Monthly water situation report: Yorkshire Area

1 Summary - July 2025

This month Yorkshire experienced average amounts of rainfall. Soils were very dry to begin with and ended the month still dry but slightly less so. Daily mean river flows were mostly normal in the Pennines and notably low in the east of Yorkshire. Groundwater levels decreased in most aquifers and reservoir stocks continued to decline.

1.1 Rainfall

The monthly rainfall for July was within normal range across the whole of Yorkshire, catchments experienced between 85% and 115% of the monthly long-term average (LTA). Monthly rainfall totals at our key indicator sites ranged from 28.4mm at Wakefield in the Calder catchment to 132.2mm at Tow Hill in the Ure catchment.

It was the 4th driest February to July in the Met Office Had-UK rainfall record starting in 1871.

The month was characterised by short periods of rainfall lasting roughly 2 days, interspersed by days with little or no rainfall. There were 3 main periods of rainfall across Yorkshire. The first period between days 4 to 5 was concentrated in the Ure, Nidd and Wharfe catchments. The second and third periods on day 15 and on days 19 to 21 were Yorkshire-wide. From day 22, very little rain fell across the region.

Despite July's normal rainfall, the 6-month cumulative rainfall totals were classified as exceptionally low in all catchments.

1.2 Soil moisture deficit and recharge

During July the soil moisture ranged between very dry and dry. For the first two weeks of the month soils were dry on the Pennine ridge and very dry across the rest of Yorkshire. By the third week only the soils in the Hull and Derwent catchments were still classified as very dry. By the final week of the month all soils in Yorkshire were classified as dry

1.3 River flows

Catchment response in July divided between the Derwent, Esk and Hull to the east, the Pennine catchments of south and west Yorkshire, and those of the Yorkshire Dales.

In the Pennine catchments of the Yorkshire Dales, monthly mean flows in the Ure were above normal at 129% of the LTA. This was mainly due to brief increases in flow between days 4 to 6 and days 14 to 15, in response to short duration rainfall. The Swale, Nidd, Wharfe, Aire and Ouse had normal monthly mean flows, ranging from 50% of the LTA in the Aire to 100% of the

LTA in the Wharfe in response to rainfall. In the Don and Calder monthly mean flows were below normal and in the Rother were notably low. In the Derwent and Hull catchments monthly mean flows were exceptionally low.

Daily mean flows reflected the rainfall pattern. Flows increased in the Pennine catchments between days 4 and 6 to above normal and to exceptionally high at some locations. However, the Derwent and West Beck remained notably or exceptionally low throughout this period.

Between days 18 and 20 the more widespread rainfall caused above normal flows in all but the West Beck with some catchments reaching notably high flows.

1.4 Groundwater levels

Magnesian Limestone

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

Millstone Grit

The groundwater level within the Millstone Grit at Hill Top Farm decreased and was below normal for the time year. This observation borehole is used for water abstraction by means of a pump which may affect the groundwater level recorded here.

Sherwood Sandstone

The groundwater level within the Sherwood Sandstone at Great Ouseburn decreased but was above normal for the time of year. The groundwater level increased at Riccall Approach Farm and became normal for the time of year.

Corallian Limestone

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

Chalk

The groundwater level at Wetwang decreased and remained notably low for the time of year. The groundwater level also decreased at Dalton Estate Well and became notably low for the time of year.

1.5 Reservoir stocks

Reservoir stocks decreased by 8.4% across the month of July and were 47% full at the end of the month. In the final week of July reservoir stocks were 28% lower than the LTA for the time of year.

1.6 Environmental impact

In late July, there were 85 abstraction licences with a Hands Off Flow condition in force. The number of HOFs in place continues to change in response to the low flow conditions.

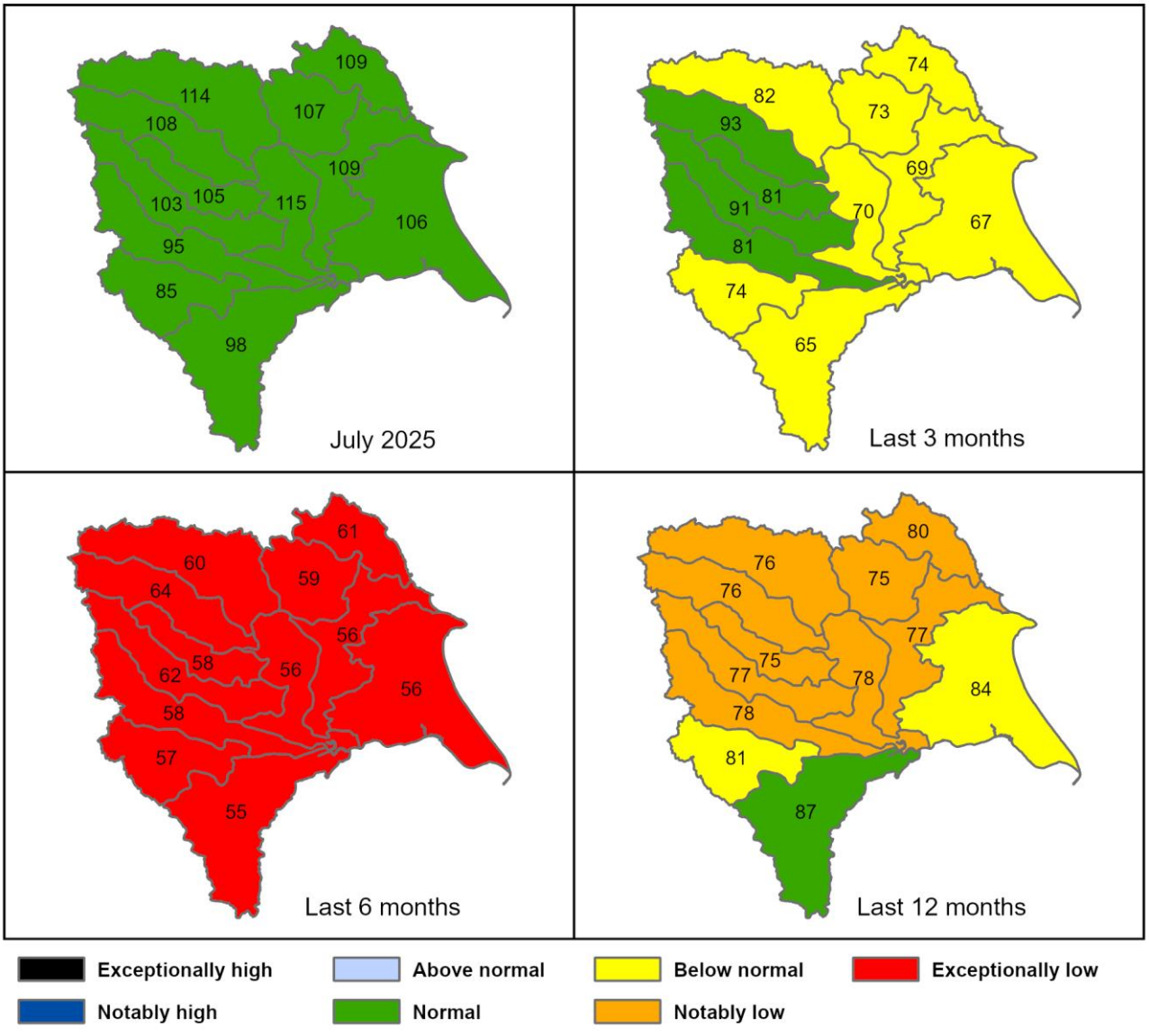
Author: Environment Agency, hydrology.northeast@environment-agency.gov.uk

