First Interim Report
15/05/2009 – 15/05/2010

Lot N°4 – Biology (SI2.531562) of the Service Contract No MARE/2008/03 on the Preparatory Actions for European Marine Observation and Data Network

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Glossary

BIOMARE: Implementation and networking of large scale, long term marine biodiversity research in Europe, FP-5 project

DG MARE: Directorate-General for Maritime Affairs and Fisheries - European Commission

DG Research: Directorate-General for Research – European Commission

EMODNet: European Marine Observation and Data Network

ERMS: European Register of Marine Species, an authoritative taxonomic list of species occurring in the European marine environment

EurOBIS: European Ocean Biogeographic Information System, a distributed system that allows to search multiple datasets simultaneously for biogeographic information on marine organisms in European waters

GBIF: Global Biodiversity Information Facility

GIS: Geographic Information System

HELCOM: Baltic Marine Environment Protection Commission

ICES : International Council for the Exploration of the Sea

IMIS: Integrated Marine Information System, a web-based information and metadata system developed at the Flanders Marine Institute

ISO19115: An ISO standard defining the schema required for describing geographic information and services

MarBEF: Marine Biodiversity and Ecosystem Functioning Network of Excellence, FP6 Network of Excellence

MDA: Marine Data Archive, a online data archiving system, developed at the Flanders Marine Institute

OBIS: Ocean Biogeographic Information System, an on-line, open-access, globally-distributed network of systematic, ecological, and environmental information systems.

OGC : Open Geospatial Consortium

OSPAR: Convention for the Protection of the Marine Environment of the North-East Atlantic

MODEG : Marine Observation and Data Expert Group

WMS: Web Map Service defined by the Open Geospatial Consortium

SeaDataNet: an EU funded project aiming to create and operate a pan-European, marine data management infrastructure, accessible online through a unique portal.

WPS : Web Processing Service defined by the Open Geospatial Consortium

WoRMS: World Register of Marine Species, an authoritative and comprehensive list of names of marine organisms, including information on synonymy. ERMS is the European component of WoRMS.

1. Introduction

The First Interim Report or 'Internal Technical Report' describes the activities of the first year of the Lot N°4 – Biology (SI2.531562) of the Service Contract No MARE/2008/03 on the Preparatory Actions for European Marine Observation and Data Network. The contract has been signed by both the Commission and by the Contractor, the Flanders Marine Institute, the 15th of May 2009. As stated in the contract, an internal technical report specified in the tender is provided after the first phase of the contract (building phase- Month 1-12). This report will list the activities carried out, the deliverables of each work package as specified in the technical tender and any deviations from the project tender.

This Internal Technical Report has been reviewed by all partners of the Biology Lot of the Preparatory Action for European Marine Observation and Data Network.

2. Activities

All the activities and project deliverables as specified in the technical tender of the Lot N°4 – Biology Preparatory Action will be discussed under the specific work packages. Any deviations of the technical tender will be discussed under section III, deviations.

2.1. WP1 Project Management

2.1.1. The Contract

The contract between the Flanders Marine Institute and the Commission was signed the 15th of May 2009. Financial and exclusion statements of all partners' institutes were collected and send to the Commission. The contract has been published on the website of the European Commission at
http://ec.europa.eu/maritimeaffairs/emodnet/preparatory/contracts.html

2.1.2. The Consortium Agreement & Payments

A Consortium agreement between the consortium partners and the Flanders Marine Institute was drafted by the Flanders Marine Institute and signed by all partners. The first payment has been transferred to all partners.

2.1.3. Project Meetings

- The Flanders Marine Institute was present at the EMODNet Kick-Off Meeting in Brussels on June 4, 2009. A presentation about the objectives and proposal of the Biology Lot was presented to the Commission and the other lots.

- The Biology Lot Kick-Off Meeting was organised the 15th of June at the Flanders Marine Institute in Ostend. All project partners and the Biology Lot Advisory Board were represented (13 participants). The meeting, over two days, provided feedback from the EMODNet Kick off Meeting in Brussels to the project partners. The objectives, methodology and work plan of the first year of the Biology project was discussed. A workshop report was drafted and sent to all project partners.

- The Flanders Marine Institute was present at the Progress Meeting for the ur-EMODNet Preparatory Actions, the 24th of November, 2009 in Brussels. An overview of the work done, summary of data collected, choice of parameters and difficulties encountered for the Biology Lot was presented to the Commission and the other lots.

2.1.4. Workshops

A two-day Biological Data Products workshop was organised in Ostend, the 25-26 of February 2010. The aim of the workshop was to 1) discuss the marine biological (monitoring) data availability in Europe and gaps and 2) to define a set of derived data products (a.o. target species maps) relevant for private bodies,

public authorities and researchers. The workshop focused on different species groups (phyto-and zooplankton, benthos, seabirds, marine mammals, sea turtles). This workshop resulted in a set of key-recommendations that will be implemented in the further development of the preparatory action for biological data. Based on the identification of relevant data products during this workshop, targeted data analysis workshops will be organised in the second and third year of the project. A workshop report in at this moment in progress and will be published in the beginning of the second year of the project.

The workshop was attended by 56 participants including representatives from DG MARE, DG Research, OSPAR, ICES, HELCOM, Black Sea Commission, coordinators of the other lots, project partners and advisory board, representatives from the MODEG group, marine biology, ecology and data management experts and from Greece, France, UK, Italy, Belgium, Netherlands, Germany, Sweden, Ireland, Russia, Ukraine, US, New Zealand. The workshop programme, all presentations and background information is published on the project website at http://bio.emodnet.eu/index.php/workshops and on the DG MARE website https://webgate.ec.europa.eu/fpfis/iwt/index.php?q=node/649.

2.1.5. Reports

During the first year five bimonthly progress reports were composed and published on the project website at
http://bio.emodnet.eu/index.php/documents/Progress-Reports/ and on the DG MARE website at https://webgate.ec.europa.eu/fpfis/iwt/node/418.

