

# Information Sheet on Ramsar Wetlands (RIS)

*Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8<sup>th</sup> Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9<sup>th</sup> Conference of the Contracting Parties (2005).*

## Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.
3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

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## 1. Name and address of the compiler of this form:

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Designation date

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Site Reference Number

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## 2. Date this sheet was completed/updated:

Designated: 02 February 2000

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## 3. Country:

UK (Scotland)

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## 4. Name of the Ramsar site:

Firth of Tay & Eden Estuary

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## 5. Designation of new Ramsar site or update of existing site:

**This RIS is for:** Updated information on an existing Ramsar site

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## 6. For RIS updates only, changes to the site since its designation or earlier update:

### a) Site boundary and area:

\*\* Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

### b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

**7. Map of site included:**

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

**a) A map of the site, with clearly delineated boundaries, is included as:**

- i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* ✓ -or- *no* ☐;
- ii) **an electronic format** (e.g. a JPEG or ArcView image) *Yes*
- iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* ✓ -or- *no* ☐;

**b) Describe briefly the type of boundary delineation applied:**

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

**8. Geographical coordinates (latitude/longitude):**

56 24 30 N                      03 05 00 W

**9. General location:**

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

On the east coast of Scotland, immediately adjacent to Dundee, Broughty Ferry, St Andrews and 10 km east of Perth.

**Administrative region:** Angus; City of Dundee; Fife; Perth & Kinross

**10. Elevation (average and/or max. & min.) (metres): 11. Area (hectares): 6918.42**

Min.	-2
Max.	5
Mean	0

**12. General overview of the site:**

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

The Firth of Tay and Eden Estuary is a complex of estuarine and coastal habitats in eastern Scotland. The site includes extensive invertebrate-rich intertidal mudflats and sandflats created by the massive sediment load deposited by the River Tay. Also present are large areas of reedbed and sand-dune and a small amount of saltmarsh. The site supports an internationally important assemblage of wintering waterfowl including internationally important populations of several species. Fourteen species of bird breed in nationally important numbers. Abertay Sands are also important as a major haul-out site for both grey seals *Halichoerus grypus* and breeding common seals *Phoca vitulina*.

**13. Ramsar Criteria:**

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

**5, 6**

**14. Justification for the application of each Criterion listed in 13 above:**

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 5

**Assemblages of international importance:**

**Species with peak counts in winter:**

27028 waterfowl (5 year peak mean 1998/99-2002/2003)

**Ramsar criterion 6 – species/populations occurring at levels of international importance.**

**Qualifying Species/populations (as identified at designation):**

**Species with peak counts in spring/autumn:**

Common redshank , *Tringa totanus totanus*, 2145 individuals, representing an average of 1.8% of the GB population (5 year peak mean 1998/9-2002/3)

**Species with peak counts in winter:**

Pink-footed goose , *Anser brachyrhynchus*, 6315 individuals, representing an average of 2.6% of the population (5 year peak mean 1997/8-2001/2)

Greylag goose , *Anser anser anser*, Iceland/UK, 1883 individuals, representing an average of 2.1% of the population (5 year peak mean for 1996/7-2000/01)

Bar-tailed godwit , *Limosa lapponica lapponica*, 1809 individuals, representing an average of 1.5% of the population (5 year peak mean 1998/9-2002/3)

**Species/populations identified subsequent to designation for possible future consideration under criterion 6.**

**Species with peak counts in spring/autumn:**

Goosander , *Mergus merganser merganser*, NW & C Europe 258 individuals, representing an average of 1.6% of the population (5 year peak mean 1998/9-2002/3)

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See [www.bto.org/survey/webs/webs-alerts-index.htm](http://www.bto.org/survey/webs/webs-alerts-index.htm).

