

The habitats and species of the Severn Estuary

A basic introduction for developers and decision makers.

This guide aims to help improve spatial planning and sustainable development decisions around the Severn Estuary. It provides information on the nature conservation interests of the estuary and explains how to take these into account when planning new development.



Department for
**Communities and
Local Government**

Foreword

The Severn Estuary is of significant economic importance and there is consequently a call for development on and around its shores. The estuary is also important for nature conservation, with international, European, national and local nature conservation designations. There is a need to take account of environmental protection when planning for economic growth and development.

This is identified:

- In England, in Planning Policy Statement (PPS 9): Biodiversity and Geological Conservation (2005).
- In Wales, in Technical Advice Note (TAN 5): Nature Conservation and Planning (updated draft 2006).

This guide is intended to be a brief introduction to an intricate ecological system that is subject to a complex legislative and policy framework. It is not to be regarded as a complete guide and users should also refer to definitive documents which will provide the vital detail required for planning and determining the suitability of development proposals likely to affect the Severn Estuary and its special wildlife features. Reference to these documents has been included within the text where possible.

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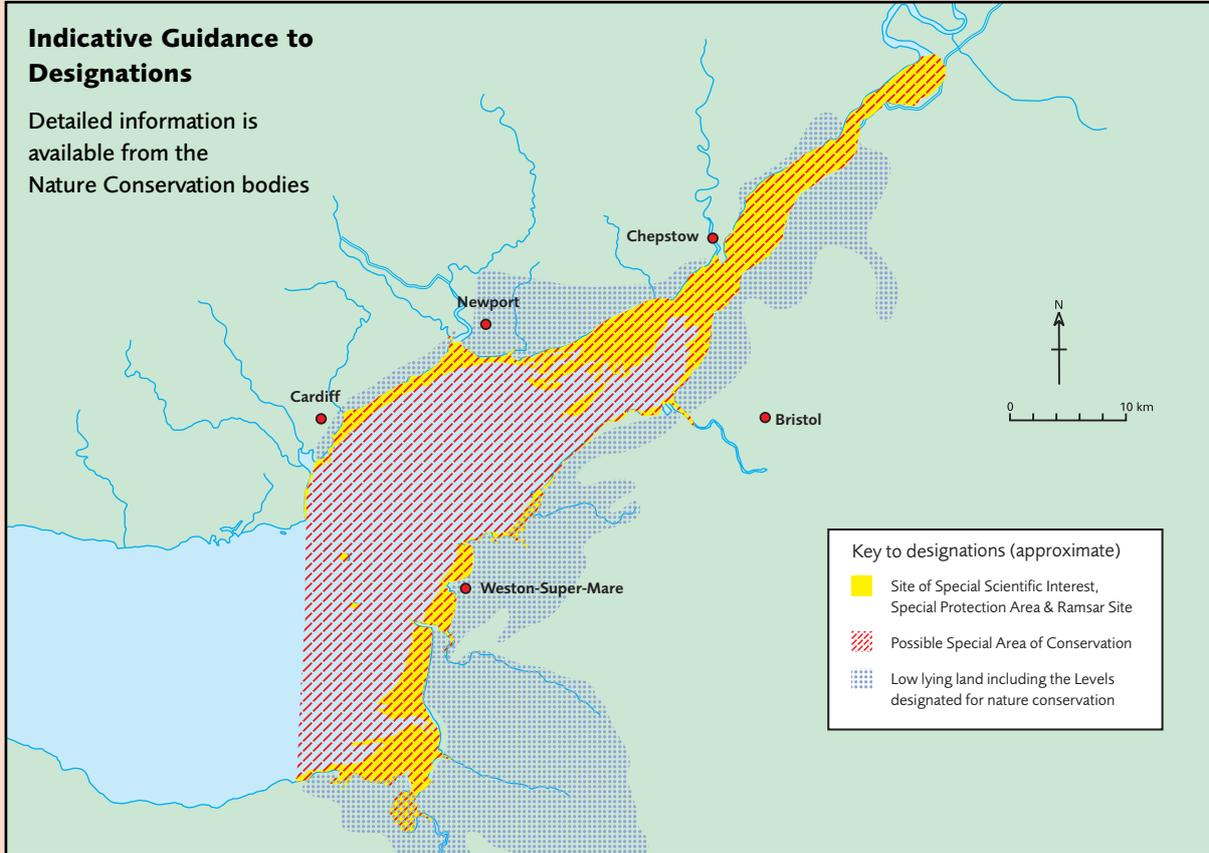
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Nature Conservation Background

