EMODnet Thematic Lot n° 3 – Seabed habitats

7th bi-monthly Report

Reporting Period: 01/11/2014 – 31/12/2014

Date: 15/01/2015

Contents

1. Highlights in this reporting period

2. Meetings held since last report

Date	Location	Topic	Short Description
12 Dec. 2014	Skype	Thresholds meeting	Progress on Eunis thresholds involving Ifremer, JNCC, NIVA and ISPRA
9-10 Dec. 2015	Brussels	Steering Committee meeting	- Progress status - Portal issues - Back to back meetings

3. Work package updates

WP1 – EUNIS applicability

The Black Sea habitat list is now in its final form after many exchanges between GeoEcoMar, IO-BAS and METU under the aegis of ISPRA. This list of 14 habitats from upper infralittoral to the deep anoxic mud along with their environmental descriptors should enable modelling to be implemented. However for the model to have some coverage, the condition is that the input data sets have enough coverage themselves. This is still an issue since, for one thing, bathymetry is largely missing in some parts of the basin and using soundings picked out from maps is far from being satisfactory. The issue of available data is going to be tackled once in these next weeks so that we can get a clear picture for the April progress meeting.

WP2 - Data collation

Data collection has progressed on the Turkish side and this has been reflected in METU's report n°5 delivered in Dec. 2014. The emphasis has been on seagrass data available in Turkey which are going to be used in two ways : (i) as "substratum polygons" where available in this form with some coverage (fort inclusion in the habitat map), (ii) as ground-truth data that will be used for the calculation of a threshold value for the boundary between Infralittoral and Circalittoral.

Existing ground-truth data has also been collated in Norway (presence/absence of kelp), Black Sea (Cystoseira barbata, Infralittoral muddy sand with Upogebia pusilla or infralittoral sand with Chamelea gallina) and the Atlantic (Marine recorder and French sample data). These datasets will feed into WP4 for the calculation of threshold values.

WP4 – Eunis categories thresholds

The objective of the WP is to calculate a threshold value for each boundary between the broad categories that are considered by the EUNIS classification. An example of this is the boundary between the 'Infralittoral' and 'Circalittoral' EUNIS categories, which is aknowledged to be where there is no longer enough light at the seabed for the growth of photophilic plants. But, if it is assumed that 'no longer enough light' corresponds to a threshold value of light quantity, what would be that value? Likewise, what would be the threshold value of wave-induced energy corresponding to the boundary between 'High energy' and 'Moderate energy' EUNIS categories? Etc.

The most reliable way for the calculation of a threshold value is a statistical analysis of ground-truth data that provides the information 'which EUNIS category is present where?'. In December an exercise was carried out by the JNCC and Ifremer in order to test two types of statistical analysis: the ROC (Receiver Operating Characteristic) curve and a method based on a GAM (Generalised Additive Model) analysis. This exercise was carried out for the boundary between the Infralittoral and the Circalittoral boundary. A selection of 6550 ground-truth points from the Marine Recorder database was used, of which 48% were classified as Infralittoral and 52% as Circalittoral. The exercise showed that both methods lead to very similar results, which means that one or other of those methods can be used.

Threshold values will be calculated when all groundtruth datasets are collated by WP3.

WP5 – Modelling and confidence

The project partners agreed that our options are limited regarding developing a standard, quantitative approach to assessing confidence in the input data. It was decided that a simple, qualitative approach would be more feasible and of more interest to users. This sort of assessment can be applied after the maps have been created. In the intervening time the

focus is on defining fuzzy boundaries for thresholds (i.e. confidence in the definitions of the classes), which links with WP4.

WP6 – Habitat map collation and WebGIS issues

Work to populate the new website has progressed, with discussions about which MESH archive pages to incorporate into the new website. The coming months with therefore see the EMODnet Seabed Habitats website grow.

The interactive map is also undergoing development, with several improvements underway, such as the ability to filter by OSPAR habitat, refresh the map and share a link to a particular map view.

In order to encourage collation of habitat maps from surveys to populate the interactive map, a set of data provider guidance documents is being prepared. These are based on the original MESH data provider documents, but have been updated and rebranded.

For details about the usage of the web portal, see section 9.

WP8 – Management and communication

Following receipt of DG/MARE Year 1 interim payment, Ifremer forwarded payments to partners in due time according to the budget breakdown. Likewise Ifremer paid the second term of payment to their sub-contractor METU (15000€) after receiving in due time (17 Dec.) their report n°5 summarising their 2014 activity.

4. Specific challenges or difficulties encountered during the reporting period

One typical difficulty is the lack of suitable data, which is particularly acute in the Black Sea. Specifically bathymetry is not yet available with a better resolution than that of GEBCO (1 km). The data set under construction by the Bathymetry lot is not expected to be delivered before summer 2015, which of course may be an issue in view of our lot having to deliver a complete seabed map by Sep. 2015 (end of year 2). The Secretariat has been advised of this likely issue at the Dec. Steering Committee meeting and this will be followed and reported again where needed. This is also true for other lots, namely seabed substratum coverage.

5. User Feedback

6. Outreach and communication activities

Ifremer had initially planned an Emodnet Day in Brest at the end of the year, which was postponed to 27 Jan. 2015. This will be an opportunity not only to publicise EMODnet within Ifremer but also to the wider Brest oceanographic community. The invitation has been sent out to several key players.

