

**Appropriate Assessment Screening of the
Regional Spatial Strategy for the North East**

REPORT TO GOVERNMENT OFFICE

PREPARED BY TREWEEK ENVIRONMENTAL CONSULTANTS

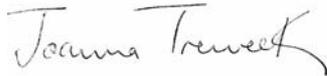
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1.0 INTRODUCTION

1.1 THE PROCESS

The Government Office for the North East (GONE) is currently revising the Regional Spatial Strategy for the North East (RSS) following the Examination in Public and publication of the Panel Report in July 2006¹.

It is necessary to undertake a Sustainability Appraisal (SA) that will contribute to and assess the sustainable development implications of any proposed amendments to the RSS in response to the report produced by the independent Panel that held the examination in public of the RSS.

It is also necessary to advise upon the need for, and to undertake as necessary, the Appropriate Assessment (AA) of the RSS. This considers the potential impacts of policies and proposals in the draft submission RSS and the proposed changes on European sites within or outside the region.

Environ and Treweek Environmental Consultants (TEC) were appointed by GONE in September 2006 to undertake the Appropriate Assessment Screening on the Draft Submission RSS. The purpose of this Screening Report is to:

- ensure that GONE complies with the requirements of the Habitats Directive 92/43/EEC;
- identify any policies or proposals that are likely to have a significant effects on European sites;
- highlight policy measures, criteria and the other rules which avoid any likely significant effects on European sites, and negate the need for further Stage 2 appropriate assessment;
- Advise what further work would be required in a stage 2 assessment if one is needed.

1.2 THE REQUIREMENT FOR APPROPRIATE ASSESSMENT OF THE SUBMISSION DRAFT RSS

Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Flora and Fauna – the ‘Habitats Directive’ – provides legal protection for habitats and species of European importance.

¹ Regional Spatial Strategy for the North East. Examination in Public. Panel Report July 2006.

Schedule 1 of the Conservation (Natural Habitats, &c) (Amendment) (England and Wales)² Regulations 2006 inserts a new Part IVA into the Conservation (Habitats, &c) Regulations 1994 and transposes into English Law the requirement to carry out Appropriate Assessment for land use plans. GONE recognises the legal requirement to consider the need for AA of the RSS, in combination with other relevant plans and projects for their potential impact upon European sites within or outside the North East Region. The Appropriate Assessment Screening exercise was carried out to fully meet the requirements of the Habitats Directive and the amended Habitats Regulations (draft) as well as PPS9 and Circular 06/05 on Biodiversity and Geological Conservation.

1.3 WHAT ARE EUROPEAN SITES?

European sites are Special Protection Areas (SPAs) and Special Areas of Conservation (SACs). Planning Policy Statement 9 *Biodiversity and Geological Conservation* (PPS9) (ODPM, 2005) advises that proposed sites awaiting approval – potential SPAs (pSPAs) and candidate SACs (cSACs) - should be treated in the same way as those already classified and approved..

PPS9 also recommends that Ramsar sites should be afforded the same level of consideration as SPAs and SACs, in policy if not in law. To avoid potential challenge, Ramsar sites should thus also be subject to AA where relevant. Most Ramsar sites are also SPAs or SACs: for instance, in the North East region, only one site is a stand-alone Ramsar site.

All SPAs, (non-marine) SACs and Ramsar sites overlap to some degree with Sites of Special Scientific Interest (SSSIs). AA relates specifically and exclusively to the qualifying interests of European sites and not to the broader conservation interests or requirements under other SSSIs. However, the latter should be factored into plan-making as part of the SEA / SA process and the planning authority's duty under section 28G of the Wildlife and Countryside Act 1981 to conserve and enhance SSSIs in carrying out their functions.

1.4 WHAT IS APPROPRIATE ASSESSMENT?

'Appropriate Assessment (AA)' is required for any proposed plan or project which may have a significant effect on one or more European sites and which is not necessary for the management

² Also referred to as amending Habitats Regulations

of those sites. The purpose of Appropriate Assessment is to determine whether or not significant effects are likely and to suggest ways in which they could be avoided. The assessment is carried out solely in respect of the 'conservation objectives' for which a European site has been designated and its integrity in relation to its ability to support those objectives.

Figure 1 shows the 4 stages to the Appropriate Assessment process as required by the European Commission. Article 6(3) of the Habitats Directive relates to Stages 1 and 2 and Article 6(4) to Stages 3 and 4. This Screening Report identifies those European sites for which there may be significant effects (ie it addresses Stage 1 only of the Appropriate Assessment process).

1.5 WHAT CONSTITUTES A SIGNIFICANT EFFECT ON A EUROPEAN SITE?

Assessment of the significance of effects is undertaken in relation to the designated interest features and conservation objectives of the European site (see Sections 3 and 4) and its integrity, on the basis of informed judgement. Any effect which would compromise the functioning and viability of a site and prevent it from sustaining those interest features for which it was designated in a favourable condition (e.g. as defined by conservation objectives or in favourable condition tables), would constitute a significant effect. If insufficient information is available to make a clear judgement, it is assumed that a significant effect is possible in line with the precautionary principle.

1.6 TIMING OF THE APPROPRIATE ASSESSMENT

The Appropriate Assessment is being undertaken following preparation of the Submission Draft of the RSS but prior to the Consultation on Proposed Changes, scheduled for January 2007. While this means that some of the opportunities for iterative cycles of assessment and avoidance/mitigation identification are limited, the AA has the opportunity to inform the process by outlining:

- Changes that are required to the RSS alongside the Proposed Changes to conserve the integrity of European sites ;
- Changes that may be required to other plans or strategies identified by the assessment of 'in combination' impacts;
- areas where clarification is required at LDF or LTP level, but should avoid simply passing decisions down to local level, particularly where refinement of RSS policies could help remove uncertainty;

1.7 THIS REPORT

This Chapter introduces the Screening Stage of the Appropriate Assessment of the Draft Submission RSS. The remainder of the report is structured into the following sections:

- Section 2 sets out the methodology for the screening process
- Section 3 describes the European sites potentially affected by the Draft RSS and summarises their conservation objectives and sensitivities to potential effects.
- Section 4 describes the Draft submission RSS for the North East and identifies those components that might affect the sites identified in Section 3.
- Section 5 identifies and describes other plans and projects, and background trends, which could have ‘in-combination’ effects when implemented in conjunction with the Draft RSS,
- Section 6 sets out the likely significance of the effects of the Draft RSS on European sites, alone and in-combination, and recommends amendments to the Draft RSS to avoid any significant adverse effects on the integrity of these sites.
- Section 7 sets out conclusions and next steps, summarising the findings of the screening stage and explaining the next steps to be undertaken for the Appropriate Assessment.

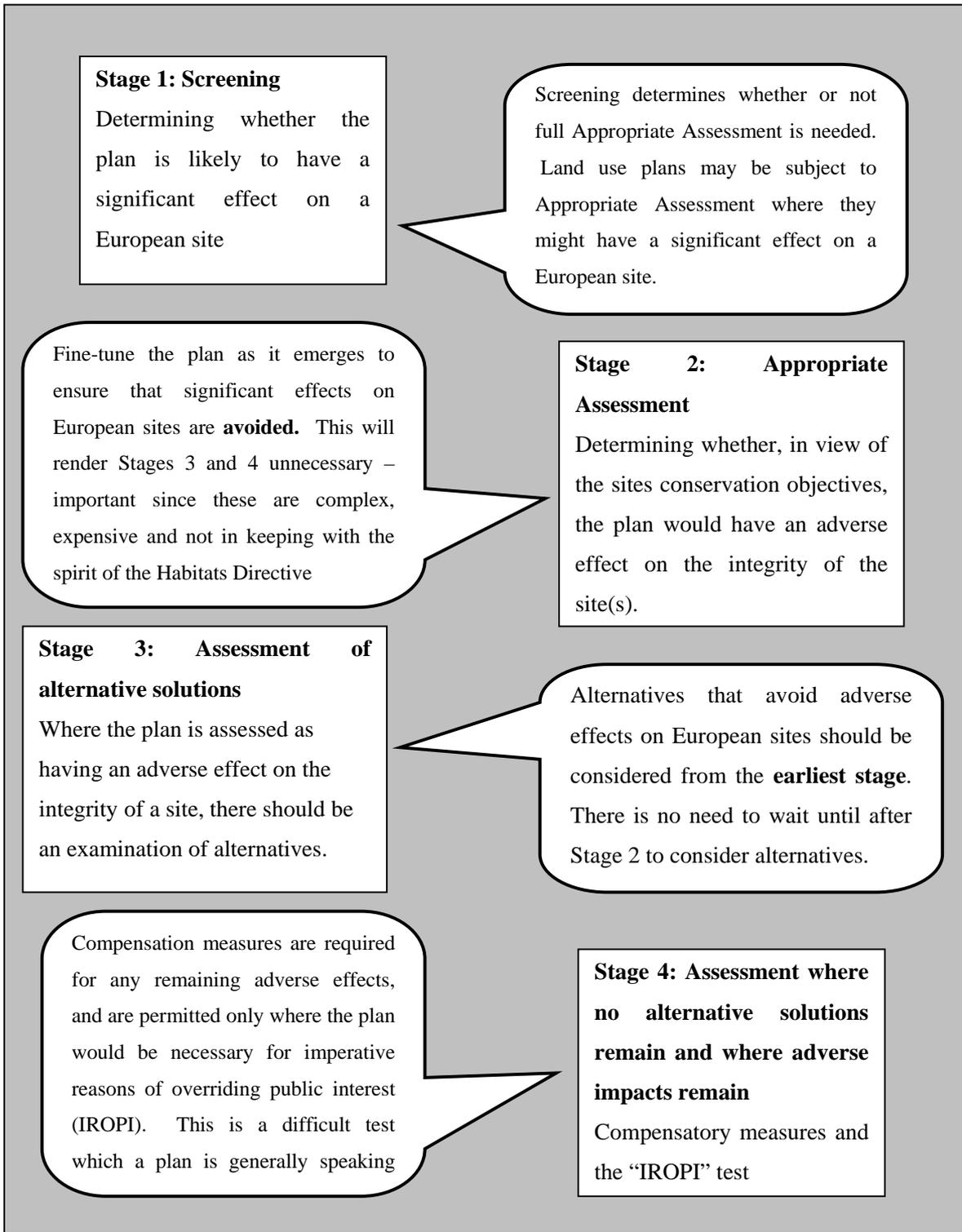


Figure 1: Stages in the Appropriate Assessment process

2 METHODOLOGY

The purpose of the Screening stage is to identify any European sites that are likely to be adversely affected by the draft Submission RSS. The aim is to identify:

- Those European sites that are not affected (meaning that no further assessment is required);
- Where there is a possible effect but where modification or removal of policies within the RSS would avoid the effect; and
- Where an effect on European sites is probable and where Appropriate Assessment (Stage 2) is therefore required.

The Screening stage therefore requires the collection and analysis of information relating to:

- All European sites within the North East region and those outside the immediate ‘footprint’ of the RSS which could be subject to indirect effects;
- RSS policies and proposals;
- Information on other plans and projects which might contribute to in-combination effects.

This information provided the basis for a site by site analysis of the potential interaction between the RSS and the European sites’ qualifying interest features and associated conservation objectives.

2.1 USE OF GUIDANCE

In order to inform the development of a detailed methodology for undertaking the AA, we:

- identified and reviewed plan-level AAs that have been carried out in the UK and Europe; and
- Reviewed existing guidance on the scope of AA for strategic spatial plans (Appendix 1 lists these documents).

Appropriate assessment has been applied to projects for over ten years in the United Kingdom however there are still relatively few examples of AA and AA screening as applied to plans. AA

reports and AA screening reports that were reviewed before the development of this methodology are included in Table 2.1

Table 2.1 – AA reports reviewed

AA for:	Web-link
Aberdeenshire Local Plan	http://www.aberdeenshire.gov.uk/green/Appropriate_Assessment_for_Aberdeenshire_Local_Plan.pdf
Bracknell Forest Core Strategy DPD. AA and Avoidance and Mitigation Strategy included within 'Thames Basin Heaths Special Protection Area Technical Background Document to the Core Strategy' (October 2006)	http://www.bracknell-forest.gov.uk/environment/env-planning-and-development/env-planning-policy/env-local-development-framework/subbackground
Horsham Core Strategy	http://www.levett-therivel.co.uk , under 'appropriate assessment'
King's Lynn & West Norfolk Core Strategy	http://www.west-norfolk.gov.uk/pdf/Appropriate%20Assessment%2018sep06.pdf
Scarborough Core Strategy preferred options	http://www.scarborough.gov.uk/pdf/Appropriate%20Assessment.pdf
South East Plan	http://www.southeast-ra.gov.uk/southeastplan/key/appropriate_assessment.html
Southampton City Council Core Strategy	http://www.southampton.gov.uk/building-planning/planning/ldf/dev-plan-docs/core-strategy/integrated-sustainability.asp
Waste Facility sites in Surrey	http://www.surreycc.gov.uk/sccwebsite/sccwspages.nsf/LookupWebPagesByTITLE_RTF/Appropriate+Assessment+of+Potential+Impacts+of+Proposed+Waste+Facility+Sites+in+Surrey+on+Natura+Sites?opendocument
Waverley Core Strategy	http://www.waverley.gov.uk/ldf/con_assess.asp

AA for:	Web-link
Yorkshire and Humber RSS	http://www.yhassembly.gov.uk/p_contentDocs/1030_1.pdf

and the “Appropriate Assessment of the Draft Regional Spatial Strategy for Yorkshire and the Humber³”. The latter has also been examined in regard to cross – border sites and issues.

2.2 IDENTIFYING AND ANALYSING EUROPEAN SITES

The first step of the process was to define a “long list” of sites that could potentially be affected by the Draft RSS, either alone or in combination with other plans or projects.

Natural England provided a profile of all SACs and SPAs in the North East region and for sites in bordering English districts. These included the:

- site name;
- site type (SAC, SPA, Ramsar);
- grid reference and area;
- qualifying features (Annex I species (EC Birds Directive); Annex I habitats or Annex II species (EU Habitats Directive));
- conservation objectives of the site; and
- Favourable Condition Table for the site

Information on Scottish Border sites was provided by SNH and retrieved from the Joint Nature Conservancy Committee (JNCC) Website.

This information was used to identify those factors key to maintaining the integrity of each site. This understanding could then be used together with understanding of the Draft RSS to identify those aspects that might generate changes with the potential to affect integrity.

Both Natural England and Scottish Natural Heritage (SNH) were consulted on the composition of the ‘long list’ to ensure that no sites within or outside the region were overlooked and to screen

³ Land Use Consultants (2006). Draft RSS for Yorkshire and the Humber Appropriate Assessment.

out sites outside the region which the Statutory Consultees thought very unlikely to be affected by the Draft Submission RSS.

2.3 ASPECTS OF THE RSS THAT MIGHT AFFECT INTEGRITY

The Submission Draft RSS was reviewed to identify any aspects of the strategy and associated specific locational policies and schemes that might influence the key environmental conditions that need to be maintained or improved in order to preserve the integrity of European sites in the region. The generic policies were reviewed to explore how they may be implemented in practice, and to identify possible implications for environmental conditions. Indirect as well as direct impacts have been considered. The translation of generic policies into ‘outcomes’ and associated “environmental outcomes” lacked detail given the RSS’s status as a regional planning framework that will be implemented through more detailed plans and strategies. GONE were consulted to confirm the interpretation of the policy and the associated direct and indirect ecological effects.

The locational policies were easier to assess and provided essential information on the scale and proximity of proposals to N2K sites.

Natural England provided the results of an initial screening of the RSS policies undertaken in August 2006. These were used to identify those policies that Natural England considered to be potentially problematic and to identify any Natura 2000 sites unlikely to require further analysis and which could therefore be screened out at this stage.

