

# EMODnet LOT NO: 5 – BIOLOGY

MARE/2012/10

## Deliverable 3.1 - Report Month 6 – February 2014

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Global Biodiversity Information Facility (GBIF)

Hellenic Centre for Marine Research (HCMR)

Institute for Agricultural and Fisheries Research (ILVO)

Institute of Marine Research (IMR)

Institute of Meteorology and Water Management – National Research Institute (IMWM-NRI)

Instituto Español de Oceanografía (IEO)

International Council for the Exploration of the Sea (ICES)

Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER)

Institute of Biology of the Southern Seas, National Academy of Sciences of Ukraine (IBSS)

Instituto Nazionale di Oceanografia e di Geofisica Sperimentale, section of Oceanography (OGS)

Marine Biological Association (MBA)

Sir Alister Hardy Foundation for Ocean Science (SAHFOS)

Stichting Deltares – IMARES

Swedish Meteorological and Hydrological Institute (SMHI)

Institute of Marine Research, University of the Azores (IMAR)

University of Bremen, Centre for Marine Environmental Sciences, on behalf of PANGAEA



## WP3: access to marine biological data

### D3.1: Assessment of data and databases, including a list of datasets that will be used for the creation of data products

The general objective for WP3 is to provide data and metadata on surveys in the water column and on the seabed from the different groups of marine species (phytoplankton, zooplankton, macro-algae, benthos, angiosperms, birds, reptiles, fish and mammals).

During the EMODnet Biology II kick-off meeting, one of the break-out sessions brought together the majority of the partners of WP3. During these break-outs, the initial overview of datasets that would contribute to EMODnet Biology II was fine-tuned. All partners were requested to give an updated overview of their datasets, including geographical coverage, temporal range and number of available distribution records. In addition, each partner was asked to document the data transfer protocol that would be used to make the data accessible through the portal.

All WP3 partners have indicated their data transfer protocol of choice, e.g. the mechanism through which the data will become accessible through the EMODnet Biology Portal:

Data transfer protocol	# partners
IPT	5
SeaDataNet format	3
OGC (WFS)	2
Own web services	2
Combination of protocols	4

The inventory has identified 129 new datasets, of which 89 have already been described the metadata catalogue, and all of which will become accessible through the Portal.

Group	# datasets	# records
Viruses	1	<i>Not given</i>
Heterotrophic prokariotes	3	<i>Not given</i>
Benthos	16	1.721.621
Phytoplankton	30	348.212
Zooplankton	38	267.958
Angiosperms	2	1845
Macro-algae	3	317.209
Birds	2	26.051
Mammals	1	369
Reptiles	1	7
Fish	10	467.687

For about 2.3 million distribution records, no indication was given to which group or groups the records belong. A similar analysis will be done once the data are accessible through the EMODnet Biology Portal, and will then provide an updated view.

## **Overview of the new data that will become accessible through the Portal, per partner**

Here, we list the new datasets that will contribute to the EMODnet Biology Portal. Datasets that are already part of the Portal will be updated on a regular basis. The link to their metadata can be found in the attached Excel document.

Information on the taxonomic, spatial and temporal coverage of each dataset and an indication of the expected number of distribution records is listed in the attached Excel document. There, you will also find more information on the data exchange protocol that will be used to make the data accessible through the Portal.

### **• Sir Alister Hardy Foundation for Ocean Science – SAHFOS**

The SAHFOS CPR survey is the longest and most geographically extensive marine biological survey in the world. The CPR survey has been in operation in the North Sea and North Atlantic since 1946 and has systematically sampled up to 500 phyto- and zooplanktonic taxa from the major regions of the North Atlantic at a monthly resolution. Over 1.000.000 locations have been sampled.

There will be free access to all CPR presence data from the EMODNET portal and access to long term near-surface phytoplankton and zooplankton abundance data from the Continuous Plankton Recorder monitoring the North Sea and North East Atlantic in the form of gridded products for three CPR phytoplankton and three CPR zooplankton species. The CPR database will also be migrated into a geographic web service (OGC) to facilitate data delivery and development of data visualisation products to enable easy integration with the EMODNET schema. The CPR sampling does not include species biomass. However, the Phytoplankton Colour Index (PCI) is determined, which is an indicator for the total phytoplankton biomass.

