

The European Marine and Maritime Science and Technology Community:

Recognising the great importance of the oceans and seas for Europe's economic, social and environmental development, and in particular the **major challenges posed by global environmental change and the significant opportunities offered by the global market economy:**

- welcomes and **supports the Commission's proposal for an all embracing European Maritime Policy** furthering the knowledge economy (Lisbon 2000), and laying the foundation of a marine and maritime component of the European Research Area (ERA).
- is reassured that the proposed Maritime Policy is **based on the principle of sustainable development** (Gothenburg 2001), and considers that the Thematic Strategy for the Marine Environment, as the environmental pillar of the maritime policy, should include a clear definition of regional targets and indicators that will deliver Good Environmental Status based on the best scientific understanding.

Calls for urgent action by the European Commission and the Member States to **further develop and enhance a partnership with the appropriate stakeholders to:**

1. **initiate in 2008** a comprehensive and **integrated European Marine and Maritime Science, Research, Technology and Innovation Strategy;**
2. **establish an adequately resourced and sustained process** to oversee the implementation and delivery of this Strategy within an holistic European Maritime Policy;
3. **initiate and support the necessary funding mechanisms**, specialised infrastructures, data collection and information management, and capacity building essential to manage our on-going relationship with the oceans and seas.

The Strategy must enable:

- foresight activities to identify new and emerging scientific challenges and opportunities;
- cross-sectoral, multinational and interdisciplinary research partnerships;
- co-operation between research, industry and other stakeholders to enhance knowledge and technology transfer and innovation;
- development of scientific and technology capacity to strengthen the knowledge economy;
- shared use, planning and investment of critical infrastructure on a Europe-wide basis.

Rationale: The above action will support the objectives of the proposed EU Maritime Policy, **delivering significant added-value** in key areas:

- **Economic Development:** to increase Europe's share of the estimated €4,360 billion global maritime market economy through the development and up-take of innovative marine and environmental technologies.
- **Environmental Management:** to provide the knowledge and tools needed to implement EU Directives and Regulations, International Conventions and Regional/ National/Local Action Plans.
- **Ocean and Coastal Governance:** enabling the application of the principles of marine spatial planning and the ecosystem approach to resource management within the European Union, with neighbouring states and globally, supporting effective governance of the marine and maritime environment.

In this context, **marine science will contribute significantly** to Europe's response to one of the greatest challenges currently facing mankind – that of **Global Climate Change**. This can only be achieved through a partnership focussed on:

- **Mitigation:** developing efficient **renewable ocean energy systems**, reducing CO₂, improving energy security and providing new business opportunities.
- **Adaptation:** **mobilising existing and establishing new ocean observatory and data collection systems** to better understand the pace and impact of climate change on the oceans and impacts on the wider earth system. This knowledge will improve prediction and scenario modelling and the **development of appropriate adaptive strategies** at European, regional, national and local levels to offset and cope with negative socio-economic impacts.

THE ABERDEEN DECLARATION

- A New Deal for Marine and Maritime Science

Background

The EurOCEAN 2007 Conference (Aberdeen, Scotland, UK: 22nd June 2007), occurring as it did during the final period of a commendable public consultation process on the EU Maritime Policy Green Paper, provided a unique opportunity for the European Marine and Maritime Science and Technology Community to respond to the EU Green Paper “*Towards a future for the Union: A European Vision for the Oceans and Seas*”.

The Conference, attended by circa 200 representatives of the European marine and maritime science and technology community, policy makers, representatives of Non-Government Organisations (NGOs) and other key stakeholders from 15 European Union coastal states, in addition to Norway, Australia, China, Russia, Singapore, The Ukraine and the USA, represented the culmination of an open and dynamic consultation process which has seen interested stakeholders across Europe coming together to formulate views and propose strategic initiatives regarding the role of science and technology in achieving the goals of the Maritime Policy.

“An all embracing maritime policy aimed at developing a dynamic maritime economy in harmony with the marine environment, supported by sound marine science and technology, which allows human beings to continue to reap the rich harvest from the oceans in a sustainable manner”.

