Marine Management Organisation

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

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

Report prepared by: ClearLead Consulting Ltd. in association with WSP UK Ltd. and MarineSpace Ltd.

Project funded by: Marine Management Organisation

Version	Author	Note
1	KH/KD	First draft
2	JM	Final draft
3	KD/VP	Final
4	Various	Final with amendments
5	Various	Post Consultation first draft
6	IT	Post Consultation second draft
7	IT	Final

Information about this publication and further copies are available from:

Marine Management Organisation
Lancaster House
Hampshire Court
Newcastle upon Tyne
NE4 7YH

Tel: 0300 123 1032
Email: info@marinemanagement.org.uk
Website: www.gov.uk/mmo

Disclaimer

This report contributes to the Marine Management Organisation (MMO) evidence base which is a resource developed through a large range of research activity and methods carried out by both MMO and external experts.

The opinions expressed in this report do not necessarily reflect the views of MMO nor are they intended to indicate how MMO will act on a given set of facts or signify any preference for one research activity or method over another. MMO is not liable for the accuracy or completeness of the information contained nor is it responsible for any use of the content.

When referencing this publication, please cite as:

MMO (2020). South West Inshore and Offshore Marine Plans Sustainability Appraisal. Non-Technical Summary. Final Report. A report produced for the Marine Management Organisation, MMO, October 2020, 41pp.

Contents

Figures

Tables

Appendices

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 final 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 Marine Plan SA Report 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 SA Report: Part 2. 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 need to adhere to
- local and regional policy which sets outs more specific local targets and the local actions needed to achieve them.

[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

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, background information and baseline issues ubiquitous to all marine plan areas is presented in sections 3-11 within the SA Report Part 2: Scoping Information. The baseline information identified which is specific to the South West Marine Plan, 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 very large numbers of heritage assets in the immediate vicinity of the marine plan area. They include both designated and non-designated heritage assets • 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 • there is a remarkable abundance and variety of archaeological remains on the Isles of Scilly from over 6,000 years of human activity. Greatest density of Scheduled Monuments in England, particularly associated with later prehistoric focussed around the island's coastal peripheries, intertidal and now submerged areas • designated heritage assets in the vicinity of marine plan areas include World Heritage Sites, Scheduled Monuments, Listed Buildings, Registered Parks and Gardens and Registered Battlefields • various activities in marine plan areas have implications for the conservation of heritage assets but are not subject to licensing or, directly, to public authority decision-making. Depending on circumstances, these may include activities such as anchoring, diving and some forms of fishing. 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-Torridge and Exe estuaries; and shingle structures at Loe Bar, Slapton Sands and Westward Ho!

Key Sustainability Baseline, Issues and Characteristics of the South West Marine Plan Areas
• 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 • 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 • geology and coastal processes are affected through the implementation of rock armouring and scour protection of wind farm turbines, cabling and pipeline protection, which in turn can alter subtidal habitats. This altering of coastal processes is likely to increase as coastal defences are further expanded to meet the needs of increasing populations.
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) • several existing and nominated new sites for nuclear power within marine plan areas are under consideration. These include Hinkley Point and Oldbury (south west inshore). All nuclear power stations within the United Kingdom are located at marine/estuarine sites and hence have a significant impact on seascape

Key Sustainability Baseline, Issues and Characteristics of the South West Marine Plan Areas
• seascape encompasses landscapes with views of the coast or seas, and coasts and the adjacent marine environment with cultural, historical and archaeological links with each other.
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 a large number of beaches classified as bathing waters in the south west. In total there are approximately 130 classified beaches. Approximately 95% are achieving either good or excellent status. There are 5 beaches achieving sufficient and 4 classified as poor status. Water quality is vital for tourism and human health. Beaches identified in 2019 as having sufficient water quality were Blue Anchor West, Dunster North West, Porth, Weston Main and Weston-super-Mare Sand Bay. Beaches identified as having poor water quality were Burnham Jetty North, Coombe Martin, Ilfracombe Wildersmouth and Weston-super-Mare Uphill Slipway • there are 11 blue flag beaches located within the south west: Blackpool Sands, Carbis Bay, Challaborough, Croyde Bay, Great Western (Newquay), Gyllyngvase, Porthmeor St Ives, Porthtowan, Trevone Bay, Westward Ho! and Widemouth Bay • 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 • 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 • most of the south west region has a tidal range of between 1m and 5m. The region around the Bristol Channel has a far higher tidal range, in excess of 12m in places, which is one of the biggest in the world

