Monthly water situation report: North-west England

1 Summary – October 2026

Rainfall for north-west England in October was classed as above normal, having received 122% of the long-term average (LTA). Soil Moisture Deficits (SMD) across all hydrological areas were at or close to expected levels for the time of year. October monthly mean river flows for north-west England were classed between normal and above normal. Groundwater levels were classed between notably low and notably high. At the start of November total reservoir storage for north-west England had increased since the end of September, however remains lower than average for the time of year.

1.1 Rainfall

Rainfall for north-west England was classed as above normal, receiving 122% of the LTA. Cumbria and Lancashire (CLA) received 125% of the LTA while Greater Manchester, Merseyside and Cheshire (GMMC) received 116% of the LTA, both classed as above normal.

During October, six out of ten hydrological areas across north-west England recorded rainfall classed as above normal, except for the Esk (Dumfries), Cheshire Rivers Group, Ribble and Douglas which were classed as normal. The Esk (Cumbria) received 138% of the October LTA, classed as above normal, and observed the highest rainfall relative to the LTA. The lowest rainfall relative to the LTA was observed in the Esk (Dumfries) hydrological area at 110% of the LTA, classed as normal.

Over the 3-month cumulative period ending in October, rainfall patterns were mostly normal, with higher rainfall totals observed in the CLA hydrological areas, notably in the west of Cumbria. Of the 10 hydrological areas, 8 were classed as normal, and 2 as above normal.

Over the 6-month cumulative period ending in October, a very similar pattern to the 3-month period was observed. Of the 10 hydrological areas, 9 were classed as normal, and 1 as above normal.

The 12-month cumulative period ending in October, indicated a wetter period than the 3-month and 6-month periods notably within Cumbria, with the highest rainfall totals observed remaining in the west of Cumbria. Of the 10 hydrological areas, 4 were classed as normal, 3 as above normal, 2 as notably high and 1 as exceptionally high.

1.2 Soil moisture deficit and recharge

As a result of rainfall across north-west England, at the start of November, SMD decreased across all hydrological areas when compared with the end of September. SMD in all hydrological areas were at or close to the LTA, between -5mm and 5mm. The highest SMDs were observed across the south of Lancashire and GMMC, with the Douglas, Mersey and Irwell and Cheshire Rivers Group hydrological areas starting November with an SMD between 11mm and 40mm. Actual SMD in all other hydrological areas was less than or equal to 10mm.

1.3 River flows

River flows in October across North-west England were predominately classed as normal with a few exceptions, classed as above normal. The highest monthly mean river flows relative to the LTA were on the Duddon at Duddon Hall with 143% of the LTA classed as above normal, while the lowest flows were on the Weaver at Ashbrook with 65% of the LTA classed as normal. For the 25 indicator sites this month, all were classed as normal, across north-west England except for three sites; Esk at Cropple How, Duddon at Duddon Hall and Wyre at St Michaels FMS.

1.4 Groundwater levels

Groundwater levels across north-west England at the end of October were classed between notably low and notably high. For the 10 indicator sites this month, 1 was classed as notably low, 1 classed as below normal, 4 classed as normal, 1 classed as above normal and 1 classed as notably high. Between September and October, two sites changed classification, with Brown Bank Lay-By decreasing from above normal to normal and Victoria Road increasing from above notably low to below normal.

1.5 Reservoir stocks

Total reservoir storage for north-west England increased from 52.9% net storage at the end of September to 66.0% net storage at the start of November. This is 11.5% lower than the average of 77.5% at this time of year and 5.2% lower than this time last year when stocks were at 71.2%.

At the start of November, net reservoir storage (in terms of percentage) was highest at Lake Vyrnwy at 82.5% full, and lowest Haweswater at 54.3% full.

The combined net storage at Haweswater and Thirlmere reservoirs increased from 42.3% at the end of September to 58.9% at the start of November. This is lower than the average of 71.3% for this time of year, and higher than this time last year when stocks were at 58.6%.

Reservoirs kept low for maintenance works include parts of the:

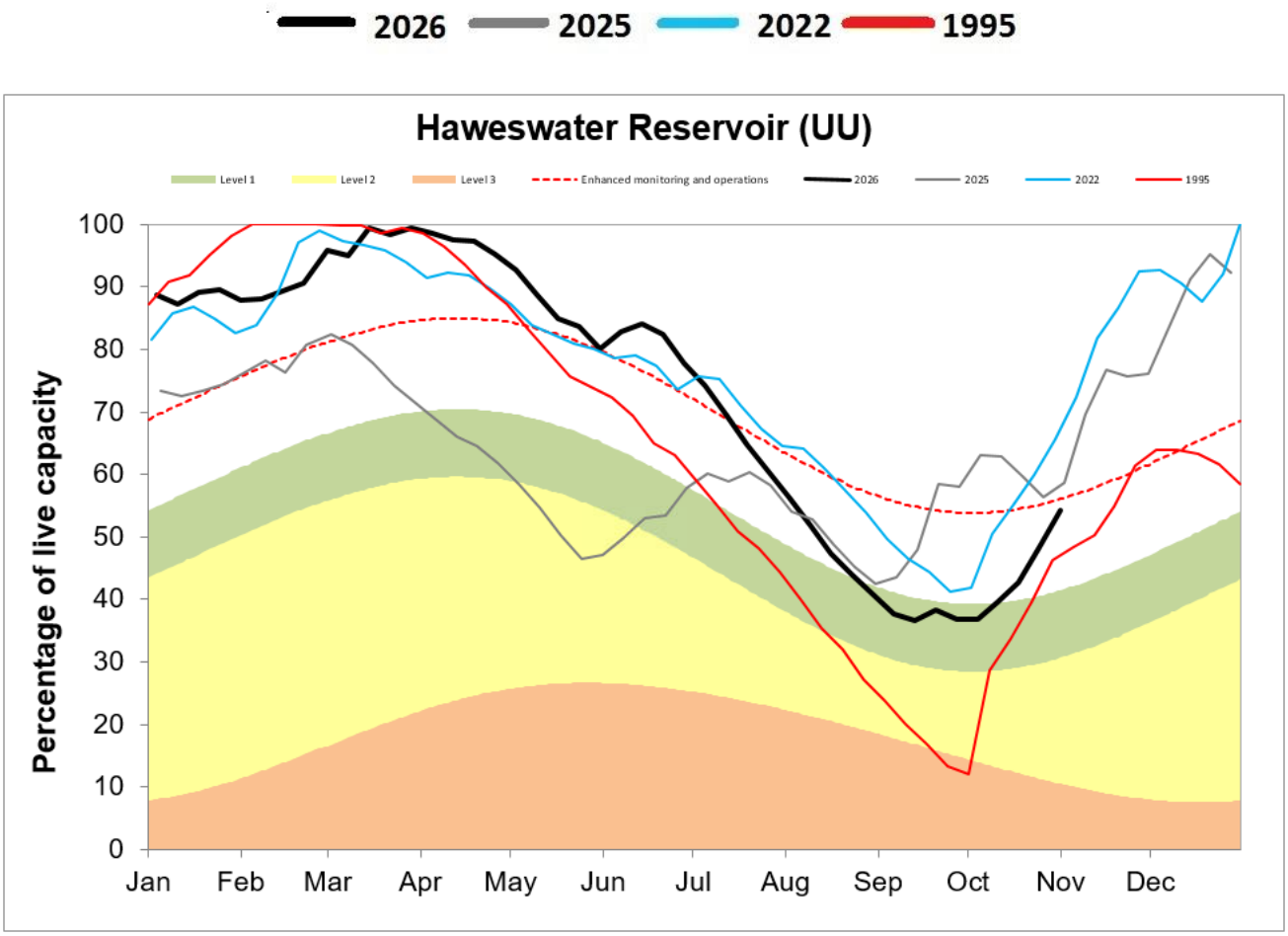
- Longridge System (Ribble Reservoir Supply District) – Alston No.1, Alston No.2, Spade Mill No.1, and Spade Mill No.2
- Rivington System (Rivington Reservoir Supply District) – High Bullough, and Yarrow
- Longdendale System (Longdendale Reservoir Supply District) – Audenshaw No.1, Torside, and Woodhead
- Cowpe System (Pennines West Reservoir Supply District) – Cragg
- Cowm System (Longdendale Reservoir Supply District) – Cowm
- Ogden (Barley) System (Ribble Reservoir Supply District) – Ogden (Barley) Lower, and Ogden (Barley) Upper
- Cumbria Compensation & recreation only reservoirs – Borrans

1.6 Water abstraction restrictions and environmental impacts

In GMMC, there was one reduce notice in operation in October until a resume notice was issued on 23 October for the remainder of the month. In CLA, one warning notice was issued in October.

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Figure 1.5: Storage in Haweswater Reservoir, including the drought levels for the reservoir and storage for the current year (2026) and representative years: 1995, 2022 and 2025 (*Source: United Utilities* (UU)).

