

**SCOTTISH
NATURAL
HERITAGE**



**Firth of Tay & Eden Estuary
Special Area of Conservation**

Advice under Regulation 33(2)
of The Conservation (Natural Habitats, &c.) Regulations 1994
(as amended)

30 March 2006

About this Package:

Section 1 of this document provides a general introduction and Sections 2 and 3 fulfil Scottish Natural Heritage's duties under Regulation 33(2) of The Conservation (Natural Habitats, &c.) Regulations 1994 (Habitats Regulations) (as amended by The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2004). This requires that SNH advises other relevant authorities as to the conservation objectives of the site (see Section 2) and any operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species, in so far as such disturbance could be significant, for which the site has been designated (see Section 3).

Annexes A and B provide supplementary, non-statutory information. Annex A gives information on the sensitivity and vulnerability of the qualifying interests: 'Common seal *Phoca vitulina*', 'Estuaries', 'Mudflats and sandflats not covered by sea water at low tide' and 'Sandbanks which are slightly covered by sea water all the time'. Annex B gives some indication as to the extent, distribution, structure, function and processes that affect the qualifying interests. It should be noted that this is indicative and not definitive, and as more site information is gathered these sections may be updated.

The Firth of Tay & Eden Estuary was designated by Scottish Ministers as a Special Area of Conservation (SAC) on 17th March 2005. This site is also referred to as a 'European site' (Regulation 10(1)). A 'European marine site' is a 'European site' which is wholly or in part marine (Regulation 2(1)) and is hereafter referred to as a marine SAC.

Although the following statutory information is for the benefit of relevant authorities (see below for explanation of their role), it can also be used by other competent authorities when assessing plans or projects.

1 Introduction

1.1 Background

The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended by The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2004), commonly referred to as the Habitats Regulations, transpose the EC Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive) into domestic legislation. Regulation 33(2) gives Scottish Natural Heritage a statutory responsibility to advise other relevant authorities as to the conservation objectives for marine SACs in Scotland, and any operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species for which the site has been designated.

This document presents the Regulation 33 advice, plus supporting information, for the Firth of Tay & Eden Estuary SAC to assist relevant and competent authorities, local interest groups and individuals in considering management of the site. This advice, plus supporting information, will also help to determine the scope and nature of any “appropriate assessment”, which the Habitats Directive requires to be undertaken for proposed plans and projects that are not connected to the conservation management of the site and are considered likely to have a significant effect. Where necessary Scottish Natural Heritage will also provide more detailed advice to relevant, and other competent, authorities to inform assessment of the implications of any such plans or projects.

1.2 Relevant and competent authorities

Within the context of a marine SAC, a relevant authority is a body or authority that has a function in relation to land or waters within or adjacent to the site (Regulation 5) and include: a nature conservation body; a local authority; water undertakers; a navigation authority; a harbour authority; a lighthouse authority; a river purification board (SEPA); a district salmon fishery board; and a local fisheries committee. *All relevant authorities are competent authorities.*

A competent authority is defined in Regulation 6 as “any Minister, government department, public or statutory undertaker, public body of any description or person holding a public office”. In the context of a plan or project, the *competent authority* is the authority with the power or duty to determine whether or not the proposal can proceed.

1.3 The role of relevant authorities

The Habitats Regulations require relevant authorities to exercise their functions so as to secure compliance with the Habitats Directive. A management scheme may be drawn up for each marine SAC by the relevant authorities as described under Regulation 34. For marine SACs with overlapping interests, a single management scheme may be developed.

Where a management scheme is in place the relevant authorities must ensure that all plans for the area integrate with it. Such plans may include shoreline

management plans, Sites of Special Scientific Interest (SSSI) management plans, local Biodiversity Action Plans (BAPs) and sustainable development strategies for estuaries. This must occur to ensure that only a single management scheme is produced through which all relevant authorities exercise their duties under the Habitats Regulations.

1.4 Responsibilities under other conservation designations

Other designations within or adjacent to the Firth of Tay & Eden Estuary marine SAC are: SSSI sites (Balmerino Wormit-Shore, Earlshall Muir, Eden Estuary, Flisk Wood, Inner Tay, Barry Links, Tayport and Tentsmuir Coast, Tentsmuir Point National Nature Reserve; Barry Links terrestrial SAC; Firth of Tay & Eden Estuary Special Protection Area; Firth of Tay & Eden Estuary Ramsar site. The obligations of relevant, and other competent authorities and organisations under such designations and legislation are not affected by the advice contained in this document.