Key Sustainability Baseline, Issues and Characteristics of the South West Marine Plan Areas
• the south west region has been identified as having potential for wave, tidal stream and tidal range energy resources. The first tidal range technology has been consented to be developed just outside the south west marine plan areas on the Welsh side of the Bristol Channel system • 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. There are likely to be effects on commercial fisheries if salinity changes in the future as this will affect the range and distribution of many marine species • 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 • toxicity of PCBs and other persistent pollutants to invertebrates and fish, sediment-dwelling organisms and bioaccumulation of PCBs in fish, birds and Annex II sea mammals with known sublethal toxicological effects; endocrine disruption in birds and sea mammals posing a hazard to populations of these animals. Evidence suggests particular problems of PCBs to killer whales, bottlenose dolphins and harbour porpoise around inshore waters of the UK • at present, the United Kingdom does not propose implementing measures to reduce persistent legacy contamination in sediments on the grounds that the actions would be disproportionately costly • there is a problem with beach litter. It has social, amenity and biodiversity impacts. There is evidence to suggest that the problem is getting worse over time • persistent oestrogenic compounds in waters in estuaries have also been indicated as an increasing problem • there are likely to be effects on commercial fisheries if salinity changes in the future as this will affect the range and distribution of many marine species.
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

Key Sustainability Baseline, Issues and Characteristics of the South West Marine Plan Areas
• 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
• 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 • fisheries may also be impacted by seasonal changes and mismatch in food availability at key times, leading to poor stock health • 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 • tourism appears to be most important in Torquay, Newquay and Bristol • 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

Key Sustainability Baseline, Issues and Characteristics of the South West Marine Plan Areas
• the percentage of each south west 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 • in addition to marine fish stocks associated with commercial sea fishing, the coastal environment is important as a corridor for migrating Atlantic salmon and European eel, and in providing the marine feeding ground for sea trout. These important species that support coastal and inland commercial fishing and recreational angling could be vulnerable to a wide range of coastal activities • under climate change scenarios more frequent extreme storms and waves may affect safety of fishing vessels and negative impacts may be exacerbated by low oxygen conditions, and presence of pollutants and marine contaminants. Sea temperature rise, ocean acidification, changes in fluvial flows (particularly in estuarine nursery grounds) and ocean currents may lead to a decrease in abundance, survival and growth of some exploitable fish species and an increase in abundance, survival and growth of non-indigenous pest species. This could affect fishery and aquaculture activity • 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

Key Sustainability Baseline, Issues and Characteristics of the South West Marine Plan Areas
• 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 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. • potential effects of tidal lagoons can include restricted access to fishing grounds/removal of grounds, as well as impacts on intertidal organisms and plankton, affecting different life cycle stages for invertebrate and fish species • offshore energy projects can result in effects on fish and cetaceans as well as birds • 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

Key Sustainability Baseline, Issues and Characteristics of the South West Marine Plan Areas
• 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 worm reef (*Sabellaria alveolata*), 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 • Special Areas of Conservation (SAC) in the south west plan area include: - Start Point to Plymouth Sound and Eddyspoint SAC - Plymouth Sound and Estuaries SAC - Fal and Helford SAC - Lizard Point SAC - Lands End and Cape Bank SAC - Lundy SAC, Severn Estuary SAC - Isles of Scilly Complex SAC • there are 13 MCZs in the south west inshore plan area - Bideford to Foreland Point MCZ - Hartland Point - Tintagel MCZ - Mounts Bay MCZ - Newquay and the Gannel MCZ - Runnel Stone MCZ - Isles of Scilly MCZ - Lundy MCZ - The Manacles MCZ - Padstow Bay and Surrounds MCZ - Skerries Bank and Surrounds MCZ - Tamar Estuary MCZ - Upper Fowey and Pont Pill MCZ