2.4 IN COMBINATION EFFECTS

Under Article 6(3) of the Habitats Directive it is necessary to consider plans and projects which, in combination with the submission draft RSS could have a significant effect on European sites. A wide range of plans were analysed. The full list is included in Section 5. ‘In combination’ is taken to refer to the sum of influences acting on sites from all plans and projects and from ‘background’ environmental changes and trends. Baseline data collected by the Sustainability Appraisal of the Draft Submission RSS⁴ and further research was used to understand existing environmental trends.

⁴ ERM (2005) Final Report of the Sustainability Appraisal. Regional Spatial Strategy for the North East.

2.5 DETAILING SCREENING

This involved identifying whether the integrity of the European sites was likely to be affected by the key underlying trends and specific proposals identified in the RSS and whether any impacts identified are likely to be significant. This was based on information about:

- The sites in question, including the factors necessary to ensure their integrity.
- The plan and its relevant components.
- Other plans and projects that could affect site integrity (in combination with the plan).
- Underlying trends that could be affecting the integrity of sites.

A meeting with Natural England, Scottish Natural Heritage and the Environment Agency was held on the 8th November to discuss the potential threats to the integrity of sites and possible criteria / rules that could be applied to avoid significant adverse impacts on some sites.

3 IDENTIFICATION AND ANALYSIS OF EUROPEAN SITES

3.1 INITIAL SIEVE OF EUROPEAN SITES

The first step (applying a precautionary approach) was to compile a “long list of sites” that could potentially be affected by the RSS. This initial list contained all the European sites within the North East region, the English districts bordering the NE region, and all sites in Scotland within 25km of the border.

Consultation with both Natural England and Scottish Natural Heritage (SNH) enabled us to remove a number of sites from this long list. These are listed in Table 3.1 and are all outside the NE region. European sites were removed if either Natural England or SNH were confident that there was no chance of the RSS having a significant adverse effect on site integrity. This included many sites that were over 10 km from the boundary of the of the North East region in line with the English Nature draft guidance⁵

Table 3.1. European sites outside the North East region removed from consideration following early consultation with Natural England and SNH

NATURA 2000 SITE	DISTRICT	GOVERNMENT REGION	COMMENT FROM NE & SNH
SACs			
Arnecliff And Park Hole Woods	Scarborough	Yorkshire & Humberside	Unlikely to affect site conservation objectives due to distance from regional boundary
Asby Complex	Eden	North West	Unlikely to be affected. Air pollution is only potential risk and it is distant from potential sources
Beast Cliff - Whitby (Robin Hood's Bay)	Scarborough	Yorkshire & Humberside	Unlikely to affect site conservation objectives due to distance from regional boundary
Cumbrian Marsh Fritillary Site	Eden	North West	Unlikely to affect site conservation objectives due to distance from regional boundary
Dogden Moss		Scotland	Unlikely to affect site conservation objectives due to distance from regional boundary

⁵ The assessment of regional spatial strategies and sub-regional strategies under the provisions of the habitats regulations. August 2006 Draft Guidance. David Tyldesley and Associates for English Nature.

Helbeck & Swindale Woods	Eden	North West	Unlikely to affect site conservation objectives due to distance from regional boundary
Lake District High Fells	Eden	North West	Unlikely to be affected. Air pollution is only potential risk and it is distant from potential sources
Naddle Forest	Eden	North West	Unlikely to be affected. Air pollution is only potential risk and it is distant from potential sources
Solway Firth	Carlisle	North West	20km from regional boundary. Catchment not affected. Unlikely to be affected
Tarn Moss	Eden	North West	Unlikely to be affected – more than 20km from regional boundary
Ullswater Oakwoods	Eden	North West	Unlikely to be affected. Air pollution is only potential risk and it is distant from potential sources
Walton Moss	Carlisle	North West	Unlikely to affect site conservation objectives due to distance from regional boundary
Whitlaw & Branxholme		Scotland	Unlikely to affect site conservation objectives due to distance from regional boundary
SPAs			
Greenlaw Moor		Scotland	Unlikely to be affected in any way
Din Moss - Hoselaw Law		Scotland	Unlikely to be affected but perhaps consider affect of windfarms on flight lines
Upper Solway Flats & Marshes	Carlisle	North West	20km from NE regional boundary. Unlikely to be affected. Effects of windfarms on flight lines are likely to be restricted to Cumbria windfarms.
Ramsar Sites			
Din Moss - Hoselaw Law		Scotland	Unlikely to be affected but perhaps consider affect of windfarms on flight lines
Upper Solway Flats & Marshes*	Carlisle	North West	20km from NE regional boundary. Unlikely to be affected. Effects of windfarms on flight lines are likely to be restricted to Cumbria windfarms.

3.2 EUROPEAN SITES

23 SACs, 10 SPAs and 5 Ramsar sites were taken forward for further analysis. Descriptive information was collated for each of the sites, including:

- “Natura 2000 standard data forms”;
- Component SSSI citations detailing their ecological interest;
- Conservation Objectives relating to the European sites/ component SSSI designated interest features;
- Definitions of favourable condition for the designated interest features; and
- Site management plans and other miscellaneous information relating to management, condition assessments and English Nature’s views on management

Figures 3.1 to 3.3 show the locations of European sites in Yorkshire and Humber. Table 3.2 lists the European sites, their reasons for designation and the environmental conditions needed to support site integrity. Fuller site descriptions are set out in Appendix 2.

3.3 SUMMARY OF EUROPEAN SITE INTEREST FEATURES

3.3.1 SPECIAL AREAS FOR CONSERVATION (SAC)

Four of the sites within or bordering the region are designated for coastal features. The Berwickshire & North Northumberland Coast, Durham Coast, North Northumberland Dunes and the Tweed Estuary SACs all lie along the coast, designated for their intertidal mud and sandflats, shallow inlets and bays, reefs, cliffs, sand dunes and estuarine features, all of which are considered some of the richest examples in northeast England. The Durham Coast cliffs are the only example of their particular habitat type in the UK. Three of the sites have Annex II species supporting these designations: the Berwickshire and North Northumberland Coast for Grey Seal populations, the North Northumberland Dunes for Petalwort and the Tweed Estuary for Sea and River Lamprey.

A further seven sites are designated for their upland or montane habitats, with blanket bog being a particular feature in several. Bordering the region are the Border Mires and Kielder-Butterburn SACs, designated primarily for their blanket bog features and the North Pennine Moors SAC, listed for 6 Annex I habitats, the two priorities being blanket bog and petrifying springs with tufa formation (Cratoneurion). The latter is a particularly rare habitat in the Pennines. The two remaining border sites are the North Pennine Dales Meadows SAC, containing most of the UK’s mountain hay meadows and North York Moors SAC, which have the largest continuous tracts of wet and dry heaths in England.

The three upland sites found wholly within the region are Ford Moss SAC, an active raised bog area, Harbottle Moors SAC, a relatively low-lying area of dry heath and Moor House-Upper Teesdale SAC, designated for no fewer than 17 Annex I habitats, priorities being blanket bog and Alpine pioneer formations of the *Caricion bicoloris-atrofuscae*. Moor House- Upper Teesdale also supports two Annex II species that are primary reasons for its designation: the round-mouthed whorl snail and the most important population of Marsh Saxifrage in the UK.

Five SAC sites within the region and one lying on the border are designated for rather more individual features. They are as follows:

- Castle Eden Dene, having the most northerly extensive native Yew woodland in the UK;
- Newham Fen, a rare example of alkaline fen in the northeast of England;
- Roman Wall Loughs, designated for natural eutrophic lakes, which hold a rich diversity of pondweed (*Potamogeton* spp) in particular;
- Thrislington, the largest remaining stand of *Sesleria albicans* – *Scabiosa columbaria* grassland in the country, now covering less than 200ha;
- Tyne and Allen River Gravels, the most extensive, structurally varied and diverse Calaminarian grasslands in the UK, with several nationally rare plant species present; and
- River Tweed, a bordering site shared between England and Scotland, designated for the highly diverse watercourse, which supports both Otter and a significant proportion of the Scottish Atlantic Salmon population. This is considered the best example in Britain of a large river showing a strong nutrient gradient along its length.

Outside the region, yet with potential to be affected by activities within the region, the following sites occur:

- Borders Woods (Scottish Borders), an extremely good example of *Tilio-Acerion* forest that has developed along a gorge complex;
- Ox Close (North Yorkshire), representing the three main situations in which Calaminarian grassland develops in the UK;
- River Eden (Cumbria), a river system with the most diverse vegetation in the UK and important populations of seven Annex II species: White-clawed Crayfish, Sea Lamprey, Brook Lamprey, River Lamprey, Atlantic Salmon, Bullhead and Otter;
- St Abbs Head to Fast Castle (Scottish Borders, also an SPA), a diverse vegetated cliff with large seabird colonies; and

- Tyne & Nent (Cumbria), a rich Calaminarian grassland associated with lead mine spoil and river shingles.

3.3.2 SPECIAL PROTECTION AREAS

The majority of SPAs in the region are coastal. Coquet Island and the Farne Islands are designated for their significant populations of breeding terns – Coquet supporting over 48% of the Roseate Terns, 11% of the Sandwich Terns, 6% of the Common Terns and almost 2% of the Arctic Terns breeding in Britain at designation, whilst the Farnes held about 2% of the Common Terns, 7% of the Arctic Terns and 15% of the Sandwich Terns breeding in Britain.

Lindisfarne also qualifies as an SPA with breeding tern colonies, and important populations of passage and wintering waterbirds of some 14 species, prominent amongst which is the Light-bellied Brent Goose, more than a third of the population of this subspecies wintering at this site

Northumbria Coast and the Teesmouth & Cleveland Coast SPAs are designated in terms of breeding Little Terns, each site holding approximately 2% of the British breeding population, and passage/winter wader populations.

Holburn Lake and Moss is included on the strength of its winter Greylag Goose roost, with 2% of the Iceland-UK-Ireland population using the site at the time of designation. The last four sites are also designated Ramsar sites for the same features.

The bordering sites of the North Pennine Moors and the North York Moors SPAs are both designated for their populations of breeding raptors (Hen Harrier, Merlin and Peregrine) and Golden Plover. Of particular importance is the Merlin population – nearly 13% of the British population breed here.

Outside the region, yet with potential to be affected by activities within the region are the following sites:

- Langholm-Newcastleton Hills (Scottish Borders), designated for breeding Hen Harrier;
- St Abbs Head to Fast Castle (Scottish Borders), holding approximately 10% of the British population of Annex I species Common Guillemot, as well as an internationally important assemblage of breeding seabirds

3.3.3 RAMSAR SITES

Four of the region's five Ramsar sites are also designated for the same features as the SPAs: Northumbria Coast, Teesmouth & Cleveland Coast, Lindisfarne and Holburn Lake and Moss. On the western border of the region, Irthinghead Mires are designated a Ramsar site as an outstanding example of undamaged blanket bog with a notable variety of *Sphagnum* mosses, a number of rare plant species and a rare spider species (*Eboria caliginosa*).



Figure 3.1 SACs within the North East Region



Figure 3.2 SPAs within the North East Region

Table 3.2. Natura 2000 Sites that could possibly be affected by the Draft RSS

Name of Site	Reason for designation	Environmental conditions needed to support site integrity
SACs WITHIN THE NE REGION		
Berwickshire and North Northumberland Coast SAC	<p>There are a series of Annex I habitats:</p> <p>1). Mudflats and sandflats not covered by seawater at low tide - very extensive range of intertidal mudflats and sandflats, ranging from wave-exposed beaches to sheltered muddy flats with rich infaunal communities). These have been selected as biologically diverse and extensive examples of clean sandflats on the east coast</p> <p>2). Large shallow inlets and bays - several characteristic, sediment-dominated embayments in north-east England, including Budle Bay, Beadnell Bay and Embleton Bay. these are some of the richest examples of these biotopes in north-east England</p> <p>3). Reefs - The subtidal rocky reefs and their rich marine communities, together with the wide variety of associated littoral reefs, are the most diverse known on the North Sea coast. Their remarkably varied nature is due to the wide range of physical conditions in the area. Many species reach their southern or eastern most limit</p> <p>4). Submerged or partially submerged sea caves - Caves occur throughout the site in both the intertidal and the subtidal zones in a range of different hard rock exposures.</p> <p>This coastal section also has grey seal breeding colonies in the south-east of its breeding range in the UK. It supports around 2.5% of annual UK pup production.</p>	<ul style="list-style-type: none"> ▪ No loss in extent of mudflats and sandflats not covered by seawater at high tide, reefs and macroalgal mats ▪ Clean unpolluted water and sands ▪ No change in water clarity and average light attenuation, and average sediment parameters ▪ No change in temperature and salinity of the water ▪ A diverse range of physical conditions in the area, (from wave-exposed locations on the open coast, through more sheltered reefs within bays, to those exposed to strong tidal streams in sounds and off headlands.) ▪ the extent of eelgrass bed communities and mussel <i>Mytilus edulis</i> communities and the diversity of infaunal communities ▪ Minimal disturbance from recreational activities
Border Mires, Kielder – Butterburn SAC	<p>Annex I habitats</p> <p>Blanket bogs * Priority feature - once the largest continuous tract of Blanket bogs across northern England and is particularly important for the quality of the transition it represents between blanket bog and raised mire</p> <p>Transition mires and quaking bogs - site contain a wide range of bog-moss Sphagnum species.</p> <p>Northern Atlantic wet heaths with <i>Erica tetralix</i></p> <p>European dry heaths</p> <p>Petrifying springs with tufa formation (Cratoneurion) * Priority feature</p>	<ul style="list-style-type: none"> ▪ Wetter climate than other parts of Northern England ▪ No loss in extent through afforestation ▪ No planting of conifers within the hydrological unit of the bog ▪ No significant erosion associated with human impacts (eg drainage, fires, peat extraction, livestock grazing, recreational activities or military training) ▪ The impacts of drainage (agricultural or forestry), commercial conifer plantation or heavy grazing pressure can severely degrade the blanket bog communities ▪ Burning on active blanket bog is undesirable and should be discouraged. ▪ Petrifying springs with tufa formation can be damaged by human or livestock trampling, or removal for garden ornamentation

Name of Site	Reason for designation	Environmental conditions needed to support site integrity
Castle Eden Dene SAC	Represents the most extensive northerly native occurrence of yew <i>Taxus baccata</i> woods in the UK. Extensive yew groves are found in association with ash-elm <i>Fraxinus-Ulmus</i> woodland and it is the only site selected for yew woodland on magnesian limestone in north-east England.	<ul style="list-style-type: none"> ▪ No loss of ancient semi-natural stands ▪ Site management to maintain current level of structural diversity (Age/size class variation within and between stands; presence of open space and old trees; dead wood lying on the ground; standing dead trees) ▪ Limited air pollution ▪ Limited grazing by ungulates where it leads to undesirable shifts in the composition/structure of the stand
Durham Coast SAC	Only example of vegetated sea cliffs on magnesian limestone exposures in the UK. These cliffs extend along the North Sea coast for over 20 km from South Shields southwards to Blackhall Rocks. Within these habitats rare species of contrasting phytogeographic distributions often grow together forming unusual and species-rich communities of high scientific interest. The communities present on the sea cliffs are largely maintained by natural processes including exposure to sea spray, erosion and slippage of the soft magnesian limestone bedrock and overlying glacial drifts, as well as localised flushing by calcareous water.	<p>The communities present on the sea cliffs are largely maintained by natural processes including:</p> <ul style="list-style-type: none"> ▪ exposure to sea spray, ▪ erosion and slippage of the soft magnesian limestone bedrock and overlying glacial drifts, localised flushing by calcareous water. ▪ There should be no increase in area constrained by introduced structures or landforms.
Ford Moss SAC	46 ha active raised bog in undulating topography in the rain-shadow of the Cheviot Hills. Although partially drained, the re-wetted surface contains many waterlogged areas with species typical of peat-formation.	<ul style="list-style-type: none"> ▪ Adequate water levels - Bog water should be stagnant and close to ground level and indicative of anaerobic conditions; the water table should normally be within approx 25 cm of the surface, ▪ Limited drainage ▪ Current management of levels includes the use of dams and dipwells
Harbottle Moors SAC	Relatively low-lying example of upland European dry heath . Situated on Carboniferous rocks, the heathland community is dominated by heather <i>Calluna vulgaris</i> with some crowberry <i>Empetrum nigrum</i> , bilberry <i>Vaccinium myrtillus</i> and bracken <i>Pteridium aquilinum</i> . Some areas are relatively species-rich, with up to six different dwarf shrub species being found. This may suggest a fairly un-intensive management history with regard to grazing and burning.	<ul style="list-style-type: none"> ▪ Limited / No burning ▪ Controlled grazing ▪ Not over grazed
Moor House - Upper Teesdale SAC	38796 ha site with following Annex I habitats: <ul style="list-style-type: none"> ▪ Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp. ▪ Alpine and Boreal heaths ▪ <i>Juniperus communis</i> formations on heaths or calcareous grasslands ▪ Calaminarian grasslands of the <i>Violetalia calaminariae</i> ▪ Siliceous alpine and boreal grasslands ▪ Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>) ▪ <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) ▪ Hydrophilous tall herb fringe communities of plains and of the montane to 	<ul style="list-style-type: none"> ▪ No loss in extent through afforestation or human activities ▪ No planting of conifers within the hydrological unit of the bog ▪ No significant erosion associated with human impacts (eg drainage, fires, peat extraction, livestock grazing, recreational activities or military training) ▪ Limited air pollution (acid deposition a problem) ▪ Limited burning ▪ Adequate supply of water. ▪ Control of grazing pressures (Ecologically unsustainable grazing, driven by agricultural support mechanisms, has had a deleterious effect on virtually all the Annex I habitats listed, to the extent

