

# THE RIVER SEVERN



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THE RIVER SEVERN

The River Severn's name is said to have been derived from Sabrina - a tragic water nymph reputed to have drowned in its waters. In its upper reaches of Powys it is known by its Welsh name of Afon Hafren.

A unique river in many ways, the clean fast-flowing Severn is a first class river along its whole length. Set in a pastoral background of picturesque countryside and rolling hills, its natural drainage area, river basin or catchment covers 11,420 square kilometres (4,410 square miles) with a population of only 2.5 million. Most of the population live in larger towns, particularly Wolverhampton and Dudley in the western half of the Black Country. Other large towns and cities within the catchment include Telford, Shrewsbury, Rugby, Worcester, Coventry, Cheltenham, Gloucester, Kidderminster and

Stroud. Although the 338 kilometres of the River Thames make it the longest river flowing entirely in England, the Severn, from its Welsh source to its outflow in the Bristol Channel, is 354 kilometres long, making it the longest river in Great Britain. The Severn is a vital source of water supply for the towns, cities and surrounding areas of Shrewsbury, Wolverhampton, Birmingham, Coventry, Worcester, Gloucester and Bristol. Six million people receive water taken from the River Severn. Water is also piped to Liverpool from its tributary, the Vyrnwy. Principal tributaries of the Severn are the Vyrnwy, Tern, Worcestershire Stour, Teme, Warwickshire Avon, Leaden Frome, Salwarpe and Worfe.

A HISTORIC RIVER

The source of the River Severn is on the

Bending north-easterly, about eight kilometres further on the river reaches Llandinam where the river is crossed by an iron bridge. The rivers Trannon and Carno join the Severn upstream of Caersws, where the river is crossed by a stone bridge. Caersws is the meeting place of five roads and so was an important Roman station. Flowing past Newtown in the Vale of



The source of the River Severn

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By the time the Severn reaches Llanidloes, about 19 km further on, it has dropped 457 metres. Here the river is joined by the Dulas from the south and the Clywedog from the north.

Powys, the Severn receives the only river which flows from England into Wales, the Camlad near Forden. The Severn travels on past Welshpool to Buttington. Here, Offa's Dyke approaches the river before disappearing for eight kms and then reappearing near Llandrinio. From Llandrinio the river turns east towards the English border. One of the Severn's most beautiful tributaries, the Vyrnwy, enters the Severn just over the border. A number of

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other tributaries join the Severn in Shropshire, of which the main ones are the Perry, Tern and Worfe.

Almost completely encircled by the Severn, Shrewsbury was an ideal site for a settlement because it was naturally defended from attackers. Called Pengwern around 300 AD, it grew and became the capital of the area of Wales called Powis. So important was it, that in the Domesday Book it was called a city. Shrewsbury became a wealthy and important town thanks to its position, navigable river and close business links with Wales. Roger de Montgomery, who was created 1st Earl of Shrewsbury by William the Conqueror, erected Shrewsbury Castle.

The river enters Shrewsbury under the Welsh Bridge, rebuilt in 1791, and leaves it on the eastern side under the English Bridge, which was

replaced in 1769 by John Gwynne. That same year he also built a bridge at Atcham on the site of many previous bridges. The River Tern joins the Severn at Atcham. At Cressage, Thomas Telford's timber bridge has been replaced with a ferro-concrete one. Cressage was a Saxon settlement with fishing rights in the river at Domesday. Its name means "Christ's Oak" which is thought to indicate that it was a place where early Christians met for

worship before a church was built.

An iron bridge over the river at Buildwas was built by Thomas Telford. Buildwas Abbey was founded in 1195 by Cistercians and much of it still remains. The Abbey acquired loading facilities for barges at Cressage as well as permission for the monks to dip their sheep.

After the Ice Age the rising waters of Lake

toll bridge ranged from two shillings (10p) for every coach and six, to one old halfpenny for a pedestrian. Practically the whole area is now under the guardianship of the Ironbridge Gorge Museum Trust and ironwork can still be seen in windowsills and frames, chimney pots and railings.

The gorge is prone to landslips and one in the late 1880's blocked the river at Buildwas.

Down the river at Coalport there is a wooden bridge which was built in 1770 and has been strengthened several times with cast-iron ribs. Before it enters Bridgnorth the Severn is joined by the Worfe. Set on sandstone cliffs, High Town towers over Low Town set on the river. Caves in the cliff were once used to store Bridgnorth's famous Cave Ale.

The Severn Valley Railway links Bridgnorth

to Bewdley and keeps close to the banks of the river for much of the distance. The line crosses the Severn downstream of Upper Arley by the Victoria Bridge. Twice as long as the Iron Bridge, this cast-iron bridge was designed by Thomas Telford and built by the designer of the Forth Bridge in Scotland, Sir John Fowler.

Bewdley was a sanctuary for fugitives from both Shropshire and Worcestershire for many years. Because each of the counties



The Iron Bridge

Lapworth, on what is now the Shropshire Plain, overspilled the hills of Ironbridge and cut a gorge. This laid bare coal, limestone, clay and ironstone in the rocks – all the ingredients which were to make industrialisation of the valley possible.

