Marine Management Organisation

South West Inshore and Offshore Marine Plans Sustainability Appraisal. Non-Technical Summary. Draft.

South West Inshore and Offshore Marine Plans Sustainability Appraisal. Non-Technical Summary

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Contents

Figures

Tables

1. Introduction

1.1. This report

The Marine Management Organisation (MMO) has simultaneously prepared marine plans for England's south west, north east and north west inshore and offshore marine plan areas and the south east inshore marine plan area. The marine plans for the south inshore and offshore and the east inshore and offshore marine plan areas have already been published.

As part of the marine plan- making process, a Sustainability Appraisal (SA) has been undertaken. The SA process and subsequent report (including this Non-Technical Summary) is a requirement of the Marine and Coastal Access Act 2009 and incorporates the requirements of The Environmental Assessment of Plans and Programmes Regulations 2004.

This SA has been carried out by ClearLead Consulting Ltd, in association with WSP UK Ltd and MarineSpace Ltd. on behalf of the MMO.

This is the Non-Technical Summary (NTS) of the draft South West Marine Plan Sustainability Report (SA Report).

The SA report is split into a number of parts:

- Non- Technical Summary (this report)
- The SA Reports incorporating:
    - Part 1: Introduction and Methodology
    - Part 2: Scoping Information
    - Part 3: Results of the Assessment

1.2. What is a sustainability appraisal?

SA is a process, incorporating the requirements of the Strategic Environmental Assessment (SEA) Directive, which considers the economic, social and environmental impacts of an emerging plan (the three dimensions of sustainable development). The aim in undertaking SA is to identify a plan's likely significant effects and take steps to avoid and/or mitigate the negative effects as well as identify opportunities to maximise a plan's contribution to sustainability.

The SA Report and this NTS conform to the requirements of the SEA Directive, and so the layout and feel of both the full Report and this NTS is influenced by these requirements. The SA has been undertaken throughout the development of the South West Marine Plan and has informed the consideration of options as well as assessing the effects of the draft and final plans.

2. Background to the South West Marine Plan

2.1. Introduction

Marine plans set the direction for decision making to ensure efficient and sustainable use of our marine resources. Once prepared the marine plans will cover a 20 year period and will be reviewed regularly. Marine plans are intended to guide users to the most suitable locations for different activities, assist in managing marine resources to ensure sustainable levels and to ensure that a holistic approach to decision making is taken.

2.2. The South West Marine Plan

The UK Government vision for the marine environment is for, "clean, healthy, safe, productive and biologically diverse oceans and seas". The Marine Policy Statement (MPS)[1] is the framework for preparing Marine Plans and taking decisions affecting the marine environment. The UK high level marine objectives (HLMOs) [2], which form part of the MPS, set the broad outcomes for the marine areas in achieving this vision, and reflect the principles for sustainable development which are:

- achieving sustainable marine economy
- ensuring a strong, healthy and just society
- living within environmental limits
- promoting good governance
- using sound science responsibly.

The South West Marine Plan has a defined vision which is outlined in section two of the South West Inshore and Offshore Marine Plan Sustainability Appraisal. Part 1: Introduction and Methodology.

2.3. Relationship with other plans and programmes

The South West Marine Plan fits into an existing hierarchy of plans, programmes, strategies and environmental protection objectives and these are set out in detail in Part 2 of the SA report. The South West Marine Plan has the following relationships with other plans and programmes:

- international legislation and policy which sets a number of targets, objectives and obligations which the South West Marine Plan should seek to contribute to
- national legislation and policy which outlines measures to achieve many of these obligations through setting regional and local targets for public bodies to achieve and by outlining principles which planning policies and decisions the South West Marine Plan needs to adhere to

[1] Marine Policy Statement available at: https://www.gov.uk/government/publications/uk-marine-policy-statement

[2] HMG,NIE, WAG, SG (2009) Our Seas A Shared Resource - High Level Marine Objectives (online) available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/182486/ourseas-2009update.pdf

- local and regional policy which sets outs more specific local targets and the local actions needed to achieve them.

Particularly important for the South West Marine Plan is the following:

- the national MPS and the United Kingdom-wide High Level Marine Objectives which together provide the policy framework for the preparation of marine plans
- the National Planning Policy Framework and associated National Policy Statements
- the EU Maritime Spatial Planning Directive (2014/89/EU) which came into force in July 2014 in support of the Integrated Maritime Policy for the European Union. The Directive introduces a framework for maritime spatial planning and aims to promote the sustainable development of marine areas and marine resources. It also sets out a number of minimum requirements for marine plans.

As well as supporting the HLMOs set out in the MPS, the policies of the South West Marine Plan will support other relevant government aspirations such as those set out in the 25 Year Environment Plan, the Industrial Strategy, the Clean Growth Strategy and sustainable development[3] of the marine area.

Regulations require that the SA considers how environmental protection objectives are taken into account in the development of the plan or programme. For the South West Marine Plan SA a full review of the key objectives within other plans and policy documents has been undertaken for each topic and is reported in Part 2 of the SA report. These objectives have then been used to inform the development of an SA framework. The SA framework is then used to test the South West Marine Plan and recommendations are made to strengthen the plan.

2.4. Habitats Regulations Assessment (HRA)

The South West Marine Plan has also been subject to a Habitats Regulations Assessment (HRA), which aims to look at the implications of a proposed plan on one or more European designated sites in view of the sites' conservation objectives. The South West Marine Plan HRA process consists of screening of potential significant effects and a fuller assessment process. Further details can be found in the Appropriate Assessment Information Report.

All Appropriate Assessment reports are available at the following weblink: https://www.gov.uk/topic/planning-development/marine-planning

[3] As defined in United Kingdom Sustainable Development Strategy

3. The Sustainability Baseline

3.1. Introduction

It is important to understand the existing conditions (known as baseline conditions) and the key issues that should be covered as part of the SA process. The sustainability baseline comprises information on aspects of the environment, economy and society that could be affected positively or negatively by the implementation of the South West Marine Plan. Further information relating to the scope of each of the SA topics and background information is presented in sections 3-11 within the South West Inshore and Offshore Marine Plan Sustainability Appraisal Part 2: Scoping Information. The baseline information identified has been summarised in Table 1 below.

Table 1: Sustainability Baseline Summary: Key Sustainability Baseline, Issues and Characteristics of the South West Marine Plan Areas.

Key Sustainability Baseline, Issues and Characteristics of the South West Marine Plan Areas
Cultural Heritage
• there are numerous Scheduled Monuments, Listed Buildings and Registered Parks and Gardens, including in estuaries and tidal rivers within the marine plan areas • there are twenty wrecks protected under the Protected Wrecks Act (1973) within the south west inshore marine plan area • the Cornwall and West Devon Mining Landscape World Heritage Site encompasses several discrete areas and abuts or overlaps the south west marine plan areas • there is an abundance and variety of archaeological remains on the Isles of Scilly and it has the greatest density of Scheduled Monuments in England, particularly associated with later prehistoric focussed around the island's coastal peripheries, intertidal and now submerged areas • various activities in marine plan areas such as anchoring, diving and some forms of fishing have implications for the conservation of heritage assets but are not subject to licensing or, directly, to public authority decision-making. The character and magnitude of effects on the marine historic environment arising from unregulated activities may not have been quantified and there is the need to consider what indirect measures can be taken to conserve heritage assets in respect of activities that are not regulated directly.
Geology, Substrates and coastal processes
• the south west marine plan areas contain diverse bathymetry, which includes, the Severn Estuary and Bristol Channel complex, southern Celtic Sea the continental shelf edge and a small portion of the Atlantic abyssal plain • notable coastal features in the south west marine plan areas include steep coastal cliffs broken by estuaries and rias; sandy beach and dune systems along the Bristol Channel coast; sand spits at the mouth of the Taw-Torrid and Exe estuaries; and shingle structures at Loe Bar, Slapton Sands and Westward Ho! • the majority of the preferred management options for coastal erosion from the shoreline management plans in the south west marine plan areas are no active intervention (NIV). However, this is interspersed with small areas of hold the existing defence line (HtL), particularly at Newly in Plymouth and Start Bay in South Devon • in the inshore plan area, the seabed sediment is predominantly gravelly sand, which is interspersed with sandy gravel, sand, rock, gravelly muddy sand and muddy sandy gravel. In the offshore plan area, the seabed sediment is mainly slightly gravelly sand, gravelly sand, sand, and muddy sand. There are extensive areas of hard substrate in the south west compared to other marine plan areas

