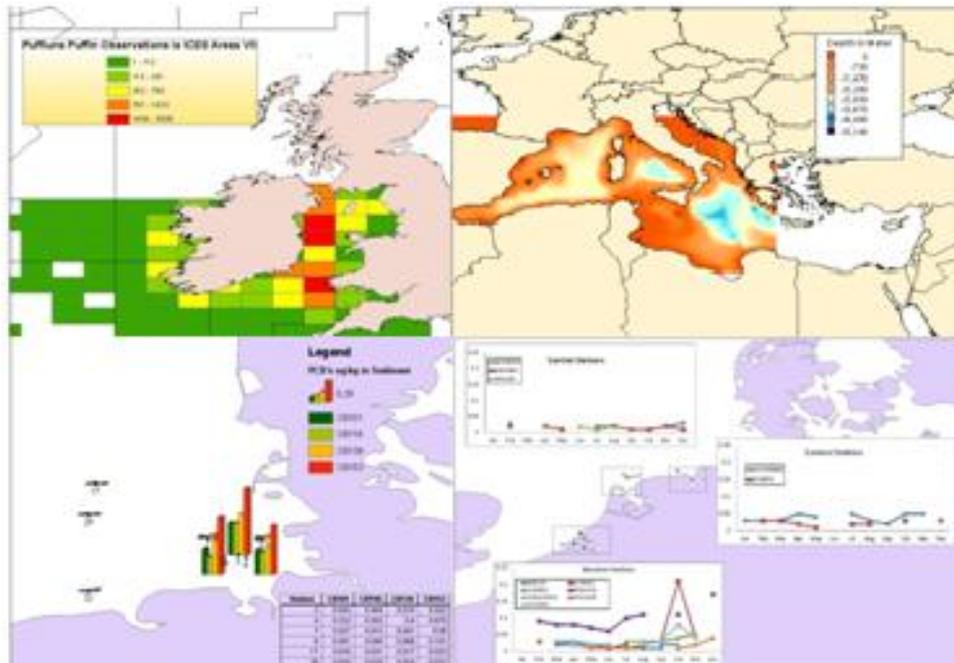European Commission

STUDY ON INTERIM EVALUATION OF EUROPEAN MARINE OBSERVATION AND DATA NETWORK

Executive Summary

by

MRAG

Institute of Maritime Law
University of Southampton

Öko-Institut e.V.
Institut für angewandte Ökologie
Institute for Applied Ecology

NILOS
Netherlands Institute for the Law of the Sea

Lamans s.a.
Management Services

PolEM Sp. z o.o.
Polish Environmental Management

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In order to improve access to marine environmental data, the European Commission has proposed the establishment of a European Marine Observation and Data Network (EMODNET) that will ensure that marine environmental data is compiled in a comprehensive and compatible system, and made accessible as a tool for better governance, expansion of value-added services and sustainable development.

In support of the preparatory actions of the EU's Integrated Maritime Policy a set of projects were launched in 2008 and 2009 with the aim of creating five portals that assembled fragmented and inaccessible marine data into interoperable, contiguous and publicly available data streams for complete maritime basins.

Each of the five portals is concerned with a different aspect of marine environmental data: chemistry, hydrography, biology, geology and physical habitats. Each portal is operated by a different thematic group. The thematic groups have been tasked by the European Commission with gathering relevant marine measurements within at least two sea–basins, and making the data available through a portal enabling public access and viewing of these data.

The aim of this study was to conduct an interim evaluation of the progress the portals had made to fulfill the objective of enabling public access to the marine environmental data of the portals. The evaluation was given three tasks to perform on each of the portals, these were:

- Task One to assess the user-friendliness of the portals;
- Task Two to gauge the re-usability of the data; and
- Task Three to determine how well the portals have overcome the legal obstacles to data sharing identified in the study "Legal Aspects of Marine Environmental Data" (FISH/2006/09).

As Task One required some subjective assessment of the user friendliness of the portals, the study also contacted potential users of each of the portals and asked them to complete a short questionnaire on the portal. The results of these have been included in the study. However, the low level of responses does not allow a quantitative assessment but does provide an additional user perspective.

Task One

All of the portals except the physical habitats portal have an EMODNET-related url and homepage that immediately identifies them as part of EMODNET. The physical habitats portal is under the domain of its host organisation the JNCC. The biology, chemistry, and hydrography homepages have clear navigation to different sections of the portal, where as the geology homepage is just a single page with a link to the OneGeology Europe portal. Once in the OneGeology portal, it is not clear what the relationship to EMODNET is, or even were the EMODNET data is located.

All of the portals were found to be intuitive to use, with all of them apart from the physical habitats providing a searchable catalogues and a GIS interface for retrieving records. However the EMODNET data did not appear to be in the geology catalogue and it also lacked any specific instructions. The GIS interface for the physical habitats portal did display the metadata for the layers being shown. Where difficulties were found with locating data it was often due to problems associated with the metadata. The types of issues included different results being returned on catalogue searches of geographical areas. The chemistry portal had an intuitive method of providing an overview of the data on the portal by showing a matrix of variables against marine regions. The colour of the grid in the matrix gave an indication of the number of records, and clicking on the grid would take the users straight to a search of the catalogue of that variable for that marine region.