1.5 Conservation objectives

Section 2 of this document contains the conservation objectives for the Firth of Tay & Eden Estuary marine SAC, a site which consists entirely of marine qualifying interests. The conservation objectives have been developed to ensure that the obligations of the Habitats Directive are met.

1.6 Advice as to operations

The operations, set out in Section 3, are those which SNH advise may cause deterioration of natural habitats or the habitats of species, or disturbance of species, for which the site has been designated. This does not necessarily mean that the operations are *presently* ongoing or, if they are, that they are at levels incompatible with the conservation objectives.

1.7 Plans and projects

The Habitats Regulations require that, where an authority concludes that a development proposal is unconnected with the nature conservation management of a Natura site and is likely to have a significant effect on that site, it must undertake an appropriate assessment of the implications for the qualifying interests for which the area has been designated.

1.8 Review of Consents

Competent authorities are required by the Habitats Regulations to undertake a review of all consents and permissions for activities affecting the site as soon as reasonably practicable after it becomes a European site. This will have implications for discharge and other consents, which will need to be reviewed in the light of the conservation objectives.

2 Statutory advice given by SNH under Regulation 33(2) Conservation Objectives

2.1 Introduction

This section provides conservation objectives, which have been developed by SNH in agreement with the Scottish Executive and are to be provided to the relevant authorities in fulfilment of the requirements under Regulation 33(2) of The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended by The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2004).

The conservation objectives ensure that the obligations of the Habitats Directive are met; that is, there should not be deterioration or significant disturbance of the qualifying interest. This will also ensure that the integrity of the site is maintained and that it makes a full contribution to achieving favourable conservation status for its qualifying interests.

The Firth of Tay & Eden Estuary marine SAC has been designated for the habitats 'Estuaries', 'Mudflats and sandflats' and 'Sandbanks which are slightly covered by sea water all the time', which are listed on Annex I of the Habitats Directive, as well as for the Annex II species 'Common seal *Phoca vitulina*'.

The Firth of Tay & Eden Estuary SAC consists entirely of marine qualifying interests.

The conservation objectives for the Firth of Tay & Eden Estuary marine SAC are as follows:

To avoid deterioration of the qualifying habitats (Estuaries, Mudflats and sandflats not covered by sea water at low tide, Sandbanks which are slightly covered by sea water all the time,) thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying interests.
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To ensure for the qualifying habitats that the following are maintained in the long term:

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| <ul style="list-style-type: none"> • Extent of the habitat on site • Distribution of the habitat within site • Structure and function of the habitat • Processes supporting the habitat • Distribution of typical species of the habitat • Viability of typical species as components of the habitat • No significant disturbance of typical species of the habitat |
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To avoid deterioration of the habitats of qualifying species (Common seal <i>Phoca vitulina</i>) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for the qualifying interests.

To ensure for the qualifying species that the following are maintained in the long term:
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| <ul style="list-style-type: none"> • Population of the species as a viable component of the site • Distribution of the species within site • Distribution and extent of habitats supporting the species • Structure, function and supporting processes of habitats supporting the species • No significant disturbance of the species |
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3 Statutory advice given by SNH under Regulation 33(2) Operations

The following advice as to operations to be considered by relevant authorities is provided by SNH with respect to the Firth of Tay & Eden Estuary marine SAC in fulfilment of the requirements under Regulation 33(2)(b) of The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended by The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2004). The advice identifies those operations, either on or affecting the SAC, which may cause deterioration of the marine natural habitats or the habitats of species, or disturbance of species, for which the site has been designated. These include operations that may not be currently affecting the Firth of Tay & Eden Estuary marine SAC.

Operations (in alphabetical order)

Coastal Development

Agriculture
Civil engineering

Discharges / Waste Disposal

Discharge of commercial effluent
Discharge of sewage

Fishing

Mobile gear: Dredging
Mobile gear: Trawling

Gathering / Harvesting

Bait gathering
Diver collection of shellfish
Intertidal collection of shellfish

Marine Development

Aggregate extraction
Maintenance dredging

Marine Traffic

Boat maintenance and antifoulant use
Commercial vessels

Recreational Activities

Angling
Boat anchorages
Boat moorings
Other recreational activities

Scientific Research

Scientific research

Annex A

Non-statutory advice given by SNH

Sensitivity and Vulnerability of the Firth of Tay & Eden Estuary SAC 'Common seal *Phoca vitulina*', 'Estuaries', 'Mudflats and sandflats' and 'Sandbanks which are slightly covered by sea water all the time' and to activities listed in Section 3

The comments below are general and should not be considered to be definitive. They are made without prejudice to any comments SNH may provide or any assessment that may be required for specific proposals to be considered by a relevant authority. The level of any impact will depend on the location and intensity of the relevant activity. This advice is provided to assist and focus the relevant authorities in their consideration of the management of these operations.

