

County: Cumbria

Site Name: Duddon Estuary

District: South Lakeland, Copeland, Barrow-in-Furness

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act, 1981.

Local Planning Authority: South Lakeland District Council, Borough of Barrow-in-Furness, Copeland Borough Council, Lake District Special Planning Board

National Grid Reference: SD 190775 **Area:** 6,814.0 (ha) 16,837.0 (ac)

Ordnance Survey Sheet 1:50,000: 96 **1:10,000:** SD 18 NE, SE, SD 17 NW, NE, SE, SW, SD 16 NE, SD 28 NW, SW, SD 27 NW, SW

Date Notified (Under 1981 Act): – **Date of Last Revision:** 1990

Duddon Sands 1986

North Walney 1987

Hodbarrow Lagoon 1983

Haverigg Haws 1985

Sandscale Haws 1983

Other Information:

1. At this revision the boundary has been modified by the amalgamation of 5 previously separate SSSIs: Duddon Sands, Sandscale Haws, North Walney, Hodbarrow Lagoon and Haverigg Haws.
Extensions and deletions have also been made.
2. The Duddon Estuary is considered to be equivalent in status to those sites listed in 'A Nature Conservation Review'. Within the estuary are 2 sites listed in 'A Nature Conservation Review', edited by D. A. Ratcliffe, 1977, published by Cambridge University Press. Duddon Sands, Walney and Sandscale Dunes.
3. In part the boundary is adjacent to the Duddon Mosses Site of Special Scientific Interest.
4. North Walney is a National Nature Reserve. Areas within the estuary are managed as nature reserves by the Royal Society for the Protection of Birds, the National Trust and the Cumbria Wildlife Trust.
5. The Natterjack Toad is a Schedule 5 species protected under the Wildlife and Countryside Act, 1981.
6. The Little Tern and Barn Owl are Schedule 1 species protected under the Wildlife and Countryside Act, 1981.
7. Part of the site lies within the Lake District National Park.
8. Duddon Estuary meets the criteria for designation as a Wetland of International Importance under the Ramsar Convention, and as a Special Protection Area under Article 4 of the E.C. Directive 79/409/EEC on the Conservation of Wild Birds.

Description and Reasons for Notification:

The Duddon Estuary is formed by the River Duddon and the smaller Kirkby Pool opening into the Irish Sea at the south-west corner of the Lake District. The mouth of the estuary forms an extensive flat sand plain, with the sands being very mobile. The mid and upper reaches of the estuary are flanked by saltmarsh and beyond high water are extensive sand dunes on both the north and south sides of the mouth of the estuary. These sand dune systems are particularly important for a diverse range of community types, supporting a number of rare and uncommon

plants, as well as a variety of nationally rare and scarce invertebrate species. The past activities of the mining and iron-making industries have created a number of artificial habitats which have become areas of wildlife interest. These include the slag banks of Askham Pier and Borwick Rails, and the largest coastal lagoon in north-west England at Hodbarrow Lagoon.

The Duddon Estuary is of international and national importance for wintering wildfowl and waders and provides a vital link in the chain of west coast estuaries used by migrating birds, as well as being of particular importance as one of a series of estuaries on the north-west coast where the majority of the British population of Natterjack Toads occur.

Wintering and breeding birds:

The Duddon Estuary regularly supports 21,880 wintering waders with internationally important numbers (exceeding 1% of the European population) of redshank (1,440), and knot (3,800). A further 5 species occur at nationally important levels (numbers exceeding 1% of the British population): oystercatcher (6,220), ringed plover (250), curlew (1,940), dunlin (5,460) and sanderling on passage (380). Passage counts indicate the international significance of the Estuary for sanderling with recent spring counts of over 1,500.

The Estuary also supports an average population of 5,000 wintering wildfowl with internationally important numbers of pintail (1,230) and nationally important numbers of shelduck (780) and red-breasted merganser (180).

Key areas for high tide roosts for waders and wildfowl include Haverigg Point, Hodbarrow Lagoon, Millom Marsh, Greety Gate Marsh, Kirkby Pool, Askham Pier, Sandscale Haws and North End Haws and Marsh. Key low tide feeding areas are not so well defined and vary depending upon the pattern of channels and wet sand.

The coastal habitats also provide nesting areas for oystercatchers, ringed plover, mallard, shelduck, coot, lapwing, lesser black-backed gull, redshank and snipe. Four species of tern (little, common, arctic and sandwich) nest at Hodbarrow Lagoon on bare slag, and a further successful breeding site for little tern is at Borwick Rails. Barn owls breed on the estuary and the area is used for feeding by peregrine and merlin.

The site is botanically rich and supports a diverse range of coastal habitats.

Saltmarsh:

Although much of the estuary is intertidal sand and silt, extensive areas of saltmarsh occur round the outer edge, and as a whole the site supports the second largest area of saltmarsh in Cumbria after the Upper Solway and Morecambe Bay SSSI.

Pioneer saltmarsh occurs at the seaward edge of the marsh where open stands of glasswort *Salicornia europaea* occur with occasional seablite *Suaeda maritima*, although in places, particularly on the eastern side of the estuary, invasive cord-grass *Spartina anglica* is becoming established. Above the pioneer zones lie extensive areas of low-mid marsh, which are heavily grazed with the short turf dominated by uncommon saltmarsh grass *Puccinellia maritima*. In places around the estuary, areas of ungrazed marsh occur and species less tolerant of grazing including sea purslane *Halimione portulacoides* can be found. As tidal inundation becomes less frequent the species composition within the mid-upper marsh changes from *Puccinellia* dominated communities to red fescue *Festuca rubra*. Characteristic species of the mid and upper marsh include sea milkwort *Glaux maritima*, sea arrowgrass *Triglochin maritima* and where ungrazed, sea aster *Aster tripolium* and two species of sea lavender, the common

Limonium vulgare and the uncommon lax-flowered *L. humile*. Sea rush *Juncus maritimus*, commonly occurs as a fringe on the landward edge of the saltmarsh.

