

## Angus Council

## Angus Shoreline Management Plan SMP 2

### Appendix D - Strategic Environmental Assessment (SEA) Environmental Report



## Contents Amendment Record

This report has been issued and amended as follows:

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1	0	Draft SEA Environmental Report	March 2016	S Box
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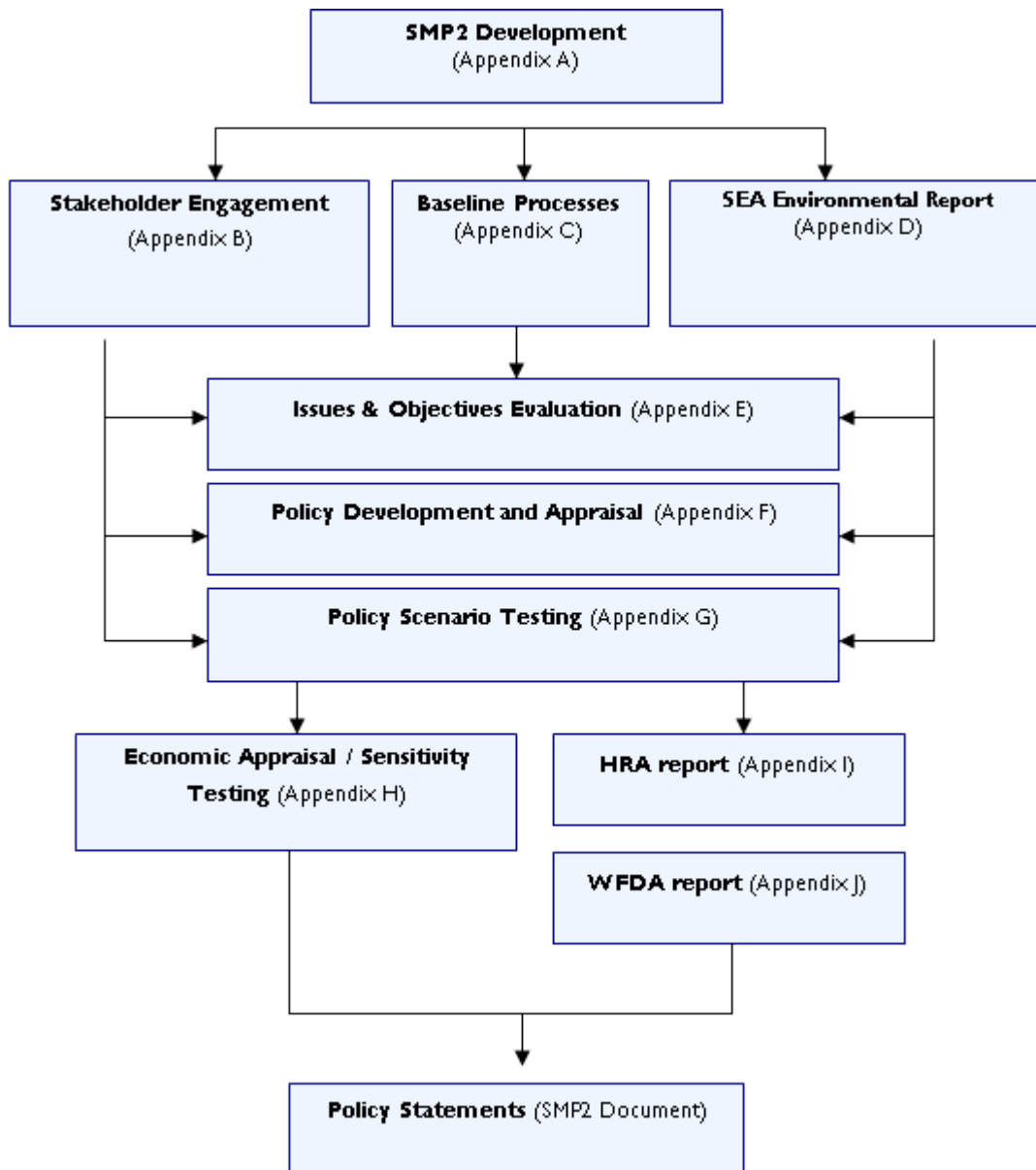
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## The Supporting Appendices

These appendices and the accompanying documents provide all of the information required to support the Shoreline Management Plan. This is 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. The appendices are:

A: SMP 2 Development	This reports the history of development of the SMP 2, describing more fully the plan and policy decision-making process.
B: Stakeholder Engagement	All communications from the stakeholder process are provided here, together with information arising from the consultation process.
C: Baseline Process Understanding	Includes baseline process report, defence assessment, NAI and WPM assessments and summarises data used in assessments.
D: Strategic Environmental Assessment (SEA) Environmental Report	This report identifies and evaluates the baseline environmental features (human, natural, historical and landscape) and presents an overview of the environmental assessment process, showing how the requirements of the EU Council Directive 2001/42/EC (the Strategic Environmental Assessment Directive) are met.
E: Issues & Objectives Evaluation	Provides information on the issues and objectives identified as part of the Plan development, including appraisal of their importance.
F: Policy Development and Appraisal	Presents the consideration of generic policy options for each frontage, identifying possible acceptable policies, and their combination into 'scenarios' for testing. Also presents the appraisal of impacts upon shoreline evolution and the appraisal of objective achievement.
G: Policy Scenario Testing	Presents the policy assessment and appraisal of objective achievement towards definition of the Preferred Plan (as presented in the Shoreline Management Plan document).
H: Economic Appraisal and Sensitivity Testing	Presents the economic analysis undertaken in support of the Preferred Plan.
I: Habitats Regulations Assessment	Presents an assessment of the effect the plan will have on European sites.
J: Water Framework Directive Assessment	Presents the Water Framework Directive assessment of the potential hydromorphological changes and consequent ecological impact of the preferred SMP 2 policies.
K: Metadatabase and Bibliographic database	All supporting information used to develop the SMP 2 is referenced for future examination and retrieval.

Within each appendix cross-referencing highlights the documents where related appraisals are presented. The broad relationships between the appendices are illustrated below.



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ANNEX 1: SCOPING REPORT

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## Glossary

Term	Description
Advance the Line	The construction of a new flood management scheme in front of existing flood defences
Birds Directive	European Community Directive (79/409/EEC) on the conservation of wild birds. Implemented in Scotland as the Conservation (Natural Habitats, etc.) Regulations (1994) (as amended).
Flood Defence	A structure (or system of structures) for the alleviation of flooding from rivers or the sea. Flood defences only reduce the likelihood of flooding and not the consequences of flooding when they are overtopped. Flood risk is a combination of likelihood of the event occurring and the consequences when it does.
Flood Risk	Flood risk is the product of the likelihood (or frequency) of flood events and their consequences (such as property loss or damage, physical harm or distress and social and economic disruption).
Geomorphology	Geomorphology is concerned with the structure, origin and development of the topographical features of the earth's crust.
Groundwater	Water occurring below ground in natural formations (typically rocks, gravels and sands). The subsurface water in the zone of saturation, including water below the water table and water occupying cavities, pores and openings in underlying soils and rocks.
Habitats Directive	European Community Directive (92/43/EEC) on the Conservation of Natural Habitats and of Wild Flora and Fauna. Implemented in Scotland through the Conservation (Natural Habitats, etc.) Regulations (1994) (as amended) and known as the 'Habitats Directive'. It establishes a system to protect certain fauna, flora and habitats deemed to be of European conservation importance.
Historic Environment	Encompassing all elements of designated or un-designated archaeological sites, historic buildings and historic landscapes. It also includes sites of palaeo-environmental interest that provide information about the nature of past landscapes, climate and environments.
Historic Environment Scotland	Executive agency of the Scottish Government charged with safeguarding Scotland's historic environment, and promoting its understanding and enjoyment on behalf of the Scottish Ministers.
Hold the Line	Maintaining the existing flood defences and control structures in their present positions and increase the standard of protection against flooding in some areas.
Land Use	The use to which an area of land is put (e.g. residential, agriculture, forestry, etc.). The term Land Use is used in many contexts and is controlled by the town and country planning system.
Managed Realignment	The policy of Managed Realignment involves the placement of a new Managed Realignment flood defence landward of the existing flood defences or realignment to higher ground. This policy would be achieved through the partial or complete removal of the existing flood defences or through regulated tidal exchange. This policy would be gradually implemented and regularly monitored in order to study any potential effects on the overall estuary shape.
No Active Intervention	There would be no further active intervention. Without intervention the defences would eventually fail and areas currently protected from flooding would no longer be protected. This would happen gradually over a long period of time.
Policy Appraisal	Process of evaluating chosen policies against catchment objectives and scenarios of catchment change.
Ramsar site	The Ramsar Convention on Wetlands of International Importance, especially as

Term	Description
	Waterfowl Habitat (1971) requires the Scottish Government to promote using wetlands wisely and to protect wetlands of international importance. This includes the designation of certain areas as Ramsar sites, where their importance for nature conservation (especially with respect to waterfowl) and environmental sustainability meet certain criteria.
Receptor	Asset, people or environmental, cultural or landscape resource that is at risk of flooding
Sea Level Rise	The rise and fall of sea levels throughout time in response to global climate and local tectonic changes.
Scottish Environmental Protection Agency (SEPA)	Scotland's environmental regulator to protect and improve the environment.
Shoreline Management Plan (SMP)	Non-statutory high level plan to provide sustainable coastal management policies (to prevent erosion by the sea and flooding of low-lying coastal land), and to set objectives for managing the shoreline over 100 years.
Site of Special Scientific Interest (SSSI)	Areas of land and water notified under the Nature Conservation (Scotland) Act 2004 that SNH consider to best represent Scotland's natural heritage – its diversity of plants, animals and habitats, rocks and landforms, or a combination of such natural features.
Scottish Natural Heritage (SNH)	Funded by the Scottish Government to promote care for and improvement of the natural heritage, help people to enjoy it responsibly, and enable greater understanding of it.
Special Area for Conservation (SAC), Candidate Special Area for Conservation (cSAC)	An internationally important site for habitats and/or species, designated as required under the European Community 'Habitats Directive' (92/43/EEC). SACs are protected for their internationally important habitat and non-bird species. SACs also receive SSSI designation under The Countryside and Rights of Way (CRoW) Act (2000) and The Wildlife and Countryside Act (1981) (as amended). For further details refer to the Joint Nature Conservation Committee website: <a href="http://www.jncc.gov.uk/ProtectedSites/SACselection/UK_SAC_map.htm">http://www.jncc.gov.uk/ProtectedSites/SACselection/UK_SAC_map.htm</a>
Special Protection Area (SPA)	A site of international importance for birds, designated as required by the EC Birds Directive. The Government has to consider the conservation of SPAs in all its planning decisions.
Water Framework Directive (WFD)	European Community Directive (2000/60/EC) on integrated river basin management. The WFD sets out environmental objectives for water status based on: ecological and chemical measures; common monitoring and assessment strategies; arrangements for river basin administration and planning; and a programme of measures to meet the objectives. For further details consult the European Commission website: <a href="http://europa.eu.int">http://europa.eu.int</a>



Abbreviations	
AHIP	Angus Health Improvement Plan
AQMA	Air Quality Management Area
CPU	Coastal Process Unit
CSG	Client Steering Group
ER	Environmental Report
EU	European Union
GCR	Geological Conservation Review
HRA	Habitat Regulations Assessment
HTL	Hold the Line
LNR	Local Nature Reserve
MoD	Ministry of Defence
MR	Managed Realignment
NAI	No Active Intervention
NFM	Natural Flood Management
NNR	National Nature Reserve
NPF	National Planning Framework
ODPM	Office of the Deputy Prime Minister
PAG	Project Appraisal Guidance
PPS	Plans, Policies, Strategies
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SEPA	Scottish Environmental Protection Agency
SMP	Shoreline Management Plan
SNH	Scottish Natural Heritage
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
SWT	Scottish Wildlife Trust
WFD	Water Framework Directive

## I Introduction and Background

### I.1 The Angus Shoreline Management Plan (SMP)

A Shoreline Management Plan (SMP) provides a large scale assessment of the risks associated with coastal evolution and presents a policy framework to address those risks in a sustainable manner, with respect to people, and the developed, historic and natural environment. A SMP is a non-statutory, 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 planning.

The Angus SMP2 will define the risks to people and the environment, as a result of coastal evolution and behaviour within the SMP over the next century. It will outline strategic policies to manage those risks while maintaining the natural coastline as far as possible.

The revised SMP2 is a re-evaluation of the SMP1, which was published in 2004; a document intended to inform and in turn be supported by the statutory planning process. It requires the collation of all existing information on the coast to assess the current situation, thus identifying various areas of concern, conflicts of interest, opportunities and gaps in information. As described in Table 2.1, the purpose of this revision is to ensure that new information and our improved understanding of coastal processes, including the impacts of climate change, are incorporated into shoreline management policy.

The major objective for the Angus coast, in common with all other parts of the coastline of the UK is to develop and implement sustainable coastal flood and erosion risk management in line with the government's Flood and Coastal Defence Policy (as cited in the SMP1: Angus Council 2004), which is defined as:

*"To reduce the risk to people and the developed and natural environment from flooding and coastal erosion by the provision of technically, environmentally and economically sound and sustainable defence measures". The primary focus is on: "The protection of life and hence of urban areas."*

### I.2 SMP2 Area

The Angus coastline extends from Milton Ness in the North to the Broughty Ferry Castle in the South (see Figure 1.1). The SMP boundaries extend slightly beyond the Angus coast because they have been set to ensure that it is coastal processes that influence management recommendations rather than local authority boundaries. The Angus coast has been sub-divided into nine Policy Scenario Areas:

1. Montrose
2. Montrose Basin
3. Scurdie Ness to Rickle Craig
4. Lunan Bay
5. Lang Craig to Whiting Ness
6. Arbroath to East Haven
7. Carnoustie
8. Buddon Ness
9. Monifieth to Broughty Ferry

Figure 1.1: SMP2 Area



Project:  
Angus Shoreline Management  
Plan 2  
Drawing:  
SMP2 Management Unit  
Boundaries

**Angus Council** **ch2m**

Drawn By: MPC 04/02/2016  
Checked By: LW 04/02/2016  
Approved By: SB 04/02/2016

Kilometres  
0 1 2 4  
Drawing Scale: 1:125,000  
Plot Scale: 1:125,000 @ A3

**Legend**

— Management Units (MU)

Location Plan:

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### **I.3 Purpose of 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 purpose of SEA is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes, with a view to promoting sustainable development. This SEA Environmental Report (ER) will form an Appendix to the SMP.

In developing the Angus SMP2, the environment has been considered alongside social, technical and economic issues. This ER documents the SEA process undertaken for the Angus SMP2. It demonstrates how the SEA process has been carried out during the development of the plan and outlines how the SEA Directive's requirements have been met, by providing summary information on each element of the SEA process and by signposting the relevant sections of the main SMP document (see section 2.3 'SEA Signposting'), as appropriate.

The approach for this SMP was to ensure that the environmental assessment process is fully integral to the SMP development, as recommended in the Defra SMP Guidance (2006). Environmental assessment was therefore carried out in conjunction with and as part of the SMP stages, described in the guidance. In order to ensure transparency and show how the development of the SEA fulfils the SEA Regulations (see Section 12.2), this appendix (with signposting to relevant sections within the main SMP and associated appendices) has been produced to document the SEA process.

### **I.4 SEA Directive, Regulations and Guidance**

The requirement to undertake SEA of certain plans and programmes entered European Law in 2001 under Directive 2001/42/EC; transposed into Scottish law in 2005 by The Environmental Assessment (Scotland) Act 2005. This SEA has been carried out with cognisance of, and in the spirit of, the following legislation and guidance:

- the European SEA Directive (2001/42/EC);
- Environmental Assessment (Scotland) Act 2005;
- Office of the Deputy Prime Minister (ODPM, now DCLG) Guidelines (2005);
- Scottish Executive SEA Gateway SEA Templates (2005);
- Flood and Coastal Defence Project Appraisal Guidance (PAG) 2: Strategic Planning and Appraisal (Defra 2001);
- guidance on applying European Directive 2001/42/EC 'on the assessment of the effects of certain plans, including PAN 1/2010 Strategic Environmental Assessment of Development Plans;
- A Practical Guide to the Strategic Environmental Assessment Directive (ODPM 2005)
- The Conservation (Natural Habitats, &c.Regulations 1994 (as amended).
- Marine and Coastal Access Act 2009; and
- Water Framework Directive (WFD) 2000; and Water Environment and Water Services (Scotland) Act 2003.

There is no legal requirement to undertake SEA for SMPs because they are not deemed to be required by legislation, regulation or administrative provision. However, SMPs do set a framework for future planning

decisions, and have the potential to result in significant environmental effects. Consequently, based on Defra guidance (Defra, September 2004) and best practice guidelines, an SEA was undertaken.

