

# State and pressures of the marine and coastal Mediterranean environment

*Mediterranean Action Plan. Ministerial Meeting of the Contracting Parties of the Barcelona Convention. Malta, October 1999  
Conclusions and recommendations of the Joint EEA/UNEP-MAP Report*

**S**tate of the Mediterranean Sea  
The state of the open waters in the Mediterranean Sea, based on the available information presented and assessed in this report, is considered to be generally good. In coastal areas, the presence of pollution hot spots, located generally in semi-enclosed gulfs and bays near important harbours, big cities and industrial areas, is probably the major problem of the Mediterranean Sea. Waters in the open sea are classified among the poorest in nutrients of the world ocean; marine ecosystems still seem to function well and the Mediterranean Sea is characterised by a high diversity of marine species. Nevertheless, in several cases, natural peculiarities (e.g. seawater movement and circulation patterns) determine the state of the Mediterranean Sea and, together with pressures deriving from coastal anthropogenic activities, create hot spots which pose adverse local environmental impacts and could be persistent.

In contrast to relatively favourable conditions of the Mediterranean Sea itself, only a small percentage of its coastal zone is still in pristine condition, of which an even smaller proportion is protected. This report shows that the current threats (e.g. localised eutrophication, heavy metals, organic and microbial pollution, oil spills, introduction of nonindigenous species) are mainly the results of pressures from anthropogenic activities and hence more attention to their management and control is needed.

Land-based activities (urbanisation, industry and agriculture) represent the main source of pollution into the Mediterranean Sea, although many uncertainties remain regarding their respective contribution, the different fluxes (rivers, atmosphere, non-point sources, etc.) and the fate of the contaminants they generate. In the case of urban and industrial pollution, the main problem is the rapid population growth along the southern coasts of the Mediterranean, where there are fewer legal instruments and lesser environmental infrastructure investments.

The pressure from tourism, especially in the northern Mediterranean countries, is one of the problems that have to be managed



effectively to avoid any further degradation of the marine and coastal environment.

## **Recommended measures**

The report also identifies several major issues, which need to be addressed to ensure higher environmental quality and better integrated information from the region:

1. Climate change: Multi-disciplinary research is still needed to assess the major environmental and socio-economic problems that may follow from accelerated sea level rise, erosion and desertification, floods and other threats that originate from climate change, and to distinguish natural fluctuations from the effects of anthropogenic activities.

2. Biodiversity: The creation of marine parks and protected areas for conservation purposes is often not sufficient as an impact-control measure, since many of the impacts derive from pressures that are not locally originated. Mediterranean wilderness and important habitats need to be protected as the Mediterranean Sea is recognised as one of the richest biotopes in the world with about 6% of the global total of higher species. Protection of the wilderness and habitats of the Mediterranean Sea requires integrated environmental management. As the coasts are heavily populated

and co-ordinated action plans for environmental management are still lacking in most places, there is a threat that the number of important habitats will decline and impacts on biodiversity will become more evident. The following actions should be considered in order to further protect the ecosystem balance:

- develop national and Mediterranean-wide co-ordinated plans for environmental management and infrastructure development, with specific attention to the coastal zones;

- introduce effective measures for environmental protection from threats arising from sea transport, coastal works and sea exploitation activities;

- promote the implementation of the provisions of the (CBD) Convention for Conservation of Biological Diversity and of the Mediterranean protocol on specially protected areas and biodiversity at national level in the Mediterranean, including the development of national strategies for the conservation of biodiversity, adopting the biogeographic regional approach suggested by technical bodies of the CBD;

- promote the implementation of the existing action plans for the protection of the threatened species in the Mediterranean;

-increase protection of the remnants of pristine areas.

3.Sewage discharges: Sewage treatment plants are still missing from urban areas along the coasts and about 60 % of urban waste disposed in the Mediterranean Sea is still untreated. Based on the existing information, sewage should be discharged after advanced treatment in adequately designed treatment plants. The technology is available and reasonably cheap. AS analysed convincingly by several studies, the health costs and other economic losses, especially in tourist areas due to contamination of coastal waters, is much higher

further developed to avoid adverse coastal impacts.

7.Oil pollution: Oil reception facilities should be recommended for all big ports along the basin. The areas around straits and ports already appear to be top priorities for planning and protection.

