Severn Estuary Shoreline Management Plan Review

Appendix I: Part B - Habitat Regulations Assessment



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Severn Estuary Shoreline Management Plan Review
Habitats Regulations Assessment
March 2010

1. Introduction

The Severn Estuary Shoreline Management Plan Review (SMP2) has the potential to affect a number of European sites (Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites) located across the estuary. The European Union Birds Directive (79/409/EEC) and Habitats Directive (92/43/EEC) (under which these sites are designated) are implemented in the UK by the Conservation of Habitats and Species Regulations 2010 (SI 290) (also known as the Habitats Regulations), which consolidate and update the Conservation (Natural Habitats, &c.) Regulations 1994 (the 1994 Regulations).

Section 61 of the Habitats Regulations requires that a competent 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 in Great Britain (either alone or in combination with other plans or projects) shall make an appropriate assessment of the implications for the site in view of that site's conservation objectives.

This document is a record of the Habitats Regulations Assessment undertaken for the Severn Estuary Shoreline Management Plan Review (SMP2). In undertaking this assessment the Environment Agency EU Habitats and Birds Directive Handbook has been used to provide guidance on the approach to the assessment and the format of the report.

The HRA process can be broken down into four stages:

- Stage 1 : Determine whether the plan is relevant and identify the Competent Authority and scope which sites are going to be assessed, along with a rationale for decisions made;
- Stage 2 : Assess whether the plan is likely to have a significant effect on a European site alone or in combination with other plans or projects;
- Stage 3 : Where required, assess adverse effect on site integrity (Appropriate Assessment);
- Stages 4 & 5: Where the Appropriate Assessment (Stage 3) is unable to conclude that the plan or project does not adversely affect the integrity of the Natura 2000 site, the plan or project may only be adopted if it can be demonstrated that there are no alternative solutions that would have a lesser effect on the Natura 2000 site; and, if there are no alternative solutions, there must be imperative reasons of overriding public interest (IROPI) for adopting the plan or project; compensatory measures also need to be identified.

The HRA has been informed by predicted future changes in flood and erosion risk, derived from modelling and assessment undertaken as part of the development of the SMP2; this work is detailed in Appendix C of the SMP2 Report: Baseline Understanding of Coastal Behaviour and Dynamics.

One of the main impacts arising from the implementation of the SMP2 will be losses of intertidal habitat (Atlantic salt meadows and intertidal mud and sandlflats) potentially arising from options that hold the existing line of defence. In order to try to quantify and address this impact the Environment Agency has commissioned work undertaken as part of the development of the Severn Estuary Flood Risk Management Strategy (FRMS) (in progress). As part of this element of work the 2006 CHaMP model was updated with revised sea level predictions (Defra 2006), improved 1D-regime modelling techniques, and removal of the 18.6 year astronomical nodal cycle (which previously masked habitat impacts). This work has identified indicative figures for losses of intertidal habitat within each of the CHaMP habitat behaviour units (HBUs). Figures are based on the assumption that all existing defences and the current standard of protection are maintained, and as such presents a worst case

scenario for habitat loss arising from coastal squeeze. Further information on the modelling and results arising from it can be found in; Morphological Form of the Severn Estuary, February 2009, Atkins/ABPmer and the Severn Estuary Flood Risk Management Strategy Habitat Delivery Plan, Atkins/ABPmer, April 2009.

2. Stage 1 Assessment

2.1 Consideration of Sites

Due to the fact that SMPs are considered by Defra, WAG, the Environment Agency, Natural England and CCW to fall within the criteria outlined within Regulation 61 of the Conservation of Habitats and Species Regulations 2010 (SI 290)), they require a Habitats Regulations Assessment (HRA) to be undertaken.

Within England, the Environment Agency is considered to be the competent authority for this HRA. WAG has confirmed that it will be the competent authority within Wales.

Due to the magnitude of the estuary and the scale of physical processes involved, it was considered possible that the effects of implementing the SMP2 could extend beyond the boundary of the study area. Therefore the area included within this initial Stage extends beyond the SMP2 study area, and is bounded in the east by the tidal extent of the River Severn north of Gloucester, and in the west by St Govan's Head (north) and Hartland Point (south); in addition, sites which might potentially be hydrologically connected with the Severn Estuary or its tidal tributaries, sites with mobile features such as birds or bats which could be affected by the SMP2, or those which have a clear ecological connection with the estuary have also been included. The 30 sites considered within this Stage are listed below:

- Severn Estuary/Mor Hafren SAC
- Severn Estuary/Mor Hafren SPA
- Severn Estuary/Mor Hafren Ramsar
- River Usk/Afon Wysg SAC
- River Wye/Afon Gwy SAC
- Somerset Levels and Moors SPA
- Somerset Levels and Moors Ramsar
- Limestone Coast of South West Wales/ Arfordir Calchfaen de Orllewin Cymru SAC
- River Tywi/Afon Tywi SAC
- Pembrokeshire Marine/Sir Benfro Forol SAC
- Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC
- Carmarthen Bay/ Bae Caerfyrddin SPA
- Carmarthen Bay Dunes/Twyni Bae Caerfyrddin SAC
- Castlemartin Coast SPA
- Burry Inlet SPA Ramsar
- Dunraven Bay SAC
- Crymlyn Bog SAC Ramsar
- Kenfig/Cynffig SAC
- Wye Valley Woodlands/ Coetiroedd Dyffryn Gwy SAC
- Wye Valley and Forest of Dean Bat sites / Safleoedd Ystlumod Dyffryn Gwy a Fforest y Ddena SAC
- Walmore Common SPA, Ramsar
- Avon Gorge Woodlands SAC
- North Somerset and Mendip Bat SAC
- Mendip Limestone Grasslands SAC
- Mendip Woodlands SAC

- Exmoor Heaths SAC
- Exmoor and Quantocks Oak Woods SAC
- Tintagel Marsland Clovelly Coast SAC
- Braunton Burrows SAC
- Lundy SAC

Following an initial review of the sites' interest features (seeAnnex A) and conservation objectives the following sites were scoped out from further assessment; a brief justification as to why no impacts are considered likely is provided.

A. Although the following sites are hydraulically linked to the study area via the estuary they are outside the SMP2 study area and have been assessed as being unaffected by any changes in coastal processes.

- **Limestone Coast of South West Wales/ Arfordir Calchfaen de Orllewin Cymru SAC** - located at least 65 km downstream of study area
- **River Tywi/Afon Tywi SAC** - located more than 100km downstream of study area
- **Pembrokeshire Marine/Sir Benfro Forol SAC -** located approximately 110 km downstream of study area
- **Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC** - located approximately 80 km downstream of the study area.
- **Carmarthen Bay/ Bae Caerfyrddin SPA** - located approximately 80 km downstream of study area
- **Camarthern Bay Dunes/Twymi Bae Caerfyrddin SAC** - located approximately 85 km downstream of study area
- **Castlemartin Coast SPA** - located approximately 120 km downstream of study area
- **Burry Inlet SPA and Ramsar** - located approximately 74 km downstream of study area
- **Dunraven Bay SAC** - located approximately 30 km downstream of study area
- **Kenfig/Cynffig SAC** - located approximately 40 km downstream of study area

***Discussion of potential effects*:** the risk of tidal flooding or erosion of the sites will not increase as a result of the implementation of the SMP2. Any alterations to coastal processes that could potentially result from the implementation of SMP2 policies will typically be local in nature. The headland at Penarth will constrain impacts on coastal processes westwards along the estuary; any impacts from the Severn SMP2 would be small scale and local in nature when compared to the magnitude and complexity of processes operating at an estuary wide scale. Habitats, species and conservation objectives of the sites are therefore considered unlikely to be affected by the SMP2. Significant adverse in combination effects are also considered unlikely.

B. Crymlyn Bog SAC & Ramsar - located approximately 80 km downstream of study area; there is also potential for hydraulic connectivity via The Glan y Wern Canal and the Tennant Canal.

***Discussion of potential effects*:** The risk of tidal flooding of the site will not increase as a result of the implementation of the SMP2. Any alterations to coastal processes that could potentially result from the implementation of SMP2 policies will typically be local in nature; the headland at Penarth will constrain impacts on coastal processes westwards along the estuary. In addition, the site is approximately 600m inland and would be protected from any changes to

coastal erosional and depositional processes. Habitats, species and conservation objectives of the site are therefore considered unlikely to be affected by the SMP2. Significant adverse in combination effects are also considered unlikely.

C. Although the following sites are hydraulically linked to the study area via the estuary they are outside the SMP2 study area and have been assessed as being unaffected by any changes in coastal processes

- **Exmoor and Quantocks Oak Woods SAC -** located 40 km downstream of study area and elevated outside the flood risk area.
- **Exmoor Heaths SAC** - located 40 km downstream of study area and elevated outside the flood risk area.
- **Tintagel Marsland Covelly Coast SAC -** located approximately 120km downstream of the study area
- **Braunton Burrows SAC -** located 90 km downstream of study area
- **Lundy SAC -** located approximately 120km downstream of study area

***Discussion of potential effects*:** the implementation of the Severn SMP2 will not affect tidal ranges, coastal processes or flood risk west of the Middle Hope and Brean Down promontories. Any impacts from the Severn SMP2 would be very small scale both alone and in combination with other plans and projects and local in effect when compared to the magnitude and complexity of processes operating at an estuary wide scale. Habitats, species and conservation objectives of the sites are therefore considered unlikely to be affected by the SMP2.

D. Wye Valley Woodlands/ Coetiroedd Dyffryn Gwy SAC - A policy of No Active Intervention (NAI) is proposed for each of the reaches within the Wye policy unit. No increase in flood or erosion risk is predicted within any of the above reaches over the lifetime of the SMP2; natural processes will continue to dominate. The SAC comprises several woodland areas spread along the Wye Valley, predominantly within reaches WYE2 and 3. None of the sites are currently affected by tidal processes or flooding and this will remain the case in the future; within this section of the study area flood and erosion risk is not predicted to increase under an NAI policy; neither the woodland sites themselves nor associated bat foraging habitat within the area will be affected by the implementation of the SMP2 policies. Significant adverse in combination effects are also considered unlikely.

E. Wye Valley and Forest of Dean Bat Sites / Safleoedd Ystlumod Dyffryn Gwy a Fforest y Ddena SAC - A policy of NAI is proposed for each of the reaches within the Wye policy unit. No increase in flood or erosion risk is predicted within any of the above reaches over the lifetime of the SMP2; natural processes will continue to dominate and therefore no impacts are predicted. The SAC comprises several sites spread along the Wye Valley. None of the sites are currently affected by tidal processes or flooding and this will remain the case in the future; within this section of the study area flood and erosion risk is not predicted to increase under an NAI policy; neither the SACs nor associated bat foraging habitat within the area will be affected by the implementation of the SMP2 policies. Significant adverse in combination effects are also considered unlikely.

F. Walmore Common SPA and Ramsar

Options for policy units along this stretch of coast are as follows:

GLO5	GLO6	GL7	GLO8
HTL	NAI	HTL	HTL
The existing defence line will be maintained	Natural processes will continue to operate within this	The existing defence line will be maintained Given that a key	The existing defence line will be maintained Given

	reach. There is currently no flood or erosion risk within this reach and modelling indicates that this will not change in the future	transport route and a number of properties lie between the estuary and the site it has been assumed that the SoP will be retained or improved and the site will receive ongoing protection from tidal flooding	that a key transport route and a number of properties lie between the estuary and the site it has been assumed that the SoP will be retained or improved and the site will receive ongoing protection from tidal flooding

An important habitat on the site is the grassland, which is maintained by grazing and natural freshwater winter flooding which is in turn determined by rainfall, run-off and river levels. The marshy grassland and ditches are maintained and enhanced by maintaining high water levels from spring to autumn through the implementation of a water level management plan The site currently has roughly a 1 in 200 year standard of protection from tidal flooding. With a HTL policy at GL7, it has been assumed that the standard of protection offered to the site will be maintained or increased. The site will not be at risk from tidal flooding and/or erosion. Sea level rise may result in increased tide locking of land behind the defences, however this would be as a result of sea levels rise, not the implementation of the SMP2 The feature of the site (Bewick's Swan) and the habitats that support them will be unaffected by the preferred policy options. However the SMP2 does not identify the standard of flood protection to be provided by flood defences; this will be addressed by the Severn Flood Risk Management Strategy (FRMS). This assessment has concluded no likely significant effects on the SAC and Ramsar site at the SMP2 level, however the potential for impacts will be reviewed as part of the HRA for the FRMS, when further information on the standard of protection from tidal flooding to be provided will be available. Significant adverse in combination effects are considered unlikely.

G. Avon Gorge Woodlands SAC - A Hold the Line policy is proposed for all the reaches within the policy unit. There is currently no flood or erosion risk within this reach and this will not change in the future. The SAC is located adjacent to the River Avon on both the left and right banks within Policy Units BRIS 4 and 5. The site is currently unaffected by tidal processes and this will remain the case under the preferred policy. None of the habitats for which the site is designated nor the sites' conservation objectives will be affected. Significant adverse in combination effects are also considered unlikely.

H. Mendip Woodlands SAC - the SAC is a woodland site, over 41km from the coast. The site is more than 40km outside the tidal floodplain and this situation is predicted to continue over the lifetime of the SMP2. The Annex I feature for which the site is designated (*Tilio-Acerion* forests) will not be affected by the SMP2. Significant adverse in combination effects are also considered unlikely.

2.2 Conclusion of Stage 1 Assessment

Likely significant adverse effects on the following sites could not be ruled out at this stage and they have therefore been carried forward for further assessment at Stage 2 (Section 3):

- Severn Estuary/Mor Hafren SPA
- Severn Estuary/Mor Hafren Ramsar
- Severn Estuary/Mor Hafren SAC
- River Usk/Afon Wysg SAC
- River Wye / Afon Gwy SAC
- Somerset Levels and Moors SPA and Ramsar
- North Somerset and Mendip Bat SAC

- Mendip Limestone Grasslands SAC

3. Stage 2 Assessment

This Section assesses whether the SMP2 is likely to have a significant effect on any of the European sites carried through from Stage 1, either alone or in combination with other plans or projects. The results of the Stage 2 assessment are presented in the table below:

Record of Assessment of Likely Significant Effect On European Sites (Stage 2)	
1. Type of permissions/activities:	Severn Estuary SMP2
2. Brief description of proposals:	Shoreline Management Plans set high level policy approaches for the future management of flood and erosion risk along coastline, typicsally over a 100 year timeframe. SMPs allow the development of strategy plans to be prioritised. The Severn SMP2 is a review of the Severn SMP (2000) and has divided the Severn Estuary study area into policy units, with one of four **policy options** being applied to each unit: • Hold the existing defence line (HTL); • Advance the existing defence line (ATL); • Managed realignment - identifying a new shape for the shoreline and actively managing change (MR); • No Active Intervention - a decision not to invest in providing or maintaining defences (NAI). Preferred SMP2 policy options are listed in Annex B. This HRA concentrates on the impacts of the proposed SMP2 policies on the European and international sites identified rather than project level impacts that may occur as a result of implementing these policies. There will be a need to carry out more detailed, project level HRAs on specific development proposals and these may ultimately influence the implementation of specific policies on a site by site basis.
European site name(s) and status:	
There are a number of sites, namely Severn Estuary SPA/SAC/Ramsar, River Usk SAC, River Wye SAC, North Somerset and Mendip Bat SAC, Mendip Limestone Grasslands SAC and the Somerset Levels and Moors SPA/Ramsar where Stage 1 identified that a further assessment of hazards and potential effects was required and this is detailed in Section 6. Conservation objectives for all these sites can be obtained from CCW and NE.	

Qualifying Features of International Importance:	
Severn Estuary/Mor Hafren SPA	
Total area of site: 24662.98 ha	**Annex 1 species**: Bewick's swan (*Cygnus columbianus bewickii*) **(3.4, 3.6, 3.7, 3.8)** Internationally important populations of regularly occurring migratory bird species: European white-fronted goose (*Anser albifrons albifrons*) **(3.6, 3.7, 3.8, 3.9)** Dunlin (*Calidris alpine alpine*) **(3.4, 3.7, 3.8, 3,9)** Redshank (*Tringa totanus*) **(3.4, 3.7, 3.8, 3.9)** Shelduck (*Tadorna tadorna*) **(3.6, 3.8, 3.9)** Gadwall (*Anas strepera*) **(3.6)** Curlew (*Numenius arquata*) **(3.4, 3.7, 3.8, 3.9)** Pintail (*Anas acuta*) **(3.6, 3.8, 3.9)** Ringed plover (*Charadrius hiaticula*) **(3.6, 3.8, 3.9)** Internationally important assemblage of waterfowl populations ***(3.4, 3.6, 3.7, 3.8, 3.9)***

	Reference numbers as used in EA HRA Handbook: 3.4 = Birds of lowland wet grasslands 3.6 = Birds of lowland freshwaters and their margins 3.7 = Birds of farmlandb 3.8 = Birds of coastal habitats 3.9 = Birds of estuarine habitats

Severn Estuary/Mor Hafren Ramsar	
Total area of site: 24662.98 ha	**Ramsar criterion 1 :** immense tidal range (second – largest in world), this affects both the physical environment and biological communities. **(Estuarine and intertidal habitats : 1.12)** **Ramsar criterion 3** unusual estuarine communities, reduced diversity and high productivity**. (Estuarine and intertidal habitats : 1.12).** **Ramsar criterion 4 :** important for the run of migratory fish between sea and river via estuary. Species include Salmon (*Salmo salar)*, sea trout (*S. trutta)*, sea lamprey (*Petromyzon marinus)*, river lamprey (*Lampetra fluviatilis)*, allis shad (*Alosa alsoa)*, twaite shad (*A. failax)*, and eel (*Anguilla Anguilla)* **(Anadromous fish : 2.5)** **Ramsar criterion 8 :** the fish assemblage of the whole estuarine and river system is one of the most diverse in Britain, with over 110 species recorded (**Non-migratory fish and invertebrates of rivers: 2.6).** **Ramsar criterion 6:** regularly supports 1% of the individuals in a population of one species or subspecies of waterbird. Species with peak counts in winter: Bewick's swan (*Cygnus columbianus bewickii*) **(3.4, 3.6, 3.7, 3.8)** European white-fronted goose (*Anser albifrons albifrons*) **(3.6, 3.7, 3.8, 3.9)** Dunlin (*Calidris alpine alpine*) **(3.4, 3.7, 3.8, 3,9)** Redshank (*Tringa totanus*) **(3.4, 3.7, 3.8, 3.9)** Shelduck (*Tadorna tadorna*) **(3.6, 3.8, 3.9)** Gadwall (*Anas strepera*) **(3.6)** Ringed plover (*Charadrius hiaticula*) **(3.6, 3.8, 3.9)** Teal (*Anas crecca*) (**3.4, 3.6, 3.8, 3.9)** Pintail (*Anas acuta*) **(3.6, 3.8, 3.9)** Lesser black-backed gull (*Larus fuscus*) **(3.6, 3.8, 3.9)** Pochard(*Aythya ferina*) **(3.3, 3.6, 3.8, 3.9)** Tufted Duck (*Aythya fuligula*) **(3.6)** Grey Plover (*Pluvialis squatarola*) **(3.4, 3.7, 3.8, 3.9)** Curlew (*Numenius arquata*) **(3.4, 3.7, 3.8, 3.9)** Whimbrel (*Numenius phaeopus*) **(3.6, 3.9)** Wigeon (*Anas penelope*) **(3.6, 3.7, 3.8, 3.9)** **Ramsar criterion 5 : S**upports an assemblage of international importance – (1998/99-2002/2003 5 year peak mean was 70,919 waterfowl) **(3.4, 3.6, 3.7, 3.8, 3.9).** **Reference numbers as used in EA HRA Handbook:** 3.4 = Birds of lowland wet grasslands 3.6 = Birds of lowland freshwaters and their margins 3.7 = Birds of farmland 3.8 = Birds of coastal habitats 3.9 = Birds of estuarine habitats

Severn Estuary/Mor Hafren SAC	
Total area of site: 73715.4 ha	**Annex 1 Habitats** 1130 Estuaries (**Estuarine and intertidal habitats : 1.12**) 1110 Subtidal sandbanks (**Submerged marine habitats: 1.13**) 1140 Intertidal mudflats and sandflats (**Estuarine and intertidal habitats** : **1.12**) 1330 Atlantic salt meadows (**Estuarine and intertidal habitats : 1.12**) 1170 Reefs (**Submerged marine habitats: 1.13**) **Annex II species** 1099 River lamprey (*Lampetra fluviatilis*) **(Anadromous fish : 2.5)** 1095 Sea lamprey *(Petromyzon marinus)* **(Anadromous fish : 2.5)** 1103 Twaite shad (*Alosa fallax*) **(Anadromous fish : 2.5)**

River Usk/Afon Wysg SAC	
Total area of site: 1007.71 ha	**Annex I Habitats** 3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation (**Riverine habitats and running waters: 1.1)** **Annex II species** 1095 Sea Lamprey (*Petromyzon marinus*) **(Anadromous fish : 2.5)** 1096 Brook Lamprey (*Lampetra planeri*) **(Anadromous fish : 2.5)** 1099 River Lamprey (*Lampetra fluviatilis*) **(Anadromous fish : 2.5)** 1103 Twaite shad (*Alosa fallax*) **(Anadromous fish : 2.5)** 1106 Atlantic salmon (*Salmo salar*) **(Anadromous fish : 2.5)** 1163 Bullhead (*Cottus gobio*) (**Non-migratory fish and invertebrates of rivers: 2.6)** 1355 Otter (*Lutra lutra*) (**Mammals of riverine habitats: 2.9)** 1102 Allis shad (*Alosa alosa*))**(Anadromous fish : 2.5)**

River Wye / Afon Gwy SAC	
Total area of site: 2234.89 ha	**Annex I habitats** 3260 Riverine habitats & running waters (Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation) **(Riverine habitats and running waters: 1.1)** 7140 Transition mires and quaking bogs **(Bogs and wet habitats: 1.2)** **Annex II species** 1092 White-clawed (or Atlantic stream) crayfish (*Austropotamobius pallipes*) **(Non-migratory fish and invertebrates of rivers: 2.6)** 1095 Sea Lamprey (*Petromyzon marinus*) **(Anadromous fish : 2.5*)*** 1096 Brook Lamprey(*Lampetra planeri*) (**Non-migratory fish and invertebrates of rivers: 2.6)** 1099 River Lamprey (*Lampetra fluviatilis*) **(Anadromous fish : 2.5)** 1103 Twaite shad (*Alosa fallax*) **(Anadromous fish : 2.5)** 1106 Atlantic salmon (*Salmo salar*) **(Anadromous fish : 2.5)** 1163 Bullhead (*Cottus gobio*) **(Non-migratory fish and invertebrates of rivers: 2.6)** 1355 Otter (*Lutra lutra*) (**Mammals of riverine habitats: 2.9)**

Somerset Levels and Moors SPA and Ramsar	
Total area of site: SPA: 6388.49 ha Ramsar: 6388.49ha	**Somerset Levels and Moors SPA** Supports the following species of birds overwinter: Bewick's swan (*Cygnus columbianus bewickii*) (2.7% of wintering population in GB) **(3.4, 3.6, 3.7, 3.8)** Golden Plover (*Pluvialis apricaria*) (1.2% of wintering population in GB) **(3.4, 3.7, 3.8, 3.9)**

	Supports the following species overwinter: Teal (*Anas crecca*) (3.3% of the population) **(3.4, 3.6, 3.8, 3.9)** Lapwing (*Vanellus vanellus*) (0.5% of the population) **(3.4, 3.7, 3.9)** Supports species which are considered internationally important assemblage of waterfowl populations. **(3.4, 3.6, 3.7, 3.8, 3.9).** **Somerset Levels and Moors Ramsar** **Ramsar criterion 2 :** Supports 17 species of British Red Data Book invertebrates. **Ramsar criterion 5 :** Assemblages of international importance species with peak counts in winter: 70919 waterfowl (5 year peak mean 1998/99-2002/2003) **(3.4, 3.6, 3.7, 3.8, 3.9).** **Ramsar criterion 6 :** Species occurring at internationally important levels. Species with peak counts in winter: Bewick's swan (*Cygnus columbianus bewickii*) **(3.4, 3.6, 3.7, 3.8)** Teal (*Anas creecca*) **(3.4, 3.6, 3.8, 3.9)** Northern lapwing (*Vanellus vanellus*) **(3.4, 3.7, 3.9)** Species with possible future consideration under criterion 6. Species with peak counts in winter: Mute swan (*Cygnus olor*) **(3.6, 3.9)** Widgeon (*Anas penelope*) **(3.6, 3.7, 3.8, 3.9)** Pintail (*Anus acuta*) **(3.6, 3.8, 3.9)** Northern shoveler (*Anas clypeata*) ***(3.6, 3.9)*** Reference numbers as used in EA HRA Handbook 3.4 = Birds of lowland wet grasslands 3.6 = Birds of lowland freshwaters and their margins 3.7 = Birds of farmland 3.8 = Birds of coastal habitats 3.9 = Birds of estuarine habitats

North Somerset and Mendip Bat SAC	
Total area of site: 151.19ha	**Annex I habitats** 6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*) **(1.7 Dry grassland**) 9180 *Tilio-Acerion* forests of slopes, screes and ravines (Priority feature) (**1.6 Dry woodlands and scrub**) 8310 Caves not open to the public **Annex II species** 1303 Lesser horseshoe bat (*Rhinolophus hipposideros*) (**2.8 Mammals of woodland habitats**) 1304 Greater horseshoe bat (*Rhinolophus ferrumequinum*) **2.8 Mammals of woodland habitats**

Mendip Limestone Grasslands SAC	
Total area of site: 417.47ha	**Annex I habitats** 6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*) **(1.7 Dry grassland)** 9180 *Tilio-Acerion* forests of slopes, screes and ravines (Priority feature) (**1.6 Dry woodlands and scrub**) 8310 Caves not open to the public 4030 European dry heaths (**1.5 Dry heathland habitat**) **Annex II species** 1304 Greater horseshoe bat (*Rhinolophus ferrumequinum*) (**2.8 Mammals of**

	woodland habitats)

5. Is the proposal directly connected with or necessary to the management of the sites for nature conservation?	No

6. What potential hazards are likely to affect the interest features?

Key impacts that could potentially arise as a result of the implementation of the SMP2 and that have been taken into consideration in undertaking this screening exercise are summarised below :

Changes in physical regime, flow or velocity regime: including coastal or estuarine erosion or deposition and altered flooding regimes.

Changes to water chemistry: resulting from alterations in salinity or an increased risk of pollution (e.g. as a result of increased risk of flooding of current or historical landfill sites or other contaminated land)

Habitat severance : resulting for example from retreat of defences or construction of new defences

Disturbance: including to features within and adjacent to the site e.g. during construction or maintenance

Habitat loss/physical damage: potentially resulting from: coastal squeeze, sea level rise, the footprint of new defences or retreat of the defence line. Estimates of potential habitat loss have been based on work undertaken by Atkins and ABPmer as part of the Severn FRMS. Further information can be found in: Severn Estuary Flood Risk Management Strategy - Habitat Delivery Plan (2009) Atkins/ABPmer and Predicted Morphological Form of the Severn Estuary (February 2009) Atkins/ABPmer.

In undertaking the assessment a number of assumptions have been made:

- In assessing likely impacts of sea level rise, Defra 2006 predictions have been used which give an overall predicted increase in sea level for the Severn of 1m by 2105.

- The HRA has been informed by predicted future changes in flood and erosion risk, derived from modelling and assessment undertaken as part of the development of the SMP2; this work is detailed in Appendix C of the SMP2 Report: Baseline Understanding of Coastal Behaviour and Dynamics.

- The Environment Agency has commissioned work as part of the development of the Severn Estuary FRMS (in progress) to investigate predictions of habitat loss and compensation issues in more detail. As part of this of work, the 2006 CHaMP model was updated with revised sea level predictions (Defra 2006), improved 1D-regime modelling techniques, and removal of the 18.6 year astronomical nodal cycle (which previously masked habitat impacts). This work has identified indicative figures for losses of intertidal habitat within each of the CHaMP habitat behaviour units. Figures are based on the assumption that all existing defences and the current standard of protection are maintained, and as such presents a worst case scenario for habitat loss arising from coastal squeeze. Further information on the modelling and results arising from it can be found in; Morphological Form of the Severn Estuary, February 2009, Atkins/ABPmer and the Severn Estuary Flood Risk Management Strategy Habitat Delivery Plan, Atkins/ABPmer, April 2009.

- A Hold the Line policy does not necessarily mean that the current standard of protection will be maintained and it could decrease or increase instead. However the SMP2 does not look at how the Hold the Line option will be implemented (i.e. what standard of protection will be provided). Whether or not a Hold the Line policy will result in a decrease in the standard of protection will not be apparent until the FRMS is completed. The Severn FRMS and the HRA undertaken to document its effects on the European sites will review this HRA and identify and assess impacts in more detail, and address any adverse impacts. However, it is logical to conclude that a Hold the Line policy will result in costal squeeze and loss of intertidal habitats.

- Advance the line is not proposed for any policy units within the study area; the potential impacts of this policy option will therefore not be considered further within this assessment.

- This assessment is being undertaken at the strategic level and will therefore focus on the potential impacts of the SMP2 policies once implemented; impacts that could potentially result during the construction phase of any of the policy options have not been considered in detail within this HRA. Exceptions have been made where CCW and NE have requested the consideration of specific construction issues known to present a significant risk to the sites including: historic contamination on the Usk and disturbance to birds along the Gwent and Somerset Levels. An HRA of the Severn FRMS will be undertaken to assess potential impacts resulting from this next tier of planning; in addition, more detailed project level HRAs will be undertaken on specific development proposals and these may ultimately influence the implementation of specific policies on a site by site basis.