Key Sustainability Baseline, Issues and Characteristics of the South West Marine Plan Areas
- Whitsand and Looe Bay MCZ • there are 118 Sites of Special Scientific Interest (SSSI) in the south west inshore plan area. The North Devon UNESCO Biosphere Reserve is also located within the south west inshore marine plan area • 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 • pollution from marine activities (aquaculture, shipping, oil and gas, marine construction) impacts on benthic and intertidal habitats and species, including cumulative impacts from increasing levels of contaminants • invasive non-native leathery sea squirts and orange sheath tunicates (*Botrylloides violaceus*) are present within the south west. The impacts of the former are currently uncertain, but it is recognised that they can become the dominant species, however they can also provide secondary substrate for others • the proliferation of invasive non-native species can also prompt unwelcome changes in the wider ecosystem that climate change might further exacerbate. For example, invasive non-native filter feeders can multiply at such a rate that they strip phytoplankton and nutrients from water systems, altering the food web and habitat. They can also block pipes and filters, causing problems that water companies must pay to resolve • 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 and their inhabitant flora and fauna from human pressures (e.g. aggregate extraction, dredging, offshore energy production) is an issue • increasing levels of pollution and nutrient enrichment within benthic and intertidal sediments. Deteriorating intertidal sediment habitats in all inshore plan areas due to cumulative effects associated with historical land claim, presence of coastal structures, the presence of invasive non-native species and beach litter • further work is required to address the potential long-term impact of light pollution on commercial fish species and marine life

Key Sustainability Baseline, Issues and Characteristics of the South West Marine Plan Areas
• 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

