

Monthly water situation report: Yorkshire Area

1 Summary - September 2026

Rainfall in Yorkshire was below the long term average (LTA) for the time of year in all catchments this month. Soils remained dry or very dry throughout the month. River flows were below the September LTA in all catchments and by the end of the month were below normal for the time of year. Groundwater levels decreased in most principal aquifers. Reservoir stocks continued to decline and were around 20% below the LTA for the time of year at the end of the month. A substantial number of Hand Off Flow (HoF) restrictions on abstractions were in place by the end of the month.

1.1 Rainfall

Catchment average rainfall in September was below the LTA for the time of year in all Yorkshire catchments. It was also the fourth consecutive month of below LTA rain in Yorkshire. Pennine catchments had either normal or below normal rainfall with between 46% and 82% of LTA rainfall. However, catchments in the east only had between 26% and 39% of the LTA. In particular, the Hull rainfall total for the month was exceptionally low for the time of year.

During September there was episodic rainfall across Pennine catchments between days 1 and 19. The larger daily totals, in excess of 10mm, occurred over the northern and central Pennine catchments of the Ure, Nidd, Wharfe, Aire and Calder on days 3, 7 and 18. In the Swale catchment there were fewer days with rain and the daily totals were lower. For all Pennine catchments there followed a dry period between days 20 and 27 before a return to occasional, low daily rainfall totals at the end of the month.

In southern and eastern Yorkshire rainfall was sporadic throughout the month and, as in the Pennine catchments, the only notable daily totals occurred on days 3, 7, and 18. These catchments were predominantly dry from day 19 to the end of the month.

For Yorkshire as a whole it was the fifth lowest April to September rainfall accumulation since 1871. In the south and west, the 6-month April to September cumulative rainfall totals were notably low and they were exceptionally low in the north and east. The April to September total in the Esk catchment was the second lowest on record, with only the 1991 total being lower.

1.2 Soil moisture deficit and recharge

Soils across Yorkshire began the month dry and remained so until day 15. During this period the rainfall in Pennine catchments reduced soil moisture deficits slightly but deficits in southern and eastern catchments continued to increase. The drier weather from mid-month caused all soil moisture deficits across Yorkshire to increase. By the end of the month, soils in the south

and east of Yorkshire were very dry and those of the Pennines remained dry with deficits close to that at the start of the month. By the end of the month soil moisture deficits were lower than the September LTA.

1.3 River flows

Monthly mean flows were below their September LTAs in all catchments across Yorkshire. The monthly mean flows also generally reflect the distribution of rainfall across catchments in September. Although the catchments of the Ure, Wharfe and Aire had normal monthly mean flows for the time of year, it is possible that the below normal flows in the Nidd and Calder were influenced by reservoir storage in these catchments. The lack of September rainfall in southern and eastern catchments was reflected by below normal and notably low monthly mean flows. In the Esk catchment, at Briggswath, the monthly mean flow was exceptionally low for the time of year and the lowest September mean flow on record.

Pennine catchments had notably high or above normal daily mean flows on days 4 and 19, in response to the larger rainfall totals of days 3 and 18. By the end of the month Pennine catchment flows had declined to below normal or notably low for September. Flows in the Swale followed a similar pattern but increased to normal flows in response to rainfall before returning to notably low between each event and then declining to exceptionally low by the end of the month.

In the Derwent, Esk and Rye catchments of the North Yorkshire Moors, response to rainfall on days 3, 7 and 18 was less pronounced. Overall, there was a steady decline from below normal flows for the time of year at the beginning of September to exceptionally low flows by the end of the month. In the Hull catchment there was a similar pattern of gradual decline but from below normal to notably low flows for the time of the year.

1.4 Groundwater levels

Magnesian Limestone

The groundwater level within the Magnesian Limestone decreased at Brick House Farm and was normal for the time of year.

Millstone Grit

There was no data available for September at the Hill Top Farm monitoring well. At the end of August, the groundwater level within the Millstone Grit at Hill Top Farm was notably low for the time of year.

Sherwood Sandstone

The groundwater level within the Sherwood Sandstone remained stable at Great Ouseburn and was normal for the time of year. The groundwater level increased at Riccall Approach Farm and was below normal for the time of year.

Corallian Limestone

The groundwater level within the Corallian Limestone decreased at Sproxton and was normal for the time of year.

Chalk

The groundwater level within the Chalk decreased at Wetwang and was notably low for the time of year. The groundwater level decreased at Dalton Estate Well and was below normal for the time of year.

1.5 Reservoir stocks

Reservoir stocks continued to decline over the course of September at an average rate of around 0.8% per week. At the end of the month, stocks were at 45.8%, the lowest level recorded so far in 2026, and were 21.4% less than the LTA.

1.6 Environmental impact

At the end of September, there were 113 abstraction licences with a HoF condition in force, and another 45 abstraction licence holders had been given advance warning of possible restrictions.

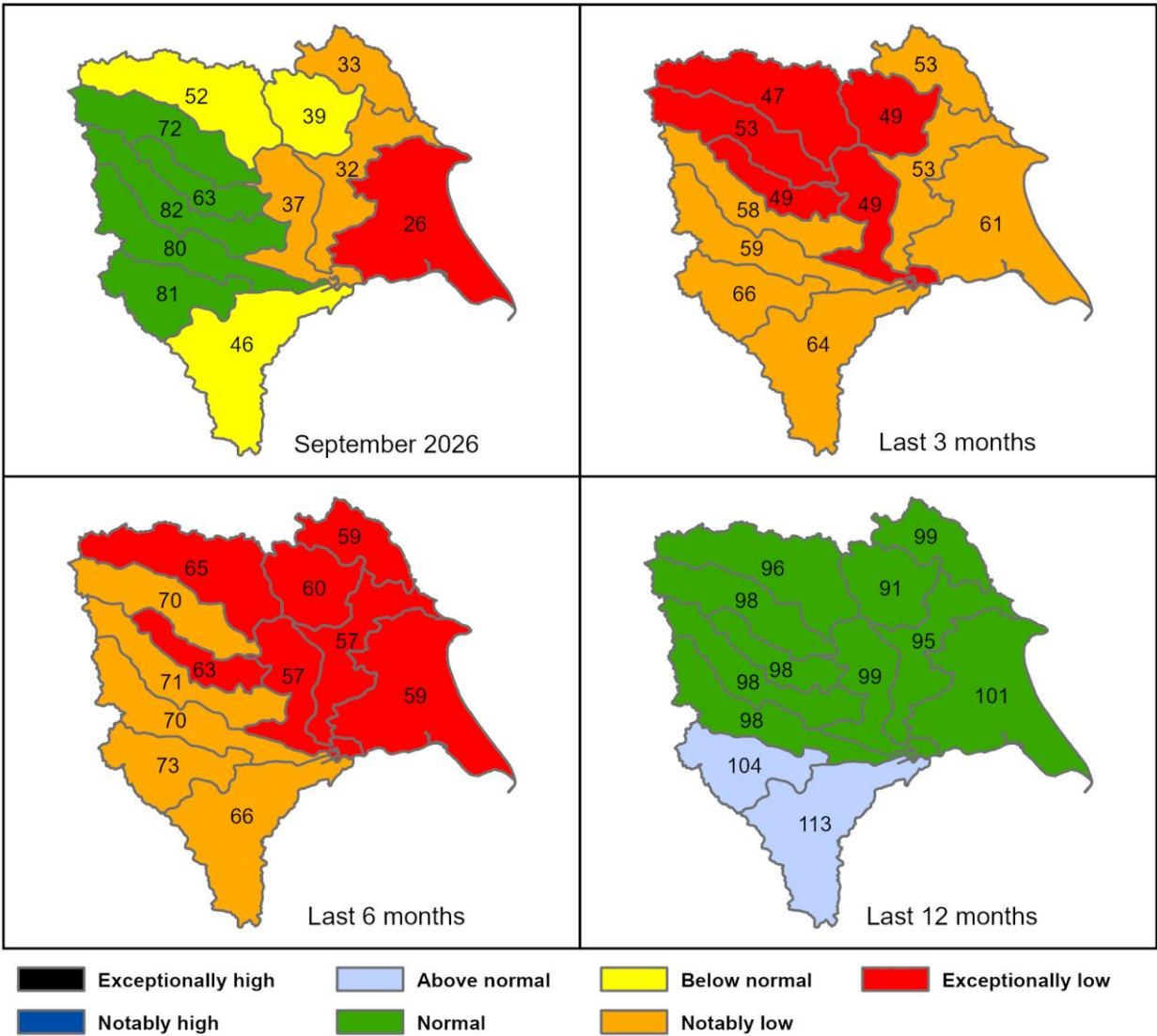
Author: Yorkshire Hydrology Team, hydrology.northeast@environment-agency.gov.uk

