THE RIVER MEDWAY

COURSE AND GEOLOGY

The River Medway rises in the Ashdown Forest as a spring issuing from the Tunbridge Wells Sands just above Turners Hill. The sands and clays of the High Weald dictate the character of the river, which with its many deeply incised tributaries, contrasts sharply with the chalk streams found in other parts of the region. The Wealden clays are impermeable to rainfall and water must find its way across the surface of the steeply sloping land, creating a multitude of small rushing streams.

These meet to form a typical Wealden vale as the Medway flows north-eastwards towards Penshurst. There, the river is joined by the River Eden. As it flows across the Vale of Kent the gradient is less, though the river still collects tributaries which rise in other parts of the High Weald. These include the Rivers Bourne, Teise and Beult. The River Teise has mixed origins; the Upper Teise once flowed eastwards to the Rother but was captured by the Lower Teise when it cut away the soft clay ridge dividing the two streams. The River Beult which rises in the Hythe sandstone ridge is the longest tributary of the river.

The Medway cuts its way through the Greensand Ridge beyond Yalding and collects two more tributaries, the Loose Stream and the River Len before reaching the County Town of Maidstone. The Loose Stream for part of its length flows underground. The River Len is larger and longer, but flows more slowly and has its source near the village of Lenham. Unlike the tributaries arising in the High Weald the Loose and Len have more reliable springs which sustain their flow through the summer months.

Allington Lock forms the tidal limit of the Medway in Maidstone from whence the river flows North, cutting through the chalk. The estuary widens between Rochester and Sheerness until the River Medway flows into the Thames Estuary.

The total length of the main Medway from source to the Estuary at Sheerness is 110km (70 miles). The river has a catchment area of 1400 sq km above the tidal limit and 402 sq km below the tidal limit.

HISTORY

The name of the river may derive from a Celtic word, Medu meaning mead, presumably signifying a river with “sweet” water. The Romans called the river Fluminus Meduwasiae and the Saxons knew it as the Medwaeg.

Historically the importance of the area lay in its relatively rich and accessible iron deposits. These were exploited on a small scale in the Iron Age (the grey Wadhurst clay contains iron nodules or “sows”, some with an iron content as high as 55%). In Roman times the ore was heated by charcoal in a clay-walled mound through which air was forced by bellows. The Ashdown Forest and the High Weald supplied abundant timber for fuel. After several centuries of decline the industry was revived in Tudor times when the more sophisticated blast furnaces introduced by the French were pioneered on the headstreams of the Medway.

The process produced cast iron which was forged into wrought iron. The steep Wealden streams proved ideal for impounding as “furnace” or “hammer” ponds to provide a head of water to drive the twin waterwheels characteristic of Tudor forges. These drove furnace bellows and trip hammers to forge the iron.

Another important product of the Medway Valley was Kentish ragstone. This was quarried by the Romans in the Maidstone area and transported to London to build the City walls. The Normans continued the process, ferrying ragstone from the Isle of Grain to build the Tower of London. Kentish ragstone is still used by the National Rivers Authority to build tidal defences. Its workmen continue the traditional skills of shaping the rocks to interlock into a durable defence without the need for mortar.

HYDROLOGY

The Wealden rivers respond rapidly to rainfall and extremes of flow may vary five-hundredfold between summer and winter. There are six flow gauging stations on the main river, three on the River Eden and three on the River Teise. The Eridge Stream, the Bartley Mill Stream and the Rivers Bourne, Beult and Beult are also gauged.

There are three water supply reservoirs in the Medway catchment, Bough Beech, Weir Wood and Bewl Water.

Bewl Water near Lamberhurst is the largest reservoir in the Southern Region and is filled partly by inflow from its natural catchment and partly by water pumped from the River Teise at Goudhurst. Pumping normally takes place in autumn and winter to fill the reservoir for use during the summer. The amount of water taken from the River Teise is regulated by the National Rivers Authority by a licensing system which ensures that flow does not fall below 23 Ml/d (5 mgd). Releases of water from the reservoir are used to support Southern Water’s abstraction on the River Medway in Maidstone when natural flow in the river is insufficient. Once river flows are below 352 Ml/d (77½ mgd), no more water may be taken in Maidstone than is being released from Bewl Water. The scheme benefits the River Teise and the River Medway between the reservoir and the abstraction point. Mid Kent Water Company also uses Bewl Water to supply its treatment works on site.

Whilst the largest single abstraction on the river is Southern Water’s intake at Maidstone, there are numerous small abstractions for agriculture and industry licensed by the NRA. Spray irrigation is the major agricultural use particularly on the River Teise and the River Beult.

Average yearly rainfall in the catchment ranges from 667 mm in the lower Medway to 756 mm in the upper catchment.

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<tr>
<th>RESERVOIR</th>
<th>VOLUME (Ml)</th>
<th>DESIGN YIELD (Ml/d)</th>
<th>WATER AREA (ha)</th>
<th>LOCATION</th>
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Bough Beech, Weir Wood and Bewl Water.

RESERVOIR VOLUME

DESIGN YIELD

WATER AREA

LOCATION
WATER QUALITY

The National Rivers Authority sets objectives for river quality to protect its natural stocks of fish and the uses to which it is put. To achieve these objectives, the Authority sets limits on all permitted discharges to the river, restricting their strength and quantity. These are known as consent conditions.