## **I.5 Structure of this Environmental Report (ER)**

This appendix documents the SEA process we have undertaken throughout our SMP planning process and covers:

- Section 1 – Introduction and Background: describes the purpose of SEA, the SEA Directive, Regulations and Guidance and sets out the structure of this appendix.
- Section 2 – SEA Process and Appraisal Methodology: sets out the SEA process (including scoping) used during the development of the SMP.
- Section 3 – Planning Review: explains the context of the SEA in the wider planning system.
- Section 4 – Baseline Environment: this references the Environmental Baseline report (Theme Review) that was prepared during the preparation of the SMP, summarises the key environmental features of the existing environment, the information sources used and the evolution of the environmental baseline in the absence of the SMP2.
- Section 5 - Establishing SEA Environmental Objectives: provides a list of the SEA objectives and assessment criteria that were used to appraise preferred SMP policies.
- Section 6 – Consultation: describes the approach to communications on the SEA /SMP, the stakeholders consulted, stages of consultation and summarises responses received.
- Section 7 - Options Appraisal: describes the generic SMP policy options and their links to policy scenarios that were developed for the SMP. This section also describes the identification and review of alternative options, and the environmental appraisal of the alternatives.
- Section 8 – The Draft Plan: describes the identification of the preferred SMP2 policy scenarios, the environmental effects of the preferred plan including consideration of cumulative effects, the Habitats Regulations Appraisal (HRA), WFD Assessment, and monitoring.

It should be noted that some of the information contained within the main SMP documents is duplicated within this appendix for clarity and greater understanding of the SEA process.

## 2 SEA Process and Appraisal Methodology

### 2.1 SEA Process

A detailed list of SEA stages and tasks, and their purpose, is shown in Table 2.1, which is taken from “A Practical Guide to the Strategic Environmental Assessment Directive” published by the Office of the Deputy Prime Minister in 2005 (<http://www.communities.gov.uk/documents/planningandbuilding/pdf/practicalguidesea.pdf>).

**Table 2.1: SEA Stages and Tasks**

SEA stages and tasks	Purpose
<b>Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope</b>	
Identifying other relevant plans, programmes and environmental protection objectives	To establish how the plan or programme is affected by outside factors, to suggest ideas for how any constraints can be addressed, and to help to identify SEA objectives.
Collecting baseline information	To provide an evidence base for environmental problems, prediction of effects, and monitoring; to help in the development of SEA objectives.
Identifying environmental problems	To help focus the SEA and streamline the subsequent stages, including baseline information analysis, setting of the SEA objectives, prediction of effects and monitoring.
Developing SEA objectives	To provide a means by which the environmental performance of the plan or programme and alternatives can be assessed.
Consulting on the scope of SEA	To ensure that the SEA covers the likely significant environmental effects of the plan or programme.
<b>Stage B: Developing and refining alternatives and assessing effects</b>	
Testing the plan or programme objectives against the SEA objectives	To identify potential synergies or inconsistencies between the objectives of the plan or programme and the SEA objectives and help in developing alternatives.
Developing strategic alternatives	To develop and refine strategic alternatives.
Predicting the effects of the plan or programme, including alternatives	To predict the significant environmental effects of the plan or programme and alternatives.
Evaluating the effects of the plan or programme, including alternatives	To evaluate the predicted effects of the plan or programme and its alternatives and assist in the refinement of the plan or programme.
Mitigating adverse effects	To ensure that adverse effects are identified and potential mitigation measures are considered.
Proposing measures to monitor the environmental effects of plan or programme implementation	To detail the means by which the environmental performance of the plan or programme can be assessed.
<b>Stage C: Preparing the Environmental Report</b>	
Preparing the Environmental Report	To present the predicted environmental effects of the plan or programme, including alternatives, in a form suitable for public consultation and use by decision-makers.
<b>Stage D: Consulting on the draft plan or programme and the Environmental Report</b>	
Consulting the public and Consultation Bodies on the draft plan or programme and the Environmental Report	To give the public and the Consultation Bodies an opportunity to express their opinions on the findings of the Environmental Report and to use it as a reference point in commenting on the plan or programme. To gather more information through the opinions and concerns of the public.
Assessing significant changes	To ensure that the environmental implications of any significant changes to the draft plan or programme at this stage are assessed and taken into account.
Making decisions and providing information	To provide information on how the Environmental Report and consultees' opinions were taken into account in deciding the final form of the plan or programme to be adopted.
<b>Stage E: Monitoring the significant effects of implementing the plan or programme on the environment</b>	
Developing aims and methods for monitoring	To track the environmental effects of the plan or programme to show whether they are as predicted; to help identify adverse effects.
Responding to adverse effects	To prepare for appropriate responses where adverse effects are identified.

The SEA process in Table 2.1 has been applied to the development and assessment of the Angus SMP2.

## **2.2 Stage A – Setting the Context of the SMP (Screening, Scoping, Baseline and Objective Setting)**

### **2.2.1 The Context of the SMP**

The SMP2 provides a large-scale assessment of the risks associated with coastal evolution and presents a policy framework to address these risks in a sustainable manner with respect to people and to the developed, historic and natural environment. The SMP is a non-statutory, 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 planning. It does not set policy for anything other than coastal flood and erosion risk management.

### **2.2.2 Screening and Scoping**

Screening determines whether there is a need for SEA for the Plan or Programme being initiated. In this case, there is no legal requirement to apply the ‘SEA Regulations’ to SMP, but best practice guidelines, and those of Defra, support the preparation of a voluntary SEA for SMPs. They strongly encourage the adoption of SEA for SMPs to help set the framework for future planning and allow a strategic approach, as SMPs may have significant environmental implications and require extensive consultation ([www.defra.gov.uk](http://www.defra.gov.uk)).

A formal Scoping Report was prepared during the development of the SMP and is provided as Annex 1 to this ER.

Consultation was carried out at the scoping stage with key stakeholders (see Appendix B ‘Stakeholder Engagement’ of the main SMP) including statutory consultees to obtain relevant baseline environmental information and to understand key concerns and issues. The stakeholders were consulted on both the SEA Environmental Baseline Report (Theme Review) and Issues and Objectives Tables together. The responses received during this consultation phase fed into the prioritisation and importance of SEA receptors in the option appraisal process.

In accordance with Schedule 2 of the Environmental Assessment (Scotland) Act 2005, Angus Council has considered whether the environmental effects (positive and negative) of delivering a revised SMP are likely to be significant.

Table 2.2 summarises the SEA receptors, which are addressed in the SEA, the issues scoped into the assessment, with the agreement of the Consultation Authorities.

Table 2.2: Scoping of SEA Receptors

SEA Receptor	Scoped In/Out	Comment	Features Scoped In
<b>Climatic Factors</b>	<b>In</b>	Climate change is a key driver for the SMP and is therefore an overarching theme throughout SMP2. Global warming is predicted to increase pressure on coastal defences in the SMP area due to rising sea levels. Consequently, conflicts between coastal management and protection of natural assets along the coastline are likely to increase in the SMP2 area. In addition, an increase in the magnitude and frequency of storm surges in the future is likely to increase extreme water levels and wave heights, which could potentially affect the coastline.	As SMP policy options will not significantly affect the impacts of climate change (they will only accommodate them), climate change is not considered further as an individual SEA Receptor. However, SMP scenarios will seek to minimise contributions to future climate change.
<b>Air Quality</b>	<b>Out</b>	It is considered that the SMP2 will not lead to an improvement or reduction in air quality at a regional level. As there are no direct links between the SMP2 and air quality it has been scoped out of the assessment.	Not applicable
<b>Population and Human Health</b>	<b>In</b>	A primary purpose of the SMP2 is to manage the flood and erosion risk to the population, vulnerable community facilities and residential settlements along the coastline and to address the impacts that flooding events and coastal erosion can have upon human health. SMP policies could affect important tourist, recreational and amenity resources and could present opportunities to deliver recreational benefits.	Human health Houses Vulnerable community facilities (e.g. surgeries, hospitals, homes for the elderly, schools, churches, libraries, etc) Recreation and amenity facilities (visitor attractions, golf courses, caravan parks, bathing beaches, promenades, cycle routes, public footpaths, etc)
<b>Material Assets</b>	<b>In</b>	There is port and harbour activity within the SMP2 area. A range of infrastructure (including key transport routes) and services are located within the area and could potentially be affected by changes in flooding and erosion.	A, B and minor roads (where linkage is a key issue) East Coast railway lines and stations Pumping stations, sewage works and outfalls Access for emergency services Businesses, factories, warehouses, areas identified for regeneration, military establishments and other key areas of employment MoD Exclusion Zones Ports and harbours Access to the sea and navigation
<b>Water</b>	<b>In</b>	SMP policies have the potential to affect the waterbodies within the SMP2 area e.g. changes in the water quality of shellfish waters and bathing waters, and changes in water resources.	Commercial fishing grounds and shell fisheries Designated bathing waters Waterbodies and WFD issues



SEA Receptor	Scoped In/Out	Comment	Features Scoped In
<b>Biodiversity, Flora and Fauna, and Earth Heritage</b>	In	There are a number of international, national and local designated conservation sites within the SMP boundary, which have potential to be affected (both positively and negatively) by changes in flooding or erosion and by coastal defence interventions. Natural erosion and deposition processes are key drivers in maintaining the geological interest of the coastline.	Ramsar, Special Protection Areas (SPA) and Special Areas of Conservation (SACs) Sites of Special Scientific Interest (SSSI) (biological and geological) and National Nature Reserves (NNRs) Local Nature Reserves (LNR) Scottish Wildlife Trust (SWT) Nature Reserves Regionally Important Geological Sites (RIGS) and Geological Conservation Review (GCR) sites
<b>Soil, and Land Use</b>	In	Agricultural land can be affected by changes in flooding and erosion. Beaches and sand dunes can be maintained as natural flood defences.	Beaches Dune systems Grades 1 – 3A Farmland
<b>Cultural Heritage</b>	In	The Angus coast has a particularly rich archaeological and historic legacy with a number of historic features identified within the SMP2 area. There is potential for these to be affected by changes in flooding or erosion and by coastal defence interventions.	Scheduled Monuments Listed Buildings Non-designated archaeological sites of local importance Landscape setting of historic assets
<b>Landscape</b>	In	There are no national (e.g. National Scenic Areas) or local (e.g. Special Landscape Areas) designations along the Angus SMP2 frontage, however there is potential for the SMP2 to have positive or negative effects on key landscape features.	Key landscape features including wide sandy bays, estuaries and estuarine mudflats, sand dune systems and links, and maritime cliffs and rocks

### 2.2.3 Establish SEA Objectives

A recognised way of considering the environmental effects of a plan and developing sustainable coastal management policies is the identification of agreed broad or SMP wide SEA objectives for developing and appraising sustainable policy options at a later stage in the assessment process.

A list of SEA objectives for the SMP was developed through consultation with key organisations. The objectives are described in Section 5 of this document.

### 2.2.4 Baseline Data Collection

Baseline data was collected to provide a baseline against which the significant environmental effects of the plan could be measured and assessed. The baseline data in Annex 2 'Theme Review' identifies the key environmental issues and trends that characterise the area covered by the SMP.

An integral part of the SMP development process has been the identification of strategically important environmental issues that need to be addressed by future shoreline management along a particular stretch of coastline, which are fundamental to policy appraisal. These features were identified through site visits, data review and extensive consultation with key external organisations.

All economic, environmental and social assets or features of 'strategic' importance were identified along the coastline together with any key issues and benefits that may be important, particularly to stakeholders, or that may influence policy decision-making during the SMP appraisal process. A qualitative description was provided of issues along the coastal frontage where there may be conflicting interests in terms of coastal management.

Consideration was also given to other plans and projects that may be relevant to the coastline.

The features or assets at risk of tidal flooding or erosion were identified using indicative erosion and flood risk zones.

## 2.3 Stage B: Developing and Refining Alternatives and Assessing Effects

The development of alternative policy options for assessment is described in Section 7.

The process of assessment involves the identification of potential environmental effects and an evaluation of the significance of the predicted environmental effects. The methodology appraisal used to identify and predict environmental effects on the SEA receptors and environmental features identified, arising from the SMP is outlined below: -

**Identification of Impacts:** The methodology initially appraised a policy of no active intervention throughout the coastline (see Appendix C of the main SMP report). The implications of no active intervention on the features and issues identified were analysed to determine the potential environmental effects on the SEA receptors. The environmental impacts identified during the no active intervention assessment were then compared against the SEA objectives to determine whether SEA objectives have been met or not (see Annex 1 of this Appendix). Through consultation with key stakeholders and elected members, key policy drivers were identified (see Appendix F). Alternative policy scenarios were appraised where there was a clear need to protect identified assets (see Appendix G of the main SMP report).

**Significance of Impacts:** The direct and indirect impacts arising within each SMP epoch (short-term, medium term and long-term) were identified and assigned a level of strategic significance (prior to mitigation).

Significance is recorded in the Environmental Assessment of Preferred Policy Options as being minor or moderate to major adverse (significant) or beneficial. Where no effect is identified, a neutral effect has been assigned.

The following assumptions have been taken into account:

- Where the environmental assessment records the potential flooding of a landfill site or potential conflicts with Water Framework Directive (WFD) objectives are noted, the significance rating is recorded as major adverse.
- The significance of the protection of a designated feature as a result of SMP policy is recorded as beneficial. If the site is of international/European or national status (e.g. SPA, SSSI, listed building, Scheduled Monument etc), the impact is considered moderate to major in significance. Sites of local importance are considered as minor in significance;
- The significance of damage to or loss of part of whole of a designated feature as a result of SMP policy is recorded as adverse;
- Where there is a negative impact on some parts of a designated site but beneficial impacts on another part of the designated site, the impact has been considered as minor adverse.
- The significance rating of unsightly deteriorating structures is recorded as increasing over the timescale of the SMP;
- Where loss of properties due to flooding or erosion is recorded, a major adverse effect is assumed.
- Where protection of properties is recorded, this is considered to be a major beneficial effect;
- Risk is not treated to be as significant as loss;
- Impacts are considered to increase in significance over the epochs of the SMP; and
- Where an option is considered to have an ‘uncertain or potentially significant effect’ on the integrity of a European site, this is acknowledged as both a major significant negative effect for SEA purposes, and ‘Potential Significant Effect – HRA required’ for the purposes of the Habitats Regulations Appraisal, in the assessment tables.

Non strategic impacts and issues not considered to be significant at SMP level were not considered in the SEA.

Similarly, the magnitude of SEA impacts was not considered during this high level assessment, as they are not considered to contribute to a meaningful assessment without further study/investigations, assessment and monitoring of SEA receptors.

**Mitigation Measures:** These were identified for inclusion in the assessment process, and included avoidance and measures to minimise adverse effects (see Annex 3 ‘Environmental Effects of the Preferred Plan’).

**Selection of the Preferred SMP Policy Scenarios** – based on the appraisal of policy scenarios, the environmentally preferred policy scenarios were identified. An explanation and justification for the selection of non-environmentally optimal policy scenarios on the basis of technical or economic grounds was also provided (see Appendix G of the main SMP report).

**Cumulative impacts:** the SEA Directive requires the analysis of cumulative effects of the strategic options on the environment (see Section 8).

It should be noted that as part of the assessment process, a WFD Assessment (Appendix J of the main SMP report) and a HRA (Appendix K of the main SMP report) were undertaken. Both of these assessments have influenced the SMP process and decision-making.

## **2.4 Stage C: Preparing the Environmental Report**

The results of the SEA process are summarised in the SMP2, and presented in this separate ER, which identifies, describes and evaluates the likely significant environmental effects of the strategy as well as any reasonable alternatives, in line with the 'Environmental Assessment (Scotland) Act 2005' (the Act).

The environmental effects of the Plan along with mitigation measures and environmental enhancement opportunities are described in Section 8 of this report.

At this level of plan, the mitigation and enhancement measures are integral to the policy appraisal. Where we have the potential to enhance the environment we have included this potential within the appraisal objectives. Mitigation measures at this level are generally included as part of the policy options, so that a less detrimental impact will tend to be an alternative policy option. We therefore cannot identify any further specific mitigation measures at this policy level. At a lower level in the planning hierarchy, when investigations are progressed to develop the details of how to implement flood risk and erosion management measures, an appropriate level of environmental assessment will be undertaken, and will identify more relevant mitigation measures to the impacts arising.

## **2.5 Stage D: Consulting on the Draft Plan and Environmental Report**

Consultation has been undertaken with a wide range of statutory and non-statutory consultees and stakeholder groups throughout the development of the SEA and the SMP and is discussed further in Section 6 'Stakeholder and Public Engagement' and in Appendix B of the main SMP report.

## **2.6 Stage E: Monitoring the Significant Effects of Implementing the Plan**

The key principles of monitoring are to ensure that the mitigation measures are implemented and effective and to monitor the potentially significant environmental effects identified during the assessment.

The SMP will be circulated to all stakeholders for consultation and comment. The plan may be modified in light of comments received from consultees before it is formally adopted. Once the SMP2 is implemented, any potentially significant effects will be monitored and reported in accordance with the review cycle of the plan.

Section 8 discusses the proposed monitoring of the predicted environmental effects of the plan, which have been reflected and incorporated into the SMP Action Plan.

