



GROWTH AND INNOVATION IN OCEAN ECONOMY GAPS AND PRIORITIES IN SEA BASIN OBSERVATION AND DATA

THE MEDITERRANEAN SEA

D12.3 Interim Report (04/12/2014– 03/06/2015)

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Table of Contents

Executive Summary	4
Introduction	5
1. Literature Review	6
2. Workpackage 2-9 activities	7
3. First DAR and Panel Report	8
3. Communication and Dissemination activities.....	9
4. Next Steps	10

Executive Summary

The Interim Report overviews the activities carried out by the Project “Growth and innovation in ocean economy - Gaps and priorities in sea basin observation and data. LOT No.2 The Mediterranean”, in the period ranging from the 4th December 2013 till the 3rd June 2015.

The overview has been subdivided into four sections:

- 1) the Workpackage 1 on Literature Survey results;
- 2) Workpackage 2-9 activities;
- 3) Workpackage 10-11 on the Data Adequacy Report result and the first Expert Panel meeting;
- 4) Coordination, outreach and dissemination.
- 5) Next steps

Both the Literature Survey and the First Data Adequacy Report have been completed in time and delivered together with the first Panel Report.

The Interim report concludes with a section on the activities to be undertaken by the Consortium in the next 18 months.

Introduction

In the Green Paper ‘Marine Knowledge 2020: from seabed mapping to ocean forecasting’ (COM-2012-437) it is explained that central to the unlocking of the economic potential of Europe’s marine observations is the “*concept of a European Marine Observation and Data Network (EMODnet), a network of marine organisations that would provide a single entry point for accessing and retrieving marine data derived .. from the hundreds of databases .. throughout the EU. It would also deliver digital map layers of parameters derived from these primary data for entire sea basins around Europe.*”

The objective of EMODnet Mediterranean CheckPoint is to examine the current data collection, observation and data assembly initiatives in the Mediterranean Sea, analyze how they can be optimized and deliver the findings to stakeholders *through an internet portal*. Particular objectives are:

- 1) carry out a literature survey;
- 2) for each challenge:
 - Produce a Metadatabase regarding the input datasets needed for the ‘Targeted products’;
 - Produce Targeted products for the seven specific Challenges;
 - Produce two Data Adequacy Reports.

The target audience for these deliverables are the Institutional actors (Decision Makers) and the Upstream Providers, as illustrated in the picture below (First DAR, 2015).

CheckPoint functions / user categories	Institutional audience	Upstream providers	Intermediate users	End users	General audience
Present the project, inform regularly on deliverables and provide showcases	x	X	x	x	Main Driver
Develop CheckPoint indicators to identify gaps and priorities of monitoring system	Main Driver	X	x	x	x
Develop CheckPoint indicators for upstream data to give indications on how to evolve them in a user-oriented manner	x	Main Driver	x	x	
Develop a GIS catalogue to present the targeted products as reference information with dependencies to upstream data (lineage and fitness for use)	x	x	Main Driver	x	
search for upstream data and clarify the observation landscape (neutral status), and develop gateway to upstream catalogues	x	x	x	Main Driver	x

Table 1.1 CheckPoint functions vs user categories for the Mediterranean CheckPoint. The blue indicates the two targeted CheckPoint users (extracted from First DAR, 2015).

In the following the overview of the Literature Survey, the Challenge Workpackages work, the first DAR and the Panel Report, together with the dissemination and coordination activities is presented.

1. Literature Review

The Literature survey is published on the MedSeaCheckPoint Portal: http://www.emodnet-mediterranean.eu/reports_news/.

The EMODnet Mediterranean Sea (MedSea) Checkpoint Literature Survey was carried out from January to September 2014 in order to answer the following questions: is there an overview of data appropriateness and availability? Can any statement of fitness for purpose be made?

This Literature Survey summarizes the first substantial attempt to classify the input data sets existing at the Mediterranean Sea level and it explains a methodological framework for the nomenclature, metadata collection and the result statistical analysis. This work allowed for the first time to have an overview of the type and number of data sets required by Challenges.

Furthermore, a set of assessment criteria were defined, focused on “what” is available for the Challenges and “how”, producing a definition of two assessment criteria, called “appropriateness” and “availability”. The former includes the spatial extent and resolution, time extent and resolution, purpose, lineage, usage, completeness, consistency, accuracy while the latter the visibility, accessibility and performance. Fitness for purpose is to be understood as the totality of the appropriateness and availability criteria that can satisfy stated and implied needs.