Contact Details: 020 847 48174

2 Rainfall

2.1 Rainfall map

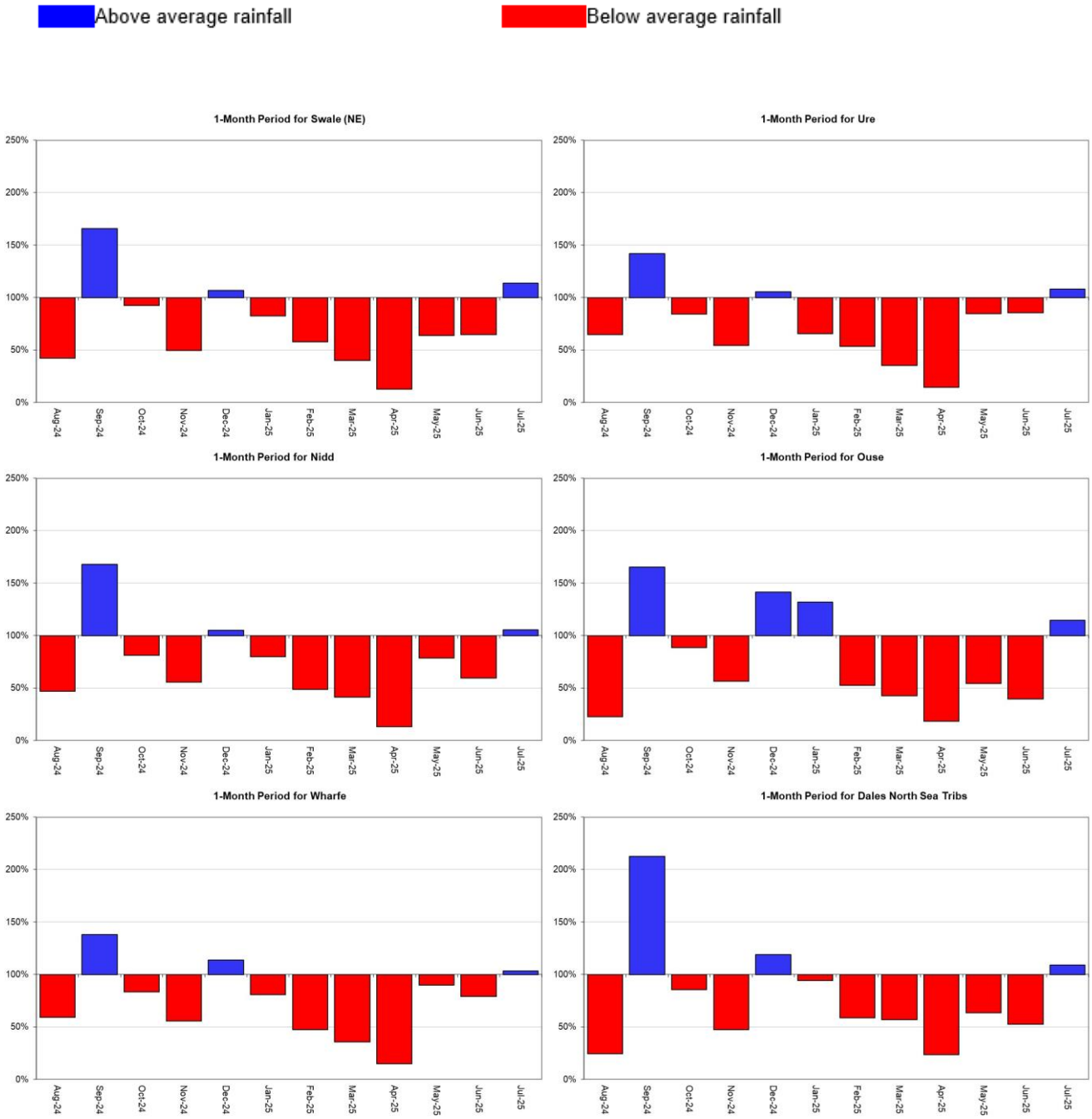
2.1: Total rainfall for hydrological areas across Yorkshire, expressed as a percentage of the 1990 to 2020 long term average rainfall, for the current month (up to 31 July 2025), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. Table available in the appendices with detailed information.