Key Sustainability Baseline, Issues and Characteristics of the South West Marine Plan Areas
• seven aggregates dredging production licences are in force in the South West aggregates planning area for sand. All of these licence areas are in the Bristol Channel with the majority on the Welsh side. The area licensed for dredging is 101.5km^2 (although much of this is in Wales) with only 5.39% of this area actually dredged in 2014 • a notably different coastline exists as the Bristol Channel transitions into the Severn Estuary. The shoreline is fringed by mudflats, saltmarsh and sand beaches.
Seascape and Landscape
• Exmoor National Park is adjacent to the coast • Areas of Outstanding Natural Beauty (AONB) in the south west which are adjacent to, or near to, the coast are South Devon, Tamar Valley, Cornwall, Isles of Scilly, North Devon, Quantock Hills, Wye Valley (partly in Wales). The Gower AONB which is in Wales could also be affected by development in the south west inshore marine plan area • Cornwall and West Devon Mining Landscape is designated as a World Heritage Site by UNESCO • a significant amount of the south west inshore marine plan areas is designated as Heritage Coast. The Heritage Coasts are North Devon, Exmoor, Isles of Scilly, Lundy and a large proportion of Cornwall (Rame Head, Gribbin Head – Polperro, The Roseland, The Lizard, Penwith, Godrevy – Portreath, St Agnes, Trevose Head, Pentire Point – Widemouth, Hartland) • views to industrial and urban development on the South Wales coast impacting on perception of tranquillity, remoteness and dark night skies (the Exmoor international Dark Sky reserve is centred on the moorland core behind the coast).
Water
• there are two River Basin Management Plans (RBMPs) in the south west inshore marine plan area, the South West and Severn RBMPs • the Severn 2015 RBMP: the Severn estuary is a Heavily Modified Water Body (HMWB) of Moderate Ecological Status (MES). Much of the western area of the Severn Estuary is of Poor Chemical Status (PCS), however the Inner Severn estuary is achieving Good Chemical Status (GCS). Small estuaries, such as the Severn River and Avon are achieving Good Chemical Status • the South West 2015 RBMP: most coastal areas are Good Ecological Status and areas on the north coast of Cornwall are of High Ecological Status (HES) • there are approximately 126 bathing beaches and approximately 91% are achieving either good or excellent status. Four are classified as poor. There are 10 blue flag beaches and a high level of surfing and water sport activity throughout the year. Water quality is vital for tourism and human health • there are five problem areas for eutrophication in the south west marine plan areas: Truro; Tresillian estuary; Fal estuary; Taw estuary; and Lower Fal Estuary

Key Sustainability Baseline, Issues and Characteristics of the South West Marine Plan Areas
• there are just over 1,700 combined sewer overflows (CSOs) and from 2000 to 2010, South West Water invested £75 million to reduce the volume of, and improve the quality of, discharges in the most sensitive areas including bathing and shellfish waters • large scale farming in the area between Trevose head to Stepper Point can have large scale impacts for example soil run off into the sea in heavy rainfall • Devonport is the only defence site in England able to discharge radioactivity into the waters • warming within the south west marine plan areas has been identified to be the lowest of all the UK waters at approx. 0.3°C per decade • the salinity of the upper ocean has been generally increasing since a fresh period in the 1970s. The western English Channel (Region 4) is influenced by North Atlantic Water, tidal currents and local weather conditions. There is no discernible long-term trend in over a century of observations, but in recent years salinity has been higher than average • the south west inshore marine plan area has the highest densities of beached litter, attributed to pressure from tourism and fishing as well as litter entering UK waters through prevailing currents. There is evidence to suggest the problem is getting worse • marine litter issues have been associated with sewerage outflows in the inshore area, particularly in the south west. The occurrence of overflows may increase in the future.
Air Quality
• the major ports in the south west inshore marine plan area include: Plymouth – defence, fishing, ferry, general cargo; Falmouth - shipyards and maintenance; Avonmouth (and Bristol) - commercial and industrial. None of these port areas are designated Air Quality Management Areas (AQMAS) • ongoing challenges with air quality in AQMAs at the coast and on land could lead to eutrophication of the marine environment and acid deposition effects • there is increasing pressure upon the maritime sector to reduce its carbon and pollutant emissions. In 2020 a sulphur cap will come into force. The International Maritime Organisation (IMO) has recently agreed ambitious global targets for at least 50% carbon reduction by shipping by 2050.
Climate
• increase in the magnitude of winter flash floods due to increased winter rainfall and reduced summer rainfall • mean summer temperatures are projected to increase by 3-5 °C in the eastern parts of the region, though by less than this in most of Devon and Cornwall • projections of central estimates of average summer precipitation change in the south west get larger over time. Projected changes in average summer precipitation are -13% by the 2040s and -23% by the 2080s

Key Sustainability Baseline, Issues and Characteristics of the South West Marine Plan Areas
• seasonal mean and extreme waves are expected to increase • the risks of tidal flooding on good quality agricultural land are expected to be high in the south west region. • the peatlands of Bodmin, Dartmoor and Exmoor support internationally important mires, and heaths provide 70% of local drinking water and are a significant carbon sink • the impacts of climate change are already being observed, and impacts are predicted to continue • without any further investment in flood defences, the number of properties in England at medium or high risk could rise from 0.75 million to 1.29 million in 50 years.
Communities, health, wellbeing
• aquaculture is a growing marine activity and is seen as the means to increase seafood supplies and in turn increase employment • protection of Plymouth's waterfront is needed to support the local economy • coastal communities in the south west region are benefitting from a number of projects awarded significant funding via the Coastal Community Fund including the Penzance Coastal Community Team for investment in Jubilee Pool and regeneration of key sites across Penzance.
Economy
• there is an inshore shipping route running along the south coast linking two way traffic to a point off Land's End, from which two distinct traffic routes can be seen heading in a North-South orientation for traffic transiting into the Irish Sea • the south west region has 22% of English ports handling mainly passenger and fishing traffic • there is an IMO Traffic Separation Schemes in the plan area around the Isles of Scilly • shipping is an essential and valuable economic activity for the UK. There are significant movements of ships around the UK coast and into and out of UK ports serving the UK's economic interests • in 2011 39% of landings into English ports by UK vessels landed into Plymouth, Brixham, and Newlyn with Plymouth landing the most • Plymouth and Newlyn have a large proportion of high value catch, caught by a few large vessels over 15m in length • fishing activity occurs in both the inshore and offshore marine plan areas, but inshore vessel activity is particularly high • the percentage of each marine plan area utilised by shellfish production is as follows: south west inshore: 8.8%, south west offshore: 0%. In the south west, there are several important shellfish beds, including pacific oyster in Salcombe, blue mussel and pacific oyster in the Dart, Fowey and Yealm Estuaries, pacific oyster in Bigbury and Avon and native oyster, blue mussel and pacific oyster in Truro, Tresillian and Fal

Key Sustainability Baseline, Issues and Characteristics of the South West Marine Plan Areas
• seaside tourism makes an important contribution to overall tourism. It supports some 21,000 jobs and contributes £3.6bn to the economy • the south coast (including the south west) dominates participation in boating activities • surfing is of major significance in Cornwall, Devon and Dorset in England and the Gower Peninsula in Wales • the revenue from leisure and small commercial marine activities in the UK is recorded, the most recent available data shows in the south west annual turnover was £711.6 million • scuba diving is particularly popular in Plymouth and the Isles of Scilly • recreational and sport fishing is widespread, participation rates are highest in the south west, south east and north east regions • the south west is an important destination for wildlife watchers with a number of small boat operators around the coast • the main area in the south west marine plan areas for marine manufacturing is Avonmouth. Industries in Avonmouth employ a large number of people in a wide range of processes, from making pharmaceuticals to smelting zinc. The industries make vital products such as anaesthetics and agricultural fertilisers and provide important services such as gas storage • sea training is carried out within defined military practice and exercise (PEXA) training areas. Each of the marine plan areas have PEXA areas or another form of military presence within them. The percentage of the south west marine plan areas covered by PEXA is as follows: south west inshore: 60%, south west offshore: 94% • HMNB Devonport and Dockyard is a major component of the UK's strategic defence capability • in Plymouth, the Devonport Naval base generates approximately 10% of the income for the city, employs 2,500 people and creates business opportunities for around 500 firms • 0.03% of the south west inshore marine plan area is covered by aggregate extraction licence • based on 2011 figures, 7km^2 of the south west inshore marine plan area was subject to extraction • aggregate wharves in the south west include Dunball Wharf, Plymouth, Appledore, Avonmouth and Bristol • the length of cable in the south west marine plan areas is as follows: south west inshore: 1,939km, south west offshore: 682km • the number of pipelines in the south west marine plan areas are as follows: south west inshore: 196km, south west offshore: 0km • the south west coast acts as a landing point for a substantial number of economically important cable connections across the Atlantic to North America (for example Cornwall is the landing point for one of the world's fastest high-speed transatlantic fibre optic cables) • there are currently no operational or approved offshore wind farms in the south west marine plan areas. Whilst the main focus has been on wave and tidal energy, Pulse Tidal Limited have been liquidated and the associated lease in the Bristol Channel has been terminated. Marine renewable energy activities within the south west marine plan areas are now limited to wave energy. Current