The data needed by the Challenges were then classified in terms of ‘characteristics’ (nomenclature consistent with the Marine Strategy Framework Directive) belonging to five, traditional environmental monitoring matrices: Air, Fresh and Marine waters, Biology/Biota, Seabed and Human Activities. The SeaDataNet common vocabulary list was used to classify the characteristics, associate them to the Challenges and to the environmental matrices.

It was found that Challenges require 73 different characteristic categories and in particular: four in the Air matrix, 16 in the Biology/Biota matrix, 7 in the Fresh water and 22 in the Marine water matrix, 8 in the Seabed matrix and 16 in the Human Activities matrix. Characteristic categories recurrently needed by the Challenges are: 1) for Seabed matrix: bathymetry, lithology, coastal geomorphology; 2) for Marine/Fresh water matrix: temperature, salinity, sea level and currents; 3) for Biology/Biota matrix: Fish abundance; 4) for Human Activities Matrix: man-made structures, administrative units, transport activities, trawling activities and impact.

For the 73 characteristics required by the Challenges more than 500 upstream data sources were inserted in the Literature Survey database (Annex 3). The number of data providers is about 112, i.e. about 10 data providers on average for each Challenge.

In order to progress toward an assessment of the ‘fitness for purpose’ and without having yet Challenge products to work with, we selected 18 Use Cases that utilize the major characteristics of the Challenges and we have extracted an initial evaluation of the fitness for purpose of the implied data sets. Not surprisingly data sets belonging to the Air, Biology/Biota and Seabed matrices could be seen to have medium to low ‘fitness for purpose’ due to lack of sufficient spatial and temporal resolution, low visibility and accessibility.

In conclusion this Literature survey showed that in the Mediterranean Sea it is possible to have an overview of the type of data and data sources required for the Challenges and that appropriate fitness for purpose criteria can be defined. For some of the characteristic required by the Challenges fitness for purpose has been initially evaluated and this experience will be transferred to the Data Adequacy Reporting.

2. Workpackage 2-9 activities

EMODnet MedSea CheckPoint aims to document the reliability and utility of the existing monitoring system at the sea basin level, by developing fitness-for-use indicators to show the appropriateness and availability of monitoring data for the production of Challenge targeted products. There are seven Challenges: Wind Farm Siting (CH1), Marine Protected Areas (CH2), Oil spill Platform Leaks (CH3), Climate and Coastal Protection (CH4), Fisheries (CH5), Marine Environment (CH6) and Rivers (CH7). Workpackage 2-8 are dedicated to the seven Challenges which in turn have to:

- define the targeted products;
- select the input data sets for the generation of targeted products
- contribute to the construction of the metadatabase for the CheckPoint Service
- contribute to the selection criteria and the Checkpoint indicators.

All Workpackages contributed to the first version of the metadatabase has been produced and made available in the EMODnet MedSea CheckPoint Web Portal (<http://www.emodnet-mediterranean.eu/>, Fig. 1). This has given the basic information to build the First DAR.

The CH3 Platform Leaks output was activated in June 2014 following the schedule and a Bulletin was disseminated in August 2014 from a request of DGMARE, as expected. Results indicated that the Bulletin was released within the prescribed time (24 working hours from the request) but that work was needed to include in the Bulletin more information on the coastal impacts of an oil spill release. All the other Challenge outputs are due in the second 18 months of the project.

Workpackage 9 contains the work plan for the development of the web portal and the CheckPoint service. After the first 18 months, two versions of the MedSea CheckPoint Web Portal were released: the first version (April 2014) containing project information and the second one (Feb 2015) containing the CheckPoint service functionalities.

Workpackage 9 also contributed to the definition of the Checkpoint indicators and the deployment of the CheckPoint Service Dashboard for the automatic calculation of the CheckPoint indicators. Furthermore it contributed to the maintenance and to the validation of the Metadatabase.



Fig. 1 Second version of the EMODnet MedSea CheckPoint Portal where the CheckPoint service has been activated

3. First DAR and Panel Report

The First DAR is published on the MedSea CheckPoint Portal: http://www.emodnet-mediterranean.eu/reports_news/.