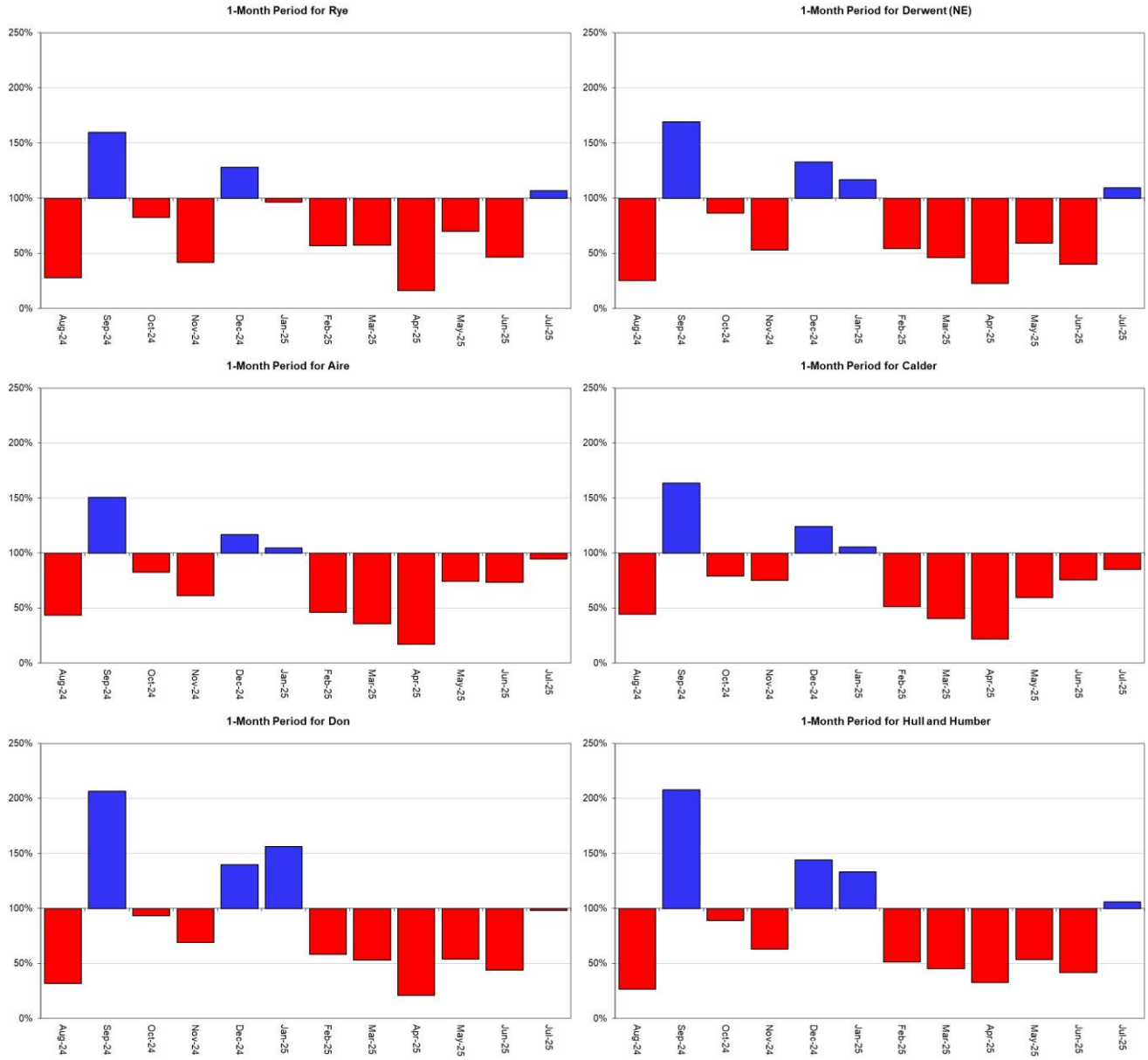


HadUK data based on the Met Office 1km gridded rainfall dataset derived from rain gauges (Source: Met Office. Crown copyright, 2025). Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Crown copyright. All rights reserved. Environment Agency, 100024198, 2025.

2.2 Rainfall charts

2.2: Monthly rainfall totals for the past 24 months as a percentage of the 1991 to 2020 long term average for each catchment.



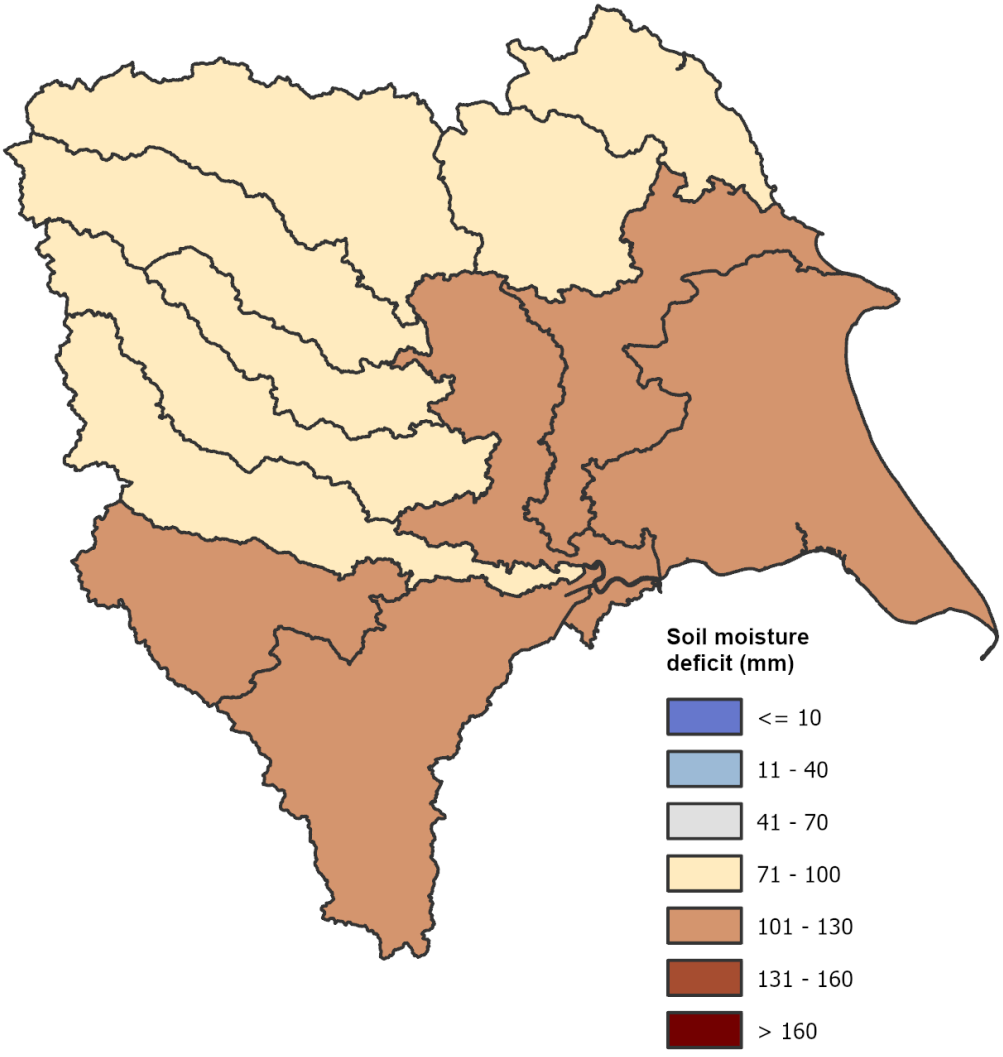


HadUK rainfall data. (Source: Met Office. Crown copyright, 2025).