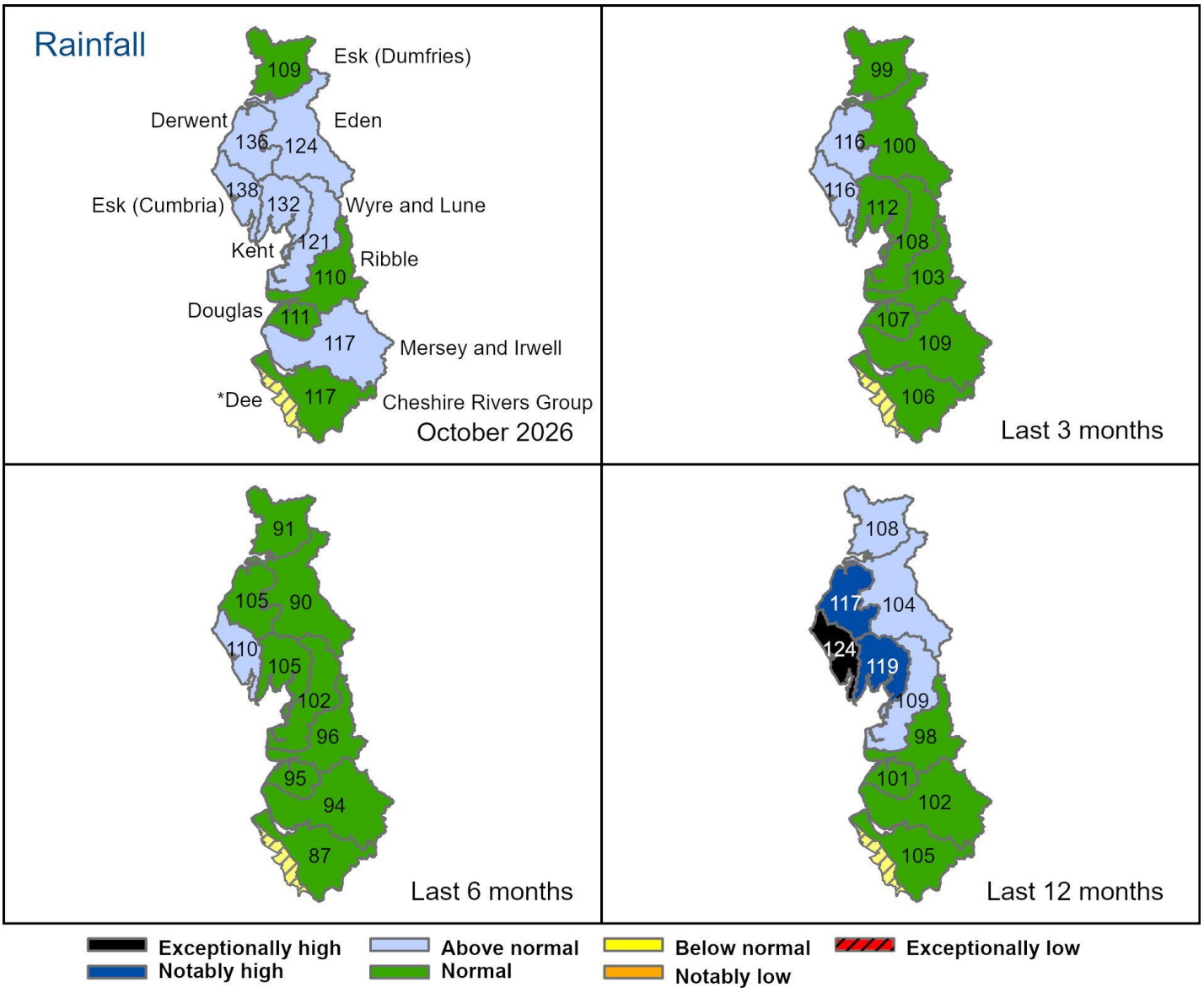


Author: Greater Manchester, Merseyside and Cheshire Hydrology Team, hydrology.gmmych@environment-agency.gov.uk

2 Rainfall

2.1 Rainfall map

Figure 2.1: Total rainfall (as a percentage of the 1991 to 2020 long term average) for hydrological areas for the current month (up to 31 October 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.



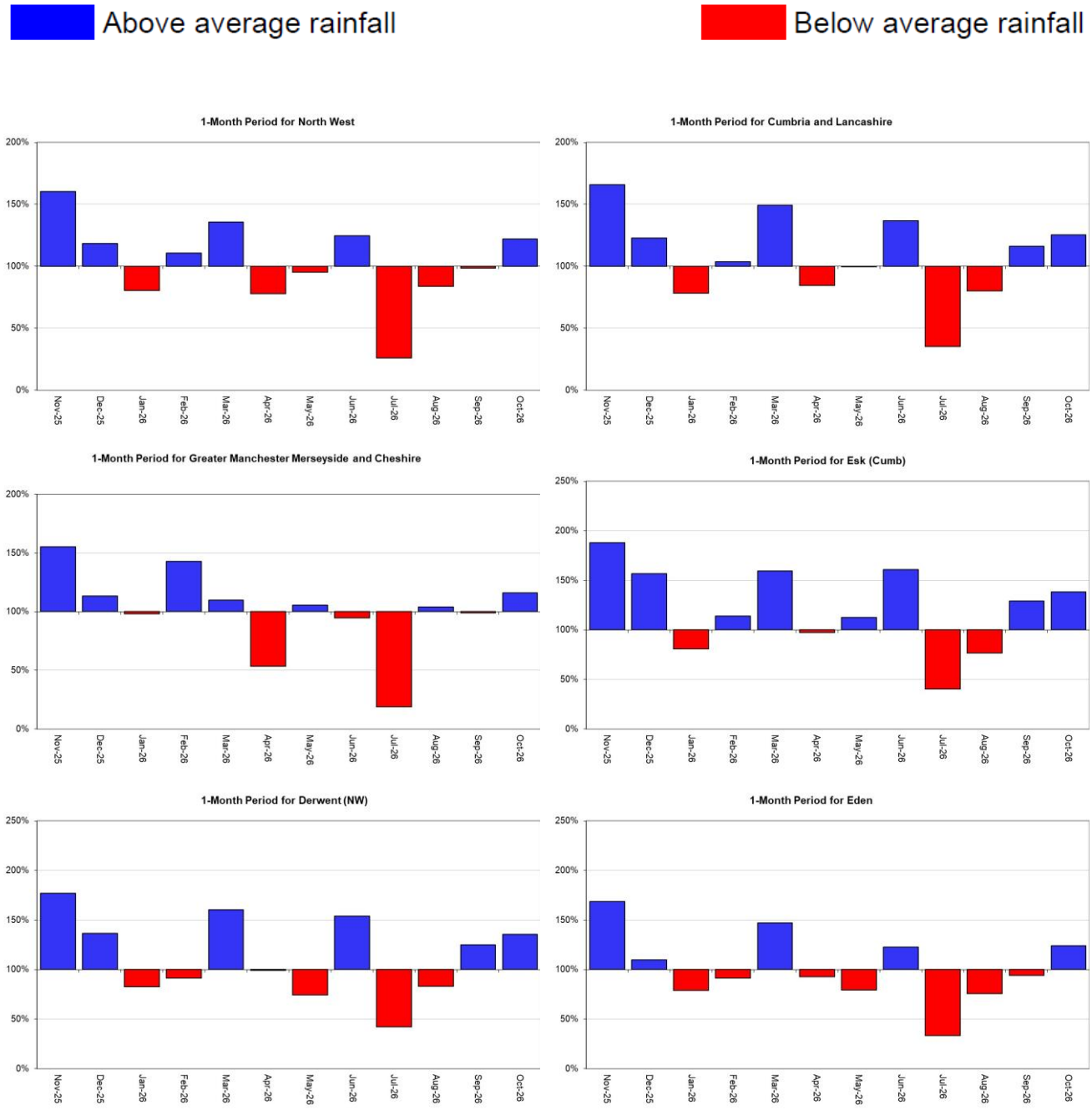
Rainfall data since January 2025, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, AC0000807064, 2026). Rainfall data prior to January 2025,

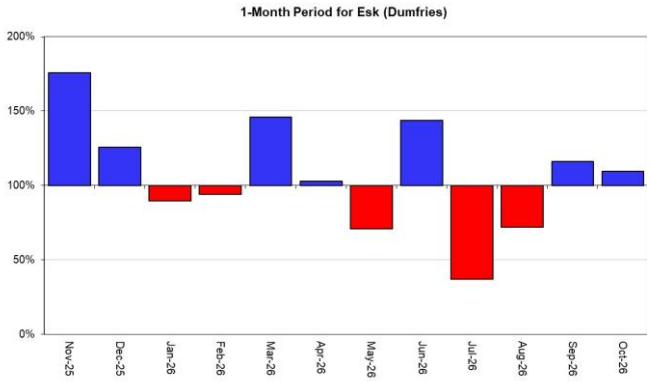
extracted from Met Office HadUK 1km gridded rainfall dataset derived from registered rain gauges (Source: Met Office. Crown copyright, 2026).

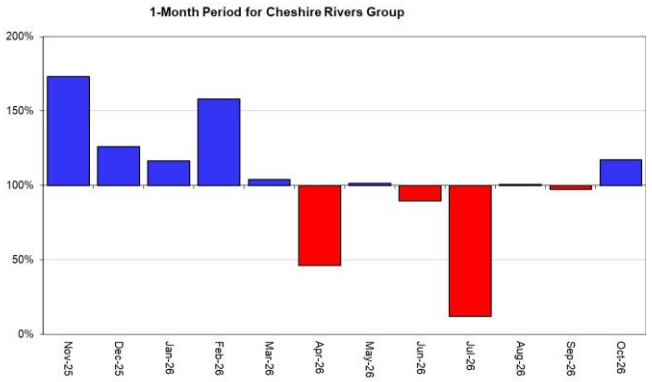
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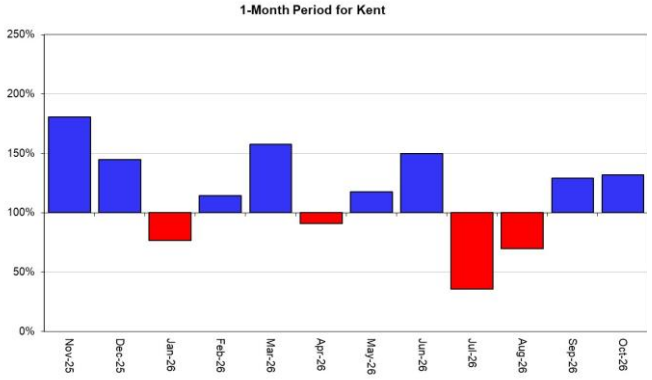
2.2 Rainfall charts

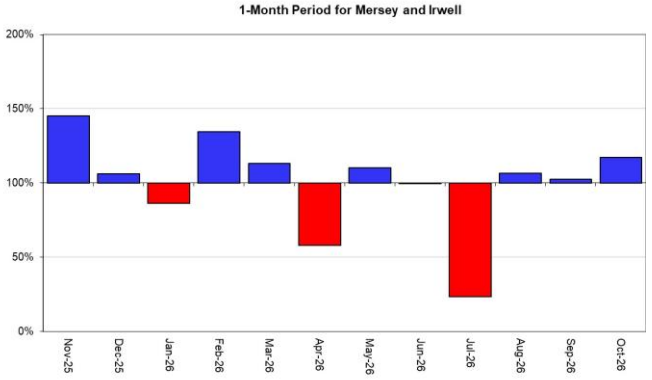
Figure 2.2: Monthly rainfall totals for the past 12 months expressed as a percentage of the 1991 to 2020 long term average for North-west England and its hydrological areas.

