

North Devon & Somerset Shoreline Management Plan Review



Our Changing Coastline

The coastline is undergoing constant change from the effects of waves, tidal currents and the changing climate. The amount of physical change depends upon the degree of exposure of each length of coast and the underlying geology. These changes usually take place over long historical periods. Examples include the ongoing movement of the pebble ridge at Westward Ho! and erosion of the cliffs between Blue Anchor and Watchet.

Another influence on the development of the coastline has been human intervention, particularly in attempts to stop the effect of erosion or flooding at particular locations. In many cases this has taken place with limited understanding of the consequences of carrying out these works on other locations up and down the coast.

Whilst 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. Development often places stress on natural coastal habitats that are unique and of national and international importance.



Source: Photograph © www.bbc.co.uk

Hartland Point to Anchor Head, including Lundy

This stretch of coastline has a rich diversity in its physical form, human usage and natural environment. This includes the wide extensive flood plain of the Somerset Levels, large urban areas such as Barnstaple and Bridgwater, the Hinkley Point Nuclear Power Station 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 a 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 and estuaries up to their tidal limits. It provides a policy framework that addresses these risks, in a way that does not tie future generations to costly and unsustainable management. The plan aims to balance potentially conflicting interests along the coastline.

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



Source: Photograph © Ian Chidwick, 2008, www.oursouthwest.com

Coastal Defence Planning

It is important to differentiate between the three tiers of coastal defence management in England and Wales:

- **SMP**
Identifies general policies and general implementation requirements.
- **Coastal Defence Strategy**
Identifies nature and timing of works to be undertaken.
- **Scheme**
Design and construction of defences and maintenance on a single frontage.

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. The Department for Environment and Rural Affairs (Defra) SMP guidance (2006) defines sustainable long term management policies as "those which take account of the relationships with other defences, developments and processes, and which avoid, as far as possible, committing future generations to inflexible and expensive options for defence".

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. Along this SMP frontage, there are large areas of natural, undefended coastline and the policy selection in these areas has been driven by sustaining this situation.

Many areas along the North Devon and Somerset coastline have a long history of coastal defence intervention to reduce the risk of flooding and erosion. This means that the shoreline today is, in places, in an 'unnatural' form and position and would not necessarily revert to 'naturally functioning' if simply allowed to develop without management. It is likely that the removal of defences along parts of the SMP frontage 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 along parts of the coast, would be catastrophic, 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 the developed areas of this frontage. However, policies leading to a more 'natural' shoreline in the long-term have been identified where feasible.



Source: Photograph © Angela Proctor, 2009

Background to the North Devon and Somerset SMP

In 1998 and 2000, the original Shoreline Management Plans for the coastline from Bridgwater Bay to Bideford Bay and the Severn Estuary, were completed and adopted. These identified coastal defence management policies for a 50 year period.

Since completion of these SMPs, a number of studies and schemes have been developed based upon the policies they recommended. The outcomes of these studies have been used to inform the development of this SMP review.



Source: Photograph © Sue Dixon, 2005, www.oursouthwest.com

The SMP Review

Recognising the need for review of the original SMP policies, the North Devon and Somerset Coastal Advisory Group commissioned consulting engineers Halcrow Group Ltd (Halcrow) to review policies between Hartland Point, Devon and Anchor Head (Weston-super-Mare), Somerset. Review of the wider Severn Estuary has been undertaken separately.

The review was commissioned to take account of:

- Latest coastal studies and monitoring information;
- Issues identified by most recent defence planning;
- Changes in legislation (e.g. European Union Habitats Directive);
- Changes in national flood and coastal defence planning policy requirements (e.g. the need to consider a time frame of at least 100 years rather than the original 50 years).

This summary presents an overview of the policies that have been formally adopted. Full details of policies for individual sections of coast and estuary are provided in the main SMP document (see page 8 for details). It should be noted that, although these policies have been formally adopted, this does not guarantee funding will be provided to implement policies in the future.

The Policy Appraisal Process

The 100 year appraisal time frame forces us to look beyond the anticipated life of 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 review determines the way 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.

Considering this scenario, areas 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, including communities.

The creation 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 acknowledgement of its potential impact on environmental, financial and social assets along the coast.

An overview of the recommended policies for each section of coast is presented on the reverse of this leaflet. Full details for smaller sections of coastline and estuary within each area are presented in the main SMP document.

Policy Options

There are 4 shoreline management policies to be considered, as defined by Defra.