Severn Estuary SPA and Ramsar		
Severn Estuary SPA and Ramsar: The site extends through much of the study area and could be affected by the implementation of all three of the SMP2 policy options		
Sensitive Interest Feature	Potential Hazard	Potential exposure to Hazard and mechanism of effect/impact if known
Birds of lowland wet grasslands (3.4) **Severn Estuary SPA, Ramsar**: Bewick's swan, Dunlin, Redshank, Curlew, waterfowl (>20,000) **Severn Estuary Ramsar only**: Teal, Grey plover	Change in physical regime, flow or velocity regime	**No Active Intervention** and/or **Managed Realignment.** No direct impact on the designated bird species assemblage but potential to alter physical processes and affect habitats on which species are dependent for feeding and roosting. Impacts may affect the long term survival of individuals or alter behaviour and pattern of use or distribution: **Alone: LSE** **In combination**: None of the plans and projects reviewed are considered likely to result in increased inundation of freshwater habitats**: No LSE** **Hold the Line** Assuming the standard of protection is maintained or increased, raised sea levels could potentially increase the amount of time outfalls and drainage ditches are tide locked, temporarily increasing freshwater levels behind the defence. This impact could benefit wet grassland and species it supports. However, increased tide locking would occur as a result of sea level rise rather than implementation of the strategy. Given the extensive tidal range of the estuary any increase in tide locking is not anticipated to be great enough to result in a significant effect on habitats: **Alone and in combination No LSE** If standard of protection decreases, potential impacts would be as for NAI and MR. However the SMP does not specify how the HTL policy will be implemented, neither does it identify the SoP to be provided. Therefore at this stage it is not possible to identify whether impacts could occur or not. The potential for impacts to occur will be reviewed as part of the HRA for the FRMS which will address how HTL will be implemented including option alignments and SoP: **Alone: Uncertain – it is not possible to rule out the likelihood of LSE (Alone) at SMP2 level, further review to be undertaken at FRMS stage.** **In combination** : effects unlikely as potentials impacts associated with increased overtopping of defences: **No LSE**

	Changes in water chemistry	**All Options** No major changes in the water quality of the Severn Estuary will result from the implementation of any of the SMP2 policies, due the limited extent of contamination present around the estuary and the large volume of water flowing through the estuary on each tidal cycle which would serve to dilute any local pollution event: **Alone and in combination No LSE** **No Active Intervention** and/or **Managed Realignment** could result in increased tidal inundation and salinisation of terrestrial habitats with potential knock on effects for the birds using the habitats; these habitats may be outside the European sites but could be supporting habitats for qualifying bird features: **Alone**: **LSE** **In combination: None of the plans and projects reviewed are considered likely to result in increased inundation of freshwater habitats: No LSE** **Hold the Line:** assuming the standard of protection is maintained or increased existing grassland habitat would be maintained, no anticipated long-term changes to habitat: **Alone and in combination No LSE** If standard of protection decreases, potential impacts would be as for NAI and HTL. However the SMP does not specify how the HTL policy will be implemented, neither does it identify the SoP to be provided. Therefore at this stage it is not possible to identify whether impacts could occur or not. The potential for impacts to occur will be reviewed as part of the HRA for the FRMS which will address how HTL will be implemented including option alignments and SoP: **Alone: Uncertain – it is not possible to rule out the likelihood of LSE (Alone) at SMP2 level, further review to be undertaken at FRMS stage.** **In combination** : effects unlikely as potentials impacts associated with increased overtopping of defences: **No LSE**
	Habitat Severance	**Hold the Line:** defences maintained in current position so no habitat fragmentation : **Alone and in combination No LSE** **Managed Realignment**: realignment of defences would result in habitat loss or damage (see below) rather than habitat fragmentation: **Alone and in combination No LSE** **No Active Intervention** : **Alone and in combination No LSE**

	Disturbance	Improvement or maintenance works under a **Hold the Line or Managed Realignment** option have the potential to disturb birds through noise or visual disturbance. This can displace the birds from their feeding grounds. Disturbance can prevent the birds from feeding and in response they either a) decrease their energy intake at their present (disturbed) feeding site through displacement activity, or b) move to an alternative less favoured feeding site. Works will only be permitted at the appropriate time of year (only between April – September) to avoid the most sensitive time: **Alone and in combination No LSE** No Active Intervention : **Alone and in combination No LSE**
	Habitat Loss/ Physical Damage	**No Active Intervention/Managed Realignment**: Increased tidal inundation has the potential to change habitats, possibly resulting in areas of lowland grassland being reduced decreasing available habitat for species foraging and roosting: **Alone**: **LSE** **In combination:** None of the plans and projects reviewed are considered likely to result in increased inundation of freshwater habitats**: No LSE** **Hold the Line**: assuming the standard of protection is maintained or increased, the existing grassland habitat behind defence would be maintained: **Alone and in combination No LSE** If standard of protection decreases, potential impacts would be as for NAI and HTL. However the SMP does not specify how the HTL policy will be implemented, neither does it identify the SoP to be provided. Therefore at this stage it is not possible to identify whether impacts could occur or not. The potential for impacts to occur will be reviewed as part of the HRA for the FRMS which will address how HTL will be implemented including option alignments and SoP: **Alone: Uncertain – it is not possible to rule out the likelihood of LSE (Alone) at SMP2 level, further review to be undertaken at FRMS stage.** **In combination** : effects unlikely as potentials impacts associated with increased overtopping of defences: **No LSE**

		Potential for some minor habitat loss as a consequence of the increased footprint of the defence- if SoP maintained or increased. Also potential for more significant cumulative and in combination effects when all defences around the estuary are taken into consideration. The SMP2 does not specify how the HTL policy will be implemented so it is not possible to identify whether any impacts could occur or not. Further assessment to be undertaken as part of the FRMS. **Alone and in combination** : **Uncertain – it is not possible to rule out the likelihood of LSE at SMP2 level, further review to be undertaken at FRMS stage**
Birds of lowland freshwaters and their margins (3.6) **Severn Estuary SPA, Ramsar**: Bewick's,Swan White-fronted goose, Shelduck, Gadwall, Pintail , Ringed plover Waterfowl(>20, 000) **Severn Ramsar only**: Teal. Lesser black backed gull, Wigeon, Pochard, Tufted duck, Wimbrel	Change in physical regime, flow or velocity regime	**No Active Intervention** and/or **Managed Realignment.** No direct impact on the designated bird species assemblage but potential to alter physical processes and affect habitats on which species are dependent for feeding and roosting. Impacts may affect the long term survival of individuals or alter behaviour and pattern of use or distribution: **Alone: LSE** **In combination**: None of the plans and projects reviewed are considered likely to result in increased inundation of freshwater habitats**: No LSE** **Hold the Line** Assuming the standard of protection is maintained or increased, raised sea levels could potentially increase the amount of time outfalls and drainage ditches are tide locked, temporarily increasing freshwater levels behind the defence. However, increased tide locking would occur as a result of sea level rise rather than implementation of the strategy. Given the extensive tidal range of the estuary this increase is not anticipated to be great enough to result in a significant effect on habitats: **Alone and in combination No LSE**
		If standard of protection decreases, potential impacts would be as for NAI and HTL. However the SMP does not specify how the HTL policy will be implemented, neither does it identify the SoP to be provided. Therefore at this stage it is not possible to identify whether impacts could occur or not. The potential for impacts to occur will be reviewed as part of the HRA for the FRMS which will address how HTL will be implemented including option alignments and SoP: **Alone: Uncertain – it is not possible to rule out the likelihood of LSE (Alone) at SMP2 level, further review to be undertaken at FRMS stage.** **In combination** : effects unlikely as potentials impacts associated with increased overtopping of defences: **No LSE**

	Changes in water chemistry	**All Options** No major changes in the water quality of the Severn Estuary will result from the implementation of the SMP2, due to the limited extent of contamination present around the estuary and the large volume of water flowing through the estuary on each tidal cycle which would serve to dilute any local pollution event : **Alone and in combination No LSE** **No Active Intervention** and/or **Managed Realignment** could result in increased tidal inundation and salinisation of terrestrial habitats with potential knock on effects for the birds using the habitats; these habitats may be outside the European sites but could be supporting habitats for qualifying bird features: **Alone**: **LSE** **In combination**: None of the plans and projects reviewed are considered likely to result in increased inundation of freshwater habitats: **No LSE** **Hold the Line:** Assuming the standard of protection is maintained or increased, existing grassland habitat maintained, no anticipated long-term changes to habitat: **Alone and in combination No LSE** If standard of protection decreases, potential impacts would be as for NAI and HTL. However the SMP does not specify how the HTL policy will be implemented, neither does it identify the SoP to be provided. Therefore at this stage it is not possible to identify whether impacts could occur or not. The potential for impacts to occur will be reviewed as part of the HRA for the FRMS which will address how HTL will be implemented including option alignments and SoP: **Alone: Uncertain – it is not possible to rule out the likelihood of LSE (Alone) at SMP2 level, further review to be undertaken at FRMS stage.** **In combination** : effects unlikely as potentials impacts associated with increased overtopping of defences: **No LSE**
	Habitat Severance	**Hold the Line:** defences maintained in current position so no habitat fragmentation: **Alone and in combination No LSE** **Managed Realignment** : realignment of defences would result in habitat loss or damage (see below) rather than habitat fragmentation: **Alone and in combination No LSE** **No Active Intervention: Alone and in combination No LSE**

	Disturbance	Improvement or maintenance works under a **Hold the Line or Managed Realignment** option have the potential to disturb birds through noise or visual disturbance. This can displace the birds from their feeding grounds. Disturbance can prevent the birds from feeding and in response they either a) decrease their energy intake at their present (disturbed) feeding site through displacement activity, or b) move to an alternative less favoured feeding site. Works will only be permitted at the appropriate time of year (only between April – September) to avoid the most sensitive time: **Alone and in combination No LSE** **No Active Intervention**: **Alone and in combination No LSE**
	Habitat Loss/ Physical Damage	**No Active Intervention/Managed Realignment:** increased tidal inundation resulting in alterations to vegetation, habitats and the birds they support: **Alone**: **LSE** **In combination**: None of the plans and projects reviewed are considered likely to result in increased inundation of freshwater habitats**: No LSE** **Hold the line**: Assuming the standard of protection is maintained or increased, the defences are retained in place and will maintain freshwater and marginal habitats: **Alone and in combination No LSE** If standard of protection decreases, potential impacts would be as for NAI and HTL. However the SMP does not specify how the HTL policy will be implemented, neither does it identify the SoP to be provided. Therefore at this stage it is not possible to identify whether impacts could occur or not. The potential for impacts to occur will be reviewed as part of the HRA for the FRMS which will address how HTL will be implemented including option alignments and SoP: **Alone: Uncertain – it is not possible to rule out the likelihood of LSE (Alone) at SMP2 level, further review to be undertaken at FRMS stage.** **In combination** : effects unlikely as potentials impacts associated with increased overtopping of defences: **No LSE**

		Potential for some minor habitat loss as a consequence of the increased footprint of the defence - if SoP maintained or increased. Also potential for more significant cumulative and in combination effects when all defences around the estuary are taken into consideration. The SMP2 does not specify how the HTL policy will be implemented so it is not possible to identify whether any impacts could occur or not. Further assessment to be undertaken as part of the FRMS. **Alone and in combination** :**Uncertain – it is not possible to rule out the likelihood of LSE at SMP2 level, further review to be undertaken at FRMS stage**
Birds of farmland (3.7) **Severn Estuary SPA, Ramsar**: Bewick's Swan, White-fronted goose, Dunlin, Redshank, Curlew **Severn Estuary Ramsar only**: Teal, Grey plover	Change in physical regime, flow or velocity regime	**No Active Intervention** and/or **Managed Realignment.** No direct impact on the designated bird species assemblage but potential to alter physical processes and affect habitats on which species are dependent for feeding and roosting. Impacts may affect the long term survival of individuals or alter behaviour and pattern of use or distribution: **Alone: LSE** **In combination: None of the plans and projects reviewed are considered likely to result in increased inundation of freshwater habitats: No LSE** **Hold the Line** Assuming the standard of protection is maintained or increased, raised sea levels could potentially increase the amount of time outfalls and drainage ditches are tide locked, temporarily increasing freshwater levels behind the defence. However, increased tide locking would occur as a result of sea level rise rather than implementation of the strategy. Given the extensive tidal range of the estuary this increase is not anticipated to be great enough to result in a significant effect on habitats: **Alone and in combination No LSE** If standard of protection decreases, potential impacts would be as for NAI and HTL. However the SMP does not specify how the HTL policy will be implemented, neither does it identify the SoP to be provided. Therefore at this stage it is not possible to identify whether impacts could occur or not. The potential for impacts to occur will be reviewed as part of the HRA for the FRMS which will address how HTL will be implemented including option alignments and SoP: **Alone: Uncertain – it is not possible to rule out the likelihood of LSE (Alone) at SMP2 level, further review to be undertaken at FRMS stage.** **In combination** : effects unlikely as potentials impacts associated with increased overtopping of defences: **No LSE**

	Changes in water chemistry	**All Options** No major changes in the water quality of the Severn Estuary will result from the implementation of any of the SMP2 policies, due the limited extent of contamination present around the estuary and the large volume of water flowing through the estuary on each tidal cycle which would serve to dilute any local pollution event: **Alone and in combination No LSE** **No Active Intervention** and/or **Managed Realignment** could result in increased tidal inundation and salinisation of terrestrial habitats with potential knock on effects for the birds using the habitats; these habitats may be outside the European sites but could be supporting habitats for qualifying bird features: **Alone**: **LSE** **In combination**: None of the plans and projects reviewed are considered likely to result in increased inundation of freshwater habitats: **No LSE**
		Hold the Line: Assuming the standard of protection is maintained or increased, existing farmland habitat maintained, no anticipated long-term changes to habitat**: Alone and in combination No LSE** If standard of protection decreases, potential impacts would be as for NAI and HTL. However the SMP does not specify how the HTL policy will be implemented, neither does it identify the SoP to be provided. Therefore at this stage it is not possible to identify whether impacts could occur or not. The potential for impacts to occur will be reviewed as part of the HRA for the FRMS which will address how HTL will be implemented including option alignments and SoP: **Alone: Uncertain – it is not possible to rule out the likelihood of LSE (Alone) at SMP2 level, further review to be undertaken at FRMS stage.** **In combination** : effects unlikely as potentials impacts associated with increased overtopping of defences: **No LSE**
	Habitat Severance	**Hold the Line:** the defences will be maintained in current position so no habitat fragmentation**: Alone and in combination No LSE** **Managed Realignment:** realignment of defences would result in habitat loss or damage (see below) rather than habitat fragmentation: **Alone and in combination No LSE** No Active Intervention : **Alone and in combination No LSE**

	Disturbance	Improvement or maintenance works under a **Hold the Line or Managed Realignment** option have the potential to disturb birds through noise or visual disturbance. This can displace the birds from their feeding grounds. Disturbance can prevent the birds from feeding and in response they either a) decrease their energy intake at their present (disturbed) feeding site through displacement activity, or b) move to an alternative less favoured feeding site. Works will only be permitted at the appropriate time of year (only between April – September) to avoid the most sensitive time: **Alone and in combination No LSE** **No Active Intervention** : **Alone and in combination No LSE**
	Habitat Loss/ Physical Damage	**No Active Intervention/Managed Realignment:** increased tidal inundation resulting in alteration in vegetation and farmland habitats which could reduce suitability for feeding and roosting: **Alone**: **LSE** **In combination**: None of the plans and projects reviewed are considered likely to result in increased inundation of freshwater habitats: **No LSE** **Hold the Line**: assuming the standard of protection is maintained or increased the habitats beyond will be maintained and not damaged: **Alone and in combination No LSE** If standard of protection decreases, potential impacts would be as for NAI and HTL. However the SMP does not specify how the HTL policy will be implemented, neither does it identify the SoP to be provided. Therefore at this stage it is not possible to identify whether impacts could occur or not. The potential for impacts to occur will be reviewed as part of the HRA for the FRMS which will address how HTL will be implemented including option alignments and SoP: **Alone: Uncertain – it is not possible to rule out the likelihood of LSE (Alone) at SMP2 level, further review to be undertaken at FRMS stage.** **In combination** : effects unlikely as potentials impacts associated with increased overtopping of defences: **No LSE**

		Potential for some minor habitat loss as a consequence of the increased footprint of the defence- if SoP maintained or increased. Also potential for cumulative and in combination effects when all defences around the estuary are taken into consideration. The SMP2 does not specify how the HTL policy will be implemented so it is not possible to identify whether any impacts could occur or not. Further assessment to be undertaken as part of the FRMS. **Alone and in combination Uncertain – it is not possible to rule out the likelihood of LSE at SMP2 level, further review to be undertaken at FRMS stage**
Birds of coastal habitats (3.8) **Severn Estuary SPA, Ramsar:** Bewick's Swan, , White-fronted goose, Dunlin, Redshank, Shelduck, Curlew Pintail, Ringed plover, Waterfowl(>20, 000) **Severn Ramsar only**: Teal, lesser black backed gull, Wigeon, Pochard	Change in physical regime, flow or velocity regime	**No Active Intervention** and/or **Managed Realignment:** physical processes likely to result in an increase in coastal and intertidal habitats: **Alone and in combination No LSE** **Hold the Line** increased sea level and coastal squeeze could alter physical processes on the foreshore potentially drowning out intertidal habitats : **Alone and in combination** (with North Devon and Somerset and Swansea and Carmarthen Bay SMP2s) **LSE**
	Changes in water chemistry	**All Options**: No major changes in the water quality of the Severn Estuary will result from the implementation of the SMP2, due the limited extent of contamination present around the estuary and the large volume of water flowing through the estuary on each tidal cycle which would serve to dilute any local pollution event : **Alone and in combination No LSE**
	Habitat Severance	**Managed Realignment** would increase extent of coastal habitat; severance would not occur: **Alone and in combination No LSE** No Active Intervention : **Alone and in combination No LSE** **Hold the Line:** defences maintained in current position so no habitat fragmentation**: Alone and in combination No LSE**
	Disturbance	Improvement or maintenance works under a **Hold the Line or Managed Realignment** option have the potential to disturb birds through noise or visual disturbance. This can displace the birds from their feeding grounds. Disturbance can prevent the birds from feeding and in response they either a) decrease their energy intake at their present (disturbed) feeding site through displacement activity, or b) move to an alternative less favoured feeding site. Works will only be permitted at the appropriate time of year (only between April – September) to avoid the most sensitive time: **Alone and in combination No LSE** **No Active Intervention** : **Alone and in combination No LSE**

	Habitat Loss/ Physical Damage	**No Active Intervention/Managed Realignment:** Extent of coastal and intertidal habitat would increase : **Alone and in combination No LSE** **Hold the line**: sea level rise and coastal squeeze would result in the loss of intertidal habitats, potentially reducing bird feeding areas: **Alone and in combination (**with North Devon and Somerset and Swansea and Carmarthen Bay SMP2s) **LSE** Potential for some minor habitat loss as a consequence of the increased footprint of the defence - if SoP maintained or increased. Also potential for more significant cumulative and in combination effects when all defences around the estuary are taken into consideration. The SMP2 does not specify how the HTL policy will be implemented so it is not possible to identify whether any impacts could occur or not. Further assessment to be undertaken as part of the FRMS. **Alone and in combination Uncertain – it is not possible to rule out the likelihood of LSE at SMP2 level, further review to be undertaken at FRMS stage**
Birds of estuarine habitats (3.9) **Severn Estuary SPA, Ramsar:** White-fronted goose, Dunlin, Redshank, Shelduck, Curlew, Pintail,Ringed Plover) Waterfowl(>20, 000) **Severn Ramsar only:** Teal, lesser black backed gull, Wimbrel, Pochard	Change in physical regime, flow or velocity regime	**No Active Intervention and Managed Realignment** options are likely to result in an increase in the extent of intertidal habitats: **Alone and in combination No LSE** Under **Hold the Line** climate change and sea level rise (coastal squeeze) will result in a changes to flows and physical regimes which could in turn potentially result in a change in the extent and distribution of intertidal habitats in front of the defence: **Alone and in combination** (with North Devon and Somerset and Swansea and Carmarthen Bay SMP2s) **LSE**
	Changes in water chemistry	No major changes in the water quality of the Severn Estuary will result from the implementation of the SMP2, due the limited extent of contamination present around the estuary and the large volume of water flowing through the estuary on each tidal cycle which would serve to dilute any local pollution event: **Alone and in combination No LSE**
	Habitat Severance	**Managed Realignment** would increase the extent of intertidal habitat; severance would not occur: **Alone and in combination No LSE** **No Active Intervention :** this option would increase the extent of intertidal habitat **Alone and in combination No LSE** **Hold the Line:** defences maintained in current position so no habitat fragmentation**: Alone and in combination No LSE**

	Disturbance	Improvement or maintenance works under a **Hold the Line or Managed Realignment** option have the potential to disturb birds through noise or visual disturbance. This can displace the birds from their feeding grounds. Disturbance can prevent the birds from feeding and in response they either a) decrease their energy intake at their present (disturbed) feeding site through displacement activity, or b) move to an alternative less favoured feeding site. Works will only be permitted at the appropriate time of year (only between April – September) to avoid the most sensitive time: **Alone and in combination No LSE** **No Active Intervention** : no disturbance would result: **Alone and in combination No LSE**
	Habitat Loss/ Physical Damage	**No Active Intervention and Managed Realignment** options are likely to result in an increase in the extent of intertidal habitats: **Alone and in combination No LSE** Under **Hold the Line** climate change and sea level rise (coastal squeeze) could potentially result in loss of or damage to intertidal habitats in front of the defence, reducing feeding areas: **Alone and in combination (**with North Devon and Somerset and Swansea and Carmarthen Bay SMP2s) **LSE** Potential for some minor habitat loss as a consequence of the increased footprint of the defence- if SoP increased. Also potential for more significant cumulative and in combination effects when all defences around the estuary are taken into consideration. The SMP2 does not specify how the HTL policy will be implemented so it is not possible to identify whether any impacts could occur or not. Further assessment to be undertaken as part of the FRMS. **Alone and in combination Uncertain – it is not possible to rule out the likelihood of LSE at SMP2 level, further review to be undertaken at FRMS stage**

Severn Estuary SAC and Ramsar: The site extends through much of the study area and could be affected by the implementation of all three of the SMP2 policy options		
Sensitive Interest Feature	Potential Hazard	Potential exposure to Hazard and mechanism of effect/impact if known
Estuarine & intertidal habitats (1.12) : Atlantic salt meadows, Estuaries, Mudflats and sandflats not covered by seawater at low tide	Change in physical regime, flow or velocity regime	Under **Hold the Line** climate change and sea level rise (coastal squeeze) will result in a changes to flows and physical regimes which will in turn alter sedimentation and erosion processes potentially resulting in a change in the extent and distribution of intertidal habitats in front of the defence: **Alone and in combination** (with North Devon and Somerset and Swansea and Carmarthen Bay SMP2s) **LSE** **No Active Intervention and Managed Realignment** options are likely to result in an increase in the extent of intertidal habitats: **Alone and in combination No LSE**
	Changes in water chemistry	No major changes in the water quality of the Severn Estuary will result from the implementation of the SMP2, due the limited extent of contamination present around the estuary and the large volume of water flowing through the estuary on each tidal cycle which would serve to dilute any local pollution event : **Alone and in combination No LSE**
	Habitat Severance	**Hold the Line:** defences maintained in current position so no habitat fragmentation**: Alone and in combination No LSE** **Managed Realignment** would increase the extent of intertidal and estuarine habitat; severance would not occur : **Alone and in combination No LSE** **No Active Intervention** : **Alone and in combination No LSE**
	Disturbance	N/A
	Habitat Loss/ Physical Damage	**Hold the Line**: Sea level rise could potentially result in habitat loss due to coastal squeeze **Alone and in combination** (with North Devon and Somerset and Swansea and Carmarthen Bay SMP2s) **LSE** Potential for some minor habitat loss as a consequence of the increased footprint of the defence- if SoP increased. Also potential for more significant cumulative and in combination effects when all defences around the estuary are taken into consideration. The SMP2 does not specify how the HTL policy will be implemented so it is not possible to identify whether any impacts could occur or not. Further assessment to be undertaken as part of the FRMS. **Alone and in combination Uncertain – it is not possible to rule out the likelihood of LSE at SMP2 level, further review to be undertaken at FRMS stage**

		Managed Realignment: Realignment of defences would increase the extent of intertidal and estuarine habitats: **Alone and in combination No LSE** **No Active Intervention:** extent if intertidal habitat would roll back as sea level rose: **Alone and in combination No LSE**
Anadromous fish (2.5) : Allis shad, Atlantic salmon, River Lamprey, Sea lamprey, Twaite shad	Change in physical regime, flow or velocity regime	**All Options**: Any changes in estuarine process that might arise from any of the SMP2 policies will not be significant enough at the estuary scale to affect fish species for which the site is designated : **Alone and in combination No LSE**
	Changes in water chemistry	**All Options**: No major changes in the water quality of the Severn Estuary will result from the implementation of the SMP2, due the limited extent of contamination present around the estuary and the large volume of water flowing through the estuary on each tidal cycle which would serve to dilute any local pollution event : **Alone and in combination No LSE**
	Habitat Severance	**All Options**: Implementation of any of the SMP2 will not result in the severance of any of habitats relied on by the listed fish species: **Alone and in combination No LSE**
	Disturbance	**All Options**: None of the SMP2 policy options will result in disturbance to fish species within the estuary primarily due to the size of the estuary (and therefore available fish habitats) and the fact that any works would be located on the line or landward of existing defences: **Alone and in combination No LSE**
	Habitat Loss/ Physical Damage	**All Options**: Implementation of the SMP2 policies will not result in the loss of or damage to any habitats relied on by the listed fish species: **Alone and in combination No LSE**

Severn Estuary Ramsar Only		
The site extends through much of the study area and could be affected by the implementation of all three of the SMP2 policy options		
Sensitive Interest Feature	Potential Hazard	Potential exposure to Hazard and mechanism of effect/impact if known
Severn Estuary Ramsar Non-migratory fish & invertebrates of rivers (2.6)	Change in physical regime, flow or velocity regime	**All Options**: Any changes in estuarine process that might arise from any of the SMP2 policies will not be significant enough at the estuary scale to affect fish species for which the site is designated: **Alone and in combination No LSE**
	Changes in water chemistry	**All Options**: No major changes in the water quality of the Severn Estuary will result from the implementation of the SMP2, due the limited extent of contamination present around the estuary and the large volume of water flowing through the estuary on each tidal cycle which would serve to dilute any local pollution event : **Alone and in combination No LSE**
	Habitat Severance	**All Options**: Implementation of any of the SMP2 will not result in the severance of any of habitats relied on by the listed fish species: **Alone and in combination No LSE**

	Disturbance	**All Options**: None of the SMP2 policy options will result in disturbance to fish species within the estuary primarily due to the size of the estuary (and therefore available fish habitats) and the fact that any works would be located on the line or landward of existing defences: **Alone and in combination No LSE**
	Habitat Loss/ Physical Damage	**All Options:** Implementation of the SMP2 policies will not result in the loss of or damage to any habitats relied on by the listed fish species: **Alone and in combination No LSE**

Severn/Mor Hafren SAC Only		
The site extends through much of the study area and could be affected by the implementation of all three of the SMP2 policy options		
Sensitive Interest Feature	Potential Hazard	Potential exposure to Hazard and mechanism of effect/impact if known
Submerged marine habitats (1.13) : Reefs, subtidal sandbanks that are slightly covered by sea water all the time.	Change in physical regime/flow or velocity regime	**All Options:** SMP2 polices could lead to changes in estuarine process which in turn could affect patterns of erosion and sedimentation; however when considered in the context of the large scale dynamic sub-tidal processes already operating within the estuary any changes due to the SMP2 policy options would not be significant: **Alone and in combination No LSE**
	Changes in water chemistry	**All Options:** No major changes in the water quality of the Severn Estuary will result from the implementation of the SMP2, due the limited extent of contamination present around the estuary and the large volume of water flowing through the estuary on each tidal cycle which would serve to dilute any local pollution event : **Alone and in combination No LSE**
	Habitat Severance	N/A
	Disturbance	N/A
	Habitat Loss /Physical Damage	**All Options:** There would be no direct habitat loss to any submerged habitats: **Alone and in combination No LSE**

Somerset Levels and Moors SPA and Ramsar		
The site lies outside the study area, (located approximately 15km downstream) but is potentially hydraulically linked to the study area via flooding from the estuary. The levels are currently at risk from extreme flood events from the estuary (e.g. 1 in 1000 year events). The preferred SMP2 policies will not increase tidal flood risk to the site		
Sensitive Interest Feature	Potential Hazard	Potential exposure to Hazard and mechanism of effect/impact if known
Birds of lowland wet grasslands (3.4) Bewick's swan, Golden Plover, Teal, Lapwing Waterfowl(>20, 000)	Change in physical regime, flow or velocity regime	**All Options**: The preferred SMP2 policies will not increase tidal flood risk to the site; physical processes operating on the site will remain unaltered: **Alone and in combination No LSE**
	Changes in water chemistry	**All Options**: The preferred SMP2 policies will not affect water quality on the site: **Alone and in combination No LSE**
	Habitat Severance	**All Options**: The preferred SMP2 policies will not sever any habitats within the site: **Alone and in combination No LSE**
	Disturbance	**All Options**: The preferred SMP2 policies will not disturb birds using wet grassland habitats: **Alone and in combination No LSE**

	Habitat Loss/ Physical Damage	**All Options**: No loss of wet grassland habitat within the site will occur: **Alone and in combination** **No LSE**
Birds of lowland freshwaters and their margins (3.6) Bewick's swan, Teal, Widgeon, Pintail, Shovler, Waterfowl(>20, 000),	Change in physical regime, flow or velocity regime	**All Options**: The preferred SMP2 policies will not increase tidal flood risk to the site; physical processes operating on the site will remain unaltered: **Alone and in combination** **No LSE**
	Changes in water chemistry	**All Options**: The preferred SMP2 policies will not affect water quality on the site: **Alone and in combination** **No LSE**
	Habitat Severance	**All Options**: The preferred SMP2 policies will not sever any habitats within the site: **Alone and in combination** **No LSE**
	Disturbance	**All Options**: The preferred SMP2 policies will not disturb birds using lowland freshwater habitats: **No Alone and in combination** **LSE**
	Habitat Loss/ Physical Damage	**All Options**: No loss of lowland freshwater habitat within the site will occur: **Alone and in combination** **No LSE**
Birds of farmland (3.7) Bewick's swan, Lapwing, Widgeon	Change in physical regime, flow or velocity regime	**All Options**: The preferred SMP2 policies will not increase tidal flood risk to the site; physical processes operating on the site will remain unaltered: **Alone and in combination** **No LSE**
	Changes in water chemistry	**All Options**: The preferred SMP2 policies will not affect water quality on the site: **Alone and in combination** **No LSE**
	Habitat Severance	**All Options**: The preferred SMP2 policies will not sever any habitats within the site: **No LSE**
	Disturbance	**All Options**: The preferred SMP2 policies will not disturb birds using farmland habitats: **Alone and in combination** **No LSE**
	Habitat Loss/ Physical Damage	**All Options**: No loss of farmland habitat within the site will occur: **Alone and in combination** **No LSE**
Birds of coastal habitats (3.8) Bewick's Swan, Golden Plover, Teal, Widgeon, Pintail, Waterfowl(>20, 000)	Change in physical regime, flow or velocity regime	**No Active Intervention** and/or **Managed Realignment:** physical processes likely to result in an increase in coastal and intertidal habitats: **Alone and in combination** **No LSE** **Hold the Line** increased sea level and coastal squeeze could alter physical processes along the Severn foreshore potentially affecting intertidal habitats. This could adversely affect feeding and roosting habitats which support bird populations on the site potentially altering bird population size, density and distribution on the Somerset Levels and Moors: **Alone and in combination** (with North Devon and Somerset and Swansea and Carmarthen Bay SMP2s) **LSE**
	Changes in water chemistry	**All Options**: No major changes in the water quality of the Severn Estuary will result from the implementation of the SMP2, due the limited extent of contamination present around the estuary and the large volume of water flowing through the estuary on each tidal cycle which would serve to dilute any local pollution event. Water quality on the or the Levels and Moors will be unaffected : **Alone and in combination** **No LSE**
	Habitat Severance	**All Options:** no severance of coastal habitats or the levels and Moors sites will occur**: Alone and in combination** **No LSE**

