

Newsletter



March & April 2016

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1. From the secretariat

- Christiaan Hummel

Some of you may have already noticed that the MARS website has not been updated for some time now. This is because we are currently working on a brand new MARS website that will soon replace the old one. The new website will bring MARS right up to date with a fresher look and recent news updates.

Also we are working on a database of Marine Research Stations around the globe. This website will also be online soon, and we hope of course that all MARS member stations will enter in this website.

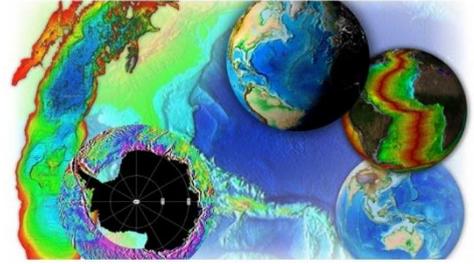
In this newsletter we report on the announcement for the 2016 Global Ocean Science Education Workshop, launch a call for participation in a project of the White Sea Biological Station in Russia, and we present a short history on how the MARS network came to be, written by one of the founding fathers of the MARS network, Anastassios Eleftheriou from Greece.

If you have any content for the upcoming MARS newsletters, suggestions, or comments, please send them to marinestations@gmail.com.

2. 2016 Global Ocean Science Education Workshop

The 2016 GOSE Workshop will focus on the global ocean science education priority topics identified during the 2015 workshop:

- Climate Change - ocean's effect on climate and the effect of climate change on ocean systems
- Fisheries and Biodiversity (including food security)
- Oceans and Human Health (including coastal resiliency)



The workshop will include an effective practices session on marine related citizen science co-led by COSEE and the European Union's Sea Change Project.

The meeting will begin at 1 pm on Monday, 13 June and adjourn at 5 pm on Wednesday, 15 June.

Deadline for registration is 27 May 2016!

All sessions will take place at United Nations Educational, Scientific and Cultural Organization (UNESCO) Headquarters, 7, place de Fontenoy 75352 Paris 07 SP France.

More information can be found on the website: <http://www.coexploration.org/gose/index.html>

3. Call for cooperation in the project "Patterns of genetic polymorphism in Arctic invertebrate species"

A small group of colleagues working at the White Sea Biological Station of Moscow State University -WSBS - Anna Zhadan, Glafira Kolbasova, Tatiana Neretina and Alexander Tzetlin - ask your help in a new project "Patterns of genetic polymorphism of Arctic invertebrate species".



Tzetlin: The most intriguing result we have got until so far is the very low genetic diversity in the populations of species living in the Arctic Basin. To be sure, we need more genes for analysis. We have now sequenced more than 200 species from the White Sea but new additional material for any of them is important to us. So, for this project we need species from different locations, preferably fixed and stored in pure alcohol and stored in the fridge.

That's why we would be most grateful if you could collect some material for us. Of course, we are interested and ready for co-operation. We can also collect some material in the White Sea for you if you are interested.

If you wish to know more about our project, or co-operate with us, do not hesitate to contact us. Also for a full list of the needed species please contact us!

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4. A short history on marine stations and the European Network of Marine Research Institutes and Stations (MARS)

- Anastassios Eleftheriou

Introduction

The last 50 years of the 19th century saw a number of eminent scientists engage in a struggle to advance our knowledge of the natural world, including the unknown territory, the unique inner space of the planet, its oceans. It is noteworthy and even puzzling that most of the incisive observations and detailed accounts about the seas and their environments and inhabitants by the ancient Greek and Roman naturalists and philosophers, all their accumulated knowledge had sunk into oblivion and virtually disappeared from human history for centuries, re-surfacing sporadically but especially in the last 150 years. The subsequent slow but progressive study of the seas by these committed 19th century marine biologists fired public interest to such an extent that the study of marine biology figured high on the list of scientific priorities in many countries, especially in Europe.

Such studies were possible only through dedicated centres, which possessed or could obtain the knowhow and the facilities destined to unravel the secrets of the oceans. It was in 1843 that Pierre Joseph van Beneden founded the first marine station in Ostend. The following half-century saw a dozen marine stations or laboratories established round the coasts of Europe and the eastern coast of the United States. The most prominent of these stations were established in:

- 1859 Concarneau, founded by Prof. V. Coste
- 1867 Arcachon – set up facilities for sea research
- 1871 Roscoff and Naples, Heligoland and Kristineberg (founded by Lacaze-Duthiers and A. Dohrn)
- 1873 Wimereux, Centre for marine studies (A. Giard)
- 1873 Cape Cod, Buzzards Bay, first American laboratory (L. Agassiz)
- 1876 Marseille Research Station
- 1888 Woods Hole Marine Biological Laboratory
- 1888 Plymouth Marine Biological Association.



