

NRA Thames 160

fact File

RIVER CHESS RIVER MISBOURNE

GUARDIANS OF THE WATER ENVIRONMENT



NRA

*National Rivers Authority
Thames Region*

Fact File - RIVER CHESH & RIVER MISBOURNE

FACTS IN BRIEF

Chess

- The River Chess flows from its source at Chesham to its confluence with the River Colne at Rickmansworth.
- The Chess catchment covers an area of 105 sq.km and there is an average rainfall of 768 mm per year within the catchment.
- The river flows through upper and middle chalk outcrops, which in places are overlain with clay-with-flints and glacial gravel deposits.
- Small areas of reed beds occur to the north of the river at Chorleywood.
- The Chess is mainly a clear, fast flowing river which flows over gravel beds, although areas of silt exist upstream of impoundments, as well as downstream of Chesham Sewage Treatment Works and the M25.
- The main settlements are Chesham, Chorleywood and Rickmansworth.
- The Chess is 17.9 km in length, falls 60 m and is a typical chalk stream.
- The river has one tributary, the Chalk Stream which is 1.7 km in length.
- The Old River Chess was the original course of the Chess before the lakes at Latimer Park were constructed. It is the main course of the river in summer months.

Misbourne

- The river flows from its source at Great Missenden to its confluence with the River Colne near Uxbridge.
- It passes through the towns of Great Missenden, Amersham, Chalfont St. Giles and Chalfont St. Peter.
- The river is 27 km in length and falls 90 m over that distance.
- Part of the River Misbourne suffers from low flow and this has been the subject of a study by the NRA.
- It is a chalk river running through the Chiltern Hills.
- The Misbourne catchment covers an area of 92 Sq.km and there is an average rainfall of 768 mm per annum.

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 the 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.

PLANNING LIAISON

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

WATER QUALITY

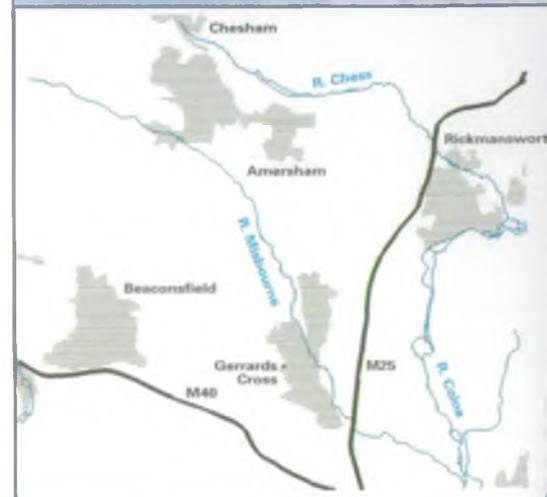
These rivers are fed with high quality spring water from the Chilterns. The quality of the water in the Chess is influenced by the large discharge from Chesham STW, which has, however shown a significant improvement in recent years following a major rebuilding project.

There are five sampling points within the Chess catchment and four within the Misbourne catchment which are sampled regularly by NRA pollution control staff to check the quality of the water.

WATER QUALITY OBJECTIVES

From	To	Length (km)	Objective
RIVER CHESH			
Source	Chesham STW	3.1	1A - Good
Chesham STW	Bois Mill	0.3	2B - Fair
Bois Mill	Chenies	3.6	2A - Fair
Chenies	Chenies STW	0.8	1B - Good
Chenies STW	Colne	9.5	1B - Good
RIVER MISBOURNE			
Great Missenden	Little Missenden	3.7	*E
Little Missenden	Bury End	6.3	1A - Good
Bury End	Chalfont St. Giles	4.8	1A - Good
Chalfont St. Giles	Gerrards Cross STW	8.0	1A - Good
Gerrards Cross STW	Colne	4.3	1B - Good

*E - Ephemeral. When flowing it should comply with the objective of the downstream reach.



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DISCHARGES

The following are the main discharges into the Chess and its tributaries and the Misbourne. The figures given are the maximum amount permitted to be discharged.

