Environment Agency

River factfiles

The Tyne catchment

get to know your rivers

We are the Environment Agency. It's our job to look after your environment and make it a better place – for you, and for future generations.

Your environment is the air you breathe, the water you drink and the ground you walk on. Working with business, Government and others in England and Wales, we are making your environment cleaner and better.

The Environment Agency. Creating a better place. Protecting and improving your environment and making it a better place.

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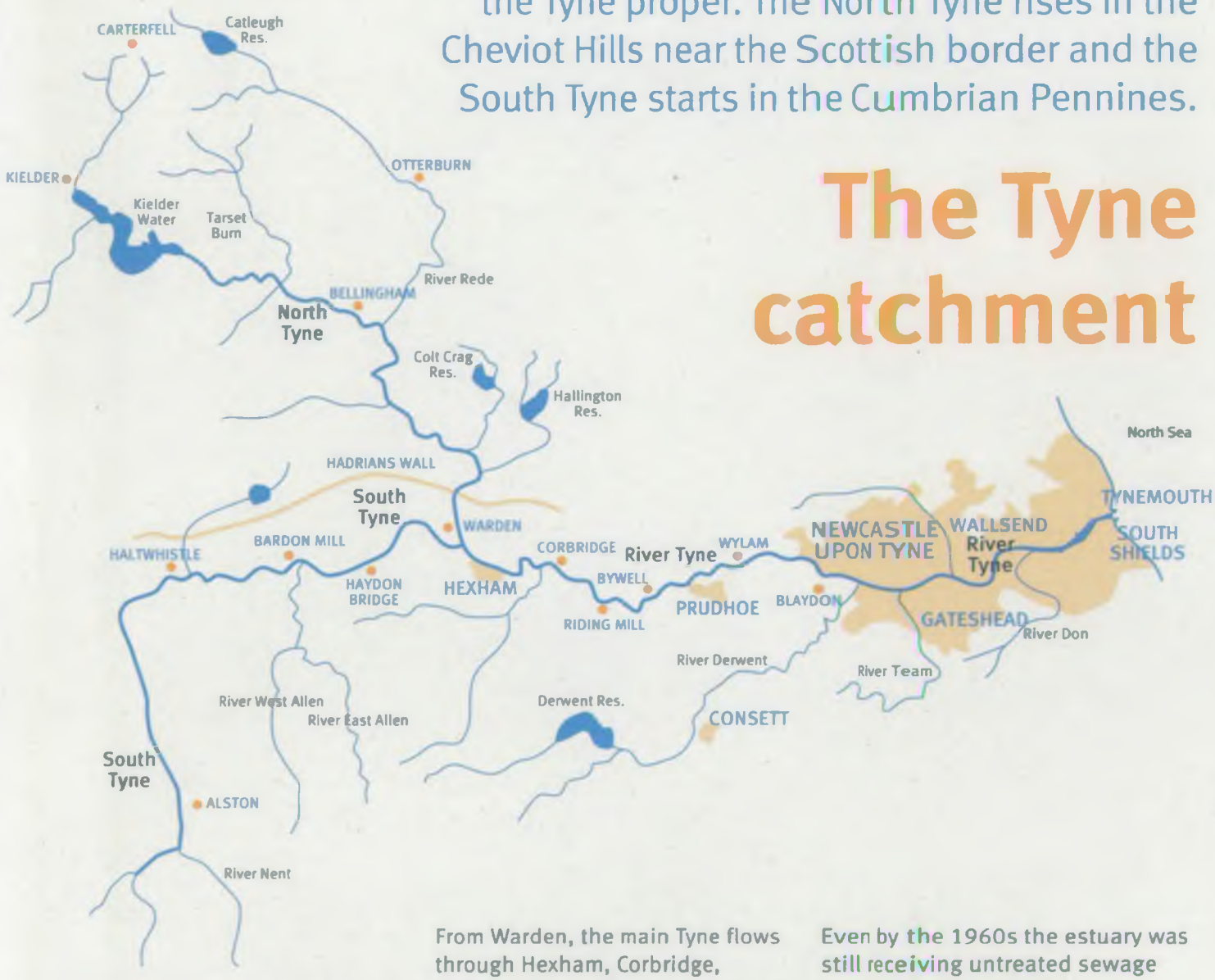
Environment Agency
Rivers House
21 Park Square South
Leeds LS1 2QG
Tel: 08708 506 506
Email: enquiries@environment-agency.gov.uk
www.environment-agency.gov.uk

