

# Newsletter



November - December 2015

## In this newsletter:

1. EMBS 2016 in Rhodes
2. Merry Christmas and a happy New Year!
3. Horizon 2020 INFRAIA call on Marine Biological Stations
4. MARS Travel Awards for Young Scientists 2016, second announcement
5. MARS Directors meeting 2015 in Sopot and Hel, Poland
6. Report of the 2015 MARS student travel awards
7. Minutes of the MARS Directors meeting 2015

## 1. EMBS 2016 in Rhodes

We are pleased to announce that the 51<sup>st</sup> European Marine Biology Symposium will be held from 26 to 30 September 2016 in Rhodes, Greece.

The major topics will be:

1. Climate change
2. Marine invasions
3. Indicators
4. Transitional waters
5. Open session

Organisers of the symposium are Artemis Nicolaidou (University of Athens) and Sofia Reizopoulou (HCMR)

The website will soon be published, including information on registration for the symposium, abstract submission, hotel reservation, payment and other services.

## 2. Merry Christmas and a happy New Year!

The MARS team wishes all MARS members a merry Christmas, and a healthy, prosperous and successful new year. We hope you will enjoy the time spend with family and friends.



As in previous years, we hope 2016 will be a productive year. Especially in view of the Horizon 2020 call on Marine Biological Stations we hope all MARS members together with our colleagues from other networks will help to maintain and strengthen the important position of Marine Stations in marine sciences and also science at large.

Happy holidays!

Best wishes,  
The MARS President and Secretariat

### 3. Horizon 2020 INFRAIA call on Marine Biological Stations

*By Herman Hummel*

We have informed you in earlier MARS Newsletters on the INFRAIA call on Marine Biological Stations, which has recently, in November, been launched. We aimed for an open and inclusive participation of all European marine stations in this call.

The call on Marine biological stations aims at: “improving and further integrating access to a wide range of marine biology and ecology resources for research, including: marine biodiversity and associated historical time-series data; culture collections of marine biological resources; marine model organisms, including specific genetic resources; up-to-date equipment for biological research (“omics”); and rare and unique facilities for experimental biology and ecology. It should also stimulate knowledge and technology transfer to industry and to public policy-makers. Synergies with relevant ESFRI Infrastructures, in particular EMBRC, should be duly exploited”.

In the last two months MARS and EMBRC representatives have discussed a further outline of a proposal. Since the call is on installing Research Infrastructures the main emphasis is not directed on research, yet on creating open access to facilities, networking, innovation directed towards industry and public at large, harmonisation of methods, virtual access to data, etc.

We recognise however that Marine Stations still operate independently from one another, even today. Therefore, to use Marine Stations enduringly and effectively for science, and to address societal issues, the stations need a strong collaborative ethos through a dedicated network and a strategic business plan. Moreover, sharing best practices, and harmonizing tools and methods, will further enhance multidisciplinary collaboration.

From the side of MARS we have emphasised that the EMBOS action (on a European Marine Biodiversity Observation System) is an example of such a large-scale comparison and integration system by using harmonized tools and methods.

However, we have to acknowledge that the Marine Biological Stations have to be further assembled in a dedicated network in order to strengthen and secure the visibility, use, and longevity of its sites, facilities, and data as well as to secure sustained observations and experimentation on marine ecosystems and its biodiversity. Moreover, the Marine Biological Stations have still to further tailor their activities towards stakeholders, including natural and social scientists, economists, educators, private sector professionals, and the public at large, as only their engagement may lay the basis for the societal commitment on a lasting existence of stations.

As we recognised that not all EMBRC and MARS members can individually enter in such an Infrastructure call we have chosen to let some representative institutes per country enter as full partner into the call, and to let the MARS office represent all other MARS member institutes. This means that officially all MARS members will become associated to the proposal through the MARS office as a liaison. Thereby all MARS members will be eligible for participation in networking and joint research actions, especially focussing on marine biodiversity observation - of course once granted, and to the extent it will become budgetary feasible. In this way it may resemble for most MARS members the extent and conditions of participation in the COST EMBOS action.

