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**COMMISSION STAFF WORKING DOCUMENT  
EXECUTIVE SUMMARY OF THE EVALUATION**

**of the**

**European Marine Observation and Data Network (EMODnet)**

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## Introduction

### *What is EMODnet?*

In the Commission Communication *Marine Knowledge 2020* <sup>(1)</sup>, published in 2010, the European Marine Observation and Data Network (EMODnet) is defined as a network of marine organisations that would provide a single entry point for accessing and retrieving marine data derived from *in situ* observations, surveys or samples from the hundreds of databases maintained throughout the EU.

Today, EMODnet is a partnership of more than 120 organisations that provide access to marine data, data products and data services in seven thematic disciplines: bathymetry, biology, geology, chemistry, physics, seabed habitats and human activities. It follows Findable, Accessible, Interoperable and Reusable (FAIR) principles and makes available quality-assessed data and data products.

### *What is EMODnet used for and by whom?*

The largest user group of EMODnet are academia and research (61%). They acknowledge the significantly faster and cheaper marine research, the increased quality of their work and the reduction of uncertainty.

EMODnet is also used by national, regional and local government bodies to access, share and reuse marine data across EU borders, use readily available data products, and speed up their planning and decision-making processes.

Private industry is responsible for about a quarter of downloads from the EMODnet portal. Many of these users are small to medium-sized enterprises who incorporate the data in the services they provide to other industries or public authorities.

EMODnet is also powering the European Atlas of the Seas <sup>(2)</sup>, which makes available a wide range of marine-related information to students, teachers and the wider public in the form of maps.

Examples of use cases can be found on the EMODnet website <sup>(3)</sup>

### *Purpose of the evaluation and methodology*

The evaluation of EMODnet was planned in the Marine Knowledge 2020 roadmap <sup>(4)</sup>.

This evaluation mainly aims to assess whether the original objectives have been reached and are still valid, to assess the performance of EMODnet, and to assess progress to enable reflection about the future of EMODnet. The European Commission analysed the five standard evaluation criteria: effectiveness, efficiency, relevance, coherence, and EU added value.

The evaluation is centred on the period from 2014 to 2020, corresponding to the programming period of the European Maritime and Fisheries Fund (EMFF) and to the multiannual financial framework covering the same years. Elements of information from official texts and yearly

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<sup>1</sup> COM(2010) 461.

<sup>2</sup> European Atlas of the Seas: [https://ec.europa.eu/maritimeaffairs/atlas/maritime\\_atlas/](https://ec.europa.eu/maritimeaffairs/atlas/maritime_atlas/).

<sup>3</sup> <https://emodnet.ec.europa.eu/en/use-cases>

<sup>4</sup> SWD(2014) 149.

contractual reports were also included for the periods from 2013 to 2014 and from 2020 to 2022 for a better understanding and to be able to draw pertinent conclusions.

Today EMODnet provides access to data and knowledge for all seas and oceans of EU coastal Member States, as well as seas and ocean bordering neighbouring non-EU countries and EU outermost regions. EMODnet also provides information on landlocked countries, e.g. on aquaculture.

## **What was the expected outcome of the intervention?**

### *Rationale for the intervention*

The needs that motivated the Commission to set up EMODnet were the need to achieve a coherent approach to marine data collection, the need to remove barriers to application of marine data, the need to enable competition to deliver products and services, and the need to reduce uncertainty. In line with these needs, the general, specific and operational objectives are summarised in Table 1, and the impacts expected from the action are logically:

- improved productivity;
- increased innovation; and
- reduced uncertainty.

### *Wider policy context before 2014*

The main policy initiatives were:

- in 2008, the Marine Strategy Framework Directive <sup>(5)</sup> (MSFD), calling on Member States to achieve or maintain good environmental status in each marine region;
- in 2014, the Maritime Spatial Planning Directive <sup>(6)</sup> (MSPD), with the goal to bring coherence in possibly competing use of maritime space such as fishing, aquaculture, shipping, renewable energy, nature conservation and other uses. The EMFF Regulation was also adopted in 2014.

### *Point(s) of comparison / Assessment of the achievements*

At the start of the evaluation period (2014), EMODnet was not yet operational. It was still time-consuming to find data and obtain permission to use it. It was also hard to put together data from different sources and of different types because of differing standards, nomenclatures and baselines. The resolution of the data and sea-basin coverage were limited. Thematic disciplines were operating independently and usage of the EMODnet prototype was low because the amount of data available was limited.

## **How has the situation developed over the evaluation period?**

The main phases developments can be summarised as follows:

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<sup>5</sup> Directive 2008/56/EC.

<sup>6</sup> Directive 2014/89/EU.

2013-2015: performance of stress tests, first Digital Terrain Model made available, set-up of the ingestion service to access data outside of the network;

- 2016-2017: EMODnet Geology and Seabed Habitats improved, and role of the Secretariat expanded;
- 2018-2019: focus on user needs, applications for EU policies; and
- 2020-2021: increased use for EU policies.

## Evaluation findings

### *Efficiency and effectiveness*

To quantify the efficiency and assess the effectiveness of EMODnet, an external evaluation study <sup>(7)</sup> has assessed the benefits in relation to expected gains in productivity, innovation and data accuracy.

There are clear benefits in terms of productivity, i.e. time saved for professionals and organisations. For example, before EMODnet, acquiring data at sea-basin level would have required to contact organisations in all countries bordering a sea basin, request permission, access the data, and most likely get it in different formats and quality. Thanks to EMODnet, data can be accessed in a few clicks.

