NORTHUMBRIA COAST

European marine site

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

Issued 6 November 2000

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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 Northumbria Coast 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 Northumbria Coast 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. Separate advice is being prepared to cover the Berwickshire and North Northumberland Coast European marine site which overlaps the northern end of the Northumbria Coast European marine site.

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 (lead by JNCC) interest features are added to this European marine site or the site boundaries change, English Nature will amend this advice, as appropriate.

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November 2000

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

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1. Introduction

1.1 Natura 2000

The European Union Habitats[1] and Birds[2] 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 status[3]. 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 [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 an functions which are necessary for its long term maintenance exist and are likely to continue to exist for the foreseeable future.

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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.

This document is English Nature's advice for the Northumbria Coast 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 in Stocksfield, Northumberland.

In addition to providing such advice, the Regulation 33 package informs 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 relevant authorities to exercise their functions so as to secure compliance with the Habitats Directive. This European marine site (does not have a significant subtidal component,) and 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 Northumbria Coast SPA. If such a management scheme is developed, it will 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 causes[4]. 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, if it is necessary, to develop a protocol for monitoring and evaluating all observed changes to baselines and to develop an understanding of natural change and provide further guidance as appropriate and possible.

1.5 Responsibilities under other conservation designations

In addition to its SPA status, parts of Northumbria Coast are also designated and subject to agreements under other conservation legislation (eg. SSSIs notified under the Wildlife and Countryside Act 1981 as amended 1985 and the Ramsar Convention). 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 Northumbria Coast 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. In the 2000 - 2006 reporting period an assessment of the condition of the site will be made to support this assumption, and ensure that favourable condition is being maintained. 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 detailed discussions with relevant authorities, competent authorities or other users of the site.

[4] [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 Northumbria Coast Special Protection Area (SPA) is shown in Figure 1.

Northumbria Coast 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.**

Northumbria Coast was classified as an SPA on 2 February 2000 and it is that citation on which this advice is based. The Northumbria Coast was also listed on 2 February 2000 as a Ramsar site under the Ramsar Convention for its internationally important wetland status.

3. Interest features of the European marine site

The Northumbria Coast SPA includes marine areas (ie. land covered continuously or intermittently by tidal waters). The marine part of the SPA is termed a European marine site. The extent of the Northumbria Coast European marine site is illustrated in Figure 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 Northumbria Coast European marine site are described below and the sub-features are mapped at Figure 2 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 focussing 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 spatially and temporarily exploit different parts of a marine area and different prey species. Changes in habitat may affect them differently. The important bird populations therefore require a naturally functional intertidal habitat for roosting, breeding and feeding. The most important factors related to this are:

- Current extent and distribution of suitable feeding and roosting habitat (e.g. rocky shores, sand beaches and artificial high tide roosts);
- Current extent of suitable breeding habitat (sandy beaches);
- Sufficient prey availability (e.g. small fish, crustaceans and worms);
- Minimal levels of disturbance.

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. Northumbria Coast supports an internationally important population of breeding little tern *Sterna albifrons*.

3.4.1 Key sub-features

Sandy beaches - Little tern breed in small colonies on coastal sand or shingle substrates, sometimes nesting only metres from the high-tide mark. The nesting area within the Northumbria Coast European marine site are the sandy beaches adjacent to the Long Nanny at Low Newton. The habitat does occur within the European marine site and an objective for that interest is included within this package, however, many birds nest above Highest Astronomical Tide. 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.

Shallow inshore waters - Little tern forage in shallow inshore waters for small surface dwelling marine fish, crustaceans and invertebrates (Batten *et al* 1990). The waters of the Long Nanny and the inshore waters within the Northumbria Coast European marine site are used by the terns for feeding therefore an objective for this sub-feature is included within this advice package. The majority of the feeding occurs offshore, outside the boundary of the Northumbria Coast European marine site. 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.

