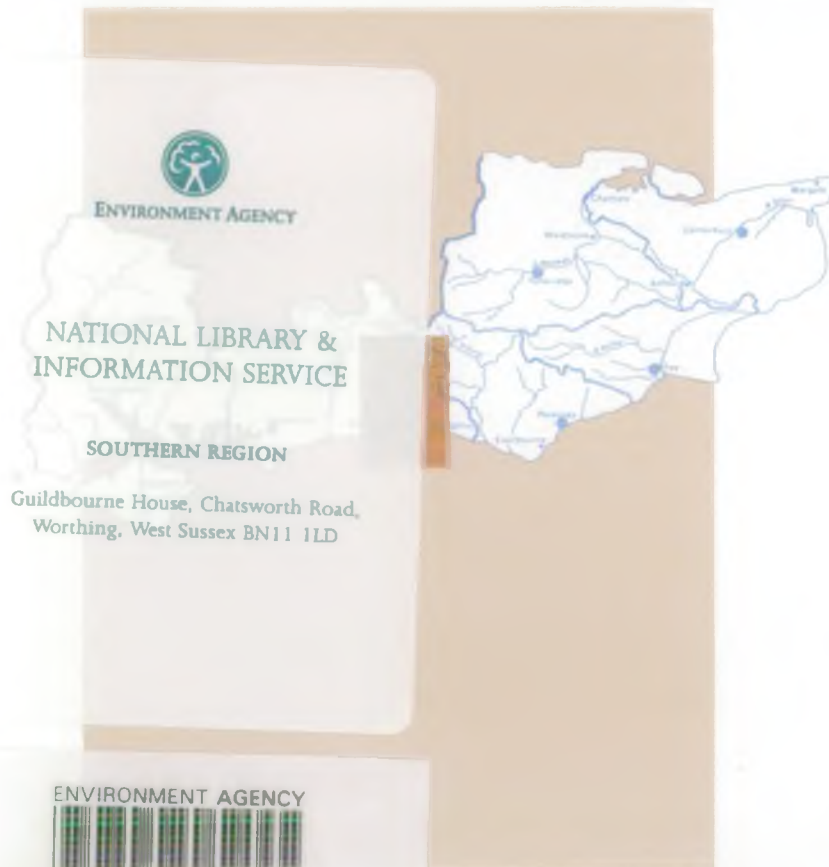


NRA Southern 73

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THE RIVER ADUR



NRA

*National Rivers Authority
Southern Region*

Guardians of the Water Environment

THE RIVER ADUR

COURSE AND HISTORY

The name Adur, although derived from the Celtic word Dwyr meaning “water” was applied to the river in quite recent times, the first record of that name having been in 1612. Previous names through the ages were the Sore, the Beeding, Bramber Water, Alder and Shoreham River.

Until the latter half of the 15th century, the neighbouring Arun and the River Adur shared a common outlet to the sea at a place known as Pen-house in Lancing. The shingle of the longshore drift pushed the Adur progressively towards Hove whereas the Arun was thrust back westwards, before the constant piling up of the shingle, to find its own exit to the sea. New entrances were made for the River Adur in 1760, 1775, 1800 and 1810 but all silted up. It was not

until 1821 that the present river mouth at Kingston was established as a permanent feature.

