

4 The Preferred Plan

4.1 Plan for Balanced Sustainability

The SMP is built upon the aim of achieving balanced sustainability, i.e. it considers people, nature, historic and economic realities.

The short term (first epoch-up to 20 years) policies for the South Devon and Dorset SMP coastline provide a high degree of compliance with objectives to protect existing communities against flooding and erosion. The preferred long term policies promote greater sustainability for parts of the shoreline and focus on sustaining and possibly enhancing the natural character of this coast. Long term policies that continue to defend the shoreline in the present-day manner would further change the nature of the coast, with a prominence of large concrete seawall structures and fewer beaches. However there is social-economic justification to maintain many of these defences, with some opportunities to optimise management techniques that will sustain those coastal assets important to the community in the longer term.

The overall rationale and long term vision behind the proposed policies for each policy scenario area is explained in the following sections of text. Details of the specific preferred policies for individual locations that seek to deliver the long term vision are provided by the individual Policy Statements in **Section 5**.

4.1.1 Sustainable Management

One of the main objectives in developing a Shoreline Management Plan is the definition of sustainable long term management policies for the coast. In Defra's Procedural Guidance for the Production of Shoreline Management Plans (Defra, 2006) this is defined 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 most sustainable approach in those areas is to not intervene.

However, on the South Devon and Dorset coast, there are many areas that have a long history of coastal defence intervention to reduce the risk of flooding and erosion. This means that the shoreline is today, in places, in an 'unnatural' position and of a form which would not necessarily revert to 'naturally functioning' if simply allowed to develop unmanaged. The consequences of not defending these areas, given the extent of development along parts of the coast, would be an increase in flooding and erosion with thousands of homes and businesses affected within the areas of potential risk.

As such, it is the social and economic sustainability of the SMP area which has driven policy selection for most of the developed areas of this frontage, although policies leading to a more 'natural' shoreline in the long term have been identified where feasible.

4.1.2 Durlston Head to White Nothe

This area is characterised by rocky cliffed shorelines which are designated for their outstanding landscape and geological value. Much of this coast is currently undefended and erosion risks are generally low due to the resistant nature of these cliffs. The preferred policy is therefore to continue to allow natural development along this coast.

There are local exceptions where defences already exist to protect visitor access points and facilities, such as at Kimmeridge Bay and Lulworth Cove. Defence of these areas could be maintained without adversely affecting adjacent stretches of shoreline as sediment interlinkages here are weak. This would, however, be dependent

upon the availability of alternative funding as these will not satisfy national criteria for attracting centrally funded flood and coastal defence budget.

With this plan there is risk of damage or loss through erosion of historical features as well as agricultural land and some terrestrial habitats of international conservation.

4.1.3 White Nothe to Redcliff Point

This is a mainly cliffed section of coast dominated by clay-rich cliffs, which experience episodic landslide events that can cause tens of metres of retreat as a result of a single event. In places there is a risk of relict landslide complexes becoming reactivated, which makes management of this coastline more difficult.

The coast is mainly undefended except for one short stretch of defence at Ringstead. The continuation of the natural erosion process is integral to the World Heritage and SSSI status of the cliffs. Therefore, the long term plan is to allow this coastline to remain in its natural state, ceasing to intervene where this presently occurs.

With this plan there is potential loss of cliff top properties and holiday developments if a landslide event happens in this area. With this impact on cliff top assets a transition period is needed to enable measures to be put in place to manage this change in management. Some historical features could also be damaged or lost to erosion in addition to the loss agricultural land.

4.1.4 Redcliff Point to Portland Bill

This is one of the more heavily developed stretches of coastline within the SMP area, incorporating the key service and tourism centre of Weymouth and the Isle of Portland. There are also a number of nature designations for both geological and biological interests.

A key driver of policy in this area is the continued protection of commercial and social assets which will require the continued defence of the shoreline for much of this area. However, this will result in coastal squeeze of intertidal habitats and potential for accelerated cliff erosion in adjacent policy units. The plan therefore is to continue to protect built assets but seek more sustainable means of achieving this. That includes some local realignment and possible beach enhancement. The latter approach could also result in the beach in this area becoming more valuable as a tourism resource for the wider region. Where realignment does take place, measures will need to be in place to manage this transition in policy. There is also a need to start to plan for how transport links can be provided in the future, especially the long term future of how the road link to Portland is provided.

