



Deliverable No 4.1

**“Analysis on information management system for
relevant knowledge and data to support
MSFD/EcAp”**

Date: June 2016

**Action Plans for Integrated Regional
Monitoring Programmes, Coordinated
Programmes of Measures and Addressing Data
and Knowledge Gaps in Mediterranean Sea**

ActionMed

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Coordinator

Dr Kalliopi Pagou

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Authors: Matteo Morgantin, Alessandra Giorgetti, Marina Lipizer, Alessandro Sarretta, Pierpaolo Campostrini, Dick Shaap

Contributors: Theodora Paramana, Sissy Iona, Olvido Tello Anton, Paula Valcare Arenas, Claudio Maricchiolo, Michael Assouline

Edited by: Kalliopi Pagou, Nikos Streftaris, Louisa Giannoudi, Matteo Morgantin



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EXECUTIVE SUMMARY

The objective of the Task 4.1 of the ActionMed project is to identify the existing gaps and needs in data and information management infrastructures to support MSFD/EcAp in the MED area and to agree on a list of actions to improve the efficiency of data management and communication, achieving better data availability through a real interoperability of systems.

The official data portal that Member States (MS) have to use for the reporting obligation is the Reportnet service of EIONET (European Environment Information and Observation Network). In this portal the national authorities in charge of the implementation of the Marine Strategy Framework Directive have to upload the documents and information requested in the MSFD Articles. In particular, starting from 2012, the MS have been due to submit to the Commission, by uploading on EIONET, the reports on Initial Assessment Art. 8, Definition of good environmental status Art. 9, Establishment of environmental targets Art. 10, Monitoring programmes Art. 11 and Programmes of measures Art. 13. On the EIONET data portal all these reports and information are available for consultation and download.

Along with the information collected in the reports throughout the implementation process of the MSFD and mostly in the preparation and execution of the monitoring programmes, Member States collect data from monitoring measurements and survey activities. These data are often in a numerical format that can be stored as tabular files, but to increase the availability and to improve the usability it is necessary to link these data to the scientific network for sharing them. This link has to be bidirectional, so the data already available can be used also in the MSFD and the data produced by the MSFD activities can be uploaded.

The activity 4 of ACTIONMED aims to identify the possible data flows between the portals, the services and network for sharing environmental data. Among others, two principal data and reporting of information network are involved in the analysis: EMODnet and InfoMAP of INFO/RAC.

In the next pages the results of the first six months of the activity 4 are presented, together with the results of the first workshop (milestone 4.1 of the project ActionMed) where representatives of Member States (Spain, Greece and Croatia), EMODnet and INFO/RAC discussed the actual structure and the already active data flows.

Since there was no full representation by the MED European Member States (in particular Italy and Slovenia) and from EEA (in particular ETC/ICM), despite being invited to the workshop, a more general discussion and an associated outcome took place.

1. GAPS AND NEEDS IN THE MSFD REPORTING PROCESS

Under the implementation of the MSFD directive, Member States are obliged to send notification of the completion of the action required by the articles and as the directive does not specify the format of the reports, Member States can send to the Commission different types of files. To avoid the risk of incoherent and incomparable reports, the Commission developed and informally agreed with Member States a set of reporting sheets and associated reporting tools.

For each reporting stage, EEA delivered a reporting package that MSs had to complete and upload in the EIONET data portal. In the first cycle of the implementation, the milestones reported by the MSs were affected by some shortcomings that the Commission reported following Art.12.

