



Cuckmere Estuary Strategy

Strategic Environmental Assessment – Environmental Report

Non Technical Summary

Prepared by



Revision A09
March 2008

Environment Agency
Southern Region

Non Technical Summary

Background

The Environment Agency is undertaking a review of **flood risk management options and developing a strategy** for the Cuckmere Estuary in East Sussex. The overall aim of the strategy is:

“to create a sustainable flood risk management solution for the Cuckmere Estuary and surrounding coastline by working with natural processes”.

In accordance with the EC Directive on Strategic Environmental Assessment (SEA), the Environment Agency has undertaken an SEA to assess the strategic options that might be applied to flood risk management of the estuary. The time frame for this assessment is for the next 100 years. The aim of the SEA process is to undertake a high level assessment of environmental effects of proposed policies with a view to promoting sustainable development.

Comprehensive strategy appraisal is essential to ensure sound decision-making and best use of public money. The development and appraisal of solutions is an iterative process, only those solutions that can be shown to be justifiable on economic, technical and environmental grounds will ultimately be considered for implementation. Viable schemes are ranked on a national basis in terms of three criteria: economics, people and the environment. The highest scoring schemes are given funding priority by Defra as they provide the best value to the nation.

With the knowledge that the present engineered landscape of the Cuckmere Estuary is not sustainable in the long term, the Cuckmere Estuary Partnership (the Partnership) made up of the Environment Agency, English Nature (now Natural England), Sussex Downs Conservation Board (now South Downs Joint Committee) and the National Trust was formed in 2001. The Partnership's purpose is to develop a plan so that the landscape of the estuary evolves with natural processes. East Sussex County Council are also now members of the Partnership.

The completion of this Flood Risk Management (FRM) strategy will advise the Partnership on the approach that the Environment Agency should adopt in terms of flood risk management for the estuary. However, there may be opportunities to undertake additional measures, beyond those required for flood risk management, to provide additional environmental gain. Additional sources of funding would be required for this, and the consideration of these opportunities lies within the remit of the Partnership. Should such funding be identified, it could potentially lead to a different management strategy incorporating wider benefits being promoted for the estuary.

Objectives

As part of the SEA process, strategic environmental objectives have been identified based on the Environment Agency's vision, other plans and policies relevant to the estuary, a consideration of the existing environmental baseline of the estuary and potential impacts of climate change. They have been consulted on and agreed with statutory and other consultees and are listed below:

- to reduce flood risk to human life and communities;
- to protect and enhance biodiversity;
- to maintain and enhance opportunities for recreation and tourism;
- to protect farmland where sustainable to do so;
- to protect and enhance water resources;
- to protect features of archaeology and cultural heritage;
- to maintain and enhance landscape character and visual amenity features;
- to mitigate/minimise future impacts of climate change;
- to promote the principles of sustainable developments.

These nine strategic objectives are supported by sub-objectives. The objectives provide a focus for the SEA and the basis for the assessment of potential impacts of options. Indicators have been developed for each strategic objective and will be used for assessing performance over the life-time of the preferred strategy.

Environmental Baseline

This study draws on information from consultation, desk studies, literature reviews and previous studies of the estuary. Modelling work has been undertaken to better understand the processes occurring within the estuary. Specialists have been employed to evaluate the environmental assets within the study area and to identify potential opportunities for environmental enhancements.

The Cuckmere River flows south from its source at Heathfield (Sussex), through the South Downs before entering the English Channel, about 7.5km east of Newhaven and 1km east of Seaford (Grid Reference TV514984). The study area (approx 120ha) comprises the estuary south of the A259 road crossing at Exceat Bridge. The A259 is the main road from Newhaven and Seaford to Friston and Eastbourne.

The most important environmental assets of the study area (and potential for enhancements) relate to ecology, landscape and recreation. The area lies within part of a Site of Special Scientific Interest (SSSI), a Heritage Coast (HC), a Local Nature Reserve (LNR), the Seven Sisters Country Park and the South Downs Area of Outstanding Natural Beauty (AONB). The South Downs is also a proposed National Park. A large part of the study area comprises coastal grazing marsh protected from tidal inundation by the existing beach and flood banks. An opportunity exists to manage the process of tidal inundation over part or all of this area to promote the development of saltmarsh, however, the effects of unmanaged inundation are less certain. Both grazing marsh and saltmarsh are important Biodiversity Action Plan Habitats which would contribute to the overall interest of the SSSI. English Nature (now

Natural England) has expressed the view that a more naturally functioning estuaries have a greater capacity to evolve with climate change and to support a wide range of habitats and species.