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2 Rainfall

2.1 Rainfall map

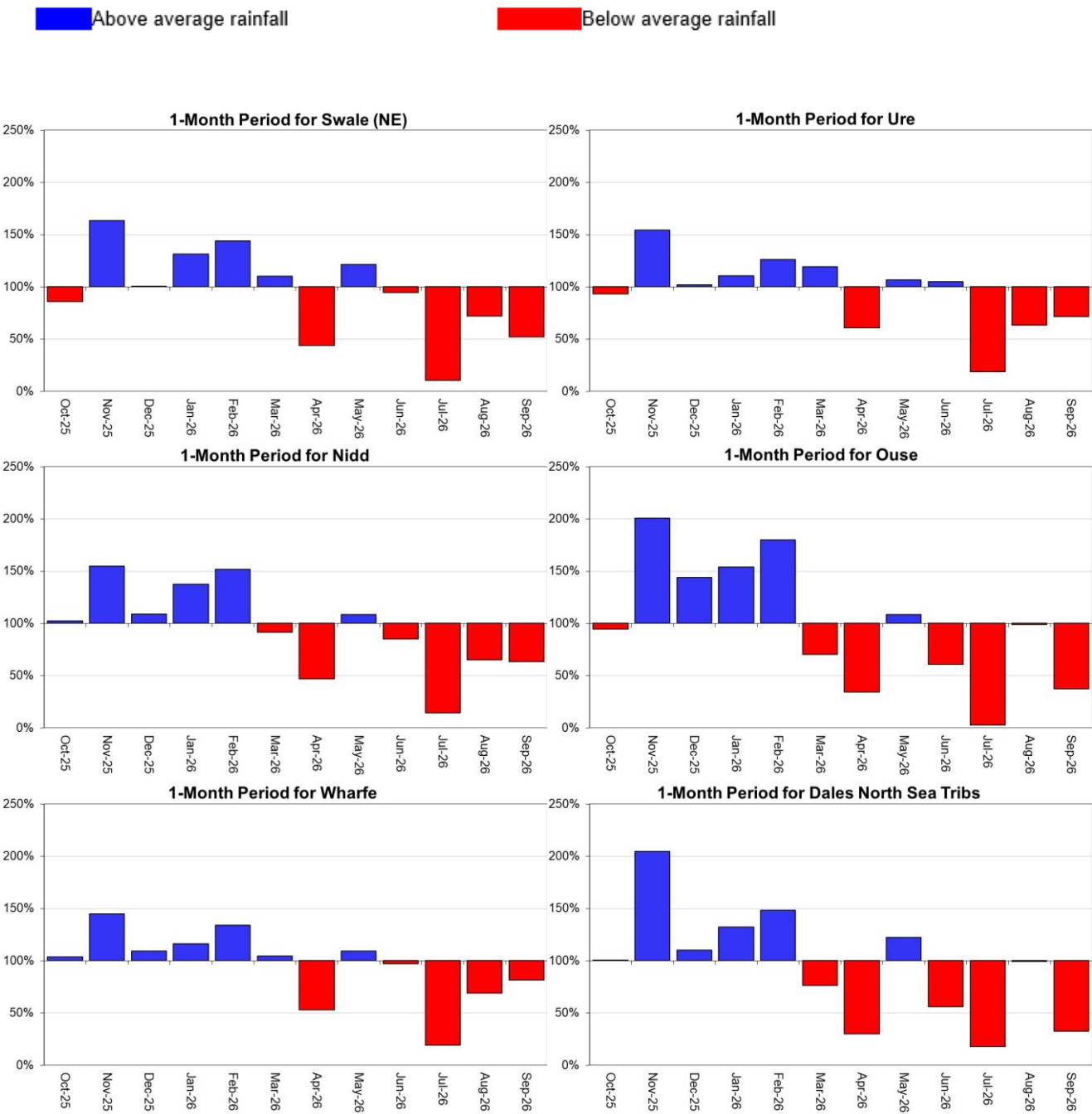
Figure 2.1: Total rainfall for hydrological areas across Yorkshire, expressed as a percentage of the 1991 to 2020 long term average rainfall, for the current month (up to 30 September 2026), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. Table available in the appendices with detailed information.