NB. References to deterioration in the comments section below should be taken to mean *deterioration of all the qualifying interests*. If specific qualifying interests are particularly at risk they may be referred to individually where relevant.

Operations	Comments
Coastal Development	
Agriculture	Habitats: Diffuse run-off from agricultural practices has the potential to cause deterioration of qualifying habitats and communities through the smothering of qualifying interests, and / or altering water quality through discharge of organic and inorganic pollutants.
Civil engineering	<p>Habitats: The construction and maintenance of structures, both within and adjacent to the sea have the potential to cause direct loss and / or disturbance of qualifying habitat as tidal currents and therefore coastal processes are affected. For example coastal structures such as linear coastal defences or erosion control measures (e.g. gabions) can affect local sediment suspension and deposition patterns and therefore have the potential to cause deterioration of qualifying habitats through smothering. Installation, replacement and maintenance of undersea cables have the potential to cause direct loss of qualifying habitat as well as local deterioration of associated habitats and communities.</p> <p>Common seal: The construction and maintenance of structures, both within and adjacent to the sea, have the potential to cause significant disturbance during the breeding, pupping and moulting seasons. This activity also has the potential to cause loss or deterioration of the habitats upon which the seals depend during the same critical periods.</p>
Discharges / Waste Disposal	
Discharge of commercial effluent	Habitats: Commercial effluent has the potential to cause deterioration of qualifying habitats and communities. This would be through the effects of pollution and / or nutrient enrichment, which may cause subsequent changes in community structure.
Discharge of sewage	Habitats: Sewage effluent (whether treated or untreated) has the potential to cause deterioration of qualifying habitats and communities. This would be through the effects of pollution and / or nutrient enrichment, which may cause subsequent changes in community structure.

Fishing	
Mobile gear: Dredging	Habitats: Benthic dredging has the potential to cause deterioration of qualifying habitats and communities through direct contact with dredge gear, and effects on seabed (benthic) communities within, and associated with, the qualifying interests.
Mobile gear: Trawling	Habitats: Benthic trawling has the potential to cause deterioration of qualifying habitats and communities through direct contact with trawling gear, and the trawling mechanism resulting in a modifying influence on the benthic communities within, and associated with, the qualifying interests.
Gathering / Harvesting	
Bait gathering	<p>Habitats: Bait gathering on the foreshore has the potential to cause deterioration of qualifying habitats and communities through physical damage and disturbance of intertidal habitats and communities. This may cause deterioration of the qualifying interests by indirect impact through loss or imbalance of associated species, communities and ecosystems.</p> <p>Common seal: Bait gathering on the foreshore has the potential to cause significant disturbance to seals (particularly during breeding, pupping and moulting seasons) and physical damage and disturbance to associated habitats.</p>
Diver collection of shellfish	Habitats: Collection of shellfish by diving has the potential to cause deterioration of the qualifying habitats and communities where the target species is a key component of that community, or where the collection method involves the use of invasive techniques (e.g. hydraulic equipment).
Intertidal collection of shellfish	<p>Habitats: Collection of shellfish from intertidal areas has the potential to cause deterioration of qualifying habitats and communities through physical damage and disturbance to qualifying interests (trampling and turning stones), and removal of the target species, which can cause an imbalance of communities and ecosystems.</p> <p>Common seal: Collection of shellfish from intertidal areas has the potential to cause significant disturbance to seals (particularly during breeding, pupping and moulting seasons), mainly caused by intense and prolonged human presence.</p>
Marine Development	
Aggregate extraction	<p>Habitats: Extraction of subtidal sand and gravel has the potential to cause deterioration of the qualifying habitats and communities through direct loss and impact within the extraction site. Such operations could result in the redistribution and deposition of significant quantities of fine particulate sediment, which could alter the sediment characteristics of adjacent areas and their associated plant and animal communities.</p> <p>Common seal: Aggregate extraction has the potential to cause significant disturbance during the breeding, pupping and moulting seasons. This activity also has the potential to cause loss or deterioration of the habitats upon which the seals depend during the same critical periods.</p>
Maintenance dredging	Habitats: Capital and maintenance dredging and subsequent disposal has the potential to cause deterioration of qualifying habitats and communities through direct loss and disturbance of the qualifying interests. Construction of any structures (e.g. jetties, piers, harbours, sea defences) has the potential to cause deterioration of qualifying interests through direct loss of habitat, interference with deposition and erosion processes, and subsequent effects on seabed community structure.