Both CPR datasets (phytoplankton & zooplankton) are already available through the EMODnet Portal. During the project, regular updates will be made.

The data (presence data) are already available to EMODnet through IPT.

### **• International Council for the Exploration of the Seas - ICES**

The ICES Database contains fisheries, oceanographic, contaminants, biological effects, and biological data extending back more than 120 years. During the first phase of EMODnet, ICES had already made available a large amount of data through the Biology Portal.

During this second phase, ICES will give access to an additional 12 datasets, all subsets of the DATRAS database, the Community database and the Egg and Larvae database.

## Datasets:

### Eggs and Larvae Data:

- North Sea cod and plaice egg surveys  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4418>
- MIK herring larvae survey  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4419>
- Atlantic Anguilla surveys  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4420>
- Mackerel and horse mackerel eggs surveys  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4421>
- International herring larvae surveys  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4423>

### DATRAS Data:

- ICES Beam Trawl Survey - Irish Sea (VIIa)  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4488>
- Portuguese International Bottom Trawl Survey  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4413>
- Spanish North Coast Bottom Trawl Survey for commercial fish species  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4415>
- Spanish Porcupine Bottom Trawl Survey for commercial fish species  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4416>
- ICES Central Northeast Atlantic Deepwater Trawl Surveys  
<http://www.vliz.be/nl/imis?module=dataset&dasid=4530>
- Irish Groundfish Survey for commercial fish species  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=2762>

### DOME Community Data:

- ICES Phytoplankton community  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4424>
- ICES Zoobenthos community  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4425>
- ICES Zooplankton community  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4431>

The majority of the data are already made available to EMODnet through the ICES web services. The remaining datasets will be available by Sep 2014.

## • SMHI

Data originate from the waters around the Swedish coast, including the Baltic Sea and the Skagerrak region. The individual local data contributors are responsible for the accuracy and quality of their respective sub-sets of data that together constitute the aggregated data set that SMHI keeps. Thus, the national data host has made few quality checks (such as e.g. taxonomic validity). The following data sets will be mobilized to EMODnet (with the present amount of data within brackets, including both nationally and regionally gathered Swedish data). Other species groups may also be added, such as phytobenthos and seals.

### Datasets

#### Swedish marine biological monitoring data (SHARK)

- SHARK – Chlorophyll (bottle)  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=2461>
- SHARK – Chlorophyll (hose)  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=2460>
- SHARK – Grey seals  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=2457>
- SHARK – Harbour seals  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=2459>
- SHARK – marine macrophytes  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=2455>
- SHARK – marine phytoplankton  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=2453>
- SHARK – marine soft bottom macrozoobenthos  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=2454>
- SHARK – marine zooplankton  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=2452>
- SHARK – ringed seals  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=2458>

The data will be made available in Darwin Core format, through WFS, as is used in the Swedish LifeWatch. EMODnet will be able to access the data as quickly as possible.

## • Aarhus University

There were two national databases hosted at the institution with a considerable overlap between them: the Danish national databases MADS and ODAM for marine data. Now, all data are grouped within the ODAM database. The data comes from BIOS (previously known as NERI) own cruises, the Danish counties and from other marine research institutes in Denmark, Sweden, Norway and Germany. The geographical coverage of the database is the Danish fiords and coastal waters, the inner Danish waters, the western Baltic Sea, Skagerrak and the eastern North Sea. Databases contain data on invertebrates in and on soft sediment bottoms (from coarse sand to soft mud). Fauna data are number of individuals and biomass (one or several of the measures wet weight,

dry weight including shells and ash-free dry weight) on species level from each replicate sample (taken with different quantitative gears) available for the following invertebrate groups: Annelida mainly Polychaeta, Mollusca mainly Gastropoda and Bivalvia, Echinodermata and Arthropoda mainly Peracarida crustacea. Station data include geographical coordinates, sampling water depth, number of samples taken at each sampling occasion, sampling dates. Other information available is sampling and extraction methods (such as area covered by sampling gear and mesh size, the latter mostly 1 mm).