Details of bird species occurring at levels of National importance are given in Section 22

**15. Biogeography** (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

**a) biogeographic region:**

Atlantic

**b) biogeographic regionalisation scheme** (include reference citation):

Council Directive 92/43/EEC

**16. Physical features of the site:**

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Soil & geology	mud, alluvium, igneous, basalt, sandstone, sedimentary, peat, sand, shingle, biogenic reef
Geomorphology and landscape	lowland, coastal, subtidal sediments (including sandbank/mudbank), intertidal sediments (including sandflat/mudflat), open coast (including bay), estuary, lagoon, intertidal rock
Nutrient status	eutrophic, mesotrophic
pH	no information
Salinity	saline / euhaline
Soil	mainly mineral
Water permanence	usually permanent
Summary of main climatic features	Annual averages (Leuchars, 1971–2000) ( <a href="http://www.metoffice.com/climate/uk/averages/19712000/sites/leuchars.html">www.metoffice.com/climate/uk/averages/19712000/sites/leuchars.html</a> ) Max. daily temperature: 12.2° C Min. daily temperature: 4.9° C Days of air frost: 59.7 Rainfall: 653.9 mm Hrs. of sunshine: 1523.2

#### General description of the Physical Features:

The two estuaries are integral components of a large, geomorphologically complex area that incorporates a mosaic of estuarine and coastal habitats. The Tay is the least-modified of the large east coast estuaries in Scotland, while the Eden estuary represents a smaller 'pocket' estuary. The inner parts of the estuaries are largely sheltered from wave action, while outer areas, particularly of the Tay, are exposed to strong tidal streams, giving rise to a complex pattern of erosion and deposition of the sandbank feature at the firths' mouth. The sediments within the site support biotopes that reflect the gradients of exposure and salinity, and are typical of estuaries on the east coast of the UK.

The site stretches for some 35 km along the Tay estuary from near Newburgh to the estuary mouth. For much of its length the main channel of the estuary lies close to the southern shore and the most extensive intertidal flats are on the north side, west of Dundee. In Monifieth Bay, to the east of Dundee, the substrate becomes sandier and there are also mussel *Mytilus edulis* beds. The south shore consists of fairly steeply-shelving mud and shingle. The Inner Tay Estuary is particularly noted for the continuous dense stands of common reed *Phragmites australis* along its northern shore. These reedbeds, inundated during high tides, are amongst the largest in Britain. Eastwards, as conditions become more saline, there are areas of saltmarsh, a relatively scarce habitat in eastern Scotland.

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#### 17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The River Tay is the longest river in Scotland, draining much of the southern Highlands. The catchment of the Tay system covers an area of 4970 km<sup>2</sup>, and average annual flow of the River Tay at Perth is about 170 m<sup>3</sup>/s. Below Perth the Tay becomes tidal and the River Earn flows into the estuary. The largest city on the river, Dundee, lies on the north bank of the Firth of Tay. The River Eden drains some 400 km<sup>2</sup> of north Fife, a predominantly low-lying catchment of which approximately 76% is prime agricultural land.

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**18. Hydrological values:**

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

No special values known

**19. Wetland types:**

Marine/coastal wetland

Code	Name	% Area
G	Tidal flats	48
E	Sand / shingle shores (including dune systems)	25
F	Estuarine waters	19
Sp	Saline / brackish marshes: permanent	6
H	Salt marshes	1.2
M	Rivers / streams / creeks: permanent	0.8

**20. General ecological features:**

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

Invertebrate-rich mudflats comprise the majority of the sites. These include important areas of eelgrass *Zostera* spp. in Tayport Bay. Small areas of saltmarsh can be found in Tayport Bay, Eden Estuary and the Inner Tay Estuary. These are dominated by *Juncus gerardii*, *Scirpus* spp. and *Schoenoplectus* spp. on the Inner Tay and *Puccinellia/Festuca* on the Eden Estuary. Successional sand-dune communities are to be found on Tentsmuir Point which is one of the most extensive dune systems in Scotland. In total 14 NVC communities are found there. The *Phragmites australis* reedbeds (S4 swamp) are the some of the most important in the UK and include the largest continuous stand of reed in the UK.