These are:

- **Hold the Line**
Maintain or change the level of protection provided by defences in their present location.
- **Advance the Line**
Build new defences on the seaward side of the existing defence line to reclaim land.
- **Managed Realignment**
Allowing the shoreline position to move backwards (or forwards) with management to control or limit movement.
- **No Active Intervention**
A decision not to invest in providing or maintaining defences.

The North Devon and Somerset Coastal Advisory Group

The North Devon and Somerset Coastal Advisory Group (NDASCAG) includes the 5 Local Authorities that lie within the boundaries of the SMP, the Environment Agency and other key bodies. These include Natural England, Devon County Council, Somerset County Council, English Heritage, The National Trust, Exmoor National Park Authority and the Royal Society for the Protection of Birds.

The Local Authorities and Environment Agency have responsibility for protecting the coastline and estuaries. The Local Authorities mainly deal with defences that protect the coast from erosion by the sea. The Environment Agency deals with flood risk management and has a strategic overview for all aspects of flood and coastal erosion risk management.

Defra require production of SMPs for sustainable coastal defence management. The development of this Plan was led by the NDASCAG, with guidance and funding provided by Defra.



Source: Photograph © Halcrow Group

Partner and Community Engagement

Greater involvement of partners and communities in the appraisal process is one of the key changes from the first SMP. This has included the formation of a Client Steering Group (CSG), regular communication with elected members and partners and public consultation at key stages throughout development of the SMP. All have input information to the process and reviewed and commented on outputs as the study progressed.

This involvement has provided representation of the interests of landowners and residents. The views of those affected by SMP policies have been taken into account during its development, ensuring that all relevant issues are considered.

The CSG comprises all members of the NDASCAG, and has a remit to agree the various stages and outputs of the SMP as it progresses. All changes to the SMP following public consultation have been agreed by the CSG and Elected Members.

Further Information

The North Devon and Somerset Shoreline Management Plan, including supporting appendices, can be viewed and downloaded at the North Devon and Somerset Coastal Advisory Group website: www.ndascag.org.

Full copies of the Shoreline Management Plan can also be viewed at the following offices:

- Torrington District Council, Bideford
- North Devon Council, Barnstaple
- Devon County Council, Exeter
- West Somerset Council, Williton
- Sedgemoor District Council, Bridgwater
- North Somerset Council, Weston-super-Mare
- Somerset County Council, Taunton
- Exmoor National Park Authority, Dulverton
- Environment Agency, Bridgwater and Exeter.

For further information contact:

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Source: Photograph © Mark Durk, 2008, www.oursouthwest.com

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The Shoreline Management Policies

The following information summarises the justification for, and the impacts of, management recommendations for each area in the SMP for the next 100 years. This summary should be read in conjunction with the main SMP documents, which provide more detailed information for each individual policy unit.

1. Lundy (policy units 7c01 & 7c02)

The long-term Plan for Lundy is to continue allowing it to evolve naturally, while maintaining sea defences that protect the access via Landing Bay.

2. Hartland Point to Westward Ho! (policy units 7c03 to 7c05)

This coast is largely undefended with very little at risk of erosion or flooding. The long term Plan is to continue allowing the coast to evolve naturally along much of its length.

Continued defence will be needed at Clovelly to retain this important tourism centre that also benefits the wider economy. Retention of Clovelly's defences is likely to be economically viable and unlikely to affect wider coastal processes, provided the current annual transfer of pebbles from the west to east continues.

Retaining defences at Buck's Mill is also unlikely to affect wider coastal processes. However, future provision of defences here is unlikely to attract public funds from the flood and coastal defence budget so they will depend on the availability of other funding.

3. Westward Ho! to Saunton Down (policy units 7c06 to 7c08 & 7c30 to 7c31)

Northam Burrows is key to the future of this area. The Plan is to allow the Pebble Ridge to roll back and naturally become more aligned with the dominant wave direction. The realignment of the coast will be managed by extending defences at Westward Ho! and continuing to protect the former landfill site. The Skern frontage will be held in place to ensure Northam Burrows continues to protect the inner estuary, while retaining as much land as possible for land use adaptation as seaward land is lost. Implementation of this policy will need to consider allowing tidal inundation further into the eastern side of Northam Burrows to help the wider Burrows adapt to sea level rise.

The dune system of Braunton Burrows will be allowed to continue evolving naturally. The dunes are expected to continue to provide a robust natural defence for low-lying areas of the Taw Estuary behind the Burrows.

Retaining current defences at Saunton would not have any wider implications for coastal processes. Future provision of defence here is unlikely to attract public funds from the flood and coastal defence budget so will depend on the availability of other funds.

