

# Rivers Swale, Ure & Ouse

FACT FILE



ENVIRONMENT  
AGENCY

## KEY FACTS

### ALTITUDE AT SOURCE

Swale 500 metres above sea level

Ure (Ure Head) 640 metres above sea level

Ouse (Ouse Gill Beck) 25 metres above sea level

### TOTAL CATCHMENT DRAINAGE AREA

3286 square kilometres

### MAIN TRIBUTARIES

Swale: Arkle Beck, Bedale Beck, River Wiske, Cod Beck

Ure: Widdale Beck, River Bain, Bishopdale Beck, River Cover, River Burn, River Skell, River Tutt, River Laver

Ouse: River Foss, River Nidd, River Derwent, River Wharfe, River Aire

### WATER QUALITY OF THE SWALE, URE AND OUSE CATCHMENT

Swale: Good 315.8km, Fair 60.9km, Bad/Poor 17.7km

Ure: Good 336.8km, Fair 13.7km, Bad/Poor 0.0km

Ouse, Inland Rivers: Good 48.4km, Fair 64.4km, Poor 52.9km

Ouse, Estuarine: Good 10km, Fair 12.7km, Poor 0.0km

### LENGTH FROM SOURCE TO SEA

Swale 109km, Ure 111km, Ouse 75km

### AVERAGE ANNUAL RAINFALL

600mm Selby, 2000mm Hawes



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## FACT FILE

The River Swale begins life as a series of small becks on the Northern Pennines within the beautiful Yorkshire Dales National Park. It flows eastwards along Swaledale and passes through Richmond and Catterick, before turning south eastwards to join the Ure at Boroughbridge.

The Ure also rises on the Pennines in the Yorkshire Dales National Park just south of the Swale. The river becomes known as the Ouse at the point where Ouse Gill beck runs in. From there, the Ouse flows south through the City of York to Naburn Weir, below which the river is tidal.

## GEOLOGY FEATURES

The craggy limestone scenery of the Yorkshire Dales in Swaledale and Wensleydale is produced by Carboniferous Limestone which is between 280 and 360 million years old. The rocks get progressively younger moving down river from the Dales. Sandstones, shales and Carboniferous Millstone Grit form an area of Grit moorland in the catchments of the Burn and Laver – tributaries of the River Ure – and some right bank tributaries of the Swale.

As the Ouse flows through the Vale of York, the rocks become Permo-Triassic – between 213 and 286 million years old. The permian rocks are formed by Magnesian Limestone on the western side of the Vale of York and then further eastward are overlain by the Sherwood Sandstone that forms the Vale of York. This is in turn overlain on the eastward side of the Vale of York by the Mercia Mudstone and Jurassic Lias which is a sequence of marls and mudstones between 144 and 213 million years old.

## WATER QUALITY

Like other rivers in the upland Pennine areas of Yorkshire, the rivers in the

Swale, Ure and Ouse catchment are generally of high quality, suitable for drinking water supplies and support good fisheries.

However, some tributaries of the River Ure and the Swale are affected by acidification caused quite naturally by rain falling on the millstone grit and peat. These waters attract types of wildlife which can survive in acidic water, such as stoneflies and certain species of caddisfly.

Rivers in these upland areas are often under threat from agricultural pollution. Silage liquor (the liquid produced when



Taking biological samples in a river

RIVERS SWALE, URE & OUSE  
WATER QUALITY CLASSIFICATION TABLE 1995

Quality Class	Length of Swale km*	Length of Ure km*	Length of Ouse km* Inland Rivers	Length of Ouse km Estuarine
A – GOOD	125.9	245.1	0.0	0.0
B – GOOD	189.9	91.7	48.4	10.0
C – FAIR	16.4	13.7	49.0	12.7
D – FAIR	44.5	0.0	15.4	0.0
E – POOR	17.7	0.0	52.9	0.0
F – BAD	0.0	0.0	0.0	0.0

\*Length includes tributaries

farmers compress cut grass for winter feed) is around 300 times more polluting than untreated sewage. Cattle slurry is also highly polluting and pesticides from sheep dipping can cause further problems.

