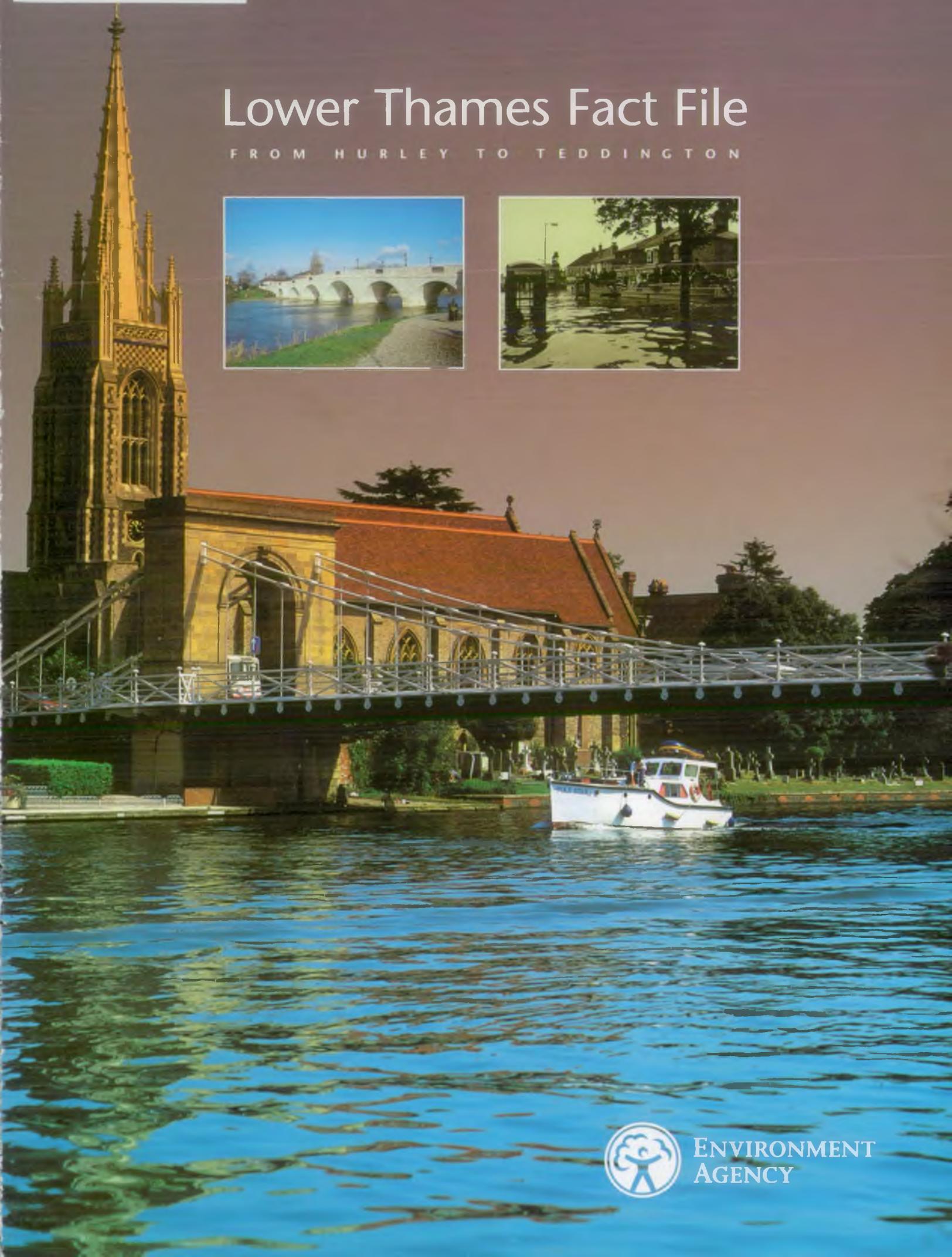


Lower Thames Fact File

FROM HURLEY TO TEDDINGTON



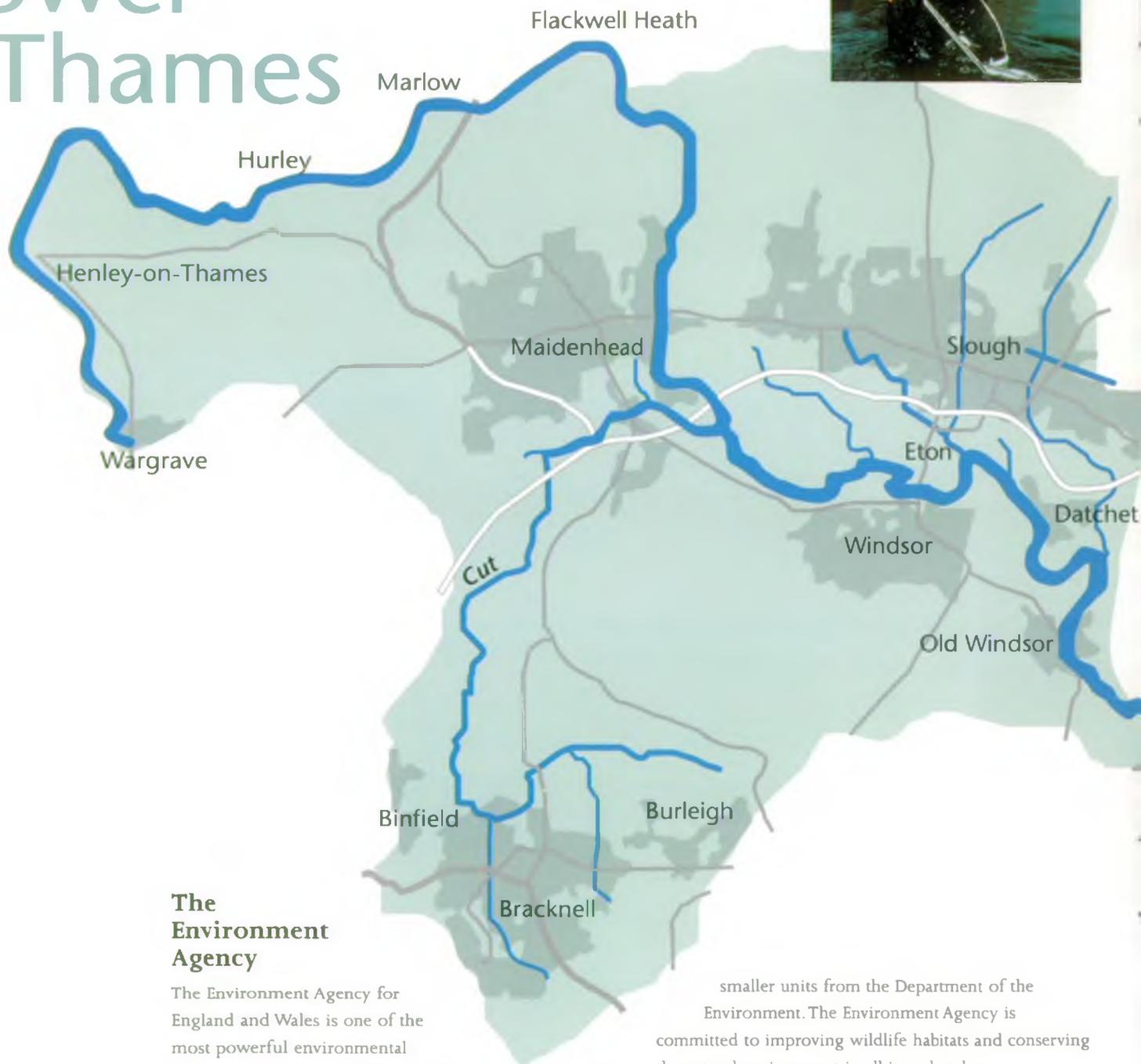
ENVIRONMENT
AGENCY

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, the Lower Thames from Hurley to Teddington, and the Thames Tideway and Estuary extending from Teddington in West London to Shoebury Ness just east of Southend.

Restocking the River Wye



Lower Thames



The Environment Agency

The Environment Agency for England and Wales is one of the most powerful environmental regulators in the world. We provide a comprehensive approach to the protection and management of the environment, emphasising prevention, education and vigorous enforcement wherever necessary. The Agency's creation on the 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). The Lower Thames LEAP consultation report contains a comprehensive survey of local natural resources, pressures on these resources and the consequent state of the local environment.

The Lower Thames LEAP identifies 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 Lower Thames and implementing strategies for their future management.

