

**County: Hampshire**

**Site Name: River Itchen**

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

**Environment Agency Region:** Southern      **Water Company:** Southern Water plc, Portsmouth  
**Water plc**

**Local Planning Authorities:** Hampshire County Council; Winchester City Council; Eastleigh Borough Council; Southampton City Council.

**National Grid References:** SU 589274, SU 563353 & SU 599324 to SU 439153

**Length of River SSSI:** Approx. 42 km      **Ordinance Survey Sheets:** (1:50 000)  
185 & 196

**Area:** 748.02 ha

Date notified (under 1981 Act and **1991** Acts):

|  |                |
|--|----------------|
| Itchen Valley (Winnall Moors):           | 29 June 1984   |
| Itchen Valley (Winchester Meadows):      | 29 June 1984   |
| Itchen Valley (Cheriton to Kingsworthy): | 29 June 1984   |
| River Itchen:                            | 17 July 1996   |
| River Itchen further notification:       | 16 August 2000 |

**Date confirmed:** 25 April 2001

### **Reasons for Notification**

This site is notified for classic chalk stream and river, fen meadow, flood pasture and swamp habitats, particularly formations of in-channel vegetation dominated by water crowfoot *Ranunculus spp*, riparian vegetation communities (including wet woodlands) and side channels, runnels and ditches associated with the main river and former water meadows. The site is also notified for significant populations of the nationally-rare southern damselfly *Coenagrion mercuriale* and assemblages of nationally-rare and scarce freshwater and riparian invertebrates, including the white-clawed crayfish *Austropotamobius pallipes*. This site is notified for otter *Lutra lutra*, water vole *Arvicola terrestris*, freshwater fishes including bullhead *Cottius gobbo*, brook lamprey *Lampetra planeri* and Atlantic salmon *Salmo salar*, and the assemblage of breeding birds including tufted duck *Aythya fuligula*, pochard *A. ferina* and shoveler *Anas clypeata*, the waders lapwing *Vanellus vanellus*, redshank *Tringa totanus* and snipe *Gallinago gallinago*, and wetland passerines including sedge warbler *Acrocephalus schoenobaenus*, reed warbler *A. scirpaceus* and Cetti's warbler *Cettia cettia*.

## General Description

The Itchen typifies the classic chalk river and shows a greater uniformity in physical characteristics along its entire length than other rivers of this type. Since the river is mainly spring-fed, there is only a narrow range of seasonal variation in physical and chemical characteristics. The water is of high quality, being naturally base-rich and of great clarity; and its temperature is relatively constant, with dissolved oxygen levels at or near saturation. However, as in many lowland rivers, there is evidence of nutrient enrichment in parts of the system. The river's vegetation is dominated by higher plants, and the aquatic flora is exceptionally species-rich with many typical chalk stream plants present in abundance. The majority of these plants are present throughout the system and downstream changes are less than in most other rivers. The Itchen supports one of the few populations of the native white-clawed crayfish remaining in the rivers of southern England and breeding otters. The Itchen valley contains areas of fen, swamp and meadow supporting vegetation with diverse plant communities, some species-rich. These areas, together with semi-natural riparian vegetation bordering much of the river's courses, provide habitat for diverse invertebrate assemblages which include nationally-rare and scarce species, including aquatic molluscs.

The River Itchen has been modified over the centuries by provision of water-heads for mills and the irrigation of water meadows. These developments, in addition to the construction of the Itchen Navigation (now disused), have resulted in a multiplicity of water courses. The Itchen is world renowned for game fishing, largely provided by brown trout, both wild and stocked populations, and to a lesser extent salmon and sea trout. The river's channels and banks are regularly managed to maintain and facilitate the fishing, and this has contributed to its present character and appearance. In the Alresford area, near the headwaters of the Itchen, commercial cress growing is a substantial industry, and a number of commercial fish farms are located along the upper river. A small number of sewage treatment works also discharge into the river. Water for public and agricultural use is abstracted via boreholes from the river's aquifer as well as its channel. Traditional water meadow management has ceased, but the flood pasture, marsh and fen vegetation which developed on them is still present in those meadows not converted for modern intensive grass or arable production.