Along the north-western shore of Portland Harbour it is unlikely to be appropriate to intervene along the entire stretch of coast, at least in the short to medium term. With some risks to property and critical infrastructure along parts of this shoreline, this policy would require measures to be put in place to manage the relocation of people and property in the longer-term.

The Isle of Portland and Portland Harbour breakwaters are key controls on future evolution as they provide shelter and influence the movement of sediment. This whole stretch of coast is therefore heavily dependent on any changes to Portland Harbour breakwaters. The preferred plan includes the assumption that the breakwaters will remain and be maintained. However, even if this assumption were not to hold true in the future, sensitivity tests suggest that it would not alter the preferred management approach, only the nature and timing of how it is implemented.

4.1.5 Portland Bill to Thorncombe Beacon

This stretch of coast is dominated by Chesil Beach, which as well as being internationally important for its habitats, geomorphology and landscape characteristics, also provides an important defence role. The shingle

barrier is undergoing a natural change as it rolls landwards in response to sea level rise and experiences natural reduction in sediment inputs from further west. Whilst this natural process is integral to the designated status of Chesil Beach, where it fronts the tidal lagoon of The Fleet there are environmental implications as The Fleet is gradually being naturally 'squeezed'. This may result in changes to the interest features of the area. As this process occurs, there will also be a significant flood risk to the road and other assets that run behind the beach towards Portland at the eastern end of this section.

Other conflicts arise where there are small settlements, as this coast is also important for tourism which relies on access to the beach and the provision of facilities. As the ridge naturally rolls landward, sustaining defences along these stretches will become more difficult.

A key driver of policy is to maintain the natural status of Chesil Beach and take measures to ensure its future sustainability. Therefore for most of this stretch no intervention is planned.

In the very long term this could have implications for how transport links to Portland are provided and consideration of how this link can be provided in the future is required. Elsewhere this plan would have some implications for several cliff top properties and beach front facilities which would need to be relocated.

At Freshwater Beach, the plan is adapted to allow some minimal intervention to manage the realignment of the coast in line with the retreat of adjacent undefended cliffs. This approach, supported by construction of a secondary defence further inland, will reduce local flood risk to properties at Burton Bradstock without compromising natural functioning of the beach. Continued defence of West Bay will also require a secondary defence behind East Beach to enable sustainable long term management of flood risk to be achieved as whilst also allowing more natural functioning of the beach.

At the far eastern end (Chiswell) the long term plan is to continue to maintain existing defences. This is not expected to have detrimental impact on the Chesil Beach system as a whole, although locally rollback will be inhibited. However, this management is required to maintain protection to assets along this shoreline so that the risk of flooding continues to be reduced.

4.1.6 Thorncombe Beacon to Beer Head

This section of coast is characterised by dramatic, geologically important cliffs which are subject to large-scale complex landsliding. These events are difficult to predict with any certainty, making management of this shoreline difficult. Sediment interlinkages along this frontage are relatively weak due to the interruptions caused by headlands.

The nature of the erosion of these cliffs is integral to their designations and landscape value, however the area is also important for tourism, with resorts at Seatown, Charmouth, Lyme Regis, Seaton and Beer heavily dependent upon this. A key driver of policy is therefore to allow the continuation of natural coastline evolution whilst managing the risk of erosion and flooding to the key settlements.

The defence of Seatown will become increasingly difficult and expensive in the long term. Therefore the long term vision is for a more naturally functioning coast. This would, however, result in the potential loss of some assets. Therefore measures will need to be put into place to manage this transition from existing practice. In the long term the shoreline should reach a more sustainable position, such that a beach will be retained.

At Charmouth and the eastern side of Lyme Regis, there is a need to address the increasing risk further recession of the landslide complexes causing outflanking or even loss of the presently defended areas. Therefore the risk in these areas may be managed in the short to medium term through either maintenance of existing defences or, in the case of Lyme Regis, construction of the Lyme Regis Environmental Improvements Phase IV scheme. However, the long term defence of these areas will be determined by the extent and

location of future cliff recession and so it may be necessary to consider measures to enable assets to be relocated away from the areas at risk. This would be based on continual monitoring.

To the west of Seaton, continued maintenance of defences will reduce cliff recession rates but will not halt it entirely. So there would remain the risk for the loss of some cliff top assets over time.

