

North West & North Wales Coastal Group

North West England and North Wales Shoreline Management Plan SMP2

Main SMP2 Document



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I Introduction

I.1 North West England and North Wales Shoreline Management Plan 2

What is this document?

A Shoreline Management Plan (SMP) provides a large-scale assessment of the risks associated with erosion and flooding at the coast. It also presents policies to help manage these risks to people and to the developed, historic and natural environment in a sustainable manner. SMPs form an important part of the Department for Environment, Food and Rural Affairs (Defra) and Welsh Assembly Government (WAG) strategy for managing risks due to flooding and coastal erosion (Defra, 2006¹).

The first generation of SMPs were completed for the coastline of England and Wales about ten years ago and are now being reviewed to ensure that they take account of the latest available information and our current understanding of flood and coastal erosion risks.

What area does the SMP2 cover?

This document is the second generation Shoreline Management Plan (SMP2) for the shoreline which extends between Great Orme's Head in North Wales and the Scottish Border. This area, also known as Cell 11, is shown in Figure 1. The North West England and North Wales shoreline includes a number of large estuaries and is sub-divided using the following boundaries:

- Sub-cell 11a: Great Orme's Head to Southport Pier (including the Clwyd, Dee and Mersey Estuaries);
- Sub-cell 11b: Southport Pier to Rossall Point (including the Douglas and Ribble Estuaries);
- Sub-cell 11c: Rossall Point to Hodbarrow Point (including the Wyre, Lune, Kent, Leven and Duddon Estuaries);
- Sub-cell 11d: Hodbarrow Point to St Bees Head (including the Ravenglass estuary Complex); and,
- Sub-cell 11e: St Bees Head to the Scottish Border (including Moricambe Bay and the Eden estuary).

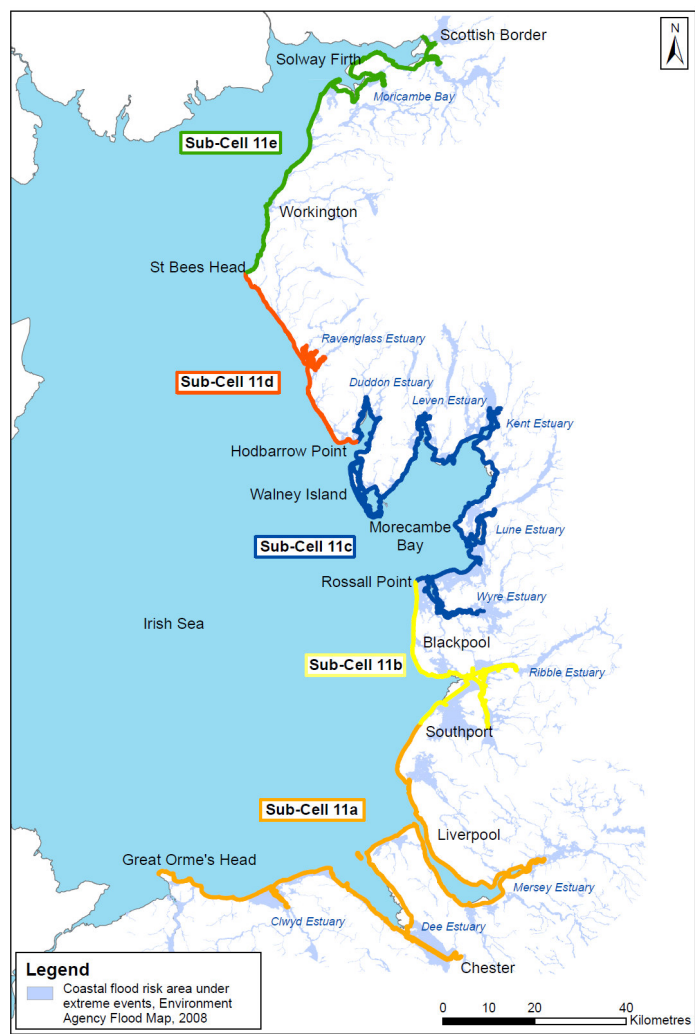


Figure 1: Map showing the shoreline of North West England and North Wales included in this SMP2.

¹ Defra (2006). Shoreline Management Plan Guidance. March 2006.

1.2 The Role of the North West England and North Wales Shoreline Management Plan 2

What is a Shoreline Management Plan?

This Shoreline Management Plan (SMP2) is a non-statutory, high level policy document for coastal flood and erosion risk management planning. It takes account of other existing planning initiatives and legislative requirements, and is intended to inform wider strategic planning². In accordance with PPS25³ and TAN15⁴ regional and local planning authorities must, consider SMP policies when formulating their statutory land use development plans.

The SMP2 sits at the top of a hierarchy of Strategy and Scheme plans that the Environment Agency and Local Authorities use to plan their work to manage coastal risks, as explained in **Table I** below.

Stage	Aim	Delivers	Output	Outcome
Shoreline Management Plan (or Catchment Flood Management Plan)	To identify policies to manage risks	A wide-ranging assessment of risks, opportunities, limits and areas of uncertainty	Policies	Improved long-term, strategic management for the coast. Informs local authority planning decisions
Strategy	To identify appropriate schemes to put the policies into practice	Preferred approach, including economic and environmental decisions	Compares the different options for putting the preferred scheme into practice	Management measures that will provide the best approach to managing floods and the coast for a specified area
Schemes	To identify the type of work ⁵ that is needed to put the preferred scheme into practice	Type of scheme (such as a seawall)	Design of work	Reduced risks from floods and coastal erosion to people and assets

Table I: Stages in assessing coastal flood and erosion risk management (Defra, 2006¹)

What is a Catchment Flood Management Plan?

Catchment Flood Management Plans (CFMP) are similar policy level documents to SMPs, setting out sustainable management plans for river catchments. They predominantly consider fluvial flood risks, although they occasionally include consideration of tidal flooding. The links between the two are important; for example a CFMP may identify a potential opportunity for habitat creation in compensation for habitats affected at the coast. SMPs should consider CFMPs in order to ensure integrated management of flood risk. Generally in this SMP2 upstream river boundaries have been set to overlap or adjoin CFMP boundaries to ensure that

² In Wales there is a statutory duty for sustainable development to be promoted by the Welsh Assembly Government (WAG) throughout all its business (Government of Wales Act, 1998). In England there is a similar requirement to facilitate and promote sustainable development as required by Planning Policy Statement 1: Delivering Sustainable Development. In terms of flood and coastal erosion risk management this is promoted at national policy level through the WAG "New Approaches" programme and the Defra "Making Space for Water" strategy.

³ Planning Policy Statement 25: Development and Flood Risk, DCLG, 2010.

⁴ Technical Advice Note 15: Development and Flood Risk, WAG, 2004.

⁵ Schemes could include a variety of activities such as building a seawall or developing a flood warning service

there are no policy gaps. The locations of the CFMPs in North West England and North Wales are shown in **Figure 2**. The CFMPs were finalised in 2009 and this SMP2 has taken account of the CFMP policies.



Figure 2: Locations of Catchment Flood Management Plans (CFMP) in North West England and North Wales.

What will the SMP2 do?

The Government guidance for developing SMP2s (Defra, 2006¹) requires them to:

- identify sustainable and deliverable policies for managing coastal risks while working with natural processes wherever possible;
- promote management policies for the coastline over the next 100 years, to achieve long-term objectives that are technically sustainable, environmentally acceptable and economically viable; and,
- be realistic and consider known legislation and constraints, both human and natural, and not promise what cannot be delivered.

Further reviews of the SMP2 will be carried out in future years, when deemed necessary. Future reviews may include changes to policies, particularly in light of more detailed studies of the coastline.

1.3 The Objectives of the Shoreline Management Plan 2

What are the objectives that Defra and WAG say the SMP2 should address?

The SMP2 should:

- set out the risks from flooding and erosion to people and the developed, historic and natural environment within the SMP2 area;
- identify opportunities to maintain and improve the environment by managing the risks from floods and coastal erosion;
- identify the preferred policies for managing risks from floods and erosion over the next century;
- identify the consequences of putting the preferred policies into practice;
- set out procedures for monitoring how effective these policies are;
- inform others so that future land use, planning and development of the shoreline takes account of the risks and the preferred policies;
- discourage inappropriate development in areas where the flood and erosion risks are high; and
- meet international and national nature conservation legislation and aim to achieve the biodiversity objectives; and,
- highlight areas where there are gaps in knowledge about the coast and produce an action plan to address these gaps.

The SMP2 must remain flexible to adapt to changes in legislation, politics and social attitudes. The SMP2 therefore considers objectives, policy setting and management requirements for three main timescales; the present day or short-term (0 to 20 years), the medium-term (20 to 50 years) and the long-term (50 to 100 years). The SMP2 should show that we aim to achieve a long term sustainable vision when considering decisions about coastal defence now.

Setting policies over three timescales allows us to meet the objectives and put in place policies that provide opportunities for change in the future. Action Plans have also been developed to help put the policies into practice (see [Section 4](#) and the accompanying Policy Statements, [Section 5](#)).

What are the policies that are used in SMP2s?

The policies for managing the shoreline used in this SMP2 are defined in the Defra and WAG guidance as shown in **Table 2**.

Policy Option	Description
Hold the line	By maintaining or changing the current standard of protection. This policy includes those situations where work is carried out in front of the existing defences (such as beach recharge, rebuilding the toe of a structure, building offshore breakwaters and so on) to improve or maintain the standard of protection provided by the existing defence line. It also includes work behind existing defences (such as building secondary flood defences) where this work would form an essential part of maintaining the current coastal defence system.
Advance the line	By building new defences on the seaward side of the original defences. Use of this policy is limited to those policy units where significant land reclamation is considered.
Managed realignment	By allowing the shoreline to move backwards or forwards, with management to control or limit movement (such as reducing erosion or building new defences on the landward side of the original defences).
No active intervention	Where there is no investment in coastal defences or operations.

Table 2: Descriptions of the four shoreline management policies used in SMP2

All four of the policies need to be supported by monitoring and must (when put into practice) take account of health and safety legislation. An explanation giving more detail of what the policies mean is given below.

What does hold the line (HTL) mean?

This policy option means that the shoreline will essentially be kept in the same place.

Where hold the line has been proposed the intent is to manage the risk from coastal flooding or erosion to important assets and interests in an appropriate way. This could be achieved by maintaining current defences or by constructing new defences in the future.

It does not necessarily mean that the current defences will be maintained in the same form in the future as the way the risk is managed may change over time. In some locations additional structures may be required such as erosion protection seaward of the existing defences or new flood walls built further in land to help reduce flood risk. Beach management will be an important element of this policy in a number of locations where the beach and / or sand dunes form part of the defence line and where the beach is an important recreation asset.

When upgrading defences or significant changes in management practice is required this is progressed through a Strategy or Scheme (see **Table 1**) and will be subject to more detailed appraisal, consultation and consenting.

In locations where a hold the line policy has been identified this does not guarantee that funding will be available from public sources. In some areas defences are fully or partly privately owned and maintained.

What does advance the line (ATL) mean?

This policy option primarily means that more land will be created by constructing new coastal defences into the sea.

Alternatively, this policy may also mean the construction of new or extended harbour walls or breakwaters out into the sea. This policy has not been recommended in the current SMP2.

What does managed realignment (MR) mean?

This policy option allows the shoreline to move forward or backwards in a controlled way to manage the risk from coastal flooding or erosion to assets and interests. Managed realignment provides the opportunity to create a more natural coastline by allowing sediment movement which helps maintain beaches or provides space for natural landward roll-back of saltmarsh, beaches or dunes in response to ongoing coastal change and sea level rise.

Managed realignment has been recommended in this SMP2 in a number of different situations:

- Where there are dune systems⁶ along the coast, the intent of managed realignment is typically to allow the dune system to accrete and erode naturally (moving seawards and landwards) with limited intervention to manage risks and adapt to the changing coast. This policy will allow the dunes to be managed as a natural coastal defence and allow adaptation to assets in the erosion risk zone (such as relocating paths, car parks and roads).
- In a small number of locations where there are currently eroding cliffs, a managed realignment policy is recommended to take the form of monitoring the cliff erosion and only intervene with defences to slow this erosion if or when assets are sufficiently at threat to justify defences.
- Within many of the estuaries, saltmarshes and mud flats provide a degree of natural flood defence as well as providing important natural habitat for wildlife. The SMP2 recognises that there are a number of opportunities to move defences landward, or to remove defences so the shoreline realigns back to higher ground, in order to create more space for saltmarshes and hence improve the natural defence and provide environmental benefits. Managed realignment has also been recommended in a number of locations to allow the creation of habitats for wildlife to balance potential long term losses of habitat elsewhere.

In locations where managed realignment is proposed this SMP2 does not generally define or predict the new shoreline or defence position. Theoretically, the shoreline could be moved inland up to where the area at risk of coastal flooding ends. However, in reality defences are often not moved back that far, due to the presence of built or natural assets or infrastructure. Therefore, the SMP2 recommends in the Action Plans for the specific area that more detailed studies and consultation is carried out before any realignment is implemented. These further studies would need to consider potential local and regional impacts of realignment along with the risks and opportunities.

What does no active intervention (NAI) mean?

This policy option lets nature take its course on the shoreline. It allows the coast or estuary frontage to develop naturally without any management.

This policy applies to areas of natural shoreline in this SMP2 area where there is no need for intervention to manage risks. It also applies in areas where it is important to allow sediment to erode from cliffs to feed beaches or to allow beaches, dunes or saltmarsh to adjust or roll-back naturally as sea levels rise.

This policy option also applies to some locations where there is insufficient national economic justification to maintain defences in the long term and therefore no funding available from public sources. In these locations the cost of defences would be more than the value to the nation of the assets at risk. The SMP2 has however, identified some locations where private defences already exist and privately funded maintenance of these

⁶ Although some dune areas have recommended managed realignment policies, others have no active intervention or hold the line. As for all types of shoreline, the policy assessments for sand dune areas have considered all four policy options.

would be permissible subject to obtaining the necessary consents and that there would be no adverse effects on coastal processes.

I.4 Shoreline Management Plan 2 Report Structure

This SMP2 document represents numerous studies and assessments performed over a period of time. To cater for a wide audience, the SMP2 is presented in two parts:

- **Main SMP2 Document** (this document); and,
- **Supporting Appendices** (a series of more detailed supporting documents, which are referred to from this Main SMP2 Document).

Main SMP2 Document

What is included in the Main SMP2 Document?

The Main SMP2 Document sets out the policies for managing the risks of coastal erosion and tidal flooding over the next 100 years along the North West England and North Wales coast. It is intended for a general audience and is the main way that we will let people know what the SMP2 policies are. Whilst the justification for decisions is presented, it does not provide all of the information behind the recommendations; this is contained in the **Supporting Appendices**.

The **Main SMP2 Document** is presented in five parts:

- **Section 1 – Introduction** (this part) gives details on the principles, structure and background to the SMP2's development. This includes information on the content of the supporting documents, provides an overview to the SMP2 development process and how it has been applied to the North West England and North Wales shoreline.
- **Section 2 – Environmental Assessment** presents a summary of the environmental assessments undertaken to confirm that the SMP2 policies comply with the requirements of European and National Directives and Regulations. This includes an outline of the process and an overview of the key outcomes of the environmental assessments undertaken, including the Strategic Environmental Assessment (SEA), the Habitats Regulations Assessment (HRA) and the Water Framework Directive Assessment (WFD).
- **Section 3 – Overview of Shoreline Management Plan** presents an overview of the preferred plan for shoreline management, including a summary of the policy options in each policy area, the potential implications of such options, and the reasons for their selection. This is presented in association with some background information regarding the behaviour and character of each section of the coast.
- **Section 4 – Action Plan** provides an introduction to the Action Plan. The Action Plan identifies the steps which need to be taken to implement the SMP2 policies, as well as setting out more detailed studies and plans that would lead to a better understanding of the coastline or more effective management. Actions for the whole SMP2 area are included in the tables in **Section 4**, while more specific lists of detailed local actions are included in the policy statements in **Section 5**.
- **Section 5 – Policy Statements** presents a series of policy statements that provide the SMP2 policies for each individual section of the shoreline, including some details on how the policies might

be implemented and the local implications of these policies in terms of: management activities; property, built assets and land use; landscape; nature conservation; historic environment; and amenity and recreational use. This Section also includes mapping that illustrates the preferred policies for each of the three epochs along the entirety of the SMP2 coastline and provides a detailed Action Plan for each policy area, setting out the actions to be completed, likely source of funding, lead partners with responsibility for each action and timescale.

