

# THE RIVER WEAVER



## *factfile*

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### NRA

*National Rivers Authority  
North West Region*

**Guardians of  
the Water Environment**



*The Anderton Boat Lift.*

## THE RIVER WEAVER

The River Weaver rises to the east of the Peckforton Hills, a sandstone outcrop on the western perimeter of the Cheshire Plain. It then flows some 88 kilometres from its source to its confluence with the Mersey and Manchester Ship Canal, just north of Frodsham.

The Weaver drains a catchment of some 417 square kilometres. Initially, the river flows in a south-easterly direction until its confluence with the River Duckow, after which point it flows north to Northwich, then generally west after the confluence with the River Dane.

The Weaver is joined at Northwich by the River Dane, which rises in the gritstone area of the Peak District to the south west of Buxton.

Since 1880, the Weaver downstream of Winsford, has been canalised. In places, additional parallel stretches of canal were constructed so that the river splits into the new canalised section and the original course of the river. To ensure adequate depth is maintained for boats and barges, locks were installed at various points between Winsford and Frodsham.

The locks on the canalised section are the responsibility of British Waterways. The Weaver was originally made navigable to accommodate the salt trade of Winsford and Northwich. At Anderton, a boat lift made a connection for barges between the Weaver Navigation and the Trent & Mersey canal system.

The Weaver flows over Sutton Weir into the 'tidal' Weaver which is a branch of the Manchester Ship Canal. A set of Sluices in the embankment of the Ship Canal allows excess flows to pass into the Mersey Estuary.

The NRA is working with partners from local authorities, businesses and British Waterways on the Weaver Valley Initiative as part of the Mersey Basin Campaign.

The aim of the initiative is to promote and develop the river to benefit all users, to enhance water quality and to encourage local people to value their river.

## WATER QUALITY

In its upper and middle reaches, the Weaver flows mainly through agricultural land and water quality is generally fair. Farming is intensive in this area and although pollution problems from farms have improved in recent years, agricultural effluents continue to pose a threat to the health of the Weaver, Dane and their tributaries. Spillages of farm effluents can have a devastating effect on the Weaver, sometimes killing tens of thousands of fish and harming the invertebrate life on which they feed. In recent years, farming in Cheshire has become more intensive with large dairy herds. Potential problems arise from the storage of slurry and dairy waste associated with this type of farming and the production of silage. For example, silage liquor (the liquid produced when farmers compress cut grass for winter feed) is around 300 times more polluting than raw sewage. Cattle slurry and milk are also highly polluting.

NRA staff work closely with farmers in the area to identify practical solutions to environmental problems. The NRA's aim is to prevent pollution. The prosecution of farmers by the NRA is always a last resort.