Although these marine stations were connected in an informal way through exchanges of scientists and ideas, marine research still remained fragmented and uncoordinated for many years in the 20th century. However a crucial change in attitudes began to gain ground, i.e. that the creation of a network of marine stations at the European level would provide the impetus for specific topics to be developed in existing marine stations. The creation of such a network through the personal contacts and enthusiasm of many scientists naturally required a period of gestation before something concrete and effective could emerge. Little by little, the original idea of setting up a cooperative body through informal contacts made by the current Directors of European marine stations began to achieve substance. The first step was to bring together a core group of marine stations, whose representatives constituted an *ad hoc* Steering Group until more formal arrangements were put in place.

A proposal to create a network for marine science stations (MARS) was put forward by the core group of directors, with the addition of another two, and representatives from several European countries. This first Steering Group consisted of: B.Battaglia (Italy), B.Bayne (UK), A.Cruzado (Spain), A.Eleftheriou (Greece), T.Fenchel (Denmark), A.Guille (France), C.Heip (Netherlands), B.Keegan (Ireland), P.Lasserre (France), L.Saldana (Portugal), J.Soyer (France), G.Ulig (Germany) and P. de Wilde (Netherlands).

Thus in June 1989 the concept of a Marine Stations network (MARS) came into being and subsequently a proposal for the creation of a marine network was submitted to the CEC for approval under the EU Marine Science and Technology (MAST) programme.

This was the beginning of what was then an exciting new venture started by a small group with a common vision of a movement capable of reflecting marine research on a pan-European scale, and perhaps attracting as many as 50 marine stations as members. With its objectives framed to provide a forum for resolving problems common to marine laboratories, to disseminate information, to stimulate research, to promote education and training and develop long-term datasets on the variability of marine ecosystems, the MARS network found its place and embarked upon a well-focussed and ultimately influential programme of activities.

The fundamental goal of MARS was and remains: first, to develop and support collaborative research; second, to create exchange programmes for students and researchers; and third, to make large infrastructures available for research purposes.

Over the years of its existence, the aims of the MARS network have indeed been met, many with outstanding success although the seminally important presence of MARS has often remained as an unacknowledged background influence. Surprisingly, these successes have not always been directly attributed to the MARS entity itself, partly at least because the network has been remarkably generous in its financial and professional support of its members. Over the years, MARS has inspired, and been involved in many EU-funded projects which have generated almost 20 million euros in external funding. All of this has gone to its individual marine station members. Nevertheless its low membership fees (initially 500 euro annually) were seen both as a strength (many marine stations able to join) and a weakness, the weakness being that MARS is often short of the funds to support its secretariat, without which it cannot carry out the vital public communication role which it needs to find new funding sources.

It is no surprise that a majority of MARS members wish to retain its current status as an umbrella, or an independent network. And, as MARS officially celebrated its 20th anniversary, it is perhaps instructive to take a look at and ponder over its early history.

Early History

1990-91 were historic years for the embryonic MARS network with the organisation of meetings in Brussels, Paris and Blanes to set out and plan the future agenda which would include two workshops in Blanes and Plymouth and a training course in Roscoff, with topics ranging from long-term datasets, the biogeographic patterns in diversity and molecular approaches to marine microbiology ecology. From these workshops emerged the three thematic areas on which MARS was to focus: the use of marine organisms as models; marine biodiversity; environmental impact assessment. Most importantly however, the theme of biodiversity studied at different levels was given the highest priority and this has been a recurring theme throughout its history.

In order to realise even part of MARS' aspirations and potential, it was essential to find financial support. The European Commission, the obvious funding target, proved hard to convince about the feasibility of a marine science network. As a result many MARS objectives planned for subsequent years never materialised or were seriously delayed.

1992 proved to be a landmark year for MARS: in August came the setting up and recognition of MARS as a legal body, along with MARS' first draft constitution, where membership of the network was offered to all EC and EFTA countries (eligible stations being those defined as seaside laboratories). The funding issue was temporarily solved by the decision that the Secretariat should be funded by each institution.

