

5 SUMMARY OF PREFERRED PLAN AND IMPLICATIONS

5.1 Plan for Balanced Sustainability

As discussed in Section 3, the aim of the SMP is to deliver a balanced plan for the management of defences whilst still supporting the values of the coast in terms of its human need, natural environment and heritage value, and without committing to ever increasing expenditure on defence.

The objectives against which this is judged are set out in **Appendix E** and an assessment of how effective the plan has been in achieving the objectives is provided in **Appendix F**. The assessment is summarised in **Figures 5.1, 5.2 and 5.3**, which present the findings for the three epochs (2025, 2055 and 2105) respectively. Careful consideration is required when analysing these figures as the information presented, as percentages, does not fully reveal the actual detail associated with each theme (as described in Appendix F).

A brief discussion by Policy Development Zone (PDZ) and theme is given below. It is useful, however, to consider the overall information and to set this in the context of the coast as a whole.

Figure 5.1 Summary Objective Appraisal for the 2025 epoch.

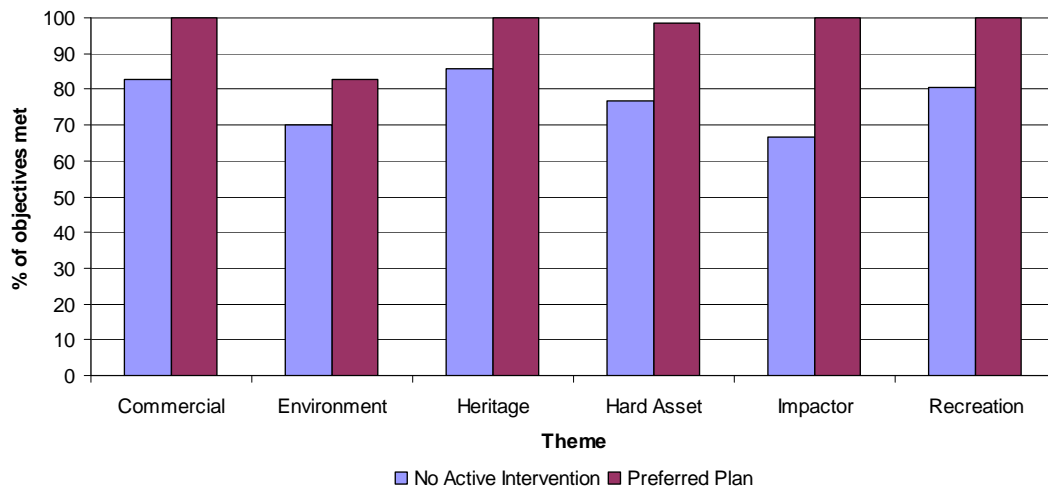


Figure 5.2 Summary Objective Appraisal for the 2055 epoch.

