

National flood and coastal erosion risk management strategy for England

Habitats Regulations Assessment

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1 Introduction

1.1 *The 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*”. In response to this requirement, the national strategy¹ is being developed by the Environment Agency to ensure that it fully reflects Government policy, as well as the Environment Agency’s strategic overview and delivery roles in flood and coastal erosion risk management.

The strategy describes what needs to be done and by whom to manage the risk of flooding and coastal erosion, and to manage its consequences. It sets out the national approach to flood and coastal risk, describing the long-term goals for managing flooding from rivers and the sea and how these will be achieved. The strategy will encourage the use of a wider range of measures to manage flooding and erosion in a co-ordinated way that balances the needs of communities, the economy and the environment. The aim of the strategy is to make sure that flood and coastal erosion risk management:

- focuses on the needs of individuals, local communities and businesses, including them in decision-making and in managing risk
- protects and improves the environment and works with natural processes, balancing economic and social needs and helping to meet wider environmental objectives
- benefits from and promotes innovation, taking forward good practice based on professional knowledge, skills, evidence and science
- is based on a proper understanding of risk across all sources of flooding and coastal erosion, co-ordinating risk management across catchments and along the shoreline
- helps long-term planning, considering the full range of risk management responses, and making sure relevant statutory obligations are met
- prioritises efficient and effective investment and actions
- is a shared responsibility and makes the best use of the available skills and resources.

The approach to Flood and Coastal Erosion Risk Management (FCERM) set out in the strategy builds on an existing portfolio of activities that already successfully contributes to the management of risk. These are set to continue and be incorporated into the framework established by the strategy and include:

- Undertaking research and gathering data on the causes and extent of flood and coastal erosion risk and sharing this information with other authorities and the public. For example, flood risk maps for the whole of England and Wales are available on the Environment Agency website and similar maps setting out coastal erosion risk are under development.
- Improving our ability to predict when flood events are likely to occur. For example, the establishment of the Flood Forecasting Centre combines the skills of meteorologists and

¹ Managing the Risks of Flooding and Coastal Erosion in England - A National Strategy.

hydrologists to more accurately predict where significant rainfall is likely to occur and interpret the implications of this for people and property.

- Establishing long term plans for the management of flooding and coastal erosion risk. These range from plans that cover large areas and set general policy direction (e.g. catchment flood management plans and shoreline management plans) to those that set out the specific actions to be taken in a more localised area, stretch of coast or river (e.g. flood and coastal erosion risk management strategies and surface water management plans).
- Implementing projects that are designed to manage flood and coastal erosion risk in a particular location.
- Work to ensure that we meet our legal obligations under environmental legislation while reducing the risk to people and property. For example, River Basin Management Plans set out the actions to be taken to improve the status of water bodies (required by the Water Framework Directive) and the our Habitat Creation Programmes take a strategic role in ensuring that FCERM projects do not undermine the integrity of our most important habitats and species (required by the Habitats and Birds Directives).

1.2 Need for Habitats Regulations Assessment

In England, the Conservation of Habitats and Species Regulations (SI 490, 2010)², termed the 'Habitats Regulations', implements the EU 'Habitats Directive' (Directive (92/43/EEC) on the Conservation of natural habitats and of wild flora and fauna, and certain elements of the 'Birds Directive' (2009/147/EC)³. This legislation provides the legal framework for the protection of habitats and species of European importance in England.

The protected sites comprise Special Areas of Conservation (SAC), Special Protection Areas (SPAs, classified under the Birds Directive), candidate SACs (cSAC), Sites of Community Importance (SCIs) and, as a matter of government policy, to potential Special Protection Areas (pSPA) and Ramsar sites (sites designated under the 1971 Ramsar Convention for their internationally important wetlands). These sites are referred to collectively in this report as 'European sites'.

Regulation 9(5) of the Habitats Regulations requires that a competent authority must consider the requirements of Habitats Directive in exercising any of its functions. Article 6(3) of the Habitats Directive defines the requirements for assessment of plans and projects potentially affecting European sites. This requires that a competent national authority, before deciding to undertake, or give any consent, permission or other authorisation for a plan or project which is likely to have a significant effect on a European site, and is not directly connected with or necessary to the management of that site, must make an Appropriate Assessment of the implications for that site in view of that site's conservation objectives.

The strategy is a very high-level document without a spatial basis, therefore potential impacts of the strategy itself on European sites is difficult to determine. However, the strategy sets out broad policies to be implemented by subsequent lower level plans and strategies, and also sets the strategic framework to influence individual flood risk and coastal erosion works, which could potentially result in significant effects on European sites. It is therefore considered that the strategy does fit within the definitions of a 'plan' as defined by the Habitats Directive.

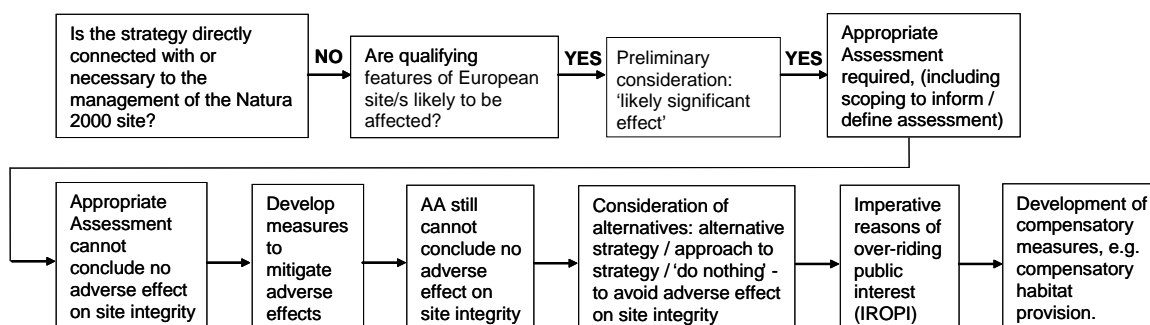
² SI 490, 2010 consolidates various amendments made to The Conservation (Natural Habitats, &c.) Regulations 1994 (SI 2716, 1994), and also applies to Wales and Scotland. A recent amendment: The Conservation of Habitats and Species (Amendment) Regulations 2011 (SI 625, 2011), amends the 2010 Regulations to ensure certain projects are subject to the requirements of the Habitats Directive.

³ Council Directive 2009/147/EC on the conservation of wild birds replaces Council Directive 79/409/EEC; it covers sites classified as the most suitable territories for bird species listed in Annex I of the Directive and regularly occurring migratory birds (termed Special Protection Areas (SPAs)).

The FCERM Strategy therefore requires consideration of a Habitats Regulations Assessment (HRA), but this needs to be tailored to be appropriate for the non-spatial, high level nature of the strategy.

1.3 Stages of Habitats Regulations Assessment

Figure 1 Overview of the stages of the Habitats Regulations Assessment process



There are several stages to the carrying out of assessments required under Article 6(3) and (4) of the Habitats Directive. We refer to this process as ‘Habitats Regulations Assessment’ (HRA). The stages of the HRA are described in further detail below.

Stage One: Screening — the process which identifies whether the strategy is directly connected with, or necessary to the management of European sites, the potential impacts upon European site/s of the strategy, either alone or in combination with other plans⁴, and assesses the significance of those effects. We have determined whether the National FCERM Strategy may have a significant effect⁵; this is described in section 3.1 of this report.

Stage Two: Appropriate Assessment — the consideration of the potential impacts of the strategy on European site/s, either alone or in combination with other plans⁴, with respect to the sites’ conservation objectives. The purpose of the Appropriate Assessment is to assess the effect on European site/s integrity. Where adverse impacts are identified, an assessment of the potential mitigation of those impacts is undertaken. The Appropriate Assessment is included in section 3.2 of this report.

Stage Three: Assessment of feasible alternative solutions — where it cannot be ascertained that the strategy will not adversely affect the integrity of a European site, the next stage is to examine alternative ways of achieving the objectives of the strategy that better respect the integrity of the European sites affected. This stage is included in section 3.3 of this report.

Stage Four: IROPI test and consideration of Compensatory Measures — where no feasible alternative solutions exist and adverse effect on site integrity remains, determination of whether the strategy should proceed by the test of imperative reasons of overriding public interest (IROPI). If there are imperative reasons of overriding public interest, compensatory measures must be taken to ensure that the overall coherence of the Natura 2000 network of European sites is protected. The consideration of IROPI and compensatory measures is included in section 3.4 of this report.

⁴ Article 6(3) of the Habitats Directive states that in combination effects with other plans or projects need to be considered. In keeping with the high-level nature of the strategy, only key relevant high-level plans that could potentially result in in-combination effects have been considered (see sections 3.1 and 3.2 for further detail).

⁵ Likely significant effect is a term used in both the Habitats Directive 92/43/EEC and the Habitats Regulations. However, pursuant to case law (Waddenzee C-127/02), likely significant effect is interpreted as meaning that there may be (as opposed to is likely to be) a significant effect. This means that a precautionary approach is taken to ensure that no reasonable scientific doubt remains regarding the effects of a plan/project, which by themselves or in combination with other plans or projects, affect the site’s conservation objectives.

2 Identification of European sites

2.1 European sites that could be affected by the FCERM Strategy

Significant areas that are at flood and coastal erosion risk are also designated as protected nature conservation sites under European and international legislation. These comprise Special Areas of Conservation (SACs), Special Protection Areas (SPAs), candidate SACs (cSACs), Sites of Community Importance (SCIs)⁶ and, as a matter of government policy to potential Special Protection Areas (pSPAs) and Ramsar sites⁷. These are collectively referred to in this report as European sites.

