

NRA Thames 161

# *Fact File*

# RIVER STORT



**GUARDIANS OF THE WATER ENVIRONMENT**



**NRA**

*Thames Region*

# Fact File – RIVER STORT

## FACTS IN BRIEF

- The perennial source of the River Stort is Stansted Springs to the west of Stansted Mountfitchet.
- The River Stort Catchment lies to the north-east of Greater London straddling the boundary between the counties of Hertfordshire and Essex.
- The river drains southwards into the River Thames via the River Lee and is the largest of the six main tributaries of the River Lee, covering an area of some 280 sq.km.
- The catchment includes over 180 km of designated 'main river', but the main drainage feature is the Stort Navigation which flows for 22.5 km from Bishop's Stortford to its confluence with the River Lee.
- The Navigation, which was built during the period 1766–1769, includes 15 locks along its length and a number of bifurcations, weirs and bypass channels. It is operated by British Waterways (BW).
- The three main centres of population located within the Stort valley are Harlow, Bishop's Stortford and Sawbridgeworth.
- The catchment also includes Stansted Airport and is bisected north-south by the M11 motorway and the London to Cambridge railway.
- The remainder of the catchment is much more rural in character, with the most significant land use being agriculture. There is also a sizeable area of relic ancient woodlands.
- The average annual rainfall in the River Stort catchment is 630mm.

## THE NATIONAL RIVERS AUTHORITY

Established on 1st September 1989, the NRA is an independent public body charged with safeguarding and improving the natural water environment. It is responsible for flood defence, regulating the quality of rivers and groundwaters, balancing the needs of various water users, protecting and improving fish stocks and promoting water based recreation of all kinds. The NRA is committed to improving wildlife habitats and conserving the natural environment in all it undertakes.

## TRIBUTARIES

From the upper reaches near Langley, the Stort flows southwards to Stansted Mountfitchet where it is joined by the Stansted Brook, about 1 km upstream of the A120. Further downstream, numerous tributaries flow into the Stort, the most significant being Great Hallingbury Brook, Pincey Brook, (which accounts for almost 30% of the total catchment area) and Canon's Brook at Harlow.

## THE STORT NAVIGATION

The Stort Navigation was opened in October 1769 to allow the established malting trade of the Stort Valley to compete with that of Hertford and Ware which were already served by the Lee Navigation. By 1833 the valley supported over 120 maltings, the majority being in Bishop's Stortford. Over 40,000 tons of goods were carried on the canal in 1811.

From Bishop's Stortford to Feildes Weir, a distance of 22.5km, the canal level falls by 21.5m through a series of 15 locks. All but four of these locks, (ie. Lower Lock, Brick Lock, Feakes Lock and Spellbrook Lock) were built at or around existing watermills. In 1911 ownership of the navigation passed to the Lee Conservancy who reconstructed each of the 15 locks during the period 1913 to 1942. Commercial traffic continued to dwindle however, and finally ceased in 1973. The navigation is currently operated by British Waterways (BW) as a 'cruising waterway'. Significant renovation and improvement work has been undertaken by BW in the late 1980's and early 1990's.

## ECOLOGY

Within the Stort catchment there are eight sites of Special Scientific Interest (SSSI). Four of the SSSI's, Hunsdon Mead, Little Hallingbury Marsh, Rye Meads and Sawbridgeworth, are located on or adjacent to the River Stort Navigation and a fifth, the Spellbrook Flood Lagoon, is centred on a flood storage area.

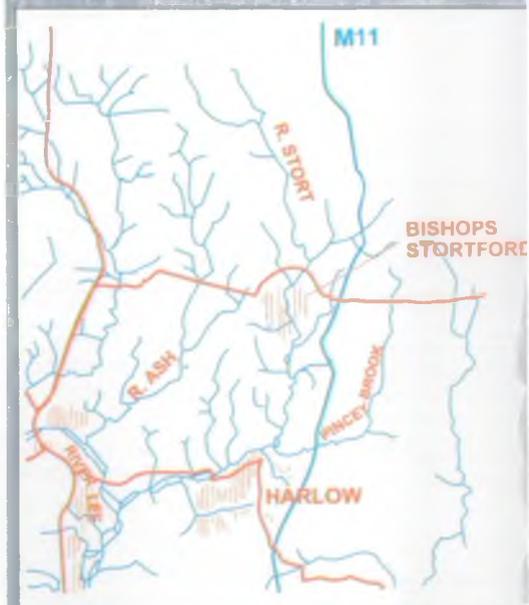
In addition to those sites with SSSI status, the Stort Valley from north of Bishop's Stortford to Feildes Weir supports a remarkable number of water dependant habitats. Many of the sites are protected in local plans and some, such as Rushy Mead at Bishop's Stortford, are managed as nature reserves.

## PLANNING LIAISON

The NRA aims to work with local planning authorities in protecting catchments from undesirable development.

## WATER QUALITY

The River Stort and its tributaries are generally of good quality in terms of dissolved oxygen, ammoniacal nitrogen and biochemical oxygen demand.



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## WATER QUALITY OBJECTIVES

FROM	TO	LENGTH KM	OBJECTIVES
<b>RIVER STORT</b>			
Langley	Hazel End Springs	18.1	*E
Stansted Hazel End	Bishop's Stortford	4.5	1B – Good
<b>STORT NAVIGATION</b>			
Bishop's Stortford	Great Hallingbury Brook	3.3	1B – Good
Great Hallingbury Brook	Pincey Brook	8.0	2B – Fair
Pincey Brook	River Lee	11.9	1B – Good
<b>PINCEY BROOK</b>			
Source	Stansted Airport	0.9	*E
Stansted Airport	River Stort	18.3	1B – Good
<b>STANSTED BROOK</b>			
Source	River Stort	8.27	X
<b>GREAT HALLINGBURY BROOK</b>			
Source	River Stort	6.74	X
<b>LITTLE HALLINGBURY BROOK</b>			
Source	River Stort	3.52	X

\*E: Ephemeral, stream is regularly dry. When flowing it should comply with the objective of the downstream reach.

