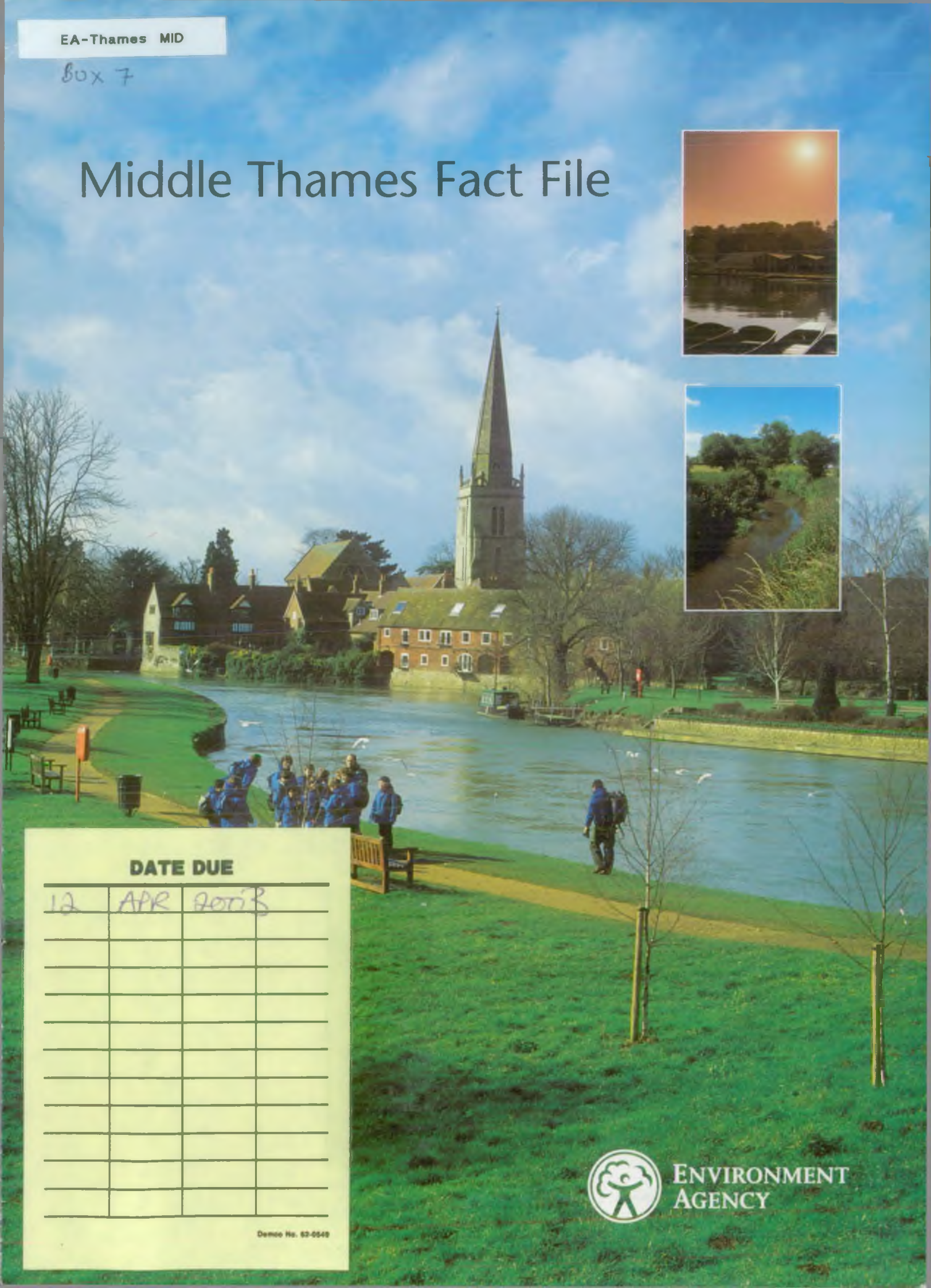


Box 7

Middle Thames Fact File



DATE DUE

12	APR	2013



This is one of a number of Fact Files which cover all the main rivers in the Thames Region of the Environment Agency. Due to its size and importance the Thames itself is covered by four Fact Files, dealing with the Upper Thames, from source at Thames Head to Eynsham, the Middle Thames from Eynsham to Hurley and the Lower Thames from Hurley to Teddington. The fourth Fact File deals with the Tidal Thames through London.