The main tributaries of the River Tyne are the North and South Tyne, two contrasting rivers which meet at Warden near Hexham to become the Tyne proper. The North Tyne rises in the Cheviot Hills near the Scottish border and the South Tyne starts in the Cumbrian Pennines.

The Tyne catchment



Total catchment population:
Approximately 910,000

Total catchment drainage area:
2,935 square kilometres

Main tributaries of the Tyne:
North Tyne – River Rede, Tarset Burn
South Tyne – River Allen, River Nent
Main Tyne – River Derwent, River Ousebum, River Team, River Don

Length:
North Tyne 62.5 kilometres
South Tyne 60.6 kilometres
Main Tyne 56.3 kilometres

Highest point in catchment (above sea level or Ordnance Datum):
893 metres

From Warden, the main Tyne flows through Hexham, Corbridge, Wylam, Newcastle, Gateshead and Wallsend and then enters the North Sea at Tynemouth.

The upper catchment is beautiful countryside, with the North Tyne passing through Northumberland National Park and the South Tyne through the North Pennines – an Area of Outstanding Natural Beauty.

However, the main Tyne runs through urban and industrialised areas and in the past, suffered as a result. At one time more than 200 separate untreated sewage outlets discharged into the estua [illegible] disastrous results.

Even by the 1960s the estuary was still receiving untreated sewage from almost a million people, together with large volumes of industrial effluent. As a result the middle sections of the estuary were biologically dead with little or no oxygen present over several kilometres.

This is a far cry from the picture today – with the Tyne regarded as the best salmon river in England and Wales – healthy and brimming with life thanks to a lot of hard work and investment.

How clean are your rivers?

Water quality in the North and South Tyne has always been good as they drain mainly rural areas and there are very few discharges, or releases, into them. Nevertheless, these upland rivers are still at risk from pollution, mainly from agricultural activities.

Silage liquor, which is produced when farmers compress cut grass for winter feed, is around 300 times more polluting than untreated sewage. Cattle slurry is highly polluting and sheep dip chemicals cause problems even at low concentrations. A single pollution incident can cause the deaths of many thousands of fish. Environment officers work closely with farmers in the area to identify risks and offer practical solutions to environmental problems.

Improvements in sewage systems and sewage treatment plants, together with improvements in the treatment of industrial effluents, have had major benefits for the Tyne and other watercourses in the urban and industrial areas.

Sections of river that were once lifeless are now home to fish stocks and other wildlife. The Tyne now provides an attractive setting for commercial and residential development in urban areas, as well as being an ideal place for water-based activities and recreation.

And the good work will continue, with our officers, industry and water companies co-operating to resolve problems and maintain a strict control of what can be released into the rivers.

Class A and B rivers are of a high quality – clean enough for salmon and trout to live in and to be used for drinking water. They also support a variety of invertebrates (worms, insects etc) including mayflies and stoneflies.

Class C and D rivers are often home to coarse fish such as roach and chub and sometimes trout in C waters. These rivers can be used for drinking water if it is treated and a good variety of invertebrate life can be found.

Class E rivers can still support coarse fish but cannot be used for drinking water.

Class F rivers are badly polluted. Worms and midges can live in them but fish cannot.

Water quality classification 2003

The River Tyne, 605.3km

- Class A – very good 51.5%
- Class B – good 27.9%
- Class C – fairly good 17.3%
- Class D – fair 0%
- Class E – poor 3.3%
- Class F – bad 0%

Water company investment pays off case study

Major investment in the environment by Northumbrian Water since 1990 has had a dramatic effect on the quality of the North East's rivers and coastal waters.