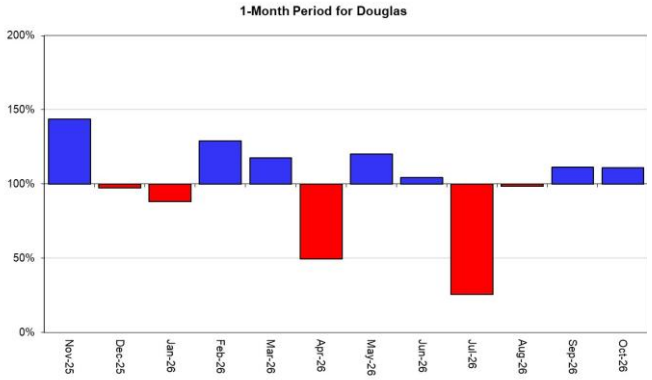


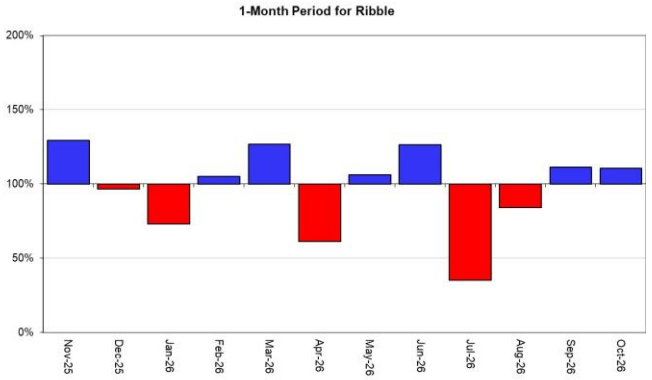

1-Month Period for Esk (Dumfries)
200%
150%
100%
50%
0%
Nov-25
Dec-25
Jan-26
Feb-26
Mar-26
Apr-26
May-26
Jun-26
Jul-26
Aug-26
Sep-26
Oct-26

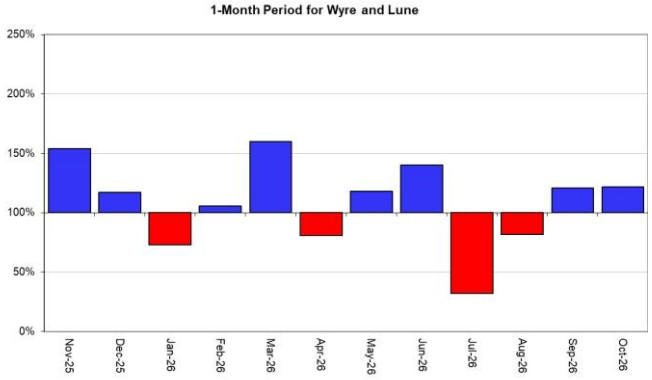

1-Month Period for Cheshire Rivers Group
200%
150%
100%
50%
0%
Nov-25
Dec-25
Jan-26
Feb-26
Mar-26
Apr-26
May-26
Jun-26
Jul-26
Aug-26
Sep-26
Oct-26


1-Month Period for Kent
250%
200%
150%
100%
50%
0%
Nov-25
Dec-25
Jan-26
Feb-26
Mar-26
Apr-26
May-26
Jun-26
Jul-26
Aug-26
Sep-26
Oct-26


1-Month Period for Mersey and Irwell
200%
150%
100%
50%
0%
Nov-25
Dec-25
Jan-26
Feb-26
Mar-26
Apr-26
May-26
Jun-26
Jul-26
Aug-26
Sep-26
Oct-26


1-Month Period for Douglas
200%
150%
100%
50%
0%
Nov-25
Dec-25
Jan-26
Feb-26
Mar-26
Apr-26
May-26
Jun-26
Jul-26
Aug-26
Sep-26
Oct-26


1-Month Period for Ribble
200%
150%
100%
50%
0%
Nov-25
Dec-25
Jan-26
Feb-26
Mar-26
Apr-26
May-26
Jun-26
Jul-26
Aug-26
Sep-26
Oct-26

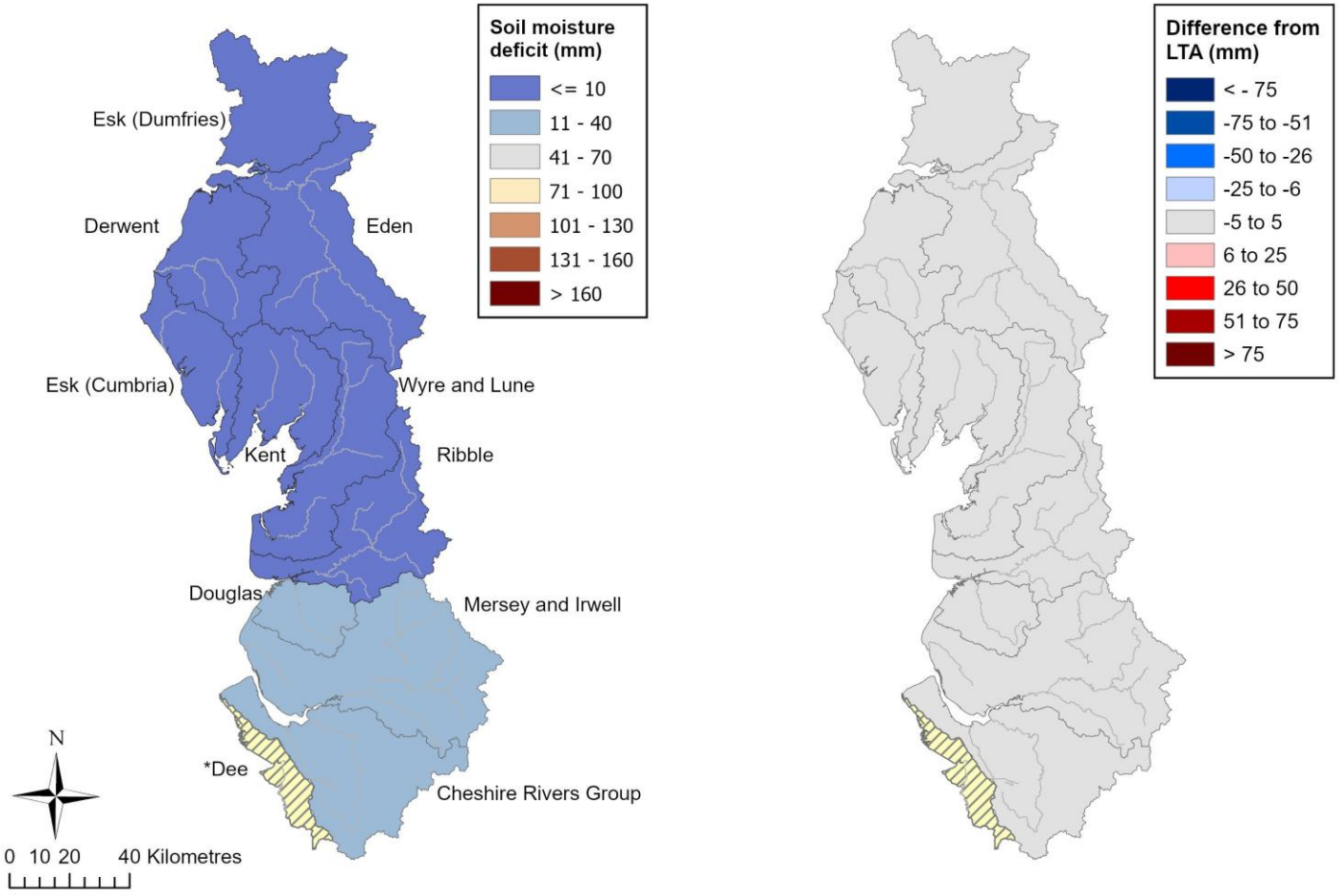

1-Month Period for Wyre and Lune
250%
200%
150%
100%
50%
0%
Nov-25
Dec-25
Jan-26
Feb-26
Mar-26
Apr-26
May-26
Jun-26
Jul-26
Aug-26
Sep-26
Oct-26

Rainfall data since January 2025, 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).

3 Soil moisture deficit

3.1 Soil moisture deficit map

Figure 3.1: Soil moisture deficits for the week ending 4 November 2026. The map on the left shows actual soil moisture deficits (mm) and on the right shows the difference (mm) of the actual from the 1991 - 2020 long term average soil moisture deficits. MORECS data for real land use.

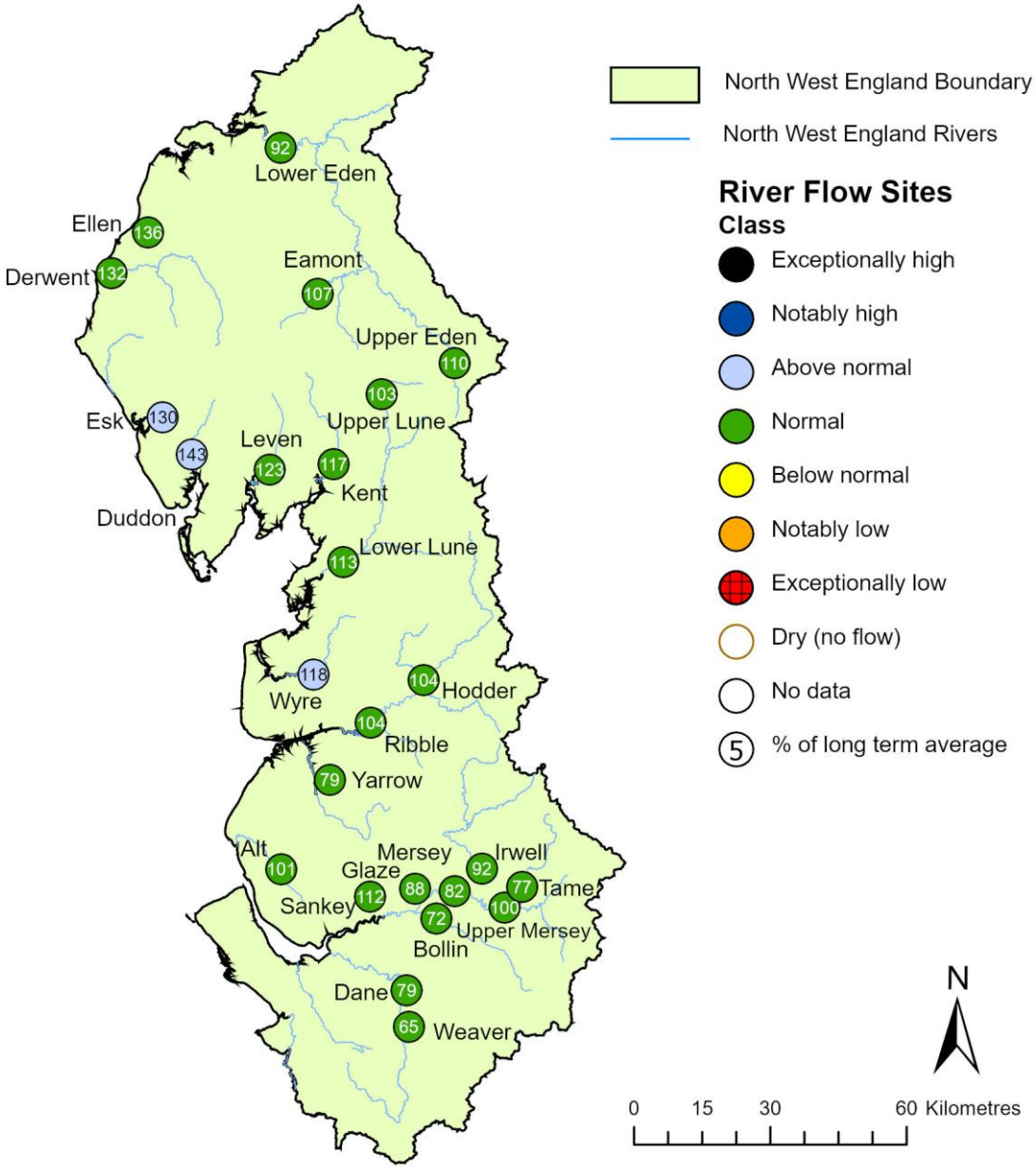


(Source: Met Office. Crown copyright, 2026). All rights reserved. Environment Agency, AC0000807064, 2026.