## Flora

The Itchen supports an abundant and exceptionally species-rich aquatic flora. At the height of the growing season the river bed is covered with vegetation unless recently subject to a weed cut. A major feature of the flora is that many of the typical chalk stream species are present in abundance and those lowland species which are typical of slow-flowing rivers with clay or silt substrates are either absent or localised.

The chalk stream community is dominated by brook water-crowfoot *Ranunculus penicillatus* var. *pseudofluitans*, lesser water-parsnip *Berula erecta*, fool's water-cress *Apium nodiflorum* and blunt-fruited water-starwort *Callitriche obtusangula*. In the deeper middle to lower reaches river water-dropwort *Oenanthe fluviatilis*, unbranched bur-reed *Sparganium emersum*, common club-rush *Schoenoplectus lacustris* and various pondweed species (*Potamogeton* species) all become much more abundant. Other characteristic chalk plants can be found on finer substrates, including opposite-leaved pondweed *Groenlandia densa*, mare's-tail *Hippurus vulgaris* and horned pondweed *Zannichellia palustris*. The occasional appearance of the eutrophic-tolerant species curled pondweed *Potamogeton crispus* and

spiked water-milfoil *Myriophyllum spicatum* provides evidence of localised enrichment. Ivy-leaved duckweed *Lemna trisulca* is characteristic of 'classic' chalk river only.

The river's banks support abundant lesser pond sedge *Carex acutiformis*, reed canary-grass *Phalaris arundinacea* and reed sweet-grass *Glyceria maxima* along their full length. Tall perennials such as greater willowherb *Epilobium hirsutum*, meadowsweet *Filipendula ulmaria*, purple-loosestrife *Lythrum salicaria*, yellow loosestrife *Lysimachia vulgaris* and orange balsam *Impatiens capensis* (an introduced species) are also widespread. Amongst the more localised and infrequent river bank species are skullcap *Scutellaria galericulata* and meadow rue *Thalictrum flavum*. Low-growing water-edge plants such as watercress *Rorippa nasturtium-aquaticum*, water mint *Mentha aquatica*, water forget-me-not *Myosotis scorpioides* and water speedwell *Veronica anagallis-aquatica* often carpet the river bank bases and river margins. Another feature of the Itchen is the number of plant species which may be regarded as relics of a wetland flora, growing along the wetter stretches of river bank. These include water dock *Rumex hydrolapathum*, greater tussock-sedge *Carex paniculata*, common reed *Phragmites australis*, marsh marigold *Caltha palustris* and bulrush *Typha latifolia*.

The site includes former water meadows and pastures in the Itchen Valley of high nature conservation importance. The soils of the valley include alluvium, peat and tufa (calcareous marl). These combined with the meadow's networks of ridges and drains result in complex mosaics of dry grassland, rush pasture, fen meadow, flood pasture and swamp communities. The floristic diversity of the meadows is high, and species-rich communities typical of wet, calcareous pastures are well represented. The river and its carriers maintains the high ground-water levels which are important for the botanical diversity and interest, as are appropriate levels of grazing. Also important is the continuity between these wet grasslands, the river bank vegetation and other riparian vegetation in the valley.

The fen meadow and flood pasture communities considered characteristic of former water meadows with moist calcareous soils are of highest botanical interest. The fen meadow community is very variable in its composition and structure, the differences usually being due to environmental and management factors such as grazing and mowing. Some of the community's typical species are often abundant in these meadows. Amongst the most constant species are general grassland ones: creeping bent *Agrostis stolonifera*, red fescue *Festuca rubra*, Yorkshire fog *Holcus lanatus*, common mouse-ear *Cerastium fontanum*, meadow vetchling *Lathyrus pratensis* and red clover *Trifolium pratense*. Prominent associates represent the fen character of the community: jointed rush *Juncus articulatus*, water mint *Mentha aquatica*, fen bedstraw *Galium uliginosum*, marsh bedstraw *G. palustre*, greater bird's-foot trefoil *Lotus uliginosus*, marsh horsetail *Equisetum palustre*, wild angelica *Angelica sylvestris*, common fleabane *Pulicaria dysenterica*, marsh lousewort *Pedicularis palustris* and ragged robin *Lychnis flos-cuculi*.

