



Second Interim Report

15/05/2010 – 15/11/2010

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

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

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 Second Interim Report or 'Internal Technical Report' describes the activities from month 13 to month 18 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, 15th of May 2009. As stated in the contract, an internal technical report specified in the tender is provided after the second phase of the contract (testing and monitoring phase - Month 13-18). 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 sent 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. Project Meetings

- The Flanders Marine Institute was present at the Progress Meeting for the ur-EMODnet Preparatory Actions, the 25th of May, 2010 in Copenhagen. An overview of the work done, summary of data collected, gap analysis, choice of parameters and difficulties encountered for the Biology Lot was presented to the Commission and the other lots.

<http://bio.emodnet.eu/documents/Meetings/General-Meeting-May-2010/>

- The Biology Lot Year 1 meeting was organised at the Flanders Marine Institute on October 11th, 2010. The meeting took place back-to-back with the EuroOCEAN 2010 Conference in Ostend (12-13 October 2010). An overview of the current status of the Biology Lot was provided, together with ongoing and planned activities. Highlights of the meeting involved discussions on the integration and standardisation of biological parameters (e.g. abundance), the organisation of future data analysis workshops and the recently started data grants programme in the Black Sea. The Biological portal was also demonstrated and tested and feedback from the project partners was collected. The minutes of the meeting and all presentations are available at

<http://bio.emodnet.eu/documents/Meetings/Year-two-Meeting/>

2.1.3. Reports

- A very extensive workshop report, including an extensive data inventory and gap analysis was drafted, printed and distributed to all participants of the biological data products workshop and distributed at several other meetings and relevant workshops (for example Eurocean 2010, OSPAR Workshop).

The workshop report is available at <http://bio.emodnet.eu/documents/func-startdown/29/>. All presentations from the meeting can be found at

<http://bio.emodnet.eu/documents/Workshops/Data-Products-Workshop/>.

- Between month 13 and month 18, two 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>.

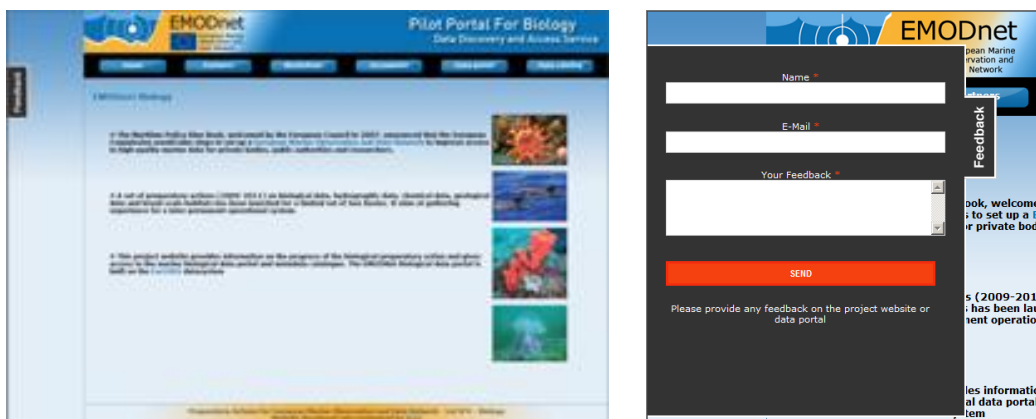
2.2. WP2 Technical Development

The Biological project website is available at <http://bio.emodnet.eu> and the Biological data portal is available at <http://bio.emodnet.eu/portal>. During the testing and monitoring phase (month 13-18), no major technical developments were made. Internal tests were performed and comments given during the biological data products workshop, the Copenhagen progress meeting (May 2010) and the project partner meeting. The technical updates are listed and will be analysed for implementation during the upgrade phase (months 19-24).

2.2.1 User feedback

A user feedback button has been made available on the EMODnet Biology Lot website. By clicking on the feedback button (left-hand-side of the screen), a simple form appears. All feedback provided through this form is sent to the EMODnet Biology Lot team and will be evaluated accordingly.

Several people – e.g. coordination board - have been contacted with the request to use and test the portal and to provide us with all possible feedback. All this information will be brought together and evaluated during the upgrade phase and will enable us to improve the portal and its functionalities in the future.



User feedback button on website (left) gives access to feedback form (right)

2.2.2 Help function

The Pilot Portal for Biology of EMODnet does not yet provide an extensive manual of how to use the portal. The idea is to keep the functionalities and possibilities of the portal easy-to-use and self-explanatory, making an extensive manual not yet necessary in this phase. If users would be confronted with problems or questions, a form can be filled in under the “help”-tab and your requests will be dealt with as quickly as possible. Detailed help-pages on how to use the portal will be made available when the final portal will be launched.



Help-tab on the Pilot Portal for Biology

2.2.3 Future updates

A preliminary list of future updates was already mentioned in the First Interim Report. All these new functions and improvement will be implemented during the upgrade phase (month 19-24), with the exception of the help and feedback options, which are already available. A list of future updates (from the First Interim Report, and newly added items, based on feedback).

- An direct link from the metadata catalogue to the observation data on the geographic portal (already partly resolved: the metadata description at <http://bio.emodnet.eu/component/imis/?module=dataset&dased=2501> has a direct link to the data on the Portal <http://bio.emodnet.eu/portal/index.php?dased=2501>)

- Improved links to integrate non biological (physic-chemical,...) parameters through OGC compliancy (in progress, for example link to SeaBed habitat map)
- 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.
- Performance of the portal mapping server is at the moment relatively slow. Actions to increase the speed of the portal will be taken.
- Offer more possible file-formats when downloading data from the Portal (xls, txt, xml, kmz, ...)
- Inclusion of the visualization of the temporal component of data. This will give a clear indication of the observations over time.
- Base the search on species attributes. Search on functional groups (benthos, plankton) is already possible, but this search will be expanded to e.g. Red List species, species listed in annexes of e.g. the Bird or Habitat Directive. All these attributes will be stored in the World Register of Marine Species (WoRMS, www.marinespecies.org) and linked to EMODnet (this is a starting exercise, not sure if it will be feasible in the proposed time frame).
- Data should be visualised by order of magnitude: the size of the dot should be in relation to the plotted value (abundance or biomass). The more individuals, the larger the dot. This is optional and not sure if it will be feasible in the proposed time frame. It is also dependent on the amount of abundance/biomass data available and the success of the data standardisation of these data (see further).

2.3. WP3 Data Digitisation, Standardisation, Analysis & Delivery

During the testing and monitoring phase the inventory of existing marine biological datasets still continued, as did the identification of potential new data providers. The gaps identified during the first phase – based on the data available within EurOBIS – have been thoroughly documented and submitted for publication and has been partly described in the data products workshop. An analysis of existing data providers and databases can also be found on the Annex 3 of this report. We also provide a short section on how data and information is updated. Next to the standard quality control procedures on taxonomy and geography (discussed in the First Interim Report), action is also undertaken to make abundance data from different datasets comparable by looking at the sample size and sampling equipment.

2.3.1. Inventory of existing marine biological datasets

With the start of EMODnet, a list of known European marine datasets was 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). This list was used as a baseline to send out questionnaires to the partner networks of the EMODnet Biology Lot for review and update. New datasets are still being added to this inventory. Since the start of EMODnet, the metadata of 148 datasets was newly described, bringing the total amount of described datasets within EMODnet to 374 (<http://bio.emodnet.eu/data-catalog>). A number of institutes have agreed to deliver the metadata of their marine datasets in the near future. An overview of the dataset descriptions added during the test and monitoring phase can be found in Appendix I.

2.3.2 Updating of information and data

Each dataset contributing to EMODnet is thoroughly described at VLIZ, making use of the Integrated Marine Information System (IMIS). Data providers are asked to check the online metadata of their dataset and can make changes or additions at any given time.

When data can be shared within EMODnet, there are two ways of contributing the data. When it concerns (smaller) datasets from institutes or researchers, these data can be sent directly to VLIZ (e.g. as an Excel or Access file). A copy of this dataset is then locally stored at the Marine Data Archive (MDA), to prevent corruption or loss and the data is integrated in the EurOBIS database. This is mostly the case for research (PhD) datasets for which no further data collection is planned and the dataset can thus be seen as finished. For large datasets such as monitoring data (e.g. CPR) or large data centres or institutes (e.g. ICES), a different procedure is followed. In these cases, DiGIR (Distributed Generic Information Retrieval) is set up. This implies that the data are still stored and managed at the data providing institute and a copy is stored in EurOBIS/EMODnet. Agreements are then made between the data provider and EMODnet on the update frequency. This can vary from monthly to yearly updates or a notification can be sent to EurOBIS/EMODnet when major updates have taken place at the host institute. 29 out of the 229 datasets - but accounting for the highest proportion of the data (large monitoring datasets from ICES, PANGAEA, NBN, CPR) are still stored and managed at the data providing institute

but are regularly updated on EurOBIS. For the other 200 small-scale research datasets, EurOBIS can therefore more be considered as the main storage repository.

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

During the first phase, a detailed gap analysis was performed on the available data within EurOBIS. The main goal was to identify gaps in data availability on both spatial and temporal scale and to list possible applications and (mis)uses. This first analysis was performed during the summer of 2009 and partly published in the data analysis workshop report. Given the large number of records added to EurOBIS since then, a new analysis was performed during the summer of 2010 – based on the data then available - with the same objectives: to identify data gaps, possible applications, uses and mis-uses.

Gaps are largely situated on three levels: taxonomy, geography and time. On the level of taxonomy, a number of groups have not yet been covered (e.g. Myxozoa & Remipedia), while the European Register of Marine Species (ERMS) confirms the presence of representative species within the European marine waters. Geographically, the North Sea, English Channel and North East Atlantic regions are documented very well within EurOBIS, whereas the Arctic Ocean has hardly any data represented. Differences between regions in number of distribution records and distinct species can be related to data gathering efforts which can strongly differ, (partly) depending on the accessibility of the region. Less than 1% of the available records has been collected prior to 1950, with the oldest record dating back to 1748. From 2001, fewer records are available, possibly explained by the lag in making data publicly available.

The results of this revised analysis have been incorporated into a manuscript, which was submitted to the scientific journal *Hydrobiologia*. The manuscript has received a positive evaluation by the reviewers and will be accepted for publication after revision.

2.3.3. Inventory of monitoring activities on national level

A number of these national monitoring programs submit their data to the ICES data centre and these data are thus part of the ICES datasets we already have available within EMODnet (DATRAS & DOME). To increase the transparency of what is available within the ICES datasets, a more detailed subdivision of these

datasets will be made in the near future (e.g. the ICES database on trawl surveys will be divided into its respective regional or national sub-datasets).

How duplicates are identified and dealt with is explained in section 2.4.

2.3.4 Black Sea data grant program

In close cooperation with IBSS, a small data grant program has been set up to make data from the Black Sea available through EurOBIS.

