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FORUM

COASTLINES '95 and beyond — or research, technology and coastal zone management

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Introduction

The 5th conference of the European Union for Coastal Conservation, COASTLINES '95, was held in Swansea from the 3 - 7 July 1995. Only two months later the Estuarine & Coastal Sciences Association (ECSA) conference in Dublin provided a unique opportunity to review the Swansea conclusions. This paper provides background information on the work of EUCC, the European Union for Coastal Conservation, outlines the main contributions to the conference and considers the lessons which might be learnt by those seeking to provide a scientific input to the development of coastal conservation policy.

Despite the destruction and degradation of coastal areas throughout the World, nature manages to survive in many areas. The European Union for Coastal Conservation was established partly in response to the need to protect and conserve those areas that are left. The wise management of these and peripheral areas were also important goals for the organization. This was true both for the habitats that have changed through human intervention, but still retain wildlife or landscape interests, and those that are considered to be in a natural state. Early work was dominated by dune management issues –the Union started as the European Union for Dune Conservation. However, the focus has rapidly widened to the wise use of the coastline of Europe and the development of Integrated Coastal Zone Management as a mechanism for achieving this. EUCC played a leading role in the organization of the European Coastal Conservation Conference (Anon. 1992). This conference provided the impetus for the development of a EU strategy for the coast.

Every two years the EUCC holds a conference which brings together a wide range of scientific expertise covering different aspects of coastal management and conservation. The first and second, held in Leiden in 1987 (van der Meulen et al. 1989) and Seville in 1989, respectively, were concerned with the principles of sand dune management. The 1991 meeting in Galway (Carter et al. 1992) also concentrated on dunes but extended management considerations to the whole coast. The 1993 Conference (Salman et al. 1995), held in Marathon, looked more widely at coastal zone management.

The 5th EUCC conference - COASTLINES '95

Coastlines '95 was held in the U.K. and set out to link research more closely with conservation practice. There were four main themes which attempted to explore the way in which human use has affected the functioning of the coast, its continued value for wildlife and the sustainability of human activities. The conference aims were linked to those of the Council of Europe's European Year of the Environment, which took as its theme nature conservation outside protected areas. Two volumes of conference papers will be published, the first of which has appeared (Healy & Doody 1995; Jones et al. 1996).

Theme 1 - the European Union (EU) Habitats and Species Directive & Coastal Zone Management (CZM)

The European Union Species and Habitats Directive was seen as a major part of the policy for both the terrestrial coast and the marine environment. Bruno Julien (Head of Nature Protection, Coastal Zones and Tourism, DG XI) indicated that the development of EU policy on CZM strategy, which the Commission has been mandated to produce by the Council of Environmental Ministers, was equally important. This suggests adopting a pragmatic approach, which recognizes that member states will not agree any new legal instruments.

Better coordination not only across the zone and between member states, but also within the Commission itself is an important part of the strategy. This last point is a key issue, since coastal development, promoted by the EU, has often been carried out at the expense of the environment. This communication was published in December 1995. It is based on the development of a coastal strategy using demonstration programmes. A contrasting view was put by Ferdinando Albanese (Director of Environment and Local Authorities, Council of Europe), who advocated a convention for the protection of Europe's coast. He argued this should lay down a series of basic principles to be implemented by national governments, including setting up of an international monitoring committee.

Theme 2 - tourism

Tourism was identified as a continuing threat to many coastal areas and species. Alongside the usual stories of destruction there were also descriptions of case studies which showed more informed management, based on a better understanding of the implication of development for the environment, is being undertaken. The greatest test perhaps lies in the way tourism is integrated in some of the eastern European countries, such as Albania (Bako 1995), which has so far escaped the worst ravages of coastal development. The U.K. and other countries where much destruction has already occurred, are beginning to recognize the consequences in environmental degradation, of the increasing costs of 'protecting' the infrastructure from erosion and maintaining clean beaches and coastal waters. Welsh Water, a new private water company and one of the main sponsors of the conference, outlined their approach to water quality and waste-water treatment as part of a policy to improve the coastal environment. The tourism industry was represented by 'Green Globe' who outlined an approach which engages the industry in developing a more sustainable approach.