2.2. WP2 Technical Development

During the first year or 'development phase' of the project a prototype of the EMODNet Biological Portal was built and is available at http://bio.emodnet.eu. The portal will be operational 24 hours a day, 7 days a week. The EMODNet Biology Portal is built upon the EurOBIS System and currently contains relevant GIS layers and the EurOBIS data.

The first prototype was also presented and discussed during the Data Products Workshop. There was a consensus amongst workshop participants that the look and functionalities of the prototype were meeting the requirements.

A project website with information on the progress of the project (partner information, documents, minutes, reports) and a link to the data portal and metadata catalogue has been developed (http://bio.emodnet.eu). The website was designed using the template and style sheets proposed by the Commission.


Biology Preparatory project website available at http://bio.emodnet.eu

2.2.1. Portal Functionality

A. Metadata catalogue

A metadata catalogue provides an inventory of available data. This data catalogue is ISO19115 compliant and can contain information on geographic, taxonomic, temporal cover, parameters collected, who collected the data, precision and resolution of the data. At this moment the EMODNet Bio Portal

contains all the EUROBIS biogeographic datasets and several GIS maps. The data are further discussed under sections WP3 en WP4.
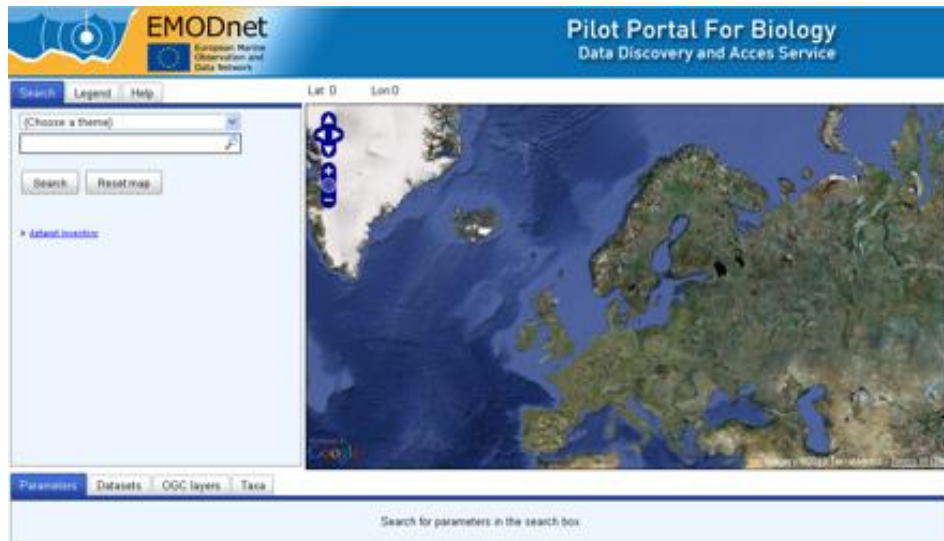
First prototype Biology portal, available at http://bio.emodnet.eu/portal

B. Querying of the Data:

- Taxonomic Query: users can query for data for species groups like zooplankton, phytoplankton, benthos, birds, mammals, fish, reptiles, algae, pigments or can search for data for specific taxa (scientific and/or common names). All species names are matched with the World Register of Marine Species standard (http://www.marinespecies.org)
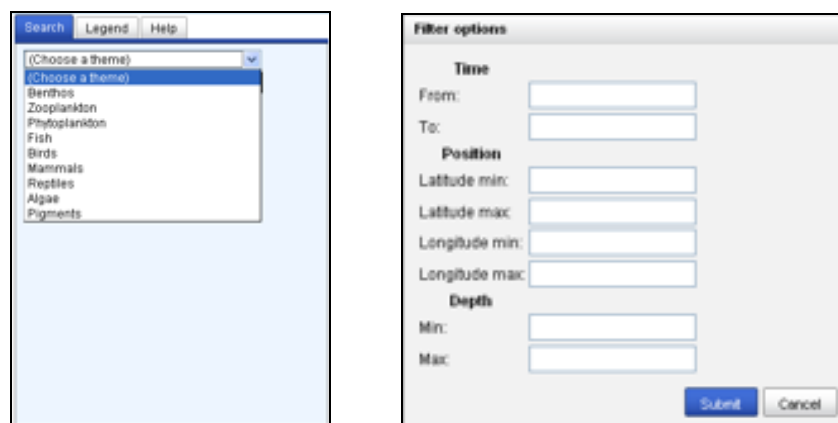
Search for data on species group and temporal or geographic and depth filter

- Temporal Query: a temporal filter can be put on the data

- Geographic Query: a geographic filter can put on the data

- Depth Query: filter for species information occurring at a specific depth

C. <u>Data modules</u>

After selection of a species group or specific species or taxa, the user gets data results from four different modules. The four 'modules' are

- Taxa: observation data of specific taxa
- Parameters: information on biological parameters (abundance, biomass, chlorophyll a data)
- Datasets: information on datasets containing the specific taxonomic information
- Layers: information on aggregated biological data (GIS layers)

D. <u>Mapping of the data</u>
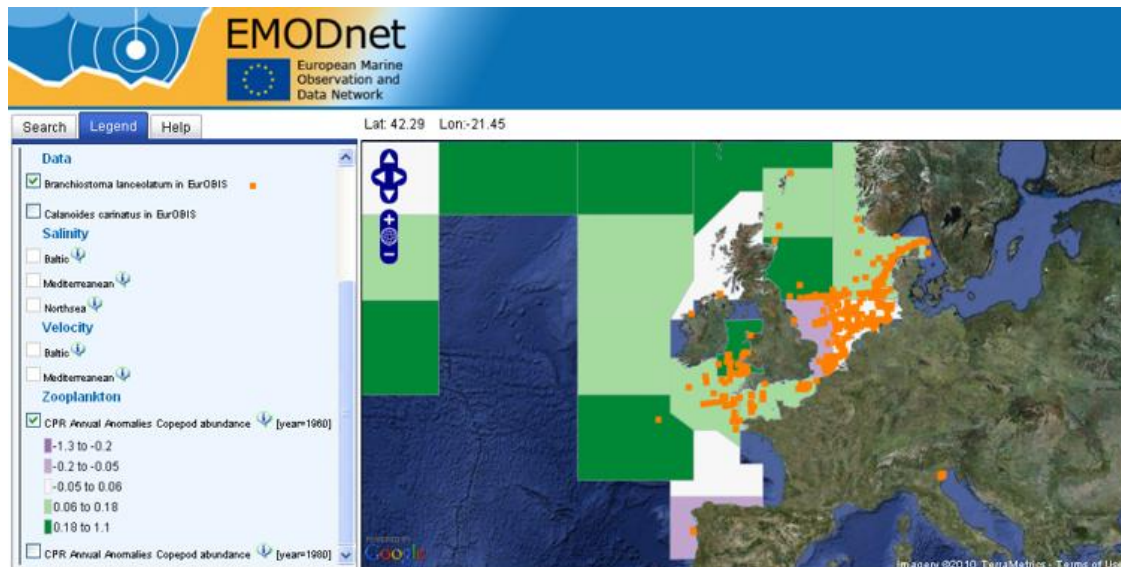
Mapping of both species observations and aggregated data layers (GIS layer)