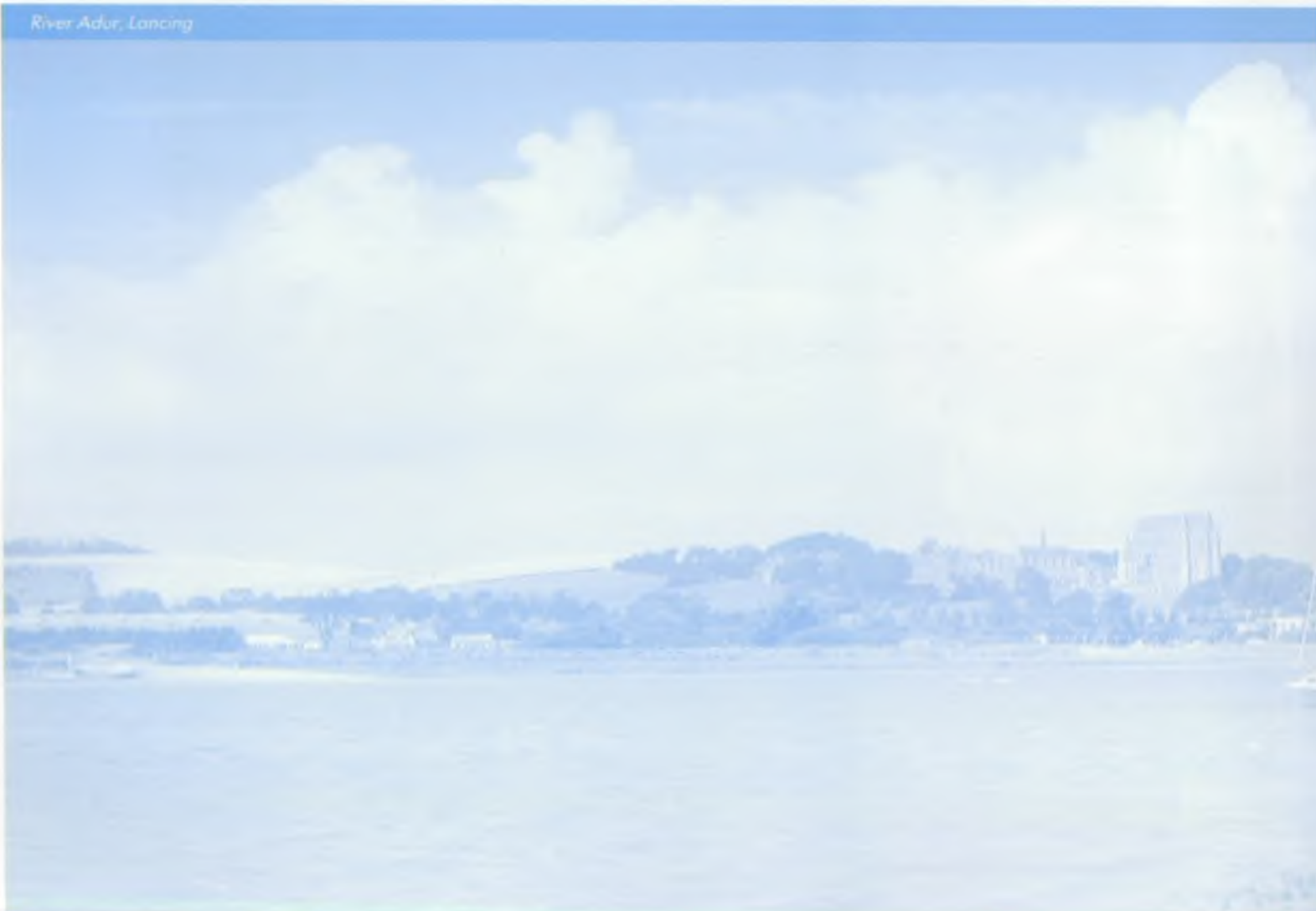
The principal streams of the river are the Western Adur, which rises in the parish of Slinfold and flows through Shipley and West Grinstead, and the Eastern Adur which rises on Ditchling Common and thence flows north and west to pass between Haywards Heath and Burgess Hill. These two principal streams meet near Henfield and take a common course through the Henfield Levels, an area of delightful unspoilt marshes particularly attractive to dragonflies, damselflies and overwintering wetland birds. The river, in keeping with the other Sussex rivers, has carved a course through the soft chalk of the South Downs. Known locally as the Shoreham Gap, this valley is designated an Area of Outstanding



Adur Valley

Natural Beauty. The river finds its way thence to join the sea at Shoreham. Ownership of the tidal river below MHW, together with the fishing rights, dates from before Magna Carta and is with the Duke of Norfolk. Shoreham Port Authority is responsible for the canal to the east of the harbour entrance and the estuary up to the Toll Bridge.