Ecosystem services

**21. Noteworthy flora:**

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

**Habitat of National Importance:**

*Phragmites australis* reedbed

**Nationally importance species:**

Higher Plants:

Oak-leaved goosefoot *Chenopodium glaucum* (nationally scarce).

Baltic rush *Juncus balticus* (nationally scarce),

Seaside centaury *Centaureum littorale* (nationally scarce),

Coral-root orchid *Corallorhiza trifida* (nationally scarce),

Dense-flowered fumitory *Fumaria densiflora* (nationally scarce),

Eelgrass *Zostera marina* (nationally scarce),

Narrow-leaved eelgrass *Zostera angustifolia* (nationally scarce),

Dwarf eelgrass *Zostera noltei* (nationally scarce)

**22. Noteworthy fauna:**

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

**Birds****Species currently occurring at levels of national importance:****Species with peak counts in spring/autumn:**

Ringed plover , <i>Charadrius hiaticula</i> , Europe/Northwest Africa	428 individuals, representing an average of 1.3% of the GB population (5 year peak mean 1998/9-2002/3 - spring peak)
Common greenshank , <i>Tringa nebularia</i> , Europe/W Africa	13 individuals, representing an average of 2.1% of the GB population (5 year peak mean 1998/9-2002/3)

**Species with peak counts in winter:**

Common eider , <i>Somateria mollissima mollissima</i> , NW Europe	2359 individuals, representing an average of 3.2% of the GB population (5 year peak mean 1998/9-2002/3)
Black (common) scoter , <i>Melanitta nigra nigra</i> ,	3100 individuals, representing an average of 6.2% of the GB population (5 year peak mean for 1990/91 to 1994/95)
Velvet scoter , <i>Melanitta fusca fusca</i> , Baltic/W Europe	730 individuals, representing an average of 24.3% of the GB population (5 year peak mean for 1990/91 to 1994/95)
Eurasian oystercatcher , <i>Haematopus ostralegus ostralegus</i> , Europe & NW Africa -wintering	3653 individuals, representing an average of 1.1% of the GB population (5 year peak mean 1998/9-2002/3)
Grey plover , <i>Pluvialis squatarola</i> , E Atlantic/W Africa -wintering	874 individuals, representing an average of 1.6% of the GB population (5 year peak mean 1998/9-2002/3)

**Species Information****Internationally important species:**

## Mammals:

Common seal *Phoca vitulina***Nationally important species:**

## Invertebrates:

fly *Dialineura anilis* (nationally rare),fly *Eutropha fulvifrons* (nationally scarce),

## Moths:

Cousin German moth *Paradiarsia sobrina* (nationally rare)Lyme grass *Photedes elymi* (nationally scarce),Pretty pinion *Perizoma blandiata* (nationally scarce),Satin lutestring *Tetheella fluctuosa* (nationally scarce),Regal mantle *Catarhoe cuculata* (nationally scarce),Lunar yellow underwing *Noctua orbona* (nationally scarce),Coast dart *Euxoa cursoria* (nationally scarce),Sand dart *Agrotis ripae* (nationally scarce),White colon *Sideridis albicolon* (nationally scarce),Portland moth *Actebia praecox* (nationally scarce)

## Mammals:

Grey seal *Halichoerus grypus***23. Social and cultural values:**

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Aesthetic  
 Aquatic vegetation (e.g. reeds, willows, seaweed)  
 Archaeological/historical site  
 Environmental education/ interpretation  
 Non-consumptive recreation  
 Scientific research  
 Sport fishing  
 Sport hunting  
 Tourism  
 Transportation/navigation

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, describe this importance under one or more of the following categories:

- i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:
- ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
- iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:
- iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

**24. Land tenure/ownership:**

Ownership category	On-site	Off-site
Local authority, municipality etc.	+	+
National/Crown Estate	+	+
Private	+	+
Public/communal	+	+
Other	+	+