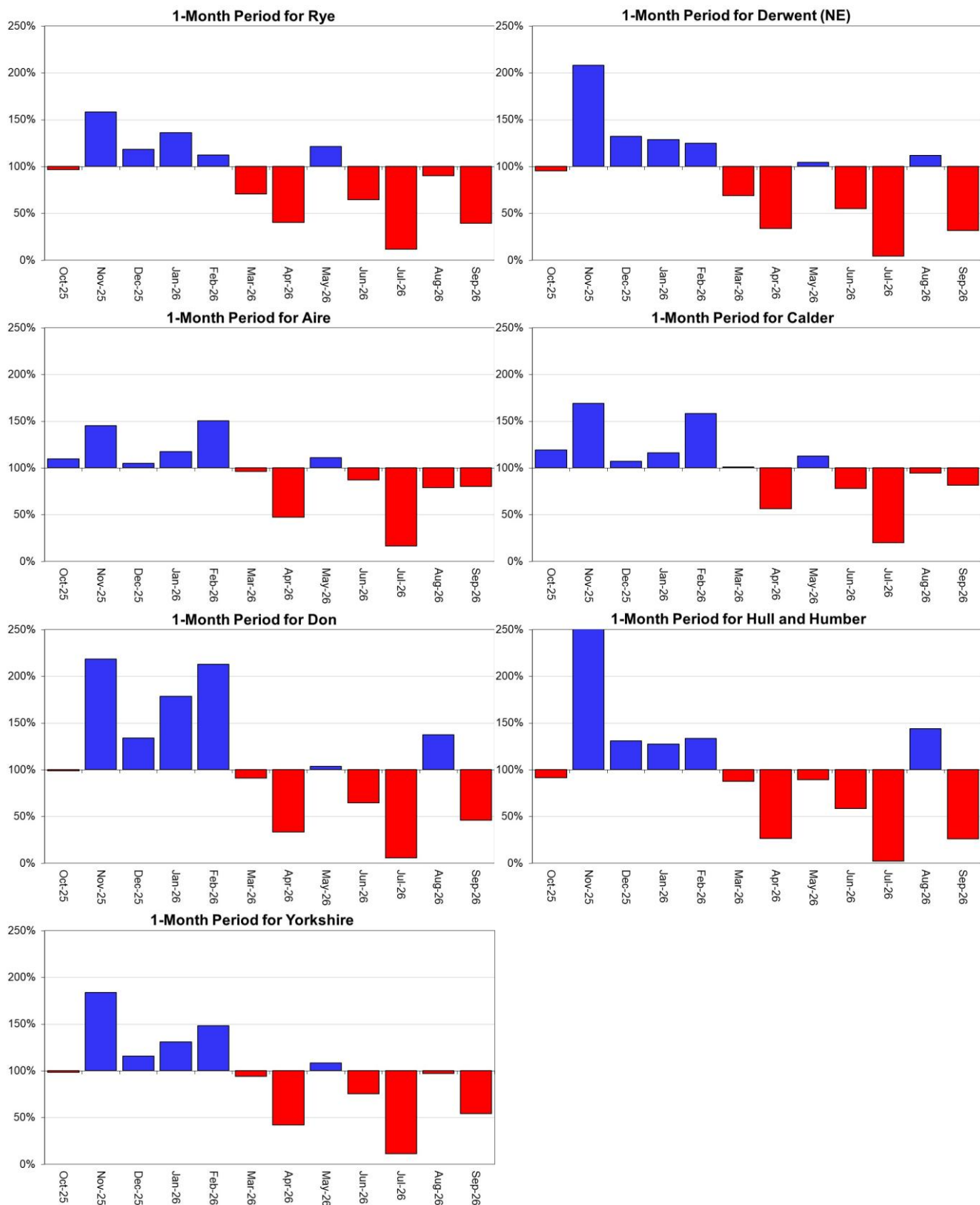


Rainfall data for January 2025 onwards, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, AC0000807064, 2026). Rainfall data prior to January 2025, extracted from Met Office HadUK 1km gridded rainfall dataset derived from registered rain gauges (Source: Met Office. Crown copyright, 2026).

2.2 Rainfall charts

Figure 2.2: Monthly rainfall totals for the past 12 months as a percentage of the 1991 to 2020 long term average for each catchment.





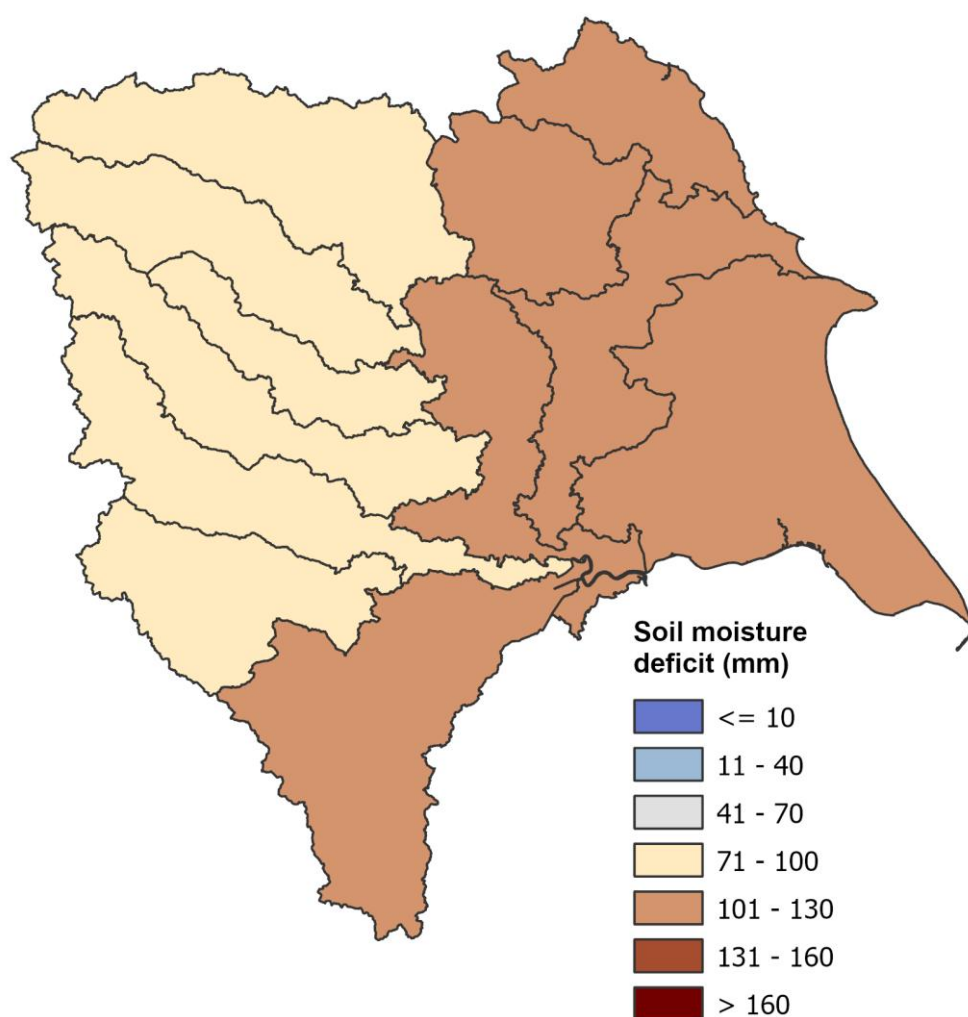
Rainfall data for January 2025 onwards, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment

Agency. Crown Copyright, 2026). Rainfall data prior to January 2025, extracted from Met Office HadUK 1km gridded rainfall dataset derived from registered rain gauges (Source: Met Office. Crown copyright, 2026).

3 Soil moisture deficit

3.1 Soil moisture deficit map

Figure 3.1: Soil moisture deficits for week ending 30 September 2026. Shows the actual soil moisture deficits (mm) within each hydrological area. Calculated from MORECS data for real land use.