Key Sustainability Baseline, Issues and Characteristics of the South West Marine Plan Areas
lease sites include the North Cornwall Wave Demonstration Zone (Wave Hub) and Falmouth Bay Test Site (FabTest). These are both within the inshore marine plan area • the South West Marine Energy Park, the country's first, serves the wider south west peninsula, and offers direct access to physical assets and resources including the north Devon and north Somerset marine energy coasts for opportunities in wind, tidal and nuclear energy • Tidal Lagoon Power are considering the potential of Bridgwater Bay, Somerset to develop a tidal lagoon • the south west marine plan areas are unlikely candidates for gas storage or carbon capture usage and storage • a Development Consent Order was granted for Hinkley Point C in 2013 but there is uncertainty surrounding the future of the development. The Final Investment Decision has been delayed; however, preliminary works have commenced on site • a large portion of south west marine plan areas are designated as restricted areas. There are no oil or gas fields, no oil or gas terminals and no currently licenced areas. The remaining blocks in the areas could potentially be licensed in future licensing rounds run by the Oil and Gas Authority within the marine plan period, especially if further strategic seismic programmes are undertaken.
Biodiversity, Flora and Fauna
• the rich waters of the Bristol Channel Approaches provide ideal conditions for a diverse mix of 17 cetacean species which frequent the area, including common dolphin and long-finned pilot whale • habitat features of conservation interest (FOCI) include blue mussel beds, and estuarine rocky habitat, maerl beds and seagrass beds, areas of potential Sabellaria spinulosa reef, fragile sponge and anthozoan communities on subtidal rocky habitat, intertidal boulder communities, native oyster beds, honeycomb reef, seapens and burrowing megafauna, sheltered muddy gravel, subtidal sand and gravels and tide swept channels. Species FOCI for the south west offshore marine plan area include ocean quahog and fan mussel. UK principal habitats of importance include extensive areas of coastal saltmarsh • deep sea habitats (e.g. biogenic reefs, boulder habitats or sponge aggregations) are vulnerable to impacts such as habitat loss or damage from mobile fishing gear (bottom trawling) and smothering of sediment or habitat damage from marine litter (mainly discarded nets). Expansion of deep sea fisheries will increase the likelihood of such impacts • shellfisheries impact on intertidal and subtidal rocky and estuarine habitats within the inshore marine plan area, including removal of non-target species and habitat damage or loss, including sensitive reefs and maerl beds • Marine Protected Areas are an important tool for protecting marine habitats. Sustainable Development Goal 14 states that 10% of the sea should be protected by 2030, while OSPAR set the goal of establishing a network of Marine Protected Areas across the North East Atlantic • effects of pollution from marine activities (aquaculture, shipping, oil and gas, marine construction) are had on benthic and intertidal habitats and species, including cumulative impacts from increasing levels of contaminants

Key Sustainability Baseline, Issues and Characteristics of the South West Marine Plan Areas
• reduced prey availability for some benthic and intertidal organisms due to impacts of ocean acidification on plankton increasingly affecting food webs • change in habitat condition and habitat loss through sea level rise, coastal squeeze, storm events from climate change and creation of coastal defences • impacts to subtidal sediments from mobile fishing gear (such as bottom trawls and dredges) can cause damage and create disturbance resulting in loss of benthic habitats and species • impacts on subtidal sediments from offshore industry (e.g. aggregate extraction, dredging, offshore energy production) is an issue. • further work is required to address the potential long-term impact of light pollution on commercial fish species and marine life • impulsive sound sources have been observed to cause temporary displacement of small cetaceans (e.g. harbour porpoise), increased physiological stress in some fish species (e.g. European seabass), and developmental abnormalities in invertebrate larvae • broad-scale changes in habitats and species are increasingly likely, resulting from rising sea temperatures due to climate change • the UK seabird indicator stands at 22% below the 1986 baseline, with most of this decline occurring since the mid-2000s • habitat suitability around the UK for seabirds is projected to shift northward over the next century and birds' distributions may shift with changing conditions. Declines in European ranges are also predicted.

4. How the Assessment was Undertaken

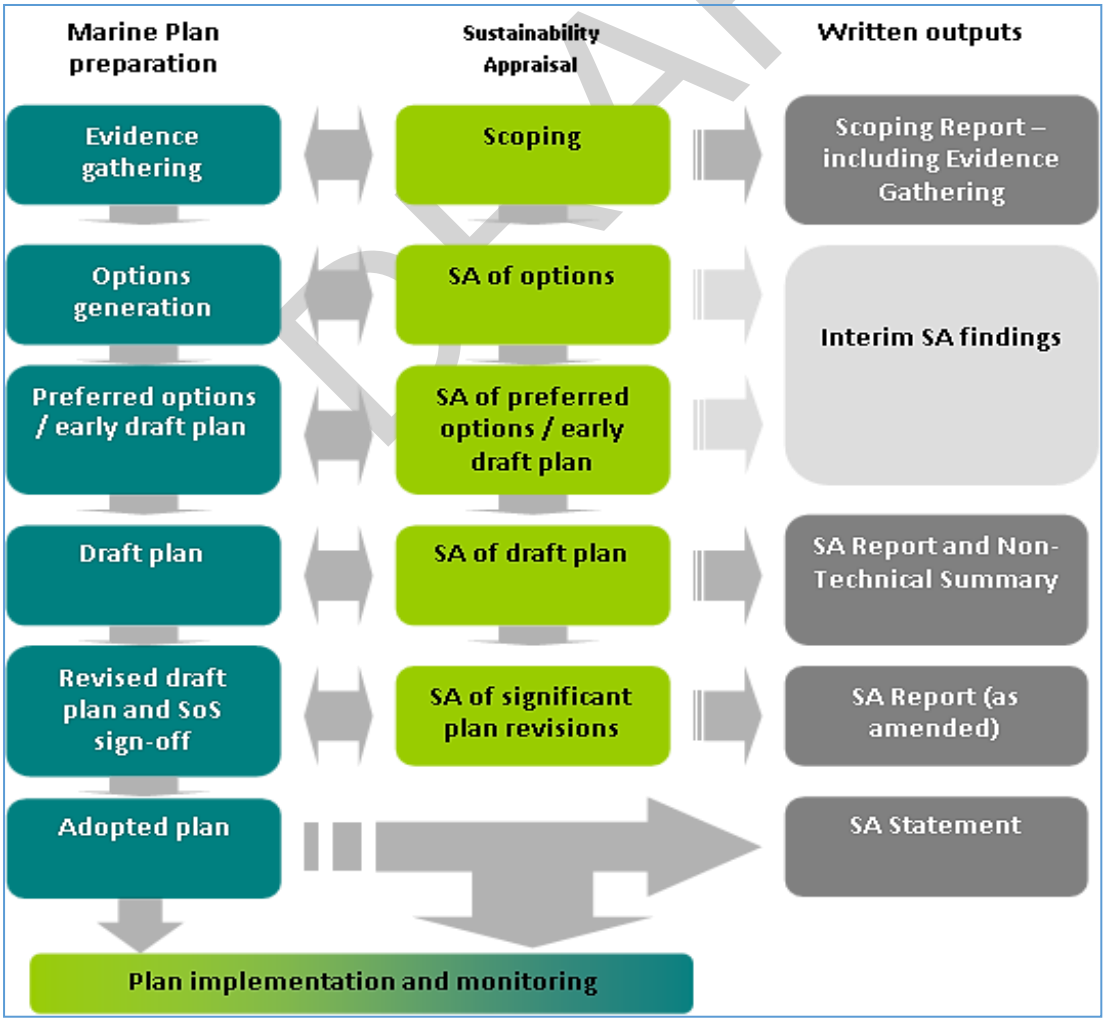
4.1. The SA process

The stages in the SA process have been developed to take into account the five procedural stages of SEA:

- Stage A: (scoping) setting the context, establishing the baseline and deciding on the scope of the assessment
- Stage B: developing and refining alternatives and appraising the effects
- Stage C: preparing the SA Report
- Stage D: consulting on the SA Report and the South West Marine Plan and assessing any significant changes
- Stage E: monitoring the significant effects of implementing the South West Marine Plan.