Although it is expected that many readers will focus upon the local details in **Section 5**, it is important to recognise that the SMP2 is produced for the North West England and North Wales coastline as a whole, considering issues that extend beyond specific locations. Therefore, the policy statements must be read in the context of the wider-scale issues and policy implications, as reported in **Sections 2 and 3** and the **Appendices** to the SMP2.

Supporting Appendices

What information is included in the supporting appendices?

The supporting appendices provide all of the background information to the SMP2. These are provided to ensure that there is clarity in the decision-making process and that the rationale behind the policies being promoted is both transparent and auditable.

This information is largely of a technical nature and is provided in twelve parts:

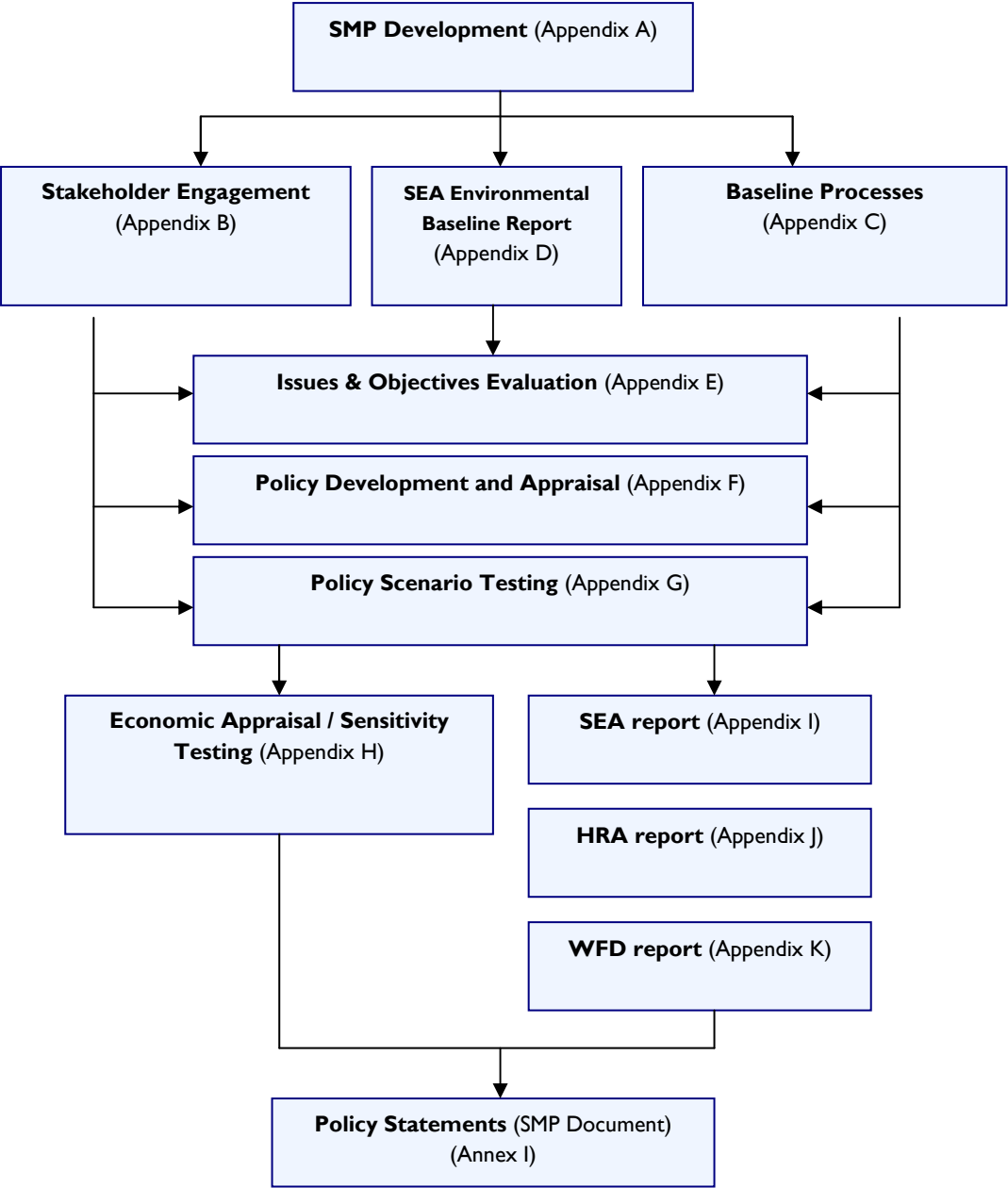
- **Appendix A: SMP2 Development** reports the history of development of the SMP2, describing in more detail the SMP2 stages and policy decision-making process and outlines the chronology of the SMP2 development. It is intended to be a 'route map' for use when reading the rest of the SMP2 document and supporting appendices.
- **Appendix B: Stakeholder Engagement** documents the important role stakeholders have had in shaping the plan. This appendix outlines the different levels of stakeholders, members of each stakeholder group, their roles in SMP2 development and details of outputs from stakeholder involvement. This appendix provides all communications from the stakeholder process including initial letters introducing the SMP2, invitations to stakeholder events, minutes and notes recording these events and any feedback relating to stakeholder comments. A consultation report is also included which details responses received during the public consultation process, the project team's comments on the responses and how they have been taken into account.
- **Appendix C: Baseline Process Understanding** provides information on current understanding of shoreline processes and coastline behaviour, as well as estimating how the coastline may behave in the future under two different 'baseline' scenarios. This includes a number of coastal process reports which detail current and historical shoreline behaviour; assessments of the existing coastal defences (their location, type and residual life) and the two baseline scenarios⁷ for no active intervention (NAI) and with present management (WPM) which consider future shoreline change for the whole SMP2 area assuming no further investment in defences and assuming current management practices continue respectively over the next 100 years.

⁷ The NAI and WPM scenarios were developed in line with Defra guidance (Defra, 2006) and it is important to note that these assessments were NOT intended to represent realistic scenarios for managing the coast. They were developed as contrasting examples to form the basis of later policy appraisal and the WPM does not consider affordability or other constraints. The subsequent policy development has taken account of agreed objectives and social, environmental and economic assessments.

- **Appendix D: Strategic Environmental Assessment (SEA) Environmental Baseline Report (Theme Review)** identifies and evaluates the environmental features of the coastline (in terms of the human, natural, historical and landscape environment) in terms of their significance to the SMP2 process. Information from this review is considered in the development of future policy options. This appendix provides an understanding of these key features, their significance to the area both locally and nationally, and how they interact with the coastal processes.
- **Appendix E: Issues & Objective Evaluation** provides information on the issues and objectives identified as part of the Plan development and which need to be addressed by future shoreline management. Features and issues identified during completion of the SEA Environmental Baseline Report (**Appendix D**) and during the initial stakeholder engagement exercise are assessed in terms of generic objectives which are defined for the whole SMP2 area. The objectives provide a framework for the development and appraisal of shoreline management policies.
- **Appendix F: Initial Policy Appraisal and Scenario Development** explains the development of a range of alternative policy options for particular sections of coast into ‘policy scenarios’ in order to help assess interactions between parts of the coast. The assessment of shoreline evolution and changes in coastal risks (**Appendix C**) has formed a key part in determining the combinations of policies to make up the ‘scenarios’ for testing.
- **Appendix G: Policy Scenario Testing** provides appraisals of how the coast would evolve under the alternative policy combinations identified in **Appendix F**, and the implications of this for important features along the shoreline. Through undertaking these appraisals, a ‘preferred’ scenario has been identified for each coastal area that best achieves the defined shoreline management objectives (**Appendix E**) and is most sustainable, i.e. technically feasible, environmentally acceptable and socio-economically viable.
- **Appendix H: Economic Appraisal and Sensitivity Testing** provides a high-level assessment of the economic robustness of each preferred policy and an assessment of sensitivities and uncertainties relating to these policies. This includes a cost-benefit analysis of each policy, an assessment of potential damages and assessment of uncertainties.
- **Appendix I: Strategic Environmental Assessment (SEA) Report** draws together the work undertaken in developing the Plan that specifically relate to the requirements of the EU Council Directive 2001/42/EC (the Strategic Environmental Assessment Directive). This appendix provides a systematic appraisal of potential environmental consequences of the proposed policies, including economic, technical and social factors.
- **Appendix J: Habitats Regulations Assessment (HRA)** presents the assessment of the effects of the policies on European sites as required by the Habitats Regulations (Conservation (Natural Habitats &c.) Regulations 1994). It presents an assessment of whether the preferred policies would have an effect on the integrity of Special Areas of Conservation (SAC), potential Special Protection Areas (pSPA) or Special Protection Areas (SPA), and Ramsar sites. The scale and implication of potential impacts is established and a decision is presented on whether these impacts are acceptable or not.
- **Appendix K: Water Framework Directive (WFD) Assessment** presents an assessment of the effects of the policies on the water bodies as described in the River Basin Management Plans established under the Water Framework Directive and as required by the Water Environment (Water Framework Directive) (England and Wales) Regulation, 2003.

- **Appendix L: Meta-database and Bibliographic database** includes a database of supporting information used to develop the SMP2, referenced for future examination and retrieval. This includes references to other literature, and type and source of datasets used in creation of SMP2 maps.

The structure of the SMP2 documents, and how they relate to each other, is summarised in the following flow chart.



1.5 The Plan Development Process

How has the SMP2 been developed?

Development of the North West England and North Wales SMP2 has taken account of:

- the first round of Shoreline Management Plans (SMP1s);
- latest studies since SMP 1 (e.g. Futurecoast (Halcrow, 2002⁸), Cell 11 Transport and Sediment Study (CETaSS), various reports on climate change and national / regional mapping (e.g. Environment Agency flood risk mapping);
- issues identified by recent coastal defence planning (i.e. coastal defence studies and schemes that cover parts of the SMP2 area developed since completion of the original SMP) – see below for more details;
- changes in legislation (e.g. the EU Habitats and Birds Directives, Water Framework Directive);
- changes in national flood and erosion risk planning requirements (e.g. the need to consider 100 year timescales in future planning, modifications to economic evaluation criteria, etc.); and,
- the results of coastal monitoring activities.

Throughout the SMP2 process it has also been important to work closely with other studies and projects to make sure that these plans are co-ordinated and coherent. A range of plans are being, or have been developed to co-ordinate works for flood and erosion risk management in North West England and North Wales which link with the SMP2 and include:

- Catchment Flood Management Plans: Conwy and Clwyd, River Dee, Mersey, Alt and Crossens, Douglas, Ribble, Wyre, Lune, Kent and Leven, South West Lakes, Derwent and Eden (see **Figure 2**);
- Strategy studies developed to determine approaches to delivery of SMP1 policies, including the Formby to Crosby Strategy, Blackpool Shoreline Strategy, Walney Island strategy, Morecambe strategy, Denbighshire coastal strategy, Penrhyn and Colwyn Bay Strategy, estuary studies for the Dee, Ribble, Lune, Wyre and Kent and the Dee and Clwyd Estuary Strategy (in progress).

How has the work been managed?

Development of this SMP2 has been led by a Project Management Board made up of members of the North West and North Wales Coastal Group, including technical officers and representatives from Coastal Local Authorities, the Environment Agency, Natural England and English Heritage. The Project Management Board has been assisted by Client Steering Groups (covering the Sub-Cell shorelines) and an Environmental Sub-Group set up to oversee and review the environmental aspects of the Plan.

The SMP2 development has been greatly assisted by inputs from a large number of stakeholders, whose views have been sought at key decision-making points, these include the Countryside Council for Wales (CCW) who were a key stakeholder during SMP2 development. Many of these stakeholders participated in the policy development process via Stakeholder Forums. A number of

⁸ Halcrow (2002). **Futurecoast**. CD produced as part of the Futurecoast project for Defra.

rounds of Stakeholder Forum meetings have been held at locations across North West England and North Wales. These have helped to identify and understand the issues, review the objectives, set direction for appropriate policy development, and review and comment upon the proposed SMP2 policies.

In addition, all decisions made have been reviewed by a group of Elected Members (Local Councillors) and the Environment Agency's Regional Flood Defence Committee where appropriate, to get input into policy development from those who will ultimately need to adopt or support the SMP2 policies.

What did the work involve?

The main activities involved in producing the SMP2 are described in [Appendix A](#). The work has followed the guidance from Defra and the Welsh Assembly Government (WAG)⁹, and taken account of supplemental guidance from WAG¹⁰ and the Environment Agency's SMP2 National Quality Review Group¹¹.

The key steps included:

- reviews reporting on themes of human, historic and natural environmental to identify features near the shoreline and issues relating them to shoreline management;
- developing and analysing issues and objectives for shoreline management to address for various locations along the shore;
- analysing coastal and estuarine processes and coastal change to let us know the impacts of not defending and/or continuing to defend the coastline as it currently is;
- agreeing key objectives and primary policy drivers with Stakeholders, to help determine scenarios of possible policy options;
- developing scenarios of policy options based on the key objectives and primary policy drivers for sections of the shoreline;
- examining coastal change in response to policy scenarios and assessing the implications for people and the historic and natural environment;
- determining the preferred plan and policies through review with Stakeholders, Elected Members, the Client Steering Group and Project Management Board, before compiling the SMP2 draft document;
- consulting on the proposed plan and policies (October 2009 to February 2010);
- review of consultation comments and issues raised and publication of consultation report ([Appendix B Part 2](#));
- update the SMP2 policies and documents and finalise the SMP2;
- complete the Habitats Regulations Assessment for the final SMP2 policies;
- Local Authority formal adoption of the SMP2 and dissemination; and,
- sign off the SMP2 in England by the Environment Agency's Regional Director and in Wales by the Welsh Assembly Government.

⁹ Defra (2006). Shoreline Management Plan Guidance. March 2006

¹⁰ WAG (2008). Draft supplemental guidance for SMPs in [Appendix B Annex B16](#)

¹¹ Additional guidance notes from EA QRG in [Appendix B Annex B16](#)

Following adoption of the SMP2 by Local Authorities and final sign off by the Environment Agency and WAG, the final SMP2 will be put into practice by the members of the North West and North Wales Coastal Group. It will be the responsibility of the Coastal Group to ensure that the action plan is progressed by the appropriate Partners and where there are problems with delivery to seek to resolve issues through collaborative working.

2 Environmental Assessment

2.1 Introduction to Strategic Environmental Assessment

An important part of the SMP process is to understand and assess how the plan will impact on the environment by considering both positive and negative effects of policies on and relationships between wildlife and habitats, people and their health, soil, water, air, climate, landscape and cultural heritage.

Under Directive 2001/42/EC of the European Parliament and European Council on the assessment of the effects of certain plans and programmes on the environment, a Strategic Environmental Assessment (SEA) is required for certain statutory plans. As SMP2s are not required by legislation, SEA is also not strictly required. However, SMP2s set a framework for future planning decisions, and have the potential to result in significant environmental effects, so in accordance with Defra guidance¹, an SEA has been undertaken for the North West England and North Wales SMP2.

This Section therefore presents a summary of the strategic process undertaken for the appraisal of the North West England and North Wales SMP2 to confirm that the SMP2 policies comply with the requirements of European and National Directives and Regulations. This includes an outline of the process and an overview of the key outcomes of the environmental assessments undertaken, including the Strategic Environmental Assessment (SEA), the Habitats Regulations Assessment (HRA) and the Water Framework Directive Assessment (WFD). The full assessments can be found in **Appendices I (SEA), J (HRA) and K (WFD)**.