This is a promising development for all MARS members, and a perfect closure of the year 2015. We will keep you informed on the developments within this call, which is of eminent importance to the Marine Stations of Europe.

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## 4. MARS Travel Awards for Young Scientists 2016, second announcement

We are proud to announce the MARS travel awards for young scientists. For 2016 two awards of **maximum 750 €** will be granted to promising young scientists or students at MARS member institutions to study a research topic at another MARS member institute. Both institutes must be full members who have paid their membership fee for 2015, or have announced their intention to become a member in 2016.



The research topic should fall into one of the following themes:

- Marine biodiversity, including taxonomy, ecosystem functioning, observatories, indicators
- Marine genomics and molecular biology
- Marine model organisms and natural products
- Climate change problems
- Sustainable ecosystems and human factors
- Preservation and sustainable exploitation of marine ecosystems

After completion of the project an abstract of the results will be published in the MARS Newsletter.

Proposals should include a maximum 2 page outline of the intended research, the addresses of the sending and receiving MARS member institutes, a letter of support from the sending and the host institute, and a CV of the applicant (who may not be older than 35 years).

Proposals can be sent to the MARS Secretariat, at [marinestations@gmail.com](mailto:marinestations@gmail.com).

The deadline for sending proposals is **29 February 2016**

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## 5. MARS Directors meeting 2015 in Sopot and Hel, Poland



This year's annual MARS Directors meeting and WAMS International Assembly meeting was held from the 21st of October till the 23rd of October in Sopot and Hel, nearby Gdansk, Poland. The meeting has been very successful and productive. Discussions were held on important subjects for the future of both MARS and WAMS.

Also, the 20<sup>th</sup> anniversary of MARS was celebrated with a lecture by one of the founding fathers of MARS, Anastassios Eleftheriou.

We would like to thank Jan Marcin Weslawski from IO-PAN, and Iwona Pawliczka of Hel Marine station, for organising the directors meeting in a relaxed setting. We would also like to thank all participants for the interesting lectures and proper discussions.

You can find the minutes of this meeting further on in this newsletter.

## 6. Report of MARS travel award 2015 winner Valentina Pitacco

Valentina Pitacco, from the National Institute of biology (NIB) – Marine Biology Station of Piran, Slovenia, was involved in the project “Taxonomical study of cryptic invertebrates associates with the Mediterranean stony coral (*Cladonia caespitosa*)” under supervision of Prof. Dr. Lovrenc Lipej of NIB, and Dr. Giorgos Chatzigeorgiou, Hellenic Center of Marine Research (HCMR) - Institute of Marine Biology and Genetics. The results of her project are described below.



Models based on Species-Area Relationship (SAR) (e.g. Connor & McCoy, 2001, Ulrich, 2005) have been proposed in conservation biology to estimate species richness and project the expected reduction of species from a region undergoing specified levels of habitat loss (e.g. Veech, 2000; Fattorini, 2007). In the marine realm the taxa that account with the greatest biodiversity are often understudied and poorly known, therefore taxonomical studies are critical for accurate biodiversity estimation and the proper application of SAR models.

This study is a part of a PhD project with the aim of estimating the biodiversity associated with the Mediterranean stony coral (*C. caespitosa*). The role of this species as a bioconstructor is well known (Peirano et al., 1994; Kružić & Benković, 2008) but information on associated macrofauna is still incomplete and rather fragmented. SAR model was applied to estimate the diversity of invertebrates associated with *C. caespitosa* in the Gulf of Trieste (northern Adriatic Sea), where this coral is particularly abundant.

For this study 25 colonies with different size were collected at 5 different sites of the study area. The depth at which *C. caespitosa* was more abundant varied with location, therefore three sampling sites were shallower (5 to 6 m depth) and two deeper (8 m depth). Colonies were measured and then broken apart to sort all macro-invertebrate individuals living inside the coral.

