The Changing Coastline

The coastline is undergoing constant change from the effects of waves and tidal currents and the changing climate. The amount of physical change depends on the degree of exposure of each length of coast and the underlying geology. These changes have usually taken place over long historical periods and many examples exist where settlements have been lost through erosion (e.g. Middleton).

Another influence on the development of the coastline has been human intervention throughout the ages, particularly in attempts to stop the effect of erosion or flooding at particular locations. In many cases this has taken place without any acknowledgement of the consequences of carrying out these works on other locations up and down the coast.

While these changes continue to take place, social, economic and environmental pressures are increasing in the coastal zone. People enjoy living by and visiting the coast and 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 often places stress on natural coastal habitats that are unique and of national and international importance.

Beachy Head to Selsey Bill

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 Selsea Head, the low lying urban areas fringing the coast, extensive areas of agricultural land, and many areas designated and protected for their heritage, landscape, geological and biological value. This combination of assets creates a coastline of great amenity value, and a tourism economy of regional importance.

What is the Shoreline Management Plan?

A Shoreline Management Plan (SMP) provides an objective, large-scale assessment of the risks to people and the developed historic and natural environment, resulting from the evolution of the coast. It goes on to present a policy framework that addresses these risks in a way that does not force future generations to cope with unsustainability. In the setting of policy, it attempts to balance all of the sometimes conflicting interests at the coast in a sustainable manner.

The SMP is a non-statutory policy document for the planning and management of coastal defences. 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.

The shoreline management policies considered are those defined by the Department for Environment, Food and Rural Affairs (Defra, formerly MAFF). Defra provides guidance and grant aid to local authorities for the preparation of SMPs. These policies are:

- **Hold the line**: maintain or upgrade the level of protection provided by existing coastal defences.
- **Advance the line**: build new defences seaward of the existing defence line.
- **Managed realignment**: allow retreat of the shoreline inland, with management to control or limit that movement.
- **No active intervention**: a decision not to invest in providing or maintaining any defences.

Coastal Defence Planning

It is important to differentiate between the three tiers of coastal defence management in England and Wales, and their discrete roles to address flood and erosion risks:

- **SMP**: Identifies general policies and general implementation requirements.
- **Coastal Defence Strategy**: Identifies nature and timing of works to be undertaken e.g. Brighton Marina to Saltdean Coastal Defence Strategy.
- **Scheme**: Design and construction of capital works and maintenance on a single frontline e.g. Seaford Beach Renourishment Scheme.

Background to the South Downs SMP

In 1995, a team of consultants was appointed to prepare the original Shoreline Management Plan for the coastline from Beachy Head to Selsey Bill, which identified coastal defence management policies. Based upon original guidance from Defra/MAFF, policies were defined for a 50-year period.

The SMP was completed in 1996 (adopted in 1997), and several coastal defence strategies and numerous schemes have subsequently been developed based on the policies it recommended. Some of these initiatives are ongoing and while outstanding studies may affect the SMP policy decisions this is noted in the SMP recommendations presented overleaf.

The SMP Review

Recognising the need for review of the existing SMP policies, the South Downs Coastal Group commissioned consulting engineers Halter Group Ltd. to review the SMP for Beachy Head to Selsey Bill.

The Policy Appraisal Process

The 100 year appraisal timeframe, identified above, is significant as it 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. This is an important change from the original SMP.

The coastal process appraisal determines the way in which natural forces will shape the shoreline (taking account of climate change and sea level rise). It begins by looking at a “no active intervention” scenario to identify what could happen to the coastline over the next 100 years if all defences were allowed to deteriorate and 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).

The achievement of objectives under different policy approaches is then used to determine the recommended policies for the next 100 years. In this way, policy is set with full acknowledgment of its impact on the potential environmental, financial and social assets along the coast.