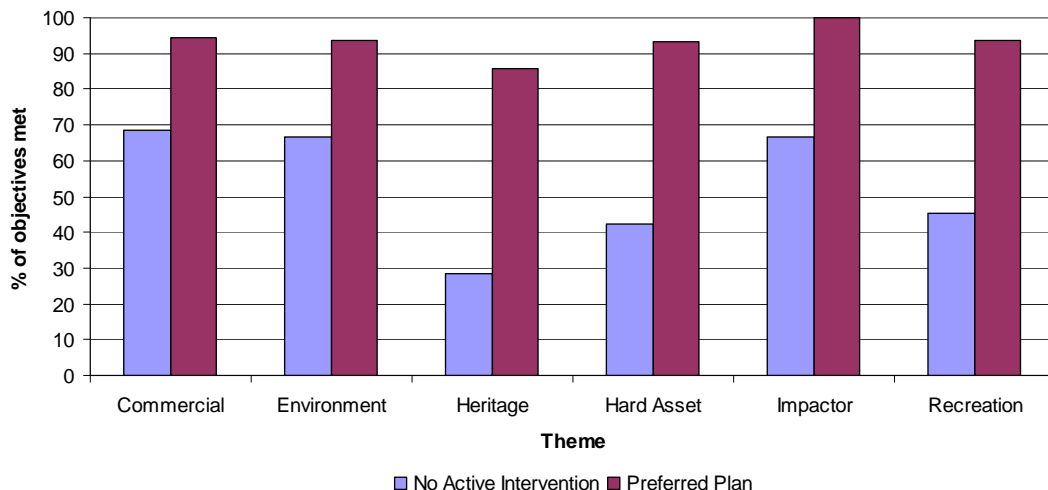
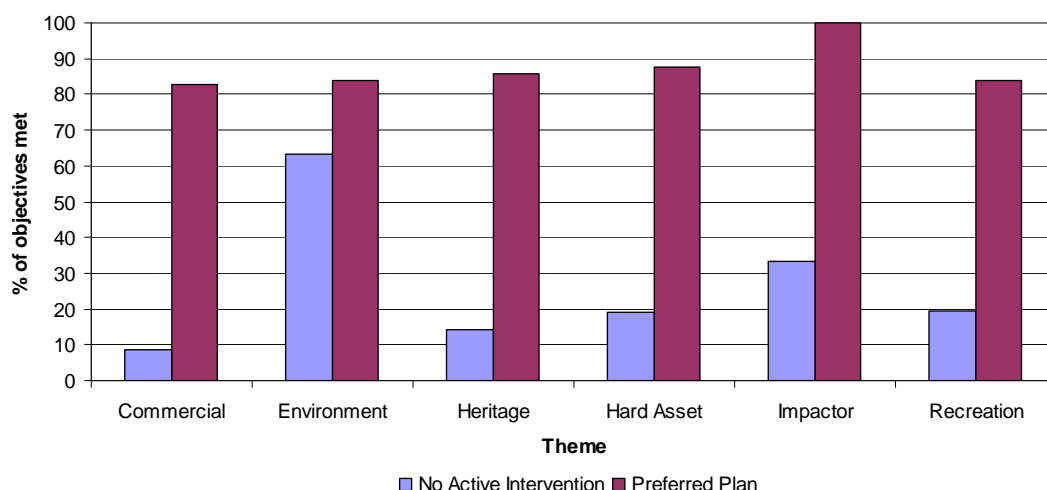


Figure 5.3 Summary Objective Appraisal for the 2105 epoch.



The above figures illustrate how the various themes will be affected over time based on the two scenarios, NAI and the Preferred Plan. Over the short term (2025 epoch, Figure 5.1) both scenarios exhibit similar results, with the significant majority of objectives being met, although implementation of the Preferred Plan results in near 100% achievement of objectives for all but one theme. The relatively good performance of the NAI scenario over this short timescale reflects the fact that on the whole defences are in reasonable condition and that the coast is functioning relatively well. Over the medium to long term (2055 and 2105 epochs, Figures 5.2 and 5.3 respectively) NAI results in a marked decrease in the percentage of objectives met for all themes. In comparison, the Preferred Plan, while clearly introducing certain changes, maintains a relatively high percentage success in balancing objectives over all of the epochs.

5.2 Considering the Preferred Plan by PDZ

5.2.1 PDZ 1 - Scottish Border to Holy Island

North of Berwick the intent of the plan is to maintain the naturalness 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 important to the use of the coast.

Having determined a long term policy of holding the main breakwater, the area within the 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.

5.2.2 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 hard 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.

5.2.3 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.

5.2.4 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 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 to the south. 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.

5.2.5 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 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.

5.2.6 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.

5.3 Predicted Implications of the Preferred Plan

5.3.1 Implications to Land Use and Coastal Infrastructure

The Plan meets the majority of objectives over the SMP period, thus protecting the major industrial and residential developed areas. There are recommendations within the detail of the plan for not allowing further extension of defences. This will result in the loss of hard assets. In particular, this would include properties around Boulmer and Low Hauxley due to erosion, and around Newbiggin and within the area of the Fish Quay due to flooding. In addition, the vulnerability of Sandstell Point has also yet to be resolved, thus constraining regeneration of the area.