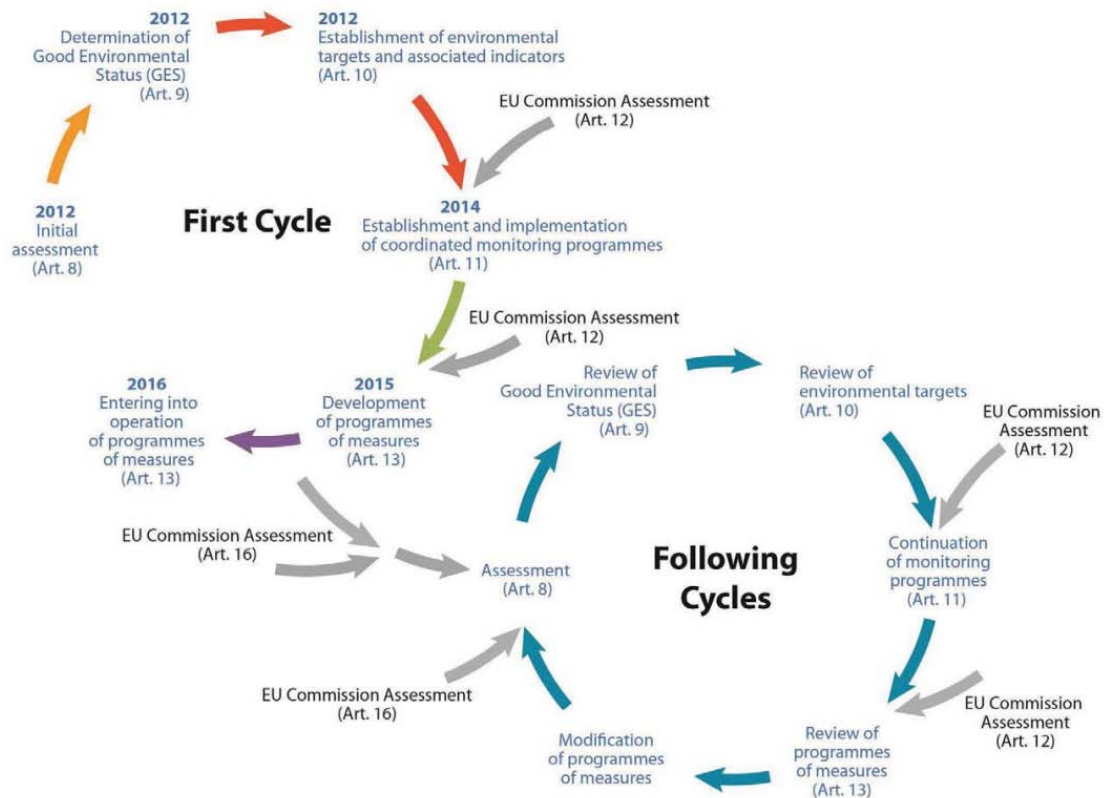


Figure 1: MSFD policy cycle, re-drawn by STAGES project original from DG ENV.

Whenever Member States complete the actions required by the directive, they send their notifications to the Commission. The scoreboard of the reporting process is available at http://ec.europa.eu/environment/marine/eu-coast-and-marine-policy/implementation/scoreboard_en.htm. Many files were uploaded to the EIONET portal and are now available to the public for consultation and download. However, these files are heterogeneous, in terms of content, and in most cases the information

provided is descriptive and qualitative and not concrete data resulting from measurements or surveys.

Following the SEIS (Shared Environmental Information System) principles (report once, use many times), the information reported by Member States shall be available and reusable for other obligations or reports requested by EC. Ideally, this could be done easily if the Data Portal was fully interoperable. Unfortunately, in most cases the information submitted is stored in files and is not *machine readable*, whereas in order to access the information reported by different Member States it is necessary to *manually* extract and elaborate each single file. Furthermore, the criteria selected from those listed in the Commission Decision 2010/477/EU, used by the MSs are different and this results in very scattered information, from which it is difficult to compose a coherent and wide picture of the state of the European marine environment regarding GES, which is the aim of the MSFD.

MSs had difficulty reporting under Articles 8, 9 and 10, as the exercise proved rigorous and in general this led to a delay in the completion of the reporting process.

Below is the information extracted from the 1st workshop of Activity 4 regarding the present MSs.

Spain

Reporting process: the authority in charge of the MSFD in Spain is the Ministry of Agriculture, Food and Environment (in close collaboration with the Instituto Español de Oceanografía (IEO)), which elaborates the reports compiling relevant information and scientific institutes' contributions and completes the reporting to the Commission using the EIONET portal, as requested by the directive.

Monitoring activities and data collection: The elaboration of monitoring programmes in Spain was based on simultaneous processes, which could be summarized as follows:

- Scientific-technical discussion on indicators.
- Inventory on the existing programmes, and gap-analysis, including a proposal for their integration into the Marine Strategies monitoring programmes.
- Programs and subprograms structural design, including the proposal of new monitoring programs, where knowledge gaps were identified.
- Discussion with monitoring competent authorities for each component, and agreement on the designs of those programs.

IEO will be responsible for the data collection and the implementation of some of the monitoring programs. Other institutions will be in charge of monitoring, such as CEPYC-CEDEX (Centre for the Study of Harbors and Coast), or private entities. Some of the monitoring programs are responsibility of other administrations, such as different Ministries, and the Regional Authorities.

National Information System: the Ministry of Agriculture, Food and Environment will centralize all information in a data catalogue that will be fed by data produced by different administrations and institutions. The data produced by the IEO are stored

and managed in the institute's catalogue, while the national catalogue harvest information from them.

Link to the Barcelona Convention, Spain is sending data to MedPol.

Existing data flow between IEO/HNODC and EMODnet: the Instituto Español de Oceanografía (IEO) acts as the National Oceanographic Data Center of Spain, is a national node in the SeaDataNet pan-European infrastructure for marine and ocean data management, and is partner in EMODnet. IEO already provides to EMODnet Chemistry data on eutrophication, which is relevant for the descriptor D5 of the MSFD and data on contaminants relevant for the descriptors D8 and D9 of MSFD.

Greece

Reporting process

In the case of Greece, the Special Secretariat for Water (SSW), belonging to the Ministry of Environment & Energy, is the competent authority for the implementation of MSFD. SSW assigned a consultant to conduct the Initial Assessment (Art. 8), Determine GES (Art. 9) and establish environmental targets (Art. 10). To tackle the exercise, information was gathered from literature, monitoring and research programmes, whereas in some cases expert judgement was used. No new data were produced for the exercise. Problems of incompatibility among different types of data were noted as well as inaccessible data, fragmented data and knowledge gaps. The Competent Authority reported the IAs to the Commission (the technical aspect of the reporting was undertaken by the consultant), via the available database on EIONET CDR (<http://icm.eionet.europa.eu>) and the submitted national report was both in Greek and English. The report delivered on time (15 October 2012).

Monitoring activities and data collection

Greece has not reported on Monitoring Programs yet. The Monitoring programs have been structured, but they have neither been officially notified to the Commission, nor have been fully implemented. Monitoring is going to be organized by HCMR, assisted by other institutes. HCMR will be the central data collector, thus it will be easier to streamline the dataflow. Greece is not ready to report the Programmes of Measures under Art. 13, but POMs are expected to be delivered in the near future, most possibly within 2016.