Name of Site	Reason for designation	Environmental conditions needed to support site integrity
	<p>alpine levels</p> <ul style="list-style-type: none"> ▪ Mountain hay meadows ▪ Blanket bogs * Priority feature ▪ Petrifying springs with tufa formation (<i>Cratoneurion</i>) * Priority feature ▪ Alkaline fens ▪ Alpine pioneer formations of the <i>Caricion bicoloris-atrofuscae</i> * Priority feature ▪ Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>) ▪ Calcareous and calcshist screes of the montane to alpine levels (<i>Thlaspietea rotundifolii</i>) ▪ Calcareous rocky slopes with chasmophytic vegetation ▪ Siliceous rocky slopes with chasmophytic vegetation ▪ European dry heaths ▪ Limestone pavements * Priority feature <p>And presence of:</p> <ul style="list-style-type: none"> ▪ Round-mouthed whorl snail <i>Vertigo genesii</i> ▪ Marsh saxifrage <i>Saxifraga hirculus</i> 	<p>that for some habitats it is difficult to make the necessary assessments of conservation structure and function required here. This serious problem has so far been very difficult to solve, requiring fundamental policy change as well as targeted local action. Some successes have been achieved however through Wildlife Enhancement Schemes geared at moorland and pasture, and through the ESA and Countryside Stewardship schemes, while issues impacting on meadows have been largely addressed through meadow schemes.</p>
Newham Fen SAC	Newham is important as a lowland short sedge fen in north-east England, a part of the UK in which Alkaline fens are rare. Site is 13.5 ha.	<ul style="list-style-type: none"> ▪ No loss in extent of alkaline fen ▪ Adequate water level and quality ▪ Appropriate grazing to limit scrub growth
North Northumberland Dunes SAC	<p>Annex I habitats:</p> <p>Embryonic shifting dunes</p> <p>Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (`white dunes`)</p> <p>Fixed dunes with herbaceous vegetation (`grey dunes`) * Priority feature</p> <p>Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>)</p> <p>Humid dune slacks</p> <p>Petalwort <i>Petalophyllum ralfsii</i> has been recorded from Holy Island and from two locations on the mainland.</p>	<ul style="list-style-type: none"> ▪ No decrease in extent of habitats: ▪ Appropriate level of grazing ▪ Control of invasive species including the non-native plant <i>Acaena novae-zealandiae</i> ▪ Lack of physical constraints & ability to modify its distribution in response to natural dynamic coastal processes ▪ Limited recreational pressure
North Pennine Dales Meadows SAC	<p>The North Pennine Dales contain a series of isolated fields within several north Pennine and Cumbrian valleys. The site encompasses the range of variation exhibited by Mountain hay meadows in the UK and contains the major part of the remaining UK resource of this habitat type. The grasslands included within the site exhibit very limited effects of agricultural improvement and show good conservation of structure and function</p> <p>Other Annex 1 habitat is Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)</p>	<ul style="list-style-type: none"> ▪ No reduction in area and any consequent fragmentation ▪ Appropriate management (grasslands are dependent upon traditional agricultural management, with hay-cutting) ▪ No exposure to inorganic fertilisers and pesticides.

Name of Site	Reason for designation	Environmental conditions needed to support site integrity
	Site is 498 ha	
North Pennine Moors SAC	<p>Annex I habitats present</p> <ul style="list-style-type: none"> ▪ European dry heaths ▪ <i>Juniperus communis</i> formations on heaths or calcareous grasslands ▪ Blanket bogs * Priority feature ▪ Petrifying springs with tufa formation (<i>Cratoneurion</i>) * Priority feature ▪ Siliceous rocky slopes with chasmophytic vegetation ▪ Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles ▪ Northern Atlantic wet heaths with <i>Erica tetralix</i> ▪ Calaminarian grasslands of the <i>Violetalia calaminariae</i> ▪ Siliceous alpine and boreal grasslands ▪ Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>) ▪ Alkaline fens ▪ Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>) ▪ Calcareous rocky slopes with chasmophytic vegetation <p>Annex II species present</p> <ul style="list-style-type: none"> • Marsh saxifrage <i>Saxifraga hirculus</i> 	<ul style="list-style-type: none"> ▪ Appropriate controlled grazing (All interest features have been affected by excessive livestock grazing levels across parts of the site) ▪ Sympathetic burning regimes (Burning is a traditional management tool on these moorlands, which contributes to maintaining high populations of SPA breeding birds. However, over-intensive and inappropriate burning is damaging to heath and blanket bog). ▪ Limited air pollution (Acid and nitrogen deposition continue to have damaging effects on the site.) ▪ No drainage of wet areas - Maintenance of water levels
North York Moors SAC	<p>This site in north-east Yorkshire within the North York Moors National Park contains the largest continuous tract of upland heather moorland in England</p> <p>Northern Atlantic wet heaths with <i>Erica tetralix</i> is the second most extensive vegetation type on the site and is predominantly found on the eastern and northern moors where the soil is less free-draining. Purple moor-grass <i>Molinia caerulea</i> and heath rush <i>Juncus squarrosus</i> are also common within this community. In the wettest stands bog-mosses, including <i>Sphagnum tenellum</i>, occur, and the nationally scarce creeping forget-me-not <i>Myosotis stolonifera</i> can be found in acid moorland streams and shallow pools</p> <p>European dry heath covers over half the site and forms the main vegetation type on the western, southern and central moors where the soil is free-draining and has only a thin peat layer. The principal NVC type present is H9 <i>Calluna vulgaris</i> – <i>Deschampsia flexuosa</i>, with some H10 <i>Calluna vulgaris</i> – <i>Erica cinerea</i> heath on well-drained areas throughout the site, and large areas of H12 <i>Calluna vulgaris</i> – <i>Vaccinium myrtillus</i> heath on steeper slopes.</p> <p>Site also contains Blanket bogs (A Priority feature)</p>	<ul style="list-style-type: none"> ▪ No reduction in area of any of the habitat types and any consequent fragmentation ▪ No artificial drains/ grips especially in wetter areas ▪ No erosion associated with human impacts eg fires, vehicles, livestock grazing, recreational activities ▪ No large scale (commercial) peat extraction ▪ No overgrazing ▪ No over burning ▪ Appropriate overgrazing and burning (provides for a diversity of heather). ▪ Limited air pollution
River Tweed SAC	<p>The Tweed represents a Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation. It is the most species-rich example, by far, of a river with <i>Ranunculus</i> in Scotland, and is the</p>	<ul style="list-style-type: none"> ▪ Abstractions should be less than 10% of the naturalised daily mean flow throughout the year. ▪ Channels should be dominated by clean gravels.

Name of Site	Reason for designation	Environmental conditions needed to support site integrity
	<p>only site selected for this habitat in Scotland. The river has a high ecological diversity which reflects the mixed geology of the catchment.</p> <p>The Tweed supports the following Annex II species:</p> <p>Atlantic salmon <i>Salmo salar</i></p> <p>Otter <i>Lutra lutra</i></p> <p>Sea lamprey <i>Petromyzon marinus</i></p> <p>Brook lamprey <i>Lampetra planeri</i></p> <p>River lamprey <i>Lampetra fluviatilis</i></p>	<ul style="list-style-type: none"> ▪ No artificial barriers significantly impairing adult salmon and lamprey from reaching existing and historical spawning grounds, and smolts from reaching the sea ▪ Excellent biological water quality ▪ Good water clarity – minimum silt levels (sources of silt include - run-off from arable land and land trampled by livestock, sewage and industrial discharges.)
Roman Wall Loughs SAC	<p>The Roman Wall Loughs area contains three natural eutrophic lakes, Crag, Broomlee and Greenlee Loughs. Together the loughs contain 11 species of pondweed <i>Potamogeton</i> including <i>P. lucens</i>, <i>P. pusillus</i>, and <i>P. obtusifolius</i>. <i>P. gramineus</i> occurs in all three loughs in an unusual association with stoneworts <i>Chara</i> spp. The nationally-rare autumnal water-starwort <i>Callitriche hermaphroditica</i> occurs in Crag Lough. Shoreweed <i>Littorella uniflora</i> grows in Broomlee and Greenlee Loughs, and greater bladderwort <i>Utricularia vulgaris</i> in the latter.</p>	<ul style="list-style-type: none"> ▪ The maintenance of water quality particularly total phosphate levels ▪ The maintenance of the hydrology of lake system. (Hydrology involves not only lake levels but flushing rates; prevent lowering or raising of the level through modification of outfalls. ▪ Maintain sediment quality and quantity. ▪ (The lakes are vulnerable to excess nutrient enrichment resulting from certain farming activities.)
Simonside Hills SAC	<p>Annex I habitats that are a primary reason for selection of this site: European Dry Heaths, Blanket Bog (priority feature). 2082.6 ha site</p>	<ul style="list-style-type: none"> ▪ Habitat very vulnerable to alterations in drainage, (work ongoing to block grips on blanket bog areas) ▪ bracken control on heathland
Thrislington SAC	<p>Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia)</p> <p>Thrislington is a small site but nonetheless contains the largest of the few surviving stands of CG8 <i>Sesleria albicans</i> – <i>Scabiosa columbaria</i> grassland. This form of calcareous grassland is confined to the Magnesian Limestone of County Durham and Tyne and Wear, north-east England. It now covers less than 200 ha and is found mainly as small scattered stands.</p>	<ul style="list-style-type: none"> ▪ No reduction in extent ▪ continuous management by seasonally-adjusted grazing ▪ no fertiliser input ▪ Control of invasive species ▪ Control of over grazing
Tweed Estuary SAC	<p>Annex I habitats include Estuaries & Mudflats and sandflats not covered by seawater at low tide</p> <p>Long narrow estuary, which is still largely natural and undisturbed, with its water quality classified as excellent throughout. It supports a wide range of habitats compared with other estuaries in north-east England.</p> <p>Annex II species present include Sea lamprey <i>Petromyzon marinus</i> & River lamprey <i>Lampetra fluviatilis</i></p>	<ul style="list-style-type: none"> ▪ Limited nutrient input ▪ Limited dredging activities ▪ No physical barriers to restrict movement of sand and communities associated with mobile substrate
Tyne And Allen River Gravels SAC	<p>Annex I habitat- Calaminarian grasslands of the <i>Violetalia calaminariae</i></p> <p>This site encompasses the most extensive, structurally varied and species-rich examples of riverine Calaminarian grasslands in the UK. The river gravels contain a range of structural types, ranging from a highly toxic, sparsely vegetated area with abundant lichens through to closed willow/alder <i>Salix/Alnus</i> woodland</p>	<p>No reduction in area and any consequent fragmentation without prior consent</p> <p>Management to limit succession to grassland and scrub.</p> <p>Grazing to maintain a low sward height</p> <p>The presence of Metallophyte species singly or together at least occasional throughout the sward. (These special habitats have been created by deposition of minerals out of the rivers Tyne and Allen</p>

Name of Site	Reason for designation	Environmental conditions needed to support site integrity
		onto gravel banks. Mining activities upstream have virtually stopped, thus reducing the amount of metals carried by the rivers. It is not currently known whether interventionist management would restore the interest in areas where succession has taken place, as there may no longer be sufficient available metals even if the bare shingle is re-exposed – NOTE – Natural England may have conducted research on this.
SACs OUTSIDE THE NE REGION		
Borders Woods SAC	Annex I habitat: <i>Tilio-Acerion</i> forests of slopes, screes and ravines (Priority feature)	No reduction in area and consequent fragmentation No favourable conditions targets available. 65% of site is under management by SWT and SNH, and with landowner agreements, the rest by connection with sympathetically-managed undesignated woodland. Management needed to reduce introduced sycamore <i>Acer pseudoplatanus</i> The habitat type typically occurs on nutrient-rich and base-rich soils that often accumulate in the shady micro-climates towards the bases of slopes and ravines. Therefore it is found on calcareous substrates associated with coarse scree, cliffs, steep rocky slopes and ravines, where inaccessibility has reduced human impact.
Ox Close SAC	Annex I habitat: Calaminarian grasslands of the <i>Violetalia calaminariae</i>	No reduction in area and any consequent fragmentation without prior consent Management to limit succession to grassland and scrub. Grazing to maintain a low sward height The presence of Metallophyte species singly or together at least occasional throughout the sward. The supporting habitats of <i>Tilio-Acerion</i> woodland and <i>Sesleria caerulea-Galium sternerii</i> grassland to be maintained with no net loss in area, retention of habitat structure and composition, and of the characteristic species making up these habitats
River Eden SAC	Annex I habitats: Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i> Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>) (priority feature)	Maintenance of water quality as regards sediment input, soluble reactive Phosphorus content Continued maintenance of flow regime, prevention of flow below 90% normal Substrate dominated by clean gravels with silt content monitored No net loss or reduction in Annex II species, nor change in population structures Continued access along river for fish species Control on stocking, fish farming and introductions of native or non-native species

Name of Site	Reason for designation	Environmental conditions needed to support site integrity
	Annex II species present: White-clawed (or Atlantic stream) crayfish <i>Austropotamobius pallipes</i> Sea lamprey <i>Petromyzon marinus</i> Brook lamprey <i>Lampetra planeri</i> River lamprey <i>Lampetra fluviatilis</i> Atlantic salmon <i>Salmo salar</i> Bullhead <i>Cottus gobio</i> Otter <i>Lutra lutra</i>	Limited or no exploitation of Annex II species Presence of suitable quiet stretches of river for Otters Oligotrophic-mesotrophic standing waters: Stable plant communities Availability of clean water in suitable quantities, with no increase in sediment input Residual alluvial woodlands: No net loss in area or change in structure Maintain natural regeneration and diverse structure Maintained composition, characteristic species, habitats and structures
St Abbs Head To Fast Castle SAC	Annex I habitat: Vegetated sea cliffs of the Atlantic and Baltic coasts	Maintenance of vegetation structure and composition of the site. Continued visitor management to prevent disturbance from recreational use. The site is relatively secure, not subject to the grazing or recreational pressures of adjacent areas.
Tyne & Nent SAC	Annex I habitat: Calaminarian grasslands of the <i>Violetalia calaminariae</i>	No reduction in area and any consequent fragmentation without prior consent Management to limit succession to grassland and scrub. Grazing to maintain a low sward height The presence of Metallophyte species singly or together at least occasional throughout the sward. (These special habitats have been created by deposition of minerals out of the rivers Tyne and Allen onto gravel banks. Mining activities upstream have virtually stopped, thus reducing the amount of metals carried by the rivers. It is not currently known whether interventionist management would restore the interest in areas where succession has taken place, as there may no longer be sufficient available metals even if the bare shingle is re-exposed – NOTE – Natural England may have conducted research on this.
SPAs WITHIN THE NE REGION		
Coquet Island SPA	Annex I species that are a primary reason for selection of this site: Common Tern, Arctic Tern, Roseate Tern, Sandwich Tern	Open landscape Food availability Lack of disturbance Vegetation cover Habitat diversity and structure
Farne Islands SPA	Annex I species that are a primary reason for selection of this site: Common Tern, Arctic Tern, Sandwich Tern	Open landscape Food availability Lack of disturbance Vegetation cover