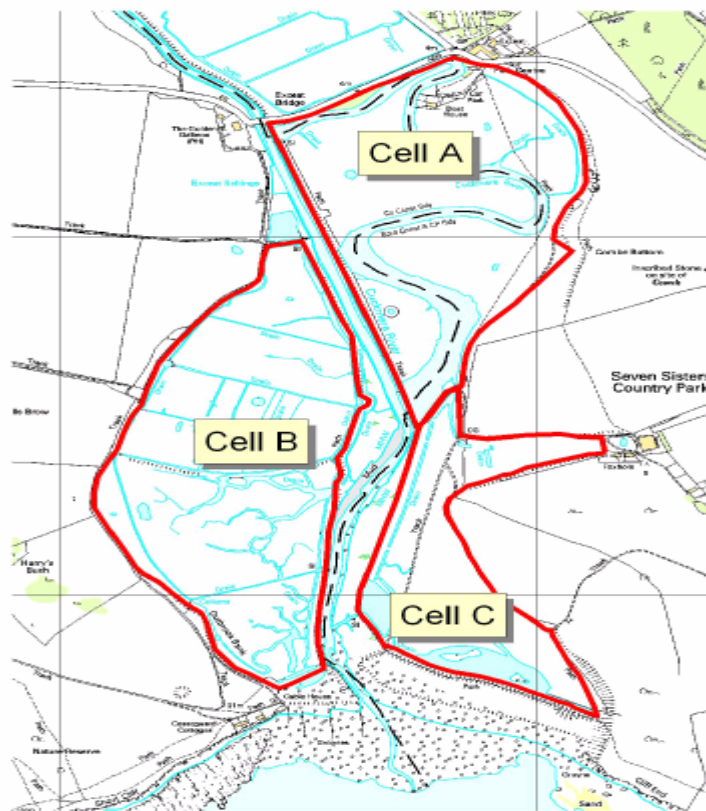
The scenic qualities of the Cuckmere estuary are well renowned with notable features including the open landscape; the Seven Sisters cliffs and the remnant meanders. The estuary is important for recreation, attracting a large number of visitors, particularly for walking and cycling. A network of public rights of way provides access across the site and to the beach. Other recreational pursuits include canoeing and bird watching.

The site has a number of archaeological features, although none are designated. From archive evidence, a number of boundaries or dykes have been identified as being of medieval origin. During the Second World War, the area of the Cuckmere valley (south of Exceat Bridge) was used at various times as a decoy, protecting Newhaven Harbour. In addition the site was used as a departure point for cross-channel telecommunications cables and as an artillery and coastal assault training area. A number of Second World War artefacts remain, including anti-tank traps and pill boxes

Strategic Options

A range of options have been considered for flood risk management of the estuary. Based on a detailed technical appraisal of the processes by a panel of experts, the following were short-listed at the scoping stage as potential scenarios:

- No Active Intervention (also known as 'Do nothing')
 - No Active Intervention i.e. no future maintenance and no action to intervene with natural processes (also known as 'Immediate do nothing')
 - Decreasing Investment through an Exit Strategy leading to No Active Intervention (also known as 'Withdrawal of maintenance'). Here the existing defences are allowed to deteriorate under the impact of natural processes following a notification period. FRM issues will be addressed until a functional intertidal system is achieved. (Note: this option was previously referred to as 'No Active Intervention with an Exit Strategy')
- Hold the existing line of defence
 - Maintain the existing line of defence at current embankment height
 - Sustain the existing line of defence, which would entail raising the flood banks to allow for sea level rise associated with climate change.
- Managed Realignment (see illustration below)
 - Partial breach realignment (Cells B and C)
 - Complete breach realignment (Cells A, B and C)



Assessment of Environmental Effects

Using the baseline data gathered and knowledge of the estuarine processes that could occur in the estuary under each scenario, an assessment has been made against the environmental objectives. This assessment has been undertaken in consideration of the source, pathway and receptor of the impact. Each of the above scenarios has been assessed for three timescales: 0-20 years (short term), 20-50 years (medium term) and 50-100 years (long term). The principal impacts and opportunities are described below.

The Hold the Line (HTL) scenarios are not considered to be sustainable flood risk management solutions for the estuary as they would require continued maintenance of the flood banks and the beach. These scenarios would result in the loss of habitat as there would be no significant opportunities for new habitat creation and existing saltmarsh habitat would be lost through coastal squeeze (inundation and erosion of confined areas of intertidal habitat by rising sea level).

The No Active Intervention (NAI) scenario is not considered to be a viable option as it would pose unacceptable risks in relation to; the blockage of the estuary mouth and the potential for erosion at Exceat Bridge. The Exit Strategy scenario would manage flood risk through specific interventions in the short term, reverting to a self sustaining and naturally functioning system in the medium term. The Managed Realignment (MR) scenarios would also manage flood risk by allowing controlled inundation.

