

REPORT

Coastal Directories and beyond: providing multidisciplinary coastal zone resource information for resource management

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Abstract. Baseline resource information in an easily accessible form is a vital starting point for developing coastal zone management. On behalf of a wide-ranging group of organizations involved in the management of the U.K. maritime zone, the Joint Nature Conservation Committee (JNCC) is compiling a series of 16 regional volumes. The volumes contain multidisciplinary coastal zone resource information arranged in ten chapters under the general title 'Coasts and Seas of the UK'. These volumes form part of a series of paper and electronic publications of coastal information being produced by JNCC's Coastal Directories Project and are designed to meet the needs of planners and all others involved in decision-making and management of the coast.

Keywords: Coastal Zone Management; Resource information.

Introduction

The Coastal Directories Project sets out to collect summary information that will provide an overview of coastal and marine resources and human activities at national and regional levels. It also provides an index to more detailed references and other sources of information. Information on coastal resources and their use is vital to the development of policy for environmental management. Because of the inter-related nature of the many components of the coastal zone, including both habitats and species, coastal management requires a knowledge of the interactions between human activities and the physical functioning of the zone and its biotic components. In addition, it is essential to adopt a wide-ranging approach to collecting, collating and disseminating this information.

Origins of the Coastal Directories Project

The Coastal Directories Project began following a suggestion in 1989 by the United Kingdom at the second

meeting of the North Sea Task Force to include consideration of coastal habitats and species of conservation importance in the North Sea Quality Status Report (Anon. 1993). The work initially involved the collection and collation of information along the coastal margin of the 'North Sea', from Cape Wrath around the North Sea and the English Channel to the Fal Estuary. Funded as a joint project between the Department of the Environment and the Nature Conservancy Council, the Directory of the North Sea coastal margin was also published in December 1993 (Doody et al. 1993). The project fulfilled its original aim, and the North Sea Quality Status Report included descriptions of both habitats and species in several of the sub-regional reports, together with an assessment of the human impacts on the ecosystems.

Following its success the Coastal Directories Project was extended to the 'West Coast' of the U.K. (thereby covering the coast of Britain not included in the Directory of the North Sea coastal margin, including the Isle of Man) and the production of regional volumes covering the coastline of Britain was instigated. The regional volumes provide a detailed level of information and set each 'region' in a national context, thus facilitating the preparation of documents such as regional plans. Discussions indicated that completion of the regional volumes should take priority over the production of the second national volume - the 'West Coast Directory'. This was agreed and additionally, in 1995, Northern Ireland became formally involved, meaning that there would be a total of 16 regional volumes covering the coast of U.K. and the Isle of Man. Fig. 1 shows the boundaries of the regions in the U.K.

Aims of the current work

The aim is to publish all 16 regional volumes as hardback books by the end of 1997 (Table 1). For the regional volumes the definition of the coastal margin

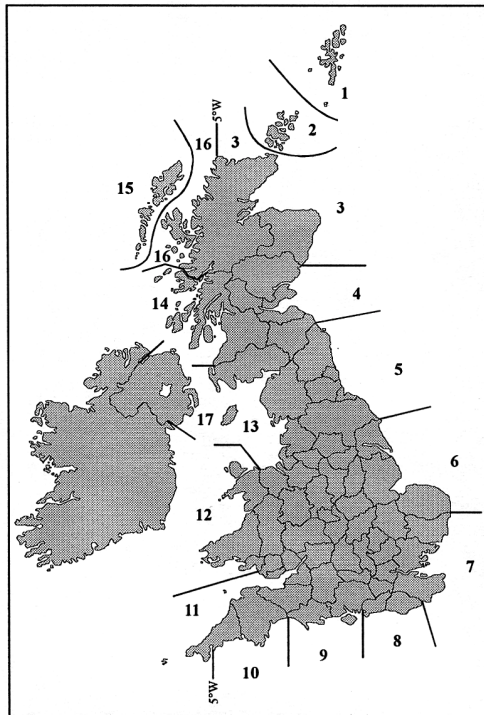


Fig. 1. Map of regions in the series. Regions 15 and 16 will be published together, making 16 volumes in all.

