

## Joint Defra / EA Flood and Coastal Erosion Risk Management R&D programme

### Background to R&D project

Following the joint MAFF / Welsh Office publication of a flood and coastal defence strategy for England and Wales in 1993, coastal managers and decision makers were encouraged to work together in coastal groups to develop Shoreline Management Plans (SMPs). These non-statutory plans are considered to be a key part of sustainable coastal defence planning, identifying future policy that is technically and environmentally sustainable and economically viable. The first round of SMPs, covering the whole coastline of England and Wales, were completed between 1995 and 2000. Revisions are necessary to take account of changes that have taken place including progress with recommended studies and works in the original SMPs.

The first round SMPs represented a significant step forward in long-term strategic planning. Comparative reviews of some of the 49 SMPs, however, indicated considerable inconsistencies in the consideration given to coastal processes, geomorphology and the prediction of future coastal evolution. Furthermore, there was often a lack of appreciation of long-term shoreline evolution and therefore insufficient use of such knowledge as a basis for identifying sustainable shoreline management policies. Some of the first generation SMPs have therefore been criticised for not making appropriate long-term decisions, partly due to the lack of data on long-term evolution. Improved understanding of the processes acting along the shoreline and how the coast may evolve in the long term was accepted as a pre-requisite for improvements in the next round of SMPs

To guide the second round of SMPs, which started in 2002, the Department for Environment, Food and Rural Affairs (Defra) and the National Assembly for Wales collaborated in the promotion of this coastal process and geomorphological study of the coastline, which has become known as Futurecoast. The study provides a sound, scientific and nationally-consistent basis for predicting coastal change in England and Wales over the next 100 years. It can be used to provide SMPs with a vision of coastal change in the longer term and is intended to help enable coastal defence operating authorities to develop sustainable holistic plans with more confidence. The revised SMPs will, in turn, assist planners in developing policies that discourage inappropriate development in their statutory plans.

### Results of R&D project

The study has considered fresh approaches to assessing shoreline evolution within such plans. The analysis of future shoreline evolution potential for each section of coast, which is the main component of the study, provides an improved understanding of the coastal systems and their behavioural characteristics. A framework to enable consistent reporting, assimilation and presentation of the study results has been developed.



The study has included a range of supporting studies, focussing upon maximising use of existing information and experience. The integration of leading expertise from different areas of coastal research to collectively consider this information has been the foundation for the study.

The main results from this research are:

- Improved understanding of coastal behaviour – this has used and built upon the information contained within the first round of SMPs and other existing studies;
- Assessment of potential future shoreline behaviour for two scenarios: unconstrained (i.e. assuming no defences or management practices) and managed (i.e. assuming present management practices continue indefinitely);
- A ‘toolbox’ of supporting information and data that can be used in future assessments of shoreline behaviour – this includes (1) the background thematic studies produced for this project and (2) the additional data sets and information generated.

The key conclusions from the project are presented in a series of statements known as Shoreline Behaviour Statements. These statements describe both the current understanding of coastal behaviour and the predictions of future coastal evolution at both the large-scale and local-scale. This information has also been mapped.

## R&D Outputs and their Use

The study output is specifically targeted at the Coastal Groups and the consultants that will be assisting Coastal Groups in preparing revisions to SMPs. It will also feed into more detailed coastal defence strategy plans that are being developed.

The output from the study includes reports, guidance, data and mapping at various scales. This is presented on a single interactive CD within an application that includes links between map views and report browsers, enabling easy and rapid access to specific information on any subject relating to the area of interest, together with an ability to compile maps and reports. This is supplemented by two further CDs, which contain oblique aerial photographs covering the entire open coast of England and Wales.

User guidance is provided on the CD-ROM to inform end-users of the content of the Futurecoast study, how information can be accessed and how to navigate through the system. Guidance is also provided on how this information should be used in developing future assessments of coastal evolution, e.g. in the SMPs. Futurecoast does not provide definitive predictions of future coastal evolution, because this is dependent upon the implementation and sustainability of the coastal management policies. It does, however, provide a knowledge base that can be used by coastal managers to help define sustainable policies, alongside other tools available to the developers of the second generation SMPs

This R&D Technical Summary relates to R&D Project FD2002 and the following R&D outputs, Published 2002:

**R&D CD Rom – Futurecoast document and map browser tools.**

**R&D CD Rom – Aerial Photographs: West Coast [Lizard Point to Solway Firth, incl. Isles of Scilly].**

**R&D CD Rom – Aerial Photographs: East and South Coasts [St Abbs Head to Lizard Point]**

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The above outputs may be downloaded from the Defra/EA Joint R&D FCERM Programme website

([www.defra.gov.uk/enviro/fcd/research](http://www.defra.gov.uk/enviro/fcd/research)). Copies are also available via the Environment Agency’s science publications catalogue (<http://publications.environment-agency.gov.uk/epages/eapublications.storefront>) on a print-on-demand basis.



Further copies are available from:  
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