

Appendix L
Non-Technical Summary for the
Strategic Environmental Assessment

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	Page
L1 INTRODUCTION	1
L2 OUTLINE OF THE PLAN	2
L2.1 The Shoreline Management Plan	2
L2.2 The Preferred Plan	3
L3 BASELINE ENVIRONMENT	6
L3.1 Current State of the Environment	7
L3.2 Existing Environmental Issues	11
L4 LIKELY EVOLUTION OF THE ENVIRONMENT WITHOUT THE PLAN	12
L5 ENVIRONMENTAL PROTECTION OBJECTIVES	14
L6 ENVIRONMENTAL EFFECTS	18
L7 ENVIRONMENTAL MEASURES	20
L8 ALTERNATIVES	21
L9 MONITORING	22

Glossary

AONB	Area of Outstanding Natural Beauty
ATL	Advance The Line
AWB	Artificial Water Body
BAP	Biodiversity Action Plan
CRoW Act	Countryside and Rights of Way Act
Defra	Department of Environment, Food and Rural Affairs
FWB	Fresh Water Body
GWB	Ground Water Body
HMWB	Heavily Modified Water Body
HTL	Hold The Line
LIDAR	Light Detection and Ranging
MA	Management Area
MR	Managed Realignment
MTP	Medium Term Plan
NAI	No Active Intervention
NNR	National Nature Reserve
ODPM	Office of the Deputy Prime Minister
PDZ	Policy Development Zone
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SMP	Shoreline Management Plan
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
TraC	Transitional and Coastal
UKCIP	United Kingdom Climate Impacts Programme

L1 INTRODUCTION

Directive 2001/42/EC of the European Parliament and of the Council, and the associated Environmental Assessment of Plans and Programmes Regulations 2004, requires that a Strategic Environmental Assessment (SEA) be carried out by certain plans and programmes that are required by legislative, regulatory or administrative provisions. The Directive is intended to ensure that environmental considerations are taken into account alongside other economic and social considerations in the development of relevant plans and programmes.

Whilst it has been determined that Shoreline Management Plans (SMPs) are not required by legislative, regulatory or administrative provisions, they do set a framework for future development and have much in common with the kind of plans and programmes for which the Directive is designed. Therefore, the Department for Environment, Food and Rural Affairs (Defra) has recommended that environmental appraisal of SMPs be undertaken in line with the approach of the Directive.

In accordance with the Regulations, this document sets out a non-technical summary of the integrated SEA that has been carried out during the production of the Northumbria Coast SMP2. In line with guidance from the Office of the Deputy Prime Minister (ODPM) this document provides a non-technical summary of the information provided under the following headings:

- An outline of the plan, and relationship with other plans and programmes (**Section L2**).
- Baseline environment (**Section L3**), including:
 - current state of the environment;
 - likely evolution without the plan; and
 - any existing environmental issues.
- Environmental protection objectives (**Section L5**).
- Likely significant environmental effects (**Section L6**).
- The measures envisaged to prevent, reduce or offset any significant adverse effects (**Section L7**).
- An outline of the reasons for selecting the alternatives dealt with (**Section L8**).
- A description of measures envisaged concerning monitoring in accordance with Article 10 (**Section L9**).

L2 OUTLINE OF THE PLAN

L2.1 The Shoreline Management Plan

An SMP provides a large-scale assessment of the risks associated with coastal evolution and presents a policy framework to address these risks to people and the developed, historic and natural environment in a sustainable manner. In doing so, an SMP is a high-level document that forms an important part of the Defra strategy for flood and coastal defence (Defra, 2001). The plan provides broad scale assessment of these risks, as well as specific advice to operating authorities in their management of defences. Through this, and through the identification of issues covering a wide spectrum of coastal interests, the SMP supports the Government's aims, as set out in Defra's strategy "Making Space for Water" (Defra, 2005):

- To reduce the threat to people and their property; and
- To deliver the greatest environmental, social and economic benefit, consistent with the Government's sustainable development principles.

The Northumbrian SMP2, developed on behalf of the Northumbria Coastal Authorities Group (NCAG), sets out the results of the first revision to the original SMP for the area of Northumberland and North Tyneside coast extending from the Scottish Border south to the River Tyne.

The SMP is a non-statutory policy document for coastal defence management planning. It takes account of other existing planning initiatives and legislative requirements, and is intended to inform wider strategic planning. It does not set policy for anything other than coastal defence management. However, from this perspective, it aims to provide the context to, and the consequences of, management decisions made in other sectors of coastal management.

The SMP2 promotes management policies for a coastline into the 22nd Century that achieve long-term objectives without committing to unsustainable defence. It is, however, recognised that due to present day objectives and acceptance, wholesale changes to existing management practices may not be appropriate in the very short-term. Consequently, the SMP2 provides a timeline for objectives, policy and management changes; i.e. a 'route map' for decision makers to move from the present situation towards the future.

The generic shoreline management policies considered in this SMP2 are those defined by Defra, and they are represented by the statements:

- **No Active Intervention (NAI):** a decision not to invest in providing or maintaining defences.
- **Hold the Line (HTL):** maintaining or upgrading the level of protection provided by defences
- **Advance the Line (ATL):** building new defences seaward of the existing defence line.
- **Managed Realignment (MR):** allowing the shoreline to realign, landwards or seawards, sometimes with management to initiate and control change.

In developing this SMP2 the preferred policies have been identified from the above generic list, but importantly the accompanying text states in some detail the intent of the policy such that it is the overall intent, not necessarily solely the definitions given above, that drive future management decisions.

L2.2 The Preferred Plan

The SMP area has been broken down into Policy Development Zones (PDZ). Outlined below are the preferred options for the SMP2 by PDZ.

L2.2.1 PDZ 1 - Scottish Border to Holy Island

North of Berwick the intent of the plan is to maintain the unspoilt nature of the coast. Loss of assets, such as the seaward limits of the Holiday Park and the general recreational use of the area are only significantly affected in the latter epoch of the SMP. Maintaining the natural development of the coast maintains its high ecological and landscape value, both of which are important to the use of the coast.

Having determined a long term policy of holding the main Berwick breakwater, the area within Berwick Estuary may be further sub-divided by more local issues. Defence of the northern side of the estuary does not significantly constrain the development of the estuary, this being controlled more by the underlying geological structure behind the defences. While there may be a future long term need to increase defence levels and significant effort in bringing all defences up to a good standard, this is seen as being a sustainable form of defence, given the high values of the area in association with the character of the town.