Our watercourses have seen an increase in fish stocks and other wildlife and some of our rivers have undergone a dramatic transformation.

This is good news for conservation and anglers as well as good news for tourism, leisure and the general quality of life for people living in the region. The clean-up of coastal waters has been fundamental to the vital tourism revenue and for the fisheries which keep some coastal communities alive.

Thanks to the clean-up, many of the region's cities and towns have been able to turn to their waterfronts as an important source of economic development.

Water company investment is a vital part of ensuring we can protect and enhance the environment for present and future generations.

We continue our work to safeguard rivers, estuaries, underground waters and coastal waters, and work with other industries to reduce pollution and discharges to the environment.

Did you know you can check out the state of your local river by using our website?
By accessing the **'What's in your backyard'** section you can choose any one of the 7,000 sites where our officers sample and test the water quality. All you need is a postcode or a place name. Check out your river at **www.environment-agency.gov.uk**.

"The remarkable improvements in water quality in the estuary have resulted in a dramatic increase in the number of migratory salmon returning to the river and the Tyne is now classed as one of the country's top salmon rivers."

Philip Rippon, Environment Agency fisheries officer

Fisheries

The Tyne, a clean fast-flowing gravel river, offers the ideal conditions for salmon and sea trout. Electric fishing surveys carried out by us have shown high densities of juvenile salmon and trout throughout the catchment and this is reflected in the increasing number of fish caught by rod and line. The River Tyne is an Index Salmon River and as part of this benefits from extra scientific monitoring including fish counting facilities at Riding Mill.

Another important fishery management feature of the Tyne is the salmon hatchery at Kielder, which was built to compensate for the loss of spawning areas caused by the construction of the Kielder Dam. At least 160,000 juvenile salmon are stocked every year in the Tyne, some of which are tagged to provide essential information on salmon behaviour and the success of stocking activities.

Unfortunately, salmon attract poachers and fisheries inspectors fight a continuous battle to control poaching. Thankfully modern communication and night vision equipment helps them keep the situation well under control.

Eels and lamprey are also common in the river and brown trout are widespread. The many tributaries on the system are important in providing suitable habitats for young salmonids.

The nature of the Tyne, with its tendency to have short, flash floods, means that salmonid species dominate. However, there are significant populations of dace, roach and chub present in the lower parts of the main Tyne. In recent years these have been supported by a targeted stocking programme combined with extensive habitat improvements.

Wildlife and conservation

Rare and protected species, including freshwater pearl mussel, water voles, otters and our native white clawed crayfish are to be found in this river catchment and work is taking place to protect them and their habitats. In the last century, around 17 species of plants and animals became extinct in the UK, emphasising the need to care for our native species and the areas in which they live.

The countryside of the Tyne catchment is full of variety, ranging from high heather moors and hay meadows, large areas of forestry, limestone valleys, and in the South Tyne, special river gravels with a unique collection of plants. There are many sites of national and international importance for wildlife.

Although the North and South Tyne are about the same size, the characters of the two rivers are quite different. The South Tyne has frequent fierce floods that leave wide banks of bare gravel and can cause bank erosion. Due to the presence of Kielder and Catcleugh reservoirs, the North Tyne and Rede are gentler with stable, vegetated banks.

We continue to work with many other organisations to protect and improve habitats and the wildlife they attract.

Freshwater pearl mussels are found in the Rede and North Tyne with a total population of about 12,000.

Water voles are present in the urban areas of the lower catchment and in some isolated pockets in the uplands.

Otters are found throughout the catchment.

Native white-clawed crayfish are found in the Roman Wall loughs and tributary streams.

The **rare liverwort**, **violet crystalwort** and the **river jelly lichen** are each found at one site in the catchment.

A special group of plants that can tolerate high levels of lead and zinc in the soil are found on the river gravels of the South Tyne. These include **violas** and **sea pinks**.

Bats, including **Daubenton's**, **noctule** and **pipistrelle** are found in suitable habitat across the catchment.