At Beer, defences will reduce flood risk and retain beach material, as well as ensuring access to the shoreline continues to be provided for the benefit of the area's economy.

Throughout this whole area the majority of properties and other assets will be retained with this plan. However, some changes will occur and potential for losses will exist. There is therefore a need for measures to be put into place to manage the relocation of people, property and infrastructure in the longer term.

This area also includes the Axe Estuary. The long term plan here is to provide habitat creation through strategic realignment, although consideration as to what happens to the route of the tramway would need to be made when implementing this policy.

4.1.7 Beer Head to Otterton Ledge

This is a predominately undeveloped stretch of cliffed coastline, with one key settlement at Sidmouth. The cliffs are internationally important and their natural evolution is integral to their designated status. There is limited sediment interaction, due to the development of a series of headland-bays. A key driver of policy is therefore to conserve the natural status of this shoreline, through minimising intervention, whilst recognising the importance of Sidmouth, and other small coastal developments, to the social and economic structure of the area.

Accelerated cliff recession along the eastern part of Sidmouth is, in part, a result of the defences fronting the rest of Sidmouth further west. Erosion here will eventually lead to exposure of the defences on the River Sid and so increase the risk of flooding to the town. Beach management is therefore advocated to slow the rate of retreat and ensure that the risk to the fluvial defences in the River Sid is minimised. This would protect cliff top properties to the immediate east of the River Sid for a period of time, but these assets could ultimately need to be relocated away from the area of risk at some point if it becomes uneconomic to continue with this. Future decisions about this would be based upon continual monitoring of the beach and cliffs.

4.1.8 Otterton Ledge to Straight Point

This is a short stretch of shoreline lying between the headlands of Straight Point and Otterton Ledge and an important sediment feed from west to east exists which maintains the integrity of the spit at the mouth of the Otter Estuary. Although a naturally functioning coastal system is therefore a driver along this stretch, there is also a requirement for continued protection of Budleigh Salterton, a locally important tourist and service centre. The long term plan is therefore to defend the town but allow erosion of adjacent frontages to minimise impacts elsewhere.

To the west of Budleigh Salterton, this plan may cause loss of some cliff top assets in the medium to long term, but will continue to provide sediment to the beaches fronting the rest of Budleigh Salterton towards the mouth of the Otter Estuary. Managed Realignment within the Otter Estuary itself offers habitat creation potential and may also be beneficial for reducing flood risk in other parts of the estuary.

4.1.9 Straight Point to Holcombe

This is a long stretch of coastline that encompasses the Exe Estuary, the large urban and commercial centre of Exmouth and the resort of Dawlish. Key drivers of policy here are the conservation of currently undefended areas, which have outstanding landscape and geological value, whilst ensuring the continued protection of

important social and commercial assets. A key area of consideration is the protection of rail infrastructure. Future rise in sea level will also result in coastal squeeze in front of the defences and will result both in increased pressure on these defences and the loss of inter-tidal habitat.

There are areas of opportunity, for example through Managed Realignment at The Maer, Lower Clyst and Powderham, which offer habitat creation potential. Any schemes would, however, need to determine how these can be implemented without adversely affecting the flood risk to people, property and infrastructure.

The long term management of the Dawlish Warren spit is uncertain and requires much more detailed examination to determine a technically appropriate, economically sustainable and environmentally acceptable way of managing this area to continue to provide its flood protection function whilst also meeting the requirements of environmental legislation.

Within the Exe Estuary there is a requirement to retain many of the existing defences due to the presence of the railway. This could result in loss of inter-tidal habitat in some parts of the estuary as sea levels rise, which may be compensated for by the areas of proposed Managed Realignment, but would maintain protection to important social, commercial and infrastructure assets.

4.1.10 Holcombe to Hope's Nose

This is a largely undeveloped, hard cliffed section of coastline, with the main areas of development located at Teignmouth and Shaldon either side of the Teign Estuary mouth, and Newton Abbot at the head of the estuary. Long term recession of the coast will be limited in the most part by the geological resistance of the cliffs. Beaches will narrow along much of this shoreline where it is backed by hard defences.

As well as the geological and environmental importance of this shoreline, a key policy driver here is maintaining the mainline railway. The plan here is to continue to hold the existing line of defences to ensure this link remains. This will also serve to protect a range of tourist related assets.