Towards a future Maritime Policy for the Union: A European Vision for the Seas and Oceans (2006)

Rationale – Adding Value - Science supporting Policy:

At the political and ocean governance level, the implementation of the **European Marine and Maritime Science, Research, Technology and Innovation Strategy** will, we believe, contribute significantly by adding value to policy development and implementation by providing the knowledge needed to aid evidence-based inter-linked policy in key areas such as:

- **Economic Development:** to increase Europe’s share of the estimated €4,360 billion global maritime market economy through the development and up-take of innovative marine and environmental technologies (including eco-technologies) supporting, for example, marine biotechnology, new and renewable ocean energy systems, novel maritime and transportation approaches, innovative ocean observation systems and associated technologies, marine leisure and tourism as well as the substantial markets associated with the sustainable use of biological resources, including seafood production.
- **Environmental Management:** to better understand natural marine hazards, to measure and mitigate human impacts on the marine and coastal environment, to provide appropriate indicators of the quality and status of the marine environment and provide the knowledge and tools needed to implement the relevant EU Directives, International Conventions and Regional / National / Local Action Plans, and deal with uncertainty.
- **Ocean and Coastal Governance:** enabling the application of the principles of marine spatial planning, incorporating Integrated Coastal Zone Management, risk assessment, and a precautionary and ecosystem approach to resource management within the European Union, with neighbouring states (for example in the Mediterranean and Black Sea basins) and globally supporting effective governance of the marine and maritime environment.

In this context, **marine science will also contribute significantly** to Europe’s response to one of the greatest challenges currently facing mankind – that of **Global Climate Change**. This can only be achieved through a partnership focussed on:

Mitigation: developing efficient **renewable ocean energy systems** which in addition to reducing CO₂ and improving energy security, represent new business opportunities.

Adaptation by **mobilising existing and establishing new ocean observatory and data collection systems** to better understand the pace and impact of climate change on the oceans (e.g. sea-level rise, biodiversity and ecosystem services, biogeographic species shifts, ocean acidification) and the impacts on the wider earth system. This knowledge will enable better prediction and scenario modelling and the **development of appropriate adaptive strategies** and relevant innovative interventions at EU, regional, national and levels to offset and cope with negative socio-economic impacts.

A European Marine and Maritime Science, Research, Technology and Innovation Strategy

An integrated Maritime Policy needs a comprehensive and supportive Marine and Maritime Science, Research, Technology and Innovation Strategy. The challenge for the European Commission, the Member States and the European Marine Science and Technology Community is to support the preparation of this comprehensive and integrated Strategy which should identify short- and long-term priorities and incorporate the following components:

- identify and prioritise the **scientific challenges and opportunities**, in terms of both **basic and applied research** including a **multi-disciplinary and inter-disciplinary approach**, and embracing **engineering, legal and social and economic sciences**, to support a dynamic maritime economy. These priorities should inform both EU (e.g. FP7) and Member State Marine Research Funding Programmes, and be the basis for joint EU-Member State Programmes (e.g. ERA-NET+, Article 169 projects);
- support the development of **integrated cross-Directorate initiatives** linking **sectoral policies** (e.g. fisheries and aquaculture, renewable energy, transport, space) **research and enterprise policies** and the **environment** to support an holistic and coherent approach when addressing marine and maritime issues on the global, regional, national and local scales;
- provide a framework, building, for example on ERA-NETS, Technology Platforms and other EU instruments, to **further Community and Member State funding and co-operation** in support of cross-sectoral and multinational research projects and partnerships to address key challenges at global, regional, national and local scales;
- identify and establish appropriate knowledge and technology exchange mechanisms to **strengthen the links between research and industry** turning knowledge (the product of research) into value added products and services and creating income and jobs. It must **foster knowledge and technology transfer** and the development of an in-house research and innovation capability in indigenous European maritime industries through the establishment and resourcing of appropriate support mechanisms;
- include a **Marine and Maritime Foresight** mechanism to regularly review new developments in emerging science and technology, their implications and the opportunities offered, and the identify the major drivers and lead markets;
- actively foster **relationships with coastal states** and in particular with neighbouring states with whom Europe shares regional seas, e.g. the Black Sea and the Mediterranean;
- formulate a **policy framework** for active **engagement of European scientists in the global context**;
- **identify the specialised pan-European research infrastructures** (e.g. specialised research vessels, subsea technologies, satellite and *in-situ* ocean observing systems, sustained monitoring and data collection, databases and information portals, high performance computing, modelling and land based facilities) required to meet identified challenges and opportunities and seek to **maximise the shared use and efficiency of Europe's research infrastructures**, including those proposed under the current ESFRI Roadmap and I3 initiatives;
- **promote human capacity building**, and the related issues of attractive research careers and researcher mobility, to ensure that appropriate highly-skilled researchers and support personnel are available to underpin economic and environmental developments in the marine and maritime sector;
- address the concerns of young researchers and support the inclusion of marine modules in the educational system at all levels, including life-long learning;
- support the **delivery of effective governance** of the marine environment, engaging scientists, policy makers and the public to enable shared understanding and informed decision making based on sound scientific knowledge.