The Severn Estuary, and the surrounding Levels areas, are important in the UK for nature conservation, supporting a wide range of nationally and internationally important habitats and species.

The Severn Estuary and many of the Levels surrounding it are designated as Sites of Special Scientific Interest (SSSIs). The estuary itself is a Ramsar Site (Wetland of International Importance) and European Special Protection Area (SPA). It is also a possible Special Area of Conservation (pSAC).



Nature conservation bodies

Natural England

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Legislative background

Sites of Special Scientific Interest (SSSIs) are designated by Natural England and the Countryside Council for Wales under the **Wildlife and Countryside Act 1981, as substituted by the Countryside and Rights of Way Act 2000.**

The designation of Special Protection Areas (SPAs) and Special Areas of Conservation (SACs) is made under EU legislation; the **Birds Directive & Habitats Directive** respectively, which are transposed into UK law by the **Conservation (Natural Habitats &c.) Regulations, commonly known as the Habitats Regulations.**

SPAs and SACs are also known as **European Sites** forming part of a European wide network of conservation sites known as **Natura 2000.** Where an SPA or SAC incorporates sub-tidal and/or intertidal areas, as on the Severn, they are known as **European Marine Sites (EMS).**

Ramsar sites are designated under the **Convention on Wetlands of International Importance.** These international sites are not covered by the European Habitats or Birds Directives, but Government policy states that Ramsar sites are to be treated in the same way as European Marine Sites.

In England and Wales, the nature conservation bodies responsible for advising on the protection and management of the internationally important wildlife of the Severn Estuary are **Natural England (NE)** (formerly English Nature) and the **Countryside Council for Wales (CCW).**

The Natural Environment and Rural Communities Act 2006 also states that 'Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions to the purpose of conserving biodiversity.'

Habitats and Species

Features of the site

The following habitats and species are all features for which the Severn Estuary is designated as a Site of Special Scientific Interest (SSSI). Some are also features for which the site has been designated as a Ramsar Site and SPA and also proposed for inclusion in the possible pSAC. Definitive information on the features included in each designation can be found in formal designation documents, held by CCW, NE and all the local authorities with jurisdiction over any part of the designated site.

Assemblage of birds

The Severn Estuary is an important wintering ground for a range of migratory wildfowl and waders, being a vital link in the route of bird migration that stretches from Siberia to Africa. Birds come to the estuary both to over-winter and while on passage to and from their final wintering grounds. Key species of international significance include European white-fronted goose, bewick's swan, shelduck, dunlin and redshank. The total over-wintering wader and wildfowl population of the Severn Estuary is regularly over 60,000 individuals.



Bewick's Swan – feed on the saltmarshes and the coastal grazing marshes in the upper part of the estuary, but will also roost on the intertidal mud and sandbanks.



European white fronted geese – overwinter on the Severn, roosting at night on the estuary sandbanks and feeding during the day on saltmarshes, permanent pastures and other farmland.



Shelduck – exploit the rich resources of invertebrates found in the intertidal mudflats. They feed in groups and are found all around the estuary. Bridgwater Bay is the second largest late summer and autumn moulting area for shelduck in Europe.



Redshank & Dunlin – feed throughout the estuary, mainly on invertebrates found in the muddier finer sediments. Dunlin are found mostly on mid shore areas, whereas redshanks are often found in creeks and sub-estuaries.