The experience of downloading data from the portals varied, the geology and physical habitat maps could be downloaded as complete layers that could be used in GIS applications or Google Earth. The biology data was simple to download, either as complete datasets, or the results of searches on the portal, however some technical difficulties were experienced when trying to download large numbers of records. The chemistry and hydrography portals required users to register with the Request Status Manager to accesses the data sets. The data products on the sites were immediately available after submitting to a point and click licence on the site. The registration system for the Request Status Manager had several steps which took over a day to complete for the chemistry portal before access to data sets was granted. Once access was granted the Request Status Manger worked well and made it easy to keep track of what data sets had been downloaded.

The information of data quality provided on the portals was generally clear for the data products on the portals. The information on data quality for the data sets was sometimes harder to interpret, as the data set may have come from several organisations. Where this was the case providing the guidelines that the site portal used for quality control and assurance was useful, as was done by the hydrology and chemistry portals.

Task Two

Task Two was to gauge the reusability of the data, and this was done by trying to perform predefined tasks. The types of task differed for each portal; an example for the hydrology portal was to download the bathymetry data for a sea basin and plot it a GIS application. For each task a record was kept of the steps required to perform the task using the portal and the data it provided. As each of the tasks were different, it was not possible to make direct comparisons between the portals. However, they are provided here in the order of ease with which it was possible to complete the task.

The Task for the biology portal was simple to achieve, and could be completed using just the functionality of the portal itself. To test the portal further, an additional task was carried out show the presence absence of selected bird species for and area. The portal again made this task simple and it was possible to achieve in a few steps in a GIS application with simple GIS functions.

The Geology portal only had one map of sediments for the North and Celtic sea areas. It was simple to download this map and clip it so it just showed the sediments for the North Sea.

The task for the hydrology portal was to create a bathymetric map of a sea basin. This task was completed using only the EMODNET Gridded Bathymetry data product one of the portal. The files were downloaded for one sea basin and imported into a database application to produce one complete dataset for the sea basin. The data was then imported from the database into a GIS, and, using one of the more advanced futures of the GIS application, a raster layer depicting depth the data was created.

The physical habitats portal uses some of the data products from the other portals for the creation of the modelled seabed habitats that are the principal data product of the site. The maps are downloadable as zip files that contain shape files of the habitat data. The files are easy to open or import into a GIS application. To complete the task a few steps had to be completed, such as projecting the shape file into a suitable map projects, before running a simple analysis function to perform calculations on the data in the files.

The task for the chemistry portal was to create some spatial and time plots of pollutant concentrations in the water column and in sediments. The majority of data on the portal is in data sets at single points, of which there are currently 468,360. The search functions of the portal are advanced and have features that enable searches to be refined and saved that help to indentify suitable record sets. However, it was often only when the data sets were downloaded and opened that their applicability to the task could be gauged. Once suitable data sets had been identified, the processing of the data files was assisted (although not required) by using the Ocean Data View software which itself has good tools for display the data, or it can be exported to spreadsheet or GIS application to display the data.

Task Three

As described in an earlier Study, 'Legal Aspects of Marine Environmental Data', data of the kind contained in the portals are subject to intellectual property rights (IPR). The owners of these IPR, who will often be persons other than the members of the consortia, are basically free to determine whether or not the data may be used or re-used by a third party in accordance wit their own data policies and the contents of contractual licence agreements that these call for. The basic objective of Task Three was to assess how the approach of the portals to the IPR of the owners of the data to which they provide access in terms of the use and re-use of those data.

Analysis of the portals, as well as the telephone interviews with representatives from the consortia responsible for the development of the portals, shows IPR issues have clearly been taken into account in terms of the design and operation of the portals. The precise approach to IPR varies from portal to portal just as the layout of the portals and the mechanisms for accessing to the data does ranging from the rather sophisticated 'shopping cart' systems on the chemistry and hydrography portals, with a prior registration procedure, to simpler 'click licences' on for example the physical habitats portal.

Conclusions

All the portals were generally intuitive to uses and had good instructions, and where help was requested it was always quick and useful. Some of the good additional features that were found when using particular portals included:

- Being able to refine or filter searches (chemistry , hydrography, biology) initial searches and save the searches for later use (chemistry , hydrography);
- Having the data in different formats, and often in text based formats (chemistry, hydrography, biology);
- Being able to filter information according to the restrictions that applied to their use (chemistry, hydrography); and
- Being able to see what previous downloads you had made (chemistry, hydrography).

Some of negative experiences when using the portals included difficulty in finding data (geology). Some portals had problems in downloading data (biology). And with some portals delays were experienced in accessing data while approvals were granted both in the initial registration and in subsequent request for data (chemistry).

Both the usability and reusability of the portal and the data on them are subjective and ultimately dependant on what an individual user's requirements are. However the portals that provided the most extra features, and comprehensive datasets, are those that are likely to most often fulfil the needs of users.

As regards Task Three main the main issues are: (a) the apparent lack of uniformity in the approach of IPR and use/re-use policies of the various portals as "data publishers"; and (b) the apparent lack of clarity on the identity of the licensor. Finally one other issue that the portals will need to address is the collection and processing of personal data of the users.