In brackish water areas along rivers and inland of the saltmarshes, communities dominated by common reed *Phragmites australis*, or bulrush *Typha latifolia* are found. In some areas there is a freshwater influence for example at Sandscale Haws where there is a transition from brackish marsh to freshwater marsh rich in species such as yellow flag *Iris pseudacorus* and meadowsweet *Filipendula ulmaria*, and a transition from freshwater marsh to fen and willow carr.

Sand dunes:

Within the Duddon Estuary sand dune systems are well represented with important sites at Sandscale Haws, North Walney and the smaller site at Haverigg Haws. Sandscale Haws is the largest area of calcareous dune in Cumbria, and this together with the contrasting acidic dunes at North Walney makes the Estuary the most important site in Cumbria for sand-dune communities.

The zones around M.H.W. are largely shingle dominated, and at the north end of North Walney and at Haverigg Haws the strandline supports nationally rare shingle vegetation. Typical species include sea sandwort *Honkenya peploides*, spear-leaved orache *Atriplex prostrata*, sea rocket *Cakile maritima*, and two uncommon species Ray's knotgrass *Polygonum oxyspermum* ssp. *raii* and sea kale *Crambe maritima*. Rising up from the shingle beach are the mobile and yellow dune ridges. These are dominated by marram grass *Ammophila arenaria* together with sea holly *Eryngium maritimum*, sea spurge *Euphorbia paralias*, and sea bindweed *Calystegia soldanella*. As the vegetation cover increases further inland the dunes become less mobile and dune grassland is dominated by red fescue and sand sedge *Carex arenaria* and common bent *Agrostis capillaris*. Dune grasslands in all 3 sites support a rich flora with species such as wild pansy *Viola tricolor*, wild thyme *Thymus praecox* ssp. *arcticum*, lady's bedstraw *Galium verum*, common restharrow *Ononis repens*, the local dune fescue *Vulpia membranacea* and the nationally rare dune helleborine *Epipactis dunensis*.

Dune slacks, one of the most important communities within the dune system, occur in hollows between the dunes. Creeping willow *Salix repens* is often abundant, but in more open areas a rich diversity of uncommon plant species occur, including seaside centaury *Centaureum littorale*, round-leaved wintergreen *Pyrola rotundifolia*, marsh helleborine *Epipactis palustris*, variegated horsetail *Equisetum variegatum*, coral-root orchid *Corallorhiza trifida* and yellow bartsia *Parentucellia viscosa*.

On thinner drier soils at North Walney dune heath has developed. This is a rare habitat in Cumbria and confined to only two other areas in the county. The sward is dominated by ericaceous shrubs: heather *Calluna vulgaris*, cross-leaved heath *Erica tetralix*, and bell heather *Erica cinerea*, with dyer's greenweed *Genista tinctoria* and a mosaic of mosses and lichens.

Other habitats:

Limestone outcrops at two points around the estuary, at Hodbarrow Point and Dunnerholme Point, where grassland with a typical limestone flora can be found. Also the slag bank and pier at Askham have been colonised by a wide range of species associated with a calcareous substrate or maritime situations. Two species of interest found in the vicinity are Isle-of-Man cabbage *Rhynchosinapis monensis* and dwarf spurge *Euphorbia exigua* at one of only two known Cumbria localities. High wood on the east side of the Duddon adds further diversity to the site and comprises a mixture of ash *Fraxinus excelsior*, oak *Quercus petraea*, hawthorn

Crataegus monogyna and willow *Salix* species. The ground flora is varied and includes *Carex strigosa* at the northern edge of its range.

Natterjack Toad:

The Natterjack Toad is a nationally rare species in Britain and over 95% of the population is associated with 5 estuaries, the Alt, Ribble, Duddon, Esk and Solway. The Duddon Estuary itself is therefore one of the most important areas in Britain for this species and contains between 18–25% of the U.K. population, which in turn is equivalent to 50% of the Cumbrian Natterjack Toad population. The toads breed in ephemeral pools associated with a range of habitats including dune slacks, marshy grassland, bare sand and slag banks, and hibernate and forage in the surrounding semi-natural vegetation, artificial habitats and semi-improved pastures. Particular concentrations occur at Millom Ironworks, Sandscale Haws and the stretch of coast between Sandside and Dunnerholme, but the species is evenly distributed over the whole estuary.

Invertebrates:

As a result of the range of habitats found at North Walney and Sandscale, these two sites are also important for their invertebrate populations, many typical of coastal habitats with a number of rare and nationally scarce species including the digger wasp *Psen littoralis*, the solitary bee *Colletes cunicularis*, water beetles associated with brackish waters *Octhebius marinus* and *O. auriculatus*, and moths including the Shore Wainscot *Mythimna litoralis* and the Portland moth *Ochropleura praecox*.

Geological:

North Walney is also of geomorphological interest. It represents the northern end of a barrier island of which there are few examples in Britain. Walney Island is exceptional in being the product of erosion and reworking of glacial sediments, rather than coastal deposition. The spits at Walney Island are important in several respects: 1. They represent the distal features of the offshore bar and occur in a macro-tidal location; 2. They differ in both form and sediments – North End Haws is fed by sandy sediments in the intertidal zone and has small dunes on its surface, whereas South End Haws comprises mainly shingle with limited dune development; 3. They are associated with “scars” (boulder and cobble-dominated areas of the intertidal zone) which are a characteristic form of this coast. The sites at Walney Island are important both in their own right and for comparative studies with other barrier island type features.