4. Taw/Torridge Estuary (policy units 7c09 to 7c29)

The long-term Plan for the Taw/Torridge Estuary is to provide sustainable flood defence to people, property and infrastructure, while allowing the estuary to evolve naturally in response to climate change and rising sea levels where possible.

The Torridge Estuary is very steep-sided and unlikely to alter significantly, whether defended or undefended. Therefore any changes in policy can generally be managed locally without wider impact.

The Taw Estuary has several potential areas for 'Managed Realignment' that will provide both flood water storage to benefit other parts of the estuary and the potential to create habitats. There is much uncertainty about the impacts of realignment either in individual areas or cumulatively in several areas, particularly upon the sediment transport and current regime in the estuary and adjacent open coast. Implementation of 'Managed Realignment' at any site in the outer Taw Estuary could alter flow regimes and thus change coastal features at the mouth of the estuary. This could in turn increase flood risk from the sea in the estuary itself. Therefore, the short term policy is to maintain existing defences while more detailed investigations are made, before moving towards the long term vision.



Source: Photograph © Halcrow Group

5. Saunton Down to Morte Point (policy units 7c32 to 7c39)

This mostly undefended coast includes the largely self-contained bays of Croyde Bay and Morte Bay. The long-term vision is to allow the coast to evolve naturally, thus conserving its important landscape character. There is a need to continue to protect distinct places such as Putsborough Sands and Middleborough Hill, although future provision of defence in these areas is unlikely to attract public funds from the flood and coastal defence budget. Retention of the existing seawall-type defences in these areas will not adversely affect coastal processes in a wider area. Therefore future defence provision will depend on availability of alternative funds for this purpose.

6. Morte Point to Minehead (policy units 7d01 to 7d18)

The long-term Plan for this section of coast is to allow it to evolve naturally, conserving its important landscape character. However, it is recognised that there is a need to continue to protect some distinct locations, but this will not adversely affect coastal processes in a wider area. Existing defences will be retained long-term at places such as Lee, Ilfracombe, Combe Martin and Lynmouth.

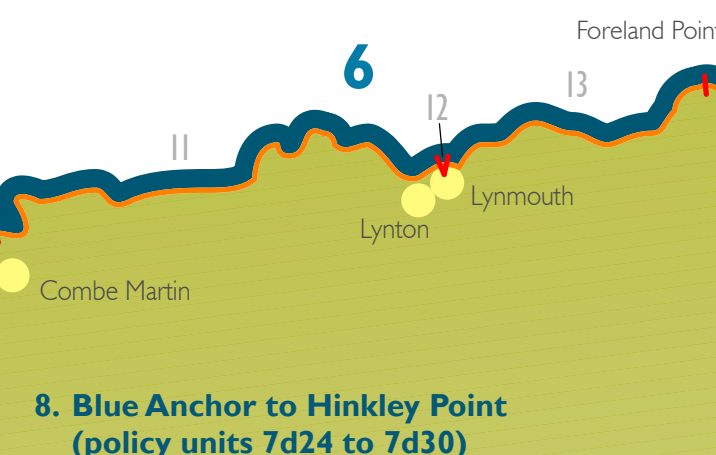
In some areas, such as at Porlock Weir, defences could be maintained in the short to medium-term, although it is likely to become increasingly unsustainable to do so. Future replacement of defences is unlikely to attract public funds from the flood and coastal defence budget. Retention of defences would therefore depend on the availability of other funds. Continued defence here would also impact on a wider coastal area. If defences are not retained, the policy of 'No Active Intervention' would mean currently defended areas facing increased flood and erosion risk in the medium to long-term, as existing defences deteriorate and fail. To manage this increased risk, ways of adapting to it may be needed for these areas.

7. Minehead to Blue Anchor (policy units 7d19 to 7d23)

The long-term Plan here is to continue to reduce flood and erosion risk to Minehead by maintaining the defences. To achieve this objective, the risk of 'back-door' flooding from east of Minehead, via The Warren/Dunster Beach/Ker Moor frontage on Blue Anchor Bay, needs to be addressed. It is intended to manage the realignment of this coast over the long-term towards a more sustainable set-back position, possibly seaward of the West Somerset Railway.

This would not only tackle the risk of 'back-door' flooding at Minehead but, in the longer-term, it is likely that more beach would be retained at Dunster and salt marsh may also develop in front of the set-back defence, providing additional natural defences.

The long-term Plan for Blue Anchor is to move towards a 'No Active Intervention' policy. Maintaining defences along the present line will become more technically difficult and is unlikely to attract public funds from the flood and coastal defence budget. Justifying the retention of defences by the need to preserve access to the coast road is also reduced because alternative access routes are available.