At Ironbridge the river flows under the famous bridge itself. The first iron bridge in the world, it was cast in Coalbrookdale, completed in 1779, erected in 1780 and has a span of 30 metres. Charges for this private

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laid claim to it, it was neutral territory until finally allotted to Worcestershire in 1544.

Telford's stone bridge at Bewdley replaced a five arched bridge which succumbed to the great flood of 1795. The Staffordshire and Worcestershire Canal, built in 1787, was intended to go to Bewdley but the lack of local interest resulted in it going to the hamlet of Stourmouth instead.

The hamlet grew and became Stourport, but by 1870 when the present bridge was built the town was in decline due to the coming of the railway and the opening of the Birmingham and Worcester Canal. At Stourport the Severn receives the Stour and below Stourport the river is navigable at all times thanks to a series of weirs which hold up the water level.

There are more locks and a weir at Holt Fleet and another of Telford's

bridges, built in 1828. Grimley village contains the remains of a Roman Fort.

Worcester grew up around the lowest Severn ford to be normally unaffected by the tide and Bore. It also lies on the old Roman road from Glevum (Gloucester) to Salinae (Droitwich), where the Romans obtained their salt. King John, who died in 1216, is buried in Worcester Cathedral.

At Diglis the river divides around an island, the western branch going over the weir and

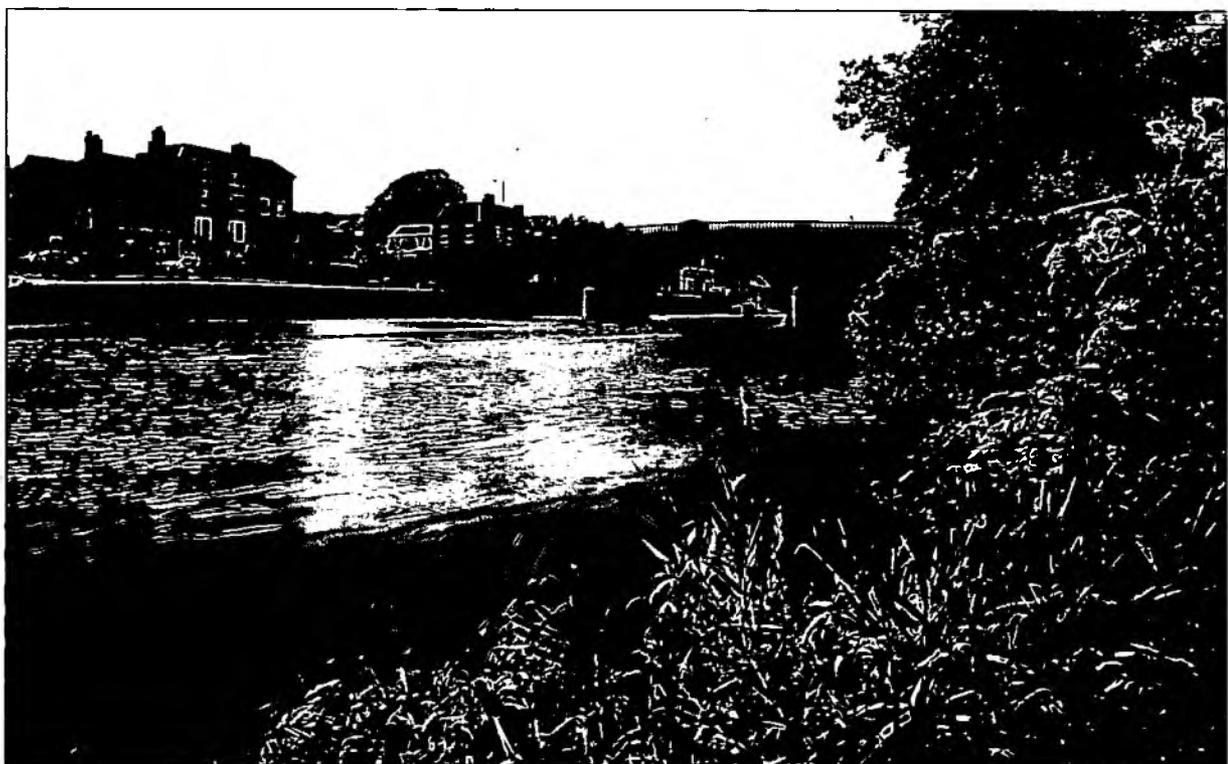
the eastern passing locks and docks around the basin of the Birmingham and Worcester canal. Past Worcester the river is joined by its second longest tributary, the Teme, not far from Worcestershire County Cricket Club's ground.

In 1985 a new bridge was opened just below where the Teme joins the Severn. At the eastern end of the bridge, which forms part

Worcester and Gloucester. The present Upton bridge was built in 1939.

Just downstream at Ripple, Prince Maurice, the nephew of Charles I, defeated the Parliamentarian General, Sir William Waller during the Civil War. It was to prove the last Royalist victory of the war.

The M50 motorway crosses the river a few kilometres further on and is known as the



Bewdley

of the southern link by-pass for Worcester, a viewing platform has been built with panels describing the Battle of Worcester in the Civil War.

Until 1985, for the whole stretch of the river between Worcester and Upton there were no bridges. During the Civil War, and in other emergencies, temporary constructions resting on boats were used to allow people to cross. In the mid-16th century a bridge at Upton was the only one between

Queenhill Viaduct.