Name of Site	Reason for designation	Environmental conditions needed to support site integrity
		Habitat diversity and structure
Holburn Lake and Moss SPA	Migratory species that are a primary reason for selection of this site: Greylag Goose	Grazing to maintain suitable moorland Control of erosion Diversity, age and structure of vegetation Food availability within reasonable flying distance Open landscape Lack of disturbance Control of conifers
Lindisfarne SPA	Annex I species that are a primary reason for selection of this site: Golden Plover, Bar-tailed Godwit, Little Tern, Roseate Tern Other migratory species that are a primary reason for selection of this site: Whooper Swan, Greylag Goose, Light-bellied Brent Goose, Common Shelduck, Eurasian Wigeon, Long-tailed Duck, Common Eider, Common Scoter, Red-breasted Merganser, Common Redshank, Sanderling, Dunlin, Ringed Plover, Grey Plover	Open landscape Food availability Lack of disturbance Vegetation cover Habitat diversity and structure Water quality Hydrology / flow
North Pennine Moors SPA	Annex I species that are a primary reason for selection of this site: Hen Harrier, Merlin, Peregrine, Golden Plover	Grazing to maintain suitable moorland Control of erosion and peat extraction Diversity, age and structure of vegetation Food availability Open landscape Lack of disturbance and persecution
North York Moors SPA	Annex I species that are a primary reason for selection of this site: Merlin, Golden Plover	Grazing to maintain suitable moorland Control of erosion and peat extraction Diversity, age and structure of vegetation Food availability Open landscape Lack of disturbance and persecution
Northumbria Coast SPA	Annex I species that are a primary reason for selection of this site: Little Tern Other migratory species that are a primary reason for selection of this site: Purple Sandpiper, Ruddy Turnstone	Disturbance Extent and availability of habitat Food availability Vegetation cover
Teesmouth and Cleveland Coast SPA	Annex I species that are a primary reason for selection of this site: Little Tern, Sandwich Tern Site also qualifies as an internationally important assemblage of wintering birds Other migratory species that are a primary reason for selection of this site: Red Knot, Common Redshank	Food availability Vegetation structure Hydrology/flow Water depth Disturbance Extent and distribution of habitat Open landscape
SPAs OUTSIDE THE NE REGION		
Langholm	- Annex I species occurring: Hen Harrier <i>Circus cyaneus</i>	Disturbance

Name of Site	Reason for designation	Environmental conditions needed to support site integrity
Newcastleton Hills		Food availability Extent and distribution of habitat Open landscape (Hen Harrier feature of Langholm - Newcastleton Hills could be affected by tourism changes and just possibly by wind farms in the vicinity (bird strike?), but otherwise this is likely to be insignificant and probably emanating more from Cumbria)
St Abb's Head To Fast Castle	Annex I species for which site designated: Common Guillemot <i>Uria aalge</i> . Also qualifies as an internationally important assemblage of birds, including: Northern Fulmar <i>Fulmarus glacialis</i> , Great Cormorant <i>Phalacrocorax carbo</i> , European Shag <i>Phalacrocorax aristotelis</i> , Herring Gull <i>Larus argentatus</i> , Black-legged Kittiwake <i>Rissa tridactyla</i> , Common Guillemot <i>Uria aalge</i> , Razorbill <i>Alca torda</i> , Atlantic Puffin <i>Fratercula arctica</i> .	Food availability Hydrology/flow Water depth Disturbance Extent and distribution of habitat
RAMSAR SITES WITHIN THE REGION		
Holburn Lake and Moss Ramsar site	(Cr1) Nationally rare example of lowland raised mire (Cr3) The site is an important winter roost site for Greylag Geese, of which the entire Icelandic race winters in Britain. (Cr4) Regularly visited by large flocks of Mallard <i>Anas platyrhynchos</i> , Wigeon <i>Anas penelope</i> and Common Teal <i>Anas crecca</i> , provides an inland roost for coastal wildfowl during unfavourable weather conditions. A few pairs of Shelduck <i>Tadorna tadorna</i> , Shoveler <i>Anas clypeata</i> and Tufted Duck <i>Aythya fuligula</i> regularly breed here. (Cr6) Wintering Greylag Goose, <i>Anser anser anser</i> , Iceland/UK, Ireland 2150 individuals, representing an average of 2.4% of the population (Source period not collated) Species supporting designation: wintering Common Teal	Burning to manage heathland and reduce Bracken infestation Mire requires maintained water levels No alteration to water quality inputs No further expansion of conifer plantation Wintering waterfowl require Secure roost sites within reasonable distance of food sources Limited disturbance from hunting Maintained water quality
Irthinghead Mires Ramsar site	Supports an outstanding example of undamaged blanket bogs which are characteristic of the vegetation of upland north-western Britain. A notable variety of Sphagnum mosses. Butterburn Flow has nationally important plant species: <ul style="list-style-type: none"> • <i>Carex magellanica</i> • <i>Sphagnum imbricatum</i> • <i>S. pulchrum</i> • <i>S. magellanicum</i> Rare spider, <i>Eboria caliginosa</i> , has been recorded at Coom Rogg Moss.	Water quality maintained Appropriate management by grazing may be necessary Lack of disturbance / destruction by trampling or vehicles Vegetation structure Hydrology/flow Water depth Extent and distribution of habitat

Name of Site	Reason for designation	Environmental conditions needed to support site integrity
Lindisfarne Ramsar site	<p>This site contains extensive intertidal flats, together with a large area of saltmarsh, and major sand dune system with well developed dune slacks.</p> <p>Species with peak counts in winter: 44970 waterfowl (5 year peak mean 1998/99-2002/2003)</p> <p>Species with peak counts in spring/autumn:</p> <p>Light-bellied Brent Goose, <i>Branta bernicla hrota</i>, Svalbard 2799 individuals, representing an average of 55.9% of the population (5 year peak mean 1998/9-2002/3)</p> <p>Eurasian Wigeon, <i>Anas penelope</i>, NW Europe 10857 individuals, representing an average of 2.6% of the GB population (5 year peak mean 1998/9-2002/3)</p> <p>Ringed Plover, <i>Charadrius hiaticula</i>, Europe/Northwest Africa 114 individuals, representing an average of 0.3% of the GB population (5 year peak mean 1998/9-2002/3 - spring peak)</p> <p>Common Redshank, <i>Tringa totanus totanus</i>, 1572 individuals, representing an average of 1.3% of the GB population (5 year peak mean 1998/9-2002/3)</p> <p>Species with peak counts in winter:</p> <p>Greylag Goose, <i>Anser anser anser</i>, Iceland/UK/Ireland 750 individuals, representing an average of 0.9% of the GB population (5 year peak mean for 1995/6-1999/2000)</p> <p>Bar-tailed Godwit, <i>Limosa lapponica lapponica</i>, W Palearctic 3757 individuals, representing an average of 3.1% of the population (5 year peak mean 1998/9-2002/3)</p> <p>Potential qualification for Pink-footed Goose, <i>Anser brachyrhynchus</i>, Greenland, Iceland/UK 2531 individuals, representing an average of 1% of the population (5 year peak mean 1998/9- 2002/3)</p> <p>Supporting species for qualification:</p> <p><i>Petalophyllum ralfsii</i> Petalwort (Habitats Directive Annex II species) Dune helleborine <i>Epipactis sancta</i> (endemic on Holy Island)</p>	<p>Extensive open sandy and muddy intertidal habitats with abundant invertebrate fauna, Secure roosts beyond high tide limit Freedom from disturbance – critical in poor weather conditions. Secure roost sites within reasonable distance of feeding areas (up to c.35 km) Freedom from disturbance whilst feeding Limited hunting Vegetation structure Hydrology/flow Water depth Extent and distribution of habitat</p>

Name of Site	Reason for designation	Environmental conditions needed to support site integrity
	<p>11 other bird species occurring at nationally important levels:</p> <p>On passage:</p> <ul style="list-style-type: none"> • Common Scoter, • European Golden Plover, • Grey Plover, • Ruff, • Eurasian Curlew, • Common Greenshank <p>Wintering:</p> <ul style="list-style-type: none"> • Slavonian Grebe, • Common Shelduck, • Common Eider, • Red Knot • Dunlin 	
Northumbria Coast Ramsar site	<p>Species regularly supported during the breeding season:</p> <p>Little Tern, <i>Sternula albifrons albifrons</i>, W Europe 43 apparently occupied nests, representing an average of 2.2% of the GB population (Seabird 2000 Census)</p> <p>Species with peak counts in winter:</p> <p>Purple Sandpiper, <i>Calidris maritima maritima</i>, E Atlantic – wintering 291 individuals, representing an average of 1.6% of the GB population (5 year peak mean 1998/9-2002/3)</p> <p>Ruddy Turnstone, <i>Arenaria interpres interpres</i>, NE Canada, Greenland/W Europe & NW Africa 978 individuals, representing an average of 1% of the population (5 year peak mean 1998/9- 2002/3)</p> <p>Additional species supporting criteria:</p> <p>Breeding:</p> <ul style="list-style-type: none"> • Great Cormorant • Black-legged Kittiwake • Arctic Tern <p>On passage</p> <ul style="list-style-type: none"> • European Golden Plover <p>Wintering</p> <ul style="list-style-type: none"> • Common Eider • Sanderling 	<p>Extensive rocky (Turnstone, Purple Sandpiper) and sandy/muddy (other wintering species) intertidal habitats with abundant invertebrate fauna</p> <p>Secure roosts beyond high tide limit</p> <p>Freedom from disturbance – critical in poor weather conditions.</p> <p>Secure breeding habitat (open sand / shingle)</p> <p>Freedom from disturbance and predation</p> <p>Secure food supply (primarily small fish)</p> <p>Food availability</p> <p>Vegetation structure</p> <p>Hydrology/flow</p> <p>Extent and distribution of habitat</p> <p>Open landscape</p>
Teemouth and Cleveland Coast	Internationally important numbers of passage/winter waterbirds at designation: 9528 waterfowl (5 year peak mean 1998/99-2002/2003)	Extensive sandy/muddy (wintering species) intertidal habitats with abundant invertebrate fauna

Name of Site	Reason for designation	Environmental conditions needed to support site integrity
Ramsar site	<p>Common Redshank , <i>Tringa totanus totanus</i>: 883 individuals, representing an average of 0.7% of the GB population (5 year peak mean 1998/9-2002/3)</p> <p>Red Knot , <i>Calidris canutus islandica</i>, W & Southern Africa (wintering): 2579 individuals, representing an average of 0.9% of the GB population (5 year peak mean 1998/9-2002/3)</p> <p>Supporting criteria for designation:</p> <p>Nationally important numbers of Little Tern <i>Sternula albifrons albifrons</i> breed (40 pairs, ca.2% of the national population)</p> <p>Passage species of importance (at designation): Northern Shoveler , <i>Anas clypeata</i>, NW & C Europe: 7 individuals, representing an average of 0% of the GB population (5 year peak mean 1998/9-2002/3) Common Greenshank , <i>Tringa nebularia</i>, Europe/W Africa: 7 individuals, representing an average of 1.1% of the GB population (5 year peak mean 1998/9-2002/3)</p> <p>Nationally important invertebrates (British Red Data Book species):</p> <ul style="list-style-type: none"> • <i>Pherbellia grisea</i>, • <i>Thereva valida</i>, • <i>Longitarsus nigerrimus</i>, • <i>Dryops nitidulus</i>, • <i>Macrolea mutica</i>, • <i>Philonthus dimidiatipennis</i>, • <i>Trichohydriobius suturalis</i> <p>Nationally scarce higher plants:</p> <ul style="list-style-type: none"> • <i>Festuca arenaria</i> • <i>Puccinellia rupestris</i> • <i>Ranunculus baudotii</i> 	<p>Secure roosts beyond high tide limit</p> <p>Freedom from disturbance – critical in poor weather conditions.</p> <p>Secure breeding habitat (open sand / shingle)</p> <p>Freedom from disturbance and predation</p> <p>Secure food supply (primarily small fish)</p> <p>Food availability</p> <p>Vegetation structure</p> <p>Hydrology/flow</p> <p>Extent and distribution of habitat</p> <p>Open landscape</p>

3.4 SITE SENSITIVITY

Whether or not a significant adverse impact is likely depends on the designated interest features of a site, their current status or condition and their sensitivity to policies or activities promoted by the Draft RSS. Table 3.3 summarises some of the key requirements for maintenance of N2K sites in favourable condition. This is based on Table 3.2, For example maintenance of appropriate grazing management or protection from disturbance due to military or recreational use.

In order to identify policies or activities likely to represent a source of significant adverse impacts, it is necessary to consider whether or not they are likely to compromise the ability to maintain these key requirements, or to exacerbate existing threats. Current trends relating to aspects of site sensitivities are examined in Section 5.

Table 3.3 – Key requirements for maintenance of N2K sites in favourable condition

Requirement	SACs	SPAs and Ramsar Sites
Appropriate management, including grazing, mowing, presence or absence of burning at an appropriate level, fertiliser input	Border Mires, Kielder-Butterburn; Borders Woods; Castle Eden Deane; Harbottle Moors; Moor House – Upper Teesdale; Newham Fen; North Northumberland Dunes; North Pennine Dales Meadows; North Pennine Moors; North York Moors; Simonside Hills Thrislington; Tweed Estuary; Tyne and Allen River Gravels; Tyne and Nent.	Holburn Lakes and Moss; North Pennine Moors; North York Moors; Holburn Lake and Moss Ramsar Site; Irthinghead Mires Ramsar Site.
Unaltered water supply	Border Mires, Kielder-Butterburn; Ford Moss; Moor House – Upper Teesdale; Newham Fen; North Pennine Moors; River Eden; River Tweed; Roman Walls Lough; Simonside Hills Tyne and Allen River Gravels.	Holburn Lakes and Moss; Irthinghead Mires Ramsar Site;
Good water quality	Berwickshire and North Northumberland Coast; Ford Moss; Newham Fen;	Lindisfarne SPA and Ramsar Site; Teemouth and Cleveland Coast; Holburn Lakes and Moss; Irthinghead Mires Ramsar Site;

Requirement	SACs	SPAs and Ramsar Sites
	River Eden; River Tweed; Roman Walls Lough; Simonside Hills	Northumbria Coast. St Abb's Head to Fast Castle SPA
Limited Air pollution	Castle Eden Deane; Harbottle Moors; Moor House- Upper Teesdale; North Pennine Dales Meadows; North Pennine Moors; North York Moors.	
No change in land use change, habitat loss or fragmentation	Berwickshire and North Northumberland Coast; Newham Fen; North Northumberland Dunes; North Pennine Dales Meadows; North York Moors; River Eden; Thrislington.	Teesmouth and Cleveland Coast; Irthinghead Mires Ramsar Site; Lindisfarne SPA and Ramsar Site; Northumbria Coast SPA and Ramsar Site. St Abb's Head to Fast Castle SPA Langholm & Newcastleton Hills
Limited disturbance	Berwickshire and North Northumberland Coast; Border Mires, Kielder-Butterburn; Moor House- Upper Teesdale; North Northumberland Dunes; North York Moors; St Abbs Head to Fast Castle.	Coquet Island; Farne Islands; Holburn Lakes and Moss; Lindisfarne SPA and Ramsar Site; North Pennine Moors; North York Moors; Northumbria Coast SPA and Ramsar Site; Teesmouth and Cleveland Coast; Holburn Lakes and Moss Ramsar Site; Irthinghead Mires Ramsar Site. St Abb's Head to Fast Castle SPA Langholm & Newcastleton Hills
The control of introduced or invasive species	Border Mires, Kielder-Butterburn; Moor House- Upper Teesdale; North Northumberland Dunes; Thrislington.	Holburn Lakes and Moss Ramsar Site;

4 ANALYSIS OF THE SUBMISSION DRAFT NE RSS

4.1 INTRODUCTION

This analysis reviews the Submission Draft RSS to identify any aspects of the strategy and associated specific locational policies and schemes that might influence the key environmental conditions that need to be maintained or improved in order to preserve the integrity of European sites in the region.