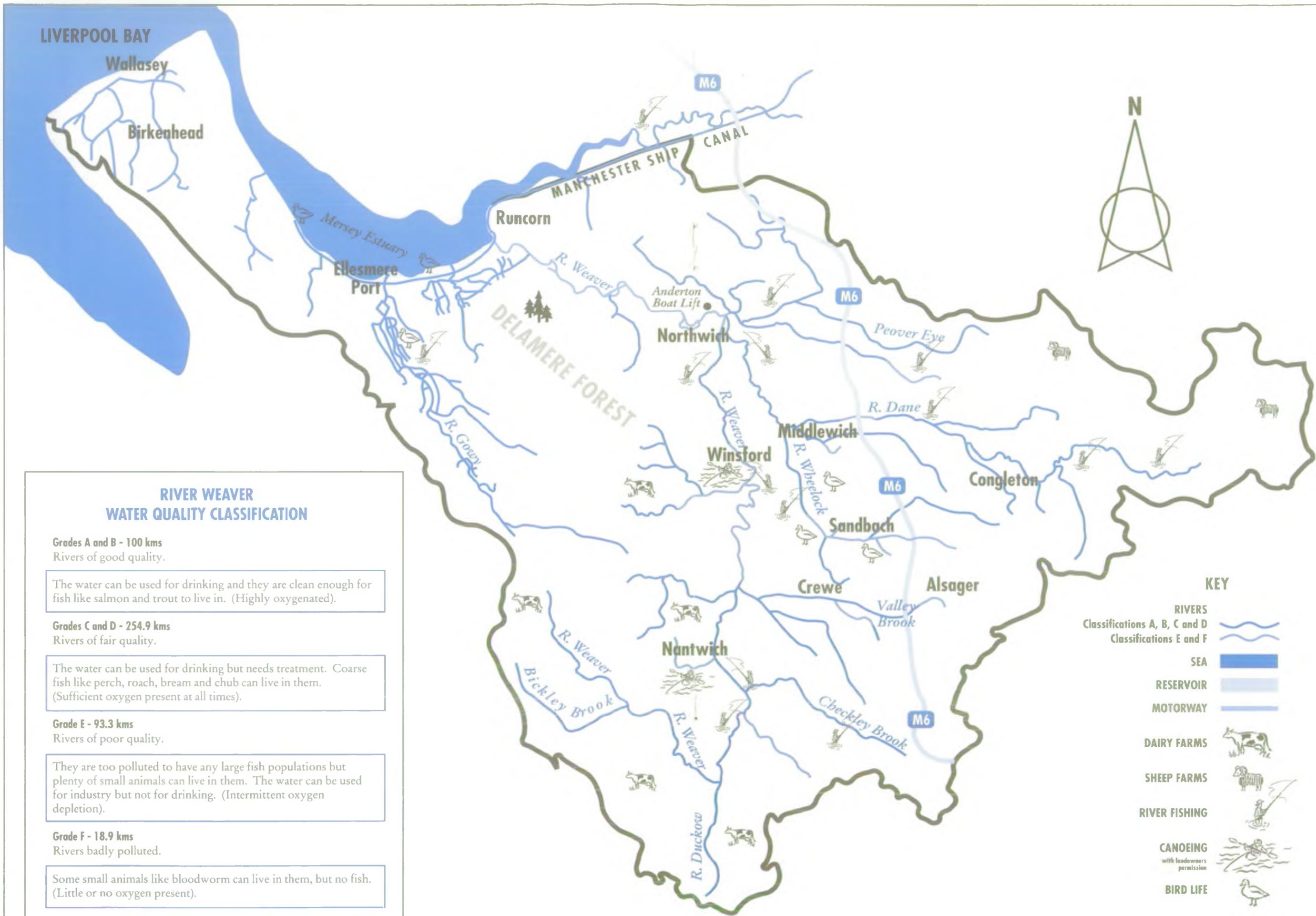
The same is true for industry and Pollution Control staff aim to prevent, rather than cure, pollution.

One major role of the NRA in protecting and improving water quality is issuing 'consents' - permission to discharge effluent within certain limits imposed by the authority. Such limits are imposed on industrial discharges and sewage works alike. NRA staff constantly monitor discharges and can review the conditions of each consent every two years. If the consent limits are exceeded, the NRA can prosecute the offender. The NRA can also prosecute for one-off spillages or any discharges without consent.



*Llangollen Canal lift bridge, close to the source of the River Weaver.*

# LIVERPOOL BAY



## RIVER WEAVER WATER QUALITY CLASSIFICATION

### Grades A and B - 100 kms

Rivers of good quality.

The water can be used for drinking and they are clean enough for fish like salmon and trout to live in. (Highly oxygenated).

### Grades C and D - 254.9 kms

Rivers of fair quality.

The water can be used for drinking but needs treatment. Coarse fish like perch, roach, bream and chub can live in them. (Sufficient oxygen present at all times).

### Grade E - 93.3 kms

Rivers of poor quality.

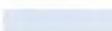
They are too polluted to have any large fish populations but plenty of small animals can live in them. The water can be used for industry but not for drinking. (Intermittent oxygen depletion).

### Grade F - 18.9 kms

Rivers badly polluted.

Some small animals like bloodworm can live in them, but no fish. (Little or no oxygen present).

## KEY

- RIVERS  
Classifications A, B, C and D 
- Classifications E and F 
- SEA 
- RESERVOIR 
- MOTORWAY 
- DAIRY FARMS 
- SHEEP FARMS 
- RIVER FISHING 
- CANOEING with landowners permission 
- BIRD LIFE 



*Holiday Park at Bottom Flash, Winsford.*

## RAINFALL AND RIVER FLOWS

The Weaver catchment is in a generally temperate area of the country with moderate rainfall leading to generally manageable river flows. Annual average rainfall varies from 913mm at Cholmondley, close to the source of the Weaver, to 788mm close to the estuary.

