

MarBEF Data Management

The future of MarBEF's data legacy

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After five years of MarBEF, Europe is now in a position to take the lead in marine biodiversity research. The MarBEF community has built the world's largest databases on macrobenthos, meiobenthos and pelagic marine species. Well over 100 scientists from 54 institutions in 17 countries have contributed not less than 223 datasets to the MarBEF data system. This has resulted in 4.3 million distribution records of 17,000 species in all the European seas and many of the world's oceans. The oldest record dates back to 1768.

Before this, all data was fragmented and scattered over several laboratories where the data was often only available on paper or old electronic carriers, i.e. hidden and at high risk of getting lost. Now all this data has been brought together in a single system, bringing new insights on the ecosystem processes and distribution patterns of life in the oceans.

Aside from the efforts employed towards archival, integration and data description, MarBEF has sponsored almost 150 meetings. This has resulted in new joint research and strong partnerships amongst scientists across Europe. Thanks to these data integration efforts, numerous scientific papers are now being published in international journals.

In addition to the integrated and thematic databases, MarBEF has set up several more data and information systems that constitute important contributions to the major global biodiversity initiatives. The European node of the international Ocean Biogeographic Information System (EurOBIS) is a freely accessible online atlas providing species distribution records. Among the 14 regional OBIS nodes, the European one has the most data (3.6 million records, or 25% of all OBIS data). The European Register of Marine Species (ERMS), funded in 1998-2000 by the EU-FP5, has been revived in MarBEF. More than

31,000 names of European species were stored in a new database, a higher classification was added and taxonomists received online access to update the register. ERMS now serves as a basis for the creation of a World Register of Marine Species (WoRMS). Inaugurated during the Marine Taxonomy Workshop that took place in Oostende last June, WoRMS now has over 120,000 valid species names and is half-way to completion. It will be the first expert-validated register of names of all marine species known to science. Many international biodiversity programmes, a.o. CoML/OBIS, GBIF, EoL, Species2000, ICZN/ZooBank and UNESCO/IOC, need a register of valid names and have agreed to use WoRMS for their purposes.

And there is more!

MarBEF has rescued the results of the BIOMARE project (2000-2002) and currently provides online access to information on 164 European marine biodiversity research sites. MarBEF also joined the Open Archives Initiative, and the MarBEF Open Archive (MOA) now provides online access to more than 300 scientific papers in full text. The MarBEF mobility portal, the Marine Science Job & Candidate Finder, is now a good source for finding jobs and potential employees. More than 300 vacancies and 170 CVs have been posted in the last two years.

The MarBEF website has half a million hits from 14,000 unique visitors every month and has become a well-established portal for communication and information exchange. Among one of the largest sources of information on the current status of marine biodiversity science in Europe is the online Register of Resources (RoR). This index includes details of over 1,000 European marine biology experts and their institutional affiliations, with links to relevant research projects, datasets and publications. MarBEF sends out a weekly news bulletin that assembles news on the activities within and beyond the network and is appreciated by 1,600 subscribers.

Over the past five years, MarBEF has clearly brought together a lot of people, information and data, lifting marine biodiversity science in Europe to a higher level of integration. MarBEF's ship has set full sail and it would be a shame to let it go off course. The EU has been supporting the network for five years and, as it matures, it now needs to go its own way.

At the directors' meeting in Brussels last June, it was decided to house MarBEF and possibly other marine organizations and Networks of Excellence under one federated umbrella, the European Network of Marine Research Institutes and Stations (MARS). In the past, MARS provided a hatchery for several EU projects, a.o. Biomare and MarBEF. So the safeguarding of the MarBEF data legacy in the future will be in the hands of the new MARS. This is a great challenge and responsibility. Without secure, long-term funding, it will not be easy to continue at the same pace, to continuously engage the many experts and to keep the database, web infrastructures and the content of the data systems up to date.

The Flanders Marine Institute (VLIZ) and its oceanographic data centre have led the data integration activities in MarBEF. After the project finishes, VLIZ guarantees that no data will be lost. All the original MarBEF data files have been described, frozen and archived in the Marine Data Archive. Based upon the principles and rules of the MarBEF data policy, the data will not leave the repository without the consent of the data owners.

Data that are generated in MarBEF, with EU funding, will become available without restrictions. This is not necessarily the case for other datasets that are owned by the participating institutes and/or other agencies

that funded the data collection. The data systems will remain connected to MarBEF, and VLIZ will provide basic maintenance.