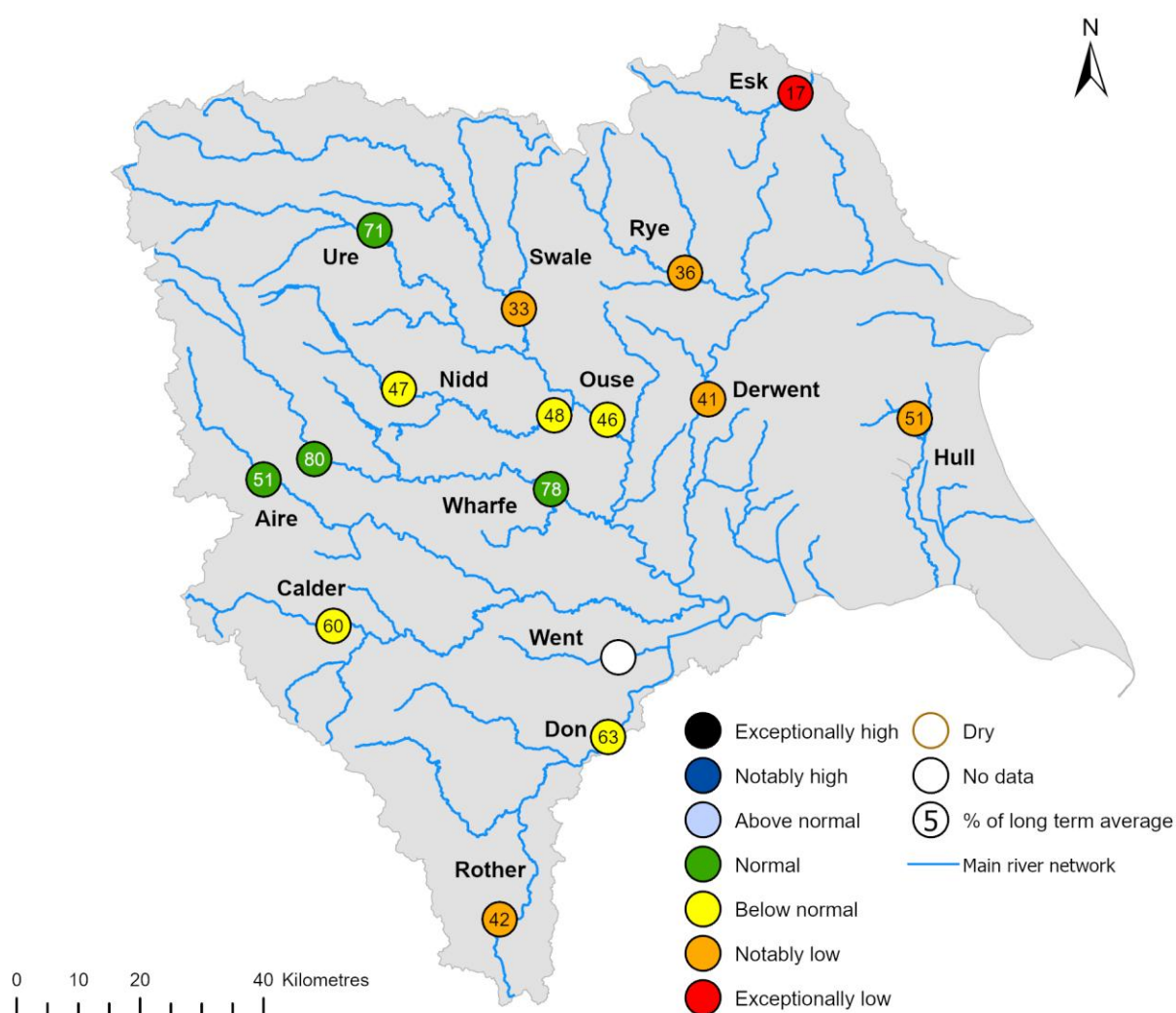


(Source: Met Office. Crown copyright, 2026). All rights reserved. Environment Agency, AC0000807064, 2026.

4 River flows

4.1 River flows map

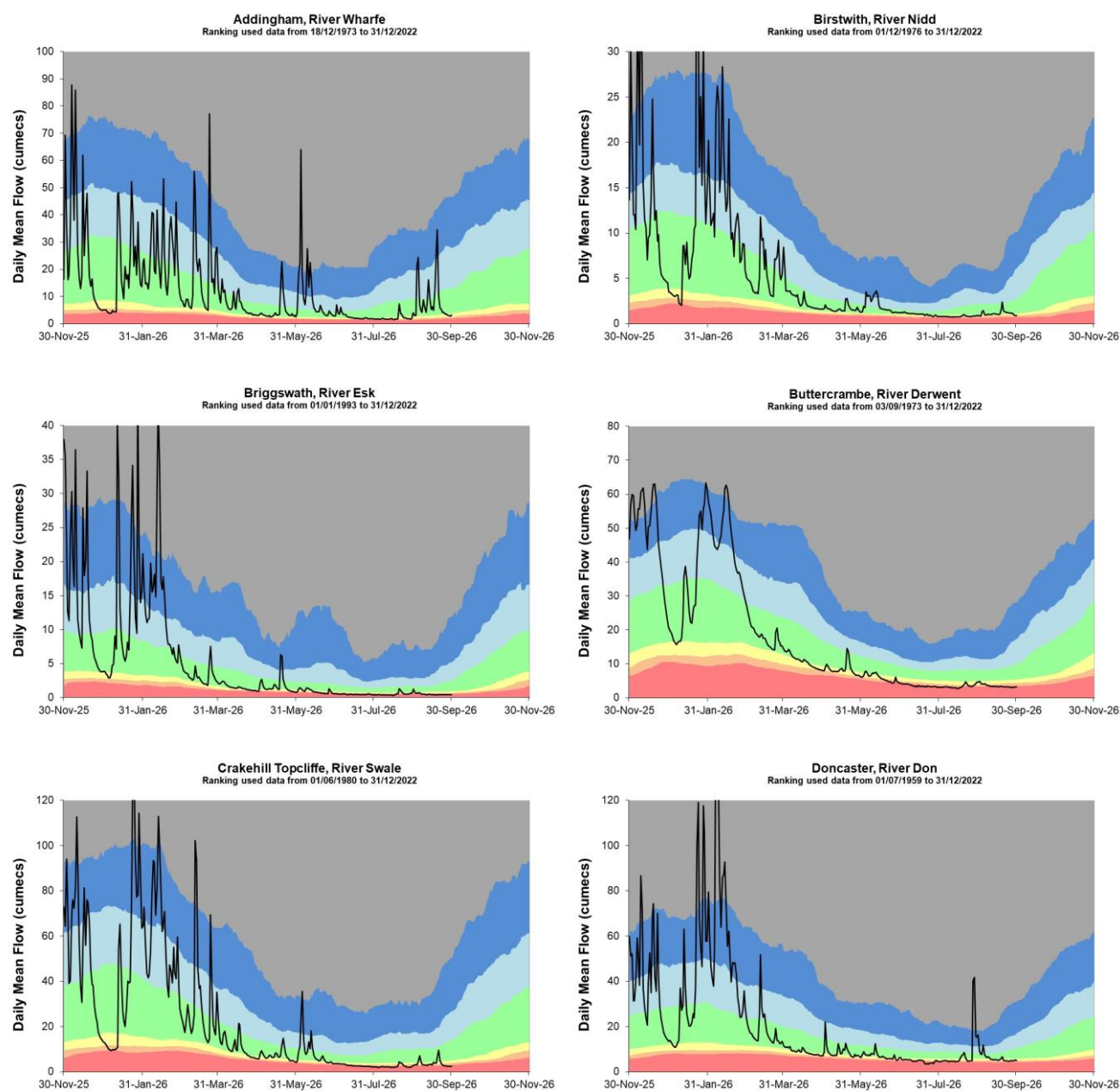
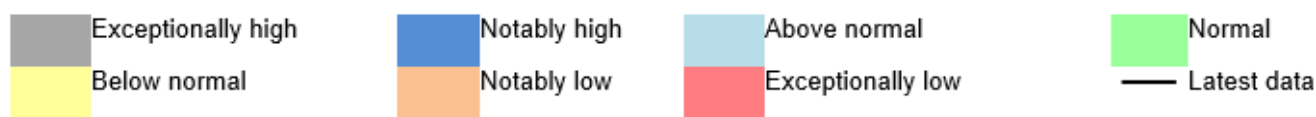
Figure 4.1: Monthly mean river flow for indicator sites for September 2026, expressed as a percentage of the respective long term average and classed relative to an analysis of historic September monthly means. Table available in the appendices with detailed information.