Great crested newts are found in some ponds in the catchment.

Dippers are found in the headwaters.

Farmland birds such as **lapwings** and **plovers** feed on the estuary in winter and breed in the uplands in summer.

Pollution watchdog

Pollution prevention and control is a vital part of our work. We are responsible for regulating many industrial processes to make sure they are not damaging the environment.

Major investment by industry over the past couple of decades, as well as much tougher limits on discharges to air, land and water, have all had benefits for the environment.

This work and investment is continuing throughout the Tyne catchment and will hopefully bring about further improvements in water quality and a reduction in pollution incidents.

But the work doesn't stop at big industrial processes – other businesses and the farming community also need to be pollution aware. Our work with all these sectors to highlight the simple ways they can help protect the environment and even save money at the same time.

Slurry and fertilisers can have a devastating effect on water quality, wildlife and fish stocks. Every year we have to deal with damaging incidents caused by inadequate storage facilities or poor working practices.

Some of these are caused by the collapse of lagoon walls, leading to the release of slurry, which runs across land into watercourses and can wipe out fish stocks for miles downstream. Overfull slurry stores can also cause problems if heavy rainfall gets into them and they overflow.

Thankfully the picture is not all doom and gloom as very simple steps can prevent problems and we are working with farming organisations in a bid to wipe out bad practice and reduce damaging incidents.

Investing in the environment case study

Investment by a Jarrow chemical company has helped in the battle to improve water quality by reducing the amount of oxygen stripped from the waters by its effluent.

Chemical firm Rohm and Haas, which produces biocides and ion exchange resins, took a detailed look at all of its processes in a bid to reduce the chemical oxygen demand (a measure of how much vital oxygen can be removed from the river) of its effluent.

One of the processes used a solvent, which was found to be a large contributor to the problem. The process was improved and the solvent eliminated. This played a big part in reducing the chemical oxygen demand. The added bonus for the company was that the investment also saved it money in waste treatment costs.

The company's effluent used to be released directly into the Tyne after the most harmful components were removed but today it is taken by sewer to Northumbrian Water's Howdon Sewage Treatment Works, where it is further treated before being released into the Tyne.

Combined with investment by other industries and Northumbrian Water, this has all helped the Tyne's water quality and, as a result, wildlife.

You can find out more about our regulatory role and powers, as well as details of industry discharges, on our website at **www.environment-agency.gov.uk**. Find out what's being emitted from industrial sites in your area, including into controlled waters. Go to **'What's in Your Backyard'** click **'search for other topics'** and click on **'pollution inventory'.**

Water source

Water is essential to life and we have a duty to make sure our water resources are used properly. To do this, officers closely monitor water in the environment. Abstraction licences are issued to regulate who can take water from the environment and the amount that can be taken over a period of time.

The Tyne is a vital source of water for drinking and use by industry. The North Tyne was impounded in 1982 by the Kielder Dam to form the largest artificial reservoir in western Europe.

It can store 200 million cubic metres, ensuring that water is in plentiful supply. Water from this huge reservoir is also used to regulate flows in the Tyne during periods of natural low flow to ensure that abstractions for public use can be maintained downstream.

At Riding Mill a pumping station is linked to a Tyne-Wear-Tees transfer aqueduct. This means that water can be transferred southwards through a series of pipelines and tunnels to the Wear and Tees to increase flows whenever necessary. Other reservoirs in the Tyne system are used to feed treated water directly into the drinking water supply.

Watching the waste

Every year more than 400 million tonnes of waste is produced in England and Wales, with about 25 million tonnes of this from households. All this waste has to be safely handled and disposed of.

The great bulk of waste at the moment is disposed of in landfills. When it breaks down it produces a liquid called leachate, as well as methane gas. Landfill site operators have to make sure this liquid doesn't escape into groundwater or rivers by lining their sites with impermeable barriers.

We regulate the movement and disposal of waste through a system of licences. We also work with landfill site operators and other businesses to make sure that deposited waste does not pose a risk to the environment.

