

Monthly water situation report: North-west England

1 Summary – October 2025

Rainfall for north-west England during October was classed as normal, receiving 93% of the long-term average (LTA). Soil moisture deficits (SMD) in Cumbria and Lancashire (CLA) were below the LTA, whereas in Greater Manchester, Merseyside and Cheshire (GMMC) levels were above average. October monthly mean river flows for north-west England were generally as expected for the time of year, classed as between below normal and normal. Groundwater levels ranged from below normal to exceptionally high. Total reservoir storage at the end of October for north-west England was 68%, remaining lower than average for this time of year.

1.1 Rainfall

Rainfall for north-west England during October was classed as normal, receiving 93% of the LTA. CLA received 94% of the LTA and GMMC received 100% of the LTA, both classed as normal.

North-west England saw all hydrological areas receive rainfall classed as normal for October. The lowest rainfall (in terms of the LTA) was recorded in the Derwent hydrological area with 83% of the LTA. The highest rainfall (in terms of the LTA) was recorded in the Mersey and Irwell hydrological area with 107% of the LTA.

Looking at the past 3- and 6-month cumulative periods, Cumbria and northern Lancashire have generally been wetter, with rainfall totals ranging from normal to exceptionally high. Over the past 6 months, west Cumbrian areas have seen the most rainfall, classed as exceptionally high. Comparatively, southern Lancashire and GMMC have been drier, receiving normal rainfall totals. Over a 12-month period, all areas received normal or above normal rainfall, with the exception of the Esk (Dumfries) which saw 75% of the LTA, classed as notably low.

1.2 Soil moisture deficit and recharge

Soil moisture deficits across north-west England by the end of October fell between 0mm and 48mm. All hydrological areas in CLA were at or near saturation and below the LTA for the time of year. In GMMC, hydrological areas were drier and SMD was above the LTA, notably in the Cheshire Rivers Group hydrological area (15mm above the LTA).

1.3 River flows

In October, monthly mean river flows across north-west England were predominantly classified as normal. An exception was the river Lune at Lunes Bridge where the lowest monthly mean flow was seen (73% of the LTA) classed as below normal. The highest monthly mean flow was recorded in the Duddon catchment at Duddon Hall, reaching 109% of the LTA.

Please note that data for Newby Bridge on the River Leven in Cumbria was unavailable for October due to temporary eel pass works at the station.

1.4 Groundwater levels

Groundwater levels across north-west England were classed between below normal and exceptionally high at the end of October.

Compared to the end of September, groundwater classifications changed at:

- Great Musgrave, from normal to below normal.
- Furness Abbey, from exceptionally high to notably high.
- Bruntwood Hall, from normal to notably high.
- Lea Lane, from normal to above normal.
- Richmond Park, from above normal to notably high.

All other sites remained the same classification at:

- Brown Bank Lay By, classed as normal.
- Primrose Hill, classed as normal.
- Priors Heyes, classed as exceptionally high.
- Skirwith, classed as normal.
- Victoria Road, classed as below normal.

Please note, levels at Priors Heyes remain high compared to historic levels because the aquifer is recovering from the effects of historically high abstractions.

1.5 Reservoir storage

Total reservoir stocks for north-west England saw a slight increase from 65% at the end of September to 68% at the end of October. However, this is lower than the average of 76% usually seen at this time of year and lower than last year when reservoir storage was 76%.

At the end of October, reservoir storage (in terms of percentage) was highest at Vyrnwy at 88% full and lowest at Rivington at 48%.

The combined storage at Haweswater and Thirlmere was 59% which is lower than the 69% average storage at this time of year and lower than last year when storage was 71%.

