

## **European Coastal Management: An Introduction**

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**Abstract:** Future European coastal management will require the breadth of perspective and the range of skills necessary to evaluate, integrate and incorporate existing and developing knowledge of coastal systems for the benefit of the coast and its resources. The challenge for coastal research and regulation is the development and adoption of new, selective frameworks and methodologies in coastal studies which will harmonise human interests with nature conservation and the dynamic evolution of the coast. Papers published in this volume allow an evaluation of the current degree of integration among the roles of researchers, managers, administrators and society at large in providing new directions for coastal science, nature conservation and human activities on European coasts.

### **Introduction**

The International Geographical Union's Commission on the Coastal Environment (IGU-CCE) has documented the nature and pattern of global coastal change through the last century (Bird, 1993). The precise nature of the physical, chemical and biological processes at work on the coast continues to receive considerable attention (Carter, 1988; Hardisty, 1990; van der Meulen *et al.*, 1989). Coastal change produced by defensive structures, in response to erosion and beach degradation, has also been examined (Bray *et al.*, 1992; Intergovernmental Panel on Climate Change, 1992; Williams *et al.*, 1991), as has land reclamation in the coastal lowlands (Rijkswaterstaat, 1990). The challenge for future European coastal management is to develop the breadth of perspective and the range of skills necessary to evaluate, integrate and incorporate existing and developing knowledge of coastal systems for the benefit of the coast and its resources.

It has been calculated that 50% of the population of the industrialised world lives within 1km of a coast, and this population will grow at about 1.5% p.a. during the next decade (Goldberg, 1994). This has given rise to concerns about the quality of the coastal resource, including the issues of shoreline erosion and sea defence, habitat degradation, pollution and reduction in coastal biodiversity as a result of ever-increasing pressure on a dynamic and often fragile environment. Categories of human land use at or near the shoreline are summarised by Viles & Spencer (1995). Many of these activities imperil, or are imperiled by, the growing demands placed on the coast. Recent adherence to the idea of sustainability and 'sustainable coasts' among many involved in coastal management (Doody, this volume) implies a recognition that the coast is not the preserve of any one sphere of activity. Rather, it is an evolving, often transient, environment (van de Plassche, 1994) within which the physical landscape, associated flora and fauna and human populations interact.

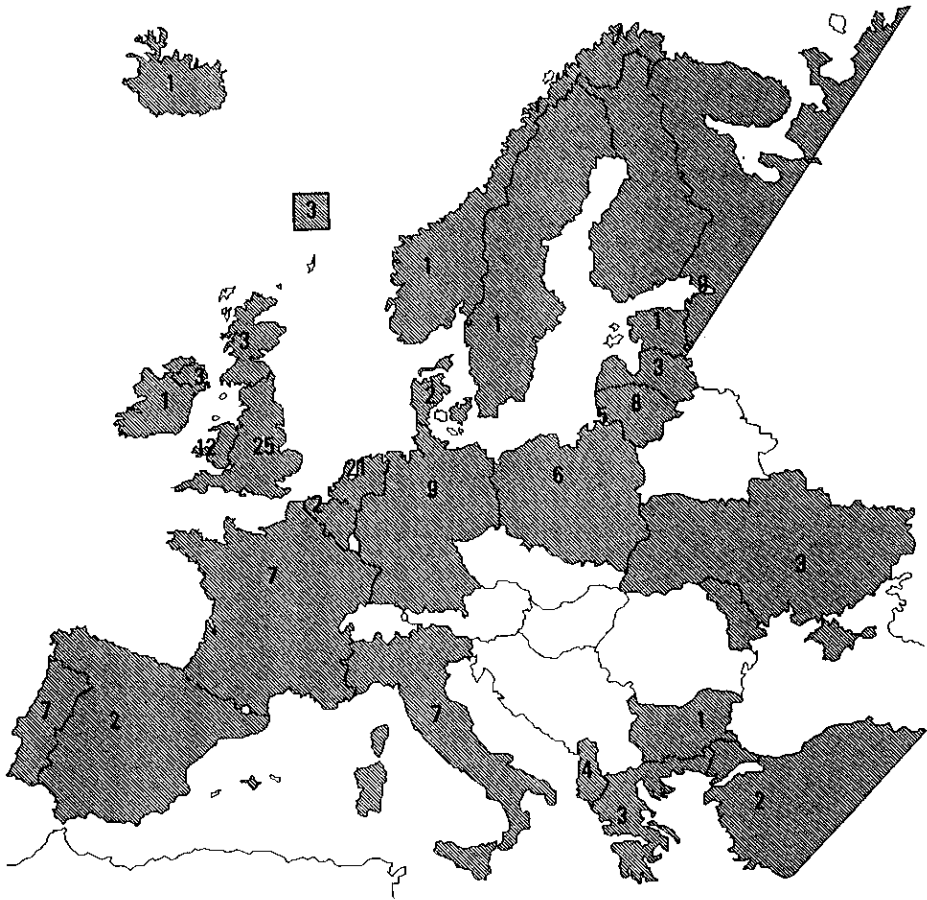
## **New directions in coastal management**

