

The potential flood risk area also extends into the Eastbourne urban area so holding the line would also reduce flooding risks here. This section of coast is already heavily managed and all foreshore sediments would be lost rapidly without ongoing beach recharge and maintenance of defence structures. It is very unlikely that a beach would remain here under a naturally functioning coastline; due to this area being originally marshland, the backing hinterland being low-lying and an increase in sea levels. The lack of foreshore cover and supply will be exacerbated in the future due to (accelerated) sea level rise. There is likelihood, therefore, that hard defences will be required over much of this frontage in the long term.

28 Sovereign Harbour

A major marina and residential development extending to the beach edge within a flood risk area. A long term policy of Hold the Line is recommended for this frontage to protect the extensive developments from flooding and erosion. This approach will ensure the continued operation of the harbour, marina and associated commercial and recreational operations, as well as protecting a large number of residential developments. This unit also forms part of a flood risk area linked to the adjacent frontage, so a hold policy will also provide protection to these areas.

An impact of this policy is that the 'Crumbles' (a natural shingle store), upon which the Sovereign Harbour development is built, is prevented from returning to the shoreline system. This has the potential to benefit some beaches to the east, in the short-term, if it were allowed to erode. Despite the input from the Crumbles in the long term there will be narrowing of the beach and those downdrift due to rising sea levels, such that it is likely that there will be little/no beach here in 100 years time and hard defence structures will be required.

29 Eastbourne

This is a dense urban development with both cliffed and low-lying sections, fronted by a popular tourist beach. A long term policy of Hold the Line is recommended to protect the frontage of this regionally important town. The seafront at Eastbourne is of great economical importance so the protection of amenity assets, such as the pier and promenade, are critical. However, this policy will inevitably result in long term narrowing of the beach, resulting in significant amounts of beach nourishment being required if an amenity beach is to be maintained. The hold policy will also ensure the protection of commercial and residential areas, as well as heritage assets such as the Wish Tower. The low lying, eastern part of the frontage is linked to the Pevensey Levels flood risk area, so this policy will also afford protection to low lying assets in that adjacent area. This policy also affords the long term protection of the Holywell groundwater aquifer in the Chalk cliffs west of the town.

30 Beachy Head

Beachy Head marks the western extremity of the SMP frontage. It is an internationally important landmark area at the western extent of the frontage, designated for its landscape quality, and geological and habitat value of the cliffs and backing downland. These features will be maintained through a long term policy of No Active Intervention.. This will allow the gradual erosion of the cliff toe, with corresponding retreat of the cliff top, maintaining the famous 'white cliffs'. Whilst the coastal footpath may require re-routing as the clifftop retreats, no built assets will be threatened in the section of Beachy Head covered by this SMP. Sea level rise may result in narrowing of the intertidal chalk platform, but this is a natural process which will be partially offset by the creation of a higher platform as the cliffs retreat. It should be noted that the extreme western frontage of Beachy Head falls within the area covered by the Beachy Head to Selsey Bill SMP.

South Foreland to Beachy Head

Shoreline Management Plan

First Review 2006



Final Plan Summary



The Changing Coastline

The coastline is undergoing constant change from the natural processes of waves and tides. The amount of physical change depends on the degree of exposure and the predominant geology. These changes have usually taken place over long historical periods and many examples exist where settlements have been lost through erosion (e.g. old Winchelsea) or where former coastal villages are now landlocked because of coastal build up (e.g. Pevensey).

Another influence on the evolution of the coastline has been human intervention throughout the ages, particularly in attempts to arrest the effect of erosion or flooding. In some cases this has taken place without an appreciation of the effect these works could have on other locations up and down the coast.

Whilst these changes continue, social, economic and environmental pressures are increasing in the coastal zone. People enjoy living by and visiting the coast, as such, the pressure for more housing is ever present. As international trade increases, so does the demand for port space and associated coastal-based industry. Such development places stress on natural coastal habitats that are often unique and of national and international importance.



Dungeness

Climate Change and Sea Level Rise

Much of the present shoreline of the English Channel has been shaped by sea level rise during the Holocene period (which followed the last glaciation). Approximately 10,000 years ago flooding of the English Channel commenced as sea levels rose. By c.8,000 years Before Present, the entire English Channel, including the Dover Straits, was inundated. Shortly after, the shallow land separating this water body from the North Sea was breached, initiating a strong eastward current and sediment transportation in the eastern channel.

Sea level rise has continued over the last 2,000 years at a much lower rate, resulting in ongoing, but less dramatic, changes at the shoreline. However, we are now entering a period of predicted (accelerated) sea level rise which will result in changes to the present coastal systems.

Recent studies have indicated that there are significant changes occurring within our climate. These include:

- Greater frequency of storms;
- Increasing wave heights;
- Increasing rainfall; and
- Rising sea levels.

The amount of physical change depends on the degree of exposure of each length of coast and the underlying geology. Increasing rainfall between longer periods of drier weather can lead to increased weathering of, for example, cliff faces, resulting in potentially greater cutback of the chalk cliff face due to massive failure along the internal joints (as at Beachy Head). The implications of climate change will therefore determine sustainable shoreline management into the future.

