

2 Strategic Environmental Assessment

2.1 Background

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.

The requirement to undertake SEA of certain plans and programmes entered European Law in 2001 under Directive 2001/42/EC; transposed into UK law in 2004 by The Environmental Assessment of Plans and Programmes Regulations 2004 (SI 2004 1633)⁴. This SEA has been carried out with cognisance of, and in the spirit of, the following legislation and guidance:

- National Environmental Impact Assessment and Strategic Environmental Assessment Policy, Procedures and Guidance (Environment Agency, 2004 Environment Agency management system controlled documentation).
- Flood and Coastal Defence Project Appraisal Guidance (PAG) 2: Strategic Planning and Appraisal (Defra, 2001).
- Flood and Coastal Defence Project Appraisal Guidance (PAG) 5: Environmental Appraisal (MAFF, 2000).
- The Strategic Environmental Assessment Directive: Guidance for Planning Authorities. Practical guidance on applying European Directive 2001/42/EC 'on the assessment of the effects of certain plans and programmes on the environment' to land use and spatial plans in England ODPM (2003).
- Conservation of Habitats and Species Regulations 2010.
- Marine and Coastal Access Act 2009.
- A Practical Guide to the Strategic Environmental Assessment Directive (ODPM 2005)

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. Further to this, Defra guidance (Defra, September 2004⁴) is that SEA is applied to SMPs and this is Environment Agency policy.

In developing the South Devon and Dorset SMP, the environment has been considered alongside social, technical and economic issues.

The SEA process undertaken for the South Devon and Dorset SMP is documented in **Appendix I**. This report demonstrates how the SEA process has been carried out during the development of the South Devon and Dorset SMP and outlines how the SEA Directive's requirements have been met.

The approach for this SMP (see **Appendix I**) was to ensure that the environmental assessment process is fully integral to the SMP development, as recommended in the Defra SMP Guidance (2006)⁵. Environmental assessment was therefore carried out in conjunction with and as part of the SMP stages, described in the guidance.

⁴ Nason, S (2004). *Guidance to operating authorities on the application of SEA to Flood Management Plans and Programmes*. Defra, 16th September 2004.

⁵ Defra (2006): *Shoreline Management Plan Guidance Volumes 1 and 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.

No formal Scoping Report was prepared during the development of the SMP, however, the scoping process (i.e. identification of the environmental receptors likely to be impacted by SMP policies) was undertaken during the production of the SEA Environmental Baseline Report (Thematic Review) – see **Appendix D** of the SMP.

Consultation was carried out at the scoping stage with key stakeholders (see **Appendix B ‘Stakeholder Engagement’**) 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 (Thematic 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.

2.3 Establish SEA Objectives

A list of SEA objectives for the SMP was developed following identification of key environmental features or assets along the coastline, and through a review of aerial photography, maps and consultation with key external organisations and internal staff. SEA objectives were identified for the SMP to appraise the preferred policy options during the assessment process.

The objectives developed for the SMP, which were used to develop and appraise sustainable policies, are provided in Table 2.1.

Within the environmental objectives, a distinction has been made between those that arise from legal (shown in ***bold italics***) and those that do not represent legal obligations. The relevant SEA receptor to which the objectives relate, are shown in brackets.

Table 2.1 SEA Objectives

	Objective	Features covered by the objective
Social	To avoid loss of property due to erosion and/or manage risk of flooding to people and property ⁶ (Population and human health)	Houses Community
	To avoid loss due to erosion of, and manage risk of flooding to, key community, recreational and amenity facilities (Population and human health)	Key vulnerable community facilities (e.g. surgeries, hospitals, aged persons homes, schools, shops, churches, libraries etc) Key amenity facilities (e.g. public open space, car parks etc) Key recreational facilities (e.g. bathing beaches, swimming pools, Country Parks, Castles and Forts) Access to community/amenity facilities <i>Other than in exceptional circumstances, Public Rights of Way (e.g. the South West Coast Path National Trail) will not be considered in the detailed policy appraisal</i>