4 River flows

4.1 River flows map

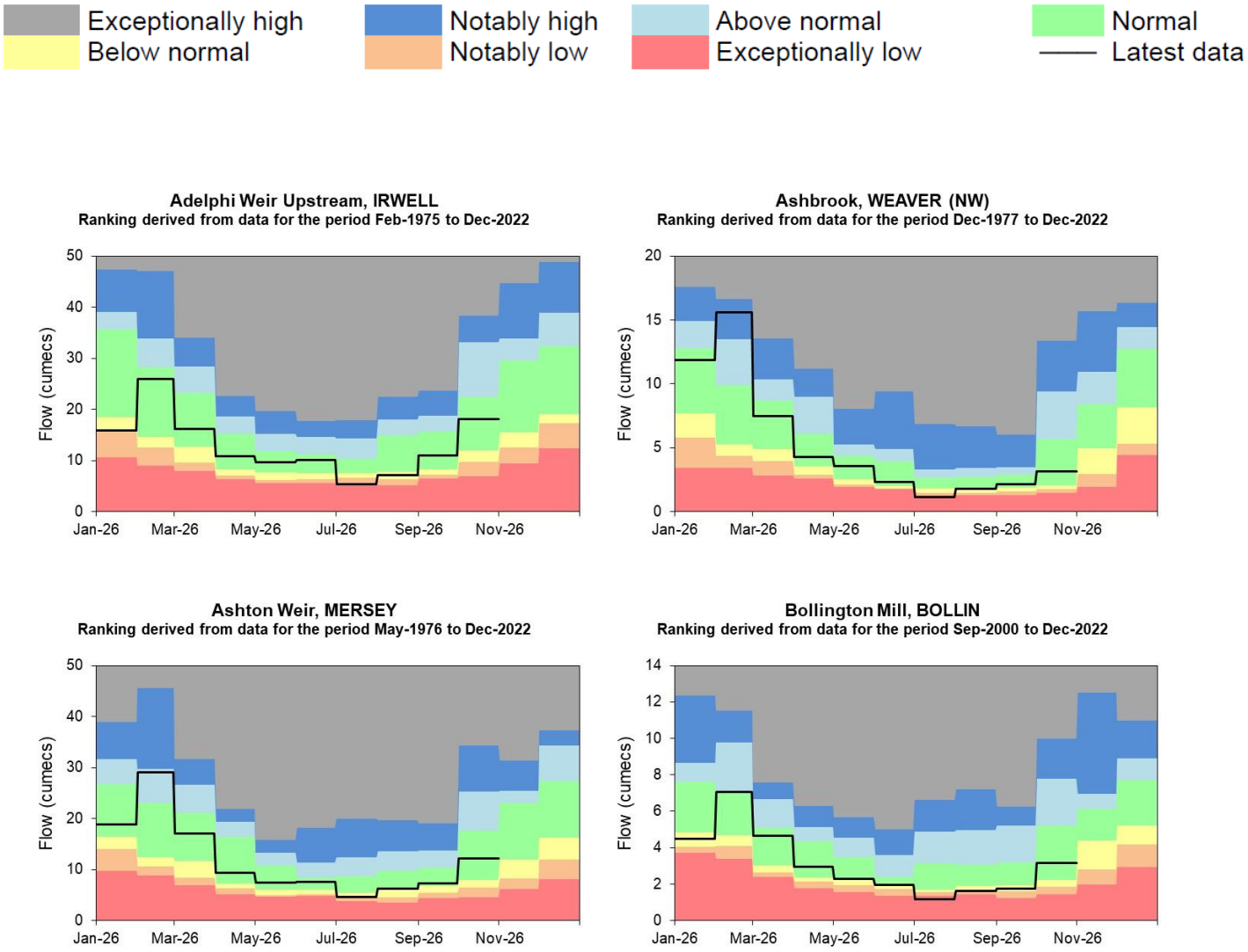
Figure 4.1: Monthly mean river flow for indicator sites for October 2026, expressed as a percentage of the respective long term average and classed relative to an analysis of historic October monthly means. Table available in the appendices with detailed information.



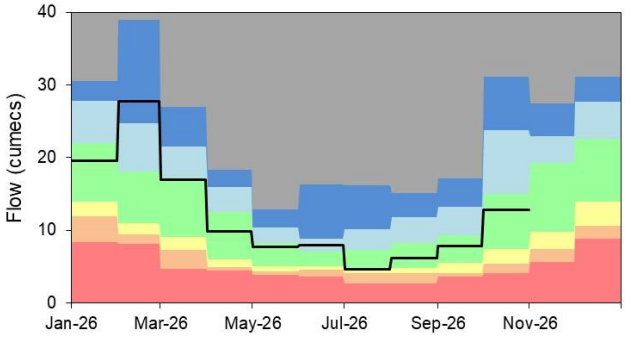
(Source: Environment Agency). Crown copyright. All rights reserved. Environment Agency, AC0000807064, 2026.

4.2 River flow charts

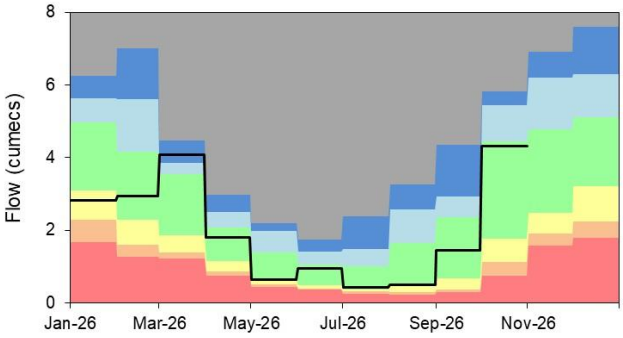
Figure 4.2: Monthly mean river flow for index sites over the past year, compared to an analysis of historic monthly mean flows.



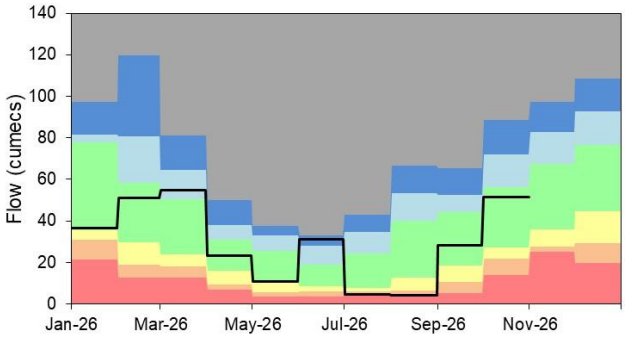
Brinksway, MERSEY
Ranking derived from data for the period Jan-1974 to Dec-2022



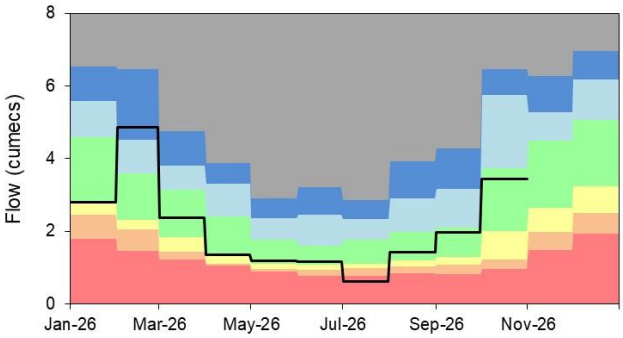
Bullgill, ELLEN
Ranking derived from data for the period Jan-1976 to Dec-2022



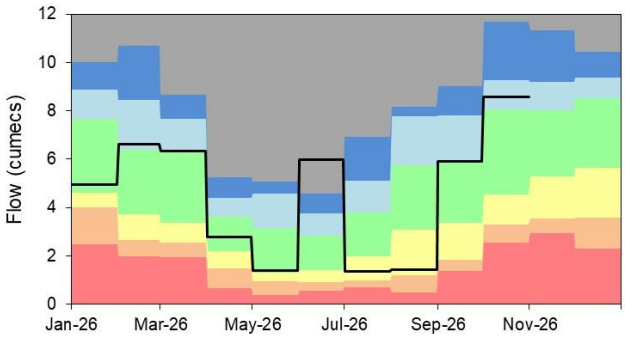
Caton, LUNE
Ranking derived from data for the period Jan-1959 to Dec-2022



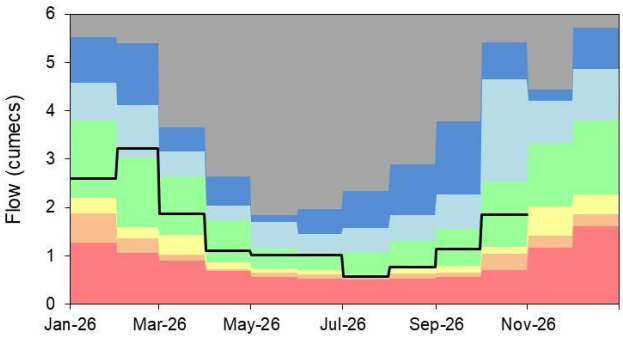
Causey Bridges, SANKEY
Ranking derived from data for the period Jan-1977 to Dec-2022



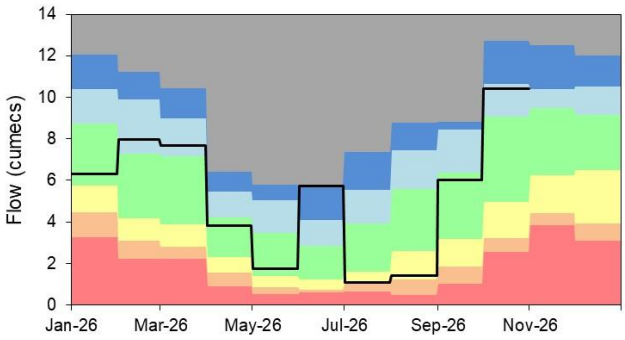
Cropple How, ESK (NW)
Ranking derived from data for the period Jan-1976 to Dec-2022



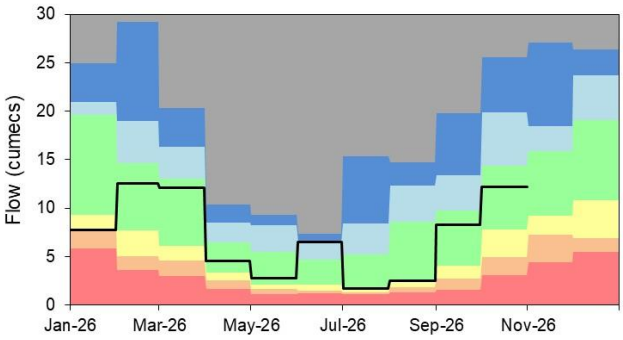
Croston, YARROW
Ranking derived from data for the period Jan-1976 to Dec-2022