Datasets:

Danish benthic marine monitoring data – ODAM:

- <http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4513>

The data will be made available to EMODnet through the SeaDataNet Download Manager.

#### • **Stichting Deltares – IMARES**

Mainport Development Rotterdam initiated the extension of the harbor with a huge suppletion in the North Sea in the area called Voordelta in the Dutch part of the North Sea which has a status of the Natura2000 area. According to European laws the extension of the harbor had to be compensated for loss of habitat. This resulted in a so called sea floor protection area. A consortium by Deltares, Imares, CSO, Bureau Waardenburg and Arcadis conducted a long term monitoring of the area of benthic fauna, fish species, birds, recreational and professional use of the Voordelta and geomorphological changes. Monitoring data are stored in an online geodatabase. The data will be disseminated to EMODnet Biology via OGC standards.

Dataset:

- Marine biological monitoring of the Voordelta  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=2227>

The data will be made partly available through OGC by September 2014.

Two other datasets have been added to the inventory, from IMARES. Currently, it is still being investigated whether these data can be contributed to EMODnet:

- Zeeuwse banken
- Voordelta

#### • **Institute for Agriculture and Fisheries - ILVO**

The Biological Environmental Research group within ILVO (Institute for Agriculture and Fisheries) is responsible for the monitoring of the benthos (epi- and macrofauna) and demersal fish fauna in the Belgian Part of the North Sea (BPNS).

This monitoring activity started at the end of the seventies until now, but with a different temporal and spatial intensity over this period. The Benthos (macrofauna) is sampled with a Van Veen grab (+ 0.1m<sup>2</sup>), whereas the epi- and demersal fish fauna is sampled with a 8m beam trawl, equipped with a fine-meshed shrimp net. Currently, most taxa records (species, genera or higher tax level) were gathered for the macrobenthos species group (39000). For epibenthos and demersal fish fauna, there are respectively 9200 and 8800 taxa records. In recent years (2009-2010) some zooplankton samples on the BPNS are taken with a plankton net (D=0.7m; 200µm mesh size), delivering a proximately 3500 available taxa records for this species group.

#### Datasets:

ILVO epibenthos and demersal fish of soft sediments: epibenthos and demersal fish monitoring in the Belgian Part of the North Sea since 1979

- Epibenthos and demersal fish monitoring in function of aggregate extraction  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4447>
- Epibenthos and demersal fish monitoring in function of dredge disposal monitoring  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4448>
- Epibenthos and demersal fish monitoring in function of wind energy development  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4449>
- Epibenthos and demersal fish monitoring at long-term monitoring stations  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4450>

ILVO macrobenthos in soft sediments: macrobenthos monitoring in the Belgian Part of the North Sea since 1979

- Macrobenthos monitoring in function of aggregate extraction  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4451>
- Macrobenthos monitoring in function of dredge disposal monitoring  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4452>
- Macrobenthos monitoring at long-term monitoring stations  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4453>
- Macrobenthos monitoring in function of the Water Framework Directive  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4454>

ILVO zooplankton: zooplankton monitoring in the Belgian Part of the North Sea

- Zooplankton monitoring in the BPNS  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4456>

The data will be made available on IPT. The IPT-instance has already been set up at VLIZ (<http://ipt.vliz.be/ilvo/>). In Spring 2014, a meeting will be organized between VLIZ and ILVO to discuss the details on how to make the data available through this IPT-instance.

#### • Marine Biological Association - MBA

The UK Data Archive for Seabed Species and Habitats (DASSH) – hosted at MBA - will work in collaboration with UK government and the statutory nature conservation bodies charged with collecting monitoring data, to ensure that the data are collected, stored and made available according to international data and metadata standards and in appropriate formats for the inclusion within EMODNet. The underlying biological data supporting the indicators and targets used to assess progress toward good environmental status will be archived and made available through DASSH, including those data relating to the initial assessments for each of the biological descriptors. The monitoring data will complement the existing holdings of DASSH, which currently exceeds 2 million records of marine species. These data cover the UK continental shelf, including the English Channel, North and Irish Seas and Western Approaches, from the late nineteenth century to present day. Primarily focusing on benthic and pelagic species with most of the major taxonomic groups being represented, the data includes qualitative and quantitative abundance data and present absence records. The data are currently being transformed into a standard format to support INSPIRE-compliant view and download services.

