



**Stour and Orwell Estuary
European marine site**

**English Nature's advice given under
Regulation 33(2) of the Conservation
(Natural Habitats &c.) Regulations 1994**

Issued 23 January 2001

English Nature's advice for Stour and Orwell Estuary European marine site given under Regulation 33(2) of the Conservation (Natural Habitats &c.) Regulations 1994

Preface

This document provides English Nature's advice to other relevant authorities as to (a) the conservation objectives and (b) any operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species for the Stour and Orwell Estuary European marine site. This advice is being prepared to fulfill our obligations under Regulation 33(2) of the Conservation (Natural Habitats &c.) Regulations 1994.

The **Stour and Orwell Estuary** Special Protection Area is a European marine site. European marine sites are defined in the Conservation (Natural Habitats &c.) Regulations 1994 as any part of a European site covered (continuously or intermittently) by tidal waters or any part of the sea in or adjacent to Great Britain up to the seaward limit of territorial waters. European sites include Special Areas of Conservation (designated under the Habitats Directive, which support certain natural habitats and species of European importance), and Special Protection Areas (designated under the Birds Directive which support significant numbers of internationally important wild birds). In many instances these designations may coincide and our advice is being prepared to cover both the SAC and SPA interests where this occurs.

This 'Regulation 33 package' is designed to help relevant and competent authorities, who have responsibilities to implement the Habitats Directive, to:

- understand the international nature conservation importance of the site, underlying physical processes and the ecological requirements of the habitats and species involved;
- advise relevant authorities as to the conservation objectives for the site and operations which may cause deterioration or disturbance
- set the standards against which the condition of the site's interest features can be determined and undertake compliance monitoring to establish whether they are in favourable condition; and
- develop, if deemed necessary, a management scheme to ensure that the features of the site are maintained.

In addition, the Regulation 33 package will provide a basis to inform the scope and nature of 'appropriate assessment' required in relation to plans and projects (Regulations 48 & 50 and by English Nature under Regulation 20). English Nature will keep this advice under review and may update it every six years or sooner, depending on the changing circumstances of the European marine site. In addition, we will provide more detailed advice to competent and relevant authorities to assess the implications of any given plan or project under the Regulations, where appropriate, at the time a plan or project is being considered. If as a result of the UK SPA Network Review (led by JNCC) interest features are added to this European marine site or the site boundaries change, English Nature will amend this advice, as appropriate.

Tim Bines
General Manager
English Nature
23 January 2001

English Nature's advice for Stour and Orwell Estuary European marine site given under Regulation 33(2) of the Conservation (Natural Habitats &c.) Regulations 1994

Contents

Preface

1.	Introduction	6
1.1	Natura 2000.....	6
1.2	English Nature's role	6
1.3	The role of relevant authorities.....	7
1.4	Activity outside the control of relevant authorities.....	7
1.5	Responsibilities under other conservation designations	8
1.6	Role of conservation objectives.....	8
1.7	Role of advice on operations.....	8
2.	Qualifying species within the SPA under the EU Birds Directive	9
3.	Interest features of the European marine site.....	10
3.1	Background and context	10
3.2	Reductions in organic inputs.....	11
3.3	General description	11
3.4	Internationally important populations of the regularly occurring Annex 1 species	12
3.4.1	Key sub-features	12
3.5	Internationally important populations of regularly occurring migratory bird species	13
3.5.1	Key sub-features	13
4.	Conservation objectives for SPA interest features.....	15
4.1	The conservation objective for the internationally important populations of the regularly occurring Annex 1 bird species	15
4.2	The conservation objective for the internationally important populations of regularly occurring migratory bird species	15
5.	Favourable condition table.....	17
6.	Advice on operations	23
6.1	Purpose of advice.....	23
6.2	Methods for assessment	23
6.2.1	Sensitivity assessment.....	24
6.2.2	Exposure assessment.....	24
6.2.3	Vulnerability assessment	24
6.3	Format of advice	25
6.4	Update and review of advice.....	25
6.5	Summary of advice on operations.....	26
6.5.1	Internationally important populations of regularly occurring Annex 1 species	26

6.5.2	Internationally important populations of regularly occurring migratory species	26
6.6	Plans and Projects	26
6.7	Review of consents	27
6.8	Interest feature and sub-feature specific advice on operations	30
6.8.1	Internationally important populations of regularly occurring Annex 1 species	30
6.8.2	Internationally important populations of regularly occurring migratory species	31
7.	Bibliography	38
8.	Glossary	40
Appendix I	Matrix of relative vulnerability	43
Appendix II	English Nature's 'Habitats regulations guidance note 1: The Appropriate Assessment (Regulation 48)'	44
Appendix III	List of Relevant Authorities	49

List of Figures and Tables

Figure 1	Location map of Stour and Orwell Estuary SPA
Figure 2	Map showing sub-features of Stour and Orwell Estuary European marine site
Figure 3	Map showing sub-features of Stour and Orwell Estuary European marine site
Table 1	Information on populations of internationally important species of birds under the Birds Directive using the Stour and Orwell Estuary European marine site at the time the SPA was classified
Table 2	Favourable condition table for Stour and Orwell European marine site
Table 3	Summary of operations which may cause deterioration or disturbance to the Stour and Orwell Estuary European marine site interest features at current levels of use
Table 4	Assessment of relative exposure of interest features and sub-features of Stour and Orwell Estuary European Marine site to different categories of operations based on current level of activities (July 2000)
Table 5	Assessment of the relative vulnerability of interest features and sub-features of Stour and Orwell Estuary European marine site to different categories of operations

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1. Introduction

1.1 Natura 2000

The European Union Habitats¹ and Birds² Directives are international obligations which set out a number of actions to be taken for nature conservation. The Habitats Directive aims to promote the maintenance of biodiversity, taking account of economic, social, cultural and regional requirements, and sets out measures to maintain or restore, natural habitats and species of European Union interest at favourable conservation status³. The Birds Directive protects all wild birds and their habitats within the European Union, and there are special measures for migratory birds and those that are considered rare or vulnerable.

The Habitats and Birds Directives include requirements for the designation of conservation areas. In the case of the Habitats Directive these are Special Areas of Conservation (SACs) which support certain natural habitats or species, and in the Birds Directive, Special Protection Areas (SPAs) which support wild birds of European Union interest. These sites will form a network of conservation areas across the EU to be known as 'Natura 2000'. Where SACs or SPAs consist of areas continuously or intermittently covered by tidal waters or any part of the sea in or adjacent to Great Britain up to the limit of territorial waters, they are referred to as European marine sites.

Further guidance on European marine sites is contained in the Department of the Environment Transport and Regions/Welsh Office document: *European marine sites in England & Wales: A guide to the Conservation (Natural Habitats &c.) Regulations 1994 and to the preparation and application of management schemes*.

1.2 English Nature's role

The Conservation (Natural Habitats &c.) Regulations 1994 translate the Habitats Directive into law in Great Britain. It gives English Nature a statutory responsibility to advise relevant authorities as to the conservation objectives for European marine sites in England and to advise relevant authorities as to any operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species for which the sites have been designated. This information will be a key component of any of the management schemes which may be developed for these sites.

¹ Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora

² Council Directive 79/409/EEC on the conservation of wild birds

³ A habitat or species is defined as being at favourable conservation status when its natural range and the areas it covers within that range are stable or increasing and the specific structure and functions which are necessary for its long term maintenance exist and are likely to continue to exist for the foreseeable future.

This document is English Nature's advice for the Stour and Orwell Estuary European marine site issued in fulfilment of Regulation 33(2) of the Conservation (Natural Habitats &c.) Regulations 1994 (the 'Regulation 33 package'). Copies of key references quoted in this document are held at the English Nature local office, Suffolk Team, Regent House, 110 Northgate Street, Bury St Edmunds, Suffolk, IP33 1HP.

In addition to providing such advice, the Regulation 33 package informs on the scope and nature of 'appropriate assessment' which the Directive requires to be undertaken for plans and projects (Regulations 48 & 50 and by English Nature under Regulation 20). English Nature may also provide more detailed advice to competent and relevant authorities to assess the implications of any such plans or projects.

1.3 The role of relevant authorities

The Conservation (Natural Habitats &c.) Regulations 1994 require all competent authorities to exercise their functions so as to secure compliance with the Habitats Directive. This European marine site is managed through existing SSSI mechanisms under the Wildlife and Countryside Act 1981, as amended 1985. However, relevant authorities may, if deemed necessary, draw up a management scheme under regulation 34 for the European marine site component of the Stour and Orwell Estuary SPA. If such a management scheme is developed, it would provide the framework through which relevant authorities exercise their functions so as to secure compliance with the Habitats Directive and must be based on the advice in this package. Irrespective of this decision, relevant authorities must, within their areas of jurisdiction, have regard to both direct and indirect effects on an interest feature of the site as well as cumulative effects. This may include consideration of features and issues outside the boundary of the European marine site and above the highest astronomical tide.

Relevant authorities should ensure that all plans for the area integrate with any management scheme for the European marine site. Such plans may include shoreline management plans, CHAMPS (Coastal Habitat Management Plans), local Environment Agency plans, SSSI management plans, local BAP plans and sustainable development strategies for estuaries. This must occur to ensure that there is only a single management scheme through which all relevant authorities exercise their duties under the Conservation (Natural Habitats &c.) Regulations 1994.

Relevant authorities also need to have regard to changing circumstances of the SPA and may therefore need to modify the way in which they exercise their functions so as to maintain the favourable condition of interest features concerned in the long term. There is no requirement for relevant authorities to take any actions outside their statutory functions.

Under certain circumstances, where another relevant authority is unable to act for legal reasons, or where there is no other relevant authority, English Nature is empowered to use its bylaw-making powers for Marine Nature Reserves (MNR) for use in European marine sites.

1.4 Activity outside the control of relevant authorities

Nothing within this Regulation 33 package will require relevant authorities to undertake any actions or ameliorate changes in the condition of interest features if it is shown that the

changes result wholly from natural causes⁴. This also applies if the changes, although causing deterioration or disturbance to the interest features, are the result of human or natural events outside their control. Having issued Regulation 33 advice for European marine sites, English Nature will work with relevant authorities and others to agree, within a defined time frame, a protocol for evaluating all observed changes to baselines and to develop an understanding of natural change and provide further guidance as appropriate and possible.

On the Stour and Orwell Estuary European marine site a management group is being set up and, once established, should be used to alert all the relevant authorities to such issues so that they may be assessed and any appropriate measures taken. This does not, however, preclude relevant authorities from taking action to prevent deterioration to the interest features, for example by introducing or promoting codes of practice through the Steering Group.

1.5 Responsibilities under other conservation designations

In addition to its SPA status, parts of Stour and Orwell Estuary are also designated and subject to agreements under other conservation legislation (eg. SSSIs notified under the Wildlife and Countryside Act 1981 as amended 1985). The obligations of relevant authorities and other organisations under such designations are not affected by the advice contained in this document.