The generic policies have been reviewed to explore how they may be implemented in practice, and to identify possible implications for environmental conditions. Indirect as well as direct impacts have been considered. We have also reviewed locational policies to understand their proximity to the European sites.

4.2 THE NORTH EAST RSS

“Shaping the North East”, the Submission Draft of the Regional Spatial Strategy for the North East sets out:

- The region’s scale of housing provision to 2021;
- The priorities for economic development, retail growth, transport investment, the environment, minerals, and waste treatment and disposal.

The RSS will supersede the existing Regional Planning Guidance (RPG1), and ultimately will replace the existing Structure Plans for Northumberland, County Durham and Tees Valley. As required by PPS11, the Plan embodies the Regional Transport Strategy. It must be taken into account by local authorities in preparing their Local Development Frameworks and Local Transport Plans

The Submission Draft RSS consists of 4 Sections. Section 1 “Shaping our region” sets the context for the plan. It outlines the region’s main characteristics; the key challenges facing the region; and the international and national context for the RSS. Section 2 introduces the main planning principles and four main themes under which the locational strategy for the region is developed. The themes are to:

- Deliver economic prosperity and growth;
- Deliver sustainable communities;
- Conserve, enhance and capitalise upon the region's diverse natural and built environment heritage and culture; and
- Improve connectivity and accessibility within and beyond the region.

Section 3 sets out detailed objectives and policies for the four themes. Section 4 details a monitoring framework that incorporates targets and indicators

4.3 ANALYSIS OF THE PLAN

This section attempts to investigate further the policies, their likely effects (direct, indirect and secondary) on the environment to provide a robust basis for excluding impacts on sites. Section 6 goes on to identifies the possible interactions between development and the site interest features that were identified in Section 2.

Note: Considering the holistic nature of the document and that the plan should be considered as a whole the following should be noted. Development Principles Policies 9 and 10 set out measures to protect the environment and safeguard the countryside from encroachment. This will go some way to mitigating direct environmental effects of development proposed by the RSS but it is unlikely to deal with the indirect and secondary effects on sites that may resulting from the substantial growth proposed in the region.

The Development Principles (which set out the main driving forces of the RSS) are examined in Table 4.1.

Table 4.2 below examines those detailed policies in Section 3 of the Submission Draft RSS which explore how the development principles may be implemented and locations and sites that may be impacted as a result.

Policies that are not examined in Table 4.2 include those policies that do not provide for development or change that could affect a European site. This was informed by an understanding of the environmental conditions that are needed to maintain or improve the integrity of European sites. For example policies that enhance the region's natural and built environment (policies 33 to 38) are not examined as they are inherently designed to protect the natural environment including biodiversity. Although there could be potential for conflicts, (for example landscape restoration might be incompatible with European site interests), these policies are generally complementary to European site interest. Following through the example of landscape restoration, habitat change caused by landscape restoration is not a critical issue adversely affecting the integrity of European sites in the region. Such potential conflicts would be better addressed at a lower tier of plan making rather than inserting a caveat protecting European sites into each policy.

Appendix 3 contains a list of policies that have been screened out by Natural England as it is clear that they will not have an impact upon the integrity of European sites.

NOTE – As the onus is on the proponent to demonstrate that no significant adverse effects will occur*, we have not examined policies that will deliver a positive effect.

***Case law - Landelijke Vereniging tot Behoud van de Waddenzee v Secretary of State for Agriculture, Nature Conservation and Fisheries (Case C-127/02)**

Table 4.1 - The main drivers of change set out in the development principles, their likely direct, indirect and secondary effects and the possible environmental outcomes

Focus of the Development Principles & Locational Strategy	Main drivers of change provided for and further indirect and secondary effects	Possible environment outcomes
Economic growth to support component of North East Renaissance	<ul style="list-style-type: none"> •Direct land take for development •Remediation of contaminated land. •Cumulative impacts associated with increased residential and employment development, with associated infrastructure, resource abstraction and waste issues. 	<ul style="list-style-type: none"> •Loss of habitat and biodiversity through additional land take. •Cumulative ‘habitat nibbling’ and degradation due to disturbance and pollution, counteracted to some extent by land remediation efforts. •Improvement of soil and surface water quality through remediation of contaminated sites. •Increased water use which could affect supply (volume & quality) to European sites. •More disturbance by light, activity and noise of urbanisation, affecting wildlife •Increased air pollution affecting species and plant communities sensitive to air quality.
A focus on a sequential approach to development	<ul style="list-style-type: none"> •Development will be focused on previously developed land and more sustainable urbanised locations. •Reduces land take of green field sites and the cumulative spread of conurbations •Concentrating development should in turn make areas more sustainable as they reach critical thresholds for provisions of local services. •Should reduces need to travel (far or by car) to key services, jobs and amenities 	<ul style="list-style-type: none"> •Improvement of soil and surface water quality through remediation of contaminated sites. •Loss of habitat and biodiversity in city areas and on brownfield land •Avoidance of urban sprawl affecting habitat reduction in rural areas. •Reducing the increase in transport emissions through reducing the need to travel.
Development focused on Tyne and Wear	<ul style="list-style-type: none"> •Land remediation in city area •Additional land take in the city region •Cumulative impacts associated with increased residential 	<ul style="list-style-type: none"> •Improvement of soil and surface water quality through remediation of contaminated sites.

Focus of the Development Principles & Locational Strategy	Main drivers of change provided for and further indirect and secondary effects	Possible environment outcomes
	<p>and employment development, with associated infrastructure, resource abstraction, waste, emissions and recreation requirements/issues.</p> <ul style="list-style-type: none"> •Should reduces need to travel (far or by car) to key services, jobs and amenities 	<ul style="list-style-type: none"> •Loss of habitat and biodiversity in city areas on brownfield land •Avoidance of urban sprawl affecting habitat reduction in rural areas. •Reducing the increase in transport emissions (air pollution) through reducing the need to travel. •Increased water use which could affect levels and quality at European sites
Development focused on the Tees Valley	<ul style="list-style-type: none"> •Land remediation in city area •Additional land take in the city region •Cumulative impacts associated with increased residential and employment development, with associated infrastructure, resource abstraction, waste, emissions and recreation requirements/issues. •Should reduces need to travel (far or by car) to key services, jobs and amenities 	<ul style="list-style-type: none"> •Improvement of soil and surface water quality through remediation of contaminated sites. •Loss of habitat and biodiversity in city areas on brownfield land •Avoidance of urban sprawl affecting habitat reduction in rural areas. •Reducing the increase in transport emissions (air pollution) through reducing the need to travel. Although this will be offset by measures to improve connectivity and increase transport within and out of the region. •Increased water use which could affect levels and quality at European sites
Improving connectivity and accessibility from the regeneration areas to conurbations and main towns	<ul style="list-style-type: none"> •Increased emissions from transport •Land take from addition transport schemes or improvements 	<ul style="list-style-type: none"> •Increase in air pollution affecting species sensitive to air quality •Loss of habitat •Disturbance •Reduced landscape connectivity
Maximising the potential of	Additional land-take for airport and ports expansion and key	<ul style="list-style-type: none"> •Loss of habitat

Focus of the Development Principles & Locational Strategy	Main drivers of change provided for and further indirect and secondary effects	Possible environment outcomes
the key regional ports, airports and transport infrastructure including the four key transport corridors	transport corridor improvements. Increased emissions from transport construction and operation Increase in noise and disturbance in construction and operation Increase in water abstraction and waste generated by additional passengers and extra businesses.	<ul style="list-style-type: none"> • Increase in air pollution affecting species and plant communities sensitive to air quality • Possible acute or chronic estuarine water contamination by additional shipping and port operation • Disturbance to fauna in area of airports and ports • Additional pressures and competition on remaining habitat and areas not affected by disturbance. • Increased water use which could affect levels and quality at European sites

Table 4.2 – Implementation of Development Principles and locations and sites that may be impacted as a result

Policy and what change does it provide for?	Location	How sites might be affected? Possible ecological outcomes?	European sites located within approx. 15km⁶
Policy 12 – focusing the majority of new economic development in sustainable locations. Regeneration of derelict and contaminated land Cumulative impacts associated with increased	<ul style="list-style-type: none"> • Tyne & Wear city region • Tees Valley city region 	<ul style="list-style-type: none"> • Loss of habitat through land take in city areas • Cumulative ‘habitat nibbling’ and degradation due to disturbance and 	Castle Eden Dene SAC Durham Coast SAC Thrislington SAC

⁶ 15km is a precautionary distance to help in the initial identification of the sites that may be **directly** effected by plan measures. 15km more generous than the distances/ buffer zones advocated in the Natural England Draft guidance (David Tyldedley 2006). This does not identify those sites indirectly effected and this matter is consider later in the report.

Policy and what change does it provide for?	Location	How sites might be affected? Possible ecological outcomes?	European sites located within approx. 15km⁶
residential and employment development, with associated infrastructure, resource abstraction, waste, emissions and recreation requirements/issues.	<ul style="list-style-type: none"> •Regional mixed use developments •Prestige Employment Sites 	<p>pollution, counteracted to some extent by land remediation efforts.</p> <ul style="list-style-type: none"> •Decontamination of polluted land with the potential improvement in water quality of associated water bodies. •Increase in disturbance affecting sensitive wildlife •Increase in air pollution •Reduction of water quantity and quality potentially affecting site integrity and species composition 	North York Moors SAC & SPA Teesmouth & Cleveland Coast SPA & Ramsar
<p>Policy 13 - Supporting key regeneration projects as major mixed use schemes</p> <p>Regeneration of brownfield sites may remove waste and contamination. Cumulative impacts associated with increased residential and employment development, with associated infrastructure, resource abstraction, waste, emissions and recreation requirements/issues.</p>	<ul style="list-style-type: none"> •Blyth Estuary, Blyth •Discovery Quarter, Newcastle •Tyne Gateway of South Shields and North Shields riversides •Central Area Framework, Sunderland •Greater Middlehaven, Middlesbrough •Central Park, Darlington •Victoria Harbour, Hartlepool; and North Shore, Stockton 	<p>Loss of habitat through land take Decontamination of polluted land with the potential improvement in water quality of associated water bodies. Increase in disturbance affecting wildlife Increase in air pollution Reduction of water quantity and quality affecting fauna and flora</p>	Blyth Estuary within Northumbria Coast SPA. May be indirect impacts on the Teesmouth & Cleveland SPA & Ramsar sites depending on nature on development

Policy and what change does it provide for?	Location	How sites might be affected? Possible ecological outcomes?	European sites located within approx. 15km⁶
Policy 16 – Promoting tourism and improving transport links to attractions Increase visitor numbers Increase in facilities and transport infrastructure	Region wide	Increase in visitor disturbance Habitat loss through land take	All sites in region have potential to be affected
Policy 18 – Provision of 3,185 ha of employment land in the region Development for General Employment Land, Regional Brownfield Land or a Prestige Employment Site will require associated infrastructure, resource abstraction and lead to waste and emission production.	RSS breaks down total supply by sub region and allocates the number of ha to be provided to local authorities in their LDFs. The majority (2,390ha) is allocated to the Tees Valley area.	Loss of habitat through land take Decontamination of polluted land with the potential improvement in water quality of associated water bodies. Increase in disturbance effecting fauna Increase in air pollution Reduction of water quantity and quality affecting fauna and flora	Castle Eden Dene SAC Durham Coast SAC Thrislington SAC North York Moors SAC & SPA Teesmouth & Cleveland Coast SPA & Ramsar
Policy 19 – Development of a number of Prestige Employment Sites (all located within city regions and within or adjacent to conurbations) Land take through development of the Prestige Employment Sites and associated infrastructure. Resource abstraction and waste and emission production. Land take for Tynewear Park will require green belt land.	<ul style="list-style-type: none"> • West Hartford, Cramlington • Newcastle Great Park • Newburn Riverside, Newcastle • Tynewear Park, South Tyneside • Baltic Business Park, Gateshead • North East Technology Park, Sedgfield • Wynyard, Stockton/Hartlepool 	Habitat loss through land take Decontamination of polluted land with the potential improvement in water quality of associated water bodies. Increase in disturbance effecting fauna Increase in air pollution Reduction of water quantity and quality affecting fauna and flora	Castle Eden Dene SAC Durham Coast SAC Thrislington SAC North York Moors SAC & SPA Teesmouth & Cleveland Coast SPA & Ramsar
Policy 20 – protecting 3 strategic Reserve Sites for possible future development All are Greenfield sites so development would	<ul style="list-style-type: none"> • Faverdale Reserve, Darlington • Heighington Lane 	Habitat loss through land take Decontamination of polluted land with the potential improvement in water	Site south of Seaham close to Northumbria and Durham Coast

Policy and what change does it provide for?	Location	How sites might be affected? Possible ecological outcomes?	European sites located within approx. 15km⁶
involve land take plus additional infrastructure. Impacts associated with development, more activity, light, noise, emissions, waste and groundwater extraction.	West, Sedgfield/ Darlington •South of Seaham, Easington	quality of associated water bodies. Increase in disturbance effecting fauna Increase in air pollution Reduction of water quantity and quality affecting fauna and flora	SACs.
Policy 21 – Support of growth in air traffic and airport related development at Newcastle and Durham Tees Airport. Land take plus impacts associated with development, more activity, more light, noise, emissions, waste and groundwater extraction. For particular note - Noise and emissions from aircraft and cumulative expansion of airport related development	Newcastle International Airport. Durham Tees Valley Airport	Habitat loss through land take form airport and associated development and infrastructure. Increase in noise disturbance effecting fauna Increase in air pollution Reduction of water quantity and quality affecting fauna and flora	Possibly North York Moors SAC & SPA
Policy 22 – Support for continued growth of Ports. Includes: Development at Teesport Increase in ship and deep sea vessel movements. Rail Improvements (East Coast line and Transpennine routes Also refer to the transport access policies in policies 49 and 57	•Teesport – (second largest port in UK based on tonnage handled). •Tyne – (Passenger and Cargo) •Sunderland (short sea specialist) •Number of smaller ports	Possible intertidal Habitat loss through land take and coastal squeeze where hard defences increased Increase in noise and wash disturbance Increase in air pollution Water Contamination	Coastal European sites
Policy 28 & 30 – Makes provisional for an average number of 8290 dwellings to be constructed annually.	Focus is on Tees Valley and Tyne & Wear areas	Habitat loss Increase in disturbance effecting fauna Increase in air pollution Reduction of water quantity and	Castle Eden Dene SAC Durham Coast SAC Thrislington SAC