3.5 Internationally important populations of regularly occurring migratory bird species

Britain's wildfowl belong to the north-west European population and the waders to the East Atlantic flyway population. Migratory species of these biogeographic populations that regularly occur at levels of 1% or more of the total biogeographical population meet the SPA criteria and qualify in their own right. Two species of wintering waterfowl occur on the Northumbria Coast in internationally important numbers, purple sandpiper *Calidris maritima* and turnstone *Arenaria interpres.*

3.5.1 Key sub-features

Rocky shores with associated boulder and cobble beaches - The rocky shore areas with reefs, have small areas of sand interspersed amongst the main reefs. The proportion of the reefs covered by sand varies and is minimal. The rocky shore is the predominant habitat and though sandy areas are present their use by purple sandpiper and turnstone is not significant. The rocky shores and the strand line support high densities of invertebrates which are important food for waterfowl. Purple sandpiper are almost entirely restricted to the rocky shore where they feed on a variety of marine invertebrates, but their main food preference is for mussels, winkles and dog whelks (Feare 1996). They sometimes forage on banks of rotting seaweed on the strandline where they eat the larvae, pupae and adults of the kelp fly (Lack 1986). They roost on offshore reefs and mainland shore. The diet of turnstones is more varied, but mainly composed of winkles, shrimps and barnacles (Harris 1979). They feed on seaweed covered rocks, congregating at high tide to roost on the mainland shore or continue to feed on banks of washed up seaweed on the strand line.

High tide artificial roost sites - The man made structures such as the piers at River Tyne South Pier and Seaham Harbour pier are used as high tide roosts. The tops of the piers and the sides are used by birds throughout the tidal cycle. Therefore, though the tops of these structures may be above Highest Astronomical Tide, areas below HAT, such as the pier sides, are used by birds and hence the inclusion of the piers as a sub-feature in this advice.

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 marine site. The conservation objectives for the Northumbria Coast 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 condition[5] the habitats for the **internationally important populations of the regularly occurring Annex 1 bird species** (little tern *Sterna albifrons*), under the Birds Directive, in particular:

- Sandy beaches at Low Newton
- Shallow inshore waters at Low Newton

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 condition[5] the habitats for the **internationally important populations of regularly occurring migratory bird species** purple sandpiper *Calidris maritima* and turnstone *Arenaria interpres*, under the Birds Directive, in particular:

- Rocky shores with associated boulder and cobble beaches
- Artificial high tide roost sites

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

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

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 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 Northumbria Coast European marine site at the time the SPA was classified.

Internationally important populations of regularly occurring Annex 1 species.

Species	Population (5yr peak mean 1992/93 -1996/7)*
little tern *Sterna albifrons*	40 pairs 1.7% Great Britain

Internationally important populations of regularly occurring migratory bird species.

Species	Population (5yr peak mean 1992/93 -1996/7)*
purple sandpiper *Calidris maritima*	787 individuals 1.6% East Atlantic Flyway
turnstone *Arenaria interpres*	1739 individuals 2.5% Western Palaearctic (wintering)

* SPA citation (January 2000) held on Register of European marine sites for Great Britain.

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 is 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 Northumbria Coast European marine site

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 and migratory bird species	All habitats	Disturbance	Reduction or displacement of birds	No significant reduction in numbers or displacement of wintering birds attributable to disturbance from an established baseline, subject to natural change.	Significant disturbance attributable to human activities can result in reduced food intake and/or increased energy expenditure Disturbance is minimised through wardening of the tern breeding colony.
Internationally important populations of regularly occurring Annex 1 bird species	Shallow inshore waters	Extent of habitat	Area (ha) measured once during the reporting cycle.	No decrease in extent from an established baseline, subject to natural change.	Little terns feed in the shallow inshore waters and the Long Nanny estuary near the Low Newton colony.
		Food availability	Presence and abundance of marine fish, crustaceans, worms and molluscs. Measured periodically (frequency to be determined).	Presence and abundance of food species during the breeding period should not deviate significantly from established baseline, subject to natural change.	Crustacea, annelids, sandeel and clupeidae are important for little tern.
	Sandy beaches	Extent of habitat	Area (ha) measured once during the reporting cycle.	No decrease in extent from an established baseline, subject to natural change.	Little tern nest on the beach at Low Newton, near the estuary of the Long Nanny. Enough sand should be present to ensure adequate nesting areas for the colony so they do not have to risk flooding. A beach height grading to >30cm above water level would be suitable.
Internationally important populations of regularly occurring Annex 1 bird species	Sandy beaches	Vegetation cover	Open ground with sparse vegetation and bare surfaces	Vegetation height throughout areas used for breeding should not deviate significantly from established baseline, subject to natural change.	Open areas maintained naturally. Vegetation cover (<10%) is required throughout the areas used for nesting
Internationally important	Rocky shores with associated	Extent of habitat	Area (ha) measured once during the reporting	No decrease in extent from an established baseline, subject to	Important for feeding and roosting purple sandpiper and turnstone.