Maps showing the SAC, SPA and Ramsar site designations in England (including cross-border sites) are presented in Appendix 1 of this report. Given the high-level nature of this assessment, it is not practical to provide detailed information about each of the European sites in England. An overview of the European sites in England, including cross-border sites, is presented in the paragraphs below. Further information about the European site features is available on the Joint Nature Conservation Committee website (www.jncc.gov.uk), and interactive maps of European sites can be accessed from Natural England's 'Nature on the Map' website (<http://www.natureonthemap.org.uk/>)⁸.

The European site designations cover a significant proportion of the English coastline and its estuaries. Inland, many of the designations cover upland areas such as moorland, but also are associated with a number of inland water bodies.

Special Protection Areas

Special Protection Areas are classified for the protection of areas which have been identified as being of international importance for the breeding, feeding, wintering or regularly occurring migratory birds. SPAs can comprise a variety of different habitat types, ranging from areas of fen, peat or moorland, to coastal and estuarine habitat and marshland. In England, many of the SPAs are associated with marine/ coastal or estuarine waters and associated areas of marshland, with these classified areas covering a substantial proportion of England's estuarine and coastal areas. Although less extensive, there are also a number of inland terrestrial and freshwater SPAs, comprising areas of upland / moorland, heath, and inland water bodies and associated habitats. These can be either natural or artificial water bodies, such as gravel pits, reservoirs or washlands.

There are 84 Special Protection Areas in England, of which three are cross-border between England and Wales (Liverpool Bay; Dee Estuary; and Severn Estuary) and one is cross-border between England and Scotland (Upper Solway Flats and Marshes). There is currently one potential SPA in England (pSPA): Mersey Narrows and North Wirral Foreshore.

Special Areas of Conservation

Special Areas of Conservation are areas designated for the conservation of a variety of important or threatened habitats, animals and plant species, as defined by Annex I (habitats)

⁶ SCIs are sites that are proposed by Member States to, and have been adopted by the European Commission, but not yet formally designated by the Member State. Once the European Commission approves, they can be designated as SACs.

⁷ Defra policy extends the same protection at a policy level to listed Ramsar sites to that afforded to SACs and SPAs.

⁸ For information and maps of cross-border European sites / sites close to the border in Scotland: www.snh.org.uk/snhi/ and Wales: <http://www.ccw.gov.uk/interactive-maps.aspx>

and Annex II (species) of the Habitats Directive. England's SACs include extensive areas which cover marine / coastal (including offshore) and estuarine zones as well as a number of inland and terrestrial areas. Of the inland areas, the range of habitat types is diverse, including upland areas, areas of moors, peatland, woodland, forest, or grassland, and sites associated with water bodies, such as stretches of river valleys or floodplains.

There are 249 SACs, SCIs or cSACs in England, a number of which are cross-border between England and Wales (Dee Estuary; River Dee and Bala Lake; Severn Estuary; River Wye; Wye Valley and Forest of Dean Bat Sites; Wye Valley Woodlands; and Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses). There are three cross-border SACs between England and Scotland (Berwickshire and North Northumberland Coast; River Tweed; and Solway Firth). In addition, there are two possible SACs that have not yet been submitted to the European Commission⁹.

Ramsar sites

Ramsar sites are designated wetlands of international importance for their ecology, botany, zoology, limnology or hydrology, and in particular include wetlands of international importance for their waterfowl, as designated under the Ramsar Convention. Ramsar sites can comprise areas of marsh, fen, peatland or areas of water that are static or flowing, fresh, brackish or areas of marine water. Ramsar sites may also incorporate riparian (banks of a river, pond or watercourse) and coastal zones adjacent to the wetlands. In England, many of the Ramsar sites are associated with marine/ coastal or estuarine waters and associated areas of marshland, with these designated areas covering a substantial proportion of England's estuarine and coastal areas. Although less extensive, there are also a number of inland and freshwater Ramsar sites, associated with river valleys and floodplains, heathland or fens, and also includes artificial water bodies and associated habitats such as gravel pits, reservoirs or washlands.

There are 70 Ramsar sites in England, of which three are cross-border between England and Wales (Midland Meres and Mosses Phase 2; Severn Estuary; and Dee Estuary) and one is cross-border between England and Scotland (Upper Solway Flats and Marshes). In addition, there are three proposed Ramsar sites that have not yet been submitted to the Ramsar Secretariat (Dungeness to Pett Level; Mersey Narrows and North Wirral Foreshore; and Upper Nene Valley Gravel Pits)¹⁰. The majority of the English Ramsar sites are either coincident with or substantially overlapping the boundaries of designated SACs or SPAs.

Further details about the Ramsar sites are available on the Ramsar website (<http://www.ramsar.org>).

2.2 European sites unlikely to be affected by the National FCERM Strategy

Because of the high-level nature of the National FCERM Strategy and lack of a spatial framework, it is difficult to completely rule out any of the European sites to which this HRA may apply. However, there are a few notable exceptions, described below.

There are in English waters a couple of designated SACs that lie offshore from the English coastline; these sites are therefore considered unlikely to be affected by the FCERM Strategy. They comprise the Haisborough, Hammond and Winterton cSAC (candidate SAC); and the Inner Dowsing, Race Bank and North Ridge cSAC.

⁹ Source: JNCC website – SACs in England: <http://www.jncc.gov.uk/page-3061>

¹⁰ Source: JNCC website – Designated and Proposed Ramsar sites in the UK and Overseas Territories & Crown Dependencies (31 August 2007): <http://www.jncc.gov.uk/page-1389>

Many of the European sites within Scotland and Wales are considered unlikely to be affected by the strategy. However, it is not possible to rule out potential effects on designated sites close to the border in Scotland and Wales. Any cross-border European sites could potentially be affected; these cross-border SAC, SPA and Ramsar sites are specifically referenced in section 2.1 above, and are also included on the maps in Appendix 1. Potential influence on cross-border sites / sites close to the border in Wales or Scotland should be given consideration, by consulting with the Countryside Council for Wales (CCW), or Scottish Natural Heritage (SNH), where lower-tier strategies or projects in proximity to the national borders are being developed.

Upland designated European sites located away from urban locations and flood risk zones are in most instances unlikely to be affected by the strategy. However, given that the strategy considers the potential use of innovative approaches to managing risk, such as land management options to slow down the flow of water from the upland parts of a catchment, potential impacts on these sites cannot be ruled out.

There are a number of terrestrial SACs and SPAs located away from water bodies and flood zones, for which the influence of water is not an important factor in supporting the sites' interest features. These sites are unlikely to be affected by the National FCERM Strategy. In the majority of cases, lower tier spatially-based strategies and projects are also unlikely to affect these sites. However, although unlikely, it cannot be ruled out that these sites will be unaffected by lower-tier strategies or projects. Therefore, as a matter of best practice, the strategy developer, or proponent of a project, should in each case consult the relevant regional contact at Natural England, to determine whether individual strategies or projects have potential to impact on nearby European designated sites.

2.3 Qualifying Interests of the European sites

Given the high-level nature of this assessment, it is not practical to provide detailed information about the qualifying interest features of each of the European sites in England. Further information about the European site features is available on the Joint Nature Conservation Committee website (www.jncc.gov.uk). Further details about the Ramsar sites are available on the Ramsar website (<http://www.ramsar.org>).

Special Protection Areas

SPAs are protected sites classified in accordance with Article 4 of the EU Birds Directive, classified for rare and vulnerable birds (as listed in Annex I of the Directive), and for regularly occurring migratory species. The UK's geographic position – a north temperate island close to a major continental land-mass – results in its particular European importance for a number of groups of birds. The UK is particularly important for many populations of breeding seabirds, and is the wintering area for many waterbirds (ducks, geese, swans, waders) that breed throughout Arctic and sub-Arctic areas. Most of these waterbirds gather in winter in UK wetlands in dense aggregations. For many other waterbirds, the UK is not their final destination but is a stepping-stone on their migratory flyways to ultimate winter destinations in Africa. For many wading birds, such as Ringed Plover, Black-tailed Godwit, Redshank, Sanderling, Dunlin and Knot, the coast of the UK is of crucial importance during the spring and autumn passage periods¹¹.

Special Areas of Conservation

In England, the reasons for designation, or qualifying interests of SACs are varied, with a wide range of different habitats and species (selected from Annex I and II of the Habitats Directive) listed for each site's qualifying features and / or reasons for selection of the site. Due to the national basis of the strategy, it is not possible to set out the range of habitat types and species

¹¹ Source: JNCC website - Special Protection Areas - SPA Review – Introduction: <http://www.jncc.gov.uk/page-1416>

protected by the English SAC designations. However, of the 189 habitat types and 788 species identified in Annexes I and II of the Habitats Directive (as amended), 78 of the Annex I habitat types, and 43 of the Annex II species are believed to be native to, and normally resident in the UK¹². Details of the SAC site descriptions including details of qualifying interest features can be viewed from the JNCC website (<http://www.jncc.gov.uk/page-1457>).

Ramsar sites

In defining sites that qualify as Ramsar sites, this is guided by the criteria set out in the Ramsar Convention, of which there are nine criteria in total. Of particular relevance for the Ramsar site designations in England, are the criteria of: a site regularly supporting 20,000 or more water birds; a site regularly supporting 1% of the individuals in a population of one species or subspecies of water bird. Ramsar sites may also be designated if a site contains a representative / rare / unique example of a natural or near-natural wetland type; if it supports populations of plant and / or animal species important for maintaining biological diversity; supports vulnerable / endangered species or threatened ecological communities; if it regularly supports 1% of the individuals in a population of one species or subspecies of wetland-dependent non-avian animal species. The initial emphasis for the designation of Ramsar sites in England was on selecting sites of importance to waterbirds, consequently many Ramsar sites are also SPAs. For more recent designations, non-bird features have increasingly been taken into account, both in the selection of new, and in reviewing of existing sites. Further details and the full list of criteria for designation of Ramsar sites can be viewed on Natural England's website (www.naturalengland.org.uk/ourwork/conservation/designatedareas/ramsars/default.aspx)

2.4 Conservation Objectives for European sites

Information on status, condition and conservation objectives for European sites is available from Natural England (www.naturalengland.org.uk)¹³.

