, (selected) scientific submissions to SEANOE will be forwarded to EMODnet Ingestion for further processing of the associated data collections for inclusion and publishing in national and European portals. The mapping between the data models of SEANOE and the EMODnet Submission service has been further analysed and it has been agreed to start with a partly

manual exchange process in order to find pragmatic solutions for identified mapping issues following submissions.

As part of the North Sea wind energy use case Deltares has finalised the AQUO – SeaDataNet conversion procedure and has applied it for converting a large volume of chemical and physical data sets from the national Rijkswaterstaat marine database into SeaDataNet formats. In the coming quarter this will be expanded with additional data and the resulting files will be populated into SeaDataNet and from there into several EMODnet thematic portals.

For task 4 (help service) two requests were received and answered. One request concerned information about further processing of a submitted data set while the other concerned a question about signing up to a newsletter, which is not applicable for EMODnet Ingestion. Both requests were answered the same day by the help desk.

### ***WP3 – Facilitate machine-to-machine transfers:***

The task 3 (machine-to-machine) **NRT machine-to-machine ingestion** aims at identifying and arranging additional NRT data stations for EMODnet Physics. These can originate from additional operators that are willing to get connected and share their NRT data freely in EMODnet Physics. The portal explains how the NRT exchange is organised between operators of observing stations and EuroGOOS – Copernicus and it gives a link to the EMODnet Physics portal to show how NRT stations can be displayed and used. In the reporting period additional providers were connected as NRT data streams to EMODnet Physics:

- 2 HFR radars in the Canary Island
- 6 buoys from Croatia (Postaja, Plutaca, Sobra, Vela Luka, Stari Grad, Bios DVA)
- 2 buoys in the Ligurian Sea (Portofino and Capomele)

The participation to the MONGOOS workshop represented a key event to meet some new providers and have updates on the status of monitoring networks managed by attending providers, e.g. during the meeting it was possible to finalize the plan to include the 6 Croatian mooring stations, it was possible to learn that some of the Italian Wave buoys are going to be re-activated, it was possible to collect dataset from repeated cruise between Genova and Palermo (which will be ingested).

In progress is connecting the HFR stations in Norway (a data format issue has to be fixed yet)

## ***WP4 – Marketing and outreach activities:***

Marketing and outreach activities are undertaken as part of task 9 (outreach) by all consortium members and aim at promoting the EMODnet Ingestion portal and services as well as identifying, encouraging and supporting potential data providers to submit relevant marine data sets by means of the Ingestion portal. It is done in synergy with the central promotion as undertaken by the EMODnet Secretariat and making also use of the EMODnet Thematic networks which are deeply involved in the pathways of processing and uptake of submitted data sets. The aim is to engage different communities by understanding their needs and establishing win – win situations.

In the present quarter promotion was made at a number of events, such as:

- North Sea Days 2018, 4 – 5 October 2018, at Texel – The Netherlands, with a dedicated session on marine data management and European developments such as EMODnet, Copernicus, EuroGOOS and SeaDataNet. This session was organised by NIOZ, RWS and MARIS and among others has highlighted the EMODnet Ingestion initiative and portal. The overall event was joined by a good selection of government and research organisations of the Netherlands, engaged in management, policy and research for the dutch sector of the North Sea;
- International Conference on Marine Data and Information Systems – IMDIS 2018, 5 – 7 November 2018, in Barcelona – Spain, organised by SeaDataNet, brought together circa 200 international marine data management experts. As part of the programme a dedicated presentation was given by MARIS about EMODnet Ingestion, including the animation, while several other presentations made a reference to EMODnet Ingestion;
- European Ocean Observing System – EOOS Conference, 21 – 23 November 2018, in Brussels – Belgium, organised by EuroGOOS, Marine Board, and EMODnet Secretariate, brought together > 300 persons interested in marine data acquisition and related applications. As part of the programme several presentations made reference to EMODnet and EMODnet Ingestion in particular, while also promotion was made by means of posters and promotional material, including the EMODnet Ingestion animation.