Transport infrastructure has also been protected in the whole. However, there is the potential long term loss of the B1340 and loss of the coastal road between Cresswell and Snab Point which could constrain future regeneration. Re-alignment of coastal roads has also been proposed in order to allow the natural evolution of the frontage, for example at Cresswell.

A significant area of loss is to some of the more mobile or softer commercial activities of the area, such as agriculture, the golf courses, and caravan parks. Agricultural loss is expected in the AIn Estuary. In addition, agricultural land to the north of the SMP could be lost in the longer term due to the abandoning of flood defences. The loss of caravan parks is expected to the north of Berwick in the longer term, as well as golf courses at Alnmouth and Newbiggin Moor. Recreation and amenity areas will also be lost along the Spittal Frontage, Foxton, and Whitley Bay. The difficulties with managing defence of these frontages to a large degree is in terms of economic justification but also in the very nature of where such activities are situated; on the open coast deriving benefit from the natural coastline. It is important, therefore, that monitoring is put in place, or continued, so as to work with the owners in providing best advice as to when change is occurring. Equally, where there is a policy for no active intervention the planning authorities should work with these organisations and individuals to examine how the impact on businesses of a retreating coast may be mitigated.

5.3.2 Environmental Implications

As discussed at the beginning of this section, 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**. The assessment is summarised in **Figures 5.1, 5.2 and 5.3**, which present the findings for the three epochs (2025, 2055 and 2105) respectively. As discussed in **Section 5.1**, 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 HTL 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.

As discussed in **Section 2**, at an SMP level a quantitative analysis of habitat loss and gain as a result of preferred policy is not appropriate. However, in order to get an understanding of impacts on designated sites from the SMP as a whole a record has been made of policies that will result in loss or gain of designated habitat or habitat supporting designated species. As the majority of impacts and gains come in the first epoch, the three separate epochs have not been separated out.

Table 5.1 shows a summary of losses and gains to all designated habitat within the SMP area as a result of preferred policy. Net losses are shown on pink lines and net gains or balances are shown on light blue lines.

As the habitat supporting designated species in the Ramsar Sites within the SMP area is the same as that supporting designated species in corresponding SPAs, the Ramsar sites have not been included. Similarly, impacts on the Berwickshire and North Northumberland European Marine Site (EMS) are included within the constituent designated sites (Northumbria Coast SPA and Ramsar Site, Lindisfarne SPA and Ramsar Site, Farne Islands SPA, Berwickshire and North Northumberland Coast SAC and North Northumberland Dunes SAC). It should also be noted that under the Countryside and Rights of way (CROW) Act 2000, the Northumberland Coast AONB is a statutory designation and any loss of habitat along the coastal strip would have an impact on the AONB.

Losses have only been counted where these have occurred as a result of a proposed coastal defence scheme. In situations where natural loss would occur, for example through sea level rise on a hard coast, this has not been counted. Similarly, gains have only been counted where active MR is taking place. Where the coast is being allowed to behave naturally with a policy of NAI, this cannot be counted as a habitat gain.

In order to ensure parity, where several small policy units will have individual impacts that are mitigated by MR in one large policy unit (e.g. the Aln or Coquet estuaries), the mitigation has been counted against each policy unit that causes habitat loss. For example, in the Aln estuary, there are three policy units that will each cause a small loss of habitat (13.3, 13.4, and 13.5) which are all mitigated by one policy unit by will cause a large gain (13.6). To have a count of three losses versus one gain in this instance would not be representative of the actual situation and has instead been recorded as three losses versus three gains (i.e. a degree of relativity judgement has been used in the assessments).