What is Strategic Environmental Assessment (SEA)?

Strategic Environmental Assessment (SEA) is the systematic appraisal of the potential environmental consequences of *high level* decision-making, such as policies, plans, strategies and programmes, before they are approved. The SEA provides environmental protection by ensuring that the environment is considered when preparing and adopting plans and programmes, with a view to promoting sustainable policy.

The SEA process has been fully integrated into the work involved in the North West England and North Wales SMP2 development, enabling the impacts on the wider environment to be taken into account. The advantage of this approach is that it enables focus on not only the physical environment, but also on other external factors, such as economic, technical and social factors.

Appendix I documents the SEA process undertaken for the SMP2 and demonstrates how, when developing this SMP2, the natural, built and historic environment has been considered alongside social, technical and economic issues in line with the SEA Directive's requirements.

A summary of the key outcomes of the SEA carried out for the North West England and North Wales SMP2 is provided below.

2.2 Baseline Environment

What does the SEA say about the key environmental issues in the SMP2 area?

An SEA Environmental Baseline Report (**Appendix D**) was prepared which summarises the existing environment within the SMP2 area and identifies key issues, including: -

- **Population and human health** – safety, security and social/physical well-being for occupants of properties within areas at coastal flood or erosion risk; population and properties are concentrated within the cities of Chester, Liverpool, Preston, Lancaster and Carlisle and other towns and villages. Recreation and tourism in the SMP2 area is centred on coastal holiday resorts (e.g. towns with promenades, pleasure piers and tourist attractions), open areas of natural coast, cycle routes and coastal footpaths, bathing beaches and formal recreational pursuit venues such as golf courses.
- **Flora and Fauna** – the importance of the plan area for wildlife is reflected in the large number of designations of international, national and local nature conservation sites. The SMP2 area is home to a variety of habitats including limestone pavements, cliffs, saltmarsh, mudflats, estuaries, sand dunes, grazing marsh, vegetated shingle, meadow, woodland, heathland, fen, saline lagoons and grassland. Opportunities exist to create wetland habitat in low-lying parts of the SMP2 area. A Habitats Regulations Assessment (HRA), see [Appendix J](#), has been undertaken to assess the effect of the SMP2 on International Conservation sites.
- **Earth Heritage, Soils and Geology** – there are numerous geological sites of national and local importance within the SMP2 area, but there are also potential areas of contamination and known landfill sites that need to be taken into account.
- **Air and Climate** – the long term effects of rising sea levels expected due to climate change could have significant implications for future flood risks to the natural, historic and built environment across large areas of low-lying land in the SMP2 area.
- **Water** – there are numerous coastal, freshwater, transitional (areas of water near river mouths, which are partially saltwater but influenced by freshwater) and groundwater bodies in the SMP area that have the potential to be affected by SMP policies. This SEA Report seeks to assess environmental effects of the preferred SMP policy scenarios on these water bodies, along with suggesting appropriate mitigation measures that could be implemented to ameliorate any adverse impacts. A Water Framework Directive (WFD) Assessment, see [Appendix K](#), has also been prepared in order to include the environmental objectives of the WFD into the Shoreline Management Plan, through assessing the potential hydromorphological changes and consequent ecological impact of SMP policies.
- **Landscape Character and Visual Amenity** – Some areas of the SMP2 lie within nationally important landscapes including the Lake District National Park, Areas of Outstanding Natural Beauty (AONB) and Heritage Coasts.
- **Historic Environment** – the SMP2 area contains a complex array of historic buildings (many of which are scheduled or listed), historic settlements and landscapes including Registered Parks and Gardens, and known archaeological sites that are a fundamental component of the regional identity. The SMP2 area also includes two World Heritage Sites (WHS); Hadrian's Wall and Liverpool Maritime Mercantile City.
- **Land Use, Infrastructure and Material Assets** – much of the land along the coastline is made up of a combination of good/moderate quality agricultural land, sand dunes, urban areas (see population above), Ministry of Defence (MoD) land, ports and harbours and major industrial sites. Infrastructure within the SMP2 area varies from rural roads to major transport linkages (e.g. airports, railway lines, motorways and A-roads). The SMP2 area is

also important for energy production comprising offshore and onshore wind farms and gas, hydro and nuclear power stations.

2.3 Strategic Environmental Assessment Objectives

What are the Strategic Environmental Assessment (SEA) objectives?

Strategic Environmental Assessment objectives were identified for the SMP2 to appraise the preferred policy options during the assessment process. The objectives were developed following identification of the key environmental features (or assets) and an understanding of the strategic environmental issues along the coastline. The SEA objectives are:

- To support natural processes and maintain and enhance the integrity of internationally designated nature conservation sites and maintain / achieve favourable condition of their interest features (habitats and species);
- To avoid adverse impacts on, conserve and where practical enhance the designated interest of nationally designated nature conservation sites. Maintain/achieve favourable condition;
- To avoid adverse impacts on, conserve and where practical enhance the designated interest of locally designated conservation sites;
- To avoid adverse impacts on, conserve and where practical enhance national and local Biodiversity Action Plan (BAP) habitats and species;
- To support natural processes and maintain geological exposures throughout nationally designated geological sites;
- To maintain and enhance features as a natural flood defence;
- To manage any risk of change in quality of aquifers as a result of significant saline incursion;
- To manage and minimise risk of pollution from contaminated sources;
- To conserve and enhance nationally designated landscapes in relation to risks from coastal flooding and erosion and avoid conflict with AONB and National Park Management Plan Objectives;
- To minimise coastal flood and erosion risk to scheduled and other internationally, nationally, locally and regionally important cultural heritage assets, sites and their setting;
- To minimise the impact of policies on marine operations and activities;
- To minimise coastal flood and erosion risk to critical infrastructure and maintain critical services;
- To minimise coastal flood and erosion risk to agricultural land and horticultural activities;
- To minimise coastal flood and erosion risk to people and residential property;
- To minimise coastal flood and erosion risk to key community, recreational and amenity facilities;
- To minimise coastal flood and erosion risk to industrial, commercial, economic and tourism assets and activities; and,
- To minimise coastal flood and erosion risk to Ministry of Defence ranges.

2.4 Consultation

How were the public consulted about the Strategic Environmental Assessment?

Effective stakeholder and public engagement is central to the development of the SMP2 (and SEA) in order to arrive at a SMP2 that is acceptable to as many parties as possible and to engage those parties in the process.

An awareness raising leaflet was produced and widely distributed at the start of the studies to encourage participation and help gather data and identify interested parties. The draft environmental baseline review was discussed at a series of stakeholder workshops and was made available on the project website (**Appendix D**). This and other baseline reports were updated following consultation with key stakeholders and have been used throughout the SMP2 development (**Appendix C, D and E**). A five month public consultation took place between October 2009 and February 2010 on the draft SMP2, and SEA. Full details of the consultation process including consultation materials, comments made and responses on how they have been taken into account are documented in **Appendix B**.

2.5 Identification and Review of Alternative Policy Scenarios

In addition to the four standard SMP2 policy options described in **Section 1.3**, cases of 'with present management' (WPM) and 'no active intervention' (NAI) throughout the SMP2 area were also assessed during the development of the SMP2 (see **Appendix C**). The WPM case assumes that the present management practices will be continued indefinitely, regardless of economic or technical constraints and is useful for comparative work when undertaking the policy scenario development stage of the SMP2, while the NAI case is essentially a walk away and do nothing scenario. The NAI and WPM scenarios were developed in line with Defra guidance (Defra, 2006¹) and it is important to note that that these assessments were NOT intended to be realistic scenarios for managing the coast. They were developed as contrasting examples to form the basis of later policy appraisal and the WPM does not consider affordability or other constraints. The subsequent policy development has taken account of agreed objectives and social, environmental and economic assessments.

Based on the background understanding of how the coast responds in NAI and WPM situations, the potential risks posed to the environmental assets were identified, and an initial set of policy scenarios were developed using 'strings' of policy options (see **Appendix F**).

In order to ensure that the potential wider impacts of SMP2 policy decisions are considered, the SMP2 guidance suggests developing a 'policy scenario' rather than looking at individual policy units. This brings together individual policy units that interact with those next to them (i.e. a group of policy units). This approach has been followed for this SMP2, using a 'string' of SMP2 policy options over a discrete stretch of coastline (Policy Area). These Policy Areas were defined in terms of their geology, coastal processes and features present.

For each Policy Area, generally up to three initial policy scenarios were developed for appraisal. In each policy area, draft policy unit boundaries were identified, and for each policy unit one of the four SMP2 policy options was assigned in each of the three time periods: 0-20 years (short-term), 20-50 years (medium-term) and 50-100 years (long-term).

The resulting 'policy scenarios' for each policy area were appraised against the SMP2 issues and objectives agreed with stakeholders, including the environmental features (ie SEA receptors) identified along the coastline (see [Appendix G](#)). This involved an assessment of the likely future coastal change that would occur as a result of these scenarios. From this appraisal we were able to identify whether each objective had been met or not met. The method undertaken focused on how and why the objectives were (or were not) met, rather than simply attempting to add up the numbers of objectives achieved. Objectives were therefore not weighted or ranked; instead the policy scenarios were objectively appraised against technical, economic, environmental and social factors. By comparing achievement of objectives, provisional SMP2 policy unit boundaries and policies were selected. These provisional SMP2 policies were then discussed and agreed at Stakeholder and Elected Member Forums.

[Appendix G](#) identifies the environmental impacts of each of the alternative scenarios developed through an assessment of the SEA receptors set out in the SEA Directive. It has helped to identify the preferred SMP2 policy for each policy unit.

2.6 Environmental Impacts of the SMP2

The environmental effects of the preferred SMP2 policies on the standard SEA receptors are described in detail Annex I of [Appendix I 'SEA'](#) and summarised in the Policy Statements in [Section 5](#) of this document. An overview of the findings across the SMP2 is provided below.

Flora and Fauna: The SMP2 seeks to support natural processes and maintain wildlife (including the condition of designated sites) along the coastline. The SMP2 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 sand dunes, saltmarsh, mudflats and/or sandbanks may be adversely affected or lost in the long term due to expected future sea level rise as they may become squeezed against fixed defences or cliffs. Where impacts on international conservation sites are possible, further assessment (a Habitats Regulations Assessment) has been undertaken in [Appendix J](#). [Table 3](#) summarises gains and losses of coastal habitat for each Sub-Cell in the short, medium and long term that could result from the preferred plan. It should be noted that it is not possible to numerically quantify changes due to the inherent uncertainties related to coastal change, shoreline evolution and associated impacts due to projected future sea level rise and uncertainties regarding managed realignment extents under the plan.

It is not proposed to hold the line in any previously undefended areas. In other areas, where defences will continue to be maintained, some designated freshwater or terrestrial habitats may benefit from holding the line and be protected from coastal flooding.

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 SMP2 policy could result in some loss of habitat. Careful management of the shoreline will therefore be necessary to sustain the designated habitats in place wherever possible, while managing and adapting to changes due the impact of future sea level rise.

Policy Area	Net gain / loss of habitat under the preferred plan		
	0-20 years	20-50 years	50-100 years
Sub-Cell 11a	Overall net gains of intertidal saltmarsh, sandflat, mudflat and dune habitats.	Offshore sediment supply, supplemented by beach management expected to be sufficient to balance sea level rise. Potential for dune and beach gains resulting from beach management. Intertidal gains due to managed realignment.	Overall, gains and losses of intertidal and dunes highly uncertain due to sea level rise. Potential for some intertidal gains due to managed realignment.
Sub-Cell 11b	Overall net gain of intertidal saltmarsh and mudflat habitat in the Ribble estuary, however, net loss of intertidal sand beaches along the Fylde frontage	Overall small net gain of intertidal habitat in the Ribble estuary, however, net loss of intertidal and dunes along the Fylde frontage	Overall, gains and losses of intertidal and dunes highly uncertain response to accelerated sea level rise.
Sub-Cell 11c	Overall net gain of intertidal saltmarsh, sandflat and mudflat within Morecambe Bay and its associated estuaries and net gain of dunes at Fleetwood and north Walney.	Overall net gain of dunes at Fleetwood and intertidal saltmarsh, sandflat and mudflat under managed realignment. However, uncertainty relating to localised gains and losses due to volatility of channel movements.	Overall gains and losses of intertidal and dunes highly uncertain due to response of the Bay and estuaries to sea level rise and potential future management including implementation of managed realignment.
Sub-Cell 11d	Overall, net gains of dunes towards Haverigg and net loss of intertidal between Seascale and St Bees, but no significant change elsewhere.	Uncertainty over response to of sea level rise, however potential for net loss of intertidal and dunes overall.	Potential for net loss of intertidal and dunes overall, but large uncertainty of impacts of accelerated sea level rise.
Sub-Cell 11e	Overall, no significant change for the southern section, net loss of intertidal at Silloth and net gain of intertidal in the Solway Firth and Moricambe Bay.	Net loss of intertidal south of The Grune, net gain of intertidal in Moricambe Bay and in the Solway Firth.	Net loss of intertidal and dunes south of The Grune, net gain of intertidal in the Solway Firth.

Table 3: Overview of gains and losses of habitats under the preferred plan.

Earth Heritage, Soils and Geology: The proposed SMP2 seeks to support natural processes and maintain the visibility of and accessibility to geological features wherever possible. There are however, some areas where continued protection of urban settlements is required and in some of these areas the SMP2 policies may damage geology or earth heritage features. In general, the SMP2 is not recommending the construction of new defences to maintain economic assets in areas where none are currently present.

Along many areas of the frontage, beach management is proposed to maintain natural features, particularly in the short-term. However, where HTL is proposed to protect significant urban communities, increasing sea levels may result in the narrowing of natural defence features in future.

Air and Climate: No impacts on air and climate are anticipated as a result of the preferred SMP2.

Water: In most areas along the coast, the proposed SMP2 protects the majority of potentially polluting features such as landfill sites from flooding or erosion. However, there are some areas where changes to flooding or erosion risks at landfill sites may be experienced and in these areas, potential or known contamination sources should be investigated further at a more detailed stage to confirm the approach to policy delivery and manage pollution risks to water resources. Further assessment (Water Framework Directive Assessment) has been undertaken to assess the potential hydromorphological changes and consequent ecological impact of SMP policies, in **Appendix K**. It is envisaged that the SMP2 policies could be implemented in a manner that avoids pollution of surface water. However, there is the potential for saline intrusion to affect groundwater in three areas (due to the preferred SMP2 policies of either managed realignment or no active intervention in some or all epochs). Again, in these areas further investigation of the approach to policy delivery and monitoring will be recommended at a more detailed stage.

Landscape Character and Visual Amenity: The SMP2 policies seek to achieve a free functioning natural coastline wherever possible, thus creating a more natural coastal and estuarine 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.

Generally, the SMP2 policies therefore conserve nationally designated landscapes and avoid conflicts with AONB Management Plan or National Park objectives, 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.

Historic Environment: The majority of the heritage sites will be retained and protected through the preferred SMP2 policies. However, in areas where there are benefits in reverting to natural processes either by no active intervention or through managed realignment, there may be an increase in tidal flooding or erosion risk with associated negative impacts on isolated historic assets (e.g. Scheduled Monuments, a Registered Park and Garden, parts of Hadrian's Wall WHS and non-scheduled archaeological features of medium and high importance). Important historic assets that may be affected lie within the Dee Estuary, Leven Estuary, on Piel Island, Saltom Pit, Maryport and Hadrian's Wall between Cardurnock and the Scottish Border.

Land Use, Infrastructure and Material Assets: For much of the coastline, the SMP2 policies will not affect critical infrastructure or crucial services. However, it will become increasingly difficult to minimise the risk to infrastructure and material assets in some areas as sea level rise causes holding the line to become less acceptable due to economics, technical sustainability and environmental acceptability over time. In these areas, affected infrastructure may include some local roads and sewage works etc, particularly in areas that are realigned or that experience overtopping of defences during storm surges. Consequently, it may be necessary to re-route some of the critical infrastructure.