And the following events in a cooperation of EMODnet Ingestion and EMODnet Physics:

- International Glider Workshop - “Connecting Glider Data Flows In Europe and beyond” (Genova – Italy, 18-20 September 2018). The meeting was joined by 70 attendees from Europe, Australia, Brazil, Canada, United States and from both public (research institute, international organizations, etc.) and private (company) sector. The proactive discussion on data flow and data format harmonization settled the basis for developing an international standard (ocean glider format) that will facilitate data discoverability, access and interoperability. Also there was interest in the Sensor Web Enablement (SWE) standards that are promoted through EMODnet Ingestion. As co-chairs of the global Ocean Gliders Data Management Task Team, we

find such exchange absolutely critical for long-term sustainability, accessibility, and global visibility of glider data in the Global Ocean Observing System (GOOS). Most importantly, it was noted that this workshop was the first step<sup>1</sup> toward meeting the GOOS Strategic Objective 7: data should be Findable, Accessible, Interoperable, and Reuseable (FAIR principle). The workshop consisted of a number of sessions which allowed attendees to understand the global landscape of glider data management, the current practices at major data centers, the wide range of active participants and their role in managing glider data flow, the existing tools and practices, the experience and recommendation of scientific users, and a hands-on session. Agenda and presentations at <http://www.ego-network.org>. A first tangible follow up on the started discussion is the recently published position @ JCOMMOPS [http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/SC/pdf/iocjcommops\\_p2.pdf](http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/SC/pdf/iocjcommops_p2.pdf) Once identified, the Glider Manager will play the connection role between the JCOMMOPS and EMODnet (Physics and Data Ingestion)

- European HFR work camp (Spain) 22-24 October. The work camp was jointly organized by EMODnet Physics, EMODnet Data Ingestion, CMEMS INSTAC and JERICO-NEXT project with the goal to share common tools to make more data available and accessible. About 30 people attended the work camp to participate proactively and practically to the development of the European HFR node (central archiving, homogenized protocols for data distribution, development of standards for quality assurance, control and data structures). One session of the workcamp was dedicated to present and share operational tools to manage HFR data flow and make it compliant to the HFR node and hence make new and more data available in the systems.
- The MARTECH (MARine TECHnology) workshop congregates a broad research community dedicated to developing innovative equipment in the fields of marine sciences and technology. Last 10-11 December 2018, this diverse community met in Porto, Portugal. The MARTECH workshop aimed to bring together those working in MARine TECHnology for discussions and presentations of recent advances in the field and for cross-disciplinary knowledge exchange cutting across engineering and science. This knowledge exchange is fundamental for the development of systems and technologies that will enable us to explore and exploit the ocean in a sustainable manner and to monitor how key issues such as climate change, ocean acidification, unsustainable fishing, pollution, loss of habitats, shipping, security, and mining are affecting ocean sustainability and stewardship. The meeting was attended by more than 50 people. The MARTECH18 program included one dedicated Session on

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<sup>1</sup> Note: regional initiative in Europe, USA and Australia existed but without real coordination



EMODnet<sup>2</sup> during which it was given the general introduction on the EMODnet program, the Data Ingestion facility, EMODnet Physics and its latest results. One of the talks introduced the use of the Sensor Web Enablement (SWE) standards as promoted by EMODnet Ingestion and EMODnet Physics. During the event some new data sources (river and under water noise) were identified.

One main outcome of the latest workshops/conferences (IMDIS, EOOS, MONGOOS, MARTECH) is the importance of the participation to technical dissemination initiatives to present adopted data sharing and interoperability methods interact with people and set up basic links (networking activities) to implement data sharing and data interoperability.

Future joint EMODnet Physics – Ingestion promotion events concern:

- Ferrybox workshop, 24-26/4/2018 Genova <https://events.eventzilla.net/e/9th-ferrybox-workshop-2138713373>

Furthermore, several partners had contacts with potential data submitters to make them aware of the Ingestion service and to give them guidance and support for the actual submission. For instance OGS and MARIS successfully worked together with GEOMAR to submit and publish a large data set for marine litter as collected by GEOMAR during the Volvo Ocean Race 2018. This data set has already been published at the View Submission service, while further elaboration of the metadata and data is underway by OGS for populating the data in SeaDataNet which will feed into EMODnet Chemistry.