3 Soil moisture deficit

3.1 Soil moisture deficit map

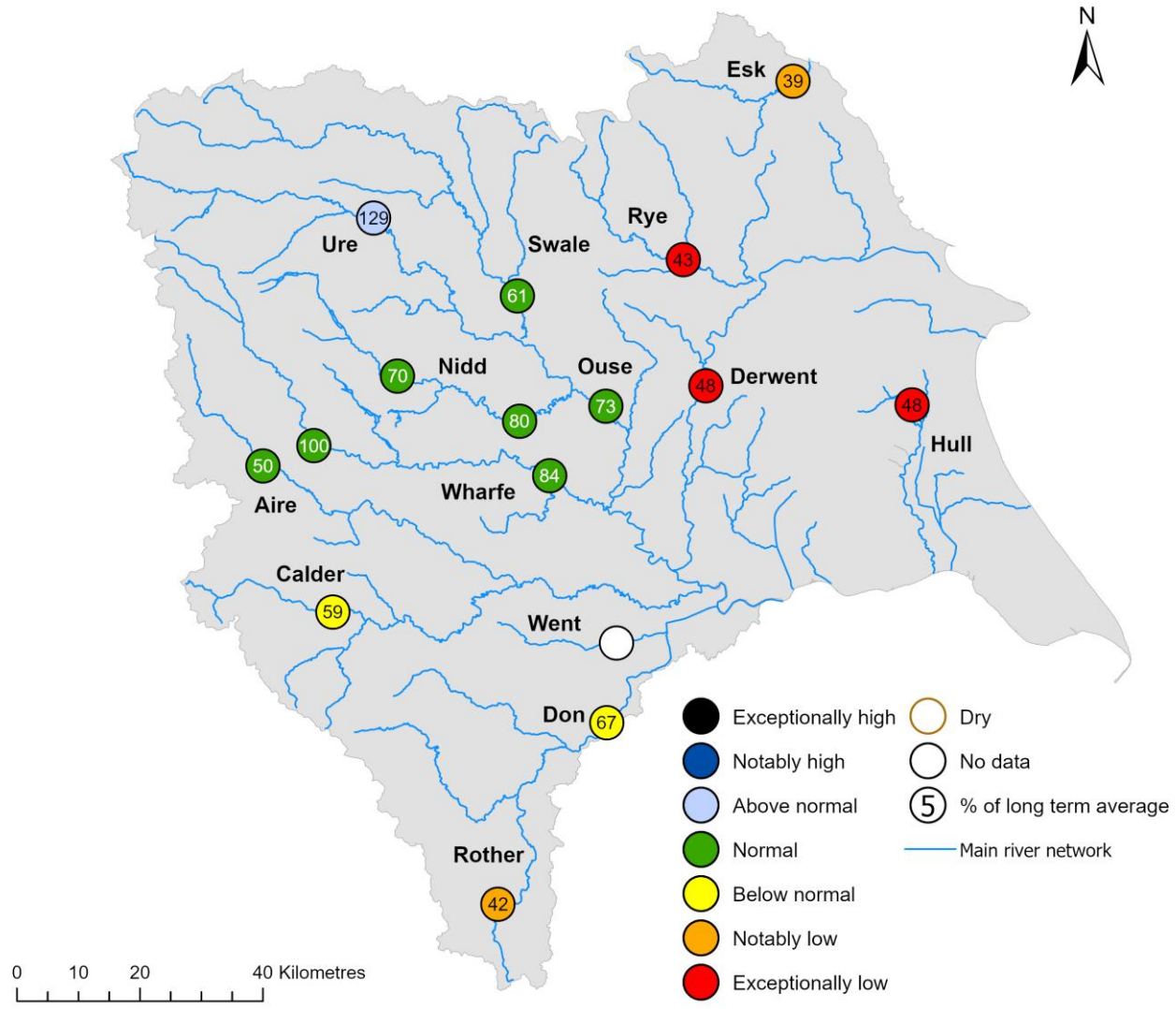
3.1: Soil moisture deficits for weeks ending 31 July 2025. Shows the difference (mm) of the actual soil moisture deficit from the 1991 to 2020 long term average soil moisture deficits. MORECS data for real land use.



4 River flows

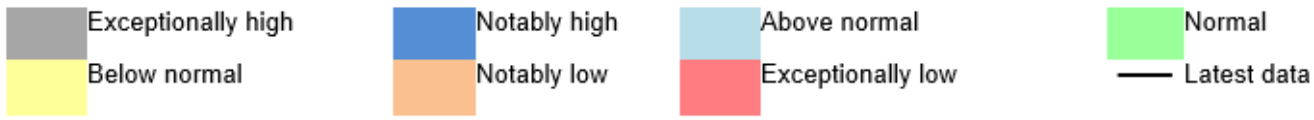
4.1 River flows map

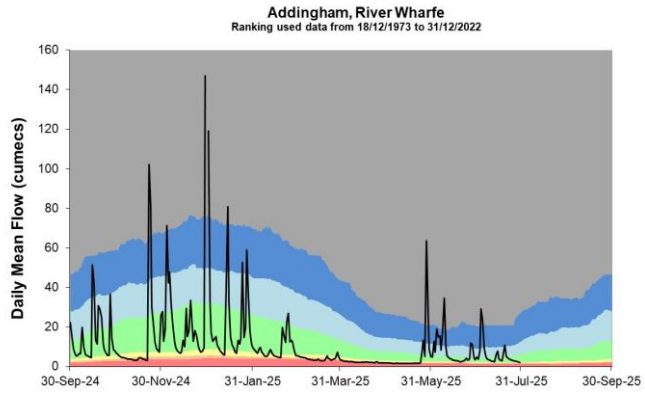
4.1: Monthly mean river flow for indicator sites for July 2025, expressed as a percentage of the respective long term average and classed relative to an analysis of historic July monthly means Table available in the appendices with detailed information.

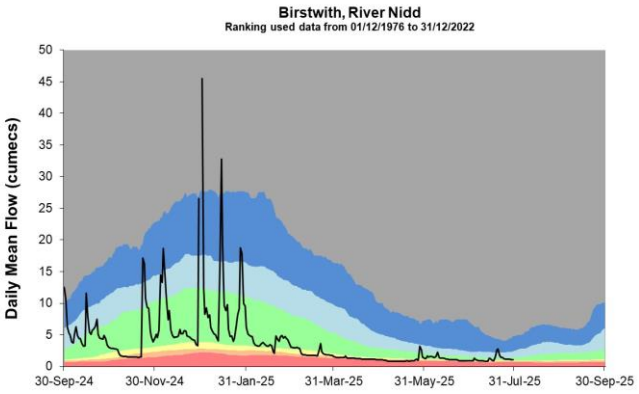


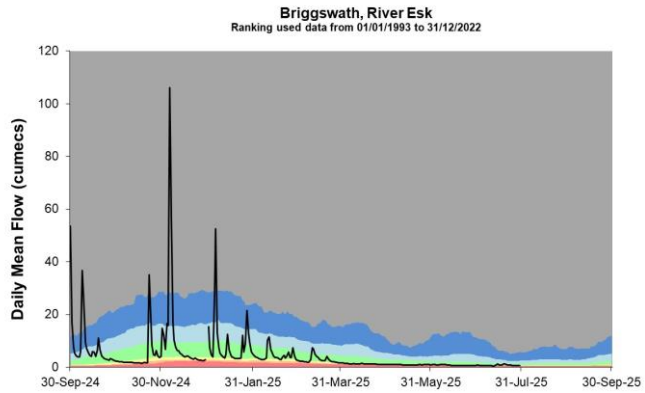
4.2 River flow charts

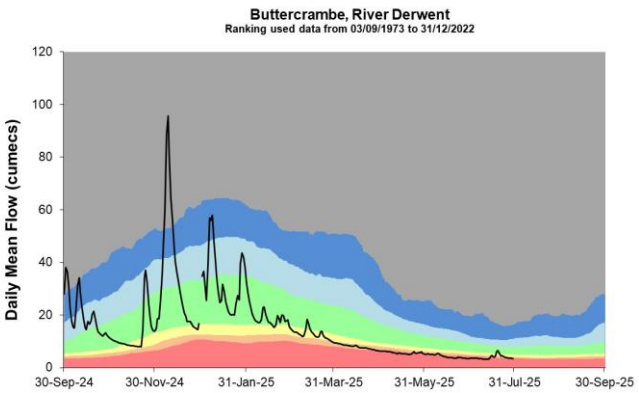
4.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.