⁶ Reference to flooding or erosion will be removed where not applicable

	Objective	Features covered by the objective
Economic	To avoid loss due to erosion of, and manage risk of flooding to, industrial, commercial and economic assets and activities (Population, material assets)	Shops, offices, businesses, factories, warehouses, golf courses, areas identified for regeneration, nursery grounds, caravan parks, stone and mineral extraction sites, military establishments and others key areas of employment
	To minimise the impact of policies on marine operations and activities (Material assets)	Ports and harbours, Boatyards Moorings, Yacht and Sailing Clubs. Lifeboats, Ferry terminals Coastguard, lifeboat and lifeguard Access to the sea and navigation
	To ensure critical road and rail linkages are maintained (Material assets)	A -, B - and minor roads (where linkage is a key issue) Railway lines and stations
	To ensure critical services remain operational (Material assets)	Pumping stations, sewage works, wind turbines, landfills, power stations, sub-stations Access for emergency services
Environmental	<i>To support natural processes and maintain visibility of geological exposures throughout internationally and nationally designated Earth Heritage sites</i> (Geology and Soils)	World Heritage Site Geopark Geological SSSIs
	<i>To support natural processes and maintain the integrity of internationally designated nature conservation sites and the favourable condition of their interest features</i> (Flora, fauna and biodiversity)	SPAs, SACs (to include Marine SACs) and Ramsar Sites
	<i>To avoid adverse impacts on, conserve and, where practical, enhance the designated interest of nationally designated nature conservation sites.</i> (Flora, fauna and biodiversity)	SSSIs, NNRs, Areas of Special Protection
	<i>To avoid adverse impacts on, conserve and, where practical, enhance the designated interest of locally designated conservation sites</i> (Flora, fauna and biodiversity, geology)	Statutory LNRs Non-statutory wildlife sites RSPB reserves County Wildlife Trust reserves RIGS There is also a generic statutory duty (NERC Act 2006) to have regard for the conservation of biodiversity, which applies to all public bodies and which extends beyond designated sites.
	<i>To prevent pollution from contaminated sources</i> (Geology and soils, water)	Known and historic landfill sites (www.environment-agency.gov.uk), anecdotal evidence of disused mines and potentially contaminated land, bathing water, surface and ground water
	<i>To avoid loss of scheduled and other internationally and nationally important heritage assets and features.</i> (Cultural heritage)	World Heritage Sites Scheduled Monuments Registered Parks and Gardens Listed Buildings Marine Wreck Sites Built Conservation Areas Non-designated historic and archaeological sites and landscapes that have been identified by archaeologists as nationally important
	<i>To conserve and enhance AONBs</i> (by	Areas of Outstanding Natural Beauty (AONB) - The

	Objective	Features covered by the objective
	maintaining the highest quality of undeveloped coastal and estuarine landscape as a defining feature of the AONB) and avoid conflict with AONB Management Plan or Heritage Coast Objectives. (Landscape)	South Devon AONB Management Plan policy seeks to respond positively to the challenges of coastal change and sea level rise by planning for the future; and to consider natural processes and “soft defences” in long term coastline management wherever appropriate, accompanied by the realignment of coastal infrastructure to more sustainable locations where there is space to accommodate it”. Heritage Coast
	To avoid loss due to erosion of and/or manage risk of flooding to agricultural land (Population, soils)	Grades 1 – 3A Farmland
	To ensure MoD ranges remain operational. (Population, material assets)	Ministry of Defence ranges and land

2.4 Environmental Baseline

Baseline data was collected to provide a baseline against which the significant environmental effects of the plan could be measured and assessed. The current state of the environment is described in the SEA Environmental Baseline ‘Theme Review’, presented in **Appendix D**, and is summarised in Table 2.2.