Both observation and aggregated data can be mapped on an online Geographic Information System (GIS). The system allows the user to zoom, pan and look at the attributes (value, lat, long, date, station name, link to metadata...) of the mapped data. For GIS layers, a legend will be displayed.

E. <u>Downloading of the data</u>

The data can be downloaded, currently as tab delimited text files. More download formats will be available.

F. OGC Compliancy and interoperability

Data and Metadata interoperability:

- OGC compliant: the Bio EMODNet Portal complies with Open Geospatial Consortium (OGC) standards. All GIS layers can be made available via OGC Web Map Service (WMS) and the Portal can visualise data layers via OGC Web Processing Service (WPS). All GIS layers can be made available as WMS and the Portal can visualise data layers as WPS. The OGC compliancy (the system makes use of the Open Source software GeoServer.) allows interoperability with other data catalogues as shown in the image below (i.e., the Bio EMODNet portal will be able to display data layers compiled under the other lots).

- Seadatanet metadata compliant: The metadata descriptions of the biological EMODNet datasets make use of the Seadatanet vocabularies (such as parameter dictionaries, access rights....).

- WoRMS (the World Register of Marine Species) has been adopted as the marine species dictionary for both EurOBIS and the SeaDataNet Infrastructure.

Looks and feel of portal:

- The main look and feel of the portal was based on the EMODNet template provided by the European Commission. Additional style sheets to improve the similarity of the different EMODNet portals are implemented.

Harmonisation of sea areas:

- A proposal for harmonisation of the geographical boundaries of the sea regions, as to which the EMODNET Lots contracts refer, has been compiled and forwarded to all EMODNET contractors and the Commission.   The geographic boundaries are available from http://www.vliz.be/vmdcdata/vlimar/index.php
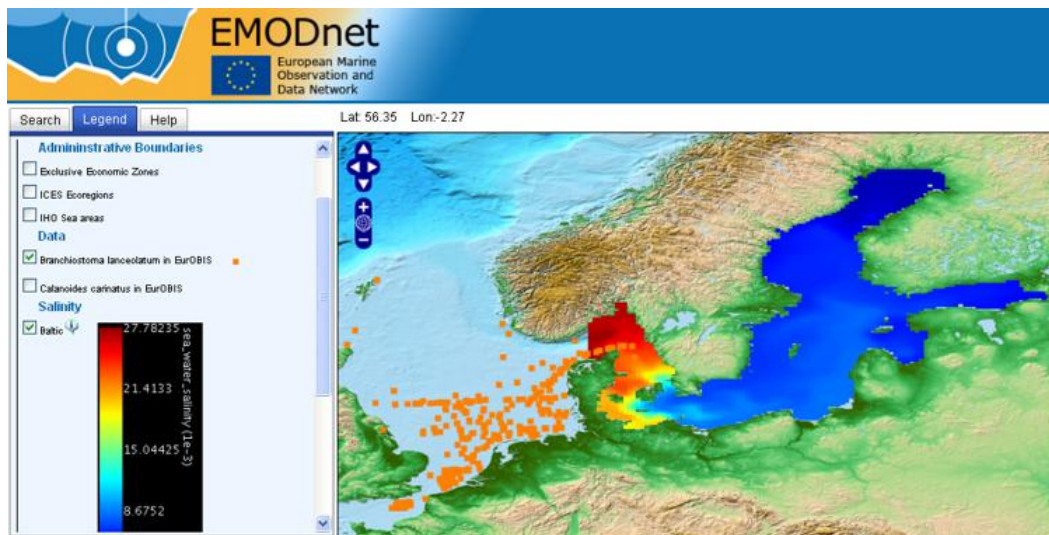
The Portal is OGC compliant as displaying for example a bathymetric map ETOP 1°, served by the NOAA Server in the USA and a Surface Salinity Map served by DMI,DK

2.2.2 Future updates

Several new functions and improvements will be included into the second version of the portal (update phase). Therefore, we will involve the participants from the data product workshop to collect feedback.

So far following points are identified and will be updated in the next phase:

- Performance of the portal mapping server is at the moment relatively slow. Actions to increase the speed of the portal will be taken in the near future:
    - Switch to a dedicated Geographic Mapping Server
    - Caching part of the geographic data

- A feedback mechanism and help function will be integrated into the EMODNet Biological Portal. A 'Purpose of download' form will be installed allowing users to provide information why they need the data for.

- An email alert system through rss-feeds will be included in the portal allowing the users to see what new metadata have been included and what new datasets have been integrated into the EurOBIS system.

- Improved links to integrate non biological (physic-chemical,...) parameters through OGC compliancy (including datalayers from other EMODnet lots)

- An direct link from the metadatacatalogue to the observation data on the geographic portal

2.3. WP3 Data Digitisation, Standardisation, Analysis & Delivery

In the first year of the project, the focus of WP3 was on the inventory of existing marine biological datasets, analysis of current gaps and the identification of potential new data providers.