All European sites have conservation objectives. The conservation objectives do not aim to prevent all change to a site's qualifying interests / interest features, but aim to maintain or achieve favourable conservation status. Any proposals that are likely to affect the conservation objectives of a European site are therefore also likely to affect the overall integrity of the site.

¹² Source: JNCC website - Special Areas of Conservation (SAC): <http://www.jncc.gov.uk/page-23>

¹³ Conservation objectives for Welsh sites can be accessed from: <http://www.ccw.gov.uk/landscape--wildlife/protecting-our-landscape/special-sites-project.aspx> and for Scottish sites from: www.snh.org.uk/snhi/

3 Habitats Regulations Assessment

3.1 Screening

The 'screening' stage is a filter intended to identify which proposed plans or projects require further assessment. It is the first stage of the Habitats Regulations Assessment process, and is distinct from the subsequent 'Appropriate Assessment' of adverse effect on integrity (this is described in section 3.2 below).

Under Article 6(3) of the Habitats Directive, where a plan or project is unconnected with the nature conservation management of a European site, the competent national authority must determine whether the plan or project is likely to have a significant effect on the site/s, either alone or in combination with other plans or projects. If this assessment cannot rule out that the plan will not result in significant effect, then the authority must undertake an Appropriate Assessment of the implications in view of the conservation objectives of those sites affected.

The National FCERM Strategy implements the requirements of The Flood and Water Management Act, and sets out the national approach to flood and coastal risk, describing the long-term goals for managing flooding from rivers and the sea and how these will be achieved. Implementation of the strategy is therefore unconnected with the nature conservation management of European sites¹⁴. It therefore needs to be ascertained whether the strategy is likely to have a significant effect on European sites (either alone or in combination with other plans or projects).

The description and content of the strategy is set out in section 1.1 of this report. The National FCERM Strategy is a high-level national strategy document and does not provide a sufficient level of detail regarding the specific flood and coastal erosion risk management actions of the strategy, or where they will be implemented. As a result, it has not been possible to assess specific impacts of the measures or actions within the National FCERM Strategy on particular European sites. However, it is recognised that this strategy will set the framework and strategic direction for managing flood and coastal erosion risk in England.

The National FCERM Strategy sets out the activities that are underway and will be developed in the future to reduce the risks of flood and coastal erosion. This is summarised briefly below:

- The Environment Agency will use long-term national strategic plans to publish and regularly update its programme for implementing new risk management schemes and maintaining existing assets.
- Lead local flood authorities will develop, maintain and monitor local flood risk management strategies. Where significant flood risks have been identified the lead local flood authority will need to set out risk management plans as required by the Flood Risk Regulations.
- Coastal erosion risk management authorities and the Environment Agency will implement and maintain the second generation of shoreline management plans to understand and manage coastal flood and erosion risks. These will feed into the development of national and local flood risk management plans.

Generic impacts resulting from these local flood risk management strategies, plans or projects may include: loss of, fragmentation or physical damage to habitat; changes in physical regime;

¹⁴ Although the principal purpose of plans / strategies / projects arising from the National Strategy will be FCERM, there may be some cases where they also relate to Habitats Directive / Birds Directive issues. In such circumstances the specific aspect of the plan / strategy / project that is connected with or necessary for the management of European sites can be screened out; however, the remaining aspects (not connected with or necessary for European site management) would still need to be assessed.

changes to turbidity; simplification of habitats / communities; noise or visual disturbance; competition from non-native species; changes to flow and velocity regimes; reduced surface water flooding; or changes to water chemistry. Each of the above activities, or a combination of, may lead to a significant effect on a European site. Section 3.2 considers these impact types in more detail, and associates the impacts with a range of different FCERM activities (Table 1). The section then identifies the range of SAC / SPA / Ramsar habitats and species that could be affected by these impact types (Table 2).

Relevant high-level plans that could potentially result in significant in-combination effects have been considered. The key high level plans are briefly described, and their potential in-combination effects are then considered below.

- The UK Marine Policy Statement (MPS): implements the requirements of The Marine and Coastal Access Act 2009, and sets out a framework for a system of marine planning for the UK marine area, providing the high level policy context for the sustainable development of the United Kingdom marine area, supporting the UK vision for clean, healthy, safe, productive and biologically diverse oceans and seas. The MPS will place a duty on marine plan authorities to prepare Marine Plans for the English inshore and offshore regions.
- Shoreline Management Plans (SMPs): are the regional strategic plans that will support and help to achieve the objectives of the National FCERM Strategy in the coastal context. The second generation of SMPs are due for completion in England in 2011, and set out the priorities and strategic direction for all flood and coastal erosion risk management on the coast. SMPs have a geographic framework set out according to an area of coastline known as a sub-cell within a littoral sediment cell (length of coastline that is relatively self-contained in terms of the movement of sediment).
- Catchment Flood Management Plans (CFMPs): are high-level planning tools that set out objectives for flood risk management across each river catchment and estuary, and have been produced by the Environment Agency for the 68 main catchments in England. They consider inland flood risk from rivers, surface water, groundwater and tidal flooding, and are designed to set the overall direction of flood risk management on a catchment basis. They identify broad flood risk management policies that are economically practical, have a potential life of 50 to 100 years, and will help the Environment Agency work with others to put them in place.
- River Basin Management Plans (RBMPs): have been established to deliver the objectives of the Water Framework Directive (WFD), namely to deliver good status for all water bodies. Designated European sites (water-dependant SACs and SPAs) are specifically referenced within the WFD and the RBMPs, referred to as 'Protected Areas', and have their own specific set of objectives and actions to deliver them.

Potential for in-combination effects with the plans listed above, will depend on the specific locations and areas of coverage of the lower-tier plans, strategies, actions or measures arising from the National Strategy.

Given that the MPS is focused on the marine and coastal areas, the plan is considered unlikely to result in any in combination effects on any of the English inland and non-marine European sites. However, the MPS itself has undergone HRA, the conclusions of which were that it was unable to exclude the possibility that the integrity of one or more European sites could be adversely affected by activities identified in the MPS, either along or in-combination with other plans or projects. The potential for in-combination significant effects between the National FCERM strategy and the MPS in the marine environment cannot therefore be ruled out.

CFMPs and SMPs are the regional strategic plans that will, amongst other lower-tier plans and strategies, support and help to achieve the objectives of the National FCERM Strategy. The majority of these plans will include their own HRAs, and Appropriate Assessments if significant

effects are considered likely¹⁵. These HRAs will also incorporate 'in combination' assessments. At this lower level of plan, the accompanying HRAs are better able to define the likely significant effects of the plans, alone and in combination with other relevant local plans, on particular European sites and their conservation objectives.

Given that RBMPs include targets and objectives for achieving 'favourable conservation status' for water-dependant European sites, the potential in combination effects between the RBMPs and the National FCERM Strategy should predominantly result in beneficial effects. However, the RBMPs also include different objectives for a range of different water bodies, which could conflict with protection of European sites. Potential in combination effects with the strategy cannot therefore be ruled out.

In conclusion, it cannot be determined that the National FCERM Strategy will not result in likely significant effect, either alone, or in combination with other plans and projects. In accordance with Article 6(3) of the Habitats Directive, an Appropriate Assessment of the implications of the strategy for European sites must be undertaken. This is set out in section 3.2, below.

3.2 Appropriate Assessment

3.2.1 Assessment of potential impacts of the National FCERM Strategy

The purpose of the Appropriate Assessment is to assess the potential impacts of the National FCERM Strategy, either alone or in combination with other projects or plans, to determine that it will not adversely affect the integrity of a European site or sites.

Assessment of the strategy's impacts (alone) is described in this section. Assessment of potential 'in-combination' effects is described in the following sub-section (3.2.2). As part of the Appropriate Assessment process, this also includes the assessment of mitigation measures to avoid or reduce any possible impacts (described in section 3.2.3).

There are inherent difficulties and uncertainties in carrying out an Appropriate Assessment for such a high level strategy. The high level nature of the National FCERM Strategy, without a spatial basis, means that locations and impacts of lower-tier plans, strategies and actions arising as a result of the National Strategy cannot be identified at this stage. As a result, it has not been possible to provide detailed consideration of the impact on the integrity of a particular European Site with respect to the site's structure, function and conservation objectives.

Similarly, development of site-specific mitigation proposals is not possible, and instead generic mitigation principles are proposed, detailed in the following sub-section (3.2.3). This should be considered when carrying out HRAs, and developing mitigation associated with lower level strategies or projects.

Because of the limited level of detail, and degree of uncertainty over the potential effects, only an overview of the generic potential impacts, or impact types, has been considered. The nature of these impacts will vary on a case-by case basis, depending on the type of activity, and the interest features of the European site or sites affected. The following matrix, presented in Table 1 below, identifies potential FCERM activities that could adversely affect the qualifying features of European sites, and therefore potentially result in an adverse impact on site integrity.

The Appropriate Assessment has taken this a stage further by assessing these impacts (Impact types A-J in Table 1) more specifically against the (grouped) qualifying habitats and species features of the European sites (see Table 2 below).

¹⁵ Several plans have already been subject to HRA and have been unable to conclude that there will not be a significant effect.

Of the impact types presented in Table 1, habitat loss can be one of the potential impacts for all the FCERM activities considered in the table. In coastal and estuarine environments, key threats to European sites are inter-tidal habitat losses due to climate change and coastal squeeze, resulting from sea-level rise combined with maintaining or 'holding the line' of existing hard-engineered coastal defences. These coastal squeeze losses will over time reduce the overall areas of designated habitat, therefore leading to adverse effects on the integrity of some designated European sites.