The SMP2 policies will help reduce the coastal flood and erosion risks to large areas of agricultural land, with the long term policies managing risks to around 25,000ha of currently at risk land from erosion/flooding. However, where no active intervention or managed realignment is proposed, the loss or change in use of some agricultural land will be inevitable. The extent of land use change is dependant on the realignment position which will be defined by further studies coming out the SMP2 Action Plan.

The SMP2 policies are generally beneficial to industrial and commercial premises and/or activities, by protecting areas of significant development from flooding or erosion. However, some isolated industrial or commercial facilities may be affected, as policies leading to a more 'natural' and sustainable shoreline in the long-term are implemented.

The preferred SMP2 may result in the flooding or erosion of small areas of MoD ranges in the short to long-term as these generally lie within undeveloped stretches of coastline. In the longer term, Eskmeals Ranges may experience an increase in tidal flooding if the dunes breach but as there is no change proposed to the existing management regime, there will not be an increase in the number of MoD sites at risk.

Population and human health: For much of the coastline, the preferred SMP2 policies will maintain existing defences where economically viable in the long-term, thus having a beneficial impact on people, their health and property by reducing risk to areas of significant urban development and developed parts of the coastline from flooding or erosion. In some circumstances funding streams for future maintenance of these defences may be via public/private co-funding or through private contributions.

The SMP2 policies provide for long term flood or coastal erosion risk management to over 107,700 residential properties that would be at long term risk of loss. However, there are some areas where isolated properties and areas of community, recreational and amenity facilities exist and may be lost to flooding or erosion through allowing the coastline to retreat naturally. It should also be recognised however, that a policy to hold the line for a frontage does not mean guaranteed funding and issues of affordability and prioritisation of defence schemes may become more pronounced in the future and the probability and consequences of coastal flooding may increase significantly due to projected climate change. Consequently, in the future there will be a need to complement defences with a wider range of actions to manage the consequences of flooding and coastal erosion, through adaptation and resilience measures (see [Section 3.1](#)).

SMP2 Sub-Cell	Properties in long term coastal risk area (Residential / Commercial)	Properties benefiting in long term from SMP2 (Residential / Commercial)	Cumulative breakdown of properties still at risk under SMP2 policies (Residential / Commercial)		
			0-20 years	20-50 years	50-100 years
Sub-Cell 11a	34,600 / 5,630	34,600 / 5,560	0 / 0	46 / 64	52 / 66
Sub-Cell 11b	44,400 / 3,280	44,400 / 3,270	0 / 1	1 / 1	47 / 12
Sub-Cell 11c	27,100 / 3,970	26,900 / 3,890	34 / 2	119 / 47	209 / 82
Sub-Cell 11d	494 / 52	385 / 26	4 / 0	79 / 26	109 / 26
Sub-Cell 11e	1,600 / 338	1,510 / 330	0 / 0	9 / 2	87 / 8
Totals	108,200 / 13,300	107,700 / 13,100	38 / 3	254 / 140	504 / 194

Table 4: Residential and commercial properties¹² benefiting from SMP2 policies

¹² Numbers represent residential / commercial, properties identified from National Property Database, which is known to underestimate actual property numbers in some locations

Table 4 indicates the approximate number of residential / commercial properties per Sub-Cell in the long term coastal risk area and those with risks reduced under the SMP2 policies in the short, medium and long term.

Under the SMP2 long-term policies, the key centres of tourism and recreation will continue to be defended. However, this will be at the expense of natural beaches along many of these frontages, which will become increasingly difficult to retain as the frontages and promenades become more prominent, exposed and less accessible. Therefore, the SMP2 highlights the increasing importance of beach management along these frontages, particularly along the North Wales coast and the Fylde Peninsular, which includes Blackpool and Cleveleys. It is recommended that beach management should take a strategic approach, by looking at the wider consequences of management practices not just along the beach frontage but at linkages with adjacent areas. Beach management should also include looking into 'softer' defence options such as beach recharge as well as ways to manage and potentially modify existing structures to help prevent loss of beaches and intertidal areas in the future.

2.7 Habitat Regulations Assessment

In many locations along the North West England and North Wales coastline, policies would be implemented within or next to international conservation sites (European sites). A Habitats Regulations Assessment (HRA), **Appendix J**, has therefore been undertaken in accordance with the requirements of the EC Habitats Directive (92/43/EEC) and European Union Birds Directive (79/409/EEC) and their implementation in the UK under the Conservation (Natural Habitats &c.) Regulations 1994, under Regulation 48(1) ("Habitats Regulations").

Full details of the approach used and the findings of the HRA is given in **Appendix J**.

What are the overall findings of the Habitats Regulations Assessment?

Full details of the approach used and the findings of the HRA assessment are provided in **Appendix J**. A summary of findings will be added here following completion of the Habitats Regulations Assessment.

2.8 Water Framework Directive Assessment

A Water Framework Directive (WFD) assessment has been prepared and can be viewed in **Appendix K** of the SMP2.

Ecological and water quality can be influenced by SMP2 Policy as changes in coastal management may result in different hydrological regimes and water body morphology (see **Glossary**) – including such factors such as current velocities, sediment accretion/erosion, water quality (turbidity, salinity) and tidal inundation. This WFD assessment takes into consideration the potential effects of SMP2 policy options on the ecological and water quality elements of the coastal and transitional (estuary) water bodies directly affected by the SMP2. It also incorporates an assessment of adjacent river water bodies, which may also experience some indirect effects due to SMP2 policies (such as shifting in the upper tidal limit in rivers). The potential effects on ecological quality elements are associated with changes in hydrological regimes and water body morphology – including such factors as changes in current velocities, sediment accretion/erosion, water quality (turbidity, salinity) and tidal inundation.

The WFD assessment also considers whether the SMP2 policies may have adverse consequences for water bodies protected under other EU legislation, in particular Special Protection Areas and Special

Areas of Conservation (related to the Birds Directive and Habitats Directive, respectively). Additionally, the potential for changes in groundwater bodies are considered insofar as such changes could affect dependent ecology (i.e. groundwater dependent ecosystems).

A further consideration of possible impacts on groundwater bodies relates to their use for public (or other) water supply. Such considerations are primarily related to 'no active intervention' and 'managed realignment' policies, which could result in a geographical change in the shoreline in the vicinity of a groundwater Source Protection Zone (SPZ).

What is the overall finding of the WFD Assessment?

Full details of the approach used and the findings of the WFD assessment are provided in [Appendix K](#). A summary of findings will be added here following completion of the Water Framework Directive Assessment.

3 Overview of the Shoreline Management Plan

3.1 Background, affordability and climate change issues

This SMP2 aims to achieve sustainable flood and coastal risk management by achieving as many of the objectives for people, nature, heritage and the economy as possible while working with natural processes wherever possible. In doing so it recognises that achievement of this goal will not be instantaneous and balancing the sometimes conflicting objectives needs to be the long term vision of the SMP2.

As indicated in **Section 1.5**, this SMP2 is based on the result of numerous studies and assessments.

The proposed short term (up to 20 years) policies for the Cell 11 SMP2 coastline provide a high degree of compliance with the SMP2 objectives to protect existing communities against flooding and erosion. The preferred medium and long-term (20 to 100 years) policies promote greater sustainability for parts of the shoreline where natural process and evolution provide a practical means of managing the shoreline.

How will climate change and rising sea levels effect the plan?

As sea level rises, beach widths in front of defences will narrow and the defences themselves will become increasingly exposed and vulnerable. Sea level rise therefore, not only means that higher and larger defences will be needed to provide the same standard of protection to assets along the shoreline, but that defences will need to be maintained more frequently or be improved to withstand more frequent attack. Even in locations where defences are improved the consequences of breaches or overtopping will increase in future.

Along the North West England and North Wales coastline, building larger defences to protect against rising sea levels will inevitably produce a change in the nature of the coast, with a prominence of larger seawall structures and smaller beaches. In some locations there is socio-economic justification to maintain existing defences in the short to medium term, however, when defences need rebuilding in future the SMP2 has recommended opportunities to use alternative management techniques such as beach management to help maintain beaches. Additional adaptation and resilience measures will be required in other areas which will come under increasing flood or erosion risk as sea levels rise in the future. In such locations it will be important to put steps in place to adapt and respond to coastal change and plan for the future sooner rather than later (see **Section 4**).

Due to the significant uncertainties associated with climate change and the magnitude of change, there is potential for SMP2 policies to need to be reviewed in the future. For example, significant sea level rise may mean that defences need to be raised substantially, but funding further expenditure on defences may become difficult as more places would require defending, or the defences themselves may become technically difficult to sustain; such a situation may require long term change in land use and relocation of assets out of the risk area.

Will the plan be affordable and who will pay?

In England Defra has national policy responsibility for flood and coastal erosion risk management and provides funding through grant in aid to the Environment Agency which also administers grant for capital projects to Local Authorities. In Wales, the Welsh Assembly Government is responsible for developing flood and coastal risk management policy and largely funds flood and coastal activities undertaken by operating authorities across Wales. In 2009-2010, the Environment Agency will spend £700 million managing flood and coastal erosion risk across the whole of England and Wales.

Despite this large commitment, the scale of coastal erosion and flood risks means that in future there may be insufficient funding to do all of the work that people would like. Projects are presently prioritised to ensure the best possible value is obtained from the public purse against targets set by government. Public money is used as effectively as possible to reduce the risk to coastal communities, their property infrastructure and the natural environment. Decisions on where to defend are therefore based on risk assessments using a transparent, auditable and understandable process. Realistically, it is not possible to justify defending all locations to the same standard or in some cases at all.

There are a number of locations along the SMP frontage where comparison of the value of assets at flood and erosion risk to the cost of defending the frontage, has shown that under present the funding prioritisation system there is not sufficient justification to secure national funding for long term flood or erosion risk management in those locations. This situation may become more widespread in the future as increasing flood and erosion risks with climate change will mean the affordability of continuing to provide protection will reduce further.

In England and Wales the legislation governing flood and coastal defence gives permissive powers to Local Authorities and the Environment Agency. This allows them to undertake works, but does not give them a duty to do so. These bodies will only be able to commit to expenditure on defences to deliver the SMP2 policies if they can obtain funding to do so. In line with the permissive nature of the legislation there is no right to protection against coastal flooding or erosion or any right to compensation from the damage that it causes. Therefore, in the future, private land and property owners will need to consider how they will deal with changes to the shoreline that affects their property. On many of the SMP2 frontages there are lengths of coastal defences that are privately owned and maintained. Individuals and private organisations have rights or powers to maintain these defences and protect their own property, although under existing laws permission is needed before significant work other than routine maintenance can be carried out. In other circumstances, co-funding of flood and coastal defence projects as well as other funding streams such as private contributions will need to be considered.

The SMP2 recognises the need for alternative sources of funding as an essential part of delivering the plan. This is highlighted in a number of locations where the SMP2 has identified that private funding contributions agreements will be required.

In the future, adaptation and resilience measures will also need to be considered and implemented as an integral part of a hold the line or managed realignment policy. Adaptation measures, such as flood warning schemes allowing people to simply move themselves and valuable property out of the risk zone during floods, will become an integral part of flood risk management, not only in flood risk areas where it is not affordable or sustainable to build new defences or maintain existing ones, but also where defences are maintained in the future. Emergency flood evacuation plans will need to be maintained and updated to reflect changing risks. Resilience and resistance measures will also form a fundamental part of managing flood and coastal erosion risk. Adaptation such as raising floor levels or installing flood gates will need to be adopted by developers, businesses and people living in locations where it is not sustainable or viable to defend or in high risk areas. In some locations it may be possible or necessary for assets to be relocated to lower risk areas.

3.2 Summary of the Preferred Plan

The preferred plan for each SMP2 sub cell area is explained in the following sections of text. Details of the preferred policies for individual locations are provided by the individual Policy Statements in **Section 5**.

Sub-cell 11a – Great Orme’s Head to Southport



This section of coast includes the area stretching between Great Orme’s Head, North Wales, and Southport and incorporates the two major estuaries of the Dee and Mersey as well as the smaller Clwyd and Alt estuaries. As such, there are significant interactions between the open coast and the estuaries in this section.

This coastline is important for tourism (North Wales), industry and commercial activities (Dee and Mersey estuaries), heritage (Chester, Liverpool) as well as its environmental significance (Formby Dunes, Dee estuary).

Prestatyn, North Wales

Over the last 200 years, the construction of a mixture of seawalls, revetments, groynes and flood

embankments along the majority of the North Wales coast has prevented shoreline erosion and managed flood risk to coastal towns (including Llandudno, Rhos-on-Sea, Colwyn Bay, Towyn, Rhyl and Prestatyn), tourism assets and infrastructure. However, these structures have also led to a lowering of beach levels, erosion of dunes and the need for beach management. Managed realignment was considered as an alternative policy at a number of locations along the North Wales coast. However, this was rejected due to the need to construct longer lengths of defence, limited realignment space available due to infrastructure and land levels, and the limited potential to create habitats in the longer term as sea levels rise. Therefore there is strong justification to continue to manage erosion and flooding risks for most of this frontage over the next century by maintaining defences on their current alignment, however, this is likely to result in increasing beach loss over time. It is therefore recommended that beach management will become increasingly important to sustain beaches which are important for coastal defence, amenity, tourism and environmental conservation.

The sand dunes of Point of Ayr spit have important environmental designations and provide a natural defence to the low lying land behind, and as such a managed realignment policy will allow the feature to behave as naturally as possible without major intervention, while managing the increasing flood risk over time.



Dee estuary

The mouth of the Dee estuary is characterised by several channels and sandbanks, the small rounded spit of the Point of Ayr near Talacre, and Hilbre Island at West Kirby. Much of the Welsh bank of estuary has industrial and commercial activities at the shoreline, including factories and power stations, as well as the railway line and roads. A number of urban areas, including West Kirby, Parkgate, Connah's Quay and the city of Chester are also located around the estuary. There are numerous environmental conservation designations along the frontage, with the Dee estuary internationally designated as a Special Protection Area, Ramsar site and Marine Protection Area to protect the extensive inter-tidal flats and the numerous waterfowl that use the habitat. In addition, there are sections of eroding cliff near Thurston that are also environmentally designated. The long term plan is to continue to manage risks to commercial and industrial assets from flooding and erosion, but to also allow more natural evolution where appropriate. In order to mitigate the impacts of the defences on the evolution of the estuary in combination with expected long term future sea level rise the plan allows for creation of areas of new habitat by moving defences inland where opportunities exist. Managed realignment was therefore assessed as an alternative policy at a number of locations within the Dee. As a result of this assessment a number of areas with potential opportunities for managed realignment have been identified. It was not deemed appropriate to propose managed realignment as the headline policy in these locations in the short term until a suitable plan for delivering this realignment has been developed and all the potential options have been reviewed with stakeholders. Work on establishing this delivery plan is currently underway in the form of the Environment Agency's Tidal Dee Flood Risk Management Strategy and the next stage of consultation will be started later this year. The SMP2 policies support this work and the plan therefore recognises that there may be opportunities for managed realignment sooner in the policy descriptions.



Hoylake, Wirral

line for the whole frontage will require more detailed investigations and consideration of combinations of front line and secondary defences.

The Mersey estuary is quite different from most other estuaries in the North West, having a deep narrow mouth, with rocky shores that have been extensively modified in the past. Consequently, the shoreline is now almost entirely industrialised with extensive port facilities, power stations and oil

The northern Wirral coastline is significantly influenced by the Dee and Mersey Estuaries at either end of the frontage. Sand dunes and the environmentally designated wide sandy foreshore have formed along the length of the frontage, providing natural protection to the settlements of Hoylake, Moreton, Leasowe, Wallasey and New Brighton as well as recreational assets along the frontage. The whole frontage is currently defended, including the Wallasey embankment which provides a flood risk management function for the large flood risk area that potentially links through to the Mersey.

The long term plan is to continue to provide flood and erosion protection to the residential areas, infrastructure and low lying land along the frontage.