### Key indicators:

#### Portal statistics:

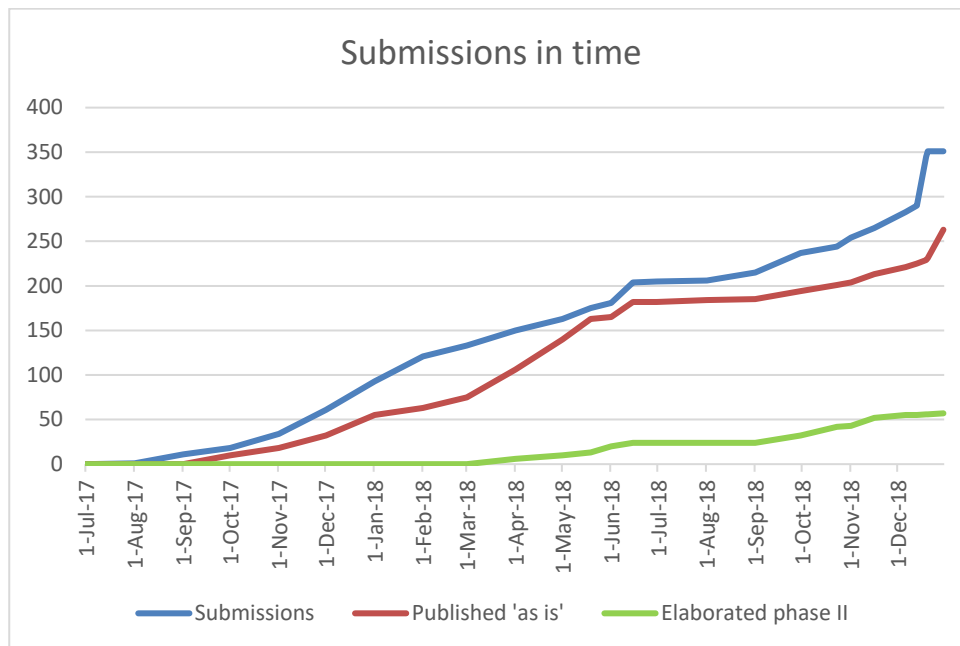
All EMODnet Thematic portals and the Central EMODnet portal have included references and links to the EMODnet Ingestion portal.

Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Oct-18	4,600	7,815	73,248	94,113	1.95 GB
Nov-18	3,242	6,169	59,384	74,035	1.25 GB
Dec-18	2,427	4,226	55,018	66,330	1.03 GB

<sup>2</sup> [https://sarti.webs.upc.edu/martech/usb\\_2018/paginas/Abstract\\_Magazine.pdf](https://sarti.webs.upc.edu/martech/usb_2018/paginas/Abstract_Magazine.pdf)

### Statistics of submissions.

End of December 2018 there are **351** submissions in the Submission service, of which **263** already have been published in the Summary service. The following figures give characteristics of those published submissions.