1.6 Role of conservation objectives

Section 4 of this document sets out the conservation objectives for the Stour and Orwell Estuary European marine site. They are the starting point from which management schemes and monitoring programmes may be developed as they provide the basis for determining what is currently or may cause a significant effect, and for informing on the scope of appropriate assessments of plans or projects. The conservation objectives set out what needs to be achieved and thus deliver the aims of the Habitats Directive.

1.7 Role of advice on operations

The advice on operations set out in Section 6 provides the basis for discussion about the nature and extent of the operations taking place within or close to the site and which may have an impact on its interest features. It is given on the basis of the working assumption that sites were in favourable condition at the time they were identified. However, in view of the fact that compensation for the recent capital dredge is not yet in place, the site is currently considered to be in unfavourable condition. Monitoring is currently being carried out to assess the effects of the dredge on the integrity of the site. The advice should also be used to identify the extent to which existing measures of control, management and use are, or can be made, consistent with the conservation objectives and thereby focus the attention of relevant authorities and surveillance to areas that may need management measures.

This operations advice may need to be supplemented through further discussions with any management and advisory groups for the European marine site.

⁴ Determination of what constitutes natural change will be based on the best available information and scientific opinion at the time.

2. Qualifying species within the SPA under the EU Birds Directive

The boundary of the Stour and Orwell Special Protection Area (SPA) is shown in Figure 1.

Stour and Orwell Estuary SPA qualifies under Article 4.1 of the EU Birds Directive by supporting:

- Internationally important populations of regularly occurring Annex 1 species.

It also qualifies under Article 4.2 of the EU Birds Directive in that it supports:

- Internationally important populations of regularly occurring migratory species.

As well as internationally important populations of Annex 1 and/or migratory species, an additional SPA qualifying criteria is a regularly occurring assemblage of over 20,000 waterfowl. Although the cumulative total of the population counts for the species listed on the Stour and Orwell citation are in excess of 20,000, the citation does not explicitly state that the Stour and Orwell SPA qualifies for an internationally important waterfowl assemblage. For this reason, a waterfowl assemblage cannot be identified as an interest feature of the European marine site and cannot be included within this package. The citation does list nationally important populations, however according to SPA selection guidelines, nationally important populations only qualify as components of a waterfowl assemblage. For these reasons the nationally important populations have also been omitted. English Nature will amend this advice as appropriate following the UK SPA Network Review (led by JNCC).

Stour and Orwell Estuary was classified as an SPA in October 1992 and it is that citation on which this advice is based. Stour and Orwell Estuary was also listed in October 1992 as a Ramsar site under the Ramsar Convention for its internationally important wetland status.

3. Interest features of the European marine site

The Stour and Orwell SPA includes both marine areas (ie. land covered continuously or intermittently by tidal waters) and land which is not subject to tidal influence. The marine part of the SPA is termed a European marine site. The extent of the Stour and Orwell Estuary European marine site is illustrated in Figures 2. The seaward boundary of the European marine site is concurrent with that of the SPA. The landward boundary of the European marine site is the upper boundary of the SPA, or where that extends above land covered continuously or intermittently by tidal waters it is at the limit of the marine habitats.

Where SPA qualifying species occur within the European marine site they are referred to as interest features. Sub-features (habitats) have also been identified to highlight the ecologically important components of the European marine site for each interest feature. The interest features and sub-features for the Stour and Orwell Estuary European marine site are described below and the sub-features are mapped at Figure 3 to show their distribution and extent.

3.1 Background and context

A major aim of the Birds Directive is to take special measures to conserve the habitats of qualifying birds in order to ensure their survival and reproduction within the European Union. A key mechanism in achieving this is the classification by Member States of the most suitable sites as SPAs.

English Nature's conservation objectives at a site level focus on maintaining the condition of the habitats used by the qualifying species. Habitat condition will be delivered through appropriate site management including the avoidance of damaging disturbance. In reporting on Favourable Conservation Status, account will need to be taken both of habitat condition and the status of the birds on the SPA.

Accordingly, English Nature will use annual counts, in the context of five year peak means for qualifying species, together with available information on population and distribution trends, to assess whether an SPA is continuing to make an appropriate contribution to the Favourable Conservation Status of the species. Count information will be assessed in combination with information on habitat condition, at the appropriate time within the reporting cycle, in order to report to the European Commission.

English Nature's advice focuses on the qualifying species for which the SPA was originally classified despite the fact that numbers and species composition may have changed on this site since that time. Such population and species composition changes are being documented through the UK SPA Network Review, led by JNCC, which will provide advice to Ministers on any changes required in SPA citations. Depending on the review and decisions from DETR, English Nature may reissue this advice.

In addition to focusing on avoiding deterioration to the habitats of the qualifying species, the Habitats Directive also requires that actions are taken to avoid significant disturbance to the species for which the site was designated. Such disturbance may include alterations in population trends and/or distribution patterns. Avoiding disturbance to species requirements is mentioned in the favourable condition table underpinning the conservation objectives for

the SPA. In this context, five year peak mean information on populations will be used as the basis for assessing whether disturbance is damaging.

Attention is, however, also directed to the inclusion of disturbance in the advice on operations provided in section 6. Where disturbance is highlighted in such advice, relevant authorities need to avoid damaging disturbance to qualifying species when exercising their functions under the Directive.

3.2 Reductions in organic inputs

Under the Urban Waste Water Treatment (UWWT) Directive all coastal discharges above a certain volume must have secondary treatment installed by the end of 2000. Secondary treatment of sewage will significantly reduce organic loading and to a lesser extent reduce concentrations of dissolved nutrients. The effects of these reductions on coastal features and the birds they support are difficult to predict. On the one hand, it might be expected that there would be a redistribution of feeding birds or a reduction in the overall capacity of a coastal area to support bird populations. On the other hand, where bird populations are currently adversely affected by eutrophication, cleaner discharges may contribute to improving site condition.

English Nature supports the cleaning up of coastal discharges. On balance, the overall ecological benefits of cleaner discharges are likely, in general, to outweigh any subsequent local decline in bird numbers, although there is presently insufficient knowledge to accurately predict the effects in general or for individual SPA sites. Consequently, English Nature, with input from the Countryside Council for Wales and the Environment Agency, is commissioning a related research project to study the relationship between birds and organic nutrient levels, the overall effects on the ecosystem and thereby the effects of the clean-up programme under the UWWT and Bathing Water Directives.

Under the Habitats Regulations, if significant effects are likely from such activities, the competent authority (in this case the Environment Agency) will be required to undertake an appropriate assessment to determine whether there is an adverse effect on site integrity.

3.3 General description

In recognition that bird populations may change as a reflection of national or international trends or events, this advice on the bird interests of the European marine site focuses on the condition of the habitats necessary to support the bird populations. Sub-features are identified which describe the key habitats within the European marine site necessary to support the birds that qualify within the SPA. Detailed information and targets for habitat condition are listed in the favourable condition table in Section 5. Bird usage of the site varies seasonally, with different areas being favoured over others at certain times of the year. However, annual counts for qualifying species will be used by English Nature, in the context of five year peak means, together with available information on UK population and distribution trends, to assess whether this SPA is continuing to make an appropriate contribution to the Favourable Conservation Status of the species across Europe.

Bird communities are highly mobile and exhibit patterns of activity related to tidal water movements and many other factors. Different bird species exploit different parts of a marine area and different prey species. Changes in the habitat may therefore affect them differently.

The important bird populations at this site require a functional estuary which is capable of supporting intertidal habitat for feeding and roosting. The most important factors related to this are:

- Current extent and distribution of suitable feeding and roosting habitat (eg saltmarsh, mudflats);
- Sufficient prey availability (eg small fish, crustaceans and worms);
- Minimal levels of disturbance to roosting and feeding areas;
- Water quality necessary to maintain intertidal plant and animal communities; and
- Water quantity and salinity gradients necessary to maintain saltmarsh conditions suitable for bird feeding and roosting.

3.4 Internationally important populations of the regularly occurring Annex 1 species

The species listed in Annex 1 of the Birds Directive are the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution. Species listed on Annex 1 are in danger of extinction, rare or vulnerable. Annex 1 species that regularly occur at levels over 1% of the national population meet the SPA qualifying criteria. Stour and Orwell Estuary is of importance for an internationally important population of wintering golden plover *Pluvialis apricaria*, a species listed on Annex 1. Golden plover are dependent on non-intertidal as well as intertidal habitats. Some of the habitat required for golden plover to feed and roost- marshy grassland -occurs outside the European marine site, as it occurs above the highest astronomical tide. Objectives to maintain these aspects of bird interest in favourable condition are found within English Nature's conservation objectives for the relevant SSSI within the SPA boundary and will be dealt with through relevant procedures outlined in the Conservation (Natural Habitats &c.) Regulations 1994. Relevant authorities need to have regard to such adjacent European interests, as they might be affected by activities taking place within, or adjacent to the European marine site.

3.4.1 Key sub-features

Saltmarsh - Saltmarshes are used by golden plovers for roosting, particularly on the Stour Estuary. The saltmarshes of the Stour, grade from high marsh with species such as sea purslane *Atriplex portulacoides*, sea aster, *Aster tripolium*, and annual sea blite *Suaeda maritima* through to lower marsh dominated by glasswort *Salicornia* sp and cord grasses *Spartina* spp.

Intertidal mudflat - The mudflats of the Stour estuary are situated in five main bays, Seafield, Holbrook, Erwarnton, Jaques and Copperas. They are all particularly rich in invertebrates, relatively undisturbed and are used by golden plovers for feeding (Mason & Macdonald 2000). Use of mudflats, for foraging, is considered rare and it is still unclear how frequent it is and what the birds are feeding on, the majority of the feeding occurs on arable land adjacent to the estuary. At low tide the golden plovers use the intertidal mudflats on the Stour at Mistley for roosting. They seem to favour the areas where the substrate is firmer. There is little evidence of golden plovers using the mudflats in the Orwell for feeding or roosting.

3.5 Internationally important populations of regularly occurring migratory bird species

The large areas of intertidal mudflats and sandflats in the Stour and Orwell Estuary support dense populations of marine invertebrate species, which in turn provide a food source for large populations of water birds. The Stour and Orwell Estuaries are an important site in the UK for wintering waterfowl and during severe winter weather the Stour and Orwell assumes even greater national and international importance as waterfowl arrive from other areas, especially mainland Europe, as they are attracted by the mild conditions and the abundant food resource.

The internationally important population of dark-bellied Brent geese are dependent on non-intertidal as well as intertidal habitats. Dark-bellied Brent geese will feed and roost on marshy grassland which does not occur within the European marine site, as it occurs above the highest astronomical tide. Objectives to maintain this aspect of bird interest in favourable condition are found within English Nature's conservation objectives for the relevant SSSI within the SPA boundary and will be dealt with through relevant procedures outlined in the Conservation (Natural Habitats &c.) Regulations 1994. Relevant authorities need to have regard to such adjacent European interests, as they might be affected by activities taking place within, or adjacent to the European marine site.

