

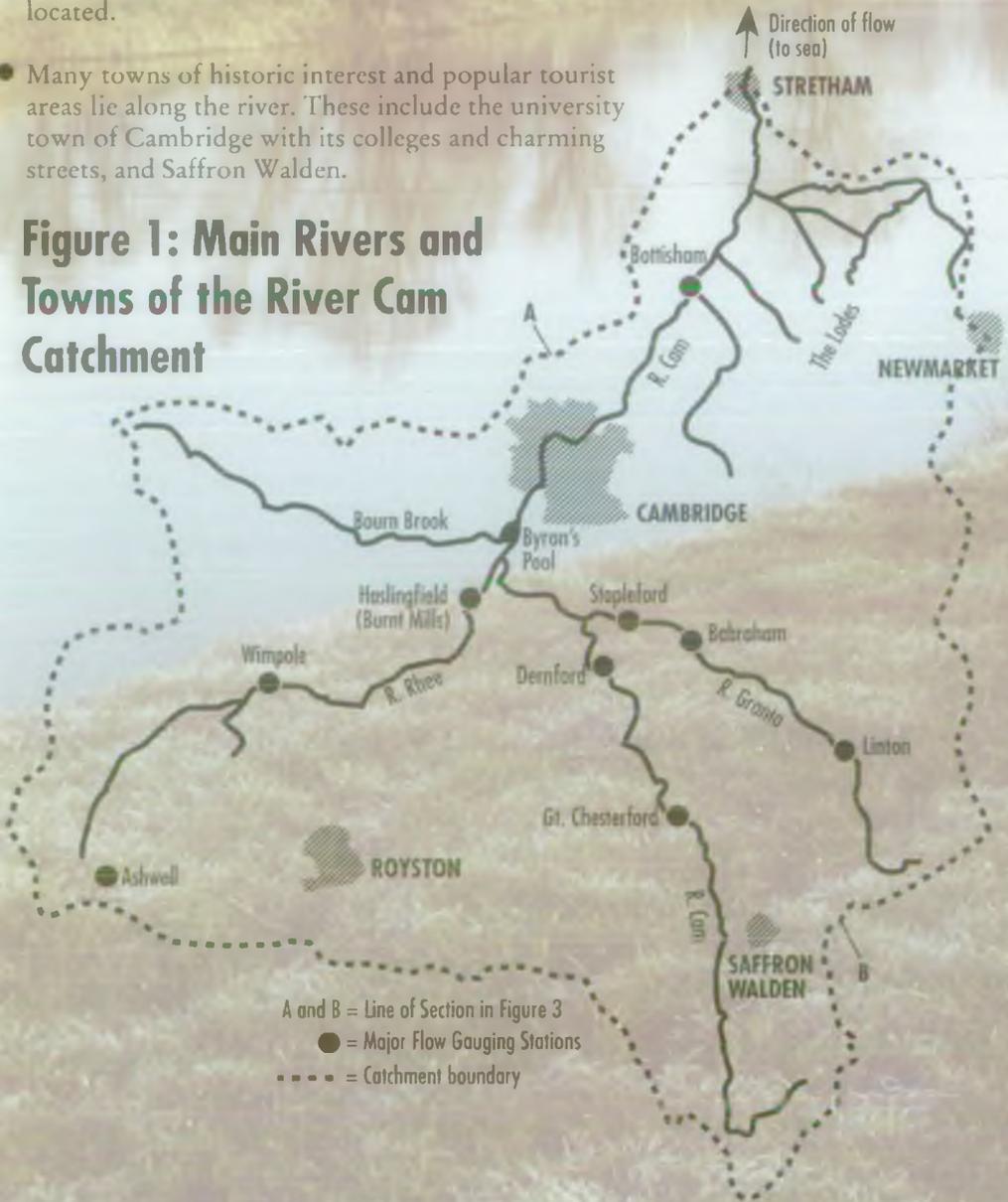
# FACT FILE

## River Cam

### FACTS IN BRIEF

- The Cam is 155 km in length and covers a catchment area of 1,110 square km within the counties of Hertfordshire, Cambridgeshire and Essex.
- Sourced near Henlow in Essex, the Cam is joined upstream of the city of Cambridge by three main watercourses, the Rhee, the Granta and Bourn Brook. This is shown in Figure 1, below. Downstream of Cambridge it joins the Old West River near Stretham, to become the River Great Ouse and 50 km later discharges into the Wash at Kings Lynn.
- A range of chalk spring-fed water and peaty fenland rivers in the catchment has encouraged a richly diverse development of botanical and biological species.
- Flowing through a region of rapidly expanding population the Cam's catchment area is predominantly rural. Significant areas of light industry are found in Royston and Saffron Walden and also in Cambridge where many technological companies are located.
- Many towns of historic interest and popular tourist areas lie along the river. These include the university town of Cambridge with its colleges and charming streets, and Saffron Walden.

