

Water Resources



North West



ENVIRONMENT
AGENCY

Water Resources

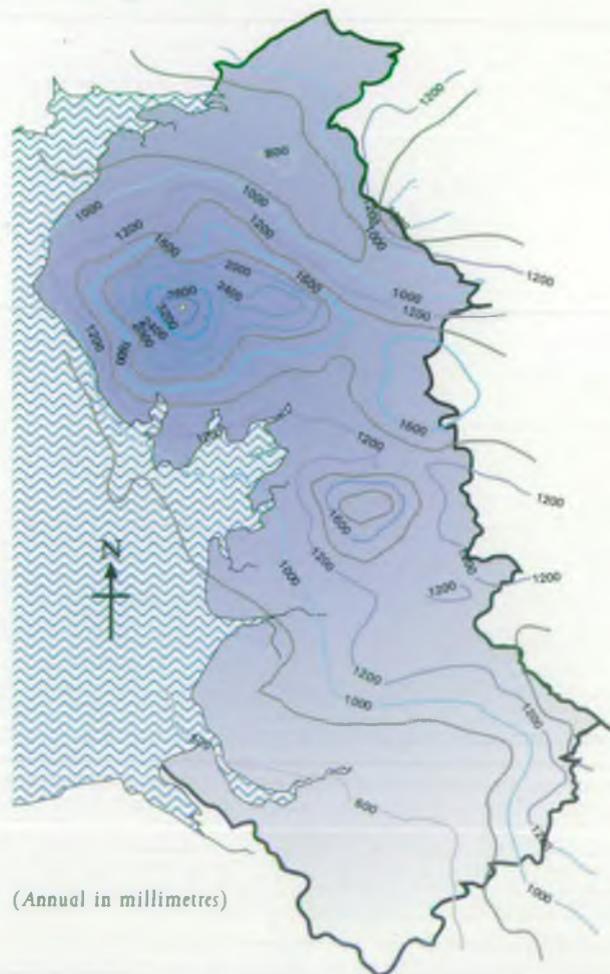
The North West

Water is a precious commodity; a vital resource in constant demand, to be safeguarded and skilfully managed.

Demands and expectations of water users, for agriculture, industry and for public supply, place increasing and often conflicting requirements on the environment in which we all share. Striking the balance between these needs is the role of the Environment Agency in its day-to-day task of overall care and management of the region's natural resources.

The north west receives an abundant supply of water, with an average rainfall of more than 1,100 millimetres a year - from over 3,600 millimetres a year in parts of the Cumbrian mountains to less than 700 mm on the Cheshire plains. Almost half of this rainfall evaporates or is used by plants. The rest quickly runs off to the river systems and the sea, or is stored in lakes and reservoirs or percolates into the ground. The stored water in the ground helps to maintain river flows in dry periods.

Long Term Average Rainfall



But areas of high rainfall rarely coincide with areas of high population, and most of the seven million population live in the conurbations of Manchester, Liverpool and east Lancashire - towards the south of the region. Tourism, particularly in the seaside towns and the Lakes, increases summer demand for water supplies.

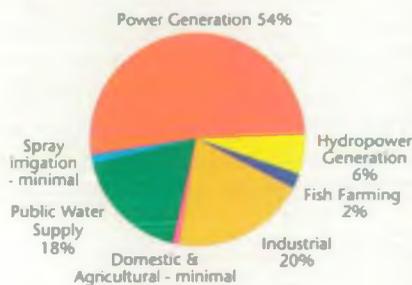
To care properly for water resources in the region, the Agency has to know how much water is available, both above and below ground. This is continually monitored, and measurements are made using rain and river flow gauges and groundwater boreholes.

The amounts of water abstracted from surface and underground sources are also monitored.

Water Management

In the north west, the Agency licenses 15,000 megalitres (3,300 million gallons) of water a day for abstraction.

Water abstracted



(based on purpose of use)

Surprisingly, perhaps, less than 20% of this water is taken for public water supply by North West Water Ltd. (NWW). However, this still represents over half the amount of freshwater (rather than the tidal/estuary water used for cooling) licensed in the region.



Fiddlers Ferry Power Station



Surface water monitoring

By far the largest demand is from the power supply industries, who use more than half of the entire amount of licensed water for cooling purposes. It is nearly always abstracted from tidal sections of rivers and estuaries - most of it to be returned to the environment after the process is complete.

The Fiddlers Ferry Power Station on the upper tidal reaches of the River Mersey, west of Warrington, is typical of its kind. It is licensed to abstract 17 million litres of water every hour to cool the giant electricity generators.

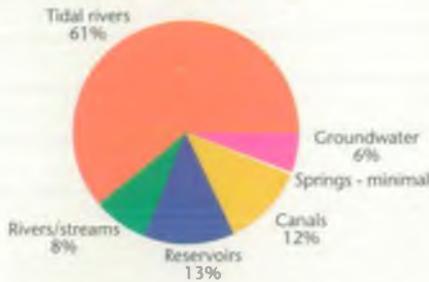
A further 20% of the water abstracted in the region goes directly to factories for use in industrial processes.