Of additional interest are non-qualifying nationally important populations of the following migratory species; wigeon *Anas penelope*, knot *Calidris canutus*, curlew *Numenius arquata*, pintail *Anas acuta*, mute swan *Cygnus olor*, goldeneye *Bucephala clangula* and scaup *Aythya marila*. These nationally important species will feed and roost on the same habitats as the internationally important species, with the exception of goldeneye and scaup, which feed and roost on shallow coastal waters.

3.5.1 Key sub-features

Intertidal mudflats - The mudflats of the Stour estuary are situated in five main bays, Seafield, Holbrook, Erwarnton, Jaques and Copperas. Those of the Orwell are more linear in nature, but are nonetheless important with the Black Ooze, Pond Ooze, Nacton, Freston, Mulberry Middle and Woolverstone being particularly well used. The mudflats of both estuaries support high densities of invertebrates which are important as food for water birds. In addition the Orwell supports some patches of eel grass *Zostera* spp. and the Stour and Orwell both have areas of *Enteromorpha*; these provide a food source for dark-bellied Brent geese. Many of the water birds in the estuaries have been found to be associated with the freshwater flows across the mudflats although the reason behind this is not yet clear.

On the Stour, the dark-bellied Brent geese feed mainly in Copperas Bay and on the arable fields next to Jaques Bay which is outside the European marine site. The shelduck feed throughout the estuary but there are good concentrations at the head; ringed plover feed in good numbers in Copperas Bay on the sea defence bank and in Bathside Bay (outside the European marine site). Dunlin and grey plover feed throughout the estuary; black-tailed godwit are found in increasing concentrations in the inner estuary at Mistley which is also an important area for redshank, although the species is fairly widely disturbed on the Stour. Turnstone have a scattered distribution but feed in areas where the substrate is stony, especially on the gravel shoals. There are very strong links with Hamford Water and much

interchange of birds between the two sites (possibly as result of increasing disturbance on the Stour roosts).

On the Orwell; originally the dark-bellied Brent geese fed on the *Zostera* on the intertidal, but with the die-back of this species the geese now feed more on arable land and grazing marsh outside the European marine site. Shelduck feed throughout the estuary, but favour the softer substrates of the middle reaches; ringed plover feed throughout the estuary but seem to prefer the Pond Ooze, Levington and Freston. Dunlin and grey plover feed throughout the estuary but prefer the muddier substrates of the Pond ooze, Black Ooze, Mulberry Middle, and Nacton foreshore. Black-tailed godwit prefer the upper reaches at Freston, Black Ooze, Mulberry Middle and Bone Bridge. Prior to dock development turnstone used Fagbury Flats, now they are found feeding in the lower reaches generally.

Saltmarsh - Saltmarsh on the site provides important feeding and roosting areas for migratory waterfowl. The detritus from the marsh is also vital as a food source for mudflat invertebrates. Shelduck roost on saltmarsh. Most of the Stour roosts are on the more sheltered northern shore: four of the five main roosts are at Brantham, Stutton Mill, Stutton Ness and Netterall, Harkstead. The major Essex roost is on the saltmarsh of the Deep Fleet and Copperas Bay sea defence bank, part of which lies just outside the SPA. There are smaller scattered roosts in Essex, eg at Hogmarsh and Jaques Bay saltings. There are also major roosts outside the European marine site at Bathside Bay, on the adjacent arable (during high spring tides) and on adjacent SPA's such as Hamford Water. The muddy creeks that form the convoluted seaward boundary of the saltmarsh and penetrate into the saltmarsh itself, have been included within the saltmarsh sub-feature. Directly either side of high tide, these are the only exposed areas of mud and wading bird species and waterfowl will exploit these feeding areas while the mudflat further out in the estuary is still covered with water remaining inaccessible. All the species that feed on areas of intertidal mudflat will to some extent also feed within these areas of the saltmarsh. Dark-bellied Brent geese will also graze the vegetation of saltmarsh plants such as *Salicornia*.

The Orwell has much less saltmarsh and many of the birds which feed on the Orwell roost on the Stour. However, the Suffolk Wildlife Trust reserve at Trimley Marshes, which lies just outside the European marine site has become an important roost for wildfowl in recent years.

4. Conservation objectives for SPA interest features

Under Regulation 33(2)(a) of the Conservation (Natural Habitats &c.) Regulations 1994, English Nature has a duty to advise other relevant authorities as to the conservation objectives for the European site. The conservation objectives for the Stour and Orwell Estuary European marine site interest features are provided below and should be read in the context of other advice given in this package, particularly:

- the attached maps showing the extent of the sub-features;
- summary information on the interest of each of the features; and
- the favourable condition table, providing information on how to recognise favourable condition for the feature and which will act as a basis for the development of a monitoring programme.

4.1 The conservation objective for the internationally important populations of the regularly occurring Annex 1 bird species

Subject to natural change, maintain in favourable condition⁵ the habitats for the **internationally important populations of the regularly occurring Annex 1 bird species**, under the Birds Directive, in particular:

- **Intertidal mudflat**
- **Saltmarsh**

Numbers of bird species using these habitats are given in Table 1

4.2 The conservation objective for the internationally important populations of regularly occurring migratory bird species

Subject to natural change, maintain in favourable condition⁵ the habitats for the **internationally important populations of regularly occurring migratory bird species**, under the Birds Directive, in particular:

- **Intertidal mudflat**
- **Saltmarsh**

Numbers of bird species using these habitats are given in Table 1

Note: These SPA conservation objectives focus on habitat condition in recognition that bird populations may change as a reflection of national or international trends or events. Annual counts for qualifying species will be used by English Nature, in the context of five year peak means, together with available information on UK population and distribution trends, to

⁵ For a detailed definition of how to recognise favourable condition see table 2 (Section 5)

assess whether this SPA is continuing to make an appropriate contribution to the Favourable Conservation Status of the species across Europe.

Table 1 Information on populations of bird species qualifying under the Birds Directive using the Stour and Orwell Estuary European marine site at the time the SPA was classified.

Internationally important populations of regularly occurring Annex 1 species.

Species	Population (5 yr peak mean)*
Golden plover <i>Pluvialis apricaria</i>	>1% GB (1986/87 - 1990/91)

Internationally important populations of regularly occurring migratory bird species.⁶

Species	Population (5 yr peak mean for 1986/87 - 1990/91)*
Dark-bellied brent goose <i>Branta bernicla bernicla</i>	2,640 birds (>2% GB)
Shelduck (<i>Tadorna tadorna</i>)	2,670 birds (>3% GB)
Ringed plover <i>Charadrius hiaticula</i>	700 birds (3% GB)
Grey plover <i>Pluvialis squatarola</i>	2,170 birds (>10% GB)
Dunlin <i>Calidris alpina</i>	23,760 birds (>5% GB)
Black-tailed godwit <i>Limosa limosa</i>	1,610 birds (>33% GB)
Redshank <i>Tringa totanus</i>	2,520 birds (>3% GB)
Turnstone <i>Arenaria interpres</i>	880 birds (>1% GB)

* SPA citation dated October 1992 held on Register of European marine sites for Great Britain.

⁶ Stour and Orwell Estuary is regularly used by 1% or more of the biogeographical population of a regularly occurring species (other than those listed on annex 1) in any season (Cranswick *et al.*, 1995).

5. Favourable condition table

The favourable condition table is supplied as an integral part of English Nature's Regulation 33 advice package. It is intended to supplement the conservation objectives only in relation to management of activities and requirements on monitoring the condition of the site and its features. The table **does not by itself** provide a comprehensive basis on which to assess plans and projects as required under Regulations 20 and 48-50, but it does provide a basis to inform the scope and nature of any 'appropriate assessment' that may be needed. It should be noted that appropriate assessments are, by contrast, a separate activity to condition monitoring requiring consideration of issues specific to individual plans or projects. English Nature will provide more detailed advice to competent and relevant authorities to assess the implications of any given plan or project under the Regulations, where appropriate, at the time a plan or project is being considered.

The favourable condition table is the principle source of information that English Nature will use to assess the condition of an interest feature and as such comprises indicators of condition. On many terrestrial European sites, we know sufficient about the preferred or target condition of qualifying habitats to be able to define measures and associated targets for all attributes to be assessed in condition monitoring. Assessments as to whether individual interest features are in favourable condition will be made against these targets. In European marine sites we know less about habitat condition and find it difficult to specify favourable condition. Individual sites within a single marine habitat category are also all very different, further hampering the identification of generic indicators of condition. Accordingly, in the absence of such information, condition of interest features in European marine sites will be assessed against targets based on the existing conditions, which may need to be established through baseline surveys in many cases.

The assumption that existing interest features on European marine sites are in favourable condition will be tested in the 2000 - 2006 reporting period and the results subsequently fed back into our advice and site management. Where there is more than one year's observations on the condition of marine habitats, all available information will need to be used to set the site within long-term trends in order to form a view on favourable condition. Where it may become clear that certain attributes are a cause for concern, and if detailed studies prove this correct, restorative management actions will need to be taken to return the interest feature from unfavourable to favourable condition. It is the intention of English Nature to provide quantification of targets in the favourable condition table during the 2000 - 2006 reporting period.

This advice also provides the basis for discussions with management and advisory groups, and as such the attributes and associated measures and targets may be modified over time. The aim is to produce a single agreed set of attributes that will then be monitored in order to report on the condition of features. Monitoring of the attributes may be of fairly coarse methodology, underpinned by more rigorous methods on specific areas within the site. To meet UK agreed common standards, English Nature will be committed to reporting on each of the attributes subsequently listed in the final version of the table, although the information to be used may be collected by other organisations through agreements.

The table will be an important, but not the only, driver of the site monitoring programme. Other data, such as results from compliance monitoring and appropriate assessments, will also have an important role in assessing condition. The monitoring programme will be

developed as part of the management scheme process through discussion with the relevant authorities and other interested parties. English Nature will be responsible for collating the information required to assess condition and will form a judgement on the condition of each feature within the site, taking into account all available information and using the favourable condition table as a guide.

Box 1	Glossary of terms used in the favourable condition table
Interest feature	The habitat or species for which the site has been selected.
Sub-feature	An ecologically important sub-division of the interest feature.
Attribute	Selected characteristic of an interest feature/sub-feature which provides an indication of the condition of the feature to which it applies.
Measure	What will be measured in terms of the units of measurement, arithmetic nature and frequency at which the measurement is taken. This measure will be attained using a range of methods from broad scale to more specific across the site.
Target	This defines the desired condition of an attribute, taking into account fluctuations due to natural change. Changes that are significantly different from the target will serve as a trigger mechanism through which some further investigation or remedial action is taken.
Comments	The rationale for selection of the attribute.