Policy and what change does it provide for?	Location	How sites might be affected? Possible ecological outcomes?	European sites located within approx. 15km⁶
		quality affecting fauna and flora	North York Moors SAC & SPA Teessmouth & Cleveland Coast SPA & Ramsar
<p>Policy 40, 41 and 42 – Sets targets and principles for renewable energy development and generation in the region up to 2010 and further aspirations to 2020. These are restricted to onshore schemes. New energy generation schemes likely to require new grid connection lines. Transport infrastructure improvements may be needed for a biomass project</p>	<p>Sets minimum sub regional targets to 2010. The greatest target is focused on Northumberland followed by the Tees valley. Kielder Forest is proposed for large scale wind development. Policy 42 sets out a number of areas with potential for medium scale wind farm development.</p>	<p>Habitat loss – (not likely to take place on the European sites themselves). Bird strike from wind turbines Disturbance from noise, light, odour (biomass) and activity during construction and operation. Water pollution.</p>	<p>Sites in Northumberland and Tees Valley. Border Mires SAC and Harbottle Moor may be affected by Kielder forest wind farm proposal.</p>
<p>Policy 43 and 44 – makes provision for a land bank of planning permissions to deliver sand and gravel and crushed rock up to 2016. Criteria included to protect environment and local amenity</p>	<p>Divides Apportionment to sub regional areas.</p>	<p>Local impacts associated with quarry operation. Noise, water, waste, air quality impacts. Further impacts associated with transport of materials</p>	<p>All sites possibly affected</p>
<p>Policy 47 – Sets out that other plans should provide for the management capacity for the annual tonnage of waste arisings listed. This increase annually from 2005 – 2021.</p>	<p>Management Capacity allocated for each region</p>	<p>Suite of direct and indirect impacts associated with different waste management facilities and transport</p>	<p>All sites possibly affected</p>

Policy and what change does it provide for?	Location	How sites might be affected? Possible ecological outcomes?	European sites located within approx. 15km⁶
Predicted increase probably related to increase in development and growth in population over this period			
Policy 48 – Providing new facilities for the treatment and management of Hazardous Waste	Majority of the facilities to be developed in the Tyne and Wear and Tees Valley area.	Suite of direct and indirect impacts associated with hazardous waste management facilities and transport	All sites possibly affected
Policy 49 – International Gateways – supports policies 21 and 22 with the growth of region’s airports and ports and supports the improvement of inter-regional networks	Regions airports, ports and multi modal links. Range of rail and road schemes promoted (listed under major schemes)	Loss of habitat through land take Air pollution which could affect species that are sensitive to air quality. Increase noise and light disturbance	Coastal European sites around ports
Policy 50 – Promotes major investment in a number of Inter - Regional Transport Corridors. Also sets out other transport priorities for investment including two road improvements and two rail improvements	Inter-regional Transport Corridors include: •A1/East Coast Main Line •A19/Durham Coast rail line •A66/ Tees Valley rail line •A69/Tyne Valley rail line	Loss of habitat through land take Increase in air pollution which could affect species that are sensitive to air quality. Increase noise and light disturbance	Sites along Northumbria Coast, Roman Wall Loughs SAC, Tyne & Allen River Gravels, North Pennine Dales Meadows SAC, Border Mires, Kielder Butterburn, Moor House- Upper Teasdale SAC, North Pennine Moors SAC & SP, North York Moors SAC & SPA
Policy 57 – Sustainable Freight Distribution.		Habitat loss through developments that	Coastal European

Policy and what change does it provide for?	Location	How sites might be affected? Possible ecological outcomes?	European sites located within approx. 15km⁶
<p>Promotes the movement of freight by road, sea and rail.</p> <p>As part of this policy it includes specific proposals for improvements to transport infrastructure</p>		<p>support freight infrastructure</p> <p>Disturbance to fauna through increased movements and increased activity at freight interchange facilities.</p> <p>Increase in air pollution particular movement road freight movement</p> <p>Possible water contamination at port areas affect estuarine and coastal habitats</p>	<p>sites plus those listed in box above</p>

4.4 MAJOR TRANSPORT SCHEMES

Natural England has assessed the major transport schemes presented in the Submission draft RSS and considers that only those listed in Table 3.3 are likely to have a direct or acute impact on European Sites. These comments and the sites concerned will be examined in detail. However, the promotion of 21 Major Transport Schemes will be considered for any indirect or secondary effects upon European Sites.

Table 4.3 – Major Transport Schemes highlighted by Natural England

Scheme	Comment from Natural England
Full dualling of the A66 Trans-Pennine	Potential impact on North Pennine Moors European sites
Upgrade of ECML Power Supply	Consider spatial aspects of infrastructure as close to European sites, Newham Fen and Northumbria Coast
Railfreight gauge enhancements to Teesport	Secondary effects as increase in competitiveness of Teesport likely to have negative effects through increased traffic and dredging.
Durham Coast Improvements	Close proximity to Castle Eden Dene, Durham Coast and Northumbria Coast European Sites
Tees Crossing	Likely to have direct negative impact on Teesmouth European Site because of habitat loss from the scheme and disturbance during construction
Full dualling of A1 North of Alwick	Need to be aware of proximity to Lindisfarne, River Tweed and Northumbria Coast European Sites.

4.5 SUMMARY OF THE NE RSS PROVISIONS AND ASSOCIATED POTENTIAL ECOLOGICAL IMPACTS

The NE RSS provides for:

- Economic growth across the region focusing economic development at Tyne and Wear and the Tees Valley and a number of Prestige Employment Sites
- Development focused on the two city regions of Tyne and Wear and the Tees Valley with 8290 dwellings to be constructed annually.
- An improvement in a wide range of transport infrastructure for all modes.
- In particular support for maximising the potential of the key regional ports, airports and associated transport infrastructure, and support for improving connectivity between regeneration areas and main conurbations.
- The apportionment of primary aggregates extraction to sub regional areas

- The promotion of tourism and increasing visitor numbers through better transport links and facilities.
- Development of renewable energy development including a large scale wind farm at Kielder Forest and a number of medium scale wind farms.

As such it is likely the main adverse ecological impacts of the NE RSS are likely to be in the form of:

- Loss of habitat through land take for residential and economic development and transport infrastructure;
- cumulative ‘habitat nibbling’ and degradation due to disturbance and pollution, counteracted to some extent by land remediation efforts;
- An increase of water use associated with increased residential and economic development which could affect supply (volume & quality) to European sites;
- An increase in the production of waste water and other waste from more development and more people generally;
- Increased air pollution, affecting species and plant communities sensitive to air quality, from development, its construction and operation and from the increase in transport movements particularly road schemes and aviation;
- More disturbance by light, activity and noise of urbanisation, affecting wildlife;
- Disturbance and erosion at sites through an a increase in visitors numbers; and
- Disturbance (light and noise) from major wind farm proposals.

5 OTHER PLANS, PROJECTS AND UNDERLYING TRENDS

5.1 INTRODUCTION

'In combination' is taken to refer to the cumulative effect of influences acting on sites from all plans and projects in the context of prevailing environmental conditions. This process therefore takes account of reasonably foreseeable impacts arising from both plans and projects and from 'background' environmental changes or trends.

5.2 UNDERLYING ENVIRONMENTAL TRENDS

Box 5.1 summarises the key environmental trends identified in the Sustainability Appraisal of the Submission Draft RSS for the North East⁷.

Box 5.1. Key environmental trends in the North East that may affect N2K sites

Negative trends where the environment is deteriorating or environmental pressure is increasing:

- The North East has the highest CO₂ emissions per head of all the English regions due to existing fossil-fuelled power stations. (Considerable potential to reduce emissions with the deployment of renewable energy technology).
- Predicted sea level rises (66cm by 2080) will increase flood risk across the region, particularly in tidal river estuaries
- The condition of SSSIs is significantly worse than for England as a whole with 37.7% classified as 'favourable' compared to a national target of 95% to be achieved by 2010.
- Municipal waste quantities are increasing with landfill remaining the main route for waste disposal in all areas except the Tees Valley (which relies on incineration).
- Although recycling rates are on the rise, 74% of municipal waste is still landfilled, with landfill sites predicted to be a full capacity by 2010.
- The North East region has the lowest proportion of organic farmland of all the regions, and the lowest numbers of registered organic producers.
- The area of land defined as 'tranquil' has decreased by 7% since the 1960s
- Only 46% of new housing was built on previously developed land from 1998 -2001, compared to an England wide average of 57% and a national target of 65%.

⁷ A number of these have been updated where more recent figures are available

Positive trends where the environment is improving or environmental pressure is decreasing:

- Air quality in the region has been improving in recent years due to a decline in emissions from industrial sources. Air quality objectives are exceeded in all areas (with the possible exception of Newcastle).
- The region has a surplus of water resources, partly due to a decline in demand from industry, and is able to export water to other regions. (The North East region has the highest security of water supply in England and Wales)
- Farmland bird indicator species have increased recently (2000-04), against the general national decline.
- Woodland bird indicator species show no significant change since 1994, against the general national decline.
- Woodland now covers 12% of the region. 50% of woodland growth in recent years has been in urban areas.
- 41% of land is covered by statutory designations, such as National Park, AONB etc, twice the England-wide average.

Specific data, and trend data where possible, has examined in relation to the environmental conditions that are required to maintain the European sites in favourable condition. The site requirements were illustrated in Table 3.3 and included:

- Habitat management (including grazing, mowing, appropriate burning, and fertiliser input)
- Water supply
- Water quality
- Limited air pollution
- Change in land use, habitat loss or fragmentation
- Lack of Disturbance
- Control of invasive species

Habitat management

Management, which may include appropriate levels of grazing and/or mowing, the absence or presence of burning and appropriate fertiliser input, is required to maintain favourable condition status for 15 European sites within the region.

There is no clear picture of how site management trends have changed over time but the Natura 2000 data forms indicate that many sites have a history of inappropriate levels of grazing or burning. 7 out of 15 sites are affected by over-grazing, 3 by under-grazing and 6 by inappropriate levels of burning.

For the South East Plan, we had a lot of correspondence with NE about the condition of SSSIs (and reasons for that condition) v. European sites. We were asked to put in qualifiers about SSSI management not necessarily reflecting SPA/SAC management etc. You may want to be very clear here about whether your data refers to SSSIs or European sites, and just how much can be inferred from the latter about the former

Compared with other regions, a relatively high proportion of SSSIs within the region (73%) are in unfavourable condition. Many of these are incorporated within the Natura 2000 network and share conservation objectives. Upland heathland, lowland heathland, lowland acid heathland and bog sites which depend heavily on appropriate habitat management are generally in less favourable condition than other sites. Figure 5.1 illustrates the locations of SSSIs and their condition. It can be seen that many of the SSSIs in unfavourable condition are located in the West and to the South of the region, including the North Pennine Moors, Moor House – Upper Teesdale and the North York Moors.

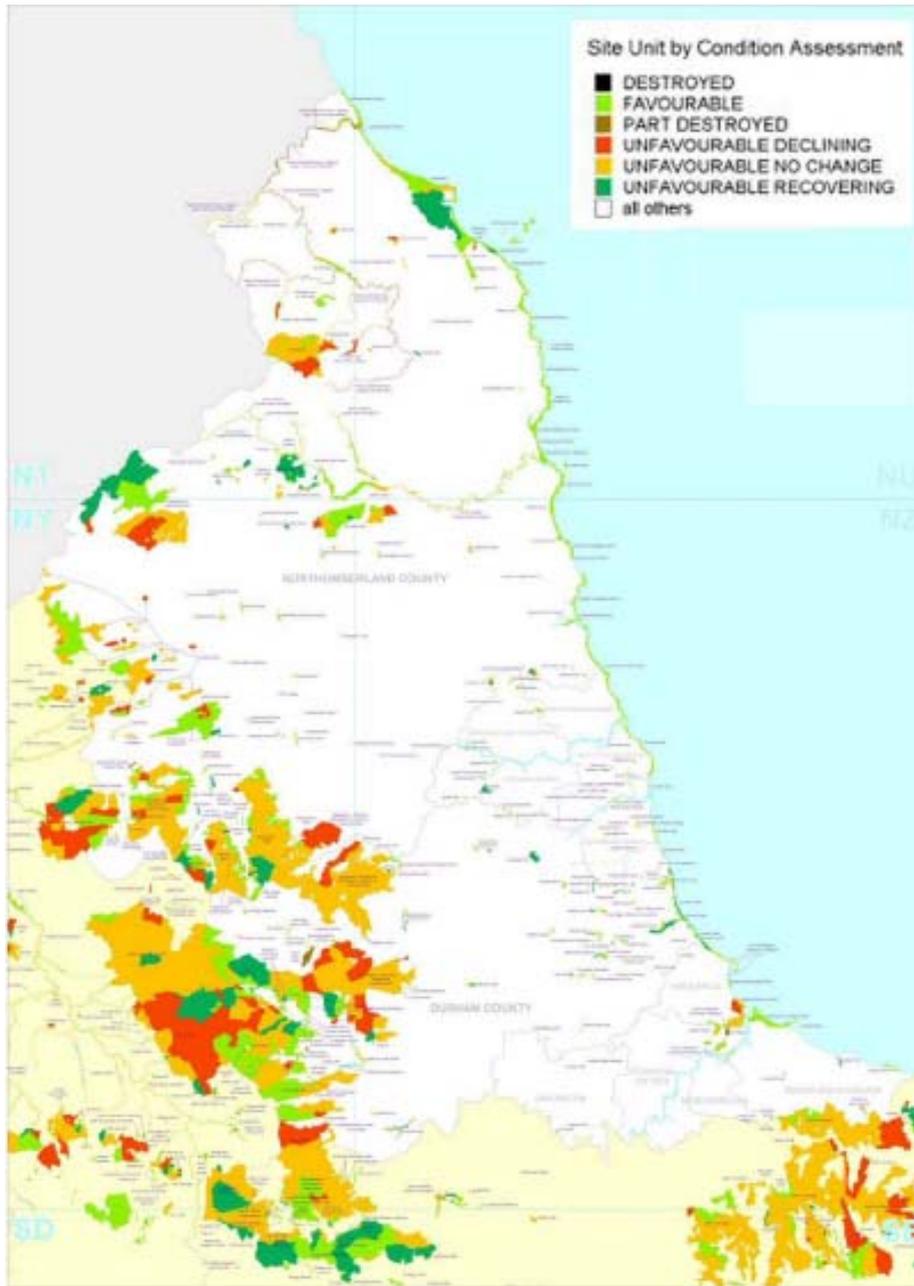


Figure 5.1 Condition status of SSSIs within the region (source: ERM, 2005, Final SA report)

Water supply

The Sustainability Appraisal⁸ makes it clear that water quantity and demand is not a problem in the region. “Taking present demand for water, the region currently has 370 days worth of storage – approximately 272,172ML – in its substantial reservoirs and elsewhere. There is also surplus capacity of water available for abstraction in all parts of the region except the catchments of the rivers Coquet and Font. Data from OFWAT ranks the North East region, served by Northumbrian Water, as having the highest security of water in England and Wales.”

European sites in the North East are affected less by inadequate water supply due to abstraction than they are by drainage for agriculture and forestry. Use of active grips (drainage channels) for commercial conifer plantations or drainage to allow increased levels of grazing has severely degraded some blanket bog communities.

No trend data are available to identify the number and change in European sites affected by drainage in the North East region. However, Natura 2000 data forms suggest that the situation is improving in many areas with management plans where drains are being blocked and the habitat restored under agreements by landowners.

Although need for water resources does need appear to be a current problem that could be affecting European sites it should be noted that the SA report states that the rate of development proposed by the RSS for the North East will create pressures on the water resource infrastructure. This may be exacerbated by climate change impacts.

Water Quality (sourced from the final SA report⁹):

Water course quality

According to 2001 data 83% of the region’s river system as judged by river length is of good chemical quality – the **highest figure for all the English regions** and 17 percentage points above the national average. 80% of the region’s rivers are classed as having good biological quality with a further 18% as having fair quality (2000 data) - this does not yet meet national and regional objectives (90%). Water quality in urban areas is significantly poorer than in rural areas.

Discharges to the sea

These have been **significant reductions in hazardous substances discharged to the sea from industry and sewage effluents** since 1990. Nutrient loading has also been reduced. The situation for

⁸ ERM (2005). Final Report of the Sustainability Appraisal. Regional Spatial Strategy for the North East.