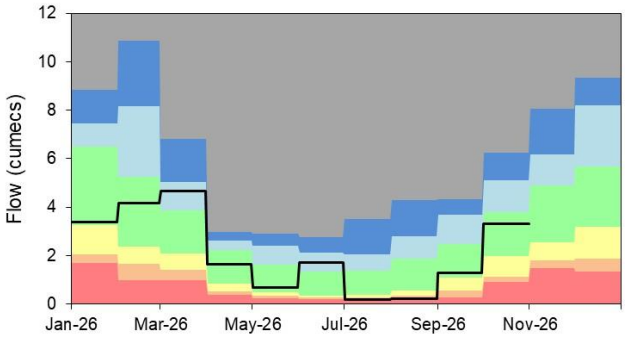
Duddon Hall, DUDDON
Ranking derived from data for the period Mar-1968 to Dec-2022



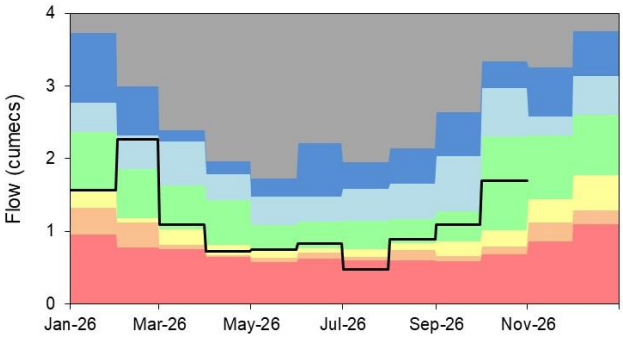
Hodder Place, HODDER
Ranking derived from data for the period Jan-1976 to Dec-2022



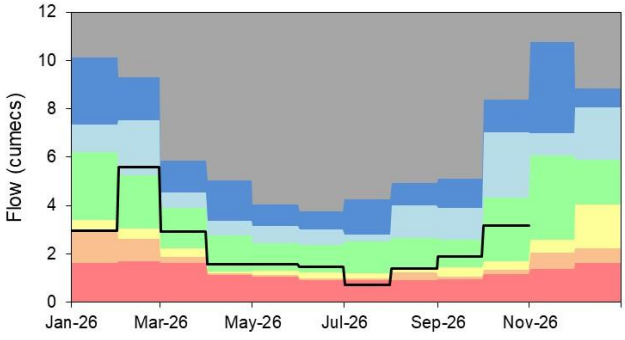
Kirkby Stephen, EDEN (NW)
Ranking derived from data for the period Oct-1971 to Dec-2022



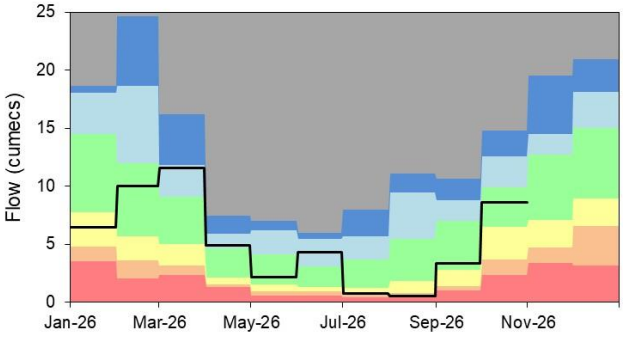
Kirkby, ALT
Ranking derived from data for the period Oct-1977 to Dec-2022



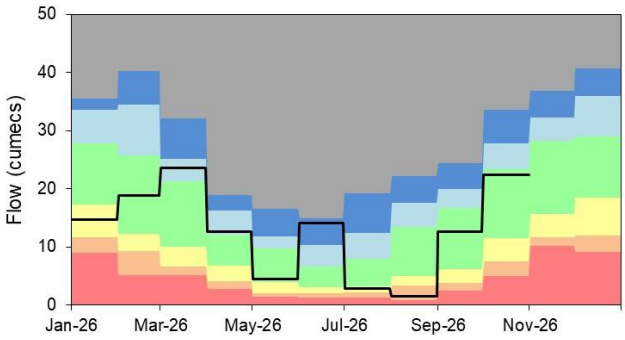
Little Woolden Hall Ultrasonic, GLAZE
Ranking derived from data for the period Jul-1995 to Dec-2022



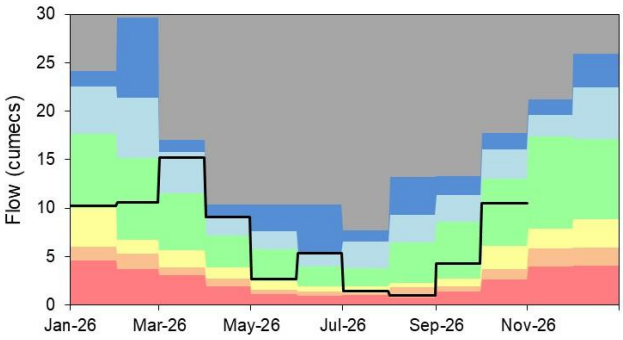
Lunes Bridge, LUNE
Ranking derived from data for the period Dec-1979 to Dec-2022



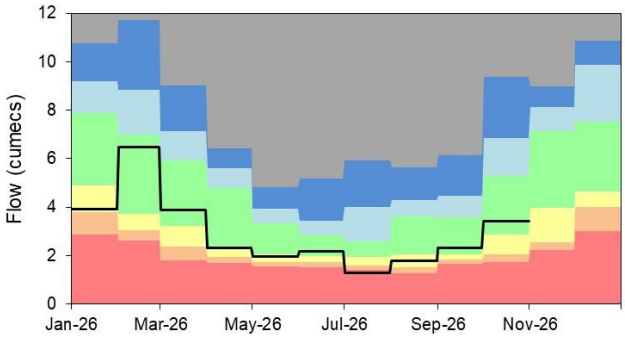
Newby Bridge FMS, LEVEN (NW)
Ranking derived from data for the period Jan-1972 to Dec-2022



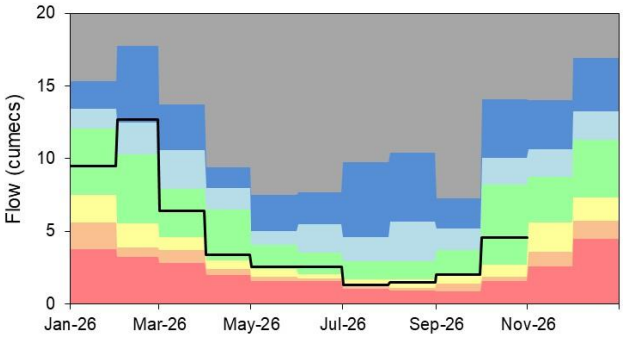
Pooley Bridge, EAMONT
Ranking derived from data for the period Jul-1970 to Dec-2022



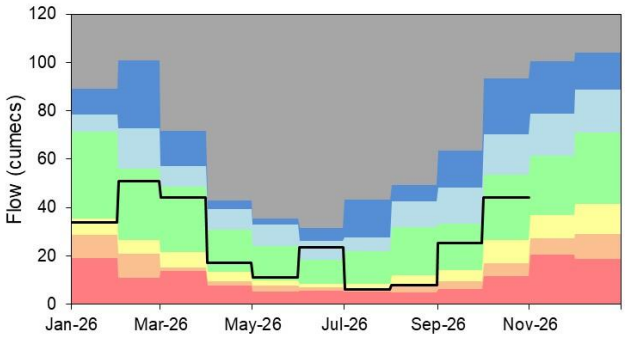
Portwood, TAME
Ranking derived from data for the period Jan-1976 to Dec-2022



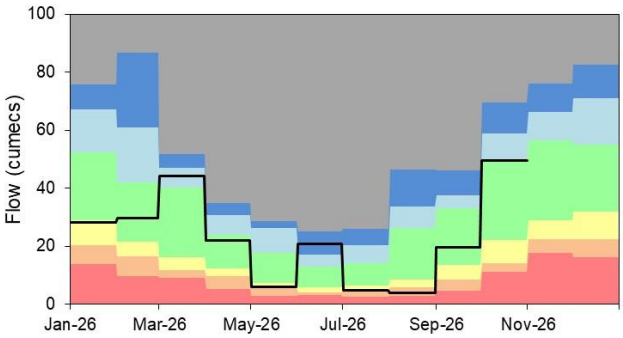
Rudheath, DANE
Ranking derived from data for the period Jan-1976 to Dec-2022

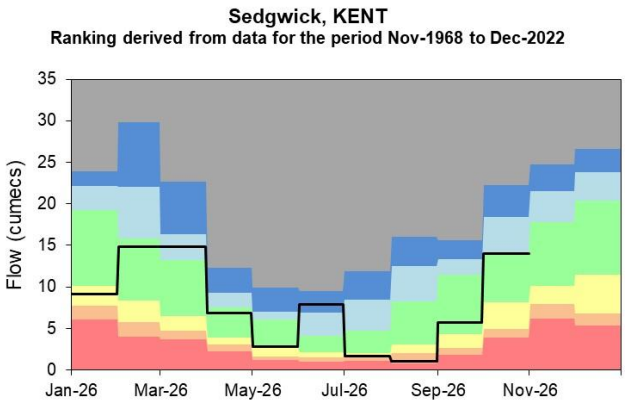


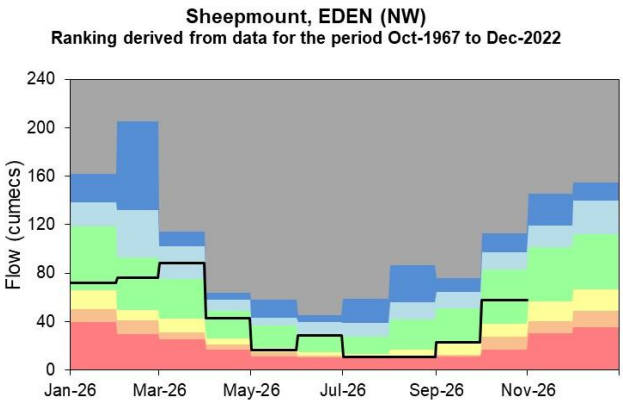
Samlesbury Pgs, RIBBLE (NW)
Ranking derived from data for the period May-1960 to Dec-2022