Table 2. Favourable Condition Table for Stour and Orwell Estuary European marine site

Numbers of bird species using these habitats are given in Table 1

NB - Many of the attributes will be able to be monitored at the same time or during the same survey. The frequency of sampling for many attributes may need to be greater during the first reporting cycle in order to characterise the site and establish the baseline.

Feature	Sub - Feature	Attribute	Measure	Target	Comments
Internationally important populations of regularly occurring Annex 1 bird species	Intertidal mudflat and saltmarsh	Extent and distribution of habitat	Area (ha) measured once during reporting cycle.	No decrease in extent of habitats, from an established baseline, subject to natural change.	Roosting and feeding areas for golden plovers
		Disturbance	Reduction or displacement of birds.	No significant reduction in numbers or displacement of wintering birds from established baseline ⁷ , subject to natural change.	All qualifying species.
		Absence of obstructions to view lines	Openness of terrain unrestricted by obstructions, measured periodically (frequency to be determined).	No increase in obstructions to existing bird view lines, subject to natural change.	Golden plovers require unrestricted views over >200m to allow early detection of predators when feeding and roosting.
		Food availability	Presence and abundance of marine worms, molluscs and crustaceans, measured periodically (frequency to be determined).	Presence and abundance of prey species should not deviate significantly from an established baseline ⁷ , subject to natural change.	<i>Nereis</i> , <i>Arenicola</i> and <i>Notomatus</i> are important for golden plover.

Feature	Sub - Feature	Attribute	Measure	Target	Comments
Internationally important populations of regularly occurring Annex 1 bird species	Saltmarsh	Vegetation characteristics	Open, short vegetation or bare ground predominating in areas used for roosting, measured periodically (frequency to be determined).	Vegetation height throughout areas used for roosting should not deviate significantly from an established baseline, subject to natural change.	Vegetation height of <10cm is required throughout areas used for roosting by golden plovers.
Internationally important populations of regularly occurring migratory species	Saltmarsh and intertidal mudflat	Extent and distribution of habitat	Area (ha) measured once during reporting cycle	No decrease in extent of habitats, from an established baseline, subject to natural change	Saltmarsh, intertidal mudflats and shallow coastal waters are all important feeding and roosting habitats.
		Disturbance	Reduction or displacement of birds.	No significant reduction in numbers or displacement of wintering birds from established baseline ⁷ , subject to natural change.	All qualifying species.
		Absence of obstructions to view lines	Open areas relatively free of obstruction, measured periodically (frequency to be determined).,	No increase in obstructions to existing bird view lines.	Generally waterfowl require unrestricted views over >200m to allow early detection of predators when feeding and roosting. Dark-bellied Brent geese require unrestricted views over >500m.

Feature	Sub - Feature	Attribute	Measure	Target	Comments
		Food availability	Presence and abundance of intertidal invertebrates, measured periodically (frequency to be determined).	Presence and abundance of prey species should not deviate significantly from an established baseline, subject to natural change.	Important prey species include : <i>Macoma</i> for bar-tailed godwit, dunlin, redshank; <i>Cardium</i> for bar-tailed godwit; <i>Nereis</i> for bar-tailed godwit, dunlin, grey plover, redshank, shelduck; <i>Hydrobia</i> for dunlin, redshank, shelduck; <i>Arenicola</i> for grey plover, <i>Gammarus</i> for ringed plover and turnstone; tubifex worms and <i>Pisidium</i> for ringed plover; <i>Corophium</i> for shelduck; <i>Balanus</i> , <i>Carcinus</i> and <i>Littorina</i> for turnstone
Internationally important populations of regularly occurring migratory species			Presence and abundance of mud-surface plants and green algae, measured periodically (frequency to be determined).	Presence and abundance of food species should not deviate significantly from an established baseline, subject to natural change.	<i>Zostera</i> and <i>Enteromorpha</i> are important for dark-bellied Brent goose.
	Saltmarsh	Vegetation characteristics	Open, short vegetation or bare ground predominating in areas used for roosting and short vegetation predominating in areas used for feeding, measured periodically (frequency to be determined).	Vegetation height throughout areas used for roosting and feeding should not deviate significantly from an established baseline, subject to natural change.	Vegetation height of <10cm is required throughout roosting areas for waders. Vegetation height of <10cm is required throughout feeding areas for dark-bellied Brent geese.

Feature	Sub - Feature	Attribute	Measure	Target	Comments
		Food availability	Presence and abundance of soft-leaved plants, measured periodically (frequency to be determined).	Presence and abundance of food species should not deviate significantly from an established baseline, subject to natural change.	<i>Spergularia, Puccinellia, Triglochin, Aster tripolium, Plantago</i> and <i>Salicornia</i> spp. are important for dark-bellied Brent geese.

⁷ Baselines to be determined during the first reporting cycle.

NB. Extreme events (such as storms reducing or increasing salinities, exceptionally cold winters or warm summers) also need to be recorded as they may be critical in influencing ecological issues in the Stour and Orwell Estuary and may well be missed by routine monitoring.

6. Advice on operations

English Nature has a duty under Regulation 33(2)(b) of the Conservation (Natural Habitats &c.) Regulations 1994 to advise other relevant authorities as to any operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species, for which the site has been designated. Information on how English Nature has developed this advice is given in section 6.2, and on how it may be reviewed and updated in the future, in Section 6.4.

The advice is provided in summary form in Table 3 and Section 6.5 and with more detail in Table 4 and Section 6.8, including advice in relation to specific interest features and their sub-features.

6.1 Purpose of advice

The aim of this advice is to enable all relevant authorities to direct and prioritise their work on the management of activities that pose the greatest potential threat to the favourable condition of interest features on the Stour and Orwell Estuary European marine site. The advice is linked to the conservation objectives for interest features and, once issued, will help provide the basis for detailed discussions within the management group to formulate and agree a management scheme to agreed timescales for the site. The advice given here will inform on, but is without prejudice to, any advice given under Regulation 48 or Regulation 50 on operations that qualify as plans or projects within the meaning of Article 6 of the Habitats Directive.

6.2 Methods for assessment

To develop this advice on operations English Nature has used a three step process involving:

- an assessment of the **sensitivity** of the interest features or their component sub-features to operations;
- an assessment of the **exposure** of each interest feature or their component sub-features to operations; and
- a final assessment of **current vulnerability** of interest features or their component sub-features to operations.

This three step process builds up a level of information necessary to manage activities in and around the European marine site in an effective manner. Through a consistent approach, this process enables English Nature to both explain the reasoning behind our advice and identify to competent and relevant authorities those operations which pose the most current threats to the favourable condition of the interest features on the European marine site.

All the scores of relative sensitivity, exposure and vulnerability are derived using best available scientific information and informed scientific interpretation and judgement. The process uses sufficiently coarse categorisation to minimise uncertainty in information, reflecting the current state of our knowledge and understanding of the marine environment.

Information has been gathered from a range of sources including reports such as ABP Research (1999).

6.2.1 Sensitivity assessment

The sensitivity assessment used is an assessment of the relative sensitivity of the interest features or the component sub-features of the Stour and Orwell Estuary European marine site to the effects of broad categories of human activities. In relation to this assessment, sensitivity has been defined as the intolerance of a habitat, community or individual (or individual colony) of a species to damage, or death, from an external factor (Hiscock, 1996). The sensitivity has been assessed in relation to the use of habitats by birds. As an example, wintering birds are highly sensitive to loss of their roosting or feeding grounds.

The sensitivity assessments of the interest features or their component sub-features of the Stour and Orwell Estuary European marine site are based upon a series of scientific review documents. These include reports produced for the UK Marine SAC LIFE project (Davison & Hughes 1998; Elliott and others 1998), the Countryside Council for Wales Science Report (Holt and others 1995) and the Marine Habitats Reviews (Jones and others 2000.).

The sensitivity assessments are based on current information but may develop with improvements in scientific knowledge and understanding. In particular, English Nature and Scottish Natural Heritage have commissioned the Marine Biological Association of the UK, through its Marine *Life* Information Network (MarLIN) to provide detailed sensitivity information to underpin this advice, over the next three years, and available to all over the World Wide Web (www.marlin.ac.uk).

6.2.2 Exposure assessment

This has been undertaken for the Stour and Orwell Estuary European marine site by assessing the relative exposure of the interest features or their component sub-features to the effects of broad categories of human activities currently occurring on the site. This was done through a series of workshops with relevant and competent authorities and stakeholders and may be subject to further refinement in the future. The exposure has been assessed in relation to the use of habitats by birds. As an example, wintering birds' feeding and roosting grounds may be considered highly exposed to toxic contamination from synthetic compounds due to the locations and intensity of discharges into an area.

6.2.3 Vulnerability assessment

The third step in the process is to determine the vulnerability of interest features or their component sub-features to operations. This is an integration of sensitivity and exposure. Only if a feature is both sensitive and exposed to a human activity will it be considered vulnerable. In this context therefore, 'vulnerability' has been defined as the exposure of a habitat, community or individual (or individual colony) of a species to an external factor to which it is sensitive (Hiscock, 1996). The process of deriving and scoring relative vulnerability is provided in Appendix I.

6.3 Format of advice

The advice is provided within six broad categories of operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species. This approach therefore:

- enables links to be made between human activities and the ecological requirements of the habitats or species, as required under Article 6 of the Habitats Directive;
- provides a consistent framework to enable relevant authorities in England to assess the effects of activities and identify priorities for management within their areas of responsibility; and
- is appropriately robust to take into account the development of novel activities or operations which may cause deterioration or disturbance to the interest features of the site and should have sufficient stability to need only infrequent review and updating by English Nature.

Sensitivity and vulnerability have been assessed in relation to the use of habitats by birds.

These broad categories provide a clear framework against which relevant authorities can assess activities under their responsibility. The more detailed information in Table 4 provides relevant authorities with a context against which to consider an assessment of 'significant effect' or any plans or projects which may affect the site and a basis to inform on the scope and nature of appropriate assessments required in relation to plans and projects. It is important to note that this advice is only a starting point for assessing impacts. It does not remove the need for the relevant authorities to consult English Nature formally over individual plans and projects where required to do so under the Regulations.

6.4 Update and review of advice

Information as to the operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species, for which the site has been designated, is provided in light of what English Nature knows about current activities and patterns of usage at the Stour and Orwell Estuary European marine site. English Nature expects that the information on current activities and patterns of usage (which was used to derive Table 4) will be supplemented as part of the process of developing the management of the site, and through further discussion with the relevant authorities. The option of zoning this information may be appropriate. As such, it is important that future consideration of this advice by relevant authorities and others takes account of changes in the usage patterns that have occurred at the site, over the intervening period, since the advice was issued. In contrast, the information provided in this advice on the sensitivity of interest features or sub-features (Table 5) is relatively stable and will only change as a result of an improvement in our scientific knowledge, which will be a relatively long term process. Advice for sites will be kept under review and may be periodically updated through discussion with relevant authorities and others to reflect significant changes in our understanding of sensitivity together with the potential effects of plans and projects on the marine environment.

