

---

# **MRI E-CONFERENCE**

**Electronic conference on  
'Marine Research Infrastructures (MRI):  
The need for better Information and  
Co-ordination'**

**26-30 April 2004**

**FINAL REPORT**

---

VLIZ Special Publication 18  
2004

## **Conference organization**

### **Chairmen:**

Rudy Herman

Ministry of the Flemish Community  
Science and Innovation Administration  
Boudewijngedouw, Boudewijnlaan 30  
B-1000 Brussel, Belgium

Laurent d'Ozouville

EurOcean  
Avenida Dom Carlos I, 126-2°  
PT-1249-074 Lisboa, Portugal

Jan Mees

Flanders Marine Institute (VLIZ)  
Vismijn Pakhuizen, 45-52  
B-8400 Oostende, Belgium

### **Website and practical organization:**

Edward Vanden Berghe, Francisco Hernandez and Ward Appeltans (Board manager)

Flanders Marine Institute (VLIZ)  
Vismijn, Pakhuizen 45-52  
B-8400 Oostende, Belgium

The topics and issues raised in the electronic conference have been presented to the EUROCEAN2004 meeting held on 10-13 May 2004 in Galway, Ireland under the Irish EU presidency. The input coming from the discussions will also be a valuable input to review the European Strategy on Marine Research Infrastructure at higher political levels. The powerpoint presentation is available at <http://www.vliz.be/projects/mri/summaries.htm>. This volume includes introductions and a final summary of the discussions. All the discussion points raised during the conference can be reviewed by registering onto <http://www.vliz.be/projects/mri>

This publication should be cited as follows:

Herman, R.; Mees, J.; d'Ozouville, L. eds (2004). Electronic conference on 'Marine Research Infrastructures (MRI): The need for better Information and Co-ordination', 26-30 April 2004 - Final Report. VLIZ Special Publication, 18. Flanders Marine Institute (VLIZ): Oostende, Belgium. iii + 20 pp.

Vlaams Instituut voor de Zee (VLIZ)

Flanders Marine Institute  
Vismijn, Pakhuizen 45-52  
B-8400 Oostende, Belgium  
Tel. +32-(0)59-34 21 30  
Fax +32-(0)59-34 21 31  
E-mail: [info@vliz.be](mailto:info@vliz.be)  
<http://www.vliz.be>

The authors and editors are responsible for the contents of this publication. No part of this volume may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photographic or otherwise, without the prior permission of the original copyright owner.

**ELECTRONIC CONFERENCE 'MARINE RESEARCH INFRASTRUCTURES (MRI):  
THE NEED FOR BETTER INFORMATION AND CO-ORDINATION'– FINAL  
REPORT, 26 TO 30 APRIL 2004**

---

**TABLE OF CONTENTS**

General introduction ..... 1

Introduction to theme 1: Bottom up approach – what does the Marine  
Scientific Community expect? ..... 3

Introduction to theme 2: Rationalisation of information: Integration of  
information, data and services..... 5

Introduction to theme 3: What can be expected from new technologies  
and what are their needs for information and data management,  
products and services? ..... 7

Synthesis: open for reaction concerning any of the three themes ..... 9

Final summary of the discussions ..... 10

List of registered participants ..... 14

## **GENERAL INTRODUCTION**

Europe has sizeable marine and coastal resources that are observed, studied and monitored by means of a variety of sophisticated and expensive marine research infrastructures. The optimal use of, and access to these research facilities are a prerequisite to a successful European Research Strategy. The Commission's European Research Area (ERA) initiative is stimulating Member States to join efforts and to contribute also - often in a regional context - to the establishment of a European Marine Research Area, EMRA. This will underpin the networking and help to identify and plan co-ordination for future needs.

The question is: ARE WE ON THE RIGHT TRACK(S)?

The European Strategy Forum for Research Infrastructures, established as high level advisory body to CREST, aims to co-ordinate development and facilitate access to research infrastructures in the ERA concept.

In April 2003 an ad hoc Working Group on Marine Research Infrastructure was appointed by the European Strategy Forum for Research Infrastructure.

The scope of the Strategy Forum is:

- to support a coherent and strategy-led approach to policy making on research infrastructures in Europe;
- to facilitate multilateral initiatives leading to a better use and development of research infrastructures.

The Working Group reported on the 'hot topics' with regard to marine research infrastructure (MRI) that need to be addressed in order to improve the current situation, and thus provide material conditions for the development of the marine science field within the ERA. The EU 6th Framework Programme offers mechanisms that should be used by the marine research community towards the advancement of the marine ERA.

The working group looked into the existing and planned larger marine research infrastructures. What the group couldn't do was to consult the marine scientific community at large on what they feel and expect from a possible common approach for the optimization of the marine infrastructures. Also possible needs in research infrastructures, taking into account the already formulated recommendation from major conferences organised by the commission in the last years (Strasbourg 2000, Hamburg 2000) and the effort made by specific working groups (e.g. ESF/Marine Board).

EurOcean, European Centre for Information on Marine Science and Technology, has officially opened its Internet Portal in March 2003 with a priority given to the compilation of information on marine research infrastructures (go to infrastructures) and the initial focus has been on national research vessels of which the compilation of the specifications is nearly completed. Regarding the information on the other European marine infrastructures, a repertory of existing compiled information is also available. The information collected includes databases, directory of URLs and virtual library."