Theme 3 - shoreline management

Many presentations on shoreline management emphasized the need for a new approach. John Pethick's keynote speech suggested management of our coasts and estuaries is often undertaken with little understanding of the processes involved and too little regard for the long-term consequences of our actions. Given time the coast can accommodate major change due to sea-level rise or the action of storms and indeed is inherently resilient to change, not fragile as is so often depicted. Hard engineering structures are still the most commonly used form of coast protection despite the financial cost and the implications for adjacent stretches of coast, which may be adversely affected by changes in the sediment regime. However, more natural approaches were described, for example beach nourishment for the French Riviera (E.J. Anthony & O. Cohen in Healy & Doody 1995) and the Black Sea (Y.Shuisky in Healy & Doody 1995). The Ministry of Agriculture, Fisheries and Food –responsible for coastal protection in England and Wales– described the development of shoreline management plans and their contribution to the recreation of coastal habitats (A.R.H. Swash et al. in Healy & Doody 1995).

Theme 4 - planning

The papers showed both good and bad aspects of management on Europe's coastline. Although the principles of integrating management are now firmly established, economic and social considerations may prevent adequate solutions from being implemented. For example, despite the enactment of national legislation, economic demands from local business, reluctance to implement legislation combined with a lack of understanding of the issues by locals and visitors alike, the protection of rare animals, such as sea turtles in Turkey (F. Demirayak in Healy & Doody 1995) and Greece (R. Poland et al. in Healy & Doody 1995) has proved difficult. In Denmark a plan for the management of the northern tip of Jutland prepared by central and national organizations has not been implemented because of local opposition to certain aspects of the plan (F. Jensen in Healy & Doody 1995).

Some conclusions from the conference

It is clear from the papers and discussions that a more consistent and enlightened approach to the integration of coastal management is needed. There were descriptions of good practice, but there were many more where costly (both financially and environmentally) decisions have been made. The question therefore is: how do we encourage best practice in coastal management, what is the role of a conference of this kind and how should the EUCC and ECSA become more directly involved in promoting CZM? The following discussion attempts to identify some of the issues, which the author feels might be important for the future conservation of the coastline of Europe. Resource information and CZM Information is one of the keys to developing appropriate management strategies, whether for a single estuary, a stretch of cliff coastline, or a whole country. This is recognized within Agenda 21 (the agenda for action which resulted from the United Nations' Earth Summit in 1992), where each of the programme areas encourages coastal states to "improve their capacity to collect, analyse, assess and use information…". The original time table for the European Union's Fifth Action Plan 'Towards sustainability' envisaged a number of pilot

projects including "the creation and improvement of data bases…before 1995". It could be argued that in the U.K. the work on the collection, collation and dissemination of data and information about the current status of the coast, which is being undertaken by the JNCC Coastal Directories Project, may fulfil this requirement and provide a model for other European states. The information collected in the regional volumes, which includes data on the coastal resource (habitats, species, geology etc.) and human activities (infrastructure development, fishing, recreation etc.) has been presented without value judgements being made on the impact of an activity on the coastal environment. Because of this it has been possible to bring together sectoral interests, who might not have readily communicated with each other. A key part of the process has been their involvement in funding and steering the development of the project, the collection of data and in some instances helping to write individual chapters. During the conference two volumes of a projected series of 17 regional reports covering the U.K. coast – the first one by Barne et al. (1995)– were both launched and have been very enthusiastically received by organizations such as local planning authorities, government departments (Ministry of Agriculture Fisheries & Food and the Department of Trade & Industry), as well as the private sector (notably represented by the oil industry). At a European level EUCC is producing coastal habitat inventories as part of an attempt to "describe the coastline of Europe"; see for example, Doody (1991). The work also includes an assessment of the main activities that influence the coast, which will help build up a picture of the main nature conservation issues for each habitat across Europe. An attempt is also being made to build up a network of specialists, who will provide information on these and other habitats, their conservation needs and the sites that are important for their protection on a country by country basis.

The next frontier - information, satellites and CD-ROMs

Resource information of the kind described above is presented in a simple, non-technical way. As such it provides readily accessible data for the non-specialist and hence a context for management action. New technologies which are being developed to help decision making are not as yet fully understood. Coastlines '95 provided an opportunity to demonstrate the use of Geographical Information Systems and their application to integrated management. Whilst the work described was often elegant and visually convincing, much of the technical language used, particularly that associated with computer language, would not have been readily understood by many coastal managers. Using satellites to look at the environment of the Earth has become an important part of the European Space Agency programme over the last two decades. The European Remote Sensing Satellite (ERS-1) launched in 1991 has provided information on physical oceanography, polar science and climate research. Although additional data have been provided on terrestrial earth sciences, the extent to which current images might be utilized to provide data in support of coastal management it is not altogether clear. Part of the problem lies in the absence of any strong link between those concerned with the management and conservation of coastal areas and those interpreting satellite data and developing new missions.