The overall long term aim for Holy Island is to support natural development of the coastal system in such a manner as to enhance ecological function while attempting to derive more sustainable natural defence to communities and recreational aspects. While there remains considerable uncertainty as to coastal behaviour, which would require detailed examination, such an approach is likely to be best supported by Managed Realignment in the areas of the existing northern flood defence. The plan also aims to maintain access to Holy Island and locally to maintain use and defence of the Holy Island harbour area.

L2.2.2 PDZ 2 - Bamburgh to Boulmer

The main aim along this frontage is to allow natural development, thus maintaining the valuable ecological value and landscape; this will, however, also result in the loss of material assets such as the coastal road north of Seahouses.

Beadnell Village and Beadnell Harbour are to be protected in association with the use and value of the semi-natural development of Beadnell Bay. The plan recommends allowing increased flooding of the hinterland to the centre of the bay, with the specific aim of creating a more resilient shoreline and potentially enhancing ecological value of the area. It is, however, recognised that this has to be considered in detail in association with land owners.

Locally maintaining the harbour structures at Craster is not seen as being in contradiction to the overall aim and this intervention aims to maintain the regionally important community. In maintaining defence to the main village it is likely to be possible to maintain local defence to either side. Further defence beyond these areas would be precluded.

L2.2.3 PDZ 3 Seaton Point to Beacon Hill

Within the Aln Estuary, the plan supports the emerging policy for realignment of defences to low lying agricultural land in an attempt to redress the impact of sea level rise on designated habitat. This would require management of the estuary mouth so as to maintain the integrity of Alnmouth and allow management of issues in relation to the open coast. The town would continue to be defended. On the open coast to the south, natural processes would be sustained and to the north, actions would be developed to allow necessary realignment while reducing the impact on the land use and recreational value.

The intent for the Coquet Estuary and Amble is to maintain the long term viability of the harbour and town. While such a policy will not directly compromise the integrity of the important natural habitats, it is recognised that sea level rise will tend to reduce this overall integrity and Hold the Line within the estuary mouth will not act to address this. As such, the plan recommends consideration of realignment inland of the road within the inner estuary. This needs to consider the impact on flood risk and potential influence of flows at the mouth.

L2.2.4 PDZ 4 Beacon Hill to Beacon Point

The main emphasis over the northern headland is in managing a sustainable transition between the natural coast and the defence to the village of Low Hauxley. To the north of the general headland, the aim is to work with the natural control provided by Beacon Hill, such that transitional management utilises the width of Hauxley Links in protecting access to the village rather than ultimately relying on linear defence of the road. To the south, the limit of defences to the village needs to be formalised in effective management of the area. Over the northern section of Druridge Bay the intent is to manage land use, operation of, and access within, the Country Park such that this relies less on defence of the outfall and access road. Particular emphasis needs to be placed on alternative access to the foreshore in association with creating a more natural outfall to the Ladyburn Lake. Over the main length of the bay, the intent is to allow natural roll back of the dunes, considering potential creation and management of tidal incursion behind the dunes. The intent at Cresswell is to maintain the function of the village through continued defence.

Maintaining the defence to the power station is seen as important in the short to medium term in meeting socio-economic objectives. The value of the existing revetment would then be reviewed. The structure imposes significant, though not necessarily detrimental, control on the bay. Potentially a key factor in this is the managed dissipation of mining waste to the coastal zone. The nature and rate of material lost to the shoreline due to continued erosion would need to be examined to ensure that the adapting natural system is not overburdened with mining waste. The frontages to either side will continue to retreat. In the long term, regeneration of the area, access to and the achieving a sustainable balance within this heavily modified area, needs also to be considered in terms of land use planning. While the short term policy for the frontage, either side of the revetment would be for NAI, the long term policy would be for Managed Realignment to meet a balance of objectives in restoring this section of the coast to a more natural condition.

L2.2.5 PDZ 5 Newbiggin Moor to Seaton Sluice

The intent of the plan is to maintain the defence to Newbiggin based on the concept of the recent scheme, incorporating beach management to enhance values to the area. To the north the aim is to allow natural development of much of the headland, in particular, allowing development of greater width in the natural defence of Newbiggin Moor, improving sustainability of defence, supporting ecological and landscape objectives and potentially adding amenity benefit. The one area of the headland where defence would be required would be in maintaining the defence to the graveyard.

Between Spital Point and Blyth East Pier, the aim is to minimise intervention, allowing the coast to respond naturally within existing hard points including potential realignment within the estuary, to provide the coast with the ability to respond naturally at the estuary mouth without pressure for intervention on adjacent sections of the frontage. Any development of the coastal zone should aim to set back to allow a natural buffer zone or should include a detailed examination of how development and defences can be used to retaining sediment.

At the northern end of the bay the intent is to secure flood defence to the town of Blyth and to work towards supporting regeneration of the area. To the centre and southern end of the bay the aim is to support the natural development of the dunes as an important ecological and amenity value to the area; minimising intervention to that necessary in maintaining the natural defence. Between these two areas, management needs to allow a transition between the two approaches; this may require realignment of the coast. At Seaton Sluice the aim would be to support defence of this area as a locally important recreational and amenity area.

L2.2.6 PDZ 6 Seaton Sluice to River Tyne

Through maintaining defence to Curry's Point the aim of the plan is reduce pressure for erosion and beach loss over the rest of the area, thereby minimising intervention to the natural coastline immediately to the south and minimising pressure on the maintained defences to Whitley Bay. There is a need to manage the transition between the area of Managed Realignment and areas of defence, and the intent is to influence erosion over the natural section of coast rather than extend defences into these areas. In the longer-term, the approach to defence should look to retaining sediment at the shoreline, thus maintaining important amenity values.

Continued protection provided by the North Pier maintains the sustainable defence of frontages within the mouth of the Tyne. The aim of the plan is to allow natural development of the area immediately behind the breakwater, adjusting the use of the area in line with sea level rise. The flood risk to the Fish Quay and associated areas need to be considered in detail but with the intent of maintaining development opportunity.

L3 BASELINE ENVIRONMENT

This section summarises **Appendices D, E and F** which detail the baseline environment, the current issues that exist within that environment and the likely evolution of the environment without the plan, i.e. in a No Active Intervention scenario. These appendices are integrated into the SMP in the individual PDZs that make up **Section 4**.