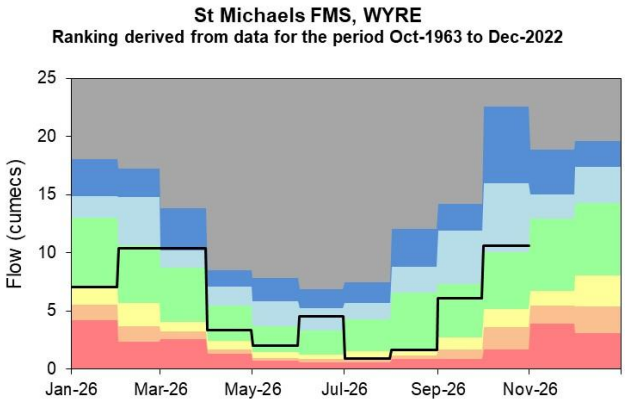


Seaton Mill, DERWENT (NW)
Ranking derived from data for the period Sep-1960 to Dec-2022







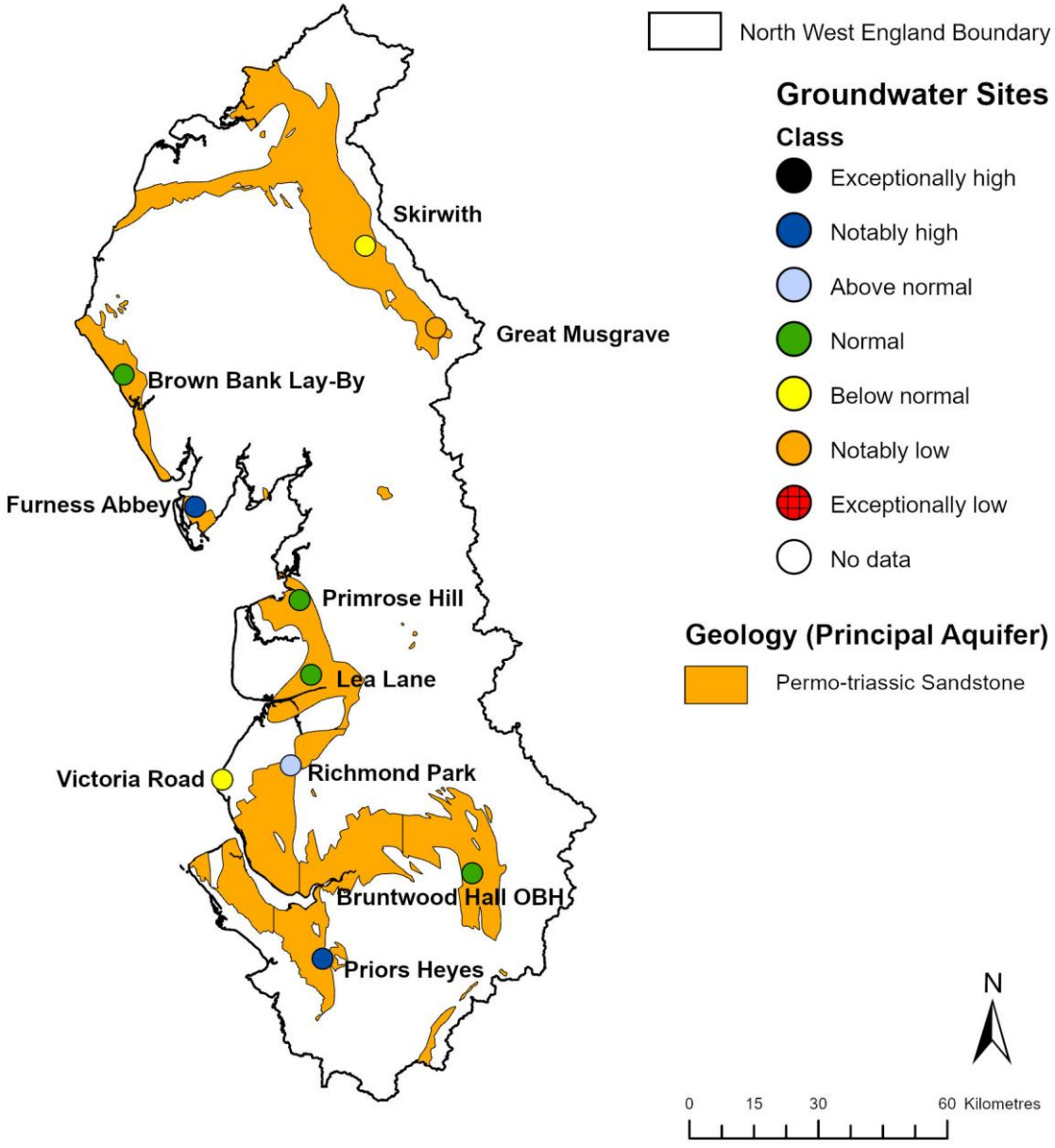


Source: Environment Agency.

5 Groundwater levels

5.1 Groundwater levels map

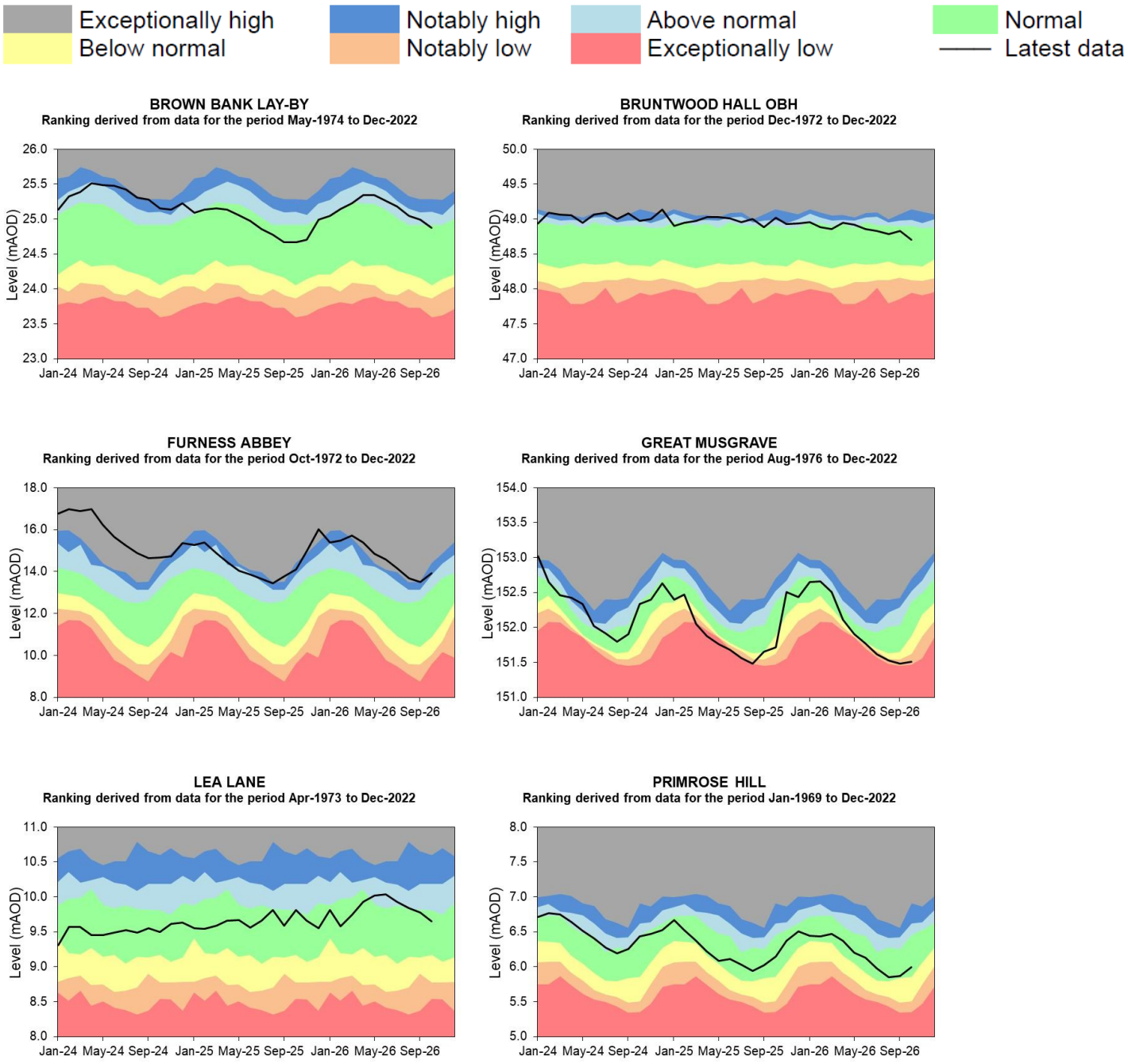
Figure 5.1: Groundwater levels for indicator sites at the end of October 2026, classed relative to an analysis of respective historic October levels. Table available in the appendices with detailed information. Please note Victoria Road Borehole sits within a superficial deposit as opposed to a bedrock aquifer. This is why the geology type is not marked on the map.

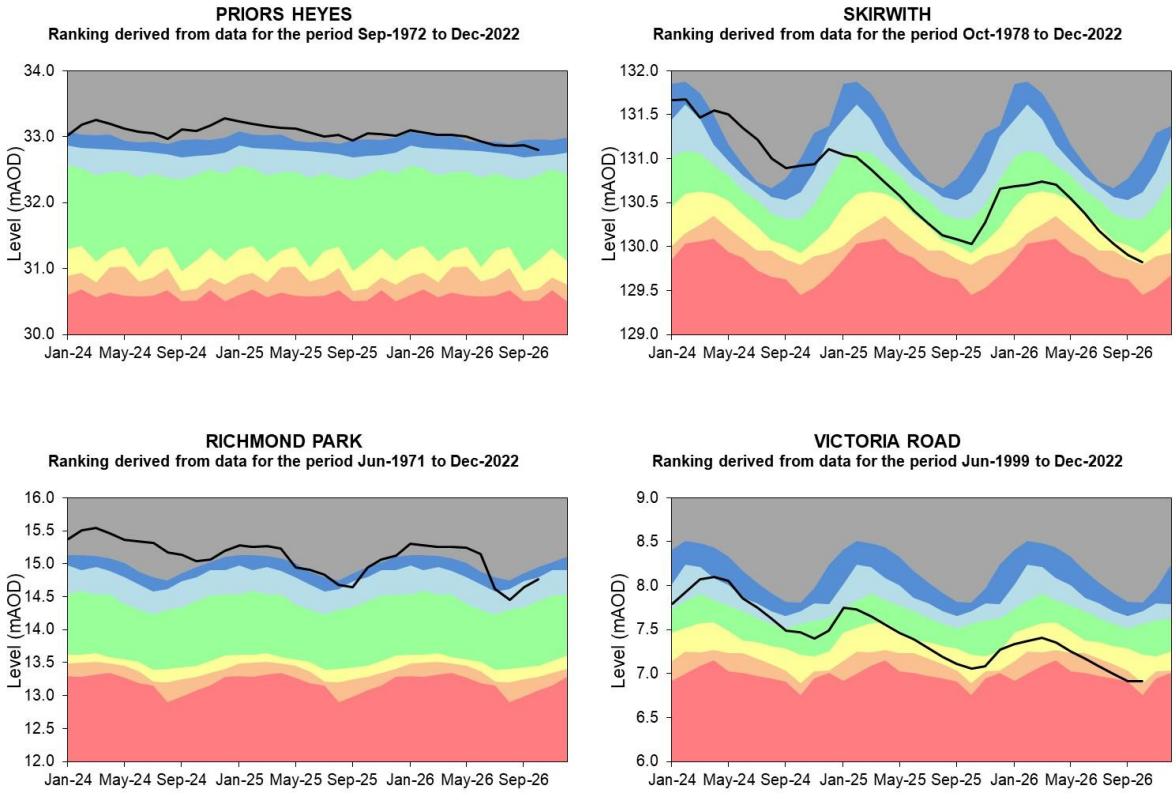


(Source: Environment Agency). Geological map reproduced with kind permission from UK Groundwater Forum, BGS copyright NERC. Crown copyright. All rights reserved. Environment Agency, AC0000807064, 2026.