National Information System

The Ministry of Environment & Energy through the Special Secretariat for Water is planning to assign the development of a database system for the management of the MSFD data in the framework of the MSFD Monitoring Programmes. Data in this context means raw data, observations from which products will be derived to support the environmental assessment. The system will also support the reporting needs of the country, following EU rules and directives requirements (such as INSPIRE, WFD).

The system will get observations from multiple national data providers (MSFD monitoring programmes, WFD, Fisheries, Nature, Poseidon data, research cruises) and will produce indicators useful for the evaluation of the environmental status. The

system will provide INSPIRE compliant data, products and services towards end users like EMODnet, UNEP/MAP, WISE/EEA.

Link to Barcelona Convention

Greece provides information to UNEP/MAP, under the requirements of the Barcelona Convention. Monitoring for MEDPOL has not been active for several years, but data flow currently takes place from data generated in the framework of WFD monitoring.

Existing data flow between HCMR/HNODC and EMODnet

HCMR also acts as the National Oceanographic Data Center (HNODC) of Greece, is a national node in the SeaDataNet pan-European infrastructure for marine and ocean data management, and is also partner in several EMODnet portals. HCMR provides to EMODnet Chemistry data on eutrophication, which is relevant for the descriptor D5 of the MSFD and data on contaminants relevant for the descriptors D8 and D9 of the MSFD.

Croatia

Reporting process

The involved institutions are the Government of the Republic of Croatia, the Ministry of Environmental and Nature Protection, the Croatian Environment Agency and the Referral Center for the Sea (IOF involving scientific institutions). Croatia participated in the ActionMed Analysis as volunteer (they are not partners of the project).

Monitoring activities and data collection

IOF has the repository of MSFD reporting. So far, they reported Art. 8, 9, 10 and 13. The Ministry asks IOF to produce a document, adopted from MSs then reported. Referral center will be responsible in the future also for coordinating the monitoring.

National Information System

No information available at this point

Link to MED Regional Sea Convention

No information available at this point

Existing data flow between IOF/HNODC and EMODnet: IOF acts as the National Oceanographic Data Center (NODC) of Croatia, is a national node in the SeaDataNet pan-European infrastructure for marine and ocean data management, and is also partner in EMODnet Chemistry. IOF provides to EMODnet Chemistry data on eutrophication which is relevant for the descriptor D5 of the MSFD and data on contaminants relevant for the descriptors D8 and D9 of the MSFD.

2. IDENTIFIED GAPS AND NEEDS

When examining the reporting activities of Member States it is possible to find some common aspects of the implementation process. In most cases, the NODCs are involved in the MSFD implementation and these institutes are also partners of networks for sharing data. The majority of MSs is preparing or is already running a national database, which can store the reported data and then these data can be streamlined to other portals. For some descriptors this already occurs and, for example, the data for assessment are already stored in a common database that is part of a wider network of data sharing.

All these similarities lead to a common vision for the interoperability of data; some technical solutions are available for implementing this kind of effort nevertheless defining a common procedure for data management for all the 11 descriptors, is far away. In particular, during the workshop all participants agreed on the key role of EMODnet, that is well established for some descriptors, but is less developed for others; furthermore, EMODnet is already developed not only involving scientific institutes but also national monitoring agencies involved in the MSFD implementation; however the latter is not complete yet on a European scale. National Oceanographic Data Centers could act as the data service for the MSFD competent authority. The analysis of the possible links and actions to bridge the gaps and fill the needs was completed identifying the Players, the Services and the type of actions, following the schema below:

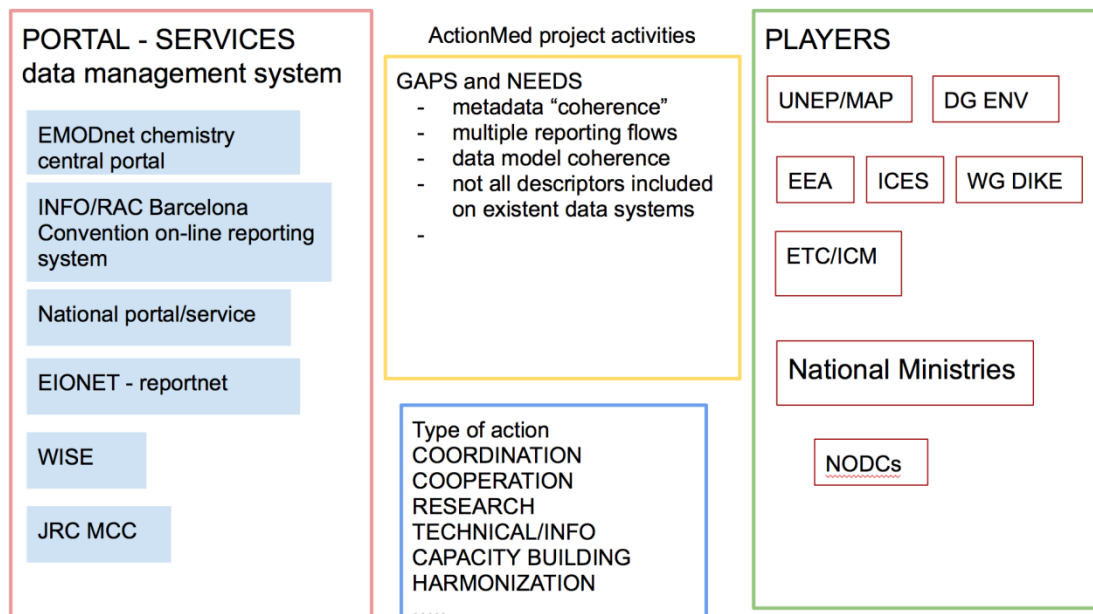


Figure 2: Graphical representation used during the discussion that took place in the workshop in Venice

