

Flood and coastal erosion risk management

The Environment Agency, in partnership with local authorities and other bodies, has produced Flood and Coastal Erosion Risk Management Strategies for the Exe Estuary and Poole Harbour. These Strategies aim to identify and assess what various options there are when it comes to implementing the management policies described in the Shoreline Management Plans.

England and Wales' entire coastline is divided into sections known as "cells", each of which comes under a Shoreline Management Plan (SMP). SMPs define management policies for the cells over the next 25, 50 and 100 years with a view to reducing the exposure of populations, assets and the environment to risks of erosion and tidal flooding.

For each coastal cell, one of the following four shoreline management policy options has been recommended:

- **Hold the line:** an aspiration to maintain or improve the existing level of protection using coastal defences
- **No active intervention:** no investment in coastal defences
- **Managed realignment:** changing the shoreline in a managed way
- **Advance the line:** explicit aspiration to move shoreline position seawards

SMPs do not provide a detailed account of how these policies might be implemented. This will be examined when shoreline management planning, through strategies and schemes, is underway. Communities will be consulted as these projects are developed.



Exe Estuary winter 2014 © Environment Agency

Birds silhouetted on beach © John Millar

For further information

- <http://www.environment-agency.gov.uk>
- www.licco.eu

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Living with a changing coast - LiCCo In England

Edito

In the United Kingdom, the Living with a Changing Coast (LiCCo) project aims to raise awareness and understanding of coastal change and how the coast is managed, and to work with coastal communities to help them adapt and prepare for the impacts of climate change, sea level rise and erosion. The project is led by the Environment Agency. The partnership in England includes the National Trust and Devon County Council.

On the south west coast of England the LiCCo project concentrates on Poole Harbour in Dorset and the Exe Estuary in Devon. The project focuses on key communities which are currently dealing with coastal change issues. The impacts of climate change and sea level rise are affecting both for people and wildlife and in the future could have a significant impact on the local economy and sectors such as transport, tourism, leisure activities, industry, fishing, fish farming, ports (passengers and cargo), habitats and ornithology.

The LiCCo teams in England are working with coastal populations to help them adapt to climate change and sea level rise in particular.

Through effective communication the project aims to improve understanding of the ways in which climate change will affect coastal evolution in the future. Awareness raising focuses on individuals, businesses, schools and local organisations. The LiCCo team in England is developing effective communication tools and educational resources to help stakeholders get involved in the decision-making processes regarding shoreline and climate change management.

A partnership project which accompanies coastal populations so that they may understand, prepare and adapt themselves to the effects of climate change.





Poole Harbour

Part of what makes Poole Harbour special is its diverse landscape and wildlife. The coast includes a complex pattern of urban areas on the north shore offering space for homes, industry and recreation. Whilst the south remains rural with unspoiled, designated landscape providing space for wildlife and more informal recreation.

The impact of sea level rise, a changing climate and more extreme weather events is likely to have a major impact on this diverse area. Given its diversity, is one management approach suitable for the entire harbour? Through the LiCCo project a number of sites have been studied around the harbours, which illustrate different issues at stake and management approaches.

Wareham

Much of the historic town of Wareham sits on an old hill-fort meaning the majority of properties are not vulnerable to flooding from the sea or the adjacent Rivers Frome and Piddle. In the 1700s, the marshes to the south of the Frome were slowly drained and low tide banks constructed to create grazing land. These earth banks are currently managed by the Environment Agency and are owned by a number of different landowners. Whilst they have always played a role in protecting over 400 hectares of farmland from fluvial flooding, they do not act as a coastal defence for properties in Wareham. The farmland has flooded several times following recent storm events with the ride banks being both eroded and over-topped. Predicted sea level rise raises the question as to how these banks will survive and how effective they will prove in protecting farmland in the future. Also, one section of the banks is particularly important to local people as it's used as an access path – Redcliffe Path – between Wareham and the local village of Ridge. Should all or part of these banks be strengthened to continue to safeguard these land uses? Current policy for future management of this area focuses on exploring how some of the banks further towards the estuary could be realigned in more sustainable positions. This would allow for the creation of new intertidal habitat to replace that which might be lost elsewhere in Poole Harbour to 'coastal squeeze' and would allow for the future protection of 3,500 properties in Poole.



Aerial view of the village of Wareham © Environment Agency



Beach huts in Studland © Environment Agency

Studland

The Studland Peninsula is bordered by a 3.7mile stretch of beach which slopes gently down to the sea. It is a very popular spot for seaside tourism which offers a stunning view of the Isle of Wight. Beach huts have been present on Studland's foreshore for generations. They are an integral part of local heritage. Some sectors of Studland are protected from the sea by gabion baskets. These structures are deteriorating. Sea level rise and climate change will increase the risk of flooding from the sea and landslide damage to infrastructure (car parks, the interpretation centre and beach huts).