The Middle Thames

The Environment Agency

The Environment Agency for England and Wales is one of the most powerful environmental regulators in the world. It provides a comprehensive approach to the protection and management of the environment, emphasising prevention, education and vigorous enforcement wherever necessary. The Agency's creation on 1st April 1996 was a major step, merging the expertise of the National Rivers Authority, Her Majesty's Inspectorate of Pollution, the Waste Regulation Authorities and several smaller units from the Department of the Environment. The Environment Agency is committed to improving wildlife habitats and conserving the natural environment in all it undertakes.

Our key tool for the integrated management of the local water, land and air environment is the development of Local Environment Agency Plans (LEAPs). These geographical areas are based on surface water catchment and contain a comprehensive survey of local natural resources, pressures on these resources and the consequent state of the local environment.

They also identify a number of key issues which need to be addressed in the area, requiring integrated and sustainable management. These include:

- improving the water quality of some Thames tributaries;
- ensuring the adverse impact of former landfill sites and other contaminated land on the environment is minimised;
- protecting and enhancing the ecological, fisheries, landscape and archaeological resources of the Middle Thames and implementing strategies for their future management.

The production of each LEAP involves a number of key stages:

- **Consultation Report** - a broad review of the plan area, the activities and uses that put pressure on the environment. It defines issues to be tackled and suggests actions for resolving them.
- **Action Plan** - establishing a vision for the area, firming up the issues and describing the actions we believe should be undertaken in the next five years.
- **Annual Review** - reporting on the progress of those actions and providing an opportunity to update or bring in new issues and actions that have arisen during the previous year.

The Middle Thames is made up of two LEAP areas:

Thames, Pang and Wye (consultation report due 1999)

Thames and Ock (consultation report published 1997)

The plan areas and particularly the Middle Thames itself constitute a resource of great environmental, recreational and historical value.



Planning Liaison

The Environment Agency works with local planning authorities to protect the Middle Thames catchment from undesirable development.

Pollution Prevention and Environmental Quality

Industrial and waste regulation

The Agency is responsible for regulating the most complex and polluting types of industrial process for air, land and water.

Responsibility for monitoring air quality is split between the Agency and other organisations such as local authorities and the Department of the Environment. The Agency regulates air quality by operating the Integrated Pollution Control (IPC) system for certain industrial processes, which stems from Part I of the Environmental Protection Act 1990. This includes authorising seven Part A processes (large scale complex processes) in the Middle Thames Area to release certain types and quantities of chemicals to the air in addition to discharges to sewer and surface waters. The Agency monitors releases from Didcot Power Station and has agreed an improvement programme for the station with National Power.



Iffley Wetland

The Agency licences, regulates and supervises the handling, storage and disposal of controlled waste under the Environmental Protection Act 1990. Controlled waste consists of household, industrial and commercial waste. The Middle Thames area contains a number of licensed waste sites and a large number of old and closed landfill sites. Groundwater contamination from these closed landfill sites is not considered to be a significant problem, although redevelopment of a number of old waste disposal sites within the valley gravels in the Marlow area will be monitored for contamination through construction activity.



The most significant operational site is the landfill at Sutton Courtenay. The site is engineered to prevent groundwater pollution, as are the other main operational landfills at Ewelme and Sutton Wick.

Radioactive substances are another category of waste. The Radioactive Substances Act 1993 defines how radioactive materials can be kept and used, and how radioactive wastes can be accumulated and disposed of. The Agency is responsible for administration and enforcement of this Act, through registrations and authorisations.

Sites in the Middle Thames area using radioactive materials and dealing with their disposal are Harwell, Amersham International plc, Rutherford Appleton Laboratory, UKAEA Culham, Safeguard International, Culham and the hospitals and University of Oxford. Public access to information under the Radioactive Substances Act is available from the Agency's Public Register.