In the same month, Pierre Lasserre's important discussion paper for the network, entitled "The Way Forward for MARS", presented an Action Plan looking to the future concerning the coordination of

research activities. Without going into the Action Plan in exhaustive detail, it is clear that it was aimed towards areas that would prove of great benefit to marine research in the 21st century, i.e., on those areas and programmes which dealt with long-term datasets concerned with hierarchical description of biodiversity in space and time, physical and anthropogenic measurements; the use of marine organisms as models and indicators, and education and training aspects such as systematics, workshops, and the creation of courses (which would feature in the 1992 Human Capital and Mobility Programme for the training of researchers). To achieve some of these ambitious aims, it would be necessary to draw up a directory of European Marine stations containing information as to stations, reference sites, specialized facilities, mesocosms, etc. At that early stage, however, this activity failed to find the necessary funding and had to be dropped from the agenda. Only a few weeks after the appearance of the Action Plan, in October the reports from the first MARS' workshops in Blanes and Plymouth by Duarte and Heip, formed the background and the basis on which the Action Plan activities could go ahead. Indicative of the speed and enthusiasm with which the network was imbued, only three months after that, at their Paris meeting, the Steering Group was able to announce, not only the establishment of the MARS network of European research stations, which brought many new members into the network, but also the details of MARS' involvement in DIVERSITAS. This ground-breaking Programme, initiated by several international organisations (IUBS, SCOPE and UNESCO) emphasised the importance of the role of networks for surveying and inventorying biodiversity. MARS played a major role in three of DIVERSITAS' priority themes:

- 1) The role of biodiversity in ecosystem functions and sustainability
- 2) The origin, maintenance and loss of biodiversity
- 3) Inventorying and monitoring biodiversity.



The MARS Core group of marine station/institute directors, Paris 1991 (from left to right: G. Bernardi, P. Lasserre, E. Bonsdorff, F. Buchholz, J.P. Feral, C. Heip, S. Hawkins, A. Eleftheriou).

Concomitantly, MARS, with the participation of twelve laboratories, continued its search for external funding through the submission of a proposal to the EU's Environment Programme.

The 1994 MARS Inaugural Meeting welcomed 54 participants (more than the initially projected 50), the MARS Constitution was approved and MARS itself was formally established at UNESCO by its newly-elected President, C. Heip. The meeting was followed by a Workshop concerned with inventorying/monitoring biodiversity, i.e. databases, storage).

Thereafter in 1995 the workload and pace slowed a little, with time taken to formalise administration measures, such as the transformation of the status of the Steering Group to Executive Committee, the

legal incorporation of MARS network as a Foundation based in the Netherlands, the decision to have a bi-annual MARS AGM, and the issuing of the first newsletter (C. Heip, R. Lambeck) with a logo supplied by the youngest member of the marine station network, the Institute of Marine Biology of Crete. A Taskforce was also set up to respond to recommendations from the 1994 PARIS Workshop to coordinate ideas and action with museums and other institutions with an interest in systematics/ taxonomy. A decision which would have a major future impact was to maximise the exchange of information through computer networks which would require compatible systems for data acquisition, storage and retrieval. Even although, at a different level, there was disappointment that MARS remained unsuccessful in its efforts to procure funding from the EU MAST III programme, it continued to be emphasised that MARS was not a lobbying organisation, but a network to facilitate collaborative work. This kind of work continued with MARS' participation late in the year in the MAST Sorrento meeting and in EUROMARKET Days.

1996 was a relatively quiet year, when MARS continued to work with ENAML, publishing a joint operational plan and also submitting another proposal (MARSNET) for a Concerted Action on Marine Biodiversity to DG Research (XII). Unfortunately, the proposal too was not funded which meant financial problems for the network.

In other respects however, 1997 proved to be a crucial year for the development of DIVERSITAS, and the very active involvement of the MARS network led to the adaptation of some of the original MARS objectives regarding methods for studying biodiversity. An inventory of biodiversity research projects in EU and EEA member states (a recommendation deriving from the Plymouth 1991 workshop) now appeared. Significantly, a Concerted Action for a species directory to facilitate marine biodiversity management was funded by MAST III.

At the end of the year, yet another influential initiative emanated from the EMAPS Yerseke workshop on Coast Marine biodiversity in Europe, coming from the discussion on marine biodiversity issues such as molecular, phylogenetic and ecosystem processes. As a result, it was decided to establish a Feasibility Study Group (Heip, Warwick, d'Ozouville) to prepare a European Science Plan which duly arrived in April 1998. This seminal Science Plan was to make a major impact on European biodiversity research.

Meantime, the education and training aspect got well under way in 1998 with practical training courses funded by the TMR Programme and run by J. Feral. The March Banyuls meeting expanded MARS' objectives to include methods for studying biodiversity from gene to ecosystems.

And to maximise the impact of MARS' ever-growing list of activities, the first MARS website came online. Which was perhaps good timing. At the MARS General Assembly held in September at the EMBS meeting in Wilhelmshaven, a key issue was the implementation of the DIVERSITAS link network to the wider research community. The MARS contribution was considerable; the network was responsible for the DIVERSITAS special target area, marine biodiversity, featuring more aspects than before, i.e., ecosystem function, origin and maintenance, systematics and monitoring, conservation and human use.