Datasets:

- DASSH Data Archive Centre Statutory Agency and commercial marine surveys  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4489>
- DASSH Data Archive Centre Volunteer surveys  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4011>

The data are available on IPT. Early next year, VLIZ and MBA will discuss how to connect to the IPT at MBA and make the data accessible through the EMODnet portal.

#### • Institute of Marine Research - IMR

The biotic and plankton databases contain data from bottom trawls, pelagic trawls and a variety of plankton nets on species level and on biomass level. Station data include geographical coordinates, sampling water depth, number of samples taken at each sampling occasion and sampling dates. The time span for biotic data is approximately 80 years, fisheries data starting in the early 30s. The MARBUNN database contains benthos from the seabed in the Norwegian coastal and offshore areas, covered by the MAREANO project. In addition data and information on deep sea coral reefs are collected. These data are more of recent origin, from the last 5-6 years.

Datasets:

- MARBUNN benthos database  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4435>
- IMR zooplankton Barents Sea  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4436>
- IMR zooplankton Norwegian Sea  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4437>



- IMR zooplankton North Sea  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4438>
- IMR fish eggs surveys  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4439>
- IMR herring larvae monitoring  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4440>
- IMR capelin larvae monitoring  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4442>
- IMR juvenile fish monitoring  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4443>
- IMR macroplankton surveys  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4444>

The data will be made available both through IPT and the SeaDataNet Download Manager. IMR already has an IPT set up at their institute. The relevant data will be uploaded there and will be available to EMODnet by September 2014 at the latest.

• **Institute of Meteorology and Water Management – National Research Institute (IMWM-NRI)**

Biological data originates from the Polish Exclusive Economic Zone of the Baltic Sea including shallow water lagoons. Data has been collected in frame of the Polish Monitoring Programme of the Baltic Sea in frame of the contract with Chief Inspectorate for Environmental Protection. That monitoring program has started in 1999, however not all the data has been included into existing data base due to lack of some meta data information as required by HELCOM data base. Zoobenthos data will be available for the time series of 1979-2012. Instantly available data regards phytoplankton, zooplankton, zoobenthos and phytobentos individual species, abundance, biomass (wet and dry) as well as chlorophyll a concentration in accordance with HELCOM COMBINE Manual. Samples were collected for number of sampling stations visited usually 5 times a year. The two of them are high frequency stations visited 12 times a year. Zoobenthos and phytobentos data are collected once and twice a year respectively. Station data include geographical coordinates and sampling dates, sampling water depth, layer, bottom substrate coverage etc., and may be supplied with physical parameters: temperature, salinity, oxygen concentration & saturation and pH. Some of the phytoplankton data have been collected along a Ferry-Box route at 6-5 discrete sampling stations

The different marine biological data and databases that will contribute to the project are the databases identified during the data inventory and gap analysis that was performed during the pilot project of EMODnet biology. They are the following:

- Polish Monitoring Programme - Monitoring of the Baltic Sea: benthos Monitoring data from 1979-2012 (5378 records)  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=2467>
- Polish Monitoring Programme - Monitoring of the Baltic Sea: phytoplankton Monitoring data from 2002-2012 (28625 records)

- <http://bio.emodnet.eu/data-catalog?module=dataset&dasid=2463>
- Polish Monitoring Programme - Monitoring of the Baltic Sea: zooplankton Monitoring data from 2002-2012 (14420 records)  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=2466>
- Polish Monitoring Programme - Monitoring of the Baltic Sea: macroalgae Monitoring data from 2002-2012 (845 records)  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=2464>

The data will be made available through the SeaDataNet Download Manager and will be available for the EMODnet by September 2014 the latest.

#### • Institut Français de Recherche pour l'Exploitation de la Mer - IFREMER

National monitoring data from the North Sea, the English Channel, Bay of Biscay and Western Mediterranean Sea on phytoplankton, benthos and macro-algae will be made available. The data will come from three major national databases – REPHY, REBENT and RSL – of which REPHY is already available through the EMODnet Biology portal.