Discharge	Cubic Metres Per Day	Type of Effluent
RIVER CHESS		
Chesham STW	43350	Sewage Effluent
Chenies STW	177	Sewage Effluent
OLD RIVER CHESS		
Latimer Park Farm	10660	Fish Farm
Latimer Park STW	366	Sewage Effluent
RIVER MISBOURNE		
Gerrards Cross STW	7500	Sewage Effluent
Anopaam Mission STW	20	Sewage Effluent

WATER RESOURCES

The rivers Chess and Misbourne derive their flows mainly from springs rising from the chalk aquifer together with the remainder of flow coming mostly from run-off. These are 'bourne' streams with their upper reaches drying out in the summer months when chalk water levels drop. The Misbourne and Chess are two of several major tributaries of the River Colne which drains a large part of the Chiltern Hills in Hertfordshire and Buckinghamshire. More than half the rainfall falling on the sub-catchment is lost through evaporation, the remainder percolates through the soil and down into the aquifers below. This resource of water must be shared between river flow, to support the natural environment, and the community's need for water supplies to homes, industry and agriculture.

In order to ensure that there is enough information on river flows the NRA carries out regular measurements and has a number of permanent gauging stations throughout the Thames catchment. The flow of the River Chess is measured at Rickmansworth and the Misbourne at Denham Lodge.

Chess

The perennial head of the Chess is just downstream of Chesham.

Misbourne

The middle section of the Misbourne, between Amersham and Chalfont St. Peter dries during dry periods. The perennial head of the upper Misbourne is upstream of Little Missenden and the perennial head of the lower Misbourne is at Chalfont Park.

ALLEVIATION OF LOW FLOWS PROJECT

The River Misbourne has always shown a tendency to lose water from the middle section. This natural variation in flow has been exaggerated by groundwater being taken from boreholes for public water supply. The NRA commissioned a study to provide a solution to this and preliminary works are already underway.

ABSTRACTIONS

Water can only be abstracted from rivers or groundwater under licence granted by the NRA. All licences specify the maximum amount of water that may be taken and are checked by the NRA's Licence Inspectors.

Chess

In the Chess sub-catchment groundwater is the most important source of supply. The total amount licensed to be abstracted in the Chess sub-catchment is about 93 ML/d (million litres per day), but 72 ML/d of this is for low or very low loss uses which return most of the water.

Misbourne

In the Misbourne sub-catchment groundwater is the most important source of supply. The total amount licensed to be abstracted in the Misbourne sub-catchment is about 43ML/d (million litres per day).

FISHERIES

Chess

Prior to 1991 the populations of naturally breeding brown trout in the Chess were unstable in that recruitment to the existing stock was very poor. The majority of trout in the river at this time (brown and rainbow) were as a result of landowner stocking. When the rebuilding works at Chesham STW were completed, however, the improved water quality was mirrored by an increase in the breeding success of the brown trout stocks, although it is still patchy. There are also indications that the grayling population of the Chess is increasing, although as yet it cannot be described as strong. Coarse fish such as roach, dace and chub are also common, although they are not fished on a regular basis. In addition the Chess, around the Latimer and Chenies area, is now used as a salmon parr stocking site as part of the River Thames Salmon Rehabilitation Scheme.

The majority of fishing on the Chess is private and centres around game fishing for both brown and rainbow trout.

The NRA fisheries and conservation section have an on-going programme of river enhancements centred around areas of poor habitat on the Chess system. Two main enhancements have recently been completed in the Solesbridge Lane area in conjunction with NRA Flood Defence staff. It is hoped that the enhancement programme will descend through the catchment so that all areas of good habitat are linked to create habitat continuity.



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Misbourne

The low flows experienced in this catchment between 1987 and 1993 have had a drastic effect on the resident fish populations. The fisheries survey of 1989 revealed an impoverished fish population consisting mainly of small discontinuous groups of brown trout. It was clear that these fish were totally confined to the few areas where deeper pools existed. The exception to this was upstream of Shardloes Lake where good balanced brown trout populations were recorded. Sadly over the next few years the situation regarding water flow became worse to the extent that the river became virtually fishless. As a result of low flows the habitats became degraded to the extent that terrestrial vegetation grew in the dry river channel especially in the Chalfont area.

Recently more water has been seen in the Misbourne especially in the lower reaches near the confluence of the Colne. The Fisheries department have just completed a river habitat restoration project with the aim of re-establishing the brown trout populations. Brown trout will be introduced to the river once the re-created habitat has matured.

Foraging species such as minnows, sticklebacks, stone loach and bullheads are present in the Misbourne.

BIOLOGY

Biological monitoring of the Misbourne and Chess is carried out at a number of sites to complement chemical measurements of water quality. The diversity of invertebrate life inhabiting the watercourse reflects both intermittent and continuous sources of pollution as well as other environmental problems, such as low flows.