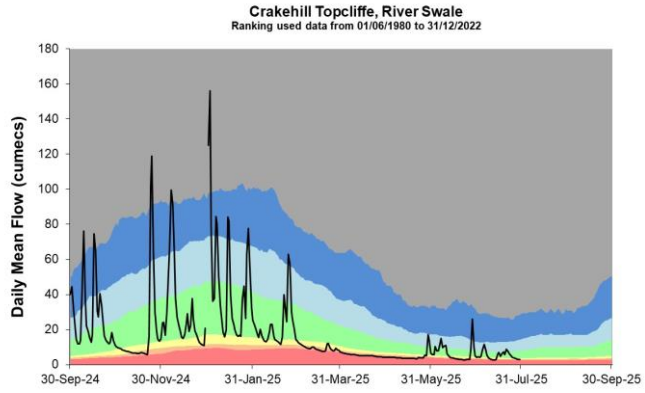


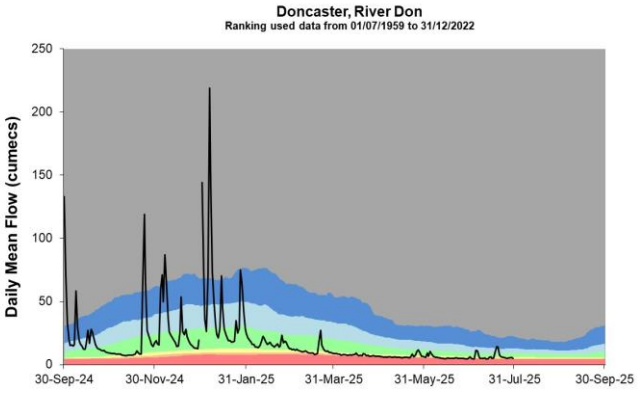




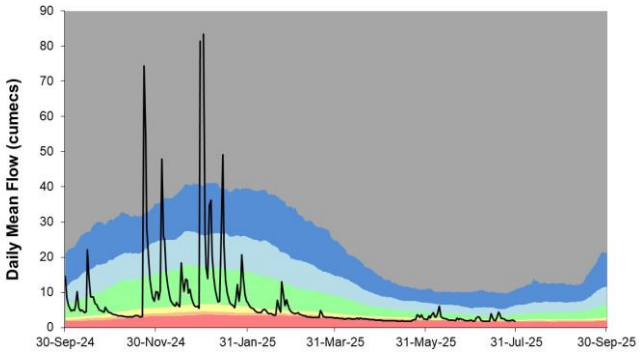




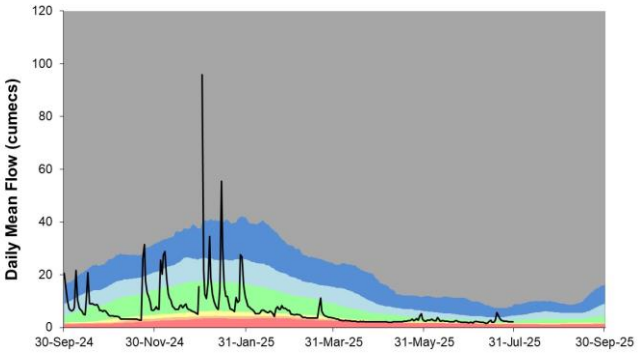




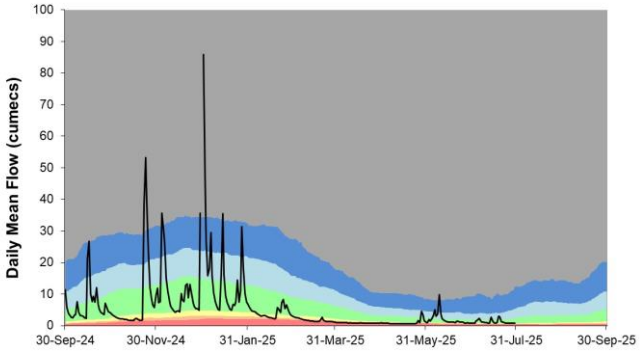
Elland, River Calder
Ranking used data from 01/07/1971 to 31/12/2022



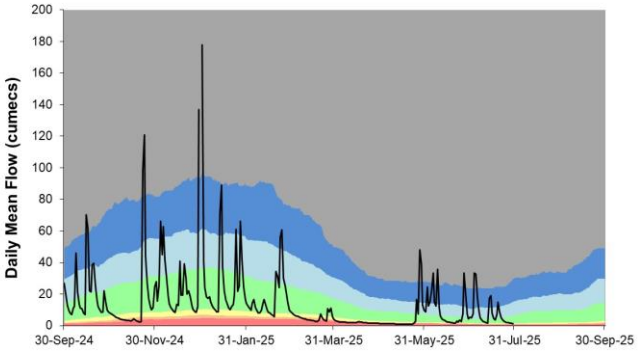
Hunsingore, River Nidd
Ranking used data from 01/10/1968 to 31/12/2022



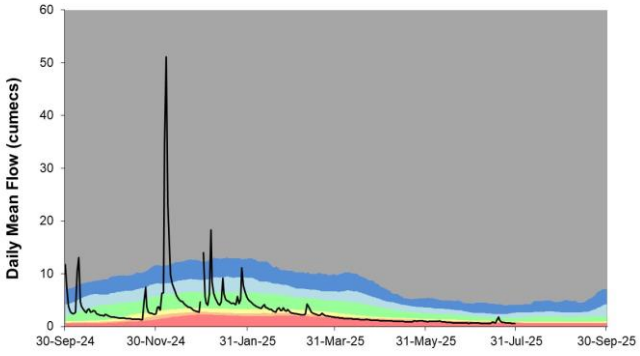
Kildwick, River Aire
Ranking used data from 01/08/1971 to 31/12/2022



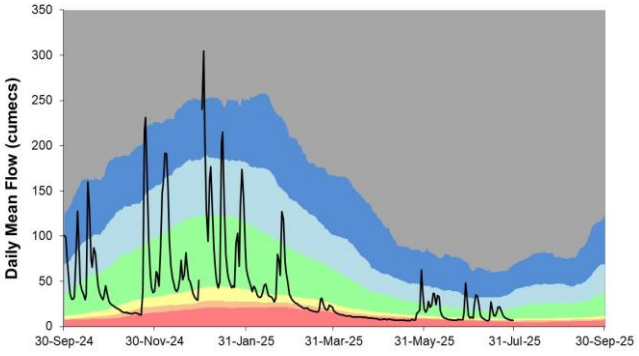
Kilgram Bridge, River Ure
Ranking used data from 01/08/1971 to 31/12/2022

