



# National Flood and Coastal Erosion Risk Management Strategy (Revised): Strategic Environmental Assessment (SEA) Scoping Report

September 2018

We are the Environment Agency. We protect and improve the environment.

We help people and wildlife adapt to climate change and reduce its impacts, including flooding, drought, sea level rise and coastal erosion.

We improve the quality of our water, land and air by tackling pollution. We work with businesses to help them comply with environmental regulations. A healthy and diverse environment enhances people's lives and contributes to economic growth.

We can't do this alone. We work as part of the Defra group (Department for Environment, Food & Rural Affairs), with the rest of government, local councils, businesses, civil society groups and local communities to create a better place for people and wildlife.

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# 1. Introduction

## 1.1. Development of the Revised National Flood and Coastal Erosion Risk Management Strategy

The Flood and Water Management Act 2010 requires the Environment Agency to “develop, maintain, apply and monitor a strategy for flood and coastal erosion risk management in England”.

The current national flood and coastal erosion risk management (FCERM) strategy was published in May 2011.

The Government committed in its 25 year Environment Plan that the Environment Agency will revise the FCERM strategy in 2019. We are doing this through collaboration with the people who will be affected by it or play a part in its delivery, be that flood risk or coastal erosion.

The aim of revising the national FCERM strategy is to improve the service for managing flooding and coastal change in England.

We began our collaboration in 2017, working with a small group of partners to scope the questions we need to ask of ourselves. The group synthesised this into four core questions.

- What do we all want to protect and how collectively can we fund it?
- How can we all put water at the heart of everyone’s decision making?
- What part do individuals, communities and businesses play? What should our expectations be of each other? How can we improve the way we work together?
- How do we develop the current roles and responsibilities of professional partners to be effective, simple and clear?

The FCERM strategy considers all forms of flooding, including rivers and smaller watercourses, the sea, surface runoff from land, groundwater, sewers (where this is caused by an increase in volume of rainwater), reservoirs, canals and other artificial sources. It also considers the risks of coastal erosion in England, including landslip, accretion and permanent inundation by the sea.

The revised FCERM strategy will focus on three main time horizons:

- Long-term: We will set an ambition for 2050. One that spans parliamentary terms and is long enough to take account of climate change.
- Short term: It will be underpinned by an action plan for the next 5-10 years of the things we – the flood family – will commit to doing to move us towards that ambition. In that short-term our actions have to be viable within the current legislative and policy framework. But we also need an eye to more innovative or challenging ideas to explore now so they are ready for later years.
- Future-proofing: We will test all actions against a vision of the future in 2100, so we can be confident our actions are robust whatever the future brings.

## 1.2. Need for the Strategic Environmental Assessment

Strategic Environmental Assessment (SEA) is a process that ensures consideration is given to the environment during the development of certain “plans and programmes”. In doing so, it contributes to the promotion of sustainable development and environmental protection.

SEA is required by The Environmental Assessment of Plans and Programmes Regulations (England) 2004 SI No 1633 (the Regulations). In accordance with the Regulations the Environment Agency has determined that the revised FCERM strategy requires an SEA.

### 1.3. Purpose and Structure of the SEA Scoping Report

The scoping stage of SEA determines the likely extent and level of information to be included in the assessment process and ultimately reflected in the Environmental Report.

The strategy sets out a national framework for local flood and coastal erosion risk management strategies and projects that may, also, undergo a separate environmental assessment. These environmental assessments are at a more relevant scale to consider the spatial implications of flood and coastal erosion risk management. This scoping report, and the SEA process, are therefore proportionate to the national context of the strategy.

The structure of this Scoping Report is as follows:

**Section 1:** Introduction to the national FCERM strategy, SEA and scoping report.

**Section 2:** A review of key plans, policies, programmes and legislation relevant to the strategy together with an overview of the strategic environmental context (baseline) and outline of existing environmental issues and any identified trends.

**Section 3:** A summary of the outcomes of the scoping process, clearly setting out the environmental topics, issues and elements of the strategy that will be carried forward into the assessment stage of the SEA.

**Section 4:** An outline of the next stages within the SEA process and development of the revised FCERM strategy.

### 1.4. This Consultation

We have prepared this scoping report to consult with interested parties, in particular the statutory SEA consultation bodies, on the issues we propose to consider in the SEA during the assessment process. In England the consultation bodies are Natural England, Historic England and the Environment Agency. In Wales the consultation bodies are Natural Resources Wales, Cadw and the Welsh Government. In Scotland the consultation bodies are the Scottish Environment Protection Agency, Scottish Natural Heritage and the Scottish Government.

To assist with this consultation, we have set out some specific consultation questions below on which we would welcome your views:

**Question 1:** Are there other key policies, plans or strategies or environmental baseline information that you feel may be relevant to the revised FCERM strategy? If yes, please describe what they are.

**Question 2:** Do you agree with the outcomes of the scoping process and the key environmental issues identified as being relevant to the scope of the FCERM strategy? If no, please explain any changes you would like to see.

**Question 3:** Do you agree with the proposed SEA assessment framework given the national level remit of the FCERM strategy? If no, please explain any changes you would like to see.

The consultation on this SEA Scoping Report will be open until 11 October 2018.

You can respond to this consultation by email (Please mark for the attention of the SEA team) to: [FCERMstrategy@environment-agency.gov.uk](mailto:FCERMstrategy@environment-agency.gov.uk)

# 2. Strategic Context

## 2.1. Introduction

In this section we present a review of key plans, policies, programmes and legislation relevant to the strategy together with an overview of the strategic environmental context (baseline) relating to flood and coastal erosion risk management in England.

## 2.2. Review of Plans, Policies and Programmes

The SEA Regulations require that consideration is given to the relationship with other plans and programmes and environmental objectives set at a national or international level.

We have considered plans that are relevant to flood and coastal erosion risk management and wider environmental objectives or issues relevant to this SEA by considering how:

- the objectives of these plans / legislation / strategies potentially influence or contribute to the national FCERM Strategy, and the SEA;
- or how the objectives of these plans / strategies may be influenced by the national FCERM Strategy, and the SEA.

The review can also help to identify where other planning processes and organisations may be able to support flood and coastal erosion risk management.

Section 2.4 summarises the main plans, strategies and legislation which are considered to be particularly relevant to flood and coastal erosion risk management. A full list of the national plans, policies and programmes reviewed is set out in Annex A.