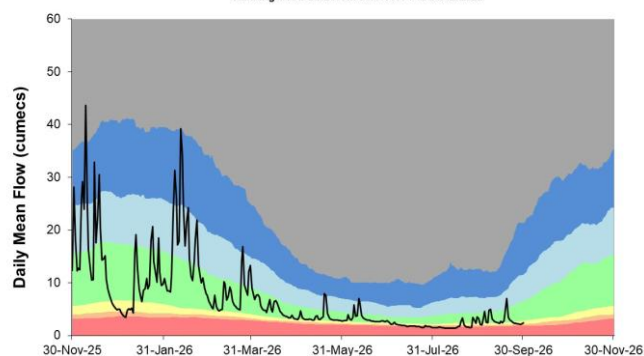
(Source: Environment Agency). Crown copyright. All rights reserved. Environment Agency, AC0000807064, 2026.

4.2 River flow charts

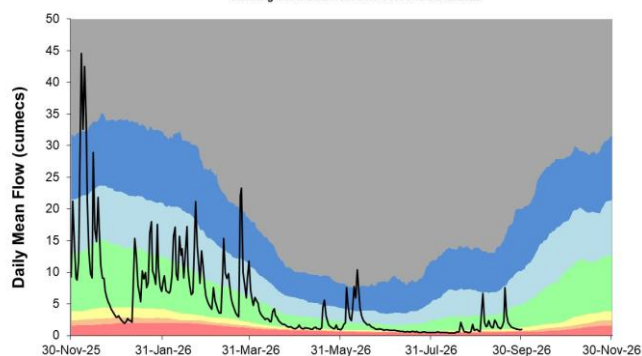
Figure 4.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



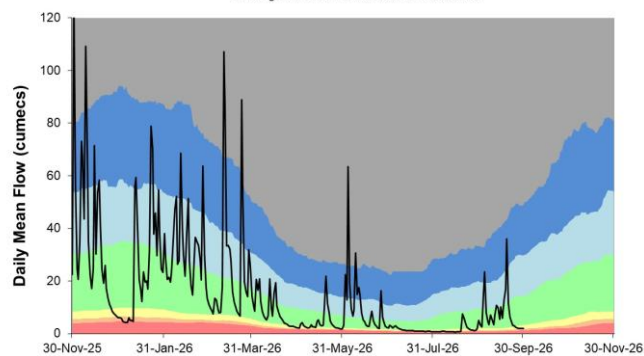
Elland, River Calder
Ranking used data from 01/07/1971 to 31/12/2022



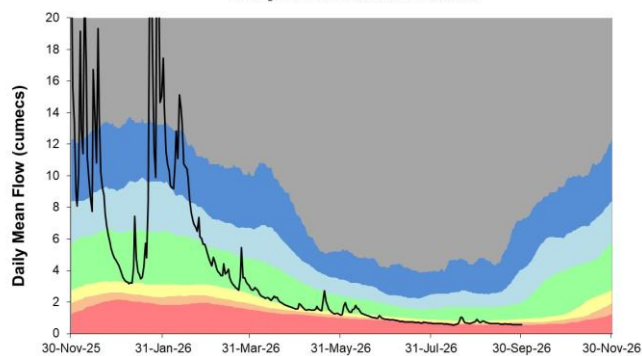
Kildwick, River Aire
Ranking used data from 01/01/1970 to 31/12/2022



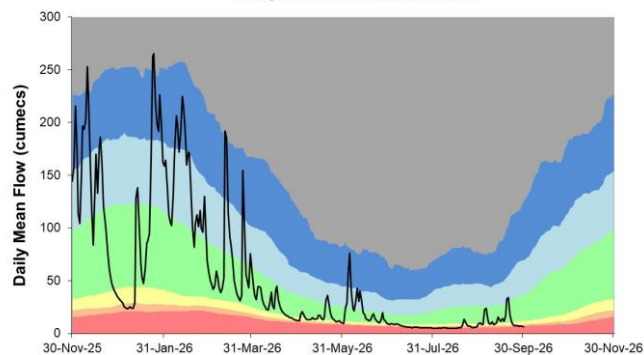
Kilgram Bridge, River Ure
Ranking used data from 01/01/1968 to 31/12/2022



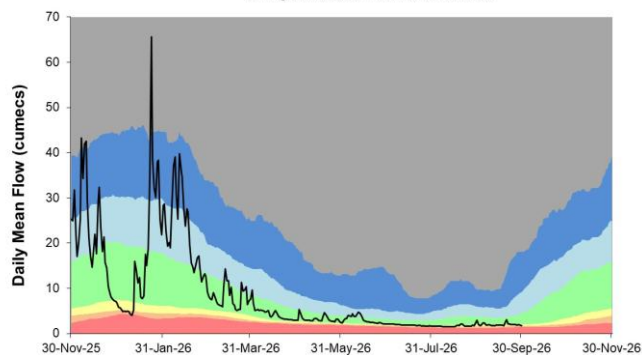
Ness, River Rye
Ranking used data from 07/08/1974 to 31/12/2022

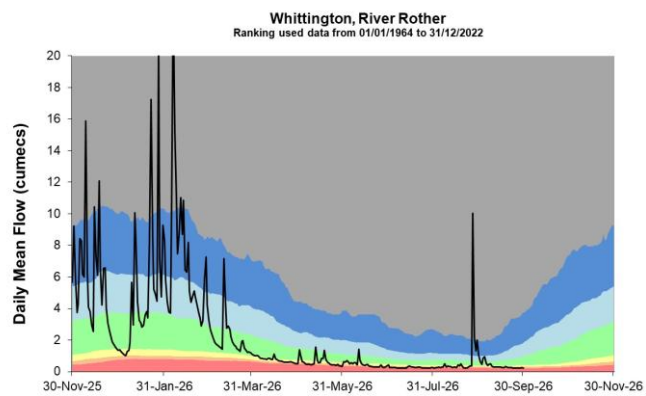
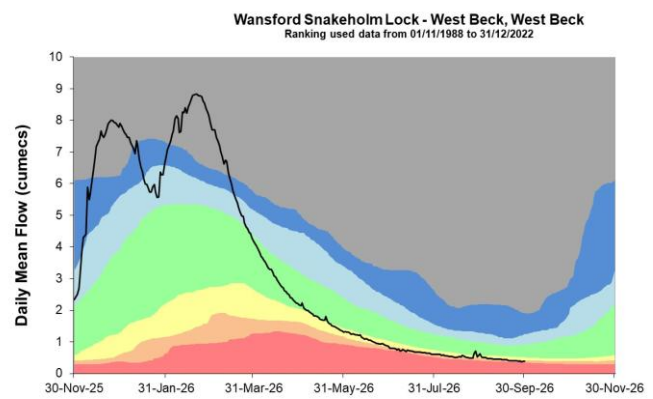
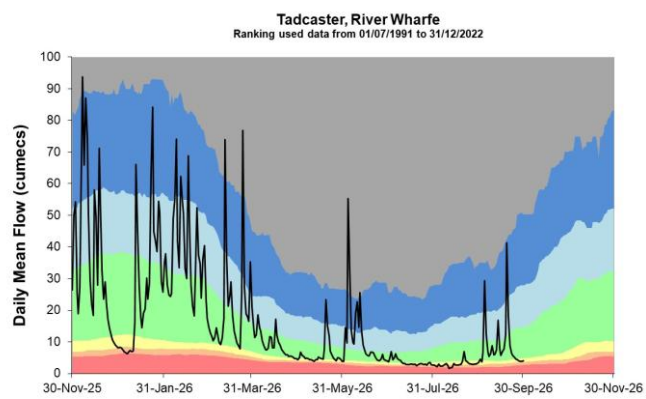