8.Coastal zones: An integrated approach to coastal zone management and physical planning are still missing. Decisions and management of the coastal zones should be made at regional, national and local level, taking into account the driving forces and pressures of the human activities including tourism in order to integrate

pilation at the regional level - is not available throughout the basin. Dispersal of the data among different administrative bodies, lack of knowledge of the existing inventories, data contained in reports considered confidential (or accessible only through long and hard administrative procedures) make the problem worse. Uncertainties about the evolution of numerous coastal segments still exist in cartographic atlases. The coastal evolution trends are thus often considered on the basis of expert judgements in the absence of studies or preliminary measurements.

2.Contaminants: Although a large



than the investment necessary for achieving an acceptable sewage effluent quality.

4.Agriculture practices: In most Mediterranean countries, all types of agricultural practices and land use are treated as non-point sources of water pollution. It is very difficult to estimate the input from these diffused sources into the Mediterranean Sea quantitatively. Countries should adopt a holistic approach to water resource management, based on the integrated assessment of water quality and ecosystem health, from the coastal waters to the entire catchment area.

5.Fisheries: Control of fishing effort is an urgent priority identified by the General Fisheries Council for the Mediterranean (GFCM); although one must not forget that coastal fisheries by small scale boats play an important social and economic role along the Mediterranean coast.

6.Marine aquaculture: Careful selection of sites, with precise definition of their carrying capacity, needs to be regulated and enforced. Open sea practices should be

environmental protection into economic development. Integrated coastal zone management can be a success story only if the experience and expertise are maximised and the allocation of budgets to projects which take into account the holistic environmental dimension is enhanced. Organisational and legal instruments - including market-based instruments - should be developed to control and manage coastal development, land reclamation and groundwater exploitation.

Improvement of data availability

One of the major concerns identified in the report which emerges from the different issues dealt with in individual chapters is the scarcity or unavailability of comparable and, in some cases, reliable data for the Mediterranean basin as a whole. For the assessment of the state and pressures of the marine and coastal Mediterranean environment, the following missing elements in information have been identified:

1.Coastal erosion: Information - and access to existing information for its com-

effort has been made through the MED POL programme, there is still a scarcity of data from some regions. The monitoring capabilities of some Mediterranean countries have to be improved.

3.Oil pollution: Attention should be given at the planning stage to identifying areas that need protection, their order of priority and the techniques to be used.

4.Microbial pollution: The problems of the effects of microbial pollution in the Mediterranean coastal zone persist and are mainly related to urban waste water. Further research and data on virus contamination is required on a basin scale. The geographical imbalance of data is more acute. Intake of pathogenic micro-organisms causing damage to health on a Mediterranean-wide basis still has to be determined. Furthermore, there are still large stretches of the Mediterranean coastal zone, mainly in the southern and eastern parts, for which records are very sparse.

5.Sewage discharges: There is a need for further data and information on water

quality and the operation of sewage treatment plants to be available.

6. Radionuclides: Information on radionuclide distribution is missing from some areas of the Mediterranean Sea, particularly from the eastern and southern basins; background data should be established in these areas.

7. Fisheries: Knowledge of Mediterranean fisheries needs to be improved. This will to a large extent depend on the quality of statistics, which is still one of the main weaknesses in dealing with real amounts of catches for the different species, as well as the structure and capacity of the different types of fishing fleets.

8. Biodiversity: A specific inter-Mediterranean approach to the monitoring of marine biodiversity -and the identification of important risks threatening the present state- is still missing. In order to avoid biodiversity reduction special attention is essential in species introductions and habitat loss. Research on processes related to ecosystem changes and rehabilitation of degraded coastal ecosystems is also required.

The information collected by the countries around the Mediterranean Sea is not easily accessible as it is scattered in various departments and institutions and in many cases it is not available in electronic form. It is vital that this information is centrally gathered in electronic form in a national database, as for example the exercise with the National Oceanographic Data Centres (NODC), so that it can be utilised easily by decision makers in the administration and by other partners.

EEA, ETC/MCE and MAP could help establish the databases by giving guidance at the relevant technical level in the Mediterranean countries following the standard procedures that were adopted at basin level under the MEDPOL programme and making use of the experience and involvement in this field of the European Information and Observation Network (EIONET), co-ordinated by EEA.