### **3 Relationships with other Plans, Programmes and Strategies**

The SMP2 has considered a range of Plans, Programmes and Strategies (PPS), to support the identification of current/wider environmental protection objectives and issues that the plan should take cognisance of, and might support with its delivery.

A review of the associated environmental protection objectives highlights existing and potential problems, as well as opportunities for enhancement and benefits, and serves as an important base upon which to build the SEA Framework.

Table 3.1 sets out the PPS review, focussing on the PPS, which will influence, and be influenced by, the SMP2.

**Table 3.1: Plans, Programmes, Strategies and Environmental Objectives**

Document	Summary	Relevance	CPU
<b>International Planning Policy</b>			
European Habitats Directive (92/43/EEC)	Aims to ensure the protection of biodiversity by conserving natural habitats of wild flora and fauna. It requires Special Areas of Conservation (SACs) to be identified, which form a network of protected areas called Natura 2000 along with Special Protection Areas (SPAs). Also aims to maintain or restore in a favourable condition designated natural habitat types and habitats of designated species listed in Annex I and II of the directive respectively.	The SMP2 will consider the European sites within the SMP2 area, together with their qualifying natural habitats and species. The SMP2 will recommend appropriate measures to avoid deterioration of these habitats and avoid disturbance of scheduled, scarce or rare species.	All
The EC Directive on the Conservation of Wild Birds (79/409/EEC)	The Directive provides a framework for the conservation and management of human interactions with wild birds in Europe. It sets broad objectives for a wide range of activities in order to sustain populations of naturally occurring wild birds. The key aim is to sustain habitats in order to maintain populations at ecologically and scientifically sound levels.	The SMP2 will consider the impact of its policies on wild birds and their habitats and should ensure their protection.	All
Water Framework Directive 2000	The aim of the EU Water Framework Directive is to help ensure that water is more effectively and sustainably managed for the benefit of both society and the environment. It brings together management and protection of the whole of the water environment and addresses the issues of flooding, Sustainable Urban Drainage Systems (SUDS), water quality, treatment of waste water, bathing water quality, groundwater protection and River Basin Management Plans.	The SMP2 will seek to avoid negative impacts on the water environment and assist in flood risk management.	All
Ramsar Convention 1971	Provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.	The SMP2 will seek to avoid negative impacts to wetlands.	2, 7 and 8
The European Floods Directive 2007	The EU Floods Directive (Directive 2007/60/EC) deals with the assessment and management of flood risks. It aims to reduce and manage the risks that floods pose to human health, the environment, cultural heritage and economic activity. The Directive applies to inland waters and all coastal waters and is carried out in coordination with the Water Framework Directive, mainly the flood risk management plans and river basin management plan. The Floods Directive has been transposed into the Scottish legal and statutory planning framework through the Flood Risk Management (Scotland) Act 2009.	The SMP2 will reflect the principles set out within the Directive, feeding into forthcoming Angus flood risk management plans.	All
<b>National Planning Policy</b>			
National Planning Framework for Scotland 3 (2014)	The third National Planning Framework (NPF3) was adopted in 2014 and sets out the vision for development and investment across Scotland over the next 20-30 years. NPF3 brings together plans and strategies in economic development, regeneration, energy, environment,	The SMP2 will seek to incorporate the principles and objectives set by the NPF3.	All

Document	Summary	Relevance	CPU
	climate change, transport and digital infrastructure. It emphasises the importance of the Scottish coast as an economic opportunity and a resource to be protected and enjoyed.		
Scottish Planning Policy (SPP) 2014	<p>SPP was revised alongside the NPF3 in June 2014. SPP guides the development of local and regional planning policies and is a material consideration in the determination of planning applications</p> <p>The SPP sets out policies for sustainability, planning and place-making, that include the promotion of the following principles:</p> <ul style="list-style-type: none"> <li>• supporting climate change mitigation and adaptation including taking account of flood risk</li> <li>• protecting, enhancing and promoting access to cultural heritage</li> <li>• protecting, enhancing and promoting access to natural heritage</li> </ul>	The SMP2 will incorporate the appropriate principles and objectives set by SPP	All
Planning Advice Notes and Circulars	<p>PANs support SPP and provide advice on good practice and other relevant information to planning authorities. Circulars provide statements of Scottish Government policy and guidance on implementation and/ or procedural change.</p> <p>Relevant relevant documents include:</p> <ul style="list-style-type: none"> <li>• PAN 1/2010 Strategic Environmental Assessment of Development Plans</li> <li>• PAN 51 Planning, Environmental Protection and Regulation (Revised 2006)</li> <li>• PAN 60 Planning for Natural Heritage</li> <li>• PAN 2/2011 Planning and Archaeology</li> <li>• Specific Advice Document -Strategic Environmental Assessment (SEA) Guidance 2013</li> </ul>	The SMP2 will seek to incorporate the appropriate good practices set by PANs and circulars	All
Wildlife and Countryside Act (as amended) 1981	<p>Principal legislative mechanism for the protection of wildlife in UK.</p> <p>Requires any land that is identified as being of special interest by reason of any of its flora, fauna, geological or physiographical features to be classified as a Site of Special Scientific Interest (SSSI) and afforded certain protection against damaging measures.</p> <p>Requires strict protection of species under Schedules 1, 5 and 8 except in exceptional circumstances.</p>	<p>There are a number of sites designated under this Act within the SMP2 boundary.</p> <p>The SMP2 will recognise their statutory importance in terms biodiversity and strive to ensure they are adequately protected.</p>	All
The Conservation (Natural Habitats and c) Regulations 1994	<p>The Regulations make it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2, or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 4.</p> <p>However, these actions can be made lawful through the granting of licenses by the</p>	The SMP2 will consider the protection and conservation of plant and animal species.	All

Document	Summary	Relevance	CPU
	appropriate authorities. Licenses may be granted for a number of purposes (such as science and education, conservation, preserving public health and safety), but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on wild population of the species concerned.		
Climate Change (Scotland Act 2009)	The Act sets a framework for greenhouse gas emissions reductions in Scotland by setting an interim 42 per cent reduction target for 2020, with the power for this to be varied based on expert advice, and an 80 per cent reduction target for 2050. To help ensure the delivery of these targets, this part of the Act also requires that the Scottish Ministers set annual targets, in secondary legislation, for Scottish emissions from 2010 to 2050.	The SMP2 will seek to assist in meeting the reduction targets identified in the Act.	All
Scotland's Climate Change Adaptation Framework (2009)	The Framework sets the strategic direction for Scottish Government actions but, because many adaptation decisions are taken at a local level by individual organisations, action from across all sectors is needed. The Framework has been developed with a series of accompanying Sector Action Plans, which outline the key issues and planned activity for adapting.	The SMP2 will assist in the adaptation to climate change by reducing coastal flood risk associated with sea level rise.	All
Scottish Biodiversity Strategy - Scotland's Biodiversity: It's in your Hands(2004)	This biodiversity strategy sets out a framework for 35 years to 'to conserve Biodiversity for the health, enjoyment and well-being of the people of Scotland now and in the future'. The strategy sets out five main objectives: <ul style="list-style-type: none"> <li>• conserve what we have;</li> <li>• sustain healthy ecosystems;</li> <li>• create networks and connections not a piecemeal approach;</li> <li>• engage more people; and,</li> <li>• promote sustainable development.</li> </ul>	The SMP2 should ensure that biodiversity is protected and where appropriate enhanced.	All
2020 Challenge for Scotland's Biodiversity (2013)	This document supplements the Scotland's Biodiversity: It's in Your Hands (2004). The two documents together comprise the Scottish Biodiversity Strategy. The 2020 Challenge document provides greater detail in some areas, responds to the new international targets, and updates some elements of the 2004 document.	The SMP2 should ensure that biodiversity is protected and where appropriate enhanced.	All
Our Place in Time (2014)	The strategy sets out a 10 year vision for the historic environment for Scotland. This includes principles to preserve and maintaining the historic environment to secure the associated benefits and highlights strategic priorities for delivering the vision so as to ensure that the cultural, social, environmental and economic value of Scotland's heritage makes a strong contribution to the wellbeing of the nation and its people.	The SMP2 should ensure the conservation of historic areas and areas of cultural significance.	All



Document	Summary	Relevance	CPU
Historic Environment Scotland Policy Statement June (2016)	<p>Historic Environment Scotland Act 2014 (“the 2014 Act”) created Historic Environment Scotland and amended the statutory processes relating to the historic environment. This policy statement takes account of these changes and replaced the Scottish Historic Environment Policy (SHEP) 2009 in June 2016.</p> <p>The Policy Statement sets out how Historic Environment Scotland fulfils its regulatory and advisory roles and explains how it expects others to interpret and implement Scottish Planning Policy. It is a material consideration in the Scottish planning system. It is part of the documents (along with the Scottish Planning Policy, Historic Environment Circular 1 and Historic Environment Scotland’s Managing Change in the Historic Environment guidance note series) to which planning authorities are directed in their consideration of applications for conservation area consent, listed building consent for buildings of all three categories and their consideration of planning applications affecting the historic environment and the setting of individual elements of the historic environment.</p>	The SMP2 should ensure the conservation of historic areas and areas of cultural significance.	All
National Marine Plan 2015	<p>The National Marine Plan covers the management of both Scottish inshore and offshore waters (12 to 200 nautical miles) and was prepared in accordance with the EU Directive 2014/89/EU which came into force in July 2014.</p> <p>The Directive introduces a framework for maritime spatial planning and aims to promote the sustainable development of marine areas and the sustainable use of marine resources. Land-sea interactions have also been taken into account as part of the marine planning process. The National Marine Plan sets out:</p> <ul style="list-style-type: none"> <li>• Policies for sustainable development of Scotland's seas;</li> <li>• Policies on Nature Conservation Marine Protected Areas (MPAs) and other relevant conservation sites;</li> <li>• Economic, social and marine ecosystem objectives and further objectives for the mitigation and adaption of climate change;</li> <li>• The condition of the Scottish marine area (or region) including a summary of the significant pressures and human impacts on the relevant area.; and,</li> <li>• Information relating to the policies appropriate to the plan.</li> </ul>	The SMP2 will incorporate appropriate principles and objectives from the National Marine Plan.	All
SNH Guidance: A guide to managing coastal erosion in beach / dune systems	<p>Reviews the options available for managing erosion. Offers guidance on how to select or design the most appropriate response to a particular situation.</p> <p>Describes and illustrates how each erosion management technique might best be designed so as to minimise damage to natural heritage and reduce the potential for altering shoreline</p>	SNH guidance relating to coastal erosion and defence will be adopted in the development of the SMP2.	All

Document	Summary	Relevance	CPU
	evolution elsewhere.		
Flood Risk Management (Scotland) Act 2009	<p>The purpose of the Act is to provide a more joined up and coordinated process to manage flood risk at a national and local level.</p> <p>Specific measures within the Flood Risk Management (Scotland) Act 2009 include:</p> <ul style="list-style-type: none"> <li>• A framework for coordination and cooperation between all organisations involved in flood risk management</li> <li>• Assessment of flood risk and preparation of flood risk management plans</li> <li>• New responsibilities for SEPA, Scottish Water and local authorities in relation to flood risk management</li> <li>• A revised, streamlined process for flood protection schemes</li> <li>• New methods to enable stakeholders and the public to contribute to managing flood risk, and;</li> <li>• A single enforcement authority for the safe operation of Scotland's reservoirs.</li> </ul>	The SMP2 will reflect requirements set out within the Act, feeding into forthcoming Angus flood risk management plans.	All
Land Use Strategy 2016-2021	Scotland's Land Use Strategy is a key commitment of Section 57 of the Climate Change (Scotland) Act 2009 and was published in March 2016. It sets out a long term Vision, three objectives relating to the economy, environment and communities and Principles for Sustainable Land Use, to guide policy and decision-making. It contains activities for the next five years including themes such as agriculture, Scottish Rural Development Programme, forestry and the uplands as well as land use decision-making at a local level.	The SMP2 objectives and policies will support strategy's vision for sustainable use of resources and land management practices.	All
River basin management plan (RBMP) for the Scotland river basin district	This plan outlines the actions that will be taken to protect the water environment, and improve areas which are at less than good status. The current plan sets out actions for 2015-2027.	The SMP2 objectives and policies will support the plan's goal for protecting and improving the status of water bodies.	All
Natural Flood Management Handbook 2015	SEPA published the Natural Flood Management (NFM) handbook in December 2015, a practical guide to the delivery of measures that work with natural hydrological and morphological processes to benefit flooding (such as managed realignment, dune restoration, beach recharge), while also bringing about many other outcomes.	The SMP2 objectives and policies will support natural coastal processes and deliver projects that include NFM measures.	All
<b>Regional and Local Policy</b>			
Tayplan's Proposed Strategic Development Plan 2012 -2032	The current SDP was approved by Scottish Ministers in June 2012. It sets out longer term vision for Angus, Dundee City, Perth and Kinross and North Fife. Sets out policies for where development should be over the next 20 years and how to shape better quality places by the location, design and layout of development from the outset. This plan sets out land use planning policies and considers the long term issues affecting the TAYplan area such as climate change, population change, infrastructure planning and sustainable economic	The SMP2 will reflect Tayplan's objective to protect areas vulnerable to coastal erosion, flood risk and rising sea levels; including the undeveloped coast and to ensure flood risk is not exacerbated.	All

Document	Summary	Relevance	CPU
	growth.		
TAYplan's Proposed Strategic Development Plan 2016 -2036	The revised SDP was submitted to Scottish Ministers in 2015, and will be considered in early 2016. Again, it sets out a long term vision for Angus, Dundee City, Perth and Kinross and North Fife and for where development should be over the next 20 years and how to shape better quality places by the location, design and layout of development from the outset.	The SMP2 will reflect TAYplan's objective to protect areas vulnerable to coastal erosion, flood risk and rising sea levels; including the undeveloped coast and to ensure flood risk is not exacerbated.	All
Angus Local Plan Review (2009)	The plan provides the detailed policy framework to guide future development, land use and investment in Angus for the period to 2011.	The SMP2 will be developed in accordance with the objectives of and policies contained in the Angus Local Plan, and will assist in protecting valued infrastructure, public amenity areas and material assets from flood and erosion damage.	All
Proposed Angus Local Development Plan (2014)	The proposed Angys LDP sets out policies to guide guture development across Angus up to 2026.	The SMP2 will be developed in accordance with the objectives of and policies contained in the Angus LDP, including policy on coastal planning.	All
Dundee Local Development Plan 2013	The new Local Development Plan for Dundee sets out a strategy to guide future development within the City for a period of five years and provide broad indications of growth for up to 10 years in the future.	The SMP2 will seek to support the environmental objectives within the Plan.	8
Aberdeen Local Development Plan 2012 and Supplementary Guidance	The plan provides the detailed policy framework to guide future development, land use and investment in Aberdeenshire.	The SMP2 will be developed in accordance with the objectives of and policies contained in the Aberdeen Local Development Plan, including policy on coastal planning and will assist in protecting valued infrastructure, public amenity areas and material assets from flood and erosion damage.	1
Angus Community Plan and Single Outcome Agreement (SOA) (reviewed June 2014)	The Community Plan and SOA is the vision for the Angus area and the strategic priorities that need to be addressed to achieve this vision, as agreed by the Community Planning Partners and expressed as outcomes to be delivered by the partners, both individually and jointly. The vision of the Angus Community Planning Partnership is that 'Angus is a place where a first class quality of life can be enjoyed by all'.	The SMP2 core objectives will reflect the appropriate SOA outcomes.	All
Tayside Biodiversity	Sets out Tayside local biodiversity action plan (LBAP) for coastal and marine ecosystems,	The SMP2 will ensure that biodiversity is	8

Document	Summary	Relevance	CPU
Action Plan (2 <sup>nd</sup> Edition) Coastal & Marine Ecosystems Consultative Draft 2015-25	including species and habitat action plans.	protected and where appropriate enhanced, where feasible.	
Tayside Geodiversity Action Plan 2015	The objectives of the plan are to identify, designate, protect and monitor important geomorphological sites and landforms. It promotes the enhancement of coastal processes to reduce flood risk and the protection of Geiodiversity Sites.	The SMP2 will ensure that geomorphological sites and landforms are protected, and will promote the enhancement of coastal processes to reduce flood risk where feasible.	8
Angus Council Climate Change Strategy and Action Plan 2012 – 2016	This strategy into account the public bodies' duties imposed under the Climate Change (Scotland) Act 2009, including reducing greenhouse gas emissions, and sets out actions to achieve sustainability objectives, such as the stewardship of biodiversity, natural resources and the promotion of the unique natural environment of Angus; the awareness of fluvial and coastal flood risk prevention measures; and to guide development and changes in land use in a sustainable manner.	The SMP2 will be developed in accordance with the objectives of the strategy and actions to promote sustainable development, adaption to climate change and stewardship of the natural environment.	All
Tay Estuary Forum (TEF) Management Plan 2009-2014	The over-arching aim of the TEF Management Plan is to secure and promote for future generations the wise and sustainable use of the Tay Estuary and adjacent coastal waters. This includes the promotion of the conservation of the wildlife and habitats, increase knowledge on coastal processes and advocate the improvement of environmental quality in the coastal zone.	The SMP2 will be developed in accordance with the Plan.	8
Dundee and Angus Tourism Partnership 'A Strategy for Growth' 2007 to 2010	The strategy sets out a framework to best support the national and regional tourism growth agenda.	The SMP2 will seek to assist in sustainable growth of tourism in the area.	All
Angus Health Improvement Plan 2009-2012	The Angus Health Improvement Plan (AHIP) sets out the aims and objectives for health improvement in Angus. An Action Plan that details specific projects and initiatives and their expected outcomes	The SMP2 will seek to facilitate opportunities for increased physical activity.	All
Angus Countryside Access Strategy 2007-2012	The strategy sets out policies that seek to guide the development, management and promotion of countryside access opportunities within the Angus area. A key priority is the continued development of the Angus Coastal Path.	The SMP2 will seek to align with the strategy objectives for the Angus Coastal Path.	All
Dundee Coastal Study 2011	Provide a framework for future adoption of localised coastal flood and erosion prevention schemes. Such schemes may be required to provide a consistent level of flood and erosion protection to assets along the Dundee City coastal frontage.	As the SMP2 boundary overlaps the Dundee Local Authority boundary, this study will be reviewed to inform the	8

Document	Summary	Relevance	CPU
		SMP2.	
Local Flood Risk Management Plans and Assessments	As a response to the Flood Risk Management (Scotland) Act 2009, local authorities are working to prepare localised flood management plans and flood risk assessments. These plans and assessments are currently being developed for the Angus Council area.	The SMP2 should reflect or contribute to any local flood risk assessments or flood management plans.	All
Angus Core Path Plan 2010	Developed under the requirements of the Land reform (Scotland) Act 2003, the Core Paths Plan sets a system of paths for the purpose of giving the public reasonable access throughout the Angus area.	The SMP2 will seek to aid the development of the core path network.	All
Tayside Landscape Character Assessment 1999/ SNH Coastal Character Assessment	The Tayside Landscape Character Assessment forms part of the SNH coastal character assessment, and provides recommendations as a broad basis for detailed management strategies and aims to conserve the natural, and at time, remote character of these sections of coast. The policies of most relevance are around landscape of coasts with cliffs and sand.	The SMP2 will seek to facilitate opportunities to work with natural processes and improve the aesthetic and landscape quality of the coastline.	8

## 4 Baseline Environment

### 4.1 Existing Environment

Appropriate environmental baseline information is important to provide a baseline, against which changes in the natural and human environment can be assessed, and to highlight particular environmental problems, risks and opportunities.