	Disturbance	Improvement or maintenance works under a **Hold the Line or Managed Realignment** option have the potential to disturb birds using the foreshore (outside the SPA/Ramsar) during construction. Works will only be permitted at the appropriate time of year (only between April – September) to avoid the most sensitive period : **Alone and in combination No LSE** No Active Intervention : **Alone and in combination No LSE** No disturbance will occur on the sites themselves: **Alone and in combination No LSE**
	Habitat Loss/ Physical Damage	**No Active Intervention/Managed Realignment:** Extent of coastal and intertidal habitat would increase : **Alone and in combination No LSE** **Hold the line**: sea level rise and coastal squeeze would result in the loss of intertidal habitats, potentially reducing bird feeding areas: **Alone and in combination (**with North Devon and Somerset and Swansea and Carmarthen Bay SMP2s) **LSE** Potential for some minor habitat loss as a consequence of the increased footprint of the defence- if SoP increased. Also potential for more significant cumulative and in combination effects when all defences around the estuary are taken into consideration. The SMP2 does not specify how the HTL policy will be implemented so it is not possible to identify whether any impacts could occur or not. Further assessment to be undertaken as part of the FRMS. **Alone and in combination Uncertain – it is not possible to rule out the likelihood of LSE at SMP2 level, further review to be undertaken at FRMS stage.** No habitat loss on the SPA/Ramsar sites themselves will occur: **Alone and in combination No LSE**
Birds of estuarine habitats (3.9) Golden Plover, Teal, Lapwing, Mute Swan, Widgeon, Pintail, Shovler, Waterfowl(>20, 000)	Change in physical regime, flow or velocity regime	**No Active Intervention** and/or **Managed Realignment:** physical processes likely to result in an increase in coastal and intertidal habitats: **Alone and in combination No LSE** **Hold the Line** increased sea level and coastal squeeze could alter physical processes along the Severn foreshore potentially affecting intertidal habitats. This could adversely affect feeding and roosting habitat which support birds populations on the site potentially altering bird population size, density and distribution on the Somerset Levels and Moors: **Alone and in combination (**with North Devon and Somerset and Swansea and Carmarthen Bay SMP2s) **LSE**

	Changes in water chemistry	**All Options**: No major changes in the water quality of the Severn Estuary will result from the implementation of the SMP2, due the limited extent of contamination present around the estuary and the large volume of water flowing through the estuary on each tidal cycle which would serve to dilute any local pollution event. Water quality on the or the Levels and Moors will be unaffected : **Alone and in combination No LSE**
	Habitat Severance	**All Options:** no severance of coastal habitats or the levels and Moors sites will occur**: Alone and in combination No LSE**
	Disturbance	Improvement or maintenance works under a **Hold the Line or Managed Realignment** option have the potential to disturb birds using the foreshore (outside the SPA/Ramsar) during construction. Works will only be permitted at the appropriate time of year (only between April – September) to avoid the most sensitive period : **Alone and in combination No LSE** **No Active Intervention** : **Alone and in combination No LSE** No disturbance will occur on the sites themselves: **Alone and in combination No LSE**
	Habitat Loss/ Physical Damage	**No Active Intervention/Managed Realignment:** Extent of coastal and intertidal habitat would increase : **Alone and in combination No LSE** **Hold the line**: sea level rise and coastal squeeze would result in the loss of intertidal habitats, potentially reducing bird feeding areas: **Alone and in combination** (with North Devon and Somerset and Swansea and Carmarthen Bay SMP2s) **LSE** Potential for some minor habitat loss as a consequence of the increased footprint of the defence - if SoP increased. Also potential for more significant cumulative and in combination effects when all defences around the estuary are taken into consideration. The SMP2 does not specify how the HTL policy will be implemented so it is not possible to identify whether any impacts could occur or not. Further assessment to be undertaken as part of the FRMS: **Alone and in combination** (with North Devon and Somerset and Swansea and Carmarthen Bay SMP2s) **Uncertain – it is not possible to rule out the likelihood of LSE at SMP2 level, further review to be undertaken at FRMS stage.** No habitat loss on the SPA/Ramsar sites themselves will occur: **Alone and in combination No LSE**

Somerset Levels Ramsar Only		
The site lies outside the study area, (located approximately 15km downstream) but is potentially hydraulically linked to the study area via flooding from the estuary. The levels are currently at risk from extreme flood events from the estuary (e.g. 1 in 1000 year events). The preferred SMP2 policies will not increase flood risk to the site		
Sensitive Interest Feature	Potential Hazard	Potential exposure to Hazard and mechanism of effect/impact if known
Red data book invertebrates (freshwater)	Change in physical regime, flow or velocity regime	**All Options**: The preferred SMP2 policies will not significantly increase tidal flood risk to the site; physical processes operating on the site will remain unaltered. Increased tide locking of the site may occur, increasing fluvial water levels on the site, however this would be as a result of sea level rise rather than implementation of the Strategy: **Alone and in combination No LSE**
	Changes in water chemistry	**All Options**: The preferred SMP2 policies will not affect water quality on the site: **Alone and in combination No LSE**
	Habitat Severance	**All Options**: The preferred SMP2 policies will not sever any habitats within the site: **Alone and in combination No LSE**
	Disturbance	**All Options**: The preferred SMP2 policies will not disturb invertebrate species on the site: **Alone and in combination No LSE**
	Habitat Loss/ Physical Damage	**All Options**: No loss of habitat within the site will occur; increased tide locking of the site may occur, increasing fluvial water levels on the site, however this would be as a result of sea level rise rather than implementation of the Strategy: **Alone and in combination No LSE**

North Somerset and Mendip Bat SAC		
The site lies outside the study area, (located approximately 15km inland) however horseshoe bats are known to feed on the levels with hedges used to shelter while feeding		
Sensitive Interest Feature	Potential Hazard	Potential exposure to Hazard and mechanism of effect/impact if known
1.7 Dry Grasslands (6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*))	Change in physical regime, flow or velocity regime	**All Options**: These habitats are not currently at flood risk; this will not change under the preferred SMP2 policies: **Alone and in combination No LSE**
	Changes in water chemistry	**All Options**: These habitats are not currently at flood risk; this will not change under the preferred SMP2 policies; water quality n the vicinity of the will be unaffected : **Alone and in combination No LSE**
	Habitat Severance	**All Options**: These habitats are not currently at flood risk; this will not change under the preferred SMP2 policies; habitats will be unaffected by the SMP2: **Alone and in combination No LSE**
	Disturbance	**N/A**
	Habitat Loss/ Physical Damage	**All Options**: No loss of habitat within the site will occur: **Alone and in combination No LSE**
1.6 Dry Woodlands and Scrub (9180 *Tilio-Acerion* forests of slopes, screes and ravines (Priority feature)	Change in physical regime, flow or velocity regime	**All Options**: These habitats are not currently at flood risk; this will not change under the preferred SMP2 policies: **Alone and in combination : No LSE**
	Changes in water chemistry	**All Options**: These habitats are not currently at flood risk; this will not change under the preferred SMP2 policies; water quality n the vicinity of the will be unaffected : **Alone and in combination No LSE**

	Habitat Severance	**All Options**: These habitats are not currently at flood risk; this will not change under the preferred SMP2 policies; habitats will be unaffected by the SMP2: **Alone and in combination No LSE**
	Disturbance	**N/A**
	Habitat Loss/ Physical Damage	**All Options**: No loss of habitat within the site will occur: **Alone and in combination No LSE**
8310 Caves not open to the public	Change in physical regime, flow or velocity regime	**All Options**: These habitats are not currently at flood risk; this will not change under the preferred SMP2 policies: **Alone and in combination No LSE**
	Changes in water chemistry	**All Options**: These habitats are not currently at flood risk; this will not change under the preferred SMP2 policies; water quality n the vicinity of the will be unaffected : **Alone and in combination No LSE**
	Habitat Severance	**All Options**: These habitats are not currently at flood risk; this will not change under the preferred SMP2 policies; habitats will be unaffected by the SMP2: **Alone and in combination No LSE**
	Disturbance	**N/A**
	Habitat Loss/ Physical Damage	**All Options**: No loss of habitat within the site will occur: **Alone and in combination No LSE**
2.8 Mammals of Wooded habitats 1303 Lesser horseshoe bat (*Rhinolophus hipposideros*) 1304 Greater horseshoe bat (*Rhinolophus ferrumequinum*)	Change in physical regime, flow or velocity regime	Physical processes on the site will remain unaffected**: Alone and in combination No LSE**
	Changes in water chemistry	**N/A**
	Habitat Severance	No habitats will be severed**: Alone and in combination No LSE**
	Disturbance	**N/A**
	Habitat Loss/ Physical Damage	**All Options**: Increased tidal flooding of the bat feeding areas on the Levels could result in loss of invertebrates and also hedges used to shelter while feeding. **Alone and in combination (**with South Devon and Dorset SMP2): **Uncertain – it is not possible to rule out the likelihood of LSE at the SMP2 level, further review to be undertaken at FRMS stage**

Mendip Limestone Grasslands SAC		
The site lies outside the study area, (located approximately 15km inland) however horseshoe bats are known to feed on the levels with hedges used to shelter while feeding		
Sensitive Interest Feature	Potential Hazard	Potential exposure to Hazard and mechanism of effect/impact if known
1.7 Dry Grasslands (6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*))	Change in physical regime, flow or velocity regime	**All Options**: These habitats are not currently at flood risk; this will not change under the preferred SMP2 policies: **Alone and in combination No LSE**
	Changes in water chemistry	**All Options**: These habitats are not currently at flood risk; this will not change under the preferred SMP2 policies; water quality n the vicinity of the will be unaffected : **Alone and in combination No LSE**
	Habitat Severance	**All Options**: These habitats are not currently at flood risk; this will not change under the preferred SMP2 policies; habitats will be unaffected by the SMP2: **Alone and in combination No LSE**
	Disturbance	**N/A**
	Habitat Loss/ Physical Damage	**All Options**: No loss of habitat within the site will occur: **Alone and in combination No LSE**

1.6 Dry Woodlands and Scrub (9180 *Tilio-Acerion* forests of slopes, screes and ravines (Priority feature))	Change in physical regime, flow or velocity regime	**All Options**: These habitats are not currently at flood risk; this will not change under the preferred SMP2 policies: **Alone and in combination No LSE**
	Changes in water chemistry	**All Options**: These habitats are not currently at flood risk; this will not change under the preferred SMP2 policies; water quality n the vicinity of the will be unaffected : **Alone and in combination No LSE**
	Habitat Severance	**All Options**: These habitats are not currently at flood risk; this will not change under the preferred SMP2 policies; habitats will be unaffected by the SMP2: **Alone and in combination No LSE**
	Disturbance	**N/A**
	Habitat Loss/ Physical Damage	**All Options**: No loss of habitat within the site will occur: **Alone and in combination No LSE**
1.8 Dry heathland habitats (4030 European dry heaths)	Change in physical regime, flow or velocity regime	**All Options**: These habitats are not currently at flood risk; this will not change under the preferred SMP2 policies: **Alone and in combination No LSE**
	Changes in water chemistry	**All Options**: These habitats are not currently at flood risk; this will not change under the preferred SMP2 policies; water quality n the vicinity of the will be unaffected : **Alone and in combination No LSE**
	Habitat Severance	**All Options**: These habitats are not currently at flood risk; this will not change under the preferred SMP2 policies; habitats will be unaffected by the SMP2: **Alone and in combination No LSE**
	Disturbance	**N/A**
	Habitat Loss/ Physical Damage	**All Options**: No loss of habitat within the site will occur: **Alone and in combination No LSE**
8310 Caves not open to the public	Change in physical regime, flow or velocity regime	**All Options**: These habitats are not currently at flood risk; this will not change under the preferred SMP2 policies: **Alone and in combination No LSE**
	Changes in water chemistry	**All Options**: These habitats are not currently at flood risk; this will not change under the preferred SMP2 policies; water quality n the vicinity of the will be unaffected : **Alone and in combination No LSE**
	Habitat Severance	**All Options**: These habitats are not currently at flood risk; this will not change under the preferred SMP2 policies; habitats will be unaffected by the SMP2: **Alone and in combination No LSE**
	Disturbance	**N/A**
	Habitat Loss/ Physical Damage	**All Options**: No loss of habitat within the site will occur: **Alone and in combination No LSE**
2.8 Mammals of Wooded habitats (1304 Greater horseshoe bat (*Rhinolophus ferrumequinum*)	Change in physical regime, flow or velocity regime	Physical processes on the site will remain unaffected**: Alone and in combination No LSE**
	Changes in water chemistry	**N/A**
	Habitat Severance	No habitats will be severed**: Alone and in combination No LSE**
	Disturbance	**N/A**

	Habitat Loss/ Physical Damage	Increased tidal tidal flooding of the bat feeding areas on the Levels could result in loss of invertebrates and also hedges used to shelter while feeding. TheSMP2 does not identify new defence alignments or the SoP to be provided under a Hold the Line policy: **Alone and in combination** (with South Devon and Dorset SMP2) **Uncertain – it is not possible to rule out the likelihood of LSE at the SMP2 level, further review to be undertaken at FRMS stage**

Wye SAC		
No Active Intervention is the selected SMP2 policy option in the vicinity of the SAC (WYE 1-4)		
Sensitive Interest Feature	Potential Hazard	Potential exposure to Hazard and mechanism of effect/impact if known
Riverine habitats & running waters (1.1): Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation	Change in physical regime/ flow or velocity regime	Policy will allow natural processes to continue to operate ; no increase in flood or erosion risk is predicted to occur over the lifetime of the SMP2; the physical characteristics of the Wye, namely the hard geology of the gorge mean significant changes to the physical characteristics or processes are unlikely to result: **Alone and in combination No LSE**
	Changes in water chemistry	There are no major areas of contamination known to exist along the river and the hard geology of the gorge means negligible erosion is predicted to occur. No construction works will be undertaken. No major changes in the water quality of the Wye will result from the implementation of the SMP2: **Alone and in combination No LSE**
	Disturbance	No works to be undertaken so no disturbance will result: **Alone and in combination No LSE**
	Habitat Severance	No works are proposed and physical process are unlikely to change significantly; habitats will be unaffected: **Alone and in combination No LSE**
	Habitat Loss /Physical Damage	No works are proposed and physical process are unlikely to change significantly; habitats will be unaffected: **Alone and in combination No LSE**
Bogs & wet habitats (sensitive to acidification) (Transition mires and quaking bogs)	Change in physical regime/ flow or velocity regime	This feature is located at the top of the Wye catchment and is very unlikely to be affected by the SMP2 polices : **Alone and in combination No LSE**
	Changes in water chemistry	This feature is located at the top of the Wye catchment and is very unlikely to be affected by the SMP2 polices : **Alone and in combination No LSE**
	Disturbance	No works to be undertaken so no disturbance will result. In addition, this feature is located at the top of the Wye catchment and is very unlikely to be affected by the SMP2 polices : **Alone and in combination No LSE**
	Habitat Severance	No works to be undertaken so no severance will result. In addition, this feature is located at the top of the Wye catchment and is very unlikely to be affected by the SMP2 polices : **Alone and in combination No LSE**
	Habitat Loss /Physical Damage	No works to be undertaken so no habitat loss will result. In addition, this feature is located at the top of the Wye catchment and is very unlikely to be affected by the SMP2 polices : **Alone and in combination No LSE**

Anadromous fish (2.5) : Allis shad, Atlantic salmon, River Lamprey, Sea lamprey, Twaite shad	Change in physical regime/flow or velocity regime	Adoption of a **No Active Intervention** policy will allow natural processes to continue to operate no increase in flood or erosion risk is predicted to occur over the lifetime of the SMP2; the physical characteristics of the Wye, namely the hard geology of the gorge mean significant changes to the physical characteristics or processes are likely to result: **Alone and in combination No LSE**
	Changes to water chemistry	There are no major areas of contamination known to exist and the hard geology of the gorge mans negligible erosion is predicted to occur and no construction works will be undertaken. No major changes in the water quality of the Wye will result from the implementation of the SMP2: **Alone and in combination No LSE**
	Disturbance	No works to be undertaken so no disturbance will result : **Alone and in combination No LSE**
	Habitat Severance	No works are proposed and physical process are unlikely to change significantly; habitats will be unaffected: **Alone and in combination No LSE**
	Habitat Loss /Physical Damage	No works are proposed and physical process are unlikely to change significantly; habitats will be unaffected: **Alone and in combination No LSE**
Non-migratory fish & invertebrates of rivers (Atlantic stream or White-clawed crayfish, Brook lamprey, Bullhead	Change in physical regime/ flow or velocity regime	Policy will allow natural processes to continue to operate ; no increase in flood or erosion risk is predicted to occur over the lifetime of the SMP2; the physical characteristics of the Wye, namely the hard geology of the gorge mean significant changes to the physical characteristics or processes are likely to result: **Alone and in combination No LSE**
	Changes in water chemistry	There are no major areas of contamination known to exist along the Wye Valley therefore and therefore No major changes in the water quality of the Wye will result from the implementation of the SMP2: **Alone and in combination No LSE**
	Disturbance	No works to be undertaken so no disturbance will result: **Alone and in combination No LSE**
	Habitat Severance	No works are proposed and physical process are unlikely to change significantly; habitats will be unaffected: **No LSE**
	Habitat Loss /Physical Damage	No works are proposed and physical process are unlikely to change significantly; habitats will be unaffected: **Alone and in combination No LSE**
Mammals of riverine habitats (Otter)	Change in physical regime/ flow or velocity regime	Adoption of a **No Active Intervention** policy will allow natural processes to continue to operate; no increase in flood or erosion risk is predicted to occur over the lifetime of the SMP2; the physical characteristics of the Wye, namely the hard geology of the gorge mean significant changes to the physical characteristics or processes are likely to result: **Alone and in combination No LSE**
	Changes in water chemistry	There are no major areas of contamination known to exist along the Wye Valley therefore and therefore No major changes in the water quality of the Wye will result from the implementation of the SMP2: **Alone and in combination No LSE**
	Disturbance	No works to be undertaken so no disturbance will result: **Alone and in combination No LSE**

	Habitat Severance	No works are proposed and physical process are unlikely to change significantly; habitats will be unaffected: **Alone and in combination No LSE**
	Habitat Loss /Physical Damage	No works are proposed and physical process are unlikely to change significantly; habitats will be unaffected : **Alone and in combination No LSE**

River Usk SAC				
SMP2 policy options are as follows:				
NEW1	NEW2	NEW3	NEW4	NEW5
HTL	HTL	NAI/MR	HTL	HTL

Sensitive Interest Feature	Potential Hazard	Potential exposure to Hazard and mechanism of effect/impact if known
Riverine habitats & running waters (Floating vegetation of Ranunculus of plain and submountainous rivers)	Change in physical regime/ flow or velocity regime	**Hold the Line:** Increase in sea level could result in tidal incursion further up the Usk estuary potentially resulting in estuarine sediments being pushed further up the Usk. Given the existing estuarine system is already highly dynamic the resultant impacts on the physical regime are considered to be negligible**: Alone No LSE** **In combination** : potential for in combination effects with the Wye and Usk CFMP however further details at FRMS needed **Uncertain – it is not possible to rule out the likelihood of LSE at the SMP2 level, further review to be undertaken at FRMS stage** **No Active Intervention/Managed Realignment (NEW3 only) :** In this largely rural reach a policy of NAI/MR will allow natural processes to dominate with an increase in tidal flooding and reintegration of the river with its floodplain**: Alone and in combination No LSE**
	Changes in water chemistry	**No Active Intervention (NEW 3 only)**: If no works are undertaken, there is minimal risk of existing areas of contamination being disturbed: **Alone and in combination No LSE** **Hold the Line or Managed Realignment**: The Usk Valley around Newport has a complex industrial history and much of the land is contaminated. Improvement or maintenance works under a **Hold the Line** policy and **Managed Realignment** have the potential to remobilise contaminated sediments; this potential impact will be avoided or mitigated through appropriate investigations and remediation/mitigation at the project level as appropriate. In addition more detailed HRA will be undertaken at the FRMS and project level with appropriate avoidance or mitigation measures identified: **Alone and in combination No LSE**
	Disturbance	N/A

	Habitat Severance	**No Active Intervention (NEW3 only)**: No works are proposed and physical process are unlikely to change significantly; habitats will be unaffected **Alone and in combination No LSE** **Hold the Line/Managed Realignment:** habitat feature of would not be severed as a result the implementation of any of these polices **Alone and in combination No LSE**
	Habitat Loss /Physical Damage	**No Active Intervention (NEW3 only)**: No works are proposed and natural processes will continue to operate habitats are unlikely to change significantly **Alone and in combination No LSE** **Hold the Line/Managed Realignment:** Maintenance or retreat of the defence line will not affect in-river processes or habitats. The main area likely to be affected by the requirement to increase the size of defences would be around Newport; *Ranunculus* habitat is absent from this Management unit of the SAC: **Alone and in combination No LSE**
Anadromous fish (Allis shad, Atlantic salmon, River Lamprey, Sea lamprey, Twaite shad)	Change in physical regime/ flow or velocity regime	**Hold the Line:** Increase in sea level could result in tidal incursion further up the Usk estuary potentially resulting in estuarine sediments being pushed further up the Usk. Given the existing estuarine system is already highly dynamic the resultant impacts on the physical regime are considered to be negligible**: Alone : No LSE** There is the potential for the increased incursion of tidal waters to affect freshwater migratory cues, however fluvial flows are also predicted to increase under climate change so effect are not considered significant: **Alone :No LSE** Flows and morphology are considered unlikely to change enough to affect fish migration**: Alone :No LSE** **In combination** : potential for in combination effects with the Wye and Usk CFMP however further details at FRMS needed **Uncertain – it is not possible to rule out the likelihood of LSE at the SMP2 level, further review to be undertaken at FRMS stage** **No Active Intervention/Managed Realignment(NEW3 only):** In this largely rural reach a policy of NAI/MR will allow natural processes to dominate with an increase in tidal flooding and reintegration of the river with its floodplain**: Alone and in combination No LSE**

	Changes in water chemistry	The Usk Valley around Newport has a complex industrial history and much of the land is contaminated. Improvement or maintenance works under a **Hold the Line or Managed Realignment** policy have the potential to remobilise contaminated sediments; this potential impact will be avoided or mitigated through further assessment, appropriate investigations and remediation/mitigation as required at the FRMS and project level. In addition, HRAs will be undertaken of the more detailed FRMS and any projects cascading from the SMP2 and/or FRMS: **Alone and in combination No LSE** **No Active Intervention (NEW3 only)** : If no works are undertaken, there is minimal risk of existing areas of contamination being disturbed: **Alone and in combination No LSE**
	Disturbance	**No Active Intervention (NEW3 only)**: no works will be undertaken, and therefore no disturbance to fish will result: **Alone and in combination No LSE** Improvement or maintenance works under a **Hold the Line or Managed Realignment** option have the potential to disrupt fish migration and/or spawning through increased noise and vibration; this impact will be avoided or mitigated through timing the works to avoid sensitive fish migration and/or spawning period and by undertaking HRA at the FRMS and project level. **Alone and in combination No LSE**
	Habitat Severance	**All Options**: none of the SMP2 policy options have the potential to result in the severance of any of habitats relied on by the listed fish species: **Alone and in combination No LSE**
	Habitat Loss /Physical Damage	**No Active Intervention**: No works are proposed and natural processes will continue to operate habitats unlikely to change significantly **Alone and in combination No LSE** **Hold the Line/Managed Realignment:** Maintenance or retreat of the defence line will not affect in-river processes or habitats: **Alone and in combination No LSE**
Non-migratory fish & invertebrates of rivers (Brook lamprey, Bullhead)	Change in physical regime/ flow or velocity regime	**Hold the Line:** Increase in sea level could result in tidal incursion further up the Usk estuary potentially resulting in estuarine sediments being pushed further up the Usk. Given the existing estuarine system is already highly dynamic the resultant impacts on the physical regime are considered to be negligible**: Alone and in combination No LSE** **No Active Intervention/Managed Realignment(NEW3 only) :** In this largely rural reach a policy of NAI/MR will allow natural processes to dominate with an increase in tidal flooding and reintegration of the river with its floodplain**: Alone and in combination No LSE**

	Changes in water chemistry	The Usk Valley around Newport has a complex industrial history and much of the land is contaminated. Improvement or maintenance works under a **Hold the Line or Managed Realignment** policy have the potential to remobilise contaminated sediments. This potential impact will be avoided or mitigated through further assessment, appropriate investigations and remediation/mitigation as required at the FRMS and project level. In addition, HRAs will be undertaken of the more detailed FRMS and any projects cascading from the SMP2 and/or FRMS: **Alone and in combination No LSE** **No Active Intervention (NEW3 only)** : If no works are undertaken, there is minimal risk of existing areas of contamination being disturbed: **Alone and in combination No LSE**
	Disturbance	**No Active Intervention**: no works will be undertaken, and therefore no disturbance to fish will result: **Alone and in combination No LSE** Improvement or maintenance works under a **Hold the Line or Managed Realignment** option have the potential to disrupt fish spawning through increased noise and vibration; this impact will be avoided or mitigated through timing the works to avoid sensitive spawning period and by undertaking HRA at the FRMS and project level. **Alone and in combination No LSE**
	Habitat Severance	**All Options**: none of the SMP2 policy options have the potential to result in the severance of any of habitats relied on by the listed fish species: **Alone and in combination No LSE**
	Habitat Loss /Physical Damage	**No Active Intervention**: No works are proposed and natural processes will continue to operate habitats unlikely to change significantly **Alone and in combination No LSE** **Hold the Line/Managed Realignment:** Maintenance or retreat of the defence line will not affect in-river processes or habitats: **Alone and in combination No LSE**
Mammals of riverine habitats (Otter)	Change in physical regime/ flow or velocity regime	**Hold the Line:** Increase in sea level could result in tidal incursion further up the Usk estuary potentially resulting in estuarine sediments being pushed further up the Usk. Given the existing estuarine system is already highly dynamic the resultant impacts on the physical regime are considered to be negligible**: Alone and in combination No LSE** **No Active Intervention/Managed Realignment(NEW3 only) :** In this largely rural reach a policy of NAI/MR will allow natural processes to dominate with an increase in tidal flooding and reintegration of the river with its floodplain**: Alone and in combination No LSE**

	Changes in water chemistry	The Usk Valley around Newport has a complex industrial history and much of the land is contaminated. Improvement or maintenance works under a **Hold the Line or Managed realignment** policy have the potential to remobilise contaminated sediments; this potential impact will be avoided or mitigated through further assessment, appropriate investigations and remediation/mitigation as required at the FRMS and project level. In addition, HRAs will be undertaken of the more detailed FRMS and any projects cascading from the SMP2 and/or FRMS: **Alone and in combination No LSE** **No Active Intervention** : If no works are undertaken, there is minimal risk of existing areas of contamination being disturbed: **Alone and in combination No LSE**
	Disturbance	**No Active Intervention** : No works are proposed so no disturbance to otters will occur: **No LSE** **Hold the Line or Managed Realignment:** Works could potentially disturb otters whilst using the watercourse or whilst in holts. No night time working or light will be permitted and otter access along at least one bank of the river maintained at all time. Otter surveys will ensure that there are no impacts on otter holts or couches as a result of the works and if necessary, appropriate licences will be obtained; HRA will be undertaken at the FRSM and project level to ensure no impacts on otter passage: **Alone and in combination No LSE**
	Habitat Severance	**No Active Intervention (NEW3 only)** : policy will allow natural processes to continue; no works will be undertaken and no severance of habitats will occur: **Alone and in combination No LSE** **Managed Realignment (NEW3 only):** would alter habitats but would be unlikely to result in habitat severance**: Alone and in combination No LSE** **Hold the Line:** implementation of the policy could restrict otter passage along the river corridor and as such could result in severance of habitat: **Alone and in combination LSE**
	Habitat Loss /Physical Damage	**No Active Intervention (NEW3 only)**: policy will allow natural processes to continue **Alone and in combination No LSE** **Managed Realignment (NEW3 only):** has the potential to increase the extent of riparian habitat available to otters**: Alone and in combination No LSE** **Hold the Line:** in the medium to long term coastal squeeze may reduce available riparian habitat, potentially reducing breeding territories, access to prey and/or otter ranges; increasing the footprint of defences may also result in habitat loss**: Alone and in combination LSE**

7. In Combination Effects

A wide range of plans have been reviewed to identify any potential in combination effects with the SMP2, along with a brief discussion of conclusions reached. These are all listed in Annex C. This section focuses on those plans and projects identified as potentially giving rise to in-combination effects.

Given the strategic nature of this assessment and the uncertainties surrounding the timing and effects of other national level plans and projects, it is not practicable to identify all the possible plans and projects that may act 'in-combination'. However, it is possible to outline at a strategic level the broad types of effects that may arise from the implementation of other plans and projects which should inform the HRA for the SMP2. Potential strategic in-combination effects include:

- Habitats loss: direct land take from coastal development (for housing, transport, regeneration etc) resulting in habitats loss.
- Impacts on water quality for example from increased discharge of sewage, increased urban or agricultural runoff, changes in dredging practices etc
- Changes to physical regimes, for example form aggregate dredging and/or coastal development potentially affecting coastal and subtidal habitats and fish movement.