Skelton, River Ouse
Ranking used data from 18/09/1969 to 31/12/2022



Skip Bridge Kirk Hammerton, River Nidd
Ranking used data from 12/06/1979 to 31/12/2022



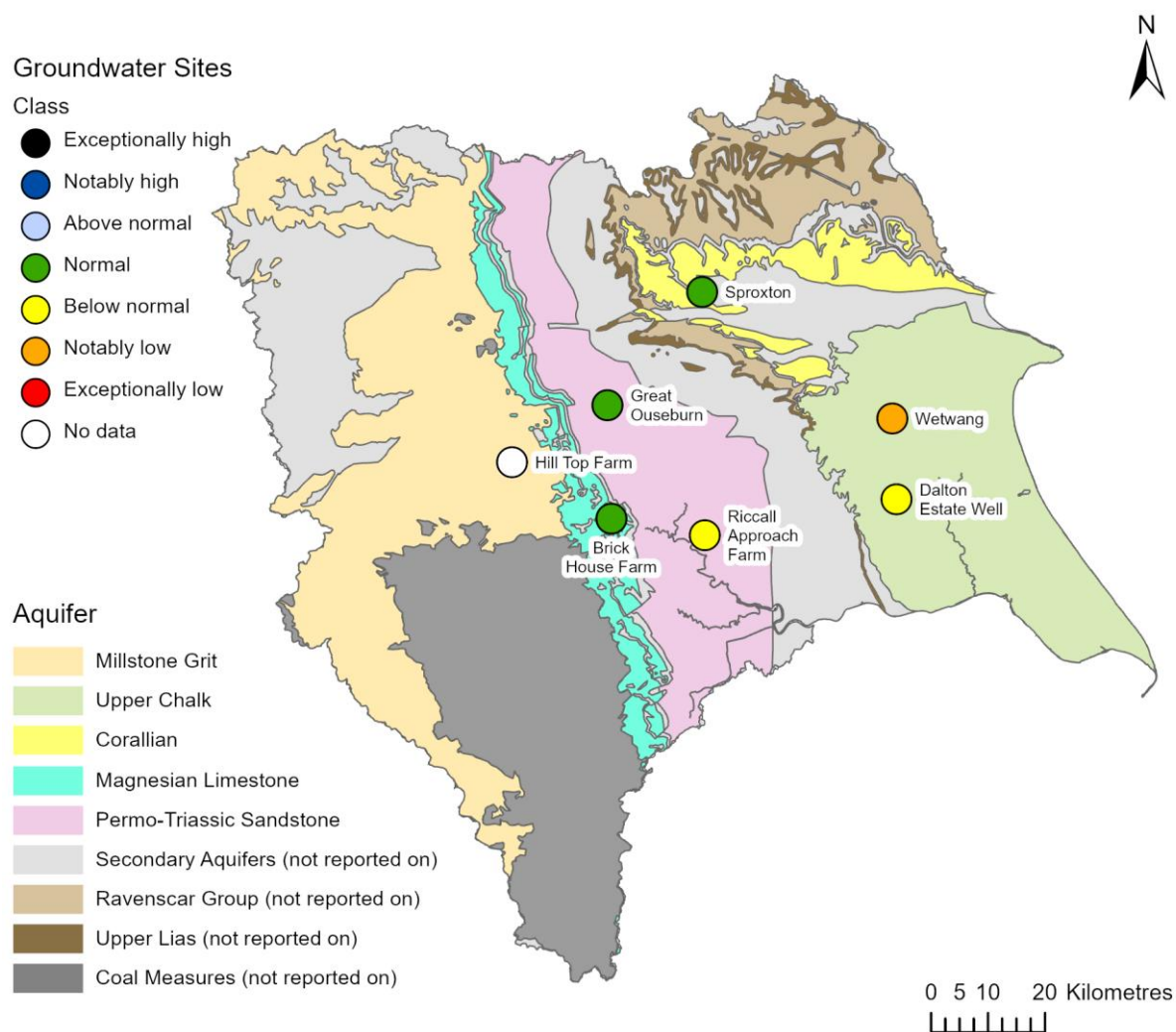


(Source: Environment Agency).

5 Groundwater levels

5.1 Groundwater levels map

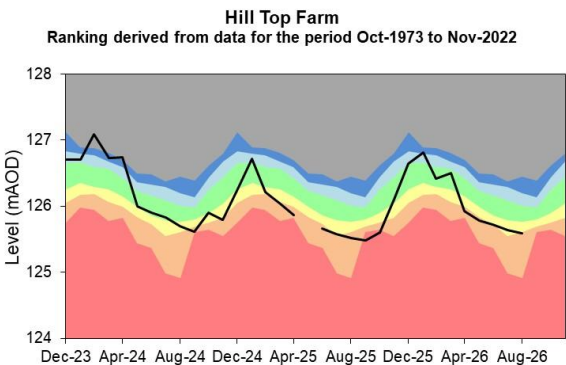
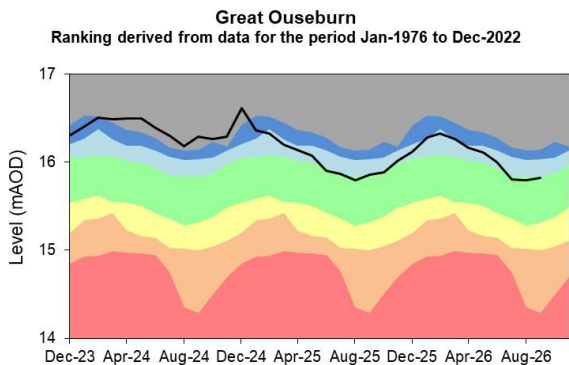
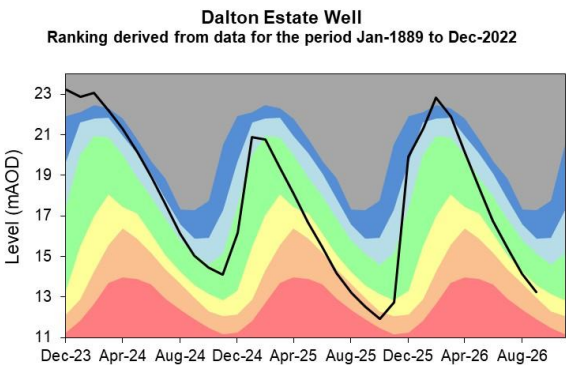
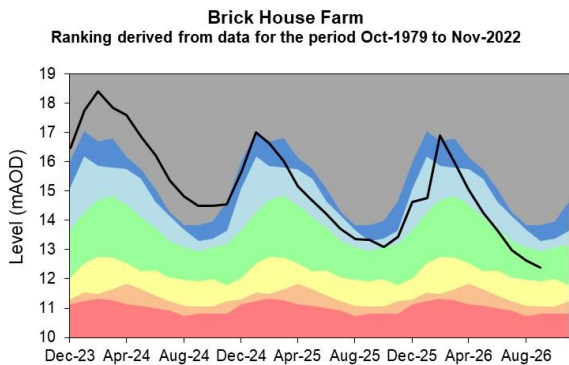
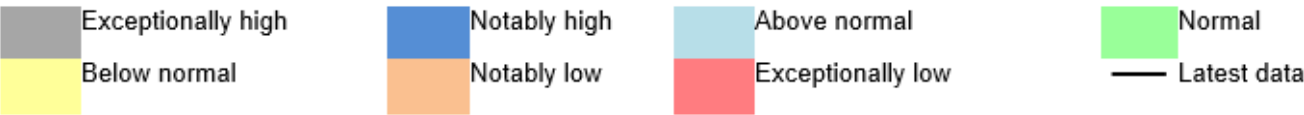
Figure 5.1: Groundwater levels for indicator sites at the end of September 2026, classed relative to an analysis of respective historic end of September levels. Table available in the appendices with detailed information. N.B. Hill Top Farm observation borehole is used for abstraction, therefore, the groundwater level record will be directly affected by pumping.

