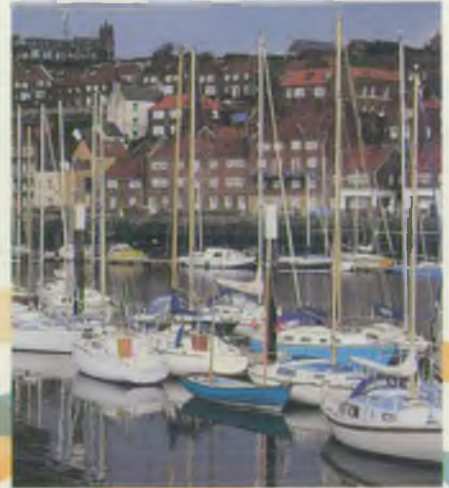


River Esk

FACT FILE



ENVIRONMENT
AGENCY

KEY FACTS

SOURCE OF THE RIVER ESK

Westerdale Moor

ALTITUDE AT SOURCE

Between 300 and 400 metres above sea level (Above Ordnance Datum)

MAIN TRIBUTARIES

Sleddale Beck, Baysdale Beck, Murk Esk

LENGTH FROM SOURCE TO SEA

42 kilometres

TIDAL LENGTH

5 kilometres from Whitby to Ruswarp Weir

CATCHMENT DRAINAGE AREA

362 square kilometres

ANNUAL RAINFALL

Ranging from 950mm inland to 650mm in coastal areas

ESTUARY

Whitby



River Esk

FACT FILE

The River Esk begins on the moorlands of the North Yorkshire Moors National Park, and flows east to meet the North Sea at Whitby. It drains a catchment of 362 square kilometres.

PURE WATERS

The waters of the Esk and its tributaries are of excellent quality, suitable for drinking water abstraction. The Agency's overall aim is, of course, to maintain this standard of water quality.

The Esk is under constant threat from pollution, mainly from farms in this predominantly rural area. Environmental Protection Officers work with farmers to prevent agricultural pollution, identifying practical solutions to potential environmental problems.

Many moorland streams can also be affected by natural 'flushes' of acidity, usually caused by heavy rain falling after a long dry spell on to the dried out peat. These acidic flushes can cause



Biological sampling to monitor river life

occasional fish kills and restrict the invertebrate life. Acid rain has caused the naturally acid condition of the moors to become more severe. Also, the presence of iron from old mineral workings makes some streams an ochreous-orange colour.

The River Esk's water quality will change on various lengths of the river, ranging from a Class A and B river, which is Good, to a Class C river, which is Fair. The Agency has a system for classifying the water quality of rivers. Class A and B rivers are of a 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

THE RIVER ESK & TRIBUTARIES WATER QUALITY CLASSIFICATION TABLE 1995

Quality Class	Inland Rivers (km)	Estuarine (km)
A – GOOD	58.2	4.7
B – GOOD	9.4	0.0
C – FAIR	0.0	0.0
D – FAIR	0.0	0.0
E – POOR	0.0	0.0
F – BAD	0.0	0.0

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.



River Esk at Grosmont

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.

Businesses which want to operate certain industrial processes, those with



Whitby

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.

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.

The Agency regulates the storage 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.

PLENTIFUL FISHERIES

A mark of the purity of these rivers is their ability to support salmon and the Esk is, in fact, the principal salmon and sea trout river in the county of Yorkshire.

Spawning takes place between

November and January, mainly in the 24 kilometres of river upstream of Sleights Weir.

From July onwards, salmon and sea trout gather in significant numbers near the mouth of the estuary. With the rising of each tide, some fish migrate into the estuary and upstream as far as Ruswarp



Retrieving illegal nets

Weir. However, if there is not enough water going over the weir and down the fish pass, the fish cannot swim upstream and will drop back out to sea again. Under suitable conditions, the non-tidal stretch of the Esk provides excellent salmon and sea trout fishing.

This does not go unnoticed by poachers and surveillance operations are carried out day and night to protect the

fishery from poachers.

Fishing in the tidal stretch is now banned by law, but poaching here still remains a problem. In the mid 19th century poaching, combined with commercial netting, was so bad that the 'runs' of fish were virtually destroyed. However, over the past 100 years, the return of salmon and sea trout has been assisted by the introduction of fry to the river.