Appendix D was broken into the following themes in order to better support the policy making decision within the SMP process

- Natural Environment
- Landscape and Character
- Historic Environment
- Current and Future Land Use
- Contaminated Land

As discussed in **Section 2** of the main SMP2 document, the SEA Directive and associated Regulations, require that a Strategic Environmental Assessment (SEA) be carried out by certain plans and programmes that are required by legislative, regulatory or administrative provisions. The SEA directive suggests out various receptors that should be included in any SEA. The themes within **Appendix D** and **Appendix E** address the various receptors as shown below (note: some SEA receptors are covered by more than one theme):

Table 1 Environmental themes and receptors

Issues and Objectives	Thematic review	SEA Receptor
Environment	Natural Environment	Biodiversity Fauna and flora Water
	Contaminated land	Soil
	Landscape and character	Landscape Material assets Population
Heritage	Historic environment	Cultural heritage
Commercial	Current and future land use	Population Material assets
Recreational	Current and future land use	Population
Hard assets	Covered in main SMP document	Material assets

It can be seen from the above table that Air, Human Health and Climactic Factors are not included. These receptors have been scoped out of the assessment as a receptor as the SMP is a high level strategic document regarding management of coastal defence and as such are not applicable to this plan. Climatic factors (especially sea level rise) are integral to the development of policy within the SMP. In this way the SMP cannot have impacts upon Climatic Factors, rather the Climatic Factors impact upon the SMP.

L3.1 Current State of the Environment

L3.1.1 Biodiversity, Fauna and Flora

A large proportion of the coast is designated as sites of international or national nature conservation importance. These are listed below:

Table 2 Designated sites of nature conservation importance within the SMP area

Designation	Site
Special Areas of Conservation	Berwick and North Northumberland Coast Tweed Estuary North Northumberland Dunes
Special Protection Areas / Ramsar Sites	Northumbria Coast Lindisfarne Farne Islands Coquet Island
Sites of Special Scientific Interest	Northumberland Shore Tweed Catchment Rivers - England: Lower Tweed and Whiteadder Lindisfarne Bamburgh Coast and Hills Bamburgh Dunes The Farne Islands Newton Links Castle Point to Cullernose Point Howick to Seaton Point Alnmouth Saltmarsh and Dunes Warkworth Dunes and Saltmarsh Coquet Island Hadston Links Cresswell Ponds Cresswell and Newbiggin Shores Low Hauxley Shore Tynemouth to Seaton Sluice
National Nature Reserves	Lindisfarne Farne Islands
Biodiversity Action Plans	Saline lagoons Coastal saltmarsh and mudflat Coastal sand dune Whin grassland Rocky shore, reefs and islands Native woodlands Reedbeds Coastal heathland Maritime cliff and slope Lowland heathland Coastal birds Common seal

There are also several sites designated as being of local importance (Local Nature Reserves or Sites of Importance to Nature Conservation). These are detailed in **Appendix D**. Whilst biodiversity, flora and fauna along the SMP2 area are generally in good condition there is an acknowledged issue regarding loss of coastal habitat through coastal squeeze. This is discussed further in **Section L3.2**.

L3.1.2 Water

An assessment of the plan under the requirements of the Water Framework Directive was carried out in **Appendix K**.

There are 12 Transitional and Coastal (TraC) water bodies within the Northumberland SMP2 area. There were also 12 freshwater bodies (FWBs) and four groundwater bodies that could be impacted by SMP policy. The 12 TraC waterbodies as assessed in the Northumbria River Basin Management Plan are detailed below. The table includes the waterbody name, whether it is designated as heavily modified waterbody (HMWB) or artificial waterbody (AWB), and its classification.

It should be noted that: a) if a waterbody is not designated it is considered as being in a natural state; and b) when a waterbody is designated as being HMWB or AWB then it can only reach Good Ecological Potential, not Good Ecological Status. The mechanisms of the Water Framework Directive are described more fully in **Appendix K**.

Table 3 Transitional and Coastal Water Bodies within the SMP area

Waterbody	Designation	Classification
Northumberland North	Not designated	Good Ecological Status
Holy Island and Budle Bay	Not designated	Poor Ecological Status
Farne Islands to Newton Haven	Not designated	High Ecological Status
Northumberland South	Not designated	Good Ecological Status
Hadston Links and Cresswell Ponds	Not designated	Not assessed
Tyne and Wear	Not designated	Moderate Ecological Status
Tweed	Not designated	Good Ecological Status
Aln	Not designated	Not assessed
Coquet	HMWB	Not assessed
Wansbeck	HMWB	Not assessed
Blyth	HMWB	Good Ecological Potential
Tyne	HMWB	Moderate Ecological Potential

L3.1.3 Soil

Historic potentially contaminated sites within 1 km of the coastline were identified in **Appendix D** and described by Local Authority area. Historic potentially contaminated land use showed a marked concentration around urban centres. There are quarry sites distributed along the coastline in the north of the region. In the south of the region, there are large, isolated areas of historical potentially contaminated land use associated to the north and south of the Wansbeck coastline, commencing with Lynemouth power station, and associated foundries stretching down to Cambois and Blyth Harbour.

L3.1.4 Landscape

The Northumberland Coast Area of Outstanding Natural Beauty (AONB) was designated in 1958 and covers 39 miles of coast from Berwick to the Coquet estuary. Within this stretch of coastline is some of the most dramatic coastal scenery in the country with a multitude of special features. The area is best known for its sweeping sandy beaches, rolling dunes, high rocky cliffs and isolated islands. Amidst this striking landscape is the evidence of an area steeped in history, covering 7000 years of human activity. A host of conservation sites, as detailed in this document, testify to the great variety of wildlife and habitats found within the AONB, and highlight its importance in nature conservation.

Appendix D details Natural England's three joint Landscape Character Areas for the SMP area. These are:

- North Northumberland Coastal Plain
 - Narrow, low lying, windswept coastal plain with wide views east towards the sea and west to the Cheviots. Particularly striking lateral coastal views.
 - Intensively farmed landscape of predominantly open mixed arable land with limited trees and woodland, and permanent pasture/semi-natural grassland typical of the valleys and coastal fringes.
 - Diverse coastal scenery, with a 'hard' coast of spectacular high cliffs, off-shore islands, and rocky headlands to the north, contrasting with a 'soft' coast of wide sweeping sandy bays backed by sand dunes and intertidal flats backed by saltmarsh to the south. Patches of coastal grazing marsh still remain.
 - Rivers Aln, Coquet and Tweed, and numerous smaller watercourses, meander across the coastal plain to the sea.
 - Coastal plain and offshore islands provide rich wildlife habitats, particularly for migratory and breeding sea birds.
 - Distinctive historic heritage reflects importance of ecclesiastical influences and the strategic defence of the coast and English/Scottish border. Features include prominent medieval castles, fortifications and structures from both world wars and religious buildings.
 - Whin Sill intrusions produce dramatic landscape features, including the coastal cliffs at Bamburgh and the Farne Islands. Inland outcrops and escarpments form distinctive local landmarks and support rare semi-natural whinstone grasslands.
 - Dispersed pattern of isolated farmsteads, small nucleated villages, fishing villages and small coastal resort towns.
 - Long history of mineral extraction, including whinstone quarrying, and opencast coal- mining to the south-west of Berwick-upon-Tweed.
- South East Northumberland Coastal Plain
 - Widespread urban and industrial development, extending north from the urban edge of Newcastle across the coastal plain, with mining towns and villages, merging into rural landscape towards the north.
 - Large scale open cast coal mining sites, and restored sites, including deep mine spoil heaps, a prominent feature.
 - Sweeping sandy beaches and rocky headlands remain within largely developed coast.
 - Large open fields of arable crops, with scattered large country houses, and establishments such as hospitals, in open countryside, and extensive urban fringe effect near settlements.
 - Prominent blocks of mixed and coniferous woodland on reclaimed colliery sites, with broadleaved woods on steeper valley sides, and within parkland estates.
 - Frequent areas of open water and wetland in areas of mining subsidence, and as features within restored landscapes.

- Tyne and Wear Lowlands
 - An undulating landform incised by the rivers Tyne and Wear and their tributaries.
 - Dominated by widespread urban and industrial development, and a dense network of major road and rail links.
 - A landscape of considerable recent change with a long history of coal mining, now revealed only by locally prominent open cast extraction areas and spoil heaps, and recently restored sites.
 - Large open fields of arable crops, with urban fringe effect of pony grazing and other miscellaneous activities around settlements.
 - Irregular woodland cover, generally sparse, but with well wooded steep valley sides, estates with mixed woodland and parkland trees, and plantations on restored spoil heaps.
 - Historic riverside cities of Newcastle-upon-Tyne, strategically located at a bridging point of the River Tyne.

L3.1.5 Material Assets

The primary purpose of the SMP is to provide coastal defence to material assets. There are many material assets along the SMP coastline including urban centres, ports, roads, railways and power stations. All material assets of importance that could be at risk from coastal erosion are currently being defended.

L3.1.6 Cultural Heritage

Heritage features are those features which provide a tangible link between the past and the present form of the natural and built environment. Heritage features are critical to providing an understanding of the manner in which the coast has evolved in response to human activity and also the way in which coastal form has determined patterns of development.

Appendix D details the heritage aspects of the SMP coastline, which includes Scheduled Ancient Monuments, Listed Buildings, Registered Battlefields and Registered Parks and Gardens.

L3.1.7 Population

The majority of urban form in the SMP study area is within 30 km of the coastline. In the south lies the major conurbation of Newcastle, with the coastline running north being characterised by rural areas and smaller towns and villages. The major areas of urban form running from north to south are:

- Berwick-upon-Tweed;
- Seahouses;
- Amble;
- Newbiggin-by-the-Sea;
- Blyth;
- North Tyneside.

The urban function of the study area is dominated by residential uses, but also includes major areas of port and tourism development. The region has been severely affected by changes in the national and international economy and shifting employment patterns,

however residual areas of shipbuilding, heavy engineering, chemical engineering and mining can also be found along the coast.

Large areas of the coast, particularly in the south of the study area, contain pockets of severe social deprivation and qualify for various levels of European Assisted Area Status.

Tourism development occurs throughout the area but is specifically concentrated to the north, towards Lindisfarne and Bamburgh, where the coast is generally more rural and there are important historical and natural attractions.

L3.2 Existing Environmental Issues

Details of individual issues and objectives can be found in **Appendix E**. There were, however, general themes running through each of the topics as detailed in **Table 1** that could apply to the whole SMP2 area. These were:

- Environment
 - Threat of invasive species.
 - Loss of habitat, particularly salt marsh and rocky shore and opportunities for habitat creation.
 - Recreational disturbance of protected habitats.
 - Inadequate management of designated sites.
 - Coastal squeeze.
- Commercial
 - Erosion / flood risk threatening material assets.
- Heritage
 - Erosion / flood risk threatening heritage asset.
- Hard asset
 - Erosion / flood risk threatening development zones and material assets.
 - Redevelopment plans within the coastal zone.
- Recreational
 - Erosion / flood risk of recreational assets (e.g. beach, golf course).
 - Erosion / flood risk for coastal access.

L4

LIKELY EVOLUTION OF THE ENVIRONMENT WITHOUT THE PLAN

The SMP2 sets out management of the coastline until 2105. **Appendix F** sets out the baseline scenario of No Active Intervention. **Figure 1** to **Figure 3** set out how the objectives that were defined as a result of the identification of issues would be met under a policy of No Active Intervention. It can be seen that in the first epoch, over 60% of the objectives are met across all themes. However, by the 3rd epoch, less than 35% of the objectives are met across all themes apart from environment, which in this case refers to the natural environment.