Table 2.2 *Environmental Features within the SMP Area*

SEA Receptor described in the Environmental Assessment of Plans and Programmes Regulations SI 2004 1633	Environmental Features
Flora, Fauna and Biodiversity	<p>The study area supports a variety of habitats including seacliffs, mudflats, saltmarsh, estuaries, sand dunes, reedbeds, marshland, woodland, heathland, grassland and lagoons. The quality of these natural habitats along the coastline is reflected in the designation of the following international nature conservation sites: -</p> <ul style="list-style-type: none"> • Dorset and East Devon Coast (‘Jurassic Coast’) World Heritage Site (WHS) • 2 Special Protection Areas (SPA) and Ramsar sites • 12 Special Areas of Conservation (SAC) • 2 proposed SACs <p>The strategy area is also designated nationally (Sites of Special Scientific Interest, National Nature Reserves and an Area of Special Protection) and locally for its nature conservation value.</p> <p>Opportunities exist to create wetland habitat in low-lying parts of the study area.</p>
Soils and Geology	<p>The geological interest of the coastline includes stratigraphic features, which are reflected in a range of designated earth heritage sites of local, regional, national and international importance. The international earth heritage designations comprise the Dorset and East Devon (‘Jurassic Coast’) WHS and the English Riviera Geopark.</p> <p>Natural erosion is a key driver in maintaining the geological interest of the ‘Jurassic Coast’ by exposing rock sequences in the cliff faces and releasing fossils to the beach.</p> <p>The geomorphology of the area is varied and includes shingle banks, sand dunes and saltmarshes. The major shingle features of national importance are Chesil Beach</p>

<p>SEA Receptor described in the Environmental Assessment of Plans and Programmes Regulations SI 2004 1633</p>	<p>Environmental Features</p>
	<p>and Slapton Sands, which enclose the large natural lagoons of The Fleet and Slapton Ley respectively. Dawlish Warren is a significant sand dune structure, located in the Exe Estuary at the mouth of the river.</p>
<p>Air and Climatic Factors</p>	<p>The long term effects of rising sea levels expected due to climate change could have significant implications for future flood risks to the natural, historic and built environment across large areas of low-lying land in the SMP area.</p>
<p>Water</p>	<p>Within the SMP area, there are 22 Transitional and Coastal Waterbodies, 94 River Waterbodies, 1 Lake Waterbody and 15 Groundwater Bodies. There are over 70 designated bathing waters in the SMP areas. These all have the potential to be affected by SMP policies.</p>
<p>Landscape</p>	<p>The coast is composed predominantly of sea cliffs, punctuated by estuaries, rias, cobble beaches, isolated stacks, raised beaches and lagoons. These features owe their variety and interest to the relief and orientation of the coastline, the different properties, lithology and structure of the rocks and coastal processes. The coastline of Dorset is internationally renowned for the rock strata exposed along the cliffs and coastal landforms such as Lulworth Cove, Durdle Door and Chesil Beach. Other landscape types include highly developed urban centres and undeveloped agricultural land, much of which exhibits ancient (Medieval) field patterns.</p> <p>The high value of the landscape in the SMP area (with the exception of Portland) is recognised by the designation of five Areas of Outstanding Natural Beauty designated to conserve natural beauty but safeguard agriculture, forestry and industry; and four Heritage Coasts.</p>
<p>Cultural Heritage, including architectural and archaeological heritage</p>	<p>The Cornwall and West Devon Mining WHS falls within the SMP area and gives recognition to the historic landscape and buildings associated with the copper and tin mining.</p> <p>In addition, the SMP area contains a complex array of statutory historic buildings (e.g. 184 Scheduled Monuments, Listed Buildings), 26 Registered Parks and Gardens, non-statutory buildings and find spots, historic settlements, maritime archaeology (e.g. over 500 wreck sites), Conservation Areas, historic landscapes and numerous unscheduled sites of importance, some of which are nationally important.</p>
<p>Material Assets</p>	<p>Material assets along the coastline of the SMP area comprises a combination of predominantly moderate quality agricultural land, beaches, A- and B-roads, urban areas (see population below), fishing ports and harbours, stone and mineral extraction sites and historic/active landfill sites.</p>
<p>Population and Human Health</p>	<p>Safety, security and social/physical well-being for occupants of properties within areas at coastal flood or erosion risk. Population and properties are concentrated in Portland, Weymouth, Bridport, Lyme Regis, Seaton, Sidmouth, Budleigh Salterton, Exmouth, Exeter, Dawlish, Newton Abbot, Teignmouth, Shaldon, Torquay, Paignton, Brixham, Dartmouth, Kingsbridge, Salcombe, Saltash, Torpoint and Plymouth, and other smaller towns/villages. Recreation and tourism in the study area is largely centred on the coastline. Land based activities generally rely on the natural environment and comprises swimming, beaches, walking, fishing, fossil collecting, bird watching and rock climbing. Water sports are also a popular pursuit.</p>

