

R&D Technical Summary W5B-004/TS**Coastal Defence – Design and Practice Guide****Background to R&D Project**

Managing flood and erosion risk on the coastline involves many issues, both technical and non-technical, and it is unlikely that any individual coastal manager will have sufficient depth of knowledge in all the disciplines involved. In addition to civil engineering skills, expertise is likely to be required in geology and geomorphology, environmental or ecological science, economics, project management, marine science, information technology and risk analysis. The range of issues and disciplines that the coastal manager must deal with are increasing.

A considerable body of knowledge and expertise on managing coastal defence (collective term for management of flood and erosion risk on the coastline) exists in the UK. Much of this knowledge has been set down in reference books and technical papers over the years. However there have also been changes in policy and legislation over recent years, and a considerable body of research has been carried out for which the results have not been interpreted into good practice guidance.

Against this background, the Marine Board of the Institution of Civil Engineers (ICE) initiated a project to produce the design and practice guide on coastal defence. The guide aims to introduce the technical reader to the process of considering and, if appropriate, choosing, designing, building and maintaining coastal defences appropriate to a particular situation. The Environment Agency played an active role on the steering group and part-funded the project. The project was started in 1996. The text for the guide was generated through contributions from the steering group with technical editing by HR Wallingford. Drafting was completed in 2001.

Results of R&D Project

The results of this project have been published as a design and practice guide (R&D Publication W5B-004) through Thomas Telford Ltd for the Institution of Civil Engineers.

R&D Outputs and their uses.

The R&D Publication is intended as an introduction for practitioners in coastal defence, including technical staff involved in the managing coastal defence activities. Such staff may have little personal expertise or experience in this subject, but in the course of their duties may nevertheless be involved with significant coastal management issues. The Guide is intended to give them sufficient information to understand the basic issues and processes, and to help them understand the need for expert assistance.

The guide starts with a review of the history of coastal defences in the UK, and of the legal administrative arrangements for their construction. This is followed by a description of the important processes causing changes on the coast, and examples of the commonest types of coastal defences. After this the guide goes on to discuss the information needed to decide whether installing or adapting the defences is justifiable, and how to choose appropriate types of defence for further consideration. These decisions have to take account of the technical, environmental, social and economic aspects of any proposed scheme. In the remainder of the guide, the issues of detailed design, construction and post-construction activities are explained.

The R&D Publication stresses that the issues encountered at each site are often unique, and require a carefully tailored solution developed by experienced specialists if a cost-effective, technically sound and sustainable solution is to be achieved. Use of the general guidance document is no substitute for specialist expertise and site-specific information.

This R&D Technical Summary relates to R&D Project W5B-004 and the following outputs:

- **ICE Design and Practice Guides: Coastal Defence - ISBN: 0 7277 3005 3**

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Project Work undertaken by the Marine Board of the Institution of Civil Engineers ICE.

The R&D Publication can be purchased from the Customer Service Department of Thomas Telford Ltd (www.thomastelford.com) at a cost of £25 plus postage and packing. Alternatively it may be purchased at the Thomas Telford Bookshop located in the foyer of the Institution of Civil Engineers, One Great George Street, Westminster, London SW1P 3AA (tel 020 7665 2464; email bookshop@ice.org)

This Technical Summary is available on the Environment Agency website www.environment-agency.gov.uk/floodresearch and is published by the EA's R&D Dissemination Centre, c/o WRc, Frankland Road, Blagrove, Swindon, Wiltshire SN5 8YF (Tel: (+44) 1793-865012; Fax: (+44) 1793-514562; email: publications@wrplc.co.uk). Copies of the book are held by all EA Regional Information Centres.

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