Environmental Protection Officers work closely with farmers and industrialists in the area to identify practical solutions to environmental problems. Since prevention is better than a cure, prosecution of farmers is always a last resort.

The stretches where the majority of water quality problems occur are in the River Wiske, the River Kyle sub-catchment and the Ouse itself in the stretch from Naburn to Selby. These problems are associated mainly with farm effluents in the upper reaches and sewage effluents downstream.

The Agency has a system for classifying the water quality of rivers. Class A and B are of high quality. They are clean enough for salmon and trout to live in and can be used for drinking water. They will also support a variety of invertebrates, including mayflies, stoneflies and most pollution sensitive insects.

Class C and D rivers are of fair quality. Coarse fish such as roach, chub and bream can live in them and possibly trout in some C waters. These rivers can be used for drinking water if it is treated. A good variety of invertebrate species can be found apart from the most pollution-sensitive animals.

Class E rivers are of poor quality. They can still support coarse fish but cannot be used for drinking water.

Class F rivers are badly polluted. Some small animals like worms or midges can live in them but no fish.

## INTEGRATED POLLUTION CONTROL

Pollution may harm people and all other parts of the living world. Industrial materials or the by-products of industrial processes constitute many of the worst pollutants – those that can do the most harm if mishandled and which are the hardest to dispose of safely. The role of the Environment Agency is to regulate these processes so that, where possible, pollution is prevented, or minimised and made harmless.

The Agency's authority to regulate industrial discharges stems principally from the Environmental Protection Act of 1990, a key feature of which is the concept of Integrated Pollution Control (IPC). This is being established internationally as the way forward for controlling pollution from industrial

sources. As a system, it considers pollution to land, air and water and the way in which it interacts and impacts on the environment as a whole. It also takes a long term view on whether processes are sustainable or make demands on the environment that will rapidly exhaust available resources.

Business which want to operate certain industrial processes, those with the greatest pollution potential or those that are particularly complex, must apply to the Environment Agency for permission to operate. Their application must contain all the information required to assess the impact on the environment, including the effects that polluting releases will have in both the short term and long term. Agency inspectors use this and other independent information to assess whether the activity should be permitted. If the decision is to allow the process, an authorisation is then issued which includes limits on the amount of emissions to land, air or water.

In North Yorkshire, IPC authorisations are applied to two power stations at Drax and Eggborough, organic and specialist chemicals manufacturing and animal feed preparations. The Agency monitors all authorised processes to ensure that conditions are respected and, if necessary, will use vigorous legal enforcement to protect the environment. The Agency can also order processes to be shut down if there is a serious risk of pollution.



Drax power station on the Lower Ouse



Swan on the River Ouse

The Environment Agency also has the task of regulating the storing and use of radioactive materials and the accumulation and disposal of radioactive waste. Hospitals, universities and industry are all users of radioactive material and are regulated by the Agency.

**VALUABLE WATER SUPPLIES**

The good quality river and groundwaters in the catchment provide a valuable source of water. There are six impounding reservoirs in the area. These are formed by constructing a dam across the river to store water for use in public water supply. In addition to the reservoirs, water is also extracted for public supply directly from the River Ouse.

The groundwaters of the catchment also provide valuable water for domestic and agricultural use. Within the Carboniferous rocks of the Yorkshire Dales, the limestones and sandstones form minor aquifers, often forming springs where the rocks outcrop on hillsides. Springs are important sources of public and private water supply in the Dales but are vulnerable to contamination, particularly after heavy rain.

The Magnesian Limestone and the Sherwood Sandstone are major aquifers in the catchment. There are many water supply boreholes in the Sherwood Sandstone and water quality is generally good. The levels and water quality of the aquifers are extensively monitored by the Agency.