## 2.3. Strategic Environmental Context

The overview of the environment context for the revised strategy focuses on relevant aspects of the current state of the environment and its likely evolution without the implementation of the plan. Given this is a national FCERM strategy, the overview focuses on the context for England, wherever possible, and identifies existing environmental problems (issues) and trends that are of particular relevance to flood and coastal erosion risk management.

## 2.4. Strategic Context Tables

The review of key plans, policies, programmes and overview of the strategic context is broadly set out according to the environmental issues defined in the SEA Regulations as follows: biodiversity (including fauna and flora); population and human health; resource management (incorporating soil, contaminated land and waste); water (covering water resources and quality); air; climatic factors; material assets (covering homes and businesses; infrastructure; agricultural land; FCERM assets); cultural heritage and the historic environment (including architectural and archaeological heritage); and landscape.

Baseline Summary	Trends and Issues	Key Plans, Strategies, Legislation	Interactions and Themes Relevant to the FCERM Strategy
<p>Biodiversity and the services it provides (e.g. food production, water and climate regulation, and pollination) are critical to human health, wellbeing and the economy.</p> <p>Legal protection by designating sites is a key tool for conserving habitat and species. There are 73 Ramsar Sites, part of a global network of protected sites; 342 European sites (SAC and SPA); and 4126 Sites of Special Scientific Interest. Around half of each are in unfavourable condition.</p> <p>Terrestrial and freshwater habitats support a diverse range of specialised plants and animals. For the freshwater environment in particular, in 2016 86% of water bodies had not reached good ecological status with the main reasons being pressures from agriculture and rural land management, the water industry, urban areas and transport.</p> <p>The UK has 17,820km of mainland coastline and the widest range of marine habitats of any coastal waters in Europe. UK's estuaries are a crucial link in the migratory chain for waders and wildfowl and provides a breeding ground to 13 species of sea bird which are of international importance. Coastal wetlands can be valued at providing £1.5 billion in annual benefits through buffering the effects of storms and managing flooding. Marine Conservation Zones have been designated to contribute to an ecologically coherent network of Marine Protected Areas (MPAs).</p> <p>Overall, the evidence on the status and trends of biodiversity in the UK shows some long term declines.</p> <p><b>Main Source (1), (2), (3), (4), (7) and (8)</b></p>	<p>Biodiversity indicators suggest the current status is mixed. While the condition of protected areas is improving, indicators for wildlife in the wider countryside, such as farm land birds remain in long term decline. The main pressures on biodiversity are considered to be agricultural and forestry practices, climate change, the spread of non-native invasive species, waste in the environment and pollution by hazardous substances.</p> <p>There is evidence that some pressures are being reduced (e.g. air and marine pollution) and there is some recovery (e.g. acidification on land), but other pressures remain at damaging levels (e.g. nitrogen deposition, seabed disturbance), and some pressures are increasing (e.g. climate change, the spread of non-native species).</p> <p>Certain habitats are particularly vulnerable to climate change, particularly wetlands due to changes in water availability and coastal habitats due to sea level rise resulting in habitat loss which often acts as a natural flood defence.</p> <p>Main Source (1), (2), (3), (5) and (6)</p>	<p>25 Year Environment Plan 2018</p> <p>England Natural Environment Indicators 2018</p> <p>Biodiversity Strategy 2020</p> <p>Conservation of Habitats and Species Regulations 2017</p> <p>Countryside Rights of Way Act 2000</p> <p>Wildlife &amp; Countryside Act 1981</p> <p>Protection of Badgers Act 1992</p> <p>Salmon &amp; Freshwater Fisheries Act 1975</p> <p>Eel Regulations 2009</p> <p>Coast Protection Act 1949</p> <p>Marine and Coastal Access Act 2009</p> <p>A Green Future: Our 25 Year Plan to Improve the Environment</p> <p>The natural choice: securing the value of nature (Natural Environment White Paper)</p>	<p>FCERM can have a significant effect on the biodiversity of wetland and coastal environments. Decisions taken on flood risk management strategies and projects have the potential to make positive improvements for wildlife as well as potential adverse effects.</p> <p>Taking a more strategic, catchment wide approach to FCERM schemes is widely regarded as enabling planning for nature. This approach enables flood risk options to be in the best locations, encourages greener design that enhances natural networks.</p> <p>The 25 Year Environment Plan calls for more use of flood risk management approaches that work with natural systems, such as tree planting and creating and sustaining wetlands. This will benefit wildlife contribute to an environmental net gain and the associated benefits this provides to communities. The plan also promotes the use of 'natural capital' in decision making to provide for better and more efficient decisions that support environmental improvement.</p>

## Population and Health

Baseline Summary	Trends and Issues	Key Plans, Strategies, Legislation	Interactions and Themes Relevant to the FCERM Strategy
<p>In 2017 the population of England increased to over 55 million.</p> <p>There is an evidenced connection between flooding and health. In a 2017 study, people who were flooded were approximately 6-7 times more likely to have depression, anxiety or post-traumatic stress disorder than those unaffected.</p> <p>Public health priorities for England include obesity and physical exercise and wellbeing and mental health. Health indicators, such as obesity, show higher levels of prevalence in deprived areas. Men and women living in more deprived areas also have lower well-being scores, on average, than those living in less deprived areas.</p> <p>The proportion of people visiting the natural environment several times a week or more has increased since 2010. This figure varies across England with the highest rates in the South East and South West and lowest rates in London and the West Midlands.</p> <p>As an indication of the recreational services provided by the water environment, the value of the time spent at UK freshwater habitats in 2015 is estimated at £303 million.</p> <p>Main sources (1), (2), (3), (4),(5) and (8)</p>	<p>Although the rate of population growth in England has slowed, overall levels continue to increase. The number of households in England is projected to increase from 22.7 million in 2014 to 28 million in 2039, due to a trend for smaller average household sizes.</p> <p>Whilst the proportion of new residential development constructed in flood risk areas remains below 9% a year, increased demand for new housing may increase pressures to build in areas at flood risk, which often correlate to areas of higher deprivation.</p> <p>Climate change is likely to increase the number of people and properties at risk of flooding and coastal erosion.</p> <p>The EA has a duty to contribute to sustainable development, which includes protecting human health. There is increasing evidence on the short and long term impacts of flooding on health and wellbeing. Communities can also be affected by flooding outside of these areas by disruption to local services, utilities and transport infrastructure.</p> <p>The health benefits of engaging with and access to the natural environment is supported by an extensive range of studies. These indicate areas with more accessible green space are associated with better mental and physical health.</p> <p>Low-income areas tend to have less access to good quality green space, which can further exacerbate health inequalities caused by wider physical, social and economic factors.</p> <p>Main sources (1), (2), (3), (6) and (7)</p>	<p>National Planning Policy Framework 2018</p> <p>25 Year Environment Plan 2018</p> <p>Equality Act 2010</p> <p>Statutory Guidance under section 4 of Environment Act 1995 issued by Defra 2002</p>	<p>Challenges to FCERM include an increasing population and housing growth. Areas of deprivation that are at risk of flooding or coastal erosion also need support as well as tackling the potential effects on communities of increasing flood risk.</p> <p>The impacts of climate change on flood risk and coastal erosion, particularly how this might affect different communities and the services they use, should be a consideration when planning for new housing and sustainable communities.</p> <p>FCERM activities can deliver improvements to health and wellbeing by managing the risk and consequences of flooding and coastal erosion.</p> <p>The water environment supports a range of formal and informal leisure and recreational activities. In coastal areas and throughout England this can be an important part of the local tourism economy.</p> <p>At the local level the implementation of FCERM schemes and management regimes can impact green spaces and leisure / recreational facilities.</p> <p>Rivers and other watercourses, particularly in urban areas, provide an opportunity for daily interaction with the natural environment and can help encourage more active lifestyles.</p> <p>Local interventions have the opportunity to enhance recreational and leisure provision; create and improve the quality and access to green space / green infrastructure; and foster people's enjoyment of and contact with the natural environment.</p> <p>Public bodies responsible for FCERM have an obligation to ensure everyone can participate in their services regardless of their protected characteristics; opportunities for advancing equality are advanced; and services foster good relations across different groups.</p>