During the discussion, all Member States representatives pointed out that there is a need to establish common mechanisms for data sharing and improvement of the data flow between the providers, the competent authorities and the EC.

In addition, the need to have common standards and structures for MSs' monitoring programs and the opportunity to report through the Regional Sea Convention were highlighted; this approach is already applied by the northern countries. For example in Netherlands, there are multiple national monitoring locations, but in the common shared reporting, data are included for a subset as agreed.

Summary of the more relevant gaps and needs identified during the workshop:

Gaps

- Timeframe
- Information uploaded with the report stored at file level
- XML reporting sheets incompatible with national DB
- Changes in the EIONET data dictionary
- Multiple reporting streams

Needs

- Machine readable data flows
- Common data model related to indicators
- Common standards for national repository/DB
- Tools and collaboration at Regional Level
- Sub-regional joint activities for data collection
- Enforce the synergies between directives

3. EIONET PORTAL AND SERVICES

EIONET is the European Environmental Information and Observation network, that is the portal where Member States have to upload their notifications to the Commission and the information requested by each reporting package. EIONET is a partnership network composed by the European Environmental Agency, six European Topic Centres, the National Focal Point and the National Reference Centre; in the figure below the six ETCs with the specific expertise are presented

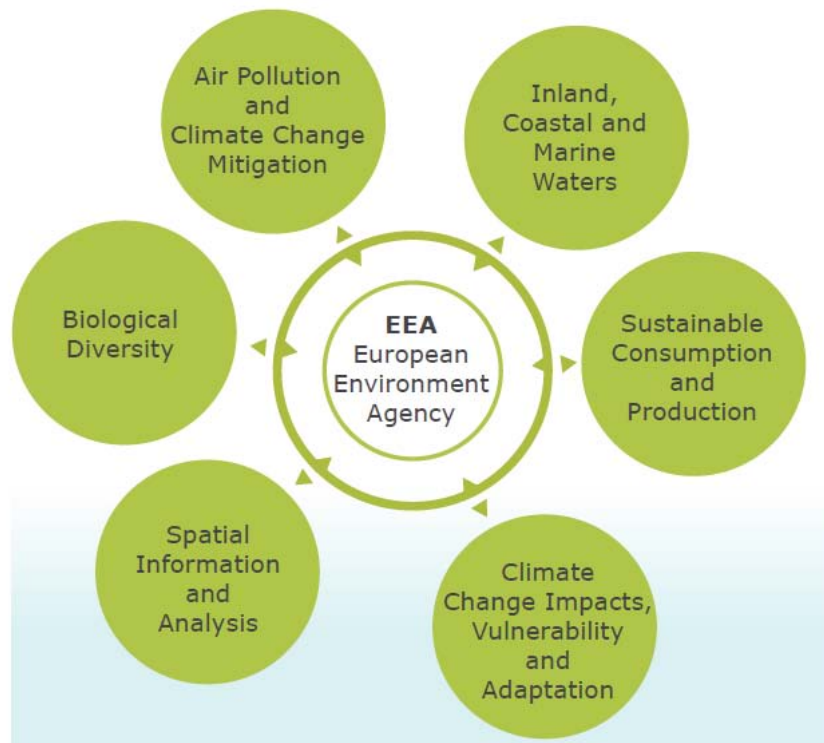


Figure 3: The six EIONET European Topic Centres

EIONET collects information related to water quality from several EU Directives:

- WFD – Water Framework Directive
- UWWTD – Urban Waste Water Treatment Directive
- BWD – Bathing Water Directive
- DWD – Drinking Water Directive
- NiD – Nitrate Directive
- FD – Floods Directive

The information uploaded by the Member States is elaborated by the EIONET network of experts to produce high level environmental information products as maps, reports, datasets and assessment of the European environmental status.

Regarding the analysis conducted by ActionMed on the data and information management, the more relevant service of EIONET portal is **Reportnet**.

Reportnet is in operational use since 2002 for reporting environmental data to EEA, for hosting DG Environment’s reporting tasks, as well as national and international organizations’ deliveries in a very transparent way. In the figure below all the components of this Reportnet are depicted.