Polychaetes were found to be the most diverse taxon in terms of species richness and species abundance followed by molluscs and crustaceans and this pattern has been confirmed from previous studies as well (e.g. Koukouras et al., 1998; Pitacco et al., 2014). Polychaetes are among the first colonizers of bioconstructions (Sartoretto, 1998), finding a proper habitat among corallites of even small recruits and this is one of the major reasons why this taxon is highly diverse in this type of habitat.

Overall 5827 individuals were found and 83 species of polychaetes were identified, three of them were first records for the Adriatic Sea and another one was a first record for the northern part of Adriatic Sea.

The number of species of polychaetes increased with the size of the colonies ( $r_s = 0.690$ ;  $p < 0.001$ ), according to the power-function model (Arrhenius, 1921) in addition total colony volume was used as descriptor for colony size.

The model of SAR applied to polychaetes showed a pattern similar to the one described in a previous study performed in the Aegean Sea (Arvanitidis & Koukouras, 1994). The number of species increased quickly in small colonies and then reached a plateau for the biggest ones of comparable weight.

This pattern found also in northern Adriatic and Aegean Sea, suggests that the same SAR model could be successfully applied to polychaetes associated with *C. caespitosa* and it can be expanded in other areas of the Mediterranean Sea. Considering the different feeding guilds of polychaetes a common pattern could be found for Adriatic and Aegean Sea. Sessile and tentaculate filter-feeders were the dominant group, followed by motile and discretely motile jawed carnivores, while deposit feeders were markedly less abundant. This pattern was not influenced by sampling sites (KW chi-squared = 1.231,  $p = 0.2671$  for filtrators KW chi-squared = 0.78,  $p = 0.3747$  for carnivores and KW chi-squared = 0.15,  $p = 0.69$  for deposit feeders) or depth (KW chi-squared = 1.2317,  $df = 1$ ,  $p$ -value = 0.2671 for filtrators, KW chi-squared = 0.788,  $df = 1$ ,  $p$ -value = 0.3747 for carnivores, KW chi-squared = 0.151,  $df = 1$ ,  $p$ -value = 0.6976 for deposit feeders).

Nevertheless, out of the 87 taxa of polychaetes found associated to *C. caespitosa* in the Aegean Sea, only 39 co-occurred in all colonies from northern Adriatic. Thus our work raises considerably the number of species found associated with this species.

To conclude the richness of polychaetes seems to be associated with the Mediterranean stony coral thus, should be taken into consideration in conservation plans and SAR models can be a useful tool. Further investigations in other areas of the Mediterranean Sea are needed in order to increase our knowledge on the importance of this coral in terms of species biodiversity.

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## 7. Minutes of the MARS Directors meeting 2015

*Wednesday 21-10-2015*

The meeting was opened by the general director of IO-PAN Janusz Pempkowiak, the local organiser Jan Marcin Weslawski, and MARS President Herman Hummel.

- EMBOS, the European Marine Biological Observatory System

A presentation on the history and actions of EMBOS was given by Christos Arvanitidis.

Christos argues that EMBOS should be continued as being at present the sole large-scale marine coastal observatory network in Europe, and that it would be important to implement EMBOS in the MARS network. Some results on the biodiversity observations were presented showing diverse latitudinal gradients. Alf Norkko comments that it would be good to be careful on the relation of species diversity related to latitude, because also longitude and environmental factors might play a role. Anastassios Eleftheriou added that meiofauna diversity might not have such a similar relation to latitude.

- Changes in the programming of marine sciences in the EC: Marine stations under threat?

Herman Hummel presented an overview on changes in the programming of marine sciences in the EC during the last 2 decades. Nowadays a stronger focus is put on the economical aims of research, not on the research as such. In this way marine stations become an elongation of policymakers. It is not a bad idea to become an elongation of policymakers, but not exclusively. Marine stations have to keep their own expertise in order to be able to deliver new policy relevant research for the future. Thorolf Magnesen explains that in Norway there are 25 stations, which is thought to be too much, and maybe they should be reduced to 5. Yet, in France and Italy there are also many marine stations and this is not considered a problem. These stations are often run by regional governments or universities. In France a lot of applied research is already adopted and this may have helped there are less problems. Although in Italy there is no

problem in the amount of marine stations as such, the situation may be rather fragmented. Matthias Obst argues that for an observation network it would make sense to take the geographical distribution more into account, and not the amount of stations. The main question is what do we have a marine station for; if different subjects are studied at these stations then there may be the need for a range of different stations.