The introduction of the new funding instruments 'Integrated Project' and 'Network of Excellence' in 6FP is characterised by the stronger networking of highly performing institutes. Several member states adapted their science policy by pooling highly qualified institutes. The restructuring was accompanied by rationalisations of these often well-equipped institutes, and consequently on their infrastructures. Sometimes new possibilities were offered.

The problem is that one has to invest in very large infrastructures, and that these may not always meet the requirements or expectations of the marine science community. To consult this community, an e-conference is an appropriate tool to collect the views out of different stakeholders.

Three topics will be considered:

- Bottom up approach: what does the Marine Scientific Community expects from optimising MRI and perspectives related to new developments (both institutional and infrastructures); Input into the decision making process; improving co-ordination and collaboration, with a view to optimise the use.
- Rationalisation of information. Optimise by integration of information and avoid duplication. Several NoE and ERA-nets have similar work packages. Some of the deliverables need action beyond the competence and possibilities of the single activity. Need for a single platform with is integrating information, data and services. This requires a more complex architecture than an "ocean portal" and this is the challenging task undertaken by EurOcean through its website.
- New technologies: What could be expected from new technologies + their needs for information, data management and products & services?

This e-conference is a VLIZ - AWI co-operation with the collaboration of EurOcean, ESF/Marine Board and IOC/UNESCO.

The web site URL is <http://www.vliz.be/projects/mri/index.htm>. Webmaster and board manager Ward Appeltans from the Flanders Marine Data and Information Centre of the Flanders Marine Institute performed the practical organisation of the e-conference.

The outcome will be reported to the marine science policy conference EurOCEAN 2004 in Galway.

## **INTRODUCTION TO THEME 1: BOTTOM UP APPROACH - WHAT DOES THE MARINE SCIENTIFIC COMMUNITY EXPECT?**

The ad hoc Working Group on Marine Research Infrastructure, appointed by the European Strategy Forum for Research Infrastructure, reported on the 'hot topics' with regard to marine research infrastructure (MRI) that need to be addressed in order to improve the current situation, and thus provide material conditions for the development of the marine science field within the European Research Area (WG-MRI Report, April 2003).

The working group looked into the existing and planned larger marine research infrastructures. What the group couldn't do was to consult the marine scientific community at large on what they feel and expect from a possible common approach for the optimisation of the marine infrastructures.

The group fully endorses the recommendations made by ESF-Marine Board in the milestone contribution 'Integrating Marine Science in Europe' (ESF-MB, 2002).

The working group MRI has forwarded four strategic visions:

- ↳ Research Vessels and associated equipment
- ↳ Marine observing and monitoring networks
- ↳ Marine Data, Computer Centres and laboratories
- ↳ Integrated and interactive information systems

The introduction of the new funding instruments 'Integrated Project' and 'Network of Excellence' in 6FP is characterised by the stronger networking of very performing institutes. Several member states adapted their science policy by pooling highly qualified institutes. The restructuring was accompanied by rationalisations of these often well-equipped institutes, and consequently on their infrastructures. Sometimes new possibilities were offered.

The problem is that one has to invest in very large infrastructures, and that these may not always meet the requirements or expectations of the marine science community. The following question may be considered:

What does the Marine Scientific Community expects from optimising MRI and perspectives related to new developments (both institutional and infrastructures – including the integration of the facilities offered by the new member states)?

What can contribute to the decision-making process, improving co-ordination and collaboration, with a view to optimise the use?

Do we have to reconsider to incorporate the support of research infrastructure back into the thematic programmes?

Important and often overlooked: how to stimulate and better integrate the participation of third countries, especially the developing countries?

Access to infrastructure in the different training modalities - offered in the new instruments and the Human Resource and Mobility programme.

References:

- European Strategy on Marine Research Infrastructure. Report ad hoc WG on MRI (April 2003). Publications of the academy of Finland 6/03. 42pp.
- ESF-MB (2002) Integrating Marine Science in Europe. ESF Marine Board Position Paper 5. 148pp.

There were 25 messages posted on theme 1 :

Message	Date	Posted by
<u>Welcome and introduction to the session 'Bottom up approach'</u>	26 Apr 04	Rudy Herman
<u>My reply contains Rudy's question followed by my answer:</u>	26 Apr 04	Mark Costello
<u>agree and +</u>	26 Apr 04	Gabriel Gorsky
<u>Funding Research Infrastructures</u>	27 Apr 04	Rudy Herman
<u>Bottom-up to influence top-down</u>	26 Apr 04	Keith Hiscock
<u>Bottom-up to influence top-down</u>	27 Apr 04	Rudy Herman
<u>MRI with real on-line data bases</u>	27 Apr 04	Igor S. Smirnov
<u>Or top down?</u>	26 Apr 04	Raymond Schorno
<u>Top down or bottom up</u>	26 Apr 04	Luca Ancel van Duren
<u>European flag ships</u>	26 Apr 04	Nieuwejaar Per Wilhelm
<u>BONUS ERA-NET Project with common use of marine research inf</u>	29 Apr 04	Johanna Argillander
<u>OR TOP DOWN (BIS)</u>	27 Apr 04	Rudy Herman
<u>What is more important in scientific research than Human Res</u>	26 Apr 04	Dulce Subida
<u>Researcher Careers + Auto-sustainable research systems</u>	27 Apr 04	Rudy Herman
<u>What about pure "research companies"?</u>	27 Apr 04	Dulce Subida
<u>Research or development</u>	28 Apr 04	Nick Morley
<u>Research for Development</u>	28 Apr 04	Dulce Subida
<u>Small Research vessels</u>	27 Apr 04	Ahto Jrvik
<u>small research vessels</u>	28 Apr 04	Andre Cattrijsse
<u>Coastal Research vessels</u>	29 Apr 04	Laurent d'Ozouville
<u>Some musings</u>	27 Apr 04	Nick Morley
<u>The role of Marine field research stations</u>	27 Apr 04	Lars Golmen
<u>Coastal v Deep ocean + a thought about budgets</u>	27 Apr 04	Nick Morley
<u>The role of research infrastructures in Education</u>	29 Apr 04	Marta Rufino
<u>Educational outreach in Arctic coring, ACEX</u>	29 Apr 04	Dan Evans