encompasses areas from offshore waters to terrestrial maritime habitats. A wide definition of maritime habitats has been adopted here: tidal areas (mudflats, sand flats, saltmarshes and transitions to brackish marsh, swamps and salt-influenced grasslands) are included; rocky shores, shingle beaches, cliffs subject to salt spray, and terrestrial features including sand dunes and shingle structures that are maintained by marine processes are also covered. In addition, we have considered areas where combinations of these habitats occur. Examples include estuaries where lagoons or land claimed from the sea, such as coastal grazing marsh, form part of the functioning system. Also covered are habitats used by coastal species for at least part of their life cycle. A minimum distance of 35 km offshore has been agreed as a notional limit to the coastal zone for the project, but in effect the median line between Britain and neighbouring states forms the boundary in many instances.

Each Coastal Directories regional volume is divided into 10 chapters, each split into sections (Table 2). Throughout the preparation of the volumes, sections have been compiled by identifying existing sources of compiled information at national, regional and local levels. Using these sources, internal authors and contracted external authors who are experts in their own subject area, write a section for each of the regions. Table 3 shows the typical structure of a section.

Management of the Project

The members of the Project Team, based in the JNCC's offices in Peterborough, deal with all aspects of the project including administration, publicity, marketing, and editing. At the outset it was agreed that the Project should involve a wide variety of individuals and organizations concerned with the conservation and use of the coastal margin, to reflect the complex nature of the habitats and species and the wide-ranging influence of human activities. It was recognized that if external organizations were also funding the project they would be more willing to be involved in 'steering' it and providing information relating to their interest. This approach has been very successful with 74 organizations (Table 4) contributing a total of £ 230 000 which is approximately a quarter of the total cost of the project. Coastal local authorities make up 57% of these funding consortium members. Their individual contributions are relatively small, which in total represents 13% of the total amount raised. Analysis shows that 'user groups' have contributed most of the external funding, with 57% of the total amount contributed. Government departments and statutory agencies contribute equally to the remaining 30%.

In addition to the funding consortium there are 250 members (individuals/organizations) in the Project's main Steering Group who show a keen interest in the development of the work and who may contribute information and expertise. Of particular importance is the annual Steering Group Seminar: so far it has reviewed the 'Role of the Directories in the development of coastal zone management' (January 1994), and considered the 'Use of electronic storage and retrieval mechanisms for data publication' (February 1995). The seminar of February 1996 dealt with the way published regional volumes, are

Table 1. List of volumes on regions and publication dates.

1. Shetland	1997
2. Orkney	1997
3. North-east Scotland: Cape Wrath to St. Cyrus	1996
4. South-east Scotland: Montrose to Eyemouth	1997
5. North-east England: Berwick-on-Tweed to Filey Bay	1995
6. Eastern England: Flamborough Head to Great Yarmouth	1995
7. South-east England: Lowestoft to Dungeness	1997
8. Sussex: Rye Bay to Chichester Harbour	1997
9. Southern England: Hayling Island to Lyme Regis	1996
10. South-west England: Seaton to the Roseland Peninsula	1996
11. The Western Approaches: Falmouth Bay to Kenfig	1996
12. Wales: Margam to Little Orme	1995
13. Northern Irish Sea: Colwyn Bay to Stranraer including the Isle of Man	1996
14. South-west Scotland: Ballantrae to Mull	1997
15/ North-west Scotland: the Western Isles	
16 and west Highland	1997
17. Northern Ireland	1997

Table 2. Contents list of the Coastal Directories Regional volumes.