5.2 Groundwater level charts

Figure 5.2: End of month groundwater levels at index groundwater level sites for major aquifers. 34 months compared to an analysis of historic end of month levels and long term maximum and minimum levels.





Source: Environment Agency, 2026.

6 Reservoir stocks

Figure 6.1: The location of reservoirs that comprise the supply districts across North-west England and selected individual reservoirs.

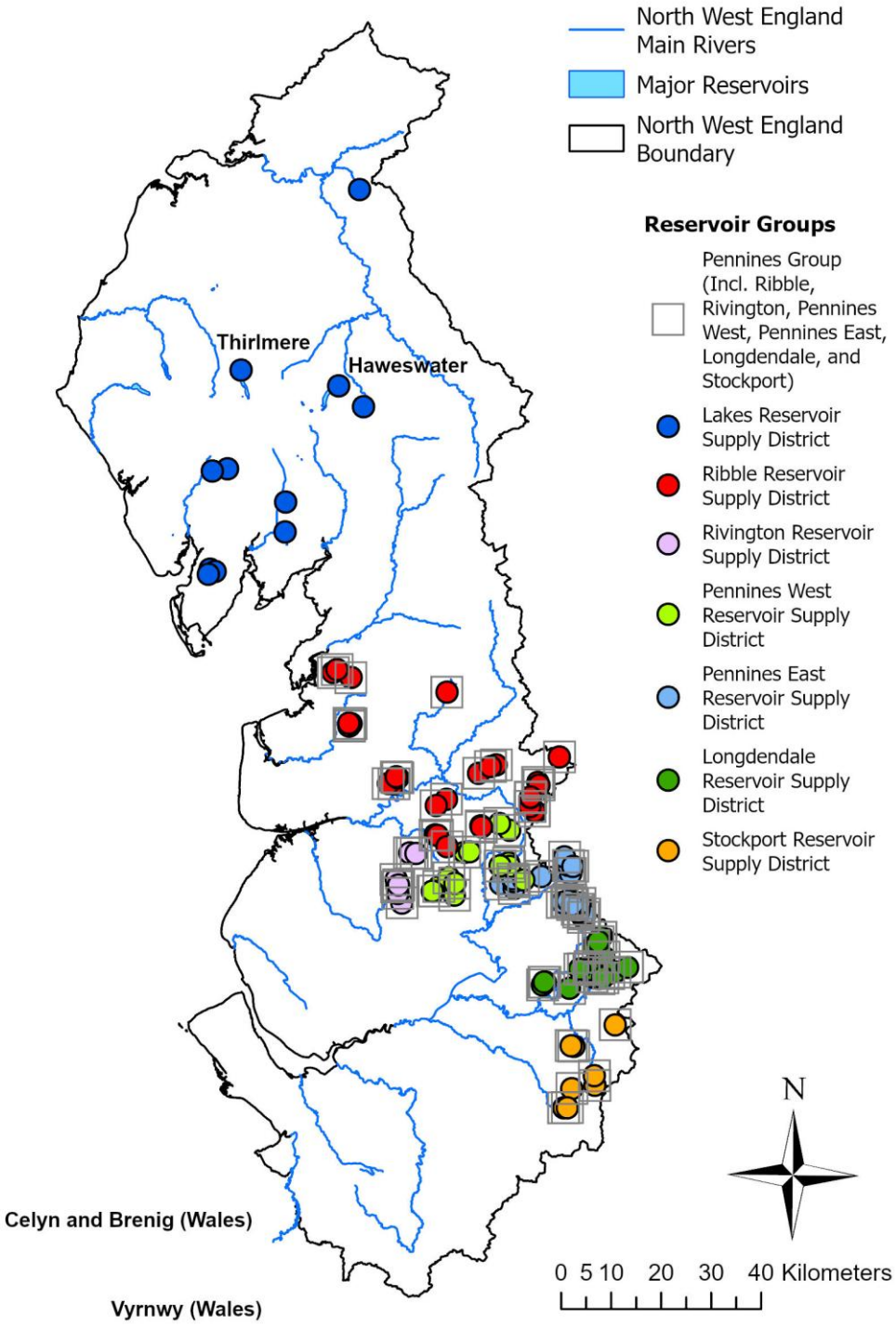
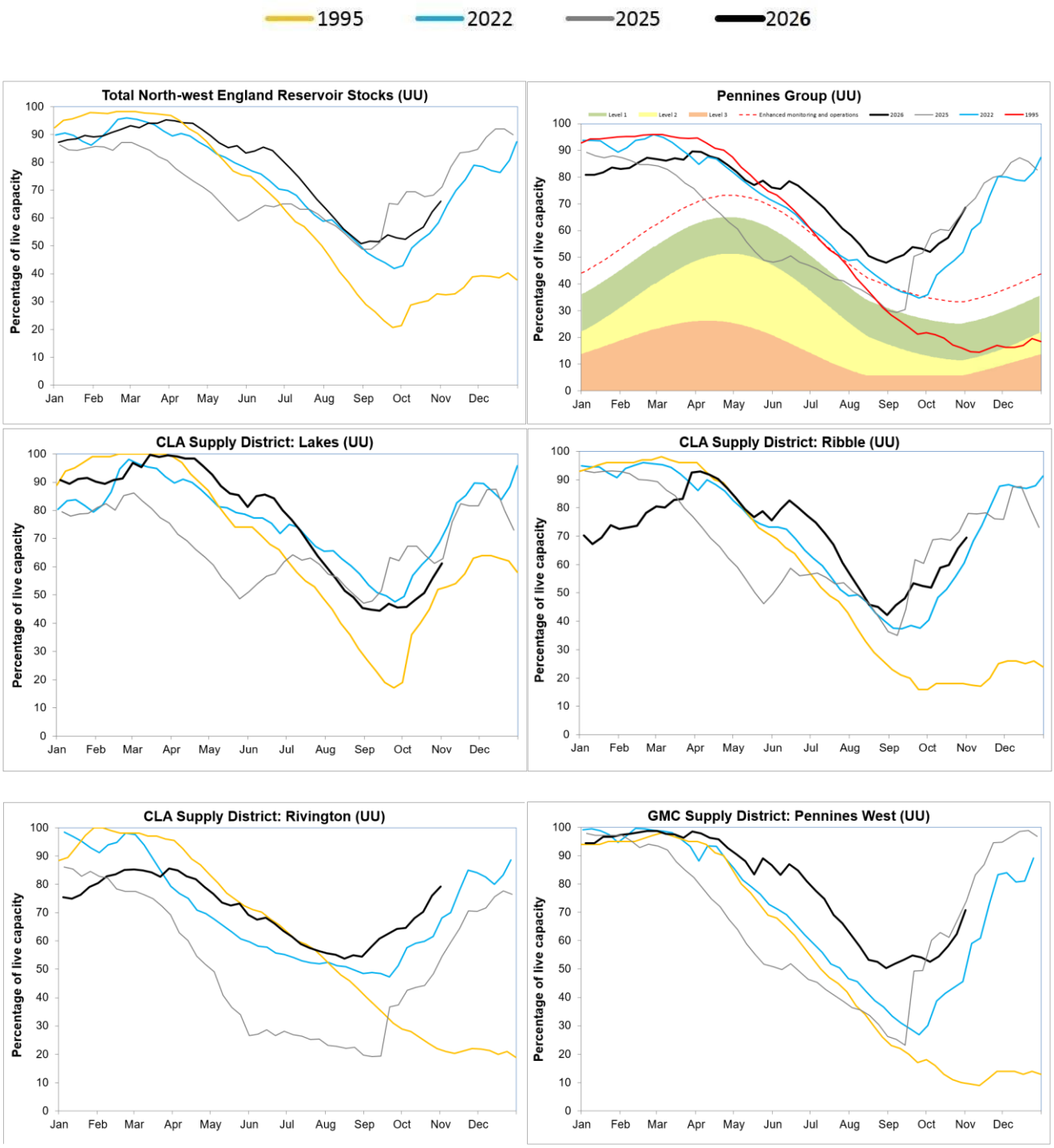
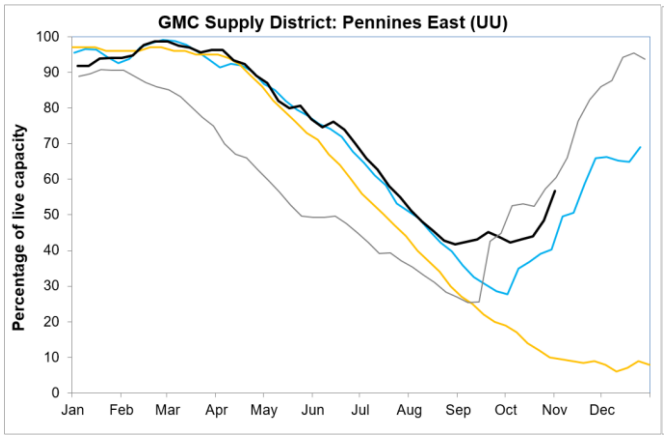
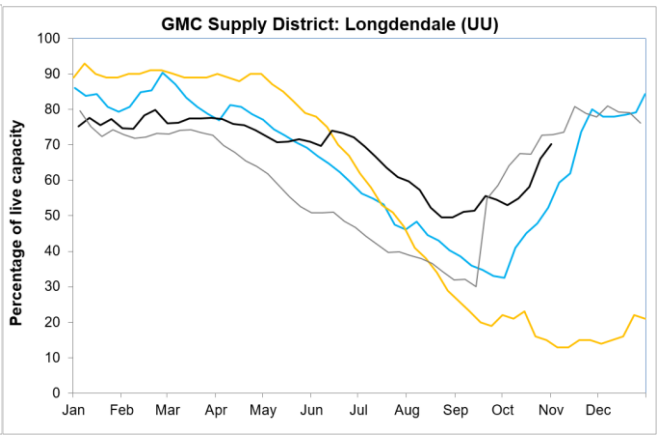
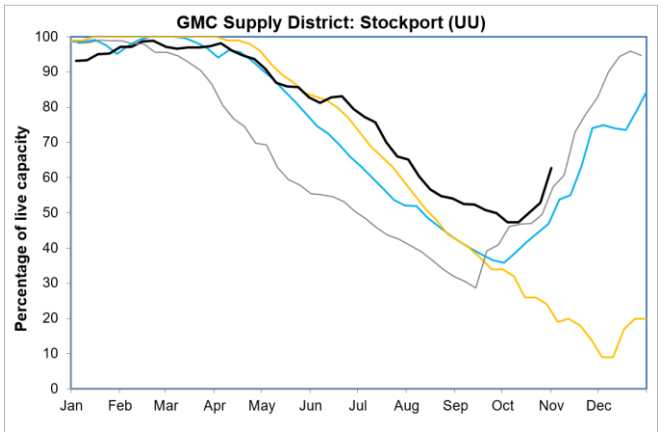