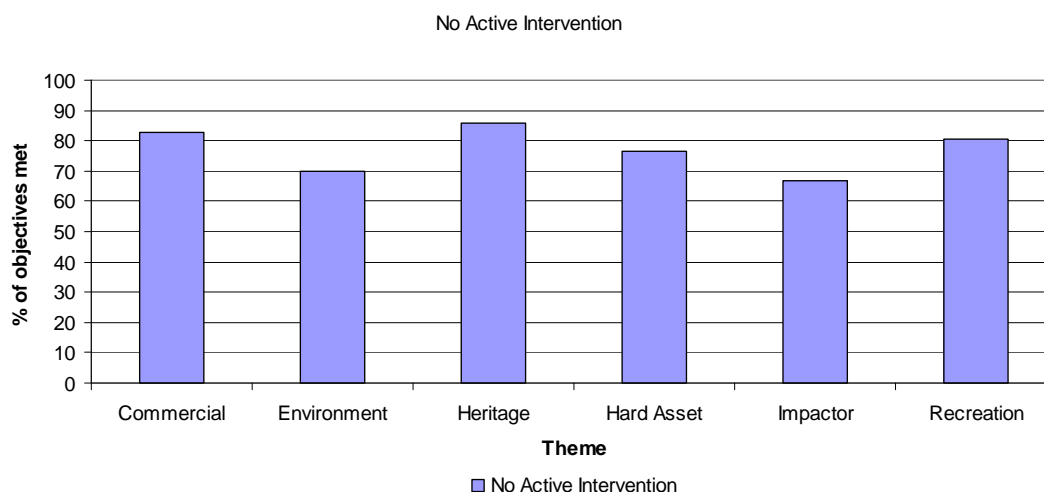


Figure 1 Objective appraisal for No Active Intervention by 2025

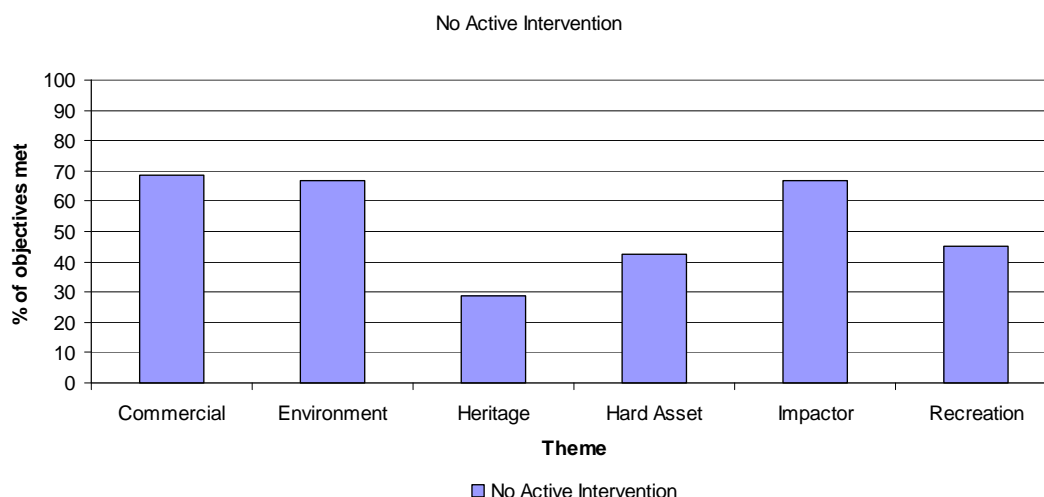


Figure 2 Objective appraisal for No Active Intervention by 2055

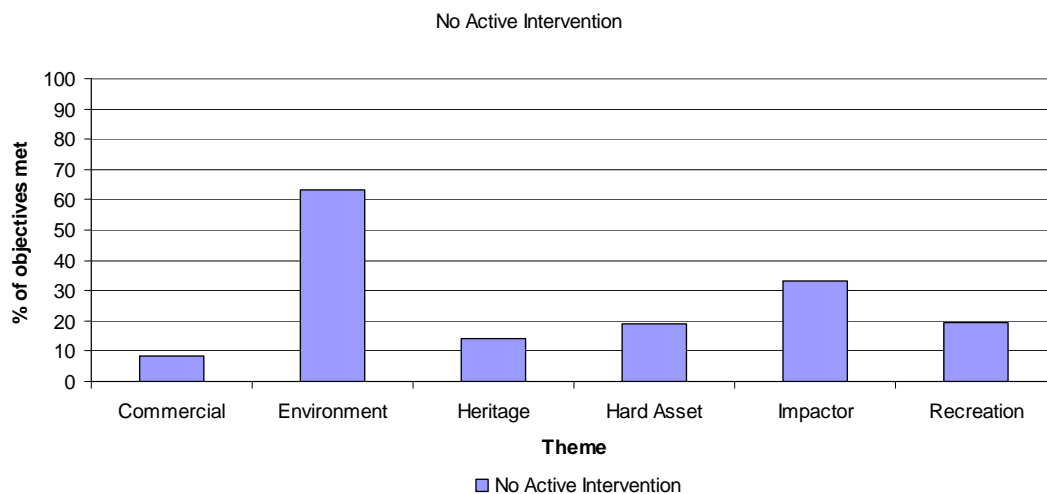


Figure 3 **Objective appraisal for No Active Intervention by 2105**

L5 ENVIRONMENTAL PROTECTION OBJECTIVES

Appendix E details the issues and objectives that were brought up through public consultation. These issues and objectives have informed the main decision making process. Air, Human Health and Climactic Factors have been scoped out when assessing environmental impacts within this SMP2.

Table 4 pulls together the key objectives for each PDZ as laid out in the relevant PDZ sections of **Section 4**.

Table 4 Key objectives for PDZ1 – PDZ6

PDZ	Key objective
PDZ1	<ul style="list-style-type: none"> • To maintain or enhance coastal biodiversity and geological features of interest, in particular those that are designated for features of international or national importance. • To support appropriate ecological adaptation of habitat. • To maintain and enhance Berwick as a viable commercial centre and tourist destination in a sustainable manner. • To maintain designated heritage features. • To manage and reduce flood and erosion risk to the existing commercial and residential area around the Estuary along the Spittal frontage. • To sustain commercial activity and maintain the opportunity for potential recreational use and operation of the harbour area. • To maintain navigation of the estuary. • To maintain in a sustainable manner regeneration opportunities in the area of Sandstell Point. • To enhance the overall amenity of the frontage recognising the different nature of use of the areas within the Estuary and along the Spittal frontage and those to the north of the Town. • To maintain critical transport links. • To support adaptation of the uses to the north of the town. • To promote ways to maintain access to the coast. • To maintain community of Holy Island as a viable residential and cultural centre and a tourist destinations whilst protecting the internationally and nationally important features of conservation interest. • To support adaptation by the local coastal communities. • To support adaptation and maintain the agricultural industry's function within the area. • To support adaptation of recreational opportunities along the foreshore, including the golf course. • To maintain or enhance the high quality landscape. • To maintain access to the foreshore for Search and Rescue purposes.
PDZ2	<ul style="list-style-type: none"> • To maintain the main centres of Seahouses, Beadnell and Craster as viable commercial centres and tourist destinations in a sustainable manner. • To protect also opportunities for employment within these centres. • To sustain recreational opportunities of beaches and associated facilities. • To conserve and enhance the nationally important landscape. • To maintain or enhance coastal biodiversity and geological features of interest, in particular those that are designated for features of international or national importance. • To encourage an integrated approach between development and sustaining the natural function of the coastline. • To maintain the character, navigation to and commercial and recreational function of Seahouses, and Beadnell harbours. • To support maintenance of and adaptation of the regional transport link and transport links throughout the area. • To support adaptation of caravan parks and camping sites along the coast. • To support adaptation by the local coastal communities. • To support opportunity for migration of coastal habitat landward.