Chapter 1. Introduction	Chapter 5. Important species	Chapter 7. Coastal protected sites
Chapter 2. Geology/physical environment	Terrestrial lower plants	Sites (international conventions etc.)
Coastal and offshore geology	Flowering plants and ferns	Sites established nationally
Wind and water	Land and freshwater invertebrates	Sites identified by statutory agencies
Sediment transport	Rare sea-bed species	All other types of protected site
Sea-level rise and flooding	Exploited sea-bed species	Chapter 8. Land use, infrastructure and coastal defence
Coastal landforms	Amphibians and reptiles	Chapter 9. Human activities
Chapter 3. Coastal habitats	Fish: exploited sea fish	Fisheries
Cliffs and cliff-top vegetation	Fish: salmon, sea trout and eels	Mariculture
Sand dunes	Fish: other species	Quarrying and landfilling
Vegetated shingle structures	Seabirds	Marine aggregate extraction/dredging
Coastal lagoons	Other breeding birds	Oil and gas development
Saltmarsh	Migrant and wintering waterfowl	Water quality and effluent discharges
Chapter 4. Marine/estuarine environments	Land mammals	Leisure and tourism
Estuaries	Seals	Chapter 10. Coastal management
The sea bed	Whales, dolphins and porpoises	National and regional coastal initiatives
Plankton	Chapter 6. History and archaeology	

used and how they could be improved.

As the work evolved from the first Steering Group meetings, the value of the approach used to manage the Coastal Directories Project has been highlighted by the extent to which new approaches are suggested and information sources identified and contributed. The involvement of so many organizations from the Steering Group in key stages such as planning and consultation has been vital to its success. This is not only important in having to complete so much work in short timescales but also in publicising the project and in helping to make the end results useful to all interested parties.

Examples of how the Coastal Directories Project products are being used

It was recognized by the Department of Trade and Industry (DTI) and UKOOA - the representative organization of the UK's oil and gas industry, that the baseline environmental resource information in the regional volumes would be valuable in preparing and assessing applications for oil and gas licensing. In return for a large contribution of funds from UKOOA to the project in June 1994, drafts of the six regions covering

most of the potential licensing areas in the 16th Offshore Oil and Gas Licensing Round were made available to the companies in December 1994. This was in time for the companies to be able to assess the information they contained before putting forward their applications to the DTI.

The dialogue between the Project's Steering Group members has confirmed the importance of the Coastal Directories in providing basic resource information to support a more integrated approach to management issues. Increasingly, therefore, the regional volumes are seen as providing essential information to inform the development of coastal zone management policy at regional and national levels. For example the National Rivers Authority has identified that the regional volumes will provide an information source that is highly recommended for work on producing Local Environment Action Plans and Shoreline Management Plans. A copy of 'Region 12: Wales: Margam to Little Orme' (Barne et al. 1995a) was provided as a source of information for the Countryside Council for Wales's 'Review of Coastal Zone Management in Wales'. In addition copies of 'Region 6: Eastern England: Flamborough Head to Great Yarmouth' (Barne et al. 1995b) have recently been sent to two members of the Funding Consortium for their use in compiling other publications. English Nature (Government's adviser on nature conservation in England) requested a copy for use in compiling a 'Natural Area Core Profile Report' for a Natural Area in North-east England and Lincolnshire County Council were sent a copy to help with the preparation of their 'State of the Environment Report'.

Table 3. Typical section structure.

• Introduction
- importance of region for habitats/species/activity concerned, in the national context
• Important regional locations (and/or species)
• Human activities
- including their management and regulation
• Information sources used
- their scope, date and interpretation
• Further sources of information
- cited references, further reading, contact names and addresses

Table 4. Members of the Coastal Directories Project Funding Consortium.