At Tewkesbury the river passes under the Mythe Bridge which was built by Telford in 1826 to replace a ferry.

The Warwickshire Avon joins the Severn at Tewkesbury. The Avon has been divided by locks, islands and a weir so the northern branch, the Old Avon, flows down into the Severn above Upper Lode and the southern end, known as Mill Avon, at Lower Lode. Throughout the centuries, building in

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Tewkesbury has been conditioned by the flooding of the rivers and so the town has remained Y-shaped and constricted.

Haw Bridge at Tirley replaced a bridge which had three cast-iron arches and was destroyed when a 200 ton ship struck it in 1958.

Gloucester started life as a Roman outpost called Glevum. The old English "ceaster", from which "cester" is taken, means "Roman fort." After the Romans left, the Saxons moved in and by the time the Normans arrived it was a prosperous town containing 10 churches. Edward II is buried in Gloucester Cathedral. Gloucester was the lowest point at which the river could be bridged and there has been a bridge here since at least the 12th century. Over Bridge, built by Telford in 1825, has been by-passed by a modern bridge.

Despite the quays along the Severn being developed by Romans, Saxons and Normans, Gloucester was not chartered as a port until the reign of Elizabeth I. The present port includes the enclosed City Dock, the Gloucester and Sharpness Canal, opened in 1827 and, 26 kms further south, the Ocean Dock at Sharpness. The Sharpness Canal enabled vessels to bypass the tidal estuary.

Below Gloucester, the Severn becomes

estuarine and tidal. After it is joined by the River Wye at Beachley, the Severn Estuary is known as the Bristol Channel.

Near Westbury, low tide reveals stretches of sand and mud which are cut by once navigable channels.

Newnham's short prosperity in the late 18th century depended mainly on river trade. Canal links between the Midlands



Tewkesbury weir

and London killed this trade early in the 19th century. Just south of the town is Bullo Pill, a tidal creek which was first used for boat building and later developed as a wet dock for the export of Forest of Dean Coal.

To the west of Frampton the Sharpness Canal is crossed by Splatt Bridge. The Severn is almost at its widest here and Awre on the west bank, like Arlingham on the east, is half surrounded by water.

Lydney was a town of importance from the Iron Age when a hill fort was built in what is now Lydney Park. The Romans also built within its ramparts. Up to the 17th century, ships could reach wharves quite close to the church but the river changed course and a canal had to be cut to Lydney Pill. Once a tidal basin had been created and a tram road opened, Lydney became the chief Forest of

Dean port. Lydney docks date from 1813 and trade reached its peak in the late 19th century since when it has steadily declined.

Tidenham's Saxon charters go back to the 10th century and give a detailed picture of a large, carefully organised settlement. It owned more than 60 fish weirs on the Severn and 20 on the Wye. The famous Severn Bridge crosses from Aust to Beachley on the site of a ferry crossing which goes back to pre-Roman times. Part of the M4, it

was built in 1966.

In 1886 the Severn Tunnel was completed. Running between New Passage and Portskewett, it is the longest railway tunnel in Britain and three and a half of its six and a half kms are under the river bed.

### WATER QUALITY

The River Severn is an important source of domestic water supply for surrounding areas, the West Midlands and Bristol – six

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depend on information from many points along the Severn. Rainfall records, radar screens, river levels, expected abstractions and weather forecasts are all closely examined at the NRA's flow forecasting centre in Solihull before the decision to release water is taken.

FLOODING

The Severn is subject to flooding which can result in a water level rise of around six metres above normal on the lower reaches of the non-tidal part of the river. The maximum tidal variation at Avonmouth can be 15 metres which is far greater than any other river in the British Isles. In the world it is only exceeded by the Bay of Fundy tides in Canada.

Flooding on the Severn is not a recent phenomenon but a natural occurrence.

The Romans had to protect their forts at Forden and Caersws with embankments and in 1969 and 1972 respectively Caersws and Newtown were protected by new flood defences. Before this they had suffered frequent and serious flooding. Sometimes parishes close to the river maintained flood walls with church funds but many places simply accepted the inevitable. Shrewsbury was originally built on high

ground on the inside of a narrow-necked loop in the river. Over the years development has encroached into this floodplain and now extensive areas are subject to flooding. The NRA is investigating a possible flood alleviation scheme for the town which could protect 400 properties.

In Worcester the height of the floods of 1672, 1770 and 1795 are recorded on the

been reduced flood water flows on until it reaches a point where it can overspill.

A major flood of a magnitude which would happen on average only once in any 200 years occurred in 1947. Since the 1950's major floods of a smaller magnitude happened in 1960, 1965, 1968, 1981, 1989 and 1990. Flooding has not always been regarded as a disaster. Worcestershire

County Cricket ground is claimed to be one of the finest in the country precisely because it is flooded by the Severn almost every winter. Many riverside fields known as flood meadows, or hams, are deliberately allowed to flood and they act as overspill reservoirs for flood water. Without them, the flood would be even more devastating further downstream. Between Worcester and Tewkesbury, the floodplain varies between 800 and 1600 metres wide.



Worcestershire County Cricket Ground, 1990

walls near the Cathedral and in 1795, 16 bridges in Shropshire were demolished by the flood.