The plan area and particularly the Lower Thames itself constitutes a resource of great environmental, recreational and historical value. The eastern half of the plan area is predominantly suburban, whilst the western half is more rural with Maidenhead, Windsor, Slough and Bracknell being the main urban areas. For many years the Lower Thames valley has been under pressure from residential, industrial and commercial development. Initially the stimulus was the River Thames itself, which provided a water supply, cheap transport and a

source of energy. In more recent times the development of the railway, the motorway network and Heathrow Airport, along with its proximity to London, has increased the areas comparative economic advantages.

Local authorities have a wide range of powers and duties which have important environmental implications, including land use planning, environmental health and waste collection. We therefore value partnerships with local authorities in order to protect and enhance the local environment. In the Lower Thames area there are 12 Local Authorities and three County Councils:



All Saints Church, Marlow-on-Thames

HOUNSLOW
RICHMOND
KINGSTON
SLOUGH
WINDSOR & MAIDENHEAD
BRACKNELL
SPELTHORNE
WOKINGHAM
ELMBRIDGE
SOUTH BUCKS
RUNNYMEDE
WYCOMBE
SURREY COUNTY COUNCIL
BUCKINGHAMSHIRE COUNTY COUNCIL
BERKSHIRE COUNTY COUNCIL

The Agency is a statutory consultee for certain types of developments requiring planning permission from these authorities, and provides advice on the environmental impact of proposed developments.



ENVIRONMENT AGENCY



003147

FACTS IN BRIEF

- The stretch of the Lower Thames runs from Hurley to Teddington, a distance of 67 km
- Average annual rainfall: 625mm
- Number of waste management licences: 32
- Approximate amount of waste generated per year: 1.1 million tonnes
- Number of IPC Licensed Processes: 7
- Number of sites of special scientific interest: 18
- Maidenhead railway bridge, built by Brunel, has the longest brick built span in the world and the arch on the Buckinghamshire side is known as the 'sounding arch' because of its curious echo.
- The twisting course of the Thames at Windsor is said to have given the town its Anglo-Saxon name, Wyndesore, 'winding shore'.
- The signing of the Magna Carta in 1215 took place on Magna Carta Island, Runnymede.
- A mile downstream of Runnymede on the left bank stands the London Stone. The stone was erected around the year 1200 and, until 1857, marked the point in the river up to which the Corporation of the City of London held jurisdiction.
- The bend in the river immediately above Walton Bridge is called Coway Stakes and tradition holds that it was here that Caesar forded the Thames in pursuit of Cassivellaunus.
- The Rivers Wye, Weir, Colne and Mole are major tributaries of this part of the Thames and are covered in separate fact files.

Protection of the water environment

Between Hurley and Windsor the flow of the Thames is supplemented by springs and seepage rising from the chalk aquifer and by contributions from its tributaries. Towards Teddington more of its flow is derived from direct run-off from areas of clay soils. The lower reaches of the Thames as far as Kingston are of good quality and as a result support a wide variety of fish and wildlife. Below Kingston for both the Thames and the majority of the tributaries water quality is fair with the main influences being urban run-off and discharges from major sewage treatment works. There are a number of minor tributaries of a poorer quality which are dominated by flows of sewage effluent.

There are 37 routine chemical sampling points on the Lower Thames, sampled regularly by Agency staff to check the water quality. There are also six automatic monitoring stations which measure basic water quality parameters every hour.

The following are the GQA classes 1993-1995 for the Lower Thames and its tributaries (excluding those covered by separate fact files).

FROM	TO	LENGTH (KM)	CHEMICAL GQA CLASS		BIOLOGICAL GQA CLASS 1995
			1993	1995	
River Thames					
Hurley	Cut	19.8	C		a
Cut	Romney Lock Cut	8.1	C		b-c
Romney Lock Cut	Wey	21.8	B		b
Wey	Hogsmill	14.5	B		b-c
Hogsmill	Teddington	2.7	C		c
The Cut					
Source	Bracknell STW	10.3	D		d
Bracknell STW	Heywood Stream	8.4	D		d
Heywood Stream	Cannon Hill Bray Wick	2.6	E		d
Cannon Hill Bray Wick	Thames	2.5	C		c
Boveney Ditch					
Roundmoor Ditch	Thames	1.1	F		f
Roundmoor Ditch					
Burnham STW	Boveney Ditch	4.2	F		f

Pollution Prevention and Environmental Quality

General Quality Assessment

In June 1994 a new General Quality Assessment Scheme (GQA) was introduced for the 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 along side each other. The two methods are different and the classes would not necessarily be the same. Chemical measurements reflect water quality from the water sampled at the moment of sampling, whereas biological sampling measures the response of microinvertebrates to all environmental variation over their life cycle.