## **INTRODUCTION TO THEME 2: RATIONALISATION OF INFORMATION: INTEGRATION OF INFORMATION, DATA AND SERVICES**

The introduction of the new funding instruments 'Integrated Project' (IP) and 'Network of Excellence' (NoE) in 6FP has been a challenge for many large institutes. The fact that these new instruments all include coordination and information tasks, engaging research teams and often the institutes to a closer co-operation.

Moreover, the successful introduction of the ERA-net scheme foster this co-operation at the institutional level, stimulating by preference the funding agencies of the member states to join efforts in well defined research areas.

Several NoE and ERA-nets have nearly similar work packages. This put into question how to optimise by integration of information and avoid duplication. Some of the deliverables need action beyond the competence and possibilities of the single activity. This is in particular true for the ERA-nets. Often the required adaptation of regulations and measurements are out of the competence of the Science policy departments, but needs negotiation between other departments (e.g. Finances, Jurisdiction and Law, Social affairs,...)

Need for a single platform, which is integrating information, data and services is therefore a very high priority. This requires a more complex architecture than a simple directory of useful URLs. Continuity in providing information is also essential and can't be limited to the duration of an EC contract.

Facilitating the access to information in marine research is a requisite to any initiatives aiming to structure the coordination and the cooperation of marine research infrastructure in Europe. This goal could be fulfilled through an electronic focal point or Internet portal, which should facilitate the creation, circulation and maintenance of information for the scientific community, the operators and the decision makers. This should also facilitate exchange of information with the industry and small and medium enterprises.

The information should be tailored according to the requirements of the end-users and the appropriate tools such as search engines, automatic mailings, forum, news, should be made available for a friendly and efficient use.

Good co-ordination only will persist when based on accurate and complete information. This will be a challenge to work this out for the marine research infrastructure. What is available where, when, and how to get access.

Does the new CORDIS 'Infrastructures Service' really meet the needs of the marine science and technology community?

Or is the present architecture and content of the EurOcean webpage dedicated to marine infrastructure more appropriate? (go to [http://ioc.unesco.org/eurocean/categories.php?category\\_no=12](http://ioc.unesco.org/eurocean/categories.php?category_no=12))

There were nine messages posted on theme 2:

Message	Date	Posted by
<u>Welcome and introduction to the session 'Rationalisation of</u>	27 Apr 04	Rudy Herman
<u>A single platform would be wonderful</u>	27 Apr 04	Raymond Schorno
<u>Communication for no- overlapping</u>	27 Apr 04	MICHELE BARBIER
<u>reaction from Catherine Maillard</u>	27 Apr 04	Catherine MAILLARD
<u>DATA CENTRES: BUILDING FURTHER ON SUCCESSFUL INITIATIVES</u>	27 Apr 04	Rudy Herman
<u>Data and information</u>	27 Apr 04	Laurent d'Ozouville
<u>BONUS Project and website</u>	29 Apr 04	Johanna Argillander
<u>Not only share information but also share knowledge and expe</u>	29 Apr 04	Job Dronkers
<u>Johannes Post; HYDROMOD; Germany</u>	29 Apr 04	Johannes Post

### **INTRODUCTION TO THEME 3: WHAT CAN BE EXPECTED FROM NEW TECHNOLOGIES AND WHAT ARE THEIR NEEDS FOR INFORMATION AND DATA MANAGEMENT, PRODUCTS AND SERVICES?**

The provision of top class research infrastructure is condition sine qua non to maintain top-level research. Regarding the diversity in Europe one has to strive for a balance between local/sub-regional pooling of infrastructure and international networking and pooling at a EU or even a global level. This is true for the classic suite of marine infrastructures (research vessels, submersibles, coastal and marine observatories, databases etc...).

New emerging technologies like biotechnology or nanotechnology may need a different nature of infrastructure approach in international networking and using different research infrastructures.

HAP (= High Altitude Platforms = small airplanes), which may contain different payloads, according to the research or survey needs, is an important new development in Earth observation. (They also can be operated from a mobile ground or ship-based stations).

Next to this we have the high potential communication technologies to create e.g. virtual labs and interactive information and communication centres at different scales (local, regional, EU).