In practice, the SA is an iterative process which has been undertaken in parallel with the development of the South West Marine Plan and has fed into the development of the South West Marine Plan at appropriate intervals – see Figure 1.

Figure 1: Stages in the SA Process.



4.2. Stage A- Scoping

The purpose of the scoping stage was to decide the coverage (scope) and the level of detail of the SA. The scoping report was produced by a consortium composed of Ramboll Environ, ClearLead Consulting Ltd and Marine Planning Consultants (MPC) Ltd in April 2016. The draft scoping report was engaged on from 11th April 2016 to the 13th May 2016. Following some small factual changes, the final scoping report was published by the MMO. The scoping report forms part of the suite of documents which support this SA Report.

The scoping report outlines an SA framework which the South West Marine Plan and its alternatives are measured against in order to test their sustainability. The SA framework is set out in Table 2.

The scoping process also sets out the geographical and temporal scope of the SA:

Geographical: The south west inshore marine plan area covers an area of approximately 2,000km of coastline stretching from the River Severn border with Wales to the River Dart in Devon, taking in a total of over 16,000 square kilometres of sea. The south west offshore marine plan area includes the marine area from 12 nautical miles extending out to the seaward limit of the Exclusive Economic Zone (EEZ), a total of approximately 68,000 km^2 of sea.

Temporal: The South West Marine Plan covers a 20 year period, and therefore the SA has considered the effects of the plan over the next 20 years and beyond where possible.

The scoping report was issued to the following statutory bodies:

- Natural England
- Historic England
- The Environment Agency.

In addition to statutory bodies, the scoping report was issued to 20 organisations for comments. The full list is located within section 3 of Part 1 of the Sustainability Appraisal Report.

Table 2: SA framework.

	Overarching SA topic	SA sub-topic
Physical and Chemical Aspects	Cultural Heritage	• heritage assets within marine plan areas • heritage assets adjacent to marine plan areas.
	Geology, Substrates and Coastal Processes	• seabed substrates and bathymetry • coastal features and processes.
	Seascape and Landscape	• effects on seascape and landscape.
	Water	• tides and currents • water temperature and salinity • pollution and water quality • marine litter.
	Air Quality	• air pollutants.
	Climate	• greenhouse gas emissions • climate change resilience and adaptation.
Social and Economic Aspects	Communities, Health and Wellbeing	• health and wider determinants of health and effects on communities • effects on protected equality groups.
	Economy	• ports and shipping • fisheries and aquaculture • leisure / recreation • tourism • marine manufacturing • defence • aggregate extraction • energy generation and infrastructure development • seabed assets.
Ecological Aspects	Biodiversity, Habitats, Flora and Fauna	• protected sites and species • benthic and intertidal ecology • fish and shellfish • marine megafauna • plankton • ornithology • invasive non-native species.

4.3 Stage B- Assessing the Options

The SEA Directive requires that the assessment identifies and evaluates reasonable alternatives to what is proposed within the plan.

This stage involved assessment of the alternative options against the SA framework, taking into account the evidence base provided within the SA Database (Appendix A South West Inshore and Offshore Marine Plan Sustainability Appraisal. Part 1: Introduction and Methodology). The key features of the options assessment approach were:

- an approach that assessed each option as a whole and to the same level of detail. 254 policy options were packaged into 29 policy groupings[4], and the assessment provided a comparison of the options within each grouping
- an evidence-led assessment which referred to the baseline information to provide quality assured evidence as the basis of the assessment
- a focus on identifying key potential significant effects to inform the decision making between options.

The assessment of options was undertaken in two stages:

- **Screening:** a screening process was carried out to determine whether the SA sub-topics were relevant to the specific grouping
- **Assessment of significant effects:** each option was considered against the relevant SA Framework sub-topics. Expert judgement and the updated SA Database (developed at the scoping stage of the SA process and refreshed in August 2017 prior to the assessment) were used as evidence for the assessment.

The options assessment of the draft South West Marine Plan was reported in an options assessment SA report which can be found here.

4.4. Stage B- Assessing the Draft and Final Plan

The SA of the South West Marine Plan preferred policies has been undertaken as a 'baseline-led' assessment which considers how the baseline situation will change with the South West Marine Plan in place. This is shown in Part 3 of the SA report.

A qualitative approach has been used, comprising the assessment and description of effects, rather than a quantitative approach which is not considered appropriate or feasible at this strategic level, in view of the form and content of the plan.

The SA of the draft South West Marine Plan focuses on the preferred policies completed in July 2019. This consists of 58 policies arranged within 29 groupings outlined below:

[4] Four groupings (Cumulative Effects, Governance, Evidence Gaps and Implementation) contained options which are not possible to assess through the SA because they are overarching policies and the options were not distinct.

Table 3: South West Preferred Policy Groupings.

South West Policy Groupings		
Economic:	**Environmental:**	**Social:**
Aggregates Co-existence Ports and Harbours (including shipping) Aquaculture Dredging and Disposal Renewables Cables Oil and Gas.	Air Quality Climate Change Marine Litter Biodiversity Cumulative Effects Marine Protected Areas Natural Capital Disturbance Invasive Non-Native Species Underwater Noise Water Quality.	Access Fisheries Defence Cross-Boundary Seascape and Landscape Tourism and Recreation Social Benefits Employment Heritage Assets Infrastructure.

The same approach to assessment has been taken as for the assessment of options:

- preferred policies have firstly been screened to identify sub-topics of relevance to the policy grouping
- an assessment of significant effects was performed in relation to the relevant sub-topics only.

The assessment criteria set out within Table 4 have been used to identify the potential effects of the South West Marine Plan policies.

Table 4: Policies Assessment Criteria.

Notation	Description
Degree to which baseline conditions may change (significance of effect) compared with the future baseline situation	
++	**Major Positive Effect (significant positive):** The plan policies are likely to lead to significant improvements in baseline conditions.
+	**Minor Positive Effect:** The plan policies are likely to lead to some improvements in baseline conditions.
0	**Neutral Effect:** The plan policies are unlikely to alter baseline conditions significantly.
-	**Minor Negative Effect:** The plan policies are likely to lead to a deterioration in baseline conditions.
--	**Major Negative Effect (significant negative):** The plan policies are likely to lead to a significant deterioration in baseline conditions.

Notation	Description
?	**Uncertain Effect:** It is not known whether the plan policies would lead to an improvement or deterioration in the baseline conditions[5].
Direct / Indirect	
Direct	Effects that are a direct result of the plan policies.
Indirect	Effects that are secondary i.e.. they occur away from the original effect or as a result of a complex pathway.
Reversibility of effects	
Reversible	It is considered that the effects upon the receptor group could be reversed if activities were to change in the future. The effects could be long-lasting but the receptor may hence be able to recover or indeed improvements could be diminished.
Irreversible	It is considered that the effects upon the receptor group could not be reversed. This may apply to situations where, for example, features are destroyed forever, or systems / trends are irrevocably changed.
Permanence of effects	
Permanent	Effects could be lasting or intended to last or remaining unchanged indefinitely.
Temporary	Effects are not likely to be lasting or permanent.
Duration	
Short	Within three years of plan adoption – within the reporting period i.e. policy would have an immediate effect.
Medium	Within plan period (up to 20 years from adoption)
Long	Beyond plan period (more than 20 years from adoption)
Spatial Extent	
Beyond both plan boundaries	Effects are predicted to extend beyond the plan boundaries (i.e. cross-boundary) and could affect the terrestrial environment, neighbouring marine plan areas or other states.
Inshore and offshore plan-wide	Effects are predicted to occur within the inshore and offshore plan areas.
Inshore plan-wide only	Effects are predicted to occur within the inshore plan area only.
Localised	Effects are predicted to have a relatively small spatial extent, confined to the local area, typically <5km from source, within the plan boundaries.
Magnitude of effects	
High	Likely total loss of or major alteration to the receptor in question The effects are predicted to be permanent and irreversible.
Medium	Partial loss of/alteration/improvement to one or more key elements/features/characteristics of the receptor in question The effects are predicted to be medium-long term but reversible.