This situation is likely to change with the recent joint initiative by the EU and The European Space Agency on the development of a European Earth Observing System (EEOS). The system would imply a more cost-effective use of satellite data for the management, exploitation and monitoring of the coastal zone (Doody 1995). The gathering of information which is now under way has two main objectives:

(1) to identify data and information currently used to support coastal management;
(2) to stimulate discussion on the use of data derived from satellites.

Although there may be some difficulty in identifying precisely what satellites can and cannot do we must embrace this new approach and encourage its application to the real world. This should include a review of the extent to which satellite data can replace or enhance existing survey and monitoring. In addition the traditional means of data and information dissemination, using 'hard paper copy', which is still the most accessible for the majority of coastal managers and decision makers, might be reviewed. The most recent Coastal Directories seminar suggests the use of new electronic formats for the display of information such as CD-ROM, Hyper-text and GIS. This will require a multidisciplinary approach in which the conservation bodies such as the EUCC and scientific associations, such as ECSA, have an important role to play.

Applying research - the art of communication

Science and technology have long been the preserve of the specialist. The 'field ecologist' or conservation site manager may have much in common, but how do the soil chemist, the marine biologist or the satellite 'technocrat' communicate? Each has their own language and rarely do the two meet. Seminars and conferences provide a means of exchanging up-to-date information in the subject area, debating new approaches and developing personal contact and respect for others. Scientific peer reviewed journals further aid communication within the groups, but

rarely between them. The papers presented at Coastlines' 95 are published in the two volume conference proceedings. Similarly the results of the ECSA conference will be distributed in scientific journals. The history of the development of the EUCC in general, and the nature of the conferences and their content in particular, reflect the way that science has been applied by those who may be called 'conservation scientists'. The widening of the approach from a special concern for the management of dunes for their vegetation and associated animal interests (traditionally an approach applied to all habitats and species) has broadened to a concern for promoting more integrated forms of management. With this comes a recognition of the importance of applying science across the coastal/marine zone, and involving conservationists, users and politicians in discussion about key management issues.

ECSA's approach to estuarine and coastal issues has itself broadened in the last few years. The range of topics presented at the conference in Dublin are a reflection of this wider interest. However, as with the EUCC conference and its publications, it is pertinent to ask whether the effort will be translated into better management decisions. Despite the importance attached to coastal issues by politicians at the Earth Summit and within the EU, the development of an EU strategy has been delayed by infighting between the directorates in the Commission and the unwillingness of Governments to enact new comprehensive coastal legislation. At more local level the full implementation of management plans has often been curtailed by commercial concern about the impact on the local economy. EUCC and ECSA conferences clearly show the importance of understanding both the physical, chemical and ecological processes in assessing change on the coast and the implications of human use. There is a reluctance by many to accept that the wider consideration of coastal management across sectorial interests can result in benefits, both for the environment and sustainable human use, which can in its turn benefit the economy. We often fail to learn the lessons of past mistakes and continue to use inappropriate and costly methods for coastal protection.

Rectifying this situation requires a more pro-active approach to demonstrating the implications of human activities, not only for the future of the coast and its wildlife, but also those elements which sustain human use. Big issues (global warming and sea level rise) have attracted the interest of the politicians through the press and other media. Perhaps conservation scientists should involve managers, decision makers, users, developers and politicians in the development of scientific endeavour. In a small way the JNCC Coastal Directories Project and the EUCC's inventory work attempt to do this. Perhaps ECSA's role might also become more pro-active in promoting the science of CZM and hence tailor some of its conferences and publications more openly to informing public opinion and debate. EUCC has always used research as the basis for promoting better coastal management, however, although it has been successful in some areas of conservation action (its magazine '*Coastline*' and the organization of the European Coastal Conservation Conference for example), it has been less successful in coordinating scientific activities. ECSA could help encourage scientific studies designed to promote CZM. It could also help provide the essential scientific input to conservation action by the EUCC. By combining forces it should be possible to make better use of information to support integrated coastal management and hence fulfil the objectives of sustainable development and the maintenance of biodiversity, which were the twin goals set out by politicians at the Earth Summit in Rio de Janeiro.

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