Traditionally coastal erosion has been regarded as a *bête noir* by conservationists, engineers and coastal communities alike. The understandable response to coastal flooding and consequent property loss has been coastal armouring, using a variety of structural sea defence techniques. This has resulted in flood and erosion defence protection on 12.9% of the coast of Italy (Cencini & Varini, 1988), 38.5% of the UK coast (Carr, 1988) and almost the entire coast of Belgium (de Moor & Bloome, 1988) as well as large proportions of other national coastlines. It is, however, important to remember that erosion serves to release sediment for deposition elsewhere (Carter & Woodroffe, 1994) and sediment budgets are central to understanding and managing the majority of European shorelines.

Sea defence works and their coastal impacts have been reported in many fundamental scientific studies (Nordstrom, 1994) but effective management planning requires baseline information to help assess the physical, chemical and environmental problems which attend many coasts. Apart from specific scientific studies, it is usually difficult to differentiate cause and effect in relation to a particular coastal management problem. In keeping with the inherent character of the coast, problems tend to be compound, linked to, or associated with, a variety of causes and consequences. A general failure to understand or appreciate this complexity has often led to inappropriate management planning in the past. Management measures have frequently been stimulated by 'crisis response' strategies generated by specific concerns such as coastline defence or nature conservation. Without doubt, the recognised conservation and commercial value of the coastal resource justifies selective coastal management. The new challenge for coastal managers, planners and administrators is the development and adoption of new, selective frameworks and methodologies which will allow harmonisation of human interests with the tendency for dynamic evolution which has characterised the coast for many thousands of years (Tooley & Shennan, 1987). The 5th EUCC Conference 'Coastlines '95', with participants from several European countries (Figure 1), has been dedicated to the exchange of information, expertise and experience in coastal studies and to examining potential new directions in European coastal management.

## **The European Habitats and Species Directive**

The adoption of the European Union Habitats Directive (European Council Directive 92/43/EEC) on the conservation of flora and fauna and their habitats is a significant step forward. The formal identification and designation of Special Areas for Conservation (SACs) and Special Protection Areas (SPAs) within a European framework, Natura 2000, offers an opportunity to enhance planning and management for conservation. As site selections and proposals for designation will be made at the national level, specialist 'local' knowledge and expertise makes it possible to identify and substantiate the importance of individual sites as well as the overall coastal resource. Central to the success of this procedure is the establishment of a methodology for collecting and collating site specific data and the development of an overall framework for site selection. Implicit in this process is the need to evaluate the impact of human activities on the environment and, in



**Figure 1** Number of conference speakers and participants from each country

the context of coastal management, specific human influences on the coastal conservation resource. Several papers included in this volume address specific aspects of philosophy and procedure associated with the Habitats Directive.

### **Tourism and recreation in Europe**

Population studies show an increasing trend towards large scale urbanisation on a global scale (Stanley & Warne, 1993). Many European cities are located directly on the coast, while others are within easy reach of it. Additionally, the growing popularity of European coastal resort holidays brings a further population pressure to bear on many coastal areas. The large settled and transient coastal population requires the support of an industrial, commercial, agricultural and service infrastructure. As a result, coastal areas, particularly coastal lowlands, are often a hub of intense human activity. Coastal lowlands are usually the most fragile coastal environments, with complex feedback exchange interactions with the sea (Tooley,

1987). The popularity of these areas with human beings is mirrored by the great diversity of flora and fauna in coastal regions. A wide range of habitats make up several coastal biogeographical regions in Europe (Huggett, this volume). The range of actual and potential conflicts between nature conservation, tourism and recreation in Europe is explored and evaluated by a number of authors in this book. New directions in coastal management are suggested alongside critical evaluations of past and current practice at a variety of scales.

