



EMODnet

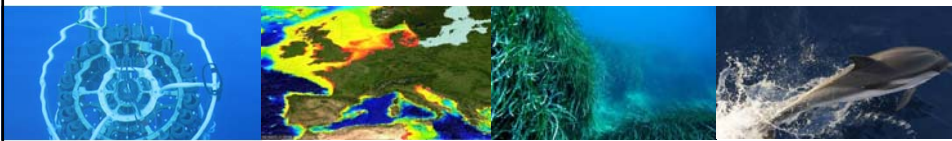
European Marine
Observation and
Data Network

Mediterranean Sea Basin Checkpoint

*Growth and innovation in ocean economy
Gaps and priorities in sea basin
observation and data*

Project description and progress

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Project funded by the EC-DG for Maritime Affairs and Fisheries
Contract MARE/2012/11 – Lot 2 The Mediterranean Sea

[Coordinator: INGV](#)

[Project duration: 4 Dec 2013 → 3 years](#)

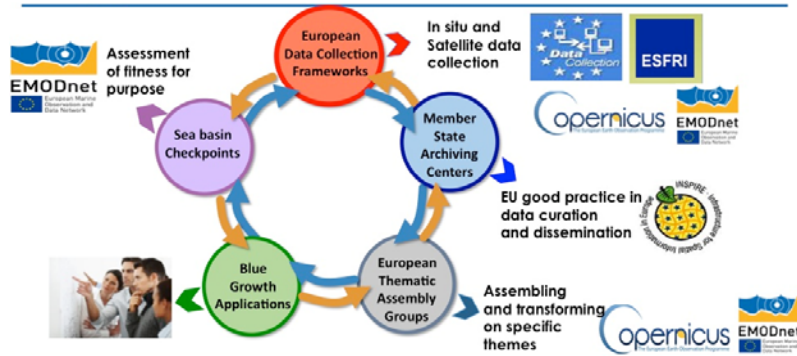


MedSea

Outline

- Project Aims and Outputs
- First output from Project : Literature Survey
- Second output from Project: Oil platform Leak Bulletin
- Future actions

Sea basin checkpoints – high level scheme



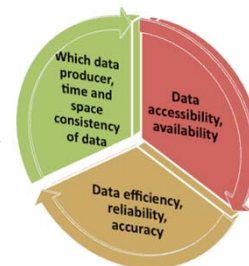
What Checkpoints do:
 Assessments on monitoring systems.
 Development and release of specific products is a means.

The MedSea Checkpoint will assess the present monitoring for the entire Mediterranean Sea in view of seven 'Challenges':



The practical outputs of the project are:

- 1) A **literature survey** on the existing Mediterranean Sea monitoring systems
- 2) Develop an **EMODnet MedSea Portal** that will publish outputs for the 7 Challenges
- 3) Two **Data Adequacy Reports (DARs)** on the fitness for purpose of the monitoring with respect to the 7 Challenges
- 4) Two expert **panel reports**
- 5) Specific products from available primary and assembled datasets for each challenge in synthesis:



Windfarm siting	Determine the suitability of wind farm development in the Northwestern Mediterranean Sea
Marine Protected Areas	Analyze the existing Mediterranean network of marine protected areas (national and international sites)
Oil Platform leak	Issue a Bulletin within 24 hours to determine the fate and transport of oil from a platform leakage
Climate and coastal protection	Document in several ways sea level changes, water column annual mean temperature changes and sediment mass changes.
Fishery management	Collect mass and number of fish landings, discards and bycatch (of fish, mammals, reptiles and seabirds) by species and year
Marine Environment	Seasonal averages and changes of eutrophication in the basin for the past ten years
River Inputs	Time series of all river water discharges, sediment loading, total nitrogen and phosphates loads, eels abundance



The data will be extracted from:

- existing EMODnet thematic portals
- Global Monitoring for Environment and Security Marine Service (Copernicus)
- JRC Data Collection Framework for Fisheries
- other initiatives existing at the national scale and European basin-wide scale

First project output: the Literature Survey

The Literature survey tried to answer these questions:

- Is there an overview of data appropriateness and availability?
- Are there any statements made as to fitness for purpose?

The Checkpoint assessment methodology was defined to consist of:

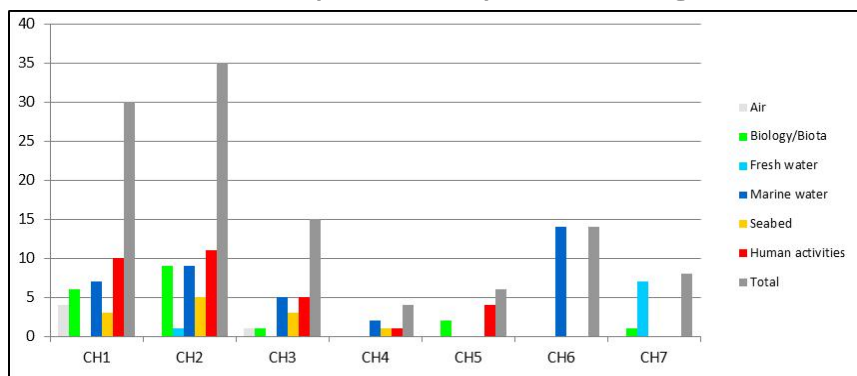
- 1) a framework for information collection related to input data required by each Challenge;
- 2) accessing, cataloguing and elaborating the input data sets in order to produce the outputs needed by each Challenge;
- 3) documenting the availability and appropriateness of the input data sets during the production of the Challenge outputs;
- 4) analyse the fitness for purpose of the input monitoring data.

