

European Action Plan for strengthening the knowledge base of sustainable coastal and marine management

At the Paris Conference of 5-7 December 2007, 180 invited experts from many European countries worked together on a Coastal and Marine Action Plan. This Action Plan addresses major shortcomings in knowledge and technology that presently hamper the implementation of sustainable coastal and marine management. The participants defined great challenges for the European scientific community based on an analysis of 10 thematic fields, starting from the research directions set forth in the Aberdeen Declaration.

The Action Plan provides a reference base for future coastal and marine research investments in Europe and contributes to focusing these research efforts. The ENCORA members, 1500+ coastal and marine professionals throughout Europe, are encouraged to promote the implementation of the Action Plan through the programmes of their research groups and institutes and through national programmes and international cooperation initiatives. In this way they will contribute to realising the final objective of the Paris Conference, which is to strengthen cohesion and synergy among national and international research programmes and to create new opportunities for trans-national cooperation in coastal and marine research.

Action plan headlines

TITLE	I. CONCERTED DEVELOPMENT OF A EUROPEAN NETWORK OF COASTAL AND MARINE OBSERVATORIES
WHY	There is a urgent need for: <ul style="list-style-type: none"> - Trans-national coherence of information for coastal and marine research and management; - A distributed repository system for coherent and integrated data; - A European platform for concerted development of tools for analysis, planning and communication; - Linking data and modelling at different spatial and temporal scales; - Linking information of different ecosystem compartments (water, groundwater, sediment, biota) and socio-economic compartments (user functions, governance, jurisdiction);
WHAT / HOW	In the frame of a European Network of Coastal Observatories, concerted actions are undertaken for the development and common implementation of: <ul style="list-style-type: none"> - Schemes and protocols for sustained observation, to increase our understanding of coastal and marine processes and to produce adequate information for sustainable resource management, spatial planning and public participation, at appropriate temporal and spatial scales; - Assessment protocols and indicators for ecosystem health, for biodiversity change and sustainable resource management; - Improved data-model interfacing to provide real-time information and long-term forecasting; - Vulnerability/sensitivity maps and tools for trend analysis and early warning; - Visualisation techniques for management and stakeholder consultation; - Technological innovation for observation of ecosystem characteristics (habitats, biodiversity), water and sediment quality (pollution levels) and physical parameters (underwater light, turbulence, fluxes).

TITLE	II. MANAGING COASTAL SYSTEMS FOR SAFETY, CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT
WHY	<ul style="list-style-type: none"> - Obsolete and malfunctioning coastal structures are widespread along the European coastlines and need to be renewed; - New concepts must be developed for coastal protection measures matching the NATURA 2000 objectives; - Marine ecosystems, coastal habitats and biodiversity play an important role in the adaptation to climate change and in mitigating the impacts; - Adaptation to climate change requires adequate management of scarce sediment sources; - Practical guidance is needed for implementing the ecosystem approach and the “working with nature” principle.
WHAT / HOW	<ul style="list-style-type: none"> - Understanding and modelling of the delicate balance between coastal morphology and external forcing, and the response to climate change and local interventions; - Understanding and modelling the interaction of morphology and biota; - Development of methodologies for forecasting the response of coastal habitats and biodiversity to natural and anthropogenic changes, including climate change; - Model developments to make predictions over different planning horizons and to assess predictability limits, self-organisation phenomena and uncertainty; - Development of a best practice coastal management guide, in particular for adaptive management strategies in the context of climate change.

TITLE	III. CAPACITY BUILDING, PLANNING AND PARTICIPATION
WHY	<p>The implementation of ICZM is hindered by:</p> <ul style="list-style-type: none"> - Lack of institutional capacities; - Lack of information on social and economic drivers and impacts; - Ineffective communication between science, the administration, stakeholders and the general public; - Lack of adequate spatial information; - Inadequate linkage of land and sea planning.
WHAT / HOW	<ul style="list-style-type: none"> - Establishment of Capacity Building Resource Centres for education, knowledge transfer to coastal practitioners and training; - Development of a methodology for marine spatial planning, as a framework for marine governance; - Development of an ICZM and Marine Planning Tool Box, including indicators and related monitoring methods, and tools for integrated assessment, for awareness raising, participatory approaches, conflict resolution and for visualisation.

TITLE	IV. POLLUTION
WHY	<p>Development of ship traffic and bigger ships increase the risk of accidental spills and produces indirect impacts related to dredging and port development;</p> <p>Fluvial pollutant loads will change, due to development in upstream catchment areas, to climate change and to river regime changes.</p>
WHAT / HOW	<p>Field and modelling research leading to:</p> <ul style="list-style-type: none"> - Better understanding of interactions between pollutants, sediments, pore water, seawater and groundwater, and coupled transport-biogeochemical modelling; - Assessment tools (including remote sensing and models) for the long-term impact of pollution on ecosystems; - Development of a sensitivity index and sensitivity/vulnerability maps; - Integrated assessment of ecological and socio-economic impacts for optimising and harmonising existing regulations.