During the summer, IBSS has coordinated a detailed request within Ukraine and other Black Sea countries to inventory marine datasets from the Black Sea Region. This inventory identified 13 datasets representing ± 2.5 million distribution records that can contribute to EurOBIS /EMODnet. The metadata of these datasets has already been described and is available through the EMODnet data catalog. As these data are largely available in paper format, mini-grants will be distributed to finance the digitization process. Contracts are currently being drawn up, clearly stating that all data digitized during this initiative will become freely available online. Digitization of the first datasets will start in January and the first data are expected to go online by summer 2011. Communication on the identification and contribution of more datasets from Turkey, Bulgaria, Russia and Ukraine is in progress.

2.3.5. Relationship with INSPIRE

The Biological project registered as a Spatial Data Interest Community (SDIC) at INSPIRE under the name 'Preparatory Action for Biology of the European Marine Observation and Data Network' and proposed for Annex III, 19: Species distribution to 1) submit reference material as input to the Drafting Teams 2) register a project to test/revise/develop the draft Implementing Rules 3) participate in the review process to 4) implement pilot projects to test/revise/develop the draft Implementing Rules and to 5) be kept informed. Biological partnership requested to become partners to discuss.

Furthermore, the data portal is at this moment already OGC compliant, and the metadata are ISO 19115 compliant, allowing easy compliancy with the discovery and downloading rules of INSIRE which are based on the same standards.

2.4 WP4 Data Management, QC/QA & Integration

The general data management and QC/QA actions have been thoroughly documented in the First Interim Report and will not be repeated here. These actions are part of a continuous process and are executed each time a new dataset is added to EurOBIS.

In this section, we will limit ourselves to the description of some additional QC actions we have undertaken on the level of geography and a number of other – optional – fields within EurOBIS.

2.4.1 Quality control

- *Duplicate records:*

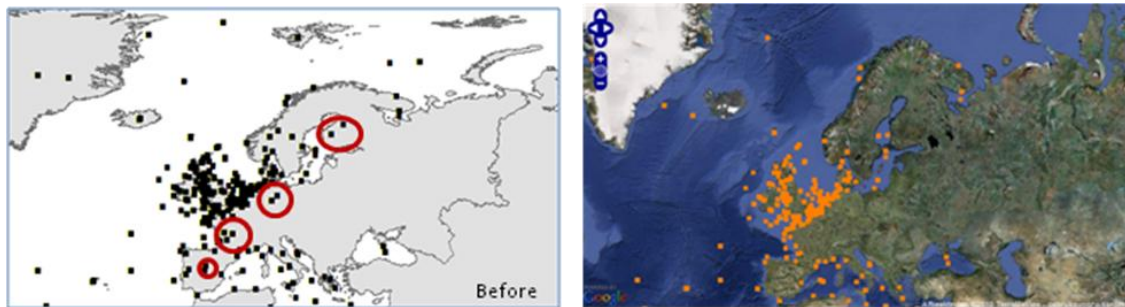
To avoid possible duplication of datasets within and increase the transparency of EMODnet/EurOBIS, the larger datasets now available (e.g. ICES, PANGAEA) will be split up into their component datasets. When a new dataset is delivered to EMODnet/EurOBIS, a first check for possible duplicate data is based on the dataset title and description. This will avoid that a dataset contributing to e.g. ICES will be added again, but now delivered through the local providers. When duplicate delivery of data is suspected, the data management team will check with the local provider to see if these data are indeed also delivered to a national or regional data centre such as e.g. ICES.

Additionally, queries will be run at regular time-intervals to identify duplicate records which were not filtered out by the title-description approach. These records will then be retained from the portal. A duplicate record is defined as an identical taxon collected at an identical location (latitude – longitude) at an identical time (year-month-day).

- *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. During the testing and monitoring phase, distribution records without geographic coordinates were identified. After communication with the data providers, almost 40 000 distribution records were updated with correct coordinates.

In a number of literature datasets, distributions of marine species were linked to a country instead of a sea-area. As the land-based distributions create confusion, these records will be looked at in detail and adapted where relevant. One dataset – Taxonomic Information System for the Belgian coastal area (Tisbe) – has already been QC'd on this level, according to the following methodology. All land-based coordinates were filtered and all coordinates situated within reasonable distance from the coastline (20 km), were treated as 'marine'. This buffer was included, as not all coastline maps have the same resolution or precision and people sometimes say 'Oostende' with the city coordinates when they actually want to refer to the beach. When coordinates were situated in the centre of a country, the literature source was checked, together with the actual species habitat. E.g. if a species was linked to the centre of the United Kingdom, but it was clearly a marine species, it is now linked to the Exclusive Economic Zone of the UK.



Overview of the Tisbe dataset before (left) and after (right) the QC on land-based coordinates.

- *Other fields:*

Sex

The OBIS Scheme provides a tentative list of values which should be used to indicate the sex of a specimen. Within EurOBIS, all sex-related information has been converted into the values proposed by OBIS. OBIS itself indicates that a controlled set of terms or codes should be developed, in consensus with the scientific community. This is a work in progress on the level of OBIS.

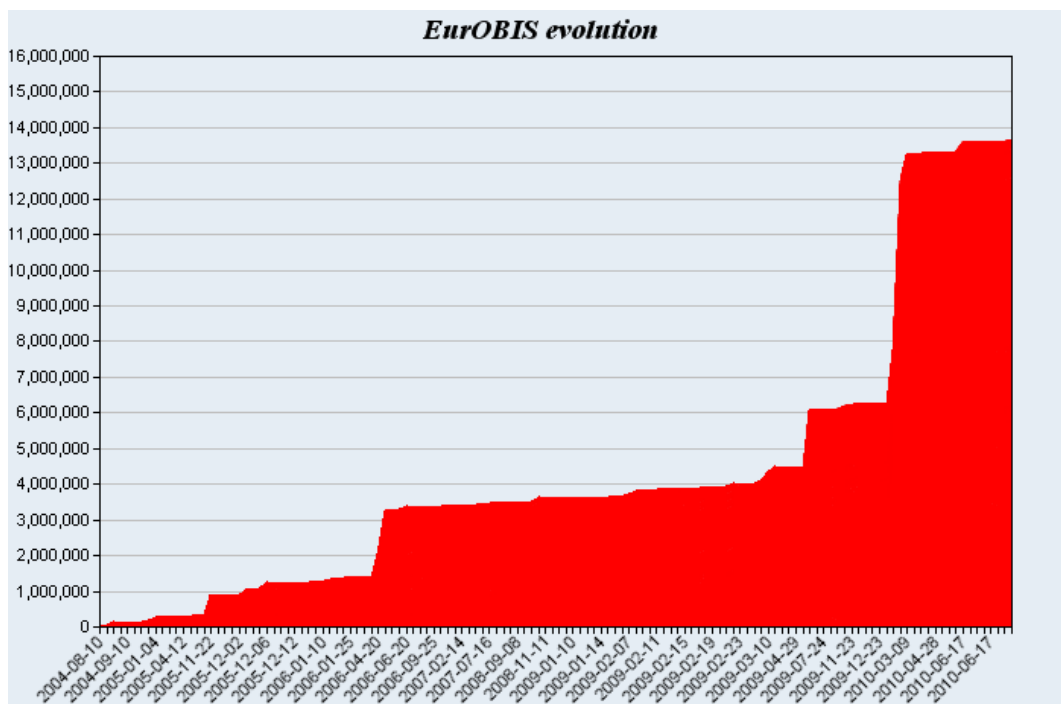
Life stage

Very mixed information is documented in the life stage field (life stage, sex, size ...). Information that is not related to the life stage of a specimen has been transferred to its appropriate place. As for sex, there is not yet a controlled vocabulary on hand to indicate the different life stages. OBIS will take the lead in the development of such a vocabulary. This is work in progress.

2.4.2 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 month 18 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
2010 – month 18 EMODnet (Nov)	229	13.6 million



EuroOBIS evolution since the launch of the system in 2004. The amount of data almost tripled since the start of the EMODNet project.

A list of newly added datasets to EurOBIS during the test and monitoring phase can be found in Appendix II.

2.4.3 Standardization of abundance data

Within EMODnet / EurOBIS, almost 50% or 106 of all available datasets (229) contain abundance information, i.e. state how many individuals were found at a certain time on a certain location. Comparing this abundance data is however not straightforward; additional information on sample size is necessary in order to make a sensible comparison between datasets or to perform calculations on data combined from different datasets. Next to sample size, sampling equipment or gear can also provide valuable insights on the (in)comparability of samples.

By setting standards for sample sizes (e.g. m^2 for benthos and liter for plankton), conversion factors can be calculated and original abundances can be re-calculated to a standardized area or volume (see example table). Users will only be able to plot comparable data, e.g. only benthos data gathered by a Van Veen grab or other selected gear. To be even more complete, information on 'trapping efficiency' should be documented, but preliminary searches have already indicated that this information is very hard to find and this exercise will not be given priority.

By re-calculating original abundance values to standard sample sizes, the creation of reliable density maps becomes possible. These maps will be available through the Portal.

The originally provided abundance data will also remain available through the Portal.

Dataset	Original sample size	Standard sample size	Conversion factor	Sampling gear
A	0.5 m^2	m^2	2	Van Veen grab
B	0.8 liter	Liter	1.25	WP2 net
C	10 cm^2	m^2	1000	Box corer
D

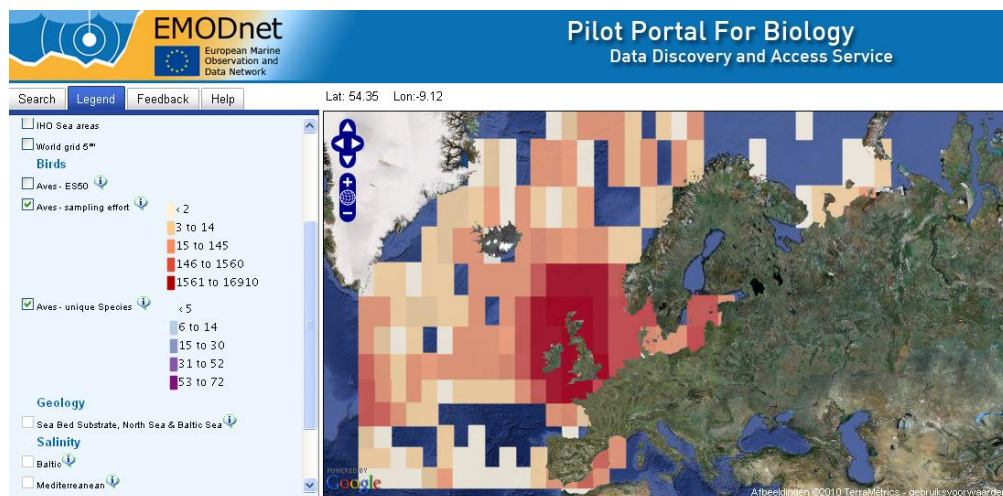
Example extract of conversion table to re-calculate abundances to a standardized area or volume

The documentation of the sampling size and sampling gear is a work in progress. So far, this information has already been retrieved for 77 datasets (out of 106 with abundance information).

