

# National evaluation of the costs of meeting coastal environmental requirements

Technical Summary: FD2017

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

### Background to R&D project

The Government's aim for flood and coastal erosion risk management is to manage risks by employing an integrated portfolio of approaches, which reflect both national and local priorities, so as to:

- reduce the threat to people and their property; and
- deliver the greatest environmental, social and economic benefit, consistent with the Government's sustainable development principles.

An important aspect of sustainable development involves meeting the key coastal requirements of the European Birds and Habitats Directives and Ramsar sites, and Defra's public service agreement target of bringing 95% of SSSIs into favourable condition by 2010.

The objective of the study was to gain a clearer understanding at a broad, national level of the costs of flood management work needed to meet key coastal environmental requirements and objectives, to inform long term planning, including the Comprehensive Spending Review 2007. The study was commissioned to assess the costs of maintaining sea walls that protect fresh and brackish Natura 2000 sites/SSSIs from saline flooding, and to estimate the costs of replacing the protected habitats in more sustainable locations using a 100 year assessment horizon. The costs of replacing saltmarsh lost as a result of coastal squeeze were also assessed.

### Results of R&D project

The project developed a long-term high-level tool to assess the likely overall flood management costs of meeting legal requirements under the Birds and Habitats Directives at the cost at a national scale. The work considered the costs of protecting fresh and brackish water Natura 2000/SSSI/Ramsar sites from saline flooding *in situ* and the costs of recreating the habitats in more sustainable locations. The outputs suggest that the likely cost of protecting sites in their current locations could be between £1,800 and 3,300 million (undiscounted) over the next 100



depending on the standard of protection required, whereas the equivalent cost of re-creation was estimated to be some £510 million. There are large uncertainties around both estimates and the overall conclusions may not pertain to individual sites, which will need to be considered on a case-by-case basis on taking account of both the ecology and economics of the alternatives as well as legal obligations and wider impacts. Nevertheless, the report provides useful evidence to suggest that it will generally be more cost effective to adapt to rising sea level than resist it by trying to preserve sites in-situ when meeting our biodiversity objectives at the coast.

The costs of replacing saltmarsh lost due to coastal squeeze in England were also assessed. Losses over the next 100 years were estimated to be 4,400 hectares based on a linear interpolation of the rate of saltmarsh loss from historical data. There is considerable uncertainty around this estimate in the face of climate change, coastal evolution and changing rates of sea level rise. However, assuming all losses were replaced by managed realignment, rather than natural or unmanaged processes, the total costs over the 100 year time frame were estimated to be between £500 and 1,000 million (undiscounted) , or an average of £16 to 33 million per year.

## R&D Outputs and their Use

The outputs of the study are supported by a detailed spreadsheet, which provides information on assumptions and calculations undertaken when estimating the costs of protecting the Natura 2000/SSSI/Ramsar sites. This product allows assumptions to be changed and new information to be included as it becomes available such that the costs can easily be recalculated. Thus, the cost estimates presented can be refined by additional data and new assumptions. This could be particularly important as the current condition of defences change and, hence, the time before they are likely to require replacing alters. Thus, as better data become available the costs can be recalculated and the uncertainty reduced.

The output will be used by Defra and operating authorities to help assess likely future flood management costs of meeting environmental requirements at the coast. The product may also be useful for operating authorities to considered the most sustainable and cost effective means of delivery in the long term and calculate the cost of alternative delivery strategies.

This R&D Technical Summary relates to R&D Project FD2017 and the following R&D output:

**R&D Technical Report FD2017/TR: National valuation of the cost of meeting coastal environmental requirements.** Published March 2007.

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The above outputs may be downloaded from the Defra/EA Joint R&D FCERM Programme website ([www.defra.gov.uk/environ/fcd/research](http://www.defra.gov.uk/environ/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.

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Further copies are available from:  
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