Table 1 Summary of FCERM related activities and some of their potential impact types¹⁶

FCERM Activity	Impact Type									
	J. Changes to water chemistry	I. Reduced surface water flooding	H. Changes to flow & velocity regime and improved drainage	G. Competition from non-native species	F. Disturbance (noise, visual presence)	E. Habitat and community simplification	D. Changes in turbidity	C. Physical damage	B. Changes in physical regime	A. Habitat loss
In-channel works and structures	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sea defence works and maintenance		✓	✓	✓	✓	✓	✓	✓	✓	✓
Bridgework					✓	✓	✓	✓		✓
Culverts		✓	✓		✓	✓		✓	✓	✓
Channel diversions		✓	✓	✓	✓	✓	✓	✓	✓	✓
Access tracks and spoil disposal				✓	✓	✓	✓	✓		✓
Construction of floodbanks		✓	✓	✓	✓	✓		✓	✓	✓
Maintenance of floodbanks		✓		✓	✓	✓		✓		✓
Construction phase activities	✓		✓		✓		✓	✓		✓
Weed cutting operations	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Herbicide applications	✓	✓	✓		✓	✓		✓		✓
Bank flailing and mowing regimes	✓	✓	✓	✓	✓	✓		✓		✓
Bank works (such as reprofiling)		✓	✓		✓	✓	✓	✓	✓	✓
Channel dredging and regrading	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Shoal and gravel removal		✓	✓		✓	✓	✓	✓	✓	✓

¹⁶ Tables 1 and 2 are based on tables from: Environment Agency Operational Instruction 53_02. Using the Habitats Directive handbook for flood and coastal risk management permissions, plans and projects. Environment Agency, April 2010. The tables are not comprehensive and are based on the judgement of staff in the Environment Agency, Natural England and CCW. There may be other hazards and sensitivities, which will vary according to circumstances.

Tree management works	✓				✓	✓		✓	✓	✓
Operation of pumping stations		✓	✓		✓	✓	✓	✓	✓	✓
Shingle recycling and reprofiling		✓	✓		✓	✓	✓	✓	✓	✓

Table 2 Generic impact types arising from FCERM activities on European sites habitats and species groups¹⁶ [* indicates/includes a priority habitat]

Impact Type	SPA /Ramsar bird species groups										SAC/Ramsar species groups										SAC/Ramsar habitat groups																
	3.10 Birds in open sea and offshore rocks	3.9 Birds in estuarine habitats	3.8 Birds in coastal habitats	3.7 Farmland Birds	3.6 Birds in lowland freshwaters & their margins	3.5 Birds in lowland dry grassland	3.4 Birds in lowland wet grassland	3.3 Birds in lowland heaths & breccks	3.2 Birds in woodland & scrub	3.1 Birds in uplands	2.12 Marine mammals	2.11 Coastal plants	2.10 Amphibians	2.9 Mammals in riverine habitats	2.8 Mammals in wooded habitats	2.7 Invertebrates in wooded habitats	2.6 Non-migratory fish and invertebrates in rivers	2.5 Anadromous fish	2.4 * Liverworts – Western rustwort	2.3 Vascular plants, grassland	2.2 Vascular plants, lower plants and invertebrates, wet habitats	2.1 Vascular plants in aquatic habitats	1.13 Submerged marine habitats	1.12 Estuarine and intertidal habitats	1.11 * Coastal habitats sensitive to abstraction	1.10 * Coastal habitats	1.9 * Upland	1.8 * Dry heathland habitats	1.7 * Dry Grassland	1.6 * Dry woodlands	1.5 * Standing waters not acidification sensitive	1.4 * Standing Waters acidification sensitive	1.3 Riverine habitats	1.2 * Bogs and wet habitats, acidification sensitive	1.1 * Fens and wet habitats not acidification sensitive		
A Habitat loss		✓	✓		✓		✓	✓			✓	✓	✓			✓	✓			✓	✓	✓	✓	✓	✓	✓							✓	✓	✓	✓	✓
B Changes in physical regime		✓	✓		✓		✓			✓	✓	✓	✓			✓	✓				✓	✓	✓	✓	✓	✓								✓	✓	✓	✓
C Physical damage		✓	✓		✓		✓				✓	✓	✓			✓	✓				✓	✓	✓	✓	✓	✓									✓	✓	✓
D Turbidity	✓	✓	✓		✓		✓			✓			✓			✓	✓				✓	✓	✓	✓	✓	✓									✓	✓	✓
E Habitat/community simplification		✓	✓	✓	✓		✓					✓	✓			✓	✓				✓	✓	✓	✓	✓	✓										✓	✓
F Disturbance (noise, visual)	✓	✓	✓	✓	✓		✓			✓			✓			✓	✓								✓												
G Competition from non-native species											✓					✓					✓	✓	✓	✓	✓	✓									✓	✓	✓
H Changes to flow & velocity regime		✓	✓		✓		✓				✓	✓	✓			✓	✓				✓	✓	✓	✓	✓	✓	✓							✓	✓	✓	✓
I Reduced surface water flooding		✓		✓	✓		✓			✓	✓	✓				✓					✓				✓											✓	✓
J Changes to water chemistry		✓			✓							✓	✓			✓	✓				✓	✓	✓	✓	✓									✓	✓	✓	✓

Although the FCERM activities, and their potential impact types, as highlighted in Tables 1 and 2 above, may result in impacts on European sites, these impacts will actually arise as a result of lower level strategies, plans and activities later in the planning and implementation process. This highlights the importance of a tiered approach to Habitats Regulations Assessment (discussed in more detail in section 4), because the potential impacts of the strategy within a spatial framework cannot be fully determined, until more detailed assessment has taken place. Assessment of the FCERM impacts on a European site or sites, and appropriate site-specific mitigation to address it, can be developed in the most effective manner at this lower level of FCERM planning.

An important point to note, is that FCERM activities can also perform an important function in the protection and conservation of European sites. For example, some European sites in England rely on the continued presence of flood or coastal defence structures to maintain them in favourable conservation status. Many of the habitats that form part of the European site designations can also be functionally important in reducing flood or erosion risk. The development of innovative FCERM solutions, through working with natural processes, as advocated by the strategy, will therefore have potential benefits for European sites, as well as performing a flood or erosion risk management function.

The National FCERM Strategy presents the opportunity to work with natural processes in delivering flood and coastal erosion solutions, and thus deliver many benefits for European sites, such as habitat improvements or enhancements, improved ecological connectivity. This could for example include innovative land management solutions and creation of wetlands, which create ecologically valuable habitats and improve habitat connectivity for the benefit of European protected species. Such measures can therefore complement and help deliver the favourable conservation status of designated European sites, while at the same time reducing the risk of flooding and / or coastal erosion.

3.2.2 Assessment of potential In Combination effects

The Habitats Directive and the Habitats Regulations require competent authorities to include within an Appropriate Assessment, the assessment of effects on a European site in combination with other plans or projects.

For the purpose of this assessment, and in keeping with the high-level nature of the strategy, only key relevant high-level plans that could potentially result in in-combination effects have been considered. At this national scale, it is not possible to provide an extensive list of all plans and projects which may lead to in-combination effects together with the National FCERM Strategy. These will, however, need to be considered further where Appropriate Assessment is required at subsequent stages in the implementation of the strategy. The key high level plans considered are summarised below:

- The UK Marine Policy Statement (MPS)
- Shoreline Management Plans (SMPs)
- Catchment Flood Management Plans (CFMPs)
- Water Framework Directive - River Basin Management Plans (RBMPs).

UK Marine Policy Statement

In a similar manner to which the National FCERM Strategy will set out the overall framework for flood risk and coastal erosion management in England, the UK Marine Policy Statement (MPS) sets out a framework for a system of marine planning for the UK marine area. The MPS implements the requirements of The Marine and Coastal Access Act 2009, and provides the

high level policy context for the sustainable development of the United Kingdom marine area, supporting the UK vision for clean, healthy, safe, productive and biologically diverse oceans and seas. When the MPS is adopted, the Marine and Coastal Act 2009 will place a duty on marine plan authorities to prepare Marine Plans for the English inshore and offshore regions. Given that the MPS is focused on the marine and coastal areas, the plan is considered unlikely to result in any in combination effects on any of the English inland and non-marine European sites.

The MPS itself has undergone a Habitats Regulations Assessment, the conclusions of which were that the HRA was unable to exclude the possibility that the integrity of one or more European sites could be adversely affected by activities identified in the MPS (until such time as it is known when and where these activities might take place). Owing to the lack of a spatial element to the MPS, it was not possible to be specific about impacts, possible mitigation measures or alternative solutions for individual activities. Potential in-combination effects between the National FCERM strategy and the MPS in the marine environment cannot be ruled out, although due to the uncertainty and lack of spatial basis to either of these plans, the nature or location of these potential in combination effects cannot be established.

The HRA process will need to be revisited through the consideration of the subsequent lower-tier FCERM plans and strategies, with in combination effects considered alongside the Marine Plans developed from the MPS. At this scale and with more detailed spatial information, it will be possible to assess the impacts upon particular European Sites with greater certainty. It is important to note that the interactions of the lower-tier FCERM strategies and the marine plans will not necessarily result in adverse in combination effects on European sites, and could potentially result in delivering benefits, and contribute to the favourable conservation status of European sites.

Shoreline Management Plans and Catchment Flood Management Plans

Shoreline Management Plans (SMPs) and Catchment Flood Management Plans (CFMPs) are the regional strategic plans that will, amongst other lower-tier plans and strategies, support and help to achieve the objectives of the National FCERM Strategy.

