

**The Future of the 21<sup>st</sup> century ocean – International symposium**  
**Thursday 30 June 2011**  
**Session 7**

**General conclusions of the European marine Research Infrastructures Symposium**  
**Brest-F, 30 June 2011**

### **1-Recalling great challenges for the future of the 21<sup>st</sup> century ocean**

Cf. Ostende Declaration (13 October 2010)

- critical role of the oceans in the earth and climate systems;
- value and importance of coasts, seas and oceans and their ecosystems to our health and well-being;
- increasing impacts of global environmental change on marine environment & significant socio-economic consequences.

#### Outcomes from those impacts :

- ongoing need for basic and applied research to address major gaps in our fundamental knowledge of coasts, seas & oceans;
- enormous opportunities for innovation, sustained wealth and job creation in new and existing maritime sectors such as aquaculture, renewable energy, mineral resources, marine biotechnology and maritime transport;
- need to translate these messages to all sectors of society, and
- crucial role of marine and maritime science and technology in (1) providing new knowledge necessary to (2) enable a better understanding of the seas and oceans processes (including biodiversity), and (3) creating new opportunities for economic growth and welfare.

The European Union is at the forefront of these challenges. The momentum for developing marine science is maintained with initiatives such as the JPI “Oceans”, the “Marine and Maritime” KIC under preparation, and the further development of the ESFRIs and the strategic CSFRI (concerted strategy framework for research and innovation) EU 2020. Seas and oceans can provide a useful contribution to the objectives of EU 2020.

### **2-Identification of the required infrastructures to meet these challenges**

The European Marine Science community has developed and implemented a series of state-of-the-art research infrastructures (RI) that continuously need further development.

#### Overview of required infrastructures by main types:

- ocean observing systems including remote sensing:
  - climate
  - operational oceanography
  - geo-hazards
- research fleets;
- land and off-shore based experimental facilities, such as microcosms, mesocosms, testing facilities;
- marine data centres, modelling centres and e-infrastructures;
- marine resource centres “from genes to ecosystems” (including marine biodiversity exploration and collection), back to back with biotechnology facilities.

Training centers should be attached to RISs

### **3-Recommendations to the member states, to national and regional authorities, and to the EU for the next IRI programme.**

#### **3.1 General**

To allow an optimum cost-benefit strategy, the European marine science community calls for a co-ordinated and integrated (“integration” needs to be better defined) organisation to implement and use marine infrastructure at a European level, i.e.

- Giving priority to the implementation of ongoing ESFRI roadmap, direct EU funding for the implementation phase should be endorsed (see below);
- Strengthen the co-ordination effort and incentive European programmes to promote cross-national use of existing and coordinated implementation of new infrastructure (beyond bi-national cooperation);
- Make sure GMES and Emodnet will contribute to the global and regional in-situ ocean observing system infrastructure;
- Support the use of RI to promote best practices exchanges and training for the “people” acting in marine research, technicians as well as scientists.
- For new IRI, priorities should be based on maturity, structured research communities, and societal and European relevance.

### **3.2 Funding issues:**

Member states funding is essential, but not sufficient for the sustainability of pan European research infrastructures, which calls for a truly co-funding mechanism between EU (including structural funds provided some legal adjustments) and national funding (and private where relevant). The EU should definitely also contribute to the economic model of pan-European infrastructures, by supporting extra implementation / operational cost (via FP8) and transnational access including, to a certain extent, access from outside of Europe, so as to promote the international dimension of RIs and the attractiveness of the Union in Marine Sciences. Moreover, EU funding is absolutely necessary for global or pan European international networks.

### **3.3 Research infrastructures, growth & marine sciences:**

Marine RIs are major contributors to innovation as follows:

- As contributors by fostering public procurement on specific marine / maritime technologies;
- As information and services providers;
- As a knowledge and potential tech transfer producer;
- By attracting the best scientists and providing constantly updated, enabling technologies, the RI will soon be at the heart of the Innovation Union (cf innovation partnerships to fill the gap between the technology and the market).

### **3.4 Marine research infrastructures and governance / management / training**

The symposium encourages the establishment of encompassing European governance for marine research infrastructures contributing to a higher global perspective. There is a need for coordination of the existing infrastructures.

The symposium welcomes the EC call for specific and multidisciplinary RI Management training and diploma. Training will usefully complement the tools and expertise supports already provided by the EC (ERIC legal tool, ESFRI RI forum, Sinapse website). As for marine sciences, such training should include courses on the international legal and economic framework for marine & maritime policy.

The long-term development, up-dating and maintenance of marine RIs also calls for trained researchers, engineers and technicians, able to work in a specialised and multidisciplinary context, especially within the framework of the EU mobility schemes (e.g. Marie Curie Actions).

#### **Other**

Not in this topic: The construction of the marine RIs has been involving a relevant number of female researchers / engineers / technicians with a large variety of skills (management, science, technology, operations). This needs to be pursued and there is a need to open fast-tracked career path for females towards high level management positions.