PDZ	Key objective
	<ul style="list-style-type: none"> • To maintain or enhance access to the coast. • To maintain access to the foreshore for Search and Rescue purposes.
PDZ3	<ul style="list-style-type: none"> • To maintain the main centres of Alnmouth and Amble as viable commercial centres and tourist destinations in a sustainable manner. • To protect opportunities for employment within these centres. • To sustain the commercial and recreational operation of the Amble Harbour. • To maintain the character, navigation to and recreational function of Alnmouth harbour. • To maintain and enhance the overall amenity of the frontage in general and, in particular, in support of economic regeneration of Amble. • To manage and reduce flood and erosion risk to the commercial area the harbour and associated areas. • To sustain recreational opportunities of beaches and associated facilities. • To maintain or enhance the cultural value of the high quality the landscape. • To maintain and enhance coastal biodiversity and geological features of interest, in particular those that are designated for features of international or national importance. • To support appropriate ecological adaptation of habitat. • To support opportunity for migration of coastal habitat landward. • To support maintenance of and adaptation of the regional transport link and transport links throughout the area. • To support adaptation of caravan parks along the coast. • To support adaptation by the local coastal communities. • To encourage an integrated approach between development and sustaining the natural function of the coastline. • To maintain or enhance access to the coast. • To maintain access to the foreshore for Search and Rescue purposes.
PDZ4	<ul style="list-style-type: none"> • To maintain or enhance coastal biodiversity and geological features of interest, in particular those that are designated for features of international or national importance. • To support appropriate ecological adaptation of habitats and in particular with respect to the Country Park. • To support opportunity for migration of coastal habitat landward. • To support, maintain and enhance the value of natural heritage. • To maintain Low Hauxley and Cresswell as a viable communities. • To support adaptation by the local coastal communities. • To maintain critical transport local links. • To maintain or enhance the high quality landscape. • To support the development of tourism within the area. • To maintain critical transport links. • To protect opportunities for employment. • To support regeneration opportunities to the area around Lynemouth.

PDZ	Key objective
	<ul style="list-style-type: none"> • To manage and reduce flood and erosion risk to core industry and residential and commercial centres. • To maintain or enhance access to the coast. • To maintain access to the foreshore for Search and Rescue purposes.
PDZ5	<ul style="list-style-type: none"> • To maintain or provide protection, where sustainable, against erosion and flooding to properties, businesses and heritage assets, and infrastructure. • To maintain adequate drainage of inland areas. • To maintain navigation in the River Blyth estuary, including the Port of Blyth. • To maintain, in a sustainable manner, regeneration opportunities at Cambois Bay, Blyth Town, Blyth Power Station, Blyth Links, and in, or adjacent to, Blyth Harbour. • To maintain or enhance coastal biodiversity and geological features of interest, in particular those that are designated for features of international or national importance. • To maintain existing recreational areas. • To maintain opportunities for environmental restoration or enhancement. • To maintain opportunities for recreational enhancement. • To maintain navigation in the River Wansbeck. • To maintain the boat launching facility at Cambois. • To maintain the opportunity for wind farm development on pier structures and the offshore sea bed. • To maintain access to the foreshore for Search and Rescue purposes.
PDZ6	<ul style="list-style-type: none"> • To maintain or provide protection, where sustainable, against erosion and flooding to properties, businesses assets, utilities and transport infrastructure. • To maintain navigation in the River Tyne estuary, including to the Port of Tyne. • To maintain or enhance coastal biodiversity and geological features of interest, in particular those that are designated for features of international or national importance. • To maintain heritage value in the Conservation Areas of St Mary's Island, Cullercoats, Tynemouth and North Shields Fish Quay, and also at Seaton Sluice and Rocky Island. • To maintain boat berthing and navigation at Seaton Sluice. • To maintain navigational access to Cullercoats Bay. • To maintain a functioning service of the RNLI. • To maintain existing recreational facilities and open areas, including beach access and the use of promenades. • To maintain the function of the golf course. • To maintain the function of the Low Lights car park. • To maintain opportunities for environmental restoration or enhancement. • To maintain opportunities for recreational enhancement. • To maintain regeneration opportunities. • To maintain or enhance access to the coast. • To maintain access to the foreshore for Search and Rescue purposes.

L6 ENVIRONMENTAL EFFECTS

As discussed, the objectives against which the plan has been judged are set out in **Appendix E**. The impacts of the three scenarios, No Active Intervention, With Present Management and Preferred Policy, on the environmental objectives has been set out for each PDZ within **Section 4**. An assessment of how effective the plan has been in achieving the objectives is provided in **Appendix F**.

It can be seen from **Figures 4 to 5** that the Preferred Plan, while clearly introducing certain changes, maintains a relatively high percentage success in balancing objectives over all of the epochs. The plan therefore avoids or mitigates potential major negative impacts upon the receptors set out in the SEA Directive and provides opportunity for enhancement where possible.

It has been acknowledged that features of designated nature conservation interest within the SMP area are under threat from coastal squeeze in various areas. This is in part due to coastal defences, although there are occasions when natural hard points are causing coastal squeeze (e.g. the Bamburgh dune system being squeezed against higher ground). Several areas have been highlighted where policies of Hold The Line to prevent loss of infrastructure, property and heritage assets will lead to the loss of rocky shore habitat, and it is not possible to mitigate for that loss within this SMP area. The Appropriate Assessment (**Appendix I**) and Natural England (**Appendix B**) concluded that although the policies promoted within the SMP2 may result in a “likely significant effect” upon the interest features of the Northumbria Coast SPA, given the likely timing of the impacts and the life-span of this SMP, the SMP2 will have “no adverse effect upon the integrity of the site.”

