

File ref:

**County:** Hampshire      **Site Name:** Lee-on-The-Solent to Itchen Estuary SSSI

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

**Local Planning Authority:** Hampshire County Council, Eastleigh Borough Council, Fareham Borough Council, Gosport Borough Council, Southampton City Council

**National Grid Reference:** SU 432133 – SZ 569994

**Ordnance Survey Sheet 1:50,000:** 196      **1:10,000:** SU 40 NE, NW, SE; SU 41 SW; SU 50 NW, SE, SW; SZ 59 NE

**Area:** 631.91 (ha) 1,561.44 (ac)

**Date Notified (Under 1981 Act):** 27 August 1992 **Date of Last Revision:** –

**Confirmed:** 21 May 1993

**Other Information:**

The SSSI includes in part three Local Nature Reserves (LNR) declared under Section 20 of the National Parks and Access to the Countryside Act, 1949. Chessel Bay LNR (14ha) is owned and managed by Southampton City Council, Hook-with-Warsash LNR (220ha) and Mercury Marshes LNR (6.7ha) are owned and managed by Hampshire County Council.

**Reasons for Notification:**

The Site of Special Scientific Interest extends along the eastern shore of Southampton Water from Lee-on-the-Solent to the mid-Itchen estuary and includes the lower estuary of the River Hamble. The site comprises extensive intertidal muds with a littoral fringe of vegetated shingle, saltmarsh, reedbed, marshy grasslands and deciduous woodland on alluvium, valley gravels (Hamble Common), and Bracklesham Beds (Hook Links). The site is an integral part of Southampton Water which is of international importance for over-wintering dark-bellied geese, and of national importance for three species of wildfowl (great-crested grebe, teal and wigeon) and five species of wader (black-tailed godwit, dunlin, grey plover, ringed plover, redshank). The SSSI supports an outstanding assemblage of nationally scarce coastal plants. In addition, the cliffs at Brownwich and the foreshore at Lee-on-The Solent are of national geological importance.

The intertidal flats achieve a maximum width of 0.6km at the mouths of the Itchen and Hamble estuaries. West of the Hamble they are mainly of gravelly mud, but eastward of the estuary mouth they grade to fine, muddy sand with intertidal banks of flint at Hillhead. The sediments, which in the Hamble estuary contain a high clay fraction, receive abundant organic matter which enable the intertidal flats to support high densities of benthic invertebrates (molluscs, crustacea, marine worms, etc.), including probably the largest remaining British population of the introduced hard shell clam *Mercenaria mercenaria*. On the lower shore, east of the Hamble, there are extensive beds of the eelgrasses *Zostera angustifolia* and *Z. noltii*, both of which are nationally scarce species. Green algae, mainly *Enteromorpha* and *Ulva lactuca*, are widespread in the intertidal zone. There is limited *Spartina* marsh development in the Hamble and Itchen estuaries, although the marsh is now in recession and the accreted mud platforms are disintegrating.

At low water the intertidal flats comprise major feeding grounds for waders and dark-bellied Brent geese. Total numbers of waders in Southampton Water in winter normally exceed 10,000, which is considered to be the qualifying level for national importance. Numbers of Brent geese can exceed 2,000. At times, most of the geese and more than half of the waders feed within the SSSI which is thus ornithologically a critically important component of the Southampton Water estuary. The SSSI provides important feeding areas for black-tailed godwit, dunlin, grey plover, ringed plover, redshank, curlew and turnstone. The Brent geese feed on green algae and eelgrass on the intertidal flats early in the winter, but later also exploit farmland outside the SSSI and the Hook Links grazing marsh within it. At high tide the very shallow water over the flats between the Hamble and Hillhead is an important feeding and roosting area for great-crested grebes, red-breasted mergansers and other marine birds; the numbers of great-crested grebes here can exceed 200 and are of national importance.

Adjoining the shore the SSSI includes a diversity of wetland habitats of intrinsic and collective importance ornithologically. They also support populations of a number of plant species which are nationally scarce.

At the mouth of the Hamble estuary the SSSI includes grazing marsh reclaimed from saltmarshes in the seventeenth century (Hook Links), a reed-fringed freshwater fleet (Hook Lake) and deciduous woodland extending inland along a former tidal re-entrant. The deciduous woodland is of ancient origin and is dominated by valley alder *Alnus glutinosa* grading into mixed oak *Quercus robur*, with ash *Fraxinus excelsior*, birch *Betula* species, and sycamore *Acer pseudoplatanus* woodland on the higher slopes. Willow carr occurs on the margins of the reedbed at Hook Lake. The shrub layer in the oak woodland is dominated by hazel *Corylus avellana* and holly *Ilex aquifolium*, with a variable ground flora of bracken *Pteridium aquilinum*, ivy *Hedera helix*, bluebell *Hyacinthoides non-scripta*, and, occasionally, climbing corydalis *Corydalis claviculata*. In the valley bottom greater tussock-sedge *Carex paniculata*, alternate-leaved golden-saxifrage *Chrysosplenium oppositifolium* and narrow buckler-fern *Dryopteris carthusiana* grow in abundance. In addition to the normal suite of breeding birds, the alder is attractive in autumn and winter to flocks of feeding goldfinch, redpoll and siskin.