The environmental characteristics of the SMP2 area are described in the Baseline Environmental Report (Theme Review) in Appendix D of the main SMP report, and are summarised in Table 4.1.

Consideration of the environmental baseline, issues and trends, will provide the basis against which long-term effects of the Strategy will be monitored and assessed.

**Table 4.1: Key Environmental Features**

SEA Receptor	Key Environmental Features
<b>Biodiversity, Flora and Fauna</b>	<p>The SMP coast from Broughty Ferry Castle, Dundee to Milton Ness, Aberdeenshire provides a wide diversity of species and habitat, including low-lying sandy beaches, sand dunes and links areas, intertidal mud/sand flats and rocky shorelines and cliffs. This diversity of habitats, species, landforms and rock exposures has resulted in over 60% of the Angus SMP2 coastline being designated for its nature conservation value, as follows:</p> <ul style="list-style-type: none"> <li>• International Designation - 2 SACs, 2 SPAs, 2 Ramsar sites</li> <li>• National Designations - 8 SSSIs, 1NNR</li> <li>• Local Designations - 1 LNR, 1 SWT</li> </ul>
<b>Air Quality and Climatic Factors</b>	<p>There are no Air Quality Management Areas (AQMAs) within the Study Area.</p> <p>It is predicted that Scotland's sea levels may rise relative to the land, in some areas. By 2080 the current estimates range between 0 and 600mm sea level rise. 0.4% of Angus is classed by the Scottish Executive as at risk from coastal flooding (UKCIP 2009). The long term effects of rising sea levels due to climate change could have significant implications for future flood and erosion risks to the natural, historic and built environment across large areas of land in the SMP area.</p>
<b>Population and Human Health</b>	<p>Nearly two thirds of the Angus population live on or near the coast (Angus Council 2011) with the four main towns along the coastal corridor comprising Arbroath (the largest town in Angus), Montrose, Carnoustie and Monifieth (on the edge of Dundee), as well as several smaller settlements and historic fishing villages, all of which have strong links with the sea.</p> <p>Flooding events/ coastal erosion can have adverse impacts upon human health and significant socio-economic consequences. Flooding affects people both physically (e.g. through loss of property, injuries and potentially loss of life) and psychologically (e.g. impacts on human health such as emotional distress can be caused by the event itself, as well as the fear of a flooding event). Socio-economic factors such as the financial burden (e.g. loss of property, the cost of repairs after a flood event, changes in insurance and loss of jobs where businesses are affected) created by flooding or erosion can continue to have an impact well after the event has occurred.</p> <p>Properties at risk of coastal erosion or coastal flooding</p>
<b>Material Assets</b>	<p>There are two ports in the SMP area; Montrose Port - an industrial seaport plays an integral part within the Montrose economy, providing import and export services for various agricultural and oil related businesses located within the area, and Arbroath Fishing Port - Arbroath was once the largest fishing harbour for the county although the</p>

SEA Receptor	Key Environmental Features
	<p>fishing fleet has declined over recent years.</p> <p>In addition to ports, harbours and industry, the military training area (approximately 930ha) of Barry Buddon (CPU7) is a significant land use.</p> <p>There are no motorways within the SMP2 area. The A92 (now a dual carriageway) and A932 are major transport corridors connecting the study area to other parts of the country. Minor roads (e.g. Natherre Dysart Road and Arbroath Road) provide access to settlements and some other locations along the coastline, whereas other parts of the coast are accessible only on foot or by sea.</p> <p>The East Coast railway line generally runs parallel to the coast in the SMP area.</p>
<b>Water</b>	<p>Water quality within the SMP2 area is relatively good, as there are no stretches of seriously polluted water. Estuarine and coastal waters of poorer water quality within the SMP2 area are generally related to sewage and storm sewage discharges associated with the nearby towns.</p> <p>A number of wastewater treatment plants serving the towns of Arbroath, Carnoustie and Montrose, which discharge into the coastal waters, have been recently introduced in the SMP2 area. These help to address improvements in these discharges in order to meet SEPA’s Environmental Quality Objectives and the requirements of the Urban Waste Water Treatment Directive. All sewage debris related to the down-grading of estuarine and coastal waters along the coast is now treated by wastewater plants with the exception of one or two small isolated coastal settlements.</p> <p>There are six EC designated bathing waters in the SMP2 area at Montrose, Lunan Bay (North), West Links (Arbroath) and Carnoustie, Monifieth and Broughty Ferry.</p> <p>There is a range of issues affecting the status of the key water bodies in the area. While the coastal waters are only affected by water quality pressures, the burns which lead into them have a range of pressures including impacts on physical condition, flows and levels, and presence of invasive species.</p>
<b>Soil, and Land Use and Earth Heritage</b>	<p>The earth science interest of the coastline includes stratigraphic features, which are reflected in the designation of five SSSIs with geological interest features, six Geological Conservation Review (GCR) sites and one Regionally Important Geological Site (RIGS). These designated earth heritage sites display sediments, rocks, fossils, and features of the landscape that make a special contribution to our understanding and appreciation of earth science and the geological history of Britain.</p> <p>Agriculture is one of the main industries within the area with a large proportion of coastal land used for farming. Much of the coastal farmland is classified as Prime Agricultural Land (Classes 1, 2 and 3.1) (Macauley Land Use Research Institute, Land Capability Classification for Agriculture) where there are few physical restrictions on its use; and mixed and arable farming are the dominant types of farming.</p> <p>Angus Council has not designated any sites within the SMP2 area as ‘Contaminated’, but there is potential for areas of made ground or contaminated land to be present.</p>
<b>Cultural Heritage</b>	<p>The Angus coast has a particularly rich archaeological and historic legacy with a number of cultural heritage designations located within the SMP2 area including:</p> <ul style="list-style-type: none"> <li>• 24 Scheduled Monuments</li> <li>• 627 Listed Buildings</li> </ul>

SEA Receptor	Key Environmental Features
	<ul style="list-style-type: none"> <li>46 Sites of Local Importance</li> </ul>
<b>Landscape / Seascape</b>	<p>There are no national (e.g. National Scenic Areas) or local (e.g. Special Landscape Areas) designations along the Angus SMP2 frontage. No Important Gardens and Designed Landscapes are present within the SMP area.</p> <p>The Angus coastline, which stretches for 55km, is diverse and comprises several notable landscape features including wide sandy bays, estuaries and estuarine mudflats, sand dune systems and links and maritime cliffs and rocks.</p>

## 4.2 Information Sources

The primary source of baseline information is from the original Angus SMP (2004) and the Angus Council publication – Angus State of the Environment Report 2011, which can be viewed via the links below:

- [www.angus.gov.uk/ac/documents/roads/SMP](http://www.angus.gov.uk/ac/documents/roads/SMP)
- <http://www.angus.gov.uk/sustainability/pdfs/StateOfEnvironment2011.pdf>

Supporting information has also been taken from the following documents or websites:

- SEPA, SNH and Historic Scotland (now Historic Environment Scotland) (2011): The Scottish Strategic Environmental Assessment Review, SEPA, Stirling
- [www.snh.gov.uk](http://www.snh.gov.uk)
- [www.sepa.org.uk](http://www.sepa.org.uk)
- [www.historic-scotland.gov.uk](http://www.historic-scotland.gov.uk) and <http://portal.historicenvironment.scot/spatialdownloads>

## 4.3 Evolution of the Environmental Baseline without the SMP2

At present Angus Council relies on the original SMP published in 2004, which considers natural coastal processes, including coastal cells, coastal land use, human influence, environmental considerations and how these factors interact within the coastal zone.

The SMP was produced as a working document, designed to be updated over time to ensure coastal management evolves as our understanding of the interactions within the coastal zone progresses. If the SMP was not updated and revised, coastal management may, with time, become inappropriate with possible detrimental effects to identified sensitive receptors. The SMP2 takes into account climate change, current land use, the natural environment and historical and archaeological features that may be affected by flooding or erosion over the next 100 years to produce a more accurate picture of the Angus coastline and the risks involved.

An assessment of the ‘No Active Intervention’ approach has been undertaken over three epochs; 20 years, 50 years and 100 years. This is detailed in Appendix C of the main SMP report. As part of the Environmental Report, an assessment has been undertaken on the evolution of the environmental baseline with present policies to establish the success of the current policy approach.



## 5 Establishing SEA Objectives

SEA objectives, which build on the objectives identified in SMP1, have been defined for the SMP2 area with due reference to the policies identified in the above PPS review (in Section 3). The SMP2 SEA objectives are shown in Table 5.1.

These objectives were developed for the relevant SEA receptors described in the EU SEA Directive (2001/42/EC), using Defra SMP Guidance (20061), Strategic Environmental Assessment (SEA) guidelines and through internal discussions.

The objectives were developed following identification of key environmental features and assets associated with coastal erosion and flood risk along the coastline, through a review of aerial photography, maps, consultation with stakeholders and an understanding of the strategic environmental issues along the coastline. The objectives have been developed to ensure compatibility with the scoped in SEA receptors.

These objectives provide the framework upon which sustainable policies were developed and appraised in relation to risks from coastal flooding and erosion and to determine the suitability of different options for management of the coast.

Assessment criteria have also been developed that focus on key issues that may have a significant influence on the development of the SMP2. These criteria are posed as questions to help describe the effects of the SMP2 on the environment.

The issues and objectives identified as part of the Plan development, including appraisal of their importance, are detailed in Appendix E Issues and Objectives Evaluation of the main SMP report.

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<sup>1</sup> Defra, 2006. Shoreline Management Plan Guidance. Volume 1: Aims and Requirements. Volume 2: Procedures. Available from: <http://www.defra.gov.uk/enviro/fcd/guidance/SMP2.htm>

**Table 5.1: SEA Objectives and Assessment Criteria**

SEA/Management Objective		SEA Assessment Criteria
1.	To minimise coastal flooding and erosion risk and its impact on people, coastal land use and future development plans. (Population and Human Health, Material Assets)	Will the policy approach impact residential properties?  Will the policy approach impact community facilities? (e.g. surgeries, hospitals, aged persons homes, schools, churches, libraries, etc)?
2.	To minimise coastal flood and erosion risk to critical infrastructure and maintain critical services. (Material Assets)	Will the policy approach impact A, B and minor roads?  Will the policy approach impact East Coast railway lines and stations?  Will the policy approach impact pumping stations, sewage works and outfalls?  Will the policy approach impact access for emergency services?
3.	To support natural coastal processes (Biodiversity, Flora and Fauna, Water)	Will the policy protect and enhance natural processes?
4.	To maintain and enhance the integrity of internationally/European designated nature conservation sites and the favourable condition of their interest features (Biodiversity, Flora and Fauna).	Will the policy approach have a likely significant effect on a European site?
5.	To maintain and enhance nationally designated conservation sites and their interest features. (Biodiversity, Flora and Fauna)	Will the policy approach impact SSSI (biological and geological) and NNRs?
6.	To avoid adverse impacts on, conserve and enhance the designated interest of local conservation sites. (Biodiversity, Flora and Fauna)	Will the policy approach impact LNR, SWT Nature Reserves?  Will the policy approach impact RIGS?  Will the policy approach impact GCRs?
7.	To maintain and enhance features as a natural flood defence and identify new areas for coastal habitat creation as natural flood defences. (Water / Soil / Geology)	Will the policy protect and enhance existing natural flood defences e.g. beaches and dunes systems?  Will the policy provide new opportunities for coastal habitat creation to act as natural flood mitigation?

SEA/Management Objective		SEA Assessment Criteria
8.	To support the achievement of good ecological and chemical status/potential under the EU WFD	Will the policy impact on surface and ground waterbodies?  Will the policy impact on morphological capacity and hydromorphological status?
9.	To enhance the aesthetic and landscape quality of the coastline. (Landscape)	Will the policy approach impact landscape features including wide sandy bays, estuaries and estuarine mudflats, sand dune systems and links, and maritime cliffs and rocks?
10.	To minimise coastal flood and erosion risk to scheduled and other nationally, regionally or locally important archaeological and cultural heritage assets, sites and their setting. (Cultural Heritage / Historic Environment)	Will the policy approach impact Scheduled Monuments?  Will the policy approach impact Listed Buildings?  Will the policy approach impact non-designated archaeological sites of local importance?
11.	To minimise coastal flooding and erosion risk to key recreation and tourism assets and activities. (Population / Human Health / Material Assets)	Will the policy approach impact recreation and amenity facilities (visitor attractions, golf courses, caravan parks, bathing beaches, promenades, cycle routes, public footpaths, etc)?
12.	To enhance the tourism value of the coast and aim to incorporate and improve recreation, tourism and visitor management. (Population / Material Assets / Biodiversity)	
13.	To minimise coastal flood and erosion risk to industry, commercial and economic activities and Ministry of Defence land. (Population / Material Assets)	Will the policy approach impact businesses, factories, warehouses, areas identified for regeneration, military establishments and others key areas of employment?  Will the policy approach impact MoD Exclusion Zones?
14.	To minimise the impact of policies on marine operations and activities. (Material Assets / Population)	Will the policy approach impact ports and harbours?  Will the policy approach impact access to the sea and navigation?
15.	To minimise the impact of policies on fishing activity. (Water / Biodiversity / Material Assets / Population)	Will the policy approach impact commercial fishing grounds and shell fisheries?
16.	To minimise coastal flood and erosion risk to agricultural land. (Soil / LandUse / Population)	Will the policy approach impact Grades 1 – 3A Farmland?

## 6 Consultation

### 6.1 Approach

Full details of all stages of stakeholder engagement undertaken during development of the draft Plan are presented in Appendix B ‘Stakeholder Engagement’ of the main SMP report, together with the responses received. This includes the copies of briefing materials and records of stakeholder inputs.

Consultation has been central to the development of the SEA in order to arrive at a SMP that is acceptable to as many parties as possible and to engage those parties in the process. Effective external stakeholder and public engagement has been essential for data collection, identification of key issues, definition of SEA objectives, development of policy scenarios and the selection of the preferred SMP.

The main purpose of communicating with stakeholders throughout the development of the SEA is to:

- contribute to the success of the SMP and improve decision-making in the coastal zone by
  - raising awareness of environmental management issues relating to tidal flooding and coastal erosion;
  - allowing stakeholder input into the environmental decision-making in the context of the SMP;
  - Informing the development of the SEA by identifying, and where appropriate, addressing the concerns of external parties
  - giving stakeholders an opportunity to comment on the environmental appraisal of options;
  - allowing representations made by stakeholders to be taken into account throughout the SEA process, particularly in the selection and environmental assessment of policy options.
  - giving the public an opportunity to comment on the preferred policies; and
  - ensuring that the completed SMP influences coastal management decisions, plans and strategies (e.g. development planning).
- meet regulatory requirements for consultation under the EU SEA Directive.