The Literature Survey substituted the Challenges with 'Use Cases' from literature

Framework for information collection:

1. Characteristics definition and category (SDN codes);
2. Data source specification: provider, originating programme and dataset/dataset series;
3. Overview elements: production purpose, intended uses, processing level;
4. Spatial coverage;
5. Temporal coverage;
6. Accessibility;

Data required by challenges



Challenges require 73 distinct characteristic categories:
 4 in the Air, 16 in the Biology/Biota, 7 in the Fresh waters,
 22 in the Marine waters, 8 in the Seabed and 16 in the H. Activities.

Most frequently required characteristics by Challenges

Environmental Matrix	Characteristic category
Seabed	Bathymetry Lithology Coastal geomorphology
Marine water	Temperature Salinity Sea level Currents
Biology/ biota	Fish abundance
Human activities	Man-made structures Administrative units (MPAs...) Transport activities Trawling activities and impact

More than 100 data providers have been described capable in principle to provide the necessary input data

In the Literature Survey
 18 'Use Cases'
 replace
 Challenges

Use-case ID	Long name	Environmental Matrix of interest	Related EMODNET challenges
AM1	SCREAM (Spatially Continuous Resource Economic Analysis Model)	Air and human activities	CH-1
AM2	The MARINA-Platform project	Air, Marine Waters	CH-1
AM3	Oil spill forecasting for the Lebanon-accident case	Air, Seabed, Marine waters and human activities	CH-3
AM4	Storm surge and wave modelling for coastal extreme events	Air, Marine waters and seabed	CH-4
AM5	Coastal upwelling indicators	Air	CH-6, CH-5
AM6	Oil Spill Decision Support System; Don Pedro vessel spill on Ibiza beaches, July 2007	Air Marine waters Seabed Biology/biota	CH2, CH3, CH5, CH6
MW01	EEA Climate Change Report Assessment	Marine Waters	CH2, CH4, CH6
MW02	Use of global datasets for hydrological predictions	Fresh Water	CH7
MW03	Near-real time in situ data for calibration/validation	Marine waters	CH4, CH3, CH6
BB01	Assessment of Mediterranean Sea stocks	Biology/biota and Human activities	CH5
BB02	Alien species and stocks	Biology/biota	CH5
BB03	Fishery impact on the sea floor in the MFSD	Human activities	CH5
BB04	Fishery impact on sea turtles in the Mediterranean Sea	Biology/biota	CH5
SBD01	RESPONSE Project – LIFE Environment program	Seabed and Human activities	CH3, CH4
SBD02	Assessment of Coastal Protection in Europe	Seabed, Human activities and Marine Water	CH2, CH3, CH4, CH6
SBD03	Mediterranean Beach Erosion Study Cases	Seabed	CH4
SBD04	Tsunami travel time maps	Seabed	CH4
SBD05	Relevant bathymetry for biological assemblages of conservation interest in the submarine canyons and numerical modelling	Seabed Marine waters, Biota, Human activities	CH1, CH2, CH3, CH4, CH5

Assessment criteria

<p>“Appropriateness” and it includes :</p> <ul style="list-style-type: none">✓ <i>Spatial extent and resolution</i>✓ <i>Time extent and resolution</i>✓ <i>Purpose (ISO19113 overview element of quality)</i>✓ <i>Lineage (ISO19113 overview element of quality)</i>✓ <i>Usage</i>✓ <i>Completeness (ISO19113 quality element)</i>✓ <i>Consistency (ISO19113 quality element)</i>✓ <i>Accuracy (ISO19113 quality element) including</i>
<p>“Availability” and it refers to :</p> <ul style="list-style-type: none">✓ <i>Visibility</i>✓ <i>Accessibility</i>✓ <i>Performance</i>✓ <i>reliability</i>
<p>“Fitness for use or fitness for purpose” <i>totality of a product characteristics that bear on its ability to satisfy stated and implied needs</i></p>

This Assessment approach is consistent with those elements considered in the Commission Staff Working Document accompanying the Commission Report on the First Phase of Implementation of the Marine Strategy Framework Directive (COM(2014) 97) that are: completeness, adequacy, consistency and coherence.

General conclusions from Use Cases

- **For appropriateness:** ‘Time extent and resolution’ and ‘Spatial resolution and extent’ are the main criteria to assess the characteristics.
- **For availability :**
 - 1) for marine water availability is high, normally data are free of charge and available;
 - 2) for seabed data availability is high for low resolution data while high resolution is difficult and data are proprietary;
 - 3) for fresh waters and biota/biology availability is medium to low and data have restricted access.
 - 4) for the air matrix availability is highly mixed, going from fully open and accessible to closed and difficult.