Other new technologies to improve the marine research fabric are linked to e.g.:

- Development of new sensors (Biological & Chemical)
- Standardisation and calibration (by preference beyond EU borders)
- Cost effectiveness (= LT-component & high spatial dimension)

New forms of co-operation with industrial partners are hereby a major concern.

As a last point: How to improve our ability how to be aware of and access new technology which is developed in other domains than marine science and which could be of great interest for marine scientists.

There were 11 messages posted on theme 3

Message	Date	Posted by
<u>Welcome and introduction to the session 'New technologies'</u>	28 Apr 04	Rudy Herman
<u>long-term monitoring of deep-seafloor environments call for</u>	28 Apr 04	Mathilde Cannat
<u>Europe and Mission specific Platforms for IODP</u>	28 Apr 04	Dan Evans
<u>EU long term financial commitments</u>	28 Apr 04	Laurent d'Ozouville
<u>Oceanography from space</u>	29 Apr 04	Dera Jerzy
<u>Science progress rate limited by lack of human taxonomic exp</u>	28 Apr 04	Phil Culverhouse
<u>Long term and underlying studies</u>	28 Apr 04	Nick Morley
<u>new ways to do sampling</u>	29 Apr 04	Viktoras Didziulis
<u>Visual recognition of biological specimens</u>	29 Apr 04	Phil Culverhouse
<u>long term deep seafloor observatories</u>	30 Apr 04	Jacques LEGRAND
<u>Installation of observatories</u>	30 Apr 04	Dan Evans

**SYNTHESIS: OPEN FOR REACTION CONCERNING ANY OF THE THREE THEMES**

Last topic 'Synthesis' received 12 contributions:

Message	Date	Posted by
<a href="#"><u>Some preliminary facts and statistics on the MRI E-conferenc</u></a>	29 Apr 04	Rudy Herman
<a href="#"><u>Some remarkable quotes, we invite you to react to:</u></a>	29 Apr 04	Rudy Herman
<a href="#"><u>Response to Igor Smirnov's comment</u></a>	29 Apr 04	Bob Williams
<a href="#"><u>Results from previous EU support to MRI</u></a>	29 Apr 04	Clelia Booman
<a href="#"><u>Marine vs. oceanographic</u></a>	29 Apr 04	Clelia Booman
<a href="#"><u>Why vs?</u></a>	29 Apr 04	Nick Morley
<a href="#"><u>Application of marine infrastructure to policy development</u></a>	30 Apr 04	Stephen Atkins
<a href="#"><u>marine biology vs biological oceanography</u></a>	30 Apr 04	Ferdinando Boero
<a href="#"><u>Marine xxist ; xxxal Oceanographer</u></a>	01 May 04	Nick Morley
<a href="#"><u>Useless fight</u></a>	02 May 04	Ferdinando Boero
<a href="#"><u>useless fight some more</u></a>	02 May 04	Ferdinando Boero
<a href="#"><u>Communication between the various actors of the marine domai</u></a>	30 Apr 04	Laurent d'Ozouville

## **FINAL SUMMARY OF THE DISCUSSIONS**

Although the E-conference on 'Marine Research Infrastructures (MRI): The need for better Information and Co-ordination' was open for only one week, we had 189 registered participants (from 35 different countries, 21 of which are EU Member States). There were 57 contributions to the discussions. It was encouraging to see that several contributions came from researchers not directly involved in the MRI decision-making processes. As for ourselves, we learned something from this electronic conference and we hope that all of you - contributors and non-contributors - enjoyed the same feeling.

The discussions on the first day were focused on what the European Marine Scientific Community expects from optimising MRI and on perspectives related to new developments (both institutional developments and new infrastructures – including the integration of the facilities offered by the new member states).

Keith Hiscock stated: 'Get the bottom-up right and good top-down will follow'. In my opinion this is very valid. Several contributors (also from other sessions) underlined the importance of the willingness to co-operate within the scientific community, both at regional and pan-European scales. Information and networking are important: knowing and involving the key players who can contribute their experience and knowledge to the development of infrastructures makes that it will work and become a de facto standard.

The scientific community recognizes that the new instruments within FP6, such as 'Networks of Excellence' and ERA-NETs, will play an essential role in developing infrastructures and infrastructure standards.

The funding of these new developments may come from pooling existing nationally funded infrastructures to obtain a minimal critical mass - also at an operational scale - and the joining of funds from Member states and the EU for new infrastructures and their operation and use, including education and training. When there is enough political will to bring together these different financial resources, an improved planning of the development and use of MRI at mid- to long-term scales could be secured. Criteria for continued funding could include usage statistics and research outputs (a.o. graduate training, databases, publications).

There was no elaboration on how to integrate the participation of third countries, especially the developing countries. Europe committed itself to be active in supporting sustainable development. For MRI, the Commission needs to work out specific measures to increase participation and to support the sharing of MRI when partners from third countries participate in projects.

Some contributors argued that private companies and organisations that have viable product(s) should not rely on funding from the European Research budgets. Other funds are available for commercial development (unless they really contribute to research).