The chemical component is based on three determinands: Biochemical Oxygen Demand, Dissolved Oxygen and Ammonia. The GQA classes vary from A (very good) to F (bad).

In addition to this the Water Resources Act 1991 gives the Government the power to set statutory water quality objectives for watercourses based on the river usage. These related standards must reflect local needs and conditions and for this the GQA is not appropriate. Five key uses have been selected for evaluations; River Ecosystem, Special Ecosystem, Abstraction for Potable Supply, Agricultural and Industrial Abstraction and Water Sports. Each use

will have a defined set of parameters to provide a quality objective which will be used to set Water Quality Objectives in the future. Full details of these objectives can be found in the Lower Thames LEAP.

Chalvey Ditch					
Slough	Thames	5.5	C		b
Myrke Ditch					
Upton Park	Thames	1.9	E		f
Datchet Common Brook					
Upton Lake	Thames	10.4	C		c
Colne Brook					
Uxbridge Moor	Thames	15.0	C		b
Ash					
Colne	Ashford Common WTW	8.1	C		b
Ashford Common WTW	Thames	2.6	D		c
Portlane Brook					
Feltham	Thames	5.4	C		d
Hogsmill					
Bourne Hall	Hogsmill STW	8.2	B		d
Hogsmill STW	Thames	1.7	E		e

Discharges

The following are the main consented discharges into the Lower Thames and its tributaries (excluding those covered by separate fact files).

Discharge	Cubic Metres per Day	Type of Effluent
River Thames		
Little Marlow STW	120900	Sewage Effluent
Windsor STW	40500	Sewage Effluent
Kempton Park Waterworks	3000	Trade Effluent
Walton Waterworks	20200	Trade Effluent
Sunnyside Reservoir	22750	Trade Effluent
Hampton Waterworks	6819	Trade Effluent
Hampton Waterworks	2273	Trade Effluent
Abbots Brook		
Spade Oak Gravel Pit	33627	Mineral
The Cut		
Bracknell STW	50118	Sewage Effluent
Roundmoor Ditch		
Slough STW	2 discharges of 116480 each	Sewage Effluent
Colne Brook		
Iver North STW	14400	Sewage Effluent
Iver South STW	3462	Sewage Effluent
Ash		
Ashford Common Waterworks	45000	Trade Effluent
Portlane Brook		
Kempton Park Works	5000	Trade Effluent
Hogsmill		
Hogsmill Valley STW	86400	Sewage Effluent



Water Quality Sampling

Industrial and waste regulation

The Lower Thames area has relatively little industry, Slough Trading Estate, Maidenhead, Sunbury and Bracknell being the main areas of industrial activity.

We are responsible for regulating the most complex and potentially polluting types of industrial process for air, land and water under the regime of Integrated Pollution Control (IPC). There are seven such large scale processes authorised by the Agency in the Lower Thames area, including Slough Trading Estates Power Station, ICI Paints at Slough and BP Solar at Sunbury on Thames. To check for appropriate environmental performance we undertake inspections of regulated processes, and collect data on releases to air, water and land which can be obtained from our Public Register.

There are no nuclear power stations in the Lower Thames catchment, however there are 11 authorisations for the accumulation and disposal of radioactive waste, and approximately 130 registrations for the use of radioactive substances all regulated by the Agency. We undertake inspections of these regulated activities and are empowered to serve enforcement notices or to prosecute where breaches of legislation are found.

The Environment Agency licences, regulates and supervises the handling, storage and disposal of waste. The Lower Thames area generates approximately one million tonnes of controlled waste per annum (household, industrial and commercial), representing approximately 1.1 tonnes per household per year.

Whereas the River Thames is used in central London to transport waste for disposal, it is not such a practical option within this area and the majority is transported by road or rail. Historically the majority of waste has been disposed via landfill sites. There are 12 active landfill sites in the area, however the current estimate is that available landfill space in the region will run out in the next 10 to 15 years. In order to combat this problem targets from the Government's waste strategy 'Making Waste Work' have been adopted at a local level, including targets for recycling, composting and recovering waste, along with producer responsibility targets. An example of this strategy in the Lower Thames area is the 'Waste Wise Business Manual' produced by the Agency in partnership with Surrey County Council, providing information on waste reduction, re-use and recycling.