Brownsea Island

Brownsea Island is the largest island within Poole Harbour. It is where a quarter of the United Kingdom's avocet population takes shelter in winter. The island is vulnerable to coastal flooding whenever spring tides coincide with south easterly gales. The quay and associated buildings, which are important for people visiting the island, are especially affected by flooding. Brownsea's lagoon offers an outstanding freshwater habitat (it has been listed as a Ramsar site), which is currently protected by a sea wall. Sea level rise will alter this lagoon's balance should saltwater intrusions occur.



Brownsea island © Conservatoire du littoral ("French Coastal Protection Agency")

Swanage

The seaside resort of Swanage is protected by a combination of sea walls, groynes and by recharged beach material. Sea level rise and increased storminess could increase flood risk to the town centre, which lies below sea level. Erosion of soft cliffs to the north and south of the town is endangering homes and businesses due to landslips.



Swanage © Conservatoire du littoral ("French Coastal Protection Agency")

Exe Estuary

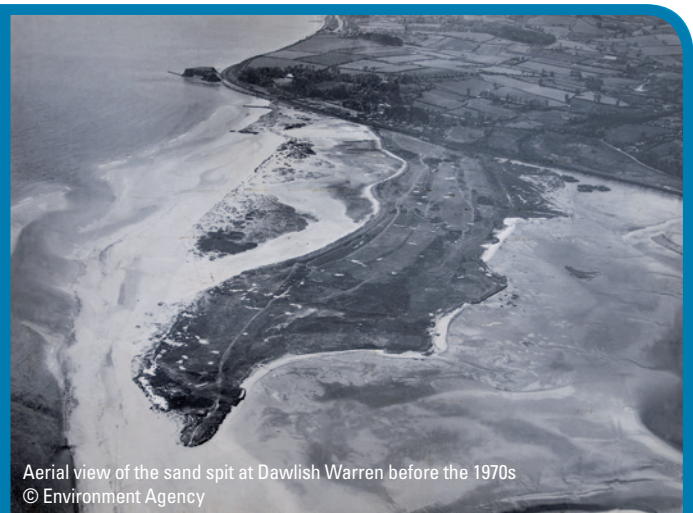
The Exe Estuary demonstrates common issues relating to flood risk management in the United Kingdom. Residents, properties and infrastructure need to be protected; strategic transport networks must be maintained and the rich and varied biodiversity should be preserved, while the continuous availability of leisure facilities and estuary amenities which support the tourist industry and boost local economy must be ensured. This sector raises questions as to how managers can balance these sometimes conflicting needs and adapt to climate change.



Aerial view of the Exe Estuary © Environment Agency

Dawlish Warren

The sand spit at Dawlish Warren plays a protective role against storm surges for the Exe Estuary. Over the years, the natural coastline has been altered by groynes, sea walls and stone revetments, the purpose of which was to protect the estuary and its infrastructure from intrusion by the sea. Since their construction in the 1970s, these structures have sustained damage during winter storms, which required that repairs be carried out. This tendency for natural erosion has continued, and has even been exacerbated by these very same defence structures. Should no intervention be carried out, the combination of climate change, tides and storms will damage defence structures. The intention here is also to allow managed realignment to improve natural features. Thoughts on managing this spit fall within the Exe Estuary strategy, notably spearheaded by the Environment Agency.



Aerial view of the sand spit at Dawlish Warren before the 1970s © Environment Agency



Aerial view of the sand spit at Dawlish Warren in 2011 © Environment Agency

LiCCo takes part in interviewing local residents and businesses to appraise their opinion and help identify those problems which shall be taken into account when the action programme is being drawn up. A new interpretation centre for visitors may be built on the site, a sustainable result of the LiCCo project.

Powderham

Defences protecting the railway line against flooding are deteriorating at Powderham Banks. With sea level rise, flood risk will increase at this location. The embankments protecting the railway line will no longer be effective if costly work is not undertaken.



Aerial view of the railway line © Environment Agency

Lower Clyst and Kenn Valley

The existence of sites within the estuary that are subject to the Habitat Regulations influences options for flood risk management. Any habitat loss caused by the maintenance and enhancement of flood defences must be counterbalanced in accordance with international law by creating compensatory habitats which are equivalent. Sites in the Lower Clyst and Kenn Valley will benefit the creation of habitats in the medium or long term if an agreement can be reached between all the parties involved.