Table 5.1 Summary of losses and gains to designated habitat

Designation	Name	Habitat	Policies resulting in loss	Policies resulting in gain	Net balance
SAC	Berwickshire and North Northumberland Coast	Intertidal reef	5		-5
		Intertidal mudflat / sandflat	1	4	3
		Inlet and bays		7	7
		Estuaries	3	3	0
	Tweed Estuary	Intertidal mudflat / sandflat	1	1	0
	North Northumberland Dunes	Embryonic shifting dunes			6
White dunes				6	6
Grey dunes				6	6
SPA	Northumberland Coast	Rocky shore	15	6	-9
	Lindisfarne	Intertidal mudflat / sandflat		1	1
		Saltmarsh			1
SSSI	Northumberland Shore	Intertidal rock	14	4	-10
		Sandy beaches	6	18	12
		Saltmarsh	5	6	1
		Estuaries	5	6	1
	Lower Tweed and Whiteadder	Intertidal mudflat / sandflat	1	1	0
		Intertidal mudflat / sandflat		1	1
		Saltmarsh		1	1
	Newton Links	Dunes		2	2
	Castle Point to Cullernose Point	Whin Sill exposures	1	1	0
	Howick to Seaton Point	Millstone Grit exposures	3	3	0
	Alnmouth Saltmarsh and Dunes	Saltmarsh	3	3	0
		Intertidal mudflat / sandflat	2	2	0
	Warkworth Dunes and Saltmarsh	Saltmarsh	2	2	0
		Dunes		3	3
	Hadston Links	Dunes		2	2
Cresswell and Newbiggin Shores	Westphalian deposits	2	4	2	
Tynemouth to Seaton Sluice	Coal Measures exposures	7		-7	
Total			76	100	24

In total, there is more designated habitat being lost than gained. However, whilst it is apparent from **Table 5.2** that the SMP is creating significant amounts of intertidal mudflat / sandflat, sandy beach and dune habitat, it is also apparent that there will be a net loss of rocky shore and intertidal reef habitat. A large proportion of this loss occurs in the southern part of the SMP from Blyth to Tynemouth.

As discussed, a detailed, quantitative assessment of habitat loss and gain is outwith the scope of this SMP. However, in order to provide a means by which an estimate of significance can be made, a semi-quantitative approach has been adopted, involving

identification of the frontage lengths where rocky shore habitat will either be lost or gained (**Table 5.2**). It should be noted that this information is only an approximation and is not intended to give the same level of detail as a Regional Habitat Creation Plan. It is recognised that an approximation of the length of frontage affected does not give the same level as detail as an in-depth study quantifying hectares lost and gained, however at the SMP level it is considered that this approximation is adequate as a means for strategic assessment.

Table 5.2 Rocky shore frontage lost and gained through SMP policy

Policy Unit	Name	Loss (m)	Gain (m)	Net Balance (m)
6.2	North Seahouses	-600		-600
6.3	Seahouses	-800		-800
8.1	Beadnell North	-1150	400	-750
8.2	Beadnell South	-200	250	50
10.2	Craster	-750		-750
14.1	Birling Links		200	200
16.1	Island View Bay	-150		-150
16.2	Amble Links		500	500
18.1	Broad Sands Rock		1500	1500
19.1	Lynemouth North		750	750
19.3	Lynemouth Dunes		150	150
20.2	Newbiggin Point	-200		-200
24.1	Collywell Bay	-550		-550
25.1	Curry's Point to Trinity Road Car Park	-700		-700
25.3	Briardene Burn to Brown's Point	-750		-750
25.4	Table Rocks to Brown's Point	-350		-350
26.3	Tynemouth North Point	-200		-200
26.6	King Edwards Bay	-70		-70
27.2	Quayside	-500		-500
Total		-6970	3750	-3220

It can be seen from **Table 5.2** that there will be a loss along 6,970m of rocky shore frontage over the entire SMP area of around 145km due to Hold the Line policies. It should be noted, however, that Managed Realignment policies within the SMP will mitigate for over 50% of this length, totalling 3,750m. The net effect, therefore, is a net loss of 3,220m (noting that this does not include for gains coincidentally associated with No Active Intervention policies, which covers some 56.7km of the designated rocky shore habitat).