[5] Please note that for the purpose of this SA, uncertain effects have been treated as potentially significant and mitigation measures suggested

Notation	Description
Low	Minor loss/alteration/improvement to one or more key elements/features/characteristics of the receptor in question The effects are predicted to be reversible and short term.

4.5. Stage C- Preparing the SA Report

The draft SA Report for the South West Marine Plan constitutes three parts:

- Part 1: Introduction and Methodology
- Part 2: Scoping Information
- Part 3: Results of Assessment.

Material and documents generated as part of the SA process are available here.

4.6. Stage D- Consulting on the SA Report

The draft South West Marine Plan and accompanying SA Report will be consulted on with the public and other key stakeholders in Quarter 1 of 2020.

4.7. Stage E- Monitoring

Monitoring the effects of the plan will be the responsibility of the MMO. Monitoring recommendations will be put forward for integration into the MMOs marine plan monitoring within the SA Adoption Statement.

4.8. Difficulties encountered

The South West Marine Plan is a regional scale plan which is not intended to address site or project-specific details. The large majority of the policies in the plan are generic or criteria-based policies and do not have a clear spatial dimension.

This results in uncertainty when predicting the effects of activities and consequently strategic impacts can be identified with the most certainty, together with the extent to which the marine plan seeks to avoid or offset these impacts. Correspondingly, this SA's predictions and proposed mitigation measures are primarily at a strategic level.

5. Significant Effects of the Plan and Mitigation

5.1 Introduction

This section presents a summary of the assessment findings of the South West Marine Plan preferred policies by SA topic, the summaries of which are presented in Table 5 to Table 13. The full assessment of the preferred policies can be found within Appendix B to the full SA report.

Table 5: Assessment results: Cultural Heritage.

Cultural Heritage	
Significant Positive Effects	++
• the significance of heritage assets in the immediate vicinity of the south west marine plan areas, is susceptible to the impacts arising from activities within marine plan areas. This heritage asset policy aims to protect heritage assets from developments that could result in adverse effects.	
Significant Negative Effects	- -
• buried subsea cables have the potential to disturb both known and undiscovered archaeological sites. A preference for burying cables is included within the cables policies could exacerbate disturbance on heritage assets, both within and adjacent to the south west marine plan areas • the baseline has identified the potential for adverse effects on heritage assets with regards to aggregates extraction. Although the policies may not result in further extraction sites within the south west plan areas, the policies will safeguard existing aggregate sites (areas 472 and 526) which are licensed to extract 3 million tonnes per annum up until 2023 and 2 million tonnes per annum up until 2039. For this reason, a significant negative effect has been identified • in the south west inshore marine plan area, there are three major ports and twenty minor ports, which require maintenance dredging to maintain access[6]. Similarly, to aggregates, there is potential for dredging and disposal activities to result in adverse effects on heritage assets. The policy grouping aims to safeguard dredging activity within the plan area, rather than increasing dredging activity, however, as dredging is an enabling activity which is essential to the functioning of ports, harbours and marinas, it is assumed that these policies will help dredging activity to continue. As dredging activity at present is negatively impacting cultural heritage, it is assumed that at best, the current baseline situation will continue, and for this reason a significant negative effect has been identified.	

[6] Futures Analysis for the North East, North West, South East and South West Marine Plan Areas (June 2017)

Cultural Heritage	
Uncertain Effects	?
• future ports, harbours and shipping activity have the potential to impact heritage assets, particularly those that may be buried and not yet uncovered. Associated port activities, such as dredging, could also be increased as a result. Future development is not yet known; however, this will be identified in harbour master plans to be developed as part of Maritime 2050[7], which could allow for greater certainty, with regards to the effects on heritage assets • renewable energy developments have the potential to negatively affect the seabed and subsequent heritage assets, however, the extent of these effects is largely dependent on the device used, and on the installation methods opted for • oil and gas developments have the potential to adversely impact buried heritage assets. There are no oil or gas fields or terminals and no currently licenced areas in the south west marine area. However, the remaining blocks in the area could potentially be licensed in future licensing rounds run by the Oil and Gas Authority, within the marine plan period. At this stage, there is no certainty that this will result in development, and for this reason an uncertain effect has been identified.	

Table 6: Assessment results: Geology, Substrates and Coastal Processes.

Geology, Substrates and Coastal Processes	
Significant Positive Effects	++
• the climate change policy seeks to increase resilience of geology to the effects of climate change, minimise adverse impacts on coastal change adaptation measures and support proposals which have the potential to increase flood defence and carbon sequestering habitats. Significant positive effects have been identified for the coastal features and processes SA topic • the seabed provides a role for both nutrient cycling and carbon sinks, the importance of which has been identified within the supporting text to the natural capital policy. As a result of this policy, it is assumed that seabed substrates and bathymetry SA sub-topic would be offered protection, due to the importance of these assets.	
Significant Negative Effects	- -
• marine dredging has potential to result in the loss of seabed substrates, whilst disposal of dredge material can disturb the seabed at both the extraction and selected disposal site. Increased dredging activity may occur as a result of dredging polices, negatively affecting both the seabed substrates and bathymetry and coastal features and processes SA sub-topics • aggregate activity can significantly change the hydrodynamic regime, which in turn could alter coastal processes. As policies provide safeguarding to existing and future sites, and areas within the south west marine plan areas are licensed to extract 3 million tonnes per annum up until 2023 and 2 million tonnes per annum up until 2039, there is potential for both the seabed	

[7] Department for Transport, Maritime 2050, Navigating the Future, 2019

Geology, Substrates and Coastal Processes	
substrates and bathymetry and coastal features and processes SA sub-topics, to be negatively affected by the aggregates policies.	
Uncertain Effects	?
• according to the baseline, the UK is locked into accelerated sea level rise, regardless of what is done about greenhouse gas emissions • of evidence on future scenarios of coastal processes, an uncertain effect has been identified in relation to the air quality policy and the coastal features and processes sub-topic • the effects of renewable energy installations on potentially sensitive environmental features are unknown at present. The installation of renewable technology and subsequent reduced contributions to climate change may help to appease the impacts of increased storminess such as coastal inundation within the marine environment. However, due to the unknown type and location of future renewable sites, an uncertain effect has been identified, for the coastal features and processes sub-topic.	

Table 7: Assessment results: Seascape and Landscape.

Seascape and Landscape	
Significant Positive Effects	++
• there is a close relationship between the presence of heritage assets and the character, value and appreciation of landscape and seascape. Heritage policies aim to protect heritage assets from future proposals, ensuring that the diversity of the marine environment, and its cultural heritage, is protected • the landscape and seascape policy aims to maintain and improve the seascape and landscape within the south west plan areas. Proposals which may harm the current seascape or landscape must demonstrate why this is necessary and mitigate adverse effects.	
Significant Negative Effects	- -
• both landscape and seascape can be highly sensitive to visual impacts associated with developments. Given the importance of Exmoor National Park and South Devon, Tamar Valley, Cornwall, Isles of Scilly, North Devon, Quantock Hills, Wye Valley AONBs, if future developments were to come forward, there is potential for adverse effects to occur. For these reasons, significant negative effects have been identified in relation to the oil and gas, renewables and cables policies on the seascape and landscape SA topic.	
Uncertain Effects	?
• seascapes and landscapes are vulnerable to adverse and cumulative effects from multiple sectors and activities. As a natural capital asset, seascapes and landscapes can provide benefits associated with tourism, recreation, wellbeing and cultural	

Seascape and Landscape
value. As a natural capital asset, seascapes and landscapes can provide benefits associated with tourism, recreation, wellbeing and cultural value. However, these benefits and associated activities can themselves adversely affect seascape and landscape, forming an interdependent relationship • there are no oil or gas fields or terminals and no currently licenced areas in the south west marine plan areas. However, the remaining blocks in the area could potentially be licensed in future licensing rounds run by the Oil and Gas Authority, within the marine plan period. At this stage, there is no certainty that the oil and gas policy will result in development, and for this reason an uncertain effect has been identified.

Table 8: Assessment results: Water.