The NRA's river flow measuring station at Audlem shows an average annual flow of 0.794 cubic metres per second. The lowest flow on record is 0.044 cubic metres per second (in 1976), whilst the highest daily mean flow recorded in 29 December 1970, is 22.4 cubic metres per second.

## PROTECTING WATER RESOURCES

It is the responsibility of the NRA to ensure that water resources are managed effectively and for the benefit of everyone. The NRA fulfils this role principally through the use of a system of water abstraction licensing. As a legal requirement under the Water Resources Act 1991, almost anyone who wants to take water from a surface or underground source must obtain a licence to do so from the NRA. Without this constraint, persistent over-abstraction could lead to shortages in water supply, increased river pollution by reducing dilution of pollutants, damage to fisheries and wildlife habitats and, ultimately, to the loss of rivers for our recreation and enjoyment.



*Boats at Northwich Marine, Weaver Navigation.*



*Consented Outfall pipe*

These licences will contain certain conditions which limit the amount of water that can be abstracted and licence holders are visited regularly by NRA staff to check that licence conditions are being complied with, thus protecting other lawful water users.

There is now a general presumption against issuing any new licences for spray irrigation purposes in the upper Weaver catchment unless the applicant provides winter storage facilities, i.e. abstracts into lined storage reservoirs in winter for re-abstraction in summer.

Many of the problems on the Weaver result from 'Licences of Right' which had to be issued under the Water Resources Act of 1963. These licences allow abstraction at rates in excess of the dry weather flows of the river. These licences, coupled with the below average rainfall commonly experienced in Cheshire, can result in low flow problems.

Consideration is being given to introducing the concept of 'minimum acceptable flows' at specific control points within the catchment whereby when the river flows reach a predetermined threshold, abstraction upstream of the control point must stop.



*Chemical Industry at Northwich.*

The main industry in this part of the country has, historically, been salt. The modern importance of Cheshire salt is that it now forms the basis of the area's chemical industry.

The chemical industry remains very strong in the area, situated at various river or canalside locations such as the ICI Runcorn Heath site on the Weston Canal at Runcorn, and the Brunner Mond soda-ash plants at Northwich.

The lower reaches of Wade Brook, the main tributary of Wincham Brook, are affected by a number of discharges from the chemical industry based on Cheshire salt. However, the Weaver itself remains fair quality to Northwich.

Here, it is affected most notably by the two soda-ash complexes at Winnington and Lostock. Soda-ash is used mainly in the manufacture of glass, soap, paper and alumina. The Lostock site discharges into a tributary of Wincham Brook, whilst the Winnington discharge enters the Weaver's flood course (the non-navigable stretch of the river).

Generally, the waste water treatment works in the area, owned and operated by North West Water Ltd, perform within their consent limits. There have been problems over recent decades with the sewerage system when storm sewage overflows - designed to operate only during very high rainfall - have operated too often, grossly polluting rivers and streams in the catchment. However, investment by the water company has solved most of these problems.

On the whole, the Weaver catchment's water quality is fair or good, with the notable exceptions of the stretch downstream of Northwich and the Weston canal. However, these problems are being researched, but will require investment by industry to improve the quality of their discharges to new standards.

## WILDLIFE

As water quality improves, so life returns to the river in abundance. Today, nearly all the catchment upstream of Northwich supports a thriving coarse fish population.

The NRA's work has already resulted in a reduction in agricultural pollution incidents and fish are now repopulating new stretches of the river.

Of particular note are the Eel population of the Cliff Brook catchment, the Rainbow Trout found in Checkley Brook, the Brown Trout of the upper Dane and the excellent coarse fish of the lower Dane.

The canalisation of the river in the first half of the 18th Century led to meander cut-offs leaving pools alongside the river. These have proved to be important habitats for Dragonflies and Damselflies. Indeed, in recent years, the largest colony in the county of the Hairy Dragonfly and the presence of considerable numbers of the Red-eyed Damselfly, have been recorded in the Vale Royal area of the Weaver.

In its upper and middle reaches, much of the river follows a largely natural route with meanders, variety in flow and features of erosion and deposition. These variations in physical characteristics give rise to a variety of habitats which are home to a wide range of plants and animals.