The consultation process has been active from the inception stage and has continued throughout the development of the SMP. The main activities have comprised: -

- Invitations to provide data and comments on key concerns;
- Circulation of documents for comment
- Stakeholder meetings and workshops.

### 6.2 Stakeholders

The consultation groups (‘stakeholders’) that were actively consulted at key points throughout the SEA and SMP are listed in Appendix B ‘Stakeholder Engagement’ of the SMP report. Key stakeholders were identified early on in the SMP2 process and invited to join the Client Steering Group (CSG). The CSG comprises representatives from Angus Council, Halcrow, University of Dundee, Dundee City Council, Historic Environment Scotland, SEPA, SNH, Scottish Water, Marine Scotland, Aberdeenshire Council, Ministry of Defence (MoD), Network Rail and Tay Estuary Forum with a remit to agree the various stages of the SMP as it progresses.

This group has met throughout the SMP development, agreeing to the outputs once they have been discussed with stakeholders.

### 6.3 Stages of Consultation

Tables presenting the stakeholder strategy for both the SMP and SEA are provided in Appendix B ‘Stakeholder Engagement’ of the main SMP report.

Key stages of consultation on the SEA and SMP2 are as follows: -

- April 2012: First meeting with the CSG to introduce the SMP2 and SEA, and outline the role of the CSG
- June 2012: Second meeting with the CSG to discuss the proposed SMP2/SEA objectives and initial assessments undertaken including the SEA.
- September to early October 2012: Correspondence with SNH and SEPA to agree the format of the SEA assessment tables, and liaison with SNH regarding the HRA Screening of the SMP2.
- October 2012: Third meeting with CSG to discuss the process undertaken to appraise and identify the preferred policies and to agree the final policy approach.
- October 2012 to February 2016: Correspondence with SNH in relation to the HRA.
- March 2016: completion of the draft SEA and SMP2, for public consultation.

### 6.4 Consultation Responses

A range of consultation responses have been received during the development of the SMP and SEA. A summary of the key responses received during consultation on the draft SMP and SEA is provided in Table 6.1.

Table 6.1: Consultation Responses

Organisation	Comments	Actions
<p><b>Historic Environment Scotland</b></p>	<p>Agree with scoping in the historic environment with SEA objectives identified for the historic environment. The extensive baseline work is welcomed and will focus the assessment on significant issues associated with current/predicted effects of coastal planning for climate change. HES welcomed approach to mitigation and monitoring. The practices outlined to bring together the monitoring framework of the SMP and SEA provide a practical solution to strengthen the influence of environmental considerations in the plan-making process. Content with the minimum 6 week consultation period stated in the scoping report.</p> <p>Provided comments on the draft SMP2 in 2016. Welcomed the preparation of the plan for Angus and recognise the threat posed by climate change and in particular increased coastal erosion on the historic environment resource of Scotland. HES recognised that a practical response in certain cases is the effective survey and recording of such sites. As the preferred policy approach will understandably lead to the continued pressure on this resource along the coast of Angus it is therefore of great importance that mitigation measures and, where appropriate, recording strategies are identified for sites under threat</p> <p>HES are content to agree with the preferred policy approach outlined within the Shoreline Management Plan. Provided some detailed comments on the SEA, mainly relating to updating the baseline environment with further historic resources and associated assessment. For example, this included comments on Kaim of Mathers Castle Scheduled Monument and erosion noted at Red Castle, Lunan Bay. They also clarified responsibilities towards monitoring the effects of the plan.</p>	<p>No action required</p> <p>No action required</p> <p>Update draft SMP2 historic environment baseline accordingly.</p>

Organisation	Comments	Actions
<p><b>SNH</b></p>	<p>Scope: SNH are content with the scope and level of detail proposed for the ER.</p> <p>HRA: Suggest clearly documenting HRA and SEA appraisals separately, and cross-referencing HRA in the ER. The HRA should use, and appropriately apply correct terminology.</p> <p>Assessment methodology: Section 7.1: SEA Framework. The description in the issues and objectives tables of how alternative policy scenarios will affect each feature should identify and clarify any significant environmental impacts, changes to policies proposed and, provide a clear rationale for the SMP2.</p> <p>SNH are unclear as to how the “SEA assessment criteria” detailed on pages 18/19 of the Scoping Report’ will be used in this assessment as the table refers to “relevant objectives.” It would be helpful to show the assessment matrix and the qualitative assessment populated with examples to show the approach. We recommend clarification of this assessment prior to the process commencing. We welcome the inclusion of mitigation measures/environmental opportunities as a column in this table and are content with the scoring system proposed.</p> <p>Recommended changes to SEA objectives 3 and 6 and associated assessment criteria.</p>	<p>A standalone HRA is appended to the overall SMP, and the conclusions are summarised in this SEA ER.</p> <p>This is considered in the assessment.</p> <p>The SEA assessment criteria have been used as a guide when the relevance of each of the objectives.</p> <p>An example assessment table was provided to SNH on 26 September prior to the start of the assessments. SNH confirmed agreement with proposed assessment matrix on 28 September.</p> <p>The objectives have been separated, as suggested. Assessment criteria revised to reflect comments</p>

Organisation	Comments	Actions
	<p>Recommend an objective to protect the wider soil resource including carbon rich soils and an objective relating to the protection of European Protected Species and protection and enhancement of wider biodiversity and geodiversity interests as the existing objectives for “Biodiversity, flora and fauna” are currently focused on impacts on designated sites.</p> <p>Suggest that some of the SEA objectives and criteria are not relevant to the SEA process - such as impact on MoD exclusion zones.</p> <p>SNH note that the Scoping Report proposes a minimum period for consultation on the Environmental Report of 6 weeks and are content with this.</p> <p>Scoping report provides clear/relevant information on the scope/level of detail of the assessment and covers most aspects. Generally content with the SEA objectives. SEPA note and welcome that a WFD- related assessment will be undertaken. SEPA would be pleased to provide informal advice during the assessment. Links to guidance documents provided. SEPA are content with the time period for consultation.</p> <p>SEPA is currently developing new coastal flood risk and hazard maps to meet with the requirements of the Flood Risk Management (Scotland) Act 2009.</p>	<p>Protecting the soil resource is important but this objective will not influence coastal management and has been excluded. Difficult to assess strategically unless wider soil resource data/location of carbon rich soils is available. The quality/value of agricultural land/productivity was used to differentiate between options, including consideration of contamination sources.</p> <p>At this level, it is not viable to use EPS to differentiate between coastal management options, without surveys. The SEA notes that these will be considered during future EIAs. At a strategic level, the wider biodiversity and geodiversity features along the coastline, are present within the designated sites.</p> <p>Finally, our approach (based on Defra guidance) integrates the SEA and SMP processes with a standalone ER. Our appraisal needs to encompass the MoD exclusion zone to ensure that it is considered in the SMP. We feel this best fits within material assets (importance of MoD land) and population (e.g. due to its potential effects on ‘health’ if live ammunitions are tidally inundated). SEA guidance considered during SEA.</p>



Organisation	Comments	Actions
<b>SNH</b>	<p>SNH provided comments on the draft SMP2, SEA and HRA in 2016. Suggested some additional relevant updated references, and the relevance of the National Coastal Change Assessment. Recommended a “shadow HRA” for the draft marine SPA (dSPA) Outer Firth of Forth and St Andrews Bay complex is completed and provided guidance on the species that may be affected by the loss of intertidal habitat from coastal squeeze.</p> <p>Suggested Local Nature Conservation Sites could be considered to be used mitigate habitat loss anticipated within the SMP2. Commented on monitoring programmes that may be in place.</p> <p>Commented that non-intervention policy would have a neutral rather than beneficial effect on biodiversity (such as at MU3, 4, 5, 6 and 9) as it would be a continuation of a ‘natural’ change process. Requested clarifications of the coastal processes that had been assumed in the long term (relating to their impact on the condition of habitats), such as the rates of sea level rise estimates were based on.</p> <p>SNH noted some inconsistencies relating to the potential for habitat loss at Barry Sands East from the Hold the Line policy from ‘direct loss in footprint of defence works’. In the HRA SHN recommended clarity that ‘required mitigation’ provided for impacts that had been screened out would undermine the reasoning behind the ‘no likely significant effects’ conclusion.</p> <p>Noted that they did not accept that habitat gains from the Bridge of Dun managed realignment policy would offset losses from temporary scouring in the short term, due to the time required to develop high quality habitat (e.g. saltmarsh).</p>	<p>The SMP2 was updated with the suggested references. A “shadow HRA” of the Outer Firth of Forth and St Andrews Bay complex pSPA was completed. Angus Council was consulted about the use of LNCS to mitigate for habitat losses.</p> <p>The significance levels for the effects of the policies on designated nature conservation sites subject to the continuation of NAI or MR policies were reviewed. As a result, some levels were reduced, but overall were considered to be beneficial for biodiversity (which is in line with the approach used in other SMPs). The ‘natural’ change noted was as a result of the previous coastal management policy to promote natural processes. Continuing to encourage natural processes would enable coastal habitats to be maintained and develop, such as by rolling-back where erosion is predicted, which is beneficial as opposed to being constrained or lost by selecting HTL or ATL policies.</p> <p>The HTL policy at Barry Sands East was clarified as involving maintenance and limited intervention rather than upgrading of existing defences, so the references to direct loss of habitats from expanding defence footprints could be removed for clarity. Reference to ‘required mitigation’ for impacts that had been screened as ‘no significant effects’ was removed, for clarity.</p> <p>Reference to offsetting of scour impacts from managed realignment was removed.</p>

Organisation	Comments	Actions
SEPA	<p>Consider SMP2 policies SMP2 may exacerbate pressures on water environment, compromise in any way the proposed measures to address them or whether they offer opportunities for enhancement or restoration (e.g. through improvements to modified habitat).</p> <p>The structure and condition of the intertidal zone is a quality element under WFD. There is a need to protect the remaining areas of intertidal zone along some stretches of developed coastline as these areas have become fragmented/degraded by the coalescence of development in the past.</p> <p>The SEA offers an opportunity to show how the SMP will contribute positively to climate change adaptation and to ensure that proposals are resilient to the expected effects of climate change. During the assessment, consider the medium and long-term implications of climate change so that synergies between the SMP aims and climate change adaptation aims are maximised. Ensure that policy options are flexible and resilient. Some of the options are likely to require investment in new infrastructure and decisions made now are likely to have medium and long-term implications. The SEA process can assist the “climate proofing” of the policies in the SMP2.</p> <p>During decision-making, consider the relative carbon emissions of different policy options, i.e. “NAI” will have less impact on greenhouse gases than a policy requiring infrastructure construction.</p> <p>SEA Framework: Generally content with approach to the environmental appraisal and welcome the provision of a draft monitoring framework. The SEA offers opportunities for enhancement. For site level mitigation, it would also be useful to provide a clear framework setting out how, when and by whom mitigation measures will be implemented and then, through the monitoring process, tracked regarding progress. May be useful to seek input from the Consultation Authorities in relation to monitoring indicators, which should as far as possible establish a clear link between SMP implementation and its potential environmental effects. Wherever possible, existing monitoring frameworks can be used effectively to meet SEA</p>	<p>Noted.</p> <p>A draft monitoring framework has been prepared (Section 8.7) as part of the SEA and we welcome comments from the Consultee Authorities on the indicators proposed.</p> <p>RM to research and clarify the wording. (CSG Meeting 2)</p>

Organisation	Comments	Actions
	<p>monitoring requirements</p> <p>MM requested clarification on the wording of “minimising flood risk” or “reducing flood risk”; the later is a requirement under the flood risk management act.</p> <p>DIO representing the MOD (MOD) asked if wind farms would be addressed in SMP2.</p>	<p>It was agreed within the CSG that wind farm developments are outside the remit of SMP2 and should be discussed with Marine Scotland as a planning issue.</p>
	<p>SEPA provided comments on the draft SMP2 and SEA in 2016. SEPA were mostly satisfied that the Environmental Report (ER) provides a satisfactory assessment of the potential significant environmental effects arising from the Shoreline Management Plan 2 (SMP2). SEPA is content that most of SEPA comments at the Scoping Report consultation stage have been taken into consideration in this SEA ER.</p> <p>SEPA suggested some minor changes to the SEA and WFD work, including wording about WFD and RBMPs, updating the ecological status of the waterbodies, referring to the NFM handbook, using latest indicative flood risk maps. SEPA recommended the inclusion of the impacts on morphological capacity and hydromorphological status, and presenting some guidance on land use planning in areas of flood risk.</p> <p>The updates recommended to the WFD assessment included bringing it up to date with the changes to transitional waterbodies, and discussing implications on marine morphology further. They provided information on coastal storm events and the existing baseline conditions in several of the management units, beneficial recharge from dredging, and the proposed Carnoustie flood forecasting scheme.</p> <p>SEPA recommended the submission of an SEA Statement post-publication via the Scottish Government SEA Gateway.</p>	<p>The recommendations have been included in the updates to the SMP2 documents.</p> <p>The SMP2 has been updated to include guidance on planning and preventing development in areas of risk, such as “no development zones” to guide future decision-making.</p> <p>Angus Council will submit a SEA Statement after adoption of the SMP2.</p>

## 7 Options Appraisal

### 7.1 Identification and Review of Alternative Options

Four generic options were considered as part of the policy plan and these are listed in Table 7.1. The shoreline management policies considered are those defined by Defra (2006).

**Table 7.1: SMP Policy Options**

SMP Policy Option	Description
Hold the line	Maintain or upgrade the level of protection provided by defences.
Advance the line	Build new defences seaward of the existing defence line.
Managed realignment	Allowing retreat of the shoreline, with management to control or limit movement
No active intervention	A decision not to invest in providing or maintaining defences.

A ‘with present management’ policy was also assessed during the development of the SMP. This policy assumes that the present management practices will be continued indefinitely, regardless of economic or technical constraints.

In order to ensure that all potential impacts of a coastal management policy decision are considered, rather than looking at individual policy units (i.e. frontages for which a single SMP policy option applies), the SMP guidance (Defra 2006) suggests developing a policy scenario. For the Angus SMP, a ‘string’ of SMP policy options over a discrete stretch of coastline were defined.

**Appendix G** ‘Scenario Testing’ of the main SMP report presents the results of the initial consideration of the generic policies if they were applied over all three epochs at each location along the coastline. Using the findings of **Appendix F**, ‘policy scenarios’ were defined. These policy scenarios identify the possible flood and erosion risk management combinations (over the three epochs) taken forward for detailed consideration, and identifies why the alternatives have not been considered.

Up to a maximum of three ‘policy scenarios’ were developed for appraisal against the environmental features identified along the coastline. For each policy scenario to be appraised, draft management units were identified and for each management unit one of the four SMP2 policy options was assigned to each of the three epochs 0-20 years (short-term), 20-50 years (medium-term) and 50-100 years (long-term).

**Appendix F** identifies the environmental impacts of each of the alternative scenarios developed through an assessment of the SEA receptors set out in the SEA Directive, and has helped to identify the preferred environmental policy scenario for each coastal process unit.

The selection of the preferred policy scenarios involved a comparison of the impacts of each alternative scenario on the environmental features and SEA receptors identified. The preferred environmental scenarios were selected as the preferred policy scenarios unless they were considered inappropriate; either technically unfeasible or socially unacceptable. An example of a preferred environmental scenario would be the presence of a European site supporting intertidal habitat - the preferred environmental scenario would generally be to

either allow managed realignment or no active intervention of the coastline in order to allow the intertidal habitat to roll back naturally with sea level rise (unless constrained by inland features).

Where a preferred policy scenario was selected on social grounds e.g. holding the line to protect a significant community from flood or erosion risk, consideration was given to implementing the preferred environmental scenario (e.g. managed realignment) (identified in the environmental assessment) in a later epoch; thus allowing the local population time to adjust to the coastal change.

The results of this assessment, in terms of risks to coastal features, were then used to appraise the achievement of objectives for the policy scenarios. This is reported in the issues and objectives table in Appendix E of the main SMP report.

## **7.2 Environmental Appraisal of Alternative Options**

### **7.2.1 Assessment Methodology**

The assessment criteria (see Table 5.1) were used to help describe the effects of the SMP2 on the environment.

An assessment of the No Active Intervention policy was initially undertaken throughout the coastline and is provided in a tabulated format in Appendix C of the main SMP report. The implication of No Active Intervention on the features and issues identified were analysed to determine the potential environmental effects on the SEA receptors.

A qualitative description was then provided in the Issues and Objectives Tables of how alternative policy scenarios affect each environmental feature scoped into the assessment. Alternative policy scenarios were appraised only where there was a clear need to protect identified assets.

### **7.2.2 Environmental Effects of Alternative Options**

The generic impacts associated with each alternative SMP option is shown in Table 7.2.

The environmental impacts of each of the alternative policy scenarios on SEA receptors are described in Appendix F of the main SMP report.