The following plans and projects have been identified as potentially giving rise to in-combination effects:

Land Use Plans

Cardiff Local Development Plan 2006- 2021 (Draft). Significant reservations were raised by the Inspectors at the Exploratory Meeting on 25th February 2010, and the Council formally requested that the Inspectors recommend to the Welsh Assembly Government that the LDP be withdrawn from the examination process. The Council will be preparing a new Local Development Plan. The **City of Cardiff Local Plan (1996)** is the main local planning document indentified within the local development framework. However the deposit draft of the **Cardiff Unitary Development Plan (2003)** although in accordance with Draft Welsh Assembly guidance on it remains a consideration in development control decisions until an LDP has been placed on deposit. Note: in May 2005, the council formally resolved to cease work on the Cardiff UDP and begin work on the LDP. At present there is insufficient information available to judge whether the LDP will result in the potential for in-combination effects, however it is likely that policies to protect both the Gwent Levels SSSIs and the Severn Estuary European sites will remain part of the Local Development Framework. There is therefore a high degree of uncertainty regarding whether or not there is the potential for in-combination effects on the Severn SPA/SAC/Ramsar site. Relevant issues identified in the Cardiff Minerals Local Plan 1997 include interest in clay extraction from the Wentlooge Levels and ongoing dredging in the Bristol Channel; this document is however over 10 years old; consequently these issues may no longer be pertinent and/or other issues may have arisen. Potential developments identified with the draft UDP which have the potential to give rise to in combination effects include: the Eastern Bylink (proposed road improvement), the St Mellons Wentlooge Link (proposed road improvement) and the development of an integrated waste management system at the Rumney Moors/Lamby Way site, which is currently used primarily for landfill.

Vale of Glamorgan Council Local Development Draft Preferred Strategy Dec 2007: The Habitats Regulations Assessment Screening for the Vale of Glamorgan LDP Draft Preferred Strategy identified the potential for a negative impact on the Severn Estuary European sites. While much of the development arising from the draft preferred strategy is likely to be located well away from the Severn Estuary, the south-eastern zone has been identified as a growth area and abuts the boundary of the designated site. A more detailed assessment of the LDP is to be undertaken following consultation on the Draft Preferred Strategy to ascertain and mitigate against any likely significant effects to the SPA, cSAC, Ramsar. The mechanisms by which these activities could impact upon the designated site(s) are numerous and include land-take, disturbance through noise and vibration, pollution through ground and surface water run-off, and interruption of flight-lines by wind turbines. The potential for in combination effects exists

Monmouthshire County Council Adopted Unitary Development Plan 1996-2011 (adopted 2006): The HRA of the Monmouthshire County Council UDP concluded that it was unlikely that the Plan will have a significant effect on European sites/species, or adversely affect a site's integrity. No in-combination effects can be identified at this strategic level. **The Monmouthshire LDP** is currently in preparation and will contain land use allocations and policies for future development in Monmouthshire for the period 2011-2021. A HRA Screening of the Pre-Deposit Proposals was undertaken in May 2009 and identified the potential for likely significant effects, but identified that these impacts could be entirely avoided or mitigated against through further revisions of the LDP strategy and policies; the HRA will be reviewed at a more advanced version of the plan in order for a complete assessment to take place. Potential impacts were identified on the Usk SAC (arising from: development in Abergavenny/Llanfoist and Usk, a Strategic Employment Site within 2.5km of the site at Llanfoist, sites identified for waste facilities which may lead to waste related development near the SAC and mineral safeguarding policies which may lead to eventual additional mining and quarrying) the Severn SPA/SAC/Ramsar (arising from development in Chepstow, Sudbrook and Magor/Undy, Strategic Housing Sites at Magor/Undy and Portskewett within 5km and 2.5km of the site respectively, a Strategic Mixed Use Site within 2.5km of the site at Chepstow, an Employment site at Sudbrook within 2.5km of the site, and 3 Employment sites at Magor/Undy within 5 km of the site, sites will be identified for waste facilities which may lead to waste related development near the site, mineral safeguarding which may lead to eventual additional mining and quarrying and key strategic transport projects could increase diffuse pollution) and the Wye SAC (arising from: development in Monmouth and Chepstow, a Strategic Mixed Use Site within 2.5km of the site at Monmouth and adjacent a Strategic Mixed Use Site in Chepstow, an Employment site at Sudbrook within 5km of the site, waste facilities which may lead to waste related development near this SAC and mineral safeguarding which may lead to eventual additional mining and quarrying. It is clear at this stage that it will be necessary for the LDP to recognise these sites in preparing the strategy and developing plan policies, and to work in partnership with adjacent local authorities who are producing plans which will in-combination increase the impact on these sites.

Newport City Council Unitary Development Plan 1996-2011 (Adopted May 2006): No HRA of the Plan appears to have been undertaken. The development of brownfield sites in close proximity to the River Usk SAC could have the potential to affect water quality as a result of construction activities. This also has implications for the River Severn SPA/ Ramsar/ cSAC as the River Usk flows into the Severn Estuary. **Newport Local Development Plan 2011 – 2026**: the LDP is currently in preparation; the HRA screening of the LDP is still in draft. A number of recommendations have been made to ensure that the final draft of the LDP avoids and/or minimises impacts on the European sites identified during this study. It is anticipated, however that further appropriate assessment work will be required to assess the in-combination effects of water usage on the River Usk SAC and River Wye SAC, including changes to the LDP policy wording, further investigations to aid future assessments and ways of managing and mitigating specific impacts. At this high level stage it is not possible to identify any in combination effects, however redevelopment in the centre of Newport is likely to rise to opportunity for in-combination effects on the Usk SAC

North Somerset Replacement Local Plan (2007) The proposals map for the plan has been reviewed. The plan contains proposals for the regeneration of the waterfront in Weston-super-Mare, however this work will be undertaken behind the existing defence line and as such is considered unlikely to affect the Severn European site Works undertaken are consistent with the Hold the Line policy identified within the North Devon and Somerset SMP2 and predictions for habitat loss resulting from this policy have taken this into account. There are no polices within the local plan that are likely to give rise to in-combination effects North Somerset Replacement Local Plan will remain the principal planning document until 2011. **The North Somerset Core Strategy** (being produced as part of the Local Development Framework) is currently in preparation. A consultation draft of the Core Strategy was produced in 2009. Preparation of the Habitats Regulations and Sustainability Appraisal in underway and will be made available to support the next stage of the Core Strategy to be adopted in 2011. It is therefore currently not possible to determine whether there is the potential for in-combination effects with the Core Strategy.

Other Plans

Catchment Flood Management Plans for the Taff and Ely, Eastern Valleys, Wye and Usk, Bristol Avon, Severn Tidal Tributaries and Somerset. The preferred policy for the Usk is to continue with current or alternative actions to mange flood risk and there is considered to be the potential for in-combination effects on the Usk SAC both on river habitats and anadromous fish species. Further assessment will be required at the project level when either CFMP or SMP2 policy actions are being considered for implementation.

Other SMP2s around the Estuary

Draft North Devon and Somerset SMP2, 2009. This SMP is adjacent to the Severn SMP2 study are and extends west from Hartland Point in Devon to Anchor Head in Somerset. An HRA for this SMP2 is also being prepared however there is the potential for in-combination effects on the Severn Estuary European Sites, particularly cumulative and in-combination effects that could arise from coastal squeeze and habitat loss arising from footprint of defences.

Swansea and Carmarthen Bay SMP. The SMP study area extends from St. Anne's Head in Pembrokeshire to Lavernock Point in Vale of Glamorgan. The SMP is still under development. No conclusive assessment on the potential for in-combination effects can be undertaken until preferred policies for the South Wales SMP have been identified.

PROJECTS

Private Defences: Along parts of the SMP2 shoreline, there are private defences that have been built by individual landowners. The preferred policy within the SMP2 indicate where defences could, or could not, be maintained for technical and / or environmental reasons, i.e. influence on coastal erosion or flooding. It is acknowledged that at some point individuals may wish to build new defences where presently there are none or increase / improve existing defences. In these situations, these actions may be permitted, but it is the responsibility of the landowner to demonstrate there would be no adverse impacts on coastal processes (either upstream or downstream or in the area offshore) or designated and protected features, as part of the normal planning application process. It is not possible to prescribe specific policies for this situation as it is unknown if, when or where individual landowners may wish to build or amend private defences.

Bristol Container Port: On 25th March 2010, the Department for Transport gave consent for the construction of Bristol's Deep Sea Container Terminal. The facility will be located with the estuary and will have four berths capable of receiving vessels of 16 metre draft, at all states of the tide. The HRA undertaken for the project concluded it was likely to have a significant effect on the Severn Estuary SPA, Ramsar site and the SAC. The main impacts were identified as: the permanent loss of a small area of intertidal habitat from within the SPA and SAC; the alteration of conditions that support sea bed dwelling animal communities within an area of approximately 80 hectares of intertidal mudflat due to increased accretion; and a resultant reduction, that could be temporary, in available feeding resources for waterfowl and waders, within the above intertidal area, of approximately 60 hectares of intertidal area due to potential changes in seabed life. The Secretary of State considered that there were imperative reasons of overriding public interest, of an economic and social nature, as to why the proposals should be permitted, in spite of a negative assessment of their impact on European and international sites of conservation significance. Natural England and the Countryside Council for Wales advised that their objections could be overcome through implementation of a Compensation Mitigation and Monitoring Agreement. This included, among other measures, the provision of compensation habitat on the Steart Peninsula on the Severn Estuary or an appropriate alternative site. The loss of intertidal habitat means there is the potential for in-combination effects.

Avonmouth Renewable Energy Generation : there are a number of consented and proposed renewable energy proposals in the Avonmouth area including the Royal Portbury Dock renewable Energy Plant and Avomouth Resource Park. These will largely be located within develop areas and will be required to comply with Habitats Regulations including the production of a project level HRA. These developments are unlikely to involve land take from the site so the main impacts are likely to relate to disturbance. As the SMP2 does not identify the nature and timing of any works that may be required, it is not possible to identify in combination effects this stge. Further assessment will be undertaken as part of the HRS for the FRMS.

Severn Tidal Power: The extremely high tidal range of the Severn Estuary means that the Estuary could generate renewable energy from wave and tidal power technologies. The Department for Energy and Climate Change (DECC) and WAG are currently part way through funding a study of possible renewable energy generation technologies in the Severn Estuary. A two year project to evaluate the potential for electricity generation from the Severn Estuary has reached its midpoint. Updates on the progress of the project are available at the DECC website:

http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/renewable/severn_tidal_power/severn_tidal_power.aspx

The study aims to gather and assess evidence to help Government to decide if it should use public money to help support a renewable energy generation scheme in the Severn. Phase 1 of the study reduced a long list of 10 possible schemes down to a shorter list of 5 possible scheme types. These are being considered in more detail in Phase 2. A public consultation on Phase 2 will probably take place sometime during 2010. If a Severn tidal power project does go ahead, it would have to go through the normal planning and permitting process that other developments go through. This could take 3 - 5 years and would include more public consultation. The HRA cannot take into account the impacts of any of the possible schemes, as no decision has been made on which one (if any) would be supported by Government. This means there are too many uncertainties surrounding the option and potential impacts to allow any meaningful assessment to be made.

River Usk Strategy and Subsequent Projects: The Council seeking to regenerate the centre of Newport around the Usk. An HRA of the Strategy has been undertaken. The potential for in-combination effects exists primarily arising from the loss of intertidal habitat and the possible impacts on otter habitat.

8. Discussion of Likely Significant Effects on each of the European Sites
Is the potential scale or magnitude of any effect likely to be significant?
a) Alone? **(explain conclusion, e.g. in relation to de minimise criteria)**

Yes - The SMP2 could result in a range of actions that could affect the following sites and their features, which have therefore been taken forward to Stage 3 Appropriate Assessment:

- Severn Estuary/Mor Hafren SPA
- Severn Estuar/Mor Hafren Ramsar and
- Severn Estuary/ Mor Hafren SAC.
- River Usk / Afon Wysg SAC
- Somerset Levels and Moors SPA
- Somerset Levels and Moors Ramsar

Impacts will primarily be due to:

- habitat loss within or adjacent to the designated sites as adopting a HTL policy will result in coastal squeeze and progressive loss of intertidal habitat over time, and/or
- changes to habitats and physical processes resulting from increased inundation by sea water; and/or
- changes to the form and function of the estuary feature as a result of the above.

In addition a number of sites have been identified as requiring further assessment of potential effects (both alone and in-combination) at the FRMS stage once further information is available on defence alignments, type of defence and the SoP to be provided. These include:

- Severn Estuary SAP/SAC and Ramsar: impacts on physical regime, water quality and habitats may result from a HTL policy, depending on SoP provided. Potential for cumulative and in-combination losses of habitat due to footprint of defence.

- Somerset Levels and Moors Spa and Ramsar: potential for cumulative and/or in combination loss of habitat used by the features of the site to the footprint of the defences. Potential for impacts will depending on the type of defences and SoP to be provided

- North Somerset and Mendip Bat SAC and Mendip Limestone grassland SAC: potential for impacts on bat feeding habitat on the Levels, depending on alignment of new defences and SoP provided.

b) In combination with other permissions and/or other plans or projects?

Yes - The SMP2 has the potential to have an impact on the Severn Estuary SPA, Ramsar and SAC, Somerset Levels and Moors SPA, Somerset Levels and Moors Ramsar and the Usk SAC in combination with other plans, including adjacent SMPs, land use plans and several projects.

10. Conclusion: Is the proposal likely to have a significant effect 'alone and/or in combination' on a European site?	Yes, The SMP2 could result in a range of unspecified actions that could affect the following sites and their features, which have therefore been taken forward to Stage 3 Appropriate Assessment: • Severn Estuary SPA, • Severn Estuary Ramsar and • Severn Estuary SAC • River Usk / Afon Wysg SAC • Somerset Levels and Moors SPA • Somerset Levels and Moors Ramsar

4. Stage 3 Assessment – Assessment of Adverse Effect on Site Integrity

4.1 Summary of Conclusions of Stage 2 Assessment

This Section considered the effects of the SMP2 on the interest features of the European sites where a "likely significant effect" has been identified in Stage 2. A summary of the conclusions of the Stage 2 assessment is presented below.

Features			Plan has associated hazards to which features are sensitive?	Details of Hazard
Severn Estuary/Mor Hafren SPA				
3.4	Birds of lowland wet grasslands – both inside and outside the designated site	NAI	✓	Changes in physical regime Changes in water chemistry Habitat loss/physical damage
		MR	✓	Changes in physical regime Changes in water chemistry Habitat loss/physical damage
		HTL	?	Uncertain effects at SMP2 level, further assessment to be undertaken as part of the Severn FRMS & HRA when further detail on alignments and SoP will be determined
3.6	Birds of lowland freshwaters and their margins – both inside and outside the designated site	NAI	✓	Changes in physical regime Changes in water chemistry Habitat loss/physical damage
		MR	✓	Changes in physical regime Changes in water chemistry Habitat loss/physical damage
		HTL	?	Uncertain effects at SMP2 level, further assessment to be undertaken as part of the Severn FRMS & HRA when further detail on alignments and SoP will be determined
3.7	Birds of farmland – both inside and outside the designated site	NAI	✓	Changes in physical regime Changes in water chemistry Habitat loss/physical damage
		MR	✓	Changes in physical regime Changes in water chemistry Habitat loss/physical damage
		HTL	?	Uncertain effects at SMP2 level, further assessment to be undertaken as part of the Severn FRMS & HRA when further detail on alignments and SoP will be determined
3.8	Birds of coastal habitats	NAI	X	N/A
		MR	X	N/A
		HTL	✓	Changes in physical regime Habitat loss/physical damage
3.9	Birds of estuarine habitats	NAI	X	N/A
		MR	X	N/A
		HTL	✓	Changes in physical regime Habitat loss/physical damage

Severn Estuary Ramsar				
1.12	Estuarine & intertidal habitats	NAI	X	N/A
		MR	X	N/A
		HTL	✓	Changes in physical regime Habitat loss/physical damage
2.5	Anadromous fish	NAI	X	N/A
		MR	X	N/A
		HTL	X	N/A
2.6	Non-migratory fish & invertebrates of rivers	NAI	X	N/A
		MR	X	N/A
		HTL	X	N/A
3.4	Birds of lowland wet grasslands	NAI	✓	Changes in physical regime Changes in water chemistry Habitat loss/physical damage
		MR	✓	Changes in physical regime Changes in water chemistry Habitat loss/physical damage
		HTL	?	Uncertain effects at SMP2 level, further assessment to be undertaken as part of the Severn FRMS & HRA when further detail on alignments and SoP will be determined
3.6	Birds of lowland freshwaters and their margins	NAI	✓	Changes in physical regime Changes in water chemistry Habitat loss/physical damage
		MR	✓	Changes in physical regime Changes in water chemistry Habitat severance Habitat loss/physical damage
		HTL	?	Uncertain effects at SMP2 level, further assessment to be undertaken as part of the Severn FRMS & HRA when further detail on alignments and SoP will be determined
3.7	Birds of farmland	NAI	✓	Changes in physical regime Changes in water chemistry Habitat loss/physical damage
		MR	✓	Changes in physical regime Changes in water chemistry Habitat severance Habitat loss/physical damage
		HTL	?	Uncertain effects at SMP2 level, further assessment to be undertaken as part of the Severn FRMS & HRA when further detail on alignments and SoP will be determined
3.8	Birds of coastal habitats	NAI	X	N/A
		MR	X	N/A
		HTL	✓	Changes in physical regime Habitat loss/physical damage
3.9	Birds of estuarine habitats	NAI	X	N/A
		MR	X	N/A
		HTL	✓	Changes in physical regime Habitat loss/physical damage
Severn /Mor Hafren SAC				
1.12	Estuarine & intertidal habitats	NAI	X	N/A
		MR	X	N/A
		HTL	✓	Changes in physical regime, form and function Habitat loss/physical damage

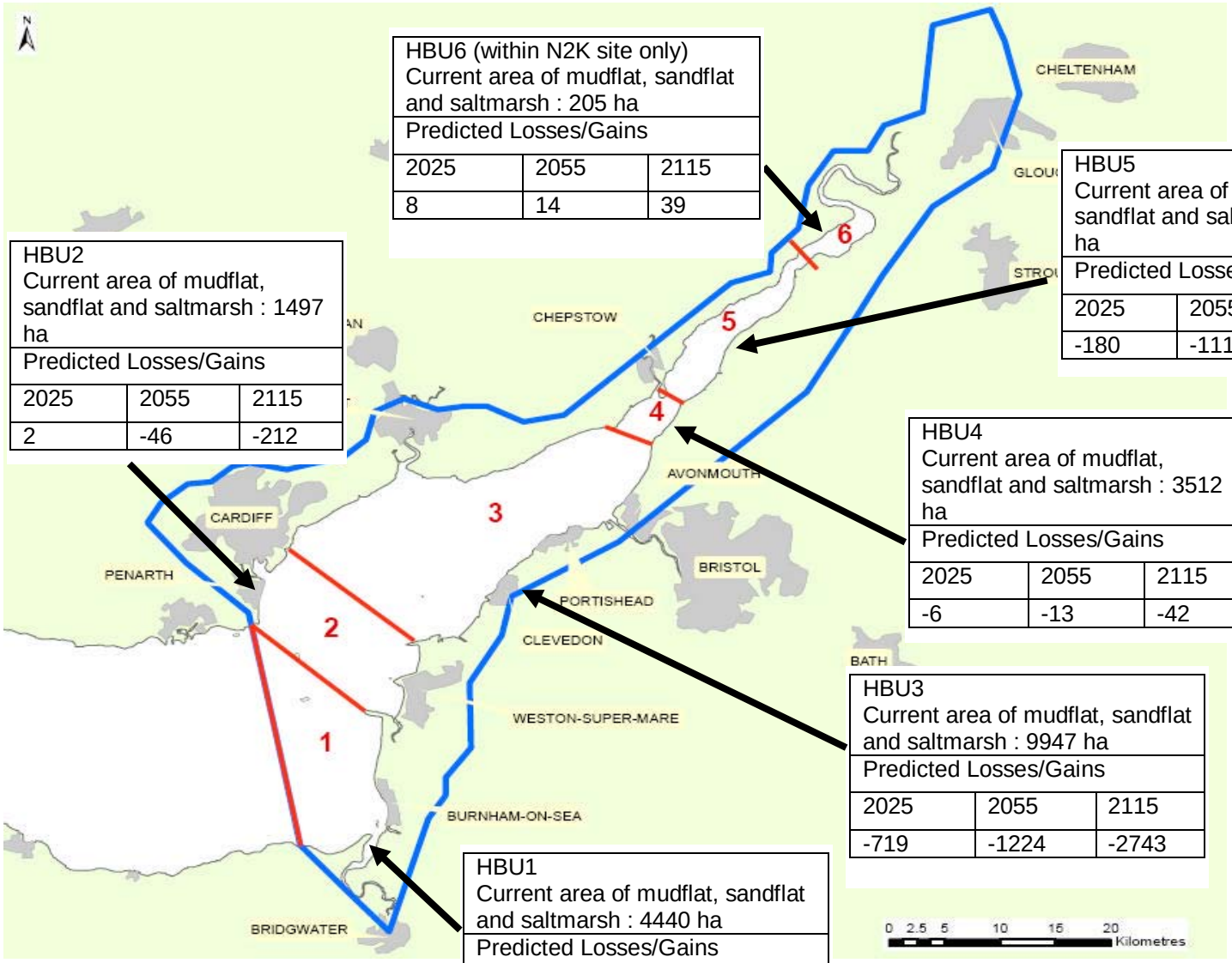
1.13	Submerged marine habitats	NAI	X	N/A
		MR	X	N/A
		HTL	X	N/A
2.5	Anadromous fish	NAI	X	N/A
		MR	X	N/A
		HTL	X	N/A
Somerset Levels SPA				
3.4	Birds of lowland wet grasslands – both inside and outside the designated site	NAI	X	N/A
		MR	X	N/A
		HTL	X	N/A
3.6	Birds of lowland freshwaters and their margins – both inside and outside the designated site	NAI	X	N/A
		MR	X	N/A
		HTL	X	N/A
3.7	Birds of farmland – both inside and outside the designated site	NAI	X	N/A
		MR	X	N/A
		HTL	X	N/A
3.8	Birds of coastal habitats	NAI	X	N/A
		MR	X	N/A
		HTL	✓	Changes in physical regime Habitat loss/physical damage
3.9	Birds of estuarine habitats	NAI	X	N/A
		MR	X	N/A
		HTL	✓	Changes in physical regime Habitat loss/physical damage
Somerset Levels Ramsar				
No Ref	Red data book invertebrates (freshwater)	NAI	X	N/A
		MR	X	N/A
		HTL	X	N/A
3.4	Birds of lowland wet grasslands – both inside and outside the designated site	NAI	X	N/A
		MR	X	N/A
		HTL	X	N/A
3.6	Birds of lowland freshwaters and their margins – both inside and outside the designated site	NAI	X	N/A
		MR	X	N/A
		HTL	X	N/A
3.7	Birds of farmland – both inside and outside the designated site	NAI	X	N/A
		MR	X	N/A
		HTL	X	N/A
3.8	Birds of coastal habitats	NAI	X	N/A
		MR	X	N/A
		HTL	✓	Changes in physical regime Habitat loss/physical damage
3.9	Birds of estuarine habitats	NAI	X	N/A
		MR	X	N/A
		HTL	✓	Changes in physical regime Habitat loss/physical damage
North Somerset and Mendip Bat SAC				
1.7	Dry Grasslands	NAI	X	N/A
		MR	X	N/A
		HTL	X	N/A
1.6	Dry Woodlands and Scrub	NAI	X	N/A
		MR	X	N/A
		HTL	X	N/A
	Caves not open to the public	NAI	X	N/A
		MR	X	N/A
		HTL	X	N/A
2.8	Mammals of Wooded	NAI	?	Uncertain effects at SMP2 level, further

	habitats	MR HTL		assessment to be undertaken as part of the Severn FRMS & HRA when further detail on alignments and SoP will be determined
Mendip Limestone Grasslands SAC				
1.7	Dry Grasslands	NAI	X	N/A
		MR	X	N/A
		HTL	X	N/A
1.6	Dry Woodlands and Scrub	NAI	X	N/A
		MR	X	N/A
		HTL	X	N/A
1.8	Dry heathland	NAI	X	N/A
		MR	X	N/A
		HTL	X	N/A
	Caves not open to the public	NAI	X	N/A
		MR	X	N/A
		HTL	X	N/A
2.8	Mammals of Wooded habitats	NAI MR HTL	?	Uncertain effects at SMP2 level, further assessment to be undertaken as part of the Severn FRMS & HRA when further detail on alignments and SoP will be determined
River Wye SAC (NAI is the selected SMP2 policy for whole of affected area)				
	All features	NAI	X	N/A
River Usk SAC				
1.1	Riverine habitats & running waters	NAI	X	N/A
		MR	X	N/A
		HTL	X	N/A
2.5	Anadromous fish	NAI	X	N/A
		MR	X	N/A
		HTL	X	N/A
2.6	Non-migratory fish and invertebrates of rivers	NAI	X	N/A
		MR	X	N/A
		HTL	X	N/A
2.9	Mammals of riverine habitats	NAI	X	N/A
		MR	X	N/A
		HTL	✓	Habitat loss/physical damage Habitat Severance

Further assessment of these polices both alone and in combination with other plans and projects was undertake and is documented below. The preferred SMP2 policy options along with a plan showing the location of policy units and designated sites are provided in Annex B.

One of the main impacts arising from the implementation of the SMP2 will be losses of intertidal habitat (Atlantic salt meadows and intertidal mud and sandlflats) potentially arising from options that hold the existing line of defence. In order to try to quantify this impact and give an indication of distribution of loss, the CHaMP model has been rerun and used to determine indicative figures for losses of this habitat type within each of the CHaMP Habitat Behaviour Units (ref gmHDP). Indicative figures are shown below; these have been based on the assumption that all existing defences and the current standard of protection are maintained and as such presents a worst case scenario for habitat loss arising from coastal squeeze. Further information on the modelling and results arising from it can be found in Predicted Morphological Form of the Severn Estuary, February 2009, Atkins/ABPmer and the Severn Estuary Flood Risk Management Strategy Habitat Delivery Plan, Atkins, April 2009. Figure 1 shows predicted loss of mudflat, sandflat and saltmarsh over time for each of the Habitat Behaviour Units, whilst Figures 2 and 3 show decline in area of mudflat and saltmarsh over time.