Datasets:

- Réseau de Surveillance du Benthos – REBENT  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4412>
- Réseau de Surveillance Lagunaire – RSL  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4411>

The data will be made available through the SeaDataNet Download Manager. IFREMER is currently testing the biological data format developed for SeaDataNet and will report its findings soon.

#### • Instituto Español de Oceanografía - IEO

The structural monitoring programme 'Radiales' from IEO provides plankton (phytoplankton and zooplankton) abundance data by taxa to the species level. This information is acquired monthly at fixed coastal hydrographic stations distributed along the Nord Iberian shelf. The longest time series extents over 20 years, and is still ongoing.

Datasets:

Zooplankton:

- Zooplankton monitoring RADIALES: Section off Vigo (NW Spain, Galicia); coastal (station depth 39m)  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4398>

- Zooplankton monitoring RADIALES: Section off Vigo (NW Spain, Galicia); mid-shelf (station depth 97m)  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4399>
- Zooplankton monitoring RADIALES: Section off A Coruña (NW Spain, Galicia); inner-shelf (station depth 77m)  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4400>
- Zooplankton monitoring RADIALES: Section off Gijón (N Spain, Cantabrian Sea); mid-shelf (station depth 130m)  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4401>
- Zooplankton monitoring RADIALES: Section off Santander (N Spain, Cantabrian Sea); coastal (station depth 30m)  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4402>
- Zooplankton monitoring RADIALES: Section off Santander (N Spain, Cantabrian Sea); mid-shelf (station depth 110m)  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4403>
- Zooplankton monitoring RADIALES: Section off Santander (N Spain, Cantabrian Sea); oceanic (station depth 850m)  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4404>

Phytoplankton:

- Phytoplankton monitoring RADIALES: Section off Vigo (NW Spain, Galicia); coastal (station depth 39m); sampling depths 0, 5, 10 and 30m  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4406>
- Phytoplankton monitoring RADIALES: Section off Vigo (NW Spain, Galicia); mid-shelf (station depth 97m); sampling depths 0, 5, 10, 20 and 30m  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4407>
- Phytoplankton monitoring RADIALES: Section off A Coruña (NW Spain, Galicia); inner-shelf (station depth 77m); sampling depths 0, 5, 10, 20 and 30m  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4408>
- Phytoplankton monitoring RADIALES: Section off Cudillero (N Spain, Cantabrian Sea); mid-shelf (station depth 130m); sampling depths 0, 5, 10, 30, 40 and 70m  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4409>
- Phytoplankton monitoring RADIALES: Section off Gijón (N Spain, Cantabrian Sea); mid-shelf (station depth 108m); sampling depths 0, 35 and 70m  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4410>

The data will be made available on IPT. An IPT instance for IEO has already been set up at VLIZ (<http://ipt.vliz.be/ieo/>). VLIZ and IEO will communicate on the progress of uploading data to the IPT and VLIZ will provide assistance where needed. The data will be available by September 2014.

• **Instituto Nazionale di Oceanografia e di Geofisica Sperimentale, Section of Oceanography - OGS**

Long time series of plankton data which is part of the North Adriatic Long Term Ecological Research (LTER) will be made accessible to EMODnet biology. Data include time series (1986 - 2010) of phytoplankton abundance (divided in main groups, at level of community composition i.e. species, genus level) (more than 1000 records per species group), time series (1998 - 2011) of

total and size fractioned chlorophyll-a concentrations (more than 500 records per group) and time series (1998 - 2010) of zooplankton abundance.

Contacts with other Italian marine LTER sites will be established in order to make an inventory of existing data and to verify the possibility of access of LTER metadata and data. Italian marine LTER sites are Po River delta, the North Adriatic Site, the Gulf of Naples, the marine ecosystem of Sardinia, the protected marine area Portofino and the Venice Lagoon.