Arco British Ltd	Down District Council	North East Fife District Council
Ards Borough Council	Dumfries and Galloway Regional Council	Nuclear Electric plc
Avon County Council	Dyfed County Council	Preseli Pembrokeshire District Council
Banff and Buchan District Council	Eastbourne Borough Council	Restormel Borough Council
Belfast City Council	English Nature	Samara Consulting
BHP Petroleum Ltd	Essex County Council	SCOPAC (Standing Conference on Problems Associated with the Coastline)
Ceredigion District Council	Fife Regional Council	Scottish Natural Heritage
Cheshire County Council	Gwynedd County Council	Scottish Office Agriculture, Environment and Fisheries Department
Chevron U.K. Ltd	Hampshire County Council	Sefton Borough Council
Cleveland County Council	Highland River Purification Board	Scottish Salmon Growers Association Ltd
Clwyd County Council	Humber Forum	Shepway District Council
Clyde River Purification Board	Isle of Man Government, Department of Industry	Solway River Purification Board
Colwyn Borough Council	Isle of Man Government, Department of Local Government and the Environment	Somerset County Council
Copeland Borough Council	Isle of Man Government, Department of Transport	South Pembrokeshire District Council
Countryside Commission	Kyle and Carrick District Council	U.K. Offshore Operators Association
Countryside Council For Wales	Lancashire County Council	Vale of Glamorgan Borough Council
North Cornwall District Council	Lincolnshire County Council	Standing Conference on Regional Policy In South Wales
Cumbria County Council	Marathon Oil U.K. Ltd	Stroud District Council
Cunninghame District Council	Ministry of Agriculture, Fisheries and Food Directorate of Fisheries Research	Tayside Regional Council
Delyn Borough Council	National Rivers Authority	Torridge District Council
Department of the Environment (DoE)	Neath Borough Council	Vale of Glamorgan Borough Council
DoE (Northern Ireland)	Newry and Mourne District Council	Water Services Association
Environment and Heritage Service	Newtownabbey Borough Council	Welsh Office
DoE (Northern Ireland) Water Service	Norfolk County Council	World Wide Fund For Nature (UK)
Derry City Council		
Devon County Council		
Dorset County Council		

Electronic publishing and other opportunities

The regional volumes are being published as conventional hardback books, but creating complementary versions of these on diskette for use on a computer is also being used as a way of disseminating the information. A disk set for each regional volume, in Adobe Acrobat electronic format, is being produced alongside the hardback book version and is supplied with free Windows-compatible reader software. Once all regional volumes had been produced in this way, they will all be distributed on CD-ROM. UKDMAP is an electronic atlas developed by the British Oceanographic Data Centre (BODC) which displays information on a range of marine topics (Anon. 1992). The JNCC has used this tool to create a Coastal Directories electronic mapping package containing GB-wide information from the databases of the Marine Nature Conservation Review and Coastal Conservation Branch. The first version (Barne et al. 1994) adds datasets on marine and coastal habitats to the BODC edition. A new version of this product will be available once enough extra information has been accumulated and updated.

The work of the North Sea Task Force was subsumed into a new Assessment and Monitoring Committee under the 1992 Convention for the Protection of the Marine Environment of the North East Atlantic (the OSPAR Convention). The new OSPAR Convention requires that assessments similar to the North Sea Quality Status Report (Anon. 1993) be produced for all the constituent parts of the north-east Atlantic and for that

area as a whole by the year 2000. It is proposed that, if funding were made available, that the Coastal Directories Project liaise with agencies in Ireland to produce regional volumes for their coastline and that information for the whole of the West Coast Directory coastline and the Irish coastline be amalgamated into a 'Celtic Seas Directory' which would be an extensive source of information of benefit to the completion of Quality Status Reports for the area.

References

- Anon. 1992. *United Kingdom digital marine atlas. User guide. Version 2.0*. Natural Environment Research Council, British Oceanographic Data Centre, Birkenhead.
- Anon. 1993. *North Sea quality status report*. North Sea Task Force. London, Oslo and Paris Commissions, London.
- Barne, J., Davidson, N.C., Hill, T.O. & Jones, M. 1994. *Coastal and marine UKDMAP datasets: a user manual*. Joint Nature Conservation Committee, Peterborough.
- Barne, J.H., Robson, C.F., Kaznowska, S.S. & Doody, J.P. (eds.) 1995a. *Coasts and seas of the United Kingdom. Region 12 Wales: Margam to Little Orme*. Joint Nature Conservation Committee, Peterborough.
- Barne, J.H., Robson, C.F., Kaznowska, S.S., Doody, J.P. & Davidson, N.C. (eds.) 1995b. *Coasts and seas of the United Kingdom. Region 6 Eastern England: Flamborough Head to Great Yarmouth*. Joint Nature Conservation Committee, Peterborough.
- Doody, J.P., Johnson, C., & Smith, B. 1993. *Directory of the North Sea coastal margin*. Joint Nature Conservation Committee, Peterborough.