2.4.4. Applications and data products

Based on the EurOBIS integrated data, several data products were calculated. So far number of unique species, sampling effort and species diversity coefficients ES(50) were calculated and can be visualized on the portal. These products were calculated on a $1^{\circ} \times 1^{\circ}$ grid for birds, fish, crustaceans, molluscs, Echinodermata, mammals, reptiles and higher plants.

After standardization of abundance data, the same kind of products could be calculated indicating abundance distribution of specific species. By using modeling tools, range distributions of specific species could also be calculated based on EurOBIS data. An extension of some of these data products is foreseen for the following phase of the project (in cooperation with the scientific community).



Data products based on EurOBIS data visualized on Data Portal. We show number of unique bird species, sampling effort and species diversity coefficient (ES50) per $1^{\circ} \times 1^{\circ}$ grid for all bird data.

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 at <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 data owners to make the data as much as possible available through EurOBIS. If the datasets were integrated in EurOBIS they are listed in Appendix II.

- Institute of Meteorology and Water Management, Maritime Branch (IMWM MB - Włodzimierz Krzyminski)
 - Polish Monitoring Programme - Monitoring of the Baltic Sea: chlorophyll a, [details](#)
 - Polish Monitoring Programme - Monitoring of the Baltic Sea: phytobenthos, [details](#)
 - Polish Monitoring Programme - Monitoring of the Baltic Sea: phytoplankton, [details](#)
 - Polish Monitoring Programme - Monitoring of the Baltic Sea: zoobenthos, [details](#)
 - Polish Monitoring Programme - Monitoring of the Baltic Sea: zooplankton, [details](#)
 - National Ferrybox project - continuous sampling by IMWM, [details](#)
 - National ferrybox project - discrete sampling by IMWM, [details](#)
 - Polish-Russian Vistula Lagoon Monitoring, [details](#)
 - Southern Baltic Continuous Plankton Recorder, [details](#)

- Marine Institute Ireland (Trevor Alcorn)
 - Acoustic survey of herring and blue whiting, [details](#)
 - Atlantic salmon tagging, [details](#)
 - Celtic Sea cod spawning box, [details](#)
 - Contaminants in the Irish marine environment: biota, [details](#)
 - Contaminants in the Irish marine environment: water, [details](#)
 - Greencastle codling protected area, [details](#)
 - Irish anglerfish survey, [details](#)
 - Irish biological survey, [details](#)
 - Irish deepwater survey, [details](#)
 - Irish eel monitoring, [details](#)
 - Irish groundfish survey, [details](#)
 - Irish HABs phytoplankton, [details](#)
 - Irish inshore fisheries atlas, [details](#)
 - Irish sea trout monitoring, [details](#)
 - Leatherback sea turtles and their jellyfish prey, [details](#)
 - Mackerel and horse mackerel egg survey, [details](#)
 - Marine Institute CTD, [details](#)
 - Marine mammals sightings in Ireland, [details](#)
 - Marine mammals strandings in Ireland, [details](#)
 - Nephrops underwater TV survey, [details](#)
 - Nursery areas in the Irish Exclusive Economic Zone, [details](#)
 - Rockall haddock box, [details](#)
 - Spawning areas in the Irish Exclusive Economic Zone, [details](#)
 - Whitefish restriction area, [details](#)

- Ministry of Environment Protection and Natural Resources of Georgia, National Environmental Agency

- Coastal habitat red book for Georgia, [details](#)
 - Fisheries production in Georgia in selected year 1930-1950-1980-1990, [details](#)
 - Recent distribution (1996-2004) of selected species of Black Sea importance in Georgia (GIS), [details](#)
 - Species of Black Sea importance occurring in Georgia, [details](#)
 - Threatened coastal habitat types in Georgia (GIS), [details](#)
- Tbilisi State University (Georgia)
 - Georgian anchovy fishery, fishing capacity (SESAME), [details](#)
- SHARK: Marine Biological data of Sweden (SMHI – Lars Hanson)
 - SHARK - Chlorophyll (bottle), [details](#)
 - SHARK - Chlorophyll (hose), [details](#)
 - SHARK - Grey seals, [details](#)
 - SHARK - Harbour seals, [details](#)
 - SHARK - Marine macrophytes, [details](#)
 - SHARK - Marine phytoplankton, [details](#)
 - SHARK - Marine soft bottom macrozoobenthos, [details](#)
 - SHARK - Marine zooplankton, [details](#)
 - SHARK - Ringed seals, [details](#)

IBSS and Black Sea Network

- Macroalgae of the Crimean coastal zone (Black Sea, 1997-2007), [details](#)
- Seagrasses of the Crimean coastal zone (Black Sea, 1980-2009), [details](#)
- Phytoplankton of the Ukrainian Black Sea Shelf (1985-2005), [details](#)
- Zooplankton in the Ukrainian Black Sea Shelf (1989-2005), [details](#)
- Phytoplankton data collected in the Black Sea during a cruise of the R/V “Experiment”, [details](#)
- Phytoplankton data collected in the Black Sea during the 5th cruise of the R/V “Kiev”, [details](#)
- Phytoplankton data collected in the Black Sea during the 107 cruise of the R/V “Kovalevskiy”, [details](#)
- Phytoplankton data collected in the Black Sea during 33 cruise of the R/V “Professor Vodyanitskiy”, [details](#)
- Phytoplankton data collected in the Black Sea during 37 cruise of the R/V “Professor Vodyanitskiy”, [details](#)
- Cetacean bycatches in the northern Black Sea, [details](#)
- Cetacean sightings in the Black Sea, Sea of Azov & Kerch Strait, [details](#)
- Phytoplankton of the northern part of the Black Sea 1992-1993, [details](#)

Appendix II

List of newly added and updated datasets to EurOBIS during the testing and monitoring phase (month 13-18). All datasets identified within the EMODnet Bio Project and integrated into EurOBIS can be found at <http://bio.emodnet.eu/data-catalog> (select advanced search, top right – then select under ‘Availability: Available through EurOBIS’). All the data available through EurOBIS can thus also be mapped on the EMODnet Bio geographic Dataportal.

- 1. L4 plankton monitoring (Plymouth Marine Laboratory)**
 - ⇒ Update in EurOBIS: from 49.597 records to 64.659 records

- 2. Baltic Sea benthic meiofauna and macrofauna mid 1990's**
 - 611 distribution records inserted into EurOBIS

- 3. REPHY – Réseau de Surveillance Phytoplanktonique (Ifremer)**
 - 285 562 distribution records inserted into EurOBIS

- 4. LZMB, Italy (Prof. Genuario Belmonte)**
 - ⇒ 4 datasets; 468 distribution records inserted into EurOBIS

 - Cysts from plankton from the South Adriatic Sea, [details](#)
 - Mesozooplankton - Crustacea from the South Adriatic Sea, [details](#)
 - Microzooplankton - Crustacea from the South Adriatic Sea, [details](#)
 - Zooplankton - Crustacea from the Taranto Seas, [details](#)

- 5. University of Pisa, Italy (Prof. Lisandro Benedetti-Cecchi)**
 - ⇒ 4 datasets; 13 290 distribution records inserted into EurOBIS

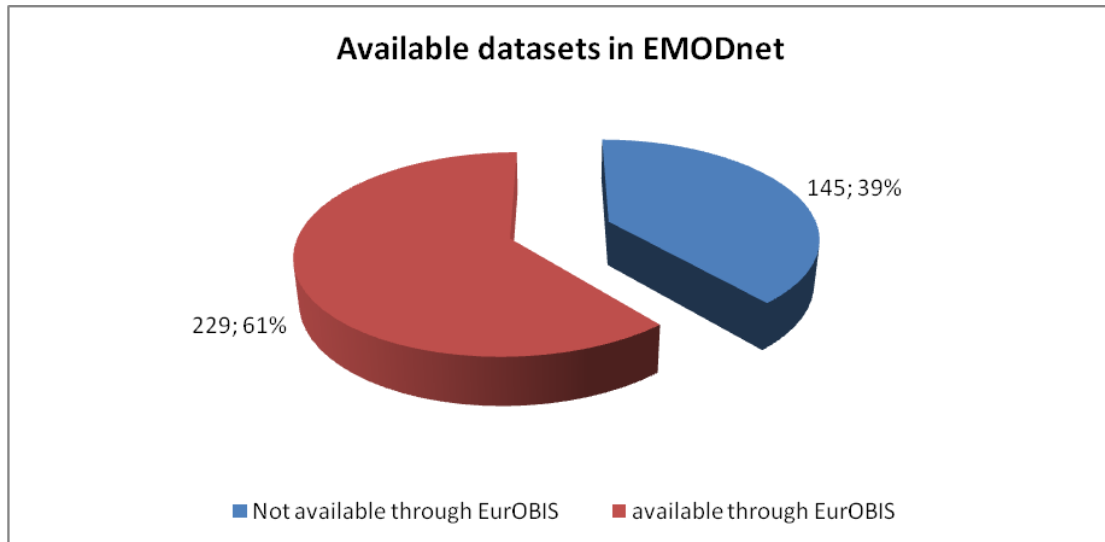
 - Intertidal rocky shore assemblages near Porto Ercole, [details](#)
 - Lowshore macrobenthos assemblages near Porto Santo Stefano, [details](#)
 - Rocky shore data from the Capraia Marine Protected Area, [details](#)
 - Rocky shore data from the Giannutri Island Marine Protected Area, [details](#)

- 6. UGent, Marine Biology Section**
 - ⇒ 3 datasets; 13876 distribution records inserted into EurOBIS