Worcester lies on both sides of the Severn and there are areas of natural floodplain on both banks which have been built on over the centuries. This has led to considerable flooding problems, not only for those properties built on the floodplain but also for many others further downstream. Because the natural flood storage area has

The stretch between Tewkesbury and Gloucester is also affected by tides and in some places the floodplain is more than two kilometres wide.

Although serious flooding is not a frequent event in Gloucester, urban areas are flooded when adverse river and tidal conditions occur and also from tributaries passing through the eastern side of the city. Major floods happened here in 1947, 1960, 1965 and 1990.

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million consumers. It is also used extensively for agricultural purposes, particularly spray irrigation, and is used in some industrial processes such as cooling at Ironbridge power station.

In 1991 over 500 megalitres (Ml) (110 million gallons) were taken from the river each day. Under normal weather conditions this is expected to rise to over 600 Ml (132 mg) by the year 2001.

Although the Severn is a first class river for quality through- out its length, some of its tributaries are not such top quality. Pollution is a problem in the Worcestershire Stour which drains the industrial area to the west of Birmingham and although this has an impact, the Severn's huge size means it quickly recovers.

The Warwickshire Avon is affected by large volumes of effluent from Rugby and Coventry

sewage works and cannot be used for public water supply other than upstream of Rugby.

The Severn estuary is affected by the discharge of over 50 Ml (11 mg) daily of settled sewage from Gloucester. This means there is a reduction of dissolved oxygen levels downstream and significant concentrations of ammonia. Talks are under way with Severn Trent Water to stop this happening and the problem should be

solved by 1996 when a new sewage works will be in operation.

Regular samples are taken from a number of points on the Severn and its tributaries to ensure water quality is not declining and to detect any pollution incidents not visible to the naked eye. All discharges are also regularly sampled and if they do not meet the consent conditions laid down in their

flood relief in the upper reaches of the Severn. During the summer when levels in the river are low, water is released to bolster the flow and so help ensure that water supplies are always available to six million consumers.

Lake Vyrnwy is a direct supply reservoir for Liverpool and is owned by Severn Trent Water. It is situated at the head of the River



Llyn Clywedog

licence the NRA can prosecute.

REGULATING THE RIVER

Llyn Clywedog reservoir is managed on behalf of the NRA for regulating the River Severn. The dam is 72 metres high and was built on the River Clywedog upstream of Llanidloes in the 1960's. It has a surface area of 250 hectares and can hold 50,000 Ml (11,000 mg) of water.

The reservoir retains excess flows in the winter which gives a very limited degree of

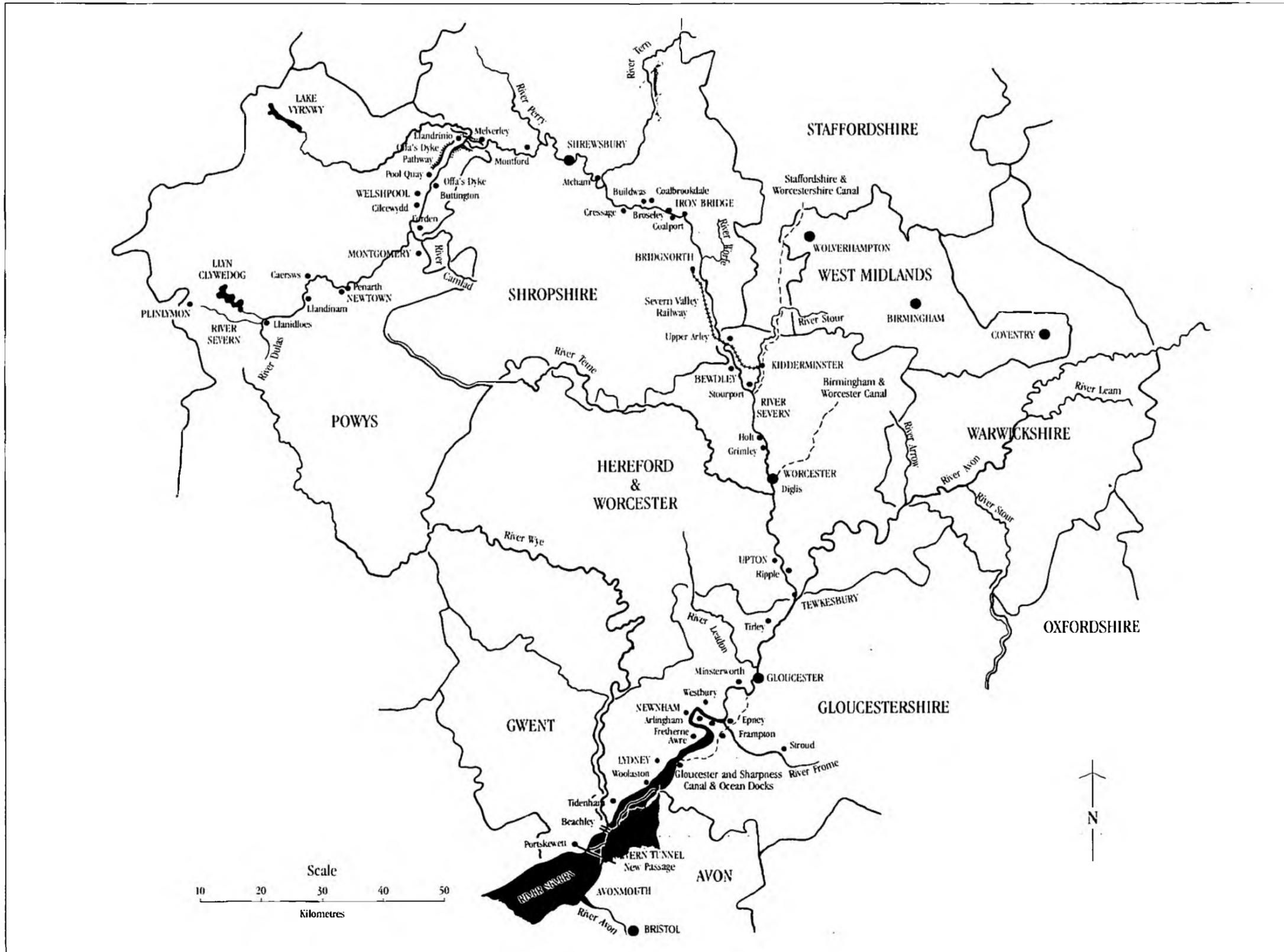
Vyrnwy and can also release water into the river when requested by the NRA.