Marine Development contd.	
Maintenance dredging contd.	Common seal: Capital and maintenance dredging and subsequent disposal has the potential to cause significant disturbance to seals (particularly during breeding, pupping and moulting seasons). This activity also has the potential to cause deterioration of the seal's associated habitats during such critical periods through direct loss, interference with deposition, and erosion processes.
Marine Traffic	
Boat maintenance and antifoulant use	Habitats: Most antifoulant products are designed to kill or discourage naturally occurring organisms and, as such, cause damage to the water environment if used carelessly. Under such circumstances use of antifoulant has the potential to cause deterioration of qualifying habitats and communities within this site. Antifouling chemicals could also cause deterioration of sandbanks by binding to sediments and persisting for some time - possibly re-mobilising at a later date with toxic effects.
Commercial vessels	<p>Habitats: The pumping of bilges, discharge of ballast, accidental grounding, or accidental oil (or other chemical) spillage from commercial vessels could occur within or close to this SAC. Such incidents have the potential to cause deterioration of qualifying habitats and communities through direct and / or indirect impacts. Local authority emergency plans and oil spill contingency plans should take into account specific qualifying interests and recognise the importance of marine SACs should such incidents occur.</p> <p>Common seal: Oil spills have the potential to cause significant damage to seal haulouts. Seals generally leave an area in which oil is spilled but a small number of individuals may suffer from respiratory problems and die as a result of the spillage of a large amount of oil. Oil tankers do not often pass by the coastal waters of the Firth of Tay but there is always a risk that a fishing boat or container ship may run aground in the area spilling diesel and fuel oil. Local authority oil spill contingency plans should take into account the qualifying interests of the Firth of Tay & Eden Estuary and the importance of the marine SAC, particularly during the seal's breeding, pupping and moulting seasons, should such incidents occur.</p>
Recreational Activities	
Angling	Habitats: Sea angling has the potential to cause deterioration of qualifying interests by removing target species, which could subsequently cause changes in community structure.
Boat anchorages	Habitats: Anchors and continual scouring by riser chains have the potential to cause deterioration of qualifying habitats and communities through direct contact with the qualifying interests and associated sensitive seabed communities.
Boat moorings	Habitats: Moorings and continual scouring by riser chains have the potential to cause deterioration of qualifying habitats and communities through direct contact with the qualifying interests.
Other recreational activities	Habitats: Sand-karting and water sports such as yachting and jet skiing have the potential to cause deterioration of qualifying habitats and communities through repeated launching and recovery in specific areas, accidental grounding, and accidental fuel spillages.

Recreational Activities contd.	
Other recreational activities contd.	<p>Common seal: Sand-karting and water sports such as yachting and jet skiing have the potential to cause deterioration of the habitats that seals rely on for food, and cause significant disturbance to this species. This may occur through general use, repeated launching and recovery in specific areas, accidental grounding, and accidental fuel spillages.</p> <p>Wildlife watching has the potential to cause significant disturbance to seals if undertaken during the breeding, pupping and moulting seasons and close to haul out areas. This disturbance would be caused by prolonged human presence.</p>
Scientific Research	
Scientific Research	<p>Habitats: Research activities have the potential to cause deterioration of qualifying habitats and communities through direct alteration, removal or manipulation of this qualifying interests and its associated species.</p>
	<p>Common seal: Research activities have the potential to cause significant disturbance to seals, particularly during the breeding, pupping and moulting seasons.</p>

Annex B

Non-statutory Advice given by SNH Site account

Site description

The Firth of Tay & Eden Estuary SAC is a large, geomorphologically complex estuary on Scotland's east coast. The site stretches from the mouth of the River Earn east to Barry Sands on the Angus coast and south to the Eden Estuary and St Andrews. It includes the sandy beaches and sandbanks of Buddon Ness, Abertay and Tentsmuir. The inner parts of the estuaries are largely sheltered from wave action while outer areas are exposed to strong tidal currents. The site's beaches, channels and sand bars form one of the most dynamic and changeable shores on the Scottish coastline. Common seals range freely throughout the site.