Figure 1 – Predicted loss of Mudflat, Sandflat and Saltmarsh within each Habitat Behaviour Unit over time



HBU6 (within N2K site only) Current area of mudflat, sandflat and saltmarsh : 205 ha		
Predicted Losses/Gains		
2025	2055	2115
8	14	39

HBU5 Current area of mudflat, sandflat and saltmarsh : 3512 ha		
Predicted Losses/Gains		
2025	2055	2115
-180	-111	-330

HBU2 Current area of mudflat, sandflat and saltmarsh : 1497 ha		
Predicted Losses/Gains		
2025	2055	2115
2	-46	-212

HBU4 Current area of mudflat, sandflat and saltmarsh : 3512 ha		
Predicted Losses/Gains		
2025	2055	2115
-6	-13	-42

HBU3 Current area of mudflat, sandflat and saltmarsh : 9947 ha		
Predicted Losses/Gains		
2025	2055	2115
-719	-1224	-2743

HBU1 Current area of mudflat, sandflat and saltmarsh : 4440 ha		
Predicted Losses/Gains		
2025	2055	2115
141	137	742

Figure 2 - Decline in Area of Mudflat within the N2K site over Time

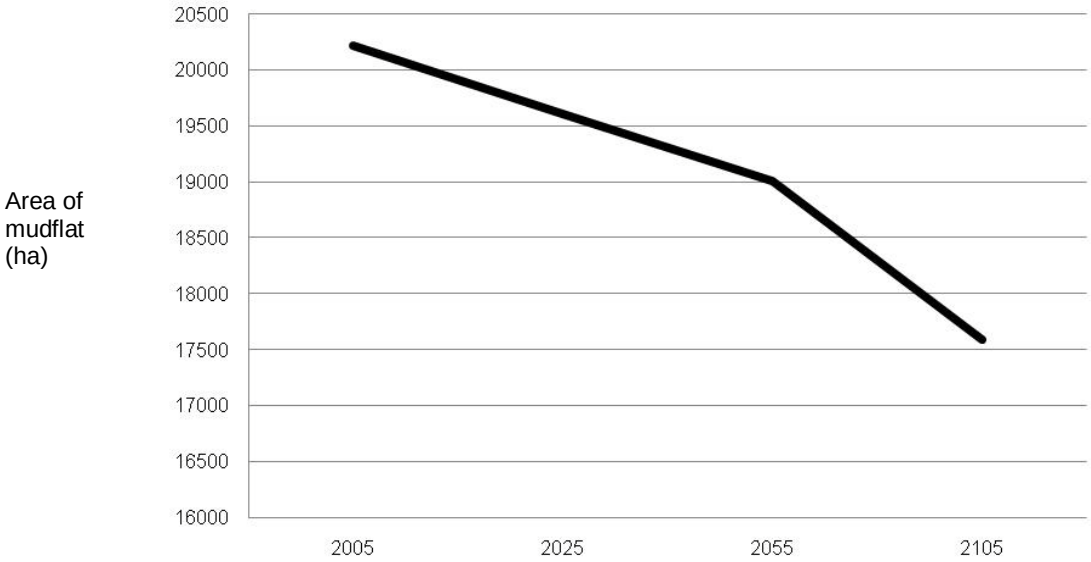
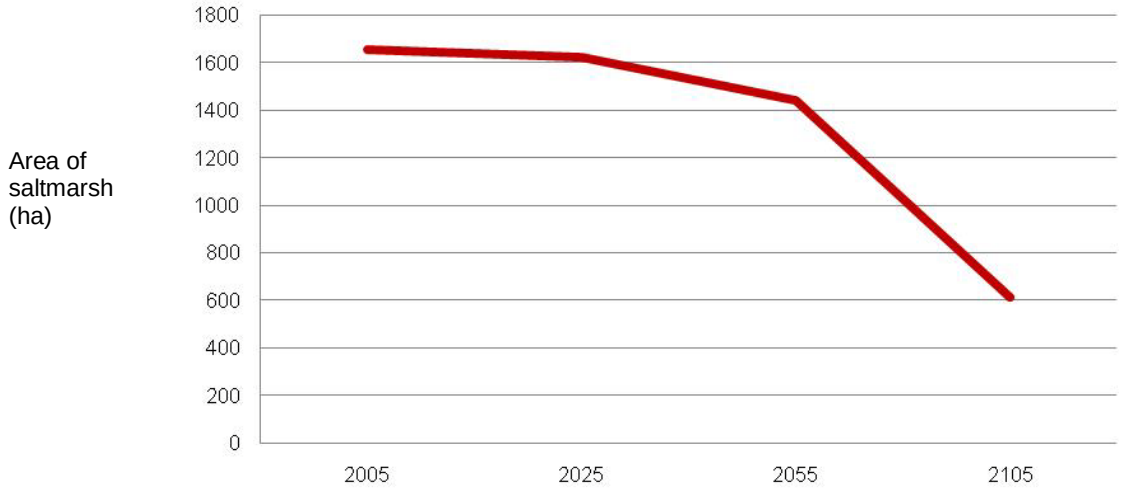


Figure 3 - Decline in Area of Saltmarsh within the N2K site over Time



4.2 Appropriate Assessment Record

Hazard	Interest feature	Conservation Objectives	Contribution of attribute[1] /supporting habitats to ecological structure and function of site	Contribution of management[2] or other unauthorised sources to attribute and / or feature condition vulnerability/threats	Adverse Effect of proposal alone and in-combination on attribute[1] and / or feature	Can Adverse effects be avoided?	Adverse affect on integrity; long / short term Yes/ No/ uncertain ?
Severn Estuary SPA:							
Changes in physical regime (NAI,MR) Changes in water chemistry (NAI,MR) Habitat loss/physical damage (NAI,MR)	3.4 Birds of Lowland wet grasslands (Bewick's swan, internationally important populations of migratory dunlin, redshank, curlew & internationally important assemblages of waterfowl populations)	Bewick's Swan: (i) the 5 year peak mean population size for the Bewick's swan population is no less than 289 individuals (ie the 5 year peak mean between 1988/9 - 1992/3); (ii) the extent of saltmarsh at the Dumbles is maintained; (iii) the extent of intertidal mudflats and sandflats at Frampton Sands, Waveridge Sands and the Noose is maintained; (iv) the extent of vegetation with an effective field size of >6 ha and with unrestricted bird sightlines > 500m at feeding, roosting and refuge sites are maintained; (v) greater than 25% cover of suitable soft leaved herbs and grasses in winter season throughout the transitional saltmarsh at the Dumbles is maintained; (vi) aggregations of Bewick's swan at feeding, roosting and refuge sites are not subject to significant disturbance. **Dunlin**: (i)the 5 year peak mean population size for the wintering dunlin population is no less than 41,683 individuals (i.e. the 5 year peak mean between 1988/9 - 1992/3); (ii) the extent of saltmarsh and associated strandlines is maintained; (iii) the extent of intertidal mudflats and sandflats is maintained; (iv) the extent of hard substrate habitats is maintained; (v) the extent of vegetation with a sward height of <10cm is maintained throughout the saltmarsh ; (vi) the abundance and macro-distribution of suitable invertebrates in intertidal mudflats and sandflats is maintained; (vii) the abundance and macro-distribution of suitable invertebrates in hard substrate habitats) is maintained; (viii) unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; (ix) aggregations of dunlin at feeding or roosting sites are not subject to significant disturbance. **Redshank**: (i) the 5 year peak mean population size for the wintering redshank population is no less than 2,013 individuals (ie the 5 year peak mean between 1988/9 - 1992/3); (ii) the extent of saltmarsh and associated strandlines is maintained; (iii) the extent of intertidal mudflats and sandflats) is maintained; (iv) the extent of hard substrate habitats) is maintained; (v) the extent of vegetation with a sward height of <10cm throughout the saltmarsh (Appendix 8) is maintained; (vi) the abundance and macro-distribution of suitable invertebrates in intertidal mudflats and sandflats is maintained; (vii) the abundance and macro-distribution of suitable invertebrates in hard substrate habitats is maintained; (viii) unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; ix) aggregations of redshank at feeding or roosting sites are not subject to significant disturbance. Internationally important assemblage of waterfowl: (i) the 5 year peak mean population size for the waterfowl assemblage is no less than 68,026 individuals (ie the 5 year peak mean between 1988/9 - 1992/3); (ii) the extent of saltmarsh and their associated strandlines is maintained; (iii) the extent of intertidal mudflats and sandflats is maintained; (iv) the extent of hard substrate habitats is maintained; (v) extent of vegetation of <10cm throughout the saltmarsh is maintained; (vi) the abundance and macroscale distribution of suitable invertebrates in intertidal mudflats and sandflats is maintained; (vii) the abundance and macroscale distribution of suitable invertebrates in hard substrate habitats is maintained;	Lowland wet grasslands are valuable areas for waterfowl using the estuary. At various times of day they are used for feeding and roosting. **Bewick Swan** are mainly found in upper Severn around Slimbridge. They are dependent on the saltmarsh habitats and often graze on a range of 'soft' meadow grasses found in the wet meadows. Key supporting habitats: Intertidal mudflats and sandflats , saltmarsh Redshank and dunlin are distributed widely and feed throughout the estuary on marine polychaete worms, crustaceans and molluscs. They frequently feed along undisturbed strandlines throughout the estuary. Dunlin are found mostly on the mid shore whereas redshank are more thinly distributed and are often found in smaller groups in the creeks and sub-estuaries. The Severn has the third largest wintering population of Dunlin in Britain. Feeding flocks are widely distributed around the estuary particularly downstream of the first Severn Bridge, with particular concentrations at Rhymney/Peterstone, Uskmouth, Welsh Grounds, Undy, Clevedon and Bridgwater Bay. There are notable concentrations of redshank at the mouths of the Rhymney, Wye, Avon and Parrett rivers **Dunlin & Redshank**: Key supporting habitats: Intertidal mudflats and sandflats, saltmarsh and hard substrate habitats (rocky shores)	Significant disturbance attributable to human activity can reduce food intake and or increase energy expenditure. Any habitat loss or damage can result in a loss or damage to areas used by birds for foraging, sheltering or roosting. The lowland wet grassland habitat around the estuary may be dependent on freshwater flows through rhine and ditch systems which can be affected by changes in the physical regime leading to loss/alteration of habitats. Alteration to grazing regime can result in loss of suitable roosting habitat since vegetation <10cm is required throughout areas used by roosting waders The Annex 1 species (Bewick's Swan) is highly vulnerable to: Substratum loss and smothering (moderate to high) Changes in water flow rate Changes in wave exposure Changes in grazing management Noise and visual presence Changes in nutrient loading Changes in salinity The Annex 1 species (Bewick's Swan) is moderately to Changes in suspended sediment Desiccation and changes in emergence regime Toxic contamination Changes in oxygenation Introduction of microbial pathogens Internationally important waterfowl assemblage including populations of regularly occurring migratory species is highly vulnerable to: Substratum loss and smothering (moderate to high) Changes in water flow rate Changes in wave exposure Abrasion and physical disturbance Changes in grazing management Noise or visual disturbance Toxic contamination Changes in salinity (moderate to high) Internationally important waterfowl assemblage including populations of regularly occurring migratory species is moderately vulnerable to: Changes in suspended sediment Desiccation and changes in emergence regime Changes in nutrient loading Changes in thermal regime Changes in oxygenation Introduction of microbial pathogens Introduction of non-native species Selective extraction of species	**Alone**: In areas where No Active Intervention and/or MR are proposed, increased inundation, changes in physical processes and increased salinity may affect habitats which the birds use for feeding and roosting potentially affecting population distribution and densities across the estuary. **Adverse Effect** **In-combination**: None of the plans and projects reviewed are considered likely to result in increased inundation of grassland habitats. **No Effect**	No N/A	Yes (short, medium and long term) N/A

Hazard	Interest feature	Conservation Objectives	Contribution of attribute[1] /supporting habitats to ecological structure and function of site	Contribution of management[2] or other unauthorised sources to attribute and / or feature condition vulnerability/threats	Adverse Effect of proposal alone and in-combination on attribute[1] and / or feature	Can Adverse effects be avoided?	Adverse affect on integrity; long / short term Yes/ No/ uncertain ?
		(viii) greater than 25% cover of suitable soft leaved herbs and grasses during the winter on saltmarsh areas is maintained; (ix) unrestricted bird sightlines of >500m at feeding and roosting sites are maintained; (x) waterfowl aggregations at feeding or roosting sites are not subject to significant disturbance Conservation objectives specifically for Curlew are not available.					
Changes in physical regime (NAI,MR) Changes in water chemistry (NAI,MR) Habitat loss/physical damage (NAI,MR)	3.6 Birds of lowland freshwaters and their margins (Bewick's swan and internationally important populations of regularly occurring migratory european white-fronted goose, shelduck, gadwall, pintail & ringed plover. Internationally important assemblages of waterfowl populations	**Bewick's swan:** Conservation objectives as for Interest Feature 3.4 **European white-fronted goose:** (i) the 5 year peak mean population size for the wintering European white fronted goose population is no less than 3,002 individuals (ie the 5 year peak mean between 1988/9-1992/3); (ii) the extent of saltmarsh at the Dumbles is maintained; (iii) the extent of intertidal mudflats and sandflats at Frampton Sands, Waveridge Sands and the Noose : is maintained; (iv) greater than 25% cover of suitable soft-leaved herbs and grasses is maintained during the winter on saltmarsh areas; (v) unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; (vi) aggregations of European white-fronted goose at feeding or roosting sites are not subject to significant disturbance. Shelduck: (i) the extent of saltmarsh is maintained; (ii) the extent of intertidal mudflats and sandflats is maintained; (iii) the extent of hard substrate habitats is maintained; (iv) the abundance and macro-distribution of suitable invertebrates in intertidal mudflats and sandflats is maintained; (v) the abundance and macro-distribution of suitable invertebrates in intertidal mudflats and sandflats is maintained; (vi) unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; (vii) aggregations of shelduck at feeding or roosting sites are not subject to significant disturbance. **Gadwall:** (i) the 5 year peak mean population size for the wintering gadwall population is no less than 330 (ie the 5 year peak mean between 1988/9 - 1992/3); (ii) the extent of intertidal mudflats and sandflats is maintained; (iii) unrestricted bird sightlines of >200m at feeding and roosting sites are maintained; (iv) aggregations of gadwall at feeding or roosting sites are not subject to significant disturbance. Conservation objectives specifically for pintail or ringed plover are not available. Internationally important assemblage of waterfowl populations: Conservation objectives as for Interest Feature 3.4	Lowland freshwater habitats and their margins are valuable areas for waterfowl using the estuary. At various times of day they are used for feeding and roosting. The birds maintain a stable population of their prey items – seeds, crustaceans, small fish, molluscs, worms, ragworms, lugworms and other invertebrates. **European white fronted goose**: key supporting habitats: Intertidal mudflats and sandflats and saltmarsh **Gadwall** are predominantly a freshwater species preferring the wetland habitats that occur within the SPA behind the flood defences most notably the freshwater wetlands at Slimbridge and Bridgwater bay. However, they do make use of the estuary but this is largely restricted to areas where freshwater flows come into the estuary, particularly larger pills and rivers- most notably at Avonmouth, between the two Severn Bridges and at Woodspring and Weston Bays. **Pintail** are widely distributed around the estuary with a notable concentration at the New Grounds. Pintail are also found at Peterstone/Rhymney **Shelduck**: Key supporting habitats: Intertidal mudflats and sandflats, saltmarsh, hard substrate habitats (rocky shores) **Gadwall:** Key supporting habitats Intertidal mudflats and sandflats	Significant disturbance attributable to human activity can reduce food intake and or increase energy expenditure. Any habitat loss or damage can result in a loss or damage to areas use for foraging, sheltering or roosting. Alteration to freshwater The lowland wet grassland habitat around the estuary may be dependent on freshwater flows through rhine and ditch systems which can be affected by changes in the physical regime leading to loss/alteration of habitats. In particular gadwall are threatened by changes to freshwater habitats. Bewick's swan vulnerability: see above under Interest Feature 3.4. Internationally important waterfowl assemblage including populations of regularly occurring migratory species vulnerability: see above under Interest Feature 3.4.	**Alone**: In areas where No Active Intervention and/or MR are proposed, increased inundation, changes in physical processes and increased salinity may affect habitats which the birds use for feeding and roosting potentially affecting population distribution and densities across the estuary. **Adverse Effect** **In-combination**: None of the plans and projects reviewed are considered likely to result in increased inundation of freshwater habitats. **No Effect**	No N/A	Yes (short, medium and long term) N/A
Changes in physical regime (NAI,MR) Changes in water chemistry (NAI,MR) Habitat loss/physical damage (NAI,MR)	3.7 Birds of farmland (Bewick's swan & internationally important populations of regularly occurring migratory European white-fronted goose, dunlin, redshank, curlew & internationally important assemblage of	**Bewick's swan**: Conservation objectives as listed for Interest Feature 3.4 **European white-fronted goose**: Conservation objective as listed for Interest Feature for 3.6 **Dunlin**: Conservation Objectives as listed for Interest Feature 3.4 **Redshank:** Conservation Objectives as listed for Interest Feature 3.4 **Curlew:** no specific Conservation Objectives Internationally important assemblage of waterfowl populations: Conservation objectives as listed for Interest Feature 3.4	Lowland freshwater habitats and their margins are valuable areas for waterfowl using the estuary. At various times of day they are used for feeding and roosting. The birds maintain a stable population of their prey items – seeds, crustaceans, small fish, molluscs, worms, ragworms, lugworms and other invertebrates. **Bewick Swan** are mainly found in upper Severn around Slimbridge. They often graze on a range of 'soft' meadow grasses found in the wet meadow and more recently, have taken to foraging on agricultural land, in particular waste root crops, grain stubbles and winter cereals. **European white fronted goose**: key supporting habitats: Intertidal mudflats and sandflats and saltmarsh **Dunlin, Redshank**: key supporting habitats: Intertidal	Significant disturbance attributable to human activity can reduce food intake and or increase energy expenditure. Any habitat loss or damage can result in a loss or damage to areas use for foraging, sheltering or roosting. Alteration of management of farmland decreasing suitability for foraging or roosting. Vegetation <10cm is required for roosting waders. Bewick's swan vulnerability : listed under Section 3.4 Internationally important waterfowl assemblage including populations of regularly occurring migratory species vulnerability: see above under Interest Feature 3.4.	**Alone**: In areas where No Active Intervention and/or MR are proposed, increased inundation, changes in physical processes and increased salinity may affect habitats which the birds use for feeding and roosting potentially affecting population distribution and densities across the estuary. **Adverse Effect** **In-combination**: None of the plans and projects reviewed are considered likely to result in increased inundation of farmland habitats. **No Effect**	No N/A	Yes (short, medium and long term) N/A

Hazard	Interest feature	Conservation Objectives	Contribution of attribute[1] /supporting habitats to ecological structure and function of site	Contribution of management[2] or other unauthorised sources to attribute and / or feature condition vulnerability/threats	Adverse Effect of proposal alone and in-combination on attribute[1] and / or feature	Can Adverse effects be avoided?	Adverse affect on integrity; long / short term Yes/ No/ uncertain ?
	waterfowl populations.		mudflats and sandflats, saltmarsh Hard substrate habitats (rocky shores)				
Changes in physical regime (HTL) Habitat loss/physical damage (HTL)	3,8 Birds of coastal habitats (Bewick's swan & internationally important populations of European white-fronted goose, dunlin, redshank, shelduck, curlew, pintail & ringed plover & internationally important assemblages of waterfowl populations.	**Bewick's swan**: Conservation objectives as for Interest Feature for 3.4 **European white-fronted goose**: Conservation objectives as for Feature 3.6 **Dunlin**: Conservation objectives listed under Interest Feature for 3.4 **Redshank**: Conservation objectives as for Interest Feature 3.4 **Shelduck:** Conservation objectives as for Interest Feature 3.6 No specific Conservation objectives for curlew, pintail & ringed plover Internationally important assemblage of waterfowl populations: Conservation objectives as for Interest Feature 3.4	Intertidal habitat utilised by birds includes mudflats, sandflats, saltmarsh, mudflats, rocky shores. These habitats provide important roosting and feeding areas for the birds. Lowland freshwater habitats and their margins are valuable areas for waterfowl using the estuary. At various times of day they are used for feeding and roosting. The birds maintain a stable population of their prey items – seeds, crustaceans, small fish, molluscs, worms, ragworms, lugworms and other invertebrates. **Bewick Swan** are mainly found in upper Severn around Slimbridge. They often graze on a range of 'soft' meadow grasses found in the wet meadows. **Dunlin, Redshank, Shelduck**: key supporting habitats: Intertidal mudflats and sandflats, saltmarsh Hard substrate habitats (rocky shores)	Significant disturbance attributable to human activity can reduce food intake and or increase energy expenditure. Any habitat loss or damage can result in a loss or damage to areas use for foraging, sheltering or roosting. Biological disturbance (introduction of non-native species and translocation and selective extraction of species) through encroachment of non native cord grass Spartina anglica over mudflats used by feeding birds has contributed to the loss of intertidal sediments and to an increase in the extent of saltmarsh. Local declines in Dunlin numbers have been attributed to the loss of habitat on estuaries due to cord grass. Shelduck are also considered to be particularly vulnerable. Changes in grazing management (presence, duration & intensity) can alter the habitat structure of vegetation decreasing its suitability as a feeding or roosting site for birds. Toxic contamination of saltmarsh through bioaccumulation can affect the wildfowl which feed on them Bewick's swan vulnerability : listed under Section 3.4 Internationally important waterfowl assemblage including populations of regularly occurring migratory species vulnerability: see above under Interest Feature 3.4.	**Alone**: A Hold the Line Policy is likely to result in coastal squeeze in the short, medium and long term, reducing the extent of intertidal habitat; this could reduce the suitability of areas for bird feeding and roosting potentially affecting population distribution and densities across the estuary**. Adverse Effect** In-combination: projects and plans that could give rise to in-combination effects include: Cardiff Local Development Plan, Vale of Glamorgan Council Local Development Strategy, Monmouthshire Local Development Plan, North Somerset Core Strategy, North Devon and Somerset SMP2, Swansea and Carmarthen Bay SMP, Private Defences, Bristol Container Port and Severn Tidal Power Project. **Uncertain**	No The Land Use Plans &, SMPs are currently incomplete and there is therefore a high degree of uncertainty surrounding development proposal and safeguarding policies within them. The Severn Tidal power project is still at the feasibility stage with no confirmation that a project will actually progress or what the preferred option will be. As high level plans the impacts of the chosen SMP2 policies at a site-specific level are uncertain. There is currently insufficient information available to determine whether in-combination effects will arise. No in combination effects are obvious at this stage; the SECG will work closely with Local Authorities and other Coastal Groups to ensure no in combination effects will arise as these documents are further developed. All these documents will be reviewed as part of the HRA for the FRMS. Compensation has been secured for the Bristol Ports development including habitat creation at Steart which will provide habitats to offset losses at Avonmouth; no in-combination effects are considered likely to occur	Yes (short, medium and long term) Uncertain at SMP2 level. Further assessment to be undertaken at FRMS level
Changes in physical regime (HTL) Habitat loss/physical damage (HTL)	3.9 Birds of estuarine habitats (Bewick's swan & internationally important populations of European white-fronted goose, dunlin, redshank, shelduck, curlew, pintail & ringed plover & internationally important assemblages of waterfowl populations.	**Bewick's swan**: Conservation objectives as for Interest Feature 3.4 **European white-fronted goose**: Conservation objectives as for Interest Feature 3.6 **Dunlin**: Conservation objectives as for Interest Feature 3.4 **Redshank**: Conservation objectives as for Interest Feature f3.4 **Shelduck**: Conservation objectives as for Interest Feature 3.6 No Conservation objectives given for curlew, pintail & ringed plover Internationally important assemblage of waterfowl populations: Conservation objectives as for Interest Feature 3.4	Mudflats and sandflats of the estuary provide undisturbed refuge and a rich resource of intertidal invertebrates as food for many species of migratory birds Saltmarsh communities provide important feeding and roosting areas. They provide an important safe haven from tides. Intertidal habitat utilised by birds includes mudflats, sandflats, saltmarsh, mudflats, rocky shores. These habitats provide important roosting and feeding areas for the birds. The birds maintain a stable population of their prey items – seeds, crustaceans, small fish, molluscs, worms, ragworms, lugworms and other invertebrates. The shingle and rocks in the estuary provide feeding areas for many wildfowl and waders and important roost sites at high tide The saltmarsh provides a safe haven for the feeding waders and wildfowl from the tides that flood the mudflats twice a day. Upper saltmarsh in particular makes ideal high water roost sites and there are main high tide roosts in some areas with little human disturbance where waders congregate from their feeding areas. Waders in particular, require very short vegetation to afford unrestricted views for	Significant disturbance attributable to human activity can reduce food intake and or increase energy expenditure. Any habitat loss or damage can result in a loss or damage to areas use for foraging, sheltering or roosting. Prey availability can vary due to sediment distribution which can in turn affect waterbird distribution and numbers across the intertidal habitats. Water quality affects intertidal plant and animal communities on which the waders will forage. Changes in suspended sediments can lead to alterations in light penetration which in turn changes the intertidal mud and sandflat communities on which the waders feed. Fresh water quantity, tidal flows, salinity gradients and grazing necessary to maintain saltmarsh conditions suitable for bird feeding and roosting Biological disturbance (introduction of non-native species and translocation and selective extraction of species) through encroachment of non native cord grass Spartina anglica over mudflats used by feeding birds has	**Alone**: A Hold the Line Policy is likely to result in coastal squeeze in the short, medium and long term, reducing the extent of intertidal habitat; this could reduce the suitability of areas for bird feeding and roosting potentially affecting population distribution and densities across the estuary**. Adverse Effect** In-combination: projects and plans that could give rise to in-combination effects include: Cardiff Local Development Plan, Vale of Glamorgan Council Local Development Strategy, Monmouthshire Local Development Plan, North Somerset Core Strategy, North Devon and Somerset SMP2, Swansea and Carmarthen Bay SMP, Private Defences, Bristol Container Port and Severn Tidal Power Project. **Uncertain**	No The Land Use Plans &, SMPs are currently incomplete and there is therefore a high degree of uncertainty surrounding development proposal and safeguarding policies within them. The Severn Tidal power project is still at the feasibility stage with no confirmation that a project will actually progress or what the preferred option will be. As high level plans the impacts of the chosen SMP2 policies at a site-specific level are uncertain. There is currently insufficient information	Yes (short, medium and long term) Uncertain at SMP2 level. Further assessment to be undertaken at FRMS level

Hazard	Interest feature	Conservation Objectives	Contribution of attribute[1] /supporting habitats to ecological structure and function of site	Contribution of management[2] or other unauthorised sources to attribute and / or feature condition vulnerability/threats	Adverse Effect of proposal alone and in-combination on attribute[1] and / or feature	Can Adverse effects be avoided?	Adverse affect on integrity; long / short term Yes/ No/ uncertain ?
			the early detection of predators **Bewick Swan** are mainly found in upper Severn around Slimbridge. They often graze on a range of 'soft' meadow grasses found in the wet meadows. **Dunlin, Redshank, Shelduck**: key supporting habitats: Intertidal mudflats and sandflats, saltmarsh Hard substrate habitats (rocky shores) **European white fronted goose**: key supporting habitats: Intertidal mudflats and sandflats and saltmarsh . The European white-fronted geese roost at night on estuarine sandbanks and usually fly less than 10km to the daytime feeding grounds. The sandbanks adjacent to the New Grounds at Slimbridge are a long established, traditional wintering area. The European white-fronted geese graze on a range of saltmarsh grasses and herbs	contributed to the loss of intertidal sediments and to an increase in the extent of saltmarsh Most of the waders and waterfowl within the assemblage including the internationally important regularly occurring migratory birds feed on invertebrates within and on the sediments Changes to physical regime can affect sediment loading and invertebrate abundance/distribution. Bewick's swan vulnerability : listed under Section 3.4 Internationally important waterfowl assemblage including populations of regularly occurring migratory species vulnerability: see above under Interest Feature 3.4.		available to determine whether in-combination effects will arise. No in combination effects are obvious at this stage; the SECG will work closely with Local Authorities and other Coastal Groups to ensure no in combination effects will arise as these documents are further developed. All these documents will be reviewed as part of the HRA for the FRMS. Compensation has been secured for the Bristol Ports development including habitat creation at Steart which will provide habitats to offset losses at Avonmouth; no in-combination effects are considered likely to occur	

Severn Estuary Ramsar							
Hazard	**Interest Feature**	**Conservation Objectives**	**Contribution of attribute[1] /supporting habitats to ecological structure and function of site**	**Contribution of management[2] or other unauthorised sources to attribute and / or feature condition vulnerability/threats**	**Adverse Effect of proposal alone and in-combination on attribute[1] and / or feature**	**Can Adverse Effects be avoided?**	**Adverse affect on integrity; long / short term Yes / No / uncertain?**
Habitat Loss & physical damage (HTL) Changes to the physical regime (HTL)	1.12 Estuarine and Intertidal habitats	Maintain the feature in favourable condition as defined by the conservation objectives outlined for the SAC (where applicable)	**Estuaries:** The Estuary is an over-arching feature which incorporates all aspects of the physical, chemical and biological attributes of the estuary as an ecosystem. The physical nature of the tidal regime determines not only the structure of the estuary and individual habitats but also the conditions affecting it and the biological communities it therefore supports. It is one of the largest and most important in Britain and its range of habitats provide an ecosystem of great importance for a wide range of fish and bird species – for feeding, breeding, resting and migration. **Intertidal Mudflats and Sandflats:** The intertidal part of the Severn Estuary supports extensive mudflats and sandflats, covering approximately 20,300 ha - the fourth largest area in a UK estuary and representing approximately 7 % of the total UK resource of this habitat type (approximately 10% of the UK Natura 2000 resource for Intertidal mudflats and sandflats, by area. The habitat feature is distributed throughout the Severn Estuary with extensive mudflats fronting the Welsh shore and Bridgwater Bay, and large banks of clean sands in the more central parts of the estuary at Middle and Welsh Grounds. It is influenced by strong tidal streams and extreme silt loading. Gravel and clean sand communities occur predominantly in the mid and upper parts of the estuary forming large banks in the centre the estuary (Frampton Sands, Lydney Sands, Oldbury Sands, Bedwyn Sands and the Welsh Grounds) through which the main tidal channel flows keeping sediments mobile. Sandy mud communities occur in restricted locations forming the transition between the	**Estuary** has been identified as being highly vulnerable to: Substratum loss Smothering Changes in water flow rate Changes in wave exposure Abrasion and physical disturbance Toxic contamination Changes in salinity Introduction of non-native species xi. Changes in oxygenation xii. Introduction of microbial pathogens xiv. Selective extraction of species **Estuary** has been identified as being moderately vulnerable to: Changes in suspended sediment Changes in thermal regime **Intertidal Mudflats and Sandflats** have been identified as being highly vulnerable to: Substratum loss	**Alone**: A Hold the Line Policy is likely to result in coastal squeeze in the short, medium and long term, reducing the extent of intertidal habitat; this could reduce the suitability of areas for bird feeding and roosting potentially affecting population distribution and densities across the estuary**. Adverse Effect** In-combination: projects and plans that could give rise to in-combination effects include: Cardiff Local Development Plan, Vale of Glamorgan Council Local Development Strategy, Monmouthshire Local Development Plan, North Somerset Core Strategy, North Devon and Somerset SMP2, Swansea and Carmarthen Bay SMP, Private Defences, Bristol Container Port and Severn Tidal Power Project. **Uncertain**	No The Land Use Plans &, SMPs are currently incomplete and there is therefore a high degree of uncertainty surrounding development proposal and safeguarding policies within them. The Severn Tidal power project is still at the feasibility stage with no confirmation that a project will actually progress or what the preferred option will be. As high level plans the impacts of the chosen SMP2 policies at a site-specific level are uncertain. There is currently insufficient information available to determine whether in-	Yes (short, medium and long term) Uncertain at SMP2 level. Further assessment to be undertaken at FRMS level