FACTS IN BRIEF

Middle Thames

- The Middle Thames runs from Eynsham to Hurley. This part of the Thames runs through a predominantly rural landscape as well as passing through Oxford, Reading, Abingdon, and the historic Saxon town of Wallingford.
- In 1757 a curious custom was recorded at Eynsham. When the bounds of Cumnor Parish on the Berkshire bank were beaten once a year, the ferryman at Swinford brought the vicar the sum of six shillings and eightpence in a bowl of water. The vicar then crossed the river and took hold of the reeds on the Oxfordshire side, laying claim to the whole breadth of the stream.
- The Henley Royal Regatta had its formal beginning at a public meeting in Henley Town Hall on the 26th March 1839.
 
- Below Dukes Cut, Oxford, is a side stream that leads to Wolvercote Mill where paper was made for Oxford University and its press from the early seventeenth century until 1943.
- The main weir at Sandford falls with great force into the pool below, known as the Sandford Lasher, and has long been notorious for drownings. A stone obelisk stands in the middle of the weir carrying the names of five men who drowned there.
- A mile below Nuneham a stream diverges from the Thames. This is the Swift Ditch which was once the main navigation channel of the Thames. After 1790 it reverted to its present course through Abingdon.
- At Sutton Courtenay during the 17th century an unusual pound-lock was built partly beneath the ground floor of the mill. This meant that it could only be used at the expense of water from the milling business and consequently a heavy toll was levied by the miller until a new lock was opened in 1809.
- Church Cottage, Pangbourne, is where Kenneth Grahame, creator of Water Rat, Mole and Mr Toad from Wind in the Willows lived.
- A medicinal spring flows at Goring which a 17th century authority said was good for corns, ulcers and sore eyes.
- Mapledurham corn mill, the oldest mill still working on the Thames, was adapted in the early 20th century to pump water for the estate reservoirs and drive a dynamo for the manor's electricity.
 
- There are toll bridges on the Thames at Eynsham and Whitchurch - the only toll bridges anywhere on the non-tidal Thames.
- The rivers Cherwell, Thame, Pang, Loddon and Kennet are major tributaries of this part of the Thames and these are covered in separate Fact Files. Another tributary is the Ock.

ENVIRONMENT AGENCY



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The Environment Agency is responsible for the planning of water resources, including reviewing and publishing demand forecasts and planning for how these may be satisfied without unacceptable impact on the water environment.

Water Resources

A strategy for the sustainable management of water resources was published in 1994 and focuses on opportunities to improve water efficiency, use of existing resources, and the development of new schemes. One such scheme being considered includes the Thames Water proposal for a pumped storage reservoir south-west of Abingdon. The proposal not only involves abstraction from the River Thames during times of high flow, but during times of low flow the release of water back to the river for abstraction downstream in London. In November 1993 Thames Water announced that the promotion of the scheme would be delayed by at least five years, in view of revised demand forecasts and greater efforts in leakage control by the company.

Given the uncertainties over demand forecasts and the time needed to promote major new resources, the Environment Agency intends to complete investigations of major schemes over the next five years and will continue to monitor changes in demand projections so that the strategy for water resources development remains flexible and responsive. In carrying out these duties the Environment Agency will work closely with water companies, abstractors, planners and other interested groups.



Godstow Reach

The Middle Thames derives its flow from water draining from the Cotswold Hills, the Vale of Oxford and the Berkshire Downs. The major tributaries over the reach from Oxford to Reading are the rivers Cherwell, Ock, Thame, Pang and Kennet.

More than half the rainfall falling on the area is lost by evaporation from hard surfaces and plants. The remainder provides the resource of water which supports the natural environment, including river flows, water supplies to homes, industry and agriculture.

In order to ensure there is enough information on river flows along the Thames and its major tributaries, the Environment Agency carries out regular measurements and has a number of fixed gauging stations including ones at Eynsham, Sutton Courtenay, Days Weir and Caversham.

Abstractions

Water can only be abstracted from river or groundwater under licence granted by the Environment Agency. In this part of the Thames both groundwater and rivers are important sources of supply. The total amount licensed in the area is about 1,360 Ml/d (million litres per day), but much of this water is discharged back into the river after use. All licences specify the maximum amount of water that may be taken and are checked by the Environment Agency's Licence Inspectors.

