

12. Introduction

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1. THE MARINE ENVIRONMENT AND COASTAL ZONES POLICY FIELD

It is very difficult to define precisely or place clear boundaries around the Marine Environment and Coastal Zones, due to the complex and interconnected problems of this policy field. A useful working definition used by the US Commission on Marine Science, Engineering and Resources and quoted in the *Dobříš Assessment* (EEA, 1995), is:

The part of the land affected by its proximity to the sea, and that part of the sea affected by its proximity to the land as the extent to which man's land-based activities have a measurable influence on water chemistry and marine ecology.

As an interface between land and sea, coastal regions are particularly valuable as ecosystems. Within Europe there is an exceptionally wide range of important and fragile natural coastal habitats covering arctic, temperate and subtropical climate zones. Pressure from human activities, including urbanization, industrialization, fishing, agriculture, energy generation and tourism has led to increasing degradation of the coastal environment and the necessity to produce pressure indicators for this policy field as an aid to the policy response.

The multidimensional nature of this policy field resulted in a diverse set of proposed pressure indicators in the first-round questionnaire launched by Eurostat.¹ The indicators included in the second-round questionnaire were primarily developed from those indicators that had been proposed at least ten times by the first-round questionnaire experts. These were grouped into four broad categories:

- pollution (for example, oil pollution at coast and faecal pollution)
- structural development (for example, wetland loss and loss of coastal green space)
- biodiversity/natural habitats (for example, priority habitat loss and accidents in coastal zone and at sea)
- unsustainable use (for example, overfishing and tourism intensity).

2. RESULTS OF THE SECOND-ROUND QUESTIONNAIRE

Figure 12.1 shows the results of the second-round questionnaire for the three quality questions and the core-ranking question. The core rankings are expressed as a percentage of experts who included the indicator in their top five list of essential indicators. The top five rankings for these four questions were as follows:

- Core-ranked indicators: eutrophication, overfishing, development along shore, heavy metal discharges, oil pollution at coast and at sea.
- Policy relevance indicators: overfishing, eutrophication, oil pollution at coast and at sea, wetland loss, discharges of halogenated organic compounds.
- Analytical soundness indicators: eutrophication, heavy metal discharges, overfishing, development along shore, tourism intensity.

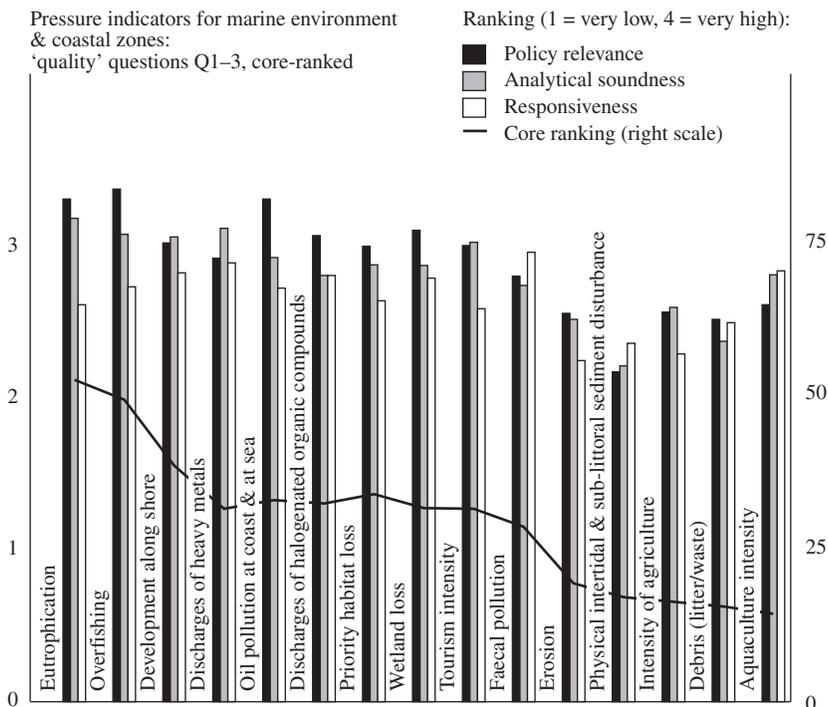


Figure 12.1 Results of second-round questionnaire for the Marine Environment and Coastal Zones policy field

- Response elasticity indicators: faecal pollution, heavy metal discharges, aquaculture intensity, development along shore, discharges of halogenated organic compounds.