**Figure 1: Main Rivers and Towns of the River Cam Catchment**

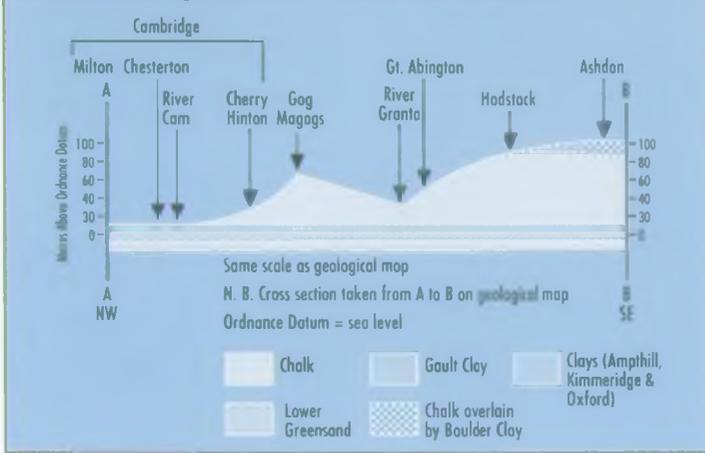


**Guardians of the Water Environment**



*Anglian Region*

**Figure 2: Schematic Cross Section of Geological Relationship in River Cam Catchment**



*River Cam, Cambridge.*

## GEOLOGY OF THE CAM

The river begins north east of Henlow, where springs rise from the underlying chalk aquifer (a natural underground reservoir). From there it flows north over the chalk, joined by spring-fed tributaries from the east and west. (Figures 2 and 3 show the geological relationship within the catchment).

This water-bearing chalk is the dominant geological factor in the area south and east of Cambridge, providing a natural base flow to the river. Rain percolates through the porous rock, emerging at the surface when the hard bands within prevent further downward penetration - the basic principle of a spring. High water tables within the chalk support the river from beneath.

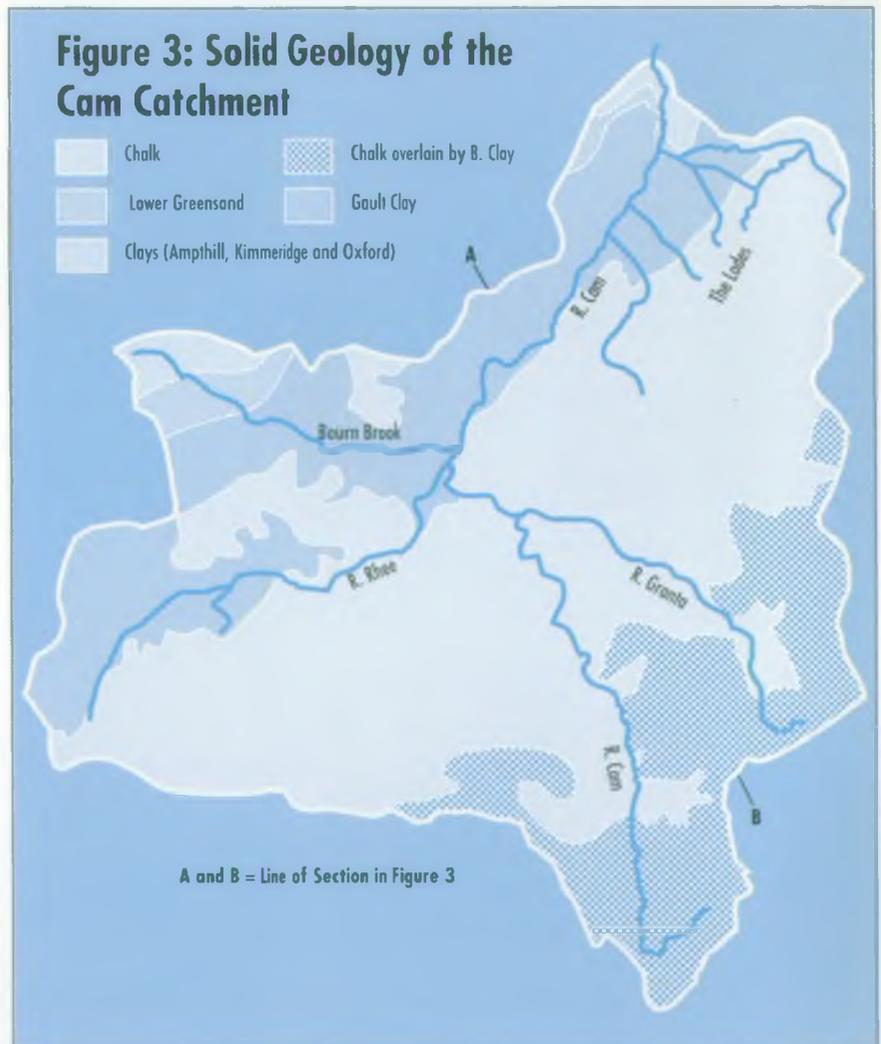
Spring-fed watercourses, their channels cut in Roman times and known as the Lodes, input to the river north of Cambridge. West of Cambridge impervious Gault clay overlies the Lower Greensand sandstone.