Datasets:

LTER time-series:

- Phytoplankton North Adriatic-Gulf of Trieste LTER time-series  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4462>
- Microzooplankton North Adriatic-Gulf of Trieste LTER time-series  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4463>
- Mesozooplankton North Adriatic-Gulf of Trieste LTER time-series  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4464>
- Microphytobenthos North Adriatic-Gulf of Trieste LTER time-series  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4465>
- Picoplankton North Adriatic-Gulf of Trieste LTER time-series  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4466>
- Size fractioned chlorophyll-a North Adriatic-Gulf of Trieste LTER time-series  
<http://www.vliz.be/nl/imis?module=dataset&dasid=4523>

ALPE ADRIA project:

- Phytoplankton North Adriatic-ALPE ADRIA Project  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4467>
- Netplankton North Adriatic-ALPE ADRIA Project  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4468>
- Microzooplankton North Adriatic-ALPE ADRIA Project  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4469>
- Macrobenthos North Adriatic-ALPE ADRIA Project  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4470>

INTERREG-FVG project:

- Phytoplankton North Adriatic-INTERREG-FVG Project  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4471>
- Mesozooplankton North Adriatic-INTERREG-FVG Project  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4472>
- Microzooplankton North Adriatic-INTERREG-FVG Project  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4473>
- Microphytobenthos North Adriatic-INTERREG-FVG Project  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4474>
- Macrobenthos North Adriatic-INTERREG-FVG Project

<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4475>

- Meiobenthos North Adriatic-INTERREG-FVG-Project  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4476>

#### PRISMA 1 – Flussi project

- Phytoplankton South Adriatic-PRISMA1-Flussi Project  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4477>
- Microzooplankton South Adriatic-PRISMA1-Flussi Project  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4478>
- Mesozooplankton South Adriatic-PRISMA1-Flussi Project  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4479>

#### SESAME project

- Phytoplankton Adriatic-SESAME Project  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4481>
- Zooplankton Adriatic-SESAME Project  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4482>
- Picoplankton Adriatic-SESAME Project  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4483>

The data will be made available both through IPT and the SeaDataNet Download Manager. OGS already has an IPT set up at their institute. The relevant data will be uploaded there and will be available to EMODnet by September 2014 at the latest.

#### • Flanders Marine Institute - VLIZ

The European Ocean Biogeographic Information System—EurOBIS—is an integrated data system developed in 2004. Its principle aims are to centralize the largely scattered biogeographical data on marine species collected by European institutions and to make these quality-controlled data freely available and easily accessible. Data are shared between EurOBIS and OBIS, the international Ocean Biogeographic Information System, gathering marine data from the world oceans and seas. OBIS in its turn works together with GBIF, the Global Biodiversity Information Facility and is often referred to as the ‘thematic marine node’ of GBIF.

Data in EurOBIS originate from a variety of sources: the majority of the data is the result of short-term research activities (typically less than 5 years, from e.g. PhD’s, field and experimental research) ( $\pm 70 - 75\%$ ), followed by the more long-term monitoring data (more than 5 years) ( $\pm 15 - 20\%$ ). In addition, EurOBIS also captures data from museum collection, more general distribution records from literature or datasets with a mixed origin. Not only the origin of the dataset but also the content varies greatly. Researchers typically focus on one or a few (species) groups, leading to a wide variety of available species data, covering benthos, plankton, macro-algae, fish, plants, reptiles, birds and mammals.

The constituting datasets of EurOBIS will be made available through the EMODnet biology portal and will deliver data for the creation of gridded abundance data products.

For a full overview of the datasets available through EurOBIS, we refer to [http://www.eurobis.org/dataset\\_list](http://www.eurobis.org/dataset_list).

The data are already available to EMODnet Biology.

- **A.O. Kovalevskiy Institute of Biology of Southern Seas - IBSS**

The *Mnemiopsis leidyi* Black Sea Regional Database (MLDB) was created within the European Commission 6th framework Black Sea SCENE project with the assistance of OCEAN-UKRAINE project and is now being partly supported (but not updated) by the Permanent Secretariat of the Black Sea Commission and IBSS. The invasive ctenophore *Mnemiopsis leidyi* plays the extremely important role in the Black Sea ecosystem, and was first found in the Black Sea in early 1980-s. This species created the tremendous ecosystem damage and big economic losses in the region in the late 1980-s, 1990-s. It was recognized as one of the main ecological problems for the Black Sea ecosystem. This data can be effectively used to understand the trends in prey-predator relationships and possible effect of invasive species for the European marine waters. As one of the developers of the database, IBSS will work together with the technical group of EMODnet biological data portal to establish appropriate protocols and web services to link data records to the portal and ensure that no duplicate records are loaded to the portal.