populations of regularly occurring migratory species	boulder and cobble beaches		cycle.	natural change.	
		Food availability	Abundance of epibenthic invertebrates amongst rotting seaweed. Measured periodically (frequency to be determined).	Presence and abundance of food species during the wintering period should not deviate significantly from established baseline, subject to natural change.	*Balanus*, *Mytilus*, *Carcinus*, *Gammarus*, *Littorina*, *Nucella*, dipteran flies and kelp-fly larvae are important in the winter for purple sandpiper and turnstone.
		Vegetation characteristics	Open, short vegetation or bare ground predominating	Vegetation height throughout areas used for breeding should not deviate significantly from established baseline, subject to natural change.	Open areas maintained naturally. Vegetation cover of <10cm is required throughout the areas used for roosting purple sandpiper and turnstone.
		Absence of obstructions to viewlines.	Openness of terrain unrestricted by obstructions.	Visibility should not deviate significantly from established baseline, subject to natural change.	Areas with unrestricted views over >200m for purple sandpiper and turnstone to allow for early detection of predators when feeding and roosting.
	Artificial high tide roost sites	Extent	Presence of structure	No loss of favoured roost areas, subject to natural change.	Favoured artificial roost sites are River Tyne South pier and Seaham Harbour pier.

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 6.6, 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 Northumbria Coast European marine site. The advice is linked to the conservation objectives for interest features and will help formulate a management scheme, if necessary, 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 Northumbria Coast 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, seagrass beds are highly sensitive to physical loss through removal.

The sensitivity assessments of the interest features or their component sub-features of the Northumbria Coast 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 *et al* 1998), the Countryside Council for Wales Science Report (Holt *et al*, 1995) and the Marine Habitats Reviews (Jones *et al*, 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 Northumbria Coast European marine site by assessing the relative exposure of the interest features of their component sub-features on the site to the effects of broad categories of human activities currently occurring on the site as at July 2000. 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). For example, rocky shores with associated boulder and cobble beaches are highly sensitive to physical loss, through removal, which may occur as a result of activities such as coastal development. 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 competent 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 Northumbria Coast European marine site. The information on current activities and patterns of usage (which was used to derive table 4) may be supplemented as part of the process of developing the management of the site and through further discussion with the relevant authorities. 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 Northumbria Coast 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 through the removal or smothering of the habitat
- Non-physical disturbance through noise or visual disturbance

6.5.2 Internationally important populations of regularly occurring migratory species

In pursuit of the conservation objective for "habitats supporting internationally important populations of regularly occurring migratory species" (Section 4.2), the relevant and competent authorities for Northumbria Coast 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 through the removal or smothering of the habitat
- Non-physical disturbance through noise or visual disturbance

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 contained in 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 Habitats Regulations requires a competent authority to undertake a review of any existing consent or permission to which Regulation 48 (1) would apply if it 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 is 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 Northumbria Coast European marine site interest features at current levels of use[6]

The advice below is not a list of prohibitions but rather a checklist for operations for discussion with relevant authorities, 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 (e.g. harvesting, coastal development)	_	_
Smothering (e.g. by artificial structures, disposal of dredge spoil)	_	_
Physical damage		
Siltation (e.g. run-off, channel dredging, outfalls)		
Abrasion (e.g. boating, anchoring, trampling)		
Selective extraction (e.g. aggregate dredging)		
Non-physical disturbance		
Noise (e.g. boat activity)	_	_
Visual (e.g. recreational activity)	_	_
Toxic contamination		
Introduction of synthetic compounds (e.g. pesticides, TBT, PCBs)		_
Introduction of non-synthetic compounds (e.g. heavy metals, hydrocarbons)		_
Introduction of radionuclides		
Non-toxic contamination		
Changes in nutrient loading (e.g. agricultural run-off, outfalls)		_
Changes in organic loading (e.g. mariculture, outfalls)		_
Changes in thermal regime (e.g. power stations)		
Changes in turbidity (e.g. run-off, dredging)		
Changes in salinity (e.g. water abstraction, outfalls)		
Biological disturbance		
Introduction of microbial pathogens		
Introduction of non-native species & translocation		
Selective extraction of species (e.g. bait digging, wildfowling, commercial & recreational fishing)		

[6]This 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 the 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 Northumbria Coast European marine site.