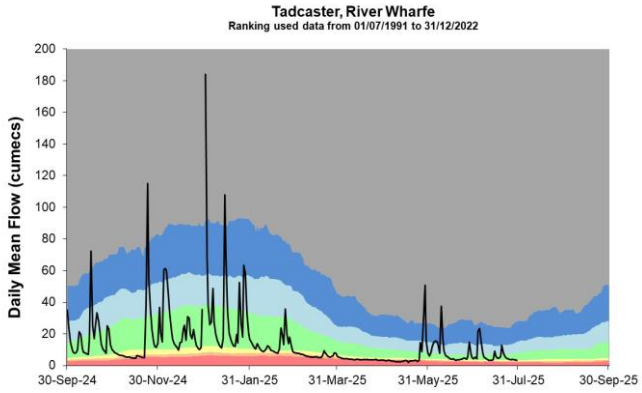


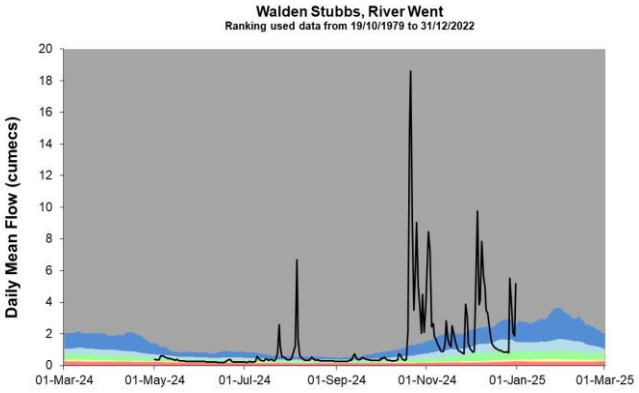
Ness, River Rye
Ranking used data from 01/09/1974 to 31/12/2022

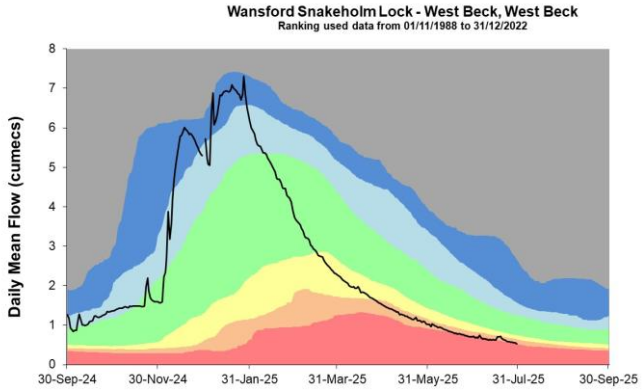


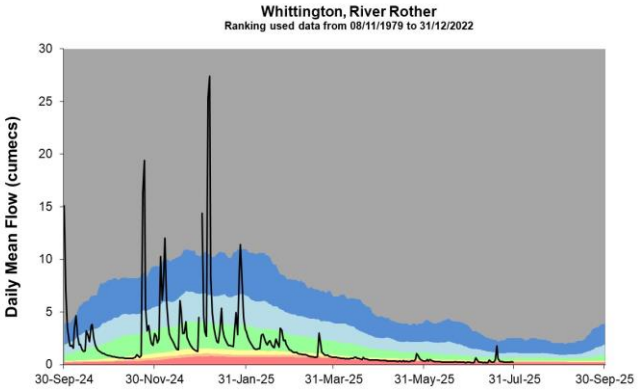
Skelton, River Ouse
Ranking used data from 18/09/1969 to 31/12/2022









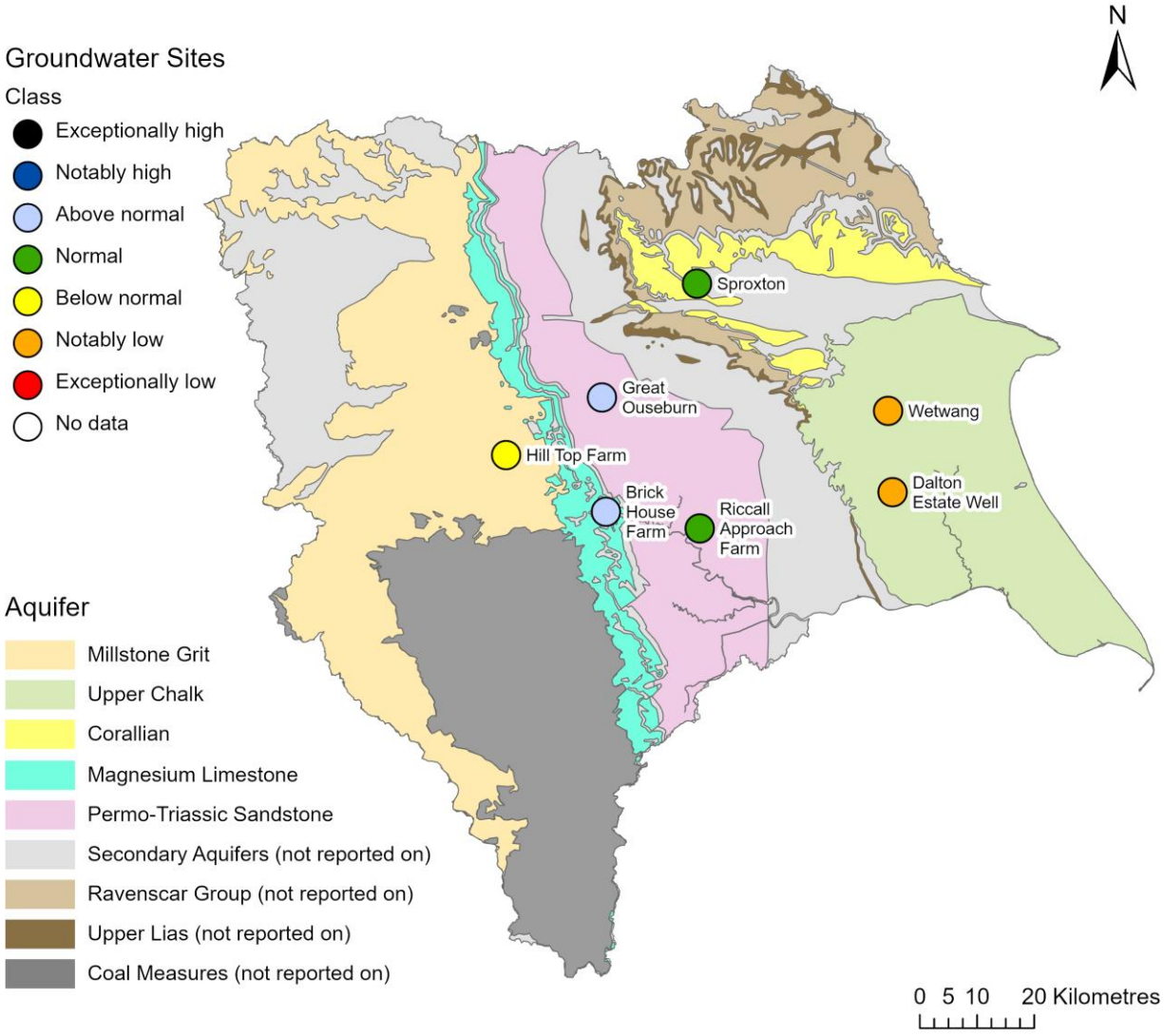


Source: Environment Agency.