Some of the notable licensed abstractions are:

Didcot Power Station

Authorised to abstract up to 170 Ml/d (43,638 Ml/year) for cooling. Much of the water is returned to the river Thames after use and less water is taken when the river is low.

Thames Water - Gatehampton

Authorised to abstract up to 87.4 Ml/d (21,333 Ml/year) from river-side boreholes for Public Supply. Most of the water abstracted is used and returned to the river via sewage works upstream of the abstraction point.

Total licensed abstractions from the River Ock is 11.0 Ml/d.

Discharges

The following are the main discharges into the Middle Thames and its tributaries (excluding those covered by separate Fact Files). The figures given are the maximum amount permitted to be discharged.

DISCHARGE	M ³ /DAY	TYPE OF EFFLUENT
River Thames		
Cassington STW	12000	Sewage Effluent
Abingdon STW	10500	Sewage Effluent
UK Atomic Energy Authority Harwell	5500	Trade Effluent
Didcot 'A' Power Station	136380	Cooling Water
Goring STW	800	Sewage Effluent
Oxford Canal		
Kidlington STW	12600	Sewage Effluent
Pottery Stream (tributary of Northfield Brook)		
Oxford STW	90000	Sewage Effluent
Ock		
Stanford in the Vale STW	1950	Sewage Effluent
Rauling Brook (tributary of Ock)		
Laportes Absorbents Lt	6000	Trade Effluent
Frogmore Brook (tributary of Ock)		
Stanford Quarry	4000	Mineral
Bagpuize Brook (tributary of Ock)		
Kingston Bagpuize (New) STW	1900	Sewage Effluent
Marcham Brook (tributary of Ock)		
Appleton (New) STW	6900	Sewage Effluent
Lutcombe Brook		
Wantage STW	18750	Sewage Effluent
Ginge Brook		
Drayton (Oxon) STW	3888	Sewage Effluent
Clearwater Fish Farm	9500	Fish Farm
Odshay Hill Ditch (tributary of Ginge Brook)		
Abingdon STW	30000	Sewage Effluent
J.Curtis & Sons Ltd	3930	Trade Effluent
Lydebank Brook (tributary of Ginge Brook)		
UK Atomic Energy Auth STW	2000	Sewage Effluent
Sutton Courtney Ditch		
ARC Ltd	2450	Trade Effluent
ARC Greenaways	2540	Mineral
Moor Ditch		
Didcot STW	15000	Sewage Effluent
Harwell Steam (tributary of Moor Ditch)		
Harwell Village STW	1908	Sewage Effluent
Clifton Hampden Ditch		
Culham STW	2667	Sewage Effluent
Howberry Ditch		
Benson STW	6300	Sewage Effluent
Cholsey Brook		
Cholsey STW	9600	Sewage Effluent
Sal		
Pangbourne STW	7000	Sewage Effluent
Fawley Court Stream		
Henley STW	8850	Sewage Effluent

Environmental Incidents

Responding to environmental incidents is a vital part of the Agency's work, involving liaison with the public, industry, dischargers, local authorities, water companies and the emergency services. The Agency's Environment Protection Department provides a 24 hour response to environmental incidents. Like the police we rely very much on reports from members of the public. Our 24hr **EMERGENCY HOTLINE 0800 80 70 60** enables anyone to report pollution incidents to us at any time.

Water Quality

Between Eynsham and Wallingford the flow of the Thames is supplemented by direct run-off from the Oxford Clay and below Wallingford by springs and seepages rising from the chalk and greensand. The middle reaches of the Thames and the majority of its main tributaries are of good quality and as a result support some good fisheries. The only major impact on water quality in this reach is Oxford sewage treatment works. The Kennet is a particularly high quality chalk stream and consequently supports famous fisheries and a number of fish farms. The rivers flow through a predominantly rural area which is mainly agricultural, although the Cherwell, Thames and Kennet are all affected by major sewage treatment works. Effluent discharges influence a number of smaller watercourses including Moor Ditch, Howberry Ditch and Cholsey Brook.