*Image: Submissions and processing in time*

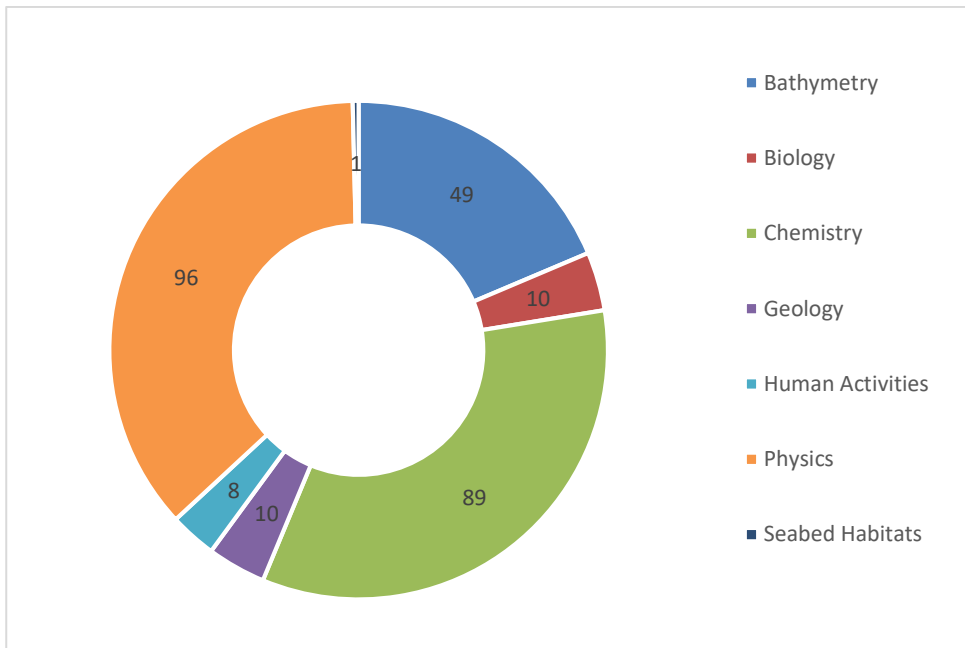


Image: Published submissions by theme

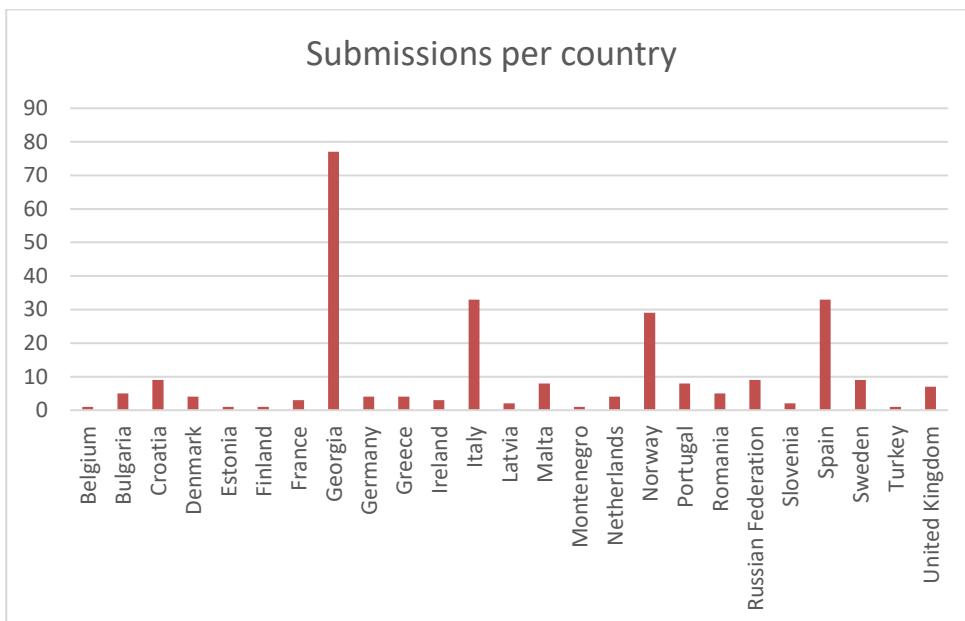
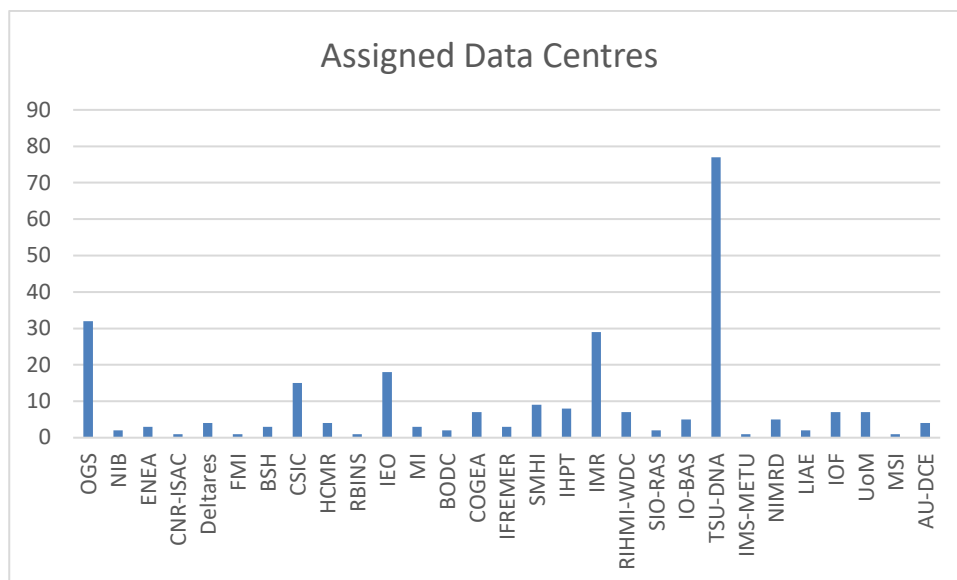