5 Groundwater levels

5.1 Groundwater levels map

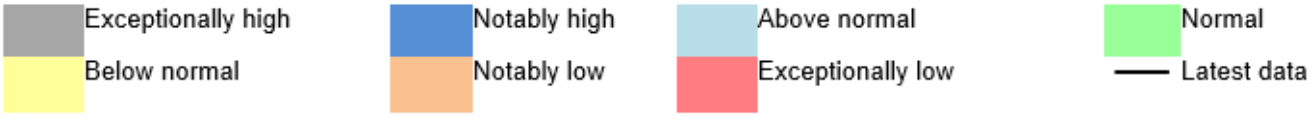
5.1: Groundwater levels for indicator sites at the end of July 2025, classed relative to an analysis of respective historic July levels. Table available in the appendices with detailed information.

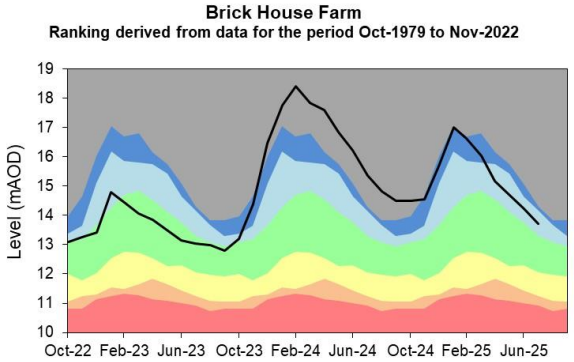


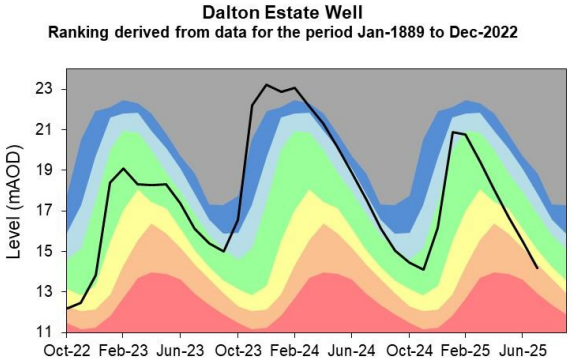
(Source: Environment Agency). Geological map reproduced with kind permission from UK Groundwater Forum, BGS copyright NERC. Crown copyright. All rights reserved. Environment Agency, 100024198, 2025.

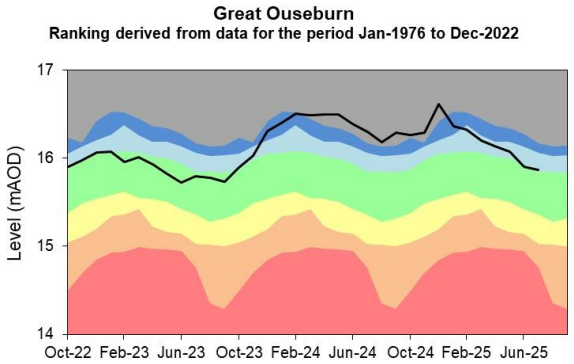
5.2 Groundwater level charts

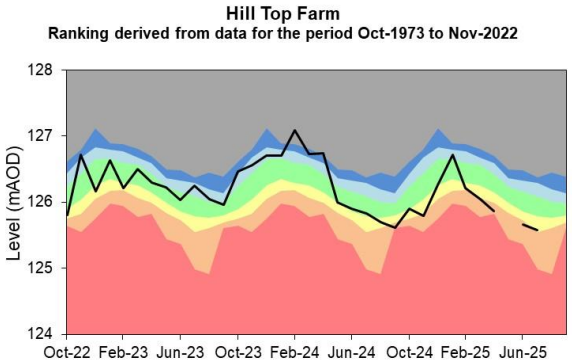
5.2: End of month groundwater levels at index groundwater level sites for major aquifers. 22 months compared to an analysis of historic end of month levels and long term maximum and minimum levels.