**Table 7.2: Generic Impacts of SMP Options**

SMP	Potential Positive Impacts	Potential Negative Impacts
Hold the Line	<p>Protection of communities (residential, industrial, agricultural and commercial assets) and infrastructure</p> <p>Protection of habitat landward of existing defences</p> <p>Protection of freshwater resources (e.g. abstractions and boreholes)</p> <p>Protection of material assets located behind defences</p> <p>Protection of recreational, cultural and historical assets landward of the defences and provision of opportunities to improve the condition of heritage features/sites</p> <p>Protection of potential sources of contamination</p>	<p>Coastal squeeze (loss of intertidal habitat)</p> <p>Interruption of coastal processes, maintenance the current morphological capacity and hydromorphological status</p> <p>Potential increase of flood and coastal erosion risk elsewhere along coastline</p> <p>Promotion of unsustainable land use practices</p> <p>Ongoing commitment to future investment for maintenance and improvement of defences</p> <p>Change in landscape character and reduced visual amenity and views of sea if defences raised or new defences constructed</p>
Advance the Line	<p>Provision of additional space for communities</p> <p>Protection of communities and infrastructure from coastal flooding/erosion</p> <p>Protection of habitat landward of original defences</p> <p>Protection of freshwater resources (e.g. abstractions and boreholes)</p> <p>Protection of material assets located behind defences</p> <p>Protection of recreational, cultural and historical assets landward of the defences</p> <p>Protection of potential sources of contamination</p>	<p>Reduction in extent of intertidal habitat</p> <p>Change in function of the existing habitats</p> <p>Increased coastal squeeze</p> <p>Interruption of coastal processes</p> <p>Loss of morphological capacity, reduction in hydromorphological status class</p> <p>Potential increase in rate of coastal erosion either side of the advanced line</p> <p>Uncertainty of effects</p> <p>Reduced visual amenity and change in landscape</p>

SMP	Potential Positive Impacts	Potential Negative Impacts
Managed Realignment	<p>Landward migration of coastal habitat under rising sea levels to realigned defence</p> <p>Creation of wetland habitat in line with UKBAP and local BAP targets</p> <p>Creation of habitat for juvenile fish and other aquatic organisms (benefits to environment and fishing communities)</p> <p>Reduction of flood/erosion risk to some areas</p> <p>Promotion of natural coastal processes and contribution towards a more natural management of the coast</p> <p>Creation of high tide bird roosts and feeding areas</p> <p>Maintenance of geological exposures and earth heritage features</p>	<p>Increased flooding/erosion of realigned area</p> <p>Potential to free up morphological capacity and improve hydromorphological status</p> <p>Change in condition or reduction of terrestrial/freshwater habitat landward of defences</p> <p>Impact upon aquifers and abstractions</p> <p>Loss of some assets in hinterland of defences (e.g. residential, industrial, agricultural and commercial assets)</p> <p>Loss of recreational, heritage and cultural heritage features</p> <p>Uncertainty of effects</p>
No Active Intervention	<p>Landward migration of coastal habitats under rising sea levels</p> <p>Promotion or continuation of natural coastal processes</p> <p>Potential discovery of unknown archaeology</p> <p>Maintenance of geological exposures and earth heritage features</p>	<p>Uncontrolled flood/erosion risk</p> <p>Potential to free up morphological capacity and improve hydromorphological status</p> <p>Uncertainty of effects and time for adaptation</p> <p>Increased risk of inundation to landward habitats under rising sea levels</p> <p>Impact upon aquifers and abstractions</p> <p>Loss of communities or community assets</p> <p>Loss of and damage to heritage and cultural features</p> <p>Risk of flooding/erosion of contaminated areas</p> <p>Deteriorating defences become unsightly</p> <p>Hazard to public access and loss of public rights of way.</p>

## 8 The Draft Plan

### 8.1 Identification of Preferred SMP2 Policy Scenarios

Table 8.1 presents the preferred policy scenarios, which have been selected based on the environmental appraisal, technical and economic appraisal of alternative policy scenarios.

A preferred policy scenario has been defined for each of the 38 individual management units. Policy Statements have been developed that set out how the management of the coast is to be undertaken that accounts for the needs of each individual management unit in the wider coastal context. The Policy Statements present the preferred policy scenario for each Management Unit, identifying its justification and how it will be achieved over the 100 year period. They also present the detailed implications of the policies and identify any mitigation measures that would be required in order to implement the policy.

**Table 8.1 Preferred Policy Scenarios for the SMP2 coastline**

Management Units	Short-term (0-20 years)	Medium-term (20-50 years)	Long-term (50 – 100 years)
MU 1/1 Montrose Bay (Milton Ness to Montrose Links)	NAI	NAI	NAI
MU 1/2 Montrose Golf Links	MR	MR	MR
MU 1/3 (a) Splash (The Faulds)	HTL	HTL	MR
MU 1/3 (b) South Links Holiday Park	HTL	HTL	MR
MU 1/4 GlaxoSmithKline	HTL	HTL	HTL
MU 2/1 (a) Montrose Port (north bank – Glaxo to A92 bridge)	HTL	HTL	HTL
MU 2/1 (b) Montrose Port (south bank –A92 bridge to Ferryden)	HTL	HTL	HTL
MU 2/2 (a) Montrose West (A92 Bridge to the end of railway defences)	HTL	HTL	HTL
MU 2/2 (b) Montrose West (Railway defences to Tayock River)	HTL	HTL	HTL
MU 2/3 (a) Tayock (Tayock village)	HTL	HTL	HTL
MU 2/3 (b) Tayock (Tayock Cemetery)	HTL	HTL	HTL
MU 2/4 (a) West Montrose Basin (West of Tayock)	HTL	HTL	HTL
MU 2/4 (b) West Montrose Basin (Bridge of Dun)	MR	MR	MR
MU 2/4 (c) West Montrose Basin (Old Montrose)	HTL	HTL	HTL
MU 2/5 Old Montrose to Railway Bridge	NAI	NAI	NAI
MU 2/6 Rossie Island to A92	HTL	HTL	HTL
MU 2/7 Ferryden	HTL	HTL	HTL
MU 2/8 Ferryden to Scurdie Ness	NAI	NAI	NAI
MU 3/1 Scurdie Ness to Rickle Craig	NAI	NAI	NAI
MU 4/1 Lunan Bay	NAI	NAI	NAI
MU 4/2 Corbie Knowe	NAI	NAI	NAI
MU 5/1 Lang Craig to Whiting Ness	NAI	NAI	NAI



Management Units	Short-term (0-20 years)	Medium-term (20-50 years)	Long-term (50 – 100 years)
MU 6/1 (a) Victoria Park	HTL	HTL	HTL
MU 6/1 (b) Seagate	HTL	HTL	HTL
MU 6/2 Arbroath Harbour	HTL	HTL	HTL
MU 6/3 Inchcape Park to Westway Road	HTL	HTL	HTL
MU 6/4 (a) West Links to East Haven	HTL	HTL	HTL
MU 6/4 (b) East Haven	MR	MR	MR
MU 6/4 (c) East Haven to West haven	NAI	NAI	NAI
MU 7/1 West Haven to Carnoustie Station	HTL	HTL	HTL
MU 7/2 Carnoustie Station to Barry Burn	HTL	HTL	HTL
MU 8/1 Barry Sands East	HTL	HTL	HTL
MU 8/2 Barry Buddon & Barry Sands West	NAI	NAI	NAI
MU 9/1 MoD Boundary to west Tayview Caravan Park	HTL	HTL	HTL
MU 9/2 Monifieth West	HTL	HTL	HTL
MU 9/3 Barnhill to the Esplanade	HTL	HTL	HTL
MU 9/4 Broughty Ferry East	HTL	HTL	HTL
MU 9/5 Broughty Ferry	HTL	HTL	HTL

## 8.2 Environmental Effects of the Plan

An environmental assessment of the preferred policy scenarios is presented in Annex 3 and summarised in Table 8.2. The detailed effects of the preferred policy scenarios on the SEA receptors are presented together with any mitigation measures that would be required in order to implement the policy identified, and opportunities for environmental improvement.

Measures to monitor the environmental effects of implementing the SMP2 are provided in Section 8.

**Table 8.2: Summary of SEA Assessment Tables**

Scenario Area	Summary of Assessment
1 – Montrose	<p>The preferred policies will have a predominantly positive impact on the SEA receptors identified within Montrose including the continued protection of Montrose town, port, industry and caravan park, and associated infrastructure in the short and medium term.</p> <p>However, there will be a significant negative impact on isolated properties along the River North Esk Channel at Kinnaber due to increased flood risk. Consultation with key stakeholders and private owners will be required to develop an adaptation plan to manage the flood risk.</p> <p>There will also be some erosion of the golf course in the north of the Scenario Area. Consideration should be given to the realignment of the golf course due to continuing erosion.</p> <p>Erosion in the north of the bay may have a major negative impact on a Scheduled Monument (Kaim of Mathers Castle) and listed buildings affected by any erosion of the cliff, and minor negative impact on potential buried archaeology, the remains of the Montrose airfield, and well-preserved World War 11 defences which would need to be monitored at a local level.</p>

Scenario Area	Summary of Assessment
	There will also be a minor negative impact on terrestrial and freshwater flora and fauna, and rough grazing land as the saline inundation increases.
2 – Montrose Basin	<p>There will be a predominantly positive effect on population and human health and material assets with the continued protection of residential properties in Montrose town, Sleepyhillock Cemetery, historic assets (including Montrose Conservation Area) and local infrastructure including the A92, East Coast Railway and Montrose Port.</p> <p>Holding the line will constrain natural processes with potential for negative impacts on designated intertidal habitats as a result of coastal squeeze along the northern, western and eastern part of the basin, with associated impacts on designated birds. It is concluded that the SMP2 will not result in coastal squeeze impacts that affect the Natura sites' qualifying features because the Hold The Line policies currently in place are not affecting the condition of the habitats assuming that the sediment regime will largely continue as the current situation over the long term. Analysis of changes in the position of the MHWS line between 1865 and 2004 (Angus Council, 2004) suggest that comparatively little change has occurred due to the relatively mild wave climate experienced within the sheltered waters of basin and this is expected to continue. The majority of the changes within the basin have occurred due to land reclamation and movement of the South Esk river channel.</p> <p>If the current sediment regime changes, under a scenario of rising sea levels (UKCIP09 medium range prediction for Montrose of 0.599m by 2115) and climate change, maintaining the defence line along the northern, eastern and western shores of Montrose Basin may result in the gradual loss of mudflats, with potential deleterious effects on water body status. However, the majority of the shore along the west and south will continue to evolve naturally.</p> <p>Allowing natural processes elsewhere is likely to be beneficial to the existing landscape character, though there is likely to be a visible change in land use in the western parts of the basin, as some parts of the reclaimed land is allowed to flood and set-back embankments are constructed.</p> <p>In areas of potential managed realignment in the west of the basin, there is potential for intertidal habitat creation to offset coastal squeeze losses and provide future accommodation space under rising sea levels. However, this policy will also result in the flooding of some agricultural land.</p> <p>Any potential impacts from proposed works on SPA/Ramsar birds would be avoided through sensitive scheme design and mitigation, and approved via the project's Habitat Regulations Assessment.</p>
3 – Scurdie Ness to Rickle Craig	<p>The continuation of natural processes (low rates of cliff erosion) may benefit flora and fauna and the nationally designated site. There will also be a minor positive impact on the landscape as natural processes will maintain the landscape character.</p> <p>However, there will be a significant negative impact on historic features with a continued erosion risk to the listed Boddin Lime Kilns. The likely impacts on Boddin Lime Kilns will be investigated further at a more local level with Historic Environment Scotland. Where impacts from erosion cannot be avoided, mitigation in the form of recording is likely to be required, with monitoring against the 2010 digital record by Scottish Coastal Archaeology and the Problem of Erosion (SCAPE) and Queen's University, Belfast. There may be minor adverse impacts on erosion affecting Fishtown of Usan, Old Ice house and lookout Tower.</p>
4 – Lunan Bay	There will be positive impacts on flora and fauna, geology and soils, water and landscape through the continuation of natural processes at Lunan Bay. The integrity of Whiting Ness to Ethie Haven SSSI will be maintained. The beach / dune system will continue to provide a natural form of defence to the agricultural land behind, natural processes of coastal water bodies (and

Scenario Area	Summary of Assessment
	<p>any other water body) will not be constrained and landscape character will be maintained.</p> <p>However, there be will be a significant negative impact on population and human health from the medium term, as existing defences reach the end of their effective life and increased erosion threatens the holiday chalets at Corbie Knowe. Consultation with key stakeholders and private owners will be required to develop an adaptation plan to manage the increasing erosion risk. There may be minor adverse impacts from erosion affecting heritage assets such as the Red Castle midden site, and world war 11 assets, which would be monitored.</p>
5 – Lang Craig to Whiting Ness	<p>There will be positive impacts on flora and fauna, geology and soils, water and landscape through the continuation of natural processes including maintaining the integrity of Whiting Ness to Ethie Haven SSSI.</p> <p>However, there will be minor negative impacts on some population and material assets including potential erosion risks to cliff top paths, and access roads to Auchmithie and Ethie Haven. Ongoing monitoring of the risk posed by isolated cliff falls should be undertaken. Localised maintenance/relocation of the footpath may be required, should sections of the path become at risk from isolated cliff falls.</p> <p>In addition, there may be a significant negative impact on some nationally important historic assets near the cliff edge due to cliff falls. The likely impacts of the preferred SMP policy option on the historic sites will be investigated further at a more local level with Historic Environment Scotland. Where the avoidance of the features from erosion is not possible, mitigation is likely to be in the form of excavation and recording.</p>
6 – Arbroath to West Haven	<p>The preferred policies will have a predominantly positive impact on the SEA receptors. There will be continued flood and erosion protection to Arbroath (including Victoria Park and Seagate) and the harbour area, which is considered a significant beneficial impact. There will also be significant positive impacts on historic features in Arbroath with the continued flood protection of St Ninians Well, Arbroath Harbour, Old Arbroath Harbour and Signal Tower Museum. There will also be continued protection of a Conservation Area, existing commercial assets, recreational assets (although there may be potential narrowing of beaches) and local infrastructure.</p> <p>There will be a minor beneficial impact on East Haven SSSI as dunes are managed to allow natural evolution to continue, and beneficial impacts on agricultural land in the area as the rock platform and beach will continue to provide protection to the Class 1 agricultural land on the raised beach and protection of the shore.</p> <p>Allowing natural processes to continue will maintain the landscape character to the south. In the north, where defences will continue to be maintained, there will be no change to the urban landscape.</p> <p>However, there will be a significant negative impact at East Haven due to the increased flood risk to low lying properties in this village. Where there is a risk of flooding at East Haven, consultation with key stakeholders and private owners will be undertaken and an adaptation plan will be developed allowing the community to continue with the managed realignment policy. There is also potential for adverse impacts on archaeology in the Victoria Park and Inchcape areas from upgrading of defences, on to World War 11 assets from erosion, which would be subject to archaeology monitoring.</p>
7 – Carnoustie	<p>There will be a significant positive impact on population and human health with continued flood protection to Carnoustie and West Haven including the championship golf courses, the East Coast Railway line and recreational assets. The dune system will remain stable and intertidal rock platform will continue to provide natural protection to this stable frontage, maintaining the existing landscape character of land in the hinterland.</p>

Scenario Area	Summary of Assessment
	<p>However the designated bathing beach at Carnoustie may narrow and lower due to the reflective nature of the defences and coastal squeeze against the defences is likely to occur over time with loss of amenity value, which is considered a significant negative impact. Continued defence maintenance would be required to maintain the water quality of the designated bathing beach.</p>
8 – Buddon Ness	<p>Natural processes will allow the continued evolution of Buddon Ness, and beaches and the dune system at Buddon Ness will continue to provide natural protection to this stable frontage. In addition, the natural processes of transitional water bodies will continue along Barry Sands West frontage, which is considered beneficial.</p> <p>There will be a minor positive impact on population and human health and material assets with continued protection of access tracks and the MoD training camp.</p> <p>However, there may be an increasing flood risk to some minor roads and the low lighthouse (a local heritage asset). Where there is potential flood risk to the low lighthouse, the council should undertake consultation with key stakeholders in developing an adaptation plan to ensure an acceptable approach is developed. There is also a risk that the World War 11 defences may be affected by erosion, and would need archaeological recording.</p> <p>Limited intervention rather than an upgrade of defences is anticipated at this policy unit. Works will require a Habitat Regulations Appraisal to assess potential impacts on the European nature conservation sites.</p> <p>There will be a potential significant impact on the designated sites within this area due to NAI along much of the boundary of this site that constraining natural processes to operate. At Buddon Ness and along the southern section of the western flank, the dynamic nature of the coastline is evident with large temporal and lateral movements in the position of the MHS line between 1865 and 2004. It is therefore assumed that erosion and accretion patterns along the Barry Sands West frontage, resulting from the complex interaction of wave and tidal processes, are likely to continue with the growth of the spit deflecting the Buddon Burn outlet towards the west, while accretion of the beach and dunes is predicted to continue at Buddon Ness. Over time, as sea levels rise, erosion of frontal dunes and natural beach roll back will take place, and is considered likely to be beneficial to the SAC.</p> <p>Holding the line at Barry Links East will also prevent the natural roll-back of the dune habitats, is likely to be detrimental to the Geological Conservation Review (GCR) site and has potential to exacerbate dune erosion to a small part of MU8/2 through cut-back immediately to the southern end of the defences, although overall it is not anticipated that the dunes will be affected assuming current conditions continue with sediment accreting in this management unit.</p> <p>There will be a minor negative impact on water as where defences are maintained at Barry Sands East, beaches may narrow in front of defences, reducing their function of a natural defence. Holding the line at Barry Sands East will perpetuate the disconnection of the beach/dune system and also the absence of a sandy beach. As these impacts are in a large waterbody, the impacts are not considered significant. No mitigation provided for the narrowing of beaches as it is considered that this will be offset by areas of accretion.</p> <p>There will be a minor negative on landscape holding the line at Barry Sands East will result in the continued narrowing of the beach and loss of the dunes with potential changes in landscape character. At Barry Sands East, the natural interaction between the beach and dune habitats will be prevented.</p>
9 – Monifieth to Broughty	<p>There will be a predominantly positive effect on population, human health, material assets and historic features with continued flood and erosion protection of key industrial, residential,</p>