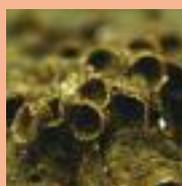
Fish – migratory fish species including salmon, sea trout, river and sea lamprey and twaite and allis shad, migrate through the estuary from the sea to spawn in the estuary's rivers.



Intertidal mudflats and sandflats – provide a refuge and a rich, plentiful source of food (invertebrates) for a wide range of migratory birds. The flatness of the landscape also allows unrestricted views to detect predators.



Sandbanks – composed of a mix of mud, sand and gravel sediments that are continuously covered by water. The subtidal sandbanks in the Severn are highly impoverished as a result of estuary conditions. This makes them distinct from others in the UK due to the low number of species and individual animals found.



Sabellaria Reefs – formed by the activity of Sabellaria alveolata (or the honeycomb worm) that builds protective tubes of sand grains and which can form colonies as large reefs on hard substrates in the lower intertidal and subtidal zones.



Saltmarsh – occurs in a zone around the outer edges of most of the estuary. It provides important feeding areas for waterfowl and a safe haven from the tides that flood the mudflats twice a day. Upper saltmarsh in particular makes ideal high water roost sites. European white-fronted geese, redshank and shelduck also feed on the saltmarsh itself.



Shingle and rocky shore – provide feeding areas for many wildfowl and waders and are important roost sites at high tide. Many of the rocks are offshore and are therefore generally free from human disturbance.



Coastal grazing marsh – low lying wet grasslands found at the edge of the estuary, often behind the flood defences. In some areas these habitats are important as feeding and roosting grounds for a number of important bird species, particularly grazing birds such as Bewick's Swan and European white fronted goose. In some areas they also provide essential summer breeding grounds for wading birds such as redshank. Grazing marshes support a network of freshwater and brackish ditches.



Ditches – These provide habitats for a wide range of aquatic and brackish plant species and a diverse population of notable invertebrates.

Impact of development and activities

How can development or other activities damage the nature conservation of the Severn Estuary?

The nationally and internationally important wildlife of the estuary relies on a range of habitats for their wellbeing and survival. It is vital to avoid loss of, or damage to, any areas of habitat on which the protected wildlife depends.

There are many ways in which developments and a range of activities can damage the nature conservation of the Severn Estuary, either alone or in combination with other schemes.

This not only applies to development on the estuary or along the shore, but also on the adjacent levels and lowland or even further inland.

This table outlines the main impacts likely to be relevant for each of the main features of the SSSI and European Marine Site.

Impacts on designated species and habitats (✓ denotes potential impact)

	Physical damage/loss of habitat	Changes in water flow/resources	Changes in water quality	Noise, visual or vibration disturbance	Disruption of migration routes
Birds	✓	✓	✓	✓	✓
Fish	✓	✓	✓	✓	✓
Saltmarsh habitats	✓	✓	✓		
Coastal grazing marsh and ditches	✓	✓	✓		
Mudflats and sandflats	✓	✓	✓		
Estuarine processes eg tidal regime, salinity gradients, sedimentary processes	✓	✓	✓		

Physical damage or loss of habitats

Development can affect habitat in a variety of ways, for example, loss or damage to part of a site used for roosting, feeding, breeding or shelter; through processes such as fragmentation, smothering or removal of vegetation or a compaction of soils.

Changes in water flow

Many areas around the estuary are dependant on freshwater flows through rhine and ditch systems. Some developments may result in local changes in water flow or general water levels in these wetland habitats; or increase levels of siltation and the effectiveness of drainage systems; and/or cause erosion.

Changes in water quality

Wherever development involves discharges to water, changes in water quality or physical characteristics (salinity, temperature) can occur. In cases where high levels of pollutants may be concentrated, toxic contamination of vulnerable species such as birds and fish can occur, through direct contact with toxic substances, or through accumulation of toxins through the food chain (e.g. via the invertebrates in the sand and mud). These impacts may affect breeding, feeding or migration behaviour and long term survival.