6.5 Summary of advice on operations

6.5.1 Internationally important populations of regularly occurring Annex 1 species

In pursuit of the conservation objective for ‘habitats supporting internationally important populations of regularly occurring Annex 1 species’ (Section 4.1), the relevant and competent authorities for Stour and Orwell Estuary European marine site are advised to manage human activities within their remit such that they do not result in deterioration or disturbance to habitats or species for which the site has been selected, through any of the following:

- Physical loss resulting from removal or smothering
- Physical damage from siltation and/or abrasion
- Noise or visual disturbance
- Non-toxic contamination through changes in nutrient and organic loading
- Biological disturbance through the selective extraction of species

6.5.2 Internationally important populations of regularly occurring migratory species

In pursuit of the conservation objective for ‘habitats supporting the internationally important populations of regularly occurring migratory species’ (Section 4.2), the relevant and competent authorities for Stour and Orwell Estuary European marine site are advised to manage human activities within their remit such that they do not result in deterioration or disturbance to habitats or species for which the site has been selected, through any of the following:

- Physical loss resulting from removal or smothering
- Physical damage from siltation and/or abrasion and/or selective extraction
- Noise or visual disturbance
- Increased non-toxic contamination through changes in nutrient and organic loading and/or changes in turbidity
- Biological disturbance through the selective extraction of species

6.6 Plans and Projects

Under Regulation 48(1), an appropriate assessment must be undertaken in respect of any plan or project which:

- a. either alone or in combination with other plans or projects is likely to have a *significant effect* on a European Site; and
- b. is not directly connected with or necessary to the management of the site for nature conservation.

This legal requirement applies to all European sites. Regulation 48 is also applied, as a matter of Government policy, to potential SPAs and listed Ramsar sites.

English Nature’s ‘Habitats regulations guidance note 1: The Appropriate Assessment (Regulation 48)’, is at Appendix II for further information.

Tables 3 and 4 provide relevant authorities with a guide against which to initiate an assessment of the ‘significance’ of any plans or projects (and ongoing operations or

activities) proposed for the site although this will only be the starting point for assessing impacts and does not remove the need for relevant authorities to formally consult English Nature over individual plans and projects where required under the Regulations.

6.7 Review of consents

Regulation 50 of the Conservation (Natural Habitats, &c.) Regulations 1994 requires a competent authority to undertake a review of any existing consent or permission to which Regulation 48(1) would apply if were being reconsidered as of the date on which the site became a European site. Where a review is required under these provisions it must be carried out as soon as reasonably practicable. This will have implications for discharge and other consents, which will need to be reviewed in light of these objectives and may mean that lower targets for background levels of contaminants etc. will need to be set.

Table 3 Summary of operations which may cause deterioration or disturbance to the Stour and Orwell Estuary European marine site interest features at current levels of use⁸

The advice below is not a list of prohibitions but rather a checklist for operations for discussion with the management group, which may need to be subject to some form of management measure(s) or further measures where actions are already in force. Examples of activities under relevant authority jurisdiction are also provided. Operations marked with a ✓ indicate those features that are considered to be highly or moderately vulnerable to the effects of the operations.

Standard list of categories of operation which may cause deterioration or disturbance	Internationally important populations of regularly occurring Annex 1 birds	Internationally important populations of regularly occurring migratory species
Physical loss Removal (eg harvesting, coastal development) Smothering (eg by artificial structures, disposal of dredge spoil)	✓ ✓	✓ ✓
Physical damage Siltation (eg run-off, channel dredging, outfalls) Abrasion (eg boating, anchoring, trampling) Selective extraction (eg aggregate dredging)	✓ ✓	✓ ✓ ✓
Non-physical disturbance Noise (eg boat activity) Visual (eg recreational activity)	✓ ✓	✓ ✓
Toxic contamination Introduction of synthetic compounds (eg pesticides, TBT, PCBs) Introduction of non-synthetic compounds (eg heavy metals, hydrocarbons) Introduction of radionuclides		
Non-toxic contamination Changes in nutrient loading (eg agricultural run-off, outfalls) Changes in organic loading (eg mariculture, outfalls) Changes in thermal regime (eg power stations) Changes in turbidity (eg run-off, dredging) Changes in salinity (eg water abstraction, outfalls)	✓ ✓	✓ ✓ ✓

Standard list of categories of operation which may cause deterioration or disturbance	Internationally important populations of regularly occurring Annex 1 birds	Internationally important populations of regularly occurring migratory species
Biological disturbance Introduction of microbial pathogens Introduction of non-native species & translocation Selective extraction of species (eg bait digging, wildfowling, commercial & recreational fishing)	✓	✓

⁸This advice has been developed using best available scientific information and informed scientific interpretation and judgement as at July 2000. This process has used a coarse grading of relative sensitivity, exposure and vulnerability of each interest feature to different categories of operation based on the current state of our knowledge and understanding of the marine environment. This is shown in the sensitivity and vulnerability matrices at Table 4. The advice is indicative only, and is given to guide relevant authorities and others on particular operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species for which the site has been designated. The advice, therefore, is not a list of prohibitions but rather a check list for operations which may need to be subject to some form of management measure(s) or further measures where actions are already in force.

The precise impact of any category of operation occurring on the site will be dependant upon the nature, scale, location and timing of events. More detailed advice is available from English Nature to assist relevant authorities in assessing actual impacts and cumulative effects. Assessment of this information should be undertaken in the development of management of the site through wider consultation.

In accordance with Government policy guidance, the advice on operations is feature and site specific, and provided in the light of current activities and patterns of usage at the site as at July 2000. As such, it is important that future consideration of this advice by relevant authorities, and others, takes account of changes in usage patterns that have occurred at the site over the intervening period. Advice for sites will be kept under review and may be periodically updated through discussions with relevant authorities, and others, to reflect significant changes in our understanding of sensitivity together with the potential effects of plans or projects on the marine environment. The provision of the statutory advice given here, on operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species, for which the site has been designated, under Regulation 33(2), is provided without prejudice to specific advice given under Regulation 48(3) or Regulation 50 on individual operations that qualify as plans or projects within the meaning of Article 6 of the Habitats Directive.

6.8 Interest feature and sub-feature specific advice on operations

This section provides information to help relate general advice to each of the specific interest features of the Stour and Orwell Estuary European marine site.

This advice relates to the vulnerability of the interest features and sub-features of the Stour and Orwell Estuary European marine site as summarised in Table 3 and set out in more detail in Table 5. An explanation of the sensitivity of the interest features or sub-features follows with an explanation of their exposure and therefore their vulnerability to damage or disturbance from the listed categories of operations. This enables links between the categories of operation and the ecological requirements of the European marine site's interest features, as set out in Section 3, to be made.

6.8.1 Internationally important populations of regularly occurring Annex 1 species

i) Physical Loss

- The Stour and Orwell Estuaries provides roosting and feeding habitats for internationally important populations of golden plover. Activities or developments resulting in the reduction of feeding and roosting habitat availability may be detrimental to this species. There are ports at Felixstowe, Harwich and Ipswich and their proximity to mainland Europe means that they play a vital role in the economy of East Anglia and the UK. As a result there is constant pressure for port development and the maintenance of existing port facilities, including land-take and associated dredging in the estuaries which may change the extent, nature and distribution of intertidal habitats. Birds are highly sensitive to habitat loss and because of the pressure for development, there is a high exposure in the Stour and Orwell Estuary resulting in a high vulnerability score.

ii) Physical Damage

- The habitats of the Stour and Orwell Estuaries and their associated food supplies, support the golden plover populations. Therefore, any operations or activities that would adversely affect these habitats may be detrimental to the species. The intertidal mudflats and saltmarsh communities are sensitive to damaging activities such as trampling and digging for bait that can cause physical damage. Both the saltmarsh and the mudflats are sensitive to physical damage from siltation and abrasion due to swinging moorings, shipwash and the dredging carried out for the ports at Ipswich, Felixstowe and Harwich. At present the exposure of the habitats mentioned above to these activities is considered to be high and this, combined with moderate to high sensitivities leads to a high vulnerability for these habitats.

iii) Non-physical Disturbance

- Golden plover are highly sensitive to disturbance caused by unpredictable movements of objects and increase in noise. This can have the effect of displacing the birds from their roosting or 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. Such a response affects energy budgets and thus survival. The Orwell is

heavily used by commercial shipping and both the Stour and Orwell experience heavy recreational use. Bait digging has also been raised as an issue on the Stour and Orwell and a code of practice has been introduced to try and ensure that this activity does not have an adverse impact on the birds which use the mudflats. Light aircraft and military helicopters are also a cause of disturbance. The high sensitivity of the birds combined with the high exposure leads to a high vulnerability score for non-physical disturbance on this site and the impact of all these activities needs further investigation.

iv) Toxic contamination

- Golden plover are sensitive to the accumulation of toxins through the food chain or through direct contact with toxic substances when feeding. Their ability to feed can be affected by changes in the palatability or abundance of prey items caused by toxic contamination. It is recognised that diffuse agricultural pollution occurs in the estuaries and so there is a high possibility of pesticides entering the estuary via this route but the full extent of this is not currently known. Discharges from the Sewage Treatment Works (STW) at Holbrook Bay and Ipswich may also contribute by containing some non-synthetic compounds from the trade discharges they receive. Birds can also be exposed to another source of toxic contamination through the re-mobilisation of contaminants such as TBT in the mudflats/sandflats during bait-digging and dredging operations. Although there is no evidence to suggest this is having a detrimental affect on bird numbers, and therefore the current vulnerability is low, the issue of toxic contamination will need to be assessed.

v) Non-toxic contamination

- Organic or nutrient enrichment can reduce the availability of food for birds by increasing growth of algal mats on the intertidal area. Equally, a reduction in nutrient levels may cause a reduction in the biomass of invertebrates. Birds are moderately sensitive to changes in nutrient levels and the mudflats used by the birds are moderately exposed to changes in organic and nutrient levels. This will require ongoing assessment. Changes in salinity caused by water abstraction and outfalls may also affect the invertebrates that the birds are feeding on. The current exposure is considered low and thus the vulnerability is also low but this will require further assessment.

v) Biological disturbance

- Bait digging can result in the selective extraction of species from the intertidal area. This may result in a localised reduction of food availability for feeding birds. Bait digging has the potential to reduce food availability to golden plovers but the quantitative impacts of bait collection are unclear at present. The vulnerability of the intertidal sandflats and mudflats to the current levels of activity are considered moderate.