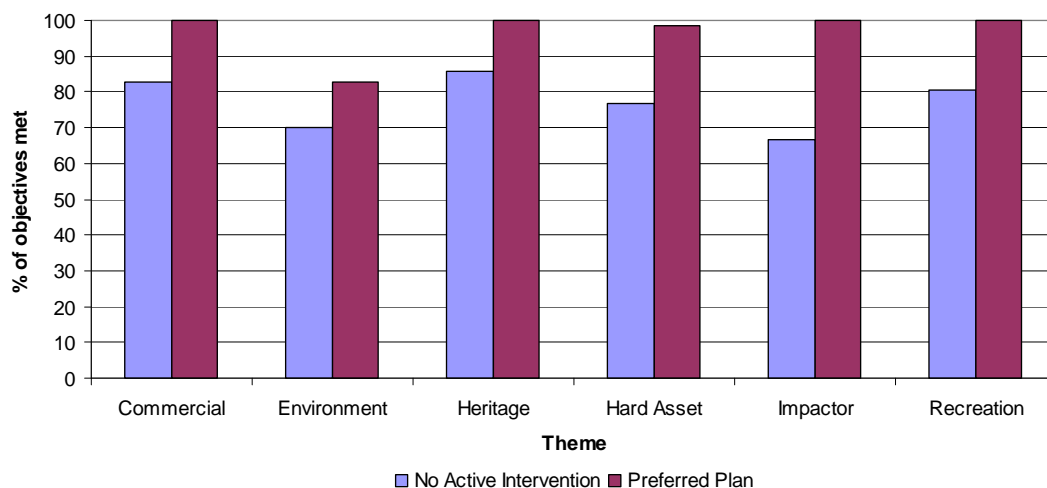


Figure 4 Objective appraisal for No Active Intervention and Preferred Plan by 2025

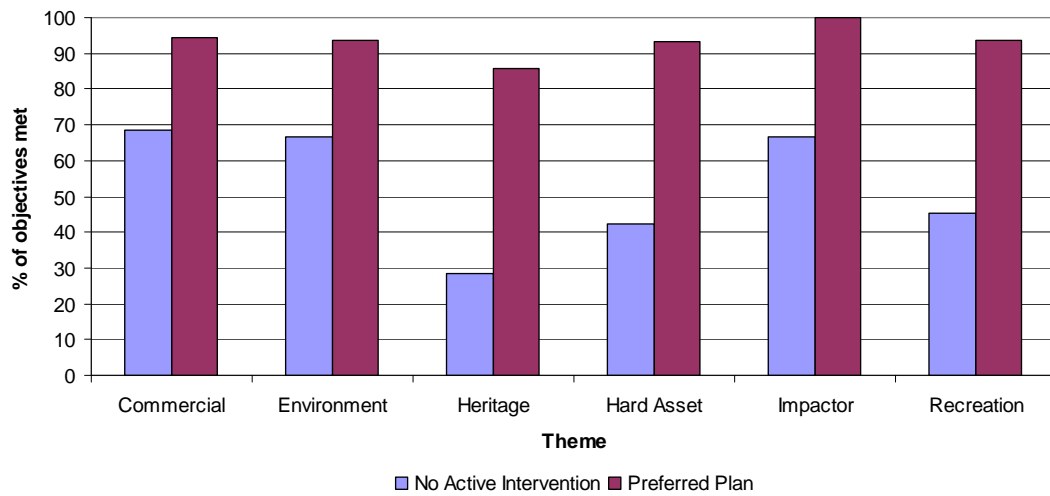


Figure 5 Objective appraisal for No Active Intervention and Preferred Plan by 2055

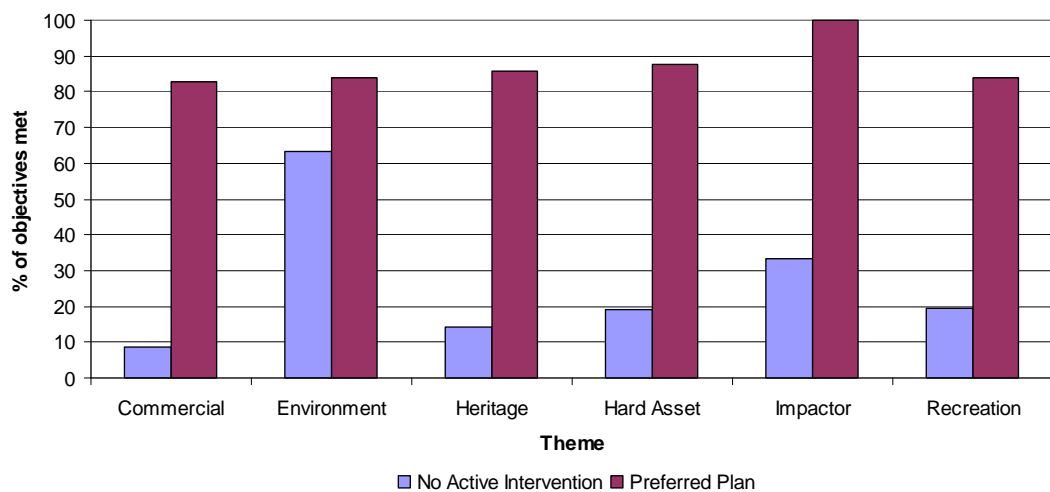


Figure 6 Objective appraisal for No Active Intervention and Preferred Plan by 2105

L7 ENVIRONMENTAL MEASURES

Where possible, impacts to environmental receptors have been mitigated through measures taken within the plan, examples of this are: provision of buffer zones for enable sustainable development (e.g. Cambois / Spittal), identification of areas suitable for managed realignment to create designated habitats (e.g. Holy Island, Wansbeck Estuary, Aln Estuary), promotion of access to the coast for recreation and protection of material assets along the whole coastline in a sustainable manner.

Whilst it has been acknowledged that policies detailed in this SMP may result in the loss of rocky shore habitat the SMP has used every opportunity to mitigate for the loss of this habitat and has succeeded in providing over 50% of that which has been lost. However, it is beyond the remit of this SMP to detail opportunities for mitigation and compensation that do not lie within the SMP area. It is imperative, both to satisfy requirements under the Habitats Regulations and CRoW Act 2000 as well as to ensure that other designated features are maintained, that the issue of mitigation and compensation for this habitat loss is taken forward by the appropriate authorities on a wider scale than that offered within this SMP. This issue is detailed in the Action Plan contained within this SMP (**Section 7 / Table 5**).