In analogy with the first phase of EMODnet Biology, the second phase will also include a data rescue action for the Black Sea. IBSS will take the lead in this and will identify the datasets that can become part of this data rescue action. We cannot yet provide a full list of datasets that will become available through this action, which is part of WP4. A report will follow in Month 9, from WP4.

Dataset:

- Black Sea *Mnemiopsis leidyi* and *Beroe ovata* database  
<http://bio.emodnet.eu/data-catalog?module=dataset&david=2166>

The data will be made available on IPT. An IPT instance has been set up at VLIZ (<http://ipt.vliz.be/ibss/>), which will be managed by IBSS. The datasets from the first phase of EMODnet are already available to EMODnet.

- **Hellenic Centre for Marine Research - HCMR**

HCMR has access to long-term benthic and planktonic datasets from the Greek waters, including data from the Saronikos Gulf, the Evoikos Gulf, the Amvrakikos lagoons and the Lakonikos Gulf. The data also include Inter-annual series from the deep-sea of the Aegean and Cretan Seas.

The data will be made available to EMODnet through IPT, which has already been set up at HCMR.

- **University Bremen (PANGAEA)**

The extent of the biological data made available by PANGAEA to EMODnet covers mainly plankton presence/absence and abundances (including viruses, bacteria, autotrophic and heterotrophic protists, crustaceans and jellyfish), micro-, meio- and macrobenthos, marine mammals and birds. In addition to contemporary observations PANGAEA also offers a very extensive paleobiogeographic record from marine sediments. In addition to its contribution to EMODnet as provider of key biodiversity data, PANGAEA archives and disseminates life history data that relate to biodiversity, including size, weight, development stages, sex, chemical constituents (e.g. isotopes and pigments), metabolic rates (e.g. growth, feeding, respiration, primary production, reproduction), displacements, etc.

Regular synchronisation actions between EMODnet Biology and PANGAEA will be undertaken. The datasets (40) that are currently available in EMODnet Biology through PANGAEA are listed at <http://www.vliz.be/nl/imis?module=dataset&dasid=815>.

Several data exchange mechanisms will apply for the PANGAEA datasets. Depending on the nature of the data (data or data products), PANGAEA will make use of their local Web Services, OGC, IPT or the SDN Download Manager.

Datasets (still to be described):

- TARA-OCEANS data
- Depth integrated values, computed from a collection of source datasets:
  - o Global distributions of diazotrophs Gamma-A nifH genes abundance. Contribution to the MAREDAT World Ocean Atlas of Plankton Functional Types
  - o Global distributions of diazotrophs abundance and biomass. Contribution to the MAREDAT World Ocean Atlas of Plankton Functional Types
- Collection of source datasets:
  - o Global distributions of diazotrophs abundance, biomass and nitrogen fixation rates. Contribution to the MAREDAT World Ocean Atlas of Plankton Functional Types
  - o Global distributions of mesozooplankton abundance and biomass. Contribution to the MAREDAT World Ocean Atlas of Plankton Functional Types
  - o Global distributions of microzooplankton abundance and biomass. Contribution to the MAREDAT World Ocean Atlas of Plankton Functional Types
  - o The MAREDAT global database of high performance liquid chromatography marine pigment measurements. Contribution to the MAREDAT World Ocean Atlas of Plankton Functional Types
  - o Global distributions of diatoms abundance, biovolume and biomass. Contribution to the MAREDAT World Ocean Atlas of Plankton Functional Types
  - o Global distributions of modern planktic foraminifera abundance and biomass. Contribution to the MAREDAT World Ocean Atlas of Plankton Functional Types