2.3.1. Inventory of existing marine biological datasets

A list of known European marine datasets were compiled, based on the information available within EurOBIS (European Ocean Biogeographic Information System, www.eurobis.org), the FP6-MarBEF NoE (Marine Biodiversity and Ecosystem Functioning Network of Excellence, www.marbef.org) and FP5-BIOMARE (Implementation and networking of large scale, long term marine biodiversity research in Europe, www.biomareweb.org). A list of 472 datasets was compiled, of which 155 were monitoring datasets. This list was sent out to the partner networks of the EMODNet Biology Lot for review and update. In total, over 100 questionnaires were sent out.

The metadata of 86 datasets were newly described within the EMODNet Biological Lot and a number of institutes have agreed to deliver the metadata of their marine datasets soon. An overview of contacted people and institutes, together with their responses, can be found in Appendix I.

2.3.2. Gap analysis of the European Ocean Biogeographic Information System (EurOBIS)

By July 2009, EurOBIS had collected 214 datasets, contributed by 76 institutes, representing over 8.5 million distribution records. An analysis was performed during the summer of 2009 to identify data gaps, possible applications, uses and misuses. The main findings are:

o *Taxonomic coverage*:

A number of taxonomic groups have not yet been covered (e.g. Myxozoa, Mesozoa, Cephalocarida and Remipedia), while the European Register of Marine Species confirms the presence of representative species within European waters. Other groups are represented, but with very few species compared to what can occur in European marine waters according to ERMS. A number of groups seems to be "over-represented", which can be explained by the broader scope of EurOBIS compared to ERMS or the fact that these
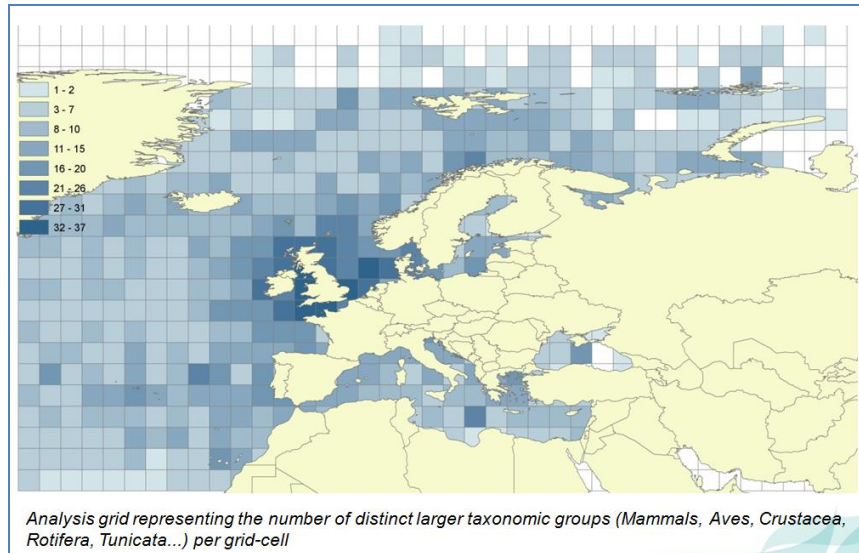
species have been found in European marine waters but this has not yet been documented in ERMS.
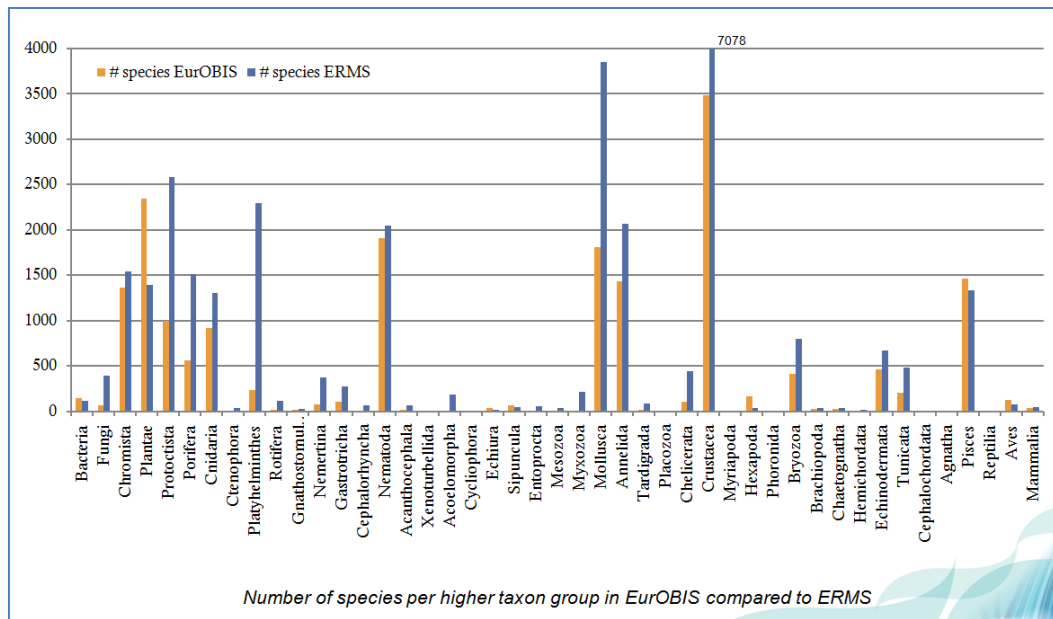
Distinct valid species names per higher taxonomic group for EurOBIS and ERMS

o   *Geographical coverage:*

The North Sea, English Channel and North East Atlantic regions are very well documented within EurOBIS, whereas the Arctic Ocean has hardly any data represented. Differences in number of distribution records and number of distinct species are related to data gathering efforts, which differ strongly between regions, depending on their accessibility. The map below does not represent the general state of biodiversity across European marine waters, but should be seen as a proxy for the general data coverage so far available within EurOBIS.