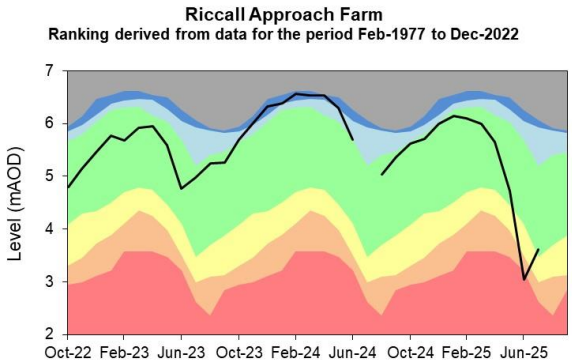


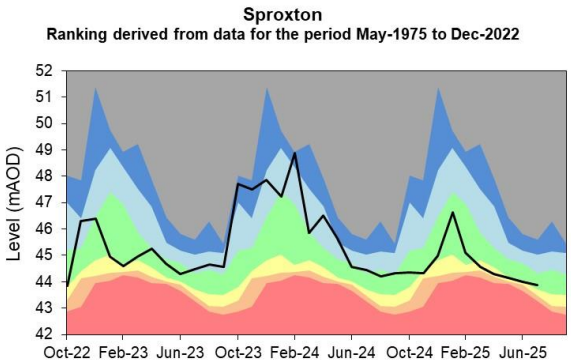


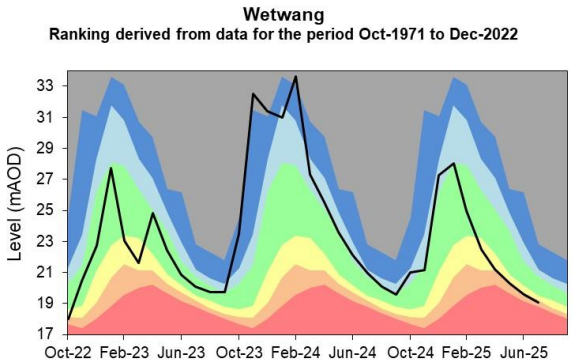










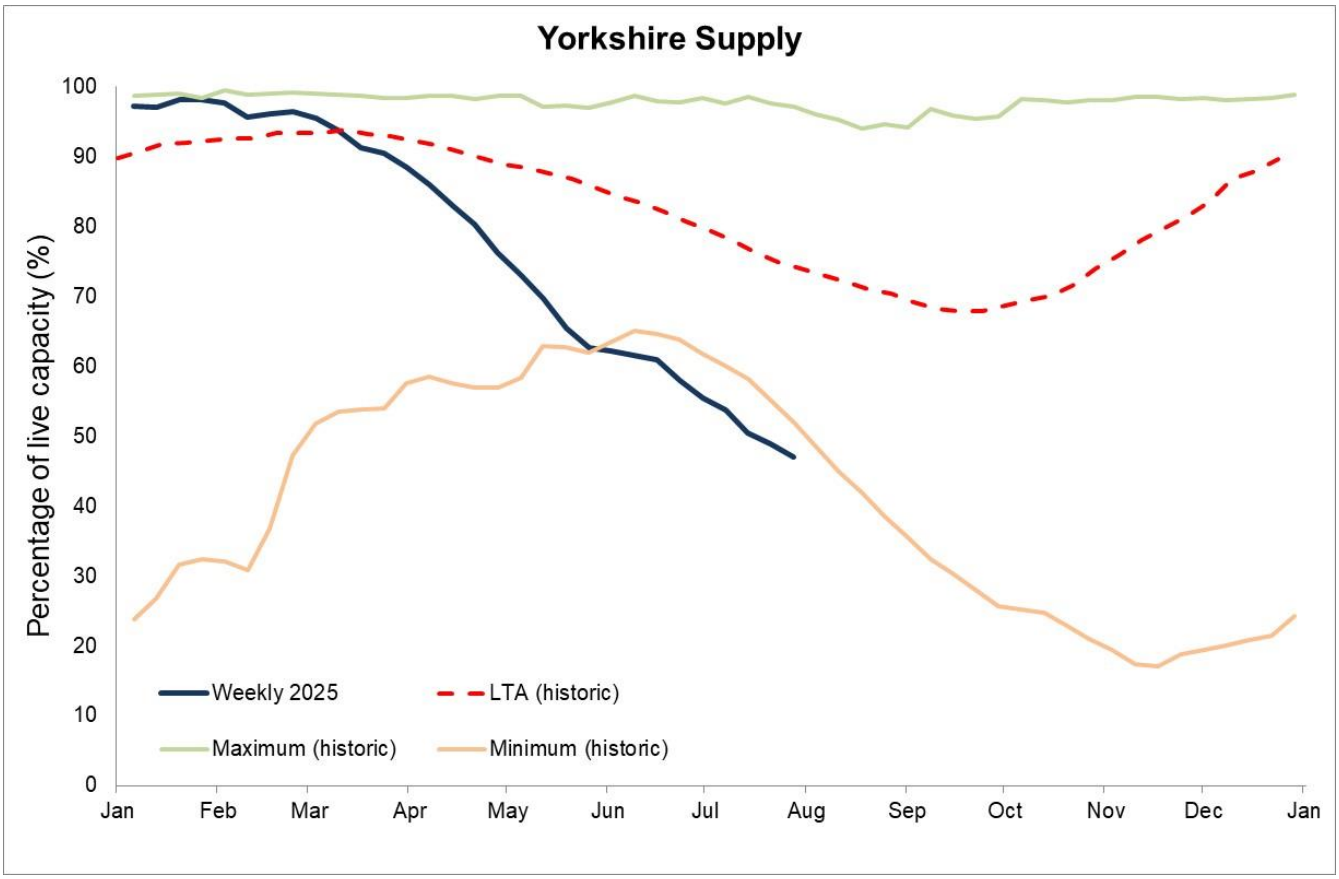


Source: Environment Agency, 2025.

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

6.1: End of month regional 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 5 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	Jul 2025 rainfall % of long term average 1991 to 2020	Jul 2025 band	May 2025 to July cumulative band	Feb 2025 to July cumulative band	Aug 2024 to July cumulative band
Aire	95	Normal	Normal	Exceptionally low	Notably low
Calder	85	Normal	Below normal	Exceptionally low	Below normal
Dales North Sea Tributaries	109	Normal	Below normal	Exceptionally low	Notably low
Derwent (NE)	109	Normal	Below normal	Exceptionally low	Notably low
Don	98	Normal	Below normal	Exceptionally low	Normal
Hull And Humber	106	Normal	Below normal	Exceptionally low	Below normal
Nidd	106	Normal	Normal	Exceptionally low	Notably low
Ouse	115	Normal	Below normal	Exceptionally low	Notably low
Rye	107	Normal	Below normal	Exceptionally low	Notably low

Hydrological area	Jul 2025 rainfall % of long term average 1991 to 2020	Jul 2025 band	May 2025 to July cumulative band	Feb 2025 to July cumulative band	Aug 2024 to July cumulative band
Swale (NE)	114	Normal	Below normal	Exceptionally low	Notably low
Ure	108	Normal	Normal	Exceptionally low	Notably low
Wharfe	104	Normal	Normal	Exceptionally low	Notably low

8.2 River flows table

Site name	River	Catchment	Jul 2025 band	Jun 2025 band
Addingham	Wharfe	Wharfe Middle	Normal	Above normal
Birstwith	Nidd	Nidd Middle	Normal	Normal
Briggswath	Esk	Esk Yorks	Notably low	Exceptionally low
Buttercrambe	Derwent	Derwent Yorks Middle	Exceptionally low	Exceptionally low
Crakehill Topcliffe	Swale	Swale Lower	Normal	Normal
Doncaster	Don	Don Lower	Below normal	Exceptionally low
Elland	Calder	Calder Yorks Upper	Below normal	Below normal
Hunsingore	Nidd	Nidd Lower	Normal	Normal
Kildwick	Aire	Aire Upper	Normal	Below normal
Kilgram Bridge	Ure	Ure Middle	Above normal	Above normal
Ness	Rye	Rye	Exceptionally low	Exceptionally low
Skelton	Ouse	Ouse Yorks	Normal	Normal
Tadcaster	Wharfe	Wharfe Lower	Normal	Normal
Walden Stubbs	Went	Don Lower		
Wansford Snakeholm Lock	West Beck	Hull Upper	Exceptionally low	Notably low

Site name	River	Catchment	Jul 2025 band	Jun 2025 band
Whittington	Rother	Rother Yorks	Notably low	Exceptionally low

8.3 Groundwater table

Site name	Aquifer	End of Jul 2025 band	End of Jun 2025 band
Brick House Farm	Wharfe Magnesian Limestone	Above normal	Above normal
Dalton Estate Well	Hull and East Riding Chalk	Notably low	Below normal
Great Ouseburn	Sherwood Sandstone	Above normal	Normal
Hill Top Farm	Millstone Grit and Carboniferous Limestone	Below normal	Notably low
Riccall Approach Farm	Sherwood Sandstone	Normal	Exceptionally low
Sproxton	Sherwood Sandstone	Normal	Below normal
Wetwang	Hull and East Riding Chalk	Notably low	Notably low