Noise, vibration and visual disturbance

Wading birds and wildfowl are particularly sensitive and vulnerable to disturbance from close human proximity, sudden movements, noise and dogs, and water based recreation, all of which can flush them from their feeding, roosting or breeding areas. For wintering birds, this can reduce their chances of survival and migratory success, particularly in severe winters. Both water quality and disturbance incidents (including noise and vibrations) can influence the behaviour of migratory fish populations. In certain circumstances, construction activities can cause significant harm to fish.

Disruption of migration routes

Maintaining suitable migratory routes for both the fish and the wintering bird population is of great importance in the Severn Estuary and development will need to take account of the patterns of use to avoid disruption that could deter the arrival or departure of these species.

For a detailed and complete analysis of potential impacts see the NE and the CCW advice for the Severn Estuary Special Protection Area given under Regulation 33(2) of the Conservation (Natural Habitats and c.) Regulations 1994.

Key considerations for development proposals

The wildlife interest, conservation, policy and legislative framework in place for the Severn Estuary is complex. Scoping, evaluation and determination of the impacts and acceptability of proposals therefore requires careful consideration and often specialist advice.

Developments that are likely to impact on the estuary will undergo particular scrutiny due to the nature of the designations in place and will need to be considered in terms of direct, indirect, in combination and cumulative effects.

It is important to remember that the conservation value of a designated site may be seriously affected by activities that take place outside the site boundary – even at some distance or through the combination of many activities occurring together. The legislation makes provision for this and the preparation and evaluation of proposals need to take account of it.

It is important to recognise that there are some developments that will not be suitable in or close to the estuary and alternative locations should be sought.

Severn Estuary European Marine Site

The Severn Estuary is designated as a Special Protection Area (SPA) and proposed for designation as a Special Area of Conservation (pSAC) and is referred to, in shorthand, as a 'European Site', and 'European Marine Site' (see page 3).

Where a development or activity is proposed in or close to the estuary, **those granting planning permission or consent** have a legal responsibility to assess the development or project to ensure that it will not directly or indirectly impact on the species or habitats of the Severn Estuary European Marine Site. All parties must ensure that the legislative provisions put in place by the UK Government are complied with.

A local authority officer or decision maker will firstly have to assess whether a proposal is **likely to have a significant effect** on the wildlife or habitat for which the site was designated (e.g. wintering wildfowl and wading birds of the SPA). NE and CCW welcome the opportunity to provide advice on possible significant effects. If a significant effect is thought likely, or the effects are not known, the authorising



body must carry out an appraisal to determine what those effects are likely to be, how or if, this will impact the site's European wildlife or habitats and whether this is acceptable or not. The Habitats Regulations 1994 refer to this as an **"Appropriate Assessment" (AA)**. It is in fact similar to an **Environmental Impact Assessment** but is carried out only to consider the impacts for those species and habitats (features) for which the site is designated as a SPA, SAC or Ramsar site.

In order to complete the AA officers and decision makers should ensure that they have all the necessary information and data to make such assessments. The detail and quantity of information required will depend on the type, size, magnitude and location of the activity or development in question.

Those proposing a development or other project are required to provide all the relevant information needed to enable the authorising authority to make a full and sound assessment of the likely effects on the European Marine Site.

In undertaking the assessment, the authority will have regard to the manner in which the proposal is to be carried out and what conditions or restrictions could be applied e.g. modifying working methods, scheduling the construction period or operational times more sympathetically to remove damaging impacts. It should be noted that mitigation measures that seek only to redress some of the impacts and which do not therefore totally avoid any adverse effects, cannot be considered in the AA. The need for an appropriate assessment is separate to an **Environmental Impact Assessment (EIA)**, which may be required.

CCW and NE welcome the opportunity to provide scoping advice on AA and the authorising authority is legally required to consult these bodies on the completed AA as part of the process.

Local authority officers or decision makers need to be aware that proposals can only be granted permission if the Appropriate Assessment concludes that there will not be an adverse effect on the integrity of a European Site. In some cases projects which fail this test may be agreed where there are no other alternatives and there are imperative reasons of overriding public interest but the authority involved must

notify the Secretary of State in England or the Welsh Assembly Government in Wales. The SoS or WAG may then permit approval or give a direction prohibiting approval. The process is likely to involve a Public Inquiry. If permitted to proceed following this procedure, appropriate compensation for the habitats and/or species affected will be required.