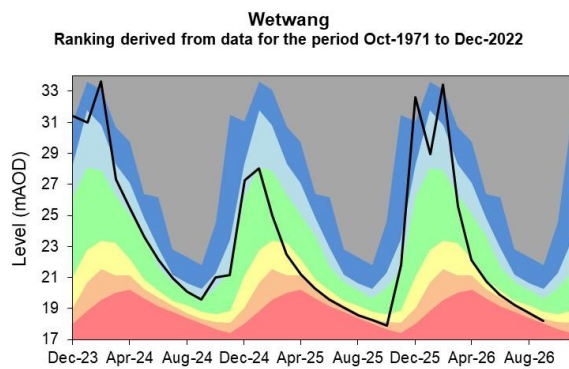
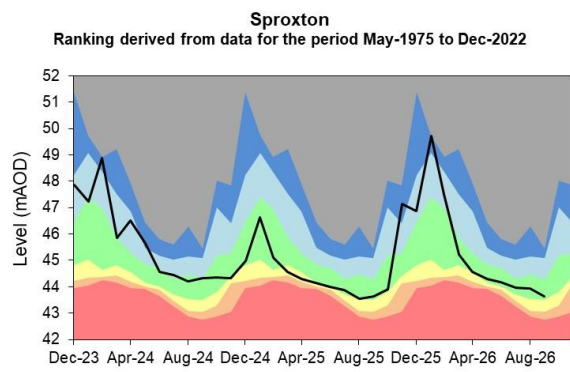
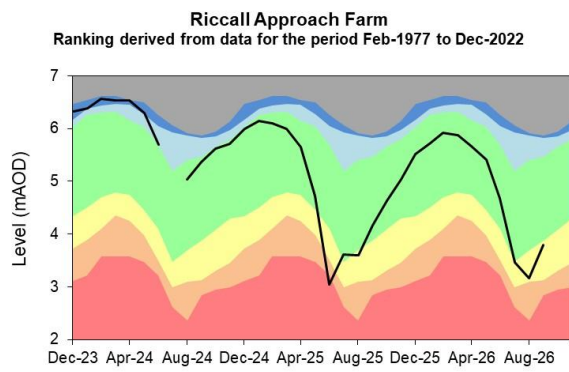


(Source: Environment Agency). Geological map reproduced with kind permission from UK Groundwater Forum, BGS copyright NERC. Crown copyright. All rights reserved. Environment Agency, AC0000807064, 2026.

5.2 Groundwater level charts

Figure 5.2: End of month groundwater levels at index groundwater level sites for major aquifers. 22 months compared to an analysis of historic end of month levels and long term maximum and minimum levels.



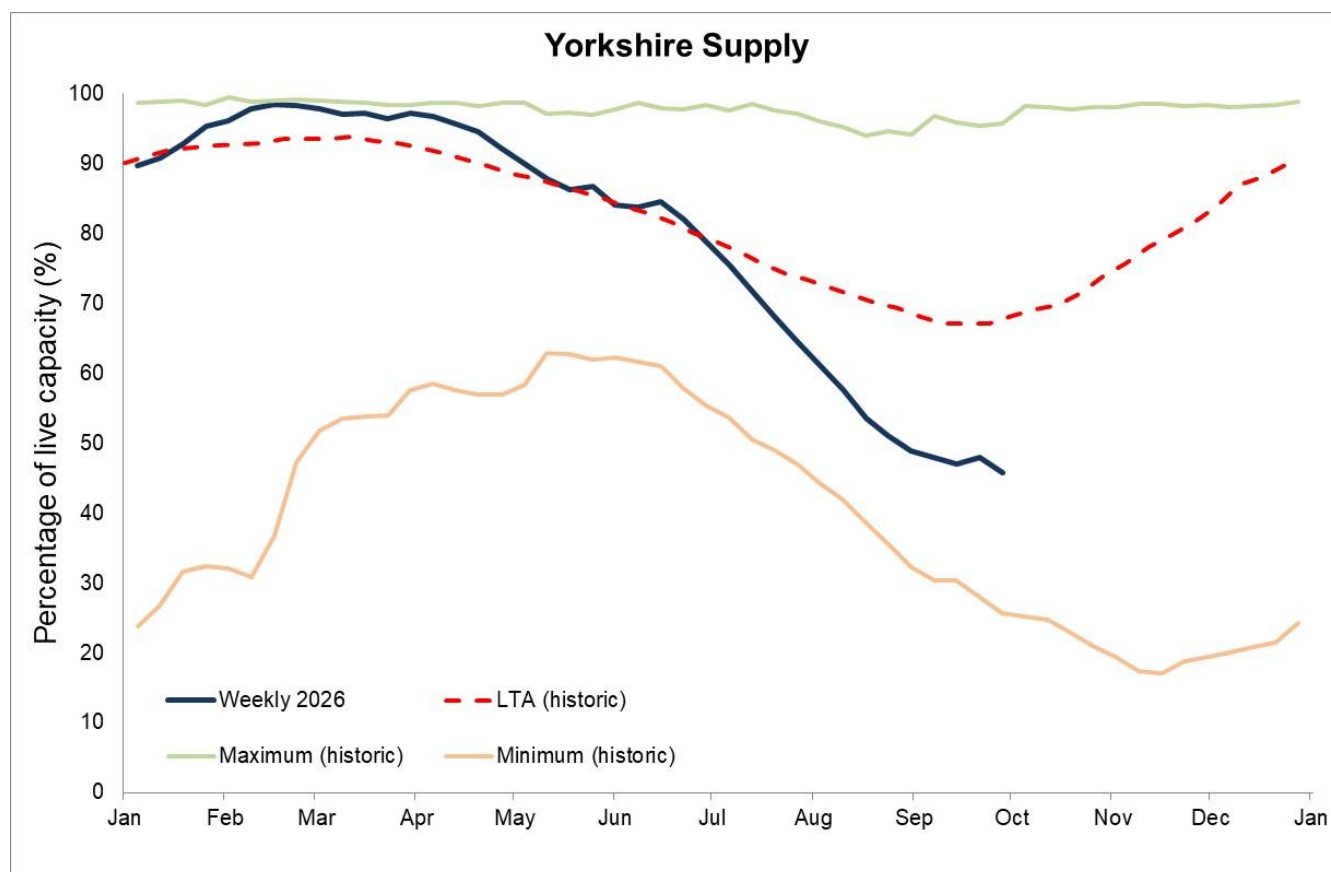


(Source: Environment Agency, 2026).