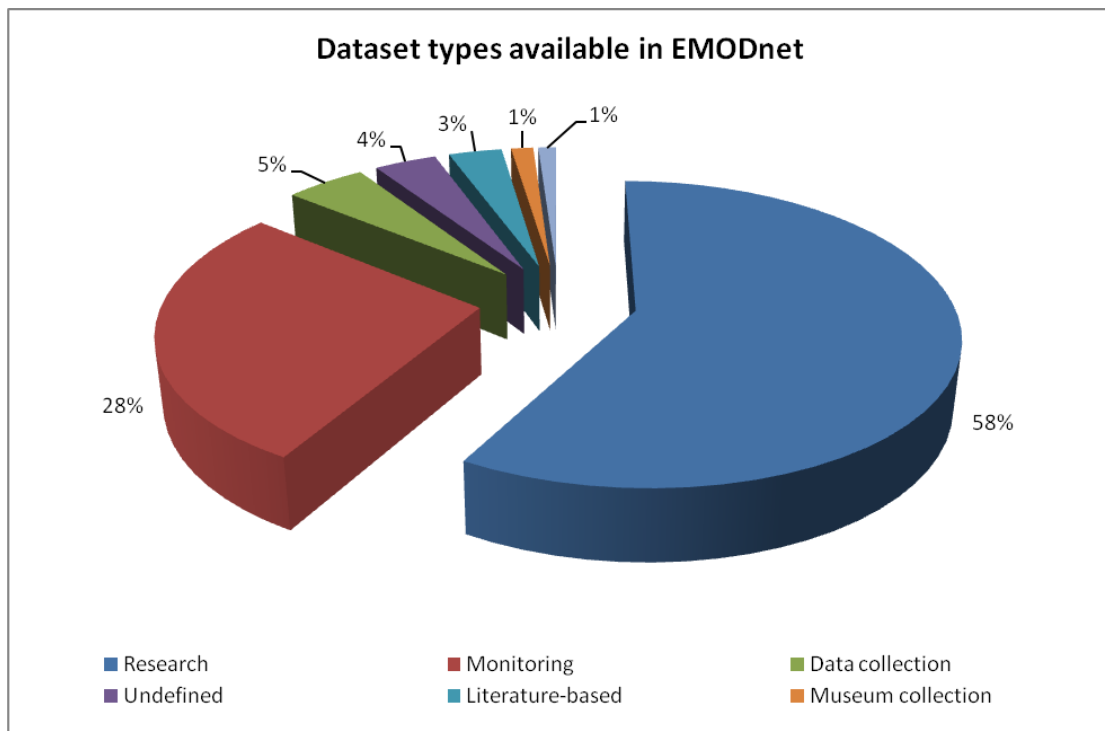
 - Length/Width and biomass of nematodes from sandbanks on the Belgian Continental Shelf, [details](#)
 - Nematoda from Kenya and Zanzibar, [details](#)
 - Nematodes from the Goban Spur (OMEX) - 1994, [details](#)

Appendix III

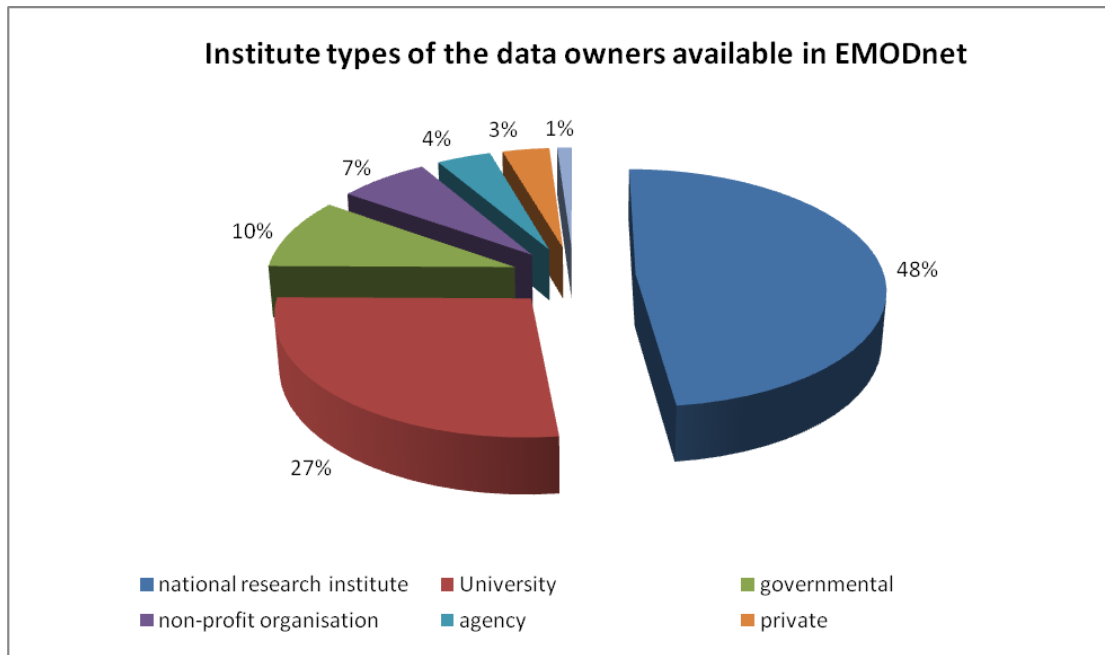
An analysis of existing data providers and databases is shown below. Here we show several graphical representations of the available data and information within EMODnet. Analyses have been done on all datasets available in the data catalog, thus including both datasets which are available through the portal and those where only the metadata description is available.



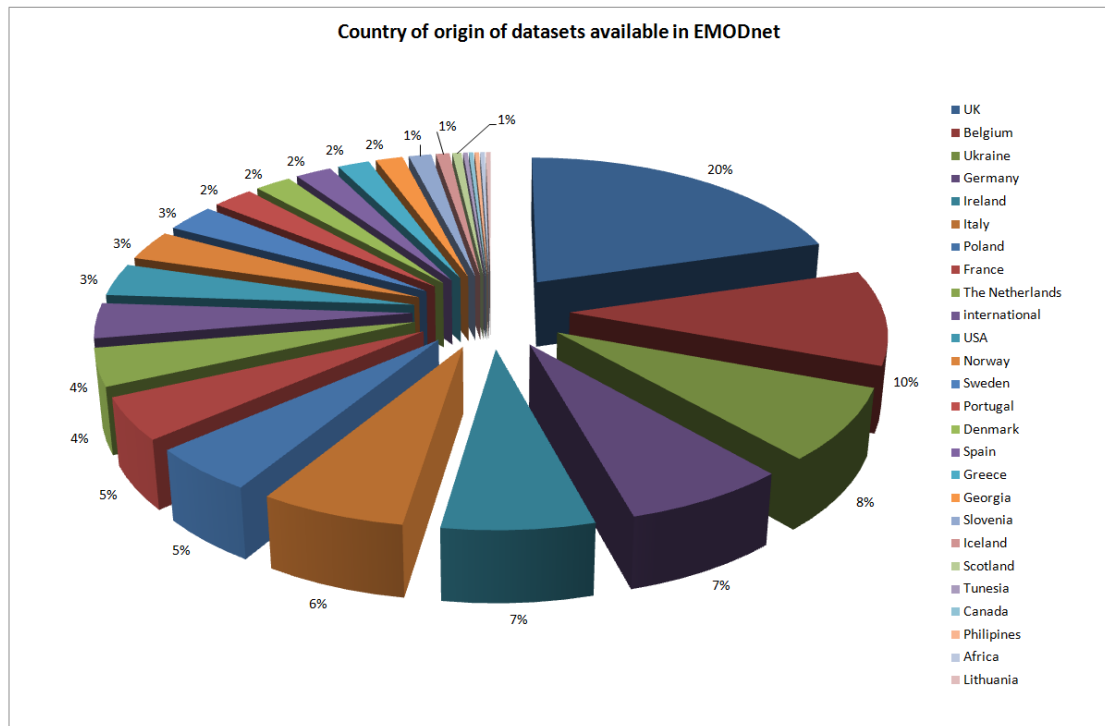
Graph 1: The number and percentage of datasets that are available through EurOBIS and the data portal and those of which the metadata is available but the data is not (yet) available through EurOBIS and the EMODnet Biological data portal.



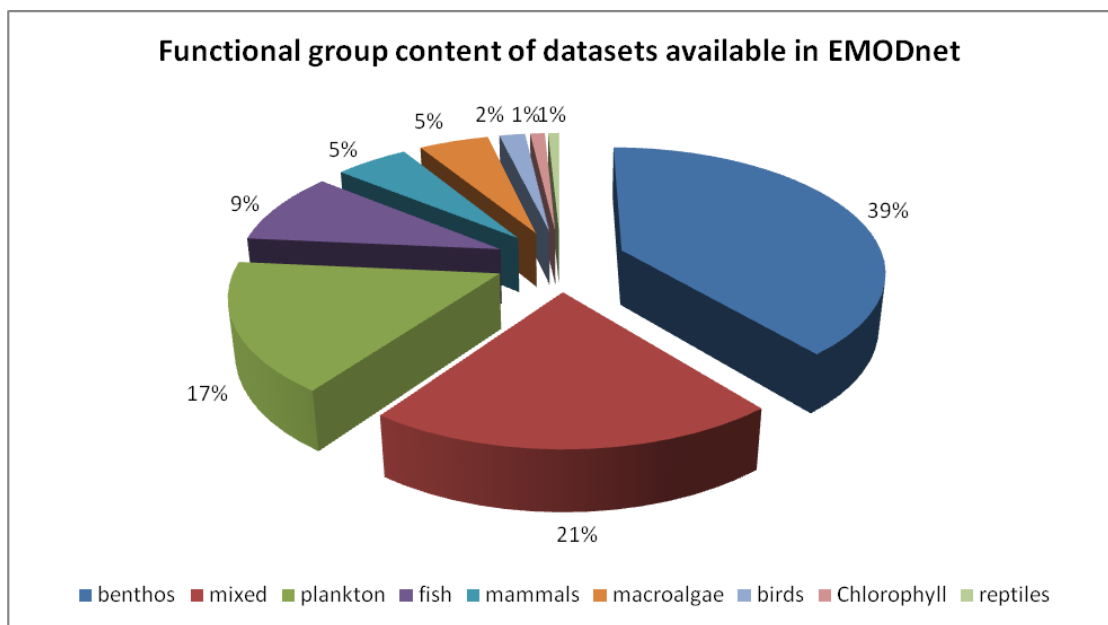
Graph 2: All datasets from the EMODnet data catalog have received a dataset type label. The majority of the datasets originate from research (58%), followed by monitoring (28%). Research includes data from short-term research projects (theses, PhD), while monitoring represents data from long-term actions (over 5 years). For a small number of datasets, the dataset type was not defined ('undefined') and could not be derived from the received metadata. Further contact with the data providers will resolve this issue in the near future.



Graph 3: All datasets have been subdivided according to the type of institute they originate from. We divided between National research institutes, Universities, Governmental (national), Agency (assigned to international (European) agencies such as ICES, EEA, OSPAR, HELCOM...), Non Profit Organisations and Private Sector. In some cases the distinction between governmental and national research institute was rather vague as national research institutes can be considered as governmental institutes.



Graph 4: division of datasets according to their country of origin. All European countries are represented, as well as a number of non-European countries who have collected data within European marine waters. 'International' indicates datasets with multiple origin, spread around the world.



Graph 5: division of datasets according to their functional group content. The majority of the datasets (39%) contains benthos data (macro- and/or meiobenthos). 21% of the datasets have a mixed content; they contain information on more than one functional group (e.g. benthos and birds; birds and mammals or benthos and macroalgae). Datasets with reptile information are very few, easily explained by the fact that reptiles within European marine waters are limited to sea turtles.