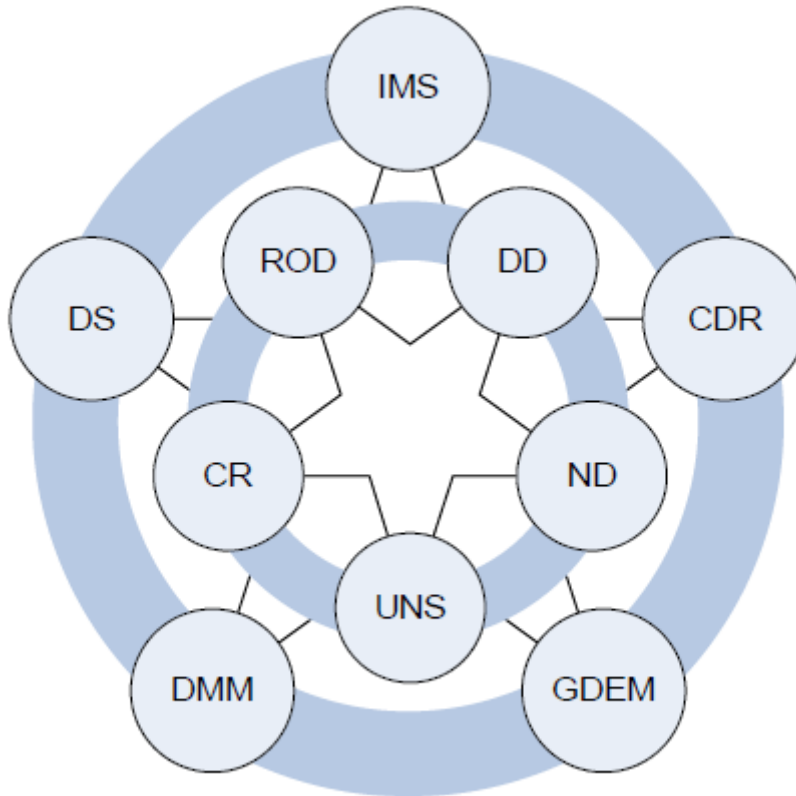


Figure 4: The components of Reportnet.

IMS: Indicator Management Service - **CDR:** Central Data Repository - **DMM:** Data Merging Module - **UNS:** Unified Notification System - **ND:** Network Directory - **CR:** Content Registry - **DS:** Data Service - **DD:** Data Dictionary - **ROD:** Reporting Obligation Database - **GDEM:** Generalized Digital Environment Model.

The Central Data Repository is like a bookshelf, with data reports on the environment as submitted from Member States. During the workshop the partners of Activity 4 of ActionMed with all the experts and national representatives discussed the details of Reportnet components. All participants agreed to evaluate further the role of EIONET in MSFD implementation and a possible collaboration with ETC/ICM and EEA. This analysis should be aimed at exploring whether data relevant for MSFD is being reported by MSs in EIONET and if so, how an exchange might be set up between EIONET and EMODnet.

Exhaustive description and complete technical documentation of all the services are available on the EIONET web portal.

4. JRC MARINE COMPETENCE CENTRE

The **Marine Competence Centre**¹ (MCC) is the JRC's resource for supporting marine environmental policy:

- It supports the **Marine Strategy Framework Directive** (MSFD) as the environmental pillar of the EU maritime policy
- It supports the **Blue Growth Agenda** in order to sustain the ability for long term growth through clean and healthy oceans

With the web platform and its components the MCC provides several information and services:

- easy access to **policy documents** related to the MSFD,
- **guidance** on MSFD implementation,
- **scientific knowledge** and information related to the monitoring and assessment of the environmental status of the European Seas, and
- **mapping and modelling tools**.

The main aim is to exchange knowledge with a service-policy interface to support MSFD and EU Member States and this is possible through the good exchange and collaboration network built with other European institutions and working groups.

Especially interesting in the context of the ActionMed work package 4 activities are:

- the **European atlas of the Seas**², developed by JRC in partnership with DG MARE. It has mainly visualization purposes for general public, but it contains a rich set of map and information (with references), useful to marine related purposes.
- the **MCC Modelling Framework**, which proposes end-to-end modelling to represent the entire marine system by including all relevant processes, from physics to bio-geo-chemistry; it also aim to be explicitly linked to the descriptors of the MFSD.

Future work foreseen in the coming month for MCC includes:

- support to the next steps of the MSFD implementation and contribution to integration of requirements across policies;
- development of the Knowledge brokerage tool;
- development of the modelling framework (Mediterranean, Black Sea and Baltic Sea) and link to Blue Growth initiatives;
- viewer for displaying cartographic results;

1 <http://mcc.jrc.ec.europa.eu/>

2 http://ec.europa.eu/maritimeaffairs/atlas/maritime_atlas/

5. MONITORING DATA AND EMODNET PORTALS

EMODnet data network

The European Marine Observation and Data Network (EMODnet) is a long term marine data initiative from the European Commission Directorate-General for Maritime Affairs and Fisheries (DG MARE) underpinning its Marine Knowledge 2020 strategy. EMODnet is a consortium of organisations assembling European marine data, data products and metadata from diverse sources in a uniform way. The main purpose of EMODnet is to unlock fragmented and hidden marine data resources and to make them available to individuals and organisations (public and private), to support relevant EU Directives, and to facilitate investment in sustainable coastal and offshore activities through improved access to quality-assured, standardised and harmonised marine data which are interoperable and free of restrictions on use. Already a major part of data from national monitoring carried out by Member States become available in EMODnet; however EMODnet is still in development and its network of connected and contributing data providers from research and monitoring domains is increasing. One of the objectives and challenges of EMODnet is to support MSFD implementation, in particular the reporting needs and the management of monitoring data, according to requirements indicated by representatives of Member States and Regional Sea Conventions. EMODnet collects, harmonizes and gives access to data related to a series of MSFD GES Descriptors. EMODnet is currently organized in seven thematic lots, giving discovery and access services to data and data products on the marine environment (geology, bathymetry, physics, chemistry, biology and seabed habitats) and on human activities. EMODnet started in 2009 as a pilot with a limited spatial coverage; the 2nd phase started in 2012, covering all EU sea basins; the 3rd phase will work towards providing a seamless multi-resolution digital map of the entire seabed of European waters providing highest resolution possible in areas that have been surveyed, including topography, geology, habitats and ecosystems; accompanied by timely information on physical, chemical and biological state of the overlying water column as well as oceanographic forecasts.