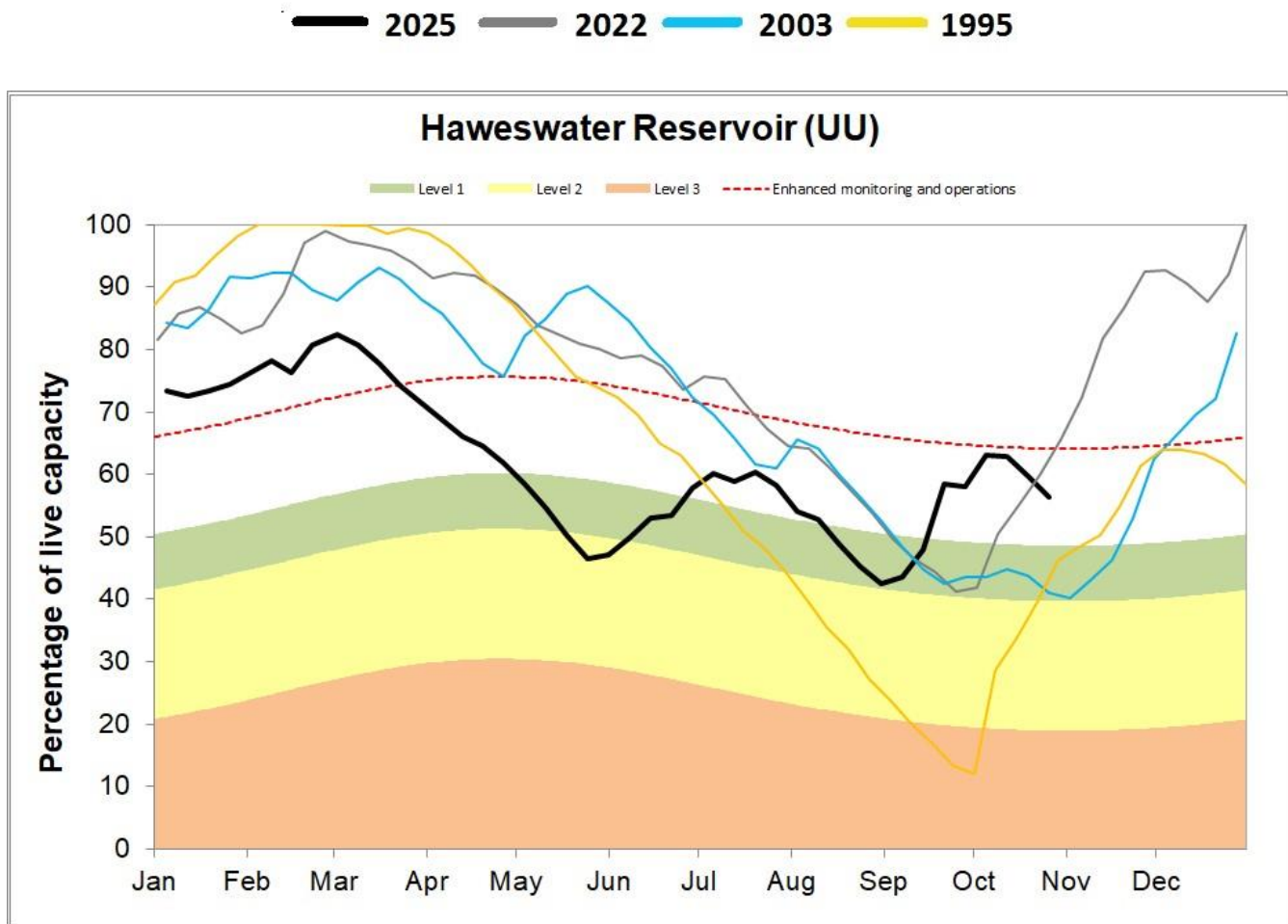
Reservoirs kept low for maintenance works included parts of the:

- Lakes supply district – Dubbs
- Ribble supply district – Alston No. 2, Spade Mill No. 1, Spade Mill No. 2, Ogden (Barley) Lower, Ogden (Barley) Upper
- Rivington supply district – Anglezarke, High Bullough, Yarrow
- Longdendale supply district – Audenshaw No. 1, Torside
- Pennines combined supply district – Cragg, Dingle, Kitcliffe

1.6 Water abstraction restrictions and environmental impacts

During October, two water abstraction licences in CLA were issued with stop notices, however these have since been resumed. There were no reported environmental incidents related to prolonged dry weather in either CLA or GMMC.

Figure 1.5: Storage in Haweswater Reservoir, including the drought levels for the reservoir and storage for the current year (2025) and representative years: 1995, 2003 and 2022
(Source: United Utilities (UU)).