Most water abstractions need to be licensed. The licence states how much water can be taken and how often. To strike the right balance, the Agency carefully monitors the water sources on the surface and underground. Using river flow measurements, observation boreholes and rain gauges, it also ensures that licence conditions are followed.



Moorhen



West Tanfield on the River Ure

**FLOOD DEFENCE**

Because so many rivers converge on the Ouse from its large catchment, the historic city of York is vulnerable to severe flooding. To combat this, there are a number of flood defences in and around the catchment. These include:

- embankments along the Swale from Catterick to its confluence with the Ure. There are also numerous washlands or flood storage basins which help reduce flood levels further downstream;
- certain sections of embankment along the Ure upstream of Boroughbridge;
- embankments on both sides of the Ouse upstream and downstream of York containing an extensive washlands system;
- embankments on both sides of the tidal Ouse.

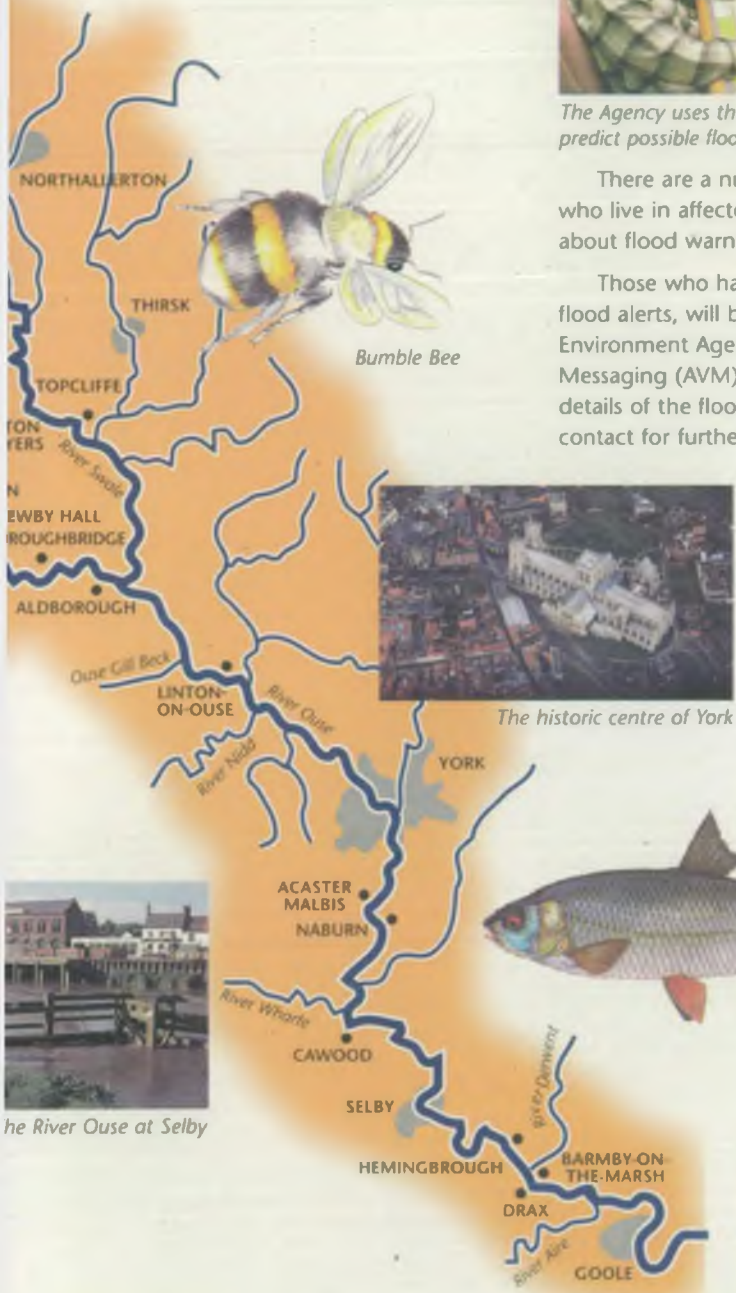
In 1988 a major flood defence scheme for Boroughbridge was completed. This included riverside embankments, a diversion system for the River Tutt, a pumping station in the town for local water and a bank to protect the town from the Aldborough Ings washland. However, in February 1991, the town was severely flooded caused by overtopping of the Aldborough Ings bank. Since then, the bank has been raised to provide better flood protection.