8. Blue Anchor to Hinkley Point (policy units 7d24 to 7d30)

The long-term Plan for this section of coast is to allow it to evolve naturally, retaining its important landscape character. Continuing to protect some areas may be acceptable from a coastal processes point of view, however with the exception of Watchet which will continue to be defended, these areas are unlikely to attract public funds from the flood and coastal defence budget. Therefore, some currently defended areas may face increased flood and erosion risk in the medium to long-term, as existing defences deteriorate and fail. Ways of adapting to the increased risk may be needed for these areas.



Source: Photograph © Angela Proctor, 2009

9. Parrett Estuary (Hinkley Point to Burnham-on-Sea) (policy units 7d31 to 7d42)

The long-term Plan for the Parrett Estuary is to provide sustainable flood defence to people, property and infrastructure, while allowing the estuary to evolve as naturally as possible in response to climate change and rising sea levels. There are many areas in the outer Parrett Estuary where continued defence along existing alignments is unlikely to attract funding in the long-term, as the defences will become much larger and more expensive.

These areas, such as at Pawlett Hams, offer the potential for undertaking 'Managed Realignment' to more sustainable defence positions. However, in places such as at Steart it is very unlikely to be economically viable to provide continued defence in the medium to long-term, even in a realigned position.

There are potential implications for realignment in one or more parts of the Parrett Estuary in conjunction with a 'No Active Intervention' policy for the Steart Peninsula, both on the open coast and in upstream areas such as Bridgwater. Any potential change in flood risk to the upper Parrett Estuary at Bridgwater and Dunball could be minimised by constructing a surge barrier. This has been identified as a requirement to address future sea level rise in the Parrett Estuary Flood Risk Management Strategy. Implementation of a surge barrier would be subject to more detailed appraisal of both technical aspects and environmental impacts.

Towards the open coast, changes to the regime in the estuary could alter the low water channel and this also needs consideration. Impacts of any such changes would be managed at Burnham-on-Sea and Highbridge by retaining defences through ongoing maintenance and eventually replacing these with larger structures as the existing structures reach the end of their effective life.

The policy at Hinkley Point allows for continued protection of the nuclear power station and its potential expansion as appropriate.

10. Burnham-on-Sea to Brean Down (policy units 7d43 to 7d46)

The long-term Plan is to provide protection in a sustainable way against flood risk to the Somerset Levels and Moors, while maintaining the natural character and beaches along much of this frontage that attract tourists and are also important to the regional economy. The most sustainable way to achieve this is to appropriately manage the well established natural dune systems, such as those at Berrow.

The dunes at Brean are currently at risk of erosion and measures should be introduced to encourage the dunes to form a more effective defence. To achieve this, some properties at Brean could potentially have to be relocated.

This would be subject to more detailed study and based on ongoing monitoring. In the long-term, if the dunes become so narrow that they could breach and cause widespread flooding of the Somerset Levels and Moors, then set-back defences would be needed landwards of the dunes to minimise flooding. The location of any set-back defences would be determined by more detailed study prior to implementation.

Between Brean and Brean Down, it is uncertain if larger replacement defences would be economically justified or technically sustainable in the current position. Therefore the long-term policy for this coastal frontage may need to move towards 'Managed Realignment'. This would be informed through continual monitoring and more detailed study. The risk of flooding to the wider Somerset Levels and Moors, as a result of this policy change, would be managed by constructing set-back defences.

Flood risk to Burnham-on-Sea and Highbridge would continue to be reduced by retaining defences through ongoing maintenance and eventual replacement, as the existing structures reach the end of their effective life.

11. Brean Down to Anchor Head (policy units 7e01 to 7e06)

The long-term Plan is to provide protection in a sustainable way against flood risk to the Somerset Levels and Moors, while maintaining the natural character and beaches along much of this frontage that attract tourists and associated revenue for the regional economy.

At Uphill, the most sustainable way to achieve this is to appropriately manage the well-established natural dune system. Along parts of the east side of the River Axe there is potential to achieve this through implementing managed realignment.

Along the west bank of the River Axe (and between Brean and Brean Down on the adjacent open coast – refer to Section 10 on page 15). The risk of flooding to the wider Somerset Levels and Moors, as a result of this policy change, would be managed by constructing set-back defences.

Flood risk to Weston-super-Mare would continue to be reduced by maintaining the recently constructed sea defences, possibly supported in the future by replenishing lost beach material.



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