Analysis grid representing the number of distinct larger taxonomic groups (Mammals, Aves, Crustacea, Rotifera, Tunicata...) per grid-cell

Number of distinct larger taxonomic groups per grid-cell of 3 by 3 degrees. Represents the general data coverage reached rather than the view on the biodiversity. High diversity in 1 cell of the Mediterranean is due to the inclusion of generalised geographical references, all grouping together in the central grid cell of the Mediterranean.

o   *Temporal coverage*

About 30% of the available species distribution records have no indication of time, which makes them unsuitable for temporal analyses. The proportion of unsuitable records becomes even larger (about 40%) when requiring information on sampling month and/ or day, as needed to perform detailed temporal analyses, e.g. on a seasonal level. Of all time referenced species distribution records, only 1% has been collected prior to 1950.
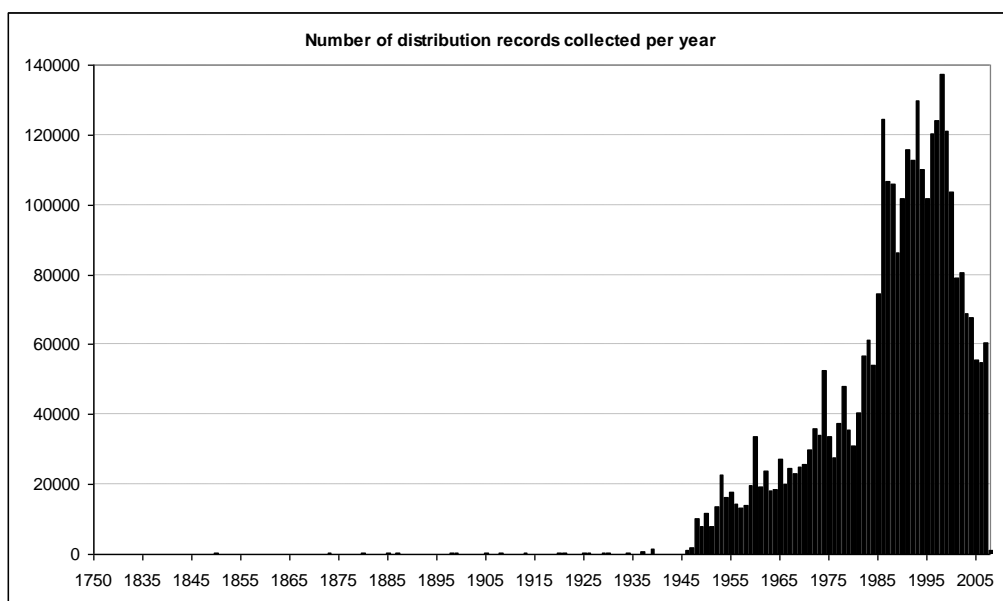
Total number of distribution records collected per year

o   *Species abundance & life stage information:*

Less than 5% of the available species records contain abundance information, e.g. stating how many individuals were found at a location. The other 95% of species distribution records only state that a species was present at a location. Although the lack of abundance data might pose problems when one wants to calculate certain diversity indices, the presence data can be equally valuable in the analysis of geographical patterns or of species richness. About 14% of the species distribution records contain relevant information on the life stage of the recovered species. This is a rather low number compared to the importance of this information: life stage is indispensable when subdividing marine taxa into so-called functional groups such as benthos or plankton. The lack of the life stage can result in exclusion of these records in such analyses.

Absence data is not stored at the moment in the database. This makes it difficult to distinguish between species that are not observed due to absence or due to the lack of sampling. This issues and possible solutions (e.a. storage of null values) will be discussed with scientific experts during the planned data-analysis workshops.

All addressed issues can be dealt with in future data collation, by pointing out to data custodians that this information can be of the utmost importance to improve the quality of the system and the data it contains and it will give rise to more high-quality integrated analyses.

The updated results of this analysis will soon be submitted for publication.

2.3.3. Inventory of monitoring activities on national level

Next to contacting the EMODNet Biological network to complete our inventory on marine biological datasets, an additional search for long-term biological data series was performed. This search had two approaches: identifying both national marine biological monitoring data and regional marine biological monitoring data. This additional search was focused on our assigned geographical area, being The Bay of Biscay, Iberian coast and the Greater North Sea, including Kattegat and English Channel. All countries bordering these sea-areas were contacted. Specifically biological monitoring series were targeted, with data on benthos, plankton, birds, mammals, reptiles and algae. This inventory process is still ongoing and the following tables summarize the information gathered so far.

Country	Groups	Temporal scope
Sweden	benthos, plankton, mammals	1971 – present
Denmark	benthos, plankton, algae	1979 – present
Germany	benthos, plankton, birds, mammals, algae	1973 – present
Netherlands	benthos, plankton, birds, plants, mammals, bacteria	1948 – present
Belgium	benthos, birds	1979 – present
United Kingdom	benthos	1990's – present
Ireland	plankton, mammals	1990's – present
France	benthos, plankton	1987 – present
Spain	plankton	1987 - present
Portugal	*No specific national monitoring program*	

	Groups	Temporal scope
HELCOM	benthos, plankton, chlorophyll	1979 – present
EEA	chlorophyll	1980 – present
ICES	benthos, plankton, fish	1950 - present

2.4. WP4 Data Management, QC/QA & Integration

2.4.1. Data management

Each dataset which can possibly contribute to EMODNET is thoroughly described at VLIZ, making use of the Integrated Marine Information System (IMIS). These metadata information include - amongst others - spatial and temporal cover, keywords and information on the identification, classification, quality and constraints, conditions of use, measured parameters, responsible persons, coverage and how data were collected.

When data can be shared within EMODNET and are physically sent to VLIZ, a copy of the dataset is stored in the Marine Data Archive (MDA), to prevent corruption or loss. Additionally, they undergo quality control procedures (see further) and are integrated into EurOBIS.

The European Ocean Biogeographic Information System is an integrated data system developed at the Flanders Marine Institute (VLIZ) for the EU Network of Excellence Marine Biodiversity and Ecosystem Functioning (MarBEF) in 2004. It is a distributed system in which individual datasets go through a series of quality control procedures before being integrated into one large consolidated database. EurOBIS is available online. Biogeographical data – with a focus on taxonomy, temporal and spatial distribution – can be consulted freely. EurOBIS shares its data with OBIS, which in turn shares its content with GBIF.