The Shropshire Groundwater Scheme in the north of the county also helps maintain flows in the Severn. During dry periods water can be pumped from the sandstone into the river. It is being developed in phases; the first one came into use during the extremely dry weather of 1984. By 1990 its output was 80 Ml (17.6 mg) a day.

Regulating releases from all three sources

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In 1852 the floor of Minsterworth church had to be raised by more than a metre because the floods did so much damage.

Below Gloucester the river is affected more by tidal conditions. On the lower reaches of the non-tidal part of the river, the rise is often six metres.

In the estuary the large tidal range, together with south-westerly winds, can mean waves overtop the flood defences.

Weather conditions can also mean variations of predicted high tide levels by more than two metres.

When, in 1883, a tidal wave reached the railways at Woolaston and flooded the workings of the Severn Tunnel, the men had to be rescued quickly by moonlight.

FLOOD ALLEVIATION

Many people believed that the flooding enriched the land and made it more fertile. They advocated

flood gates which could be opened in winter and closed in summer whenever there was a danger of crops being washed away.

Thomas Telford decided the answer was reservoirs in Montgomeryshire which would conserve water when rainfall was high and release it into the river when levels were too low for proper navigation. He made his proposals in 1803.

In 1964 construction of the Clywedog reservoir above Llanidloes began. By then it

was realised that the benefits a reservoir could give centred on regulation of the river for water supply purposes. Flooding would not be reduced by much because of the large number of tributaries coming in all down the length of the Severn.

Between Gloucester and Avonmouth the NRA is carrying out a £25 million scheme to improve the flood defences and give some

worsen flooding for existing property.

FLOOD EMERGENCIES

The NRA operates a flood forecasting and warning service throughout the length of the Severn and most of its major tributaries, from its regional flow forecasting centre in Solihull and area offices in Shrewsbury and Tewkesbury. Data on river levels, weather forecasts and radar pictures are all used with



Flood defence work between Gloucester and Avonmouth

protection from tidal surges. These are mainly flood walls and earth banks along a 70 kms stretch of the Severn. The 20 year scheme should be completed in 1999 and will give better protection to 8,000 people and help protect 19,000 hectares of farmland.

In conjunction with Local Authority planning departments, the NRA seeks to prevent any new developments which might be subject to flooding or which might

computer models to provide an up to date picture of what will happen at given stretches of the river in the following 48 hours.

Tidal reaches cannot yet be accurately forecast because of all the unpredictable sea and weather changes that can occur. Only the small township of Severn Beach is given tidal flooding warnings and this sometimes cannot be done more than two hours before the event. The NRA is investigating means

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of improving these forecasts by making greater use of data on water levels and winds further out into the Bristol Channel.

The police pass on NRA flood warnings to the general public and they are normally given a minimum of four hours notice for all places on the Severn below Caersws except in the tidal reaches.

An NRA emergency workforce ensures that all flood control structures and defences are operating correctly during a flood and that bridges are kept clear of floating debris.

### LOW FLOWS

The River Worfe, north of Bridgnorth is included in a national study by the NRA on low flows in rivers. These are caused not only by lack of rainfall but also by over-abstraction and many of the problems are caused by long standing abstractions for public