General conclusions from Use Cases

If fitness for purpose can be defined simply as the sum of appropriateness and availability then:

- 1) **Medium to low for Air Matrix Characteristics** since space-time resolution is medium to low and availability could be low.
- 2) **High for Marine and Fresh Waters** because data space-time resolution is adequate and availability is high, with discovery and downloading is easy.
- 3) **Medium to low for Biology/Biota** characteristics since space-time resolution is still inadequate and visibility is medium to low.
- 4) **Low to high for Seabed** characteristics because resolution is insufficient, coverage poor and access restricted and not visible

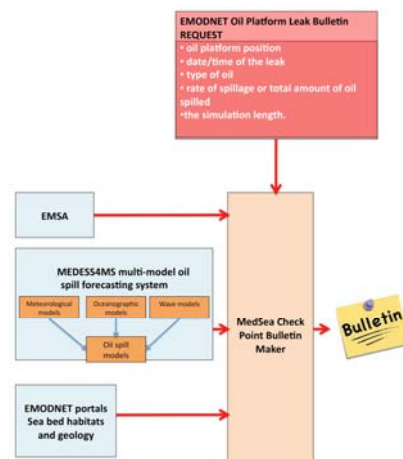
Second Project Output: Oil Platform Leak Bulletin

- The EMODNET Oil Platform Leak Bulletin (EMODNET-OPL Bulletin) has been defined (D4.2) and is operational since June 4, 2014 (D4.5)

- The EMODNET-OPL Bulletin is based on the MEDESS4MS infrastructure: it will contain the simulation of the fate and transport of oil leaks from platforms on request.

- Requests will be issued by an allowed customer through:

- 1) e-mail (now)
- 2) access to the MEDESS4MS service (later)



general design of the infrastructure supporting the EMODNET Bulletin delivery

EMODnet OPL Bulletin – 1st REQUEST

	EXP 1: Caliph prospect	EXP 2: Messina Strait
Oil platform position	LAT = 33° 13.58' N, LON= 15° 54.30' E, proximity of the 'Caliph prospect' off the coast of Libya	LAT = 38° 14.84' N, LON = 15° 37.94' E in the Messina Strait
Start date and time (UTC) of the leak	Sunday 27 July 2014 at 05:05:45	Monday 28 July between 06:15:00 and 10:20:00
Type of spill	leak from drillship	leak from drillship
Rate of spillage or total amount of oil spilled	10 tons per hour for an estimated duration of 5 hours (time of repair/stop spill 10:05:45). Total amount of 50 Tons crude oil with API 26 value	total amount of oil spilled: 2000 Tons of diesel fuel oil with API 40 value by 10:20:00 on Monday 28 July
Simulation length	10 days	10 days

Release of 2 OPL Bulletins within 24 hours from request

1. MEDSLIK-II simulations (INGV): performed for 120 hrs (Caliph prospect) and 96 hrs (Messina Strait)
2. MEDSLIK simulation (OC-UCY): performed for 240 hrs (Caliph prospect) and 216 hrs (Messina Strait)

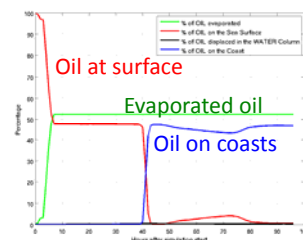
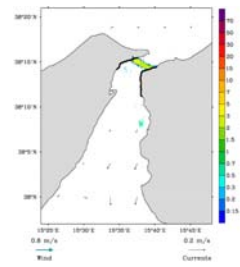
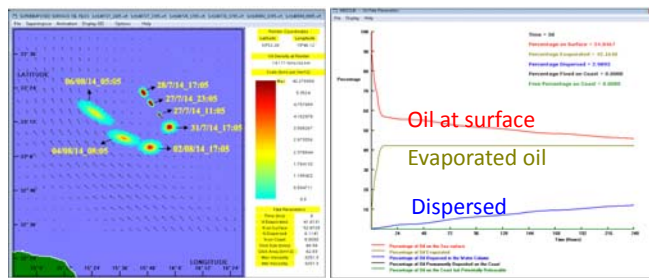
OPL Bulletin phase 1: separate Bulletins using different atmospheric forcing, hydrodynamics and wave model combinations for predictions, no vulnerability data

OPL Bulletin phase 2: one Bulletin that will contain many model simulations and impact assessment

Prediction using MyOcean MFS ForecastingData and ECMWF wind data

CALIPH PROSPECT
(MEDSLIK) →

MESSINA STRAIT
(MEDSLIK-II) ↓



Next Steps

- Start to collect data and prepare the Databases for the Challenges
- Prepare the Web-GIS system for the assessment
- Implement the Assessment Step 3 (document the availability and appropriateness of the input data sets during the production of the Challenge outputs)
- Produce the first Adequacy Report (May 2015)