General Quality Assessment

In June 1994 the new General Quality Assessment Scheme (GQA) was introduced for the periodic assessment of freshwater quality. It is used to assign the most likely class for a river for a given time period. The scheme currently assesses both the chemical and biological quality alongside each other. The two methods are different and the chemical and biological quality are not necessarily of the same grade. Chemical measurements pertain to the moment of sampling and the water sampled whereas biological sampling measures the response of the biota to all environmental variation integrated over a time period related to their life cycle. At a later stage nutrient and aesthetics components may also be introduced. The chemical component is based on three determinants: Biochemical Oxygen Demand, Dissolved Oxygen and Ammonia. The GQA classes vary from A (good) to F (bad).

There are 47 routine chemical sampling points within the Middle Thames catchment which are sampled regularly by Environment Agency staff to check the quality of the water.



Abingdon



Pay's Reach

RIVER	REACH	GQA '94-'96	LENGTH (km)
CHILDREY BROOK	Source - Ock	B	15.7
CLIFTON HAMPDEN DITCH	Clifton Hampden - Thames	C	0.9
FARINGDON BROOK	Source - Thames	C	6.8
FILCHAMPSTEAD BROOK	Dean Court - Thames	C	2.2
GINGE BROOK	West Ginge - Lydebank Brook	A	3.2
GINGE BROOK	Lydebank Brook - Thames	B	9.7
HOWBERRY DITCH	Benson STW - Thames	E	0.9
LETCOMBE BROOK	Source - A417 Wantage	B	4.6
LETCOMBE BROOK	A417 Wantage - Wantage STW	A	4.7
LETCOMBE BROOK	Wantage STW - Childrey Brook	C	4.3
LYDEBANK BROOK	A.E.R.E. Harwell - Ginge Brook	B	3
MARCHAM BROOK	Rockley Heath - Ock	B	12
MOOR DITCH	Milton Hill - Didcot STW	B	6
MOOR DITCH	Didcot STW - Thames	E	3.2
NORTHFIELD BROOK	Northfield Brook (W) - Oxford STW	D	0.3
NORTHFIELD BROOK	Oxford STW - Thames	E	1.5
OCK	Longcot - Thames	B	34.5
ODHAY HILL DITCHES	Abingdon STW - Ginge Brook	E	1.6
SANDFORD BROOK	Sandleigh - Ock	D	6.4
THAMES	Ock - Thame	C	15.2
UFFINGTON BROOK	Woolstone Wells - Ock	B	5.3
WADLEY STREAM	Source - Thames	D	8.9
WOODHILL BROOK	Stockham Bridge - Childrey Brook	C	2.5

FACTS IN BRIEF

River Ock



- The name 'Ock' derives from the British word 'echo', which means salmon.
- The River Ock is 37 km in length and the catchment covers 234 square kilometres.
- From headsprings at Little Coxwell, Compton Beauchamp and Woolstone, the Ock flows along the Vale of the White Horse to its confluence with the Thames.
- The fall in the river between the headsprings and its confluence with the River Thames is approximately 60m.
- A gauging station at Abingdon monitors the flow of the River Ock.
- The rich meadows of the Ock support herds of dairy cattle providing high quality milk and butter.
- In 1874 a very fine sword was found in the River Ock near New Cut Mill. It is believed to have belonged to a Saxon warrior of high status.
- Ock bridge in Abingdon has medieval origins. There was a bridge here before 1101 and one stone arch may date from this time. The rest of the bridge was rebuilt and widened at later dates.
- The Ock joins the Thames at Abingdon, which recent archaeological work has shown may be England's oldest continuously inhabited town, with the remains of a Roman settlement above an iron age site dating back to 500 BC.

Biology

The River Thames and its tributaries are sampled for aquatic invertebrates by Environment Agency biologists.



Caddis Fly

These animals provide information on the ecological quality of rivers and can be used to detect and assess pollution and measure the effects of river management activities.

Invertebrates do not move very far and respond to everything contained in the water. This includes pollutants which occur only infrequently or at very low

concentrations and which will be easily missed by current chemical sampling activities.

The biological GQA results for 1995 show the water quality of the Thames is very good. The middle reaches of the Thames have a large variety of aquatic invertebrates. Many of these, including mayflies, caddis flies and damselflies, are intolerant of organic pollution. Some of the tributaries show poorer biological quality which can be attributed to a combination of the effects of sewage work effluents and stormwater discharges.