Special attention was given to small research vessels (RV's). These are generally considered to be very important and specific infrastructure facilities in marine science. The larger ocean going RV's are subject to different collaboration schemes between

several member states. The further development of the equipping of those vessels is part of the EU business. The role and the importance of coastal research vessels in Europe is not very visible, although their number is 90+, representing 45% of the research fleet in Europe. The need for co-operation between smaller coastal research vessels is maybe as high as that for large ocean going ships. As Per Nieuwejaar explained, it is an issue of decision making rather than infrastructure. A system - preferably adapted for the regional scale - that allows for "exchange" of ship time between countries would increase mobility, co-operation and the use of facilities.

The suggestion to standardise the coastal sea RV's facilities as one of the objects of EU marine research development plans was well received. An initial step towards the standardisation of these coastal RV's and the exchange of ship time is to have an inventory of the European RV's and of their specifications, to identify how and where they operate. Standardisation of RV's would be beneficial for scientists but necessitates a clear unambiguous definition of what the standards include. At least, research and other data generated using small RV's should be comparable.

Another important issue is the use of coastal stations as bases for long term observing and monitoring activities and networking in Europe. These stations are very cost effective in carrying out specific types of research, and they constitute a perfect basis for establishing links with local stakeholders and for public awareness building. The latter aspect is very important, since communicating science to the public at large and to the classrooms becomes a challenging task. MRI can play an important role in making this communication more attractive, being a focal point where new technologies, research, education and information interact, by preference in a participative approach.

The topic of the second day of the conference was 'Rationalisation of information: Integration of information, data and services'. Discussions revealed the need for a single platform. This requires a more complex architecture than an 'ocean portal' alone.

The new funding instruments 'Integrated Project' (IP), 'Network of Excellence' (NoE) and ERA-NET partly meet this requirement. Internet tools are very attractive, when used correctly to meet the needs. But even more important is to bring the people together. Several NoE's and ERA-NETs have highly similar work-packages. There is a need to avoid duplication and to optimise efforts by integration of information. Some of the deliverables need actions beyond the competence and possibilities of the single activity. This is particularly true for the ERA-NETs.

It is important to make a distinction between marine (or oceanographic) data centres and marine (or oceanographic) information centres.

The efforts that have been undertaken for a long time at national, European and international levels for the implementation of oceanographic data centres and the organisation of data exchange have to be acknowledged.

The management of information has not been recognised as a priority until quite recently. Access to information on marine science and technology in Europe,

particularly in the domains related to marine infrastructures and national programmes, should be facilitated. At this moment access to this information – when it exists - is difficult and dispersed. Standards are also missing to compare and to compile information related to the same topics but having different sources. These are some of the very reasons to create a single focal point for information on marine science and technology.

Next to a better management of information, a similar effort should be envisaged to share knowledge and experience.

The central question of theme 3 was ‘What can be expected from new technologies and what are their needs for information and data management, products and services?’

One emerging new way to do science in the deep seafloor is to install long-term observatories equipped with multidisciplinary arrays of sensors. New sensors adapted to long-term deployment on the seafloor will have to be developed. These will furthermore have to be maintained on a regular basis. This calls for a programme of planning cruises and the use of large marine facilities.

Next to this, there is a constant demand from marine scientists for scientific ocean drilling. ECORD is the European answer to this, offering the provision of Mission Specific Platforms to IODP.

A lot of attention was given to taxonomy-related issues, such as the lack of human resources (taxonomic expertise) and the need to apply the latest techniques for imaging and species categorisation to improve automatic species identifications. Automation is clearly an issue for existing marine science, especially for physical oceanographers. Analysis of taxonomical data will have to be automated, although visual identification is a very difficult and complex task. People are incredibly good at visual identification, but unfortunately marine scientists do not like technology that appears to replace their expertise.

During the last day, the conference saw an interesting discussion between marine biologists (mostly linked to coastal stations) and biological oceanographers (operating from vessels). Their MRI-needs are different and their languages are not fully compatible. But both communities study the same system and they are complementary. Despite some perceived differences, we all may learn from each other.

Categorical questions brought forward by Stephen Atkins (Irish Sea Project) are related to application of marine infrastructure to policy development and still need an answer.

What enhanced role should marine infrastructure play in the provision of the data and information required for high quality policy development?

How do we increase the links between the operators of infrastructure and those developing the policy so that the data collected is more relevant to policy needs?

How do we increase the efficiency of the system so that we make the most cost effective use of the infrastructure, avoiding gaps and duplication?

We may find part of the answers as the outcome from the activities within the NoE and ERA-NETs. In addition to this, information technology and management is the appropriate approach to weave the links between the operators of the infrastructures and those developing the policy.

The information on all the existing marine infrastructures in Europe should be made available on the WWW. This is presently not the case. Such information must include, amongst others, inventories of all infrastructures, technical specifications, operating conditions and administrative rules. Furthermore, the information has to be tailored according to the end users, be it decision makers, operators or scientists. Efforts towards this goal are presently engaged by various actors in Europe.

We need a European focal point for information, where end-users have easy access to coherent, reliable and updated information.