6.8.2 Internationally important populations of regularly occurring migratory species

i) Physical Loss

- The Stour and Orwell Estuaries provides roosting and feeding habitats for internationally important populations of water birds. Activities or developments resulting in the reduction of feeding and roosting habitat availability may be detrimental to these species. There are ports at Felixstowe, Harwich and Ipswich and their proximity to mainland Europe means that they play a vital role in the economy of East Anglia and the UK. As a result there is constant pressure for port development and the maintenance of existing port facilities, including land-take and associated dredging in the estuaries which may change the extent, nature and distribution of intertidal habitats. In addition, *Spartina sp.* is colonising large areas of the upper north shore of the Orwell thus reducing the area of open mud flat available for feeding. There may be benefits in that it may be beneficial for invertebrates but this will need further investigation. Birds are highly sensitive to habitat loss and because of the pressure for development, there is a high exposure in the Stour and Orwell Estuary resulting in a high vulnerability score.
- ii) Physical Damage
- The habitats of the Stour and Orwell Estuaries and their associated food supplies, support the golden plover populations. Therefore, any operations or activities that would adversely affect these habitats may be detrimental to the species. The intertidal mudflats and saltmarsh communities are sensitive to damaging activities such as trampling and digging for bait that can cause physical damage. Both the saltmarsh and the mudflats are sensitive to physical damage from siltation and abrasion due to swinging moorings, shipwash and the dredging carried out for the Ports at Ipswich, Felixstowe and Harwich. At present the exposure of the habitats mentioned above to these activities is considered to be high and this, combined with moderate to high sensitivities leads to a high vulnerability for these habitats.
- iii) Non-physical Disturbance
- Water birds are highly sensitive to disturbance caused by unpredictable movements of objects and increase in noise. This can have the effect of displacing the birds from their roosting or 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. Such a response affects energy budgets and thus survival. The Orwell is heavily used by commercial shipping and both the Stour and Orwell experience heavy recreational use. Bait digging has also been raised as an issue on the Stour and Orwell and a code of practice has been introduced to try and ensure that this activity does not have an adverse impact on the birds which use the mudflats. Light aircraft and military helicopters are also a cause of disturbance. The high sensitivity of the birds combined with the high exposure leads to a high vulnerability score for non-physical disturbance on this site and the impact of all these activities needs further investigation.
- iv) Toxic contamination
- Water birds are sensitive to the accumulation of toxins through the food chain or through direct contact with toxic substances when feeding. Their ability to feed can be affected by changes in the palatability or abundance of prey items caused by toxic

contamination. It is recognised that diffuse agricultural pollution occurs in the estuaries and so there is a possibility of pesticides entering the estuary via this route. Discharges from the Sewage Treatment Works (STW) at Holbrook Bay and Ipswich may also contribute by containing some non-synthetic compounds from the trade discharges they receive. There is also a possibility of pollution from industrial discharges at Ipswich, Brantham and Manningtree and a possibility of contamination from antifoulants from ships boats throughout the estuary. Although there is no evidence to suggest this is having a detrimental affect on bird numbers, and thus the exposure and vulnerability scores are low, it is an issue which will need to be assessed.

- Birds can also be exposed to another source of toxic contamination through the re-mobilisation of contaminants such as TBT in the mudflats/sandflats. Activities such as bait digging and the ongoing dredging activities which could contribute to this category of operation will need further investigation.
- v) Non-toxic contamination
- Organic or nutrient enrichment can reduce the availability of food for birds by increasing growth of algal mats on the intertidal area. Equally, a reduction in nutrient levels may cause a reduction in the biomass of invertebrates. Birds are moderately sensitive to changes in nutrient levels and the mudflats used by the birds are moderately exposed to changes in organic and nutrient levels. This will require ongoing assessment. Changes in salinity caused by water abstraction and outfalls may also affect the invertebrates that the birds are feeding on. The current exposure is considered low and thus the vulnerability is also low but this will require further assessment.
- v) Biological disturbance
- Bait digging can result in the selective extraction of species from the intertidal area. This may result in a localised reduction of food availability for feeding birds. Bait digging has the potential to reduce food availability to water birds but the quantitative impacts of bait collection are unclear at present. The vulnerability of the intertidal sandflats and mudflats to the current levels of activity are considered moderate.

Table 4. Assessment of the relative exposure of interest features and sub-features of Stour and Orwell Estuary European Marine site to different categories of operations based on current level of activities (July 2000)

Key: High= High exposure (3) Med =Medium exposure (2) Low= Low exposure (1) None= (0)

Categories of operation which may cause deterioration or disturbance	Internationally important populations of regularly occurring Annex 1 species		Internationally important populations of regularly occurring migratory species	
	Intertidal	Saltmarsh	Intertidal	Saltmarsh
Physical loss Removal (eg harvesting, land claim) Smothering (eg by artificial structures, disposal of dredge spoil)	High High	High High	High High	High High
Physical damage Siltation (eg run-off, dredging, outfalls) Abrasion (eg boating, anchoring, trampling). Selective extraction (eg aggregate dredging).	High Med Low	High High Low	High Med Low	High High Low
Non-physical disturbance Noise (eg boat activity) Visual (eg recreational activity)	High Med	High Med	High Med	High Med
Toxic contamination Introduction of synthetic compounds (eg Pesticides, antifoulants, PCBs) Introduction of non-synthetic compounds (eg heavy metals, hydrocarbons) Introduction of radionuclides	Low Low Low	Low Low Low	Low Low Low	Low Low Low
Non-toxic contamination Changes in nutrient loading (eg agricultural run-off, outfalls) Changes in organic loading (eg mariculture, outfalls) Changes in thermal regime (eg outfalls, power stations) Changes in turbidity (eg run-off, dredging) Changes in salinity (eg water abstraction, outfalls)	Med Med Low Low Low	Med Med Low Low Low	Med Med Med High Low	Med Med Low High Low

Categories of operation which may cause deterioration or disturbance	Internationally important populations of regularly occurring Annex 1 species		Internationally important populations of regularly occurring migratory species	
	Intertidal	Saltmarsh	Intertidal	Saltmarsh
Biological disturbance				
Introduction of microbial pathogens	Low	Low	Low	Low
Introduction of non-native species & translocation	Low	Low	Low	Low
Selective extraction of species (eg bait digging, wildfowling, commercial & recreational fishing)	Med	Low	Med	Low

Table 5. Assessment of the relative vulnerability of interest features and sub-features of Stour and Orwell Estuary European Marine site to different categories of operations. Categories of operations to which the features or sub-features of the site are highly or moderately vulnerable are indicated by shading. Table also incorporates relative sensitivity scores used in part to derive vulnerability.⁹

Key

	High vulnerability	●●●●	High sensitivity
	Moderate vulnerability	●●●	Moderate sensitivity
		●●	Low sensitivity
		●	No detectable sensitivity

Categories of operations which may cause deterioration or disturbance	Internationally important populations of regularly occurring Annex 1 species		Internationally important populations of regularly occurring migratory species	
	Intertidal mud (Invertebrates)	Saltmarsh	Intertidal mud (mud-surface plants & invertebrates)	Saltmarsh
Physical Loss				
Removal (eg harvesting, land claim, coastal defence)	●●●●	●●●●	●●●●	●●●●
Smothering (eg artificial structures, disposal of dredge spoil)	●●●	●●●	●●●	●●●
Physical Damage				
Siltation (eg run-off, channel dredging, outfalls)	●●	●●	●●	●●
Abrasion (eg boating, anchoring, trampling)	●●	●●●	●●●●	●●●
Selective extraction (eg aggregate dredging)	●●●	●●	●●●●	●●
Non-physical disturbance				
Noise (eg boat activity)	●●●●	●●●●	●●●●	●●●●
Visual presence (eg recreational activity)	●●●●	●●●●	●●●●	●●●●

Categories of operations which may cause deterioration or disturbance	Internationally important populations of regularly occurring Annex 1 species		Internationally important populations of regularly occurring migratory species	
	Intertidal mud (Invertebrates)	Saltmarsh	Intertidal mud (mud-surface plants & invertebrates)	Saltmarsh
Toxic contamination				
Introduction of synthetic compounds (eg pesticides, TBT, PCBs)	●●●	●●●	●●●	●●●
Introduction of non-synthetic compounds (eg heavy metals, hydrocarbons)	●●●	●●●	●●●	●●●
Introduction of radionuclides	●●	●●	●●	●●
Non-toxic contamination				
Changes in nutrient loading (eg agricultural run-off, outfalls)	●●●	●●	●●●	●●
Changes in organic loading (eg mariculture, outfalls)	●●●	●●	●●●	●●
Changes in thermal regime (eg outfalls, power stations)	●	●	●●	●
Changes in turbidity (eg run-off, dredging)	●●	●●	●●	●●
Changes in salinity (eg water abstraction, outfalls)	●●	●●	●●●	●●
Biological disturbance				
Introduction of microbial pathogens	●●	●	●●	●●
Introduction of non-native species & translocation	●●●	●●●	●●●	●●●
Selective extraction of species (eg bait digging, wildfowling, commercial & recreational fishing)	●●●	●●●	●●●	●●●

⁹ English Nature’s advice on operations is derived from an assessment combining relative sensitivity of the features or sub-features with information on human usage of the site as at July 2000, to identify relative vulnerability to categories of operations. In accordance with Government policy guidance this advice is provided in the light of current activities and patterns of usage at the site. It is important therefore that future consideration of this advice by relevant authorities, and others, takes account of changes in the usage patterns at the site. In contrast the sensitivity of interest features, or sub-features, is relatively stable with alterations reflecting improvement in our scientific knowledge and understanding. To this end, information on sensitivity has been included in this table to assist the management and advisory groups with the future management of the site.

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8. Glossary

Advisory Group	The body of the representatives from local interests, user groups and conservation groups, formed to advise the management group
Annex 1 Bird species	The species listed in Annex 1 of the Birds Directive are the subject of special conservation measures concerning their habitat. These measures ensure the survival and reproduction of the birds in their area of distribution. Species listed on Annex 1 are in danger of extinction, rare or vulnerable
Annex I habitat type(s)	A natural habitat(s) listed in Annex I of the Habitats Directive for which Special Areas of Conservation can be selected.
Annex II species	A species listed in Annex II of the Habitats Directive for which Special Areas of Conservation can be selected.
Annex V	The listing, in the Habitats Directive, of the animal and plant species whose taking in the wild and exploitation may be subject to management measures.
Assemblage	A collection of plants and/or animals characteristically associated with a particular environment.
Attribute	Characteristic of an interest feature/sub-feature which provides an indication of the condition of the feature or sub-feature to which it applies.
BAP	Biodiversity Action Plan.
Benthos	Those organisms attached to, or living on, in or near, the seabed, including that part which is exposed by tides.
Biotope	The physical habitat with its biological community; a term which refers to the combination of physical environment and its distinctive assemblage of conspicuous species.
Biodiversity	The total variety of life on earth. This includes diversity within species, between species and ecosystems.
Characteristic	Special to, or especially abundant, in a particular situation or biotope. Characteristic species should be immediately conspicuous and easily identified.
Circalittoral	The rocky subtidal zone below that which is dominated by algae (Animal dominated subtidal zone).
Community	A group or organisms occurring in a particular environment, presumably interacting with each other and with the environment, and identifiable by means of ecological survey from other groups.
Competent authority	Any Minister, government department, public or statutory undertaker, public body or person holding a public office that exercises legislative powers.
Conservation objective	A statement of the nature conservation aspirations for a site, expressed in terms of the favourable condition that we wish to see the species and/or habitats for which the site has been selected to attain. Conservation objectives for European marine sites relate to the aims of the Habitats Directive.