The flood pasture community occupies less extensive areas. Usually lying in the transition from dry grassland to wet drain or on lower lying ground alongside the river, it is also rich in species with abundant short sedges and localised carpets of mosses mostly Calliargon cuspidatum. Many typical species of flood pasture also feature in the fen meadow community, its distinguishing plants including prominent marsh marigold *Caltha palustris*, water avens *Geum rivale*, meadow buttercup *Ranunculus acris*, carnation sedge *Carex panicea* and brown sedge *C. disticha*, together with crested dog's-tail *Cynosurus cristatus*,

common sorrel *Rumex acetosa*, ribwort plantain *Plantago lanceolata* and common spike-rush *Eleocharis palustris*.

Species present which are associated with unimproved grassland include, adder's tongue *Ophioglossum vulgatum*, betony *Stachys officinalis*, bogbean *Menyanthes trifoliata*, common sedge *Carex nigra*, distant sedge *C. distans*, Devil's-bit scabious *Succisa pratensis*, marsh arrowgrass *Triglochin palustre*, marsh lousewort *Pedicularis palustris*, marsh pennywort *Hydrocotyle vulgaris*, marsh valerian *Valeriana dioica*, meadow rue *Thalictrum flavum*, pepper saxifrage *Silaum silaus*, purple moor-grass *Molinia caerulea*, southern marsh orchid *Dactylorhiza praetermissa* and quaking-grass *Briza media*.

The plants which usually dominate the fen and swamp communities of the drains, that is reed sweet-grass *Glyceria maxima*, lesser pond sedge *Carex acutiformis* and reed canary-grass *Phalaris arundinacea*, can be widespread in the meadows and occur in the other communities. The tall, thick vegetation growth of the drains also includes gipsywort *Lycopus europaeus*, marsh thistle *Cirsium palustre*, common valerian *Valeriana officinalis*, marsh ragwort *Senecio aquaticus* and meadowsweet, and in places greater tussock-sedge swamp has developed.

All the grassland communities can develop into a tall coarse sward if grazing is relaxed. Along certain drains and stretches of riverbank cattle grazing creates and maintains particular habitat conditions on which specialised invertebrates depend. The quality of wildlife habitat these meadows provide is emphasised by the presence of rich invertebrate faunas with rare species.

## **Invertebrates**

Over 210 invertebrate taxa (species and groups of species) have been recorded from the River Itchen itself. The main groups represented are Oligochaete worms, Crustacea such as the very abundant shrimp *Gammarus pulex*, Diptera (flies) and Neuroptera. The Ephemeroptera (mayflies) are also a major element of the fauna with 19 species from six families represented. Reflecting the highly productive nature of the chalk stream environment, maximum numbers of individuals of each of the main groups may reach 4000 per square metre. The river is rich in aquatic molluscs, and the nationally-rare pea mussel *Pisidium tenuilineatum* (RDB3 \*see notes), a species requiring fairly unpolluted conditions in canals and lowland rivers, has been recorded. Gastropod molluscs are also present in the river: *Valvata piscinalis*, *Gyraulus albus* and *Theodoxus fluviatilis*. Two nationally-scarce rifle beetles, *Riolus cupreus* and *R. subviolaceus*, both of which occur in moderately flowing water on stones and in vegetation, have been recorded. Two species of caddisfly of nationally scarce status occur, *Metatype fragilis* and *Ylodes conspersus*: the former characteristic of highly calcareous areas, the latter living in aquatic weeds. The upper Itchen is a stronghold of the white-clawed crayfish *Austropotamobius pallipes*.

The river, banks and adjoining areas of riparian vegetation or grazed water meadow support rich invertebrate assemblages. Usually specialized in their habitat requirements, some species are dependant on tall fen vegetation or wet woodland whilst others require the exposed wet muddy conditions provided by light cattle grazing and poaching. Nationally rare (RDB \*see notes) species have been recorded; the flies *Syneches muscarius* (pRDB2) and *Platypalpus infectus*, and the mining bee *Macropis europaea* (RDB2). A very rare "dung" fly *Cosmetopus dentimanus* (RDB 1) has also been found, it has been previously recorded in Britain only

from the Leckford Abbas Estate in the Test Valley. A further fourteen nationally-scarce species of fly have been recorded at these locations, together with 75 species of other insects (including dragonflies, damselflies, bush crickets and beetles) considered local in their distribution.

