



Bio-diversity and Marine ecosystems

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**THE CONTRIBUTION OF THE EC RESEARCH FRAMEWORK PROGRAMMES TO THE
INFORMAL CONSULTATIVE PROCESS ON OCEANS AND THE LAW OF THE SEA:
PROTECTING VULNERABLE MARINE ECOSYSTEMS;
AND THE SAFETY OF NAVIGATION**

**The 5th Framework Programme of Research of the European
Communities (1998-2002)**

Within the Sustainable Marine Ecosystems Key Action of the 5th Framework Programme of Research of the European Communities (1998-2002), a number of groupings, or clusters, of funded research projects have been formed. A brief description of the clusters that are most relevant to the topics of interest to the 4th meeting of the informal consultative process on oceans and the law of the sea foreseen for June 2003 follows.

Protecting Vulnerable Marine Ecosystems

The OMARC cluster provides a well-established collaboration frame, which can be used in the future to set up the community research component for global change and ecosystem dealing with issues relating to the deeper part of the ocean.

Structure of OMARC

The Margin cluster (OMARC), with a total *EU contribution* 25 M€, consists of the

OAERRE (Oceanographic application to eutrophication in regions of restricted exchange),

NTAP (Nutrient dynamics mediated through turbulence and plankton interactions),

MOLTEN (Monitoring long-term trends in eutrophication and nutrients in the coastal zone: Creation of guidelines for the evaluation of background conditions, anthropogenic influence and recovery),

DOMAINE (Dissolved organic matter (DOM) in coastal ecosystems: transport, dynamics and environmental impacts),

EUROTROPH (Nutrients Cycling and the Trophic Status of Coastal Ecosystems),

BEAM (Bridging effects of mixtures to ecosystem situations and regulations),

EUROCAT (European Catchments: Catchments changes and their impact on the coast),

DANUBS (Nutrient Management in the Danube Basin and its impact on the Black Sea),

STREAMES (Human effects on nutrient cycling in fluvial ecosystems: Development of an Expert System to assess stream water quality management at reach scale).

The recent projects focus on: a) the impact of the Directive on Urban Wastewater Treatment on coastal ecosystems, b) impact of nitrate load to facilitate implementation of the Directive on Nitrate Discharge, c) the scientific underpinning of the implementation of the Water Framework Directive and d) the development of new tools for an integrated coastal zone management.



ADIOS (Atmospheric deposition and impact of pollutants and nutrients on the open Mediterranean sea);

AIRWIN (Structure and role of biological communities involved in the transport and transformation of POPs at the marine air-water interface);

BIOCET (Bioaccumulation of Persistent Organic Pollutants in small cetaceans in European waters);

MERCYMS (An integrated Approach to Assess the Mercury Cycling in the Mediterranean Basin);

TREAD (Transport, Reactions and dynamic of heavy metals in contaminated marine sediments);

COMMODE (Communities of Marine Micro-organisms for Oil Degradation);

ACE (Assessment of anti-fouling agents in coastal environments).

Linked to the IMPACTS cluster are two data-management projects: **MEDAR** and **MEDNET**.

The resulting RTD knowledge will underpin Europe's management models on the cost-benefits of pollution reduction, the rehabilitation of degraded ecosystems and the sustainable development of the marine environment and will provide input to relevant conventions including OSPAR, HELCOM, Barcelona and Bucharest Conventions.

- **The EUROHAB Initiative and cluster**

Objectives

BIOHAB (Biological control of harmful algal blooms in European coastal waters: Role of eutrophication),

STRATEGY (New strategy of monitoring and management of HABs in the Mediterranean Sea),

ALIENS (Algal introductions to European shores),

FATE (Transfer and fate of Harmful ALgal Bloom toxins in European marine waters),

HABILE (Harmful Algae Blooms initiation and prediction in large European marine waters).

- **Marine Biodiversity Cluster**

Objectives

Several marine biodiversity research initiatives are currently being funded by the EU. Given the importance of biodiversity, and the potential of and threats to marine

The OF Cluster currently comprises sixteen research projects that are all formally linked together via a common attachment to the individual Descriptions of Work of each project. These projects are the following:

SOFT (Satellite-Based Ocean Forecasting);

TOPAZ (Towards an Operational Prediction System for the North Atlantic and European Coastal Zones);

MaxWave (Rogue waves - Forecast and Impact on Marine Structures);

EDIOS (European Directory of the Initial Ocean Observing System);

ANIMATE (Atlantic Network of Interdisciplinary Moorings and Time Series for Europe);

MAMA (Mediterranean Network to Assess and Upgrade the Monitoring and Forecasting Activity in the Region);

GAVDOS (Establishment of a European Radar Altimeter Calibration and Sea-level Monitoring Site for JASON, ENVISAT and EURO-GLOSS);

GAMBLE (Global Altimeter Measurements by Leading Europeans).

PAPA (Programme for a Baltic Network to Assess and Upgrade an Operational Observing and Forecasting System in the Region);

BRIMOM (Bio-fouling Resistant Infrastructure for Measuring, Observing and Monitoring);

EASEAS-RI (European Sea-Level Service Research Infrastructure);

IOMASA (Integrated Observing and Modelling of the Arctic Sea Ice and Atmosphere);

ODON (Optimal Design of Observational Networks);

MFSTEP (Mediterranean ocean Forecasting System: Toward Environmental Predictions);

IRIS (Ice ridging information for decision making in shipping operations);

ARENA (A Regional Capacity Building and Networking Programme to Upgrade Monitoring and Forecasting Activity in the Black Sea Basin)

The total EU commitment to the ***Operational Forecasting cluster in FP5*** is ***nearly 31 M€***.

The 6th Framework Programme of Research of the European Communities (2002-2006)

Within the 6th Framework Programme of Research of the European Communities (2002-2006), research on global change and ecosystems will provide major support to the EU strategy for Sustainable Development, which was decided in 2001 at Göteborg and which has been enlarged to an international scale in the context of the Johannesburg Summit on Sustainable Development (SD) in 2002. The programme of activity offered by the Sub-Priority "Global Change and Ecosystems" will strengthen the necessary scientific knowledge for the future orientation of the EU's SD strategy and the EU's 6th Environment Action programme. It will also provide socio-economic tools and assessments and overall management practices. Furthermore it will ensure their implementation at the enlarged EU level and, when relevant, at the world level.

The aim of the research activity is to assemble a critical mass of resources helping to integrate and strengthen the European Research Area. For this purpose new instruments will be widely used, that is Networks of Excellence (NoE) and Integrated Projects (IP).

Within the Sub-Priority "Global Change and Ecosystems", the topic of immediate relevance to the issue of protecting vulnerable marine ecosystems is that of "Biodiversity and ecosystems". A general outline of the initial research areas that will be addressed is given below.

Areas III - Biodiversity and ecosystems

The objective is to develop a.1()-1inr2ce e3dsoTJea.10014 Tc0.05 100T44 c 3dss5. of ves4 Tc0.0599dT9(onc

III.1.3 Developing genomic approaches to enable the understanding of biodiversity and ecosystems structures and dynamics.

III.4.2. Develop model(s) for assessing and forecasting the impact of environmental pollution on fresh water and marine ecosystems and their biological diversity.

III.4.3. Create an inventory of invasive species that threaten European terrestrial, fresh-water and marine environments, and provide the basis to prevent and control biological invasions through the understanding of the biological, social, economic and other factors involved.

III.4.4. Harmful Algal Blooms in European marine and brackish waters.

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