There is approximately 67.4km of rocky shore habitat along the SMP frontage that is either designated habitat or habitat supporting designated species. The policies (excluding No Active Intervention policies) in this SMP will result in a loss along approximately 5% of the length of this designated habitat (although this does not necessarily equate to a corresponding loss of habitat area). No Active Intervention policies will maintain or enhance the integrity of the designated rocky shore habitat along 85% of its length.

All of the rocky shore that will become lost lies within the Northumbria Coast SPA, where it is designated for its functionality in supporting designated bird species. This functionality is not based on a measure of total length or area of habitat alone but rather a measure of the potential of the habitat to support SPA species. Along the frontages

where a loss has been identified due to Hold the Line policies, this typically is in relatively short discrete lengths (on average less than 500m) at the margins of the designated areas where bird disturbance due to human activity is greatest. In only one Policy Unit is there loss along a frontage of greater than 1 km. There will remain continuity of physical, chemical and biological process either side of the frontages that will be subject to loss, as well as in the immediate seaward zone, which will maintain the functionality of the remaining designated habitat.

The loss of rocky shore habitat will not have a significant impact on the functionality of the designated sites. However, any loss must either be mitigated or compensated for.

As mentioned, the SMP has used every opportunity to mitigate for the loss of rocky shore 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.

5.3.3 Implications to Cultural Heritage

There is a broad range of historical and heritage features identified over the full length of the coast; however, few features were considered to be at threat during the consultation exercise. Even so there are several areas where features will suffer loss. The Plan attempts to identify where there are risks and as suggested by the objectives this will allow prioritisation of recording prior to loss of the feature. Coastal monitoring recommended by the plan will assist in this. There should be increased co-ordination of this information between coastal managers and those with responsibility for heritage features.

5.4 Managing the Change

5.4.1 Recommendations

The Plan sets out a development of policy over the three epochs from the present forward over 100 years. There are still essential decisions to be made in taking these changes in policy forward.

What has become very evident in developing the plan is the good involvement and co-ordination between different departments within authorities and between different authorities and organisations over the coastal zone. Such activities are required to continue into the future.

This is a coastline where, because of the underlying geology, overall change, even given sea level rise, will tend to be manageable. The impetus for management can, therefore, come from coastal management to deliver benefits. In specific areas, where there is a short term policy for hold the line with a longer term policy of retreat or no active intervention, this must be taken as an opportunity to allow adaptation, not a policy of delay.

It is recommended that the policies be adopted by all organisations represented on NCAG and that these policies, together with an understanding of their intent, are incorporated as guidance for the development of statutory planning within each area.

The following section of this document provides an overall summary of policies for the shoreline. This summary should be considered with reference to the detailed development of the plan provided in Section 4.

5.4.2 Funding

Each Management Area contains a number of Policy Units. For each management area an outline economic assessment has been provided based initially on the high level assessment of damages provided by MDSF. Where strategy studies have been undertaken and where appropriate further economic data has been incorporated within each policy statement.

Overall, given the level of detail available to the SMP, the policies are shown or are believed to be cost effective in terms of economics; taking into account the additional information from strategies not specifically evaluated in the SMP. However, it is equally recognised that in many areas direct funding under coast protection may not be available due to the need for prioritisation of this funding at a national level.

The development of policies set out in Section 4, highlights the consequences of alternative approaches. In this the SMP aims to identify the specific beneficiaries of the policy. In many cases this is driven by the specific objectives such as maintaining open coastal land as identified in planning documents or maintaining the commercial interests of an area. In line with the Government's strategy "*Making Space for Water*" co-funding of projects for the coast should be considered.