2.5 Assessment Methodology

The process of assessment involves the identification of potential environmental effects and an evaluation of the significance of the predicted environmental effects.

The methodology and appraisal used to identify and predict environmental effects on the SEA receptors and environmental features identified, arising from the SMP is outlined in **Appendix I**.

2.6 Consultation

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.

A wide range of statutory and non-statutory consultees and stakeholder groups have been involved throughout the development of the SEA and the SMP, primarily through the undertaking of Key Stakeholders Forum (KSF) events at key points throughout the process. This involvement has:

- been undertaken throughout development of the SMP and SEA;
- given stakeholders an opportunity to comment on the environmental appraisal of options;
- allowed representations made by the stakeholders to be taken into account in the selection of policy options; and
- given the public the opportunity to comment on the preferred policies.

The KSF meetings included representatives from, amongst others, local authorities, nature conservation bodies, industry and heritage organisations as well as local residents and land owners. Elected Members were also involved in the development of the SMP, being consulted at key points in the process. In this way, the views of those whom the SMP policies affect were involved in its development, ensuring that all relevant issues were considered and all interests represented.

The interests of landowners and residents have been represented through the involvement of Elected Members, and the views of all stakeholders were sought.

Full details of all stages of stakeholder engagement undertaken during development of the SMP are presented in **Appendix B**.

2.7 Reporting

The results of the SEA process are documented in **Appendix I**, which identifies, describes and evaluates the likely effects of the SMP as well as any reasonable alternatives. Appendix I documents the SEA process, sets out how alternative policy options were appraised against environmental objectives and identifies and evaluates likely environmental effects, both positive and negative, of preferred policy options. It sets out how adverse effects will be mitigated and describes recommended follow up actions.

2.7.1 Environmental Appraisal of Alternative Policy Options

Appendix F (Annex F.3) identifies the environmental impacts of each of the alternative policy options 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 generic impacts associated with each alternative SMP option is shown in Table 2.3.