River Adur, Lancing





"In ye month of November, 1692, there was a trout found in ye Poyntingswish, in Twinebam, which was 29 inches long from ye top of ye nose to ye tip of ye talle, and John fflint had bim and eat bim. He was left in a low slank after a fflood, and ye water fell away from bim, and he died. The fish I saw at John fflint's house ye Sunday after they had bim, and at night they boiled him for supper, but could not eat one halfe of bim, and there was six of them at supper. John fflint and his wife Jane, and four of their children, and ye next day they all fell on bim again and compassed bim"



Eastern Adur, Sakeham



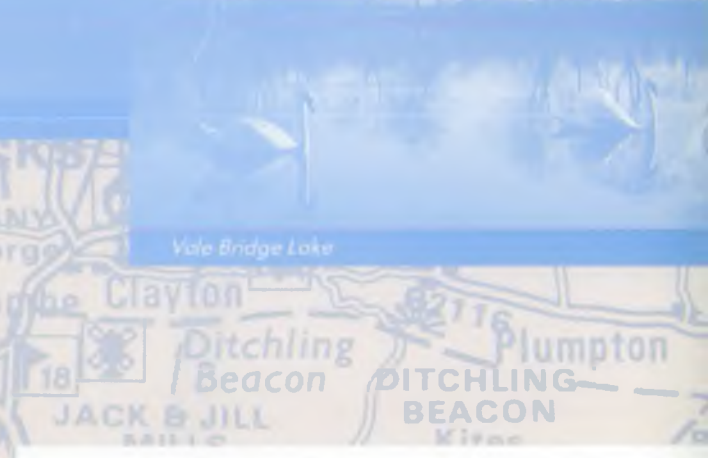
Confluence of the Western and Eastern Adur