Chess

The Chess is surveyed biologically and benthic invertebrate surveys are carried out at a number of sites where riffle habitats are present. The animals found at the sites include pollution sensitive groups such as caddis flies and mayflies as well as freshwater snails, beetles, shrimps and river limpets.

Misbourne

The Misbourne contains a diverse invertebrate fauna including many species of caddis and mayfly larvae which are sensitive to pollution. This river is the only site within the North Eastern area of the Thames catchment where the cased caddis *Odontocerus alibicorne* can be found.

The river is also notable for supporting one of the few remaining populations of native white-clawed crayfish in the area. These animals have been lost entirely from many rivers as a result of a disease ('crayfish plague') which spread rapidly during the early-mid 1980s.

As flows recover it is hoped that recolonisation by aquatic invertebrates, plants and other river corridor wildlife will be swift. The NRA will monitor this process together with the success of river channel enhancement work undertaken as part of the Alleviation of Low Flows programme.

RECREATION AND CONSERVATION

Chess

The Chess offers a wide variety of uses for sports, leisure interests and relaxation, with anglers, bird-watchers and rambles attracted to the area. For the energetic, there is the Chess Valley Walk (Chesham to Rickmansworth), and there are picnic areas for the less energetic. At Sarratt Bottom, there is a Site of Special Scientific Interest (SSSI), where three rare species of plant have been recorded. The lakes in Latimer Park, fed by the River Chess, provide fly fishing for trout.

Misbourne

There are a total of nine sites of nature conservation interest along the River Misbourne. One of these, the Old Rectory Meadows, is a Site of Special Scientific Interest (SSSI) which contains a wide range of grassland types including the Bog Bean which is rarely found in Buckinghamshire. The grassland offers a habitat for a range of insects and birds and winter flooding attracts duck and other wildfowl.

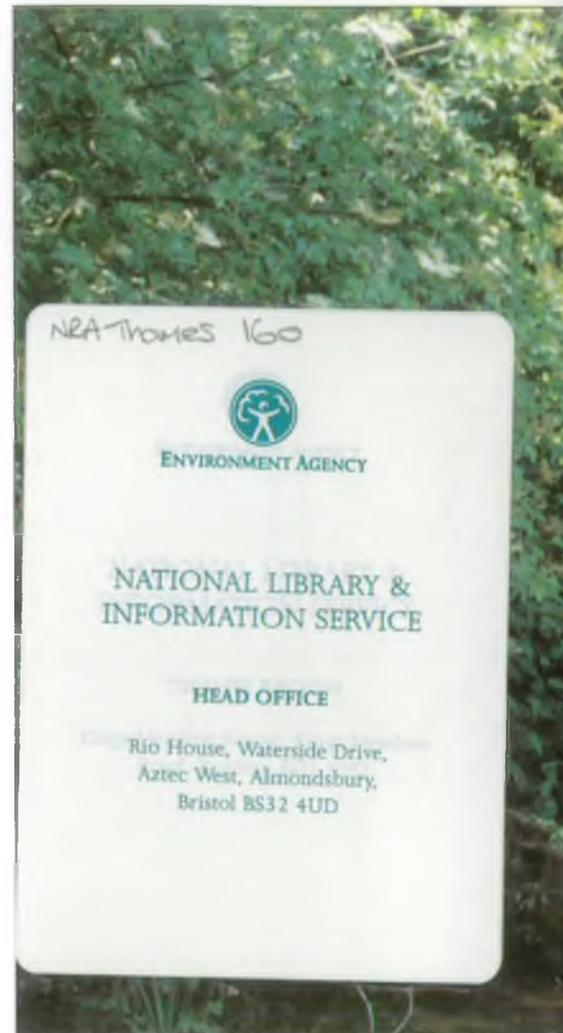
Other sites of interest include wet meadows and wooded islands which offer good habitat for wildlife, as well as the churchyard at St. John the Baptist church in Missenden. Upstream there are a series of old watercress beds and semi-improved meadows.

FLOOD DEFENCE

Reducing the risk of flooding on a day-to-day basis and planning major flood defence projects forms part of the NRA Thames Region's work.

The NRA's flood control room at Reading keeps a round the clock check on weather conditions and river levels. Staff interpret the information and give the local emergency services early warning of possible floods. A flood defence team is based at the Broadmeads Pumping Station, Ware and it carries out regular river maintenance work. This includes dredging, weed cutting and the removal of blockages. This team is mobilized during flood emergencies to keep the river clear of obstructions, so that flood waters can be conveyed away as quickly as possible. They also provide assistance to pollution control 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 of environmental enhancement and conservation.



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