Although the Esk is dominated by migratory fish, other fish species including eels, minnows and stone loach are also found.



Netting operation to rescue fish

GEOLOGY AND RIVER FLOWS

Throughout its length the Esk flows through a narrow valley incised into the soft shale beds of the Jurassic rocks of the North York Moors. The rocks are around 150-200 million years old.

During the Ice Age a glacier blocked Eskdale and the impounded waters of the Esk rose to form a lake in the main valley. The level of Lake Eskdale became steady when its rising waters found an overflow channel to the south through Newtondale, now part of the route of the North York Moors Railway.

Many isolated farms and hamlets do not have a mains water supply, but rely upon springs issuing from the more permeable rocks. Some of the larger and more reliable springs are tapped for supplies to entire communities.

FLOODING

The Esk's steep-sided valleys mean that river levels rise quickly following heavy rainfall. However, the land at risk is mainly grazing land.

Normal flows over the weir at Sleights are below 5 cubic metres of water per second (cumecs). However, this can rise to a flow of over 350

cumecs during the worst storm conditions.

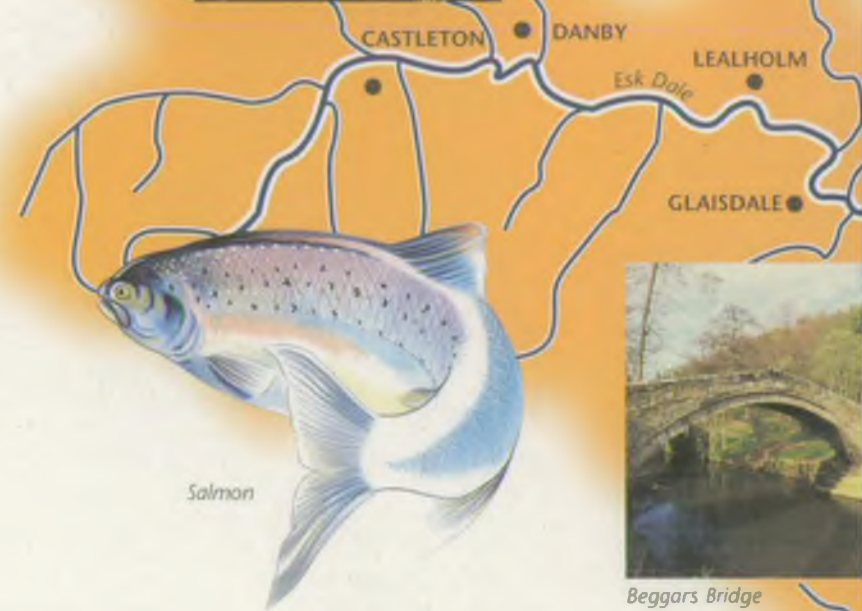
Major floods occurred in 1930 and again in 1931 where a number of road and railway bridges were completely destroyed by the force of the floodwaters. A number of lives were lost during these floods.

On the coast, North Sea tidal surges have caused serious flooding of property in Whitby's Inner Harbour, South Bay Scarborough, Robin Hood's Bay, Sandsend, Staithes, Runswick, Skinninggrove and parts of Redcar.



Flooded fields

Peat Moorland



Beggars Bridge

No flood protection schemes have been carried out on the Esk due to the rural nature of the area.

However, maintenance works are constantly carried out by the Agency's Flood Defence staff in the never ending battle against floods. The removal of debris and clearing timber obstructions help to prevent localised flooding during high river flows.