From these results it is clear that there is a reasonable degree of agreement between the top five indicators for the core rankings and the three quality questions. Eutrophication, overfishing, development along shore and heavy metal discharges all feature in three of the four top five rankings. In line with most of the other policy fields, there is less agreement between the response elasticity indicator rankings and rankings for the other questions.

There is also a good level of agreement between question responses when the top ten rankings are compared. Along with the four indicators mentioned above, priority habitat loss, wetland loss, tourism intensity, discharges of halogenated organic compounds and oil pollution at coast and at sea all feature in at least three top ten rankings.

3. RELATIONS TO OTHER POLICY FIELDS

The Marine Environment and Coastal Zones policy field is intricately linked to a number of the other policy fields due to the broad-based nature of its definition. In common with the Urban Environmental Problems policy field it is defined by physical environment as opposed to environmental media, such as water, or specific issues, such as dispersion of toxic substances. Therefore, the principal pressure indicators cut across related policy fields such as Water Pollution, Dispersion of Toxic Substances, and Loss of Biodiversity.

Links with the Water Pollution policy field are highlighted by the prominence of the Eutrophication indicator in the rankings. As explained in Part X, the Water Pollution and Water Resources policy field section of this volume, these two ecosystems are in continuity with each other. However, they are delineated by considering continental aquatic ecosystems under Water Pollution and marine aquatic ecosystems under Marine Environment and Coastal Zones.

In Part VI, on Resource Depletion, it is suggested that marine resources may be perceived as a subset of natural resources. Interrelations between these policy fields are clear from the high ranking of the overfishing indicator in Marine Environment and the inclusion of the exceedance of fish catch quota indicator in Resource Depletion.

Overlaps with the Loss of Biodiversity policy field are evidenced by the inclusion of indicators for priority habitat loss and the wetland loss in the Marine Environment top ten core indicators. Similarly, the close relations to

the Dispersion of Toxic Substances policy field are shown by high rankings for heavy metal discharges.

A further close relation exists in some coastal locations with the Urban Environmental Problems policy field in connection with issues such as tourism and coastal development. This is illustrated by the high ranking of Marine Environment policy field indicators for tourism intensity and development along shore.

Finally, sea-level rise as a consequence of climate change is forecast to result in potentially serious damage to unprotected low-lying areas of European coastal zones. Therefore, indicators such as erosion and flooding are linked to the Climate Change policy field and could be viewed as state indicators in that policy field. However, these were not ranked highly in the second-round questionnaire for Marine Environment and the primary climate change pressures are included in the Climate Change policy field.

4. APPROACH OF THE CONTRIBUTIONS

The chapter by Professor Coccossis presents a view of the policy field from a sustainable management perspective. He stresses the complex nature of the pressures on coastal zones, pointing out that 'the ecological and socio-economic importance of coastal areas extends beyond a narrow geographical strip along the coastline'. The impact of a number of human activities are outlined, covering the areas of fishing, aquaculture, agriculture, industry, transport, tourism and urban development. Included among the range of particularly relevant pressures from these human activities are such pressures as overfishing, pollution from excessive use of fertilizers and pesticides, loss of natural habitat areas, and tourism intensity. These correspond to the highly ranked core indicators in the second-round questionnaire, even though definitions vary.

The main part of the chapter concerns the need for an integrated approach to coastal management so that environmental management is incorporated into socio-economic and physical development planning. In particular, it explains the need for coordination of coastal management above the regional and national levels, as envisaged by the 5EAP.² On the basis of this integrated approach the chapter outlines the phases needed for preparing a coastal management action plan, and explains the necessity of developing a coastal management information system to support this plan.