EMODnet: focus on biodiversity

Data and information on marine biodiversity for European sea basins are mainly managed by EMODnet Biology (<http://www.emodnet.eu/biology>). EMODnet Biology provides a single access point to European marine biodiversity data and products for assessing the environmental status of the European Seas according to MSFD, managing a high heterogeneity of data: phyto- and zooplankton, algae, seagrasses, zoobenthos, fish, reptiles, birds, mammals. Data are processed according to standards developed under several international initiatives such as WoRMS, EurOBIS, GBIF, Lifewatch and SeaDatnet and are related to descriptors 1 (Biodiversity), 2 (Non – indigenous species), 3 (Commercial fish species), 4 (Food-web integrity), 5 (Eutrophication) and 6 (Sea floor integrity). Strong interactions with the European Environmental Agency (EEA), JRC and the Regional Sea Conventions (OSPAR, HELCOM, UNEP-MAP, and BSC) have allowed performing an EU-wide assessment of those species and communities identified as indicators for the Marine Strategy Framework Directive.

EMODnet Chemistry

EMODnet Chemistry aims at supporting the MSFD implementation, focusing in particular on descriptors 5 (Eutrophication), 8 (Contaminants and pollution effects) and 9 (Contaminants in fish and other seafood). In the flow chart from data to information and knowledge for MSFD, EMODnet, together with other Regional Systems, sits between the National and Regional Bodies, in charge of coordinated monitoring and data provision, on one side and the Regional Conventions and EEA, responsible for assessment products, on the other. EMODnet Chemistry, with its present network of 46 institutes (and more connected through the underlying SeaDataNet infrastructure) covering all European waters, focuses on collecting, standardizing, checking data quality and developing and operating new services to share and visualize data and data products. The EMODnet Chemistry data portal publishes validated and harmonized data collections, using standard OGC WMS/WPS services, concentration maps, as WMS layers, and source data through a dedicated data discovery and access service. 679.652 CDI records and data sets are presently made available by 64 Data Centres from 32 Countries, sharing data from 297 Originators, collected in the period 1868 – 2015 years. 84% are unrestricted, 16% have to be negotiated. EMODnet Chemistry provides concentration maps of nutrients (NO_3 , PO_4 , SiO_4 , NO_x , NH_4 , total nitrogen, total phosphorus), chlorophyll and oxygen, produced for trend detection, with a 10-year moving window from 1960 to 2014, by season and standard levels. Additional indicators will be taken into consideration. EMODnet provides time series plots of long contaminants data. Quality assessment for EMODnet Chemistry is considered as a key element both in the data harvesting, as well as in the data products generation. Regular EMODnet-MSFD coordination meetings are jointly organised by DG MARE and DG ENV to discuss MSFD groups, EEA, DG ENV and Regional Sea Conventions requirements, to optimise EMODnet Chemistry services and products for specific indicators and to formalise the cooperation. Two MoUs are under discussion respectively with the Commission on the Protection of the Black Sea Against Pollution (Bucarest Convention) and the UNEP/MAP Coordinating Unit (Barcelona Convention) together with the Information and Communication Regional Activity Centre.

MSFD descriptors and EMODnet lots

The EMODnet infrastructure aims to provide a single access point to European marine data and to develop data products for multiple user groups; this includes also a focus on data products and services specifically relevant for the Marine Strategy Framework Directive. The different EMODnet thematic lots manage data related to all MSFD GES descriptors, as detailed in the table below:

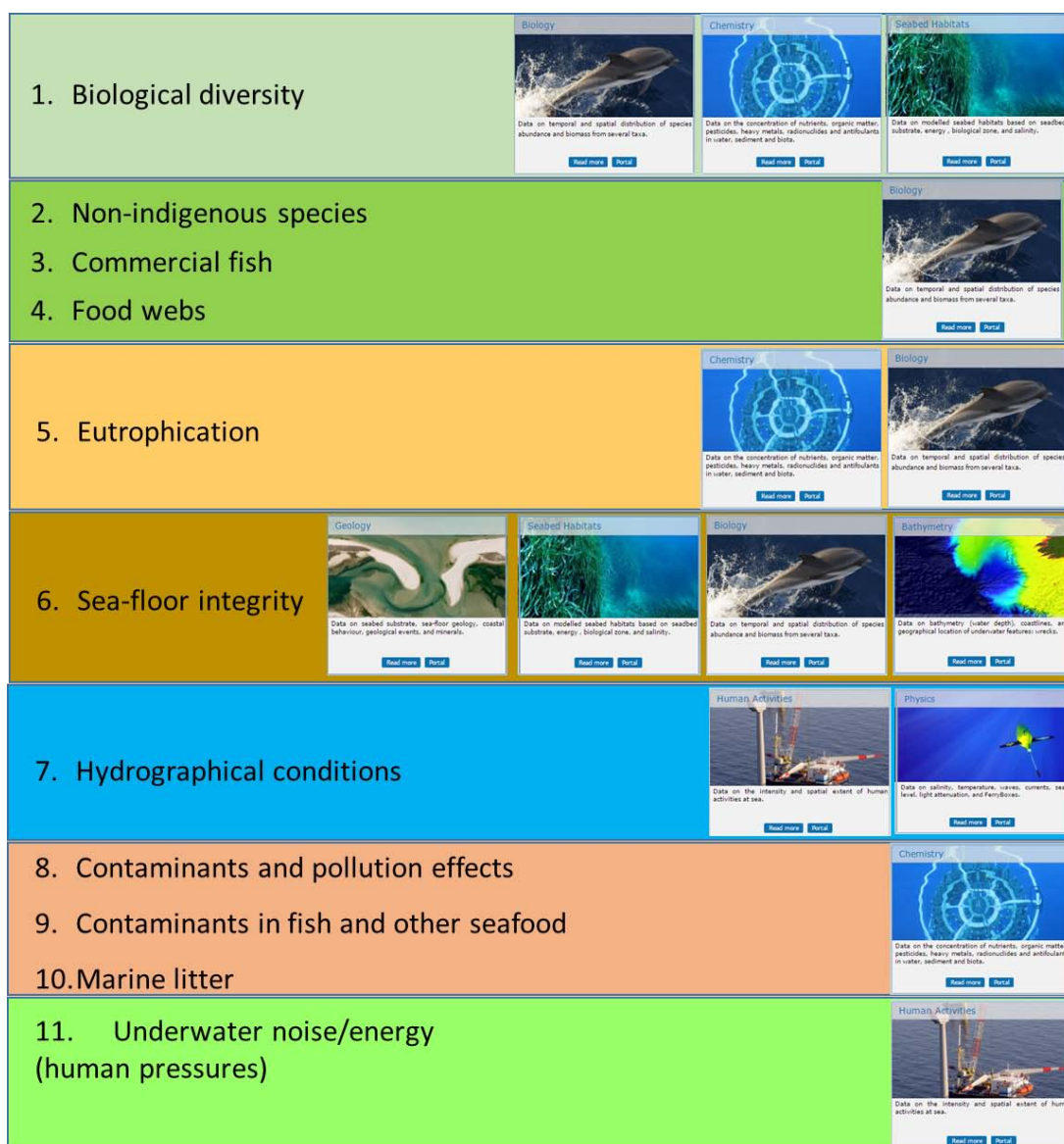


Figure 5: EMODnet thematic lots and related MSFD descriptors.

6. MSFD DATA MANAGEMENT IN MED REGION AND THE INFO/RAC SERVICES

Regarding the Convention for the Protection of the Mediterranean Sea Against Pollution (Barcelona Convention), the first plan adopted as Regional Seas Programme under UNEP in 1976, was part of the Mediterranean Action Plan. The Barcelona Convention, with the other three Regional Sea Conventions (OSPAR, HELCOM, and BUCHAREST), played an important role in the implementation of the Marine Strategy Framework Directive and, in particular, in the Common Implementation Strategies. Today, the Contracting Parties are 22, collaborating in order to protect the Mediterranean marine and coastal environment and to boost regional and national plans to achieve sustainable development.

The MAP Components are:

- **Coordinating Unit**, Greece
- **MED POL** Programme, Greece
- Plan Bleu (**RAC/BP**), France
- Priority Actions Programme (**RAC/PAP**), Croatia
- Specially Protected Areas (**RAC/SPA**), Tunisia
- Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (**REMPEC**), Malta
- Sustainable Consumption and Production (**RAC/SPA**), Spain
- Information and Communication (**INFO/RAC**), Italy

The Barcelona Convention participated in the workshop and was represented by the INFO/RAC director, who presented the main activities and roles of INFO/RAC.

The objective of INFO/RAC is to contribute to the collection and sharing of information, raising public awareness and participation and enhancing decision-making processes at regional, national and local level.

The thematic areas are:

- Information and communication technology;
- Information sharing, communication, education, training and awareness-raising;
- Dissemination of results from environmental research and from innovative observation and monitoring technology.

The portal for the data management developed by the INFO/RAC is InfoMAP, the UN Mediterranean knowledge platform conceived to provide and share data, information services and knowledge for the benefit of the Mediterranean Action Plan components and Contracting Parties in their work for the implementation of the Barcelona Convention, its Protocols, MAP strategies and policies, including the Mediterranean Strategy on Sustainable Development (MSSD).

The objectives of InfoMAP are to;

- Streamline dataflows related to MAP environmental legislation and policies;
- Ensure easily accessible information and knowledge on MAP themes to both policy-makers and citizens, according to an appropriate MAP data policy;
- Promote cooperation/sharing of information/data interoperability between InfoMAP and other networks or regional nodes;
- Provide information support for megatrends analysis and emerging issues such as adaptation to climate change, biodiversity, ecosystems and real time/emergency management.