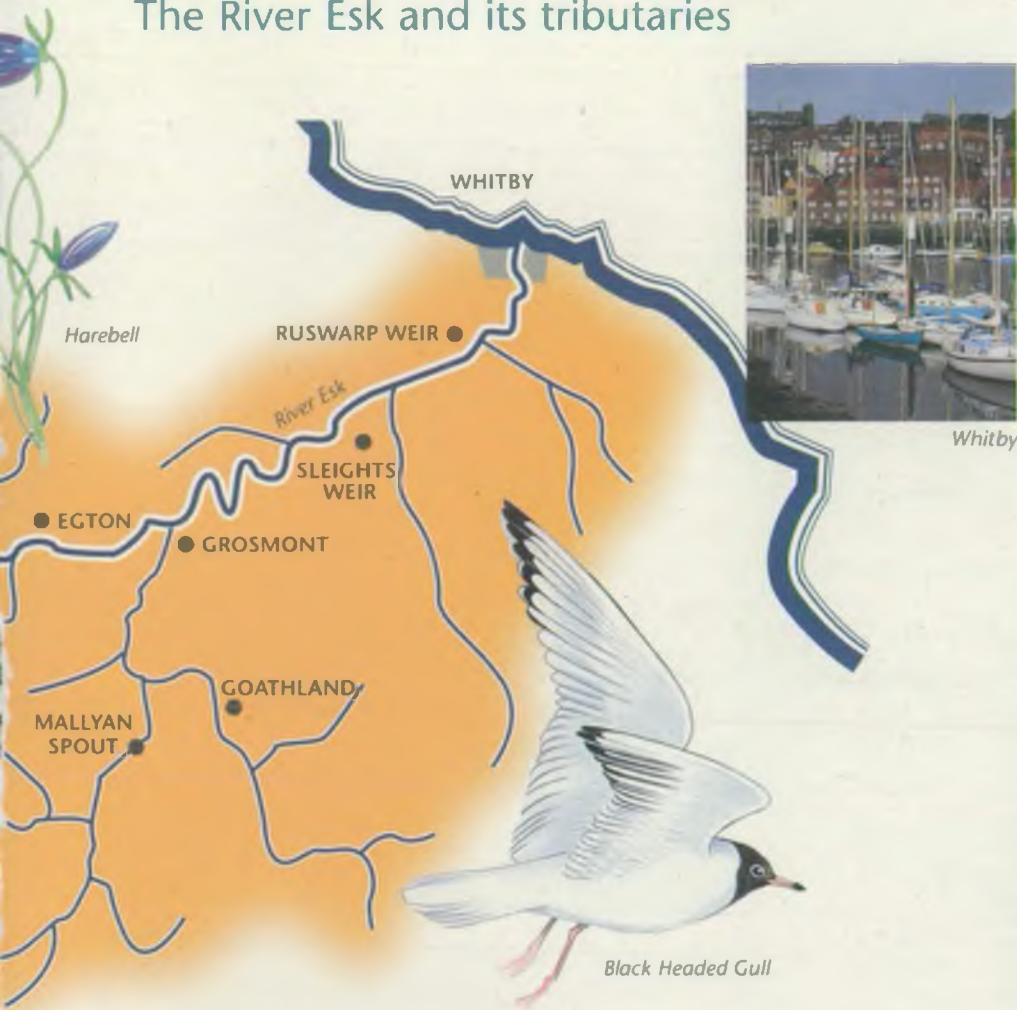
FLOOD WARNING

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.

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

The River Esk and its tributaries



Whitby

breaks in the woodland or natural vegetation if a pathway for wildlife, the 'wildlife corridor', is to be maintained.

Associated with these woodlands are areas of neutral and marshy grassland which contain a range of plant species including meadowsweet, rushes, harebell and a wide variety of grasses. There are occasional areas of semi-natural grassland along the riverside, but most fields have been drained and improved for agriculture.

In Eskdale, the river broadens out and by Lealholm is bordered mainly by agricultural land, with scattered trees along the banks and a few small, isolated woodlands. Moorland can be seen to the north and south within a mile of the river.



Boats moored at Ruswarp

Black Headed Gull



The Agency uses the latest technology to predict possible flooding

Environment Agency's Automatic Voice Messaging (AVM) system. This will give details of the flood warning and a contact for further information.

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.

CONSERVATION

The River Esk lies entirely within the North Yorkshire Moors National Park, except its most downstream reaches where it flows through Whitby.

The river leads from its moorland source into Westerdale, a farmed valley grazed by sheep and cattle. The bankside is fringed with trees linking a series of small woods dominated by oak and sycamore, with alder and willow in the wetter areas. It is important that the bankside habitat does not have any

Further downstream, woodland areas are again more frequent. In places there are areas of ancient semi-natural woodland, often on the steep slopes leading down to the river itself. These woodlands contain oak, birch and alder, although in places some broad-leaved trees have been replaced by conifers. There is great conservation interest within the woodland areas and many of these have been identified by the National Park. These old-established woodlands have a diverse ground flora and the shaded, rocky areas are ideal for mosses and ferns, which can be abundant.