The EurOBIS database consists of a standard list of data fields, the OBIS schema version 1.1, which is an extension of DarwinCore 2 (http://www.iobis.org/tech/provider/schemadef1.html). This OBIS scheme is the content standard used by OBIS and is designed for marine biodiversity data, specifically to record the capture or observation of a particular species at a certain location. It can also be used for documenting specimens from museum collections and literature data. The scheme lists 74 data fields, of which 7 are mandatory and an additional 15 are classified as highly recommended. All other data fields are optional. For a full overview of the OBIS scheme, we refer to the OBIS website (www.iobis.org).

2.4.2. Quality control

When data can be made open-access and can be shared within EMODNET and integrated into the EurOBIS database, the datasets go through a set of quality control procedures. On basis of the metadata description, a check will be performed if the dataset is already available in the EurOBIS database. After these

manuals checks, detailed taxonomic and geographic quality controls are performed:

o *Taxonomy:*

All received taxon names are matched to the European Register of Marine Species (ERMS) which is included into the World Register of Marine Species (WoRMS). The use of a standardized taxonomic register is imperative while integrating different biological datasets. It allows to rule out any spelling variations, spelling mistakes and to link synonyms with their currently accepted name. The originally delivered taxon name is always saveguarded, so data providers can keep track of their taxa and what the currently accepted name is. If the taxon name cannot be matched to WoRMS or in case of doubt, the data provider is consulted and asked for feedback.

o *Geography:*

For each dataset, all sampling locations are plotted on a map, to check for odd locations. If there is any doubt, or if errors are suspected, these are communicated with the data provider so corrections can be made.

2.4.3. Integration

When the Tender for the EMODNET Biological Lot was written (2008), a total of 119 datasets were available in EurOBIS, representing 3.6 million distribution records. Now, at year 1 of EMODNET, the number of available datasets has almost doubled and the number of distribution records has almost quadrupled in about two years time, (see table and graph).

Period	# datasets	# distribution records
2008 – launch of tender	119	3.6 million
2009 – summer (EurOBIS gap analysis)	214	8.5 million
2010 – year 1 EMODNET (May)	220	13.3 million
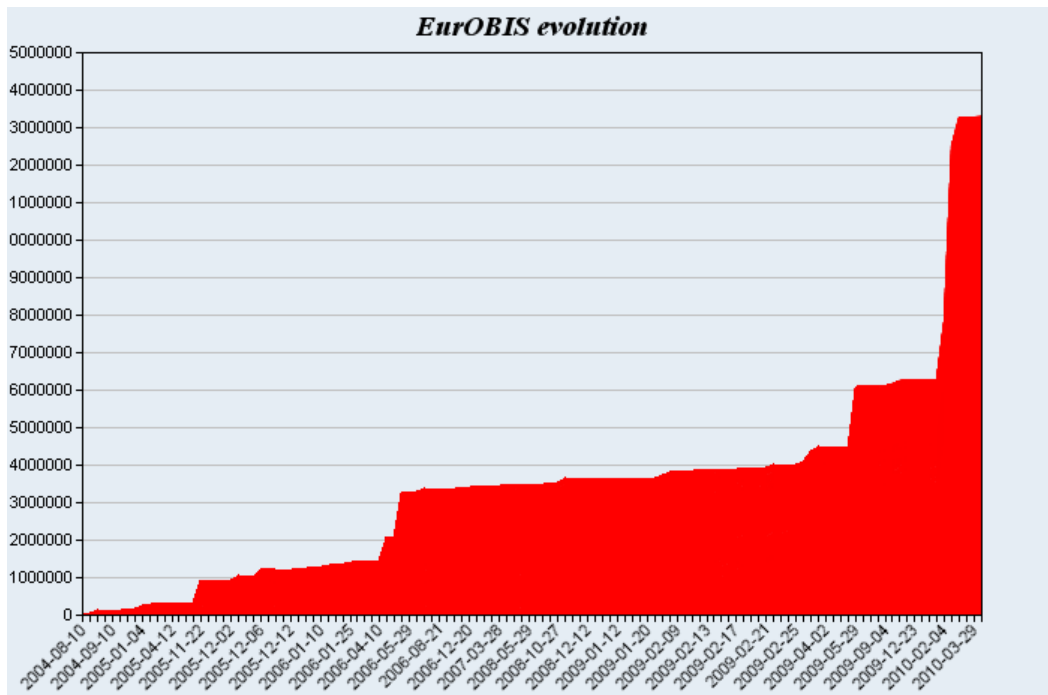
EurOBIS evolution since the launch of the system in 2004. The amount of data almost tripled since the start of the EMODNet project.
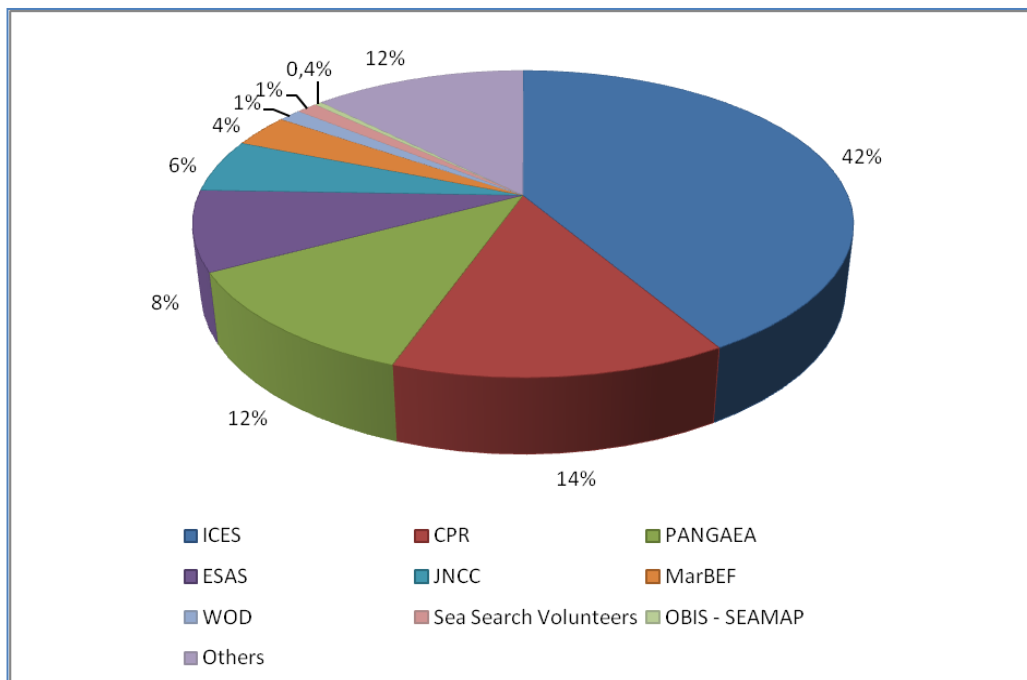
Relative contribution of the large data providers to EurOBIS. Main part of the data come from ICES, followed by CPR. "Others" groups all contributors which represent 12% of the total