### **Shoreline management**

The concept of 'coastal zone management' has arisen from a recognition of the need for coastal management to do better than merely defending the shoreline (O'Riordan, 1995). Selective strategic planning, involving a wide range of coastal activities and interests, is generally accepted as an approach which is preferable to 'crisis response'. The papers presented here deal with many aspects of shorelines and broader coastal environments. In some ways they reflect the variation in concerns, methods and objectives which characterise much current coastal management practice in Europe. Solutions to real or perceived coastal problems such as sea defence, pollution, over-population, habitat degradation, loss of biodiversity and lack of reliable data are discussed, with proposals for new approaches in many spheres. A growing recognition that our understanding of what is meant by the 'shoreline' needs more precise definition underpins several of the ideas put forward.

### **Coastal habitats**

Under the Habitats Directive, each European Union member state is required to establish its own legislative framework to ensure the conservation of flora and fauna. The essential obstacle which needs to be overcome in this regard is how to reconcile conflicting cultural and environmental conditions. As a prelude to this major task, the collection, collation and evaluation of data on the nature conservation resource is essential. A sound understanding of the quality and quantity of this resource is of fundamental importance. It is now appreciated that plants, animals and their habitats are intimately related to their physical environment. The variety and interconnected nature of physical coastal systems is paralleled in the biological world they support. This is evident in a number of chapters in this book. Frequently, rare and ecologically valuable habitats are found in the most transient, unstable and unlikely locations. The documentation of coastal habitats is therefore important not only in regard to what currently exists, but also in relation to the potential for habitat evolution on the coast. It can be argued in relation to coastal habitats that conservation should apply to habitat potential as well as current habitat resources.

### **Coastal planning in Europe**

The 1992 'Earth Summit' conference in Rio de Janeiro initiated a political framework within which environmental protection, sustainable use of the environment and the maintenance of global biodiversity were recognised as central to

the relationship between environment and development. In Europe, the European Union for Coastal Conservation (EUCC) and other organisations are dedicated to the restoration, protection and coherent management of coastal areas. Within this context an enormous variety of policy formulation and planning for coastal sites on European shores continues to take place. The range of coastal management aims, methodologies and implementation strategies at national, regional and local levels, which is evident in the papers presented here, is symptomatic of a system in which multi-tier administration and regulation continues to operate. Many contributions under the theme of coastal planning in Europe emphasise the need for integrated approaches to policy development among administrators, planners, managers, interest groups and society at large. Some offer proposals which may help to achieve improved understanding and common purpose. Virtually all recognise the difficulties inherent in this task. 'Wise use' of the coast, linked to sustainable development and maintenance of biodiversity, continues to represent the political ideal in 'integrated coastal zone management'. It remains to be seen whether such an ideal has sufficient flexibility and resilience to achieve effective integration.

### **Case studies**

Many practical examples of coastal management in Europe are elucidated as case studies under the themes mentioned above. The case studies published here demonstrate the wealth of the European coastal resource. However, virtually every contribution emphasises cultural and environmental problems, often occurring in tandem, which require improved management. The variety of local environmental factors, physical processes, habitat characteristics and human use of the coast highlights the need for coherent and integrated planning and management strategies. This complexity underscores a clear requirement for research and regulation to recognise the linkages between environmental and social needs on European coasts.

### **Linking science, nature conservation and human activity**

From the outset, the central concern of the organisers of the 5th EUCC conference was that both the conference and this publication should assist the integration of the roles of researchers, managers, administrators and society at large in providing new directions for coastal science, nature conservation and human activities on European coasts. The overall focus of the book is on policy, planning and management of the coastal zone. The volume is organised on a broadly thematic basis as a context for individual contributions. However, there is considerable thematic overlap between papers and sections. The contributions which follow develop many of the main issues in coastal management and examine specific management concerns on a range of scales, from European policy and planning to local, site-based scientific and management reports. The ideas and research results published in individual papers are entirely the responsibility of the listed authors. Papers have not been peer reviewed, but have been stylistically and structurally standardised by the editors. It is hoped that this volume goes some way towards defining new directions in European coastal management.

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