The recommended policy for each section of coast (i.e. each Policy Unit) is presented on the reverse of this leaflet, with full appraisals presented in the main SMP document (on deposit with Coastal Group members see page 6 for further information).
The South Downs Coastal Group

The coastline covered by this Plan comes within the boundaries of eight local authorities. They and the Environment Agency (EA) 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, and the EA deals with flood risk management. As responsible authorities, together they are required to produce an SMP for sustainable coastal defence management.

This is achieved through a Coastal Group, which is made up of the eight local authorities, the Environment Agency and other key bodies. Other members of the group are: English Nature, who provide guidance on nature conservation; East and West Sussex County Councils, with coastal management interests; and Defra, who initiated the development of SMPs and provide general guidance and funding on SMP development. Officers from these organisations have managed the development of the SMP undertaken by consulting engineers Hallocke Group Ltd.

Sustainable Management

One of the main objectives in developing a Shoreline Management Plan is the identification of sustainable long term management policies for the coast. Defra’s SMP guidance defines sustainable long term management policies as avoiding “tying future generations into inflexible and expensive options for defence” (Defra, 2001). Given sea level rise predictions, this would generally best be achieved through the creation of a naturally functioning coast, allowing it to move landwards or seawards at rates dictated by the natural processes of waves and tides.

However, on the South coast the long history of coastal defence intervention to reduce the risk of flooding and erosion, means that the shoreline today generally in an ‘unnatural’ form and position, and one which would not necessarily revert to naturally functioning if simply allowed to develop unmanaged. Indeed, it is likely that for much of the SMP frontage, the removal or failure of defences would result in the breakdown of beaches, with little or no protection of the land behind from erosion and flooding.

The consequences of this, given the extent of development of the coast, would be catastrophic, in socio-economic terms, as thousands of homes and businesses lie within the potential risk areas.

As such, it is the social and economic sustainability of the SMP area which has driven policy selection for the majority of this frontage, however policies leading to a more ‘natural’ shoreline in the long-term have been identified where feasible.

In adopting and applying the recommendations of this SMP it is important that the implications of the policies are fully recognised, for example, coastal squeeze will lead to narrow beaches that could become inaccessible at all states of the tides. 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 when major developments are being considered.

Stakeholder Engagement

The greater involvement of Stakeholders in the appraisal process is one of the key changes from the existing SMP. The main changes have been in the formation of a Key Stakeholders Forum (KSF) and a Project Steering Group (PSG).

The KSF includes up to 40 representatives from various bodies selected from over 150 stakeholders including: local authorities, nature conservation, industry, and heritage, etc. This group has met periodically throughout the SMP development to input information to the process, and review outputs as the study progressed. The remaining general stakeholders have been invited to comment.

The PSG comprises representatives from some of the local authorities, the Environment Agency (EA), English Nature and Defra, with a remit to agree the various stages of the SMP as it progresses. Again, this group has met throughout the Plan development, agreeing to the outputs once they have been discussed with the KSF.

The interests of landowners and residents have been represented through the involvement of Local Authority officers on these groups. In this way, the views of those whom the SMP policies will affect have been taken into account during its development, ensuring that all relevant issues are considered, and all interests represented.

What Happens Next?

Following this period of consultation, the responses will be assessed and the final version of the SMP presented to each Local Authority for adoption.

Further Information

If you live near the coast, or have a keen interest in it, then your comments and views are sought. As well as this ‘Summary’, full copies of the Plan, presenting the detailed appraisal of policies for the SMP, are available for review at the offices of Coastal Group members, as identified on the front of the leaflet and also in many libraries. Please contact your local office to arrange to view a copy.

The full SMP document, and this summary, are also available for review and download from the South Downs website: www.sdco.org.uk

You may post your comments to:

SMP Project Manager, Arun DC Civic Centre, Mastravens Road, Littlehampton, West Sussex, BN17 5LF

Comments, to be considered before formal adoption of the SMP, must be received by 8th April 2005.