Water Resources

The Lower Thames derives its flow from water draining from the Cotswold Hills, the Vale of Oxford, the Berkshire Downs, the Chiltern Hills and parts of the Hampshire and North Downs. The major tributaries entering the reach from Hurley to Teddington are the rivers Wye, Colne, Wey and Mole. More than half the rainfall falling on the area is lost by evaporation from hard surfaces and plants. The remainder supplies the resource of water which supports the natural environment, including river flows, aquifers, and water supplies for homes, industry and agriculture.

To ensure there is enough information on river flows we carry out continuous measurements. The Lower Thames and all its major tributaries have fixed gauging stations.

In 1994 the Agency published 'Future Water Resources in the Thames Region: a Strategy for Sustainable Management' which reviewed future water resource needs for domestic and industrial growth. This shows that for the London area additional water resources are unlikely to be required until 2015.

Abstractions

In the lower part of the Thames both groundwater and rivers are important sources of drinking water. However, the role of this part of the river in providing a large part of the water supply for London is predominant. The total amount licensed to be abstracted in the area is about 1,800,000 cubic metres per day. The majority is pumped first to the large storage reservoirs to the west of London prior to treatment and distribution to the capital. Much of this water is discharged back to the Tidal Thames via a number of major sewage treatment plants serving London, such as those at Crossness and Beckton in East London.

Managing the abstractions and the river is a complex task, particularly in summer low flow periods. The Agency has established with the appropriate water companies operating agreements (under section 20 of the 1991 Water Resources Act), which set out rules to govern abstraction. The large abstractions need to be managed so that levels in the river for navigation are not unduly affected. We also maintain flow over Teddington weir which is important for water quality in the upper Tideway and the success of the Thames Salmon scheme.



Flow Gauging



Mandarin duck

Wildlife

The Lower Thames contains a rich variety of wildlife both on and in the river and along the river corridor. Several species of waterbird such as heron, kingfisher, great crested grebe, coot, moorhen and mandarin duck can regularly be seen, and large flocks of swans are found in Windsor, Staines and Hampton Court.

From Wargrave to Maidenhead the river corridor is well defined by wooded scarp slopes, such as Bisham Woods, which are rich in woodland species. In areas of wet woodland adjacent to the Thames specimens of the Red Data Book species, Loddon Lilly can be found.

mayflies, caddis flies, damselflies and snails which are an important food source for fish. Several of the Thames tributaries have less diverse invertebrate communities as a result of a combination of the effects of sewage work effluents and storm water discharges.

Fisheries

The Thames from Hurley to Teddington is home to over 30 species of fish. The main ones likely to be encountered are bream, chub, dace, gudgeon, perch, pike and roach. In previous years, the gathering of fisheries

Nature, Conservation and Recreational Use

Further down the Thames the river corridor broadens and contains relics of flood plain meadows such as Chertsey Meads. This part of the river is characterised by the large numbers of adjacent waterbodies such as gravel pits and reservoirs. These attract a great variety of birdlife such as tufted duck, smew and gadwall and have become one of the richest areas of birdlife in Britain.



Damselfly

Ecology

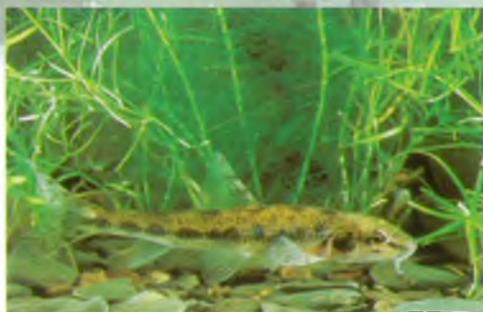
The River Thames and its tributaries are regularly sampled for aquatic invertebrates by our biologists. These animals provide information on the biological quality of rivers and can be used to detect and assess pollution and measure the effects of river management activities. Invertebrates do not move very far and respond to everything contained in the water. This includes pollutants which may occur infrequently or at very low concentrations, and which will be missed easily by current chemical sampling activities.