However, the SMP2 recognises that justification and sustainability of continuing to hold the present defence

refineries and onshore wind farms. There are also substantial urban areas, with associated recreational and amenity facilities. The Liverpool Maritime Mercantile City is a World Heritage Site, with significant commercial, civic and public buildings. The Manchester Ship Canal runs along the southern shoreline of the Inner and Upper estuary. The long term plan in the Narrows and Inner Mersey estuary is to maintain the status quo by continuing to provide the same extent of protection currently afforded to property and infrastructure, while allowing natural evolution of the shoreline where there are currently no defences present. In the Upper Mersey, however, managed realignment was assessed as an alternative policy to offset for the potential loss of internationally designated habitat elsewhere, due to the impacts of hold the line policies and predicted sea level rise. As a result of this assessment a number of areas have been identified in the Upper estuary where the long term plan is to look at opportunities to potentially reduce flood risks upstream and create additional habitat.

The Sefton frontage, between the Mersey estuary and Southport, is characterised by a wide sandy foreshore, backed by dunes. The shoreline has been heavily influenced by both the Mersey and Ribble Estuaries and is environmentally designated for the extensive dune habitats. The significant dune system, extending up to 4km inland at Formby, is eroding around Formby Point, but is also accreting to the north and south. Allowing the natural evolution of this area is the long term plan, and as such, a managed realignment policy will allow the dune system to behave as naturally as possible with only limited intervention if local problems occur and adapt to coastal change. The frontage also supports a number of large urban settlements, namely Crosby, Hightown, Formby and Southport. However, much of the shoreline remains unprotected by defences, with structures concentrated at Crosby, Blundellsands and Southport. The long term plan here will be to manage the risks to property and infrastructure if and when threatened by erosion, although continued accretion along areas of the frontage could mean that minimal intervention is actually required to implement this plan.



Formby Dunes

Sub-cell 1 Ib – Southport to Rossall Point, Fleetwood



Ribble estuary

This section of coast covers the area between Southport and Rossall Point near Fleetwood, and includes the Ribble estuary as well as the River Douglas. The Ribble estuary and its associated banks and channels exert a significant control on the evolution of both the important tourist areas of Southport frontage and the Fylde Peninsula.

The Ribble estuary contains internationally important environmentally designated areas including a Special Protection Area and Marine Protection Area. It is naturally accreting and this has allowed and encouraged widespread reclamation in the past. The low-lying land around the estuary is mostly agricultural interspersed with settlements

including Southport, Hesketh, Hutton, Penwortham, Bamber Bridge, Freckleton and Warton, while the urban area of Preston lies in the upper estuary. Tourism and recreational facilities exist, including a number of sailing clubs and nature reserves. The long term plan is to maintain protection of Southport and Preston and their associated facilities, as well as large areas of low-lying agricultural land along the southern bank of the estuary, in combination with seeking further opportunities for habitat creation and creating set back areas to help reduce flood risk and manage the impact of defences on the estuary in the longer term. Managed realignment was therefore assessed as an alternative policy at a number of locations within the Ribble estuary and River Douglas. As a result of this assessment a large number of potential opportunities for managed realignment have been identified. Carrying out many realignment schemes together could have significant implications on the way the estuary works and therefore the SMP2 has recommended staggering any realignment over a period of time. In some locations managed realignment has been identified for the medium term, while in others studies are recommended to take place in the medium term to look at further opportunities to set back defences in the long term. Along the River Douglas the plan is to continue to manage risks to assets on the extensive flood plain throughout much of its length.

The Fylde Peninsula, including Lytham, Blackpool and Cleveleys, sits between the Ribble estuary, to the south, and Morecambe Bay, to the north, and is backed by the Wyre estuary, and at a large scale it has potential to be affected by changes within these systems. There is a sand dune system to the south at Lytham, which is fronted by a wide sandy beach, although the majority of dunes have been significantly modified and built upon. The long term plan is to continue to provide protection through maintenance of formal defences in combination with encouraging the natural dune system to evolve where possible, as a natural form of defence. Dune and beach management should allow the dunes to supply material to feed Lytham frontage, however, there may be a need to construct localised set back defences behind the current dunes in the future for additional flood protection to low lying areas behind.



Blackpool

From central Blackpool to Anchorsholme, up to 30m high protected cliffs back the sand beach, while north of Anchorsholme the frontage is low lying and potentially at flood risk from both the open coast and the Wyre estuary. The frontage is heavily urbanised, with the town of Blackpool spreading into Thornton and Cleveleys. Consequently, much of the shoreline is now held seaward of its natural position and this has implications for future management of this coastline as sea levels rise. Again, the long term plan is to provide continued protection. The major tourist centre of Blackpool and the residential areas of Thornton and Cleveleys will continue to be defended; however, this is likely to result in diminishing beach levels over time. Therefore there will be increasing future needs for beach management to sustain these beaches which are important for coastal defence, amenity, tourism and environmental conservation.

Sub-cell 11c – Rossall Point, Fleetwood to Hodbarrow Point, Haverigg

This section of coast between Rossall Point, Fleetwood and Hodbarrow Point, Haverigg, includes Walney Island and the Wyre, Lune, Kent, Leven and Duddon estuaries; as well as the Rivers Cocker and Keer, all forming integral components within the larger Morecambe Bay system. The Bay is characterised by extensive sandflats, which become exposed at low tide. Various channels cut across these sandflats and the dynamic meandering of these is an important influence upon patterns of shoreline erosion and accretion. The shorelines of the Bay are characterised by large areas of saltmarsh in more sheltered areas fronting rocky outcrops, low cliffs and low lying land. The five key estuaries exert a significant control on the behaviour of adjacent shorelines. The inter-tidal zone of Morecambe Bay and the estuaries are internationally important environmentally designated areas.



The Wyre estuary is characterised by marshland, agricultural land, small villages and urban and industrial settlements in the Thornton area, including the Hillhouse Plant commercial power station. The low-lying area to the west provides a continuous potential flood route linking through to the coast and there is reported evidence that there was a historical channel westwards to the shore at Cleveleys. The estuary falls within the boundaries of the Morecambe Bay Special Protection Area, Special Area of Conservation and Marine Protection Area. The vast areas of flood risk at Fleetwood, Cleveleys and Knott End and development lying within those areas justify continuing to provide appropriate flood risk management measures in the long term. Notwithstanding this, there are some areas

Wyre estuary

in the upper reaches of the estuary where realignment opportunities back to higher land, would provide additional intertidal habitat that could offset future impacts of flood defences on the internationally important sites. Both managed realignment and no active intervention policies were assessed in the inner estuary. Under both scenarios the shoreline is expected to evolve in a very similar manner, however, under no active intervention, unless individual landowners took on maintenance, existing defences would be allowed to fail and the unprotected areas would become inundated up to naturally higher ground. As a result of these assessments, the SMP2 recommended policy is for managed realignment to allow realignment back to high land, but in a more proactive, managed way, which would also be more conducive for potential habitat creation purposes.

The open coast section between Knott End-on-Sea and the headland at Heysham is characterised by low lying agricultural land fronted by large areas of saltmarsh in sheltered areas and a wide sandy intertidal zone. There is some recreation and tourist use, and a number of scattered settlements, including Knott End-on-Sea, Preesall and Pilling. The long term plan is to continue providing protection against flood and erosion to property and infrastructure, however, as with other locations along the SMP2 frontage, it is going to become increasingly difficult to justify the long term affordability of the maintenance and improvements to current defences that would be required to continue to hold the line. Managed realignment was assessed as an alternative more sustainable policy to hold the line in some locations along the frontage. As a result of this assessment, a range of significant realignment opportunities were identified at Cockerham and Thurnham, however, due to the potential extent of realignment and implications on property, heritage, agricultural output, ground water bodies and flows into/out of the Lune estuary, the SMP2 has recommended that further studies

need to take place to inform the management intent in the medium and long term along these frontages. The SMP2 reiterates that there remains a need to consider alternative options for managing the existing defences along this frontage into the medium term, whether or not the primary defence is realigned. The actual medium and long term policies for this frontage and the approach will be developed in further consultation and studies recommended in the SMP2 action plan.

The mouth of the Lune estuary is constrained by eroding cliffs at Sunderland Point and Plover Hill. The outer areas of the estuary are characterised by large intertidal areas, saltmarsh and a meandering low water channel. At present, the access route to Sunderland village across a marsh is cut off on large tides. This will worsen in the future and longer term viability of sustaining Sunderland village itself needs consideration. Within the middle reaches of the Lune, training walls which once constrained the channel are becoming increasingly ineffective. Consequently, where the channel is now able to meander freely, saltmarsh erosion is occurring. The city of Lancaster is located in the inner part of the estuary where there has been significant development on the flood plain. The



Sunderland village, Lune estuary

long term plan for the Lune is to continue to protect infrastructure and the historic city of Lancaster, but other areas would not be defended, allowing occasional inundation and natural evolution. Both hold the line and no active intervention policies were assessed for Sunderland village. A continued hold the line policy along this frontage would not be viable for public funding and as sea levels rise, not sustainable in the long term. The recommended no active intervention policy reflects the affordability issue but also allows for a continuation of existing practices to privately maintain local and individual property defences as long as sustainable. There is inherent uncertainty over the impact of erosion at Sunderland Point on the wider Lune estuary, and as such, a managed realignment policy will allow the Point to behave as naturally as possible with only limited intervention to reduce the rate of erosion whilst further monitoring is undertaken.



Morecambe

The section of coastline between Heysham and Arnside includes the large port and nuclear power stations at Heysham and the tourist town of Morecambe which will all justify continued protection into the long term. Maintenance of this headland will also continue to provide protection to adjacent frontages to the south. Elsewhere; the long term plan is generally to continue to provide appropriate protection to property and infrastructure where it is threatened by erosion or flooding while allowing other coastal sections to evolve naturally. Long term management along significant parts of this section will however, depend on whether the coastal railway continues to operate into the long term. Between Heald Brow and Arnside the resistant headlands will be allowed to continue to function naturally without intervention.

The Kent estuary, characterised by large expanses of low-lying land agricultural land interspersed with low hills, is constrained at the mouth by the railway viaduct at Arnside. The two small towns of Storth and Sandside are also located within the estuary, as well as other smaller villages and farms. The long term plan is to continue to protect the settlements of Arnside and Sandside from flooding and erosion and to maintain the integrity of the railway as long as it remains. In order to mitigate the impacts of these defences on the evolution of the estuary, in combination with expected future sea level rise, the long term plan also allows for creation of areas of new habitat and flood storage areas, by moving defences inland where opportunities exist. Managed realignment was assessed as an alternative policy along significant sections of the estuary. As a result of this assessment a number of potential opportunities for managed realignment have been identified in the medium and long terms. The proposed realignments will need to be considered in combination for impacts upon flows into and out of the estuary and to assess potential economic losses resulting from reduction in agricultural land. As the flood risk area within the Kent estuary is so large, a no active intervention policy was not considered appropriate as a future policy option.

The urban settlement of Grange-over-Sands will justify ongoing coastal defence, however, continued accretion and development of saltmarsh along the frontage is likely to mean that only limited intervention will be required in the short term. Managed realignment was assessed as an alternative policy along the Cartmel frontage between Humphrey Head and Cark to return the frontage to a more natural alignment and allow additional saltmarsh development/habitat creation. The SMP2 acknowledges that there has been recent substantial private investment in defence improvements along part of this frontage and that there is a commitment to private funding to maintain these for at least the short and medium term. Therefore the long term vision for the Cartmel Peninsular is to undertake phased realignment of defences in the medium and long term to allow a long term return to a more natural coast and avoid adverse impacts on the internationally designated sites.

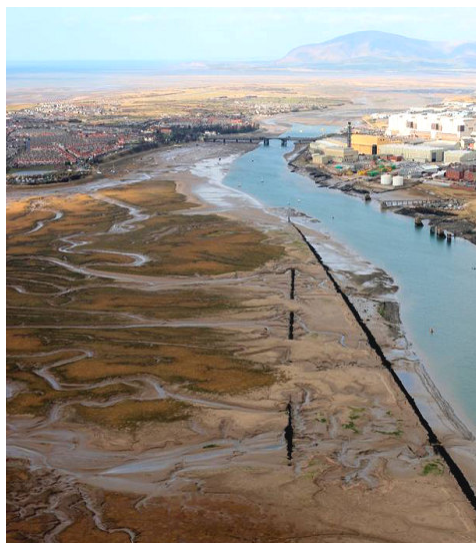
The Leven estuary, similar to the Kent estuary, is constrained at the mouth by a railway viaduct, however, the River Leven meanders through hills interspersed with smaller areas of low lying land which extend back to higher land. The long term plan is to continue to protect property and infrastructure at Greenodd, but to also return much of the remaining estuary back to a more natural system. The plan is to realign flood risk areas back to higher ground where opportunities exist and then allow natural process to return the estuary to a more natural state whilst creating additional habitat.



Leven estuary

Between the Leven estuary and Piel Island the general plan is to allow natural functioning of the shoreline without intervention, although local protection could be justified where the road or property is at risk. In addition, industrial facilities in the flood zone between Canal Foot and Ulverston will justify continued protection into the long term. Between Newbiggin and Rampside, maintaining the present defence line will be dependent upon the economic case for maintaining the coast road on its present alignment. In the event it is deemed uneconomical to maintain the road in this location then a policy of no active intervention or realignment of defences in a set back position should be adopted. Limited defences are present on Piel Island and the plan for this location is to allow natural processes to

continue, however, localised defences may be permitted to protect the scheduled monument subject to consent.



Barrow and Walney Island

Walney Island is characterised by large environmentally designated sand and shingle spits to the north and south which extend into the Duddon estuary and Morecambe Bay respectively. Significant areas of Walney are low-lying and at coastal flood risk, including the village of Biggar, while other parts of the island, including the major settlements at Vickerstown and North Walney are on higher land. There are also a number of historical landfill sites on the eroding west coast of the island which constitute a risk of pollution if allowed to erode. East of the Walney Channel, the heavily industrialised town of Barrow-in-Furness and the Port of Barrow on the mainland coast benefits from the protection provided by Walney Island. Appropriate long term protection policies are provided for the major areas of property, industry and associated infrastructure

throughout Barrow-in-Furness. The long term plan for Walney Island is to manage flood and erosion risk to residential areas and landfill sites and maintain the overall integrity of the island, even though it is predicted that the integrity of Walney Island as a whole can be maintained naturally over the next century. Managed realignment was assessed as an alternative policy in a number of locations along the Walney Island frontage, as a result of these assessments managed realignment is recommended in two locations. Local realignment together with a review of beach management is recommended at West Shore Park where limited intervention needs to continue to allow time to develop coastal change adaptation that would realign the beach access track and properties at risk.

Most of the Duddon estuary comprises extensive areas of environmentally designated saltmarsh and intertidal sandflats with only a narrow channel of water remaining at low tide. Two naturally evolving dune systems are present at the mouth of the estuary: Haverigg Dunes on the northern bank and Sandscale Dunes on the southern bank. The plan is to continue to allow these dune systems to evolve naturally, providing important natural defence features. Low lying land around the estuary is mainly agricultural, however, a few scattered settlements such as Askam, Kirkby, Broughton and Millom, as well as the railway are also partly located within the coastal flood risk zone. Consequently, a number of substantial realignment opportunities have been considered throughout the estuary, seaward of the railway line and



Duddon estuary

these could be exploited to mitigate potential impacts of expected sea level rise in the long term, here and elsewhere in the SMP2. The long term plan therefore is to set back defences where opportunities exist, while continuing to protect necessary infrastructure and residential / commercial property in main villages and towns. Amenity value and designated habitats within the Hodbarrow lagoon will be maintained if deemed justifiable and affordable following investigation in the short term.

In the future, realignment of defences so the lagoon becomes tidal once again may be feasible, but only if suitable freshwater compensatory habitat has been created.