Notes:
1 ATTRIBUTE = Quantifiable aspects of interest features (subject to natural variation in some cases) that can be used to help define favourable condition for that feature. See Site Conservation Objectives
2 MANAGEMENT = in this context management refers to management of the European site
3 If uncertain consider time-limited consent, or other legally enforceable modifications

			clean sand and mud communities particularly in the mid estuary and at the lowest extremes of the tide and at the flanks of the main channel. Mud communities form in the sheltered edges of the estuary particularly where the coastline forms natural embayments and are predominantly found in the mid to outer estuary at Bridgewater Bay and on the Cardiff and Newport frontages although a narrow fringe of these communities is present throughout the estuary. These communities take the form of firm mud banks adjacent to the saltmarshes often with a liquid mud surface kept fluid by the high tidal currents. Intertidal mudflats and sandflats support a variety of different wildlife communities. These are predominantly infaunal communities of a variety of different animal species such as worms, molluscs and crustaceans living within the sediment habitat. The type of sediment, its stability and the salinity of the water have a large influence on the wildlife species present. The high biomass of invertebrates in the mudflats of the Severn provide an important food source for a diverse range and large number of fish and benthic predators. These intertidal areas are therefore important in supporting the fish assemblage subfeature of the Ramsar Site Mudflats also provide a valuable feeding, roosting and resting area for a wide range of species of wading birds and waterfowl and are therefore important supporting habitats for the wintering and passage bird features of the Ramsar Site Atlantic Salt Meadow The Severn Estuary holds the largest aggregation of saltmarsh in the south and south-west of the UK. It covers approximately 1,400 ha, representing about 4% of the total area of saltmarsh in the UK (Dargie, 2000). Saltmarshes and mudflats have an important role to play both through the recycling of nutrients and as soft sea defences, dissipating wave energy. They are highly productive biologically, providing organic material that support other features within the marine ecosystem and they also have an important physical role, acting as a sediment store to the estuary as a whole. Saltmarshes also provide a valuable feeding and roosting and resting areas (particularly at high tide) for a wide range of species of waterfowl and are therefore very important supporting habitats for the wintering and passage bird features of the SPA and Ramsar Site. The habitats within the “pills” provide important shelter and feeding habitats for both fish and bird species. The Severn Estuary saltmarshes are generally grazed by sheep and/or cattle. Grazing is a significant factor in determining the plant communities found within them and their value for dependant species such as birds and rare plants.	Changes in water flow rate Changes in wave exposure Abrasion and physical disturbance Toxic contamination Changes in nutrient loading Introduction of microbial pathogens **Intertidal Mudflats and Sandflats** have been identified as being moderately vulnerable to: Smothering Changes in suspended sediment Changes in thermal regime Changes in salinity Changes in oxygenation Introduction of non-native species **Atlantic Salt Meadow** has been identified as being highly vulnerable to: Substratum loss Smothering Changes in water flow rate Changes in wave exposure Abrasion and physical disturbance Changes in grazing management Toxic contamination Changes in nutrient loading Changes in salinity **Atlantic Salt Meadow** has been identified as being moderately vulnerable to: Changes in suspended sediment Desiccation and changes in emergence regime Changes in oxygenation Introduction of microbial pathogens		combination effects will arise. No in combination effects are obvious at this stage; the SECG will work closely with Local Authorities and other Coastal Groups to ensure no in combination effects will arise as these documents are further developed. All these documents will be reviewed as part of the HRA for the FRMS. Compensation has been secured for the Bristol Ports development including habitat creation at Steart which will provide habitats to offset losses at Avonmouth; no in-combination effects are considered likely to occur	
Changes to the physical regime (NAI, MR) Changes in water chemistry (NAI, MR) Habitat Loss/physical damage (NAI, MR)	3.4 Birds of lowland wet grasslands	Maintain the feature in favourable condition as defined by the conservation objectives outlined for the SPA feature	See SPA assessment for Interest Feature 3.4	See SPA assessment for Interest Feature 3.4	**Alone**: In areas where No Active Intervention and/or MR are proposed, increased inundation, changes in physical processes and increased salinity may affect habitats which the birds use for feeding and roosting potentially affecting population distribution and densities across the estuary. **Adverse Effect** **In-combination**: None of the plans and projects reviewed are considered likely to result in increased inundation of grassland habitats. **No Effect**	No N/A	Yes (short, medium and long term) N/A
Changes in physical regime (NAI, MR) Changes in water chemistry (NAI, MR) Habitat loss/physical damage(NAI, MR)	3.6 Birds of lowland freshwaters and their margins	Maintain the feature in favourable condition as defined by the conservation objectives outlined for the SPA feature	See SPA assessment for Interest Feature 3.6	See SPA assessment for Interest Feature 3.6	**Alone**: In areas where No Active Intervention and/or MR are proposed, increased inundation, changes in physical processes and increased salinity may affect habitats which the birds use for feeding and roosting potentially affecting population distribution and densities across the estuary. **Adverse Effect** **In-combination**: None of the plans and projects reviewed are considered likely to result in increased inundation of freshwater habitats. **No Effect**	No N/A	Yes (short, medium and long term) N/A
Changes in physical regime (NAI, MR) Changes in water chemistry(NAI, MR) Habitat loss/physical damage (NAI, MR)	3.7 Birds of farmland	Maintain the feature in favourable condition as defined by the conservation objectives outlined for the SPA feature	See SPA assessment for Interest Feature 3.7	See SPA assessment for Interest Feature 3.7	**Alone**: In areas where No Active Intervention and/or MR are proposed, increased inundation, changes in physical processes and increased salinity may affect habitats which the birds use for feeding and roosting potentially affecting population distribution and densities across the estuary. **Adverse Effect** **In-combination**: None of the plans and projects reviewed are considered likely to	No N/A	Yes (short, medium and long term) N/A

					result in increased inundation of farmland habitats. **No Effect**		
Changes in physical regime (HTL) Habitat loss/physical damage (HTL)	3.8 Birds of coastal habitats	Maintain the feature in favourable condition as defined by the conservation objectives outlined for the SPA feature	See SPA assessment for Interest Feature 3.8	See SPA assessment for Interest Feature 3.8	**Alone**: A Hold the Line Policy is likely to result in coastal squeeze in the short, medium and long term, reducing the extent of intertidal habitat; this could reduce the suitability of areas for bird feeding and roosting potentially affecting population distribution and densities across the estuary**. Adverse Effect** In-combination: projects and plans that could give rise to in-combination effects include: Cardiff Local Development Plan, Vale of Glamorgan Council Local Development Strategy, Monmouthshire Local Development Plan, North Somerset Core Strategy, North Devon and Somerset SMP2, Swansea and Carmarthen Bay SMP, Private Defences, Bristol Container Port and Severn Tidal Power Project. **Uncertain**	No The Land Use Plans &, SMPs are currently incomplete and there is therefore a high degree of uncertainty surrounding development proposal and safeguarding policies within them. The Severn Tidal power project is still at the feasibility stage with no confirmation that a project will actually progress or what the preferred option will be. As high level plans the impacts of the chosen SMP2 policies at a site-specific level are uncertain. There is currently insufficient information available to determine whether in-combination effects will arise. No in combination effects are obvious at this stage; the SECG will work closely with Local Authorities and other Coastal Groups to ensure no in combination effects will arise as these documents are further developed. All these documents will be reviewed as part of the HRA for the FRMS. Compensation has been secured for the Bristol Ports development including habitat creation at Steart which will provide habitats to offset losses at Avonmouth; no in-combination effects are considered likely to occur	Yes (short, medium and long term) Uncertain at SMP2 level. Further assessment to be undertaken at FRMS level
Changes in physical regime (HTL) Habitat loss/physical damage (HTL)	3.9 Birds of estuarine habitats	Maintain the feature in favourable condition as defined by the conservation objectives outlined for the SPA feature	See SPA assessment for Interest Feature 3.9	See SPA assessment for Interest Feature 3.9	**Alone**: A Hold the Line Policy is likely to result in coastal squeeze in the short, medium and long term, reducing the extent of intertidal habitat; this could reduce the suitability of areas for bird feeding and roosting potentially affecting population distribution and densities across the estuary**. Adverse Effect** In-combination: projects and plans that could give rise to in-combination effects include: Cardiff Local Development Plan, Vale of Glamorgan Council Local Development Strategy, Monmouthshire Local Development Plan, North Somerset Core Strategy, North Devon and Somerset SMP2, Swansea and Carmarthen Bay SMP, Private Defences, Bristol Container Port and Severn Tidal Power Project. **Uncertain**	No The Land Use Plans &, SMPs are currently incomplete and there is therefore a high degree of uncertainty surrounding development proposal and safeguarding policies within them. The Severn Tidal power project is still at the feasibility stage with no confirmation that a project will actually progress or what the preferred option will be. As high level plans the impacts of the chosen SMP2 policies at a site-specific level are uncertain. There is currently insufficient information available to determine whether in-combination effects will arise. No in combination effects are obvious at this stage; the SECG will work closely with Local Authorities and other Coastal Groups to ensure no in combination effects will arise as these documents are further developed. All these documents will be reviewed as part of the HRA for the FRMS.	Yes (short, medium and long term) Uncertain at SMP2 level. Further assessment to be undertaken at FRMS level

						Compensation has been secured for the Bristol Ports development including habitat creation at Steart which will provide habitats to offset losses at Avonmouth; no in-combination effects are considered likely to occur	

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Hazard	Interest feature	Conservation Objectives	Contribution of attribute[1] to ecological structure and function of site	Contribution of management[2] or other unauthorised sources to attribute and / or feature condition	Adverse Effect of proposal alone and in-combination on attribute[1] and / or feature	Can Adverse effects be avoided?	Adverse affect on integrity; long / short term Yes / No / uncertain ?
Severn Estuary SAC							
Changes to the physical regime (HTL, MR) Habitat Loss/physical damage (HTL)	1.12 Estuarine & Intertidal habitats (includes: Estuaries; Intertidal Mudflats and Sandflats and Atlantic Salt Meadows	**Estuaries:** Maintain feature in favourable condition by meeting the following conditions: i. the total extent of the estuary is maintained; ii. the characteristic physical form (tidal prism/cross sectional area) and flow (tidal regime) of the estuary is maintained; iii. the characteristic range and relative proportions of sediment sizes and sediment budget within the site is maintained; iv. the extent, variety and spatial distribution of estuarine habitat communities within the site is maintained; v. the extent, variety, spatial distribution and community composition of hard substrate habitats and their notable communities is maintained; vi. the abundance of the notable estuarine species assemblages is maintained or increased; vii. the physico-chemical characteristics of the water column support the ecological objectives described above; viii. Toxic contaminants in water column and sediment are below levels which would pose a risk to the ecological objectives described above. ix. Airborne nutrient and contaminant loads are below levels which would pose a risk to the ecological objectives described above **Mudflats and Sandflats**: The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met: i. The total extent of the mudflats and sandflats feature is maintained; ii. the variety and extent of individual mudflats and sandflats communities within the site is maintained; iii. the distribution of individual mudflats and sandflats communities within the site is maintained; iv. the community composition of the mudflats and sandflats feature within the site is maintained; v. the topography of the intertidal flats and the morphology (dynamic processes of sediment movement and channel migration across the flats) are maintained. **Atlantic Salt Meadow**: The feature will be considered to be in favourable condition when, subject to natural processes, each of the following conditions are met: i. the total extent of Atlantic salt meadow and associated transitional vegetation communities within the site is maintained; ii. the extent and distribution of the individual Atlantic salt meadow and associated transitional vegetation communities within the site is maintained; iii. the zonation of Atlantic salt meadow vegetation communities and their associated transitions to other estuary habitats is maintained; iv. the relative abundance of the typical species of the Atlantic salt meadow and associated transitional vegetation communities is maintained; v. the abundance of the notable species of the Atlantic salt meadow	**Estuaries:** The Estuary is an over-arching feature which incorporates all aspects of the physical, chemical and biological attributes of the estuary as an ecosystem. The physical nature of the tidal regime determines not only the structure of the estuary and individual habitats but also the conditions affecting it and the biological communities it therefore supports. It is one of the largest and most important in Britain and its range of habitats provide an ecosystem of great importance for a wide range of fish and bird species – for feeding, breeding, resting and migration. **Intertidal Mudflats and Sandflats:** The intertidal part of the Severn Estuary supports extensive mudflats and sandflats, covering approximately 20,300 ha - the fourth largest area in a UK estuary and representing approximately 7 % of the total UK resource of this habitat type (approximately 10% of the UK Natura 2000 resource for Intertidal mudflats and sandflats, by area. The habitat feature is distributed throughout the Severn Estuary with extensive mudflats fronting the Welsh shore and Bridgwater Bay, and large banks of clean sands in the more central parts of the estuary at Middle and Welsh Grounds. It is is influenced by strong tidal streams and extreme silt loading. Gravel and clean sand communities occur predominantly in the mid and upper parts of the estuary forming large banks in the centre the estuary (Frampton Sands, Lydney Sands, Oldbury Sands, Bedwyn Sands and the Welsh Grounds) through which the main tidal channel flows keeping sediments mobile. Sandy mud communities occur in restricted locations forming the transition between the clean sand and mud communities particularly in the mid estuary and at the lowest extremes of the tide and at the flanks of the main channel. Mud communities form in the sheltered edges of the estuary particularly where the coastline forms natural embayments and are predominantly found in the mid to outer estuary at Bridgewater Bay and on the Cardiff and Newport frontages although a narrow fringe of these communities is present throughout the estuary. These communities take the form of firm mud banks adjacent to the saltmarshes often with a liquid mud surface kept fluid by the high tidal currents. Intertidal mudflats and sandflats support a variety of different wildlife communities. These are predominantly infaunal communities of a variety of different animal species such as worms, molluscs and crustaceans living within the sediment habitat. The type of sediment, its stability and the salinity of the water have a large influence on the wildlife species present. The high biomass of invertebrates in the mudflats of the Severn provide an important food source for a diverse range and large number of fish and benthic predators. These intertidal areas are therefore important in supporting the fish assemblage subfeature of the Ramsar Site Mudflats also provide a valuable feeding, roosting and resting area for a wide range of species of wading birds and waterfowl and are therefore important supporting habitats for the wintering and passage bird features of the Ramsar Site	**Estuary** has been identified as being highly vulnerable to : Substratum loss Smothering Changes in water flow rate Changes in wave exposure Abrasion and physical disturbance Toxic contamination Changes in salinity Introduction of non-native species Changes in oxygenation Introduction of microbial pathogens xiv. Selective extraction of species **Estuary** has been identified as being moderately vulnerable to: Changes in suspended sediment Changes in thermal regime **Intertidal Mudflats and Sandflats** have been identified as being highly vulnerable to: Substratum loss Changes in water flow rate Changes in wave exposure Abrasion and physical disturbance Toxic contamination Changes in nutrient loading Introduction of microbial pathogens **Intertidal Mudflats and Sandflats** have been identified as being moderately vulnerable to: Smothering Changes in suspended sediment Changes in thermal regime Changes in salinity Changes in oxygenation Introduction of non-native species **Atlantic Salt Meadow** has been identified as being highly vulnerable to: Substratum loss Smothering Changes in water flow rate Changes in wave exposure	**Alone**: In areas where Hold the Line and/or Managed Realignment are proposed, coastal sqeeze and changes to adjacent terrestrial/freshwater habitats could result in a change to the overall form and function of the estuary in the short, medium and long term. Coastal squeeze in the short, medium and long term may also reduce the extent of intertidal habitat; this could reduce the suitability of areas for bird feeding and roosting potentially affecting population distribution and densities across the estuary**. Adverse Effect** In-combination: projects and plans that could give rise to in-combination effects include: Cardiff Local Development Plan, Vale of Glamorgan Council Local Development Strategy, Monmouthshire Local Development Plan, North Somerset Core Strategy, North Devon and Somerset SMP2, Swansea and Carmarthen Bay SMP, Private Defences, Bristol Container Port and Severn Tidal Power Project. **Uncertain**	No The Land Use Plans &, SMPs are currently incomplete and there is therefore a high degree of uncertainty surrounding development proposal and safeguarding policies within them. The Severn Tidal power project is still at the feasibility stage with no confirmation that a project will actually progress or what the preferred option will be. As high level plans the impacts of the chosen SMP2 policies at a site-specific level are uncertain. There is currently insufficient information available to determine whether in-combination effects will arise. No in combination effects are obvious at this stage; the SECG will work closely with Local Authorities and other Coastal Groups to ensure no in combination effects will arise as these documents are further developed. All these documents will be reviewed as part of the HRA for the FRMS. Compensation has been secured	Yes (short, medium and long term) Uncertain at SMP2 level. Further assessment to be undertaken at FRMS level

		and associated transitional vegetation communities is maintained. vi. the structural variation of the salt marsh sward (resulting from grazing) is maintained within limits sufficient to satisfy the requirements of conditions iv and v above and the requirements of the Ramsar and SPA features vii. the characteristic stepped morphology of the salt marshes and associated creeks, pills, drainage ditches and pans, and the estuarine processes that enable their development, is maintained. viii Any areas of *Spartina anglica* salt marsh (SM6) are capable of developing naturally into other saltmarsh communities.	Atlantic Salt Meadow The Severn Estuary holds the largest aggregation of saltmarsh in the south and south-west of the UK. It covers approximately 1,400 ha, representing about 4% of the total area of saltmarsh in the UK (Dargie, 2000). Saltmarshes and mudflats have an important role to play both through the recycling of nutrients and as soft sea defences, dissipating wave energy. They are highly productive biologically, providing organic material that support other features within the marine ecosystem and they also have an important physical role, acting as a sediment store to the estuary as a whole. Saltmarshes also provide a valuable feeding and roosting and resting areas (particularly at high tide) for a wide range of species of waterfowl and are therefore very important supporting habitats for the wintering and passage bird features of the SPA and Ramsar Site. The habitats within the "pills" provide important shelter and feeding habitats for both fish and bird species. The Severn Estuary saltmarshes are generally grazed by sheep and/or cattle. Grazing is a significant factor in determining the plant communities found within them and their value for dependant species such as birds and rare plants.	Abrasion and physical disturbance Changes in grazing management Toxic contamination Changes in nutrient loading Changes in salinity **Atlantic Salt Meadow** has been identified as being moderately vulnerable to: Changes in suspended sediment Desiccation and changes in emergence regime Changes in oxygenation Introduction of microbial pathogens		for the Bristol Ports development including habitat creation at Steart which will provide habitats to offset losses at Avonmouth; no in-combination effects are considered likely to occur	

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Hazard	Interest feature	Conservation Objectives	Contribution of attribute[1] to ecological structure and function of site	Contribution of management[2] or other unauthorised sources to attribute and / or feature condition	Adverse Effect of proposal alone and in-combination on attribute[1] and / or feature	Can Adverse effects be avoided?	Adverse affect on integrity; long / short term Yes / No / uncertain?
River Usk SAC							
Habitat loss/physical damage Habitat Severance	2.9 Mammals of riverine habitats	Conservation objective: The feature will be in favourable condition when the following are satisfied: The population of otters in the SAC is stable or increasing over the long term and reflects the natural carrying capacity of the habitat within the SAC, as determined by natural levels of prey abundance and associated territorial behaviour The natural range of otters in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches that are potentially suitable to form part of a breeding territory and/or provide routes between breeding territories. The whole area of the Usk SAC is considered to form potentially suitable breeding habitat for otters. The size of breeding territories may vary depending on prey abundance. The population size should not be limited by the availability of suitable undisturbed breeding sites. Where these are insufficient they should be created through habitat enhancement and where necessary the provision of artificial holts. No otter breeding site should be subject to a level of disturbance that could have an adverse effect on breeding success. Where necessary, potentially harmful levels of disturbance must be managed The safe movement and dispersal of individuals around the SAC is facilitated by the provision, where necessary, of suitable riparian habitat, and underpasses, ledges, fencing etc at road bridges and other artificial barriers Performance Indicator: a) Distribution Otter signs present at 90% of Otter Survey of Wales sites b) Breeding activity 2 reports of cub/family sightings at least 1 year in 6 c) Actual and potential breeding sites No decline in number and quality of mapped breeding sites in subcatchments	Otters are widely distributed throughout the Usk catchment. The Usk SAC provides a key movement corridor for otters passing between the relatively high densities in mid Wales and the south-east Wales coastal strip (Seven Estuary and Gwent Levels).	The decline in eel populations may be having an adverse effect on the population of otters in the Usk. Restrictions on the movement of otters around the SAC, and between adjoining sites are currently a particular concern in the reach through Newport as a result of a continued decrease in undisturbed suitable riparian habitat Pollution of rivers with toxic chemicals, such as PCBs, was one of the major factors identified in the widespread decline of otters during the last century. There should be no increase in pollutants potentially toxic to otters.	**Alone:** Hold the Line: may in the medium to long term result in loss of intertidal habitat due to increased sea level rise and costal squeeze. The existing tidal range in the lower reaches of the Usk, around Newport is of the order of 11.9m (mean spring tidal range) (Admiralty Tide Tables 2006). Using Defra 2006 figures an increase in sea level of approximately 1m in 100 years time is predicted. This figure would decrease moving upstream. This increase is considered unlikely to affect otter passage or feeding. **No Adverse Effect** **Alone**: If the SoP is to be maintained or increased the construction of new defences under a Hold the Line Option may require the footprint of defences to be increased, potentially resulting in incursion into the SAC resulting in habitat loss or severance. However the SMP2 does not specify how the HTL policy will be implemented so it is not possible to identify whether impacts could occur or not. Further assessment to be undertaken as part of the FRMS. **Uncertain** **In- combination**: projects and plans that could give rises to in-combination effects include: River Usk Strategy, Wye and Usk CFMP and resulting projects and Newport Local Development plan. Projects arising could result in encroachment into the SAC and loss of intertidal habitat. **Uncertain**	N/A **Uncertain**, further review and assessment to be undertaken at FRMS stage. Potential for in combination effect with Wye and Usk CFMP. The Land Use Plan is currently incomplete and there is therefore a level of uncertainty surrounding development proposals and safeguarding policies. As a high level plan the impacts of the chosen SMP2 policies at a site-specific level are uncertain. There is currently insufficient information available to determine whether in-combination effects will arise; the SECG will work closely with Local Authorities to ensure no in combination effects arise as plans for Newport are further developed. All these plans will be reviewed as part of the HRA for the FRMS. **Uncertain**	N/A Impacts uncertain at SMP2 level, further review and assessment to be undertaken at FRMS stage. Mitigation measures that might be adopted at FRMS and/or project stage to avoid significant effects are likely to include further detailed assessment and mitigation as required at the EIA/project level, avoidance of night time working, ensuring passage for otters is maintained at all times Impacts uncertain at SMP2 level, further review and assessment to be undertaken at FRMS stage Mitigation measures that might be adopted at FRMS and/or project stage to avoid significant effects are likely to include further detailed assessment and mitigation as required at the EIA/project level, avoidance of night time working, ensuring passage for otters is maintained at all times.

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Somerset Levels and Moors SPA							
Changes in physical regime (HTL) Habitat loss/physical damage (HTL)	3.8 Birds of coastal habitats	Not available	Not available	The site lies within the flood plains of a number of large rivers and drains with many areas below high tide levels. Peat extraction occurs over part of the site. This is not currently thought to pose a risk, and future extraction will be subject to controls under the Habitats Regulations. The majority of land is farmed and under private ownership. Most farms have dairy or beef herds. Trends in agriculture and support schemes have a critical influence as improvement with conversion of grassland to arable, land drainage, increased applications of inorganic fertilisers and cutting of silage are major threats to vulnerable peat soils and the nature conservation value of the site. Less intensive practices are encouraged through the ESA scheme, WES and Section 15 agreements. Water Level Management is critical and is being addressed through the Water Level Management Plans process and the development of Raised Water Level Areas and Environmentally Sensitive Area (ESA).	**Alone**: A Hold the Line Policy is likely to result in coastal squeeze in the medium to long term, reducing the extent of intertidal habitat; This could adversely affect feeding and roosting habitats which support bird populations on the site potentially altering bird population size, density and distribution on the Somerset Levels and Moors. KIN 3 is the only frontage along this policy unit with a HTL policy. There is the potential for intertidal habitat loss along the frontage of KIN3. **Adverse Effect** In-combination: projects and plans that could give rise to in-combination effects include: North Somerset Core Strategy, North Devon and Somerset SMP2, Private Defences, and Severn Tidal Power Project. There is the potential for intertidal habitat loss which could affect bird population size distribution and density on the levels and Moors**. Uncertain**	No The Land Use Plans &, SMPs are currently incomplete and there is therefore a degree of uncertainty surrounding impacts, development proposal and safeguarding policies within them. The Severn Tidal power project is still at the feasibility stage with no confirmation that a project will actually progress or what the preferred option will be. As high level plans the impacts of the chosen SMP2 policies at a site-specific level are uncertain. There is currently insufficient information available to determine whether in-combination effects will arise. No in combination effects are obvious at this stage; the SECG will work closely with Local Authorities and other Coastal Groups to ensure no in combination effects will arise as these documents are further developed. All these documents will be reviewed as part of the HRA for the FRMS.	Yes (short, medium and long term) Uncertain at SMP2 level. Further assessment to be undertaken at FRMS level
Changes in physical regime (HTL) Habitat loss/physical damage (HTL)	3.9 Birds of estuarine habitats	Not available	Not available	The site lies within the flood plains of a number of large rivers and drains with many areas below high tide levels. Peat extraction occurs over part of the site. This is not currently thought to pose a risk, and future extraction will be subject to controls under the Habitats Regulations. The majority of land is farmed and under private ownership. Most farms have dairy or beef herds. Trends in agriculture and support schemes have a critical influence as improvement with conversion of grassland to arable, land drainage, increased applications of inorganic fertilisers and cutting of silage are major threats to vulnerable peat soils and the nature conservation value of the site. Less intensive practices are encouraged through the ESA scheme, WES and Section 15 agreements. Water Level Management is critical and is being addressed through the Water Level Management Plans process and the development of Raised Water Level Areas and Environmentally Sensitive Area (ESA).	**Alone**: A Hold the Line Policy is likely to result in coastal squeeze in the medium to long term, reducing the extent of intertidal habitat; This could adversely affect feeding and roosting habitats which support bird populations on the site potentially altering bird population size, density and distribution on the Somerset Levels and Moors. KIN 3 is the only frontage along this policy unit with a HTL policy. There is the potential for intertidal habitat loss along the frontage of KIN3. **Adverse Effect** In-combination: projects and plans that could give rise to in-combination effects include: North Somerset Core Strategy, North Devon and Somerset SMP2, Private Defences, and Severn Tidal Power Project. There is the potential for intertidal habitat loss which could affect bird population size distribution and density on the levels and Moors**. Uncertain**	No The Land Use Plans &, SMPs are currently incomplete and there is therefore a degree of uncertainty surrounding impacts, development proposal and safeguarding policies within them. The Severn Tidal power project is still at the feasibility stage with no confirmation that a project will actually progress or what the preferred option will be. As high level plans the impacts of the chosen SMP2 policies at a site-specific level are uncertain. There is currently insufficient information available to determine whether in-combination effects will arise. No in combination effects are obvious at this stage; the SECG will work closely with Local Authorities and other Coastal Groups to ensure no in combination effects will arise as these documents are further developed. All these documents will be reviewed as part of the HRA for the FRMS.	Yes (short, medium and long term) Uncertain at SMP2 level. Further assessment to be undertaken at FRMS level

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Hazard	Interest feature	Conservation Objectives	Contribution of attribute[1] to ecological structure and function of site	Contribution of management[2] or other unauthorised sources to attribute and / or feature condition	Adverse Effect of proposal alone and in-combination on attribute[1] and / or feature	Can Adverse effects be avoided?	Adverse affect on integrity; long / short term Yes / No / uncertain?
Somerset Levels and Moors Ramsar							
	3.8 Birds of coastal habitats	Not available		No factors (past, present or potential) adversely affecting the site's ecological character are identified	**Alone**: A Hold the Line Policy is likely to result in coastal squeeze in the medium to long term, reducing the extent of intertidal habitat; This could adversely affect feeding and roosting habitats which support bird populations on the site potentially altering bird population size, density and distribution on the Somerset Levels and Moors. KIN 3 is the only frontage along this policy unit with a HTL policy. There is the potential for intertidal habitat loss along the frontage of KIN3. **Adverse Effect** In-combination: projects and plans that could give rise to in-combination effects include: North Somerset Core Strategy, North Devon and Somerset SMP2, Private Defences, and Severn Tidal Power Project. There is the potential for intertidal habitat loss which could affect bird population size distribution and density on the levels and Moors**. Uncertain**	No The Land Use Plans &, SMPs are currently incomplete and there is therefore a degree of uncertainty surrounding impacts, development proposal and safeguarding policies within them. The Severn Tidal power project is still at the feasibility stage with no confirmation that a project will actually progress or what the preferred option will be. As high level plans the impacts of the chosen SMP2 policies at a site-specific level are uncertain. There is currently insufficient information available to determine whether in-combination effects will arise. No in combination effects are obvious at this stage; the SECG will work closely with Local Authorities and other Coastal Groups to ensure no in combination effects will arise as these documents are further developed. All these documents will be reviewed as part of the HRA for the FRMS.	Yes (short, medium and long term) Uncertain at SMP2 level. Further assessment to be undertaken at FRMS level
Changes in physical regime (HTL) Habitat loss/physical damage (HTL)	3.9 Birds of estuarine habitats	Not available		No factors (past, present or potential) adversely affecting the site's ecological character are identified	**Alone**: A Hold the Line Policy is likely to result in coastal squeeze in the medium to long term, reducing the extent of intertidal habitat; This could adversely affect feeding and roosting habitats which support bird populations on the site potentially altering bird population size, density and distribution on the Somerset Levels and Moors. KIN 3 is the only frontage along this policy unit with a HTL policy. There is the potential for intertidal habitat loss along the frontage of KIN3. **Adverse Effect** In-combination: projects and plans that could give rise to in-combination effects include: North Somerset Core Strategy, North Devon and Somerset SMP2, Private Defences, and Severn Tidal Power Project. There is the potential for intertidal habitat loss which could affect bird population size distribution and density on the levels and Moors**. Uncertain**	No The Land Use Plans &, SMPs are currently incomplete and there is therefore a degree of uncertainty surrounding impacts, development proposal and safeguarding policies within them. The Severn Tidal power project is still at the feasibility stage with no confirmation that a project will actually progress or what the preferred option will be. As high level plans the impacts of the chosen SMP2 policies at a site-specific level are uncertain. There is currently insufficient information available to determine whether in-combination effects will arise. No in combination effects are obvious at this stage; the SECG will work closely with Local Authorities and other Coastal Groups to ensure no in combination effects will arise as these documents are further developed. All these documents will be reviewed as part of the HRA for the FRMS.	Yes (short, medium and long term) Uncertain at SMP2 level. Further assessment to be undertaken at FRMS level

Notes:
1 ATTRIBUTE = Quantifiable aspects of interest features (subject to natural variation in some cases) that can be used to help define favourable condition for that feature. See Site Conservation Objectives
2 MANAGEMENT = in this context management refers to management of the European site
3 If uncertain consider time-limited consent, or other legally enforceable modifications

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4.3 Conclusion of Stage 3 Assessment

Can it be ascertained that the plan will not adversely affect the integrity of the European site(s)? No

This assessment had been carried out considering the likely effects of the implementation of high level policies identified in the Severn Estuary SMP2 alone and in-combination, on site integrity of a number of European sites. These policies are by their nature high level and lack detail with regards to changes are going to be caused by the delivery of the SMP2 and the specific areas that will be affected. Therefore, only a high level assessment of the adverse impacts on sites can be undertaken.