Scenario Area	Summary of Assessment
Ferry	<p>recreational and historic assets including a historic landfill site, Riverview and Tayview Caravan Parks and Broughty Ferry Scheduled Monument.</p> <p>Defence maintenance will maintain the existing landscape character of the frontage therefore there will be a minor positive impact on landscape.</p> <p>In addition, there are opportunities to improve recreational access, features and aesthetics of existing defences in this Scenario Area.</p> <p>There will however, be a significant negative impact on the designated bathing beaches at Monifieth and Broughty Castle as the beach narrows in front of defences, reducing the amenity value of the beach (although accretion in front of some defences at Monifieth playing fields and at Broughty Ferry is expected to continue).</p> <p>The coastal footpath may need to be relocated landward in some locations between Monifieth and Broughty Ferry as it is subject to increasing erosion.</p> <p>There will be a significant negative impact on flora and fauna due to the fact that continued maintenance of defences will constrain natural migration landward of the dune habitats and will result in coastal squeeze of the intertidal habitat due to rising sea levels. However, these are not considered to result in adverse effects on the designated nature conservation sites given there are no known impacts of the current HTL policy on the sites and the considerable fluctuation in erosion and accretion patterns over short durations currently experienced are not anticipated to change. An assessment of shoreline change along this frontage over the past 100 years (Angus Council, 2004) highlights the cyclical nature of erosion and accretion linked to the movements of the sand banks at the mouth of the Tay and over the lower foreshore within Monifieth Bay. These fluctuations are expected to continue into the future. Works will require a Habitat Regulations Appraisal.</p> <p>There will be a minor negative impact on water as beaches narrow in front of defences, reducing their function as a natural defence.</p>

### 8.3 Cumulative Environmental Impacts

SEA requires assessment of secondary, cumulative and synergistic effects. This section sets out the significant environmental effects of the plan as a whole, which have been considered in relation to each of the environmental objectives. It goes on to consider the environmental effects of potential interactions between the SMP2 and relevant plans and programmes within the study area. These findings are summarised in Table 8.3.

**Table 8.3: Cumulative Effects across the SMP Area**

SEA Environmental Objective	Cumulative effects across the SMP2 area (sum of Policy Unit impacts)	Interaction of SMP2 with relevant Plans and Programmes
<p>To minimise coastal flooding and erosion risk, and its impact on people, coastal land use and future development plans (Population and human health, material assets)</p>	<p>For much of the coastline, the preferred SMP policy is to maintain existing defences where economically viable in the long-term, thus having a beneficial impact on people, their health, residential property and community facilities by protecting areas of significant urban development and developed parts of the coastline from flooding or erosion. Protection is predominantly focussed upon larger conurbations (e.g. Montrose, Arbroath, Carnoustie, West Haven, Broughty Ferry etc), where the highest level of benefit is achieved, although there are some smaller settlements e.g. Tayock village that will continue to be protected.</p> <p>Some isolated properties and caravan sites including Kinnaber, Corbie Knowe may be affected by flooding/erosion, as policies leading to a more ‘natural’ shoreline have been identified.</p> <p>For the preferred policy scenarios, the total loss of housing to coastal flooding/erosion through the whole SMP area up to year 2025, is up to about 90 residential and commercial properties. This compares to the no active intervention baseline, when potential erosion losses of up to 580 residential and commercial properties could occur. By year 2055, residential and commercial property losses as a result of coastal erosion could total between 140 and 150, with cumulative losses of between 410 and 430 houses by the year 2105. This compares to the no active intervention baseline, when cumulative house losses could be up to 700 by 2055, and over 1,150 by 2105, i.e. the preferred policies deliver coastal erosion protection to over 700 ‘at risk’ residential and commercial properties over the next 100 years. These figures relate to losses through coastal erosion only. As parts of the SMP frontage are very low lying, overtopping, overflowing/breaching of defences, even where flood defences are maintained, could lead to flooding of over 8,300 residential properties and over 3,200 businesses at risk from flood damage. Roads and footpaths are also at risk of flooding and/or erosion. Coastal walk footpaths can be relocated inland to address the risks.</p> <p>Along frontages where some properties will be lost due to coastal erosion in the medium to long term, the preferred policy includes provision for management of the retreat at some of these locations. This could allow for relocation or mitigation measures to be implemented should there be the mechanisms to do so.</p>	<p>Consider implications of development in coastal areas subject to erosion in consultation with the Local Authorities.</p> <p>Local Development Plans must ensure that the requirements of SPP 1 are fully implemented to ensure no future development in areas of coastal flooding or erosion.</p>
<p>To minimise coastal flood and erosion risk to critical infrastructure and maintain critical services.</p>	<p>For much of the coastline the preferred policy is to maintain existing defences where economically viable. This will help to avoid the loss of critical infrastructure (e.g. East Coast Railway line, Montrose town/port infrastructure, Arbroath Harbour, treatment works and pumping station and major roads such as the A92) along the developed parts of the coastline as far as possible. However, for some sections of the coast, a change in</p>	<p>The forthcoming Local Development Plans will influence the nature and location of new infrastructure. The SMP should help to influence and</p>

SEA Environmental Objective	Cumulative effects across the SMP2 area (sum of Policy Unit impacts)	Interaction of SMP2 with relevant Plans and Programmes
(Material assets)	management policy has been identified where a hold the line policy is no longer acceptable on the grounds of economics, technical sustainability or the environment. Some re-routing of minor access roads may be required in the longer term under this SMP, where it will become increasingly technically difficult to retain coastal frontages.	ensure that new infrastructure is located appropriately and not subject to coastal flooding or erosion.
To support natural coastal processes (Biodiversity, Flora and Fauna, Water)	The proposed plan seeks to balance the protection of natural features by protecting and enhancing (where possible) natural processes, with the maintenance and protection of property and material assets wherever possible. 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 support natural coastal processes and enable to natural evolution of geological sites (e.g. Scurdie Ness Geological Conservation Review site). In general, the SMP is not recommending the construction of new defences to maintain economic assets in areas where none are currently present.	Angus Council's forthcoming Flood Management Plans have the potential to affect the designated nature conservation sites. Policies and actions in these documents will seek to ensure that there are no adverse effects.
To maintain and enhance the integrity of internationally/European designated nature conservation sites and the favourable condition of their interest features (Biodiversity, Flora and Fauna,)	<p>Along parts of the SMP frontage, the Barry Links SAC, Montrose Basin SPA and Ramsar site, and the Firth of Tay and Eden Estuary SAC, SPA and Ramsar site support a range of internationally designated habitats including heathland, dunes, estuary, mudflats and sandbanks and associated breeding/overwintering bird species and common seal (Firth of Tay SAC only). A HRA screening exercise was undertaken which concluded that there are potential 'likely significant effects' on these international/European sites from the SMP2 alone and in combination with other policies, plans and projects.</p> <p>Where some minor habitat loss has been identified over the lifetime of the SMP2, it was concluded that this is a result of natural change due to sea level rise and in locations where a NAI policy has been selected as part of the overall SMP.</p> <p>There will be opportunities for habitat creation associated with Managed Realignment (e.g. at MU 2/4b), which can support the integrity of the designated sites and offset coastal squeeze losses and provide future accommodation space under rising sea levels.</p> <p>Careful management of the shoreline is necessary to sustain the designated habitats already in place, while managing for 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.</p> <p>In conclusion, following discussion with SNH about the potential impacts, mitigation and monitoring proposed, an appropriate assessment was completed and presented in the HRA has recorded 'no adverse effects on the</p>	<p>Angus Council's forthcoming Flood Management Plans have the potential to affect the designated nature conservation sites. Policies and actions in these documents will seek to ensure that there are no adverse effects.</p> <p>Potential for managed realignment at Montrose Basin and the proposed development in TAYplan's SDP, proposed SDP and Angus LDP to have cumulative impacts on the designated sites due to a combined loss of non-designated land supporting SPA/Ramsar birds. These projects will need to satisfy planning policies and legislation (such as the Habitats Regulations) that will require consideration of the potential impacts and ensure the protection of</p>

SEA Environmental Objective	Cumulative effects across the SMP2 area (sum of Policy Unit impacts)	Interaction of SMP2 with relevant Plans and Programmes
	integrity' of these sites.	these sites.
To maintain and enhance nationally designated nature conservation sites and their interest features (Biodiversity, Flora and Fauna)	<p>Along parts of the SMP frontage, some nationally designated interest features may be affected or lost due to sea level rise and coastal squeeze (e.g. intertidal habitats at Montrose Basin SSSI with impact on wintering waders. However, in many areas a preferred long-term policy of no active intervention or managed realignment will continue to enhance intertidal habitat features.</p> <p>Careful management of the shoreline is necessary to sustain the designated habitats already in place, while managing for 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.</p>	<p>Angus Council's forthcoming Flood Management Plans have the potential to affect the designated nature conservation sites. Policies and actions in these documents will seek to ensure that there are no adverse effects.</p> <p>National BAP targets will be met through a variety of mechanisms, and during the implementation of the SMP, Angus Council will work with the partners of the other plans to ensure that these targets are met.</p>
To avoid adverse impacts on, conserve and enhance the designated interest of local conservation sites (Biodiversity, Flora and Fauna)	<p>Along parts of the SMP frontage, habitats have been designated under local policies for their conservation interests. In some of these areas, the preferred plan will result in the loss of some designated habitat while in other areas, it may result in habitat creation (e.g. at Montrose Basin LNR).</p> <p>Careful management of the shoreline is necessary to sustain the designated habitats already in place, while managing for 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.</p>	<p>Angus Council's forthcoming Flood Management Plans have the potential to affect the designated nature conservation sites. Policies and actions in these documents will seek to ensure that there are no adverse effects.</p>
To maintain and enhance features as a natural flood defence and identify new areas for coastal habitat creation as natural flood defences (Water/Soil/Geology)	<p>Generally, natural flood defences such as sand dunes, saltmarsh, a spit and intertidal rock platforms will be able to evolve naturally and will continue to act as natural flood defences along the coastline, although some dune management will be required in some areas. However, where defences continue to be maintained such as at Arbroath and there will be some beach narrowing over time, there will be some reduction in the function of the beaches as natural defences.</p>	<p>Angus Council's forthcoming Flood Management Plans have the potential to affect the designated nature conservation sites. Policies and actions in these documents will seek to ensure that there are no adverse effects.</p>
To support the achievement of good ecological and chemical	<p>In all areas along the coastal frontage, the preferred SMP policy provides continued protection from flooding or erosion to the potentially polluting features such as industrial assets and landfills.</p>	<p>Local Development Plan policies provide protection for the water</p>



SEA Environmental Objective	Cumulative effects across the SMP2 area (sum of Policy Unit impacts)	Interaction of SMP2 with relevant Plans and Programmes
status/potential under the EU WFD (Water)	Regarding the potential impacts on physical condition of water bodies, the preferred SMP policy does not propose Advance The Line, which would have most potential to affect the morphological capacity and hydromorphological status. The inclusion of Managed Realignment and No Active Intervention will contribute to improving morphological capacity. However, where Hold The Line defences are upgraded, there could be possible for impacts on the physical condition of water bodies.	environment. Implementation of the SMP will try to ensure full adherence to these policies (wherever possible) through coastal management activities. TAY Plan Strategic Development Plan and Local development Plans must ensure that the requirements of SPP are fully implemented to ensure no pollution to coastal/estuarine waters.
To enhance the aesthetic and landscape quality of the coastline (Landscape)	The preferred long-term policies in this SMP are intended to sustain the urban areas through proactive management of the existing beaches and defences, whilst recognising that new linear and possibly shoreline control defences may be needed in the longer term; although in general the Plan is not to construct new defences in currently undefended areas so much of the coastline will remain as today. However, opportunities for forming a free functioning natural coastline in some areas have been taken, to create a more natural coastal landscape and reducing piecemeal man-made structures on the beach. This is more beneficial to the landscape than a policy of defending the whole coastline, which would involve construction of new, more substantial defences, which in some places would also be unlikely to be technically sustainable or economically viable., Where a no active intervention policy is recommended, i.e. at Montrose Basin (west) and Corbie Knowe, there is the potential for unsightly defences as they deteriorate in the long-term.	The SMP policies will be developed and implemented in accordance with the landscape and open space policies of the Local Development Plans
To minimise coastal flood and erosion risk to scheduled and other nationally, regionally or locally important archaeological and cultural heritage assets, sites and their setting. (Cultural Heritage/Historic Environment)	There are a wide range of heritage sites along the coast and many more of these will be protected through the preferred policies than would survive under a no active intervention policy. These include Conservation Areas (e.g. Montrose Town, Arbroath and Broughty Ferry), heritage features in Montrose, listed buildings in Arbroath, Arbroath Old Harbour and Broughty Castle. However, along some stretches of coastline, there may be possible damage to or loss of historic environmental features in the longer term due to flooding and/or erosion, as a result of natural change and/or where changes in management policy are proposed, including: <ul style="list-style-type: none"> <li>• Scheduled Monuments e.g. seven monuments between Lang Craig and Whiting Ness;</li> <li>• Listed Buildings e.g. Boddin Point Lime Kilns; and</li> <li>• Buddon Ness lighthouse.</li> </ul>	Local Development Plan policies provide protection for the historic environment. Implementation of the SMP will try to ensure full adherence to these policies (wherever possible) through coastal management activities.
To minimise coastal flooding and erosion risk to key recreation and tourism assets and activities	Under the preferred long-term policies, the key centres of tourism and recreation (e.g. Arbroath, Montrose, Carnoustie etc) will continue to be protected. However, at some locations (e.g. Montrose), this will be at the expense of beaches along many of these frontages, which will continue to narrow.	Consider implications of development in tidal floodplains or in coastal areas subject to erosion in

SEA Environmental Objective	Cumulative effects across the SMP2 area (sum of Policy Unit impacts)	Interaction of SMP2 with relevant Plans and Programmes
(Population/Human Health/Material Assets)		consultation with the Local Authorities. The TAY Plan Strategic Development Plan and Local Development Plans must ensure that the requirements of SPP are fully implemented to ensure no future development in areas of coastal flooding or erosion.
To enhance the tourism value of the coast and aim to incorporate and improve recreation, tourism and visitor management (Population/Human Health/Material Assets)	Under the preferred long-term policies, the key centres of tourism and recreation (e.g. Arbroath, Montrose, Carnoustie etc) will continue to be protected. However, at some locations (e.g. Montrose), this will be at the expense of beaches along many of these frontages, which will continue to narrow. Beach re-nourishment may be implemented in the long-term, to maintain the amenity value of beaches and to retain tourism and recreation within the region, while more sustainable methods to improve recreation and tourism should be sought.	Consider implications of development in tidal floodplains or in coastal areas subject to erosion in consultation with the Local Authorities. TAY Plan Strategic Development Plan and Local Development Plans must ensure that the requirements of SPP are fully implemented to ensure no future development in areas of coastal flooding or erosion.
To minimise coastal flood and erosion risk to industry, commercial and economic activities and Ministry of Defence land (Population, material assets)	Generally, the proposed SMP policies are likely to be beneficial to industrial, commercial and economic assets and/or activities, as areas of significant development will continue to be protected from flooding or erosion. Protection is predominantly focussed upon larger conurbations and towns, where the highest level of benefit is achieved. However, some isolated industrial or commercial facilities may be affected by flooding or erosion, as policies leading to a more 'natural' shoreline in the long-term have been identified. There will be continued evolution of the dune system with fluctuating erosion and accretion along Buddon Ness, although key MoD assets including MoD Barry Budden Training Camp will continue to be protected. The MoD ranges and exclusion range will continue to be protected in the short and medium-term, while opportunities for a more natural coastline through managed realignment, are explored in the long-term.	Consider implications of development in tidal floodplains or in coastal areas subject to erosion in consultation with the Local Authorities The TAY Plan Strategic Development Plan and Local Development Plans must ensure that the requirements of SPP1 are fully implemented to ensure no future development in areas of coastal flooding or erosion. The aspirations of the MoD for the ranges within the study area are currently unknown.
To minimise the impact of	The proposed SMP policies will protect existing marine operations including Montrose Port, Arbroath Harbour	Consider implications of

SEA Environmental Objective	Cumulative effects across the SMP2 area (sum of Policy Unit impacts)	Interaction of SMP2 with relevant Plans and Programmes
policies on marine operations and activities (Material Assets/ Population)	and small harbours between Scurdie Ness and Rickle Craig.	development in tidal floodplains or in coastal areas subject to erosion in consultation with the Local Authorities. The TAY Plan Strategic Development Plan and Local Development Plans must ensure that the requirements of SPP1 are fully implemented to ensure no future development in areas of coastal flooding or erosion
To minimise the impact of policies on fishing activity (Water/Biodiversity/ Material Assets/Population)	The preferred policy scenarios are unlikely to have any strategic impacts on commercial or recreational fishing, or fishing activity unless there are significant changes in water quality during implementation at project level. The SMP2 will continue to provide protection to some commercial fishing assets including Arbroath fishing harbour.	
To minimise coastal flood and erosion risk to agricultural land (Soil/Land Use/Population)	Agriculture and grazing represents a share of the local economy and along the coast, the predominant grades of agricultural land are Grade 2 and 3. Along much of the coastline, these are in the undeveloped stretches between the towns, where there is insufficient economic justification for maintaining or constructing defences, which would also be technically inappropriate. Under the preferred policies, there will therefore be increased flood and erosion risk to rough grazing land at Charleton and Kinnaber, in areas of realignment, and between Lang Craig and Whiting Ness. There could be loss or damage to approximately 30 hectares of agricultural land under a managed realignment policy in the west of Montrose Basin.	Local Development Plans influence changes in Grades 1 to 3a agricultural land; the majority of agricultural land that would be affected in the study area would be Grade 3 – 5 agricultural land.