Professor Coccossis sees pressure indicators as important for raising awareness and support for the coastal management action plan by improving communication and understanding on coastal issues for both decision-makers and the public. At European level they can aid the development of common

policy frameworks for similar contexts and help to communicate successful coastal management.

Margarida Cardoso da Silva gives a clear overview of coastal zone problems, policy actions and the place for environmental indicators in policy assessment and monitoring. The problems of coastal zones are categorized under the five headings of urban encroachment, pollution of estuarine and coastal waters, marine resource exploitation and nature conservation, coastal hazards and institutional problems. These connect closely to the core indicators given in the second-round questionnaire except for institutional problems, which are an interesting extension to the list of problem pressures on coastal zones.

The chapter outlines the reasons for adopting a strategy for conservation and sustainable management of coastal zones at EU level with reference to 'The Golden Fringe of Europe' document and defines tasks that can best be undertaken at EU level. It then gives examples of actions needed to address the five categories of problems given above but stresses that for these actions to be most effective the finer details of the actions can only be defined on a case-by-case basis because of the varying characteristics of problems between different regions.

Cardosa da Silva concludes by looking at environmental indicators within the pressure–state–response model, explaining their use as a tool for decision-makers and for assessing the effectiveness of policies. It is pointed out that the process of reaching agreement on standard indicators for coastal zones in Europe is a long and difficult one. This is partly due to information availability and compatibility problems, but also to the different characteristics of coastal zones across Europe.

5. INTERNATIONAL FRAMEWORK

Responsibility for coastal management has historically rested with regional and national authorities, and this has not generally been based on an integrated view of coastal zone management. International progress in this area has been slow; however, as stated above, Professor Coccossis draws attention to the integrated approach taken by the 5EAP. Other important international and European coastal zone management initiatives have often been related to specific issues and have not embraced an integrated approach:

- Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area (1974 and 1992) (HELCOM);
- Oslo Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft (1974) and Paris Convention for the Protection of the Marine Environment of the North East Atlantic (1978) (OSPAR);

- Barcelona Convention for the Protection of the Mediterranean Sea against Pollution (1975). Under this convention the Mediterranean Action Plan has been developed, which includes a series of legally binding treaties, establishing a pollution monitoring and research network and a socio-economic programme for sustainable development. The Barcelona convention also has four related protocols related to dumping from ships and aircraft, pollution from land-based sources, pollution emergencies, and endangered species in marine and coastal areas;
- European Coastal Charter, established in 1981 at the Conference of Peripheral Maritime regions of the EEC;
- Joint Declaration on the Protection of the Wadden Sea, adopted in 1982 by Germany, The Netherlands and Denmark;
- North Sea Task Force established in 1988;
- Convention for the Protection of the Black Sea (1992).

There has also been a number of resolutions and directives adopted by the Council of Europe in the last 25 years. These include council directives on the quality of bathing water (1975), the quality required for shellfish (1979), the conservation of wild birds (1979), Environmental Impact Assessment (1985), and the conservation of natural habitats and wild flora and fauna (1992). Relevant council resolutions include: Resolution 29 of the Committee of Ministers on the protection of coastal zones (1973), Resolution of Planning Ministers on coastal areas (1983), Resolution on integrated management of coastal zones (1992) and the 5EAP (1993).³

NOTES

1. See Editors' introduction (first questionnaire: December 1995; second questionnaire: October 1996).
2. Fifth Environmental Action Programme (EU). See Annex IV.
3. See details on targets set at European level on TEPI Web page (http://e-m-a-i-l.nu/tepi/what's_new/the_documents/download_example).

REFERENCES

- CEC (1993), *Towards Sustainability*, Fifth Environmental Action Programme (Luxembourg: Commission of the European Communities).
- EEA (1995), *Europe's Environment: The Dobříš Assessment* (Copenhagen: European Environment Agency).