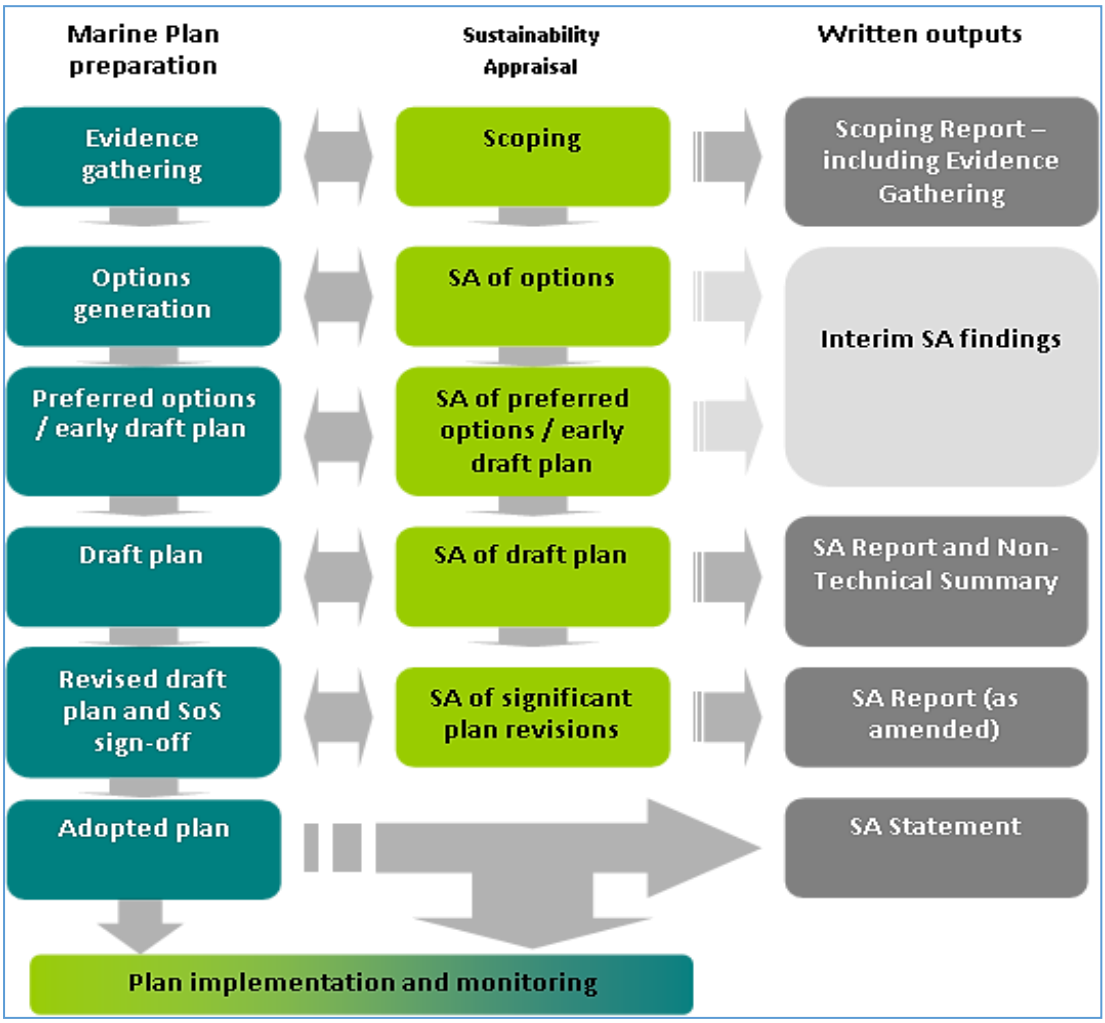
4.1 The SA Process

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 11 April 2016 to the 13 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 SA 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 • 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 (Technical Appendix A). 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 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 South West Marine 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 South West 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 focused on the preferred policies completed in July 2019. This consists of 57 policies arranged within 29 groupings.

[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.

The same approach to assessment has been taken for the assessment of options, preferred policies and final policies:

- options and 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 3 have been used to identify the potential effects of the South West Marine Plan.

Table 3: Policies Assessment Criteria.

Notation	Description
Degree to which baseline conditions may change (significance of effect) compared with the future baseline situation	
++	**Significant Positive Effect:** 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.
--	**Significant Negative Effect:** The plan policies are likely to lead to a significant deterioration in baseline conditions.
?	**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.

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

Notation	Description
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. transboundary) 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.
Offshore plan-wide only	Effects are predicted to occur within the offshore 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.
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.

Following consultation on the draft South West Marine Plan between January 2020 and April 2020, the plan and the SA Report have been updated in response to the consultee comments received and residual significant effects have been identified.

4.5 Stage C: Preparing the SA Report

The 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 were consulted on with the public and other key stakeholders between January 2020 and April 2020.

Following consultation, responses relating to the SA have been reviewed and responded to. Amendments to the SA have been undertaken in response to consultees' comments as appropriate.

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 MMO's marine plan monitoring within the SA Adoption Statement. See Part 3 of the SA Report for further details on monitoring.

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. Potential Significant Effects of the Plan

5.1 Introduction

This section presents a summary of the assessment findings of the South West Marine Plan by SA topic, the summaries of which are presented in Table 4Table 4 to

Table 12. The full assessment of the South West Marine Plan can be found within Technical Appendix B to the full SA report.

Table 4: Assessment results: Cultural Heritage.

Cultural Heritage	
Uncertain Effects	**?**
• the heritage assets policy grouping aims to protect heritage assets from developments that could result in adverse effects. However, the last clause of policy SW-HER-1 will allow for some harm to heritage assets to occur if harm to such assets cannot be avoided by development. Hence, an uncertain effect has been recorded for assets within and adjacent to the south west marine plan areas, as it will be dependent on implementation • policy groupings cables, dredging and disposal, oil and gas and renewables all aim to protect current activity and promote future activity within the south west marine plan areas. The baseline has identified the significant under exploited potential of buried heritage assets in the south west marine plan areas, as well as the potential for adverse effects on those heritage assets that are already uncovered, from cables, dredging and disposal, oil and gas and renewables. Policy SW-HER-1 could provide protection to heritage assets, however, it is uncertain which policy would have precedence • an uncertain effect has been recorded as a result of the cables policy grouping, on heritage assets adjacent to marine plan areas. This policy gives preference to buried subsea cables which could result in a negative effect on heritage assets adjacent to the marine plan areas. However, this would be dependent on implementation, therefore an overall uncertain effect has been recorded	