Table 2.3 Potential generic implications of each SMP option

SMP option	Potential positive impacts	Potential negative impacts
Hold the Line (HTL)	<ul style="list-style-type: none"> • Protection of communities (residential, industrial, agricultural and commercial assets) and infrastructure • Protection of habitat landward of existing defences • Protection of freshwater resources (e.g. abstractions and boreholes) • Protection of material assets located behind defences • Protection of recreational, cultural and historical assets landward of the defences and provision of opportunities to improve the condition of heritage features/sites • Protection of potential sources of contamination 	<ul style="list-style-type: none"> • Coastal squeeze (loss of intertidal habitat) • Interruption of coastal processes • Potential increase of flood and coastal erosion risk elsewhere along coastline • Promotion of unsustainable land use practices • Ongoing commitment to future investment for maintenance and improvement of defences • Change in landscape character and reduced visual amenity and views of sea if defences raised or new defences constructed
Advance the Line (ATL)	<ul style="list-style-type: none"> • Provision of additional space for communities • Protection of communities and infrastructure from coastal flooding/erosion • Protection of habitat landward of original defences • Protection of freshwater resources (e.g. abstractions and boreholes) • Protection of material assets located behind defences • Protection of recreational, cultural and historical assets landward of the defences • Protection of potential sources of contamination 	<ul style="list-style-type: none"> • Reduction in extent of intertidal habitat • Change in function of the existing habitats • Increased coastal squeeze • Interruption of coastal processes • Potential increase in rate of coastal erosion either side of the advanced line • Uncertainty of effects • Reduced visual amenity and change in landscape
Managed Realignment (MR)	<ul style="list-style-type: none"> • Landward migration of coastal habitat under rising sea levels to realigned defence • Creation of wetland habitat in line with UKBAP and local BAP targets • Creation of habitat for juvenile fish and other aquatic organisms (benefits to environment and 	<ul style="list-style-type: none"> • Increased flooding/erosion of realigned area • Change in condition or reduction of terrestrial/freshwater habitat landward of defences • Impact upon aquifers and abstractions • Loss of some assets in hinterland of defences (e.g. residential,

SMP option	Potential positive impacts	Potential negative impacts
	<p>fishing communities)</p> <ul style="list-style-type: none"> • Reduction of flood/erosion risk to some areas • Promotion of natural coastal processes and contribution towards a more natural management of the coast • Creation of high tide bird roosts and feeding areas • Maintenance of geological exposures and earth heritage features 	<p>industrial, agricultural and commercial assets)</p> <ul style="list-style-type: none"> • Loss of recreational, heritage and cultural features • Uncertainty of effects
No Active Intervention (NAI)	<ul style="list-style-type: none"> • Landward migration of coastal habitats under rising sea levels • Promotion or continuation of natural coastal processes • Potential discovery of unknown archaeology • Maintenance of geological exposures and earth heritage features 	<ul style="list-style-type: none"> • Uncontrolled flood/erosion risk • Uncertainty of effects and time for adaptation • Increased risk of inundation to landward habitats under rising sea levels • Impact upon aquifers and abstractions • Loss of communities or community assets • Loss of and damage to heritage and cultural features • Risk of flooding/erosion of contaminated areas • Deteriorating defences become unsightly • Hazard to public access and loss of public rights of way.

2.7.2 Environmental Effects of the Plan

An environmental assessment of the preferred policy options is presented in Annex I.1 of **Appendix I** and the results are summarised in the Policy Statement tables in Section 5 of this document.

2.7.3 Water Framework Directive

A retrospective Water Framework Directive (WFD) assessment has been prepared and can be viewed in **Appendix K 'Water Framework Directive Assessment'** of the SMP. This WFD-related retrospective assessment takes into consideration the potential effects of SMP policy options on the ecological quality elements of the coastal and transitional water bodies directly affected by the SMP, and the associated river water bodies.

For many of the policy units, it is considered unlikely that the proposed policies will affect the current or target Ecological Status (or Potential) of the relevant WFD waterbodies. However, there are 10

Management Areas where the proposed policies have the potential not to meet one or more the Environmental Objectives. These being:

- Preston Beach (Rock Groyne) to Portland Harbour (North Breakwater) (includes Weymouth Harbour) 5g16 and 5g17 – potential to fail WFD 2 & 3.
- Small Mouth to Grove Point 5g21 and 5g22 – potential to fail WFD 3.
- Chiswell to Chesil Beach 6a02 and 6a03 – potential to fail WFD 3.
- Chesil Beach and The Fleet 6a04 – potential to fail WFD 2 & 3.
- Exe Estuary (East bank) 6b01 to 6b11 – potential to fail WFD 3.
- Exe Estuary (West bank) 6b12 to 6b18 – potential to fail WFD 3.
- Teign Estuary 6b30 to 6b35 – potential to fail WFD 3.
- Dart Estuary 6b64 to 6b70 – potential to fail WFD 3.
- Mount Batten Breakwater to Devil's Point (including Plym Estuary) 6c28 to 6c30 – potential to fail WFD 2 & 3.
- Tamar Estuary (East bank) 6c31 – potential to fail WFD 2 & 3.