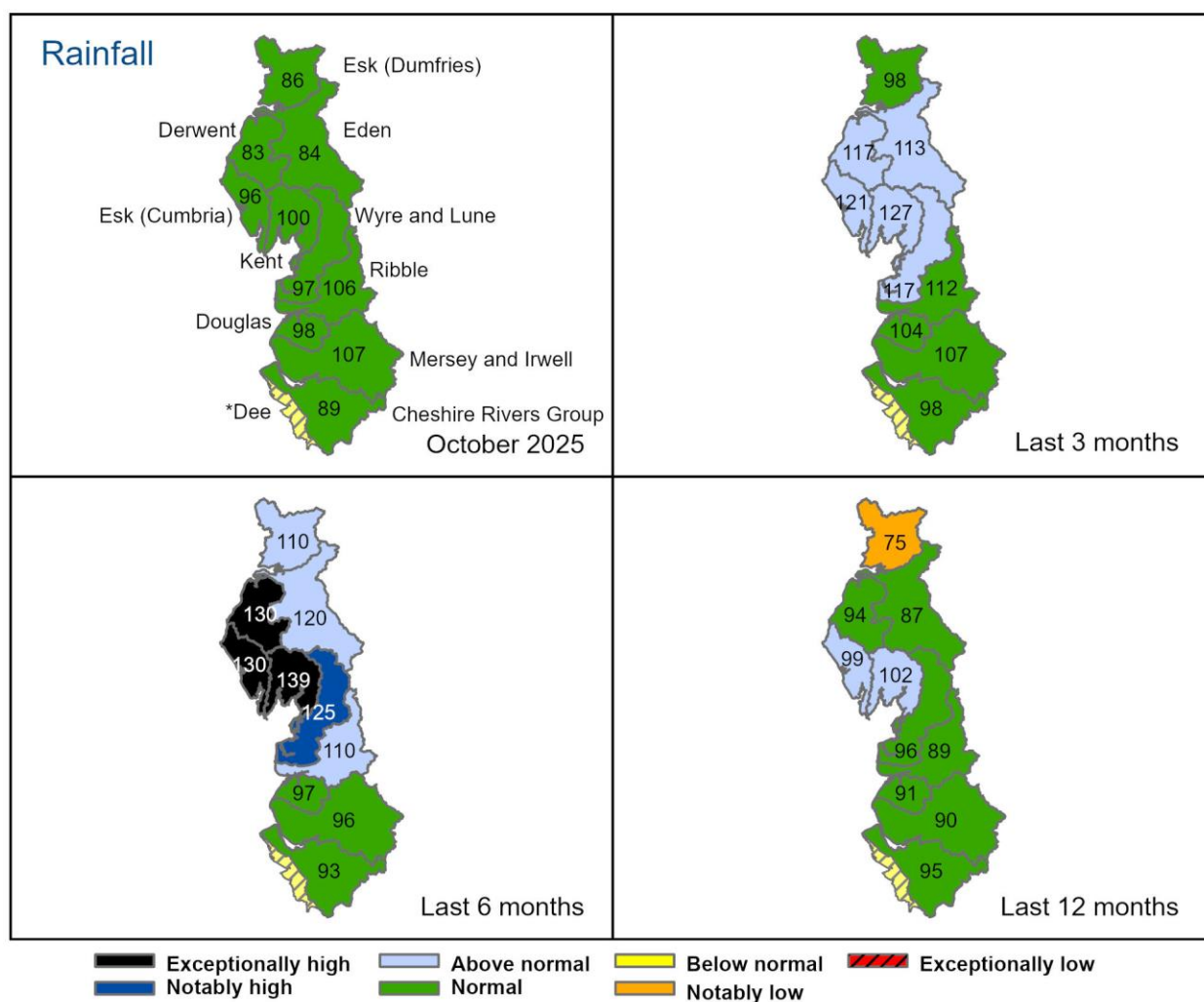
All data are provisional and may be subject to revision. The views expressed in this document are not necessarily those of the Environment Agency. Its officers, servants or agents accept no liability for any loss or damage arising from the interpretation or use of the information, or reliance upon views contained herein.

Author: Cumbria and Lancashire Hydrology Team, hydrology.CMBLNC@environment-agency.gov.uk