Dataset title	Available through EurOBIS	Number of records	Dataset type	Owner Insitute type	Country	Biological Scope
Posidonia oceanica Survey 2005	Yes	1933	Monitoring	non-profit organisation	Spain	macroalgae
70 samples data of Kiel Bay	Yes	1144	Monitoring	University	Germany	benthos
A Biotic Database of Indo-Pacific Marine Mollusks	Yes	234	Modelling	national research institute	USA	benthos
A comparison of benthic biodiversity in the North Sea, English Channel and Celtic Seas	Yes	2589	Research	national research institute	UK	benthos
A study of the nematode fauna of three estuaries in the Netherlands	Yes	957	Research	University	Belgium	benthos
Aegean Sea Bathyal Nematodes	Yes	1017	Research	national research institute	Greece	benthos
Alaska Ocean Observing System	Yes	21681		agency	USA	mixed
AlgaeBase	Yes	56899	Literature-based	University	Ireland	macroalgae
Allied Humpback Whale Catalogue, 1976 - 2003	Yes	123		University	USA	mammals
Alnitak Cetaceans and sea turtles surveys off Southern Spain	Yes	4010	Research: field survey	University	USA	mammals
Amrum Bank and inner German Bight Benthos	Yes	1026	Research: field survey	University	Germany	benthos
ANDEEP-1: Antarctic deep-sea meiofauna	Yes	1542	Research	national research institute	Germany	benthos
Arctic Meiofauna Succession	Yes	159	Research	national research institute	Germany	benthos
Arctic soft-sediment macrobenthos	Yes	1005	Research	national research institute	UK	benthos
Baltic porpoise sightings 01-02	Yes	55	Research: field survey	private	UK	mammals
Baltic Sea benthic meiofauna and macrofauna mid 1990s	Yes	611	Research: field survey	University	Sweden	benthos
Baltic seabirds transect surveys	Yes	23289		University	Lithuania	birds
Bay of Puck dataset	Yes	539	Research	national research institute	Poland	benthos
Benthic algal vegetation of Borgafjörður	Yes	1060	Research: field survey	national research institute	Slovenia	macroalgae
Benthic algal vegetation of Mjóifjörður	Yes	711	Research: field survey	national research institute	Slovenia	macroalgae
Benthic fauna around Franz Josef Land	Yes	1714	Research	private	Norway	benthos
Benthic Fauna in the Barents Sea	Yes	1410	Research	private	Norway	benthos
Benthic fauna in the Pechora Sea	Yes	1324	Research	private	Norway	benthos
Benthic marine algae in the Northern Adriatic Sea	Yes	382	Research: field survey	national research institute	Slovenia	macroalgae
Bentho-pelagic coupling in the North Sea: Copepoda	Yes	762	Research	University	Belgium	benthos
Benthos Gironde Estuary	Yes	3019	Research	University	France	benthos
BfG - Estuary Monitoring Programme Macrozoobentos	Yes	286	Monitoring	governmental	Germany	benthos
Biocean	Yes	29954	Data collection	governmental	France	mixed
Biogeographic data from BODC - British Oceanographic Data Centre	Yes	124043	Research: field survey	governmental	UK	mixed

Biogeography Scheldt Estuary	Yes	31747	Research	national research institute	The Netherlands	mixed
BioMar: BioMar - Ireland: benthic marine species survey	Yes	93003	Research	University	Ireland	benthos
BIS dataset of the south-western part of Netherlands (1985-2004)	Yes	136161	Monitoring	governmental	The Netherlands	benthos
Brachiopoda from sampling campaigns in the French part of the Mediterranean during the 1970-1990s	Yes	468	Research: field survey	governmental	France	benthos
CeDAMar database for benthic biological sampling on the abyssal plains: European data	Yes	12337	Research	national research institute	Germany	benthos
Cefas01 - Structure of sublittoral nematode assemblages around the UK coast	Yes	2222	Research	national research institute	UK	benthos
Cefas02 - Structure of sublittoral nematode assemblages at four offshore stations around the UK	Yes	1331	Research	national research institute	UK	benthos
Cefas03 - Impacts of experimental trawling disturbance on nematode communities	Yes	3041	Research	national research institute	UK	benthos
Cefas04 - Impacts of chronic trawling disturbance on nematode communities	Yes	3383	Research	national research institute	UK	benthos
Cefas05 - Structure of nematode communities in the southwestern North Sea	Yes	2769	Research	national research institute	UK	benthos
Cefas06 - Effects of various types of disturbances on nematode communities	Yes	1146	Research	national research institute	UK	benthos
Cefas07 - Effects of simulated deposition of dredged material on structure of nematode assemblages - the role of burial	Yes	170	Research	national research institute	UK	benthos
Cefas08 - Effects of simulated deposition of dredged material on structure of nematode assemblages - the role of contamination	Yes	204	Research	national research institute	UK	benthos
Cefas09 - Effects of paint-derived tributyltin (TBT) on structure of estuarine nematode assemblages in experimental microcosms	Yes	177	Research	national research institute	UK	benthos
Cefas10 - Effects of physical disturbance on nematodes communities in sand and mud	Yes	1196	Research	national research institute	UK	benthos
CephBase	Yes	272	Literature-based	University	USA	nekton
Characteristic features of the benthic algal vegetation along the Snaefellsnes peninsula	Yes	1487	Research	University	Iceland	macroalgae
Checklist of benthic marine algae and cyanobacteria of northern Portugal	Yes	1756	Monitoring	national research institute	Portugal	macroalgae
Cold water corals	Yes	3365		agency	USA	benthos
Copepoda from the Middelkerke bank (North Sea)	Yes	248	Monitoring	University	Belgium	benthos
Copepoda of the Dutch Continental Shelf, spring 1993	Yes	1522	Monitoring	University	Belgium	benthos
Copepods from a sublittoral sandy station in the North Sea	Yes	438	Research	University	belgium	benthos
Copepods from the Southern Bight of the North Sea	Yes	993	Research	University	Belgium	benthos

CPR1: Continuous Plankton Recorder (Phytoplankton)	Yes	632473	Research	non-profit organisation	UK	plankton
CPR2: Continuous Plankton Recorder (Zooplankton)	Yes	1206382	Research	non-profit organisation	UK	plankton
Cross Sands broadscale survey 1998	Yes	557	Research	national research institute	UK	benthos
Cysts from plankton from the South Adriatic Sea	Yes	146	Research: field survey	University	Italy	plankton
Darwin Mounds	Yes	2858	Research	University	Belgium	benthos
DASSH Data Archive Centre Academic surveys	Yes	62099	Research: field survey	national research institute	UK	mixed
DASSH Data Archive Centre expert sighting records	Yes	781	Research: field survey	national research institute	UK	mixed
DATRAS: ICES Database of trawl surveys	Yes	4703244	Research	agency	international	mixed
Deep-sea Meiobenthos	Yes	1583	Research: field survey	national research institute	The Netherlands	benthos
Discovery Collections Midwater Database	Yes	68000	Research	national research institute	UK	mixed
DOME - biota: ICES contaminants and biological effects	Yes	736839	Data collection	agency	international	mixed
DOME - community: ICES Biological community	Yes	17683	Research: experiment	agency	international	mixed
Eastern Channel dataset	Yes	493	Literature-based	national research institute	France	benthos
European seabirds at sea - JNCC all trips	Yes	1122883	Research	governmental	UK	birds
Experimental effects of TBT on meiobenthic communities	Yes	1739	Research	national research institute	UK	benthos
Fishbase Version 2000	Yes	89817	Research	non-profit organisation	Philippines	fish
Free-living marine nematodes from the Southern Bight of the North Sea	Yes	7521	Research: field survey	University	Belgium	benthos
Free-living nematodes in a brackish tidal flat of the Westerschelde	Yes	742	Research: experiment	University	Belgium	benthos
Free-living nematodes of the Voordelta	Yes	2611	Research: field survey	University	Belgium	benthos
Galathea II, Danish Deep Sea Expedition 1950-52	Yes	1825	Research: field survey	national research institute	Denmark	mixed
HamPelFish	Yes	7138		governmental	Germany	fish
Harbour porpoises, white-beaked dolphins and minke whales in North Sea - Land surveys	Yes	103	Research	national research institute	UK	mammals
Harbour porpoises, white-beaked dolphins and minke whales in North Sea - Vessel Surveys	Yes	71	Research	national research institute	UK	mammals
Harbour seals in Republic of Ireland in August 2003	Yes	435	Literature-based	University	Ireland	mammals
Harpacticoida species and meiofauna major taxa from Hooksiel	Yes	1266	Literature-based	national research institute	Germany	benthos
Heraklion Harbour Meiobenthos	Yes	1012	Museum collection	University	Greece	benthos
Hexacorallians of the world	Yes	5964	Research: field survey	University	USA	benthos
Historical benthic data from the southern Baltic Sea (1839-2001)	Yes	41422	Data collection	national research institute	Germany	benthos
Historical benthos data from the North Sea and Baltic Sea from 1902-1912	Yes	6399	Research	University	Germany	benthos

Historical data on invertebrates from the Baltic Sea and Gdansk Bay	Yes	270	Research	University	Germany	benthos
Historical hyperbenthos data (1987-2001) from the North Sea and some adjacent areas	Yes	35153	Research: field experiment	University	Belgium	benthos
Historical quantitative benthos grab samples from the Southern Baltic Sea - German data	Yes	7547		University	Germany	benthos
Historical quantitative benthos grab samples from the Southern Baltic Sea - Polish data	Yes	8039	Research: field survey	University	Germany	benthos
Historical zooplankton records from the Black Sea	Yes	65418	Monitoring	national research institute	Ukraine	plankton
HMAP: History of marine animal populations database	Yes	100815	Monitoring	non-profit organisation	UK	mixed
Holsatia-expedition 1887 - animals collected with a dredge during the expedition	Yes	64	Monitoring	University	Germany	mixed
IBSS historical data from different cruises	Yes	86192	Data collection	national research institute	Ukraine	mixed
Intertidal rocky shore assemblages in Portugal	Yes	7164	Research: field survey	University	Portugal	mixed
Intertidal rocky shore assemblages near Porto Ercole	Yes	6541	Research: field survey	University	Italy	mixed
IOW Macrozoobenthos monitoring Baltic Sea (1980-2005)	Yes	3589	Monitoring	national research institute	Germany	mixed
Islas Canarias (Proyecto Aegina): juvenile loggerheads	Yes	2197	Research: field survey	non-profit organisation	Spain	reptiles
iziko South African Museum - Shark collection	Yes	162		national research institute	Africa	fish
Kongsfjorden monitoring data - grid - 2006	Yes	949	Research	national research institute	Poland	benthos
Kongsfjorden/Spitsbergen - soft bottom fauna	Yes	210	Research	national research institute		benthos
L4 Plankton Monitoring Programme	Yes	64659	Monitoring	national research institute	UK	plankton
Length and width measurements of nematodes in the Ligurian Sea	Yes	2290	Research	national research institute	The Netherlands	benthos
Length/Width and biomass of nematodes from sandbanks on the Belgian Continental Shelf	Yes	3529	Research	University	Belgium	benthos
Liverpool Bay Nematoda and Copepoda (UK)	Yes	2041	Research	national research institute	UK	benthos
Lowshore macrobenthos assemblages near Porto Santo Stefano	Yes	1013	Research	University	Italy	benthos
Macro- and megafauna from the North Aegean Sea from 1997-1998	Yes	6402	Research: field survey	University	Greece	mixed
Macroalgae of the Tjörnes Peninsula in the North of Iceland	Yes	2540	Research	University	Iceland	macroalgae
Macroalgal communities of intertidal rock pools in Portugal	Yes	2382	Research: field survey	University	Portugal	macroalgae
Macrobel: Long term trends in the macrobenthos of the Belgian Continental Shelf	Yes	21086	Research: field survey	national research institute	Belgium	benthos
Macrobenthos data from the Doggerbank - 2000	Yes	566	Research	national research institute	The Netherlands	benthos
Macrobenthos data from the Norwegian Skagerrak coast	Yes	1918	Research	national research institute	Norway	benthos
Macrobenthos from Copale - Authie	Yes	1073	Research	national research institute	France	benthos