Within the upper Teign Estuary, an area of Managed Realignment towards the head of the estuary could help reduce flood risk within other parts of the estuary whilst also providing habitat creation opportunities.

Along the undefended coast, the plan is to maintain this current natural status. Whilst this has the potential for some loss of local features and agricultural land, this will deliver some of the environmental objectives in this area.

4.1.11 Hope's Nose to Berry Head (Tor Bay)

This is a heavily populated and developed area of coastline which encompasses the Torbay district. Therefore the key driver is the continued protection of the important social and commercial assets, although this could adversely affect some of the designated geological features.

The embayed nature of this coastline means that the beaches tend to be self-contained, with limited sediment linkages between them, meaning that impacts tend to be confined locally. A key future issue is the technicality of maintaining sandy beaches along the key tourist resorts under a scenario of rising sea levels. The beaches in the northern part of Tor Bay would be subject to coastal squeeze. However, the sheltered nature of the bay lends itself to retaining a beach artificially in the future, which may be increasingly important for tourism and amenity as other beaches in the wider region are lost in the long term due to rising sea levels.

There are potential environmental opportunities at Goodrington Sands and Broadsands, where Managed Realignment along parts or all of these areas could allow a more naturally functioning beach to be retained.

4.1.12 Berry Head to Blackstone Point

This coastline is characterised by cliffs of outstanding landscape value and encompasses the Dart Estuary. Much of it is undeveloped with development centred at Dartmouth, Kingswear, Totnes and Brixham. Along much of this coastline the plan is to allow natural evolution of the shoreline, although in the long term natural narrowing of beaches may occur due to the combination of resistant cliffs and rising sea levels, which could impact on inter-tidal habitats. This policy will lead to loss of some properties in St Mary's Bay due to erosion.

Within the Dart Estuary, there is a need to continue to minimise flood and erosion risk to the various assets through maintaining existing defences. Elsewhere however, the plan would not include for the construction of new defences in currently undefended areas. In this way the large areas of natural estuary will be retained, and as such the impact on the long term estuary evolution is expected to be minimal.

4.1.13 Blackstone Point to Start Point

This frontage is characterised by a shingle barrier which over geological timescales has progressively become segmented by emerging headlands as it has migrated landwards in response to rising sea levels. There are a number of shingle beaches, the longest being Slapton Sands, which are important tourist attractions.

The landscape is one of vegetated sea cliffs, shingle ridges and freshwater lagoons and is of outstanding environmental, landscape and geological/geomorphological value. A key driver of policy is therefore conservation of these features, through allowing natural processes to occur and taking measures to ensure the sustainability of the shingle ridge as far as is feasible to do so.

Developments along this stretch are small in scale, but continued protection of these may become increasingly difficult and detrimental to the integrity of the shingle ridge as it continues to migrate landwards. The plan along this frontage is therefore to undertake localised interventions only as necessary to manage the natural realignment of Slapton Sands in both the short and the long term. The greatest implication for this area is the future loss of road access across Slapton Sands. Increasingly it will be unsustainable to maintain in its current form longer term. The policy of Managed Realignment and adaptation is based upon recommendations contained in the Slaptonline Coastal Zone Management report in 2006 (Scott Wilson, 2006; also see www.slaptonline.org). Plans have already been developed following that study to manage the adaptation of the road in the short to medium term and address the longer-term issue of future transport provision in the wider area.

As the shingle ridges at Slapton Sands and Beesands Beach roll-back landwards, it will become increasingly difficult to continue to provide sustainable defence to all parts of the villages of Beesands and Torcross, so some realignment in these areas will need to be considered in the long term.

4.1.14 Start Point to Bolt Head

With the exception of sizeable settlements at Kingsbridge and Salcombe this is a largely undeveloped length of coast with few defences. The coastline is characterised by cliffs of outstanding landscape and geological /geomorphological value, therefore a key driver of policy is for the continued natural evolution of the shoreline, with no intervention.

Within the Salcombe-Kingsbridge Estuary, the policy is to continue to defend areas currently protected against flooding, but not extend this to the construction of new defences in currently undefended areas. In this way the large areas of natural estuary will be retained. The impact on the long term estuary evolution is expected to be minimal, although within parts of the Kingsbridge Estuary there would be some loss of designated intertidal habitat due to coastal squeeze.