A list of newly added datasets to EurOBIS since the launch of the Tender can be found in Appendix II.

3. Deviations

There are no major deviations.

Appendix I

This list gives an overview of identified datasets within the EMODNet Bio Project but not (yet) made available through EurOBIS and - if already described - a link to their metadata descriptions (click on "details" for a description in the Biological EMODNet dataset catalogue). All these datasets can be found under: http://bio.emodnet.eu/data-catalog (select advanced search, top right – then select under *'Availability: Not available through EurOBIS'*). A detailed analysis on the identified datasets will be performed once the data inventory through the partner networks has been completed (it is still in progress). All of these datasets are not yet integrated in EurOBIS but we have the intention to discuss further with the dataowners to make the data as much as possible available through EurOBIS. If the datasets were integrated in EurOBIS they are listed in Appendix II.

- Data on European Marine Biodiversity in GBIF (Éamonn Ó Tuama)

- RADIALES: plankton monitoring Spanish Waters - IEO
  (Antonio Bode, Mariluz Fernandez de Puelles)
    o RADIALES – plankton and CTD data from Vigo), details
    o RADIALES – plankton, CTD and Chlorophyll data from A Coruña(Spain), details
    o RADIALES - plankton, CTD and Chlorophyll data from Gijon (Spain), details
    o RADIALES - plankton, CTD and Chlorphyll data from Cudillero, details
    o RADIALES - plankton, CTD, chlorophyll and nutrient data from the Baleares, details

- ICES data centre: ICES EcosystemData (Neil Holdsworth)
    o ICES Biological community (DOME – community), details
    o ICES contaminants and biological effects (DOME – biota), details
    o ICES database of trawl surveys (DATRAS), details
    o ICES Fish predator/prey data, details
    o ICES Catch Statistics database (STATLANT), details

- COPEPOD: Coastal and oceanic plankton ecology, production and observation database (Todd O'Brien), details

- Chlorophyll a data (Ilaria Nardello)
    o Oceanographic campaign NORBAL (North Balearic Front Experiment), details
    o Oceanographic campaign NORBAL 4 (North Balearic Front Experiment), details

- EEA Waterbase: Transitional, coastal and marine waters: chlorophyll data (Trine Christiansen), details

- STI: The Swedish Taxonomy Initiative Art databank

- SHARK: Marine biological data of Sweden (SMHI-Lars Hansson), details

- IBSS and Black Sea Network
    o Black Sea *Mnemiopsis leidyi* and *Beroe ovata* database, details
    o Black Sea historical phytoplankton database, details
    o Black Sea phytoplankton, details
    o Cetacean strandings data recorded by the Ukrainian Network for Cetaceans Monitoring and Conservation, details
    o Database of the Sevastopol Bay phytoplankton monitoring, details
    o Database of the Sevastopol Bay zooplankton monitoring, details
    o Multidiscipline historical database of the Black Sea (version III), details

- o NATO-TU: Historical database of the Black Sea (NATO-TU Black Sea Database) - version I, details
- o Western Caspian Mnemiopsis Database, details
- o Research of the bottom communities transformation with respect to the changes in ecological conditions in the Azov Sea, details
- o Research of the bottom communities transformation with respect to the changes in ecological conditions in the Black Sea, details
- o State of the ecosystem of the Black Sea, details
- o State of the ecosystem of the eastern part of the northwest shelf of the Black Sea, details
- o Stock assessment of commercial molluscs in the Black Sea, details
- o Stock assessment of fish in the Azov Sea, details
- o Stock assessment of fish in the Black Sea, details
- o Stock assessment of fish in the coastal waters of Africa, details

- Continuous Plankton Recorder (SAHFOS, Peter Burkill)
  - o CPR1: Continuous Plankton Recorder (Phytoplankton), details
  - o CPR2: Continuous Plankton Recorder (Zooplankton), details
  Data in EurOBIS from the CPR will be updated with both more recent and historical data

- Ifremer
  - o Quadrige database (Antoine Huguet), details
  - o Phytoplankton monitoring database details

- Ferrybox data by GKSS (Franciscus Colijn), details

- HELCOM COMBINE: Cooperative Monitoring in the Baltic marine environment (Minna Pyhälä), details

- ESAS: European Seabirds at Sea (Tim Dunn) details
  Data in EurOBIS will be updated with more recent information

- HERMES: Hotspot ecosystem research on the margins of European seas (Vicky Gunn)

- Data from the Black Sea Commission (Violeta Velikova)

- SAMS: Scottish Association for Marine Science (Michael Burrows)
  - o Coastal benthic surveys by SEAS Ltd., details
  - o Rocky intertidal surveys 2002-2009 (Scotland), details
  - o West of Scotland deep sea fish surveys, details
  - o West of Scotland deep sea macrofauna, details
  - o West of Scotland zooplankton surveys, details
  - o Young fish surveys 2001-2009 (Scotland), details