## Resource Management (soils, contaminated land, waste)

Baseline Summary	Trends and Issues	Key Plans, Strategies, Legislation	Interactions and Themes Relevant to the FCERM Strategy
<p>Soils underpin a range of essential functions/services including food production, protecting biodiversity, carbon storage and absorbing, filtering and storing water.</p> <p>Intensive agricultural production and industrial pollution has degraded soils over many years with some areas of England experiencing major losses in soil function due to erosion, decline in organic matter and compaction.</p> <p>Peat soils make up 11% of England's total land area and over 70% are drained or in poor condition. Peat soils are estimated to store around half of the UK's soil carbon.</p> <p>10% of soil is in urban areas and subject to high levels of sealing.</p> <p>Soil degradation costs around £1bn per year in England and Wales.</p> <p>Historic land use and activity has created a legacy of land that could be affected by contamination. Estimates vary on the extent of this with possibly over 100,000 sites and of these 5-20% requiring action to address potential risks to human health and the environment.</p> <p>Over the last 20 years sustainable waste management and application of the waste hierarchy has led to a major decrease in waste being disposed to landfill and an increase in recycling. In 2014 the UK generated 55 million tonnes of (non-hazardous) construction and demolition waste which achieved a recovery rate of nearly 90%.</p> <p>Main Sources (1), (2), (4) (5) and (6)</p>	<p>Climate change, the intensification of agricultural production and expanding urbanisation have the potential to increase soil erosion due to higher rates of surface water run-off, which can also effect water quality through sedimentation and pollutants.</p> <p>Evidence is demonstrating the importance of improving soil health. Protecting and restoring peatland is a key priority due to the many services it provides for drinking water supply, water quality, managing flood risk and carbon storage.</p> <p>Since 2000 progress has been made in identifying and remediating contaminated land sites. Surveys indicate, however, there are at least another 10,000 sites that need further investigation to establish the risks they pose to human health and the environment.</p> <p>Working towards the ambition for zero avoidable waste by 2050 will require continued improvements in resource efficiency and sustainable waste management.</p> <p>Main Sources (1), (2), (3), (4) and (7)</p>	<p>Clean Growth Strategy 2017</p> <p>UK Peatland Strategy 2018</p> <p>National Planning Policy Framework 2018</p> <p>Safeguarding our Soils: A Strategy for England 2011</p> <p>Environmental Permitting (England and Wales) Regulations 2010</p> <p>Waste (England and Wales) Regulations 2011</p>	<p>Soils filter and store water with benefits for water quality and for managing flood risk. These vital functions are reduced when soil condition is degraded such as through erosion and poor farming practices.</p> <p>FCERM measures can contribute to reducing soil erosion through encouraging sustainable land management, working with natural processes and promoting natural flood management approaches, and delivering schemes which improve river channel morphology and integrate habitat creation.</p> <p>At the local level FCERM schemes can help reduce the risk of flooding of contaminated land. The implementation of schemes and management regimes also has the potential to affect contaminated sites with potential risks for human health and the environment.</p> <p>The delivery of FCERM schemes provides the opportunity to champion sustainable waste management and the sustainable procurement of materials taking into account the whole lifecycle from purchase to disposal.</p>