This advice relates to the vulnerability of the interest features and sub-features of the Northumbria Coast 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 sandy beach at Low Newton is an important breeding area for little tern, the shallow inshore waters are used for feeding. The birds are highly sensitive to any loss of habitat through removal or smothering. Loss of the beach and inshore waters, or parts of them, could damage their long term condition. Activities that may influence the hydrodynamic regime, such as coastal defence and development, can lead to changes to sediment deposition rates and lead to loss of the beach. There is currently low exposure to this operation but because of their high sensitivity, they are considered to be moderately vulnerable.

ii) Physical damage

- The beach is currently not exposed to physical damage through extraction but is moderately sensitive as the loss or change in the nature of the substrate of the sandy beach on which the terns nest would lead to it being unsuitable and not being chosen as a nesting site.

iii) Non-physical disturbance

- Terns are moderately sensitive to and currently moderately exposed to both visual and noise disturbance and are therefore considered moderately vulnerable. Disturbance can cause them to be displaced from their breeding and feeding areas. They are disturbed by sudden movements of objects and increases in noise disturbance over or adjacent to their colony. During the breeding season, this may result in eggs, or chicks being abandoned. Birds may move to an alternative and perhaps less favourable site or increase their energy expenditure through escape responses. This disruption in their behaviour may affect their survival.

iv) Toxic contamination

- Toxins may accumulate within the food chain and eventually bioaccumulate in birds. The effects of such toxic compounds are variable, but may cause sub-lethal consequences or mortality of individual birds. Toxic contamination may also affect bird populations indirectly by affecting the abundance of food items. Potential sources of toxic contaminants include diffuse and off-site inputs (eg organophosphate sheep dips) as well as point sources, such as effluent discharges. Prey items may be less palatable if contaminated. Contamination by substances such as oil can reduce the quality of habitat for nesting. There is moderate sensitivity to contamination with synthetic and non-synthetic compounds, however, currently there is no evidence to show that this is a problem within this site.

v) Non-toxic contamination

- Change in water temperature, salinity, nutrient and organic loading can change the type, quality and quantity of prey available for little tern. Organic and nutrient enrichment and changes in turbidity can cause a reduction in water clarity, thereby reducing the visibility of prey items for little terns in particular. Little tern are moderately sensitive to this operation but currently there is no evidence to show that this is a problem within this site.

vi) Biological disturbance

- Over exploitation of the fisheries which support the breeding little tern, within the European marine site and adjacent waters, could adversely affect the favourable condition of the site. The introduction of pathogens to the feeding waters could contaminate prey or infect birds when feeding. This could result in large scale mortality of little tern. Little tern are moderately sensitive to introduction of microbial pathogens and selective extraction of species but currently there is no evidence that this is a problem at the site.

6.8.2 Internationally important populations of regularly occurring migratory species

i) Physical loss

- The intertidal rocky shores with associated boulder and cobble beaches are used by internationally important numbers of purple sandpiper and turnstone for feeding and roosting. They are highly sensitive to removal or smothering of the shore and removal of their favoured roosts, but moderately vulnerable because there is currently low exposure to this operation.