Various schemes protect York from flooding. There is a washland at Linton-on-Ouse and gate-controlled washlands at Clifton Ings to the north of the city which can be opened to allow flood water onto nearby pasture land. In the city itself, there are defences at Acomb Landing, Leeman Road, Lower Bootham, North Street and Lower Ebor Street. These consist of earth embankments, walls and gates.

There is also a barrier across the River Foss immediately upstream of its confluence with the Ouse in the city. When the Ouse rises to a critical level, the barrier can be lowered until the water recedes, preventing backflow up the Foss which could otherwise flood the city. Water from the Foss itself is pumped around the barrier into the Ouse further downstream.



Flooding along the Ouse in the centre of York



The Agency uses the latest technology to predict possible flooding

There are a number of ways people who live in affected areas can find out about flood warnings.

Those who have agreed to receive flood alerts, will be telephoned by the Environment Agency's Automatic Voice Messaging (AVM) system. This will give details of the flood warning and a contact for further information.



The historic centre of York



The River Ouse at Selby



Dace

### FLOOD WARNING

The Environment Agency operates a sophisticated flood warning service which uses the latest technology to monitor rainfall, river levels, tides and sea conditions 24 hours a day, throughout the year. When there is a flood risk, warnings are issued to the general public, the police, local authorities and the media, so that those most at risk can take action to protect themselves and their property.

The Environment Agency also provides a 'dial and listen' national telephone service for information on flooding. **Floodcall – 0645 88 11 88** – is a 24 hour recorded information service providing up to date details on warnings in force across England and Wales. It gives details of those places most at risk and information about what to do in a flood.

Local flood alert procedures may also be in place in certain areas. These could

include a local warden scheme where a nominated resident passes flood warning information to local households. Warning sirens may also be in place.

The Environment Agency provides local radio stations with up to date information so they can broadcast regular updates. Flood warning information will also be broadcast by AA Roadwatch on many local commercial and BBC stations during their travel bulletins. Weather pages on Teletext (ITV) and weather forecasts on local television and radio may also include flood warning information.

### PLENTIFUL FISHERIES

The upper reaches of the Swale and Ure are home to populations of brown trout and grayling. Further downstream, below Richmond on the Swale and at West Tanfield on the Ure, coarse fish become more abundant. Barbel, chub and dace thrive at Brompton-on-Swale and common bream were recently introduced to the area for angling. Gudgeon and roach are found on the Swale above Topcliffe weir. Further downstream, predatory species such as perch and pike are common in the lower reaches. There are also significant populations of coarse fish in some of the major tributaries.

In the Ure, chub and dace predominate around Ripon. Roach, perch, bream, and pike become more abundant in the slower, deeper waters downstream towards Boroughbridge.

Salmon once thrived in the River Ure but their numbers declined in the 1940s as a result of industrial pollution which prevented their passage through the tidal Ouse. In recent years, salmon parr have been recorded in a few tributaries and the main river below Aysgarth, where the falls act as an upstream barrier to migratory fish, giving hope for a natural recovery of stocks.

The Ouse supports large numbers of coarse fish of many different species and also provides the corridor for salmon entering the catchment. Recently, the Ouse has seen the return of sea lampreys after an absence of over 50 years, which again highlights an improvement in the water quality of the tidal river.