CFMPs are high-level planning tools that set out objectives for flood risk management across each river catchment and estuary, and have been produced by the Environment Agency for the 68 main catchments in England. They are designed to set the overall direction of flood risk management on a catchment basis. They identify broad flood risk management policies that are economically practical, have a potential life of 50 to 100 years, and will help the Environment Agency work with others to put them in place. CFMPs consider inland flood risk from rivers, surface water, groundwater and tidal flooding but do not cover sewer flooding.

SMPs, the second generation of which are due for completion in England in 2011, set out the priorities and the strategic direction for all flood and coastal erosion risk management on the coast. SMPs have a geographic framework set out according to an area of coastline known as a sub-cell within a littoral sediment cell (length of coastline that is relatively self-contained in terms of the movement of sediment). SMPs and the associated action plans set the direction for how coastal flood and erosion risk is to be managed and list work that will explore and define exactly what can and how this can be done. They form route maps, setting out the sustainable management policies for the coast for the next 20, 50 and 100 years. There are 20 English and cross-border SMPs, and the majority of them are owned by coastal authorities that are responsible for managing erosion risks.

Rather than result in 'in combination' effects with the National FCERM Strategy, the CFMPs and SMPs represent the lower-tier, spatially-based plans, which will support and implement many of the objectives of the national strategy. The majority of these plans will include their own HRAs and Appropriate Assessments, which incorporate 'in combination' assessments. At this lower level of plan, the Appropriate Assessments are better able to define the likely impacts of the plans, alone and in combination with other relevant local plans, on particular European sites and their conservation objectives.

Water Framework Directive - River Basin Management Plans

There are eleven River Basin Management Plans (RBMPs) covering England and Wales, which have been established to implement the requirements and deliver the objectives of the Water Framework Directive (WFD). Designated European sites (water-dependant SACs and SPAs) are specifically referenced within the WFD and the RBMPs, referred to as 'Protected Areas', and have their own specific set of objectives and actions to deliver them. Although the objective to restore or maintain favourable conservation status in European sites is mandated by the EU Habitats and Birds Directives, and the Habitats Regulations, there is no specific date for achieving it. The RBMPs bring these objectives in line with the planning timescales of the WFD, which introduces a 2015 deadline for delivery¹⁷, and applies this to the Protected Areas (water dependent SACs and SPAs) referred to in the RBMPs.

Given the targets and objectives for achieving favourable conservation status are set out in the RBMPs, the potential in combination effects between the RBMPs and the National FCERM Strategy should be predominantly beneficial, and will contribute to conserving the integrity of water-dependant European sites. However, the RBMPs also include different objectives for a range of different water bodies, which could conflict with protection of European sites. Potential adverse in combination effects with the strategy cannot therefore be ruled out. In order ensure that these potential in combination beneficial effects are fully realised during the development of the lower-tier plans and strategies arising from the National strategy, the relevant measures specific to the affected water-dependent SACs and SPAs within the appropriate RBMP/s must be considered.

3.2.3 Avoidance and mitigation of impacts

It is not possible at this national scale to provide specific proposals for avoidance, reduction or mitigation of the strategy's impacts, since the nature of any mitigation necessary will depend on the type of impacts and the conservation features of a site, or sites affected. It is therefore not possible at this national level to specify anything other than generic mitigation approaches, but it is critical that these approaches, and any site-specific mitigation necessary, be tailored to the impacts that may arise from lower-tier plans, strategies and projects.

Through the development of the National FCERM Strategy, and the lower-tier strategies and plans that will arise as a result, the strategy has required that the consideration of the principles of sustainable development are incorporated into the strategy document, including the protection of important habitats and species. These aim to provide sufficient guidance to applicants and decision-makers to avoid or mitigate for any potential adverse effects.

There are a series of measures written into the National FCERM Strategy which will help to ensure that the strategy, and all subsequent lower-tier plans, strategies and activities, avoid / reduce / mitigate the adverse impacts on European sites. These are summarised below:

- The National FCERM strategy states that in all instances, flood and coastal risk management should avoid damaging the environment and, wherever possible, work with natural processes and always seek to provide environmental benefit, as required by the Habitats, Birds and Water Framework Directives.
- To manage flood and coastal erosion risk effectively, a number of different organisations may have to carry out a wide range of tasks. These tasks require careful design and assessment so that the right options are selected and to make sure that they are sustainable and implemented in the right way. As a result, it is essential that action is planned effectively, for the long-term, providing a clear picture of what will be done to

¹⁷ Except where the deadline has been specifically extended to 2021 or 2027.

manage risk and provide multiple benefits, for example, in supporting biodiversity, habitat creation or improving water quality.

- A range of measures can be taken to reduce the likelihood of a flood or erosion event causing damage. The use of these measures will depend on local circumstances and it is essential that all options are considered in planning action. Key measures to be taken forward through the strategy include:
 - Innovative approaches to managing risk may be undertaken alongside more traditional defences. These may be co-ordinated across catchments or along the coast and may include property level protection measures, land management options to slow down the flow of water from the upland parts of a catchment, promoting flood storage or creating inter-tidal habitats to store tidal flows and dissipate wave energy to reduce risks. FCERM systems are interlinked and their development and management should be carried out collaboratively to ensure these links are maintained effectively.
 - Wherever possible, measures will work with natural processes and be based on partnership working with local communities. In doing this, they should build links and use wider sources of alternative funding, for example from agri-environment schemes and with business and industry. Projects should minimise damage to and, where possible improve, the function of the local natural and cultural environment. Obligations set out through the EU Water Framework, Habitats and Birds Directives and other domestic commitments need to be met. The role of FCERM schemes in reducing the impacts of climate change should also be considered, for example in providing new coastal and wetland habitats that may be more resilient to future change.
- In cases where the Environment Agency cannot continue to justify or afford continuing maintenance activity, potential options include taking a decision to withdraw maintenance from flood risk management assets that the Environment Agency has previously maintained, and allowing the area to return to its natural state. In some cases this will deliver improved biodiversity and other environmental outcomes.
- A suite of guidance and advice will be developed to help those involved in implementing the national and local FCERM strategies. In some instances, for example where it is essential that a nationally consistent approach is adopted, this may take the form of statutory guidance (i.e. there is a legal requirement for risk management authorities to follow the guidance). However, wherever possible it will be provided as non-statutory advice. Provisional list of guidance and advice to include: producing local FCERM strategies; sustainable development and FCERM; Climate change and FCERM; surface water management planning; Shoreline management plan guidance; FCERM project (and strategy) appraisal; the use of natural features and habitats (and the contribution that FCERM can make to them); objectives for water quality, the historic environment and creation of woodland.

Of critical importance to avoiding and mitigating impacts on European sites, is the co-ordinated, catchment-based (and sediment cell / sub-cell in the coastal context) approach advocated by the FCERM strategy. It is however important that the further down the FCERM planning hierarchy, the greater the level of detail of measures to avoid, reduce and mitigate adverse effects should be, and this should be built upon and refined at each subsequent stage. It is not possible at this national level to specify anything other than generic mitigation approaches, but it is critical that these approaches to be tailored to the individual situations, and discussed and agreed with the appropriate nature conservation body (Natural England, and also CCW or SNH where there are cross-border issues).

3.2.4 Conclusions of the Appropriate Assessment

At this national strategic level, it is not possible to predict, describe or assess the specific impacts associated with the different activities, plans and strategies that will result from the National FCERM Strategy on the integrity of a particular European site, with respect to the site's structure, function and conservation objectives, or to provide specific mitigation proposals. The Appropriate Assessment identifies FCERM activities that may give rise to particular impacts (generic impact types) on European site qualifying features (habitats and species), and therefore potentially result in an adverse impact on site integrity.

The National FCERM Strategy records a series of methods, measures and approaches, as described in section 3.2.3 of this report, which should ensure mitigation is implemented within the lower-tier strategies, plans and projects to avoid impacts on European site integrity. However, despite the implementation of mitigation, it is not possible to be certain that there will not remain the possibility of adverse effects upon the integrity of one or more sites of European importance, arising from the implementation of the National Strategy, through the resulting lower-tier plans, strategies and projects. One such circumstance where this may occur is in coastal and estuarine situations, due to coastal squeeze, resulting from climate change-induced sea-level rise, combined with maintaining or 'holding the line' of existing hard-engineered coastal defences. This will in some situations result in unavoidable long-term inter-tidal habitat losses within designated European sites, therefore resulting in adverse effects on their integrity.

The conclusions of the Appropriate Assessment are therefore, that in light of lack of sufficient certainty at this national strategic scale, a precautionary approach must be taken, and it cannot be concluded that there would be no adverse effect on the integrity of one or more European sites, as a result of the National FCERM Strategy.

However, any impacts on a European site or sites will not result directly from the National Strategy itself. While it is recognised that the National FCERM Strategy will set the strategic direction for managing flood and coastal erosion risk in England, until lower-tier strategies, plans, projects or activities arising out of this National Strategy are implemented, the impact of the strategy itself cannot be determined. Subsequent strategies, plans and projects arising from the National Strategy, will therefore need to be subject to further Habitats Regulations Assessment. This tiered approach to HRA is discussed in more detail in section 4.

3.3 Assessment of Alternatives

Where it cannot be proved beyond reasonable scientific doubt that a plan (in this case the National FCERM Strategy) will not have adverse effects on the integrity of a European site or sites, it is necessary to investigate feasible alternative solutions that would not have such adverse effects.