Macrobenthos from English waters between 2000-2002	Yes	3999	Monitoring	national research institute	UK	benthos
Macrobenthos from the eastern English Channel in 1999 and 2001	Yes	24357	Research	private	UK	benthos
Macrobenthos from the Norwegian waters	Yes	14891	Research: field survey	private	Norway	benthos
macrobenthos in the Dutch Sector of the North Sea 1991-2001	Yes	4663	Research	national research institute	The Netherlands	benthos
Macrobenthos samples collected in the Scottish waters in 2001	Yes	4681	Research: field survey	national research institute	Scotland	benthos
Macrozoobenthos data from the southeastern North Sea in 2000	Yes	10283	Research	national research institute	Germany	benthos
Macrozoobenthos from the Belgian Continental Shelf, collected in 2000	Yes	636	Research: field survey	governmental	Belgium	benthos
Malia Nematodes	Yes	488	Research	University	Greece	benthos
MarBEF Publication Series data	Yes	1777	Data collection	non-profit organisation	Belgium	mixed
MAR-ECO 2003 - Arni Fridriksson	Yes	1066	Research: experiment	national research institute	Norway	mixed
MAR-ECO 2004	Yes	9524	Research: field survey	national research institute	Norway	mixed
MAR-ECO 2004 - Mammals and birds	Yes	1164	Research: experiment	national research institute	Norway	mixed
Marine benthic dataset (version 1) commissioned by UKOOA	Yes	203945	Research	governmental	UK	benthos
Marine Benthic Fauna List, Læsø, Denmark	Yes	577	Research: field survey	national research institute	Denmark	benthos
Marine Life Information Network (MarLIN) marine survey data (Professional)	Yes	129635	Monitoring	national research institute	UK	mixed
Marine Life List of Ireland	Yes	6000	Research: field survey	private	Ireland	mixed
Marine Life Survey Data (collected by volunteers) collated by MarLIN	Yes	10046	Monitoring	non-profit organisation	UK	mixed
Marine Nature Conservation Review (MNCR) and associated benthic marine data held and managed by CCW	Yes	13897	Research	governmental	UK	mixed
Marine Nature Conservation Review (MNCR) and associated benthic marine data held and managed by English Nature	Yes	13769	Monitoring	governmental	UK	mixed
Marine Nature Conservation Review (MNCR) and associated benthic marine data held and managed by JNCC	Yes	584476	Research	governmental	UK	mixed
Marine Nature Conservation Review (MNCR) and associated benthic marine data held and managed by Scottish Natural Heritage	Yes	16531	Monitoring	governmental	Scotland	mixed
Marine Turtles	Yes	2288	Monitoring	non-profit organisation	UK	reptiles
MEDITs Seabird surveys 1999 - 2000 - 2002	Yes	1079	Research: field survey	non-profit organisation	Spain	birds
MedOBIS	Yes	34017	Data collection	national research institute	Greece	mixed
Meiobenthic data Manuela	Yes	742	Research	national research institute	Poland	benthos
Meiobenthos and nematodes from the continental shelf of the	Yes	448	Research	University	Belgium	benthos

Laptev Sea						
Meiobenthos at the stations 115, 702, 790 on the Belgian Continental Shelf	Yes	4277	Research	University	Belgium	benthos
Meiobenthos of subtidal sandbanks on the Belgian Continental Shelf	Yes	6491	Research	University	Belgium	benthos
Meiofauna and nematodes from the Atacama Slope and Trench	Yes	425	Research	University	Italy	benthos
Meiofauna from Kongsfjord (Spitsbergen Arctic)	Yes	450	Research	national research institute	Poland	benthos
Meiofauna from Lynher estuary in microcosms with contaminated sediment from the Fal estuary	Yes	111	Research: experiment	national research institute	UK	benthos
Meiofauna from the Firth of Clyde (Scotland)	Yes	1299	Research	national research institute	UK	benthos
Meiofauna of the Gulf of Trieste-Slovenia	Yes	8094	Research	national research institute	Slovenia	benthos
Meiofauna of the Ligurian Sea	Yes	447	Research	University	Italy	benthos
Meiofauna of the North Adriatic Sea	Yes	325	Research	University	Italy	benthos
Meiofauna of the Southern Baltic	Yes	447	Research	national research institute	Poland	benthos
Mesozooplankton - Crustacea from the South Adriatic Sea	Yes	16	Research	University	Italy	plankton
MICROBIS Database (version 1) - European data	Yes	23261	Research: field survey	national research institute	USA	mixed
Microzooplankton - Crustacea from the South Adriatic Sea	Yes	197	Data collection	University	Italy	plankton
Mollusc (marine) data for Great Britain and Ireland	Yes	47599	Research: field survey	non-profit organisation	UK	benthos
N3 data of Kiel bay	Yes	8944	Research: field survey	University	Germany	benthos
NaGISA: Natural geography in shore areas	Yes	5668	Monitoring	national research institute	Italy	mixed
National Institute of Marine Sciences and Technologies - Trawling surveys	Yes	7652	Research: field survey	national research institute	Tunesia	mixed
National Marine Monitoring Programme data set	Yes	1161	Research	national research institute	UK	mixed
National monitoring of macrobenthos in the Kavala Gulf	Yes	764	Research: field survey	national research institute	Greece	benthos
National Museum of Natural History Invertebrate Zoology Collections	Yes	10291	Museum collection	University	USA	mixed
National Museum of Natural History Vertebrate Zoology Fishes Collections	Yes	3040	Museum collection	national research institute	USA	fish
Nematoda and Copepoda from the Fal estuary	Yes	1617	Monitoring	national research institute	UK	benthos
Nematoda from Kenya and Zanzibar	Yes	6627	Research	University	Belgium	benthos
Nematode assemblages from European sandy beaches	Yes	641	Research	University	Belgium	benthos
Nematode data from the Firth of Clyde (Scotland)	Yes	1299	Research	national research institute	UK	benthos
Nematode fauna from the bottom of the Southern North Sea	Yes	853	Research	University	Belgium	benthos
Nematode fauna of the North Sea near the Westerschelde Estuary	Yes	702	Research	University	Belgium	benthos
Nematodes at two abyssal sites in the NE Atlantic	Yes	318	Research	University	Belgium	benthos

Nematodes from Crete sandy beaches	Yes	793	Research	University	Greece	benthos
Nematodes from Italy and Poland	Yes	612	Research	University	Belgium	benthos
Nematodes from Kongsfjord, Svalbard	Yes	817	Research	national research institute	UK	benthos
Nematodes from the Exe Estuary (microcosm experiments)	Yes	792	Research	national research institute	UK	benthos
Nematodes from the Lynher Estuary (microcosm experiments)	Yes	171	Research: experiment	national research institute	UK	benthos
Nematodes from the NSBS	Yes	1057	Research	national research institute	The Netherlands	benthos
Nematodes from the South Sandwich Trench	Yes	333	Research	University	Belgium	benthos
Nematodes from the Weddell Sea	Yes	960	Research: field survey	University	Belgium	benthos
Nematodes of Solbergstrand, Norway (in presence and absence of <i>Brissopsis</i>)	Yes	319	Research	national research institute	UK	benthos
Nematodes of the central Arctic Ocean	Yes	496	Research	University	Belgium	benthos
Nematodes of the Plymouth Sound	Yes	1433	Research: experiment	national research institute	UK	benthos
NeMys	Yes	5863	Research	University	Belgium	mixed
Nivå Bay species list, Sjælland, Denmark	Yes	770	Research	private	Denmark	mixed
NODC World Ocean Database 2001: Plankton Data	Yes	180354	Literature-based	national research institute	USA	plankton
North Sea observations of Crustacea, Polychaeta, Echinodermata, Mollusca and some other groups between 1986 and 2003	Yes	35886	Research: field survey	University	The Netherlands	mixed
NSBS: North Sea Benthos Survey	Yes	16838		national research institute	The Netherlands	benthos
Offshore nematodes from Rame and in microcosm experiment (exposure to metals)	Yes	1572	Research: field survey	private	Norway	benthos
Offshore ref. stations, North/Norwegian sea	Yes	7959	Monitoring	private	Norway	benthos
Offshore ref. stations, Norwegian/Barents Sea	Yes	46377	Research: experiment	private	Norway	benthos
Offshore reference stations (Finnmark)	Yes	9669	Monitoring	private	Norway	benthos
OMEX-1993: Meiofauna from the Goban Spur (OMEX) - 1993	Yes	1082	Monitoring	University	Belgium	benthos
OMEX-1994: Nematodes from the Goban Spur (OMEX) - 1994	Yes	3720	Monitoring	University	Belgium	benthos
Ongoing UK MarLIN Shore Thing timed search results	Yes	441	Research: field survey	national research institute	UK	mixed
Ostracoda	Yes	1169	Literature-based	national research institute	Poland	mixed
PANGAEA-Publishing Network for Geoscientific & Environmental Data (bio-geographic data)	Yes	1562156	Data collection	University	Germany	mixed
Pembrokeshire Marine Species Atlas	Yes	42591	Data collection	non-profit organisation	UK	mixed
Phytoplankton in the Oosterschelde before, during and after the storm-surge barrier (1982-1990)	Yes	12782	Monitoring	national research institute	The Netherlands	plankton
PIROP Northwest Atlantic 1965-1992	Yes	9836	Monitoring	non-profit organisation	Canada	mixed
Plymouth Sound macrofauna	Yes	1343	Research	national research institute	UK	benthos