Image: Published submissions by country of submission



*Image: Published submissions by assigned data centres*

DATA ORIGINATOR / DATA HOLDING CENTRE	No	SECTOR	COUNTRY
AQUA4C	1	Company	Belgium
GeoMarine Ltd.	1	Company	Bulgaria
Black Sea NGO Network	1	NGO	Bulgaria
NGO MARINE SOUND	2	NGO	Bulgaria
Institute of Oceanography and Fisheries	9	Research Institute	Croatia
University of Kyrenia	1	University	Cyprus
Aarhus University, Department of Bioscience, Marine Ecology Roskilde	4	University	Denmark
Estonian Environmental Research Centre	1	Research Institute	Estonia
Finnish Environment Institute	1	Research Institute	Finland
Finnish Meteorological Institute	1	Research Institute	Finland
CNRS Paris Institute of Earth Physics, Marine Geoscience Laboratory	1	Research Institute	France
LABORATORY OF SCIENCES OF MARINE ENVIRONMENT (LEMAR)	1	Research Institute	France

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DATA ORIGINATOR / DATA HOLDING CENTRE	No	SECTOR	COUNTRY
Ocean Physics and Satellite oceanography laboratory (LOPS) - UMR 6523 CNRS-Ifremer-IRD-UBO	2	Research Institute	France
Laboratory research centre LTD	54	Company	Georgia
Napirdatsva Ltd	5	Company	Georgia
Scientific - Research Firm "GAMMA"	18	Company	Georgia
Baltic Sea Research Institute Warnemuende (IOW)	1	Research Institute	Germany
Baltic Sea Research Institute Warnemuende (IOW), Marine Geology	1	Research Institute	Germany
GEOMAR Helmholtz Centre for Ocean Research Kiel	1	Research Institute	Germany
University Bayreuth	2	University	Germany
University of Leipzig	1	University	Germany
Hellenic Centre for Marine Research, Institute of Oceanography (HCMR/IO)	4	Research Institute	Greece
Marine Institute	3	Research Institute	Ireland
ISPRA-Institute for Environmental Protection and Research	17	Government	Italy
Portofino Marine Protected Area	2	Government	Italy
ARPA Emilia-Romagna - Struttura Oceanografica Daphne	1	Government	Italy
CNR, Institute of Marine Sciences S.S. of Lerici (SP)	3	Research Institute	Italy
ENEA Centro Ricerche Ambiente Marino - La Spezia	4	Research Institute	Italy
Joint Research Centre (JRC)	1	Research Institute	Italy
National Research Council of Italy - Institute for Marine and Coastal Environment (IAMC) (Sezione Capo Granitola)	1	Research Institute	Italy
University of Rome Tor Vergata	1	University	Italy
University of Tuscia-Viterbo	3	University	Italy

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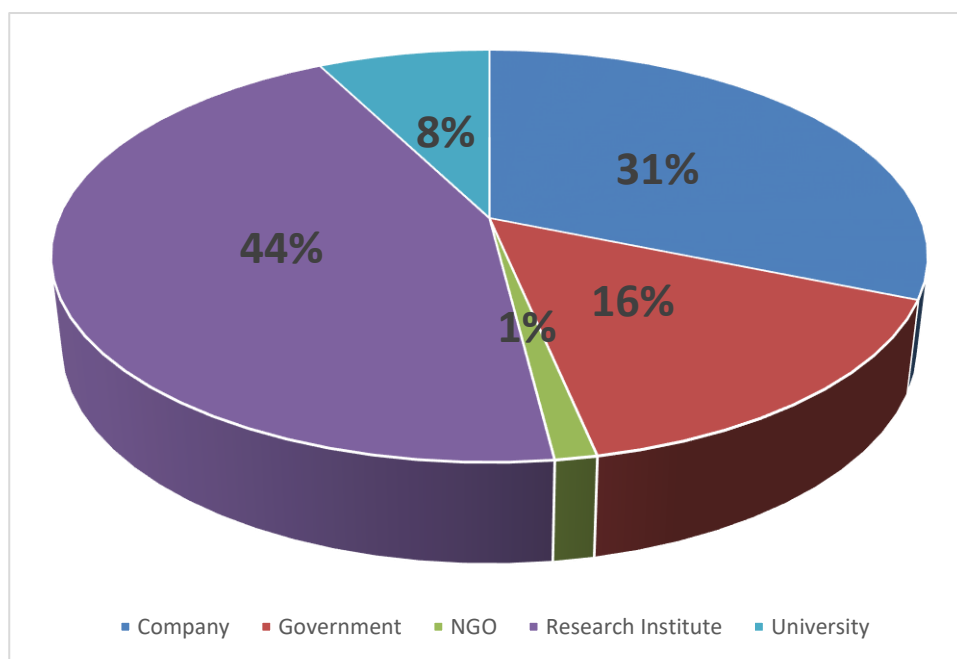
DATA ORIGINATOR / DATA HOLDING CENTRE	No	SECTOR	COUNTRY
Foundation for Environmental Education — Latvia	1	Government	Latvia
Latvian Institute of Aquatic Ecology	1	Research Institute	Latvia
Water Services Corporation	3	Company	Malta
Environment and Resources Authority	3	Government	Malta
Malta Environment and Planning Authority - Environment Protection Directorate	1	Government	Malta
Transport Malta - Maritime Division (ex. Malta Maritime Authority)	1	Government	Malta
International Ocean Institute - Malta Operational Centre (University Of Malta) / Physical Oceanography Unit	7	University	Malta
Institute of Marine Biology (IMBK)	1	Research Institute	Montenegro
NoordzeeWind BV	4	Company	Netherlands
Rijkswaterstaat Water, Traffic and Environment	4	Government	Netherlands
Deltares	4	Research Institute	Netherlands
Institute of Marine Research - Norwegian Marine Data Centre (NMD)	1	Research Institute	Norway
Norwegian Meteorological Institute	28	Research Institute	Norway
Directorate-General for Territorial Development	4	Government	Portugal
Portuguese Environment Agency	4	Government	Portugal
Marine and Environmental Sciences Centre - Faculty of Sciences of the University of Lisbon	2	University	Portugal
Black Sea–Danube Coastal Association for Research and Development	1	Research Institute	Romania
National Institute for Marine Research and Development "Grigore Antipa"	5	Research Institute	Romania