#### - The link between fundamental marine sciences and applied marine biotechnology

Adrianna Ianora showed the link between fundamental and applied marine biotechnology. There is a 100 fold higher chance of finding a marine active compound than finding a terrestrial based active compound. Within the next years there is going to be a rise in marine based pharmaceuticals on the market. One of the main questions posed by Adrianna is how can marine stations contribute to blue growth, while doing fundamental research? Johan Wikner asks why a marine station is important for this research. Answer is that they offer ease of access, and the knowledge on finding the proper species. Marine stations are much less costly than big oceanographic expeditions, and they are already there. All marine stations should have a register of diversity in their areas. Through such an inventory we could make companies aware of the importance of marine stations. Thorolf Magnesen asks if there is no conflict between intellectual property and open access when dealing with (pharmaceutical) industry, since they will not (allow to) publish something, unless there is a patent. What can MARS do to facilitate this kind of science? Industry will only join if they can get funds or clear profits. Europe, by means of Horizon 2020, is forcing SME's and institutions to interact. We should therefore as MARS stations be better known to the outside world, e.g. through advertising the inventories of species present at marine stations.

#### - Ocean Past Platform (OPP)

The Cost Action Ocean Past Platform was introduced by Carlotta Mazzoldi. MARS will try to join this action, for it will be beneficial to also enhance the importance of the World Atlas on Marine Stations coordinated by MARS.

#### - Members and finances

The positive development of the numbers of members and finances of MARS was illustrated by Herman Hummel.

- Discussion on the critical mass and representativeness of marine stations to influence policy and politics  
Climatologists and astronomers can explain why basic physics is needed, biologists have a problem to do this, how come? Partly this can be explained by a lack of an unreachable mystery as the astronomers can use. Partly the problem is in the translation of our research on marine life to ordinary people. We have to find somebody that will advocate for us. We thus should better contribute to society what we as marine biologists can offer. We need to involve more citizens into marine biology. There may be a need for citizen science, but this is also a potential threat (if citizens can do the job, why then to ask scientists). The problem of marine biology may lie in the scale of the picture, if we focus on the European scale it may be more attractive to the public at large.

Moreover, we should speak on the educational level of the politician and public, so they can understand what we are trying to say. We should create a sexy image of marine biology. Also, education is an important feature to put marine biology in people's heads. Educating the public is the same as educating politicians, because the public elects the politicians. It might be a good idea to cause social pressure regularly to get politicians to react. As eight of the present MARS members have an educational department, MARS could make an educational program.

MARS should try to make a movie. Outreach is very important. We should keep stressing that applied research and fundamental science go hand in hand.

#### - Integrating Activities for Advanced Communities

An overview was given of the coming call on Infrastructures. An infrastructure is not a regular research project, it is an object. One of the topics will be "Marine Biological Stations". The MARS member stations could be perfect objects to be in an infrastructure, as they do give access to unique facilities, to long-term observational data sets and to resources from the field. It is agreed upon to write a joint proposal with EMBRC.

*Thursday 22-10-2015*

- Welcome by the general director Natalia Gorska of the Institute of Oceanography of the University of Gdansk, and the Vice Director Iwona Pawliczka of Hel Marine station.

- The success of Hel Marine Station - an example of global dimension.

The success story of Hel Marine Station was outlined by Iwona Pawliczka. Outreach is very important for Marine Stations; public education, school education and professional education, is all done from Hel Marine Station. There are two fulltime persons involved in the education of school children. The success of Hel marine station lies in the connection to the public at large. First the public was engaged, and because of votes the politicians follow. Third step is the stakeholders that follow.