Polish Arctic Marine Programme	Yes	603	Research	University	Poland	benthos
REPHY: Réseau de Surveillance phytoplanctonique	Yes	285562	Monitoring	governmental	France	plankton
Rocky shore algal data from North Adriatic Sea (Piran) in 2006	Yes	1062	Research: field survey	national research institute	Slovenia	macroalgae
Rocky shore data from the Capraia Marine Protected Area	Yes	1615	Research: field survey	University	Italy	macroalgae
Rocky shore data from the Giannutri Island Marine Protected Area	Yes	4121	Research: field survey	University	Italy	macroalgae
Ross Coral Mapping Project - NBN South West Pilot Project Case Studies	Yes	32	Research: field survey	non-profit organisation	UK	mixed
Russian barnacle geese	Yes	202	Research: field survey	University	The Netherlands	birds
Seabird 2000	Yes	24193	Monitoring	non-profit organisation	UK	birds
Seabird nearshore winter survey in South-West England 1994-95	Yes	1480	Research: field survey	non-profit organisation	UK	birds
Seamounts Online version 2005-1 - European data	Yes	3945		University	USA	mixed
Seasearch Marine Surveys	Yes	159873	Monitoring	non-profit organisation	UK	mixed
Seaweed data for Great Britain and Ireland	Yes	111682	Research: field survey	non-profit organisation	UK	macroalgae
SeSaM	Yes	21469	Museum collection	University	Germany	mixed
Size Indian Nematodes	Yes	493	Research	national research institute	The Netherlands	benthos
Size of Atlantic nematodes	Yes	1020	Research	national research institute	The Netherlands	benthos
SMRU Grey Seal UK 1991-1993	Yes	9454	Research: field survey	University	uk	mammals
SMRU Small Cetacean Abundance in the North Sea (SCANS), 1994	Yes	2376	Research: field survey	University	uk	mammals
Spatial heterogeneity of nematodes on an intertidal flat in the Westerschelde Estuary	Yes	1540	Research	University	Belgium	benthos
SPEEK database: Meiobenthos of subtidal sandbanks on the Belgian Continental Shelf	Yes	8814	Research	University	Belgium	benthos
Study of the meiobenthos from a dumping site in the Southern Bight of the North Sea	Yes	1495	Research	University	Belgium	benthos
Study of young rehabilitated harbour seal in the north of France	Yes	1237	Research: field survey	non-profit organisation	France	mammals
Survey of North Wales and Pembrokeshire Tide Influenced Communities	Yes	6895	Research: field survey	non-profit organisation	UK	mixed
Survey of the benthic algal vegetation of the Berufjördur, southeastern Iceland	Yes	1602	Research: field survey	University	Iceland	macroalgae
Svalbard Tidal Zone data	Yes	1400	Research	national research institute	Poland	benthos
The Baltic Expedition 1901 of the German sea fisheries association	Yes	137	Literature-based	University	Germany	mixed
The meiobenthos of the Southern Bight of the North Sea	Yes	1300	Research: field survey	University	Belgium	benthos

Tidal migration of nematodes on an estuarine tidal flat	Yes	1102	Research	University	Belgium	benthos
TISBE: Taxonomic Information System for the Belgian coastal area	Yes	22150	Research	governmental	Belgium	mixed
TROPHOS/PODO-I work-database I (23/01/2004): Meiobenthos station 115bis - benthic-pelagic coupling	Yes	4016	Research	University	Belgium	benthos
TROPHOS/PODO-I work-database I (23/01/2004): Meiobenthos from station 330 - structural and functional biodiversity on the Belgian Continental Shelf	Yes	2848	Research	University	Belgium	benthos
TWorsfold Cullercoats Bay 2003	Yes	53	Research	private	UK	benthos
UK NHM Stranded Whale Recording Scheme, UK & Eire 1970-1979	Yes	378	Research: field survey	national research institute	UK	mammals
UK Royal Navy Marine Mammal Observations	Yes	113	Research: field survey	governmental	UK	mammals
Volunteer sightings data held by the DASSH Data Archive Centre	Yes	4734	Research: field survey	national research institute	UK	mixed
Whale Watch Azores Bryde's whale 2004	Yes	38	Research: field survey	non-profit organisation	UK	mammals
YoNAH: YoNAH Encounter: The Years of the North Atlantic Humpback Whale	Yes	253		University	USA	mammals
ZMA-Porifera	Yes	3301	Museum collection	University	The Netherlands	benthos
Zooplankton - Crustacea from the Taranto Seas	Yes	109	Research: field survey	University	Italy	plankton
Acoustic survey of herring and blue whiting	No	approx. 1 500	Monitoring	National Research Institute	Ireland	Fish
Atlantic salmon tagging	No		Monitoring	National Research Institute	Ireland	Fish
Black Sea Mnemiopsis leidyi and Beroe ovata database	No	2 500 station, 4 000 samples, 2 taxa	Data collection	National Research Institute	Ukraine	plankton
Black Sea historical phytoplankton database	No	60 562 measurements, 1247 taxa	Data collection	National Research Institute	Ukraine	plankton
Black Sea phytoplankton	No	50 cruises, 1000 stations, 98 000 species entries	Monitoring	National Research Institute	Ukraine	plankton
Celtic Sea cod spawning box	No		Maps/Geographical files	non-profit organisation	Ireland	Fish
CEMP: Co-ordinated environmental monitoring programme	No		Research	Agency	international	Mixed
Cetacean bycatches in the northern Black Sea	No	645 sightings	Research	National Research Institute	Ukraine	Mammals
CetSiBS: Cetacean sightings in the Black Sea, Sea of Azov and Kerch Strait	No		Research: field survey	National Research Institute	Ukraine	Mammals

Channel benthos	No		Monitoring	National Research Institute	UK	benthos
Coastal benthic surveys by SEAS Ltd.	No		Data collection	National Research Institute	UK	benthos
Coastal habitat red book for Georgia	No		Monitoring	governmental	Georgia	Mixed
COMBINE: Cooperative Monitoring in the Baltic marine environment	No		Literature-based	Agency	international	Mixed
Contaminants in the Irish marine environment: biota	No		Monitoring	National Research Institute	Ireland	Mixed
Contaminants in the Irish marine environment: water	No		Monitoring	National Research Institute	Ireland	
Copepod Calanus helgolandicus secondary production in the north Adriatic Sea	No		Monitoring	National Research Institute	Italy	plankton
COPEPOD: Coastal and oceanic plankton ecology, production and observation database	No		Monitoring	Agency	international	Plankton
CSEMP: Clean Seas Environmental Monitoring Programme	No		Research: field survey	Agency	international	Mixed
DAM: Data from the marine environment	No		Monitoring	governmental	Italy	Mixed
Database of the Sevastopol Bay phytoplankton monitoring	No	300 stations, different species		National Research Institute	Ukraine	plankton
Database of the Sevastopol Bay zooplankton monitoring	No	300 stations, different species	Monitoring	National Research Institute	Ukraine	plankton
Diversity and geographic distribution of marine planktonic copepods	No		Monitoring	National Research Institute	France	plankton
Dredge disposal monitoring	No		Literature-based		UK	
DYNAPROC: Dynamics of rapid processes in the water column: an experiment	No		Monitoring			plankton
EARS: Environmental assessment reference stations	No	15 057	Research: field experiment	National Research Institute	UK	benthos
ESD: ICES EcoSystemData	No		Monitoring	Agency	international	Mixed
Ferrybox data by GKSS	No		Monitoring	National Research Institute	Germany	Mixed
Fish community of Arade estuary	No	over 70 000 records, 101 species	Research: field survey	University	Portugal	Fish
Fish community of Arrábida Marine Park	No		Research: field survey	University	Portugal	Fish
Fish community of Guadiana estuary and Castro Marim salt marsh (Portugal)	No	over 10 000 records, 34 species	Research: field survey	University	Portugal	Fish
Fisheries production in Georgia in selected year 1930-1950-1980-1990	No		Research	governmental	Georgia	Fish
Georgian anchovy fishery, fishing capacity (SESAME)	No		Monitoring	University	Georgia	Fish
GMMP: German marine monitoring programme	No		Monitoring	governmental	Germany	Fish

Greencastle codling protected area	No		Maps/Geographical files	National Research Institute	Ireland	Fish
Helgoland Roads Time Series	No		Monitoring	National Research Institute	Germany	Mixed
Helgoland Roads Time Series: nutrients and hydrography	No		Research	National Research Institute	Germany	Mixed
Helgoland Roads Time Series: phytoplankton	No		Monitoring	National Research Institute	Germany	plankton
Helgoland Roads Time Series: zooplankton	No		Monitoring	National Research Institute	Germany	plankton
Historical quantitative benthos grab samples from the Southern Baltic Sea	No	2 250 stations	Data collection	University	Germany	benthos
ICES Fish predator/prey data	No	15,615	Research	Agency	international	Fish
ICES fisheries statistics 1973-2000	No		Data collection	Agency	international	Fish
IGFS: Irish groundfish survey	No	11 227 290	Research	National Research Institute	Ireland	Fish
Intertidal rocky shore fish assemblages in Southern Portugal	No		Data collection	University	Portugal	Fish
Irish anglerfish survey	No		Data collection	National Research Institute	Ireland	Fish
Irish biological survey	No		Research: field survey	National Research Institute	Ireland	Fish
Irish deepwater survey	No		Monitoring	National Research Institute	Ireland	Fish
Irish eel monitoring	No		Monitoring	National Research Institute	Ireland	Fish
Irish HABs phytoplankton	No		Monitoring	National Research Institute	Ireland	plankton
Irish inshore fisheries atlas	No		Monitoring	National Research Institute	Ireland	Fish
Irish Sea benthos	No		Monitoring	National Research Institute	UK	benthos
Irish sea trout monitoring	No	approximately 50 000 measurements	Monitoring	National Research Institute	Ireland	Fish
Lagoon fish of Ria Formosa Lagoon	No		Research: field survey	University	Portugal	Fish
Leatherback sea turtles and their jellyfish prey	No		Research: field survey	University	Ireland	reptiles
Mackerel and horse mackerel egg survey	No			National Research Institute	Ireland	Fish
Macroalgae of the Crimean coastal zone (Black Sea, 1997-2007)	No	over 500 000 records, about 100 species	Research: field survey	National Research Institute	Ukraine	Macroalgae
Macroalgal communities of the intertidal and sublittoral of the Portuguese continental coast	No		Research: field survey	university	Portugal	Macroalgae
MADS - macroalgae on stone reefs	No	approx. 1200	Monitoring	university	Denmark	Macroalgae
MADS - Marine benthic soft-sediment macrozoobenthos	No	approx 7000 records	Research	university	Denmark	benthos
MADS - Marine phytoplankton	No	> 10 000 measurements; >400 taxa	Research	university	Denmark	plankton