A series of Exhibitions will be held between 2.30pm and 7.30pm at the following locations:

1. Selsey Town Hall, Selsey, 18th February 2005
2. Kingley Vale Hotel, Pagham, 15th February 2005
3. Cheltenham Spa Hotel, Selsey, 16th February 2005
4. Meridian Centre, Peacehaven, 22nd February 2005
5. Selsey Baptist Church Hall, Selsey, 24th February 2005

THANK YOU FOR READING THIS LEAFLET

Published January 2005

24 Aldwick to Pagham

This is a densely developed urban area, with significant residential developments, tourism and amenity assets extending to the presently accreting shoreline. The frontage is also of national and international conservation importance. The recommended long-term policy for this frontage is to Hold the Line. There are currently no defences along much of this shoreline at Aldwick, however, it is anticipated within the next 50 years there could be a need for defences as sea levels rise and beaches narrow. This policy may also require the construction of new flood defences at Becks Barn at Pagham.

25 Pagham Harbour to Church Norton

Pagham Harbour is an extensive tidal inlet, containing large areas of intertidal habitats, reedbeds, lagoons and grazing marsh, with shingle spits at the harbour mouth. Pagham Harbour is internationally important for its conservation value and nationally important for its geomorphology. It also has significant landscape and heritage value. The long-term policy for Pagham Harbour is Managed Realignment in order to allow natural processes to occur, the coastline to remain free functioning and as a result, prevent habitats being lost to coastal squeeze. This policy could be achieved by managing the coastline in a way that causes minimal disturbance to the existing landscape. The policy in the short to medium term is to maintain the harbour mouth position. However during this time, monitoring and the assessment of possible habitat change may lead to future decisions to remove the training wall and other defences along the spits. Flood defences may be needed to protect some built properties in the area. The exact locations of these flood defences will be determined through further study.

26 Church Norton to East Beach

This low-lying area of predominantly agricultural land is of environmental and geological importance, with some residential developments. A shingle beach runs along the frontage, which is of high amenity, recreational, conservation and tourism value. The long-term policy for this frontage is Managed Realignment in order to achieve a more naturally functioning coastline. This policy could be achieved in the short to medium term by maintaining the existing defences, but not replacing them when their effective life is ended.

27 East Beach to Selsey Bill

A densely developed urban area, with primarily residential, but also heritage and amenity assets extending to the edge of the coastal cliffs. A long-term policy of Hold the Line is recommended for this frontage to protect the significant developments. This policy could be achieved by maintaining and improving the existing defences. A consequence of this policy is the narrowing of beaches as sea levels rise.

22 Middleton-on-Sea

A long-term policy of Hold the Line is recommended to protect this regionally important village and the associated assets. With a high number of residential and commercial properties, this significant tourist centre has been developed to the edge of the coast which is fronted by a narrow shingle amenity beach. To implement this policy, the maintenance and improvement of the existing defences will be required, in addition to the construction of new linear defences in the longer term. A consequence of this policy will be the narrowing and loss of the beaches, which will have implications for the amenity value of this frontage.

23 Middleton-on-Sea, Bognor Regis and Aldwick

An urban area, with a significant number of residential and commercial properties, with major supporting infrastructure. The area also supports valuable heritage sites and monuments. The shoreline itself is of national biological and geological value, whilst the high-quality beaches are of amenity and tourism importance. A long-term policy of Hold the Line is recommended for this frontage in order to prevent coastal erosion and flooding of the low-lying area that separates Felpham from Bognor Regis. However this policy will lead to the narrowing and loss of beach in the long term.

24 Aldwick to Pagham

A densely developed urban area, with significant residential developments, tourism and amenity assets extending to the presently accreting shoreline. The frontage is also of national and international conservation importance. The recommended long-term policy for this frontage is to Hold the Line. There are currently no defences along much of this shoreline at Aldwick, however, it is anticipated within the next 50 years there could be a need for defences as sea levels rise and beaches narrow. This policy may also require the construction of new flood defences at Becks Barn at Pagham.