## HYDROLOGY

Throughout the Cam catchment area average rainfall is low compared with the National average of 940mm per year. It varies from over 650 mm per year in the south to less than 500 mm per year in the north fenlands. The majority of the area where the chalk aquifer exists receives in excess of 560mm per year.

Water is taken directly from the river and the underground aquifer for public water supply, industrial and agricultural use. Licences for abstraction are issued by the NRA under the Water Resources Act 1991 and their impact monitored.

**Figure 3: Solid Geology of the Cam Catchment**



## WATER QUALITY

Based on the National Water Council system, most of the rivers upstream of Cambridge are classified as good quality. Only short lengths of poorer quality are found, usually downstream of sewage treatment works. The breakdown for the 208km of river in 1991, including tributaries was as follows:



*Biological sampling.*

Class 1A (very good)	25.0 km
Class 1B (good)	116.2 km
Class 2 (fair)	54.9 km
Class 3 (poor)	4.9 km
Class 4 (bad)	7.1 km

The river supports a large and diverse biological life including plant and invertebrate species, and consequently it is very sensitive to quality changes and reduced flows.

The NRA has 51 chemical sampling points and 61 biological sampling points on the River Cam at which we monitor water quality.

## FLOOD PROTECTION

Widespread floods in 1947 and again in 1968 resulted in a series of improvement schemes during the 1950s and late 1980s. These included major embankment work on the Lodes and pumping station re-furbishment.

While most of the land in the catchment is now protected to the region's target level some areas are still vulnerable to fluvial flooding. Sluices and locks are used to help control flood flows and regular maintenance is a constant requirement for the NRA in this region.

## NAVIGATION

The Cam is navigable from Jesus Lock in Cambridge to the junction with the River Great Ouse near Ely and from there to the sea. All the waterways are popular for cruising, sailing, rowing and canoeing and are often heavily congested during the summer months. Punting is an essential part of the Cambridge experience for students and visitors and university rowing teams make extensive use of the Cam.



*Spray irrigation.*

## LAND USE

Cambridge marks the boundary between the rural uplands to the south of the catchment and the low lying flat fens. High grade agricultural land is a major feature of the area, which is farmed for high value cash crops. During the drier months large quantities of water are utilised for sub-soil irrigation and spray irrigation is used extensively for water-dependent vegetable and salad crops.

Cambridgeshire's population increased by 10% between 1981 and 1988. In 1990 it was estimated at 250,000.

Industrial and commercial development such as the M11 'corridor' and Stanstead Airport have contributed to the importance of the region.



*Bank repairs.*

## FISHING

Fishing is a major source of recreation in this area and an abundant population of healthy fish is a good guide to the water quality.

The rivers in the Cam catchment contain a mix of cyprinid (coarse) and salmonid (trout) fisheries. The upstream reaches of the Cam and several of its tributaries support breeding populations of brown trout and rivers are also stocked annually by fishing syndicates. Downstream from Cambridge coarse fishing is extensive.

Of the main river 50 km are maintained as a salmonid fishery and 55 km as a coarse fishery with roach, pike, perch and carp.

Revenue from fishing licence fees helps to provide a wide range of riverine activities and fish restocking.

## RECREATION AND CONSERVATION

In addition to the pleasures of boating and fishing there are many footpaths and public areas for walking, picnicking, and for botanists, an array of plant species. Wherever possible access is provided to riverbanks and local riverside walks.

Within the catchment there are 40 Sites of Special Scientific Interest (SSSI's) of which 23 depend on the continuation of a suitable water regime. Less than 1 kilometre from the main river at Upware is the internationally renowned Wicken Fen. Probably the last piece of primordial fenland remaining in approximately original condition, it supports many rare species. Due to peat shrinkage the fen is 2.5 metres above the surrounding land and the water level is artificially retained to maintain a unique wetland supporting diverse aquatic and biological life.

## FLORA AND FAUNA

In the upper sections of the Cam, where it flows as a chalk stream through north Essex and south Cambridgeshire,



SSSI Wicken Fen.



Fishing on the Cam.

such plant species as water-crowfoot and water starwort are found. Common invertebrates include caddis and mayfly larvae and many species of mollusc.

At Cambridge the river takes on a Fenland character and the growth of aquatic plants is reduced. The lower deeper sections contain areas of marginal plants: water lilies, common reed and sedge. Invertebrate communities are less diverse in this section with species such as chironomid and oligochaete in abundance.

## THE NATIONAL RIVERS AUTHORITY

An independent public body, the National Rivers Authority was created under the Water Act of 1989. It is responsible for protecting and improving the natural water environment. Regulatory and statutory duties include: flood defence from rivers and the sea; environmental quality and pollution control; water resources; fisheries; navigation and recreation. The NRA is committed to improving wildlife habitats and conserving the natural environment.

The Anglian Region, geographically the largest of the 9 regions in England and Wales, stretches from the Humber Estuary to the Thames, from the Norfolk coast to Northampton. It covers more than 27,000 square km - almost 18% of the total NRA - and over 5 million people live in the area.

A range of brochures containing comprehensive information about all aspects of the NRA's work and responsibilities is available by writing to the Public Relations Department of the NRA. Please state your particular areas of interest.