Sub-cell 11d – Hodbarrow Point, Haverigg to St Bees Head

The varied coastline between Hodbarrow Point, Haverigg, at the mouth of the Duddon estuary, and St Bees Head incorporates the Ravenglass estuary complex (including the Rivers Mite, Esk and Irt) as well as the Rivers Calder and Ehen. The frontage is characterised by eroding cliffs of varying heights to the south, sand dune systems, and resistant cliffs to the north, interspersed with small settlements and the Sellafield nuclear waste processing and storage facility and Drigg low-level waste storage site. Much of the frontage is within the Lake District National Park and the St Bees Head Heritage Coast is at the northern boundary of this frontage. The Cumbrian railway line is also a significant feature along a large stretch of this coast between Seascale and St Bees and within the Ravenglass estuary complex. If the railway is to remain operational then the long term plan would be to maintain it in its current position and continue to afford defence to it. If the railway does not remain, then the long term plan would be to not continue to maintain those defences. However, even walking away would not enable a 'naturally' functioning coast as the debris from existing structures would take decades to disperse.



Haverigg Dunes

The long term plan between Haverigg and Seascale is to allow natural processes to continue along the majority of the frontage; however private landowners at Silecroft will be allowed to continue to maintain their defences subject to private funding arrangements. Natural accretion of the dunes will provide protection to much of Haverigg; however, the continued provision of formal defences will also be required to address flood risk issues in this location. The local road at Stubb Place is at risk of being lost to erosion, and therefore, the recommended managed realignment policy will allow short term measures to be undertaken to keep the road operational while a longer term solution is developed. The long term plan for Eskmeals dunes is to allow the area to evolve naturally, and as such, the managed realignment policy will allow the dune

system to behave as naturally as possible with only limited intervention if local problems occur.

Within the environmentally designated Ravenglass estuary complex, the natural behaviour of Rivers Esk, Mite and Irt will be allowed to continue through into the long term. Ravenglass village will continue to be protected and localised defence of the railway is not expected to have detrimental effects on the natural behaviour of the river channels or environmental designations.

At Drigg, the nuclear storage site is not at risk of erosion within the timescale of the plan, however, there will continue to be strong justification to continue to protect the nuclear facility at Sellafield, due to its national significance, as well as Seascale, from flooding and erosion throughout and beyond the next hundred years.



Ravenglass

North of Sellafield to St Bees, consideration needs to be given to the existing and expected future increases in risks to the railway which is critical infrastructure, therefore flood and erosion risk to the railway should be monitored and defence works considered where the railway is at risk. The properties built on the beach seaward of the railway at Braystones, Nethertown and Couderton will become increasingly at risk of inundation and are expected to be largely unsustainable in their current position in the long term. The SMP2 recommends a number of actions to help facilitate a longer term adaptation strategy along this frontage which should include flood warning, emergency access and ongoing liaison with residents. The SMP2 recommends a managed realignment policy for the short term to allow ongoing local beach management to continue by residents while properties are still viable. The short term plan at St Bees is to continue to maintain the frontage for amenity /recreational /tourism value, but in the long term options will need to be investigated to allow the coast to realign to a more natural and affordable position to enable the beach to remain in the future.

Sub-cell 11e – St Bees Head to the Scottish Border

The Cumbria coastline between St Bees Head and the Scottish border includes Moricambe Bay (including the Rivers Wampool and Waver) and the southern shoreline of the Solway Firth; as well as



Whitehaven

the Rivers Ellen, Derwent, Eden and Esk (north). The southern boundary of sub-cell 11e forms part of the St Bees Head heritage coast, whilst north of Dubmill Point, including Moricambe Bay and the Solway Firth estuary, the shoreline is internationally important for its environmental designations. To the north of Maryport, the coastline is within the Hadrian's Wall World Heritage Site, with 48 Scheduled Monuments, the majority of which relate to frontier defences forming part of the Heritage Site. Northern sections of frontage

also lie within the Solway Coast Area of Outstanding Natural Beauty.

The towns and ports of Workington, Whitehaven, Maryport and Silloth are key centres. Historical reclamation using mine waste has taken place at Workington, Whitehaven and Maryport in the past. Consequently protection of these areas will remain necessary into the long term. The plan for other smaller settlements, including Allonby, Flimby and Parton, is to continue to manage flood and erosion risk to these settlements. Where the foreshore is currently healthy, such as at Allonby, this is likely to involve limited intervention in the short and medium term.

The Cumbrian Coastal Railway extends along the shore for large sections of the coast between Whitehaven and Maryport. If the railway is to remain operational then the long term plan would be to maintain it in its current position and continue to afford defence to it. If the railway does not remain, then the long term plan would be to not continue to maintain those defences. However, even walking away would not enable a 'naturally' functioning coast as the debris from existing structures would take decades to disperse.

In a number of other areas along the frontage, including between St Bees Head and Whitehaven, Workington and Siddick and between Maryport and Silloth, the long term plan allows for a naturally evolving shoreline, enabling sediment to build beaches and to conserve the environmental status of these areas. Present defences in front of Saltom Pit Scheduled Monument will be maintained, but not

replaced once they can no longer be repaired. Between Workington and Siddick protection of current assets such as windfarms will continue in the short term. A hold the line policy was assessed for the stretches of coast between Maryport and Allonby and between Dubmill Point and Silloth, however the policy was not considered viable due to the need to allow the dunes to evolve unconstrained as a natural defence and that hold the line would be unlikely to be affordable from national budgets. The SMP2 therefore recommends a managed realignment policy which will allow for the risks to heritage assets, the road and other properties to be managed appropriately through minor short term works and adaptation measures. Other sections of the coastal road between Maryport and Silloth, for example at Dubmill Point may also need rerouting at a future time.

Moricambe Bay is situated along the southern shoreline of the Solway Firth estuary between The Grune and Cardurnock and forms part of the internationally important environmentally designated areas of the Solway. The sheltering effect of the shingle spit of The Grune and the promontory at Cardurnock has resulted in the development of extensive areas of saltmarsh within the Bay. The Rivers Waver and Wampool drain into Moricambe Bay. An earth embankment, setback from the foreshore at Skinburness, is the only formal flood defence within the bay. The long term plan for Moricambe Bay is to



Moricambe Bay

allow the shoreline to retreat where appropriate, so allowing the sea to return to low lying areas to create saltmarsh as sea levels rise. Managed realignment was assessed along with no active intervention within Moricambe Bay. Both policies would allow saltmarsh to roll back naturally with sea level rise, while still acting as a natural form of defence. A managed realignment policy has been recommended for the majority of areas within Moricambe Bay to allow organisations, local land owners and responsible bodies to put in place measures to proactively adapt to future coastal changes. It will also allow opportunities for future habitat creation to be included within the Environment Agency's Regional Habitat Creation Programme where required. A coastal process and strategy study is also recommended for Moricambe Bay and between Silloth and the Grune, to consider the linkages between the Grune and the long term evolution of the adjacent internationally designated sites.



Anthorn Masts

The area north-east of Moricambe Bay includes the dynamic inner section of the Solway Firth estuary and its confluence with the Rivers Eden, Esk and Sark at the Scottish Border. Extensive sandbanks, mudflats and saltmarsh characterise the large intertidal areas of this section and they are designated for their internationally important environmental features. Land use is largely agricultural, however, there are several small settlements and the MOD sites at Longtown and Anthorn are located along this frontage. The long term plan for this area is to allow the shoreline to continue to evolve naturally as much as possible,

allowing expected future sea level rise to return low lying areas to saltmarsh as a natural defence. As in Moricambe Bay, a managed realignment policy for much of the inner Solway will allow organisations, local land owners and responsible bodies to proactively adapt to future coastal changes and manage risks to local assets and to World Heritage Site Features as well as allowing opportunities for future habitat creation to be included within the Environment Agency's Regional Habitat Creation Programme.

3.3 Achievement of Objectives by Preferred Plan Policies

An overview of how the SMP2 objectives (defined in the SEA Environmental Baseline Report – **Appendix D**) have been achieved by the SMP2 policies as well as the predicted implications and benefits of the preferred Plan is presented below. Detailed predicted implications of the preferred policies for each location are included in each individual Policy Statement (**Section 5**).

Property, Land Use and Recreation Objectives

For much of the SMP2 coastline, the preferred policy is to maintain existing defences where economically viable into the long term. In some areas funding streams for future maintenance of these defences may be via public/private co-funding or through private contributions. This is to provide continued management of risks to property and assets as well as to critical infrastructure and crucial services along the developed parts of the coastline. 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 grounds of economics, technical sustainability or the environment. In some of these areas where it is not considered nationally economically viable to continue to defend, maintenance of existing private defences is permissible where it is not environmentally damaging. Along these frontages there may be a small number of properties at increasing risk as well as some need for re-routing of infrastructure in the longer term as a result of a change of policy to managed realignment or no active intervention. In situations where communities may be affected, it will be critical to manage expectations, implement resilience measures and investigate appropriate relocation or mitigation measures should there be mechanisms to do so. The development of adaptation plans for such areas will need to consider the outcome of the recent Defra and Communities and Local Government consultation on coastal change.

The key areas of management change are in the Dee estuary (Sub-cell I I a); Ribble estuary (Sub-cell I I b); Lune estuary, River Keer, Cartmel Peninsula and Duddon estuary (Sub-cell I I c); and the Cumbria coast, Moricambe Bay and the Solway coast (Sub-cell I I e); where the long term technical sustainability and economic viability of a continued 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.

Under a 'no active intervention' scenario, there are estimated to be around 108,200 residential and 13,300 commercial properties, as well as a significant number of regionally important industrial and power generation assets at risk of coastal flooding or erosion across the whole of Cell I I. The proposed SMP policies endeavour to provide long term risk reduction to around 107,700 residential and 13,100 commercial properties as well as the important industrial and power generation assets throughout the SMP area.

Tourism and recreation is an important economic sector, with key centres located along the SMP2 frontage including those at North Wales, Blackpool and Morecambe Bay. 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 along the North Wales coast and at Blackpool, where it will become increasingly technically difficult to retain beaches as sea level rise causes coastal squeeze pressures. The SMP2 has therefore recognised and discussed future options for beach management in order to sustain these beaches for coastal defence, recreation amenity and environmental conservation.

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 shoreline these areas are in the undeveloped stretches between towns and within the estuaries. In a number of these locations there is insufficient economic justification to maintain or construct new defences, which would also be technically inappropriate in some cases. There is estimated to be around 37,000 ha of agricultural land presently at risk of coastal flooding or erosion under a 'no active intervention' scenario. Of this, the SMP2 policies will provide long term risk reduction to around 25,000 hectares.

There are a number of Ministry of Defence (MoD) ranges along the SMP2 frontage, most of which lie within less developed stretches of coastline. Small areas of these may continue to be at flood or erosion risk under this SMP2 where there are no discernable changes to the existing management regime.

Nature Conservation Objectives

Along large sections of the SMP2 coastline, beaches, dunes and intertidal areas are designated under national and international legislation for their conservation interests and have associated biodiversity targets, which include that dynamic processes be allowed to occur. The shoreline management policies therefore seek to support natural processes and maintain wildlife (including the condition of designated sites) along large areas of this coastline. Policies of no active intervention or managed realignment have been proposed wherever possible to enhance and create areas of wetland habitat within or adjacent to designated conservation sites, which would have beneficial impacts. This will also allow opportunities for future habitat creation to be included within the Environment Agency's Regional Habitat Creation Programme where required.

However, in some locations, holding the line is essential to protect cities, towns or other assets. In these locations, coastal habitats such as sand dunes, saltmarsh, mudflats and/or sandbanks may be affected or at risk from sea level rise as they become squeezed against fixed defences or cliffs. Where impacts on international conservation sites are possible, further assessment (a Habitats Regulations Assessment) has been undertaken (**Appendix J**). In general, the SMP2 is not recommending the construction of new defences to maintain economic assets in areas where none are currently present. In other areas, where defences will continue to be maintained, some designated freshwater or terrestrial habitats may benefit from holding the line as they are protected from coastal flooding.

There are also a variety of cliff types along the SMP2 frontage, some resistant, some highly erodible, with many being nationally and internationally important for their geology and geomorphology. The most significant threat to these areas is the creation of artificial structures along the coast that would affect the natural processes of erosion or obscure the exposed geology. 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.

There are inherent conflicts between allowing the coastline to evolve naturally whilst maintaining designated terrestrial/freshwater sites and in such areas, any policy will result in some loss of habitat. Careful management of the shoreline is therefore necessary to sustain the designated habitats already in place wherever possible, while managing the impact of sea level rise. The conflicting objectives of a more dynamically functioning coastline coupled with conserving existing habitat will rely on the adoption of the appropriate management policy. By making step changes based on analysis of monitoring data, changes to management policy can be made slowly, with limited impact on the habitat.

Water Objectives

A Water Framework Directive Assessment has been undertaken to assess the potential hydromorphological (see the [glossary](#)) changes and consequent ecological impact of SMP2 policies, in [Appendix K](#). In most areas along the coast, the preferred plan protects potentially polluting features such as landfill sites from flooding or erosion. However, there are some areas where flooding or erosion risks to landfill sites should be investigated further at strategy or scheme level to determine if potential or known contamination sources need flood or erosion risk management to avoid pollution of water resources.

It is envisaged that the preferred policies could be implemented in a manner that avoids pollution of surface and groundwater from contamination, although there are a number of areas where further investigations are required to confirm the risks and best approach at strategy level.

Landscape Objectives

The preferred long-term policies in this SMP2 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 wherever possible, to create a more natural coastal and estuarine 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.

The policies therefore aim to conserve nationally designated landscapes and avoid conflicts with AONB Management Plans or National Park objectives though localised changes in landscape (e.g. landscape changes resulting from the potential loss of salt pans in the SMP2 area etc) will need to be considered further at strategy or scheme level.

Heritage Objectives

There are a wide range of heritage sites along the coast and the risks to many more of these will be managed through the plan's policies than would survive under a no active intervention policy. The majority of known heritage sites will be retained and protected through the preferred plan. As a large number of Scheduled Monuments, Registered Parks and Gardens, Conservation Areas and Listed Buildings within the North West England and North Wales SMP2 area are located within the towns and cities along the coast, the majority of these heritage assets would be protected, under the preferred policies.

However, in areas where there are benefits in reverting to natural processes either by no active intervention or through managed realignment, there may be an increase in tidal flooding or erosion risk with associated impacts on isolated historic assets including the following Scheduled Monuments:

- Cockersands Abbey;
- Piel Castle on Piel Island;
- Saltom Pit;
- Saltpans north of Maryport; and,
- Parts of Hadrians Wall.

4 Action Plan

4.1 Approach

The purpose of the SMP2 Action Plan is to identify the steps that need to be taken in order to put the SMP2 policies into practice. This primarily includes taking steps to ensure that the SMP2 policies are taken forward in the short term but also to provide a strategic basis for more detailed studies and plans for managing and/or improving coastal management.

It is also vitally important that information provided by the SMP2 on the future coastal risks and their management is disseminated to Local and Regional Planning Authorities so that people involved with the development of and implementation of land use plans can make informed decisions.

As well as short term activities, the SMP2 Action Plan needs to ensure that activities to facilitate the implementation of the longer-term policies are initiated as appropriate. This includes actions to:

- facilitate implementation of the Shoreline Management Plan (SMP2) policies through more detailed local studies and consultation on the best approaches to delivery;
- identify studies to improve understanding or reduce uncertainty where this is required to resolve policy and/or implementation;
- facilitate the development of a prioritised programme of strategy plan development and outline plan of possible schemes;
- deal with the consequences of the plan;
- promote use of the SMP2 recommendations in spatial planning of land use;
- establish a process for informing stakeholders of progress with SMP2 implementation;
- establish a framework to monitor and manage progress against the action plan and initiate future SMP2 review.

Within **Section 5**, Action Plans for individual policy areas have been included in each policy statement. These identify the steps to be taken in the period up to the next review of the plan. This is nominally a 5 - 10 year process, however, the plan provides for reassessment of this timescale should an earlier review be considered necessary.