MADS - Marine zooplankton	No		Monitoring	university	Denmark	plankton
MADS: The Danish national database for marine data	No	700 sites, circa 1 000 species	Monitoring	university	Denmark	Mixed
MARECHIARA-mesozooplankton long-term time-series (1984-2006) at the fixed coastal station in the Gulf of Naples, Southern Tyrrhenian Sea	No		Monitoring	National Research Institute	Italy	plankton
MARECHIARA-microzooplankton long-term time-series at the fixed coastal station in the Gulf of Naples, Southern Tyrrhenian Sea	No		Monitoring	National Research Institute	Italy	plankton
MARECHIARA-phytoplankton long-term time-series (1984-2006) at the fixed coastal station in the Gulf of Naples, Southern Tyrrhenian Sea	No	609 meas., 351 taxa	Monitoring	National Research Institute	Italy	plankton
Marine Institute CTD	No	700 meas.	Monitoring	National Research Institute	Ireland	Mixed
Marine mammals sightings in Ireland	No	609 meas., 351 taxa	Monitoring	non-profit organisation	Ireland	Mammals
Marine mammals strandings in Ireland	No		Monitoring	non-profit organisation	Ireland	Mammals
MBA/MarLIN-Collated Marine Life Survey Datasets	No	approx 4000 meas.	Monitoring	governmental	UK	Mixed
MC zooplankton - mesozooplankton at the Gulf of Naples	No		Monitoring	National Research Institute	Italy	plankton
Meso-zooplankton of the Campania coasts	No		Monitoring	governmental	Italy	plankton
Monitoring of macrozoobenthos in the Voordelta	No	287,985 rec.	Monitoring	governmental	The Netherlands	benthos
Multidiscipline historical database of the Black Sea (version III)	No		Research: field experiment	National Research Institute	Ukraine	Mixed
National Ferrybox project - continuous sampling by IMWM	No	1398 meas., 54 taxa	Monitoring	National Research Institute	Poland	plankton
National ferrybox project - discrete sampling by IMWM	No		Monitoring	National Research Institute	Poland	plankton
NATO-TU: Historical database of the Black Sea (NATO-TU Black Sea Database) - version I	No	2 400 stations	Data collection		international	Mixed
Nephrops underwater TV survey	No		Research	National Research Institute	Ireland	benthos
North Sea benthos	No		Research	National Research Institute	UK	benthos
Nursery areas in the Irish Exclusive Economic Zone	No	approx. 2000	Monitoring	National Research Institute	Ireland	Fish
Oceanographic campaign NORBAL (North Balearic Front Experiment)	No		Research: field survey	University	Italy	Mixed
Oceanographic campaign NORBAL 4 (North Balearic Front Experiment)	No	shape files	Maps/Geographical files	University	Italy	Mixed
Phytoplankton data collected in the Black Sea during 107 cruise of the R/V "Kovalevskiy"	No	16 stations	Research: field survey	governmental	Ukraine	plankton
Phytoplankton data collected in the Black Sea during 33	No	18 stations	Research: field survey	governmental	Ukraine	plankton

cruise of the R/V "Professor Vodyanitskiy"						
Phytoplankton data collected in the Black Sea during 37 cruise of the R/V "Professor Vodyanitskiy"	No	27 stations, 110 samples, 102 species	Research	governmental	Ukraine	plankton
Phytoplankton data collected in the Black Sea during a cruise of the R/V "Experiment"	No	35 stations, 106 samples, 90 species.	Research	governmental	Ukraine	plankton
Phytoplankton data collected in the Black Sea during the 5th cruise of the R/V "Kiev"	No	26 stations, 85 samples, 78 species	Research	governmental	Ukraine	plankton
Phytoplankton monitoring - station ESTACADE	No	8 stations, 28 samples; 50 species	Research	National Research Institute	France	plankton
Phytoplankton monitoring - station SOMLIT-ASTAN	No	16 stations, 33 samples; 89 species	Research	National Research Institute	France	plankton
Phytoplankton of the Campania coasts	No	192 meas., 2 taxa	Monitoring	governmental	Italy	plankton
Phytoplankton of the northern part of the Black Sea 1992-1993	No	216 meas. about 240 taxa	Monitoring	governmental	Ukraine	plankton
Phytoplankton of the Ukrainian Black Sea shelf (1985-2005)	No	952 meas., 313 taxa	Monitoring	University	Ukraine	plankton
Picophytoplankton monitoring - station ESTACADE	No		Research	National Research Institute	France	plankton
Picophytoplankton monitoring - station 'SOMLIT-ASTAN'	No	about 2000 stations	Research	National Research Institute	France	plankton
Picoplankton (autotrophic and heterotrophic) from the Gulf of Naples	No	288 meas.ts,	Monitoring	National Research Institute	Italy	plankton
Polish Monitoring Programme - Monitoring of the Baltic Sea	No	216 meas.,	Monitoring	National Research Institute	Poland	Mixed
Polish Monitoring Programme - Monitoring of the Baltic Sea: chlorophyll a	No	3120 rec., 4 taxa		National Research Institute	Poland	Chlorophyll
Polish Monitoring Programme - Monitoring of the Baltic Sea: phytobenthos	No		Monitoring	National Research Institute	Poland	benthos
Polish Monitoring Programme - Monitoring of the Baltic Sea: phytoplankton	No		Monitoring	National Research Institute	Poland	plankton
Polish Monitoring Programme - Monitoring of the Baltic Sea: zoobenthos	No		Monitoring	National Research Institute	Poland	benthos
Polish Monitoring Programme - Monitoring of the Baltic Sea: zooplankton	No	15 800 meas. 210 taxa	Monitoring	National Research Institute	Poland	plankton
Polish-Russian Vistula Lagoon Monitoring	No	2450 meas., 40 taxa	Monitoring	National Research Institute	Poland	plankton

PROSOPE: Productivity of oceanic pelagic systems	No	19 600 meas., 48 taxa	Monitoring	National Research Institute	France	plankton
Quadrigé database	No		Monitoring	governmental	France	Mixed
RADIALES - plankton and CTD data from Vigo (Spain)	No	11 138 records	Research: field survey	National Research Institute	Spain	plankton
RADIALES - plankton, CTD and Chlorophyll data from A Coruña (Spain)	No		Monitoring	National Research Institute	Spain	plankton
RADIALES - plankton, CTD and Chlorophyll data from Gijón (Spain)	No	3 stations, 35 606 rec.	Monitoring	National Research Institute	Spain	plankton
RADIALES - plankton, CTD and Chlorophyll data from Cudillero	No		Monitoring	National Research Institute	Spain	plankton
RADIALES - plankton, CTD, chlorophyll and nutrient data from the Balears	No	4 stations, 24 236 rec.	Monitoring	National Research Institute	Spain	plankton
Recent distribution (1996-2004) of selected species of Black Sea importance in Georgia (GIS)	No		Monitoring	governmental	Georgia	Mixed
Research of the bottom communities transformation with respect to the changes in ecological conditions in the Azov Sea	No		Monitoring	National Research Institute	Ukraine	benthos
Research of the bottom communities transformation with respect to the changes in ecological conditions in the Black Sea	No		Literature-based	National Research Institute	Ukraine	benthos
Rocky intertidal surveys 2002-2009 (Scotland)	No	221 meas.	Research	National Research Institute	UK	benthos
Seabirds at South East Crimea	No	3 166 meas.	Research	non-profit organisation	Ukraine	Birds
Seagrasses of the Crimean coastal zone (Black Sea, 1980- 2009)	No	14657 meas., 74 taxa	Research: field survey	National Research Institute	Ukraine	Macroalgae
Sewage sludge disposal	No	2000 rec.	Research: field survey		UK	benthos
SHARK - Chlorophyll (bottle)	No	approx 2000 records	Research	National Research Institute	Sweden	Chlorophyll
SHARK - Chlorophyll (hose)	No		Monitoring	National Research Institute	Sweden	Chlorophyll
SHARK - Grey seals	No	19000 visits.	Monitoring	National Research Institute	Sweden	Mammals
SHARK - Harbour seals	No	3870 meas.	Monitoring	National Research Institute	Sweden	Mammals
SHARK - Marine macrophytes	No	12700 meas. including absence	Monitoring	National Research Institute	Sweden	Macroalgae
SHARK - Marine phytoplankton	No	5800 meas., including absence	Monitoring	National Research Institute	Sweden	plankton
SHARK - Marine soft bottom macrozoobenthos	No	1439 visits. 15000 meas.	Monitoring	National Research Institute	Sweden	benthos
SHARK - Marine zooplankton	No	300 visits.	Monitoring	National Research Institute	Sweden	plankton

		78000 meas.				
SHARK - Ringed seals	No	3130 visits. 200000 meas.	Monitoring	National Research Institute	Sweden	Mammals
SHARK: Marine biological data of Sweden	No	672 visits. 51800 meas.	Monitoring	National Research Institute	Sweden	Mixed
Short-term phytoplankton monitoring - Morlaix estuary - DOURDUFF station	No	7400 visits. 7400 meas., including absence	Monitoring	National Research Institute	France	plankton
SiDiMar: Database on the protection of the marine environment	No	24 meas.	Monitoring	governmental	Italy	Mixed
SKAGEX: The Skagerrak Experiment	No	197 meas., 432 taxa	Monitoring	Agency	international	plankton
Soft bottom benthic communities of 'Pierre Noire'	No	157 meas., 326 taxa		National Research Institute	France	benthos
Soft bottom benthic communities of 'Rivière de Morlaix'	No		Research	National Research Institute	France	benthos
Southern Baltic Continuous Plankton Recorder	No	shapefiles	Maps/Geographical files	National Research Institute	Poland	plankton
Spawning areas in the Irish Exclusive Economic Zone	No		Literature-based	National Research Institute	UK	Fish
Species of Black Sea importance occurring in Georgia	No	7 272 samples	Research	governmental	Georgia	Mixed
State of the ecosystem of the Black Sea	No	340 samples	Monitoring	National Research Institute	Ukraine	plankton
State of the ecosystem of the eastern part of the northwest shelf of the Black Sea	No	14 325 meas.	Research	National Research Institute	Ukraine	benthos
STATLANT: ICES Catch Statistics database	No	179 meas.	Research	Agency	international	Fish
Stock assessment of commercial molluscs in the Black Sea	No	1 442 meas.	Research	National Research Institute	Ukraine	Fish
Stock assessment of fish in the Azov Sea	No	20 308 meas.	Research	National Research Institute	Ukraine	Fish
Stock assessment of fish in the Black Sea	No		Monitoring	National Research Institute	Ukraine	Fish
Stock assessment of fish in the coastal waters of Africa	No		Research: field experiment	National Research Institute	Ukraine	Fish
Threatened coastal habitat types in Georgia (GIS)	No		Research	governmental	Georgia	Mixed
Waterbase - Transitional, coastal and marine waters	No		Data collection	Agency	international	Chlorophyll
West of Scotland deep sea fish surveys	No		Research: field survey	National Research Institute	UK	Fish
West of Scotland zooplankton surveys	No		Research: field survey	National Research Institute	UK	plankton
Young fish surveys 2001-2009 (Scotland)	No	8 694 meas., 54 taxa	Research: field survey	National Research Institute	UK	Fish
Zooplankton in the Ukraine Black Sea shelf (1989-2005)	No		Research	governmental	Ukraine	plankton