Implementation of the National FCERM Strategy may give rise to a wide range of potential alternative solutions, which may be possible for a range of different activities or lower-tier plans identified in the strategy. It is not practicable to attempt to undertake an assessment for all of these in this assessment. The assessment of alternative solutions has focused on the strategic alternative approaches considered in the development of the strategy. A set of alternatives was prepared by Defra in October 2010, alongside which an Impact Assessment was carried out; these are summarised below:

- **High level framework** - this would set out key principles and approaches within the strategy, but leave local risk management authorities the flexibility to develop solutions appropriate to the risk within their areas. A greater clarity and consistency of approach to flood and coastal erosion risk management should lead to more efficient approaches and greater benefits from the same level of investment. A clear and coherent high level framework for the management of flood and coastal erosion risk should facilitate better co-

ordination and planning of interventions and lead to efficient and effective FCERM action being taken.

- **Detailed prescriptive rules** - this would set out comprehensive arrangements for flood and coastal erosion risk management with little flexibility for local risk management authorities to deviate from the national approaches. It would deliver consistency but is unlikely to be as efficient or effective as a high level framework. This approach would minimise the discretion for local authorities and could thus force action at a local level, resulting in greater consistency. However, this would also constrain the risk management authorities and restrict local decision making. Given resource pressure it is unlikely that such action would be effective, and it may be that in many cases costs would exceed the benefits. It could thus disenfranchise local risk management authorities and lead to a reduced commitment to the effective management of flood and coastal erosion risks.
- **No strategy** - Section 7 of The Flood and Water Management Act 2010 requires the Environment Agency to develop a strategy for flood and coastal erosion risk management in England. A decision not to prepare a strategy would leave the Environment Agency in breach of their statutory obligation and local authorities and communities unable to manage risk on an efficient and effective basis.

The Government has made a commitment to implement a National Strategy for flood and coastal erosion risk management in England, as reflected in Section 7 of The Flood and Water Management Act 2010. A decision not to prepare a strategy would substantially impair the Government's ability to take a strategic view of flood and coastal erosion risk management in England. Not preparing a strategy would essentially mean a business as usual approach, whereby existing policies and practices would continue in the way they have been carried out previously. CFMPs, SMPs and flood risk strategies would continue, which would be able to give more specific direction on FCERM proposals within their plan areas, and would still be subject to the requirements of the Habitats Regulations. However, without the national strategy framework there would be no consistent guidance on how to produce or implement these plans. Without a national strategy, it is considered that the lack of co-ordination and consistent implementation of FCERM may result in greater impacts on designated European sites.

Key aims of the strategy, as proposed under the 'High level framework' approach, include the achievement of environmental benefits and enhancements, working with natural processes wherever possible, and the delivery of FCERM improvements through a catchment and coastal cell based approach. Subsequent lower-tier FCERM strategies and projects, in managing flood and coastal risks locally, would be required to consider potential impacts on other parts of a catchment or coast. Therefore the wider catchment or coastal cell implications would be considered where European sites are in proximity, providing a higher level of protection, which may not have been as rigorously considered without this direction from the national strategy. By adopting these approaches to the management of flood and erosion risk, there is likely to be improvement to the natural functioning of rivers, wetlands, and coastal systems, and therefore benefit for the conservation status of designated European sites. Without the national strategy steer for FCERM to work with natural processes wherever possible, the strategic opportunities to deliver improvements to, and therefore favourable conservation status of European sites may not be realised.

Based on the available information it is difficult to differentiate between the potential impacts on European sites from the high level framework or an approach using detailed prescriptive rules. Neither of these approaches would set out where lower-tier FCERM plans, strategies or activities will be implemented. However, a national strategy detailed prescriptive rules approach could, as part of the comprehensive arrangements for flood and coastal erosion risk management, specify the rules or criteria that must be met before FCERM interventions can take place where European sites may be affected. Whereas the high level framework approach proposed by the strategy would leave local risk management authorities the flexibility to develop solutions appropriate to the risk within their areas, the prescriptive rules approach would constrain authorities where the criteria for FCERM and European sites cannot be met. This

approach is considered unlikely to result in a lower impact on European sites than the high level framework approach. Furthermore, given the number and extent of European sites' coverage across the country (see maps in Appendix 1), this is likely to limit the flexibility of FCERM, and may significantly constrain, or even prevent FCERM interventions in locations within or close to European sites where adverse effects are possible. Such restrictions would be in conflict with the strategic aims and objectives of the strategy, to achieve a balance between environmental, social and economic benefits, consistent with the principles of sustainable development. This alternative approach is therefore considered to not be feasible as it will fail to achieve this objective.

In summary, it is considered that not developing a National FCERM Strategy is likely to result in greater impacts on European sites, as strategic opportunities to deliver improvements to favourable conservation status of European sites may not be realised. A detailed prescriptive rules approach to the strategy (including criteria for European sites) is unlikely to have a lower impact on European sites. Furthermore, it will be in conflict with the strategic aims and objectives aims of the strategy, and is therefore not considered to be a feasible approach.

The preferred approach of the high level framework does not define the detail of where and how FCERM measures will be implemented. Any impacts would only occur where it is decided that interventions are necessary to manage, or continue to manage, flood and coastal erosion risk and where such interventions impact on a European site(s). In such circumstances, the assessment of alternatives (together with mitigation measures and, where such works are approved under IROPI, suitable compensatory measures) must still be considered as part of the Habitats Regulations Assessments that will accompany the lower-tier, spatially-based plans, strategies and projects.

Given that there are no feasible alternative approaches that achieve the aims of the strategy, an assessment must be made of the imperative reasons of overriding public interest for the strategy, as detailed in the following section.

3.4 IROPI and compensatory measures

Article 6(4) of the Habitats Directive requires that, in spite of a negative assessment of the implications for a European site, if there are no feasible alternative solutions, the strategy can only be carried out for imperative reasons of overriding public interest (IROPI), sufficient to override the ecological importance of the designation/s. The imperative reasons may be of a social or economic nature, or in the case of a site or sites that host a priority natural habitat type or priority species, the reasons must be for human health, public safety or of primary importance to the environment, or for reasons specifically approved by the EC¹⁸. The results of the Appropriate Assessment are that we cannot conclude that there won't be adverse effect on the integrity of one or more European sites, and it is not possible to predict impacts on a particular site. The integrity of a site hosting a priority natural habitat type / species may therefore be adversely affected by the strategy, therefore the imperative reasons for the strategy must be for reasons of human health, public safety or of primary importance to the environment.

In the case of the National FCERM Strategy, the failure to proceed with the strategy would mean that there would be no overall framework or co-ordination of the management of flood and coastal erosion risk in England. Without the National Strategy, the Environment Agency will not be able to set out how to take the lead in understanding, mapping and advising on all forms of flood and coastal erosion risk, how best it can be managed, finding new ways of reducing flood and coastal erosion risk and generally co-ordinating and integrating flood and coastal erosion risk planning.

¹⁸ This is also specified in Regulation 62(2) (a) and (b) of the Habitats Regulations.

A preliminary assessment of surface water flood risk has suggested that in total approximately one million properties are in areas susceptible to flooding from rivers and the sea¹⁹, and there are approximately 113,000 residential properties and 9,000 commercial properties at risk from coastal erosion²⁰. Such impacts and losses can undermine the viability of communities and have significant impacts on the economy. The impacts on deprived communities are likely to be greater as they are less likely to be insured, are likely to be in poorer health and are less able to finance a rapid recovery. This is likely to be exacerbated by climate change, predicted to result in sea level rise, increased storminess and increased peak river flows. Flood risk results not only from direct over-topping or failure of defences and flooding incidents, but restrictions on emergency services being able to assist the public and to reach casualties due to floodwaters.

The National FCERM Strategy is essential for the national co-ordination of all aspects of FCERM, including planning and co-ordinating effective emergency response, and managing existing and planning future FCERM infrastructure. Without the National FCERM strategy, there would be a significant risk to the viability of communities, material assets and infrastructure from flooding and coastal erosion, and ultimately increased risk to human health and public safety.

There are therefore considered to be imperative reasons for the strategy, for the reduction of risk to infrastructure, communities and the economy, and for the protection of human health and public safety.

These imperative reasons fulfil the requirements as stated in the Habitats Directive, being of fundamental importance for the long term protection of communities and infrastructure, therefore justifying the overriding public interest reasons, being of a social or economic nature. Furthermore, the imperative reasons are also for the protection of human health and of public safety across England, therefore satisfying the over-riding public interest requirements for sites that host priority natural habitat types / priority species.

Article 6(4) of the Habitats Directive dictates that, where there are imperative reasons of overriding public interest for the strategy, in order for the strategy to proceed, the appropriate authority must secure any necessary compensatory measures, to ensure that the overall coherence of the European sites [Natura 2000] is protected. The compensatory measures must be provided to balance the strategy's adverse effects on European sites, in order to ensure that the overall coherence of Natura 2000 is maintained. The compensatory measures tend to be in the form of compensatory habitat, to replace that which is considered likely to be lost from FCERM activities, although compensatory measures may comprise a wider range of approaches, depending on the type/s of the impact, the nature of the European site/s and the qualifying features affected.

In England, a national initiative is already established to fulfil the role of compensatory habitat provision, and is managed and run by the Environment Agency, through the development of the Habitat Creation Programme²¹. In liaison with other flood and coastal erosion risk management operating authorities, each region has developed, and maintains, a regional habitat creation strategy which is implemented through a habitat creation programme. These regional programmes have significant benefits as they bring a strategic, planned and pro-active approach to securing and creating new habitats to meet the compensatory measures requirements of the Habitats Directive.

The role of the habitat creation programmes is to coordinate habitat creation projects that are required through flood and coastal erosion risk management activities in England. They are divided into a series of regional habitat creation strategies and programmes, set out according to the Environment Agency regions. Each regional habitat creation strategy monitors habitat

¹⁹ Investing for the future. Flood and coastal risk management in England. A long-term investment strategy. Environment Agency.