**25. Current land (including water) use:**

Activity	On-site	Off-site
Nature conservation	+	+
Tourism	+	+
Recreation	+	+
Current scientific research	+	+
Commercial forestry		+

Cutting of vegetation (small-scale/subsistence)	+	
Fishing: commercial	+	+
Fishing: recreational/sport	+	+
Bait collection	+	+
Arable agriculture (unspecified)		+
Permanent arable agriculture		+
Rough or shifting grazing	+	
Permanent pastoral agriculture		+
Hunting: recreational/sport	+	+
Industrial water supply	+	+
Industry	+	+
Sewage treatment/disposal	+	+
Harbour/port		+
Transport route	+	+
Urban development		+
Non-urbanised settlements		+
Military activities	+	+

**26. Factors (past, present or potential) adversely affecting the site’s ecological character, including changes in land (including water) use and development projects:**

*Explanation of reporting category:*

1. Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.
2. Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.

NA = Not Applicable because no factors have been reported.

Adverse Factor Category	Reporting Category	Description of the problem (Newly reported Factors only)	On-Site	Off-Site	Major Impact?
No factors reported	NA				

For category 2 factors only.

What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?

Is the site subject to adverse ecological change? NO

**27. Conservation measures taken:**

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Conservation measure	On-site	Off-site
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Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	+
National Nature Reserve (NNR)	+	
Special Protection Area (SPA)	+	
Land owned by a non-governmental organisation for nature conservation	+	
Management agreement	+	+
Site management statement/plan implemented	+	+
Other	+	
Special Area of Conservation (SAC)	+	+

**b) Describe any other current management practices:**

The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

**28. Conservation measures proposed but not yet implemented:**

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

**29. Current scientific research and facilities:**

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

EE= Eden Estuary, TP= Tentsmuir Point, IT= Inner Tay Estuary

**Birds**

Numbers of migratory and wintering wildfowl and waders are monitored annually as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl & Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee.

- Disturbance and feeding (Eden Estuary)
- Distribution due to disturbance (Eden Estuary)
- Feeding strategies (Eden Estuary)
- Effect of algal mats and feeding (Eden Estuary)
- Reedbed breeding birds monitoring (Inner Tay Estuary)
- Long-term ringing studies

**Seals**

- Seal movement (Eden Estuary)
- Haulout behaviour and dietary habits (Eden Estuary)
- Underwater recordings of grey seal (Tentsmuir Point)
- Population and breeding monitoring (Tentsmuir Point)

**Fish**

- Sea trout behaviour and physiology (Eden Estuary)
- Fish population survey (Eden Estuary)

**Invertebrates**

- Biology of lugworm and ragworm (Eden Estuary)
- Mollusc parasitology (Eden Estuary)
- Butterfly surveys (Tentsmuir Point)

**Plants**

- Coral-root orchid studies (Tentsmuir Point)

- Vegetation succession (Tentsmuir Point)

Estuarine and geomorphological

- Estuarine energetics (Eden Estuary)
- Recovery of estuary after Effluent Treatment Plant built (Eden Estuary)
- Coastal protection (Eden Estuary)
- Sediment change (Eden Estuary)
- Use of *Scirpus* and *Phragmites* for coastal defence (Eden Estuary)
- Nutrient heterogeneity from shore to forest (Tentsmuir Point)

### 30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

Students from many universities conduct research on the site. In particular the University of St Andrews has strong links with both the Eden Estuary and Tentsmuir Point NNR where many students carry out fieldwork for undergraduate and postgraduate degrees. Students from Elmwood College in Cupar and Dundee University also visit the site.

### 31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

The site is used all year round by local people for recreational activities such as walking and birdwatching. Low-level tourist use also occurs.

### 32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Scottish Executive, Environment and Rural Affairs Department

### 33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Scottish Natural Heritage, 2 Anderson Place, Edinburgh, EH6 5NP

### 34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

#### Site-relevant references

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