### NATURE CONSERVATION

The Rivers Swale and Ure begin their courses in an area of outstanding landscape and conservation value, the

Yorkshire Dales National Park. This area is famous for its limestone scenery, upland moorland and glaciated valleys. The drystone walls and field barns, traditionally managed hay-meadows and herb rich pastures by the rivers are important features of the Dales landscape. Large areas of the moorland at the head of Swaledale are designated a Site of Special Scientific Interest (SSSI) for the limestone, gritstone and shale geology and the associated plants and animals found there. There are many different kinds of plants, especially in the hay meadows and some of these areas are also protected as SSSIs. The streams and rivers are very attractive, the streams tumbling down steep, rocky gills and the rivers meandering across the flat valley floors between banks lined with



*Enjoying a day angling on the Swale*

alder and willow. There are many waterfalls too, one of the most spectacular being Aysgarth falls in Wensleydale.

The scenery changes as the rivers leave the Yorkshire Dales and enter the wide, open expanse of the Vale of York. As the scenery changes, the farming changes too. This area has a higher proportion of arable cropping rather than grazing and the land is more intensively farmed. Floodbanks become a feature and some stretches of river have been altered by man, often centuries ago. Land is ploughed immediately next to small water-courses and over grazing can also be a problem on the riverbanks, leading to a lack of habitats and soil erosion.

The River Ure is still a very attractive river for much of its length, with excellent tree cover, but the lower Swale is seriously degraded, with little bankside or instream habitat for wildlife or fish. In contrast to the Dales, the Vale of York

has very few areas left of great enough value to be SSSIs.

As the rivers converge and then become the Ouse, the area is characterised by large areas of *ings* land. Traditionally, these areas were managed as flood meadows and grazed by stock but today they are important as storage areas for flood water to help protect York from serious flooding. Many of these areas have now gone under the plough but some remain very valuable grassland and conservation sites, particularly those in the city itself such as Clifton Ings and Fulford Ings.

Large areas of the Vale of York were forested in medieval times with areas of poorly drained land and lowland heath. Strensall Common SSSI to the north of York remains an isolated area of the former 'Forest of Galtres' – a remnant of what much of the Vale of York looked like before the era of land drainage and agricultural intensification.

## WASTE MANAGEMENT

Waste needs to be carefully managed. Hazardous waste may pose a serious threat to the environment and in the worst cases can be dangerous to life. Other wastes may cause a problem by their sheer volume or nuisance value such as litter, flies and smell. This means the disposal and recovery of waste must be carefully controlled to ensure that there is no damage to the environment or harm to human health.

It is estimated that the average household produces approximately one tonne of refuse each year. With over 250,000 people living in the catchment area, this adds up to a vast amount of

waste which has to be safely disposed of each year.

Landfill remains the prime method for the disposal of household and other forms of solid waste from industry and commerce. Sites suitable for landfill are becoming more difficult to find and, as a consequence, are being located remotely from the urban centres of population.



*Recycling saves important materials from going to waste*

All facilities where waste is handled, treated or disposed of must be licensed by the Environment Agency. The licence specifies the types and quantities of waste which can be accepted at the site and the precautions which must be taken by the site operator to protect the environment.

When waste is deposited in a landfill site it breaks down to produce a polluting liquid (leachate) and landfill gas (mainly methane). The site operator must line the landfill site with an impermeable barrier to stop leachate polluting groundwater and landfill gas from migrating into property where it might explode. In some cases, landfill gas is extracted from sites and burned to produce heat or generate electricity. Other waste disposal methods include incineration facilities and chemical treatment plants.



*Compacting waste at a landfill site*

However, not all waste is disposed of. Thousands of tonnes of metal and other valuable materials are recycled through a network of scrapyards. Household Waste Sites and other recycling centres take a range of recyclable wastes such as oil, paper, cans, plastic, textiles and even paint. These too are licensed and regulated by the Agency to ensure that they do not harm the environment.

Industry and commerce have a Duty of Care to make sure their wastes are only collected by an authorised person and taken to an authorised waste disposal site. Waste carriers also have to be registered with the Agency before they can collect any waste. Illegal dumping (flytipping) of waste at unauthorised sites is always a problem, particularly in urban areas. Those who are caught flytipping are prosecuted.