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DATA ORIGINATOR / DATA HOLDING CENTRE	No	SECTOR	COUNTRY
All-Russia Research Institute of Hydrometeorological Information - World Data Centre (RIHMI-WDC) National Oceanographic Data Centre (NODC)	6	Research Institute	Russian Federation
Arctic and Antarctic Research Institute, Roshydromet (Saint-Petersburg)	1	Research Institute	Russian Federation
P.P.Shirshov Institute of Oceanology, RAS	2	Research Institute	Russian Federation
P.P.Shirshov Institute of Oceanology, Southern branch	2	Research Institute	Russian Federation
Ministry of Agriculture, Forestry and Food of Republic of Slovenia	1	Government	Slovenia
Institute for Water of the Republic of Slovenia	1	Research Institute	Slovenia
ESGEMAR/ Esgemar S.A. Estudios geológicos marinos	6	Company	Spain
PdE/ Harbours Authority. Physical Environment Department	1	Government	Spain
Andalusian Institute of Earth Sciences (IACT). CSIC and University of Granada	5	Research Institute	Spain
CSIC-ICM/ Institute of Marine Sciences	4	Research Institute	Spain
IEO/ Malaga Oceanographic Centre	1	Research Institute	Spain
IEO/ Santander Experimental Aquaculture Facilities	1	Research Institute	Spain
IEO/ Spanish Oceanographic Institute	16	Research Institute	Spain
IEO/ Vigo Oceanographic Centre	10	Research Institute	Spain
Institute of Marine Sciences, Barcelona	2	Research Institute	Spain
ULPGC-IOGAG/ Institute of Oceanography and Global Change	1	Research Institute	Spain
IISTA/ Andalusian Interuniversity Institute for the Research on the Earth System	1	University	Spain
ULPGC/ Las Palmas University. Department of Physics	1	University	Spain

DATA ORIGINATOR / DATA HOLDING CENTRE	No	SECTOR	COUNTRY
The Keep Sweden Tidy Foundation	2	NGO	Sweden
Stockholm University, Department of Meteorology	1	Research Institute	Sweden
Swedish Meteorological and Hydrological Institute	6	Research Institute	Sweden
Institute of Marine Sciences, Middle East Technical University	1	University	Turkey
GEMS Survey Ltd	1	Company	United Kingdom
Partrac - Head office	1	Company	United Kingdom
SSE Renewables	1	Company	United Kingdom
The Crown Estate	7	Government	United Kingdom

Table: Overview of data submitters, originators and holding centres with number of related submissions



Graphics: submissions by sector of organisations

The above reported Ingestions all concern submissions of data sets made to the Submission service and then completed for publishing at the View Submission service. There are also direct ingestions which bypass the Submission service. This is the case for ingestions by oceanography operators to the European operational oceanography data exchange. Also there is a mission in EMODnet Ingestion to educate data



providers and to arrange that regular submissions will go directly to the appropriate data centres and no longer through the Submission service.

### **3. Unexpected difficulties encountered**

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Nothing to report.