Policy Units - these do not denote policy

Areas at risk from tidal flooding (from indicative Flood Zones Map 2014 © Environment Agency)
20 Littlehampton Harbour to Poole Place
This low-lying area is relatively undeveloped with only a few residential and commercial properties, but with a high number of archaeological and heritage sites. The beach and dune system, together internationally and nationally important thus a long-term policy of Managed Realignment is recommended. This will allow the frontage to erode naturally and for coastal processes to remain free functioning, providing significant environmental and heritage gains. Some form of terminal structure would still be required at Littlehampton, to retain the beach position, and the recycling of sediment from the beaches at Littlehampton to Atherington could be continued. This policy would however lead to some loss of agricultural land. Implementation of this policy may be affected by legal agreements covering the sea defences part of this frontage.

21 Elmer
A long-term policy of Hold the Line is recommended for this densely developed urban area, with residential and recreational areas extending to the edge of the shoreline. Along the frontage a shingle beach is held in position by artificial rock re-reefs that ensure the protection of Elmer, much of which is low-lying and at risk of coastal flooding. Implementation of this policy could be achieved by maintaining the existing rock re-reefs and beach. The construction of linear structures to the immediate east of the re-reefs may also be required to prevent the loss of assets at Poole Place.

17 Ferring to Kingston
This is an area of scattered urban frontages, with intermittent areas of greenwards. Fronted by a shingle beach ridge of important amenity and recreational value. The long-term policy for this unit is to Hold the Line in order to protect the large areas of residential properties and heritage sites from flooding and to prevent flooding of the low-lying areas at Kingston and Ferring. This policy could be achieved by maintaining and upgrading the existing defences, but potentially setting the defences back as it becomes unfeasible to sustain the defences due to lowering beach levels. Ongoing sea level rise is likely to result in the significant narrowing of beaches.

13 Shoreham Harbour (Southwick)
This is a reef and shingle spit, fixed by a predominantly urban frontage with both industrial and residential developments and some infrastructure. Shoreham power station is also located adjacent to the shoreline. The long-term policy for this frontage is to Hold the Line, and could be achieved by maintaining and upgrading the existing defences, whilst continuing with sediment recycling across the harbour mouth. This policy could provide ongoing protection to the assets that line the shoreline, as well as the possible marina and harbour developments planned for in the lee of the spit.

14 River Adur and Adur Valley
An area with intertidal habitats of important biological and environmental value, the mouth of the River Adur forms part of Shoreham Harbour, and the channel is fixed in position for the purpose of navigation. A Hold the Line policy is recommended for the long-term management of this frontage. This will ensure the protection of the extensive residential, commercial/industrial and tourism/amenity related assets along this frontage. This policy could be achieved by maintaining existing river walls and embankments, and upgrading them as sea levels rise.

15 Shoreham Harbour to Worthing
This length of coastline is fixed by a shingle beach (part of a reef spit), fixed in position by residential and commercial properties and backed by the River Adur which runs behind. There are numerous environmental and historical assets along this frontage including Widewater Lagoon and Shoreham Martello Tower. All are at risk from coastal erosion and significant areas inland are at risk from flooding. Thus the recommended long-term policy for the management of this frontage is to continue to Hold the Line. In order to achieve this, there would be minimal change to current management practices, but as beaches narrow due to sea level rise, the building of new linear defences and beach nourishment/recycling may be required.

16 Goring-by-Sea
A long-term policy of Hold the Line is recommended for this densely developed urban area, with residential and recreational areas extending to the edge of the shoreline providing important amenity, recreation and tourism. The policy could be achieved through the maintenance of existing defences in the medium term. However, new linear defences may be needed to protect the existing assets from the flooding of the long term. With accelerating sea level rise, this could lead to the narrowing and potential loss of the beach and impact upon the tourism economy of the area, and the amenity values associated with the beach.