4.1.15 Bolt Head to Wembury Point

This is a long stretch of coastline that encompasses the Avon, Yealm and Erme Estuaries. Much of the coastline is relatively undeveloped with few coastal defences and is characterised by cliffs of outstanding landscape and geological /geomorphological value. Therefore along much of this coastline the policy is to not intervene. As a result there will be potential for damage to or loss of a number of cliff top assets.

At Inner and Outer Hope, the existing defence that provides protection to a cliff top road could be maintained if private funds are available, as to do so would have little impact on the rest of the coast. A more sustainable option could be realignment of the cliff top road as and when it becomes at risk of erosion. Similarly at Thurlestone and Challaborough, there are short lengths of defence, many of which are privately owned, that could be maintained without having adverse impacts elsewhere if privately funded, although to do so may increase narrowing and loss of beach locally.

Within the Avon Estuary, Managed Realignment in the upper reaches would provide habitat creation potential and flood storage of benefit to the wider estuary. A policy of Hold the Line at Newton Ferrers and Noss Mayo within the Yealm Estuary would allow continued protection to this developed area.

4.1.16 Wembury Point to Devil's Point

This stretch of coastline encompasses the large urban settlement of Plymouth, the protection of which is the key policy driver. A further requirement is the need to protect areas of active/former landfill and potentially contaminated land from increasing rates of erosion and flooding.

Elsewhere, the cliffs along the eastern side of Plymouth Sound are of outstanding landscape and geological/geomorphological value and no intervention in this area would ensure that these features are maintained in the future.

As a result of the preferred policies, there are potential losses of intertidal habitat, due to coastal squeeze to the west of Mount Batten Breakwater, but potential gains in intertidal habitat to the east of Mount Batten Breakwater. There is also the potential loss of some historic heritage features but protection of a significant number of recreational and tourist related assets and other historic features in Plymouth.

4.1.17 Tamar Estuary

The Tamar Estuary contains a number of developed areas as well as large areas of natural, undefended estuary. A mixture of policies to either continue to protect existing defended areas or to undertake Managed Realignment within the estuary seek to recognise this, as these can provide some significant social and economic benefits with minimal adverse impacts on the environment. Large areas of the Tamar Estuary are natural and undefended, and under this plan no new defences would be constructed in those areas.

In locations where there is potential for Managed Realignment, opportunities for the expansion of existing wetland areas can be explored through targeting environmental schemes such as stewardship. There are also opportunities for new areas of wetland habitat creation through the design of appropriate Managed Realignment schemes. Within these areas, the aim of Managed Realignment would be to both create habitat and reduce flood risk in other parts of the estuary.

4.1.18 Mount Edgcumbe to Rame Head

This coastline is mainly characterised by undefended, hard rock cliffs, which experience very slow retreat rates. Sediment interlinkages are weak. Impacts of defences therefore tend to be confined locally.

For most of the frontage the plan is to continue to allow natural retreat of the shoreline. Due to the low rate of retreat it is unlikely to result in significant losses of assets, although in some areas this may result in damage

to or loss of some historic features. There would be a beneficial impact on nature conservation through a potential increase in intertidal habitat adjacent to an internationally designated conservation site.

At Kingsand and Cawsand, the plan is to minimise the risk of flooding and erosion to the town assets through continued defence.

4.2 Predicted Implications of the Preferred Policies

In the longer term, there may come a time when it can no longer be justified, in economic, technical or environmental terms, to continue defending against coastal erosion and flooding. Although in places we may not have reached this stage, we need to begin planning for this situation. Accepting that it is not sustainable to continue to provide defences to the extent nationally that we have in the past century, the implications of this are presented below.

Direct comparison is made between the proposed policies and a No Active Intervention approach - this being the position if no money was spent on coastal defence. This comparison defines the benefits of the proposed policies.