Historically urban development and industrialisation have taxed the river's ability to absorb waste. However, the National Rivers Authority and its predecessors have been able to bring about improvements by imposing increasingly more stringent consent conditions.

Despite low dilutions in summer, the receiving watercourses are maintained in Class 2. The River Medway itself achieves Class 1A and IB for all but an 1.18 km stretch below the confluence with the River Teise which achieves Class 2.

Historically, the naval base at Chatham gave great economic impetus to the lower reaches of the river and its estuary. Urban and industrial development have been significant factors affecting the water quality. The principal discharges comprise effluents from the paper and chemical industries, cooling waters from power stations and sewage effluents from several large treatment plants. Apart from the cooling waters, all effluents are treated before discharge to the estuary.

Motney Hill and Aylesford Sewage Treatment Works are the two largest in Southern Region with flows of 42,000 Ml/d and 25,900 Ml/d respectively.

Under normal flow conditions, effluents are diluted and dispersed in the tidal waters of the estuary. However, at times of low flow and high temperatures the upper reaches can become substantially devoid of oxygen. This is aggravated because the major polluting loads are imposed towards the head of the estuary. To meet the challenge, the NRA plans to review consent conditions on discharges to improve water quality in the estuary.

FISHERIES

The iron rich streams of the Weald support resident populations of small but highly coloured brown trout. The River Teise is managed as a game fishery down to Marden whereas the lower stretches of both the Teise and Beult are managed as coarse fisheries with chub, dace, roach and pike. In the middle and lower reaches of streams where the water is deeper, there are bream and tench. Minnows, gudgeon, stone loaches, bullheads, brook lampreys and perch are also found in riffles. The main river has a temporary lake whenever the flows exceed the channel capacities through the town. The lake can be drained at a controlled rate once flood flows have abated. Information from flow gauging stations, level recorders and rain gauges in the catchment is telemetered to a control room, so that flow through the gates can be regulated.

FLOOD DEFENCE

The impermeable clay and the large areas of urban development give the river its flashy character making the NRA's Flood Defence role of paramount importance.

Historically the Medway Valley and Eden Valley suffered flooding of both agricultural land and property. In September 1968 the worst flood in living memory occurred causing massive damage both in the town of Tonbridge and in the downstream areas.

In order to alleviate flooding, a flood storage area was created above Tonbridge at Leigh and is now operated by the NRA. This is the largest on-river flood storage area in the UK. In times of heavy rainfall three gates in an earthen embankment across the river regulate the amount of flood water passing downstream to Tonbridge. Some of the run-off is held back forming a temporary lake whenever the flows exceed the channel capacities through the town. The lake can be drained at a controlled rate once flood flows have abated.

MEDWAY PROJECT

In March 1988 the Medway River Project was established to improve the leisure and tourism potential of the Navigation. It is funded by a partnership of the NRA, Countryside Commission, Kent County Council, Maidstone Borough Council, Tonbridge and Malling Borough Council.

The aims of the project are to:

- Re-establish and maintain a continuous towpath between Allington and Leigh.
- Develop circular walks linking points of special interest.
- Enhance landscape and wildlife.
- Manage the river for the benefit of recreation and wildlife.
- Encourage local communities and landowners to take a positive role in caring for the Medway.
- Encourage river users to enhance the Medway and its boating facilities.
HISTORY OF THE MEDWAY NAVIGATION

1531 "Commissioners of Sewers" were established to improve land drainage and prevent flooding. The Medway Commissioners also proposed to clear the river for navigation, so that its natural course is unobstructed and her Majesty’s subjects can travel along it in boats as a highway with ease.

1624 Further moves were made to make the river navigable to transport oak trees from the Weald to Chatham for ship building. The weirs and a low bridge at Nettlestead seem to have stopped this scheme.

1664 The first specific Navigation Act gave powers for certain "undertakers" to "erect, build, set up and make" locks, weirs, tumples, pens of water, wharfs and wharves to load and unload iron, ordnance balls, timber and other materials.

1739 A second Act was passed to make the river navigable to Forest Row. Locks were built between Maidstone and Tonbridge by 1746. The Company of the Proprietors of the Navigation of the River Medway transported materials down river for the Navy and corn, hops, coal and lime upstream.

1782 James Christie was engaged as canal engineer to plan on extension from Tonbridge to Pembury. He asked for special rates for his own barges and purchased Tonbridge Town Mills to control the water rights. His draining of the Town Ponds in 1829 which stranded all barges at the wharfs resulted in legal and physical battles which bankrupted him.

1842 The railway brought competition to river transport. In 1892 a new navigation company was formed but fell into receivership by 1910.

1911 The prospect of the river becoming derelict led to the creation of the Medway Conservancy Board. The Navigation between Maidstone and Tonbridge was re-opened in 1915.

1934 Powers were taken over by the River Medway Catchment Board under the 1930 Land Drainage Act. Successor bodies were the Kent River Board and the Kent River Authority.

1974 Responsibility for the Navigation transferred to the Southern Water Authority. Commercial traffic had ceased, but the water remained popular for pleasure boats.

REFERENCES

Survey of Rivers and Coast in the South-East Region — The Rivers of Kent. Nature Conservation Council, Snails, Church Street, Wye, Ashford, Kent, TN25 5RR

The Medway Flood Relief Scheme, National Rivers Authority, Southern Region.