The InfoMAP portal is organized in several different services:

- Coordinating Unit (compliance reports): [BCRS](#)
- MEDPOL (marine pollution): [MPIS](#), contaminants in water, biota, sediment; eutrophication; National Baseline Budget
- SPA/RAC (Biodiversity): Marine Protected Areas, marine alien species, cetacean stranding, species, habitat, ..., [WebGIS](#)
- PAP/RAC (ICZM): indicator framework
- REMPEC (Emergency response): Country profile; [MEDGIS-MAR](#), decision support system (MEDESS4MS)
- BP (environment and development): Simedd
- SCP (Sustainable Consumption and Production)

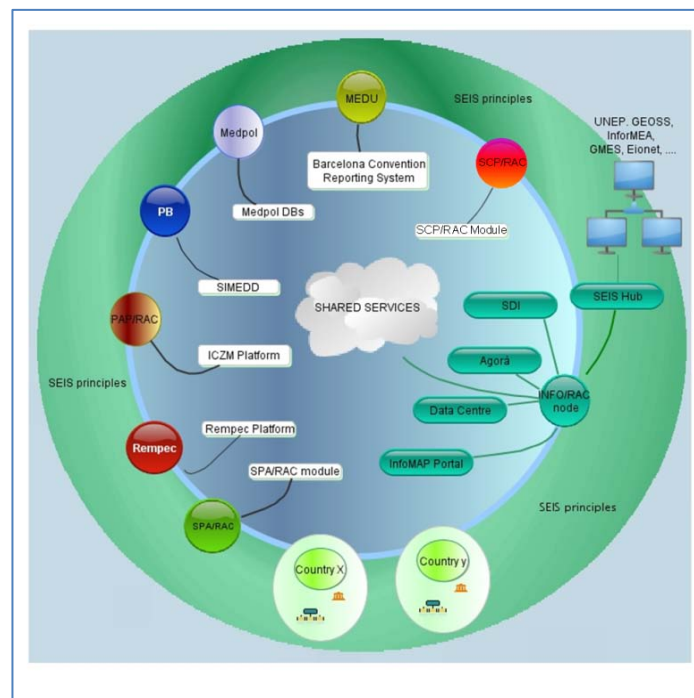


Figure 6: INFO/RAC portal services

Info-MAP Reporting System is an active platform, where countries report for the Barcelona Convention protocol, in very similar way to EIONET for the MSFD this is only the reporting for the compliance. At the moment InfoMAP is not really collecting data in terms of results of measurement activities or calculation of quantitative parameters.

In the Mediterranean region, as the real issue is to support southern countries, the MedPol reporting is based on bilateral agreements and financing, and there are no obligations. In this part of the region there is a huge amount of contaminants, but there are a lot of sites without data.

Furthermore, the MedPol data policy is very tight, so MedPol is not sending data to EEA, but it's up to MSs to report to other directives or initiatives.

The data management under the MSFD directive and Barcelona Convention in the Mediterranean region is facing similar issues; qualitative report on compliance and lacking of quantitative information. Starting from the activities of the ActionMed project, the opportunity to find common solutions and to adopt common standards for information exchange is existing. In this way, it might be possible to activate the interoperability of data management systems at the three levels: national, regional and European.

7. ACTIVITY 4 NEXT STEPS

This document summarizes the results of the first six months of activity and the outcome of the first workshop, where representatives of Spain, Greece and Croatia, as well as representatives of EMODnet and INFO/RAC have discussed and shared the analysis on the **“Gaps and Needs in data and information management infrastructure”**.

The ambition was to have more Member States involved, but due to the strict timeframe of the project it was impossible to postpone the meeting date to meet the availability of all invited people. Nevertheless, the contact with Italy and Slovenia authorities in charge of the implementation of MSFD is frequent and the results of the workshop will be shared with them, to ensure their involvement in the follow up actions.

The discussion on the national reporting process underlined several common points and it has resulted in some ideas for further analysis on how to improve the availability of data for the MSFD and in particular the data coming from the monitoring activities. The presence of EMODnet and INFO/RAC representatives gave the opportunity to explore the point of view of the participating Member States with the experts in data management at regional and European level.

Collaboration with Regional Sea Convention

The involvement of UNEP in the further analysis on how to organise data flows for the MSFD was agreed by all participants as a good step, and the collaboration started immediately with the creation/configuration of one area dedicated to the ActionMed in the Groupware of INFO/RAC. This cloud storage is already active and is a tool that permits to share the materials and deliverables of the work package and facilitate the discussion.

As a follow up of the workshop, a bilateral meeting will take place in July 2016 of EMODnet representatives with INFO/RAC and it will be an opportunity to strengthen the collaboration and to deepen the analysis of the technical aspects of possible interaction between the EMODnet Chemistry and INFO/RAC data systems.

Collaboration with EEA and ETC/ICM

As mentioned above, it was impossible for EEA representatives to attend the meeting, but specific information on the working process of EIONET portal and services related to the MSFD reporting process, were provided. However, it was not possible yet to identify potential interaction between data flows from EIONET and EMODnet.

This potential will be analyzed in a coming bilateral meeting between the project team and the expert from EIONET in the next months.

The second workshop of Activity 4

The **2nd workshop** (October 2016) will focus more on the technical and infrastructural aspects of interoperability (standards, services, data models, compliance with INSPIRE requirements, etc.) and on how existing infrastructures are dealing with them, with EMODNet having a main role in this. For these reasons the plans are to **organise this workshop at JRC in Ispra**, to involve directly the INSPIRE and Marine Pilot coordinators. Preliminary contacts have been established to best meet participant commitments.