This Action Plan summarises the high-level and strategic actions that are required between now and the next review of the SMP in around 10 years time. Actions that are relevant to environmental objectives are set out below:

Table 5 SMP Action Plan

Action	Measure	Responsibility
Ensure that proposed Strategies, studies and investigations for each Management Area are included as appropriate within Medium Term Planning (MTP)	Annual MTP returns made to the Environment Agency in timely manner	Northumberland Council North Tyneside Council
Ensure that proposed schemes for each Management Area are included as appropriate within Medium Term Planning (MTP)	Annual MTP returns made to the Environment Agency in timely manner	Northumberland Council North Tyneside Council
Ensure that business cases and funding applications for proposed schemes for each Management Area are undertaken in line with sanctioned MTPs.	Project Appraisal Reports submitted to Environment Agency in line with agreements in annually sanctioned MTPs	Northumberland Council North Tyneside Council
Ensure that maintenance of existing defences is regularly undertaken	Annual maintenance undertaken from revenue budgets	Northumberland Council North Tyneside Council
Continue beach surveys to understand rates and mechanisms of coastal change	Surveys in spring and autumn of each year	Northumberland Council North Tyneside Council
Continue structural condition inspections to understand rates and mechanisms of deterioration	Walk-over surveys once every 2 years (next due summer 2010)	Northumberland Council North Tyneside Council
Active participation in the development of the Environment Agency's Flood and Coastal Erosion Risk Management North East Regional Habitat Creation Plan.	Liaison with Environment Agency and Natural England regarding losses of rocky shore habitat creation and opportunities for gain.	Northumberland Council North Tyneside Council
Escalate the issue of loss of rocky foreshore habitat to UK government via Natural England and Environment	Discussion of the issue at North East Coastal Group Meetings and implementation	Northumberland Council North Tyneside Council

Agency	of arising actions.	
Communicate SMP outputs to those affected by policy changes	Communication Plan developed by June 2009 and implemented in accordance with its actions	Northumberland Council North Tyneside Council

L8 ALTERNATIVES

The function of the SMP2 is to consider the coast as a whole from the perspective of defence management. As detailed in **Section L2.1** the generic shoreline management policies considered in this SMP2 are those defined by Defra, and they are represented by the statements:

- **No Active Intervention (NAI):** a decision not to invest in providing or maintaining defences.
- **Hold the Line (HTL):** maintaining or upgrading the level of protection provided by defences
- **Advance the Line (ATL):** building new defences seaward of the existing defence line.
- **Managed Realignment (MR):** allowing the shoreline to realign, landwards or seawards, sometimes with management to initiate and control change.

Having undertaken detailed analysis of its physical behaviour and, through consultation, taking into account the wide and varied interests and objectives for coastal management, a high level analysis was carried out as to the primary characteristics of different sections of the coast. Overall the coast is strongly dominated by its underlying geology. Within this imposed structure, it has become evident that not one aspect of the coast in terms of its physical behaviour, natural or built environment dominates. There is a complex interdependence between different values upon this linear coast that meant that a decision taken within one policy unit would potentially affect the adjacent policy units.

It was, therefore, considered inappropriate that a simple rigid procedure of option appraisal over individual sections of the coast could be undertaken in deriving policy. If this was to be carried out there would be a multiplier effect along the coastline such that each policy unit would need to be assessed not only for the four options detailed above, but for each option in combination with one of four options for the two adjacent units. This would result in each policy unit (of which there are 101) being assessing 32 times, resulting in a total of 3232 assessments. The continuity of balancing interactions could only therefore be maintained through a scenario approach to analysis. Inevitably, the full length of coastline had to be broken down into PDZs within which such an holistic approach could be adopted. Within these PDZs, the way in which the coast would develop and the impact this would have in respect of different specific objectives was considered for the No Active Intervention and With Present Management scenarios. This highlighted areas of concern, of benefit and of potential conflict.

The objective led scenario approach was then extended, through discussion, to consider how different areas within a zone might be managed to create additional benefit or avoid damage to the overall environment. From this, policies have been derived for individual frontages in a logical coherent manner, to provide an overall scenario that best delivers

national and local objectives. While not necessarily discussed in detail, this approach naturally excludes specific policy options which are not technically realistic, would lead to truly unsustainable approaches to defence, or would run counter to progressing the values identified for an area.

Inherent within this process has been the examination of how different policy scenarios would dictate or be influenced by future evolution of the shoreline and how these policies could potentially impact on the environmental receptors that are relevant for a particular PDZ. Assessment of the objectives developed during the Scoping stage was done on a scenario led basis. Three scenarios were assessed, in line with policy development. These scenarios were:

- No Active Intervention
- With Present Management
- Preferred Policy

An assessment was carried out for each of the scenarios broken down by PDZ and Management Area (MA). Should any significant impacts be identified, appropriate avoidance, mitigation or enhancement strategies have been included underneath the assessment tables. The whole process of scenario appraisal and subsequent definition of proposed policies is presented in **Section 4**. The process has been openly driven by the incorporation and consideration of all detailed objectives reported in **Appendix E**. A comparison of how well policies address these objectives, compared to how they might be addressed by a general policy of no active intervention is provided in the appraisal tables of **Appendix G**.

L9 MONITORING

A recommendation is made within each Management Area (**Section 4**) for ongoing defence inspection and coastal monitoring.

The development of the present SMP2 has significantly benefited from the data and information that has been available from the coastal monitoring programme since its inception in April 2002. The past 7 years of data relating to beach and cliff behaviour and coastal defence condition has been used to inform key elements of this Plan. Continued data collection will enable the SMP3 to be even better informed about these fundamental issues that could significantly affect decisions on sustainable policies.

The monitoring that is undertaken across the SMP2 area will become incorporated within the wider Cell 1 Regional Monitoring Programme from 2009 onwards. As part of this, the following monitoring will continue:

- Full measures beach profile surveys in September/October each year;
- Partial measures beach profile surveys in March/April each year;
- Topographic surveys of Holy Island causeway in September/October each year;
- Topographic surveys of Alnmouth Beach in September/October and March/April each year;
- Cliff top surveys at Newbiggin Bay Caravan Park and Sandy Bay Caravan Park in September/October and March/April each year;

- Walk-over inspections of the coastal defences and natural features (dunes, slopes, cliffs) every 2 years, with information being updated into the MS Access database and fed across to the Environment Agency for inclusion in its own National Flood and Coastal Defence Database.

Incorporation within the new Cell 1 Regional Monitoring Programme will add value through the inclusion of:

- One wave recording buoy off the Northumberland coast;
- Aerial photography of the coastline at low water once every 6 years;
- Development of a cell-wide website for data storage.

Future coastal monitoring should enable the operating authorities to more precisely establish the nature and magnitude of impacts on designated nature conservation sites, with particular regard to the potential loss of intertidal rocky reef habitat within the Northumbria Coast SPA. A range of UKCIP sea level rise scenarios should be considered in order to assess possible impacts, future habitat loss and associated timescales. Any such study should, as far as possible, link in with the Environment Agency's ongoing LIDAR programme, NE tidal gauges, and also with the Cell 1 Regional Monitoring Programme. As such a study would be investigating the loss of habitat due to submergence of a landform feature due to rising sea level rather than erosion, careful consideration should be given to appropriate approaches and any confidence limits put on such analyses.