### **Some findings and recommendations:**

- The ANSWER to the initial question from the general introduction: Yes, we are on the right track.
- The new funding instruments are very suitable to meet MRI requirements, since all of them are based on an integrating approach. They can play a key role in the design, standardization and development of new MRI.
- Small research vessels are very important and specific infrastructure facilities in marine science. They could be operated by preference at a regional scale. Criteria to meet a number of standards need to be developed at a pan-EU scale.
- Coastal research stations can and should be reevaluated.
- Issues related to long term monitoring (for coastal as well as for the deep ocean) should be dealt with: requirements for new technology, installation, maintenance, long term financing, data management and exchange.
- Integration of MRI in the communication strategy towards education and the public at large is recommended.
- Human resources are part of the marine 'infrastructures'. Attracting young scientists in marine science is essential.
- Better management of information is required for: 1) sharing knowledge and experience efficiently; 2) developing scientific dialog across countries and continents.
- Integration of information, data and services revealed the need for a single platform, overarching the initiatives within the new instruments.

## LIST OF REGISTERED PARTICIPANTS

<b>Surname</b>	<b>Firstname</b>	<b>Institute</b>	<b>Country</b>
Afonso	Joaquim	FCT - UNL	Portugal
Alcaraz	Miquel	Institut de Ciències del Mar, CSIC. Dep. Marine Biology and Oceanography	Spain
Alexandri	Matina	Hellenic Centre for Marine Research	Greece
Al-Suwailem	Abdulaziz	Marine Studies Section, Research Institute	Saudi Arabia
Andersen	Ole Gorm Norden	Luscus Nature Watch	Denmark
Angel	Dror	MIT	USA
Angélico	Maria	IPIMAR/DAA	Portugal
Angelo	Fontana	Istituto di Chimica Biomolecolare	Italy
Antonio	Tovar-Sanchez	IMEDEA	Spain
Appeltans	Ward	Flanders Marine Institute	Belgium
Aranda da Silva	Ana	Southampton Oceanography Centre	UK
Argillander	Johanna	Academy of Finland	Finland
Arianna	Bucci	ICM-CSIS (E)	Spain
Atkins	Stephen	Joint Nature Conservation Committee, UK	UK
Banks	Andy	Institute of Oceanography, Hellenic Centre for Marine Research (HCMR - Crete)	Greece
Barbier	Michele	CNRS, Marine Genomics Europe NoE	France
Beran	Alfred	Laboratorio di Biologia Marina. Trieste	Italy
Berglund	Johnny	Ecology and Environmental Sciences / UMF	Sweden
Berlinsky	Nikolai	Odessa Branch Institute of Biology of Southern Seas National Academy of Sciences of Ukraine	Ukraine
Bialas	Joerg	IFM-GEOMAR, Geodynamics	Germany
Boero	Ferdinando	DiSTeBA, University of Lecce	Italy
Bolger	Thomas	Dept. of Zoology, University College Dublin	Ireland
Booman	Clelia	University of Bergen, Dept. of Biology	Norway
Bruemmer	Franz	Biology Institute Dept. Zoology University of Stuttgart	Germany
Caetano	Miguel	IPIMAR/Department of Biogeochemistry and Environmental Impact	Portugal
Callaway	Ruth	University of Wales Swansea	United Kingdom
Campos	Aida	INIAP/IPIMAR	Portugal
Cannat	Mathilde	LGM IPGP	France
Cattrijsse	Andre	Flanders Marine Institute	Belgium
Cederwall	Hans	Dept of Systems Ecology	Sweden

<b>Surname</b>	<b>Firstname</b>	<b>Institute</b>	<b>Country</b>
Charles P. Quartley	Charles	Valeport Limited	UK
Cieslikiewicz	Witold	European Commission, Directorate-General Research	Belgium
Claudio	Lardicci	Dipartimento di scienze dell'Uomo e dell'Ambiente	Italy
Claus	Simon	Flanders Marine Institute	Belgium
Colangelo	Marina A.	Centro Interdipartimentale Ricerca Scienze Ambientali, Ravenna	Italy
Colosimo	Alfredo	Dept. of Human Physiology and Pharmacology	Italy
Costantini	federica	Univ. of Bologna/Scienze Ambientali	Italy
Costello	Mark	Leigh Marine Laboratory	New Zealand
Cox	David	Belgian Science Policy	Belgium
Culverhouse	Phil	Univ. of Plymouth, Centre for intelligent systems, DCEE	UK
Cunha	Maria Emília	IPIMAR, Department of Aquatic Environment	Portugal
Cuvelier	Daphne	Flanders Marine Institute - VLIZ	Belgium
Czechowski	Franciszek	Institute of Organic Chemistry, Biochemistry and Biotechnology	Poland
Da Ros	Luisa	Institute of Marine Science	Italy
Dagys	Mindaugas	Institute of Ecology of Vilnius University	Lithuania
Dahlgren	Thomas	Tjärnö marinbiologiska laboratorium, Marine Ecology	Sweden
Dassenakis	Manos	University of Athens/Department of Chemistry	Greece
De Innocentiis	Sabina	ICRAM	Italy
Debono	Sarah	Malta Environment and Planning Authority	Malta
Degnbol	Poul	Institute for Fisheries Management	Denmark
Dehghani	Ali	Institute of Geophysics, university of Hamburg	Germany
Devine	Jennifer	Memorial University	Canada
Didziulis	Viktoras	independent researcher (freelance)	Lithuania
Dikou	Angela	University of the Aegean	Greece
Dobbelaere	Ingrid	Flanders Marine Institute	Belgium
dos Santos	Antonina	IPIMAR	Portugal
d'Ozouville	Laurent	EurOcean	Portugal
Dr Andy Wheeler	Andy	Dept. of Geology	Ireland
Dronkers	Job	Nat.Inst.for Coastal and Marine Management	Netherlands