X: Unclassified.

## BIOLOGY

Both the River Stort and the Stort Navigation channel are sampled regularly for aquatic invertebrates by the biologists of the NRA. The biological quality of both the River Stort and the Navigation is good. There is a variety of life with twenty to thirty invertebrate families found in each sample. The number of invertebrates gradually increases downstream until the the River Stort meets the River Lee. The greatest diversity of invertebrates is found in this lower section especially in the backwaters of the River Stort where the river channel is varied and many plants are present.

## DISCHARGES

The following are the major discharges into the River Stort. The figures are the maximum amount permitted to be discharged.

Discharge	Cubic metres per Day	Type of Effluent
<b>RIVER STORT</b>		
Clavering STW	1230	Sewage Effluent
Stansted Mountfitchet STW	7950	Sewage Effluent
<b>STANSTED BROOK</b>		
Elsenham Quality Foods LTD	90	Trade Effluent
<b>GREAT HALLINGBURY BROOK</b>		
Bishop's Stortford STW	29500	Sewage Effluent
<b>LITTLE HALLINGBURY BROOK</b>		
Little Hallingbury STW	1620	Sewage Effluent
<b>PINCEY BROOK</b>		
Takeley STW	2109	Sewage Effluent
<b>HATFIELD HEATH WATERCOURSE</b>		
Hatfield Heath STW	3000	Sewage Effluent
<b>MATCHING TYE WATERCOURSE</b>		
Matching Tye STW	138	Sewage Effluent



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## WATER RESOURCES

Of the total rainfall in this catchment, two thirds is lost through evaporation and plant growth. The remainder provides the resource of water which must be shared between the flow of the river to support the natural environment and the community's need for water supplies to homes, industry and agriculture.

The River Stort originates as springs issuing from the boundary between the chalk and boulder clay. Downstream of Bishop's Stortford however, surface run off from the clay is the main contribution to flow.

In order to ensure that there is enough information on river flows, the NRA carries out regular measurements and has many fixed gauging stations. The flow of the River Stort is measured just before it joins the River Lee at Hoddesdon and the average flow here is 121 ml/d, (million litres per day). The NRA also monitors the water level in many wells and boreholes.

## ABSTRACTIONS

Water can only be abstracted from rivers or groundwater under licence granted by the NRA. In the Stort catchment, groundwater is the main source of supply and approximately 40 ml/d is licensed to be abstracted. The majority of this water is for public supply and will be returned to the river system via sewage treatment works.

All abstraction licences specify the maximum quantity of water that may be taken and are checked by the NRA's Licence Inspectors.

## FLOOD DEFENCE

The construction of the Navigation in 1769 considerably altered the natural regime of the river system. The combination of a system with many navigational controls and subsequent development in the floodplain of the Stort Valley has resulted in several flooding problems.

Flood alleviation works completed between 1967 and 1980 have provided Bishop's Stortford with a high standard of flood protection. Downstream of Bishop's Stortford, the Spellbrook Flood Lagoon was designed and constructed to provide temporary off-stream storage for peak flows in the Stort.

Flood warning is an important element in the NRA's activity and the Region maintains flood warning stations at Clavering and Bishop's Stortford to supplement other gauged information. Staff keep a round the clock check on weather conditions and river levels in order to give the local emergency services early warning of possible floods.

A flood defence team based at Ware carry out regular river maintenance work. This includes dredging, weedcutting and the removal of blockages. This team is mobilized during flood emergencies to keep rivers clear of obstructions, so that flood waters can be conveyed away as quickly as possible. They also provide assistance to environmental quality staff in cleaning up after pollution incidents.

The NRA is committed to protecting and improving the natural river environment, and wherever possible our flood defence work includes features to conserve or enhance the environment.

## RECREATION

The River Stort Navigation and the tributaries are valuable recreational resources, most notably for activities such as pleasure cruising, canoeing and angling and associated activities such as walking.

Angling and walking are particularly popular activities in the catchment. Seven organisations have licences to fish the River Stort Navigation. There are also a number of other clubs which fish the tributaries and areas of open water (eg. gravel pits).

The network of footpaths in the catchment is extensive and includes parts of four long distance footpaths: Harcamlow Way, Three Forests Way, Forest Way and Fitch Way.

## FISH IN THE RIVER STORT

The River Stort supports a good head of coarse fish from Bishop's Stortford to the confluence with the River Lee at Feildes Weir. Dividing into two distinct waterways at Bishop's Stortford, the Stort Navigation Canal is the main waterbody, with the remnants of the old river course interspersed at many locations throughout the valley. Throughout the navigation system, roach, perch, and pike dominate the species composition with bream, carp and eels also present. Chub are the dominant species within the old river loops, with roach, dace, perch, bream, pike and eels also present. Angling is operated by clubs or private landowners, although most waters can be fished by joining the appropriate club or by day tickets, which are available on the river bank.

Numerous stillwaters and gravel pits throughout the Stort Valley offer good fishing for the specimen hunter. For the game fisherman, there is limited trout fishing from Hazel End to Bishop's Stortford.



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ENVIRONMENT AGENCY



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