- The change in substrate, by covering the rocky shores and associated boulder and cobble beaches would lead to it being lost as a feeding resource as it would support less or different unsuitable prey items. Any loss of habitat may increase the numbers of birds using the rest of the site leading to unsustainable depletion of resources and possible density dependant mortality. The loss of onshore and artificial roost sites would mean the loss of the favoured and presumably `safer' roost sites. This could lead to other less suitable sites being used with possible consequential increase in predation and increase in the energy used to fly to roost and feed.

ii) Physical damage

- Physical damage reduces food availability to birds or changes the suitability of habitats for roosting or feeding. Rocky shores are moderately sensitive to abrasion and extraction but there is currently low exposure to this operation. Siltation can clog or block the feeding/respiratory organs of invertebrates living on the rocky shore, which can lead to the death of individuals. Abrasion can result in the dislodgement of individual organisms. The removal of rotting seaweed from the shore removes the habitat on which invertebrates, such as kelp fly larvae, depend. These are a food source for the purple sandpiper and turnstone. Most intertidal communities tend to be more resilient to physical damage because of their adaption to the physical processes to which they are normally subjected.

iii) Non-physical disturbance

- Overwintering waterfowl are moderately sensitive, moderately vulnerable and currently moderately exposed to noise and visual disturbance. They are disturbed by sudden movements of objects and increases in noise disturbance having the effect of displacing the birds from their roosting or feeding grounds. Birds may move to an alternative and perhaps less favourable site, or increase their energy expenditure through escape responses. This disruption of their behaviour may affect their survival.

iv) Toxic contamination

- Overwintering waterfowl are moderately sensitive to introduction of synthetic and non-synthetic compounds. They are subject to the accumulation of toxins through the food chain or through direct contact with toxic substances when feeding. There is evidence to suggest that toxic compounds such as heavy metals and organochlorides can bioaccumulate in birds (Wrc, 1999). The effects of such toxic compounds are variable, but may cause sub-lethal consequences or lead to mortality of individual birds. Potential sources of toxic contaminants include diffuse and off-site inputs (e.g. organophosphate sheep dips) as well as point sources such as effluent discharges. The birds ability to feed can also be affected by changes in the palatability and/or abundance of prey items caused by toxic contamination. The prey of purple sandpiper and turnstone may be lost from the rocky shore through direct mortality of adults and larvae. Contamination by substances such as oil can reduce the quality of habitat for roosting and feeding.

  The downstream effects of industrial discharges on features and their exposure levels are at present unknown (although concern exists over water quality in some areas such as the Tyne, for example, over endocrine disruption). There have been historic problems with water quality in the area and hence a need for further investigation into this operation. Because of the proximity to the Tyne, with its levels of industrial activity and potential contamination, the exposure has been assessed as moderate.

v) Non-toxic contamination

- Rocky shores are moderately sensitive to nutrient and organic loading. Because of the proximity to the Tyne, with its levels of industrial activity and potential contamination, the exposure has been assessed as moderate. Organic or nutrient enrichment can change the quantity and diversity of prey available for birds. Nutrient enrichment may cause ephemeral algal blooms. When the algal mats decompose they cause localised anoxic conditions.

vi) Biological disturbance

- Rocky shores are moderately sensitive to this operation but currently there is no evidence that this is a problem at the site. Selective extraction of bait species, such as, crabs or removal of other key species may reduce food availability for purple sandpiper and turnstone. The activity may have a localised effect on non-collected species through the physical disruption to the habitat when collecting target species.

Table 4. Assessment of the relative exposure of interest features and sub-features of Northumbria Coast 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)

Categories of operation which may cause deterioration or disturbance	Internationally important populations of regularly occurring bird species listed on Annex 1 of the Birds Directive		Internationally important populations of regularly occurring migratory species	
	Sandy beaches	Shallow inshore waters	Rocky shores with associated boulder and cobble beaches	Artificial high tide roosts
Physical loss				
Removal (e.g. harvesting, land claim)	Low	Low	Low	Low
Smothering (e.g. by artificial structures, disposal of dredge spoil)	Low	Low	Low	Low
Physical damage				
Siltation (e.g. run-off, dredging, outfalls)	Low	Low	Low	None
Abrasion (e.g. boating, anchoring, trampling)	Low	None	Low	Low
Selective extraction (e.g. aggregate dredging)	None	Low	Low	None
Non-physical disturbance				
Noise (e.g. boat activity)	Med	Med	Med	Med
Visual (e.g. recreational activity)	Med	Med	Med	Med
Toxic contamination				
Introduction of synthetic compounds (e.g. pesticides, antifoulants, PCBs)	Low	Low	Med	Low
Introduction of non-synthetic compounds (e.g. heavy metals, hyrdocarbons)	Low	Low	Med	Low
Introduction of radionuclides	None	None	None	None
Categories of operations which may cause deterioration or disturbance	Internationally important populations of regularly occurring Annex 1 species of the Birds Directive		Internationally important populations of regularly occurring migratory species	
	Sandy beaches	Shallow inshore waters	Rocky shores with associated boulder and cobble beaches	Artificial high tide roosts
Non-toxic contamination				
Changes in nutrient loading (e.g. agricultural run-off, outfalls)	Low	Low	Med	None
Changes in organic loading (e.g. mariculture, outfalls)	Low	Low	Med	None