The next MARS Executive Council meeting, held in Paris in February 1999, with members aware that the 21st century would bring new ideas and challenges, postulated a different approach, for instance, to bring together scientists who use different theories and tools, such as biologists with a population approach. The members were also receptive to an attempt to pool a range of different but highly relevant experience, in areas such as learning tools, familiarisation with relevant legislation, studying relationships between life and environmental services and social sciences. This thoughtful response to potential 21st century challenges was the harbinger of future influential biodiversity funded programmes such as BIOMARE, MARBENA and MARBEF. DIVERSITAS also proposed to contribute, along with UNESCO, ICES, IMBS and SCOPE, to an International Programme on Biodiversity Science.

In April a joint meeting was held in Yerseke with DG XII (Research), the ESF Marine Board and MARS to discuss major problems for implementation of European biodiversity research, resulting in an Action Plan

reported by C.Heip and H.Hummel. This pointed to the implementation of a network of flagship sites as the basis for long-term and large-scale marine biodiversity research in Europe. Responsibility for the long-term support of this programme was to be given to MARS, with MARS and its members to be the backbone of the FP5 Concerted Action Project, BIOMARE.

The 21st century was ushered in with the General Assembly in Venice, where emphasis was laid on the preparation and teaching of courses, molecular ecology (Naples) and ecological modelling (Yerseke). The annual conference of MARS Directors also took place in Venice in October, marking the start of the two-year BIOMARE project and also presenting present and future research in marine stations of Europe. This linked in with the ESF Science Plan for Europe and FP5 & 6 (Establishing a framework for the implementation of marine biodiversity research in Europe). It is worthwhile at this point to reiterate the scope of these aims. They were:

- to create the infrastructure for marine biodiversity research in Europe, by creating a pan-European network of marine scientists; to improve the science by cataloguing the existing expertise and infrastructure, by defining and prioritising the issues at stake; to provide an intellectually attractive environment for young scientists and a discussion forum for all
- to create awareness on the issues at stake and enlarge the visibility of marine biodiversity research in Europe: to communicate with EU policy makers and politicians (presentation of marine biodiversity issues at the European Platform for Biodiversity Research Strategy meetings), liaison with global organisations and programmes, and dissemination of information to the public at large.

These exciting but very ambitious new developments owed much to the unceasing efforts of the MARS network and in 2001 this was reflected in an increase in MARS membership, along with the development of a new website. In the light of the political upheaval in Eastern Europe, in March MARS held a Conference of Experts on the Reconstruction of Scientific Cooperation in SE Europe.

Yet in 2002, in Amsterdam, at the MARS Executive Directors meeting, in spite of the major efforts made by MARS marine station members jointly undertaking two major EU projects, BIOMARE and the new Concerted Action, MARBENA, the latter responsible for extremely successful and involving e-forum discussions, well before webinars took over; and notwithstanding the heavy workload necessary for the soon-to-be-successful MARBEF project (FP6 Network of Excellence); and irrespective the appearance of the long-delayed inventory of marine research institutes thanks to BIOMARE, the lack of a dedicated MARS Secretariat was still hindering the visibility of the MARS network itself.

In 2003 in Barcelona, the MARS Executive Council was able to report that the MARBEF FP6 network of Excellence, coordinated by MARS laboratories Yerseke and Roscoff, covered MARS membership. Nevertheless, yet another application for funding for MARS secretariat support had been turned down, this time by UNESCO. In November, the Amsterdam MARS Conference of Directors restated MARS research priorities as being biodiversity, genomics, models, education and outreach, and perhaps in the light of MARBEF'S successful outreach aspect, added Communicating Science to the list, reminding Directors that it remained important to keep MARS on the political agenda for future role of marine stations in the European Research Area.

The Conference ended with a celebration of Otto Kinne's MARS Medal of Honour, the first to be awarded by MARS.

With the awarding of Otto Kinne's Medal of Honour in 2003, my review of the early history of the MARS network, as one of the marine institute directors involved from the outset, reaches its conclusion.

End Note

The Marine Biological Stations of Europe came into being as a direct reflection of the interest of scientists and citizens alike in the local marine environment and thus became an integral part of their communities. Almost all of them have survived and even prospered, to this very day. They have played an important part in introducing generations of young Europeans to the wonders of the marine environment.

The present MARS network has consistently followed the research priorities which we set out in its original aims and objectives. The network's major achievements should be seen, and appreciated against the following backdrop:

- the increased visibility of marine biodiversity in the EU research agenda and subsequent publications
- MARS members' input into major dataset and observation programmes, such as MEDOBIS, EUROBIS, EMODNET, EMBOS, JERICO
- MARS strong links with young researchers through the EMBS travel and poster awards.