Twineham Weir



Wineham Weir



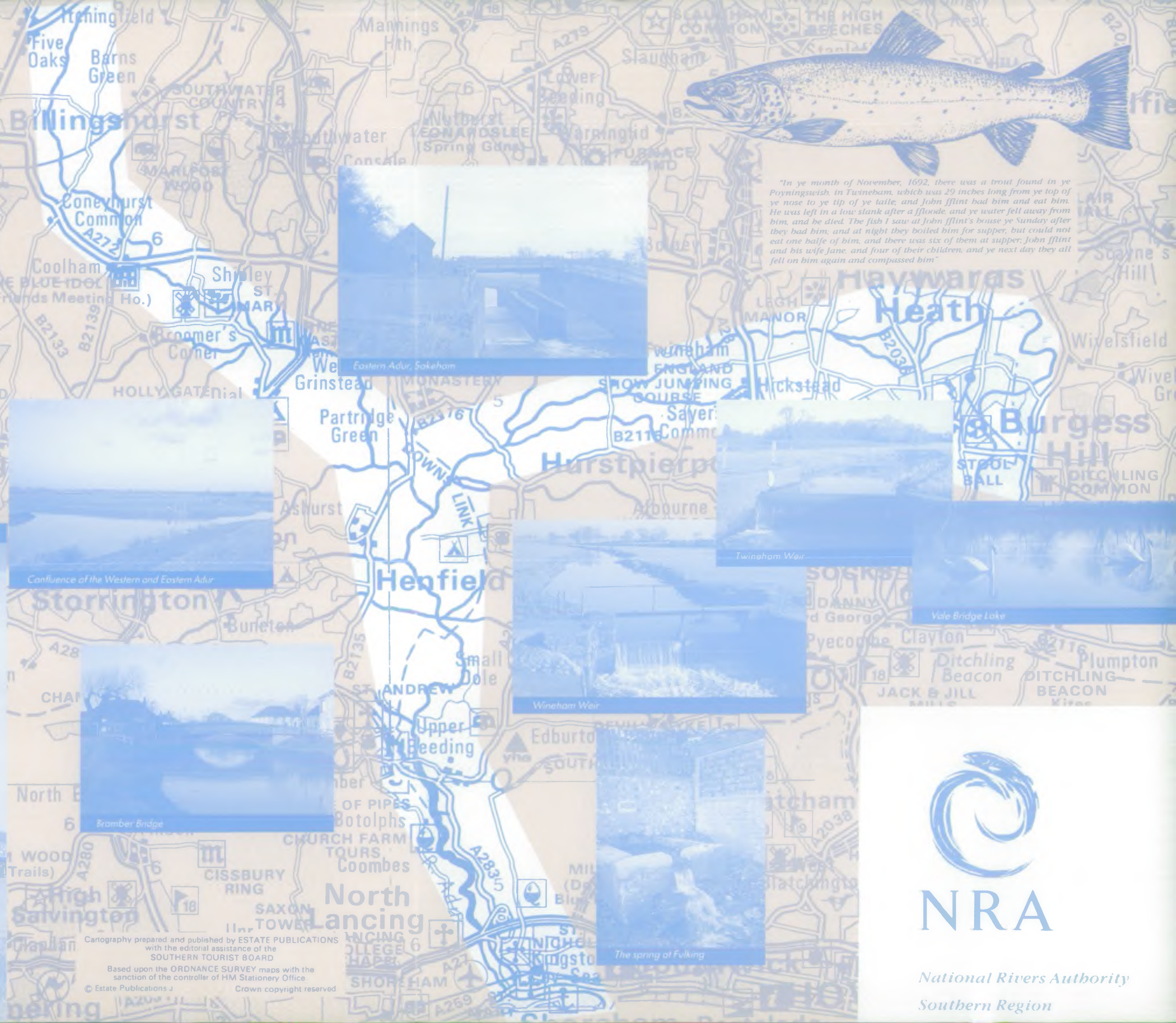
Vale Bridge Lake



Bramber Bridge



The spring of Fulking



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GEOLOGY AND HYDROLOGY

The catchment area of the Adur is approximately 500 km² of which the E. Adur drains 167 km² and the W. Adur drains 143 km². 195 km² drain to the tidal section which is 18 km long. Average rainfall over the catchment is 828mm.

The river has an exceptional number of small tributaries, reflecting the geology of the upper catchment which is primarily Wealden Clay. Tributaries on the clay, and in particular the W. Adur, have low base flows but respond quickly to surface run-off during periods of rain. As a consequence, they are steep banked, particularly in the headwaters. By contrast The Copyhold Gill and the Cowfold Stream rise from springs in the Tunbridge Wells Sand and these provide a reliable base flow. The southern tributaries, the Honeybridge Stream, Black Sewer, Herrings Stream and Woods Mill Stream are fed by prolific chalk springs on the scarp face of the South Downs.

The tidal section crosses first the Lower Greensand near Stretham Manor, then the Gault Clay. Just above Beeding Upper Greensand replaces clay, and patches of Valley Gravel occur before the river cuts through the chalk.

The National Rivers Authority has flow gauging stations at Sakeham on the E. Adur and Hatterell's Weir on the W. Adur. These provide data which enable the National Rivers Authority to manage abstraction from the river, through a licensing system. The river is not heavily abstracted with a few licences for general agriculture and spray irrigation but none for domestic consumption.

WATER QUALITY – E. ADUR

Good road and rail communications between London and Brighton have encouraged the development of dormitory towns such as Burgess Hill, Hassocks and Hurstpierpoint, with the result that there

Ditchling Common Pond



is a large concentration of population around the headwaters of this small river. In addition, the clay catchment and lack of springs make

the river very dependant on rain-fall, so that in dry weather up to 7/8 of the flow in the upper reaches may be treated sewage effluent.

Through the 1960s to 1980s population growth in this area outstripped the provision of sewage treatment works, so that effluents were not always of sufficiently high quality to maintain the river in Class 2 (capable of supporting good coarse fisheries). However, a new sewage treatment works for Burgess Hill should result in greatly improved effluent quality.

River Quality Objectives are set by the National Rivers Authority, which also controls the quantity and composition of all effluents discharged into the catchment by a system of "consents". The NRA monitors river water quality and samples effluents throughout the year. Given the nature of the catchment and size of population, effluent consent conditions are necessarily stringent.

The Copyhold Gill and Cowfold Stream drain relatively large catchments with a good gradient and water quality is good. Both have an objective of Class 1B (high water quality suitable for game and high class fisheries). The Chess stream is Class 1B for most of its length, but Class 2 in the lower reaches below Henfield.

Outfall from the Vale Bridge Lake



WATER QUALITY – W. ADUR

Apart from a few small areas of mixed woodland, most of this catchment is agricultural land used primarily for livestock farming. The clay soil and profusion of land drains leave the river constantly vulnerable to accidental pollution from farm wastes, of which silage liquor and farmyard slurry are particular problems.

In recent years the National Rivers Authority has put a great

deal of effort into encouraging farmers to develop efficient waste management methods. Water Quality Officers are engaged in a continuing programme of inspections and visits to advise farmers and a measure of their success is that, for most of the time, there is nothing to show for their hard work. People only notice when things go wrong!

The Environmental Quality Objective for the W. Adur and the Parsons Brook, which are both on the Wealden Clay, is Class 2. The Honeybridge Stream and Blake's Gill have an objective of Class 1B.