<b>Surname</b>	<b>Firstname</b>	<b>Institute</b>	<b>Country</b>
Edwards	Vivien	Napier University/Dept. of Life Sciences	UK
Elena	Varela Alvarez	CCMAR, Center of Marine Science	Portugal
Elmgren	Ragnar	Stockholm University, Dept Systems Ecology	Sweden
Emblow	Chris	Ecoserve	Ireland
Entradas	Marta	EurOcean	Portugal
evangelia	lirantonaki	university of Aegean	Greece
Evans	Dan	BGS	UK
falcon	jack	CNRS	France
Fernandes	Leslie	Sprint	Spain
Ferraz	Rogério		Portugal
Figueiredo	Ivone	National Research Institute for Agriculture and Fisheries - IPIMAR	Portugal
fiona	tomas	Ecology Department, University of Barcelona	Spain
Gernez	Caroline	CNRS	France
Gillooly	Michael	Marine Institute	Ireland
Golmen	Lars	NIVA-Norwegian institute for water reseach	Norway
Gonçalves	Emanuel	Eco-Ethology Research Unit - ISPA	Portugal
Gordon	Jonathan	SMRU	UK
Gorsky	Gabriel	CNRS/LOV	France
Grémare	Antoine	Observatoire Océanologique de banyuls	France
Hansteen	Thomas	Research Council of Norway	Norway
Harder	Jens	Department of Microbiology, Max-Planck-Institute for marine Microbiology	Germany
Helminen	Ulla	Archipelago Research Institute	Finland
Hendriskdottir	Hjordis	RANNIS - The Icelandic Center for Research	Iceland
Henocque	Yves	IFREMER	France
Herman	Rudy	Science and Innovation Administration	Belgium
Hernandez	Francisco	Flanders Marine Institute	Belgium
Herndl	Gerhard	Royal Netherlands Institute for Sea Research	Netherlands
Hiscock	Keith	Marine Biological Association UK	UK
Howe	Vicki	Earth, Ocean and Planetary Sciences	UK
Ignatiades	Lydia	INSTITUTE OF BIOLOGY, NRC "DEMOKRITOS"	Greece
Järvik	Ahto	Estonian Maritime Academy & Estonian Marine Institute	Estonia
Jedrzejczak	Marcin Filip	Warsaw University, Interfaculty Study Programme in Environmental Protection (ISPEP)	Poland

<b>Surname</b>	<b>Firstname</b>	<b>Institute</b>	<b>Country</b>
Jerzy	Dera	Institute of Oceanology, PAS Sopot	Poland
Jerzy	Dera	Institute of Oceanology PAS	Poland
Jorge Costa Pereira	Ricardo		Portugal
Jose	Felix	Department of Oceanography & Fisheries, University of Azores	Portugal
Jrvik	Ahto	Estonian Maritime Academy	Estonia
Jürgens	Klaus	Baltic Sea Research Institute	Germany
Kakha	Bilashvili	Tbilisi State University	Georgia
Kendall	Mike	Plymouth Marine Laboratory	UK
koblizek	michal	Inst Microbiology CAS	Czech Republic
Kondratjeva	Natalja	LatFRI	Latvia
Korolovs	Aleksandrs	Latvian Fisheries Research Institute	Latvia
Krestenitis	Yannis N.	Aristotle University Civil Engineering Dept.	Greece
Kuzebski	Emil	Sea Fisheries Institute	Poland
Kyriakidis	Hector-Lysis	R.D.Instruments Europe	France
Lage	Olga Maria	European Commission/DG Research	Belgium
Le Guen	Yvon	IFREMER - Tests and Metrology Department	France
Leandro	Sérgio	University of Aveiro, Department of Biology	Portugal
Legrand	Jacques	IFREMER/TMSI	France
lizinska	Anna	Institute of Oceanography	Poland
Macleod	Kelly	Sea Mammal Research Unit	UK
Maillard	Catherine	IFREMER/TMSI/IDM/SISMER	France
Maisondieu	Christophe	IFREMER	France
Malej	Alenka	Marine Biology Station, NIB	Slovenia
M <sup>a</sup> Luz	Fernández de Puelles	Institute Oceanographic	Spain
mandzuka	sadko	Brodarski Institute	Croatia
Maria Teresa Drago Pereira	Maria	Portuguese Fisheries and Sea Research Institute	Portugal
Mees	Jan	Flanders Marine Institute	Belgium
Mihneva	Veselina	Institute of Fisheries and Aquaculture	Bulgaria
Mikac	Barbara	Marine Research Centre, Rudjer Boskovic Institute	Croatia
Modica	alfonso	CEOM SCpA	Italy
Morley	Nick	N/A	
Mura	Marco	Dip. Biologia Animale ed Ecologia, Cagliari	Italy
Nash	Richard	University of Liverpool, Port Erin Marine Laboratory	UK
Navarro	Nuria	Instituto Mediterráneo de Estudios	Spain