⁹ ERM (2005). Final Report of the Sustainability Appraisal. Regional Spatial Strategy for the North East.

diffuse inputs from rivers is less clear as loads tend to reflect changes in the volume of river flow from year to year.

Bathing waters

Of the 33 designated bathing water sites within the region, just under 60% achieved the 'excellent' quality rating in 2004. All other bathing water received a good standard except one water site at Spittal which has repeatedly failed over the years. **The regional performance is nonetheless very good, demonstrating a significant improvement** since 2000.

Sewage treatment and discharges

Overall there has been a **dramatic improvement** in the level of sewage treatment applied before discharge, a result of substantial infrastructure investments (over £7000m) made by Northumbrian Water Ltd. This has resulted in a significant improvement in discharges of effluent into the sea.

Salmon Catches

A healthy salmon population is an indicator of good water quality. (although their presence is dependant on other factors including lack of impassable barriers in the river system). Over the last 40 years there have been **marked increases in salmon catches** within the region – within a national context of declining catches. The River Tyne has become one of the country's top salmon fishing rivers, the River Wear now has a healthy salmon population, and salmon have also recently been recorded in the River Tees. The River Coquet is also a nationally recognised salmon river with catches of approximately 800 – 1000 fish per year.

Overall, there is evidence for a significant improvement in the water quality of all water bodies in the region over the last 10 years. However, the SA report also notes that the rate of development proposed by the RSS for the North East will create pressures on the water resource infrastructure, including wastewater treatment. If there is potential for an increase in sewage discharge and a decrease in water quality it should be considered where there are risks to European sites.

Air pollution

As summarised in Box 5.1, air quality in the region has been improving in recent years due to a decline in emissions from industrial sources¹⁰. Currently, no local authorities in the region have declared any Air Quality Management Areas (AQMAs). However, it is likely that Newcastle City Council will do so in the near future, based on current levels of nitrogen dioxide in the city centre.

¹⁰ ERM (2005). Final Report of the Sustainability Appraisal. Regional Spatial Strategy for the North East.

North Tyneside is planning on conducting further NO₂ monitoring before deciding whether to designate an AQMA.¹¹

Pollutants which have a direct impact on habitats and species, or impact through their deposition include regional tropospheric pollutants such as sulphur dioxide (SO₂), nitrogen oxides (NO_x), ammonia (NH₃), ozone (O₃), acid deposition and nitrogen deposition¹². Halogens, Heavy Metals, VOCs, POPs and Dusts are also all responsible for adverse effects upon ecological processes.. In line with work done on the Appropriate Assessment of the South East Plan¹³ the UK Air Pollution Information System (APIS) was used to examine whether air pollutants are currently affecting European Sites in the North East region.

There are six European sites in the region for which air pollution is cited as an existing threat to their condition (see Table 5.1). These are all receiving acid deposition above their critical load and are already being adversely affected. All except for Harbottle Moors are already receiving levels of atmospheric nitrogen deposition above their critical load; and Castle Eden Deane SAC, North Pennine Moors SAC and the North York Moors are experiencing tropospheric ozone above their critical thresholds. Table 5.1 contains the full table of air pollutants considered for each site.

Limitations of the APIS database (source: Scott Wilson and Levett-Therivel (2006) Appropriate Assessment of the draft South East Plan):

- it is based on data from about 6 years ago. Air quality has generally improved since then. It is expected that, generally, air quality will continue to improve until roughly 2010-2015 due to improvements in (especially) vehicle technology, after which increasing transport demand may cause these positive trends to reverse.
- Although APIS provides a full explanation of the sources that it used to determine critical loads, some of these may be subject to debate.
- The table does not consider the critical loads for individual species, just for the habitats at the European sites.
- The Environment Agency suggests that some of the high figures for acid deposition may be significant over-estimates, particularly as indicators of future deposition: for instance it estimates that, in 2010, acid deposition in Ashdown Forest will exceed critical loads about 20%; and that in 2010 neither acid deposition nor N deposition will exceed critical loads (source: Colin Powlesland, Environment Agency, pers. comm., 25 October 2006).

Nevertheless, it is clear that acid deposition, N deposition and ozone are particular problems for a number of European sites in the North East.

¹¹ ERM (2005). Final Report of the Sustainability Appraisal. Regional Spatial Strategy for the North East.

¹² Air pollution information system (2006). <http://www.apis.ac.uk/index.html>

¹³ Scott Wilson and Levett-Therivel (2006) Appropriate Assessment of the draft South East Plan

Table 5.1. Air pollutants affecting European sites ¹⁴

SAC	APIS habitat*	Grid ref.**	Acid dep.	ammonia	N dep.	NOx	ozone	SO2	N Critical load ranges
Castle Eden Deane;	Ash and yew woodland	NZ435397	2.42	0.19	2.72	0.80	1.18	0.16	N ranges 10-15. this AA uses 12.5
Harbottle Moors;	Upland Heathland	NT907041	14.20	0.06	0.99	0.21	0.88	0.10	N ranges 10-20. this AA uses 15
Moor House-Upper Teesdale***	Alkaline fens & reed beds	NY799358	3.45	0.05	1.10	0.24	0.99	0.11	N ranges 15-25. this AA uses 20
	raised bog and blanket bogs	NY799358	3.45	0.05	2.93	0.24	0.99	0.11	N ranges 5-10. this AA uses 7.5
	Upland Heaths	NY799358	3.45	0.05	1.47	0.24	0.99	0.11	N ranges 10-20. this AA uses 15
	Calcareous grassland	NY799358	3.45	0.05	1.76	0.24	0.99	0.11	N ranges 10-15. this AA uses 12.5
North Pennine Dales Meadows;	Unimproved hay meadow	NY931256	2.89	0.10	1.51	0.27	0.90	0.12	N ranges 10-20. this AA uses 15
North Pennine Moors***	upland heathland	SE137749	26.70	0.09	1.86	0.37	0.98	0.17	N ranges 10-20. this AA uses 15
	Calcareous grassland	SE137749	26.70	0.09	2.23	0.37	0.98	0.17	N ranges 10-15. this AA uses 12.5

¹⁴ From http://www.apis.ac.uk/query_location.html

	raised bog and blanket bogs	SE137749	26.70	0.09	3.72	0.37	0.98	0.17	N ranges 5-10. this AA uses 7.5
	Shingle, rocks and cliffs	SE137749	26.70	0.09	2.23	0.37	0.98	0.17	N ranges 10-15. this AA uses 12.5
	oak woodland	SE137749	3.00	0.09	3.39	0.37	1.26	0.17	N ranges 10-15. this AA uses 12.5
North York Moors.	Upland Heaths	NZ711021	6.60	0.11	1.63	0.38	1.12	0.14	N ranges 10-20. this AA uses 15
	raised bog and blanket bogs	NZ711021	6.60	0.11	3.27	0.38	1.12	0.14	N ranges 5-10. this AA uses 7.5

Key:

Table shows the value for each site and pollutant where the deposition / critical load.

Orange to red shows that the habitat has exceeded it critical threshold or load for a pollutant or respective deposition

key	<0.25	0.25-0.74	0.75-0.99	1-1.24	1.25-1.99	2+
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Land use change, habitat loss and fragmentation

The RSS is unlikely to result in direct land-take within European sites. However qualifying interest features within sites, and the integrity of sites may be affected by land use changes outside the boundaries of European sites.

Land use changes outside the designated European sites may potentially affect upland breeding birds, Golden Plover in particular. Although a widespread breeding species in northern Britain, breeding success is affected by the availability of short wet sward with suitable invertebrate food, and lack of disturbance^{15 16}. Breeding raptors (Merlin, Hen Harrier) are also dependent on low disturbance levels, but also on suitable densities of prey species (e.g. Meadow Pipit *Anthus pratensis* and Skylark *Alauda arvensis*) and mature heather stands¹⁷. Peregrine are more tolerant of disturbance and take a wider range of prey species. All of the upland species are sensitive to gross habitat changes, afforestation in particular.

Coastal bird species are less likely to be affected by land use changes outside the designated areas, although feeding terns and wintering seaduck may be susceptible to offshore wind developments^{18 19}.

Disturbance: physical disturbance

Trends in visitors to the North East show an increase of 37% between 2000 and 2004²⁰, the majority of which are coming from Yorkshire, the Northwest and Scotland.

Casual disturbance from walkers has been shown to affect breeding upland birds such as Golden Plover (*Pluvialis apricaria*)²¹ – although this can be mitigated by effective use of well-maintained

¹⁵ Pearce-Higgins JW and Yalden DW (1997) The effect of resurfacing the Pennine Way on recreational use of blanket bog in the Peak District National Park, England. *Biological Conservation* 82: 337-343.

¹⁶ Percival, S. and Smith, C. (1992) Habitat requirements of Golden Plover: a pilot study. English Nature Research Reports No. 1. <http://www.english-nature.org.uk/pubs/publication/PDF/01.pdf>

¹⁷ English Nature (2002) The Hen Harrier in England
<http://www.english-nature.org.uk/pubs/publication/PDF/henharrier.pdf>

¹⁸ Langston, R.H.W. and Pullan, J.D. (2002) Windfarms and birds: An analysis of the effects of windfarms on birds, and guidance on environmental assessment criteria and site selection issues. BirdLife International.

¹⁹ Kingsley, A. and Whittam, B. (2005) Wind turbines and birds: a background review for environmental assessment. Bird Studies Canada http://www.energy.ca.gov/renewables/06-OII-1/documents/other_guidelines/2006-05-12_BCKGRD_ENVIRMTL_ASSMNT.PDF

²⁰ <http://www.tourismlnortheast.co.uk/index.cfm?fuseaction=content.detail&contentid=152§ionid=63>

paths and trails – and coastal habitats and species such as Little Tern (*Sternula albifrons*)²². Sites likely to be particularly affected by this type of disturbance include Tyne and Allen River Gravels SAC, Moor House-Upper Teesdale SAC and the North Pennine Moors SPA. Coastal habitats and breeding birds are also particularly sensitive, e.g. North Northumberland Dunes SAC and Teesmouth and Cleveland Coast SPA / Ramsar site.

Disturbance: Noise

Assessment of the UK's 'tranquil areas' by the Council for the Preservation of Rural England (CPRE) has shown that Northumberland is ranked the most tranquil area in England, with Durham ranked fourth. Tranquillity was originally defined as "places which are sufficiently far away from the visual or noise intrusion of development or traffic to be considered unspoilt by urban influences", but new research is building a more sophisticated definition. Mapping shows that the extent of the area in the region classed as 'tranquil' has declined since the 1960s²³. Noise disturbance from traffic has also been shown to reduce breeding bird densities and success in songbirds²⁴, as well as having direct consequences in terms of roadkills²⁵. Proposals involving increased traffic and recreational use of neighbouring areas are likely to affect all European sites in this respect.

Disturbance: light

Light pollution in the Northeast has been shown to be increasing at a rapid rate²⁶, 27% of the region's area increasing the intensity of light at night between 1993 and 2000, compared to 2% decreasing. This type of disturbance can affect nocturnal animals, bats in particular, and migrating birds, and is a considerable source of wasted energy. Sites that are likely to be affected by this type of disturbance are typically more urban sites, for example: Teesmouth and Cleveland Coast SPA/Ramsar, southern parts of the Northumbria Coast and Castle Eden Dene SAC.

²¹ Pearce-Higgins JW and Yalden DW (1997) The effect of resurfacing the Pennine Way on recreational use of blanket bog in the Peak District National Park, England. *Biological Conservation* 82: 337-343.

²² <http://www.jncc.gov.uk/page-2897>

²³ MacFarlane, R., Hagggett, C. and Fuller, D. (2005) Mapping tranquillity: defining and assessing a valuable resource. CPRE. <http://www.cpre.org.uk/resources/pub/pdfs/landscape/tranquillity/mapping-tranquillity.pdf>

²⁴ Reijnen, R. and Foppen, R. (1994) The Effects of Car Traffic on Breeding Bird Populations in Woodland. I. Evidence of Reduced Habitat Quality for Willow Warblers (*Phylloscopus trochilus*) Breeding Close to a Highway. *Journal of Applied Ecology*, 31(1) 85-94

²⁵ Erritzoe, J., Mazgajski, T.D. and Rejt, L. (2003) Bird casualties on European roads — a review. *Acta Ornithologica* 38(2): 77-93

²⁶ Night Blight Report. CPRE. <http://www.cpre.org.uk/resources/pub/pdfs/landscape/light-pollution/night-blight-report-32pp.pdf>

Invasive species

Whilst the majority of non-native species may not become invasive, those that do can cause significant ecological and economic damage. Certain invasive aquatic species have recently been reported from the region: Signal Crayfish (*Pacifastacus leniusculus*) on the River Tyne²⁷ and Chinese Mitten Crab (*Eriocheir sinensis*) which has been recorded along the UK east coast. Significant plant species include Japanese Knotweed (*Fallopia japonica*) and Himalayan Balsam (*Impatiens glandulifera*), both of which are very costly to deal with. Mammals include Grey Squirrel (*Sciurus carolinensis*), for which the Northeast is on the border between this and the native Red Squirrel (*S. vulgaris*). Grey Squirrels can cause significant economic damage to woodlands and are implicated in the decline of Red Squirrel.

Detailed information on trends in invasive species does not appear to be readily available either for the UK or regionally. However, Lindisfarne is noted to be affected by invasive *Spartina*, a saltmarsh plant and the North Northumberland Dunes is being adversely affected by the non-native plant *Acaena novae-zealandiae*. This plant is difficult to eradicate or control.

²⁷ Tweed Catchment Project: Proceedings of the invasive species conference.

<http://www.tweedforum.com/publications/conference/invasives>

5.3 FORESEEABLE IMPACTS ARISING FROM BOTH PLANS AND PROJECTS

The following documents have been reviewed to examine what they provide for and how they may have a significant effects – in combination with the North East RSS - on N2K sites:

- Other RSSs, notably those of the North West and Yorkshire and Humber England Regions and the Scottish National Planning Framework
- Regional Planning Guidance for the North East (RPG1)
- Regional Economic Strategy
- Regional Housing Strategy
- Integrated Regional Framework (IRF, the sustainable development framework)
- North East Renewable Energy Strategy (2005)
- Rural Action Plan (2002)
- ‘And the weather is...’ Climate Change in the North East (2002)
- Action for Change, Strategy for Sustainable Farming and Food in the North East Region
- The Aviation White Paper
- Towards a Waste Management Strategy for the North East (2003)
- County Waste, Mineral and Transport Plans
- Tyne and Wear Local Transport Plan
- Local Development Documents
- Shoreline Management Plans
- Catchment Management Plans

The detailed review of these plans is available as Appendix 4. Table 5.1 summarises the proposals that have been drawn out of these plans in relation to the European sites under consideration.

Table 5.1 - Proposals that could contribute to ‘in combination effects on Natura 2000 sites.