²⁰ Defra Futurecoast report (2002).

²¹ Environment Agency 2009. Environment Agency Policy 1123_08. Regional habitat creation strategies. November 2009.

creation needs arising from FCERM plans and strategies, and coordinates searches for suitable land for habitat creation. Depending on the circumstances, land is either purchased or an agreement is drawn up with the land-owner to ensure habitats are created, and normally is likely to partner with a nature conservation organisation to deliver and manage the required habitats.

The regional habitat creation programmes each maintain a database to record and update information on all the relevant strategies and projects within the flood and coastal erosion risk management long-term plan. The database is updated as required to ensure all needs are captured. This allows reprioritisation to take account of changes in Shoreline Management Plans (SMPs) and FCERM strategies.

Where relevant, more detailed assessment of the likely gains and losses of habitats within European sites will be undertaken during the preparation of lower-tier FCERM strategies, and in this way the precise amounts of new habitat that need to be created can be confirmed. Compensation habitat requirements arising from FCERM strategies can be used to inform the relevant regional habitat creation strategy. The regional habitat creation programme will then ensure the creation of the required compensation habitats, and as far as reasonably practicable, will ensure that the timing of habitat creation will be such that the new habitats are in place in advance of losses.

A major element of the regional habitat creation programmes is the pro-active approach to identifying potential areas for creating new habitats. To help with this task, in a number of regions (Anglian, Southwest and Northeast) a GIS search tool has been developed to help identify suitable land. Suitable areas may also be visited by Environment Agency staff to make contact with landowners and undertake initial site assessments.

This nationally co-ordinated, and regionally based approach should help in the implementation of the flood and coastal erosion risk management plans, strategies and projects arising from the National FCERM Strategy, whilst ensuring a pro-active and co-ordinated approach to meeting the legal obligations of the Habitats Regulations.

As highlighted in section 3.2.1 and 3.2.4, at this national strategic scale, it is not possible to determine what the impacts of the National FCERM Strategy will be, until the development and implementation of lower-tier, spatially-based plans, strategies and projects. Logically, therefore, it is also not possible to determine at this stage exactly what compensation requirements will be necessary. Further definition and development of compensatory measures must therefore be deferred to a later stage of FCERM planning and HRA (see section 4 for further details).

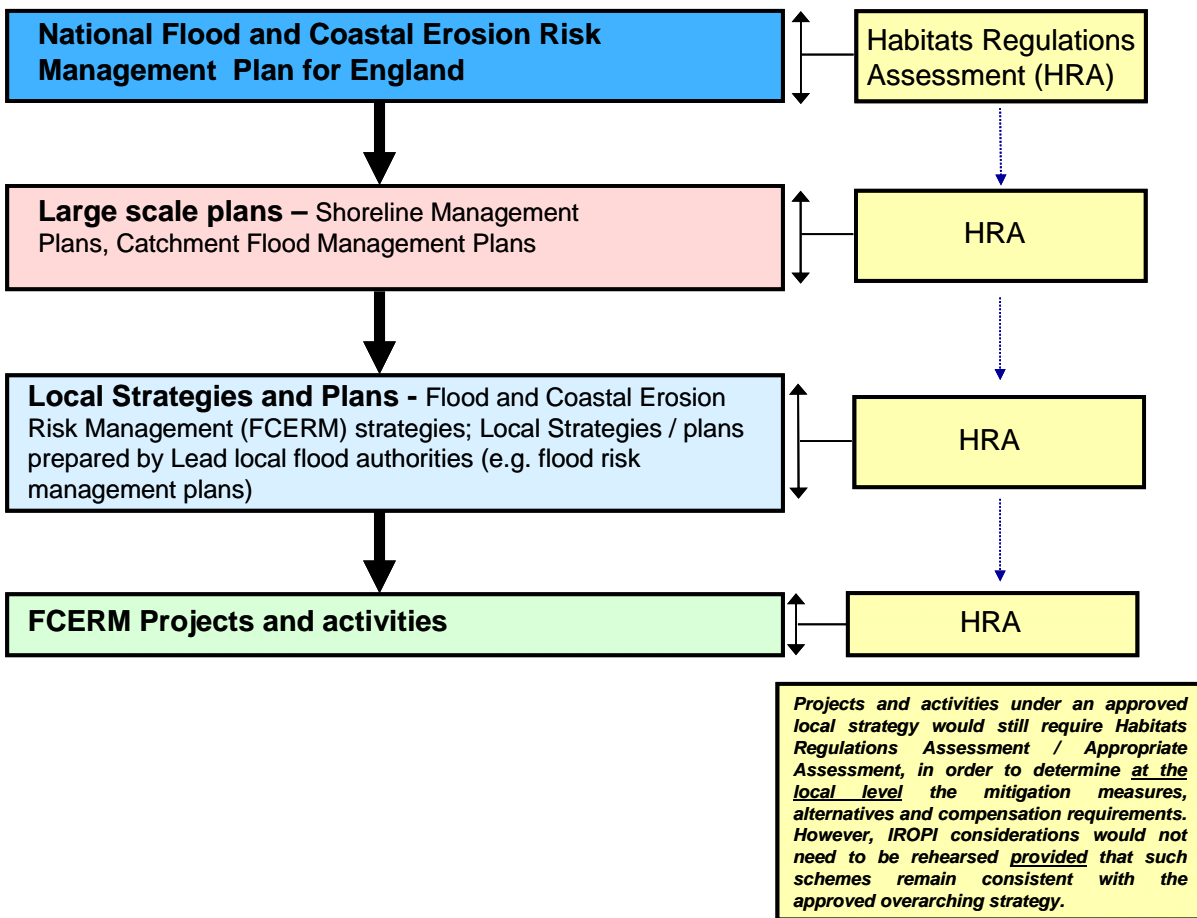
4 Hierarchy of Strategies and need for Further HRA

It is recognised that the National FCERM Strategy sets the strategic direction for managing flood and coastal erosion risk in England. However, on the basis that the strategy itself cannot be put into effect until lower-tier strategies, plans, projects or activities arising out of this National Strategy are implemented, the potential impacts of the strategy, within a spatial framework, cannot be fully determined, until more detailed assessment has taken place. Subsequent strategies, plans and projects arising from the National Strategy, will be subject to further Habitats Regulations Assessment, to demonstrate that they have met the requirements of the Habitats Regulations.

This HRA report can be used to provide an overview of the requirements and various stages of the HRA process, and also highlights the European sites that could be affected by the FCERM Strategy. The report provides reference to the sources of information for European sites, their qualifying interests and conservation objectives, provides an overview of the types of impacts that may arise from FCERM activities, and also describes the approaches set out in the strategy to avoid and mitigate of impacts where they may occur.

However, this does not negate the need for assessment of impacts on specific areas or for particular designated European sites where they may be affected by FCERM activities. These area or site-specific issues are best addressed by Habitats Regulations Assessment alongside the development of lower-tier strategies, plans or projects (see Figure 2 below). Each HRA should make its own assessment of the relevant effects. Development of the understanding of the FCERM impacts on a European site or sites, and appropriate mitigation to address it, can be developed in the most effective and co-ordinated manner.

Figure 2 Hierarchy of FCERM Strategies and Plans and relationship to HRA Process



5 Summary and conclusions

A Habitats Regulations Assessment of the National FCERM Strategy for England has been developed by the Environment Agency and Defra, in consultation with Natural England. The Countryside Council for Wales (CCW) and Scottish Natural Heritage (SNH) were also consulted.

This Habitats Regulations Assessment (HRA) has been carried out in a manner which is consistent with the non-spatial, strategic nature of the National FCERM Strategy. Given the high-level national basis of this strategy, the detail of where lower-tier plans, strategies, projects and FCERM activities will be implemented is not yet known.

Separate HRAs will be needed alongside the consideration and development of the subsequent lower-tier plans and strategies, and any individual projects that are proposed under these plans, where designated European sites are likely to be affected.

The National FCERM Strategy is not directly connected with or necessary to the management of any European site. The assessment of 'likely significant effect' of the strategy has not been able to conclude without reasonable doubt that the strategy will not result in significant effect on one or more European sites. Therefore an Appropriate Assessment of the strategy has been carried out.

At this national strategic level, it is not possible to predict or describe all potential impacts associated with the different activities, plans and strategies that will result from the National FCERM Strategy. A range of potential generic impact types may arise, that may pose risk to the qualifying features and conservation objectives of European sites.

An important point to note is that through the development of innovative FCERM solutions, working with natural processes, as advocated by the National FCERM Strategy, there will be potential benefits for European sites, as well as performing flood or erosion risk management functions.

The National FCERM Strategy records a series of methods, measures and approaches that should avoid or minimise the risk of impacts, either of likely significant effect, or on European site integrity.

Despite the implementation of mitigation, it is not possible to be certain that there will not remain the possibility of adverse effects upon the integrity of one or more sites of European importance, either alone, or in combination with other plans or projects, arising from the implementation of the strategy.

Not developing a National FCERM Strategy is considered likely to result in greater impacts on European sites, and strategic opportunities to deliver improvements to favourable conservation status of European sites may not be realised. An alternative detailed prescriptive rules approach to the strategy (including criteria for European sites) is unlikely to have a lower impact on European sites. Furthermore, it will be in conflict with the strategic aims and objectives of the strategy, and is therefore not considered to be a feasible approach.

Given that there are no feasible alternative approaches that achieve the aims of the strategy, an assessment was made of the imperative reasons of overriding public interest for the strategy. Assessment of alternative solutions must still be considered as part of the Habitats Regulations Assessments that will accompany the lower-tier, spatially-based plans, strategies and projects.