## Water (Water Resources and Water Quality)

Baseline Summary	Trends and Issues	Key Plans, Strategies, Legislation	Interactions and Themes Relevant to the FCERM Strategy
<p>In 2016, 86% of river water bodies had not reached good ecological status. Phosphorus was the most common reason, typically due to pollution from farm land and sewage effluent.</p> <p>Groundwater (around 30% of England's drinking water) quality is particularly affected by nitrates from agriculture.</p> <p>Abstraction is a major cause of damage to wetlands. In 2017, abstraction from around 28% of groundwater bodies and up to 18% of surface waters was at higher than sustainable levels. In 2016, unsustainable abstraction prevented at least 6% and possibly up to 15% of river water bodies from meeting good ecological status or potential.</p> <p>Bathing water quality has improved over the last 30 years with 98% passing minimum standards and 65% at excellent status in 2017.</p> <p>Freshwater habitats vary significantly provide different services Water is a key element of natural capital. Annual monetary values of some of the services provided by UK freshwaters include over £1 billion for freshwater abstraction (excluding groundwaters); £1 million for fish caught in UK inland waters; and £303 million for the time spent at UK freshwater habitats.</p> <p>Main sources: (1), (2) and (4)</p>	<p>Considerable pressures are seen in particular from climate change, population growth, changes in how land is used and managed and pollution from waste water and diffuse sources in urban and rural areas.</p> <p>Water quality in rivers has improved markedly in recent decades but improvements have not continued in recent years. For surface waters, improvements are predicted to be achieved by 2021, however nearly 50% of groundwater bodies will not reach good chemical status by 2021.</p> <p>Higher rates of surface water runoff increase the risk of soil erosion and sedimentation and associated pollution from nutrients and other contaminants.</p> <p>There is no clear trend in droughts, but summer river flows and groundwater levels may decrease with implications on availability for abstraction and drinking water as well as water quality.</p> <p>Improving and sustaining the quality and quantity of water is a priority, as well as the need to improve the way flood risk is managed. A holistic approach to achieving all three is increasingly encouraged, for example, through expanding the use of natural flood management and sustainable urban drainage systems and sustainable land management practices.</p> <p>Main sources: (1), (2) and (3)</p>	<p>25 year Environment Plan 2018</p> <p>Water Abstraction Plan 2018</p> <p>Creating a great place for living Enabling resilience in the water sector 2016</p> <p>Water Environment (Water Framework Directive) (England and Wales) Regulations 2017</p> <p>Water Resources Act 1991</p> <p>Flood and Water Management Act 2010</p> <p>Water Act 2014</p> <p>Environment Act 1995</p> <p>Urban Wastewater Treatment Regulations 1994</p> <p>Groundwater Regulations 2009</p>	<p>Maintaining clean and sustainable supplies of water is vital to support sustainable communities and a prosperous economy.</p> <p>Reducing the damaging abstraction of water and groundwater and improving water quality is also necessary to protect the water environment as a key natural asset and the services it provides.</p> <p>In addition to compliance, FCERM can complement the delivery of WFD objectives. Opportunities to support WFD, for example, include flood risk management associated with heavily modified watercourses and introducing working with natural processes.</p> <p>FCERM has the potential to benefit water resources by influencing land management practices and working with natural processes and using natural flood management measures to help improve the attenuation, infiltration and storage of surface water run-off and the replenishment of groundwater resources.</p> <p>Sustainable land management practices can also benefit water quality through reduced soil erosion and the stripping of sediments, nutrients and other pollutants into watercourses.</p> <p>Collaboration across RMA's and the planning of new development and can further encourage the introduction of sustainable drainage systems (SuDS) and the creation of green infrastructure to help manage surface water runoff.</p>

## Air

Baseline Summary	Trends and Issues	Key Plans, Strategies, Legislation	Interactions and Themes Relevant to the FCERM Strategy
<p>There are many sources of air pollution, including, power stations, transport, household heating, agriculture and industrial processes which affect urban and rural areas.</p> <p>Records (1970-2016) show there has been a long term decrease in the emissions of key air pollutants (ammonia, nitrogen oxides, non-methane volatile organic compounds, particulate matter (PM<sub>10</sub>, PM<sub>2.5</sub>) and sulphur dioxide).</p> <p>Some areas continue to experience unacceptable levels of air pollution. These tend to be towns and cities due to the concentration of vehicles and other sources of pollutants.</p> <p>Road transport is the largest contributor to NO<sub>2</sub> pollution in the local areas where the UK is exceeding limit values.</p> <p>Local authorities are responsible for reviewing and assessing local air quality. If local air quality is likely to exceed health-based standards, local authorities must declare air quality management areas (AQMA) and draw up an action plan detailing remedial measures. In England most AQMA are declared for NO<sub>2</sub> and particulate matter PM<sub>10</sub>.</p> <p>(Greenhouse gas emissions and contributions to climate change are considered under Climatic Factors).</p> <p>Main sources (1),(2), (3), (4) and (5)</p>	<p>Overall reductions in pollutant emissions continue through regulatory controls and other measures such as reducing fuel use, changes to industrial processes and more sustainable transport choices.</p> <p>For certain pollutants further action is needed to meet emission reduction targets for 2030.</p> <p>As the UK improves air quality nationally, air quality hotspots are going to become even more localised and the importance of action at a local level will increase.</p> <p>Air quality is identified by Public Health England as the largest environmental health risk in the UK with health affected by short-term, high-pollution episodes and by long-term exposure to lower levels of pollution.</p> <p>Air pollution can also affect the natural environment through acidification, eutrophication and ground level ozone. Of England's nitrogen-sensitive habitats, 95% are adversely affected by nitrogen deposition, a 3% reduction since 1996. Of England's acid-sensitive habitats, 59% are affected by acidification, a 17% reduction since 1996</p> <p>Main sources (1) (2),(3) and (4)</p>	<p>Draft Clean Air Strategy 2018</p> <p>Air quality plan for nitrogen dioxide (NO<sub>2</sub>) in the UK 2017</p> <p>25 Year Environment Plan 2018</p>	<p>At the local level the design and implementation of FCERM schemes can provide opportunities for enhancing the provision of infrastructure for sustainable modes of transports such as cycling and walking and improving links with existing networks.</p> <p>The local implementation of FCERM schemes typically requires the transportation of materials and equipment by road.</p> <p>The operation and maintenance of FCERM assets can require the localised use of pumps and machinery with associated emissions.</p> <p>At the local level the implementation and operation of FCERM schemes will need to consider potential impacts on local air quality and seek to reduce emissions. Integrating improvements to sustainable modes of transport should also be considered in delivering FCERM schemes.</p>