The unimproved and semi-improved grasslands of the old grazing marshes at Hook Links are dominated by bent *Agrostis* species and fescue *Festuca* species grasses, with meadow foxtail *Alopecurus pratensis* and meadow barley *Hordeum secalinum*. The nationally scarce slender hare's-ear *Bupleurum tenuissimum* occurs on the seawall. Hook Links supports breeding lapwing, oystercatchers and redshank and is an important mid and late winter feeding ground for Brent geese. The excavation of the scrape has enhanced its function as a feeding and high water roost for waders and ducks.

Swamp and fen vegetation occurs at several points immediately beyond tidal influence and mainly within the Hamble estuary. Fine transitions from tidal flat to fen occur at Bunny Meadows, on the left bank of the estuary, and at Mercury Marshes, on the right bank. Here, common reed *Phragmites australis* is dominant together with patches of sea club-rush *Scirpus maritimus*. At Mercury Marshes hemlock water-dropwort *Oenanthe crocata*, lesser and greater pond-sedges *Carex acutiformis*, *C. riparia* respectively, and jointed rush *Juncus articulatus* are found. At Hook Lake, the large reedbed supports a good breeding bird population including little grebe, Cetti's warbler, reed bunting and reed warbler. Bearded tit visit in winter, but, as yet, do not breed.

Where the reed grades into saltmarsh, there can be found sea purslane *Halimione portulacoides* with varying combinations and amounts of sea aster *Aster tripolium*, common sea-lavender *Limonium vulgare* and common saltmarsh-grass *Puccinellia maritima*. The nationally scarce borer's and stiff saltmarsh-grasses *P. fasciculata* and *P. rupestris* respectively, have also been found at Bunny Meadows. Cord-grass *Spartina* is also dominant over large, lower-lying areas, especially outside the

seawall at Bunny Meadows, where the saltmarsh has been the subject of erosion for the past 50 years. In places, algae-draped mud hags with just a few clumps of *Spartina* survive. At Hamble Common, the saltmarsh, partially blocked-off at the end of a tidal inlet, is dominated by saltmarsh and sea rushes *Juncus gerardii* and *J. maritimus* respectively.

At Chessel Bay the transition occurs from shingly mud through clumps of *Spartina* marsh to a fringe of common reed at the toe of a Brickearth terrace. The edge of the terrace is covered by mature oak woodland which is believed to be ancient in origin.

Vegetated shingle, a nationally restricted habitat, is found fronting the reedbed at Beach Close, at Hook Spit, and on the well-developed shingle ridges at Hook Links, where ringed plover nest. Typical plant species adapted to the relatively harsh environmental conditions found, include the nationally scarce sea-kale *Crambe maritima*, together with sea beet *Beta vulgaris* subspecies *maritima*, sea rocket *Cakile maritima*, sea bindweed *Calystegia soldanella*, yellow-horned poppy *Glaucium flavum*, sand couch *Elymus farctus*, sticky ragwort *Senecio viscosus* and sea campion *Silene maritima*. On the more stable substratum on the landward-most shingle ridge, additional species are found including thrift *Armeria maritima* subspecies *maritima*, sea wormwood *Artemisia maritima*, buck's-horn plantain *Plantago coronopus*, sea pearlwort *Sagina maritima*, biting stonecrop *Sedum acre* and spring vetch *Vicia lathyroides*.

On the western side of the Hamble estuary mouth, the SSSI includes a mosaic of acidic grassland and wet heath found on Hamble Common, with cross-leaved heath *Erica tetralix* and purple moor-grass *Molinia caerulea* dominant or co-dominant amongst patches of bracken or gorse. Bristle bend *Agrostis curtisii*, brown bent *A. vinealis* and saw-wort *Serratula tinctoria* are also present.

### **Geological importance:**

The cliffs north of Hillhead provide important exposures in terrace gravels of the former Solent river system, in the area of its confluence with the tributary Test valley. These cliffs are also important as a rich source of Palaeolithic artefacts. They allow the study of gravel sedimentology over a large continuous exposure and, in conjunction with other sites along the Solent coast, provide a cross-section through the 'staircase' of Solent terraces. This adds significantly to the understanding of this geomorphological and geological phenomenon.

The important site at Lee-on-The-Solent yielded the first British bird fossils of mid-Eocene age. The avifauna includes type material for five species, and shows the continuity of typical Lower Eocene families such as the Rallidae and the Phasianidae; one of only a few locations to yield a mid-Eocene avifauna. Stratigraphically younger horizons have here yielded remains of three further species, one of which is the large flamingo-like duck *Headonornis hantoniensis* which has also been recorded from the upper Eocene and lower Oligocene of the Isle of Wight. This family, the Presbyornithidae, is unique to Britain from the mid-Eocene onwards.

Also at Lee-on-The-Solent, natural residues, derived from several horizons in the Bracklesham Beds, are building up here on the surface of the exposure, and these yield more large teeth than at the type locality of Bracklesham. The site is particularly rich in sharks teeth. Thirty-seven species of shark are recorded, including nineteen rays and five species of chimaeroids. This locality yields the unique species *Alopias leeensis* and a chimaeroid, *Elasmodus kempii*. Chimaeroids, poorly known cartilaginous fish are rarely found as fossils and the site yields important evidence of the order. Seventy-seven species of teleost have been recorded here, forty-five of these from otoliths.