The Next Steps

Preparing the Strategy:

1. The preparation of the European Marine and Maritime Science, Research, Technology and Innovation Strategy will **require a consultative process to bring the key stakeholders together to develop the Strategy**.

Implementing the Strategy

2. Implementation and delivery of the Strategy will require **an adequately resourced and permanent mechanism**. Whether this should be a Secretariat, a Network of Networks or some other structure is a matter for further debate and analysis and will depend on the scope and focus of the Strategy agreed. What it must do, however, is embrace diversity, reduce fragmentation and build on the achievements of the various existing sectoral and regional marine and maritime research and technology organisations and networks.

Irrespective of the detail of the resultant Strategy, the EurOCEAN 2007 Conference recognises a requirement for essential actions to assist the creation of the marine and maritime component of the ERA. These include:

3. The implementation of the recommendations of the **Seminar on Marine Sciences & Technologies in FP7** (Brussels, 16th January 2007) on the establishment of an appropriate implementation and monitoring mechanism to fully realise the enhanced status of marine sciences and technologies as a priority cross-cutting theme in the EU's 7th Framework Programme (2007 – 2013);
4. Advancing cooperation between the Research and Technology Programmes of the EU and the Member States, particularly within the context of the ERA-NET Scheme;
5. The establishment and resourcing of a **European Marine Observation and Data Network (EMODN)**¹ is essential to managing our on-going relationship with the oceans and seas. This action would see the establishment of permanent, sustained monitoring and observation structures, networks and the underpinning data provision, curation, information management and dissemination needed to support good ocean governance (including risk assessment, modelling and prediction), good science, a better understanding of ocean dynamics (including climate change and geodynamics) improved resource utilisation and the protection of the marine environment. Such data collection and management infrastructures and regimes must be harmonised and their long-term viability (funding) ensured by the Commission and the Member States;
6. The preparation of a 4-D digital **European Atlas of the Seas**, which we see as a highly desirable, high level and high profile initiative for marine and coastal spatial planning, business and nature conservation purposes, as an educational and promotional tool and a mechanism for outreach and public awareness to reinforce our shared maritime heritage;
7. Support for other key infrastructures, including for example high performance computing, modelling and prediction capabilities, satellite and *in-situ* ocean observing systems, real-time seabed and water column observatories, moorings, platforms and research fleets which, because of their size and complexity, can only be operated and sustained on a partnership basis;
8. Support for a **regular (annual) European Marine Science and Technology Conference**.

A Partnership Approach

Given the importance and immensity of the task at hand, it is clear that no single country or institution can mobilise the resources and expertise needed to address the challenges and opportunities ahead. The EurOCEAN 2007 agreed that a **Partnership Approach** is the only way to address these challenges and opportunities. This partnership must involve all the stakeholders: the Commission, the Member States, the Research Funding Agencies, Marine and Maritime Representative Organisations and Networks, the European Marine Science Community, Maritime Industries, Local Government, and local residents as well as specialist NGOs. The diverse perspectives of these various stakeholder groups must be brought together in an holistic, creative and flexible way through dialogue and sustained action.

The prize will be to realise the aim of achieving a dynamic maritime economy, the sustainable governance and development of ocean resources and to build on the strengths which have historically underpinned Europe's maritime leadership and will continue to do so into the future.

“only excellence in marine research and technology would allow us to deliver the goal of a thriving maritime economy and the realisation of the full potential of sea-based activities in an environmentally sustainable manner”.

Joe Borg, EU Commissioner for Fisheries and Maritime Affairs, EurOCEAN 2007. June 2007.

¹ European Marine Observation and Data Network (EMODN) Background Paper No. 4a of the Maritime Green Paper Consultation Process. SEC(2006)689.