## 8.4 Habitat Regulations Appraisal (HRA)

As many of the proposed SMP policies would be implemented within or adjacent to international conservation sites, a Habitats Regulations Appraisal (Appendix J 'Habitats Regulations Appraisal) Screening Stage has 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 Scotland under the Conservation (Natural Habitats, &c. Regulations) 1994 (as amended).

The HRA Screening Report, which was issued to Scottish Natural Heritage (SNH), assessed the potential for 'likely significant effects' on the integrity of the following six European sites: -

- Barry Links SAC;
- Firth of Tay and Eden Estuary SAC;
- Firth of Tay and Eden Estuary SPA;
- Firth of Tay and Eden Estuary Ramsar site;
- Montrose Basin SPA; and
- Montrose Basin Ramsar site.

Following consultation with SNH in 2016 and the formation of the draft marine SPAs (dSPAs), a European site was assessed as requiring a 'shadow' HRA:

- Outer Firth of Forth and St Andrews Bay complex dSPA.

The consultation with SNH about the potential impacts enabled the evolution of the SMP2 policies to minimise impacts on the European sites, such as the reduction in the area of managed realignment proposed in Montrose Basin so that it would be outwith the designated sites. The HRA report considered the potential impacts in more detail as part of an 'appropriate assessment', and concluded that with the implementation of appropriate mitigation (including monitoring) set out in the Policy Unit Action Plans, the SMP2 will not have an 'Adverse Effect on the Integrity' of any European sites. SNH has confirmed agreement of these conclusions in correspondence during February 2016.

The HRA report is provided in Appendix I.

## 8.5 Water Framework Directive

A Water Framework Directive (WFD) assessment has been prepared by Halcrow and can be viewed in Appendix J 'Water Framework Directive Assessment' of the SMP. This WFD assessment considers the potential effects of the SMP2 on the ecological quality elements of the coastal and transitional water bodies directly affected by the SMP, and the associated river water bodies, which may also experience some indirect effects (such as shifting in the upper tidal limit in rivers).

The report concluded that all the WFD environmental objectives are met under the Plan.

## 8.6 Difficulties and Uncertainties

The main sources of uncertainty at this level of appraisal relate to: -

- Reliability and accuracy of baseline data - It is assumed that the baseline information used in the SEA is complete, up to date, reliable and unbiased.

- Unknown archaeology – there is potential for buried archaeological features that have not been identified at this high level. Further archaeological desk study (and potential field evaluation) will be required at strategy or scheme level and agreed with Historic Environment Scotland.
- Areas of potential contamination, ground stability, unrecorded landfills and buried ordnance are unknown at this stage. Further desk study and investigation may be required at strategy and scheme level.
- The longevity of the SMP (up to 100 years) introducing uncertainties in baseline conditions and future management of resources.
- The assumptions and uncertainties associated with the estimates used for climate change.

Where data gaps or lack of understanding exist, then ‘uncertainty’ is introduced into the SEA and SMP implementation and into the prediction of environmental impacts/outcomes. Where this uncertainty is significant, the implications for the predictions have been identified as well as the data collection/analysis that might be needed to address it.

Where the preferred plan for any Policy Unit has specific monitoring or detailed study requirements, to help clarify uncertainties, such as future morphological evolution of the estuary and the extent of Managed Realignment and habitat creation, this is identified in Section 6 – Action Plan in the main SMP document.

There is therefore some risk that closer inspection through the development of strategies and schemes may identify constraints that may change approaches to flood management at particular localities.

In addition, in carrying out the SEA, solutions that are environmentally justifiable have been selected based on existing data sources and baseline data. The assessment of cumulative impacts is therefore limited by changing environmental characteristics and future development.

It should also be noted that documenting the SEA process undertaken (i.e. retrospectively) after completion of the SMP may introduce some uncertainty and difficulties in ensuring clarity in the SEA decision-making process.

## **8.7 Mitigation and Enhancement**

At this level of plan, the mitigation and enhancement measures are integral to the policy appraisal. Where we have the potential to enhance the environment we have included this potential within the appraisal objectives.

Mitigation measures at this level are generally included as part of the policy options, so that a less detrimental impact will tend to be an alternative policy option. We therefore cannot identify any further specific mitigation measures at this policy level. At a lower level in the planning hierarchy, when investigations are progressed to develop the details of how to implement flood risk and erosion management measures, an appropriate level of environmental assessment will be undertaken, and will identify more relevant mitigation measures to the impacts arising.

Mitigation measures have been incorporated into Annex 3 and in the separate Action Plans for each Management Unit (Policy Unit Statements, Main Document, Section 5).

## **8.8 Monitoring**

The key principles of implementation and monitoring are to ensure that the mitigation measures are implemented and effective and to monitor all the significant environmental effects identified during the assessment.

The draft SMP2 was circulated to all stakeholders for consultation and comment. The plan has been updated in light of comments received from consultees before it is formally adopted. It is the responsibility of Angus

Council as the Responsible Authority to monitor the significant effects of the plan, and will comprise approximately six-monthly inspections. Once the plan is implemented, any potentially significant effects will be monitored in accordance with Table 8.4, and reported in accordance with the review cycle of the plan. The review cycle of the SMP is anticipated to be between 5-10 years.

Where the preferred policies for any Policy Unit have specific monitoring/study requirements to clarify uncertainties, this is identified in the relevant 'Policy Unit Statement' (Section 5). Detailed monitoring could be undertaken as part of coastal defence strategy studies. The latter will also define mitigation requirements.

Table 8.4: Monitoring Framework

Objective(s)	Indicator(s)/ Assessment Criteria	Data Source	Responsibility for Existing Monitoring	Timescale for Monitoring	Desired Target	Trigger for remedial action
To minimise coastal flooding and erosion risk and its impact on people, coastal land use and future development plans. <i>(Population and Human Health, Material Assets)</i>	Number of residential properties and community facilities (e.g. surgeries, hospitals, aged persons homes, schools, churches, libraries, etc) commercial properties, recreational grounds and facilities, cultural heritage assets and high grade agricultural land at flood/erosion risk	Residential property classification	N/A	Ongoing	No increase in number of properties at risk No new development in current and future areas at risk.	Increase in flood/erosion risk to people, coastal land use and future development
To minimise coastal flood and erosion risk to critical infrastructure and maintain critical services. <i>(Material Assets)</i>	Number of transport infrastructure assets at risk of flooding: - - A, B and minor roads - East Coast Railway line and Station at risk from flooding or erosion.	Unknown	Rail company Highways Authority	Unknown	No increase in flood / erosion risk to transport infrastructure	Unacceptable flood risk to transport infrastructure
	Number of infrastructure assets (pumping stations, sewage works and outfalls) at risk from flooding or erosion	Unknown	Water companies	Unknown	No increase in flood / erosion risk to critical infrastructure assets	Loss of critical infrastructure
	Access to emergency services	Unknown	Emergency services	Unknown	No loss of access for emergency services	Unacceptable risk posed to emergency service access
To support natural coastal processes <i>(Biodiversity, Flora and Fauna,</i>	Increased protection and enhancement of natural processes	National Coastal Change Assessment	Angus Council	Ongoing	Increased protection and enhancement of	N/A

Objective(s)	Indicator(s)/ Assessment Criteria	Data Source	Responsibility for Existing Monitoring	Timescale for Monitoring	Desired Target	Trigger for remedial action
<i>Water)</i>					natural processes	
To maintain and enhance the integrity of internationally/European designated nature conservation sites and the favourable condition of their interest features ( <i>Biodiversity, Flora and Fauna</i> ).	Reported conservation status of European sites relating to flood risk management	SNH site condition report  HRA Screening Report	Angus Council/SNH	Ongoing	Improved/Favourable Habitat/Species	Negative change in site condition assessment
To maintain and enhance nationally designated conservation sites and their interest features. ( <i>Biodiversity, Flora and Fauna</i> )	Reported conservation status of SSSIs (biological and geological) and NNRs relating to flood risk management	SNH site condition report	Angus Council/SNH	Ongoing	Improved/Favourable Habitat/Species	Negative change in site condition assessment
To avoid adverse impacts on, conserve and enhance the designated interest of local conservation sites. ( <i>Biodiversity, Flora and Fauna</i> )	Reported conservation status of LNRs, SWT Nature Reserves, RIGS and GCRs relating to flood risk management	Angus site monitoring reports, Tayside Biodiversity Partnership, or Local Records Centre.	Angus Council/SNH	Ongoing	Improved/Favourable Habitat/Species	Negative change in site assessment
To maintain and enhance features as a natural flood defence and identify new areas for coastal habitat creation as natural flood defences ( <i>Water/Soil/Geology</i> )	Condition of existing natural flood defences e.g. beaches and dunes systems	Beach condition surveys, National Coastal Change Assessment	Angus Council	Unknown	Increased number of natural flood defences	N/A
	Area of coastal habitat creation	N/A	N/A	Unknown	Increased area of habitat creation that acts as natural flood mitigation	N/A



Objective(s)	Indicator(s)/ Assessment Criteria	Data Source	Responsibility for Existing Monitoring	Timescale for Monitoring	Desired Target	Trigger for remedial action
To support the achievement of good ecological and chemical status/potential under the EU WFD	Numbers of surface and groundwater bodies at risk of not achieving GES/GEP relating to hydro-morphological pressures and water quality pressures	Environmental objectives of RBMP  Programme of Measures	SEPA	Annual, as required by RBMP process	Secure opportunities for improvement in status where possible for achievement of good ecological status/potential	Notable constraint to achieving environmental objectives of RBMP, including deterioration in status / potential
To enhance the aesthetic and landscape quality of the coastline. <i>(Landscape)</i>	Change in landscape including wide sandy bays, estuaries and estuarine mudflats, sand dune systems and links, and maritime cliffs and rocks	Landscape, health and the Economy	SNH	N/A	No deterioration in aesthetic and landscape quality of the coastline	N/A
To minimise coastal flood and erosion risk to scheduled and other nationally, regionally or locally important archaeological and cultural heritage assets, sites and their setting. <i>(Cultural Heritage/Historic Environment)</i>	Number of Scheduled Monuments, Listed Buildings and non-designated archaeological sites of local importance, at risk of flooding	Record of protected structures	Historic Environment Scotland	N/A	No damage to or loss of cultural heritage assets, including their setting and heritage value, as a result of flood risk management measures. No increase in flood risk to cultural heritage assets.	Deterioration in condition of cultural heritage asset
To minimise coastal flooding and erosion risk to key recreation and tourism assets and activities. <i>(Population/Human Health/Material Assets)</i>	Number of recreation and amenity facilities (visitor attractions, golf courses, caravan parks, bathing beaches, promenades, cycle routes, public footpaths, etc)	Bathing water profiles  Amenity facilities	SEPA  Visit Scotland	10 – 20 times in bathing season	Improvement in quality of designated bathing waters  No increase in	Deterioration in quality of designated bathing waters due to SMP2.

Objective(s)	Indicator(s)/ Assessment Criteria	Data Source	Responsibility for Existing Monitoring	Timescale for Monitoring	Desired Target	Trigger for remedial action
To enhance the tourism value of the coast and aim to incorporate and improve recreation, tourism and visitor management. <i>(Population/Material Assets/Biodiversity)</i>	at risk of flooding				number of recreation and amenity facilities at risk of flooding	Loss of recreation and amenity facility due to flooding/erosion
To minimise coastal flood and erosion risk to industry, commercial and economic activities and Ministry of Defence land. <i>(Population/Material Assets)</i>	Number of businesses, factories, warehouses, areas identified for regeneration, military establishments (including MoD exclusion zones) and others key areas of employment at risk of flooding/erosion. Zones?	Unknown	Industry  MoD	N/A	No increase in number of industrial, commercial or economic activities at risk of flooding/erosion.	Increase in flood/erosion risk to industrial, commercial or economic activities
To minimise the impact of policies on marine operations and activities. <i>(Material Assets/ Population)</i>	Ports and harbours at risk of flooding/erosion.	N/A	N/A	N/A	No increase in area of ports and harbours at flood/erosion risk	Increase in flood/erosion risk to marine operations and activities
	Loss of access to the sea and navigation	N/A	N/A	N/A	Improved access to the sea and navigation	Reduced access to the sea and navigation
To minimise the impact of policies on fishing activity. <i>(Water/Biodiversity/Material Assets/Population)</i>	Access to and loss of/disturbance to commercial fishing grounds	N/A	N/A	N/A	No loss of or disturbance to commercial fishing grounds	Reduced access to commercial fishing grounds
	Classification of shell fish waters	Shellfish Waters Directive  Pollution Reduction	SEPA	TBC	No deterioration in existing classification of shellfish waters	Deterioration in existing shellfish water classification

Objective(s)	Indicator(s)/ Assessment Criteria	Data Source	Responsibility for Existing Monitoring	Timescale for Monitoring	Desired Target	Trigger for remedial action
		Plans				
To minimise coastal flood and erosion risk to agricultural land. <i>(Soil/LandUse/Population)</i>	Area of Grades 1 – 3A Farmland at risk of flooding	Corine Land Use data set	Unknown	Unknown	Reduced coastal flood and erosion risk to agricultural land	N/A

## 8.9 What happens now?

There are a number of steps required to ensure that the recommendations of the SEA and SMP are taken forward in the short and medium-term, both in land use planning and coastal defence management. Actions to facilitate the implementation of the longer-term policies also need to be initiated as appropriate.

Generally, the policy recommendations in the SMP will be implemented through the development of coastal flood risk management strategies, which cover smaller but strategically linked sections of the coast.

Subsequently, implementation of coastal flood and erosion risk management schemes will deliver works on the ground. Environmental Statements and Appropriate Assessments (if required) will be prepared at scheme level, and these will be subject to public consultation.

The plan, which will require on-going review, will be informed by further understanding of changes in the environment, policy/legislation changes and environmental assessment. The process of implementation will be underpinned by monitoring of the shoreline to identify ongoing behaviour, together with targeted study and investigation where there are specific uncertainties. Monitoring of environmental receptors such as designated habitats, areas of potential contamination etc will inform environmental assessment at the strategy and scheme level.

Table 8.5 lists future milestones in the development of the Shoreline Management Plan 2 and its SEA, and the dates when these are expected to be completed.

**Table 8.5: Anticipated Plan-making and SEA Milestones**

Expected date	Milestone
March 2016	Publication of the Draft Plan and Environmental Report. This will be subject to a public consultation period of six weeks
April/May 2016	Preparation of the Final Plan and Environmental Report. Develop a comprehensive monitoring framework
May/June 2016	Plan and Environmental Report to be presented to The Angus Council Committee for approval
Summer/Autumn 2016	Approval of the Plan along with Environmental Report, publication of Post Adoption Statement

**Angus Council**

**Angus Shoreline Management Plan SMP2**

Appendix D – SEA Environmental Report

**ANNEX 1 – Scoping Report**

# Angus Shoreline Management Plan SMP2

## Appendix D – SEA Environmental Report

### ANNEX 2 – Theme Review

## **Angus Shoreline Management Plan SMP2**

Appendix D – SEA Environmental Report

**ANNEX 3** – Environmental effects of the preferred plan.