## Climatic Factors

Baseline Summary	Trends and Issues	Key Plans, Strategies, Legislation	Interactions and Themes Relevant to the FCERM Strategy
<p>The global climate is changing, with greenhouse gas emissions from human activity the dominant cause.</p> <p>The global increase in temperature of 0.85°C since 1880 is mirrored in the UK climate, with higher average temperatures and some evidence of more extreme weather events, with a trend towards milder winters and hotter summers in recent decades. Sea levels around the UK have risen by 15-20 centimetres since 1900.</p> <p>The Climate Change Act requires the UK to reduce its emissions by at least 80% by 2050 (compared to a 1990 baseline). To progress this a series of intermediate targets are set in 'carbon budgets' providing caps on greenhouse emissions in the UK during a 5 year period. To date five carbon budgets have been set from 2008 to 2032.</p> <p>Main Sources: (1), (2) and (3)</p>	<p>Significant progress has been achieved in cutting greenhouse gas emissions, overall between 1990 and 2016 the UK reduced emissions by 42% (on 1990 levels).</p> <p>Current commitments to reduce emissions, even if fully implemented, will lead to an estimated 2.7°C rise in temperature. A warmer atmosphere can hold more moisture, leading to heavier rainfall and more frequent flooding, including outside of recognised flood risk areas. Whilst dry periods, when combined with higher temperatures, are likely to result in more severe and prolonged droughts. Projected sea level rise of 50-100 centimetres by 2100 will exacerbate flood risks and accelerate the process of coastal change.</p> <p>The impact of climate change on flood and coastal risk will vary locally. General trends include a continued rise in sea levels around England where even small rises could add to very high tides, affecting places inland, as well as coastal areas. Wetter winters and more intense rainfall will increase river flows and cause more surface run-off, leading to local flooding and erosion. This may in turn increase pressure on drains, sewers and water quality.</p> <p>Main Sources (1) (2) and (4)</p>	<p>25 Year Environment Plan 2018</p> <p>National Adaptation Programme and the Third Strategy for Climate Adaptation Reporting 2018</p> <p>National Planning Policy Framework 2018</p> <p>Clean Growth Strategy 2017</p> <p>Climate Change Act 2008</p>	<p>Climate change is likely to increase the risk of flooding and coastal erosion.</p> <p>FCERM requires continued consideration of long-term climate change to adapt to and accommodate future sea level rise, intense rainfall and more frequent flood events.</p> <p>Flooding and coastal erosion cannot be entirely eliminated and many landscapes have evolved based on regular flood and erosion patterns. Early adaptation to climate change, will help to manage increased flood and coastal risks and the potential impacts on communities. This is likely to require a holistic approach to flood and coastal erosion risk management, such as improving the long-term resilience of homes, businesses and infrastructure; increasing the uptake of sustainable drainage systems; and the greater use of natural flood management solutions.</p> <p>FCERM should champion low carbon solutions and reductions in CO<sub>2</sub> emissions. Collaborative working with other sectors and suppliers could enable opportunities for reducing the transport of materials and the use of more sustainable modes of transport with lower emissions.</p>

## Material Assets [homes and businesses; infrastructure; agricultural land; FCERM assets]

Baseline Summary	Trends and Issues	Key Plans, Strategies, Legislation	Interactions and Themes Relevant to the FCERM Strategy
<p>The Agricultural Land Classification (ALC) provides a method for assessing the quality of farmland. The best and most versatile land is defined as Grades 1, 2 and 3a. Grades 1 and 2 together form about 21% of all farmland in England; Subgrade 3a also covers about 21%. The total area of agricultural land at risk of flooding is around 12% (1.3 million ha). 5.2 million homes and businesses are at risk from flooding. Approximately 700 properties are vulnerable to coastal erosion over the next 200 years. See Strategy documentation for more info. The Environment Agency manages and maintains around 7,000 km of defences on main rivers, around 1,000 km of coastal defences and 17,000 structures. Local authorities, internal drainage boards and private riparian owners are responsible for maintaining 2,400 km of defences and around 26,700 structures. Around 90% of large raised reservoirs are classified as 'high risk', where, in the event of an uncontrolled release of water human life would be endangered. The Environment Agency regulates over 1800 third-party-owned large raised reservoirs and operates 213 mainly for flood risk management purposes.</p> <p>Main sources (1), (2), (3) and (6)</p>	<p>Major infrastructure development is underway and or planned across a range of sectors in support of economic growth and increased productivity and sustainable and prosperous communities.</p> <p>There is growing evidence on the resilience to flooding of locally significant infrastructure. Different sectors are at different stages in taking action to improve the resilience of existing and planned infrastructure.</p> <p>Agricultural and land management policy is likely to have a greater focus on environmental enhancement and delivering wider benefits such as reducing flood risk.</p> <p>Climate change is likely to increase the risk of flooding and coastal erosion. It is estimated, for example, a further 2,000 properties may become vulnerable from coastal erosion over the next 50 years. Without interventions set out in Shoreline Management Plans this could increase to about 5,000 properties within 20 years and about 28,000 in 50 years.</p> <p>Main sources (1), (3), (4) and (5)</p>	<p>National Infrastructure Delivery Plan 2016</p> <p>Industrial Strategy 2017</p> <p>National Planning Policy Framework 2018</p> <p>National Policy Statements (various)</p> <p>25 Year Environment Plan 2018</p> <p>Reservoirs Act 1975</p>	<p>A FCERM activities and assets are vital for managing the risk of flooding and its consequences and help to underpin a sustainable economy and prosperous and resilient communities.</p> <p>Planning for new housing, economic growth and sustainable communities needs to take account of the future implications of climate change on flood risk and coastal erosion.</p> <p>Economy and society depend on a secure supply of services such as electricity, telecommunications, water, healthcare and transport. Improving the resilience of key local infrastructure to flooding and coastal erosion will require collaborative working across a range of sectors in the public and private sector.</p> <p>The planning of new infrastructure needs to ensure it does not contribute to or exacerbate the risk of flooding or coastal erosion.</p> <p>Integrated land management has the potential to support FCERM and deliver wider benefits for the environment and communities.</p> <p>Effective and resilient FCERM requires the ongoing maintenance, legal compliance and sustainable management of assets across a range of RMAs, infrastructure sectors and land owners.</p>

## Cultural Heritage

Baseline Summary	Trends and Issues	Key Plans, Strategies, Legislation	Interactions and Themes Relevant to the FCERM Strategy
<p>The National Heritage List for England has nearly 400, 000 entries of nationally designated heritage assets (including scheduled monuments, listed buildings, parks and gardens, battlefields, protected wrecks and World Heritage Sites).</p> <p>There are over 10,000 conservation areas, with a total England coverage of 2.2% (nearly 3000 sq/km).</p> <p>50% of district authorities and unitary councils have Local Lists of heritage assets.</p> <p>5,209 heritage assets are identified as at risk on the Heritage at Risk Register.</p> <p>The historic character of places is mapped for almost the entirety of England through Historic Landscape Characterisation.</p> <p>Main sources: (1) and (2)</p>	<p>Since 2016 there has been an increase in nationally designated heritage assets (listed buildings).</p> <p>Although 2017 saw an overall decline in the number of entries on the Heritage at Risk Register, new heritage assets identified as at risk continue to be added.</p> <p>Visits to heritage properties and attractions are increasing and becoming more inclusive.</p> <p>The historic environment is vulnerable to the direct and indirect effects of climate change, including flooding, coastal change, water availability and extreme weather events.</p> <p>Main sources: (1) and (2) and (3)</p>	<p>The Heritage Statement 2017</p> <p>Culture White Paper 2016</p> <p>National Planning Policy Framework 2018</p> <p>Planning (Listed Buildings and Conservation Areas) Act 1990</p> <p>Ancient Monuments and Archaeological Areas Act 1979</p>	<p>Many heritage assets are close to watercourses or lie within the coastal zone, and have close associations with the water environment. Some FCERM assets are also of heritage significance.</p> <p>FCERM measures can reduce the risk of flooding to heritage assets and contribute to their sustainable development.</p> <p>The implementation of FCERM schemes or management regimes has the potential to impact designated and non-designated heritage assets, including their settings, and the historic character of the landscape.</p> <p>FCERM schemes can provide opportunities for fostering access, enjoyment and engagement in the historic environment as well as enhancing the local character and distinctiveness of places.</p> <p>Information on the historic character of the landscape and how the water environment has changed overtime can help to inform FCERM interventions.</p> <p>Protecting, conserving and enhancing the significance of heritage assets and the historic environment needs to be taken into account in implementing FCERM measures.</p>