**Mediterranean monitoring**

Development of an effective, common Mediterranean monitoring system of measurements of contaminants and their effects is still missing, although monitoring in the Mediterranean has been in place for a long time (for example, the MED POL programme initiated monitoring activities in 1975). Unfortunately, this monitoring has not been very effective and data is often unavailable. However, the plan of data gathering from Mediterranean Countries has not been consistent and large data gaps can be identified both temporally and geographically. Effective monitoring would

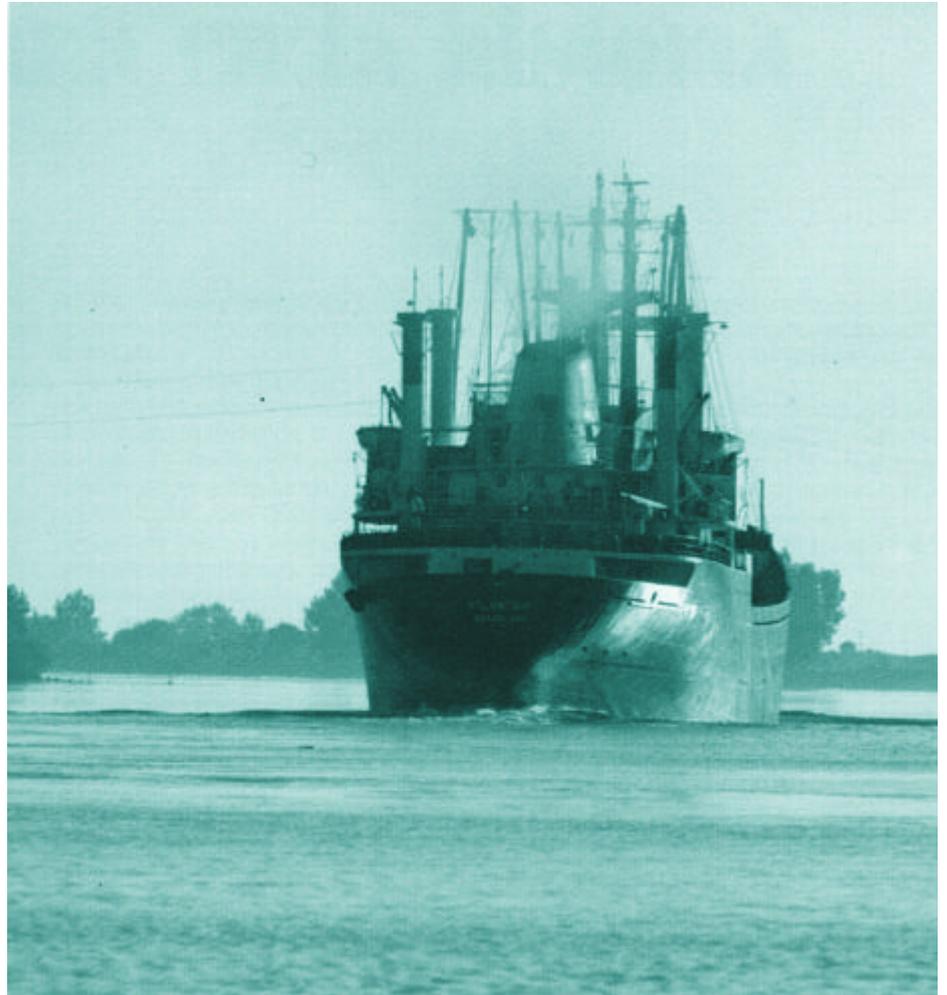
include the following elements:

- Information useful for the protection of human health, e.g. levels of contaminants in seafood, microbial quality of bathing and shellfish growing waters, and algal toxins;

- information useful for the assessment of the effectiveness of pollution control and abatement measures taken (trends);

through training and inter-calibration exercises between laboratories.

Future action could include the facilitation and co-ordination of responses to transboundary issues and problems. International co-operation between EU and non-EU countries, European Community bodies (CEC, EEA) and Mediterranean Institutions (MAP, CIESM, GFCM) should be further



- support for implementation of the protocol of the Barcelona Convention in order to contribute to the reduction of pollution from land-based sources, especially the hot-spots;

- information useful for coastal zone management;

- an early warning system (bio-markers). Research would probably be needed in order to identify sources of pollution (e.g. non-point sources in agriculture) and biological effects of long-range pollutants. Quality assurance and control procedures should be further developed and implemented to ensure data quality and reliability. Allocated resources should increase to enable a continuous flow of high quality data. An assistance component should be developed which could include training and establishment of contacts with more advanced laboratories (sister approach). The latter could be further developed

strengthened. Full implementation of the Barcelona Convention and its six protocols should be promoted at national level. Existing agreements, programmes and other co-operative efforts should be further developed to achieve maximum results and avoid duplication, while moves towards sustainable development should be reinforced at regional level. Action is needed at all policy levels; international co-operation, which should involve European Community bodies, should therefore play a fundamental role in the field of policy, research and information gathering through adequate resources directed to activities in the region. ●

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