Eulittoral	The main part of the intertidal zone characterised by limpets, barnacles, mussels, fucoid algae and with red algae often abundant on the lower part.
Epifauna	Benthic animals living on the seabed.
European Marine Site	A European site which consists of, or in so far as it consists of, areas covered intermittently or continuously by seawater.
European Site	A classified SPA, designated SAC, site of Community importance (a site selected as a candidate SAC, adopted by the European Commission but not yet designated), a candidate SAC (in England only) or a site hosting a priority species in respect of which Article 5 of the Habitats directive applies.
Favourable conservation status	A range of conditions for a natural habitat or species at which the sum of the influences acting upon that habitat or species are not adversely affecting its distribution, abundance, structure or function throughout the EC in the long term. The condition in which the habitat or species is capable of sustaining itself on a long-term basis.
Favourable condition	A range of conditions for a natural habitat or species at which the sum of the influences acting upon that habitat or species are not adversely affecting its distribution, abundance, structure or function within an individual Natura 2000 site in the long term. The condition in which the habitat or species is capable of sustaining itself on a long-term basis.
Habitat	The place in which a plant or animal lives.
Habitats Directive	The abbreviated term of <i>Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora</i> . It is the aim of this Directive to promote the conservation of certain habitats and species within the European Union.
Infauna	Benthic animals which live within the sediment.
Infralittoral	The subtidal zone in which upward facing rocks are dominated by erect algae, typically kelps.
Interest feature	A natural or semi-natural feature for which a European site has been selected. This includes any Habitats Directive Annex I habitat, or specific component of their fauna and flora, or any Annex II species and any population of a bird species for which and SPA has been designated under the Birds Directive. Any habitat of a species for which a site has been selected, or typical species of an Annex I habitat are also considered to be interest features.
Maintain	The action required for an interest feature when it is considered to be in favourable condition.
Management group	The body of relevant authorities formed to manage the European marine site.

Management scheme	The framework established by the relevant authorities at a European marine site under which their functions are exercised to secure, in relation to that site, compliance with the requirements of the Habitats Directive.
Nationally scarce/rare	For marine purposes, these are regarded as species of limited national occurrence.
Natura 2000	The European network of protected sites established under the Birds Directive and the Habitats Directive.
Notable species	A species that is considered to be notable due to its importance as an indicator, and may also be of nature conservation importance, and which is unlikely to be a ‘characteristic species’
Operations which may cause deterioration or disturbance	Any activity or operation taking place within, adjacent to, or remote from a European marine site that has the potential to cause deterioration to the natural habitats for which the site was designated, or disturbance to the species and its habitats for which the site was designated.
Plan or project	Any proposed development that is within a relevant authority’s function to control, or over which a competent authority has a statutory function to decide on applications for consents, authorisations, licences or permissions.
Peak mean counts (5 yr)	The Stour and Orwell Estuary is broken down into count sectors. Over the winter months WeBs volunteers count all the birds which are visible within each sector. The yearly figures for each species in Stour and Orwell Estuary are then averaged over a five year period to give the 5 yr peak mean count.
Relevant authority	The specific competent authority which has powers or functions which have, or could have, an impact on the marine environment, or adjacent to, a European marine site.
Restore	The action required for an interest feature when it is not considered to be in a favourable condition.
Sensitivity	The intolerance of a habitat, community or individual species to damage from an external force.
Sub-feature	An ecologically important sub-division of an interest feature.
Vulnerability	The exposure of a habitat, community or individual of a species to an external factor to which it is sensitive.
WEBs	Wetland Bird Survey: a collaborative national surveillance scheme of the UK’s waterfowl based on counts undertaken once per month outside of the breeding season.

Appendix I Matrix of relative vulnerability

The relative vulnerability of an interest feature or sub-feature is determined by combining the relative sensitivity and exposure assessments according to the table below.

		Relative sensitivity of the interest feature			
		High ●●●●	Moderate ●●●	Low ●●	None detectable ●
Relative exposure of the interest feature	High				
	Medium				
	Low				
	None				

Categories of relative vulnerability	
High	
Moderate	
Low	
None detectable	

Appendix II English Nature's 'Habitats regulations guidance note 1: The Appropriate Assessment (Regulation 48)'



Issued by Greg Smith, Environmental Impacts Team, English Nature. Tel: 01733 455210

The Appropriate Assessment (Regulation 48) The Conservation (Natural Habitats &c) Regulations, 1994

Introduction

1. This Guidance Note has been prepared to assist competent authorities and English Nature staff when undertaking the *“appropriate assessment”* required by Regulation 48 of the *Habitats Regulations 1994* implementing Article 6(3) of the *Habitats Directive* (92/43/EEC). Only the Courts can provide authoritative interpretation of the Regulations, but these notes have been developed in the light of practical experience and a close examination of the Regulations, the Habitats Directive and central government guidance, particularly in PPG 9.

When Does An ‘Appropriate Assessment’ Need To Be Undertaken?

Types of Proposal

2. Under Regulation 48(1), an appropriate assessment needs to be undertaken in respect of any plan or project which:
 - a. either alone or in combination with other plans or projects would be likely to have a *significant effect* on a European Site, and
 - b. is not directly connected with the management of the site for nature conservation.
3. Appropriate assessment is required by law for all European Sites (Regulation 48). A European Site is any classified SPA and any SAC from the point where the Commission and the Government agree the site as a Site of Community Importance. Appropriate assessment is also required, as a matter of Government policy, for potential SPAs, candidate SACs and listed Ramsar Sites for the purpose of considering development proposals affecting them. (PPG 9 paras 13 and C7).

Timing of the Assessment

4. An appropriate assessment needs to be undertaken in respect of a plan or project described above **before** any *“competent authority”*:
 - a. decides to undertake the plan or project, in cases where no consent, permission or other authorisation is required. (Reg. 48(1));
 - b. decides to give any consent, permission or other authorisation for the plan or project. (Regs. 48(1) *et al*);

- c. reviews the decision to undertake a plan or project or reviews consents, permissions or other authorisations for plans or projects that are incomplete. (Regs. 50(2) *et al* - see also English Nature Habitats Regulations Guidance Note No. 2);
- d. decides whether to approve an application for development that would otherwise be permitted development. (Reg. 62(6)).

Significant Effects

5. The plan or project does not have to be located within the designated area. Significant effects may occur even if the plan or project is some distance away and even outside any consultation area defined by English Nature (PPG 9 paras 30-32). The effects may be direct or indirect, temporary or permanent, beneficial or harmful to the site, or a combination of these.
6. The initial determination of likely significance is intended to ensure that all relevant plans and projects likely to have a material effect on these internationally important sites are subject to an appropriate assessment. In all but the most clear cut cases, competent authorities are likely to need advice. English Nature will advise, on request, as to whether any particular plan or project may be likely to have a significant effect on any of these sites. If the decision as to whether or not the development would have a significant effect on the designated site is inconclusive, on the information available, the competent authority should make a fuller assessment; in doing so they may ask the developer or other parties for more information. (PPG 9 para C10).

Who Undertakes the Appropriate Assessment?

7. The appropriate assessment must be undertaken by the *competent authority*, as defined in Regulation 6(1) of the Habitats Regulations, which includes any Minister, Government Department, public or statutory undertaker, public body of any description or person holding a public office. The developer or proposer of the plan or project is required to provide relevant information. English Nature must be consulted, during the course of the assessment, but it is the duty of the competent authority to undertake the assessment itself.

8. Most competent authorities will not have the technical expertise "in house" to assess the effects of the plan or project on the international nature conservation interests. Most will need to rely heavily on the advice, guidance and recommendations of English Nature, at each stage, including the scope and content of the assessment, the site's conservation objectives, the information required from the developer or proposer and the effects on the integrity of the site, all of which are discussed below. The appropriate assessment, in many cases, is likely to be an iterative process. In the simplest cases a general statement in a single consultation response from English Nature may suffice to enable the competent authority to complete the assessment. However, in most cases, it is envisaged that a more detailed response from, and dialogue with, English Nature is likely to be necessary.

What is an 'Appropriate Assessment'?

9. It is a self contained step in a wider decision making process, required by the Habitats Regulations and described more fully in PPG 9, Annex C. Its conclusions must be based only on the scientific considerations under steps laid out in the Habitats Regulations. The assessment should not be influenced by wider planning or other considerations.

10. The Regulations do not specify how the assessment should be undertaken but describe it simply as "an appropriate assessment". This is taken to mean that the assessment must be appropriate to its purpose under the Regulations (and also the Directive, which originated the use of the term). Its purpose is to assess the implications of the proposal in respect of the site's "conservation objectives". The conclusions of the assessment should enable the competent authority to ascertain whether the proposal would adversely affect the integrity of the site.

Scope and Content

11. PPG 9 indicates that the scope and content of an appropriate assessment will depend on the location, size and significance of the proposed plan or project (PPG 9 box C10). The PPG indicates that English Nature will advise on a case-by-case basis. According to the nature conservation interests of the site, English Nature will identify particular aspects that the appropriate assessment should address. Examples given are hydrology, disturbance and land-take, but there are clearly many other potential matters that may need to be addressed in particular cases.

12. Procedures under the Habitats Regulations should be confined to the effects on the internationally important habitats or species for which the site is or will be internationally designated or classified, including any indirect effects on these interests, for example, via their supporting ecosystems and natural processes. Notwithstanding a favourable assessment in respect of the plan or project's effects on the international nature conservation interests for which the site was classified or designated, decisions to undertake or give consent to the plan or project may need to take account of other international, national, regional or local nature conservation interests in the light of other policy and legislative provisions. (PPG 9 paras 4, 18 and 27).

Environmental Assessment

13. The appropriate assessment is not the same as an environmental assessment under the provisions of the various *Environmental Assessment (EA) Regulations* (1988-95), in compliance with the Directive 85/337/EEC. In many cases, plans or projects that will be subject to an appropriate assessment will need an Environmental Statement (ES) to be prepared under the EA Regulations. (PPG 9 paras 38 and 39).

14. The ES will address all significant environmental effects. It will be appropriate to use the information assembled for the ES when carrying out the appropriate assessment under the Habitats Regulations. In view of this it would be helpful if the relevant ES clearly identified, under a specific subject heading, the likely significant effects on the internationally important habitats and/or species.

How is an Appropriate Assessment Undertaken?

Key Steps

15. Having established that an appropriate assessment is required, the following conclusions may be drawn (from the foregoing considerations and Government guidance) in respect of how it should be undertaken.