N.B. Hill Top Farm observation borehole is used for abstraction, therefore, the groundwater level record will be directly affected by pumping.

6 Reservoir stocks

Figure 6.1: End of month Yorkshire Water reservoir stocks compared to long term maximum, minimum and average stocks. Note: Historic records of individual reservoirs and reservoir groups making up the regional values vary in length.



(Source: Yorkshire Water).

7 Glossary

7.1 Terminology

Aquifer

A geological formation able to store and transmit water.

Areal average rainfall

The estimated average depth of rainfall over a defined area. Expressed in depth of water (mm).

Artesian

The condition where the groundwater level is above ground surface but is prevented from rising to this level by an overlying continuous low permeability layer, such as clay.

Artesian borehole

Borehole where the level of groundwater is above the top of the borehole and groundwater flows out of the borehole when unsealed.

Cumecs

Cubic metres per second (m^3s^{-1}).

Effective rainfall

The rainfall available to percolate into the soil or produce river flow. Expressed in depth of water (mm).

Flood alert and flood warning

Three levels of warnings may be issued by the Environment Agency. Flood alerts indicate flooding is possible. Flood warnings indicate flooding is expected. Severe flood warnings indicate severe flooding.

Groundwater

The water found in an aquifer.

Long term average (LTA)

The arithmetic mean calculated from the historic record, usually based on the period 1991 to 2020. However, the period used may vary by parameter being reported on (see figure captions for details).

mAOD

Metres above ordnance datum (mean sea level at Newlyn Cornwall).

MORECS

Met Office Rainfall and Evaporation Calculation System. Met Office service providing real time calculation of evapotranspiration, soil moisture deficit and effective rainfall on a 40 by 40 km grid.

Naturalised flow

River flow with the impacts of artificial influences removed. Artificial influences may include abstractions, discharges, transfers, augmentation and impoundments.

NCIC

National Climate Information Centre. NCIC area monthly rainfall totals are derived using the Met Office 1 km gridded dataset, which uses rain gauge observations.

Recharge

The process of increasing the water stored in the saturated zone of an aquifer. Expressed in depth of water (mm).

Reservoir gross capacity

The total capacity of a reservoir.

Reservoir live capacity

The capacity of the reservoir that is normally usable for storage to meet established reservoir operating requirements. This excludes any capacity not available for use (for example, storage held back for emergency services, operating agreements or physical restrictions). May also be referred to as 'net' or 'deployable' capacity.

Soil moisture deficit (SMD)

The difference between the amount of water actually in the soil and the amount of water the soil can hold. Expressed in depth of water (mm).

7.2 Categories

Exceptionally high

Value likely to fall within this band 5% of the time.

Notably high

Value likely to fall within this band 8% of the time.

Above normal

Value likely to fall within this band 15% of the time.

Normal

Value likely to fall within this band 44% of the time.

Below normal

Value likely to fall within this band 15% of the time.

Notably low

Value likely to fall within this band 8% of the time.

Exceptionally low

Value likely to fall within this band 5% of the time.

8 Appendices

8.1 Rainfall table

Hydrological area	Sep 2026 rainfall % of long term average 1991 to 2020	Sep 2026 band	Jul 2026 to September cumulative band	Apr 2026 to September cumulative band	Oct 2025 to September cumulative band
Aire	80	Normal	Notably low	Notably low	Normal
Calder	81	Normal	Notably low	Notably low	Above normal
Dales North Sea Tributaries	33	Notably low	Notably low	Exceptionally low	Normal
Derwent (NE)	32	Notably low	Notably low	Exceptionally low	Normal
Don	46	Below normal	Notably low	Notably low	Above normal
Hull and Humber	26	Exceptionally low	Notably low	Exceptionally low	Normal
Nidd	63	Normal	Exceptionally low	Exceptionally low	Normal
Ouse	37	Notably low	Exceptionally low	Exceptionally low	Normal
Rye	39	Below normal	Exceptionally low	Exceptionally low	Normal

Hydrological area	Sep 2026 rainfall % of long term average 1991 to 2020	Sep 2026 band	Jul 2026 to September cumulative band	Apr 2026 to September cumulative band	Oct 2025 to September cumulative band
Swale (NE)	52	Below normal	Exceptionally low	Exceptionally low	Normal
Ure	72	Normal	Exceptionally low	Notably low	Normal
Wharfe	82	Normal	Notably low	Notably low	Normal

8.2 River flows table

Site name	River	Catchment	Sep 2026 band	Aug 2026 band
Addingham	Wharfe	Wharfe Middle	Normal	Notably low
Birstwith	Nidd	Nidd Middle	Below normal	Notably low
Briggswath	Esk	Esk Yorks	Exceptionally low	Exceptionally low
Buttercrambe	Derwent	Derwent Yorks Middle	Notably low	Exceptionally low
Crakehill Topcliffe	Swale	Swale Lower	Notably low	Exceptionally low
Doncaster	Don	Don Lower	Below normal	Normal
Elland	Calder	Calder Yorks Upper	Below normal	Notably low
Skip Bridge Kirk Hammerton	Nidd	Nidd Lower	Below normal	Below normal
Kildwick	Aire	Aire Upper	Normal	Notably low
Kilgram Bridge	Ure	Ure Middle	Normal	Notably low
Ness	Rye	Rye	Notably low	Notably low
Skelton	Ouse	Ouse Yorks	Below normal	Notably low
Tadcaster	Wharfe	Wharfe Lower	Normal	Exceptionally low
Wansford Snakeholm Lock	West Beck	Hull Upper	Notably low	Notably low
Whittington	Rother	Rother Yorks	Notably low	Normal

8.3 Groundwater table

Site name	Aquifer	End of Sep 2026 band	End of Aug 2026 band
Dalton Estate Well	Hull & East Riding Chalk	Below normal	Below normal
Wetwang	Hull & East Riding Chalk	Notably low	Below normal
Hill Top Farm	Millstone Grit		Notably low
Great Ouseburn	Sherwood Sandstone	Normal	Normal
Riccall Approach Farm	Sherwood Sandstone	Below normal	Below normal
Sproxton	Corallian Limestone	Normal	Normal
Brick House Farm	Wharfe Magnesian Limestone	Normal	Normal