FISHERIES

Coarse fisheries on the freshwater tidal section and the lower reaches of the two branches of the Adur are typical of the mature stage of a river and are characterised by bottom feeders such as bream, carp and tench. The middle reaches support populations of roach, chub, dace and gudgeon, whilst the headwaters are typified by wild populations of small brown trout.

The W. Adur supports coarse fish biomasses of between 150–200 kg/ha (lbs/acre) in its middle and lower reaches, though agricultural pollutions have from time to time caused fish mortalities.

The E. Adur has been less able to support a high biomass of coarse fish, stock densities of around 100 kg/ha are found in the area of Sakeham.

In common with all the Sussex rivers, the Adur has a good run of sea trout which migrate into the river late in the year. Spawning takes place on gravels in the headwaters throughout the catchment. The Sussex sea trout generally make good growth and average between 2–2.5 kg (4½–5lbs) with exceptional individuals reaching 7 kg (16lbs). One of the earliest records of an impressive trout from the catchment is to be found in the diary of Richard Stapley, and no doubt refers to a sea-run trout, (see centre spread).

FLOOD DEFENCE

The Flood Defence Department of the National Rivers Authority is responsible for protecting people and property from tidal and river flooding. On the tidal section of the River Adur, the Authority maintains the flood banks from Shoreham to Burgess Hill and to Shipley and carries out localised desilting on the tidal section. The steep gradient of the upper catchment has given rise to many penstocks and weirs which were installed historically to provide power for iron working for land drainage purposes and to enhance fishing. The large variations in flow

Merron's Bridge at high tide



Community structure and fish biomass

Vale Bridge Outfall



Biomass = 136 kg/ha

Sakeham Gauging Station



Biomass = 124 kg/ha

Hatterell's Weir



Biomass = 178 kg/ha

Key

B Bream, Ch Chub, Cp Carp, D Dace, E Eel, G Gudgeon, O Other, P Perch, Pk Pike, R Roach, Rd Rudd, T Tench.