This first DAR reviews the methodology used in the MedSea CheckPoint to construct the metadatabase, and develop the indicators for a selected number of assessment criteria. The indicators were built on the basis of existing ISO standards and they are constructed directly on the metadatabase containing information on the upstream data providers. For each Challenge, CheckPoint Information has been collected on What, Why, Where, When, How input data will be used to develop targeted products. The information is organised into a metadatabase which currently contains 298 data set descriptors.

On the basis of this metadatabase, the Literature Survey results were reviewed. It was confirmed that 45 categories of characteristics (specifically defined class of variables derived from observations or models and/or the geographical representation of an object) are needed for the seven Challenges and 126 data providers (primary provider = originator; secondary provider = distributor and/or curator) would be required by the Challenges in order to develop the targeted products. This already highlights the importance of the MedSea CheckPoint portal for collecting and organizing the information on complex and distributed data source networks that are required to derive the Challenge products. GIS technology is used to organize all this information into a metadatabase and make it available to DGMARE and the public.

The assessment criteria are subdivided into two territories: appropriateness and availability. Only availability is described in the first DAR since most of the Challenge products have not yet been developed and thus appropriateness cannot be defined properly.

The availability investigates “how the input data sets are made available to the Challenge use” and 8 indicators have been developed from the metadatabase.

From this first analysis and without differentiating between the Challenges, only four indicators were assessed from which the following emerged: 1) the majority of the data sets are accessible through an online delivery service (not always fully Inspire compliant), 2) the data policy is partially restricted; 3) most of the data are free of charge, and 4) the responsiveness in terms of data acquisition is generally high. These results will be modified when a thematic or single Challenge analysis is carried out. For example, CH1 (Wind farming) data are available but have to be purchased, and CH5 (Fisheries) data responsiveness is low (more than a week to access the data).

For CH3 (Oil Spill Leak Platform) all the eight availability indicators have been estimated. The results show for all of them highly positive indicator values except for data policy visibility and the data policy itself which is limited by moratorium and/or specific agreements.

In conclusion, this first DAR highlights that it is possible to develop objective indicators of fitness for use for the input data sets to the Challenges. The next step will be to discuss thematic indicators together with Challenge indicators and enlarge the indicator set to the appropriateness territory.

A Panel meeting was held in Brussels April 9 and 10 to present the Draft DAR to the Expert Panel composed of:

- 1) Monika Peterlin -- environmental agency
- 2) Miguel Bernal -- regional international organization for fisheries
- 3) Jan Erik Hanssen -- private industry
- 4) Alberto Lamberti -- academia -- coastal engineering
- 5) Piero Lionello -- academia -- climate science of the Mediterranean Sea

In addition Dr. Pierfrancesco Moretti was added to the Expert Panel by DGMARE.

The Panel Report is published on the MedSea CheckPoint Portal: http://www.emodnet-mediterranean.eu/reports_news/.

3. Communication and Dissemination activities

The project repository has been continuously updated during the reporting period with documentations and deliverables. The repository web address is: <http://gnoo.bo.ingv.it/repository/medsea-ck-pt/>.

In the first 18 months, two Consortium meetings were held: the first one, the kick-off in October 16-18, 2013 and the 1st Annual Meeting, November 5-6-7, 2014. Moreover several web-meetings have been organized to check the project progress on different issues.

The MedSea checkpoint coordinator (or a representative) also took part in the following meetings, presenting the EMDOnet CheckPoint work:

- 20th, 21st and 22nd MODEG Steering Committee meetings from November 2013 to September 2014;
- 1st, 2nd and 3rd EMODnet SC meetings.
- Splinter sessions held at EGU General Assembly in April 2014 and 2015
- EUROCEANS EMODnet Pre-event (Rome, October 2014) where the EMODnet sea basin checkpoints have been illustrated and the MedSea Literature Survey has been presented
- Maritime Days in May 2014 and 2015.

4. Next Steps

Next steps in the project consider four major milestones:

- 1) the production of the Challenge targeted products;
- 2) the completion of the Metadatabase with validated information on the upstream data sources and the targeted products from all Challenges;
- 3) the definition of the assessment criteria and indicators for ‘appropriateness’, not included in the First DAR;
- 4) the preparation of the Second DAR Report and the Second Panel meeting.

The work plan for these steps is described in detail in the project proposal.