7.   Updates on Progress Indicators

Indicator 1 -   Volume of data made available through the portal

The main data products made available through the portal are:

- The EMODnet Seabed Habitats Phase 1 and MeshAtlantic broad-scale habitat maps at a scale of 1:250,000 covering an area of around 2 million km^2 and 356,000 km^2, respectively.
- The current broad-scale map delivery for Adriatic and Canary Islands which are uploaded to the central portal.
- Habitat maps from surveys, formerly published through the MESH portal.

Indicator 2 -   Organisations supplying each type of data based on (formal) sharing agreements and broken down into country and organisation type (e.g. government, industry, science).

- JNCC (government), UK; Ifremer (government), France; NIVA (government), Norway: point records of kelp presence and absence to allow analysis of thresholds to contribute to the development of the broad-scale maps.
- GeoEcoMar (government), Romania: points records of several species to allow analysis of thresholds to contribute to the development of the broad-scale maps.

Indicator 3 -   Organisations that have been approached to supply data with no result, including type of data sought and reason why it has not been supplied.

No data for this period.

Indicator 4 -   Volume of each type of data and of each data product downloaded from the portal

The table below summarises the data products downloaded from the EMODnet Seabed Habitats portal in the period 09/11/2014 to 06/01/2015.

layer	number of downloads
EUNIS habitat maps from surveys (updated 9 December 2013)	36
OSPAR threatened and/or declining habitats 2013 (shapefile version, 18 Feb 2014)	23
MESH confidence assessments and study areas (updated 9 December 2013)	16
Predicted broad-scale EUNIS habitats - Atlantic area (updated 9 December 2013)	26
Biological Zones - Atlantic area	20
Phase 1 Predicted habitats - North Sea and Celtic Sea	48
Phase 1 Predicted habitats - Baltic Sea	9
Phase 1 Predicted habitats - western Mediterranean Sea	11
Phase 1 Energy - North Sea and Celtic Sea	20
Phase 1 Energy/Wave Exposure - Baltic Sea	5
Phase 1 Seabed Substrata - western Mediterranean Sea	8
Phase 1 Halocline - Baltic Sea	8
Phase 1 Salinity - Baltic Sea	8
Phase 1 Fraction of light at the seabed - North Sea and Celtic Sea	16
National Marine Landscape Maps (published 2008)	27

Indicator 5 -   Organisations that have downloaded each data type

The following is a list of organisations that have downloaded data from the EMODnet Seabed Habitats download page (www.emodnet-seabedhabitats.eu/download) in the period 09/11/2014 to 06/01/2015:

ABPmer
Bangor University
Bournemouth University
Centre for Environment, Fisheries and Aquaculture Science
DNV GL
ENVIRON UK Ltd
ENVIRONCORP
Envision Mapping Ltd
Geological Survey of Spain IGME
GEOMAR
Heriot-Watt Universuty
HKSTP
IH Cantabria
Imperial College London
Individual
Instituto Geologico y Minero (IGME)
JNCC

Marine Laboratory
oDTM
Orbis Energy Ltd
OSPAR Commission
Personal Use
Politecnico di Milano
SMRU, Univ St Andrews
Stockholm University
The Marine Biological Association of the United Kingdom
TI-SF
UCC
ULg
UMR LEMAR - IUEM UMS 3113
Unigis
Univeristy of Liverpool
universite d'Orsay
Universite Libre de Bruxelles

University of Aberdeen
University of Cantabria
University of Exeter
University of Kansas
University of Leiden
University of Southampton

University of St Andrews
University Pierre et Marie Curie, Banyuls
Marine Observatory.
van Hall Larenstein instituut
www.eri.ac.uk

In addition to this formal list, Ifremer have received a request for the modelled map from from IUEM Brest for PhD work on benthic communities patters.

Indicator 6 - Using user statistics to determine the main pages utilised and to identify preferred user navigations routes

This information is gathered by Google Analytics.

User statistics for mapper and download pages of EMODnet Seabed Habitats portal for the period 09/011/14 to 09/01/15.

page description	page address	Number of sessions	Number of unique visitors	How many users end their visit on this page	Average residence time on page (mm:ss)
Home page	www.emodnet-seabedhabitats.eu	32	42	16	00:24
View data	www.emodnet-seabedhabitats.eu/mapper	471	479	472	03:50
Download data	www.emodnet-seabedhabitats.eu/download	87	147	161	02:20
Build custom map	www.emodnet-seabedhabitats.eu/custommap	66	67	66	00:36
Search metadata	www.emodnet-seabedhabitats.eu/search	55	57	57	00:43

Indicator 7 - List of what the downloaded data has been used for (divided into categories e.g. Government planning, pollution assessment and (commercial) environmental assessment, etc.)

This information is collected from the form that users fill out when downloading data from the download page (www.emodnet-seabedhabitats.eu/download).

Reasons for downloading data from the EMODnet Seabed Habitats portal – 09/11/14 to 06/01/15.

Reason	Proportion of total
Research	38 %
Education	29 %
Personal use	15 %
Government	11 %
Commercial/industry	7 %