- MADS: The Danish national database for marine data (NERI, National Environmental Research Institute)
  - o MADS - macroalgae on stone reefs, details
  - o MADS - Marine benthic soft-sediment macrozoobenthos, details
  - o MADS - Marine phytoplankton, details
  - o MADS - Marine zooplankton, details

- CCMAR: University of Algarve (Adelino Canário)
  - o Fish community of Arade estuary, details
  - o Fish community of Arrábida Marine Park, details
  - o Fish community of Guadiana estuary and Castro Marim salt marsh (Portugal), details
  - o Intertidal rocky shore fish assemblages in Southern Portugal, details

- - - o Lagoon fish of Ria Formosa Lagoon, details
  - o Macroalgal communities of the intertidal and sublittoral of the Portuguese continental coast, details

- BLMP: The German Marine Monitoring Programme (Petra Schilling), details

- Italy
  - o SiDiMar: Database on the protection of the marine environment
    - Phytoplankton of the Campania coasts, details
    - Meso-zooplankton of the Campania coasts, details
    - Collection of metadata on other regions is in progress

  - o MC-LTER: MareChiara – Long term ecological research (Adriane Zingone)
    - MARECHIARA-mesozooplankton long-term time-series (1984-2006) at the fixed coastal station in the Gulf of Naples, Southern Tyrrhenian Sea, details
    - MARECHIARA-microzooplankton long-term time-series at the fixed coastal station in the Gulf of Naples, Southern Tyrrhenian Sea, details
    - MARECHIARA-phytoplankton long-term time-series (1984-2006) at the fixed coastal station in the Gulf of Naples, Southern Tyrrhenian Sea, details

- United Kingdom
  - o CEMP: Co-ordinated environmental monitoring programme (OSPAR), details
  - o Clean Seas Environmental Monitoring Programme (CEFAS), details
  - o Channel benthos, details
  - o **EARS**: Environmental assessment reference stations, details
  - o Irish Sea benthos, details
  - o North Sea benthos, details
  - o Dredge disposal monitoring, details
  - o Sewage sludge disposal, details

Appendix II

List of newly added datasets to EurOBIS since the launch of the Tender. All datasets identified within the EMODNet Bio Project and integrated into EurOBIS can be found under: http://bio.emodnet.eu/data-catalog (select advanced search, top right – then select under *'Availability: Available through EurOBIS'*). All the data availbel through EurOBIS can thus also be mapped on the EMODNet Bio geographic Dataportal. If the data were integrated before 2010, they were subject to the detailed gap analysis that was performed under section 2.3.2.

1. **OBIS (Ocean Biogeographic Information System) & OBIS-SEAMAP**

   ⇨ Datasets containing European data not yet present in EurOBIS and transferred.
   ⇨ *1.612.564 distribution records inserted into EurOBIS*

      - Academy of Natural Sciences OBIS Mollusc Database
      - Allied Humpback Whale Catalogue, 1976 – 2003
      - Alnitak Cetaceans and sea turtles surveys off Southern Spain
      - Baltic Porpoise Sightings 01-02
      - Baltic Seabirds Transect Surveys BenthosBarentsSeaPolarstern1991(ArcOD/AOOS)
      - Cold Water Corals
      - European Seabirds at Sea - JNCC All Trips
      - Harbour porpoises, white-beaked dolphins and minke whales in North Sea
      - Land surveysHarbour porpoises, white-beaked dolphins and minke whales in North Sea
      - Vessel surveys Harbour seals in Republic of Ireland in Aug 2003
      - Hexacorallians of the World
      - HMAP-History of Marine Animal Populations (CoML)
      - IPOE_Schnack_Polychaeta (ArcOD/AOOS)
      - iziko South African Museum - Shark Collection (AfrOBIS)
      - Islas Canarias (Proyecto Aegina): juvenile loggerheads
      - Mediterranean seabird surveys 99/00/02
      - MICROBIS database (ICoMM)
      - National Institute of Marine Sciences and Technologies - Trawl Surveys (AfrOBIS)
      - Natural Geography In Shore Areas (NaGISA) Dataset
      - NMNH Invertebrate Zoology Collections (Smithsonian Institute-Invertebrate)
      - NMNH Vertebrate Zoology Fishes Collections (Smithsonian Institute-Fishes)
      - NODC WOD01 Plankton Database
      - PIROP Northwest Atlantic 1965-1992
      - Russian Barnacle Geese (OBIS-SEAMAP)
      - SeamountsOnline (seamount biota) (CoML)
      - SIO_FAMIZ (ArcOD/AOOS)
      - SMRU Grey Seal UK 1991-1993
      - SMRU Small Cetacean Abundance NS 1994
      - Southampton Oceanography Center Discovery Collections Midwater Database
      - Study of young rehabilitated harbour seal in the north of France
      - UK NHM Whale Strandings 1970-79
      - UK Royal Navy Marine Mammal Observations
      - Whale Watch Azores Bryde's whale 2004
      - WhiteSeaPlankton (ArcOD/AOOS)
      - YoNAH Encounter
      - ZINRAS_Arctic_Benthos (ArcOD/AOOS)

2. **ICES (International Council for the Exploration of the Sea)**

   ⇨ *5.526.244 distribution records inserted into EurOBIS*

       - ICES Biological community (DOME – community)
       - ICES contaminants and biological effects (DOME – biota)
       - ICES database of trawl surveys (DATRAS)

3. **PANGAEA (Publishing Network for Geoscientific & Environmental Data)**

   ⇨ *1.562.156 distribution records inserted into EurOBIS*
   ⇨ *Collection of different marine datasets*

4. **IBSS (Institute of Biology of the Southern Seas)**

   ⇨ *151.610 distribution records inserted into EurOBIS*

       - IBSS Historical data from different cruises
       - Historical zooplankton records from the Black Sea

5. **DanBIF (Danish Biodiversity Information Facility)**

   ⇨ *3.172 distribution records inserted to EurOBIS*

       - Galathea II, Danish Deep Sea Expedition 1950-1952
       - Marine benthic fauna list, Laeso, Denmark
       - Niva Bay species list, Sjaelland, Denmark