## Landscape

Baseline Summary	Trends and Issues	Key Plans, Strategies, Legislation	Interactions and Themes Relevant to the FCERM Strategy
<p>The diversity of landscape character across England is described by a framework of 159 National Character Area (NCA) profiles.</p> <p>Local landscape character assessments and historic landscape characterisation provide further information about landscape character at the local level.</p> <p>Marine Character Areas (MCAs) are identified for some areas of England as part of seascape assessments undertaken to inform marine planning.</p> <p>Statutory landscape designations include 10 National Parks and 34 Areas of Outstanding Natural Beauty (AONBs), which together account for nearly 25% of England. Some landscapes are also internationally recognised as World Heritage Sites.</p> <p>There are 32 defined stretches of Heritage Coast which cover 33% of the coastline.</p> <p>Land management schemes deliver a range of environmental benefits. At the end of 2015 Entry Level Scheme agreements were managing 5,132k hectares of land and Higher Level agreements 1,344k hectares.</p> <p>In England there were 1.31 million hectares of woodland in 2017.</p> <p>Main sources (1), (2), (3), (4), (5),(6) (7) and (8)</p>	<p>Updated information on trends in the overall character and quality of the landscape is limited.</p> <p>Studies indicate Environmental Stewardship schemes are maintaining and enhancing landscape character.</p> <p>Woodland in active management increased to 58% between 2011 to 2015. Since 2000 the area of new woodland planted has decreased by nearly 60%, although restocking has increased by 147%.</p> <p>Enhancing as well as conserving the environment of designated landscapes is of increasing importance as key natural assets.</p> <p>New environmental land management systems are likely to have a greater focus on environmental enhancement and restoring and improving natural capital and rural heritage.</p> <p>Evidence is demonstrating the benefits of working at a landscape / catchment scale and working with natural processes in managing flood and coastal erosion risk.</p> <p>Evidence is showing the benefits of woodland in reducing flooding.</p> <p>Main sources (6),(7) (8) and (9)</p>	<p>25 Year Environment Plan 2018</p> <p>National Planning Policy Framework 2018</p> <p>Natural Environment White Paper 2012</p> <p>National Parks and Access to the Countryside Act 1949</p> <p>Countryside and Rights of Way Act 1981</p>	<p>At the local level the implementation of FCERM schemes or management regimes has the potential to impact landscape features and attributes which contribute to local character and distinctiveness.</p> <p>FCERM schemes and changes in management regimes can provide opportunities to restore and or strengthen the character and quality of the landscape.</p> <p>Sustainable land management practices can deliver flood risk benefits by helping to slow and attenuate flows through measures such as soil management plans, cropping techniques, riparian buffer strips and habitat creation.</p> <p>Working with natural processes and implementing natural flood management measures can improve and enhance local landscape character and quality.</p> <p>There are opportunities for woodland planting to contribute to reducing flood risk.</p> <p>At the local level the implementation and operation of FCERM schemes and management regimes need to consider potential impacts on sensitive landscapes and features that contribute to landscape character in both urban and rural areas.</p> <p>Opportunities for working with natural processes and using natural flood management measures should be encouraged to support the wider environmental benefits they can deliver.</p>

# 3. Scope of the SEA

## 3.1. Introduction

A key purpose of the scoping stage is to focus the subsequent assessment of the significant environmental issues. These have been identified in the first instance using the review outlined in section 2.

Environmental issues that are not considered relevant are 'scoped out' from any further assessment. These are identified in section 3.3 along with the justification for excluding them from the assessment.

## 3.2. Ongoing scoping approach

As the strategy develops there will likely be ideas that are unlikely to result in environmental effects. For example, ideas that address how risk management authorities can work better together. As the revision of the strategy proceeds we will screen the ideas according to the following parameters, in order to target the SEA assessment on those aspects which could give rise to significant environmental effects.

The parameters are based on the overarching question:

Is the FCERM idea likely to:

- Influence the framework of local level strategies/plans for the management of flooding and coastal erosion?
- Impact environmental receptors through their implementation and or delivery?
- Deliver improvements for the environment and natural capital?
- Influence how people and communities engage with the environment or are affected by FCERM and the services provided by public bodies?

## 3.3. Scoping of Environmental Issues

The issues proposed for inclusion within the subsequent SEA for further assessment ('scoped in'), and those where further detailed assessment is not considered necessary ('scoped out') is presented in Table 1 below.