Qualifying marine interests

Annex I Habitats:

Estuaries

The Tay and the Eden represent two high quality, Annex I estuarine habitats. The sediments distributed within the site contain biological communities that reflect the gradients of exposure and salinity found within this site, and are typical of an estuary on the east coast of the UK. The plants and animals present are representative of communities associated with high quality estuarine habitats. The abundance, distribution and composition of the associated plant and animal communities are ecologically representative of northern North Sea estuaries.

This complex site contains a number of important biological features recognised as sub-features of the Firth of Tay & Eden Estuary. However, many of these sub-features of the Firth of Tay & Eden Estuary qualify as Annex I qualifying interests in their own right (see following sections).

- Extensive reedbeds in the inner Firth of Tay;
- Saltmarsh communities around the fringes of both estuaries;
- Sparse beds of eelgrass *Zostera angustifolia* in both estuaries;
- *Zostera noltii* in the inner reaches of the Eden Estuary;
- A population of the nationally rare fish the smelt or sparring in the Firth of Tay;
- Reefs of the mussel *Mytilus edulis* in both estuaries;
- Extensive mudflats with large numbers of mud-dwelling invertebrates

The inner Firth of Tay contains the most extensive continuous stands of reedswamp in Britain, covering approximately 400 ha and supporting rich invertebrate and breeding bird communities. Saltmarshes border the Tay reedbeds and are also found on the Eden Estuary. The saltmarshes are representative of the various stages of a typical saltmarsh succession within an east coast estuary.

Reefs are found in the outer parts of the Firth of Tay and within the Eden Estuary. Rocky reefs are restricted to small areas of boulders, bedrock and man-made structures on the upper shores of both estuaries. However, in the outer Firth, there are biogenic reefs made up of mussels extending from the lower shore into the sublittoral. Within the Eden estuary the mussel reefs are confined to the intertidal muddy areas where they support ephemeral green algae that extend over the mid shore as thick mats during the summer months.

Mudflats and sandflats not covered by sea water at low tide

The inner Tay has extensive sediment flats - in places over 3 km wide - made up of fine silty sands and mud with marshes at or above high water level. These invertebrate-rich intertidal mudflats provide important feeding and roosting areas for waterfowl, and support three nationally scarce eelgrass *Zostera* species and in less saline areas, beds of *Callitriche* sp., which are used by grazing wildfowl in winter.

The sandflats at the mouth of the firth support a considerable diversity and density of fully marine species within the intertidal communities which are largely typical of clean sandy beaches. The Abertay Sands consist of extensive, shifting sands and coarse sediments. These, together with Tentsmuir Sands, are integral components of the dynamic sand bar and dune system that stretches from the Tay south to the mouth of the Eden Estuary.

The entire Eden Estuary, apart from the main river channel, is exposed at low water. The sediment grades from clean coarse sand at the entrance to muddy sand with a high organic content at the head. The outer sediment flats of the Eden Estuary support communities characteristic of exposed sandy beaches with low organic content. More sheltered areas in the inner estuary support abundant lugworm and other mud-dwelling invertebrates. The inner, most brackish part of the Eden Estuary consists of glutinous soft mud and sandy mud.

Sandbanks which are slightly covered by sea water all the time

Within the Tay, upstream of Dundee, the channel depth varies from 2–6 m, and near Broughty Ferry reaches a maximum depth of 30 m. The channel in the upper Firth is defined by shifting mud and sandbanks. In the central section of the firth between Invergowrie and Broughty Ferry the shores are narrow, the channel follows a central route around a number of mobile sandbanks, and is characterised by soft sediments.

Annex II Species: Common seal *Phoca vitulina*

The intertidal sandflats of Abertay sands, the banks west of the Tay Bridge, Broughty Ferry, Buddon and Eden mouth consistently support approximately 600 common seals, about 2% of the UK and 1% of the EU populations of this species. Large colonies like these are important in maintaining the overall population size and are significant as sources of emigration to smaller or newly established groups. The data above were used for site evaluation purposes. Since then the Seal Mammal Research Unit (SMRU) has carried out further surveys, which indicate that the population is stable.