Water	
Significant Positive Effects	++
• marine litter is cross-boundary in nature as litter moves in the marine environment and litter originating from one marine plan area or even country can affect another. The cross-boundary policy supporting text states that the alignment of marine planning with other planning, regulation and management bodies is necessary in order to manage pressures and aims to ensure cross-boundary impacts are minimised across international borders. This policy could therefore result in significant positive effects on the marine SA sub-topic • the natural capital policy aims to discourage proposals which may have a significant adverse impact on the marine environment and any natural capital which can be derived from this, and would thereby encourage improved water quality and pollution status of waters both within the south west marine plan areas and beyond • a potential significant indirect positive effect has been identified in relation to the renewables policies on the water temperature and salinity SA sub-topic. It is assumed that an increase in renewable energy generation could work to counter the advance of climate change and the associated effects on water temperature and salinity.	
Significant Negative Effects	- -
• marine litter is a prevalent issue across both south west marine plan areas, of which the fishing industry is a key contributor. Significant negative effects have been identified in relation to the fisheries policy grouping and the marine litter SA sub-topic • ports and shipping can contribute to marine litter and can negatively impact water quality through the possible discharges from ships such as bilge water, ballast water, sewage and other residues in a ship. Spills of oils, lubricants, fuels and other oily liquids can also be sources of water pollution from both ports and ships. As the ports and harbours policies could result in increased shipping activity, there is potential for increases for in marine litter and pollution and water quality. Significant negative effects have therefore been identified for these topics.	

Water	
Uncertain Effects	?
• increased levels of tourism have the potential to negatively impact water quality and increase marine litter within the south west inshore plan area. The tourism and recreation policy states that 'sustainable tourism and recreational activities' will be supported, however, it is not clear whether ‘sustainable tourism’ will result in a positive effect on the water quality and marine litter SA sub-topics.	

Table 9: Assessment results: Air Quality.

Air Quality	
Significant Positive Effects	++
• potential significant positive effects have been identified in relation to the air quality policy as developments that contribute to air pollution will need to consider the need to protect air quality.	
Uncertain Effects	?
• ports and shipping activity contribute significantly to air pollution. Ports and harbours policies could result in further port and shipping activity in the region, and subsequently negatively impact air pollution. There is some uncertainty regarding 'sustainable expansion' and whether this will contribute to a reduction air pollution.	

Table 10: Assessment results: Climate.

Climate	
Significant Positive Effects	++
• the climate change policies have resulted in a potential significant positive effect on the climate change resilience and adaptation SA sub-topic, as it seeks to increase resilience and adaptation to the effects of climate change • fisheries policies encourage proposals that support a sustainable fishing industry, including the diversification and enhanced resilience to the effects of climate change. The potential to support climate change resilience and adaptation has resulted in a significant positive effect on the climate change resilience and adaptation SA sub-topic • the marine protected areas policy directly addresses the issue of climate change, with clear preference for proposals which enhance the adaptability of marine protected areas to climate change • the renewables policies support energy generation by marine renewables which in turn could alleviate demand on greenhouse gas-emitting fossil fuel energy generation, resulting in significant positive effects on the greenhouse gas emissions SA sub-topic • the air quality policy aims to ensure that developments which contribute to greenhouse gas emissions will need to consider the need to protect air quality, resulting in significant positive effects on the greenhouse gas emissions SA sub-topic	

Climate	
• the natural capital policy could result in the protection of natural flood defences in the south west marine plan areas which in turn will provide climate change resilience. Significant positive effects identified for the climate change resilience SA sub-topic.	
Uncertain Effects	?
• ports and shipping activity contribute significantly to greenhouse gas emissions. Ports and harbours policies could result in further port and shipping activity in the region, and subsequently negatively impact on climate change. There is some uncertainty regarding 'sustainable expansion' and whether this will contribute to a reduction in greenhouse gas emissions • oil and gas extraction can contribute to an increase of greenhouse gas emissions, which could result in a significant negative effect. However, at present there are no oil or gas fields or terminals and no currently licenced areas in the south west marine plan areas.	

Table 11: Assessment results: Communities, Health and Wellbeing.

Communities, Health and Wellbeing	
Significant Positive Effects	++
• the baseline has identified income and employment deprivation issues associated with coastal communities across the south west inshore marine plan area. It is assumed that the employment policy will help to provide employment opportunities for all, including those from protected equality groups, therefore significant positive effects have been identified for the effects on communities and effects on protected equality groups SA sub-topic • the infrastructure policy supports the diversification and regeneration of marine based industries. Given the high dependence upon the fishing sector and the declines the industry is now facing, it is assumed that the diversification and regeneration that the policy provides, could result in significant positive effects on the effect on communities SA sub-topic • it is assumed that the natural capital policy will seek to prevent and/or minimise adverse impacts on marine natural capital within the marine plan area, which in turn would have the potential to benefit local communities. Significant positive effects have therefore been identified for both the effect on communities and the health and the wider determinants of health SA sub-topics • increased access to tourism and recreation activities, as a result of tourism and recreation policies, could provide significant social benefits for communities through, greater social cohesion, improved health and wellbeing (both physical and mental) and job creation • the cross-boundary policy aims for developments to consider cross-boundary impacts upon adjacent marine plan areas and the terrestrial environment including economic, social impacts. In order to achieve sustainable development, it is assumed	

Communities, Health and Wellbeing	
that developments will need to consider their impact on communities (including health and wellbeing) in order to achieve sustainable development.	
Uncertain Effects	?
• renewable energy policies aim to support associated renewable technology supply chains, which could result in increased employment opportunities. However, at this stage, it is not clear as to whether any proposals will come forward, and the likely available employment opportunities.	

Table 12: Assessment results: Economy.

Economy	
Significant Positive Effects	++
• an increase in access to the marine environment is predicted to result from the implementation of the access policy on leisure and recreation. This should allow for greater use of the natural environment for leisure and recreation, therefore the access policy has resulted in a significant positive effect on the leisure and recreation policy SA topic • aggregate policies could result in further aggregate extraction in the south west marine plan areas. The baseline has identified the significance of the UK marine aggregates and the importance they could play in the future for meeting housing demands and provision of fill for major coastal infrastructure projects, such as ports, coastal defences, renewable energy and nuclear energy projects • electrical interconnections with other nations help to contribute to UK energy security, affordability and decarbonisation objectives. The cables policies will help to enable further cable development within the marine plan areas and could ensure energy security for the future. Significant positive effects have been identified in relation to the energy generation and infrastructure development and seabed assets SA sub-topics • the Ministry of Defence use a large proportion of the inshore and offshore south west marine plan areas as defence practice areas. The coexistence policy as well as the defence policy will help to protect defence activities within the plan area • the fisheries policies will help to encourage further fisheries and aquaculture development within the south west marine plan areas, resulting in significant positive effects on the fisheries and aquaculture SA sub-topic • the baseline has identified the importance of oil and gas to the UK's economy. Oil and gas policies support future oil and gas extraction within the south west marine plan areas, resulting in a significant positive effect on the energy generation SA sub-topic	

Economy	
• the tourism and recreation policy aims to protect existing leisure and recreational activities and could result in expansion and diversification of existing developments as well as new proposals. This has resulted in significant positive effects on both the leisure and recreation and tourism SA sub-topics • the renewable energy policies aim to safeguard areas for future renewable development and promote new renewable technologies. Significant positive effects have been identified in relation to the energy generation and infrastructure development SA sub-topic • the implementation of the employment policy could result in increased levels of employment across multiple sectors within the south west marine plan areas. This has led to significant positive effects for the ports and shipping, fisheries and aquaculture, leisure and recreation, tourism and energy SA sub-topics.	
Uncertain Effects	**?**
• it is unclear from the access policy how public access to areas used for defence will be treated. There may be some activities which are incompatible with public access, and for this reason an uncertain effect has been identified • the air quality policy could result in the limitation of future emission heavy energy sources in particular oil and gas developments. However, there is potential that the policy could result in a shift towards cleaner energy sources and create new opportunities within the energy sector. Uncertain effects have been identified for the energy generation SA sub-topic • aquaculture policies have the potential for a significant positive effect on fisheries and aquaculture, both of which are large sectors within the south west marine plan areas. It directly addresses the need for future development to consider nearby aquaculture facilities and encourages sustainable design. However, the terms which would be acceptable for proposals which will adversely affect aquaculture are unclear • aquaculture and energy generation developments may alter the effectiveness of each other and may therefore compete for space. It is unclear if aquaculture or energy generation developments would be given preference • preference towards defence activity could see some recreational activity and new recreational proposals limited within the plan area, and there is potential for issues with relation to access. Uncertainty has been recorded as the proposals will need to be considered on a case by case basis and it is unclear from the policy wording which proposals would require authorisation • the fishing industry is dependent on a healthy marine environment. It is dependent on the marine environment being able to support healthy fish stocks which are free of persistent pollutants and heavy metals. However, through its reliance on fish stocks as a natural capital asset, fishing itself has the potential to have a direct adverse impact on the marine environment. It is uncertain, therefore, how the interdependent nature of fisheries and aquaculture on the natural capital assets provided by the marine environment would affect the industry	