The Study Area: South Foreland to Beachy Head

The coastline covered by this plan has a rich diversity in its physical form, human usage and natural environment. This includes the dramatic white cliffs of Beachy Head and Langdon, the vast lowlands of the Dungeness peninsula and Pevensey Levels, the large urban areas fringing the coast, the extensive areas of agricultural land, and the many areas designated and protected for their heritage, landscape, geological and biological value. This combination of assets creates a coastline of great value, with a tourism economy of regional importance.

The movement of sediment along the frontage is west to east however the 'natural' sediment linkages along the study frontage are fragmented and the frontage can be broken into specific units, nominally:

- Beachy Head to Hastings;
- Hastings Cliffs to Folkestone;
- Folkestone Harbour to South Foreland

The present shoreline (and management) segregates these units further:

- Beachy Head to Sovereign Harbour and Sovereign Harbour to Hastings;
- Hastings to River Rother, River Rother to Dungeness East, Dungeness East to Folkestone;
- Folkestone to Samphire Hoe, Samphire Hoe to Dover, Dover to South Foreland

There are few natural sediment sources along this frontage:

- The Crumbles (gravel)
- Dungeness (gravel)
- Cliffs (mainly fines)

What is the Shoreline Management Plan?

A Shoreline Management Plan (SMP) provides a large-scale assessment of the risks associated with coastal evolution. It presents a policy framework to address the risks to people and the developed, historic and natural environment, in a sustainable manner.

The SMP is a non-statutory, policy document for coastal defence management planning. It takes account of other existing planning initiatives and legislative requirements, and is intended to inform wider strategic planning. It does not set policy for anything other than coastal defence management. As such, it does not set policies for the management of issues such as land drainage.



Hastings

The SMP Policy Options

The shoreline management policies considered are those defined by the Department for Environment, Food and Rural Affairs (Defra). The policies are:

Hold the line	Maintain or upgrade the level of protection provided by defences,
Advance the line	Build new defences seaward of the existing defence line,
Managed realignment	Allow retreat of the shoreline, with management to control or limit movement and
No active intervention	A decision not to invest in providing or maintaining defences.

Coastal Defence Planning

There are three tiers of coastal defence planning in England and Wales, each with discrete roles in the risk management process:

SMP	Identifies general policies and general implementation requirements
Strategy	Identifies nature and timing of works to be undertaken, e.g. Cooden to Cliff End Coast Defence Strategy
Scheme	Design and construction of capital works and maintenance, e.g. The Hythe to Folkestone Harbour Coast Protection Scheme

The SMP forms the highest tier in this process and sets the long term direction for implementation of risk management techniques.

The Policy Appraisal Process

The 100 year appraisal timeframe forces us to look beyond the anticipated life of all coastal defence structures and into a period when climate change will have a significant impact on coastal management.

To determine whether there is a need to manage the coast, a baseline scenario, referred to as 'No Active Intervention', is employed. This scenario identifies what could happen to the coastline over the next 100 years if all defences were allowed to fail. By considering this scenario, the assets potentially affected by coastal erosion and flooding can be identified and objectives associated with their future

management defined, e.g. protection of properties and environmental enhancement. These objectives are, in part, defined through the involvement of those with an interest in the coast (the Stakeholders). These objectives are then used to determine policies for the next 100 years. In this way, policy is set with full acknowledgement of the potential environmental, financial, technical and social costs and benefits.

Policies for each section of coast (Policy Units) are presented on the reverse of this leaflet, with full appraisals presented in the main SMP document. Policy selection, per frontage, is defined for three epochs: 0-20 years (short term), 20-50 years (medium term) and 50-100 years (long term).

The South East Coastal Group

The coastline covered by this Plan comes within the boundaries of six local authorities. They and the Environment Agency have certain permissive powers for defending the coast. The local authorities, for the most part, deal with defences which protect the coast from erosion by the sea, whilst the Environment Agency deals with flood risk management. Together they are required, by the Government, to produce an SMP for sustainable coastal defence management. This is achieved through the auspices of the South East Coastal Group, made up of the six local authorities, the Environment Agency, English Nature (who provide guidance on nature conservation), Kent and East Sussex County Councils (who have coastal management interests) and Defra (who have overall policy responsibility for flood and coastal erosion risk in England).

Sustainable Management

One of the main objectives of the SMP is the identification of sustainable long term management policies for the coast. This approach avoids tying future generations into inflexible and expensive options for defence. Given sea level rise and climate change predictions, this would generally be best achieved through the re-creation of a naturally functioning coast, allowed to move landwards or seawards at rates dictated by natural processes.

However, on the South East coast, a long history of human intervention means that much of today's shoreline is 'unnatural' in form and position. As such, it would not necessarily revert to 'natural functioning' if we simply allowed it to operate unmanaged. It is likely that for much of the SMP frontage, the removal or failure of defences would result in the loss of beaches, with little or no natural protection to coastal developments from erosion and flooding for some time.