The Key Steps in an Appropriate Assessment	
	The competent authority:
I	Must consult English Nature
II	May consult the general public
III	Should clearly identify and understand the site's conservation objectives having regard to the advice of English Nature
IV	Should require the applicant to provide such information as may reasonably be required for the purposes of the assessment
V	Should identify the effects of the proposal on the habitats and species of international importance and how those effects are likely to affect the site's conservation objectives
VI	Should decide whether the plan or project, as proposed, would adversely affect the integrity of the site in the light of the conservation objectives
VII	Should consider the manner in which the plan or project is proposed to be carried out, whether it could be modified, or whether conditions or restrictions could be imposed, so as to avoid adverse effects on the integrity of the site
VIII	Should conclude whether the proposal, as modified by conditions or restrictions, would adversely affect the integrity of the site
IX	Should record the Assessment and notify English Nature of the conclusions

The Key Steps Explained

These key steps are explained in more detail below.

I. Consulting English Nature

16. Under Regulation 48(3) the competent authority must consult English Nature and must have regard to any

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representations made by English Nature. It may be inferred from PPG 9 (box C10 and para C9) that the competent authority would be expected to follow the advice of English Nature and normally to decide the case "*in accordance with the recommendations of English Nature*". If it does not do so, the competent authority should be prepared to explain its reasons. In cases where it proposes to agree to a plan or project notwithstanding a negative assessment, the competent authority is required to notify the Secretary of State in advance of any decision.

II. Consulting the General Public

17. Under Regulation 48(4) the competent authority may (if it considers it appropriate) take the opinion of the general public, on the implications of the proposal for the site's conservation objectives, using whatever steps they consider necessary. This may usefully include taking the opinion of others with relevant knowledge or expertise.

III. The Site's Conservation Objectives

18. The Regulations do not define what is meant by the site's conservation objectives but PPG 9 box C10 describes them as: "*the objectives... / the reasons for which the site was classified or designated*"

English Nature will be able to give a clear statement of the site's conservation objectives in the light of its European Site Register entry (compiled by Government under Regulation 11), its citation, its reasons for recommendation, English Nature's knowledge of the site, national and international objectives for the international nature conservation interests (such as may be contained in the UK Biodiversity Action Plan) and any Management Plan or Management Statement for the site in so far as they relate to the interests for which the site was selected.

19. The site may also host habitats and/or species of Community interest (see Article 1 of the Habitats Directive) which are not mentioned in the European Site Register, the citation or the reasons for recommendation because they were not, at the time, a reason for classification or designation. Such features are not relevant to the appropriate assessment itself. Nevertheless their presence may be material to the decision as to whether or not to undertake or to consent to the plan or project.

IV. Requiring Further Information

20. The competent authority, taking the advice of English Nature where necessary, should require the applicant to provide such information as the competent authority may reasonably require for the purposes of making the assessment (Reg.48(2)). The information required may relate to any environmental information, or information about the proposal, relevant to the assessment and may include:

- i. information already available, or
- ii. new information from surveys that may need to be carried out, or
- iii. data analysis, predictions, comparisons or assessments of a technical nature.

V. Identifying the Effects

21. Having regard to English Nature's advice and other consultation responses and, where relevant, taking account of the ES or any other information supplied by the

developer/proposer, or otherwise available, the competent authority should identify what the effects of the proposal are likely to be. The effects considered should be those of the plan or project, either alone or in combination with other plans or projects, on the habitats and species of international importance and how those effects are likely to affect the site's conservation objectives. This will involve considering, for example, the nature, scale, geographic extent, timing, duration and magnitude of direct and indirect effects; considering the degree of certainty in the prediction of effects; considering all mitigating measures already contained in the proposal and the extent to which these measures are likely to avoid, reduce or ameliorate adverse effects on the international nature conservation interests. It is the residual effects, after mitigation, that are considered at this stage.

VI. Integrity of the Site

22. Having regard to English Nature's advice, other consultation responses and any other information available, the competent authority should decide whether the plan or project, as proposed, would adversely affect the integrity of the site, in the light of its conservation objectives. That is, whether the plan or project would adversely affect the "*coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and/or populations of species for which the site is or will be classified*" (PPG 9 box C10). An adverse effect on integrity is likely to be one which prevents the site from making the same contribution to favourable conservation status for the relevant feature as it did at the time of its designation.

23. The form of words used in Regulation 48(5) implies that a precautionary approach should be taken in considering effects on integrity, in line with the Government's principles for sustainable development (see *Sustainable Development: the UK strategy* page 33). Regulation 48(5) says that (subject to Regulation 49) projects may only proceed if the competent authority has ascertained that it **will not adversely affect** the integrity of the European site.

VII. Considering How To Avoid Adverse Effects

24. If the proposal would adversely affect the integrity of the site then, having regard to English Nature's advice, the competent authority should consider the manner in which it is proposed to be carried out and whether the plan or project could be modified, or whether conditions or restrictions could be imposed, so as to avoid the adverse effects. This may include, for example, changes to the siting, layout, timing or use of the proposal and the use of obligations or legal agreements. (Reg. 48(6)).

25. Compensatory measures that may be offered in the proposal at this stage, seeking to redress but not remove residual harm to the international interests (such as the provision of land for habitat creation purposes), should not be considered in the appropriate assessment, but may be considered later in the decision making process. (See Reg. 53).

VIII. Conclusion on Effects In The Light of Conditions and Restrictions

26. The competent authority should reassess the conclusions in the light of any such modifications, conditions or restrictions that may be agreed or imposed.

IX. Recording the Assessment

27. It would be advisable for this conclusion, and the reasons for it, to be recorded. English Nature should be notified of the conclusion of the appropriate assessment and the authority's decision as to the effects on the integrity of the site, before the authority undertakes the plan or project or issues any permission, consent or other authorisation (PPG 9 para 30).

Good Practice Outline of an Appropriate Assessment Record

29. A suggested model or good practice outline record of an appropriate assessment is set out below. It may be contained in, for example, a planning officer's committee report or the minutes of a competent authority's decision. In other cases it may be a file note, clearly recording compliance with the Regulations. The record may take many different forms because each assessment needs to be appropriate to the type,

28. The subsequent courses of action open to a competent authority are set out in Regulations 48(5) - (7), 49 and 54(3). The Regulations prohibit a competent authority from undertaking or giving consent to any plan or project unless the appropriate assessment concluded that it would not have an adverse effect on the integrity of the site, or specific criteria are met and the Secretary of State has been informed.

scale, location and significance of the proposal and to the relevant nature conservation interests. It is provided here as a guide to assist competent authorities and English Nature staff, not as an authoritative legal formula. Any record made of an appropriate assessment should be copied to English Nature and to any other parties who were consulted on the assessment.

Title of Plan or Project/Application
Location of Plan or Project/Application
[With location plan attached showing relationship to the international designation]
International Nature Conservation Site
Nature/Description of Plan or Project/Application
[Including brief description of manner in which plan or project is proposed to be carried out]
Date Appropriate Assessment Recorded

This is a record of the appropriate assessment, required by Regulation 48 of the Habitats Regulations 1994, undertaken by [name of competent authority] in respect of the above plan/project, in accordance with the Habitats Directive (Council Directive 92/43/EEC). Having considered that the plan or project would be likely to have a significant effect on the [name of international site] and that the plan or project was not directly connected with or necessary to the management of the site, an appropriate assessment has been undertaken of the implications of the proposal in view of the site's conservation objectives.

*English Nature was consulted under Regulation 48(3) on [date] and their representations, to which this authority has had regard, are attached at Annex 1. The conclusions of this appropriate assessment * are/are not in accordance with the advice and recommendations of English Nature.*

**The applicant was required to submit further information reasonably necessary for this assessment on [date] under Reg.48(2) * and replied with the information on [date]/but did not supply the information.*

** The opinion of the general public was taken under Reg. 48(4) by way of *public advertisement/further consultation etc and the views expressed (attached at Annex 2) have been taken into account.*

The site's conservation objectives have been taken into account, including consideration of the citation for the site and information supplied by English Nature (see Annex 1). The likely effects of the proposal on the international nature conservation interests for which the site was designated may be summarised as:

[List of Effects]

The assessment has concluded that:

a) the plan or project **as proposed would not adversely affect the integrity of the site,*

or

b) the plan or project **as proposed would adversely affect the integrity of the site.*

[If (b):]

The imposition of conditions or restrictions on the way the proposal is to be carried out has been considered and it is ascertained that:

**a) conditions or restrictions cannot overcome the adverse effects on the integrity of the site.*

or

**b) the following conditions and/or restrictions would avoid adverse effects on the integrity of the site. [list conditions/restrictions]*

Signed Date

(delete as appropriate)*

Annexes to also include relevant correspondence, minutes or meetings with English Nature, the applicant etc.

Appendix III List of Relevant Authorities

English Nature - Ms H Smith, Conservation Officer, English Nature, 110 Northgate Street, Bury St Edmunds, Suffolk IP33 1HP

Environment Agency - Ms M Leeds, Conservation Officer, Environment Agency, Cobham Road, Ipswich, Suffolk IP3 9JE

Eastern Sea Fisheries Joint Committee - Mr R Gay, Sea Fisheries Officer, Eastern Sea Fisheries Joint Committee, 6 North Lynn Business Village, Bergen Way, Kings Lynn, Norfolk PE30 2JG

Suffolk County Council - Mr J Hindle, Countryside Manager, Suffolk County Council, Environment and Transport, St Edmund House, County Hall, Ipswich, Suffolk IP4 1LZ

Essex County Council - Mr P Hakes, Environmental Strategy Manager, Essex County Council, County Hall, Chelmsford, Essex CM1 1LF

Ipswich Borough Council - Mr G Lowe, Surveyor, Ipswich Borough Council, Civic Centre, Civic Drive, Ipswich IP1 2EE

Babergh District Council - Mr P Berry, Countryside Officer, Babergh District Council, Council Offices, Corks Lane, Hadleigh, Suffolk IP7 6SJ

Tendring District Council - Mr P Hornby, Policy and Conservation Manager, Planning Department, Tendring District Council, Weeley, Clacton on Sea Essex CO16 9AJ

Suffolk Coastal District Council - Mr J Davies, Countryside Recreation Manager, Suffolk Coastal District Council, Melton Hill, Woodbridge, Suffolk IP12 1AU

Port of Felixstowe - Mr T Shelley, Civil Engineering Manager, Port of Felixstowe, Tomline House, The Dock, Felixstowe, Suffolk IP11 8SY

ABP (Ipswich) Ltd - Mr T Docherty, Managing Director, ABP (Ipswich) Ltd, Old Custom House, Key Street, Ipswich, Suffolk IP4 1BY

Harwich Haven Authority - Mr R Allen, Harbour Engineer, Harwich Haven Authority, Harbour House, the Quay, Harwich, Essex CO12 3HH

Anglian Water - Ms L Taylor, Catchment Planner, Anglian Water Services Ltd., Endurance House, Chivers Way, Histon, Cambridgeshire CB4 9ZY

Crown Estate - Mr N Jacobson, Marine Estates, The Crown Estate, 16 Carlton Terrace, London EH2 4DR