In the most part, the policy recommendations in this plan will be implemented through the process of coastal defence strategy development and the subsequent implementation of coastal defence schemes or other coastal management actions. The process of implementation will be underpinned by monitoring of the shoreline to identify ongoing behaviour (to confirm assumptions made in policy development), together with targeted study and investigation where specific uncertainties need to be addressed to enable policy (short or longer term) implementation. It should be recognised that funding for these recommended studies and schemes is not guaranteed in that direct funding may not be available due to the need for prioritisation of flood and coastal defence funding at a national level. Co-funding of flood and coastal defence projects as well as other funding streams such as private contributions will become increasingly important and therefore need to be considered at the earliest opportunity. Consequently, the individual Policy Area action plans, in **Section 5**, include potential sources of funding against identified actions. There may be other potential sources to consider and in addition, the Coastal Group will need to continue to investigate other areas for collaborative working

as well as keeping the prioritisation of actions under review to ensure the best value for money in terms of reducing risk.

Where the Action Plan tables refer to undertaking monitoring, this includes the proper storage and analysis of data to inform management practices. In many areas of the SMP2, the environmental appraisal of options has recommended that monitoring to provide data to assess impacts, assist in the specification of any required mitigation and to feed into future SMP2 revisions is required. There is already a strategic monitoring programme in place for the Cell 11 coast, known as the Cell Eleven Regional Monitoring Strategy (CERMS). Undertaking strategic regional monitoring is an essential part of the shoreline management processes and a general action from the SMP2 is to continue with the CERMS programme, incorporating additional activities from the SMP2 action plan where appropriate.

4.2 Broad Scale SMP2 Actions

Actions to help us adapt to coastal risks

It is expected that implementing this and other SMP2s across England and Wales 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 and adapt to the expected losses highlighted in SMP2s. These provisions may, for example, include making other land available for building, thus facilitating adaptation to changing risks. Regional planning needs to consider the messages being delivered by this SMP2, 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 SMP2 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 set back from the coast 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. Within a national context, Pathfinder projects to help develop approaches to coastal adaptation are presently being planned by Defra following a consultation process between July and September 2009. Further information is available on the Defra website,

<http://www.defra.gov.uk/environment/flooding/manage/coastalchange.htm>

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 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 retreat and 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. The plans for relocation of people also need to be established and clear for all affected. However, 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, who will need to make provision for long-term change in coastal risks 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 the changing shoreline. The terms of the Acts under which the coastal defence 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 or to provide any compensation for losses. The Government in England (Defra¹³ and Department of Communities and Local Government¹⁴) has recently consulted on adaptation to changing coastal risks, but there is no reason at present to assume that this will change the present approach in the future or that individual losses would be recompensed from central funds.

However, the Shoreline Management Plan 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 SMP2 needs to be considered now, not in several decades time.

Spatial Planning Actions

As discussed above, the risk management policies set out in the SMP2 cannot be implemented through engineering or coastal defence management alone. There is a need for spatial planning to adopt the policies and understand their consequences, such that risk areas are avoided by development, and future changes in policy are facilitated to allow a more sustainable approach to management of coastal risks and avoid increasing risks by allowing development in flood and erosion prone areas.

Strategic Flood Risk Assessments (SFRAs) are intended to guide development decisions and meet the requirements of the Planning Policy Statement PPS25, Development and Flood Risk (in England) and TAN 15: Development and Flood Risk (in Wales). Local and regional planning authorities should monitor the development of SFRAs for their areas and put them into practice. Where appropriate, erosion risks should also be captured and the requirements of the developing new PPS20 should be taken into account.

Table 5 includes actions which aim to ensure that the SMP2 policies are appropriately reflected in the relevant Regional Plan and Local Development Frameworks, such that long term coastal erosion and flooding risks are a material consideration in the planning process. The actions have been formulated so that they can be progressed by the members of the coastal group.

¹³ <http://www.defra.gov.uk/environment/flooding/index.htm>

¹⁴ <http://www.communities.gov.uk/publications/planningandbuilding/consultationcoastal>

Action	Responsibility
1) Communicate the completion of the SMP2 to the North West Regional Assembly (NWRA) and WAG Planning Department to ensure appropriate reflection in the next revision to the Regional Plans.	North West and North Wales Coastal Group (Chair/Secretary)
2) Communicate the completion of the SMP2 to the Regional Development Agency to ensure appropriate reflection in RS2010 (formed from the Regional Spatial Strategy and Regional Housing Strategy).	North West and North Wales Coastal Group (Chair/Secretary)
3) Inform and involve Local Authority Planning Officers of final SMP2 recommendations and implications.	Local Authority Officers
4) Submit SMP2 to Local Authority Planning Committees, Local Development Framework Panels and other similar panels / committees, with recommendation to approve the SMP2 for consideration in preparation of planning documents and for development control purposes and incorporation in the Local Development Framework.	Local Authority Officers
5) Advise Local Authority and Regional Planning Officers of the availability of the completed SMP2 for inclusion as reference material for, or an annex to, the Local Development Framework (or other local land use development plans).	Local Authority & Environment Agency Officers
6) Promote the use of Strategic Flood Risk / Consequence Assessment as part of the preparation of development framework documents.	Local Authority and Environment Agency Officers
7) Advise local Planning Authority about SMP2 policies and flood and erosion risks so they can take due account in planning decisions and aim to reduce the need to manage flood risk in future. Ensure that SMP2 policies are integrated into Development Control activities to control development and flood risk. Development Control Teams should pay particular attention to managed realignment and no active intervention policies and any associated drainage issues.	Local Authority & Environment Agency Officers
8) Advise the local Planning Authorities of the need to promote the development of planning policies to facilitate adaptation to coastal change and address potential housing and other future losses through implementation of 'realignment' and 'no active intervention' policies.	Local Authority and Environment Agency Officers
9) Advise the local Planning Authorities of the need to promote the consideration of the relocation of land uses that are at risk from erosion or flooding, within the preparation of local land use plans such as LDF/LDP documents. Identify elements of the preferred option policies where this may apply.	Local Authority and Environment Agency Officers
10) Consider designation of features such as sand dunes as coastal defence 'features' under Schedule 1 of the Floods and Water Management Act (2010)	North West and North Wales Coastal Group (Chair/Secretary)

Table 5: Actions for spatial planning

Actions to Facilitate Medium / Long Term Policies

In addition to the specific actions outlined in each Policy Statement in **Section 5**, there is also a need for some activities to be progressed, which require consideration at a broader scale, either across Sub-Cells, the whole of Cell 11 or even beyond the SMP2 boundaries. It is important that the need for these broader scale studies is promoted by the relevant bodies.

These studies/initiatives and the actions for the Coastal Group are outlined in **Table 6**.

Action	Responsibility
1) Formal adoption of the SMP2 by the Coast Protection Authorities, the Regional Flood Defence Committee, Natural England, CCW and other partner authorities and the Environment Agency's National Review Group.	North West and North Wales Coastal Group, Elected Members and Local Authority Officers.
2) Promote a formal, policy, link between SMP2s and Local Development Frameworks/ Local Development Plans and Regional Plans. This will require Defra/WAG and ODPM to review current arrangements.	North West and North Wales Coastal Group to promote with Defra / WAG through Coastal Group Chairs forum.
3) Promote Central Government funding for all consultation/stakeholder activities in the development of SMP2s, and strategies/schemes.	North West and North Wales Coastal Group to promote with Defra / WAG through Coastal Group Chairs forum.
4) Take account of overall SMP2, i.e. other immediate-term needs and long-term planning, when considering implications for strategies and schemes within the plan area and related nature conservation commitments.	Natural England, CCW, EA and other regulatory/stakeholder organisations.
5) Promote the investigation, and implementation, of mechanisms to facilitate the removal of 'at risk' assets (properties, infrastructure, etc), to enable the implementation and community adaptation to long term realignment/NAI policies. This will require account to be taken of the current consultation of coastal adaptation in England.	North West and North Wales Coastal Group to promote with Defra and WAG, through ongoing 'Making Space for Water' and 'New Approaches' initiatives.
6) Develop exit strategies/management plans for the relocation of communities and removal of assets when they become at risk from erosion.	Local Authority Technical Officers and Planning officers.
7) Develop medium to long-term plans for relocation of community services and facilities that will be lost to erosion, e.g. outfalls, highways.	Service and utility providers, highways agencies.
8) Develop and promote a communication strategy / awareness raising / education of the public with regards to potential future coastal issues and SMP2 recommendations.	North West and North Wales Coastal Group to promote in conjunction with the Environment Agency.
9) Develop the regional coastal monitoring strategy (CERMS) to include estuaries and encompass all areas of the SMP2	North West and North Wales Coastal Group in conjunction with the Environment Agency, led by Sefton Council.
10) Establish links with the EA Regional Habitat Creation Programme (RHCP), and undertake further investigation of any biodiversity or habitat creation opportunities in relation to Biodiversity Action Plan (BAP) targets and requirements to balance losses and gains of the features of designated sites.	North West and North Wales Coastal Group in conjunction with the Environment Agency.

Action	Responsibility
11) Consult with and advise Defra and WAG over the long term needs for coastal adaptation within national and international designated sites, including the need to revise site boundaries to allow for the migration of coastal habitats due to climate change and sea level rise.	North West and North Wales Coastal Group in conjunction with Natural England, Countryside Council for Wales and the Environment Agency.
12) Identifying responsibilities for cliff stabilisation measures.	North West and North Wales Coastal Group.
13) Consider progress with CFMP Action Plans in linked areas	North West and North Wales Coastal Group in conjunction with the Environment Agency.
14) Clarify the future role and status of the estuarine authorities before next SMP review in conjunction with consideration of the need for any changes to Coast Protection Act (1949) Schedule (IV) boundaries.	North West and North Wales Coastal Group in conjunction with the Environment Agency.
15) Review the SMP2 policies in the light of new EA guidance on use of UKCP09 climate change scenarios in flood and coastal erosion risk management.	North West and North Wales Coastal Group.
16) Consider the implications of changing land use as a result of SMP2 policies in relation to national food security and the importance of agricultural land at the overall SMP2 scale.	North West and North Wales Coastal Group.
17) Coastal group to provide a short “lessons learnt” report to feed back high-level policy and guidance issues to Defra / EA National Quality Review Group.	North West and North Wales Coastal Group.

Table 6: Further Actions to facilitate medium / long term policies

4.3 Managing the SMP2 until the next review

Through the implementation of actions outlined in each Policy Statement and in section 4.2 it is likely that the technical understanding of this coastline, the basis of some SMP2 policies, and the wider shoreline management framework may change. As such, it is important that progress against these actions is monitored by the Coastal Group so that any developments which might affect policy, and hence works, are notified, and also so that the need for revision of the SMP2 can be monitored. Adjacent projects should be monitored for cross project changes.

Action Plans to be managed by the North West and North Wales Coastal Group.

The Action Plan should be considered as a working document which needs to be regularly reviewed at Coastal Group meetings and updated as and when required. The Action Plans will be retained on the agenda for all future Coastal Group meetings. It will be the responsibility of the Coastal Group to promote and monitor progress and to ensure that the action plan is progressed by the appropriate Partners and where there are problems with delivery to seek to resolve issues through collaborative working..

The North West England and North Wales Shoreline Management Plan pages of the Coastal Group website (<http://www.mycoastline.org>) will have updates which will record progress against the actions reported. This will include identification of the implications of any study outputs or wider developments for the relevant SMP2 policies. The updates are important as the means of disseminating progress to stakeholders and, as such, the existence of this information will be reported

during the final SMP2 dissemination process. The responsibility for maintaining the website will remain with the Coastal Group.

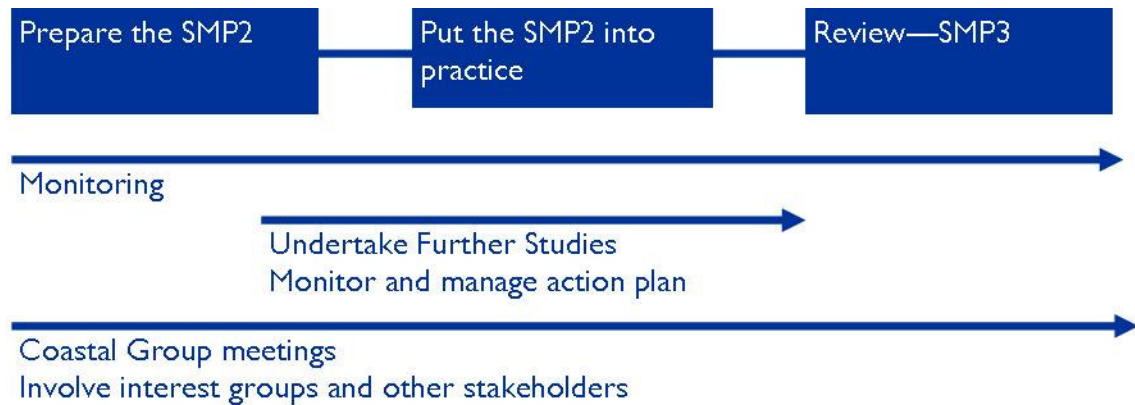


Figure 3: Life-cycle of the Shoreline Management Plan

It is not possible at this time to set a date for the next review of the SMP2. It is considered likely that a 5 to 10 year period may be appropriate. However, it is vital that changes in understanding or the shoreline management framework are monitored to establish if there comes a point (within the next 5 to 10 years) that the SMP2 policies become sufficiently out of date as to warrant a full review of the plan. This will be a judgment made by the Coastal Group, as it is not possible to prescribe exactly at what point this should be.

Regardless of other developments, it is considered that the review should be undertaken in 10 years (if not before) in order to ensure the policies remain appropriate. The life-cycle of the SMP, from preparation to review, is shown in **Figure 3**.

5 Policy Statements

5.1 Introduction

This section describes the contents of a series of tables and maps or Policy Statements that present the SMP2 policies for each area. The Policy Statements are arranged by Sub-Cell and within each Sub-Cell the shoreline has been sub-divided into smaller interacting areas of open coast or estuaries, known as Policy Areas, which cover a number of Policy Units. The Policy Statements can be found in **Annex 1**.

How is the information set out in the Policy Statements?

Each Policy Statement contains four sections as described below.

1. Summary of the SMP2 recommendations

Location – each policy statement gives the location of the policy area covered by the statement, together with the policy units covered by the statement. The policy units are identified by a number which is sequential along the shoreline from south to north. The policy unit boundaries shown should not be taken as definitive, as the SMP2 is based upon high-level assessment and more detailed studies at implementation may justify the need to ‘go across’ boundaries shown by a small distance in order to appropriately deliver the intention of the Plan policies.

Overview - summarises the long term vision for the frontage but also notes any different short-term requirements.

Preferred policies – describes the SMP2 policies and potential approaches that could be used to put the policies into practice in the short, medium, and long-term. In this respect, “Short-term” is broadly representative of the next 20 years, “Medium-term” 20 to 50 years, and “Long-term” 50 to 100 plus years. These timescales should not be taken as definitive, however, but should instead be considered as phases in the management of a location.

Justification – outlines the principal reasons for selecting the SMP2 policy for the policy unit or combination of units.

2. Predicted Implications of the Policies being Adopted in this Location

This table summarises the consequences at this location resulting from the preferred policies. These are categorised in accordance with requirements for the Strategic Environmental Assessment of the SMP2, which are: “Property and Population”, “Land Use, Infrastructure & Material Assets”, “Amenity and Recreational Use”, “Historic Environment”, “Landscape Character and Visual Amenity”, “Earth Heritage, Soils and Geology”, “Water”, and “Biodiversity, Flora and Fauna”. The implications have been assessed for the “Short-term” (next 20 years), “Medium-term” (20 to 50 years), and the “Long-term” (50 to 100 plus years).

3. Actions

This table identifies the steps that need to be taken in order to put the SMP2 policies into practice for each individual policy areas. These identify the steps to be taken in the period up to the next review of the plan. This is nominally a 5 - 10 year process, however, the plan provides for reassessment of this timescale should an earlier review be considered necessary.