4.2.1 Implications for Property and Land Use

For much of the South Devon and Dorset coastline the preferred policy is to maintain existing defences where economically viable in the long term. This is to minimise loss of property and assets along the developed parts of the coastline as far as possible. However, for some sections of the coast, a change in management policy has been identified for the longer term where a Hold the Line policy is no longer acceptable on the grounds of economics, technical sustainability or the environment. The SMP has identified areas where a more naturally functioning coastline would be to the benefit of the natural environment, however, there are potential losses of assets should this policy be implemented. The key areas of management change are Ringstead, Hive Beach (Burton Bradstock), East Beach (West Bay), Seatown, Charmouth, Branscombe, Torcross, and Beesands, where the long term technical sustainability and economic viability of a Hold the Line policy is questionable. These management policy changes are based on comprehensive consideration of multiple factors, including scientific fact and best technical knowledge. In situations where communities may be affected, it is critical to manage expectations and account for resistance to implementation of these policies.

For the preferred policies, the total loss of housing to coastal erosion through the whole SMP area up to year 2025, i.e. the end of the 1st epoch, is up to about 160 residential and commercial properties. This compares to the No Active Intervention baseline, when potential erosion losses of up to 580 residential and commercial properties could possibly occur.

By year 2055, residential and commercial property losses as a result of coastal erosion could total around 215, with cumulative losses of between 450 and 460 residential and commercial properties by the year 2105. This compares to the No Active Intervention baseline, when cumulative house losses could be up to 700 by 2055, and over 1,150 by 2105 if the protection measures were not afforded, i.e. the preferred policies deliver coastal erosion protection to about 700 'at risk' residential and commercial properties over the next 100 years. These figures relate to losses through coastal erosion only assuming worst case estimated erosion occurs along all parts of the coast. As parts of the SMP frontage are very low lying, overtopping, overflowing or breaching of defences, even where flood defences are maintained, could lead to wide spread flooding, with over 8,300 residential properties and over 3,200 businesses at risk from flood damage and associated increased risk to life.

Tourism and recreation is an important economic sector, with key centres located along the SMP frontage including those at Weymouth, West Bay, Charmouth, Lyme Regis, Seaton, Sidmouth, Budleigh Salterton,

Exmouth, Dawlish, Teignmouth and Torbay. Along these frontages there will be losses of a number of properties as a result of policies to undertake realignment or No Active Intervention along parts of these frontages, as well as some re-routing of major infrastructure will be required in the longer term under this Shoreline Management Plan. While the preferred policy for many of these areas is to Hold the Line in the long term, there may be a detrimental impact on tourism through loss of beaches at places such as West Bay (West Beach) and Exmouth, where it will become increasingly difficult technically to retain beaches as sea levels rise causing coastal squeeze pressures. Along frontages where some properties will be lost due to coastal erosion in the medium to long term, the preferred policy includes provision for management of the retreat at some of these locations. This could allow for relocation or mitigation measures to be implemented should there be the mechanisms to do so.

Agriculture and grazing also represents a share of the local economy and along the coast there are various grades of agricultural land. Along much of the South Devon and Dorset coast, these are in the undeveloped stretches between the towns and within the estuaries, where there is insufficient economic justification for maintaining or constructing defences, which would also be technically inappropriate. Under the preferred policies there could be loss or damage to approximately 2,800 hectares of agricultural land which will remain at risk of flooding, even where low-level defences are present, by year 2105.

4.2.2 Implications for Nature Conservation

The SMP seeks to support natural processes and maintain wildlife (including the condition of designated sites) along the coastline. The SMP recommends the preferred policies of No Active Intervention or Managed Realignment where it would be possible to enhance and/or create new areas of wetland habitat within or adjacent to designated conservation sites, which would have beneficial impacts.

However, in some locations, holding the line is essential to protect cities or towns. In some of these locations, coastal habitats such as vegetated cliffs, sand dunes, saltmarsh, mudflats and/or sandbanks may be adversely affected (e.g. at Portland Harbour) or lost in the long term due to expected future sea level rise as they may become squeezed against fixed defences or cliffs.

In other areas, where defences will continue to be maintained, some nationally or locally designated freshwater or terrestrial habitats may benefit from holding the line and be protected from coastal flooding.

As described in Section 2.7.4, the SMP has the potential to adversely affect the integrity of seven European sites; Exe Estuary SPA and Ramsar site, Plymouth Sound and Estuaries SAC, Tamar Estuaries Complex SPA, Dawlish Warren SAC in the short term, Chesil Beach and the Fleet SAC, and Sidmouth to West Bay SAC.