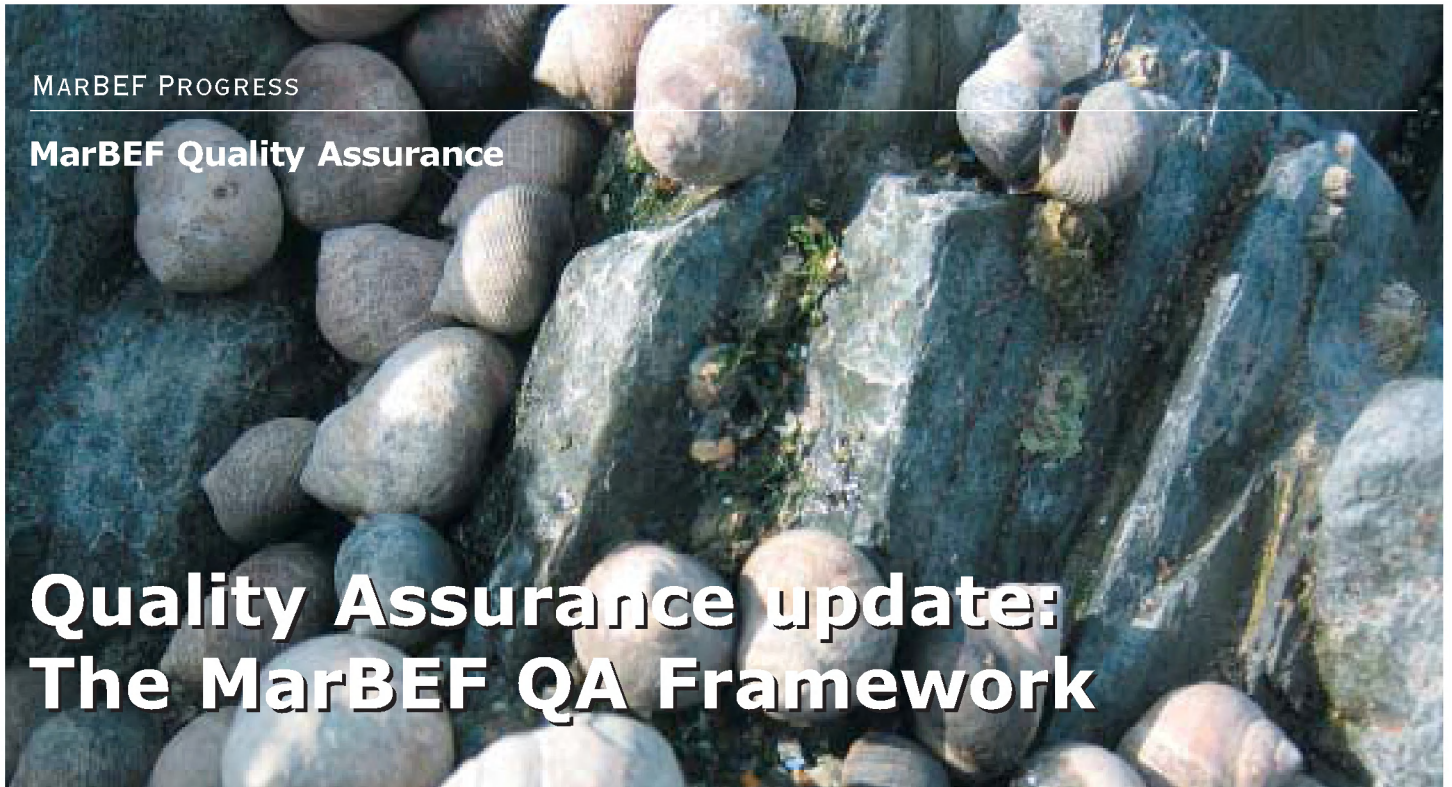
To further develop the systems, new funding opportunities and alliances with other partners will need to be found. VLIZ will also continue hosting EurOBIS and WoRMS, but without extra funding it will not have the manpower for regular updates of, for example, the MarBEF website, the weekly news bulletin, the Open Archive, the mobility portal and the large integrated data systems.

The continuation of MarBEF stands at a crossroads, a defining moment to speed up or

to turn down. The MARS network has survived many storms and we hope it can adopt MarBEF's legacy and organise a new basis for further integrated research.

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By Keith Cooper

We hope you are aware of the MarBEF QA Framework, an early deliverable of the QA workpackage. The framework is designed to encourage common standards of working across the network. The need for such an initiative stems from a recognition that the adoption of Quality Systems and/or internal in-house QA measures across the MarBEF network was likely to be patchy. The framework is intended not to replace but to complement existing Quality Systems. MarBEF participants are encouraged to abide by the QA framework for all MarBEF projects.

The QA framework comprises 12 sections (outlined below). Adhering to the principles contained within the framework should assure the quality of the research.

● **Responsibilities**

Individual project responsibilities should be clearly identified and documented. Individual laboratories are responsible for the quality of work they undertake.

● **Competence**

All personnel associated with the project must be competent to perform the technical, scientific and support tasks required of them. Personnel undergoing training must be supervised at a level such that the quality of the results is not compromised by the inexperience of the researcher.

● **Project planning**

Written project plans should be put in place for all projects. These plans should include details of the tasks to be performed, who is responsible, and timings.

● **Quality control**

Required standards are determined for each stage of a process and Quality Control (QC) measures put in place to check attainment.

● **Health and safety**

All practical science must comply with the relevant health and safety regulatory requirements.

● **Handling of samples and materials**

All samples should be labelled (clearly,