The biological GQA results for 1995 show that water quality of the Thames is very good. The lower reaches of the Thames contain the wide variety of invertebrates typical of large rivers with diverse habitats. Investigations have shown that the river margins with their aquatic plants are particularly rich in invertebrates. These include

information depended on the use of trawls, seine nets and angler catch data. Such a large and busy watercourse as the Thames is not suited to conventional electrofishing methods. However, recent advances in techniques such as horizontal sonar and boom boat electrofishing has made the collection of more accurate, qualitative data possible. This work is currently ongoing.

The Thames is important as a navigation, but the need to dredge the river bed to maintain a navigable channel and the construction and operation of weirs does have a deleterious affect on the fishery. Despite this, high grade fisheries are present throughout the Lower Thames, attracting all types of anglers. Population cycles are a common occurrence shown throughout the coarse fish population. During the 1970s bleak were abundant; the 1980s saw a welcome return of perch and huge dace shoals. In the 1990s a decline in the dace population was seen along with a continued expansion of the perch population. Of the major freshwater species, bream, roach and perch now dominate the lower reaches of the river.

The Agency has maintained a salmon restoration programme since 1979, progressively building fish passes into Lower Thames weirs in order that salmon may return to their spawning ground.



Gudgeon



Perch



Chub



Of the sixteen weirs between Teddington and Hurley fifteen have fish passes, with the final pass set to be opened in

1998. The Thames Salmon Trust, a registered charity, has worked in conjunction with the Agency raising money by finding sponsors for the fish passes.

Returning adults are monitored using fish traps at Molesey and Sunbury weirs before proceeding upstream. The highest recorded annual return so far was 338 salmon in 1993. Small numbers of sea trout are also recorded each year.

Recreation

The banks of the Thames, especially at locks, attract visitors throughout the year for walks, picnics and sightseeing. The wide waters of this part of the Thames are ideal for all kinds of recreational boating. In towns and villages all along the river there are clubs for sailing, rowing, punting, skiff racing and canoeing. Annual regattas are a lively feature of the river during the summer: some, such as Marlow for the serious athlete, others more relaxed and informal. At many towns boat hire and river trips are popular ways to explore the river, while the more energetic can walk the Thames Path. This follows the riverside on its route from the Thames Barrier to the source in Gloucestershire, crossing two new bridges specially provided for it at Temple and Bourne End. 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. At a number of sites, notably Hambleden and Shepperton, canoeists are able to use the strong flow through weirs for white-water canoeing and slalom events.

Navigation

The Environment Agency has responsibility for Navigation on the non tidal Thames. There are fifteen locks on this stretch of the Thames and our lock and weir keepers play an important part not only in guiding craft through the locks but also in controlling the level of water in the river. Navigation staff also control and oversee river based events, conduct



Marlow Lock

launch safety inspections to ensure compliance with Navigation Acts and Byelaws, and regulate all structures in and about the river. However, with an increasing number of pleasure boats particularly along this stretch of the Thames, during the summer months congestion can be a problem. In order to help relieve this improvements to facilities are being undertaken, particularly in lock lay-bys and public moorings.

Flood Defence

Maintaining the environs of the Thames and its tributaries on a day to day basis, and implementing projects to reduce the incidence of major floods form a large part of flood defence duties within Thames Region. The Lower Thames has a history of flooding, most significantly in 1947.

Staff at the river control room at Reading keep a round the clock check on weather conditions and river levels. They interpret the information, and when the possibility of flooding is detected they issue warnings to the public, the emergency services, and the local authorities through automatic voice messaging systems, the media and in some instances by direct contact.

The operational maintenance team work direct from the Sunbury office and organises any necessary dredging, weed clearance and removal of blockages to reduce the risk of flooding. They also mobilise the emergency workforce during any emergencies to keep rivers clear of obstructions, so flood waters can be conveyed away as quickly as possible.

The major flood defence scheme currently under construction within Thames Region is the Maidenhead, Eton and Windsor Flood Alleviation Scheme, which commenced in 1996. On completion the scheme will not only protect an area prone to severe flooding, but also improve the natural river environment and include features of environmental conservation and enhancement.

The Floodcall number to ring to obtain information during a potential flood situation is **0645 881188**.



Top: Dutch Flood 1947



Maidenhead 1990



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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
GENERAL ENQUIRY LINE**

0645 333 111

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

**ENVIRONMENT AGENCY
EMERGENCY HOTLINE**

0800 80 70 60



**ENVIRONMENT
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