- The importance of the MSFD at national and European level

A presentation was given by Herman Hummel on the importance of the MSFD (Marine Strategy Framework Directive) for marine stations. The descriptors of GES (good environmental status), being an indissoluble part of the MSFD, are pre-described by the EU. The descriptors include an elaborated description of marine biodiversity, which all EC countries are obliged to describe properly. It is a major opportunity for marine stations to respond to the challenges derived from the MSFD. Christos Arvanitidis comments that towards the EU there may be a lobby for an amount of indicators as small as possible, because this is much cheaper. It may be the same indicators as the water framework directive (WFD). The conclusion is drawn that this will not work, since national interests from different countries may interfere and moreover WFD indicators may not be covering the needs for the MSFD. MARS stations may stress the importance of long term series as these are important for basing the descriptors of GES upon.

- A global marine biological observatory network enabled by WAMS

Matthias Obst presented an overview of global marine biological observatory networks. Data should be consistently produced and harmonised. MARS could be a hub for an observatory system. It is important to stop competition between research vessels, buoys and cabled arrays and marine labs. Marine labs should offer the service to buoys and vessels to survive in the future, and maintain their importance.

- Long-term sustained observations

The plenary discussions were initiated with a presentation on long term sustained observations by Herman Hummel. We need long term data in order to facilitate managers and policymakers, and to give advice on e.g. non-native species. There may be a call in Horizon 2020 for worldwide cooperation (Christos Arvanitidis will look into this).

Matt Frost asks about the purpose of WAMS. Herman explains that when all separate continental networks (i.e. JAMBIO, NAML, MARS, etc.) join forces, this would facilitate further harmonisation of tools and methods, would increase our visibility, and thereby our cooperation in scientific research programs. Jan Marcin Weslawski explains about commercial marine stations being a potential threat, because these stations only offer infrastructures and not the knowledge present at a normal marine station. There are

examples of commercial marine stations, that threaten existing marine stations, although commercial activities and fundamental research at marine stations can also go hand by hand.

*Friday 23-10-2015*

- World Atlas on Marine Stations

The progress on the preparations and composition of the World Atlas on Marine Stations was presented by Christiaan Hummel. In the next phase mailings with examples of the booklet will be spread in order to make station directors enthusiastic on filling in the questionnaire.

- Presentation on ARMS

A presentation on ARMS prepared by Mike Thorndyke was given by Matt Frost. Christos Arvanitidis points out that there is a selection on certain species because of the use of PVC, because not all organisms can attach to PVC. Also sequencing leaves out certain species if the species is not in Genbank, and then the classical method of determination is also needed. Matt Frost and Alf Norkko ask who own the data and who analyse the data – is this done by a central lab, and do they have then the IPR? Bernie Degnan explains that for some invertebrates it is not possible or difficult to extract DNA. Also he suggests to use undergraduate students for such a project.

Mike Thorndyke can be the person between ARMS and WAMS. Yet, we should rethink this idea for there seem to be problems with the setup (e.g. the iron sticks for fixation of the ARMS device can be neatly used in coral reefs, yet not on the hard rocky substrates in Europe), if it was to be used by all MARS members. A taskforce was formed to look into how we can solve the problems we have in Europe. The members of this taskforce will be Alf Norkko, Matt Frost, Mike Thorndyke, Christos Arvanitidis, Bernie Degnan, and tentatively Kazuo Inaba. Matt Frost will coordinate the taskforce.

- World Harbour Project

The World Harbour Project was explained by Christos Arvanitidis. MARS might connect, and the MARS stations can provide the reference sites.

- Marine spatial planning

Jan Marcin Weslawski showed the importance of marine spatial planning. Marine stations can deliver important information that can be used for marine spatial planning.

- Closure of the meeting by Herman Hummel

In conclusion, MARS should put more emphasis on communication and on stressing the importance of sustained observations. The board will have to decide on this and to see how to fund the issues discussed during the meeting. MARS will assess further cooperation with EMBRC in the coming Horizon 2020 infrastructure call.

List of participants, MARS-WAMS meeting, Sopot & Hel, Poland; 21-23 October 2015

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The MARS office wishes all MARS members

Merry Christmas  
And  
Happy New Year