Partnership project to remove unsightly waste case study

A team effort to clean-up debris from the River Tyne has been a great success story – and was further boosted in 2004 with news of a new collection vessel.

For more than 15 years a debris collection vessel, the Eager Beaver, has operated along the Tyne and in that time has removed more than 6,000 tonnes of debris, including polystyrene cups, polythene bags, whole trees and cars!

The work is vitally important to support the great improvements in water quality in the estuary, which have resulted in new housing and business developments around the river. Even though the water quality is much improved, it is still essential to make sure unsightly litter is removed.

The new vessel will not only continue the clean-up service but will also offer an opportunity to recycle some of the collected material.

The River Clean-up Project is funded by the Port of Tyne, Gateshead Council, Newcastle City Council, South Tyneside Council and North Tyneside Council, with contributions from SITA Environmental Trust and the Environment Agency.

What's under your feet?

The Tyne catchment is dominated by rocks of Carboniferous age deposited 360 to 286 million years ago. These rocks are largely interbedded sandstones, shales, limestones and thin coals of varying thickness.

The youngest rocks are of Permian age, deposited between 286 and 248 million years ago. These are the Basal Sands and the Magnesian Limestone. They outcrop in a small area to the south east of the Tyne catchment at the coast.

Dealing with flood risk

Recent years have shown how communities across the UK are at risk of flooding. Climate change will probably increase this risk and so it is as important as ever that people are aware of the steps they need to take to help protect themselves and their property if they live in a flood risk area.

We have invested heavily in both flood defence and flood warning systems throughout the Tyne catchment.

The high rainfall levels on the hills, coupled with the steep valleys mean that the rivers of this catchment are prone to short, sharp floods – also known as flash floods. The communities most at risk of flooding include Corbridge, Warden and Haydon Bridge.

To help improve the level of protection for communities some flood defence schemes have been constructed, including at St Martin's Close, Haydon Bridge, which was built in 1998.

We are continuing our work to help protect householders and businesses from flooding with investment planned in both flood defence and flood warning schemes, including a new scheme for Corbridge.

In a bid to tackle flood risk we are starting to look at the catchment as a whole, rather than communities in isolation.

The way land is managed in the uplands of a catchment has impacts much further downstream, and every development in the floodplain can have an effect on flood risk.

Alongside this is the on-going maintenance of existing defences and general maintenance of watercourses, which all helps in the battle to reduce flood risk.

More than 1,800 properties are at risk of flooding in the Tyne catchment.

75 per cent of these receive flood warnings from the Environment Agency, with this number growing all the time.

Get the most from your rivers

Walking – The Pennine Way follows the course of the South Tyne. There are also numerous riverside walkways and parks, including a Tyne Linear Footpath and cycleway, which follows the river through the urban areas of Tyneside.

Angling – Sea fishing takes place as far up the river as Newcastle Quayside. Coarse fishing is popular in the tidal reaches from Gateshead to Wylam and in the non-tidal stretch from Wylam to upstream of Hexham. Salmon and trout fishing is particularly popular in the upper reaches. For more information get a copy of our North of England Angling Guide by contacting us on 08708 506 506.

Navigation – Boating is another growing leisure pursuit, especially in the tidal stretch. St Peter's Marina near Walker has brought yachts and powerboats to the middle part of the estuary.

Water sports – Rowing, windsurfing and canoeing take place at the river mouth. Upstream of Newcastle, where the river is no longer used for commercial traffic, powerboating, waterskiing and jetskiing take place.

Useful contacts

Newcastle-upon-Tyne Tourist Information Centre 0191 277 8000
Hexham Tourist Information Centre 01434 652 220
Otterburn Tourist Information Centre 01830 520 093

Would you like to find out more about us, or about your environment?

Then call us on
08708 506 506 (Mon-Fri 8-6)

email
enquiries@environment-agency.gov.uk

or visit our website
www.environment-agency.gov.uk

incident hotline 0800 80 70 60 (24hrs)
floodline 0845 988 1188

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