

Evaluating climate change impacts on English coastal zone habitats

Coastal habitats are likely to be impacted both by sea-level rise and by changes in the frequency of coastal flooding. An assessment of the potential impacts is being carried out to provide an evidence base on which management strategies for habitat adaptation to climate change can be developed. The work is being carried out by a team of experts including HR Wallingford's Environment Group.

The consequences of climate change for coastal zone habitats are being evaluated at a national scale. The work for this Defra-Natural England funded study supports adaptation to climate change and planning for replacement habitat, and focuses on Biodiversity Action Plan (BAP) habitats behind both the natural and defended coastline.

HR Wallingford is using the latest UK Climate Projections (UKCP09) within a coastal flood risk model to investigate future flooding conditions. Habitat sensitivity criteria are being specifically developed to enable the effects of inundation by brackish or saline inundation. The national scale study quantifies the sensitivity of the coastal zone habitat to flood duration and flood frequency.

The flood risk model takes into account the probability of a particular flood loading event occurring and the consequences arising from the flooding. The model comprises a novel application of risk assessment methods in an environmental context, including an exciting use

of climate change scenarios in the structured risk assessment framework to predict the future risks to coastal habitats.

The work is identifying areas of BAP habitat around the English coasts that will potentially be damaged or lost under different climate change and flood risk management scenarios. The results will help to support Defra and Natural England in planning for future habitat creation requirements.

The techniques developed, such as the robust risk assessment framework, are applicable throughout the world and represent significant advance in how coastal engineering society can assess and respond to climate change.



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