The failure to proceed with the National FCERM Strategy would mean that there would be no overall framework or co-ordination of the management of flood and coastal erosion risk in England, which would ultimately result in both serious risk to infrastructure, human health and public safety, and unacceptable social / economic consequences. With the increasing risk from flooding and coastal erosion exacerbated as a result of climate change, this risk will only

increase over time. It is therefore considered that there are imperative reasons of overriding public interest for the strategy.

Without information regarding the likely extent of any effects on integrity on individual European sites as a result of activities stemming from the National FCERM Strategy, it is not possible to predict what compensatory measures might be appropriate in individual cases. Such measures will be expected to be identified at suitable locations at the project level, or alternatively if the same conclusion is made following HRAs of the more spatially specific local FCERM strategies.

Compensatory measures are, in the majority of cases, likely to be in the form of compensatory habitat to replace that which is considered likely to be lost from FCERM activities arising from the strategy. A national programme in England is already established to fulfil this role, the Habitat Creation Programme managed and run by the Environment Agency. This comprises a series of regional programmes capable of delivering on a strategic basis, the compensatory habitat necessary to compensate for any habitats lost as a result of FCERM plans, strategies and projects.

Subsequent strategies, plans and projects arising from the National Strategy, will need to be subject to further Habitats Regulations Assessment, to demonstrate that they have met the requirements of the Habitats Regulations, including satisfaction of IROPI tests and provision of compensatory measures, where required.

Appendix 1 **Maps of SACs, SPAs and Ramsar sites in England** ²²

²² The data used to produce the following maps are subject to the following: © Crown Copyright. All rights reserved. Environment Agency, 100026380, [2011]; © Crown copyright. All rights reserved. English Nature, 100017954 [2011]; © Crown copyright. All rights reserved. Countryside Council for Wales, 100018813 [2011]; © Crown copyright. All rights reserved. Scottish Natural Heritage, 100018813 [2011]; © Crown copyright. All rights reserved. Joint Nature Conservation Committee Support Co, 100017955 [2011].

Figure A1 Map of Special Areas Of Conservation (SACs) in England

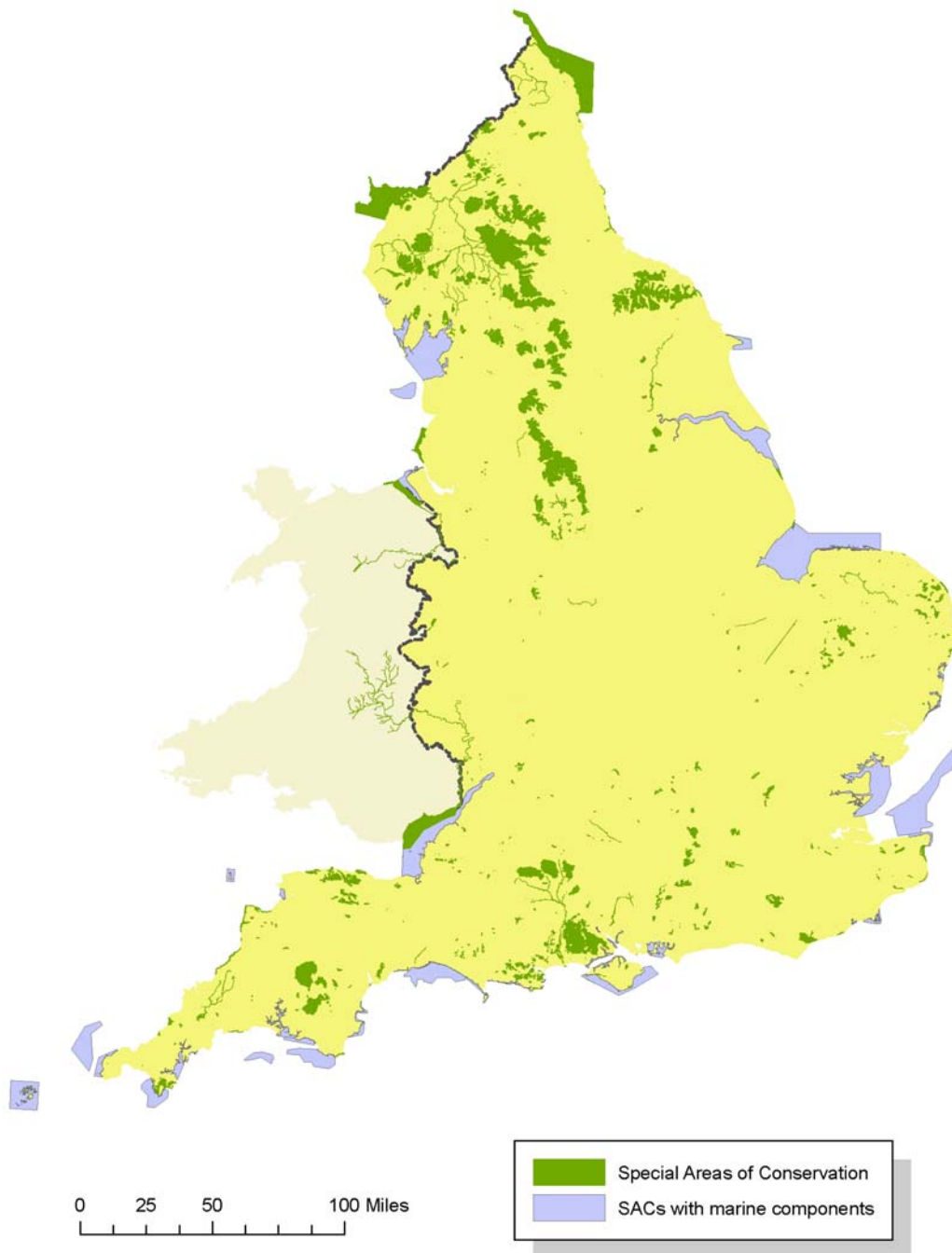


Figure A2 Map of Special Protection Areas (SPAs) in England

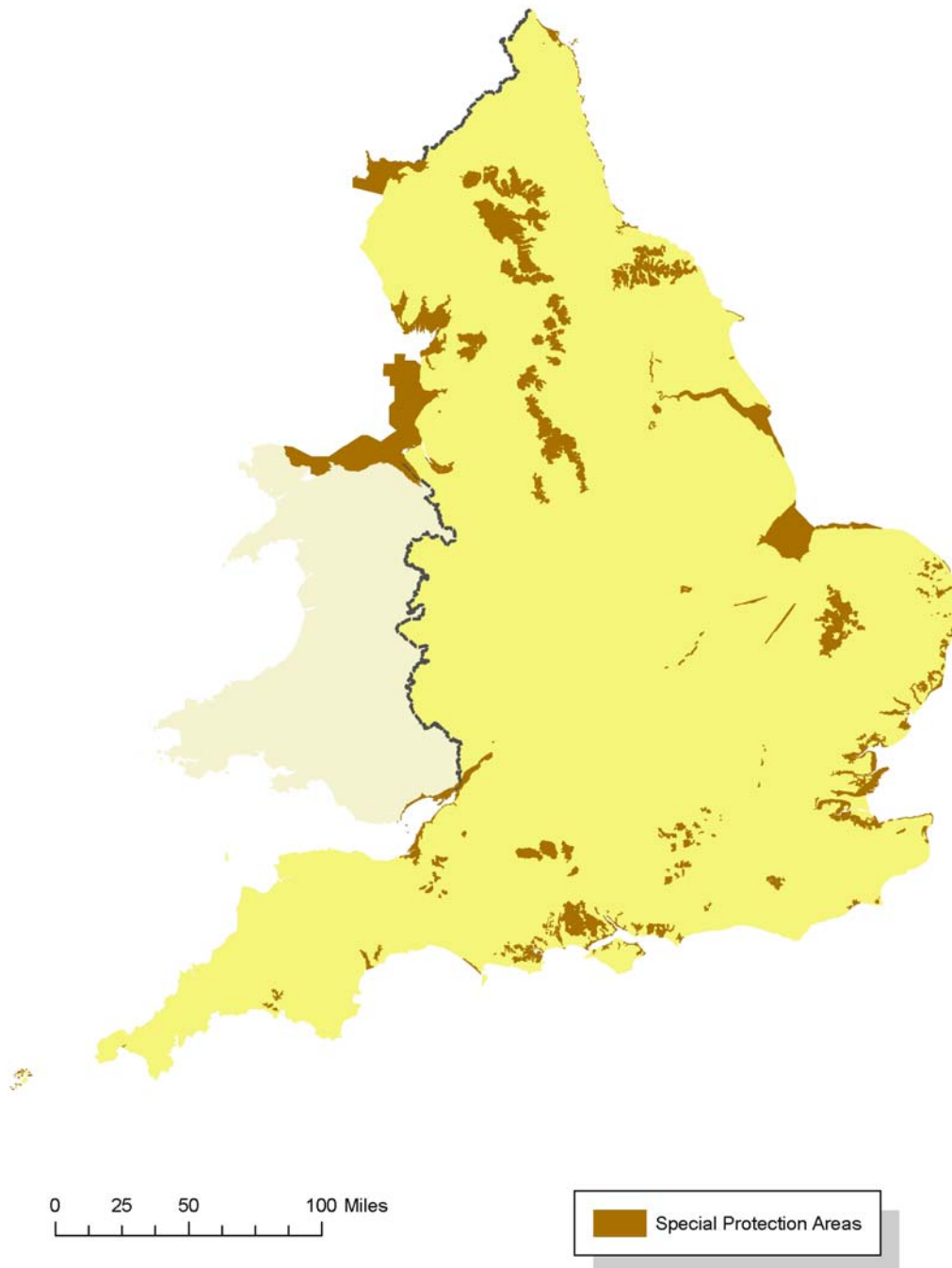


Figure A3 Map of Ramsar Sites in England



0 30 60 120 Miles

Ramsar sites

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