In most cases, potentially adverse effects may occur due to coastal squeeze of intertidal habitats and their associated qualifying species as a result of sea level rise against coastal defences. However, there is also uncertainty regarding the loss of vegetated cliff habitats due to holding the line.

Much of the SMP coast is characterised by a variety of cliff types, which are nationally and internationally important for their geology and geomorphology. This includes most of the stretch between Durlston Head and Exmouth which forms the UK's only natural UNESCO World Heritage Site, the 'Jurassic' coast. The most significant threat to the site is the creation of artificial structures along the coast that would affect the natural processes of erosion or obscure the exposed geology, and lead to a loss of fossils (World Heritage Site Management Plan 2009 - 2014: Draft for Consultation (March 31st March to June 9th 2009)). The proposed plan therefore seeks to balance the protection of these natural features with the maintenance and protection of property and material assets wherever possible. The preferred policies of No Active Intervention or Managed Realignment have been recommended in areas where there are limited human assets or along areas of undeveloped coastline to ensure the preservation of the geological interests and compatibility with the

Jurassic Coast WHS Management Plan objectives. In general, the SMP is not recommending the construction of new defences to maintain economic assets in areas where none are currently present.

There are often conflicts between allowing the coastline to evolve naturally (benefiting marine or intertidal habitats) and maintaining designated terrestrial/freshwater sites on the land. In such areas, any SMP policy will result in some loss of habitat. Careful management of the shoreline between Durlston Head and Rame Head will therefore be necessary to manage the designated habitats in place wherever possible, while managing and adapting to changes due to the impact of future sea level rise. Some habitat losses will occur due to sea level rise as the frontage reacts to increasing pressure, for example, as Chesil Beach rolls-back into The Fleet causing narrowing of the lagoon and loss of designated habitat. However, often this will not be a result of SMP policy but would occur due to natural change with or without the SMP.

4.2.3 Implications for Landscape

The preferred long term policies in this SMP are intended to sustain the current dense urban areas through proactive management of the existing beaches and defences, whilst recognising that new linear and possibly shoreline control defences may be needed in the longer term; although in general, the Plan is not to construct new defences in currently undefended areas so much of the coastline will remain as today. However, opportunities for forming a free functioning natural coastline in some areas have been taken, to create a more natural coastal landscape and reducing piecemeal man-made structures on the beach. This is more beneficial to the landscape than a policy of defending the whole coastline, which would involve construction of new, more substantial defences, which in some places would also be unlikely to be technically sustainable or economically viable. A policy of No Active Intervention would help to conserve and enhance the quality of the landscape and seascape of the AONBs, Heritage Coasts and UNESCO Dorset and East Devon 'Jurassic Coast' World Heritage Site. However, it is recognised that loss of some coastal properties, to which the AONB designation refers, may affect the quality of the landscape should they be of special character. In addition, where a No Active Intervention policy is recommended, there is the potential for unsightly defences as they deteriorate in the long term. Measures may be needed to remove such structures, particularly as they also pose a health and safety risk.

A Hold the Line policy involving pro-active management of the existing beaches and defences is still required in some areas to protect dense urban areas and this can result in changes to landscape character and negative effects on views for people living, working or visiting the area.

Generally, the SMP policies work with the objectives of management plans for the nationally designated landscapes, though localised changes in landscape (e.g. landscape changes resulting from the potential loss of coastal features) will need to be considered further at a more detailed level when approaches to delivering policy are determined.

4.2.4 Implications for the Historic Environment

There are a wide range of heritage sites along the coast and many more of these will be protected through the preferred policies than would survive a No Active Intervention policy. However, along some stretches of coastline, there may be possible damage to or loss of historic environmental features in the medium or longer term due to flooding and/or erosion including:

- Scheduled Monuments including Sandsfoot Castle in Weymouth;
- Small areas of Registered Parks and Gardens e.g. Encombe, Lulworth Castle, Rousdon, Connaught, Overbecks, Langdon Court, Flete, Mount Edgcombe;
- Grades I and II Listed Buildings;
- Potentially nationally important non-designated archaeological assets; and

- Other archaeological features that would require consideration at the scheme level including regionally and locally non-designated archaeological assets and HER features, historic landscapes and palaeo-environmental deposits.

The loss of such assets may affect their value as potentially important amenity and recreational assets.

Where there may be possible damage or loss to the historic environment mitigation measures are proposed. In the case of non-designated site mitigation measure should be considered a scheme or project level as appropriate.