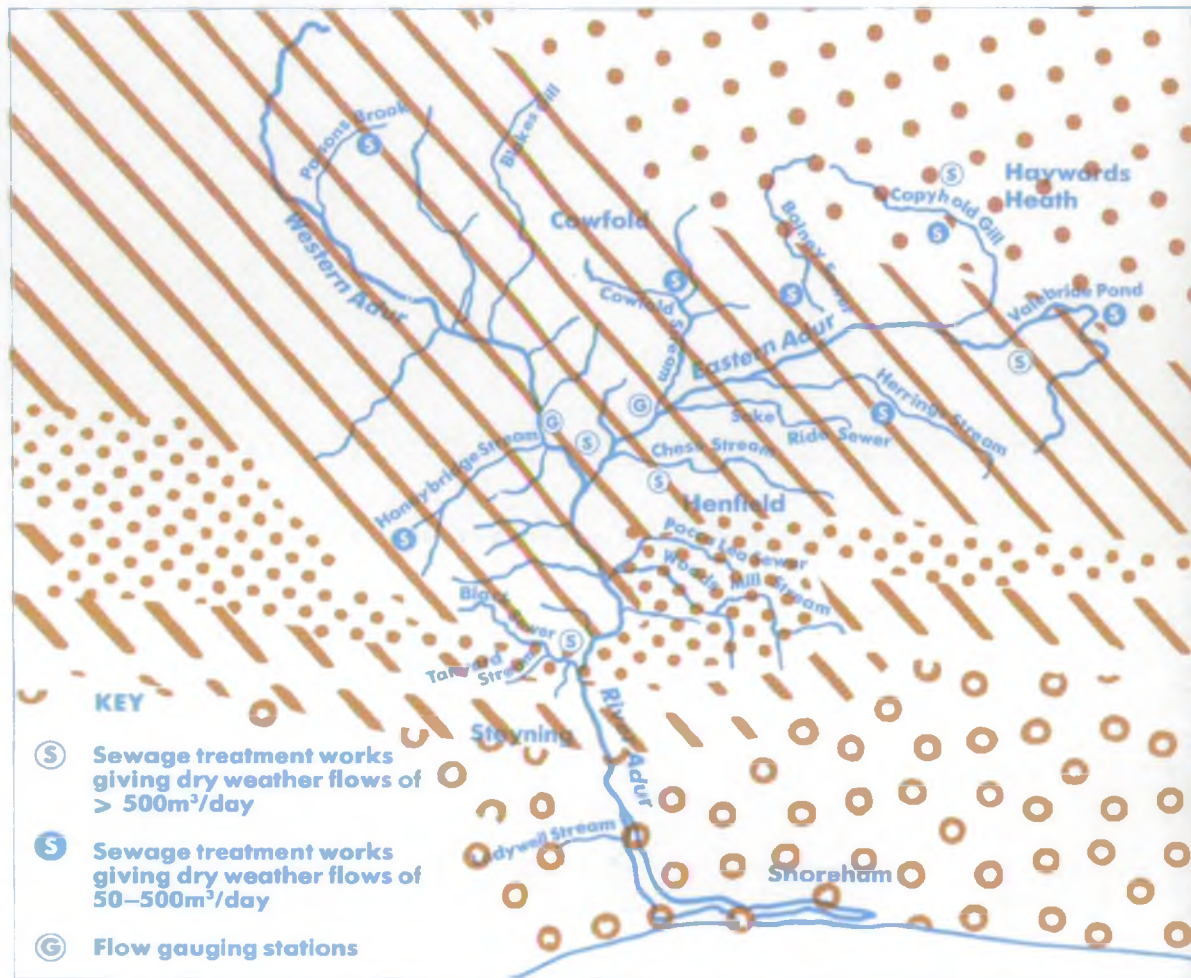


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 Nature Conservancy Council. *Survey of Rivers and Coast in South East Region, Vol. 2.*
Rivers of Sussex. NCC, Zealdis, Church Street, Wye, Ashford, Kent.

between summer and winter, which are characteristic of clay catchments, have resulted in the need for penstocks to retain water for wet fencing in summer. The boards are removed from these in winter so that flood water is not impeded. The two largest of these are Merrion's Penstock at the tidal limit of the W. Adur and Chates Dam at the tidal limit of the E. Adur. There are two float operated tilting weirs at Twineham and Shipley and one hydraulic lifting gate above Shermanbury.

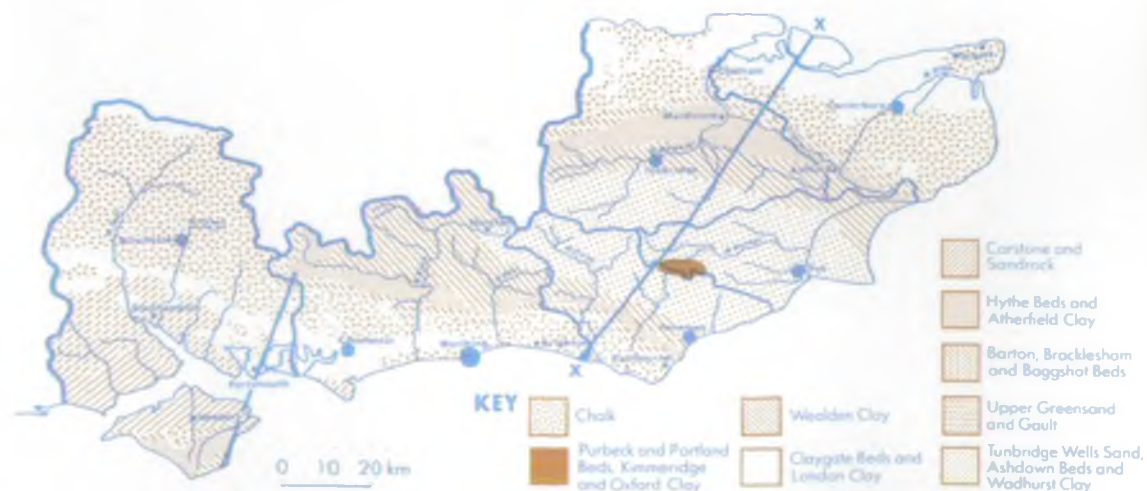
In the flood plain of the river there are four pumped drainage systems, which benefit agricultural land at Applesham, Annington, Beeding Brooks and Northover. The non-tidal watercourses are routinely maintained to remove obstructions and to ensure that the channel can contain flood-water.



Sections showing the general relations of the rocks along the lines X-X', drawn on the map



Horizontal Scale about 1:250,000. Vertical Scale about ten times the Horizontal



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