These Management Areas have the potential to fail the Environmental objectives for several different reasons. Potential impoundment of Weymouth Harbour, potential loss of the Fleet waterbody, loss of intertidal habitats in the mid to long term due to coastal squeeze, where the vital and extensive infrastructure of developed populated areas is to be defended (i.e. Reason of Overriding Public Interest (ROPI)), are all reasons for failure of WFD2. The policies for the Exe, Teign and Dart Estuaries have the potential to fail Environmental Objective WFD 3 owing to tide locking affecting adjacent waterbodies, leading to prolonged periods of increased water depth. However, the Hold the Line policies are unavoidable to protect heavily populated areas.

None of the Groundwater Bodies is considered at risk of saline intrusion with regard to its chemical status. Further strategies and studies in this area will have to take this into regard in future to ensure the Environmental Objectives are not compromised.

There are no High Status sites in the SMP area, so Environmental Objective WFD1 (no changes affecting High Status sites) is not applicable for this assessment.

There are several recommendations to look into where SMP boundaries could change to match those of the WFD waterbody boundaries, notably at Portland Bill, Beer Head, Hopes Hose, Dart Estuary, Blackstone Point, Salcombe Harbour & the Avon and Erme Estuaries. However, SMP Management Area boundaries are based on coastal processes and social and economic reasons and are realistically unlikely to change.

2.7.4 Habitat Regulations Assessment

As many of the proposed SMP policies would be implemented within or adjacent to international conservation sites, a Habitats Regulations Assessment (**Appendix J**) 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 the UK under the Conservation of Habitats and Species Regulations 2010 ("Habitats Regulations").

The SMP has the potential to adversely affect the integrity of seven European sites, as follows:

- Exe Estuary SPA and Ramsar site;
- Plymouth Sound and Estuaries SAC;
- Tamar Estuaries Complex SPA;
- Dawlish Warren SAC (in the short term);
- Chesil Beach and the Fleet SAC
- Sidmouth to West Bay SAC

In most cases, the predicted adverse effects will be as a result of coastal squeeze, resulting in the progressive loss of habitats and their associated species as a result of sea level rise against coastal defences. There also remains uncertainty about the potential effects of holding the line in some policy units on internationally vegetated cliff habitats and this will be largely dependent on the extent that a 'Hold the Line' policy reduces erosion of the cliff face.

Where potentially adverse effects have been identified, a study will be undertaken as soon as possible to quantify habitat losses and gains and this action will be carried forward by the SMP Action Plan. Compensatory intertidal and dune habitat will be sought through the Regional Habitat Creation Programme (RHCP) to retain the ecological functionality of the European sites (where possible). Compensatory habitat for loss of cliff exposure will be provided by restoration (i.e. removal of defences) within the designated site.

Where a 'Hold the Line' policy applies within Dawlish Warren SAC in the short-term, the continued presence of defences will sustain the 'unfavourable' condition of the site. Given that the medium- to long term policies as applicable to Dawlish Warren SAC are yet to be determined, the potential for adverse effects on the integrity of the SAC in the medium and long term is uncertain. The Exe Estuary Flood and Coastal Risk Management Strategy will seek to find an acceptable solution for the SAC in the medium and long term.

2.8 Implementation and Monitoring

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.

Appendix I discusses the proposed monitoring of the predicted environmental effects of the plan, which have been reflected and incorporated into the **SMP Action Plan (Section 6 and Appendix M)**.

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 within the existing South-East and South-West Strategic Regional Coastal Monitoring Programmes or undertaken as part of coastal defence strategy studies. The latter will also define mitigation requirements.