- Global distributions of picoheterotrophs (Bacteria and Archaea) abundance and biomass. Contribution to the MAREDAT World Ocean Atlas of Plankton Functional Types
  - Global distributions of picophytoplankton abundance and biomass. Contribution to the MAREDAT World Ocean Atlas of Plankton Functional Types
  - Global distributions of coccolithophores abundance and biomass. Contribution to the MAREDAT World Ocean Atlas of Plankton Functional Types
  - Global distributions of epipelagic macrozooplankton abundance and biomass. Contribution to the MAREDAT World Ocean Atlas of Plankton Functional Types
  - Global distributions of Phaeocystis sp. abundance and biomass. Contribution to the MAREDAT World Ocean Atlas of Plankton Functional Types
  - Global distributions of pteropods (Gymnosomata, Thecosomata, Pseudothecosomata) abundance and biomass. Contribution to the MAREDAT World Ocean Atlas of Plankton Functional Types
- Gridded data products (NetCDF):
- Global distributions of microzooplankton abundance and biomass. Contribution to the MAREDAT World Ocean Atlas of Plankton Functional Types
  - The MAREDAT global database of high performance liquid chromatography marine pigment measurements. Contribution to the MAREDAT World Ocean Atlas of Plankton Functional Types
  - Global distributions of diazotrophs abundance, biomass and nitrogen fixation rates. Contribution to the MAREDAT World Ocean Atlas of Plankton Functional Types
  - Global distributions of mesozooplankton abundance and biomass. Contribution to the MAREDAT World Ocean Atlas of Plankton Functional Types
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  - Global distributions of pteropods (Gymnosomata, Thecosomata, Pseudothecosomata) abundance and biomass. Contribution to the MAREDAT World Ocean Atlas of Plankton Functional Types
  - Global distributions of epipelagic macrozooplankton abundance and biomass. Contribution to the MAREDAT World Ocean Atlas of Plankton Functional Types

- **Institute of Marine Research, University of the Azores (IMAR)**

The Department of Oceanography and Fisheries from the University of the Azores (DOP/UAç), is involved in research activities related to the marine sciences. Main research programs deal with the description, experiment and modeling of oceanic ecosystems, within the areas of Ecology, Marine Biology, Physical and Chemical Oceanography, and Fisheries.



The DOP/UAç supports and facilitates both pure and applied research within these areas. It also forms co-operative research activities with appropriate state, and private research organizations, including services for industry and public administration, and conducts outreach activities through the regional and national newspapers, radio stations, public television, museums and school systems.

### Datasets

- COLETA – IMAR/DOP-UAz reference collection  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4493>
- IMAR/DOP-UAz Deep-sea video annotation  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4492>
- IMAR/DOP-UAz underwater macro-algae and invertebrate surveys  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4491>
- Scuba-diving Fish visual census programme  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4490>
- Demersal fish communities research and monitoring programme  
<http://bio.emodnet.eu/data-catalog?module=dataset&dasid=4434>

The data exchange protocol will be IPT. An IPT instance has already been set up at the Flanders Marine Institute (VLIZ) (<http://ipt.vliz.be/imar/>). Data will be uploaded by IMAR as they become available, with most data available through EMODnet by September 2014.

### • Global Biodiversity and Information Facility – GBIF

The mission of GBIF is to be the foremost global resource for biodiversity information, and engender smart solutions for environmental and human well-being. Founded and funded by governments in 2001, GBIF is the world's largest multilateral initiative for enabling free access to biodiversity data via the internet. Priorities, with an emphasis on promoting participation and working through partners, include mobilizing biodiversity data, developing protocols and standards to ensure scientific integrity and interoperability, building informatics architecture to allow the interlinking of diverse data types from disparate sources, promoting capacity building and catalysing development of analytical tools for improved decision-making. The GBIF data portal currently provides access to over 367 million records from 8872 datasets and 406 publishers.

Currently, VLIZ and GBIF are working together to identify marine datasets within GBIF, not yet available through EurOBIS. This inventory will result in a number of datasets that can contribute to EMODnet. As this is still a work in progress, it is not yet possible to provide a list of datasets. The inventory exercise will be repeated throughout EMODnet; it is aimed to have a six-monthly update.