Twenty-four species of soldier fly (*Stratiomidae*), including the soldier fly *Odontomyia argentata* (RDB3) have been recorded along ditches and drains in the Itchen Valley Country Park making it a top national site for this group. Meadow drains in the lower Itchen Valley also support populations of the nationally rare southern damselfly *Coenagrion mercuriale* (RDB3), which is also of European importance. The numbers recorded place the site amongst the most important in Britain for this species.

## **Fish**

The Itchen is a very important recreational game fishery. Almost the entire river is managed to maintain and facilitate fishing for trout (brown and rainbow), with fishing for sea trout and Atlantic salmon *Salmo salar* also taking place along the lower reaches. Pike and other coarse fish are regularly removed but still maintain a presence. The fish fauna of the Itchen is typical of lowland chalk rivers, though the community has been modified by introductions of rainbow trout and hatchery-reared brown trout, and the removal of other species. In the uppermost reaches of the Itchen native populations of brown trout *Salmo trutta* are believed to persist, and strong populations of bullhead and brook lamprey are notable elements of the natural fish fauna and of European importance. Atlantic salmon stock levels on the River Itchen are giving great cause for concern. The major pressure on this population within the riverine environment has been identified as poor in-gravel egg survival caused by high levels of silt input to the river. The majority of extra silt originates from cultivated land and point sources such as fish farms, sewage treatment works and cress farm discharges. In recent years substantial effort has been made to restore the river channel for Atlantic salmon by gravel reinstatement, cleaning and channel modifications.

## **Birds**

The River Itchen and the areas of riparian vegetation in the site provide valuable habitat for characteristic riverine bird species. Kingfisher *Alcedo atthis*, grey wagtail *Motacilla cinerea* and little grebe *Tachybaptus ruficollis* are frequent. In the dense vegetation along the river's margins, coot *Fulica atra* and moorhen *Gallinula chloropus* are common, and tufted duck and mute swan *Cygnus olor* nest. Sedge warbler and reed warbler are numerous in the tall vegetation with scattered scrub along the water courses, and the formerly rare Cetti's warbler is becoming widely established in the same habitat. Water rail *Rallus aquaticus*, also breed in dense wetland vegetation. Breeding birds of the Itchen valley such as snipe, redshank and lapwing, tufted duck, pochard and shoveler are well represented. Passage species using the river's margins include common sandpiper *Actitis hypoleucos* and green sandpiper *Tringa ochropus*. Kingfisher and grey heron *Ardea cinerea* are the river's resident and most commonly seen fish-eating birds, though cormorant *Phalacrocorax carbo* now increasingly range along the river.

## **Mammals**

Three native freshwater semi-aquatic mammals - the water shrew *Neomys fodiens*, water vole and otter - are well established on the Itchen. Water vole populations have declined

nationally, and the River Itchen retains nationally important populations. Bats are also well represented within the River Itchen catchment and species such as the serotine bat *Eptesicus serotinus*, Daubenton's bat *Myotis daubentonii*, noctule bat *Nyctalus noctula* and the 55 KiloHertz pipistrelle bat *Pipistrellus pygmaeus* use the riverine and floodplain habitats for feeding and where appropriate for roosting.

Studies of the Itchen by the limnologist R W Butcher more than 50 years ago add an educational and historical value to the river's intrinsic nature conservation interest.

**Notes:** \* Red Data Book (RDB) identifies the status of Britain's rarest invertebrate species:

RDB 1= Endangered; RDB2=Vulnerable; RDB3 Rare.

**Other Information:**

The site now encompasses three former Sites of Special Scientific Interest: Itchen Valley (Cheriton to Kings Worthy), Itchen Valley (Winnall Moors) and Itchen Valley (Winchester Meadows) notified in 1983 and 1984.

The following species found in this site are also listed on Annex II of The European Communities Directive 92/43/EEC, on the Conservation of Natural Habitats and of Wild Fauna and Flora - The Habitats Directive, - brook lamprey, Atlantic salmon, bullhead, white-clawed crayfish, southern damselfly and otter.

The southern damselfly, otter, white-clawed crayfish and water vole are on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are specially protected. The kingfisher, grey heron and Cetti's warbler are on Schedule I of the same Act.