Proposal	Source
SAC within the region	
Berwickshire and North Northumberland Coast SAC	
The promotion of renewable energy development adjacent to the coastal SAC both onshore and offshore	NE Renewable Energy Strategy
The improvement of both the A1 (M) and the rail line that routes along the coast adjacent to the SAC.	National Planning Framework for Scotland
The increase in housing especially at Alnwick	Regional Housing Strategy

Proposal	Source
and Berwick upon Tweed	
Increasing access to rural areas and the promotion of tourism and outdoor activities on this coastline	Rural Action Plan, Tourism Strategy
The siting of waste facilities around Blyth and Ashington. Two potential hard rock sites are located along the A1 near Alnwick and Belford.	Northumberland Minerals and Waste Development Framework
Border Mires, Kielder – Butterburn SAC	
Promotion of wind farm and hydroelectric power development in the area	NE Renewable Energy Strategy
Promoting increased tourism to rural areas	Rural Action Plan, Tourism Strategy
Improvement in transport links across the Pennines	North West RSS
Castle Eden Dene SAC	
Improving linkages between Teesside and Tyne & Wear	Tees Valley Structure Plan
Promoting increased tourism to rural areas	Rural Action Plan, Tourism Strategy
Air pollution issues from toxic waste incinerator at Seal Sands, perhaps also increased use of Teesside airport and increased levels of development in Teesside	Tees Valley Structure Plan, Aviation White Paper
Durham Coast SAC	
Promoting increased tourism to this area	Tourism Strategy, Rural Action Plan
Improving linkages between Teesside and Tyne & Wear	Tees Valley Structural Plan, Tyne & Wear LTP
Coastal squeeze between eroding shore and inland development	Shoreline Management Plan (R. Tyne-Flamborough Head)
Waste disposal developments in Tyne & Wear	Tyne and Wear Waste and Minerals Proposals
Water quality issues from eroding shore (particularly regarding erosion of historic landfill sites)	Shoreline Management Plan (R. Tyne-Flamborough Head)
Ford Moss SAC	
Improved access along A1 corridor	National Planning Framework for Scotland
Increasing access to rural areas and the promotion of tourism to this area	Tourism Strategy, Rural Action Plan
Pressure from wind farm proposals	NE Renewable Energy Strategy

Proposal	Source
Harbottle Moors SAC	
Increasing access to rural areas and the promotion of tourism to this area	Tourism Strategy, Rural Action Plan
Wind farm development in the area	NE Renewable Energy Strategy
Diversification of rural land-use in surrounding area	Rural Action Plan
Moor House – Upper Teesdale SAC	
Increasing access to rural areas and the promotion of tourism to this area	Tourism Strategy, Rural Action Plan
Wind farm development in the area	NE Renewable Energy Strategy
Improved cross-Pennine road linkage	NW RSS
Newham Fen SAC	
Increasing access to rural areas and the promotion of tourism to this coastline	Tourism Strategy, Rural Action Plan
Improved access along A1	National Planning Framework for Scotland
Improvements to East Coast Main Line railway	East Coast Main Line improvements (Network Rail) ²⁸
Potential for hydrological and chemical impacts through increased biofuel cropping in surrounding area	NE Renewable Energy Strategy
North Northumberland Dunes SAC	
Increasing access to rural areas and the promotion of tourism to this coastline	Tourism Strategy, Rural Action Plan
The increase in housing, especially at Alnwick	Regional Housing Strategy
Improved access along A1	National Planning Framework for Scotland
North Pennine Dales Meadows SAC	
Increasing access to rural areas and the promotion of tourism to this area	Tourism Strategy, Rural Action Plan
Waste recovery centre at Allendale (local impacts at least)	Northumberland Minerals and Waste Development Framework
Mineral exploitation along Weardale	Durham Minerals and Waste Development Framework
Improved cross-Pennine access along A66	NW RSS, Durham LTP

²⁸ <http://www.railway-technology.com/projects/eastcoast/>

Proposal	Source
North Pennine Moors SAC / SPA	
Increasing access to rural areas and the promotion of tourism to this area	Tourism Strategy, Rural Action Plan
Mineral exploitation along Weardale and in Barnard Castle area	Durham Minerals and Waste Development Framework
Improved cross-Pennine access along A66	Durham LTP, NW RSS
North York Moors SAC / SPA	
Increasing access to rural areas and the promotion of tourism to this area	Tourism Strategy, Rural Action Plan
Improvements in access along A19	Tees Valley Structural Plan, Yorks-Humber RSS
Increase in local housing in Teesside and North Yorkshire	Tees Valley Structural Plan, Yorks-Humber RSS
Emissions / air pollution from increased use of Teesside airport	Aviation White Paper 2003
River Tweed SAC	
Increasing access to rural areas and the promotion of tourism to this area	Tourism Strategy, Rural Action Plan
Flood management plans	River Tweed Catchment Management Plan
Renewable energy proposals in upper catchment	NE Renewable Energy Strategy
Increase in housing in rural areas; also in Berwick-upon-Tweed area	Regional Housing Strategy
Sand / gravel extraction proposals in catchment of the River Till at Wooler and Hedgley	Northumberland Minerals and Waste Development Framework
Changes in land use in upper catchment through farm diversification	e.g. Rural Action Plan, NE Renewable Energy Strategy, Tourism Strategy
Potential for hydrological and chemical impacts through increased biofuel cropping in catchment	NE Renewable Energy Strategy
Roman Wall Loughs SAC	
Increasing access to rural areas and the promotion of tourism to this area	Tourism Strategy, Rural Action Plan
Improved access along A69	NW RSS
Possible Waste facilities at Haltwhistle	Northumberland Minerals and Waste Development Framework
Simonside Hills SAC	
Increasing access to rural areas and the promotion	Tourism Strategy, Rural Action Plan

Proposal	Source
of tourism to this area	
Diversification of rural land-use in surrounding area	Rural Action Plan
Renewable energy proposals	NE Renewable Energy Strategy
Proposed waste facility at Rothbury	Northumberland Minerals and Waste Development Framework
Thrislington SAC	
Promotion of tourism to this area	Tourism Strategy, Rural Action Plan
Improved access along A1	Durham LTP
Waste facility proposal in Thrislington Quarry	Durham Minerals and Waste Development Framework
Air quality impacts through improved linkage along A1 corridor	Tees Valley Structural Plan, Yorks-Humber RSS
Tweed Estuary SAC	
Flood management measures	River Tweed Catchment Management Plan
Improved access along A1	National Planning Framework for Scotland
Promoting increased tourism to rural areas	Tourism Strategy, Rural Action Plan
Potential impacts from renewable energy schemes in upper catchment	Renewable Energy Strategy
Waste facilities in Berwick-upon-Tweed and Wooler	Northumberland Minerals and Waste Development Framework
Gravel / sand extraction on upper reaches of River Till, at Hedgley and Wooler	Northumberland Minerals and Waste Development Framework
Impacts on estuary from possible marina. Proposals to improve the area for cruise tourism	Cruise Tourism Report (One NorthEast), Tourism NorthEast ²⁹ Proposals for improved public transport links and dissipation of tourism along the coast (Northumbria Coast AONB Sustainable Tourism Strategy & Action Plan) may help.
Tyne and Allen River Gravels SAC	
Improved access across Pennines, especially along A69, and particularly with Haydon Bridge bypass ³⁰	NW RSS, A69 Haydon Bridge Bypass proposal

²⁹ <http://www.tourismnortheast.co.uk/index.cfm?fuseaction=content.detail&contentid=211§ionid=71>

³⁰ <http://www.highways.gov.uk/roads/projects/5222.aspx>

Proposal	Source
Promoting increased tourism to rural areas	Tourism Strategy, Rural Action Plan
Possible impacts from minerals developments in Weardale	Durham Minerals and Waste Development Framework
SAC outside the region	
Arnecliff and Beck Hole Woods SAC	
Promoting increased tourism to rural areas	Tourism Strategy, Rural Action Plan
Beast Cliff – Whitby (Robin Hood's Bay) SAC	
Promoting increased tourism to rural areas	Tourism Strategy, Rural Action Plan
Borders Woods SAC	
Promoting increased tourism to rural areas	Tourism Strategy, Rural Action Plan
Improved cross-Pennines linkage between NE and NW	NW RSS
Ox Close SAC	
Promoting increased tourism to rural areas	Tourism Strategy, Rural Action Plan
River Eden SAC (head of site borders region)	
Promoting increased tourism to rural areas, increased recreational use of the area	Tourism Strategy, Rural Action Plan
Renewable energy proposals in upper catchment	NE Renewable Energy Strategy
Improved cross-Pennines linkage between NE and NW	NW RSS
St Abbs Head to Fast Castle SAC / SPA	
Promoting increased tourism to this coastline	Tourism Strategy, Rural Action Plan
Tyne and Nent SAC	
Promoting increased tourism to rural areas	Tourism Strategy, Rural Action Plan
Renewable energy proposals in upper catchment	NE Renewable Energy Strategy
Improved cross-Pennines linkage between NE and NW	NW RSS
Possible Minerals extraction in Weardale	Durham Minerals and Waste Development Framework
SPA within the region	
Coquet Island SPA	
Possible effects from offshore wind development off Blyth and perhaps Teesside	NE Renewable Energy Strategy
Promoting increased tourism in the area	Tourism Strategy, Rural Action Plan
Increased recreational use of surrounding waters	Tourism Strategy

Proposal	Source
from e.g. jet-skis, powerboating	
Potential impacts from development of Blyth port	Tourism Strategy; also Cruise Tourism Report (One NorthEast), Tourism NorthEast ³¹
Farne Islands SPA	
Possible effects from offshore wind development off Blyth and perhaps Teesside	NE Renewable Energy Strategy
Promoting increased tourism and outdoor activities in the area	Tourism Strategy, Rural Action Plan
Increased recreational use of surrounding waters from e.g. jet-skis, powerboating	Tourism Strategy
Holburn Lake and Moss SPA / Ramsar	
Improvements to A1 (increased capacity)	National Planning Framework for Scotland
Disturbance from quarrying in Belford area	Northumberland Waste & Minerals Development Framework
Promoting increased tourism to the area, potential for increased disturbance to birds	Tourism Strategy, Rural Action Plan
Potential impacts from wind farms on site hydrology	NE Renewable Energy Strategy
Alterations to land use in surrounding area	Rural Action Plan
Lindisfarne SPA / Ramsar	
The increase in housing, especially at Alnwick and Berwick upon Tweed	Regional Housing Strategy
Increasing access to rural areas and the promotion of tourism to this coastline (including increase in cruise-ship visits)	Tourism Strategy, Rural Action Plan
Northumbria Coast SPA / Ramsar	
The increase in housing, especially at Alnwick and Berwick upon Tweed, particularly if this results in coastal modifications	Regional Housing Strategy
Increasing access to rural areas and the promotion of tourism to this coastline, particularly if this results in coastal modifications	Tourism Strategy, Rural Action Plan
Waste disposal facilities at Berwick and	Northumberland Waste & Minerals Development

³¹ <http://www.tourismnortheast.co.uk/index.cfm?fuseaction=content.detail&contentid=199§ionid=71>

Proposal	Source
Seahouses	Framework
Water quality issues from eroding shore (particularly regarding erosion of historic landfill sites)	Shoreline Management Plan
Quarrying options in Belford area and at Longhoughton	Northumberland Waste & Minerals Development Framework
Teessmouth and Cleveland Coast SPA / Ramsar	
Promoting increased tourism to and recreational use of the area	Tourism Strategy, Tees Valley Structural Plan
Offshore and onshore wind power developments	NE Renewable Energy Strategy
Toxic waste incinerator at Seal Sands	Tees Valley Structural Plan
The increase in housing in the Tees Valley UAs, with corresponding improvements in infrastructure	Tees Valley Structural Plan
Increased population in Teesside-neighbouring towns	Yorks Humber RSS
SPA outside the region	
Langholm – Newcastleton Hills SPA	
Wind power developments	NE Renewable Energy Strategy
Promoting increased tourism to the area	Tourism Strategy, Rural Action Plan
Ramsar sites within the region	
Irthinghead Mires Ramsar	
Improvements in access along A69	Northumberland LTP
Promoting increased tourism to the area	Tourism Strategy, Rural Action Plan
Potential impacts from wind farms on site hydrology	NE Renewable Energy Strategy

6 DETAILED SCREENING

Appendix 6 details the results of the screening process for the European sites potentially affected by the Draft Submission RSS. It outlines the key factors influencing the maintenance of site integrity and identifies those aspects of the Draft Submission RSS thought likely to have a potential impact. A brief commentary is then given as to whether or not such impacts are likely to be significant. The results of in-combination assessment and of review of background trends and pressures affecting European sites in the region are then used to determine whether there is a risk of a significant cumulative or in-combination effect.

Sites were reviewed in terms of:

- Their location with respect to Draft RSS activities/ policies (where possible locations are known).
- Their potential sensitivity to Draft RSS activities/ policies given their requirements for maintenance of integrity.

Given general uncertainties about locations and details for much of the Draft RSS, a precautionary approach has been taken to screening. Sites have therefore been taken forward for full appropriate assessment unless there is a high level of certainty that they will not be exposed to significant adverse effects, based on initial consultation and review of favourable conditions tables and other available information.

Table 6.1 summarises the conclusions reached concerning possible impacts on a site by site basis. Many sites are potentially exposed to effects from a number of different sources associated with the strategy. Whether or not these effects are likely to be significant will depend on locations of activities and their intensity and their effects on background trends in levels of air pollution, water quality and so on. These will be assessed in more detail in the next stage of the assessment.

Based on available information about the sites and the Draft RSS, only Ox Close SAC was considered unlikely to be affected either directly or as a result of cumulative/in-combination effects:

Table 6.1

SACs in the Region	Possibility of significant adverse impacts associated with the Draft RSS	Possibility of significant adverse cumulative or in-combination effects
Berwickshire and North Northumberland Coast SAC	Yes	Yes
Border Mires, Kielder-Butterburn SAC	Possible	Possible
Castle Eden Deane SAC	Possible	Yes
Durham Coast SAC	Yes	Yes
Ford Moss SAC	Possible	Possible
Harbottle Moors SAC	No	Possible
Moor House – Upper Teesdale SAC	Yes	Yes
Newham Fen SAC	Possible	Possible
North Northumberland Dunes SAC	Yes	Yes
North Pennine Dales Meadows SAC	Yes	Yes
North Pennine Moors SAC	Yes	Yes
North York Moors SAC	Yes	Yes
River Tweed SAC	Yes	Yes
Roman Walls Loughs SAC	No	Possible
Simonside Hills	No	Possible
Thrislington SAC	No	Possible
Tweed Estuary SAC	Yes	Yes
Tyne and Allen River Gravels SAC	No	Possible
River Eden	No	Possible
SACs outside the Region		
Borders Woods	No	Yes
Ox Close SAC	No	No
St Abbs Head to Fast Castle SAC	Possible	Possible
Tyne and Nent SAC	No	Possible
SPAs in the Region		
Coquet Island SPA	No	Yes
Farne Islands SPA	Yes	Yes
Holburn Lakes and Moss SPA	No	Possible
Lindisfarne SPA	Yes	Yes
North Pennine Moors SPA	Yes	Yes

North York Moors SPA	Yes	Yes
Northumbria Coast SPA	Yes	Yes
Teessmouth and Cleveland Coast SPA	Yes	Yes
SPAs outside the region		
Langholm-Newcastleton Hills	Possible	Possible
St Abbs Head to Fast Castle	Possible	Possible
Ramsar Sites		
Holburn Lakes and Moss Ramsar	No	Possible
Irthinghead Mires Ramsar Site	Possible	Possible
Lindisfarne Ramsar Site	Yes	Yes
Northumbria Coast Ramsar Site	Yes	Yes
Teessmouth and Cleveland Coast Ramsar Site	Yes	Yes

7 NEXT STEPS

All sites (apart from Ox Close) will be considered in Step 2. Appropriate Assessment work and consultation to date has generated a list of site sensitivities and associated issues that may be caused or exacerbated by aspects of the plan. The issues affecting European sites include:

- Local air pollution
- Diffuse air pollution
- Water quality
- Disturbance and erosion from tourism and recreation
- Water supply (limited to hydrological issues from upland wind farm development)
- Disturbance and mortality from onshore and offshore windfarms
- Inappropriate site management
- Coastal squeeze
- Coastal modifications (port, harbour development and coastal defences)
- Disturbance from increased shipping
- Invasive species
- Other highly site specific issues.

These will be examined in detail to understand how the affects of the plan may through these issues be leading to adverse effects on the integrity of the sites.

A greater understanding of how the integrity of sensitive sites is being affected by these issues will enable avoidance or mitigation measures to be proposed.

It is likely that further consultation will be likely with Natural England and in order to understand how these issues are affecting sites and to agree potential avoidance and mitigation measures. These have been discussed with Natural England and it was agreed that one way to explore certain more complicated issues such as effects of tourism and recreation will be through workshops with relevant Natural England staff.

Avoidance and mitigation measures will be presented to GONE in the Appropriate Assessment report.