Table 1 Scoping of Environmental Issues

<b>SEA Environmental Topic</b>	<b>Scoped in (✓) or out (X)</b>	<b>Justification</b>
<b>Biodiversity (fauna and flora)</b>	✓	There is a likely significant interaction between the strategy and statutory obligations for designated sites of national and international importance. The strategy is also likely to affect natural capital and services it provides.
<b>Population and Human Health</b>	✓	The strategy has the potential to result in significant impacts on population and communities and public authorities responsible for FCERM need to have regard to statutory obligations on equality.
<b>Resource Management (soil, contaminated land and waste)</b>	✓	The strategy has the potential to result in significant strategic impacts on soils and the sustainable use of resources.
<b>Water (water resources and quality)</b>	✓	There will be a significant interaction between the strategy and statutory obligations for protecting and improving the water environment.
<b>Air</b>	X	The strategy is considered unlikely to generate significant impacts on air quality at the strategic level. [Carbon emissions are considered under climatic factors.]
<b>Climatic Factors</b>	✓	The strategy has the potential to have a significant influence on England's ability to adapt to climate change and improve the resilience of communities and the economy. There is also the potential to contribute to climate change mitigation.
<b>Material Assets (homes and business, agricultural land, infrastructure, FCERM Assets)</b>	✓	The strategy has the potential to have significant strategic impacts on existing as well as planned material assets and their future resilience to the risks of flooding and coastal erosion.
<b>Cultural Heritage (including architectural and archaeological heritage)</b>	✓ (partial)	Significant impacts on heritage assets arising as a direct consequence of a national level strategy are considered unlikely and more appropriately assessed through the spatially specific framework provided by local level strategies or subsequent projects. It is proposed to focus consideration of the historic environment at a landscape scale as it is at this scale the strategy could have an influence on the use, appreciation and significance of historic places.
<b>Landscape</b>	✓ (partial)	Significant impacts on statutory designated landscapes arising as a direct consequence of the national level strategy are considered unlikely and more appropriately assessed by local level strategies or subsequent projects. For similar reasons potential visual impacts on receptors are scoped out. There is the potential for the strategy to have a significant influence on land management and the wider character of the landscape. It is proposed to focus consideration on the character and quality of landscapes.

### 3.4. SEA Assessment Framework

SEA assessment criteria are used in SEA to test the effects that the strategy could have on the wider environment. The SEA assessment criteria have been derived from the integrated review of relevant national plans, policies and programmes and the strategic environmental context.

The assessment criteria for the each of the scoped in SEA topics are set out in Table 2.

Table 2 SEA Assessment Framework

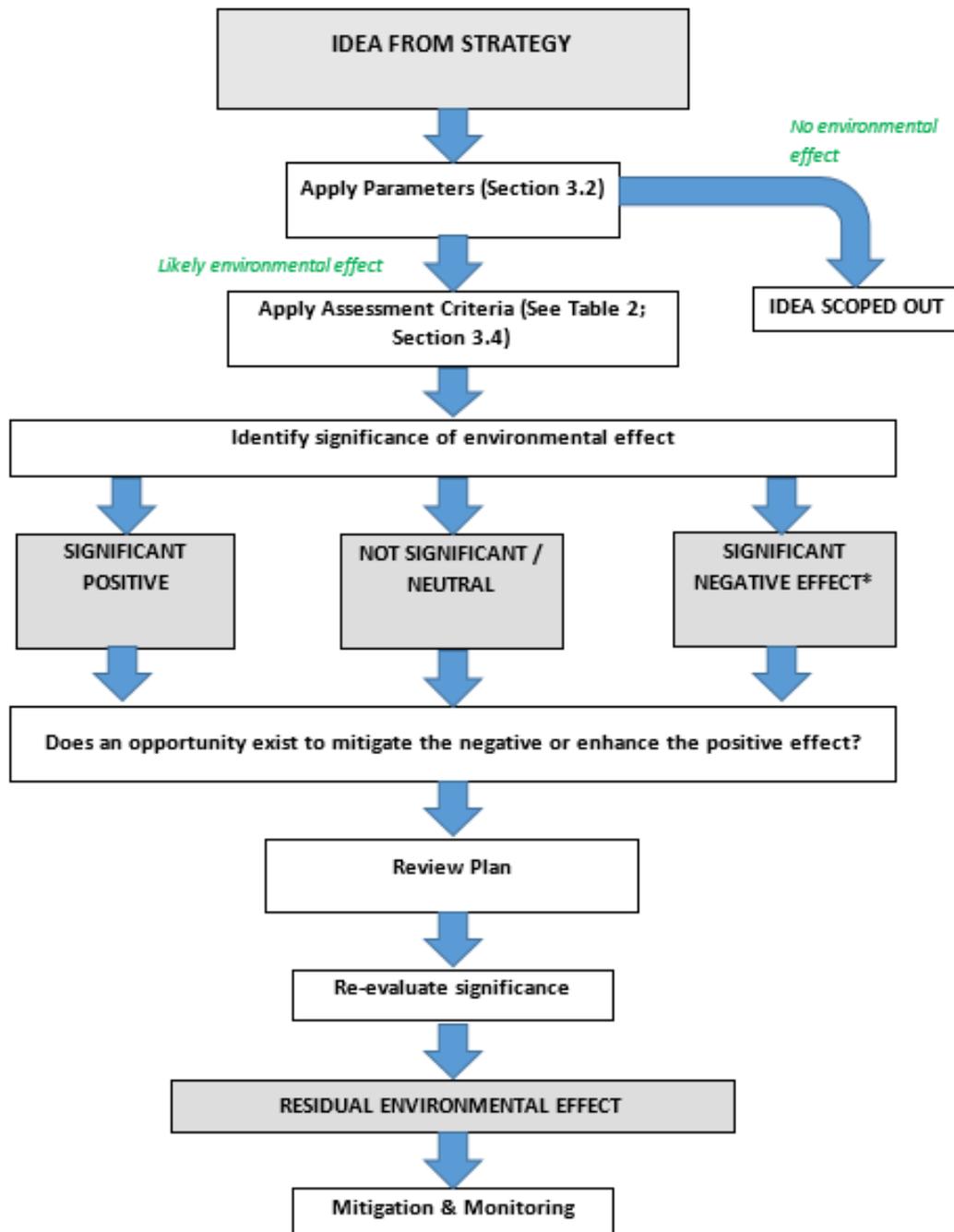
<b>SEA Environmental Topic</b>	<b>SEA Question Does the strategy...</b>	<b>Assessment Criteria Does the strategy.....</b>
<b>Biodiversity</b>		Conserve and protect species and habitats?
	<b>Protect and recover nature</b>	Support a net gain for biodiversity by restoring and creating habitats and improving their connectivity?
<b>Population and Human Health</b>	<b>Improve health wellbeing and equality</b>	Improve and enhance the health and wellbeing of communities?
		Seek opportunities to reduce social deprivation and inequality?
		Support the provision of more, better quality and accessible green infrastructure / green space?
<b>Resource Management</b>	<b>Improve and sustain resources</b>	Protect and conserve soils and improve resilience to degradation?
		Reduce waste and promote the recovery, reuse and recycling of materials?
<b>Water</b>	<b>Protect and improve the water environment</b>	Comply with the Water Framework Directive and contribute to enhancing the status of water bodies?
		Contribute to the sustainable management of water resources?
<b>Climatic Factors</b>	<b>Mitigate and adapt to climate change</b>	Contribute to adapting to climate change?
		Contribute to mitigating the main causes of climate change by promoting low or zero carbon approaches?
<b>Material Assets</b>	<b>Support sustainable communities and a prosperous economy</b>	Protect and improve the resilience of communities and the economy?
		Protect and improve the resilience of key infrastructure?
		Protect and conserve the best and most productive agricultural land?
<b>Cultural Heritage</b>	<b>Conserve and enhance the historic environment</b>	Consider the contribution of historic places to the character of urban and rural landscapes?
<b>Landscape</b>	<b>Conserve and enhance landscape character</b>	Conserve and enhance the quality of landscapes for people, places and nature?
<b>Inter-relationships</b>	<b>Protect and enhance natural capital</b>	Support the integration of a natural capital into decision-making?