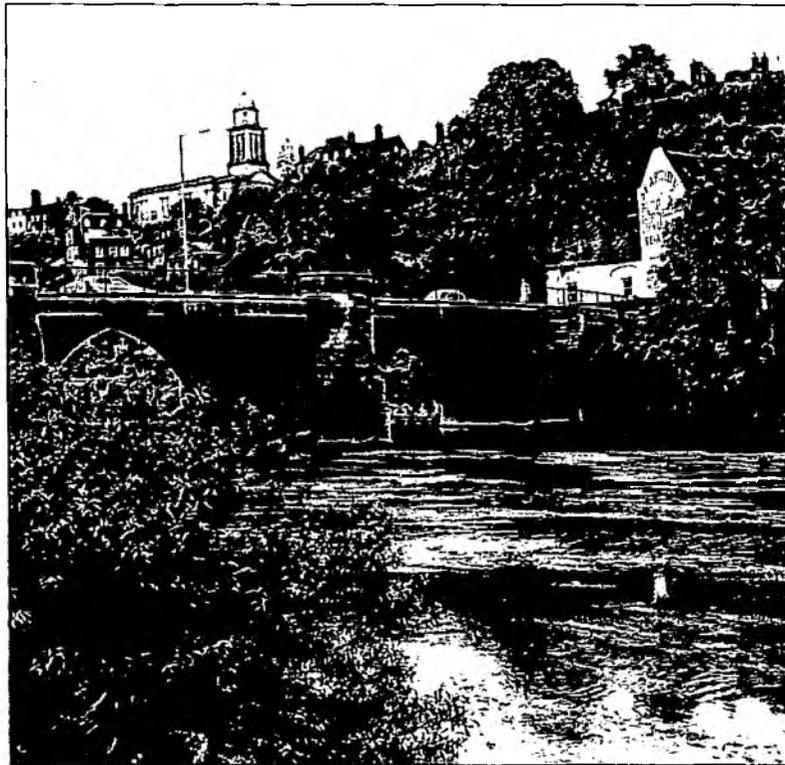
water supply, some of which started in the last century. These problems are now being addressed.

The Worfe is 32 kms long and has a river basin area of 260 sq kms. Sherwood Sandstones dominate the area and the groundwater held in these rocks has been progressively developed for public water supplies, especially in the upper reaches. There are also extensive licensed abstractions from the river itself – mostly

for agricultural spray irrigation.

In the upper reaches of the river, above the Wesley Brook, little or no summer flow occurs and farmers in the upper catchment are having difficulties in taking their licensed amount from the river.

Solutions to the problems in the upper reaches will be difficult and costly and all possibilities are being investigated by the



Bridgnorth

NRA to ensure that any solution does not cause further problems.

### SEVERN BORE

The Severn Bore is a famous tidal wave which occurs in the lower reaches of the River Severn during rising high tides, particularly during spring tides.

For a bore to form, a considerable rise in tide and a converging channel with a rising bed, forming a funnel shape, is needed. Under

the most favourable conditions the Severn Bore may reach two metres in height, but opposing winds or high freshwater levels can reduce this considerably.

The average speed of the bore is 16kms an hour and a high bore may reverse the flow of the river as far up as Tewkesbury Lock, 21 km above Gloucester. At times of low river flow a rise in water level is noticeable as far

upstream as Diglis Lock at Worcester. The true bore does not occur upstream of Gloucester because of weirs on the twin-armed channel near the city.

Popular viewing points for the bore are Minsterworth, Stonebench and Over Bridge and the NRA publishes an annual timetable for these points.

The less spectacular incoming tide and nascent bore can be seen in the upper estuary at places such as Epney, Newnham

and Fretherne.

### NAVIGATION

For centuries the Severn was the most important river for traffic to and from the West Midlands and it was almost certainly used by the Romans for trading purposes.

Commercial navigation has a long history. In 1198 the Sheriff of Shropshire hired a barge, for half a mark, to take his wife from Bridgnorth to Gloucester. A hundred years

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later Shrewsbury was importing paving stones on barges.

In 1430 an act of Parliament confirmed that the river was "The King's Highway of the Severn".

In the 17th century, when river levels were high enough, the Severn was navigable for 250 kms below Welshpool – from Pool Quay to Bristol. Barges and trows carried both passengers and goods.

Barges were about 15 metres long, single masted with a square sail and could carry about 50 tons. Trows were designed to cope with the peculiarities of the Severn, such as shifting sands, high tides and bores. Shallow, with rounded bilges, flat bottoms and masts that could be lowered at bridges, trows could be up to 18 metres in length and carry up to 80 tons.

Teams of men known as bow-hauliers dragged the barges and trows when the sails could not be used.

Trade on the river was considerable and by 1756 there were 376 vessels owned by traders living between Welshpool and Gloucester. The normal charge for carrying freight downstream from Shrewsbury to Bristol was 10 shillings (50p) and 15 shillings in the opposite direction.