EMODnet has also been developing and maintaining data products at EU level and when possible beyond <sup>(8)</sup>. One of the most emblematic products is the EU-wide Digital Terrain Model. It provides the best-resolution bathymetry existing for EU seas, and it is used in various applications from marine modelling to spatial planning and more.

There are also clear benefits in terms of innovation, i.e. new products, services and applications that can be developed based on readily available, free data. Today, more than 100 use cases are listed on the EMODnet website <sup>(9)</sup>.

Another important benefit is the increased accuracy of data thanks to a quality control process. This results in reduced uncertainty for the various uses of the different data, which also has economic benefits, e.g. reduced uncertainty can have a positive impact on risk mitigation of floods.

Overall, the external evaluation study assessed that improvements in productivity, innovation and accuracy yielded cumulative benefits in the order of 20 times the annual cost. Between 2014 and 2020, the funding provided by the EMFF amounted to EUR 51.3 million, i.e. EUR 7.3 million per year. So EMODnet has not only been effective in helping to achieve its objectives, but it is also efficient because it generates benefits that are larger than its cost.

### *Coherence*

From the beginning, EMODnet has sought coherence with EU policies such as the INSPIRE Directive <sup>(10)</sup> and the MSFD. In particular, EMODnet is used in the context of MSFD Descriptor 10 on marine litter, where it supports the creation of a standardised collection

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<sup>7</sup> <https://data.europa.eu/doi/10.2771/3245>

<sup>8</sup> <https://emodnet.ec.europa.eu/en/data-portfolio>

<sup>9</sup> <https://emodnet.ec.europa.eu/en/use-cases>

<sup>10</sup> Directive 2007/2/EC.

methodology and provides access to the aggregated data of Member States. As the policy context has changed, EMODnet has been adapted too. It now also helps achieve the objectives of the MSPD by making available some Member States' maritime spatial plans in a visual form.

EMODnet services are developed in close collaboration with the Copernicus Marine Environment Monitoring Service (CMEMS), powering part of its In situ Thematic Centre. EMODnet products are used in the Copernicus Marine forecasting models or products for validation purposes and are also provided to CMEMS users for further research and downstream activities.

#### *How did the EU intervention make a difference?*

Today, EMODnet provides free and open data covering the 27 Member States and other regions in a standardised format and saves its users a lot of effort.

EMODnet makes a difference for national hydrographic offices, national or other research centres and academic labs who are performing expensive *in situ* measurements and surveys on water temperature, on pollution, on the nature of the sea floor, on habitats, on human activities, etc. EMODnet also makes a difference for some of the Member States' reporting obligations (e.g. under the MSFD and the MSPD).

Without EMODnet, such a data network would not exist at EU level and stopping the activities would directly impact the benefits listed above.

EMODnet also respects subsidiarity. Member States keep their right to decide on the way they manage data at national level.

#### *Is the intervention still relevant?*

Over the years, the Commission has adapted the action to include new policies, e.g. the MSPD in 2014, the Single-Use Plastics Directive in 2019, or the EU Mission 'Restore our Ocean and Waters by 2030' in 2020.

In the context of digitalisation and initiatives such as Destination Earth and the Digital Twin of the Ocean, there is an increasing need for marine data, reduced operational costs and faster access for those who use marine data.

With all the environmental policies that are in place and the upcoming ones, it is more than ever needed to improve the quality of public decision-making at all levels by making available data of the best quality.

## **Conclusions**

Table 1 provides a summary of the estimated impact of EMODnet in relation to the various objectives (+ meaning low impact, ++ meaning medium impact and +++ meaning high impact).

<b>General objectives</b>	
Underpin EU policies that preserve, protect and improve the quality of the environment	+++
Strengthen the scientific and technological basis	+++
Prudent and rational utilisation of resources	++
Support common transport policy	+
Progressively establish an area of freedom, justice and security	+
Increase fisheries productivity	+
Support an open market with free competition	++
<b>Specific objectives</b>	
1. Reduce operational costs and delays	+++
a) Help private industry compete in the global economy	++
b) Improve the quality of public decision-making at all levels	++
c) Strengthen marine scientific research	+++
2. Increase competition amongst users of marine data	++
3. Reduce uncertainty in knowledge of the oceans and the seas	+++
4. Enhance marine knowledge for maritime surveillance, licensing and fisheries management	+
<b>Operational objectives: Setting up and maintaining at EU level</b>	
1. A catalogue of European marine data collections with common formats and nomenclature	+++
2. A set of complete interoperable layers for European sea basins	+++
3. A user-driven process that determines priorities for the collection and assembly of data	++

Table 1: Summary of the strength of the estimated impact in relation to the various objectives

### Lessons learned

The progressive development and growth of the network resulted in multiple contracts that are not synchronised and operating independently. Other ways of contracting could be investigated, keeping a competitive dimension for some of the needs but formalising the fact that some specific entities are necessary and cannot be selected on a competitive basis.

Experience also showed that further IT developments targeting easier accessibility and better user-friendliness would further improve overall efficiency. Further action to increase outreach and engagement would also enable a larger base to both provide and use the data.

In addition to collecting data using a bottom-up approach, a top-down approach could also be developed to better answer policy needs, e.g. more coherent and uniform sea-basin coverage.

EMODnet had to adapt to a developing EU policy landscape several times. In the future, this flexibility should be preserved, enabling EMODnet to cover new areas, satisfy new needs and continue to develop synergies for the technical reporting under EU policies.

A better linkage between EMODnet and CMEMS would also increase the relevance and pertinence of both services, EMODnet providing data for validation and calibration and CMEMS delivering information with a coverage that cannot be achieved with *in situ* measurements.