In the majority of cases adverse impacts are likely to occur as a result of coastal squeeze, or increased tidal inundation of freshwater habitats

Due to the high level strategic nature of the SMP2 there is a degree of uncertainty relating to exactly how SMP2 polices will be implemented (e.g. defence alignment, deference type, standard of protection to be provided) in many cases it has not been possible to determine whether or not a significant adverse effect is likely and a number of potential impacts will be assessed in further details as part of the Severn Estuary FRMS. These include:

Feature	Potential impacts alone	Potential impacts in combination
Severn Estuary/Mor Hafren SPA		
3.4 Birds of lowland wet grasslands, 3.6 Birds of lowland freshwaters and their margins, 3.7: Birds of farmland	Impacts of HTL on habitats behind the defence will be determined by SoP to be provided.	None – potential impacts are largely associated with increased overtopping of defences affecting freshwater habitats behind the defence so no potential for in combination effects considered likely
Severn Estuary Ramsar		
3.4 Birds of lowland wet grasslands, 3.6 Birds of lowland freshwaters and their margins, 3.7: Birds of farmland – both inside and outside the designated sit	Impacts of HTL on habitats behind the defence will be determined by SoP to be provided.	None – potential impacts are largely associated with increased overtopping of defences affecting freshwater habitats behind the defence so no potential for in combination effects considered likely
North Somerset and Mendip Bat SAC		
2.8 mammals of wooded habitats	Increased flooding could affect bat foraging/feeding habitat. Impacts resulting from NAI, HTL and MR will depend of the SoP to be provided.	Impacts are largely associated with increased flooding affecting habitats behind the defence so no potential for in combination effects considered likely
Mendip Limestone Grasslands SAC		
2.8 mammals of wooded habitats	Increased flooding could affect bat foraging/feeding habitat. Impacts resulting from NAI, HTL and MR will depend of the SoP to be provided.	Impacts are largely associated with increased flooding affecting habitats behind the defence so no potential for in combination effects considered likely
River Usk SAC		
Mammals of riverine habitats	Potential for habitat loss or severance. Impacts will depend on type of defence , further assessment to be undertake at FRMS stage	Potential for in combination effect with Wye and Usk CFMP and the Land Use Plan. plans will be reviewed as part of the HRA for the FRMS

Significant effects are identified are summarised below:

Feature	Potential impacts alone	Potential impacts in combination	
Severn Estuary SPA and Ramsar			
3.4 Birds of lowland wet grasslands, 3.6 Birds of lowland freshwaters and their margins,	No Active Intervention and/or MR: increased inundation, changes in physical processes and increased salinity may affect habitats which the birds use for feeding and roosting	x	N/A

3.7: Birds of farmland	potentially affecting population distribution and densities across the estuary in the short, medium and long term.		
3,8 Birds of coastal habitats 3.9 Birds of estuarine habitats	HTL is likely to result in coastal squeeze in the short, medium and long term, reducing the extent of intertidal habitat; this could reduce the suitability of areas for bird feeding and roosting potentially affecting population distribution and densities across the estuary	✓	Cardiff Local Plan/UDP/Local Development Plan, Vale of Glamorgan Council Local Development Strategy, Monmouthshire Local Development Plan, North Somerset Core Strategy, North Devon and Somerset SMP2, Swansea and Carmarthen Bay SMP, Private Defences, Bristol Container Port and Severn Tidal Power Project High degree of uncertainty; further assessment to be undertaken at FRMS stage
Severn Estuary Ramsar and SAC			
1.12 Estuarine and Intertidal habitats	HTL is likely to result in coastal squeeze in the short, medium and long term, reducing the extent of intertidal habitat; this could reduce the suitability of areas for bird feeding and roosting potentially affecting population distribution and densities across the estuary HTL and MR could result in changes to the form and function of the overarching estuary feature	✓	Cardiff Local Plan/UDP/Local Development Plan, Vale of Glamorgan Council Local Development Strategy, Monmouthshire Local Development Plan, North Somerset Core Strategy, North Devon and Somerset SMP2, Swansea and Carmarthen Bay SMP, Private Defences, Bristol Container Port and Severn Tidal Power Project High degree of uncertainty; further assessment to be undertaken at FRMS stage.
Somerset Levels and Moors Spa and Ramsar			
3.8 Birds of coastal habitats, 3.9 Birds of estuarine habitats	KIM3: HTL is likely to result in coastal squeeze in the short, medium and long term, reducing the extent of intertidal habitat; this could reduce the suitability of areas for bird feeding and roosting potentially affecting population distribution	✓	North Somerset Core Strategy, North Devon and Somerset SMP2, Private Defences, and Severn Tidal Power Project. High degree of uncertainty; further assessment to be undertaken at FRMS stage

This assessment at the plan level does not remove the need for an assessment at the FRMS and/or project level. The HRA undertaken for the FRMS will identify impacts with a greater degree of accuracy and certainty; this assessment, when complete will further inform habitat compensation proposals. Any project arising out of the plan will ensure any adverse effects on the integrity of European sites are avoided.

The SMP2 sets the strategic direction for managing the coastline within the study area on the basis that it cannot be put into effect until more detailed appraisal and assessment has taken place on plans or projects arising out of this SMP2 to show it and they have met the requirements of the Habitats Regulations. If a project is not consistent with the SMP2 then a new Habitats Regulations Assessment may be required. Furthermore, a project may be entirely consistent with the SMP2, but it may still require further Appropriate Assessment at the FRMS or project stage as detail emerging may identify additional impacts that have not been assessed here.

In accordance with the requirements of Regulations 103 and 105 of the Conservation Regulations 2010, as the plan cannot be shown to have no adverse effect on the integrity of the sites, the Coastal Management Group are required to demonstrate that there are no alternative solutions, and then seek a decision from the Secretary of State and WAG that the plan should be approved on the grounds of overriding public interest subject to provision of appropriate level compensation to offset losses of intertidal habitat and impacts on bird populations.

Name of EA officer undertaking appropriate assessment:
Signed: **Date:**

Endorsed by xxx – Area Environment Manager:
Signed: **Date:**

CCW/NE COMMENTS ON APPROPRIATE ASSESSMENT:
IS THERE AGREEMENT WITH THE CONCLUSION? YES/NO
(Please provide summary and explanation for answer given)

Signed: (CCW/NE local team manager) **Date:**

5.0 Part B: Final Appropriate Assessment Record: Severn Estuary SMP2 (May 2010)

This is a record of the appropriate assessment required by Section 61 of the Habitats Regulations 2010, undertaken on behalf of the Severn Estuary Coastal Group in respect of the above plan, in accordance with the Habitats Directive (Council Directive 92/43/EEC). Having considered that the plan would be likely to have a significant effect on the Severn Estuary SPA, SAC and Ramsar sites, Somerset Levels and Moors SPA and Ramsar site and River Usk SAC, and that the plan was not directly connected with or necessary to the management of the sites for nature conservation, an appropriate assessment has been undertaken of the implications of the proposal in view of the sites' conservation objectives.

CCW and NE were consulted under Regulation 48(3) on [date] and their representations, to which the Agency has had regard, are attached in Annex D [not yet inserted]. The conclusions of this appropriate assessment **are / are not** in accordance with the advice and recommendations of CCW/NE".

The site's nature conservation objectives have been taken into account, including consideration of the citation for the site and information supplied by CCW/NE. The likely effects of the SMP2 on the international nature conservation interests for which the sites were classified or designated may be summarised as [list of effects]:

- Loss of intertidal habitat (Severn SAC/Ramsar)
- Potential impacts on bird population size, distribution and density (Severn SPA/Ramsar; Somerset Levels and Moors SPA/Ramsar).
- Loss of intertidal habitat potentially affecting otter passage or feeding

The assessment has concluded that the plan as proposed **cannot** be shown to have no adverse effect on the integrity of the site. The imposition of conditions or restrictions on the way the proposal is to be carried out has been considered and it is ascertained that:

i conditions or restrictions cannot/may not overcome the adverse effects on the integrity of the Severn SPA/SAC/Ramsar and Somerset Levles and Moors

ii the following conditions and/or restrictions would avoid adverse effects on the integrity of the River Usk SAC':

- Further assessments of impacts at the FRSM and project level will be undertaken and will allow potential impacts to be quantified and avoidance or mitigation measures indentified.

In accordance with the requirements of Regulations 103 and 105 of the Conservation Regulations 2010, as the plan cannot be shown to have no adverse effect on the integrity of the sites, the Coastal Management Group are required to demonstrate that there are no alternative solutions, and then seek a decision from the Secretary of State and WAG that the plan should be approved on the grounds of overriding public interest subject to provision of appropriate level compensation to offset losses of intertidal habitat and impacts on bird populations.

Signed (relevant Area Management Team member) and date.

Annex A
Summary of Site Interest Features

Limestone Coast of South West Wales/ Arfordir Calchfaen de Orllewin Cymru SAC	
Total area of site: 1594.53 ha	**Annex I habitats** 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts 2130 Fixed dunes with herbaceous vegetation (`grey dunes`) * Priority feature 4030 European dry heaths 6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*) 8310 Caves not open to the public 8330 Submerged or partially submerged sea caves **Annex II species** 1304 Greater horseshoe bat (*Rhinolophus ferrumequinum)* 1654 Early gentian (*Gentianella anglica)* 1395 Petalwort (*Petalophyllum ralfsii*)

River Tywi/Afon Tywi SAC	
Total area of site: 363.45 ha	**Annex II species that are a primary reason for selection of this site** 1103 Twaite Shad (*Alosa fallax)* 1355 Otter (*Lutra lutra)* 1095 Sea lamprey (*Petromyzon marinus)* 1096 Brook lamprey (*Lampetra planeri)* 1099 River lamprey (*Lampetra fluviatilis)* 1102 Allis shad (*Alosa alosa)* 1163 Bullhead (*Cottus gobio)*

Pembrokeshire Marine/Sir Benfro Forol SAC	
Total area of site: 138069.45 ha	**Annex I habitats that are a primary reason for selection of this site** 1130 Estuaries 1160 Large shallow inlets and bays 1170 Reefs 1110 Sandbanks which are slightly covered by sea water all the time 1140 Mudflats and sandflats not covered by seawater at low tide 1150 Coastal lagoons * Priority feature 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) 8330 Submerged or partially submerged sea caves **Annex II species that are a primary reason for selection of this site** 1364 Grey seal (*Halichoerus grypus)* 1441 Shore dock (*Rumex rupestris)* 1095 Sea lamprey (*Petromyzon marinus)* 1099 River lamprey (*Lampetra fluviatilis)* 1102 Allis shad (*Alosa alosa)* 1103 Twaite shad (*Alosa fallax)* 1355 Otter (*Lutra lutra)*

Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC	
Total area of site: 66101.16 Ha	**Annex I habitats that are a primary reason for selection of this site** 1110 Sandbanks which are slightly covered by sea water all the time 1130 Estuaries 1140 Mudflats and sandflats not covered by seawater at low tide 1160 Large shallow inlets and bays 1310 *Salicornia* and other annuals colonising mud and sand 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)

	Annex II species that are a primary reason for selection of this site 1103 Twaite shad (*Alosa fallax)* 1095 Sea lamprey (*Petromyzon marinus)* 1099 River lamprey (*Lampetra fluviatilis)* 1102 Allis shad (*Alosa alosa)* 1355 Otter (*Lutra lutra)*

Carmarthen Bay/ Bae Caerfyrddin SPA	
Total area of site: 33410.03 ha	Supports the following species overwinter: Common Scoter (*Melanitta nigra*)

Camarthern Bay Dunes/Twymi Bae Caerfyrddin SAC	
Total area of site: 1206.32 ha	**Annex I habitats that are a primary reason for selection of this site** 2110 Embryonic shifting dunes 2120 Shifting dunes along the shoreline with *Ammophila arenaria* (`white dunes`) 2130 Fixed dunes with herbaceous vegetation (`grey dunes`) * Priority feature 2170 Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*) 2190 Humid dune slacks **Annex II species that are a primary reason for selection of this site** 1014 Narrow-mouthed whorl snail (*Vertigo angustior)* 1395 Petalwort (*Petalophyllum ralfsii)* 1903 Fen orchid (*Liparis loeselii)*

Castlemartin Coast SPA	
Total area of site: 1122.32 ha	During the breeding season the area regularly supports: Chough (*Pyrrhocorax pyrrhocorax)*

Burry Inlet SPA and Ramsar	
Total area of site: **SPA:** 6627.99 ha **Ramsar:** 6627.99 ha	**Burry Inlet SPA** Overwinter the area regularly supports: Northern pintail (*Anas acuta)* Shoveler (*Anas clypeata)* Teal (*Anas crecca)* Widgeon (*Anas penelope*) Dunlin (*Calidris alpina alpina*) Red knot (*Calidris canutus*) Eurasian oystercatcher (*Haematopus ostralegus)* Curlew (*Numenius arquata*) Grey Plover (*Pluvialis squatarola*) Shelduck (Tadorna tadorna) Red shank (*Tringa totanus*) Regularly supports an Internationally important assemblage of birds overwinter: 34962 waterfowl including: Shelduck (*Tadorna tadorna*) Widgeon (*Anas penelope)* Northern pintail (*Anas crecca)* Northern pintail (*Anas acuta)* Northern shoveler (*Anas clypeata)* Eurasian oystercatcher (*Haematopus ostralegus*) Grey Plover (*Pluvialis squatarola)* Red knot (*Calidris canutus*) Dunlin (*Calidris alpina alpina*) Curlew (*Numenius arquata*) Common redshank (*Tringa totanus.)*

	Burry Inlet Ramsar **Ramsar criterion 5:** Species of international importance: 41655 waterfowl (5 year peak mean 1998/99-2002/2003) **Ramsar criterion 6:** Species/populations occur at levels of international importance. Species with peak counts in spring/autumn: Common redshank (*Tringa totanus tetanus)* Species with peak counts in winter: Northern pintail (*Anas acuta)* Eurasian oystercatcher (*Haematopus ostralegus ostralegus*) Red knot (*Calidris canutus islandica*) Species/populations identified subsequent to designation for possible future consideration under criterion 6. Species with peak counts in winter: Northern shoveler (*Anas clypeata*)

Dunraven Bay SAC	
Total area of site: 6.47 ha	**Annex II species** 1441 Shore dock *Rumex rupestris*

Crymlyn Bog SAC Ramsar	
Total area of site: **SAC** 299.45 ha **Ramsar** 264.18 ha	**Crymlyn Bog SAC Interest Features:** **Annex I habitats** 7140 Transition mires and quaking bogs 7210 Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* * Priority feature 91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) * Priority feature **Crymlyn Bog Ramsar:** **Ramsar Criterion 1:** Largest example of valley floodplain topogenous mire in South Wales, and one of the largest surviving fens in the west of Britain. Very few other sites are known to support a comparable complexity and diversity of vegetation. **Ramsar criterion 2:** Supports a substantial population of the nationally-rare slender cotton-grass *Eriophorum gracile*, and a rich invertebrate fauna including many rare and highly localised species. **Ramsar criterion 3:** Supports 199 vascular plant species including 17 regionally-uncommon and one nationally rare.

Kenfig/Cynffig SAC	
Total area of site: 1191.67 ha	**Annex I habitats** 2130 Fixed dunes with herbaceous vegetation (`grey dunes`) * Priority feature 2170 Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*) 2190 Humid dune slacks 3140 Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) **Annex II species that are a primary reason for selection of this site** 1395 Petalwort *Petalophyllum ralfsii* 1903 Fen orchid *Liparis loeselii*.

Exmoor and Quantocks Oak Woods SAC	
	Annex I habitats

Total area of site: 1895.17 ha	91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles 91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) (Priority feature) 1308 Barbastelle (*Barbastella barbastellus*) **Annex II species** 1323 Bechstein`s bat (*Myotis bechsteinii*) 1355 Otter (*Lutra lutra*)

Exmoor Heaths SAC	
Total area of site: 10705.87 ha	**Annex I habitats** 4010 Northern Atlantic wet heaths with *Erica tetralix* 4030 European dry heaths 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts 7130 Blanket bogs * Priority feature 7230 Alkaline fens 91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles

Tintagel Marsland Covelly Coast SAC	
Total area of site: 2429.84 ha	**Annex I habitats** 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts 91A0 Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles 4030 European dry heaths

Braunton Burrows SAC	
Total area of site: 1346.64 ha	**Annex I habitats** 2120 Shifting dunes along the shoreline with *Ammophila arenaria* (`white dunes`) 2130 Fixed dunes with herbaceous vegetation (`grey dunes`) * Priority feature 2170 Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*) 2190 Humid dune slacks 1140 Mudflats and sandflats not covered by seawater at low tide **Annex II species** 1395 Petalwort (*Petalophyllum ralfsii)*

Lundy SAC	
Total area of site: 3064.53 ha	**Annex I habitats** 1170 Reefs 1110 Sandbanks which are slightly covered by sea water all the time 8330 Submerged or partially submerged sea caves **Annex II species** 1364 Grey seal (*Halichoerus grypus)*

Wye Valley Woodlands/ Coetiroedd Dyffryn Gwy SAC	
Total area of site: 916.24 ha	**Annex I habitats** 9130 *Asperulo-Fagetum* beech forests 9180 *Tilio-Acerion* forests of slopes, screes and ravines (Priority feature) 91J0 *Taxus baccata* woods of the British Isles (Priority feature) **Annex II species** 1303 Lesser Horseshoe bat (*Rhinolophus hipposideros*)

Wye Valley and Forest of Dean Bat Sites / Safleoedd Ystlumod Dyffryn Gwy a Fforest y Ddena SAC	
Total area of site: 142.7 ha	**Annex II species** 1303 Lesser horseshoe bat (*Rhinolophus hipposideros*) 1304 Greater horseshoe bat (*Rhinolophus ferrumequinum*)

Walmore Common SPA and Ramsar
Relevant Preferred Policies

Total area of site: **SPA** 52.85 ha **Ramsar** : 52.85 ha	**Walmore Common SPA** Supports the following species overwinter: Bewick's swan (*Cygnus columbianus bewickii*) **Walmore Common Ramsar** **Ramsar criterion 6:** Supports species of international important levels: Species with peak counts in winter: Bewick's swan (*Cygnus columbianus bewickii*)

Avon Gorge Woodlands SAC	
Total area of site: 152.35 ha	**Annex I habitats** 9180 *Tilio-Acerion* forests of slopes, screes and ravines (Priority feature) 6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*)

North Somerset and Mendip Bat SAC	
Total area of site: 151.19ha	**Annex I habitats** 6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*). 9180 *Tilio-Acerion* forests of slopes, screes and ravines (Priority feature) 8310 Caves not open to the public **Annex II species** 1303 Lesser horseshoe bat (*Rhinolophus hipposideros*) 1304 Greater horseshoe bat (*Rhinolophus ferrumequinum*)

Mendip Limestone Grasslands SAC	
Total area of site: 417.47ha	**Annex I habitats** 6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*). 9180 *Tilio-Acerion* forests of slopes, screes and ravines (Priority feature) 8310 Caves not open to the public 4030 European dry heaths **Annex II species** 1304 Greater horseshoe bat (*Rhinolophus ferrumequinum*)

Mendip Woodlands SAC	
Total area of site: 253.92ha	**Annex I habitats** 9180 *Tilio-Acerion* forests of slopes, screes and ravines (Priority feature)

Annex B
SMP2 Policies

Policy Unit/Theme Area	0 to 20 years	20-50 years	50-100 years
PEN 1	NAI	NAI	NAI
PEN 2	HTL	HTL	HTL
CAR 1	HTL	HTL	HTL
CAR 2	HTL	HTL	HTL
CAR 3	HTL	HTL	HTL
WEN 1	HTL	HTL	HTL
WEN 2	HTL	HTL	HTL
NEW 1	HTL	HTL	HTL
NEW 2	HTL	HTL	HTL
NEW 3	NAI	NAI	MR
NEW 4	HTL	HTL	HTL
NEW 5	HTL	HTL	HTL
CALD 1	HTL	HTL	HTL
CALD 2	NAI	NAI	NAI
CALD 3	HTL	HTL	HTL
WYE 1	NAI	NAI	NAI
WYE 2	NAI	NAI	NAI
WYE 3	NAI	NAI	NAI
WYE 4	NAI	NAI	NAI
TID 1	NAI	NAI	NAI
TID 2	HTL	HTL	MR
LYD 1	HTL	HTL	HTL
GLO 1	NAI	NAI	NAI
GLO 2	MR	HTL	HTL
GLO 3	NAI	NAI	NAI
GLO 4	HTL	HTL	HTL
GLO 5	HTL	HTL	HTL
GLO 6	NAI	NAI	NAI
GLO 7	HTL	HTL	HTL
GLO 8	HTL	HTL	HTL
MAI 1	MR	HTL	HTL
MAI 2	HTL	HTL	HTL
MAI 3	NAI	NAI	NAI
MAI 4	HTL	HTL	HTL
MAI 5	HTL	HTL	HTL
MAI 6	HTL	HTL	HTL
SHA 1	HTL	MR	MR
SHA 2	HTL	MR	HTL
SHA 3	HTL	HTL	HTL
SHA 4	HTL	MR	MR
SHA 5	NAI	NAI	NAI
SHA 6	HTL	HTL	HTL
SHA 7	MR	HTL	HTL
SHA 8	NAI	NAI	NAI
SEV 1	HTL	HTL	HTL
SEV 2	HTL	HTL	HTL
SEV 3	HTL	HTL	HTL
SEV 4	HTL	HTL	HTL
SEV 5	HTL	HTL	HTL
SEV 6	NAI	NAI	NAI
BRIS 1	HTL	HTL	HTL
BRIS 2	HTL	HTL	HTL
BRIS 3	HTL	HTL	HTL
BRIS 4	HTL	HTL	HTL
BRIS 5	HTL	HTL	HTL

BRIS 6	HTL	HTL	HTL
PORT 1	NAI	NAI	NAI
PORT 2	NAI	NAI	NAI
PORT 3	NAI	NAI	NAI
PORT 4	HTL	HTL	HTL
KIN 1	MR	MR	MR
KIN 2	NAI	NAI	NAI
KIN 3	HTL	HTL	HTL
KIN 4	NAI	NAI	NAI
HOL 1	NAI	NAI	NAI
HOL 2	NAI	NAI	NAI

Figure D1 - Boundaries of European Designated Sites in the Severn Estuary

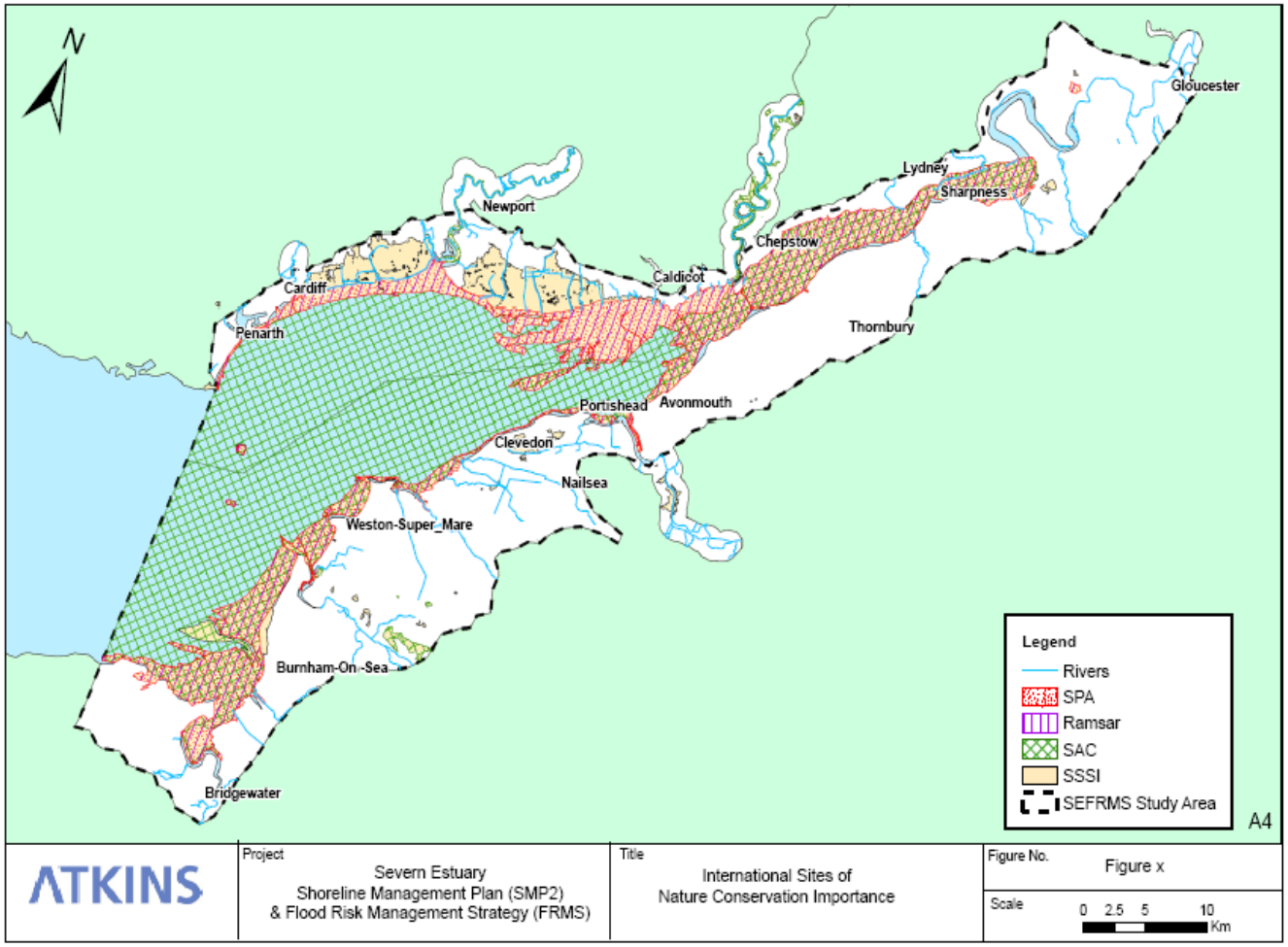
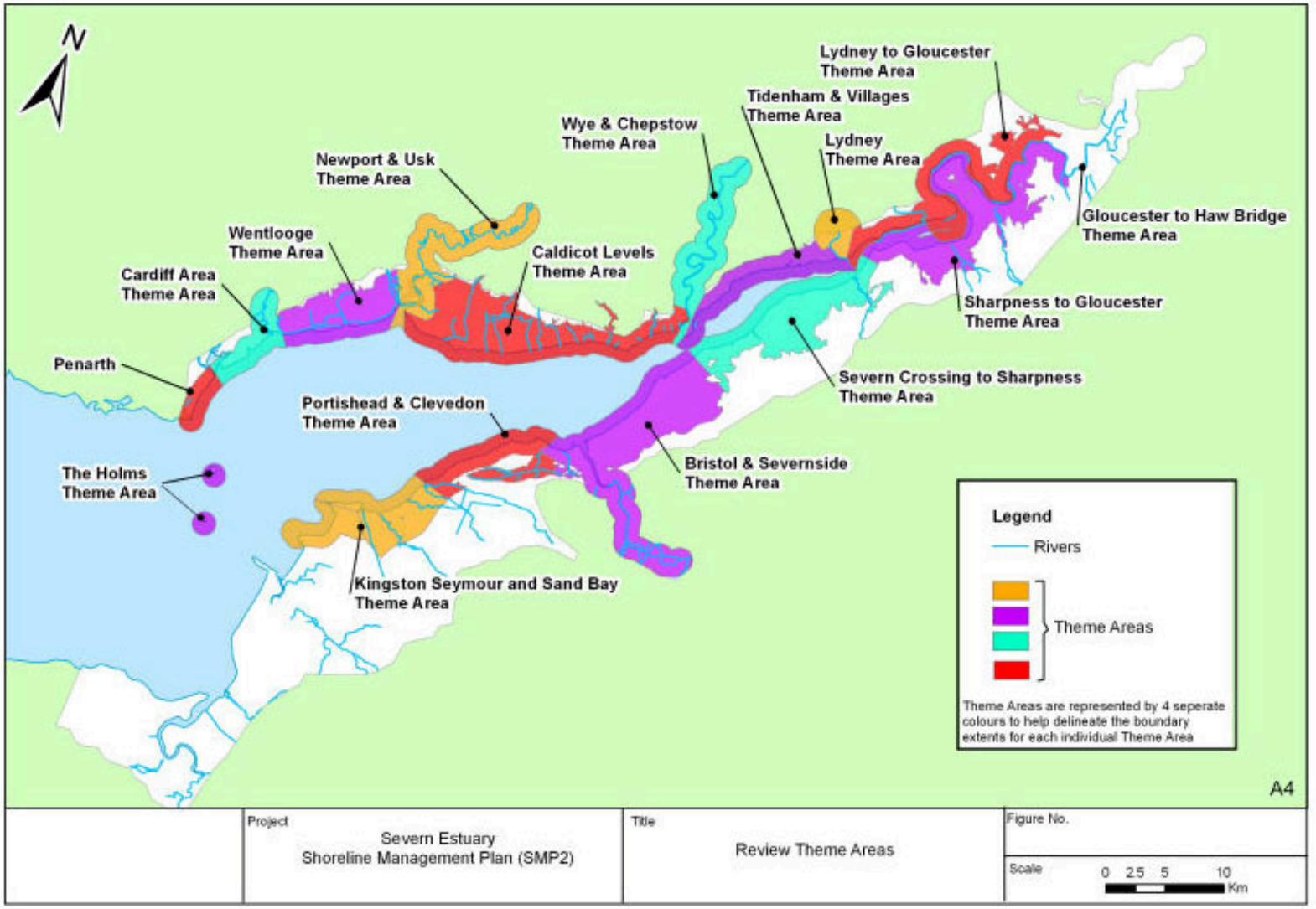


Figure D2 - SMP2 Policy Units or Theme Areas



Annex C

Polices, Plans and Projects reviewed as part of In-Combination Assessment

This Annex presents a summary of relevant plans polices and projects which have the potential to result in in-combination effects on European sites within or adjacent to the SMP2 area. Those giving rise to potential in combination effect have been highlighted.

NATIONAL, REGIONAL AND LOCAL SPATIAL PLANNING

WALES

Wales a Better Country (Welsh Assembly Government, September 2003): sets out WAG guiding vision of a fairer, more prosperous, healthier and better educated country, with commitment to social justice and to putting health and wealth creation that is sustainable at the heart of policy-making. Aspirational and non location specific nature of the document means it is not possible to identify impacts or individual sites with any degree of accuracy. Relevant aims are compatible with SMP2 including conservation of biodiversity. No in-combination effects can be identified at this strategic level.

Environment Strategy for Wales (Welsh Assembly Government, 2006) Addresses key challenges faced by Wales under a number of broad areas: climate change, sustainable resource use, distinctive biodiversity, landscapes and seascapes, local environment and environmental hazards. Aspirational and non location specific nature of the document means it is not possible to identify impacts on individual sites with any degree of accuracy. Relevant aims are compatible with SMP2 including conservation of biodiversity. No in-combination effects can be identified at this strategic level.

Planning Policy Wales (Welsh Assembly Government, March 2002) sets out guidance on the preparation and content of development plans and advice on development control decisions and appeals. Aspirational and non location specific nature of the document means it is not possible to identify impacts on individual sites with any degree of accuracy. Strategic approach to FRM compatible with SMP2. No in-combination effects can be identified at this strategic level.

Sustainable Development Action Plan 2004-2007 (Welsh Assembly Government, 2004) Outlines how WAG will promote sustainable development in the exercise of its functions. Aspirational and non location specific nature of the document means it is not possible to identify impacts on individual sites with any degree of accuracy. Relevant aims are compatible with SMP2 including conservation of biodiversity. No in-combination effects can be identified at this strategic level.

People Places Futures: The Wales Spatial Plan and Wales Spatial Plan Update (Welsh Assembly Government, 2004 and 2008). An HRA of the Wales Spatial Plan concluded that the asprational and non location specific nature of the plan mean to was not possible to identify implications for individual sites with any degree of precision and identified that HRA would be undertaken in greater detail in relation to the lower tier plans including Local Development Plans. Relevant aims are compatible with SMP2 including conservation of biodiversity. No in-combination effects can be identified at this strategic level.