<b>Surname</b>	<b>Firstname</b>	<b>Institute</b>	<b>Country</b>
		Avanzados (CSIC-UIB)	
Neyts	Alexandra		Norway
Nikinmaa	Mikko	Department of Biology, University of Turku	Finland
Oeberst	Rainer	Institute for Baltic Sea Fisheries	Germany
Olańczuk-Neyman	Krystyna	Hydro-and Env. Eng. Faculty Gdańsk University of Technology	Poland
Pablo	Sanchez-Jerez	Unidad de Biología Marina. Dep. Ciencias Ambientales.	Spain
Per Wilhelm	Nieuwejaar	Institute of Marine Research/RV department	Norway
Perrein	Hanane	Université catholique de l'Ouest - IBEA	France
Person	Roland	IFREMER	France
Perus	Jens	Åbo Akademi University/Dept. of Environmental and Marine Biology	Finland
Piatkowski	Uwe	Leibniz-Institut für Meereswissenschaften	Germany
Piedade	Joao	FCT-UNL (InfoZEE)	Portugal
Pierre Marie	Sarradin	Ifremer DRO EP	France
Pierrot-Bults	Annelies	Zoological Museum University of Amsterdam	The Netherlands
Polet	Hans	Sea Fisheries Department	Belgium
Post	Johannes	Hydromod Service GmbH	germany
Potin	Philippe	UMR 1931 CNRS-GOEMAR, Roscoff	France
Ramos	Manuela	Departamento Oceanografia e Pescas da Universidade dos Açores	Portugal
Ramsak	Andreja	Marine Biological Station-NIB	Slovenia
Ramunas	Zydelis	Institute of Ecology	Lithuania
Rietveld	Marieke	Royal Netherlands Institute for Sea Research (NIOZ)	Netherlands
Rosen	Dov	ISRAEL OCEANOGRAPHIC & LIMNOLOGICAL RESEARCH, NATIONAL INSTITUTE OF OCEANOGRAPHY/ MARINE GEOLOGY DEPARTMENT	Israel
rossi	loreto	dept.genetics amd molecular biology - ecology aerea-	Italy
Rossi	Sergio	Praesentis, Scientific Department	Spain
Rubino	Fernando	IAMC-CNR Sez. Talassografico "A. Cerruti"	Italy
Rufino	Marta	ICM-CSIC	Spain
Sagan	Slawomir	Institute of Oceanology PAS	Poland
Sarretta	Alessandro	ISMAR-CNR	Italy
Schernewski	Gerald	Baltic Sea Research Institute Warnemünde	Germany
Schneider	Rolf	Baltic Sea Research Institute	Germany
Schoon	Raphaela	Max-Planck-Institut für marine Mikrobiologie	Germany

<b>Surname</b>	<b>Firstname</b>	<b>Institute</b>	<b>Country</b>
Schorno	Raymond	NWO	Netherlands
schöttler	udo	Projekträger Jülich im FZ Jülich	Germany
Seferlis	Miltiadis	Greek Biotope-Wetland Centre	Greece
Smirnov	Igor S.	Zoological Institute of RAS	Russia
Steele	John	Woods Hole Oceanogr Instn	USA
Stefano	Federico	CRATI Scrl	Italy
Steve Cowley	Steve	biological sciences	UK
Stevens	Darrin	Nature Protection Unit/Environment Protection Directorate	Malta
Strand	Jakob	National Environmental Research Institute	Denmark
stratoudakis	yorgos	INIAP/IPIMAR/DRM	Portugal
Subida	Dulce	University of Aveiro / Biology Department	Portugal
Sukhotin	Alex	Zoological Institute, White Sea Biological Station	Russia
Swiderska	Krystyna	Biodiversity and Livelihoods Group, International Institute for Environment and Development (IIED), London	UK
Sylvie	Masquelier	University of Liège (Belgium)	Belgium
Tréguer	Paul	Institut Universitaire Européen d'Etudes Marines	France
Troelstra	Simon	Vrije Universiteit	Netherlands
Tuomisto	Piia	EC, DG RTD, Marine research & Infrastructure, Bruxelles	Belgium
Uiblein	Franz	IMR	Norway
Uzars	Dana	Latvian Fisheries Research Institute	Latvia
van der Meer	Jaap	NIOZ-MEE	Netherlands
van Duren	Luca Ancel	NIOO-CEMO	Netherlands
Vanden Berghe	Edward	Flanders Marine Institute	Belgium
Vershinin	Alexander	P.P.Shirshov Institute of Oceanology RAS	Russia
Victor	Surugiu	Universitatea "Al. I. Cuza" Iasi, Facultatea de Biologie	Romania
Vila	Magda	Biologia Marina, Institut Ciencies del Mar	Spain
Vincx	Magda	University Gent, Marine Biology Section	Belgium
von Dorrien	Christian	Institute for Baltic Sea Fisheries	Germany
von Juterzenka	Karen	Alfred-Wegener-Institute for Polar and Marine Research	Germany
Wenzhoefer	Frank	Max Planck Institute for Marine Microbiolog	Germany
Williams	Bob	Plymouth Marine laboratory	UK
Woghiren	Samuel	University of Lagos/Marine Science	Nigeria
Wolf	Ulrich	Project Mamangement Organisation PTJ	Germany
Wozniczka	Adam	Sea Fisheries Institute, Research Station	Poland

<b>Surname</b>	<b>Firstname</b>	<b>Institute</b>	<b>Country</b>
		Swinoujście	
Yu	Xinsheng	Marine Geology College, Ocean University of China	China