Table 5: 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. A significant positive effect has been identified for the coastal features and processes SA sub-topic.	
Uncertain Effects	**?**
• dredging and disposal activities have the potential to affect areas of seabed altering sediment processes and physical processes and creating sediment plumes. The dredging and disposal policy grouping aims to safeguard dredging activity within the south west marine plan areas, however, as dredging is an enabling activity which is essential to the functioning of ports and marinas, it is assumed that SW-DD-1 and SW-DD-2 will help dredging activity to continue. It is assumed that all new dredging proposals would be subject to an EIA, which would assess the potential effect on seabed substrate and bathymetry. This could help to mitigate potential negative effects. An uncertain effect, depending on implementation is recorded for the seabed substrates and bathymetry SA sub-topic • 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 substrates and bathymetry and coastal features and processes SA sub-topics, to be negatively affected by the aggregates policies. However, it is assumed that all new aggregate proposals will be subject to an EIA, and The Crown Estate leasing process also ensures that environmental receptors are considered. An uncertain effect, depending on implementation, has therefore been identified for the seabed substrates and bathymetry and coastal processes SA sub-topics • 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 6: 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 • landscape and seascape policies aim 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.	
Uncertain Effects	**?**
• 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, 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 7: Assessment results: Water.

Water	
Significant Positive Effects	**++**
• marine litter is transboundary 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-border co-operation 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 transboundary impacts are minimised across international borders. This policy could therefore result in significant positive effects on the marine litter SA sub-topic • the water quality policy aims to enhance and restore water quality and ensure that new proposals are accountable for their potential negative impact on water quality. For this reason, a significant positive effect has been identified for the pollution and water quality sub-topic • 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.	

Water	
Uncertain Effects	?
• there are current conflicts between marine activities and water pollution. Water pollution within the south west plan areas is being affected by agriculture (nitrates runoff), nuclear discharges, recreation and shipping. As an economic policy, it is assumed that priority will be given to the economic activities. However, as the quality of bathing waters can play an integral part in tourism and recreation sector, the policy could indirectly result in water quality being protected. As this is not known for certain, an uncertain effect has been identified in relation to the co-existence policy grouping.	

Table 8: 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.	

Table 9: 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 • 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.	

Table 10: 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-topics • the infrastructure policy grouping 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 • 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. Significant positive effects have therefore been recorded in relation to the health and the wider determinants of health and effect on communities SA sub-topics • the cross-border co-operation policy aims for developments to consider cross-border impacts upon adjacent marine plan areas and the terrestrial environment including economic, social impacts. In order to achieve sustainable development, it is assumed that developments will need to consider their impact on communities (including health and wellbeing) in order to achieve sustainable development • the social benefits policy grouping has potential to tackle existing health problems within the south west inshore marine plan area, hence a significant positive effect has been recorded in relation to the health and the wider determinants of health sub-topic.	

Table 11: Assessment results: Economy.

Economy	
Significant Positive Effects	++
• 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, hence a potential significant positive effect has been recorded for the aggregates SA sub-topic • the infrastructure policy grouping aims to safeguard existing landing facilities within the south west inshore marine plan area, which are predominantly used for aggregate activity. The policy should therefore result in a significant positive effect on aggregate extraction and the ports and shipping SA sub-topics	

Economy
• 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 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 • 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 • the tourism and recreation and social benefits policy groupings aim to protect existing leisure and recreational activities and could result in expansion and diversification of existing developments as well as new proposals. This has the potential to result in significant positive effects on both the leisure and recreation and tourism SA sub-topics • a potential significant positive effect has been identified in relation to the ports and shipping policy grouping, as it supports existing shipping infrastructure and open up new opportunities for short sea shipping • the cables and renewables policies will help to enable further 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 • oil and gas policies support future oil and gas extraction within the south west marine plan areas. A significant positive effect has been identified in relation to the energy generation and infrastructure development SA sub-topic • 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 grouping 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 defence, energy generation and infrastructure; ports and shipping; fisheries and aquaculture; leisure and recreation; and tourism SA sub-topics.