12 Brightown to Portsdown-by-Sea
This unit supports the densely developed urban area of Brighton and Hove City, with residential and commercial properties extending to the seafront promenade. The city is a key tourist resort for the south east of England and a key service centre for this region. With Brighton Marina to the east. This unit is also important for recreation and waterside developments. The recommended long-term policy for this unit is to Hold the Line, given the value of assets potentially at risk. The long term effect of this policy will be the narrowing and some loss of beaches fronting the City, though this may well be mitigated through the use of imported shingle (beach nourishment) in the longer term.
8 Peacehaven
Peacehaven is a large residential settlement situated on the cliff top, with the A259 running in close proximity to the cliff edge. The cliffs themselves are nationally important geological features that are protected by a number of statutory designations, which place restrictions on the Council as owners.

There has been a history of cliff erosion along this frontage, and for the last century coastal defences have been used to slow the marine erosion of the cliff face. While this has had some success at stopping the cliff base from eroding, records show that the cliff top has still eroded landwards due to weathering of the cliff face putting properties and infrastructure assets at risk. The defences that exist along the cliff base are expected to last another 50 years if appropriately maintained, and are expected to limit the marine erosion of the base of the cliffs. Thus the SMP recommends that in the short to medium term (the first 50 years) holding the cliff base is the more appropriate policy, as managing and sustaining the existing defences will offer some protection to cliff top assets. This policy may lead to the narrowing and loss of beaches in front of the defences.

9 Telscombe Cliffs
This is a length of cliff top that is relatively undeveloped between the settlements of Peacehaven and Rottingdean. Given that there are currently no defences here and that natural processes are allowed to occur, the recommended policy for this section is one of No Active Intervention. As a consequence of this policy there are no cliff top assets at risk from loss, however management of the Portobello Trail defences will be required and the coastal footpath would probably need re-routing at some point.

5 Seaford (Tide Mills) to Newhaven Harbour
The large low-lying frontage of Tide Mills would benefit from the long-term policy of Managed Realignment by allowing the beach to retreat in a free functioning manner, and with that the formation of a wide shingle beach. There are no assets at risk but appropriate flood embankments at specified locations may be considered in the future to limit the extent of any flooding. The exact location of these would be determined through further studies.

6 Newhaven Harbour and Ouse Valley
This major harbour development, with a wide channel and prominent breakwater is heavily urbanised with a large number of residential and commercial properties and infrastructure existing within the flood area. The long term policy for this unit is to Hold the Line in order to protect and sustain these existing assets.

7 Newhaven Harbour to Peacehaven Heights
Based on current understanding of climate change and accelerating sea levels, the preferred long term technical policy is to manage the realignment of the coast through No Active Intervention along the cliff face in the short to medium term, but maintain a terminal structure at the eastern end to hold the beach in place, which limits cliff toe erosion. The current harbour breakwater acts to do this at present, but should it not be maintained, an alternative may be needed. As a consequence of this policy relocation of the Downs Link Caravan Park may be required.

2 Cuckmere Haven
A low lying estuary valley system with extensive intertidal habitats, Cuckmere Haven, is bordered by steep slopes and high cliffs. This area is geologically, geomorphologically and biologically important and forms part of the Seaford to Beachy Head SSSI, as well as being of significant amenity value. The long-term policy for this frontage is to allow the existing defences to fail and natural process to resume (No Active Intervention) to sustain the important environmental assets and restore a free functioning coast. However it is recommended that Managed Realignment be undertaken in the short term to allow necessary management measures, such as maintaining the west training wall and continuing with beach recycling, while further studies are undertaken to manage the transition from a protected to undefended frontage.

4 Seaford
Seaford is a tourist resort with a relatively high number of residential properties and prestigious assets. The long term policy for this unit is Hold the Line, in order to prevent flooding of the town. Implementation could be achieved by maintaining the existing defences and continuing with the existing Seaford Beach Renourishment Scheme; and when necessary increasing the volume of beach renourishment. The impact of this policy may result in beach narrowing and the need for higher and possibly more substantial defences as the effects of sea level rise and coastal squeeze continues.