Wales Transport Strategy (Welsh Assembly Government 2006): 'parent document' to Regional Transport plans; sets out how the Welsh Assembly Government proposes to deliver its transport duty to 2030. No location specific proposals; improving the efficient, reliable and sustainable movement of people and freight as well as reducing the contribution of transport to greenhouse gas emissions will help to mitigate or offset any increase in diffuse air pollution as a result of this Strategy. No in-combination effects can be identified at this strategic level.

Minerals Planning Policy Wales Welsh Assembly Government 2001: No locations are specified. The document contains strong policies in regard to the protection of Natura 2000 and Ramsar sites. No in-combination effects can be identified at this strategic level.

Making the Most of Wales' Coast (Welsh Assembly Government 2006) provides management framework for management and informed decision-making on coastal issues so that coastal resources are managed sustainably. Not location specific; relevant aims are compatible with that of the SMP2 including conservation of biodiversity. No in-combination effects can be identified at this strategic level.

Marine Aggregates Dredging Policy (National Assembly for Wales, November 2004): seeks to ensure sustainable, objective and transparent decision-making to meet society's needs for aggregates dredged from the Bristol Channel, Severn Estuary and River Severn. Promotes concept of environmental capacity, along with application of Environmental Impact Assessment (EIA), Regional Environmental Impact Assessment (REIA) and Appropriate Assessment (AA). Non location specific,

but promotes approach to safeguard European sites. No potential for adverse in-combination effects at SM2 level

Welsh Coastal Tourism Strategy – Draft Final Strategy (Welsh Assembly Government, January 2006) sets out a common strategy for developing the tourism potential of the coastline in a sustainable way whilst responding to the needs of growth markets; recognises environmental carrying capacity and potential for conflict of interests. Sets policy context and is non location specific; no adverse in combination effects can be identified at this strategic level.

Wise about Waste: The National Waste Strategy for Wales (WAG 2002). The HRA screening undertaken for this high level Strategy was not able to conclude no likely significant effect, but acknowledged that the approach set out in the Strategy can be implemented without affecting the integrity of Natural 2000 sites through further development of the approach as part of the Sector Plans. Relevant Sector Plans will be subject to their own HRA Assessment, and their development will include consultation with CCW, EAW and local authorities. No adverse in combination effects can be identified at this strategic level

The South East Wales Consultation Draft Regional Waste Plan 1st Revision Oct 2007: within the document Natura 2000 sites have designated as absolute areas of constraint, constituting areas that are unsuitable for waste management facilities. In addition, impacts on designated sites as a result of placing waste management facilities nearby have been considered. Site specific applications with be subject to project level HRA. No adverse in combination effects can be identified at the strategic level.

Responding to Our Changing Climate (Welsh Assembly Government 2007): The SMP2 addresses impacts of climate change and seeks to mitigate adverse effects on European sites. No potential for adverse in combination effects.

Cardiff Local Development Plan 2006- 2021 (Draft). Significant reservations were raised by the Inspectors at the Exploratory Meeting on 25th February 2010, and the Council formally requested that the Inspectors recommend to the Welsh Assembly Government that the LDP be withdrawn from the examination process. The Council will be preparing a new Local Development Plan. The **City of Cardiff Local Plan (1996)** is the main local planning document indentified within the local development framework. However the deposit draft of the **Cardiff Unitary Development Plan (2003)** although in accordance with Draft Welsh Assembly guidance on it remains a consideration in development control decisions until an LDP has been placed on deposit. Note: in May 2005, the council formally resolved to cease work on the Cardiff UDP and begin work on the LDP. At present there is insufficient information available to judge whether the LDP will result in the potential for in-combination effects, however it is likely that policies to protect both the Gwent Levels SSSIs and the Severn Estuary European sites will remain part of the Local Development Framework. There is therfore a high degree of uncertainty regarding whether or not there is the potential for in-combination effects. Relevant issues identified in the Cardiff Minerals Local Plan 1997 include interest in clay extraction from the Wentlooge Levels and ongoing dredging in the Bristol Channel; this document is however over 10 years old; consequently these issues may no longer be pertinent and/or other issues may have arisen. Potential developments identified with the draft UDP which have the potential to give rise to in combination effects include: the Eastern Bylink (proposed road improvement), the St Mellons Wentlooge Link (proposed road improvement) and the development of an integrated waste management system at the Rumney Moors/Lamby Way site, which is currently used primarily for landfill.

Vale of Glamorgan Council Local Development Draft Preferred Strategy Dec 2007: The Habitats Regulations Assessment Screening for the Vale of Glamorgan LDP Draft Preferred Strategy identified the potential for a negative impact on the Severn Estuary European sites. While much of the development arising from the draft preferred strategy is likely to be located well away from the Severn Estuary, the south-eastern zone has been identified as a growth area and abuts the boundary of the designated site. A more detailed assessment of the LDP is to be undertaken following consultation on the Draft Preferred Strategy to ascertain and mitigate against any likely significant effects to the SPA, cSAC, Ramsar. The mechanisms by which these activities could impact upon the designated site(s) are numerous and include land-take, disturbance through noise and vibration, pollution through ground and surface water run-off, and interruption of flight-lines by wind turbines. The potential for in combination effects exists

Monmouthshire County Council Adopted Unitary Development Plan 1996-2011 (adopted 2006): The HRA of the Monmouthshire County Council UDP concluded that it was unlikely that the Plan will have a significant effect on European sites/species, or adversely affect a site's integrity. No in-combination effects can be identified at this strategic level. **The Monmouthshire LDP** is currently in preparation and will contain land use allocations and policies for future development in Monmouthshire for the period 2011-2021. A HRA Screening of the Pre-Deposit Proposals was undertaken in May 2009 and identified the potential for likely significant effects, but identified that these impacts could be entirely avoided or mitigated against through further revisions of the LDP strategy and policies; the HRA will be reviewed at a more advanced version of the plan in order for a complete assessment to take place. Potential impacts were identified on the Usk SAC (arising from: development in Abergavenny/Llanfoist and Usk, a Strategic Employment Site within 2.5km of the site at Llanfoist, sites identified for waste facilities which may lead to waste related development near the SAC and mineral safeguarding policies which may lead to eventual additional mining and quarrying) the Severn SPA/SAC/Ramsar (arising from development in Chepstow, Sudbrook and Magor/Undy, Strategic Housing Sites at Magor/Undy and Portskewett within 5km and 2.5km of the site respectively, a Strategic Mixed Use Site within 2.5km of the site at Chepstow, an Employment site at Sudbrook within 2.5km of the site, and 3 Employment sites at Magor/Undy within 5 km of the site, sites will be identified for waste facilities which may lead to waste related development near the site, mineral safeguarding which may lead to eventual additional mining and quarrying and key strategic transport projects could increase diffuse pollution) and the Wye SAC (arising from: development in Monmouth and Chepstow, a Strategic Mixed Use Site within 2.5km of the site at Monmouth and adjacent a Strategic Mixed Use Site in Chepstow, an Employment site at Sudbrook within 5km of the site, waste facilities which may lead to waste related development near this SAC and mineral safeguarding which may lead to eventual additional mining and quarrying. It is clear at this stage that it will be necessary for the LDP to recognise these sites in preparing the strategy and developing plan policies, and to work in partnership with adjacent local authorities who are producing plans which will in-combination increase the impact on these sites.

Newport City Council Unitary Development Plan 1996-2011 (Adopted May 2006): No HRA of the Plan appears to have been undertaken. The development of brownfield sites in close proximity to the River Usk SAC could have the potential to affect water quality as a result of construction activities. This also has implications for the River Severn SPA/ Ramsar/ cSAC as the River Usk flows into the Severn Estuary. **Newport Local Development Plan 2011 – 2026**: the LDP is currently in preparation; the HRA screening of the LDP is still in draft. A number of recommendations have been made to ensure that the final draft of the LDP avoids and/or minimises impacts on the European sites identified during this study. It is anticipated, however that further appropriate assessment work will be required to assess the in-combination effects of water usage on the River Usk SAC and River Wye SAC, including changes to the LDP policy wording, further investigations to aid future assessments and ways of managing and mitigating specific impacts. At this high level stage it is not possible to identify any in combination effects, however redevelopment in the centre of Newport is likely to rise to opportunity for in-combination effects on the Usk SAC

SOUTH WEST

South West Regional Spatial Strategy Draft 2006-2026 (Government Office South West, 2004). Sets out the regional development framework and the links between broad issues such as healthcare, education and crime as well as basic infrastructure such as transport. It guides the local development framework which provides more site specific development guidance. The HRA of the draft RSS identified mitigation including the introduction of locationally specific safeguarding polices and advocated further more detailed HRA at the local level when specific sites, delivery criteria, and relevant planning conditions and obligations will be considered. These issues will be addressed through LDDs and other planning documents, as well as informing the Screening stages of local level HRAs, including at the project level. The HRA confirmed that the Draft RSS provides a reasonable measure of protection for N2K sites in the South West at the strategic level. No adverse in combination effects can be identified at this strategic level.

Our Environment: Our Future, The Regional Strategy for the South West Environment 2004-2014 (South West Regional Assembly in association with the South West Regional Environment Network, 2004) Strategy provides vision and aims for the environment in the future; identifies pressures threatening the environment and key issues to be tackled. Aspirational and non location specific nature of the document means it is not possible to identify impacts on individual sites with any

degree of accuracy. Relevant aims are compatible with SMP2 including conservation of biodiversity. No in-combination effects can be identified at this strategic level.

South West Regional Housing Strategy 2005-2016 (South West Housing Board July 2005) sets out policy to tackle the under-provision of housing in the South West; it is not location specific which means it is not possible to identify impacts on individual sites. Further, more site specific details are contained with relevant Local Development Framework. No in-combination effects can be identified at this strategic level.

Towards 2015 Shaping Tomorrow's Tourism (South West of England Regional Development Agency/South West Tourism, January 2005): sets strategic context for further development of tourism in the SW; non location specific; no potential for adverse in combination effects at the strategic level.

Bristol City Council Local Plan 1997 A review of the Plan was undertaken in 2000 and an independent assessment (the Sustainability Appraisal) found that it continued to be effective and would only require alterations rather than a replacement plan. The short section of the council that abuts the Estuary (Avonmouth) is already heavily developed by Bristol Ports. The plan does not promote and additional development in the vicinity of the estuary; there is therefore not considered to be the potential for in-combination effects. The Bristol Development Framework Core Strategy is now at submission stage now). Following an initial screening process with Natural England, appropriate assessment was undertaken for designated sites. For two sites, Avon Gorge and Severn Estuary, the appropriate assessment led to refinement of policies relating to 'Avonmouth and Port' , 'Sustainable Energy' and also enhanced the role of BCS9 'Green Infrastructure'. It is considered that the amendment of these policies and additional policies within the document protecting European sites will ensure no in combination effects.

North Somerset Replacement Local Plan (2007) The proposals map for the plan has been reviewed. The plan contains proposals for the regeneration of the waterfront in Weston-super-Mare, however this work will be undertaken behind the existing defence line and as such is considered unlikely to affect the Severn European site There are no polices within the local plan that are likely to give rise to in-combination effects North Somerset Replacement Local Plan will remain the principal planning document until 2011. **The North Somerset Core Strategy** (being produced as part of the Local Development Framework) is currently in preparation. A consultation draft of the Core Strategy was produced in 2009. Preparation of the Habitats Regulations and Sustainability Appraisal in underway and will be made available to support the next stage of the Core Strategy to be adopted in 2011. It is therefore currently not possible to determine whether there is the potential for in-combination effects with the Core Strategy.

WEST MIDLANDS

Regional Spatial Strategy for West Midlands (West Midlands Regional Assembly, January 2008) provides a long term land use and transport planning framework for the Region; guides the preparation of local authority development plans and local transport plans; determines (amongst other things) the scale and distribution of housing and economic development across the Region, investment priorities for transport and sets out policies for enhancing the environment. The screening exercise undertaken as part of Stage 1 of the HRA identified the potential for LSE on the River Wye SAC (from future abstraction of surface and groundwater, land use changes, impacts on water quality and supply and impacts arising from increased levels of recreational use and disturbance) and the Severn SAC, SPA, Ramsar (from increased demand for water supply including increased abstraction, water quality impacts due to increasing surface water run-off, the adequacy of water treatment infrastructure and the possibility of reduced flow concentrating pollutants). As a result Stage 2 revisions of the RSS introduced additional policies offering further safeguards for European sites and emphasises the requirements for HRAs undertaken at the LDD and project level. Taking into consideration the nature of the potential impacts, the conclusions of the HRA and modifications to the Spatial Strategy there is not believed to be potential for adverse in combination effects at this strategic level

West Midlands Regional Waste Planning Strategy 2001: this document identifies a set of strategic principles to guide the planning and provision of waste management facilities in the West Midlands over

a 10-15 year time frame. It is non-location specific so there is no potential for in-combination effects at the SMP2 level.

Forest of Dean District Council Core Strategy Second Preferred Options (March 2008) The Core Strategy is the principal document in the Forest of Dean Local Development Framework, and will guide development and growth for a period of up to twenty years. Potential impacts are associated with Land for housing; provision made for about 310 new dwellings a year until 2026, with approximately 50% identified as being in Lydney and 12% in Coleford. Development pressures identified included land take, increased transport movements and associated air pollutants, water abstraction for expanding communities with potential to impact surface and groundwater and recreational pressures. Lydney lies in close proximity to the Severn Estuary SPA, Ramsar and cSAC.and Coleford lies in close proximity to the River Wye. The HRA of the Publication version concluded the plan would not be likely to adversely impact water quality in the Severn Estuary SPA or SAC. It also concluded that the Core Strategy would not have adverse impacts upon the integrity of the Severn Estuary site, through enhanced water abstraction. Informed by the findings of the HRA, given the detailed and proactive control policies built into the Core Strategy and taking into account the mitigation work being undertaken, the HRA also concluded that the Core Strategy would not have significant adverse impacts upon the Severn Estuary site, by negatively impacting qualifying bird species. The nature of the potential impacts, distance of development areas from the Severn and conclusions of the HRA for the Core Strategy indicate there is little potential for in-combination effects

Gloucestershire County Council Waste Core Strategy, Preferred Options 2008 Provides the framework for sustainable waste management in the County. Natura 2000 sites have designated as absolute areas of constraint, constituting areas that are unsuitable for waste management facilities. In addition, impacts on designated sites as a result of placing waste management facilities nearby have been considered. Policies to avoid internationally designated sites are proposed. No in-combination effects are anticipated

Gloucester, Cheltenham, Tewkesbury Joint Core Strategy: Gloucester City Council is replacing its existing Local Plan with as the 'Local Development Framework' or LDF. The Sustainability Appraisal Screening Report for the core strategy states that It is considered unlikely that the Joint Core Strategy will significantly affect the condition of any of these sites; however, a screening judgement will be commissioned once details of the likely policy direction of the Joint Core Strategy become available. At present the Core Strategy is not considered likely to result in any in-combination effects.

South Gloucestershire Core Strategy (Consultation Draft 2008): Public consultation on the Pre-Submission Publication Draft Core Strategy is currently underway. HRA Screening of the Core Strategy was undertaken as part of the sustainability appraisal for the Strategy. The Severn Estuary is the only European site within the authority, As the Core Strategy is not proposing any development that might affect the biodiversity of the Severn Estuary, the Council, in consultation with Natural England, determined that an Appropriate Assessment of the Core Strategy will not be required. No in combination effects are anticipated.

West of England Joint Waste Core Strategy identifies a number of sites **Considered Appropriate for Residual Waste Treatment Development** in the Avonmouth Area (for waste facilities are near the shoreline. **(**South of Severnside Works, DS07 Selvaco Plant, Severn Road, DS15 Advanced Transport System Ltd, site, DS05 Merebank, Kings Weston Lane, Avonmouth, IS8 Warne Road,Weston-Super-Mare. A Habitats Regulations Assessment of the Strategy was undertaken in 2009 and mitigation identified to manage adverse effects on the sites. Potential impacts from these facilitates is likely to largely relate to disturbance. Given that at present the requirement for and/or timing of the construction of any defences is unknown it is not possible to identify with any certainty likely in combination effects. Further assessment will be undertaken as part of the FRMS.

ENVIRONMENT AGENCY PLANS

Environment Agency Vision – Aims include managing flood risk and conserving the natural environment. Aspiration and non locational nature of the document means it is not possible to identify impacts on individual sites with any degree of accuracy. Relevant aims compatible with SMP2 and conservation of biodiversity. No potential for in-combination effects.

Environment Agency Wales - Creating A Better Wales (2006-11) Aims include managing flood risk and conserving the natural environment. Aspirational and non location specific nature of the document

means it is not possible to identify impacts on individual sites with any degree of accuracy. Relevant aims compatible with SMP2 and conservation of biodiversity. No in-combination effects can be identified at this strategic level.

Environment Agency Wales South East Area Local Contribution (2003-2007) Aims include managing flood risk and conserving the natural environment. Aspiration and non locational nature of the document means it is not possible to identify impacts on individual sites with any degree of accuracy. Relevant aims are compatible with SMP2. No in-combination effects can be identified at this strategic level.

Environment Agency Severn River Basin Management Plan. WFD aims to deliver by 2015: clean water for people and wildlife, wiser sustainable use of water, protect and enhance native wildlife and habitats, protect the natural landscape, promoting the value of recreation. An assessment of the compliance of the SMP2 with the WFD has been undertaken as part of the SMP2 process (see Appendix J of main SMP2 documents). Relevant aims of both plans compatible. No in-combination effects can be identified at this strategic level.

Catchment Flood Management Plans for the Taff and Ely, Eastern Valleys, Wye and Usk, Bristol Avon, Severn Tidal Tributaries and Somerset. CFMPs aim to manage fluvial flooding within technical, environmental and economic constraints. SMP2 took into consideration CFMPs policies. HRAs were undertaken for all the CFMPs delivered. Potential adverse effects on an individual CFMP basis were all considered to be insignificant, although it was recognised that any of the effects might reach a threshold of significance if all the CFMPs were considered together. The in-combination assessment for the CFMPs around the Severn Estuary concluded that there was no evidence that critical thresholds would be exceeded, however it did note two areas of uncertainty in that CFMPs do not identify specific actions with quantifiable outcomes and they may have both positive and negative impacts within the same catchments and no critical thresholds have been identified for any of the features. It was concluded that further more detailed assessment of specific actions in specific locations would be required, as an integral part of the lower tiers of the flood risk management planning process. No in-combination effects can be identified at this strategic level. Potential in-combination effects on the Wye are considered unlikely as the preferred policy for the Lower Wye Policy Unit is to take action to store water or mange runoff in locations which provide overall flood risk reduction and environmental benefits. The preferred policy for the Usk is continue with current or alternative action to mange flood risk and there is therefore the potential for in-combination effects on the Usk SAC.

OTHER

Marine Spatial Planning –The Marine and Coastal Access Act 2009 set up the Marine Management Organisation (MMO) which has responsibility for preparing marine plans for the English and Welsh inshore and offshore regions. These plans will bring together multiple users of the ocean – including energy, industry, government, conservation and recreation, to make informed and coordinated decisions about how to use marine resources. No MSPs are in preparation as yet, so it is not possible to assess potential for in-combination effects. These plans will however be subject to SEA and HRA which will ensure no in-combination effects with the Severn SMP2.

Wetlands, Land Use Change and Flood Management (2003) An agreed position statement prepared by English Nature, the Environment Agency the Department for Environment, Food and Rural Affairs (Defra) and the Forestry Commission on washlands, wetlands and land use changes in relation to flood management. No location specific actions identified, so no potential for in combination effects at this strategic level.

Securing the Future – Delivering UK Sustainable Development Strategy (HM Government 2005) sets out Governments approach to sustainable development; no location specific recommendations/ actions so no potential for in combination effects at this strategic level.

50 Year vision for Wetlands: England's Wetland Landscape: securing a future for nature, people and the historic environment.(RSPB, English Heritage, Natural England, Wildlife Trusts, Environment Agency, May 2008). Joint policy sets out promotes role of wetlands in FRM; not location specific, so no potential for in-combination effects at strategic level.

South West Biodiversity Implementation Plan, Biodiversity: A natural advantage for the South West (South West Regional Biodiversity Partnership, July 2004). Sets out a framework of policy, priorities and actions to assist in a more joined up approach to biodiversity delivery. Regional Plan

informs LBAPS and sets actions to restore floodplains and wetlands. Non location specific but objectives are compatible with interests of biodiversity; no potential for adverse in-combination effects.

Countryside Character Volume 8: South West, The character of England's natural and man-made landscape (The Countryside Agency, 1996). Identifies and describes landscape character of the area; no site specific actions or objectives identified; no potential for adverse in combination effects.

Register of Welsh Historic Landscapes (Countryside Council for Wales, December 1995) identifies the best surviving examples of historic landscapes in Wales and is an importantway of safeguarding the characteristics of these distinctive places. Protects areas and will not affect biodiversity; no potential for adverse in combination effects.

Severn Estuary Rapid Coastal Zone Assessment (English Heritage, 2006) documents state of knowledge on the archaeological resource on the English side of the Severn Estuary and makes an assessment of threat from erosion. No actions arising from study, so no potential for in combination effects.

Heritage Counts 2004 The State of South West's Historic Environment (South West Historic Environment Forum, 2004): Highlights threats to the regions historic coast areas. Non location specific, no potential for in combination effects at the strategic level.

A Strategy for the Recreational Fisheries of Wales (Environment Agency November 2003): high level framework to optimise Welsh coastal and inlands fisheries; non location specific, no potential for in combination effects at the strategic level.

Welsh Fisheries Strategy (Welsh Assembly Government): promotes sustainable fisheries in Wales. Non location specific, no potential for in combination effects at the strategic level.

The Sustainable Fisheries Programme (Environment Agency Wales): aims to ensure Welsh Fisheries are healthy, productive and biologically diverse and provide a valuable and sustainable natural resource. Non location specific, no potential for in combination effects at the strategic level.

Rural Development Plan for Wales (National Assembly for Wales (2000-2006 and 2007-2013) Sets framework for rural development measures; sets framework for policy and is non location specific; no potential for in combination effects at the strategic level.

England Rural Development Programme (Defra 2000) : Sets framework for rural development; sets framework for policy and is non location specific; no potential for in combination effects at the strategic level.

Gwent Levels Foreshore Management Plan (FMP) (Atkins, 2003); strategy to sustain the existing and future sea defences and to optimise the use of resources via planned rather than reactive measures. Precursor to SMP2 and FRMS. No longer a current policy document, although findings will inform future work. No in-combination effects.

Warming to the Idea (South West Climate Change Impacts Partnership, 2003): Sets out potential impacts of climate change. SMP2 addresses impacts of climate change and seeks to mitigate adverse effects on European sites. No potential for adverse in combination effects. No potential for in combination effects.

Making Space for Water: Taking Forward a new Government Strategy for Flood and Coastal Erosion Risk Management in England (Defra, 2005). Highlights the need for an integrated approach to management of flood risk. Ethos of SMP2 is compatible with this approach; no potential for adverse in-combination effects.

Making the most of Wales' Coast – Integrated Coastal Zone Management (ICZM) consultation document. ECM Division (Welsh Assembly Government, January 2006). Provides a management framework to facilitate integrated working along the coast; non location specific; no potential for adverse in combination effects at the strategic level.

Framework For Future Flood Risk Management Programme (WAG, 2006): Documents review of FRM funding and identifies the requirement for a new policy framework to prioritise FRM investment.

Makes no location specific recommendations; no potential for adverse in combination effects at the strategic level.

National Trust Wales Shifting Shores Living with a changing coastline, 2007; identified the fact that 66 of the Trust's coastline properties are at risk from tidal flooding. The trusts policy is to take a long-term view, working with natural coastal change wherever possible. The policy favours adaptation, because this will give the time and space to adjust and provides the best chance of conserving the natural coastline, which is of great cultural and economic value. Early adaptation is also considered likely to be the most realistic and cost-effective approach for the long term. The policy echoes the principles of the SMP2 in seeking to determine long term plan for the management of the coastline. The are no site specific proposals and no potential for in-combination effects.

The Future of Transport: a Network for 2030 (Dept for Transport 2004): is a government white Paper that sets out the national transport expenditure plans to 2015, and considers the factors that will shape the country's various transport networks over the next 30 years. The document contains no site specific proposals and there is no potential for in-combination effects at the SMP2 level

Draft National Policy Statement for Energy Infrastructure (Department for Energy and Climate Change, 2009) : A HRA of the policy statement has been undertaken . Sections EN-1 to EN-5 of the policy statement address: overarching NPS for Energy (EN-1). Fossil Fuel Electricity Generating Infrastructure (EN-2), Renewable Electricity Infrastructure (EN-3), Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4), and Electricity Networks Infrastructure (EN-5). They are all non-locationally specific policies covering England and Wales and do not identify locations to construct new nationally significant infrastructure. As a result it has not been possible to identify specific European site or sites which could potentially be subject to in-combination effects. Section EN-6. Details the draft Nuclear National Policy Statement and identifies Hinkley and Oldbury as two of ten sites potentially suitable for the deployment of new nuclear power by the end of 2025. The HRA undertaken concluded that HRA at this strategic level could not rule out the potential for adverse effects on the integrity of five European Sites (the Severn Estuary cSAC, SPA, Ramsar and the River Wye SAC and the River Usk SAC (Hinkley only) through impacts on water resources and quality, habitat and species loss and fragmentation/ coastal squeeze and disturbance (noise, light and visual). It went on to say further assessment supported by detailed data at the project level will be required before it can be concluded that nuclear power development at this nominated site can be undertaken without adversely impacting upon the integrity of the European Sites. Therefore, only at the project level HRA can a conclusion of no adverse effect on site integrity be made with any confidence.

Other SMP2s around the Estuary

Draft North Devon and Somerset , 2009. This SMP is adjacent to the Severn SMP2 study are and extends west from Hartland Point in Devon to Anchor Head in Somerset. An HRA for this SMP2 is also being prepared however there is the potential for in-combination effects on the Severn Estuary European Sites

Swansea and Carmarthen Bay SMP. The SMP study area extends from St. Anne's Head in Pembrokeshire to Lavernock Point in Vale of Glamorgan. The SMP is still under development. No conclusive assessment on the potential for in-combination effects can be undertaken until preferred policies for the South Wales SMP have been identified.

PROJECTS

Private Defences: Along parts of the SMP2 shoreline, there are private defences that have been built by individual landowners. The preferred policy within the SMP2 indicate where defences could, or could not, be maintained for technical and / or environmental reasons, i.e. influence on coastal erosion or flooding. It is acknowledged that at some point individuals may wish to build new defences where presently there are none or increase / improve existing defences. In these situations, these actions may be permitted, but it is the responsibility of the landowner to demonstrate there would be no adverse impacts on coastal processes (either upstream or downstream or in the area offshore) or designated and protected features, as part of the normal planning application process. It is not possible to prescribe specific policies for this situation as it is unknown if, when or where individual landowners may wish to build or amend private defences.

Oldbury Power Station Oldbury will continue to generate electricity until the end of 2010. Decommissioning ofnthe site will run from 2010 to 2101. The existing power station is located behind the defences and outside the European site, so the potential for in-combination effects is considered unlikely. In addition Oldbury has been identified as a potentially suitable location for the deployment of new nuclear power by the end of 2025. Due to uncertainties surrounding the nature and timing of any redevelopment it is not possible to undertake any assessment of in-combination effects at this stage.

Severn Tidal Power: The extremely high tidal range of the Severn Estuary means that the Estuary could generate renewable energy from wave and tidal power technologies. The Department for Energy and Climate Change (DECC) and WAG are currently part way through funding a study of possible renewable energy generation technologies in the Severn Estuary. A two year project to evaluate the potential for electricity generation from the Severn Estuary has reached its midpoint. Updates on the progress of the project are available at the DECC website:

http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/renewable/severn_tidal_power/severn_tidal_power.aspx

The study aims to gather and assess evidence to help Government to decide if it should use public money to help support a renewable energy generation scheme in the Severn. Phase 1 of the study reduced a long list of 10 possible schemes down to a shorter list of 5 possible scheme types. These are being considered in more detail in Phase 2. A public consultation on Phase 2 will probably take place some time during 2010. If a Severn tidal power project does go ahead, it would have to go through the normal planning and permitting process that other developments go through. This could take 3 - 5 years and would include more public consultation. The HRA cannot take into account the impacts of any of the possible schemes, as no decision has been made on which one (if any) would be supported by Government. This means there are too many uncertainties surrounding the option and potential impacts to allow any meaningful assessment to be made.

Uskmouth Power Station Severn Power Ltd (owned by Carron Energy) have planning permission for a CCGT (Combined Cycle Gas Turbine) with construction due to start in 2010. It is assumed that an HRA of the project has been undertaken and signed off by CCW; no significant loss of intertidal habitat is anticipated to result from the proecjt, which from necessity will be locate behind existing defecnes. SMP2 polices in the vicinity of the power station are Hold the Line, however it is unlikely that works on the defences (if required) will be undertaken in this area during the construction phase. No in-combination effects are anticipated

Bristol Container Port : On 25th March 2010, the Department for Transport gave consent for the construction of Bristol's Deep Sea Container Terminal. The facility will be located with the estuary and will have four berths capable of receiving vessels of 16 metre draft, at all states of the tide. The HRA undertaken for the project concluded it was likely to have a significant effect on the Severn Estuary SPA, Ramsar site and the SAC. The main impacts were identified as: the permanent loss of a small area of intertidal habitat from within the SPA and SAC; the alteration of conditions that support sea bed dwelling animal communities within an area of approximately 80 hectares of intertidal mudflat due to increased accretion; and a resultant reduction, that could be temporary, in available feeding resources for waterfowl and waders, within the above intertidal area, of approximately 60 hectares of intertidal area due to potential changes in seabed life. The Secretary of State considered that there were imperative reasons of overriding public interest, of an economic and social nature, as to why the proposals should be permitted, in spite of a negative assessment of their impact on European and international sites of conservation significance. Natural England and the Countryside Council for Wales advised that their objections could be overcome through implementation of a Compensation Mitigation and Monitoring Agreement. This included, among other measures, the provision of compensation habitat on the Steart Peninsula on the Severn Estuary or an appropriate alternative site. The loss of intertidal habitat means there is the potential for in-combination effects.

River Usk Strategy and resultant projects : The Council seeking to regenerate the centre of Newport around the Usk. An HRA of the Strategy has been undertaken. The potential for in-combination effects exists primarily arising from the loss of intertidal habitat and the possible impacts on otter habitat.