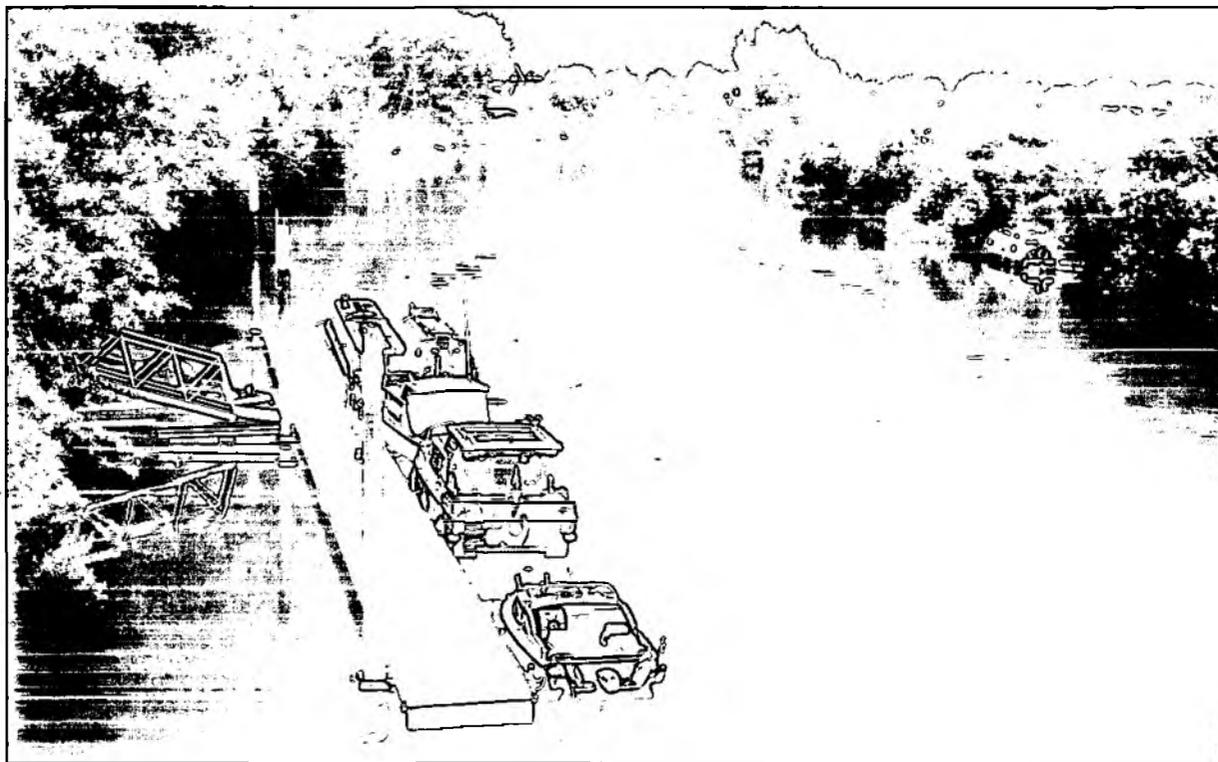
Towns on the banks of the Severn were "inland ports" and in many places the

remains of once busy quays and warehouses can still be seen. Lydney, Gloucester, Tewkesbury, Upton, Worcester, Stourport, Bewdley, Bridgnorth, Broseley, Coalport, Ironbridge, Shrewsbury and Pool Quay were all "ports."

Because of the rocks and shoals, the estuary between Gloucester and Sharpness has always been particularly hazardous for

declined in recent years.

Although bridges, like weirs, obstructed the free passage of masted boats in the mid-19th century there were still some 4,000 watermen and their families working on the Severn. But the building of tow paths, the introduction of horses and, after 1814, the success of the steam tugs between Worcester and Gloucester, all began to



Upton on Severn

navigation. In 1793 an act was passed to build a ship canal to by-pass this stretch. Work started on the Sharpness Canal in 1794 but was not completed until 1827. At the time of building it was the broadest and deepest canal in the world and is still used extensively today, being the only safe route between the River Severn and the sea. Sea-going vessels use the canal to carry cargoes to and from Sharpness Docks but commercial traffic up to Gloucester has

affect their numbers. In 1862 the Severn Valley Railway was opened. It originally ran from Shrewsbury to Stourport and Hartlebury and was the final nail in the coffin for the watermen.

Nowadays, navigation on the river is possible only up to Stourport and is the responsibility of British Waterways. The river depth is controlled by a series of weirs and locks so that navigation is always possible.

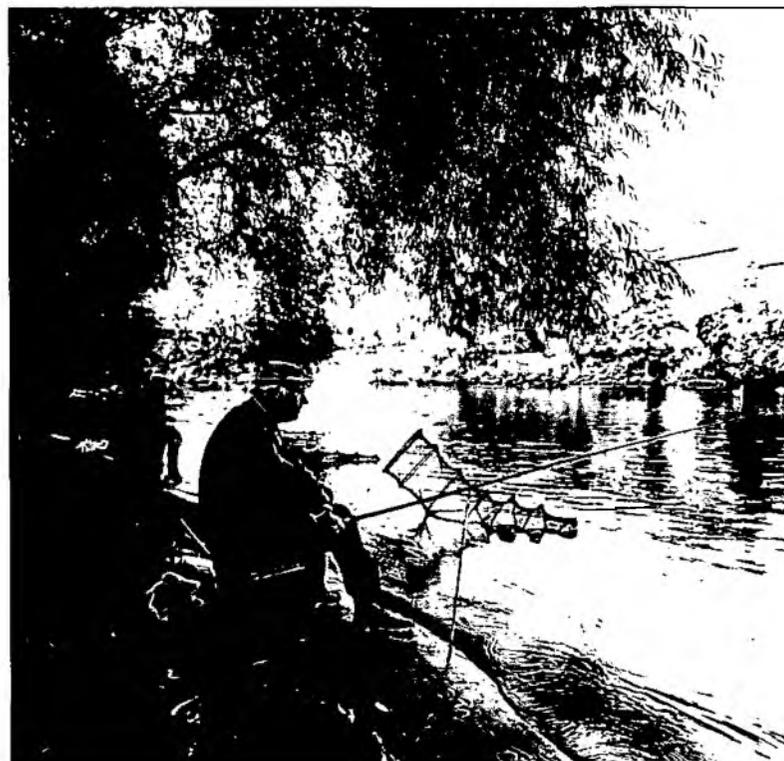
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FISHERIES

The top quality Severn supports almost every type of British freshwater fish and at one time the lamprey, a favourite food of royalty for many centuries, was the most highly prized. Henry I is said to have died from eating too many lampreys. Salmon and allis shad were almost as popular as the lamprey but nowadays only salmon remains seriously sought after.