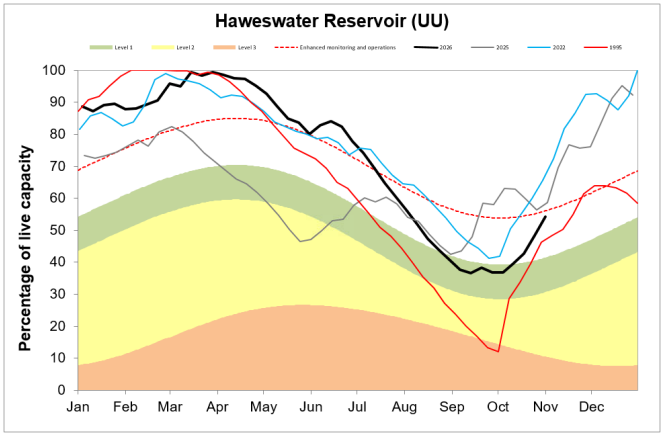
Figure 6.2: End of month reservoir stocks for supply districts across North-west England and selected individual reservoirs for current year (2026) and representative years: 1995, 2003 and 2025. Note: Historic records of individual reservoirs and reservoir groups making up the regional values vary in length.

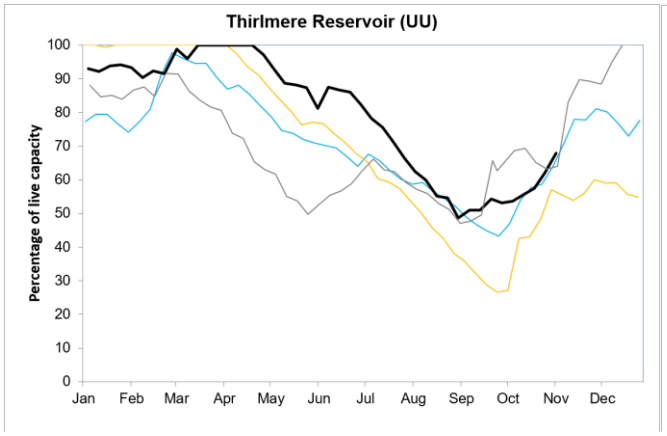


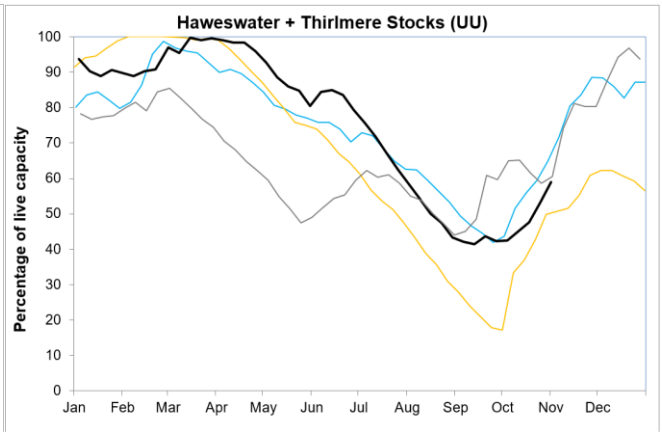

GMC Supply District: Pennines East (UU)
Percentage of live capacity
100
90
80
70
60
50
40
30
20
10
0
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

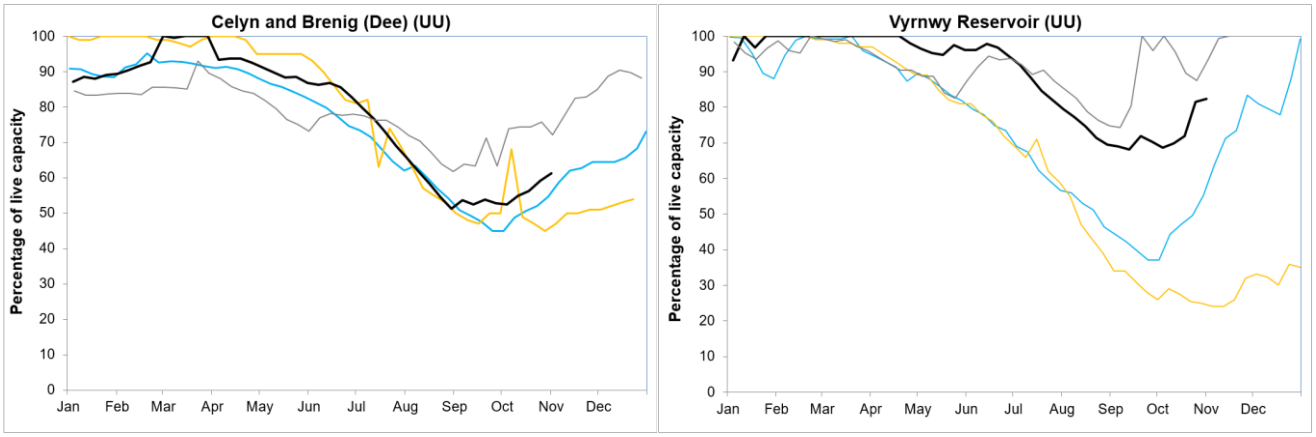

GMC Supply District: Longdendale (UU)
Percentage of live capacity
100
90
80
70
60
50
40
30
20
10
0
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec


GMC Supply District: Stockport (UU)
Percentage of live capacity
100
90
80
70
60
50
40
30
20
10
0
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec


Haweswater Reservoir (UU)
Level 1
Level 2
Level 3
Enhanced monitoring and operations
2026
2025
2022
1995
Percentage of live capacity
100
90
80
70
60
50
40
30
20
10
0
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec


Thirlmere Reservoir (UU)
Percentage of live capacity
100
90
80
70
60
50
40
30
20
10
0
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec


Haweswater + Thirlmere Stocks (UU)
Percentage of live capacity
100
90
80
70
60
50
40
30
20
10
0
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec



Source: (UU) United Utilities, (EA) The Environment Agency.

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	Oct 2026 rainfall % of long term average 1991 to 2020	Oct 2026 band	Aug 2026 to October cumulative band	May 2026 to October cumulative band	Nov 2025 to October cumulative band
Cheshire Rivers Group	117	Normal	Normal	Normal	Normal
Derwent (NW)	136	Above Normal	Above normal	Normal	Notably high
Douglas	111	Normal	Normal	Normal	Normal
Eden	124	Above Normal	Normal	Normal	Above normal
Esk (Cumbria)	138	Above Normal	Above normal	Above normal	Exceptionally high
Esk (Dumfries)	110	Normal	Normal	Normal	Above normal
Kent	132	Above Normal	Normal	Normal	Notably high
Mersey And Irwell	117	Above Normal	Normal	Normal	Normal
Ribble	111	Normal	Normal	Normal	Normal
Wyre And Lune	122	Above Normal	Normal	Normal	Above normal

North West	122	Above Normal	Normal	Normal	Above normal

8.2 River flows table

Site name	River	Catchment	Oct 2026 band	Sep 2026 band
Adelphi Weir Upstream	Irwell	Irwell (Croal to Irk)	Normal	Normal
Ashbrook	Weaver (NW)	Weaver Upper	Normal	Normal
Ashton Weir	Mersey	Mersey Non Tidal	Normal	Normal
Bollington Mill	Bollin	Bollin	Normal	Below normal
Brinksway	Mersey	Mersey Non Tidal	Normal	Normal
Bullgill	Ellen	Ellen Lower	Normal	Normal
Caton	Lune	Lune Lower Tidal	Normal	Normal
Causey Bridges	Sankey	Mersey Non Tidal	Normal	Normal
Cropple How	Esk (NW)	Esk (South West Lakes)	Above normal	Normal
Croston	Yarrow	Yarrow Lower	Normal	Normal
Duddon Hall	Duddon	Duddon	Above normal	Normal
Hodder Place	Hodder	Hodder Lower	Normal	Normal
Kirkby	Alt	Alt	Normal	Normal

Site name	River	Catchment	Oct 2026 band	Sep 2026 band
Kirkby Stephen	Eden (NW)	Eden Cumbria Upper	Normal	Normal
Little Woolden Hall Ultrasonic	Glaze	Glaze	Normal	Normal
Lunes Bridge	Lune	Lune Upper	Normal	Normal
Newby Bridge Fms	Leven (NW)	Leven Cumbria	Normal	Normal
Pooley Bridge	Eamont	Eamont	Normal	Normal
Portwood	Tame	Tame	Normal	Normal
Rudheath	Dane	Dane	Normal	Normal
Samlesbury Pgs	Ribble (NW)	Ribble Lower	Normal	Normal
Seaton Mill	Derwent (NW)	Derwent Cumbria Lower	Normal	Normal
Sedgwick	Kent	Levens Bridge	Normal	Normal
Sheepmount	Eden (NW)	Eden Cumbria Lower	Normal	Normal
St Michaels Fms	Wyre	Brock	Above normal	Normal

8.3 Groundwater table

Site name	Aquifer	End of Oct 2026 band	End of Sep 2026 band
Brown Bank Lay-by	West Cumbria Permo-triassic Sandstone	Normal	Above normal
Bruntwood Hall Obh	East Cheshire Permo-triassic Sandstone	Normal	Normal
Furness Abbey	Furness Permo-triassic Sandstone	Notably high	Notably high
Great Musgrave	Eden Valley And Carlisle Basin Permo-triassic Sandstone	Notably low	Notably low
Lea Lane	Fylde Permo-triassic Sandstone	Normal	Normal
Priors Heyes	West Cheshire Permo-triassic Sandstone	Notably high	Notably high
Primrose Hill	Fylde Permo-triassic Sandstone	Normal	Normal
Richmond Park	Rufford Permo-triassic Sandstone	Above normal	Above normal
Skirwith	Eden Valley And Carlisle Basin Permo-triassic Sandstone	Below normal	Below normal
Victoria Road Entrance	West Lancashire Quarternary Sand And Gravel Superficial Deposits	Below normal	Notably low