The Exit Strategy and MR scenarios would have significant benefits in relation to habitat creation. The inundation of the floodplains would result in a change from freshwater and terrestrial habitats to maritime and coastal habitats. Modelling suggests that 112ha of saltmarsh would be created by the Exit Strategy or full MR, while the partial MR scenario (Cells B and C only) would result in 64ha of saltmarsh being created. Some loss of existing habitats would occur (see Table below) but overall, the habitat creation would provide significant benefits in relation to increased diversity of the SSSI as a whole, and would be likely to attract significant populations of birds. A Summary of Biodiversity Action Plan Habitats gained and lost through each of the scenarios that involve inundation is detailed below:

Scenario	Saltmarsh (ha)	Grazing Marsh (ha)	Saline Lagoons (ha)	Intertidal habitat (ha)
No Active Intervention	- 2.7	- 75	- 13.3	+ 112
Decreasing Investment through an Exit Strategy leading to No Active Intervention	- 2.7	-75	- 13.3	+ 112
Hold The Line (Maintain)	- 2.7			
Hold The Line (Sustain)	- 2.7			
Managed Realignment Cells B & C		- 40	- 5.6	+ 64
Managed Realignment Cells A, B & C		- 75	- 13	+ 108

Note: these figures are approximate. Lost and created habitats do not balance because of presence of other non-BAP Habitats in the floodplains.

* Figure assumes maximum amount of saltmarsh that could be lost through coastal squeeze. Area of saltmarsh lost through coastal squeeze dependent on time frame for flood bank failure.

The MR scenarios are considered preferable to the NAI and Exit Strategy scenarios in that a controlled breach could be implemented at an early stage which would allow saltmarsh to develop and establish more quickly than with a scenario which would be dependent on erosion through natural processes (it has been estimated that under NAI a breach would occur within 15 years).

The NAI and Exit Strategy scenarios would result in loss of footpaths in the short term, however, such impacts would be mitigated for in the medium term. The Environment Agency will adopt a positive approach to the maintenance of access and protection of public rights of way affected by flood risk management proposals. Consultation with the appropriate authority, normally the local Highway Authority, and landowners will identify roles and responsibilities as

well as an appropriate way forward to mitigate the impact on public rights of way. With the MR scenarios, mitigation would be included as part of a flood risk management solution to ensure that footpath diversions would be provided prior to the breach of the defences. The relic meanders, which provide an important recreation facility for canoeists would be lost with the NAI, Exit Strategy and full MR scenarios. However little benefit would be gained by preventing inundation of Cell A (HTL or partial MR) because the meanders are silting up and would be lost in the long term. Inundation of the floodplains would provide a significant additional recreational benefit in the form of bird watching.

The reversion of the estuary to a more natural system is considered to be preferable in landscape terms compared to continued maintenance of the flood banks.

Overall the assessment concludes that HTL scenarios are not considered sustainable, and reversion to a self sustaining, naturally functioning system would be beneficial in the medium to long term. In the short term, a breach of the defences would result in a dynamic and highly changing environment in the estuary. The MR scenarios would be preferred over the Decreasing Investment through an Exit Strategy leading to No Active Intervention scenario in this respect as it would allow more control and potentially quicker establishment of stable intertidal habitat. Full MR (Cells A, B and C) would be preferred over partial MR (Cells B and C only) for the short and medium term. This is because the latter would require bank construction and maintenance to isolate Cell A. In the long term there would be little difference between the MR and Exit Strategy scenarios.

The Preferred Strategy

The preferred Flood Risk Management scenario, based upon technical, economic and environmental assessment is Decreasing Investment through an Exit Strategy leading to No Active Intervention. The principal difference between this and the environmentally preferred option (MR of Cells A, B and C) is that inundation would be less controlled resulting in a longer phase of instability and a potential loss of habitat due to coastal squeeze in the short term.

As mentioned above, the potential exists for alternative funding to be sought to implement measures beyond the flood risk management requirements, and this could enable MR to be pursued. However the responsibility for this lies with the Partnership and lies outside the Environment Agency's flood protection domain.

Compensation for the Biodiversity Action Plan Habitats lost through inundation of the floodplain will be sought from the Environment Agency's Regional Habitat Creation Programme. It will need to deliver 75ha of grazing marsh and 13.3ha of saline lagoon in a sustainable location adjacent to or outside of the study area.

Implementation and Monitoring Plan

The SEA Directive suggests that in developing aims and methods for monitoring, the Directive's provisions on monitoring apply when a plan is being put into effect, rather than during preparation and adoption. However indicators and targets related to the environmental

baseline are provided against the environmental objectives in this study to provide a basis for future monitoring of the effects of implementation of the strategy.



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