In the tidal reaches of the river within Whitby, there is a remaining fragment of saltmarsh.

Many different types of invertebrate animals, including mayflies, stoneflies and caddisflies, live amongst the stony river bed, and dippers can be seen. The plant life is mainly restricted to mosses.

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. 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 precious resources

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



Work in progress at a waste disposal site

treatment plants.

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!



A summer's day beside the River Esk



Boating on the River Esk

ENJOYING THE ESK

The Esk flows through Westerdale to Castleton and Danby and the remains of castles can be seen near both villages. Further down at Danby is the Moors Centre, the North York Moors National



River Esk at Egton Bridge

Park exhibition centre for visitors. From here, visitors can follow nature trails or start on a series of short walks. The 'Esk Valley' walk follows the Esk from source to sea, a total of 27 miles. The 'Eskdale Way' is an 82 mile circular walk round the valley.

'Beggars Bridge' at Glaisdale, an interesting, high-arched packhorse bridge, was reputedly built by a local lad in the 17th century. It stood as a token of his love for a girl who lived on the opposite bank and whom he eventually married.

Along from Glaisdale, the Murk Esk tributary joins the Esk at Grosmont. Upstream on the Murk Esk, there is a spectacular waterfall at Mallyan Spout near Goathland.

Grosmont is also the start of the popular North Yorkshire Moors Railway. Restored steam locomotives pull trainloads of visitors through wooded valleys to Pickering.

Boating takes place on the non-tidal stretch at Ruswarp, and on the tidal Esk there is boating, sailing and canoeing. In

particular, there is considerable boating activity as the river widens into an estuary at Whitby, where there is a large marina.

As with many of the Yorkshire Dales, there was a great influence, both material and spiritual, on the life of the Dale from the local Abbey, in this case Whitby Abbey. The Abbey has been built three times – by the Anglo Saxons in 657, the Normans in 1078 and again in 1220 by the Early English. In 1559 during the reformation the Abbey was partly destroyed.

Whitby has been a major north east coastal settlement since Viking times. The Vikings were the first to see Whitby's potential as a port – a role the town still fulfils to this day. In fact, it was from Whitby that Captain Cook set sail to the South Pacific in 1768 on his great voyage of discovery. His ship, the Endeavour, was actually made in the port at Whitby.

Whitby has also featured in literature. Bram Stoker, the author of Dracula, has it that the infamous count landed in Whitby on his journey to England.

The River Esk has played an important role throughout history, and the river continues to be used to this day for both recreational activities and as a working river.



Boats moored in Whitby harbour

NORTH EAST REGION ADDRESSES

REGIONAL OFFICE:

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Rivers House
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Fax: 0113 246 1889
Minicom: 01904 692 297

NORTHUMBRIA AREA

Environment Agency
Tyneside House
Skinnerburn Road
Newcastle Business Park
Newcastle upon Tyne NE4 7AR
Tel: 0191 203 4000
Fax: 0191 203 4004
Minicom: 01904 692 297

DALES AREA

Environment Agency
Coverdale House
Amy Johnson Way
Clifton Moor
York YO3 4UZ
Tel: 01904 692 296
Fax: 01904 693 748
Minicom: 01904 692 297

RIDINGS AREA

Environment Agency
Olympia House
Gelderd Road
Leeds LS12 6DD
Tel: 0113 244 0191
Fax: 0113 231 2116
Minicom: 01904 692 297



Environment Agency
Information Centre
Head Office

ENVIRONMENT AGENCY

128530

For general enquiries please call your local Environment Agency office. If you are unsure who to contact, or which is your local office, please call our general enquiry line.

**ENVIRONMENT AGENCY
GENERAL ENQUIRY LINE**

0645 333 111

The 24-hour emergency hotline number for reporting all environmental incidents relating to air, land and water.

**ENVIRONMENT AGENCY
EMERGENCY HOTLINE**

0800 80 70 60



**ENVIRONMENT
AGENCY**