Table 12: 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 marine protected areas network, including 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 environment and protected sites and species SA sub-topics, as it will address adverse cumulative effects from future proposals • the invasive non-native species policy aims to prevent the introduction and increased spread (or increased distribution) 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, protected sites and species and ornithology SA sub-topics • 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.	

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, hence a uncertain effect has been recorded in relation to the aggregates and oil and gas policy groupings
- the co-existence policy aims to help protect habitats and species, but it also aims to protect industries that are damaging to benthic and intertidal habitats. There is no indication within the supporting text whether the protection of industries or the protection of habitats take priority. For these reasons, an uncertain effect has been identified, in relation to the co-existence policy grouping and benthic and intertidal ecology
- 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 within the marine plan period. There is no certainty that the oil and gas policy grouping will result in development, hence an uncertain effect has been identified in relation to the benthic and intertidal ecology; marine megafauna; ornithology; and protected sites and species sub-topics
- the disturbance policy grouping does not protect benthic or intertidal habitats; or sessile species from the effects of disturbance, which has the potential to lead to the irreversible loss of benthic and intertidal environments within the south west marine plan areas. The biodiversity policy grouping may have the potential to mitigate for this. However, it is uncertain whether this would include the effects of disturbance
- fisheries pose a threat to fish and shellfish, particularly vulnerable or rare species. 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 or all fish. Therefore, an uncertain effect has been recorded for the fish and shellfish and protected sites and species sub-topics
- sub-sea cables have the potential to adversely affect fish species, through disturbance during construction and through electromagnetic fields created during operation. There is potential for electromagnetic fields to alter migration, feeding and navigation in these organisms. However, the impact of electromagnetic fields on fish is not yet fully understood, hence an uncertain effect has been recorded
- the aggregates policy grouping aims to protect current aggregate activity, and support future development. Aggregate activity has the potential to result in the degradation and/or loss of the seabed, adversely affecting benthic species and habitats, marine megafauna and ornithology. Other policies in the plan and processes such as EIA and The Crown Estate leasing processes could help to identify and mitigate potential impacts, however it is unclear if this will be achieved in all cases. Hence, an uncertain effect has been recorded in relation to the benthic and intertidal ecology, marine megafauna and ornithology sub-topics
- the implementation of the underwater noise policy grouping could have significant negative effects on all parts of the food web and ecosystem, including marine megafauna; fish and shellfish; and protected sites and species. 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 populations of species which are “highly mobile”, as well as those which are not could also be affected by activities that occur concurrently in key habitats, or at times or in areas that are crucial to part of their life-cycle e.g. spawning times

- 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 on the type and number of developments, which is not known at this stage and there is also a lack of data concerning how renewable infrastructure could affect plankton.

6. Cumulative Effects Assessment

6.1 Introduction

The SEA Regulations require an assessment of cumulative effects. Cumulative effects arise where:

- several individual effects of the plan have a combined effect on a single receptor
- several plans and policies each have insignificant effects but together have a significant effect.

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 13 below summarises the potential significant positive, significant negative and uncertain 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 2 in section 13.2 of the SA Report: Part 3.

Table 13: Summary of Cumulative Effects.