Economy
• leisure and recreation associated activities can benefit from the natural capital afforded by the marine environment (economic, outdoor recreation, increased visitor numbers), however, these activities may have a significant adverse impact on elements of marine and coastal natural capital, and therefore could be limited by this policy. Uncertainty has been recorded for the leisure and recreation SA sub-topic • aggregate extraction is dependent on, and benefited by, the natural capital which provides marine aggregates. However, it may have a significant adverse impact on other elements of marine and coastal natural capital such as biodiversity, and as such, the aggregate SA sub-topic may be impacted by the nature of the natural capital policy • ports have a vital role in the import and export of energy supplies and will need to be responsive both to changes in different types of energy supplies needed and to the need for facilities to support the development and maintenance of offshore renewable sites. There is potential for the renewable policies to result in significant positive effects on shipping, however, further development as well as the restrictions associated with some developments (in particular wind developments) will further reduce available space and add complexity to already challenging coastal waters • it is unclear if developments for aquaculture and fisheries would be deemed to have an adverse effect on seascape or be within the public interest, and therefore be limited by the seascape and landscape policies. An uncertain effect has therefore been recorded in relation to the seascape and landscape policy and the fisheries and aquaculture SA sub-topic.

Table 13: Assessment results: Biodiversity, Flora and Fauna.

Biodiversity, Habitats, Flora and Fauna	
Significant Positive Effects	++
• the implementation of the marine protected areas policy could have potential for significant positive effects on the benthic and intertidal ecology SA sub-topic, as it may increase the adaptability of benthic and intertidal environments to the effects of climate change, and make suitable arrangements for the spatial changes in distribution of habitat types • the cumulative effects policy is predicted to have a significant positive effect on the benthic and intertidal SA topic, as it will address adverse cumulative effects from future proposals • the invasive non-native species policy aims to prevent the introduction and increase of non-native invasive species throughout the plan area. Transport of invasive species, as well as areas of potential colonisation are addressed within this policy, which should help to form a well-rounded approach to tackling this issue • the south west marine plan areas include important fish spawning areas for cod, plaice, sand eel and sole, and nursery grounds for anglerfish and mackerel. The co-existence policy supporting text has identified the importance of this and has stated that it will optimise the use of these important grounds. This will help to protect fish and shellfish within the region and thus a significant positive effect has been identified for the fish and shellfish SA sub-topic • the invasive non-native species policy has the potential to positively affect native fish and shellfish populations, such as the European Eels inhabiting the Severn Estuary. It clearly outlines the need to prevent the introduction of non-native species through transport and construction, which could subsequently compete with native species • the south west marine plan areas are both nationally and internationally significant for bird populations and includes England's only nesting sites for British Storm Petrels and Manx Shearwaters. The baseline has identified the existing co-existence issues with aggregate extraction, dredging, mineral extraction and fishing. The co-existence policy is likely to result in further protection for the south west bird populations, and for this reason a significant positive effect has been identified for the ornithology SA sub-topic.	
Significant Negative Effects	- -
• the increased number of aquaculture facilities which could result from the aquaculture policies, may have potential positive effects on local fish and shellfish species. However, unless carefully managed, there is potential for increased eutrophication, altering of food sources and increased disease transmission. Competition may also occur between new species and native lobster populations, which has resulted in a significant negative effect on the fish and shellfish SA topic • the aquaculture policies also have the potential to have a significant negative effect on the benthic and intertidal ecology SA sub-topic. These policies promote aquaculture developments, which could lead to an increase in the nutrients and pollutants present within benthic and intertidal sediments, altering species composition. Negative effects have also been identified on the fish and shellfish SA sub-topic	

Biodiversity, Habitats, Flora and Fauna
• the installation of buried subsea cables has the potential to disturb benthic and intertidal habitats. The preference that cable policies give to buried cables has resulted in a significant negative effect particularly on benthic habitats within the marine plan area • the aggregate and dredging and disposal policies support aggregate extraction and dredging and disposal in the south west marine plan areas. Both activities have the potential to lead to the loss of subtidal rocky habitats and benthic species and habitats, and ornithology • noise impacts from marine dredging and aggregate activity are already having an impact on the marine megafauna SA sub-topic within the marine plan area. The dredging and disposal and aggregate policies could result in further dredging activity within the plan area, worsening the current situation • the implementation of the underwater noise policy grouping could have significant negative effects on fish and shellfish. Policies in this grouping could lead to the development of proposals which directly alter fish movement patterns, therefore altering energy expenditure. Species which are not "highly mobile" would not be protected by this policy. This could lead to the irreversible loss of populations. The policy grouping may also negatively affect the protected sites and species SA sub-topic • bycatch of marine megafauna by fisheries and their entanglement by marine litter are two existing issues which could be exacerbated by the fisheries policies • associated port and shipping activity, in particular dredging, has potential to impact sub-tidal sediments and the baseline has identified that at various locations near large ports, subtidal rocky habitat has been lost due to construction, infrastructure (mainly coastal) or via smothering from dredged deposits. Shipping also poses the risk of water pollution which can indirectly impact benthic and intertidal ecology. These activities could increase as a result of the ports and harbours policies • implementation of the ports and harbours policies could result in increased disturbance as well as potential collisions with marine megafauna and ornithology.

Uncertain Effects	
• benthic and intertidal ecology is being heavily impacted by a number of industries within the plan areas (e.g. aggregates, dredging, fishing cables and recreation). Policy supporting text aims to help protect habitats and species, but it also aims to protect industries that are damaging to benthic and intertidal habitats • it is unclear if the cumulative effects policies will extend to those which are cross-boundary cumulative effects. Birds and marine megafauna are often highly migratory species, and may therefore experience the cumulative effects originating within multiple plan areas • fisheries pose a threat to vulnerable or rare species and whilst the fisheries policies seek to protect essential fish habitat, it is unclear whether this would apply only to fish habitat of commercially important species • it is unclear from the oil and gas policies if protected sites and species or oil and gas proposals would be given priority in the policy hierarchy. Protected sites may be affected by noise or pollution emitted from oil, gas or carbon capture and storage sites • the leisure and tourism policies could result in increased recreational pressures on marine megafauna and ornithology. It is uncertain what 'sustainable tourism and recreation activities' entail, and therefore whether these policies would address issues with increased tourism resulting in increased disturbance on the marine megafauna SA sub-topic • renewable energy policies could result in further renewable developments within the south west marine plan areas, which could indirectly reduce the climate change impacts on benthic intertidal ecology and plankton. Impacts could be dependent upon the type and number of developments, which is not known at this stage • oil and gas activities have the potential to cause disturbance and displacement of the movement of species through the plan area. There are no oil or gas fields or terminals and no currently licenced areas in the south west marine areas. However, the remaining blocks in the area could potentially be licensed in future licensing rounds run by the Oil and Gas Authority, within the marine plan period. At this stage, there is no certainty that this will result in development, and for this reason an uncertain effect has been identified, for both marine megafauna and ornithology.	

5.2 Mitigation

Mitigation measures are measures suggested to prevent, mitigate, reduce or offset negative, cumulative or uncertain effects. Where significant negative or uncertain effects were identified within the policy assessment, mitigation has been provided via the following (either as standalone or in combination):

- **general mitigation**: this may be provided through other policies within the South West Marine Plan; existing plans and policies (such as local plans, national park management plans) or through other processes, for example, environmental impact assessment (EIA)
- **specific mitigation:** this mitigation type has recommended alterations to either the supporting text or policy wording. A summary of policies with proposed mitigation can be seen in Table 14 below.

Further details on proposed mitigation for each of the SA topics can be found in sections 5-13 in Part 3 of the South West Inshore and Offshore Marine Plan Areas Sustainability Appraisal.

Table 14: Summary of specific mitigation recommendations.