Approximately 3,000 salmon are caught commercially between Gloucester and Avonmouth each year with 1,000 being taken by rod in the rest of the river.

Elvers, which are very numerous during the spring, were traditionally regarded as an aphrodisiac. The young elver or glass eel, having survived its migration on ocean currents from the Sargasso sea in the south-west Atlantic, enters the river estuary in



Worcester

vast numbers on the spring tides. Between 20 and 80 tonnes of elvers are caught each year by fishermen. There are 3,000 elvers to the kilogram.

Eel stocks have decreased in recent years and in 1990 the NRA undertook a restocking programme with tiny eels that were caught in the estuary early in the year and allowed to grow before being released back at a size where they stood much more chance of survival. The NRA is actively

involved in research into the decline of the elver and the construction of passes over weirs and other obstructions.

As well as salmon, allis shad and elvers, the tidal waters of the Severn are visited by many of the more common types of saltwater fish and the more unusual sturgeon, lampern and twaite shad.

Fishing on the upper Severn was affected by

the building of weirs on the lower Severn in the 19th century. Although salmon could surmount them in high water, they were impassable to many other fish. Rudimentary fish passes were constructed at many weirs to allow the fish to pass. Modern fish passes exist at Shrewsbury weir and at Powick and Ashford weirs on the Teme.

Above the tidal reach of the Severn all fishing is recreational. The principal river fisheries in the basin are the Avon, Arrow,

Alne, Stour, Leam, Dene, Frome, Leadon, Teme, Clun, Onny, Corve, Rea, Tern, Roden, Perry, Meese, Vyrnwy, Banwy, Rhiw, Tanat and the Severn itself. These rivers and their tributaries provide a wide variety of excellent coarse and salmon fisheries from a total length of around 1700 kms.

Some of the finest rod and line fisheries in

Britain can be found on the Severn. As well as barbel, chub and bream, most of the coarse fish species can be found with roach, perch, dace, pike and gudgeon the most common and rudd common on localised areas in Gloucestershire and Hereford and Worcester. The zander, a predator from mainland Europe, has been illegally introduced and is now established and spreading slowly.

Free coarse fishing is available on the Severn at

the NRA's own fisheries at Llanidloes, Newtown, Penarth, Cilcewydd, Molverley, Coalport, Atcham, Upton and Ripple. Contests can be booked at Atcham, Upton and Ripple.

CONSERVATION

The River Severn corridor is one of the most important environmental features of the Welsh Borders and West Midlands.

Above the limits of navigation at Stourport,

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the river has retained most of its natural features, varying from shallow riffles to deep pools. There is a substantial population of the local and nationally rare Club-tailed Dragonfly. Waterbirds which can be seen along the river include the colourful Kingfisher.

Although the navigable section between Stourport and Gloucester is impounded by weirs and canalised, it still supports a rich and varied wildlife. Along this part of the river a quarter of all English Lammas meadows, or hams, are found. Many of these waterside meadows are managed on a traditional system of a winter flooding followed by a summer hay crop and subsequent grazing. This system of management goes back many centuries and has resulted in a rich flora which includes many uncommon species such as meadow saffron

and narrow-leaved water dropwort. The NRA is encouraging bridge designers to incorporate nesting areas into their bridges since they are an important nesting habitat for many birds including dippers, spotted flycatchers and wagtails. Water quality improvement in the Severn has led to the return of the otter from Wales to such a degree that they have now spread to downstream of Worcester. An otter project has been set up by the NRA to

monitor this spread and to encourage it on the Severn and the Warwickshire Avon by providing suitable habitats. This shy creature was virtually wiped out in the 1950's by pesticide pollution and habitat destruction and it retreated to the Welsh mountains.

Below Gloucester, the river constitutes one of the most valuable British estuaries. The

and many waders, notably curlew, redshank, ringed plover and grey plover.

RECREATION

The River Severn and its main tributaries are extensively used for canoeing, boating and fishing and there are many footpaths and public areas for walkers, picnickers and spectators.



The Severn at Shrewsbury

Severn estuary is not only a Site of Special Scientific Interest but is also recognised as an internationally important wetland site under the Ramsar Convention. The white-fronted goose can be found in large numbers and is especially important. In January 1970, 7,600 were counted. That is over half the British population and a quarter of that in the world. Other species which can be found in large numbers include Bewick's swan, shelduck, wigeon

From Gloucester to Stourport the Severn is a statutory navigation and very popular with boating enthusiasts. Both coarse and game fishing are enjoyed by thousands of anglers each week and the generally high water quality ensures good sport throughout the river's length. Canoeists can enjoy the tranquillity of the lower Severn or the exciting white water of the upper Severn when in spate.

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**NRA**

*Severn-Trent Region*