Changes in thermal regime (e.g. outfalls, power stations)	None	None	None	None
Changes in salinity (e.g. water abstraction, outfalls)	None	Low	None	None
Changes in turbidity (e.g. run-off, dredging)	None	Low	None	None
Biological disturbance				
Introduction of microbial pathogens	None	Low	None	None
Introduction of non-native species & translocation	None	None	None	None
Selective extraction of species (e.g. bait digging, wildfowling, commercial & recreational fishing	None	Low	Low	None

Table 5. Assessment of the relative vulnerability of interest features and sub-features of Northumbria Coast 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.[7]

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**	
	Sandy beaches	Shallow inshore waters	Rocky shore with associated boulder and cobble beaches	Artificial high tide roost sites
Physical Loss Removal (e.g. harvesting, land claim, coastal defence)	••••	••••	••••	••••
Smothering (e.g. artificial structures, disposal of dredge spoil)	••••	•••	••••	••
Physical Damage Siltation (e.g. run-off, channel dredging, outfalls)	••	••	••	•
Abrasion (e.g. boating, anchoring, trampling)	•	••	•••	•
Selective extraction (e.g. aggregate dredging)	•••	••	•••	•
Non-physical disturbance				
Noise (e.g. boat activity)	•••	••	•••	•••
Visual presence (e.g. recreational activity)	•••	•	•••	•••
Toxic contamination Introduction of synthetic compounds (e.g. pesticides, TBT, PCBs)	•••	•••	•••	••
Introduction of non-synthetic compounds (e.g. heavy metals, hydrocarbons)	•••	•••	•••	•••
Introduction of radionuclides	••	••	••	••
Non-toxic contamination Changes in nutrient loading (e.g. agricultural run-off, outfalls)	••	•••	•••	•
Changes in organic loading (e.g. mariculture, outfalls)	••	•••	•••	•
Changes in thermal regime (e.g. outfalls, power stations)	•	•••	•	•

Changes in salinity (e.g. water abstraction, outfalls)	•	•••	••	•
Changes in turbidity (e.g. run-off, dredging)	•	•••	•	•
Biological disturbance Introduction of microbial pathogens	••	•••	••	•
Introduction of non-native species & translocation	••	••	•••	•
Selective extraction of species (e.g. bait digging, wildfowling, commercial & recreational fishing)	••	•••	•••	•

[7] 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 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 *Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora*. 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)	Northumbria Coast 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 Northumbria Coast 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**
	High				
Relative exposure of the interest feature	**Medium**				
	Low				
	None				

Categories of relative vulnerability	
High	
Moderate	
Low	
None detectable	

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

Appendix III List of relevant authorities

Environment Agency
Scottish Environmental Protection Agency

River Tweed Commissioners
Northumbria Water Ltd
Northumberland Sea Fisheries Committee
North Eastern Sea Fisheries Committee
North Sunderland Harbour Commissioners
Berwick-upon-Tweed Harbour Commissioners
Warkworth Harbour Commission
Port of Tyne Authority
Port of Blyth
Seaham Harbour Dock Company
Northumberland County Council
Durham County Council
Alnwick District Council
Blyth Valley Borough Council
Berwick-upon-Tweed Borough Council
Castle Morpeth Borough Council
District of Easington
South Tyneside Metropolitan Borough Council
Sunderland City Council
Wansbeck District Council
Ministry of Defence

Figure 1 Maps showing the location of the Northumbria Coast Special Protection Area

Figure 2 Maps showing the sub-features of the Northumbria Coast European marine site

Figure 3 Map showing the Northumbria Coast European marine site and the Berwickshire and North Northumberland Coast European marine site