Conservation

The Thames has a rich variety of wildlife associated with the river or adjacent habitats. As well as the typical mix of water birds such as mute swan, heron and kingfisher, there are a number of internationally important herb-rich meadows in the Thames floodplain at Oxford such as Iffley Meadows and Pixey & Yarnton Meads. Port Meadow, also at Oxford, is the last remaining British site for the rare creeping marshwort plant. The nationally rare summer snowflake (Loddon Lily) is found in wet woodlands alongside the Thames in this area.

The tributaries of the Thames in this area have been adversely affected by past river engineering works, with much of the Ock offering reduced habitat diversity. However, some of the smaller tributaries of the Ock do hold what may be locally important populations of the declining water vole.

The Agency has also undertaken wetland creation work in conjunction with Oxford City Council at Iffley, and with BBONT (Berks, Bucks and Oxon Naturalists Trust) at their reserve by the Thames at Cholsey.

Nature, Conservation and Recreational use

Fisheries

This section of the River Thames is a renowned coarse fishery. The dominant species are bleak, roach, perch, chub and bream. Pike are present throughout whereas barbel and carp are more sporadically distributed, although large specimens of all three species are present.



Pike

The habitat is dominated by navigational requirements with locks and weirs impounding reaches. As a result fish populations can vary between pounds depending on the variety and quality of habitat. Fish recruitment is often linked to the habitat provided by weir streams, tributaries and back channels.

The River Ock has good coarse fish populations with roach, dace, chub and gudgeon dominant. The two major tributaries of the Ock are the Letcombe Brook and the Childrey Brook which also have some good fish populations, including trout on the Letcombe Brook.

Habitat enhancements have been carried out on both the River Ock and the River Thames.



Loddon Lily

Recreation

The banks of the Thames, especially locksites, attract visitors throughout the year for walks, picnics and sightseeing. The Thames is well suited to all kinds of recreational boating, with sailing, canoeing and rowing clubs in most towns. Boat hire and river trips allow casual enjoyment of the river, while the more energetic can take the Thames Path following the riverside on its route from the Thames Barrier to its source in Gloucestershire. Serious walkers are able to stop overnight at a number of locks where camping is permitted. The river and its backwaters provide sought-after fishing and exciting sport is available on an annual permit at the weir pools of a number of locks along this part of the Thames. Some of these weir pools also provide the right conditions for white-water canoeing.

Navigation

The navigation in this section is markedly affected by the height restriction at Osney Bridge which prevents larger craft from proceeding upstream. The main river is joined by two other navigations, the Oxford Canal which joins at two sites in the Oxford area and the Kennet and Avon Canal in Reading; both of these contribute a significant number of craft to the traffic flow in the Thames.

Annual regattas at Henley, Oxford, Abingdon, Wallingford, Goring and Reading are a lively feature of the river in the spring and summer, attracting many visitors. There is considerable rowing interest in Oxford, with university students and three other rowing clubs totalling over 2,500 oarsmen and women.



Thames at Sonning

Flood Defence

Reducing the risk of flooding from the Thames and its tributaries on a day to day basis and planning major flood defence projects in the Thames catchment forms part of the Environment Agency Thames Region's work. Staff at the Agency's river control room at Reading keep a round-the-clock check on weather conditions and river levels. They interpret the information and give the local emergency services early warning of possible floods, in addition to alerting the public.

A flood defence maintenance team is based at Wallingford and a contractor team at Oxford to carry out regular river maintenance work. This includes dredging, weed cutting and removal of blockages. These teams are mobilised during flood emergencies to keep rivers clear of obstructions, operate river control structures, monitor flows and minimise flooding to people and property.

Flood defence staff are also involved in maintenance works for other Agency functions, such as Navigation and Water Resources, on Thames locks and gauging weirs. Following the Agency's commitment to protecting and improving the environment, flood defence work encompasses environmental conservation and enhancement wherever possible.



Goring

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ENVIRONMENT AGENCY

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For general enquiries please call your local Environment Agency office. If you are unsure who to contact, or which is your local office, please call our general enquiry line.

**ENVIRONMENT AGENCY
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0645 333 111

The 24-hour emergency hotline number for reporting all environmental incidents relating to air, land and water.

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0800 80 70 60



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