SA topic	Associated Policy Groupings	Potential Negative or Uncertain Cumulative Effects	Potential Positive Cumulative Effects
Cultural Heritage	**Uncertain cumulative effects:** dredging and disposal	Dredging activity poses a risk to heritage assets within marine plan areas located on the seabed. Cumulative effects are possible given the level of uncertainty regarding the nature and extent of the potential archaeological resource. However, the potential significance of these cumulative effects is uncertain. Applications for dredging development will need to be addressed through the EIA process, which could include an additional archaeological and cultural heritage effect assessment. This could mitigate the cumulative effects identified, however, in some instances the loss of heritage assets may not be mitigable.	N/A
Landscape and Seascape	**Positive cumulative effects:** seascape and landscape	N/A	Seascape and landscape policy grouping working in combination with the marine protected areas and heritage assets policy groupings, could result in positive cumulative effects.
Economy	**Uncertain cumulative effects:** invasive non-native species underwater noise.	Economic activity could be restricted by the implementation of a combination of the environmental policy groupings, however the significance of these cumulative effects is not yet known. Environmental policies could	N/A

SA topic	Associated Policy Groupings	Potential Negative or Uncertain Cumulative Effects	Potential Positive Cumulative Effects
		inhibit economic activity (e.g. underwater noise restrictions and control of invasive non-native species). However, some of these environmental policies do contain caveats to allow for development in certain circumstances, which could help to mitigate potential adverse impacts on development.	
Biodiversity	**Uncertain cumulative effects:** aggregates **Positive cumulative effects:** biodiversity	A number of economic policies have resulted in uncertain 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 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 potential significant cumulative positive effect has been identified in relation to the marine protected areas policy grouping working in combination with the biodiversity grouping to protected and enhance protected sites and species.

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

Table 3 within Section 13 of the SA Report: 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 West Marine Plan which do help to mitigate these effects:

- Cumulative Effects Policy SW-CE-1
- Co-existence Policy SW-CO-1
- Cross-border Co-operation Policy SW-CBC-1
- environmental protection policies
- economic development (including fisheries) policies.

In addition, cumulative impact assessments undertaken as part of the consenting and EIA processes would also address and mitigate for potential cumulative effects of projects.

7. 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.

Responses to mitigation for each of the SA topics can be found in sections 14 in SA Report: Part 3, and further detail will be provided within the SA Adoption Statement.

The mitigation proposed falls into the broad categories below:

- in some cases, mitigation would be applied at the planning application stage and would rely on the EIA and/or The Crown Estate leasing processes. Uncertainty remains in the SA but is likely to be mitigated at the project level, therefore no further action is required at the plan level
- in some cases, changes to policy supporting text proposed in the SA to mitigate potential effects has been rejected because discussing potential impacts caused by every sector in the supporting text would lead to an unduly long plan. As stated in section 2.3 of the marine plan, the plan must be taken as a whole and no policy should be taken in isolation. Therefore, no further action will be taken in these cases
- several uncertain cumulative effects are likely to be mitigated by the implementation of one or more policies within the plan. In particular, the cumulative effects policy grouping could help to mitigate such effects. The final outcome may not become clear until the implementation of the plan. Therefore, no further action is required in the SA
- there may be not mitigation for all cumulative effects, particularly those which could restrict development in order to protect the environment (and vice versa). Instead, it may have to be accepted as an effect of implementing policies, specifically those which will protect the environment, hence no further action is required
- spatial and temporal changes to development proposals could help to prevent adverse impacts on marine organisms. However, this level of detail will be decided at planning application stage, thus no further action is required
- an uncertain cumulative effect may have been identified due to a lack of data concerning links between certain SA sub-topics. In such cases, no further action is required. Instead, uncertain effects may be mitigated when further scientific evidence is published to clarify potential interactions.

8. 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 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 negative and unforeseen effects of the Marine Plan. Therefore, monitoring within these reports is only discussed within the context of residual effects which are significantly negative or uncertain.

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 SA topics and sub-topics for which residual significant negative or uncertain effects have been identified in the assessment of the final policies will be presented in the SA Adoption Statement alongside suggested monitoring indicators. During the development of the Annex of Indicators, these suggestions will, if practicable, be integrated into the monitoring programme or new indicators will be created to assess these impacts. The Annex of Indicators will be developed following the publication of the North East, North West, South East and South West Approach to Monitoring and once completed will be available on request from the Marine Management Organisation.