4. Maps

Maps are included for each Policy Area, which include policy unit boundaries and the preferred plan policies for each of these discrete areas for the short, medium and long terms. In addition, where no active intervention is the policy and coastal erosion is the main risk, cumulative erosion estimates are included, representing the minimum and maximum erosion distance from the shoreline position in 2010.

5.2 The Policy Statements

The following list identifies the subsequent Policy Statements provided for each Sub-cell in Annex I.

Sub-Cell 11a (Figure 4)

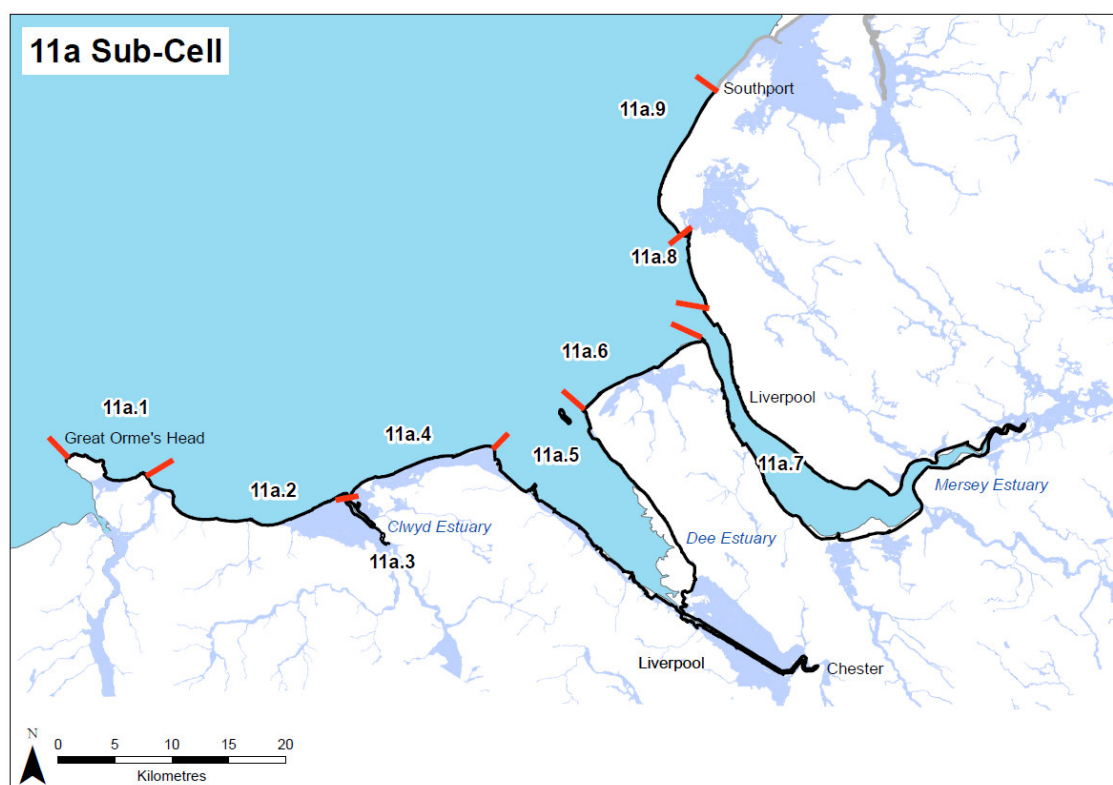


Figure 4: Overview map of Sub-Cell 11a Policy Statement locations

- 11a 1: Great Orme to Little Orme
- 11a 2: Little Orme to the Clwyd estuary
- 11a 3: Clwyd Estuary
- 11a 4: Clwyd Estuary to Point of Ayr
- 11a 5: Dee Estuary
- 11a 6: North Wirral
- 11a 7: Mersey Estuary
- 11a 8: Seaforth to the River Alt
- 11a 9: Formby Dunes

Sub-Cell 11b (Figure 5)

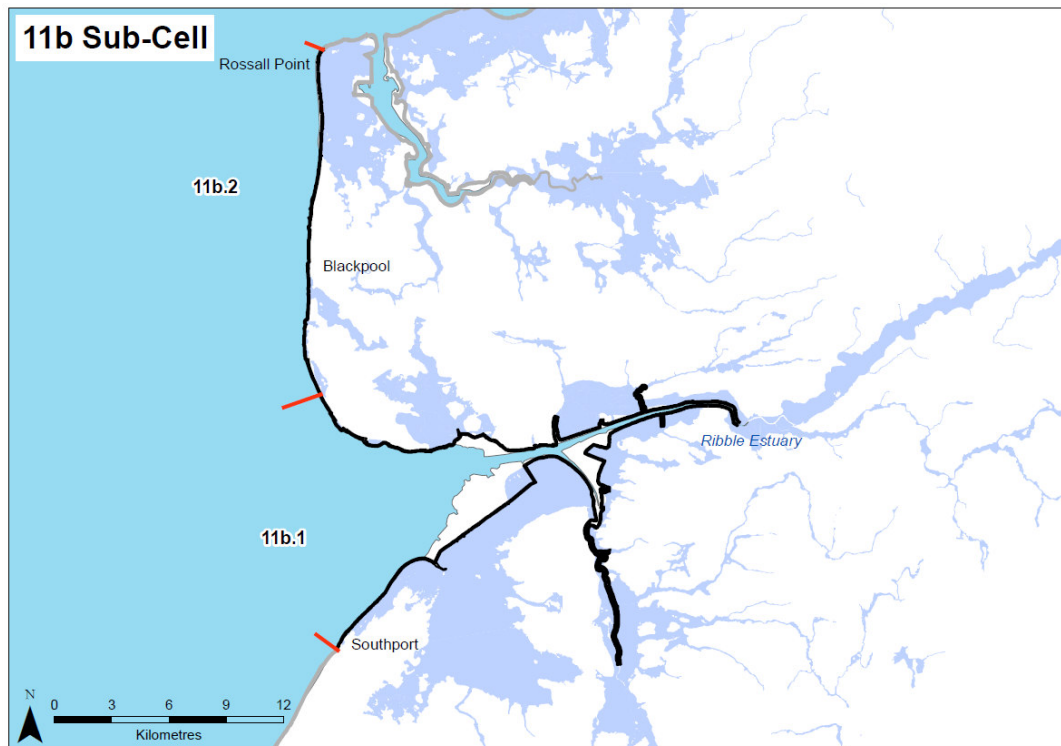


Figure 5: Overview map of Sub-cell 11b Policy Statement locations

11b 1: Ribble Estuary

11b 2: St Annes to Rossall Point

Sub-Cell 11c (Figure 6)

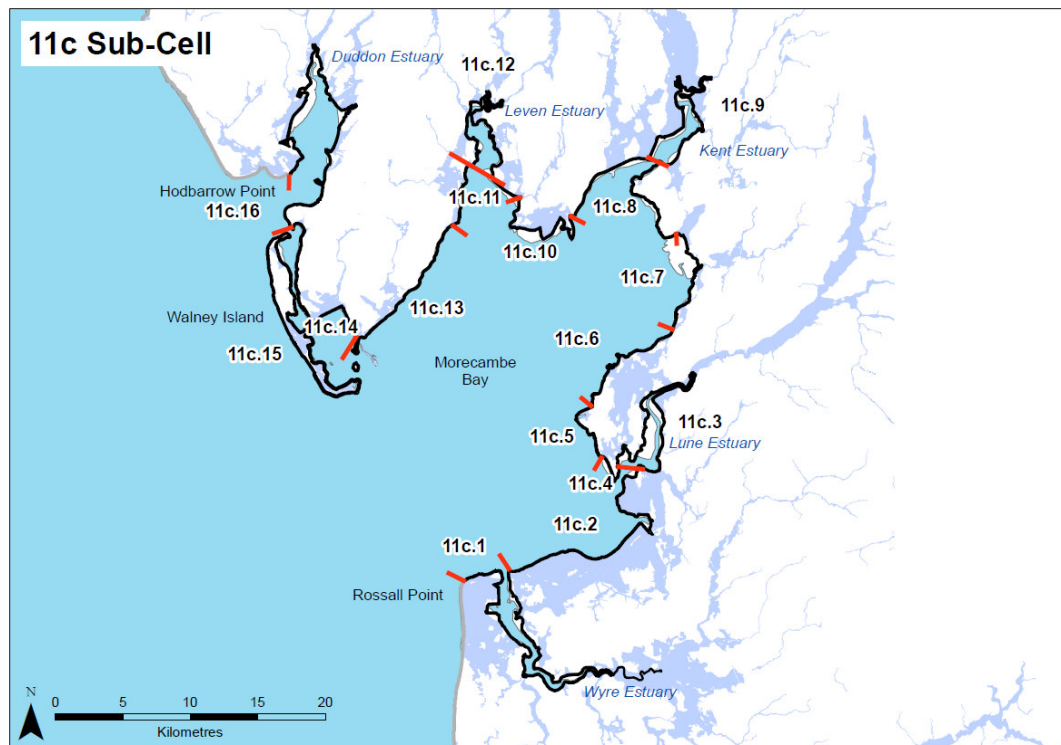


Figure 6: Overview map of Sub-cell 11c Policy Statement locations

11c 1: Fleetwood and the Wyre Estuary

11c 2: Knott End to Glasson Dock

11c 3: Lune Estuary

11c 4: Sunderland Village to Potts Corner

11c 5: Potts Corner to Heysham Dock

11c 6: Heysham to Hest Bank

11c 7: Hest Bank to Heald Brow

11c 8: Heald Brow to Humphrey Head

11c 9: Kent Estuary

11c 10: Humphrey Head to Cark

11c 11: Outer Leven Estuary

11c 12: Leven estuary

11c 13: Bardsea to Piel Island

11c 14: Walney Island

11c 15: Walney Channel (Mainland)

11c 16: Duddon Estuary

Sub-cell 11d (Figure 7)

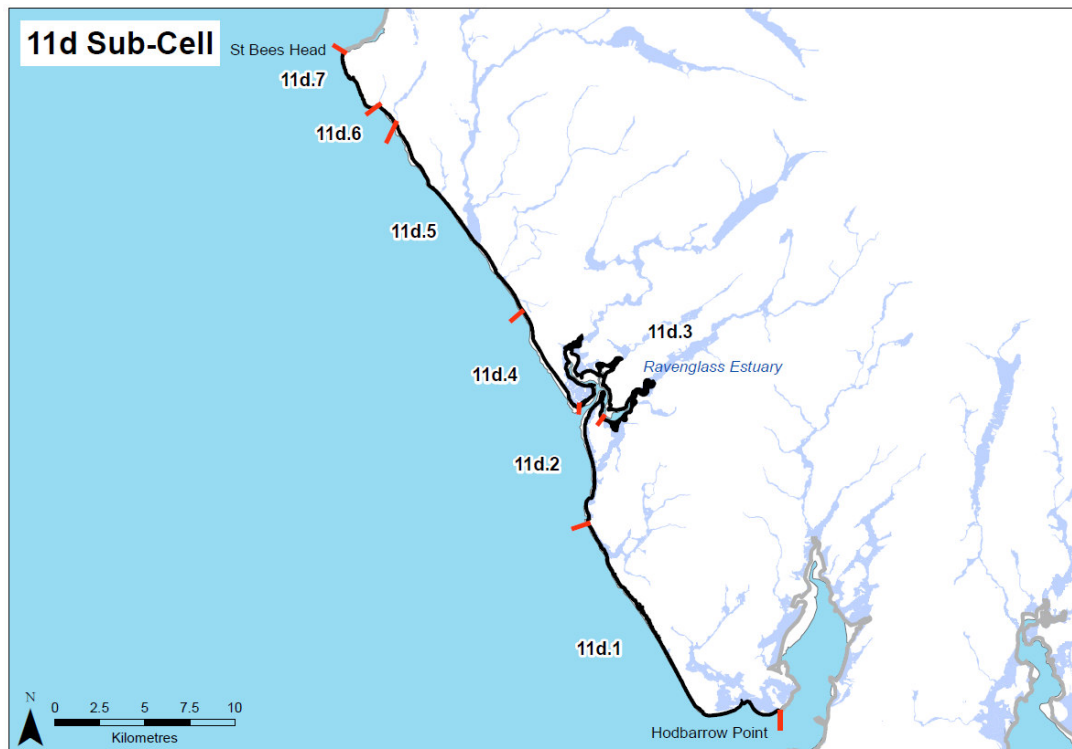


Figure 7: Overview map of Sub-Cell 11d policy Statement locations

- 11d 1: Hodbarrow Point to Selker
- 11d 2: Selker to Eskmeals
- 11d 3: Ravenglass Estuary Complex
- 11d 4: Drigg Point to Seascale
- 11d 5: Seascale to St Bees
- 11d 6: St Bees
- 11d 7: St Bees Head

Sub-cell 11e (Figure 8)

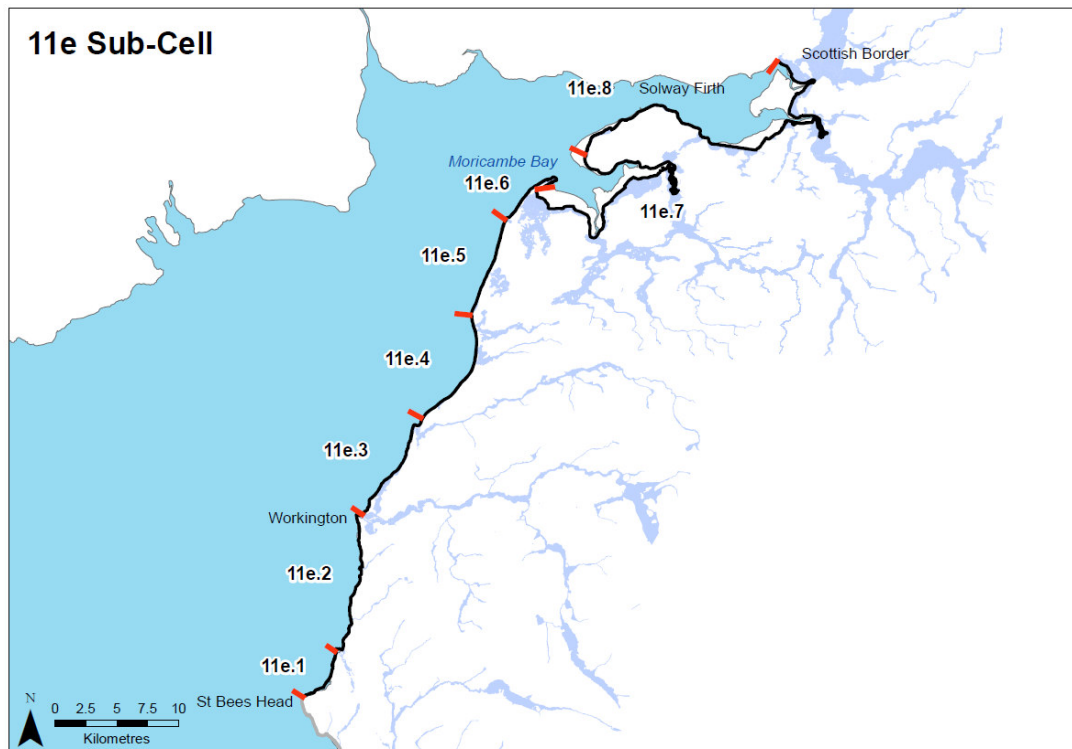


Figure 8 Overview map of Sub-Cell 11e Policy Statement locations

- 11e 1: St Bees Head to Whitehaven
- 11e 2: Whitehaven to Workington
- 11e 3: Workington to Maryport
- 11e 4: Maryport to Dubmill Point
- 11e 5: Dubmill Point to Silloth
- 11e 6: Silloth to The Grune
- 11e 7: Moricambe Bay
- 11e 8: Cardurnock to the Scottish Border

North West & North Wales Coastal Group

North West England and North Wales Shoreline Management Plan SMP2

Main SMP2 Document

Annex I – Policy Statements