Sites of Special Scientific Interest (SSSIs)

The Severn Estuary and many of the floodplain levels around it are notified as SSSIs. Each SSSI has an individual list of "operations likely to damage" its features of interest. If a particular project or development involves any of these activities, the public body or authority that is responsible for granting permission has to consult with either (in England) NE or (in Wales) the CCW. This is the case even where a development or activity is actually located outside the site but will nonetheless still directly or indirectly harm or damage the SSSI.

Proposals which have a detrimental effect upon the long-term conservation of the special wildlife features of an SSSI (particularly where this involves loss of extent of habitats through land take) are likely to be considered as unacceptable by planning authorities and the relevant conservation body is likely to advise against the granting of permission. Such cases can be called in for determination by the Secretary of State or Welsh Assembly Government as they raise issues of more than local interest.

General Permitted Development

Particular caution should be exercised by both local planning authorities and developers. The Secretary of State (England) / Welsh Assembly Government (Wales) will need to be consulted when dealing with development which may ordinarily have the benefit of 'permitted development rights' under a General Development Order. Reference should be made to the details of Regulations 60 to 62 of the Conservation (Natural Habitats &c.) Regulations 1994.

In essence, if the proposal or activity is likely to have a significant effect on a European Site's species or habitats (whether directly or indirectly), and is not connected to the conservation management of the site, the local planning authority must give written permission in advance wherever possible. This applies even if the activity is occurring outside the actual site itself.

If the permitted development activity is included on the SSSI list of operations likely to damage its features of interest, it will also require the written consent of Natural England or the Countryside Council for Wales.

Review of consents

The Habitats Regulations also make provision for the review of consents or permissions granted (but not yet started or completed) before the date on which a European Site was designated. (Refer to Regulations 50, 51, 55 to 57 of the Conservation (Natural Habitats &c.) Regulations 1994.

General duties to conservation

Under both the SSSI and European Marine Site legislation, statutory decision makers including local authority officers have general duties to nature conservation. In exercising their functions, all statutory authorities or public bodies have a duty to further the conservation of SSSIs and to have regard to (or in the case of marine sites, to secure compliance with) the requirements of the Habitats Directive. One of the principal requirements is to prevent the damage and deterioration of habitats or the disturbance of species for which European (Marine) Sites are designated.

The Natural Environment and Rural Communities Act 2006 also states that 'Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions to the purpose of conserving biodiversity'.



Essentially, therefore, authorities must therefore always consider the impacts of their actions whether undertaking or commissioning works themselves or whether authorising others to do so through consents or permissions.

Recreational activities on land and water

A wide range of authorities and bodies around the Severn Estuary (forming the Association of Severn Estuary Authorities (ASERA)) have produced a management scheme to focus on a range of on-going activities (other than development) that could possibly affect the site.

The scheme indicates that two general categories of activity - **land and water based recreation** – could potentially impact on the estuary's habitats or disturb its wildlife, depending on the location, regularity, intensity and time of year.

Recreational activities have the potential to cause disturbance to feeding, roosting or breeding birds through noise, trampling of sensitive vegetation and the proximity and visual presence of visitors. In areas used by breeding birds, disturbance can lead to nests being abandoned and, if widespread, can impact upon the overall breeding success and population levels within the estuary.

Consequently, the **promotion of increased recreational access** is a particular concern on the Severn Estuary, and organisations managing this activity should contact NE or the CCW for advice. Such promotional activity will be required to go through the formal assessment and consenting procedures described above.

Proposals, wherever possible, should seek to assist in addressing existing access problems e.g. through management of access and recreation pressures, fostering better understanding and awareness of the conservation value of the Severn Estuary and securing its sustainable future use by all.