Only a relatively small percentage is taken for agriculture and spray irrigation. However, the water for spray irrigation, which is vital for maintaining essential food supplies, tends to place the highest demand on local sources when they are at their lowest.

Many thousands of farms and households in rural areas without mains water rely upon local sources for their domestic and agricultural supplies.

Water comes from a variety of sources. Sometimes from underground, rising to the surface in natural springs, or pumped up from wells to meet the needs of small communities. Larger supplies rely on deep wells and on rivers and reservoirs.

Water abstracted



(based on source of supply)

The largest volumes are taken from tidal rivers and estuaries, but the region's lakes, rivers, reservoirs and underground sources are all used, especially for freshwater uses. In the north west, there are more than 200 water supply reservoirs, which provide around 13% of the water.

Sandstone rocks are found throughout the region - from Carlisle in the north, to Cheshire in the south. They form the largest aquifers - rock deep in the ground saturated with water - and provide as much water as the combined resources of Thirlmere and Haweswater reservoirs.

In the past, some of the valuable groundwater resources were heavily exploited, particularly in the north west's main centres of population. In recent years, however, declining demand for water from heavy industry has resulted in groundwater levels rising - most notably in the Liverpool area. This may help improve local groundwater quality in the long term by flushing out saline water which, due to over abstraction in the past, had entered the aquifers.

Nearly all abstractions have to be licensed - there are some 3,500 of them in the north west - the licence says how much can be taken, from where, for how long and its purpose. Each abstractor pays a fee, depending on the amount of water taken and its use. The money raised in this way pays for the Agency's work in managing and protecting water resources.

Licences are an important means of helping to manage the best use of existing resources. They may include conditions which prevent abstraction when

river flows are too low. In some instances, a licence will not be granted at all if the water to be taken from rivers, streams, lakes or from underground disturbs nature's environmental balance, or would adversely affect other, legitimate water users.

The Agency is addressing the problem of low flows in rivers where over abstraction is the cause. For example, to benefit a highly important fishery along the River Lowther in Cumbria, an agreement has been reached under which water taken from the river by the company has now been reduced to ensure higher river flows.

Long periods of dry, sunny weather, while perhaps welcome, can lead to droughts, a number over recent years hitting the headlines. High peak demands by customers can cause supply problems, and the high temperatures and low flows affect both availability of supplies and the environment.

It is more than ever, during droughts, that the Agency needs to balance the essential requirements of water supply with those of the environment. The Agency encourages abstractors to reduce their demand for water and to prevent wastage of water through effective use and leakage control. Before agreeing to any new source development or allowing additional water to be taken, the Agency ensures that action is taken to protect the environment as far as possible from any adverse effects.

The long term difficulty of meeting supplies from sustainable resources is the subject of the Agency's Water Resources Development Strategy. Demand management and water conservation are recognised as having key roles to play in an environmentally sustainable strategy.



Monitoring compensation flows



Although it is the Agency that must ensure the demand for water by domestic, agricultural and industrial users is not at the expense of the aquatic environment itself, everyone can help. By using water wisely at home and in the work place, you can prevent the loss of habitats and reduce the chance of rivers drying up, so helping to conserve wildlife.

Safeguarding Resources

Environment Agency staff act to safeguard both surface and groundwater quality. It is particularly important to protect groundwater because, once polluted, it is almost impossible to clean up.

Everyone, including industry and farmers alike, is encouraged to take precautions to prevent pollution. For example, waste engine oil should be taken to oil banks for safe recycling or proper disposal. The Agency can, and does, prosecute offenders.

Farm waste can be highly polluting. Liquor from the silage making process is estimated to be 200 times more polluting than raw sewage. In the north west, many farms are on limestone rock, where an accidental leak of waste can soak through to pollute groundwater and threaten distant springs. Spilled directly into streams, farm silage liquor and manure will remove dissolved oxygen from the water, resulting in a devastating effect on fish stocks and aquatic life.

The safe management of landfill sites is a further aspect of the work of the Agency to protect water supplies. The Agency is consulted to ensure that sites are properly sealed to stop pollution filtering into the ground and threatening water resources.



Migrating salmon

Many tips date back to less environmentally enlightened times when legislation did not take account of the prospect of pollution in the future. Now they are closely monitored by an Agency with powers to take action as more and more emphasis is placed on the importance of monitoring and improving the environment.

The Environment Agency will continue to work towards conserving, protecting and improving the environment, ensuring, too, the clean and adequate supply of that most precious of nature's resources - water.

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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.

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

**ENVIRONMENT AGENCY
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0645 333 111

**ENVIRONMENT AGENCY
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