The consequences of this, for areas where thousands of homes and businesses lie within the potential risk areas, would be catastrophic in socio-economic and anthropogenic terms.

It is important that the implications of this approach, such as diminishing beaches, are fully recognised. The planning process must also appreciate that 'Hold the Line' policies will not necessarily be appropriate or possible in the very long term (i.e. beyond 100 years), particularly if major new developments are being considered.

Stakeholder Engagement

Stakeholder Engagement was achieved through the formation of a Key Stakeholders Forum (KSF) and Elected Members Forum (EMF).

The KSF includes representatives from interests including local authorities, nature conservation, industry and heritage. The EMF comprises a representative from each of the local authorities and the Environment Agency.

Their inclusion ensured the views of those affected by the policies within the SMP were considered. Landowner and resident interests were represented through the involvement of Elected Members.



Langdon Cliffs

Further Information

Full copies of the Shoreline Management Plan and Supporting Appendices are available at the following locations:

Dover DC	White Cliffs Business Park, Dover
East Sussex CC	County Hall, St Anne's Crescent, Lewes
Eastbourne BC	68 Grove Road, Eastbourne
Hastings BC	Town Hall, Queens Road, Hastings
Kent CC	Invicta House, County Hall, Maidstone
Rother DC	14 Beeching Road, Bexhill-on-Sea
Shepway DC	Civic Centre, Folkestone
Wealden DC	Council Offices, Pine Grove, Crowborough

Documents are also available to view and download on the South East Coastal Group's website: www.se-coastalgroup.org.uk

Any new information and/or data will be uploaded onto the website. Should this affect the current policies, notification will be stipulated. Information will include progress made to date on actions listed in the 'Action Plan' and 'Progress on the SMP4c's Action Plan'. As the latter will become an agenda item at South East Coastal Group meetings, updates are likely to be available on a regular basis. The website will be managed by the South East Coastal Group.

The Shoreline Management Policies

The following summarises the justification and impacts of the 100-year management recommendations defined for each Policy Unit in the SMP.

1 South Foreland to Dover

South Foreland marks the eastern extremity of the SMP frontage. This is an area of eroding chalk cliffs (supporting little cliff-top development) with high nature conservation and landscape value. The long term policy is **No Active Intervention**, thereby allowing the cliff to continue eroding. This will maintain the important geological and biological interests of the frontage, as well as its landscape quality. The coastal footpath may need re-routing over time, but very few built assets will be threatened. Whilst narrowing of the intertidal chalk platform is likely to occur with sea level rise, it will be partially offset by the natural creation of a higher platform during cliff retreat.

2 Dover

A dense urban area dominated at the coast by the cross-channel port and associated developments. Whilst the majority of this frontage is enclosed by the outer harbour breakwaters, it does include the defended frontage to the west (backed by the railway line). The long term policy is to **Hold the Line**. This will protect the developments that extend to the shoreline edge throughout the frontage. As well as the residential, commercial and industrial assets, the town is of significant heritage importance (e.g. Dover Castle). There are also areas of local nature conservation importance within the urban area. Any future proposals to extend the port would be subject to their own impact appraisals.

3 Shakespeare Cliff

Eroding chalk cliffs of high conservation and landscape importance, with the railway line set into the cliffs and developments set back from the cliff top. The long term recommendation is to allow continued erosion of the cliffs under a policy of **No Active Intervention**, thereby maintaining the geological exposures and landscape quality of the frontage. The Dover to Folkestone railway line is set back from the cliff face so is not considered to be at risk from erosion within the next 100 years. The A20 and Aycliff developments are also considered to be beyond the reach of cliff top retreat within the 100 year timeframe. The Saxon Shore Way footpath is, however, likely to require re-routing (in the long term).

4 Samphire Hoe

This frontage is a platform created from the deposition of Eurotunnel spoil within a protective seawall. A long term policy of **Hold the Line** is recommended to maintain the platform in its current form. This will ensure continued protection of critical infrastructure for the Channel Tunnel, including ventilation equipment, which is located on the eastern part of the platform. The important recreational amenity of the Country Park will also be maintained, as will the valuable habitats that have developed on the site. Backing assets including the railway line and clifftop A20 and footpath will also be protected. Whilst the platform will continue to impede alongshore sediment movement, this is not considered significant given the limited amount of mobile shoreline sediment in the area.

5 Abbot's Cliff

Eroding chalk cliffs of conservation and landscape importance, with a railway line set into the cliffs and development set back from the cliff top. It is recommended to allow continued erosion in the long term under a **No Active Intervention** policy. This will maintain the important geological and biological features, along with the landscape quality. The A20 is not considered at risk from cliff top retreat within the time frame of the Shoreline Management Plan (100 years). However, it is possible that Abbotscliffe Tunnel, which carries the Dover to Folkestone railway, could be impacted on in the long term (50 to 100 years). As this could potentially threaten the integrity of an important link, plans would need to be developed, at that time, to ensure that services on this strategic route are maintained. The erosion will supply some sediment to the shoreline, although this would not be a significant input.