Defining proposals and preventing impacts

For proposals to be compatible with maintaining the special wildlife features of these important sites, they must be planned and undertaken in a way that prevents permanent and irreparable damage to habitats or displacement of species. In many cases, working methods can be selected and applied that will safeguard habitats or species and ensure that their conservation management can continue.

The following are some **key issues** which are likely to need addressing on any development project in or close to the estuary:

Knowledge: Ensure that you are fully appraised of the wildlife value of the area concerned i.e. the habitats and species present, their status and requirements and the designations in place. The wider needs of mobile species should also be considered e.g. important feeding and roosting areas that may lie outside the site boundary, flightlines, migration routes etc. Obtaining this knowledge may require detailed survey to appropriate levels and at suitable times of year and may require the involvement of specialists (consultants) trained (and where necessary licenced) for this type of work. Work of this nature will be required for the authorising body to consider all material considerations in determining an application, and if not available, may be requested before acceptance of an application. It may also be requested in the form of an Environmental Statement.

Proximity: Ensure that you are fully aware of the potential connections to, and indirect impacts on, an adjacent designated site – even if at some distance. Consider particularly water based issues (pollution, abstraction, flooding), people issues (disturbance of sensitive species, trampling impacts, noise) and the potential for species associated with the designated site to use areas outside e.g. bird feeding and/or roosting sites, flightlines.

Relationship to development by others:
No development should be viewed in isolation from the wider range of developments or activities taking place around it. A fundamental requirement of the assessment process is understanding the combined impact e.g. cumulative noise and disturbance, water resource requirements, discharges, progressive land take etc. Always approach new proposals prepared to examine whether critical thresholds may already have been met and the chance that development in a location may not be sustainable given previously authorised proposals.

Timing: The timing of a development can be crucial in terms of impact on wildlife interests, particularly in terms of disturbance of sensitive species. Scheduling both construction and operational phases of the work to avoid adverse impacts during the more sensitive times of the year can prevent detrimental impacts. For example: in the estuary, October – April is the most important time for overwintering birds; April – July for migratory fish.

Plan to prevent significant physical impacts to habitats through **best practice working methods**, including the following.

- working in optimal ground conditions (to prevent damage and compaction)
- using protective measures (mats, fencing) if cost effective
- using appropriate restoration methods.

A good understanding of the nature, quality and long term conservation requirements of habitats is needed.

Alternatives:
There is often more than one location where a development could be placed in terms of operational requirements, but the location of important wildlife habitats and species is more restricted, particularly in coastal areas. Both EIA and an AA require consideration of both alternative locations and methods of delivery of proposal outcomes. Always ensure that the initial phase of development proposal address the needs of specific locations, and where conflict with immovable important wildlife conservation sites arises seek alternative more sustainable locations.

The above is not a definitive or complete list and responsible developers should seek the help of the relevant local planning authority and nature conservation body in the early stages of proposals, so that advice and assistance in scoping assessment can be given.

Development and impact examples

Examples of case studies on the Severn Estuary

British Nuclear Fuels Ltd: Berkeley Power Station

British Nuclear Fuels Ltd (BNFL) needed to remove a baffle wall situated in the Severn Estuary, as part of the decommissioning of Berkeley Power Station. As the developer, BNFL involved Natural England when drafting a methodology for undertaking the work to seek advice on how to avoid or if necessary mitigate any potential impacts. In doing so, an agreed method of working was formulated that was not likely to result in a significant effect on any habitat or species. BNFL then used the agreed methodology in the various license applications that were required - thereby providing the various other licensing authorities (i.e. Environment Agency, South Gloucestershire Council, Gloucester Harbour Trustees and the Marine Consents & Environment Unit) with all the necessary information for them to be satisfied that the development was environmentally acceptable and met the requirements of the Habitats Regulations. This method of working also simplified and streamlined a complicated and potentially time consuming licencing process for BNFL.