The extensive reedbeds on Witton and Wade Brooks are also of particular note as they provide an excellent habitat for a wide range of birds, including Reed Warblers, Sedge Warblers and various waterfowl.

Many Sites of Biological Interest (SBIs) and Sites of Special Scientific Interest (SSSIs) are found in the area. Hatton's Hey Wood, Bank Rough and Whittle's Corner (all SSSIs) are situated on the south facing slopes of the Weaver Valley and, together, form one of the largest blocks of semi-natural clough woodland in Cheshire. Nationally important rare stands of Ash and Small-Leaved Lime occur on these poorly drained and mildly acidic slopes. SBIs in the Weaver catchment area range from swampland (Sutton Bridge Meadow) to semi-natural woodlands (Owley Wood and Trelfa's Wood).

Sampling by NRA biologists in recent years has revealed the presence of Crayfish at various sites in the Weaver catchment. This native white-clawed species, which is protected under the Wildlife and Countryside Act (1981), has been recorded in Basford Brook and at the Combermere SSSI.

## BEATING THE FLOODS

During high flows, flooding of the river's natural flood plain can occur. This land, however, is mainly agricultural grazing land. Nevertheless, severe flooding to homes, farms and factories is not unknown in the area.

For example, in 1946, major flooding occurred affecting the whole of the valleys of the rivers Weaver and Dane, and caused much damage to the town of Northwich. It is estimated that the flow during this flood reached 322 cubic metres per second!

Following the 1946 flooding, a flood warning system was introduced which has since been superseded by the NRA's flood warning service. This NRA system works round-the-clock by monitoring weather systems and giving warnings of tidal and river flooding to the police. The police, in turn, warn local authorities and the public of imminent flooding so that preparations, such as sandbagging and safe storage of valuables, can be carried out well in advance.

Maintenance works are constantly carried out by the NRA's Flood Defence staff in the never-ending battle against flooding. Control of river bank vegetation and the removal of debris and silt deposits from the river bed and banks help to prevent localised flooding during high river flows.



*Weir at Nantwich.*

## GEOLOGICAL FEATURES

The rocks underlying the majority of the Weaver catchment are mainly mudstones and rock salt deposits of Permo-Triassic age. The exceptions are a short stretch of the River Duckow which crosses younger Jurassic mudstones, and the river Dane, which rises on Carboniferous gritstones east of Congleton.

Most of the catchment is covered by a thick sequence of drift cover, comprising of glacial clays and sands. Alluvial sands, silts and clays can be found in the flood plain of the Weaver and its tributaries.

Although the Permo-Triassic bedrock and clays are effectively impermeable, the glacial sands are quite extensive and contain groundwater suitable for small scale use. These 'minor aquifers' can also contribute baseflow to rivers where they have been cut by the watercourse.



*Sailing at Marsh Lock where the Weaver meets the Ship Canal.*

## HOW YOU CAN HELP PROTECT THE RIVER WEAVER



*Weaver Navigation meets the Ship Canal.*

- **Don't** put oil, petrol or garden chemicals down drains or into gutters.
- **Don't** throw rubbish into rivers or streams.
- **Don't** allow any potentially polluting matter to escape into rivers or streams or the drainage system.
- **Don't** put rubbish into brooks or on the banks. **Remember** that rubbish blocks river channels and culverts causing flooding.
- **Do** ask for advice if you are not sure how to dispose of a potential pollutant.
- **Do** report any suspected pollution to the NRA.
- **Do** tell the NRA if you have a spillage of a potential pollutant.
- **Do** consult the NRA before undertaking any work on, under or over a watercourse or on the banks of a river or stream.
- **Do** use water sparingly.
- **Do** consult the NRA before abstracting water from a river, stream or borehole.



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**EMERGENCY NRA HOTLINE**

**0800 80 70 60**

**24 hour free emergency telephone line**

Telephone this number anywhere in England and Wales to report pollution, poaching, flooding or any sign of damage or danger to the water environment.

Your prompt action will help the NRA to protect water, wildlife, people and property.

For more information contact:

National Rivers Authority, North West Region, P.O. Box 12, Richard Fairclough House, Knutsford Road, Warrington WA4 1HG. Tel: (01925) 653999

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