Wastes which are the most dangerous to people or to the environment are called Special Waste. They include hazardous or toxic waste such as acids, pesticides and asbestos. Movement of Special Waste from its place of production to the disposal site must be authorised by the Agency. This provides an opportunity to check that the disposal site is suitable for the waste and that it is deposited safely.

There is a growing acknowledgement, however, that we cannot continue using up natural resources and producing waste the way we do. The government has recently produced a National Waste Strategy in order to try and address these problems. The first priority is to reduce the amount of waste we produce and if we must produce waste then we should try to reuse or recycle it. Only as a last resort should it be disposed of. Everyone has a part to play in this strategy whether at home, at school or in the work place. The Agency issues advice on the safe, efficient disposal of waste and will play a key role in delivering the new national strategy.

● The Agency has a 24 hour emergency hotline – **0800 807060** – for reporting environmental incidents. Pollution, poaching, fish in distress, risks to wildlife, flytipping, flooding – don't ignore it, report it!

## ENJOYING THE SWALE, URE AND OUSE

This area of Yorkshire is very popular, with visitors in their tens of thousands arriving each year to enjoy the countryside, cities and historical features.



*Fishing by Lendal Bridge in the centre of York*

The Swale, Ure and Ouse catchment has a rich and varied history with numerous Scheduled Ancient Monuments (SAMs) within the area and hundreds of unscheduled ones and archaeological sites. Yorkshire's only World Heritage Site – Fountains Abbey – is found on the River Skell at Ripon. Cities such as York and Ripon are of great historical importance, partly because of the rivers which run through them. Abbeys were established close to these rivers, such as Jervaulx on the Ure and Easby on the Swale. Roman forts are found at Catterick, Aldborough and Roecliffe; there are castles at Middleham, Bolton, Hornby and Constable Burton and an ancient mott and bailey can be seen at Castle Hill on the Swale. The tidal Ouse also has features of historical interest such as Cawood Castle and Drax Abbey.

Recent excavations have been carried out at St. Giles Hospital, near Brompton-on-Swale, where the river had eroded and partly destroyed the site. Excavations have also been carried out at Boroughbridge where the A1 widening scheme has covered part of the Roman town. The areas around West Tanfield and Norton Conyers on the Ure have several prehistoric henges.

There are a number of large estates and parklands along the rivers: Newby Hall and Bolton Estate at Wensley on the Ure; Studley Park on the River Skell; Kiplin and Langton Hall on the River Swale.

Walking is popular in this part of the country and a wide variety of footpaths exist, including part of the Pennine Way. A cycleway exists which follows the Ouse along floodbanks between

Hemingbrough and Barmby-on-the-Marsh. This is part of the trans-Pennine trail linking Liverpool and Hull.

The River Ouse and the River Ure are navigable up as far as Ripon, which is the most northerly point on the English inland canal system. The canal linking Ripon to the River Ure at Ox Close lock is fed directly by the River Skell in Ripon city centre. In order to navigate up the Ure there are weir and lock systems at Boroughbridge and Westwick. The tidal Ouse is navigable and used for commercial shipping as well as recreational purposes such as waterskiing and windsurfing.

Canoeing is popular, the main activities taking place on the Ure between Masham and Sleningford Mill and on the Swale at Richmond. Rowing is traditional in York and there are dinghy sailing clubs at Naburn and Acaster Malbis.

Part of Semer Water in Wensleydale, an SSSI and one of only two natural lakes in the Dales, is used for water sports.



*Passing through a lock on the River Foss*

EA-NorthEast

### NORTH EAST REGION ADDRESSES

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ENVIRONMENT AGENCY

## Information Services Unit

Please return or renew this item by the due date

Due Date

15/10/06

For general enquiries please call our 24-hour  
 helpline on 0800 80 70 60. For more information  
 visit our website at [www.environment.gov.uk](http://www.environment.gov.uk)  
 or write to our general enquiries at:  
**ENVIRONMENT AGENCY**  
**GENERAL ENQUIRIES UNIT**  
**0645 333 111**

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