Mitigation Type	Policies with proposed specific mitigation
Changes to supporting text	SW-AGG-1, SW-AGG-2 and SW-AGG-3 SW-AIR-1 SW-AQ-1 and SW-AQ-2 SW-BIO-1 SW-NG-1 SW-CE-1 SW-CO-1 SW-DD-1, SW-DD-2 and SW-DD-3 SW-DEF-1 SW-DIST-1 SW-EMP-1 SW-HER-1 SW-OG-1 and SW-OG-2 SW-PS-1, SW-PS-2, SW-PS-3 and SW-PS-4 SW-REN-1 SW-TR-1 SW-UWN-1 and 2 SW-WQ-1
Changes to policy wording	SW-BIO-1 and SW-BIO-3 SW-NG-1 SW-FISH-1, SW-FISH-2 and SW-FISH-3 SW-HAB-1

6. Cumulative Effects Assessment

6.1 Introduction

The SEA Regulations require an assessment of cumulative effects. Cumulative effects are the combined impacts of a single activity, plan or programme or multiple activities, plans or programmes. The individual impacts from a single development may not be significant on their own but when combined with other impacts, those effects could become significant.

The significance of cumulative effects resulting from a range of activities, or multiple incidences of one activity, may vary based on factors such as the nature of the projects proposed and the sensitivity of the receiving communities and environment.

The cumulative effects assessment therefore includes:

- consideration of how different aspects of the South West Marine Plan may interact to cause cumulative effects on a receptor
- how the South West Marine Plan can cause cumulative effects in association with other programmes, plans, policies and projects.

6.2 Potential Cumulative Effects of all Policy Groupings

Table 15 below summarises both the potential positive and negative cumulative effects identified for each SA Topic from the assessment of policies.

The full details of the cumulative effects identified, as well as mitigation, for each of the SA topics in relation to the policy groupings, is outlined in Table 12 in section 13.2 of the Sustainability Appraisal: Part 3.

Table 15: Summary of Cumulative Effects.

SA topic	Associated Policy Groupings	Negative Cumulative Effect	Potential positive cumulative effects
Cultural Heritage	**Negative cumulative effects:** aggregates cables dredging and disposal infrastructure oil and gas renewables shipping and ports. **Positive cumulative effects:** seascape and landscape heritage assets.	A number of economic policies have resulted in potential negative cumulative effects. Negative cumulative effects will be dependent on the type and number of developments that come forward, as a result of policies, and their proximity to the archaeological features.	The seascape and landscape policy grouping working in combination with the heritage assets policy grouping could result in positive cumulative effects.
Geology, Substrates and Coastal Processes	**Negative cumulative effects:** aggregates dredging and disposal co-existence.	Aggregate extraction and dredging and disposal activities have the potential to negatively affect geology, substrates and coastal processes. If a number of aggregate and dredging and disposal developments come forward, from the implementation of these policies, there is potential for adverse effects to occur. The co-existence policy could result in a number of new developments coming forward within the marine plan area. If	N/A

SA topic	Associated Policy Groupings	Negative Cumulative Effect	Potential positive cumulative effects
		multiple developments came forward, that could affect geology, substrates and coastal processes, there is potential for significant negative effects.	
Landscape and Seascape	**Negative cumulative effects:** aggregates cables infrastructure oil and gas renewables. **Positive cumulative effects:** seascape and landscape heritage Assets marine protected areas.	A number of economic policies have resulted in potential negative cumulative effects. Negative cumulative effects will be dependent on the type and number of developments that comes forward, as a result of policies, and their proximity to designated sites, local beauty spots and areas considered to be of a high landscape value.	Seascape and landscape policy grouping working in combination with the marine protected areas and heritage assets policy groupings, could result in positive cumulative effects.
Water	**Negative cumulative effects:** aquaculture co-existence defence fisheries marine litter oil and gas ports and harbours tourism and recreation. **Positive cumulative effects:** biodiversity	Negative cumulative effects have the potential to arise, as a number of economic policies support developments that could negatively affect water quality. In isolation, these developments may not be significant, but if numerous developments came forward as a result of these policies, there is potential for significant negative effects.	Biodiversity policies have the potential to result in minor positive cumulative effect in combination with other marine litter policies. Similarly, seascape and landscape policies working in combination with marine litter policies have the potential to result in significant positive cumulative effects on marine litter.

SA topic	Associated Policy Groupings	Negative Cumulative Effect	Potential positive cumulative effects
	marine litter seascape and landscape.		
Air Quality	**Negative cumulative effects:** ports and harbours tourism and recreation.	Ports and harbours and tourism and recreation policies could result in developments that could contribute to air pollution. In isolation, these developments may not be significant, however, if multiple developments from both policies, or just one of the policies, there is potential for significant negative effects.	N/A
Climate	**Negative cumulative effects:** oil and gas ports and harbours.	Ports and harbours and oil and gas policies could result in developments that could contribute to air pollution. In isolation, these developments may not be significant, however, if multiple developments from both policies, or just one of the policies, there is potential for significant negative effects on climate.	N/A
Communities, health and wellbeing	N/A	N/A	N/A
Economy	**Negative cumulative effects:** aquaculture climate change disturbance	Negative cumulative effects have the potential to arise, depending the type and number of policies which may come forward, particularly those that could result in developments that could	N/A

SA topic	Associated Policy Groupings	Negative Cumulative Effect	Potential positive cumulative effects
	invasive non-native species marine litter renewables underwater noise.	inhibit economic activity (e.g. air quality restrictions). Similarly, negative cumulative effects have the potential to arise depending on the type and number of developments that come forward as a result of policy implementation and the preference given to economic policies.	
Biodiversity	**Negative cumulative effects:** access aggregates cables climate change disturbance dredging and disposal fisheries oil and gas ports and harbours tourism and recreation renewables. **Positive cumulative effects:** marine protected areas biodiversity fish and shellfish.	A number of economic policies have resulted in potential negative cumulative effects on biodiversity. In isolation, these developments may not be significant, but if numerous developments come forward as a result of a single policy or multiple policies, there is potential for significant negative effects on biodiversity. Cumulative effects would also be dependent upon how these policies are implemented and the preference given to biodiversity policies, and the nature (susceptibility to damage) and spatial extent of the biodiversity in question.	A positive cumulative effect has been identified as having the potential to occur on fish and shellfish, in relation to the marine protected areas policy grouping working in combination with the fish and shellfish and policy grouping. A potential significant cumulative positive effect has been identified in relation to the marine protected areas policy grouping working in combination with the biodiversity grouping.

6.3 Potential Cumulative Effects with other programmes, plans, policies and projects

Table 12 within Section 14 of the Sustainability Appraisal: Part 3, presents the relevant international, national and regional plans, policies and strategies which could give rise to potential cumulative effects in combination with the South West Marine Plan.

The majority of the policies and plans reviewed will result in positive cumulative effects. This is because they strengthen environmental protection, for example by reducing greenhouse gas emissions, improving air or water quality, protecting designated sites for nature conservation, landscape or the historic environment. However, there is potential for development to cause negative cumulative effects, particularly where development in adjacent terrestrial or marine areas can act in-combination to impact on receptors. There are a number of policies within the South East Marine Plan which do help to mitigate these effects:

- Cumulative Effects Policy SW-CE-1
- Natural Capital Policy SW-NG-1
- Co-existence Policy NE-CO-1
- Cross-boundary considerations Policy SW-CBC-1
- Environmental protection policies
- Economic development (including fisheries) policies.

7. Monitoring of Residual Effects

The SEA Regulations require that the significant environmental effects of plans and programmes be monitored. This intends to allow the early identification of unforeseen adverse effects so that appropriate remedial action can be taken. Therefore, monitoring undertaken for the South West Marine Plan as part of the SA, and as part of the implementation and monitoring of the adopted South West Marine Plan, should help to:

- monitor the significant effects of the draft South West Marine Plan
- track whether the South West Marine Plan has had any unforeseen effects
- ensure that action can be taken to reduce / offset the significant negative effects of the plan.

The requirements of the SEA Regulations focus on monitoring the significant and unforeseen effects of the Marine Plan. Therefore, the SA monitoring framework should be focused only on monitoring those effects which are significantly negative or uncertain.

Following the consultation period, the MMO will prepare the final South West Marine Plan and the final SA will be prepared alongside this. Any revisions to the Plan at this stage in response to suggested mitigation or consultee comments will be reviewed and the SA amended accordingly. Following this, the residual significant effects will be identified and a monitoring framework for these effects will be proposed.

The South West Marine Plan process will itself include a comprehensive monitoring programme which is focused on the achievement of the plan's objectives. This monitoring programme will enable the MMO to track the success of policies and also to monitor the baseline environmental, economic and social conditions of the marine plan areas. The monitoring also contributes to the three-yearly reporting to parliament, which in turn provides a mechanism for reviewing and amending the plan or individual policies. The intention is that the SA framework will be linked to this where practical.