# 4. Next Stages of the SEA

## 4.1. Methodology

Our approach to the assessment process and how we envisage this will interact with and inform the plan-making process is summarised below.

Figure 1 Iterative strategy development and the SEA assessment process



## 4.2. Assessing Significance

The assessment will identify the likely effects of the strategy and allocate them to one of three categories:

- Significant positive
- Not significant / neutral
- Significant negative

Examples of what will be considered significant include:

- Impacts that are likely to result in an adverse effect on the integrity of features of national or international value or will demonstrably increase the extent or improve the value of such features
- Impacts that are likely to conflict with environmental legal objectives, targets or duties
- Impacts that are likely to result in a demonstrable change in the health and/or social or economic wellbeing of communities.

In the context of the time horizons being used to inform the revision of the strategy (see section 1.1), an indication of the likely timescales of the potential effects of the strategy will be provided, as for example:

- short term: likely to occur within the next 5-10 years and the period of the proposed action
- medium term: likely to occur after the next 5-10 years
- long term: likely to occur beyond 2050.

## 4.3. Alternatives to be assessed

The SEA Regulations require 'reasonable alternatives' to be assessed. To comply with the SEA Regulations we will consider the 'do nothing' option in terms of the likely evolution of the baseline environment in the absence of the revised strategy. There will be range of ideas generated during the development of the strategy. These will be assessed and taken into account in the decision making process as outlined in Figure 1 and with the results of the assessment described in the SEA Environmental Report.

## 4.4. Cumulative Effects

The SEA assessment will broadly assess the potential cumulative effects of the national strategy. This is likely to consider potential significant environmental effects generated by:

- 'intra-plan' effects and the interaction of key elements within the emerging strategy and
- 'inter-plan' effects and the potential interactions with other relevant plans, policies or programmes.

## 4.5. Mitigation and Management

A summary of the main opportunities to reduce negative and improve positive effects predicted to be generated by the draft FCERM strategy will be presented in the SEA Environmental Report. Where practicable, these mitigation measures, and opportunities for enhancement / improvement, will be taken up during the implementation phase of the strategy, i.e. when the subsequent strategies and actions arising out of the national strategy are being developed and implemented.

In order to ensure the 'passing down' of mitigation and that specific issues are taken into account at lower levels of assessment, key mitigation recommendations will be recorded within the final version of the national FCERM strategy (following completion of the consultation), the accompanying post adoption statement and, where, relevant the supporting action plan covering the next 5-10 years.

## 4.6. Next Stages in Developing the Revised Strategy and SEA Assessment

Following the results of the consultation on this document, we will revise our scope and assessment criteria, integrating this also into the plan making process.

Further details on the ongoing development of the strategy, the planned schedule and how you can get involved are available at the following website:

<https://consult.environment-agency.gov.uk/fcrm/fcrm-national-strategy-info/>

# Annex A: Plans, Policies and Programmes Reviewed for the SEA

The following table sets out the national plans, policies and programmes reviewed. Rather than identify every possible plan or programme we have focussed on those that are likely to significantly influence the revision of the FCERM strategy or our consideration of the environmental effects.

Table A: National plans, policies and programmes

Plans / Policies / Programme	Published by	Year
<b>25 Year Environment Plan</b>	<b>Defra</b>	<b>2018</b>
National Planning Policy Framework	Ministry of Housing, Communities and Local Government	2018
Draft Clean Air Strategy	Defra	2018
Air Quality Plan for Nitrogen Dioxide (NO <sub>2</sub> ) in UK	Defra and Department for Transport	2017
The Heritage Statement	Department for Digital, Culture, Media & Sport	2017
Culture White Paper	Department for Digital, Culture, Media & Sport	2016
National Policy Statements [various: Overarching Energy, Renewable Energy, Fossil Fuels, Oil and Gas Supply and Storage, Electricity Networks, Nuclear Power, Ports, National Networks, Airports, Hazardous Waste, Waste Water Treatment, Water Resources (draft)]	Various Departments	2011-18
National Infrastructure Delivery Plan 2016-2021	Infrastructure and Projects Authority (for HM Treasury and Cabinet Office)	2016
Industrial Strategy	HM Government	2017
Clean Growth Strategy	HM Government	2017
Water Abstraction Plan	Defra	2018
National Adaptation Programme and the Third Strategy for Climate Adaptation Reporting	Defra	2018
Future Water, The Government's water strategy for England (vision to 2030)	Defra	2008
Creating a great place for living - Enabling resilience in the water sector	Defra	2016
Natural Environment White Paper: The Natural Choice: Securing the Value of Nature	Defra	2012

Plans / Policies / Programme	Published by	Year
Biodiversity 2020: A strategy for England's Wildlife and Ecosystem Services	Defra	2011
The Great Britain Invasive Non-native Species Strategy	Defra, Scottish Government, Welsh Government	2015
Coastal squeeze: Implications for flood management. The requirements of The European Birds and Habitats Directives. Defra policy guidance.	Defra	2005
Safeguarding our Soils: A Strategy for England	Defra	2011
UK Peatland Strategy 2018-2040	International Union for the Conservation of Nature	2018
Strategic Plan for the next 4 years: Better Outcomes by 2020	Public Health England	2016
The Equality Strategy - Building a fairer Britain	HM Government	2010
Agenda 2030: The UK Government's approach to delivering the Global Goals for Sustainable Development - at home and around the world	Department for International Development	2017
Government Forestry and Woodlands Policy Statement	Defra and the Forestry Commission	2013
UK Marine Policy Statement	HM Government, Scottish Government, Welsh Assembly Government	2011

# Annex B Sources for the Strategic Environmental Context

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