4.2.5 Implications for Amenity and Recreational use

The coast is an important area for tourist and recreation use, with key interests concentrated along the coastal strip in many of the settlements in this area. Under the preferred long term policies, the key centres of tourism and recreation such as at Weymouth, West Bay, Lyme Regis, Sidmouth, Exmouth, Dawlish, Teignmouth and Torbay will continue to be protected to maintain assets currently protected by the existing defences. However, this will be at the expense of beaches along many of these frontages, which are unlikely to be retained as the frontages become more prominent and therefore more exposed. The promenades along these sections will also become more exposed and less accessible. Where it is possible to provide defence sustainably in the long term through beach renourishment, this will be of increasing value to tourism and recreation within the region as more and more beaches become lost as sea levels rise.

Although in the long term there are losses of beach expected from rising sea levels and coastal squeeze, there will also be potential access issues, with existing accesses to the beach often being lost or becoming redundant. There is potential, and in some places a necessity due to safety issues, for these to be re-established if funding is available.

Many of the historic and archaeological assets within the SMP area (see Section 4.2.4) provide important amenity attractions.

4.3 Managing the Change

The consequences of the long term management policies and the inevitability of having to change past policies cannot be overstated. By continuing to defend the coastline by following the same approach that has been taken in the past, is unsustainable in the very long term for particular frontages and it is unrealistic to present proposed policies that indicate continued defence of an area where this is unlikely to be sustainable or economically justifiable.

To achieve this change will, however, require consideration of the consequences at various levels of planning and government. There will be matters that need to be debated at a national level, as the issues that have been identified by this Shoreline Management Plan will exist several times over around the UK. It is not possible to achieve complete sustainability from all perspectives and quite probably national policies will need to be developed to help resolve the dichotomies.

4.3.1 Recommendations

It is expected that implementing this Shoreline Management Plan may require changes at local planning, regional and national government levels. At a time when regions are being charged with increasing the national housing stock, there may need to be compensatory provisions made to offset the losses that will result from this Plan and others. These provisions may, for example, include making other land available for building.

Regional planning needs to consider the messages being delivered by this Plan, and ensure that future

proposals for regional development and investment are made accordingly. Such planning needs to be looking beyond the current 20 year horizon.

Local planning should consider the risks identified in this Shoreline Management Plan and avoid approving development in areas at risk of flooding and erosion. Local planning also needs to consider that relocation of displaced people and property may require land to be made available within the same settlements to maintain the same level of community and may need to become increasingly flexible to enable this. Locations for new developments may need to be identified.

In the short term the need to **ensure that conservation interests within designated sites or in the wider environment are appropriately addressed by coastal management should be done in a way that engages the public and involves local communities in finding long term solutions to issues.** To help deliver this objective English Nature (now Natural England) has published a Maritime Strategy entitled 'Our coasts and seas: making space for people, industry and wildlife', available from the Natural England website.

To accommodate coastal change and associated potential loss of property and assets, whether due to coastal erosion or flooding, local operating authorities will need to develop action plans. These will need to address the removal of buildings and other cliff-top facilities well in advance of their loss to erosion. The plans for relocation of people also need to be established and clear for all affected.

Mitigation measures do not fall solely upon national and local government and should not be read as such within this Plan. **Business and commercial enterprises will need to establish the measures that they need to take to address the changes that will take place in the future.** This includes providers of services and utilities, which will need to make provision for this long term change when upgrading or replacing existing facilities in the shorter term. They should also consider how they will relocate facilities that will become lost to erosion or flooding and the need to provide for relocated communities. Other parties needing to consider mitigation measures will be the local highways authorities and bodies responsible for local amenities (including churches, golf clubs, etc).

Private land and property owners will also need to consider how they will deal with these changes. The terms of the Acts under which the operating authorities work confer only "permissive powers" and, as such, there is currently no general obligation on the part of operating authorities or national government to assure protection against flooding or erosion. There is no reason at present to assume that this will change in the future or that individual losses would be recompensed from central funds.

The SMP provides a long lead time for the changes that will take place, which in general will not happen now, but will occur at some point in the future. To manage these changes effectively and appropriately, the approach put forward in this SMP needs to be considered now, not in several decades time. Refer to the Action Plan in **Section 6**.