Wessex Water: Thornbury & Aust sewage treatment works

To comply with waste water legislation, Wessex Water proposed to extend an outfall into the estuary and construct a new 5.5km sewer pipe from Thornbury to Aust. South Gloucestershire Council determined that the scheme may have a likely significant effect and therefore should be subject to both an Appropriate Assessment (AA) under the Habitats Regulations 1994 and an Environmental Impact Assessment (EIA) under the EIA Regulations 1999. Wessex Water worked in close collaboration with the Environment Agency, Natural England and South Gloucestershire Council to agree an Environmental Method Statement for the project to negate any significant damaging effects on the shoreline and marine habitats of the estuary. The coastline/outfall construction was phased for July, August & September to avoid disturbance to over-wintering wildfowl/waders and migratory fish stocks within the estuary. Working methods were adopted to minimise vibration and sedimentary drift during drilling for the new outfall and a series of detailed protective measures were used to minimise damage to the saltmarsh habitat. Work commenced in 2004 and was completed on time, to schedule and in full accordance with the agreed Method Statement.



Redrow Homes (south west) Ltd: Knightstone Island, Weston super Mare.

Redrow Homes (south west) Ltd has planning permission to redevelop Knightstone Island, Weston-super-Mare. Knightstone Island lies immediately adjacent to the Severn Estuary. The application for planning permission was assessed by North Somerset Council in consultation with Natural England as required under the Habitats Regulations.

The application was deemed to have a significant effect on the SPA as it would disturb a wintering flock of redshank that feed extensively in the mudflats to the south east of the Island.

North Somerset Council carried out an appropriate assessment. Further survey information on the interest features of the SPA and on protected species was supplied by Landmark Environmental Consultants for Redrow Homes. In

the appropriate assessment North Somerset Council concluded that, with appropriate mitigation measures in place, the SPA features would not be adversely affected.

Work is due to start shortly and discussions are ongoing to ensure that ecological conditions are complied with. Mitigation revolves around scheduling disturbing activities such as external excavations, road surfacing and sea wall strengthening to take place outside of the critical period for overwintering redshank, of November to March. Other critical activities will take place within two hours of high tide when the redshank feeding areas will be submerged. A range of working methodologies will be used to minimise disturbance by noise, such as use of silenced generators, localised acoustic screens, and drill core piling. An Ecological Clerk of Works will also be on site to advise and supervise activities and close liaison will take place with North Somerset Council.

Examples of development proposals impacting other designated nature conservation sites in the UK

Thames Basin Heaths pSPA 1999 – A proposal for residential housing close to a pSPA was not granted. Even though there may not have been a direct effect from the development, it was considered that there would have been an indirect effect from an increase in human resident numbers which would have added significantly to the recreational pressure and therefore pose a threat to Annex 1 bird species.

Hull Waste Water Treatment Works 2000 – The project was considered likely to have significant effects on the nature conservations features 'in combination' with other developments being undertaken at the same time. It was agreed that no development could take place until a scheme of monitoring had been submitted to show the effects of the construction works, during construction, and for a further five year period, on the mudflats and the movements and ranges of populations of waterfowl.



How to find out more



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www.severnestuarypartnership.org.uk

The online version links to more comprehensive information on related legislation and countryside agency advice (www.severnestuarypartnership.net)

Useful contacts

Natural England

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Herefordshire HR8 1EP
01531 638500

Countryside Council for Wales

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Fortran Road, St Mellons
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029 20 772400

Vale of Glamorgan Council
01446 704600

Cardiff Council
029 20 873227

Newport City Council
01633 232164

Monmouthshire County Council
01633 644644

Forest of Dean District Council
01594 810000

South Gloucestershire Council
01454 868686

Gloucestershire County Council
01452 426561

Bristol City Council
0117 922 2000

North Somerset Council
01934 888888

Somerset County Council
01823 355455

Sedgemoor District Council
0845 408 2540

ASERA Implementation Officer
029 20 879111

Specialist consultants may be approached for nature conservation survey appraisals or for advice on development proposals

Further Information

Association of Severn Estuary Relevant Authorities (2004). Management Scheme for the Severn Estuary European Marine Site www.severnestuary.net/asera

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Planning Policy Wales www.wales.gov.uk