2 Rainfall

2.1 Rainfall map

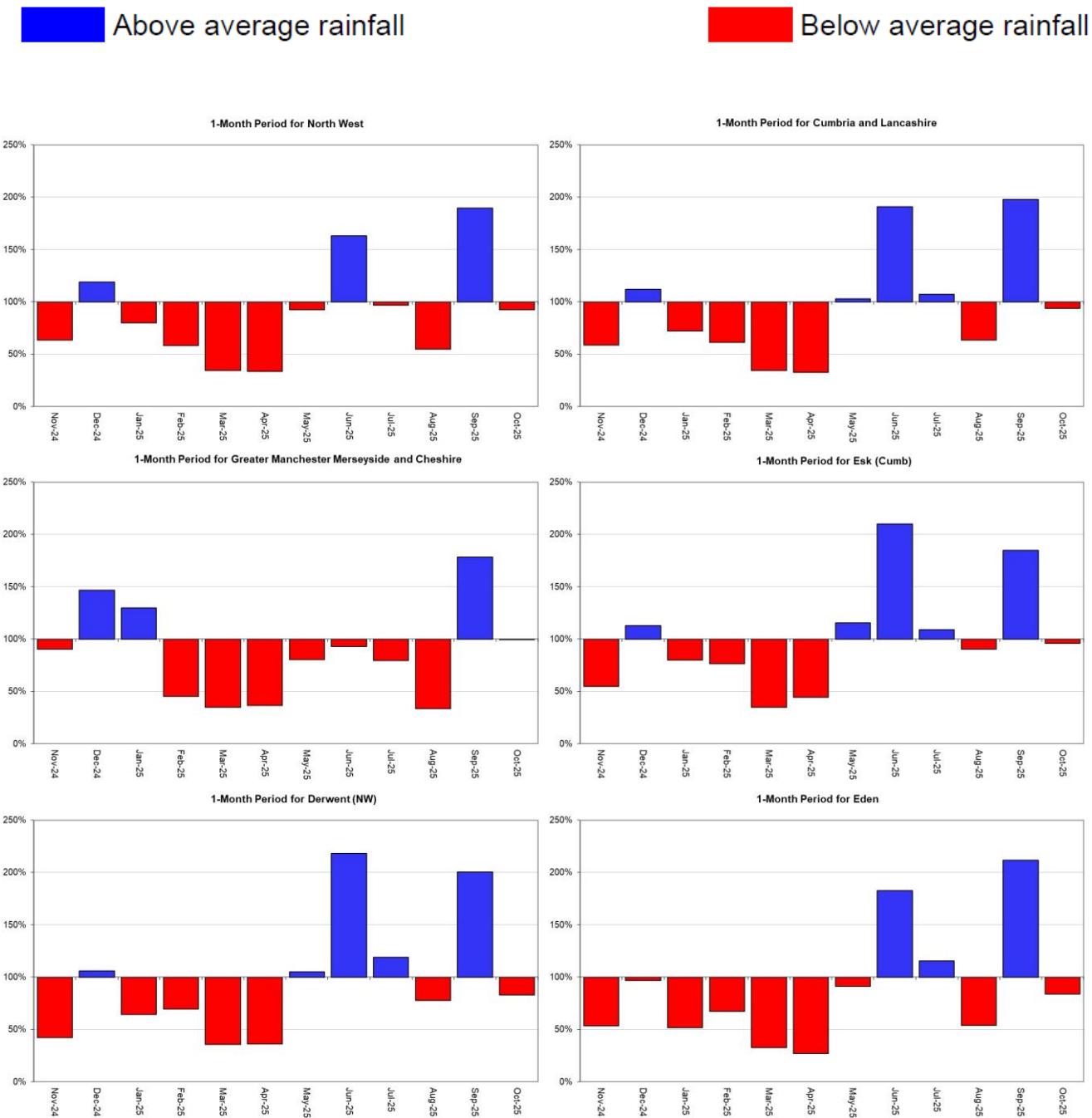
Figure 2.1: Total rainfall (as a percentage of the 1991 to 2020 long term average) for hydrological areas for the current month (up to 31 October 2025), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. Table available in the appendices with detailed information.



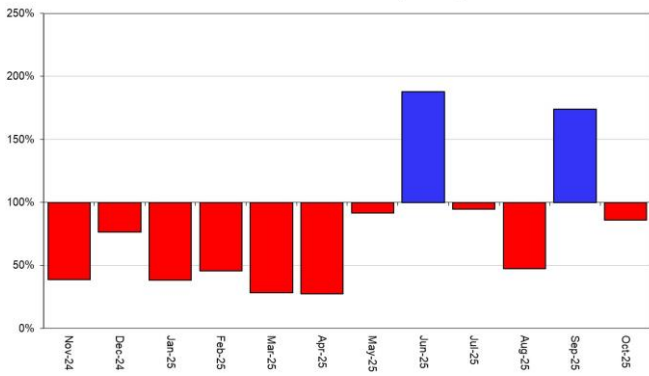
Rainfall data since October 2023, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, AC0000807064, 2025). Rainfall data prior to October 2023, extracted from Met Office HadUK 1km gridded rainfall dataset derived from registered rain gauges (Source: Met Office. Crown copyright, 2025).

2.2 Rainfall charts

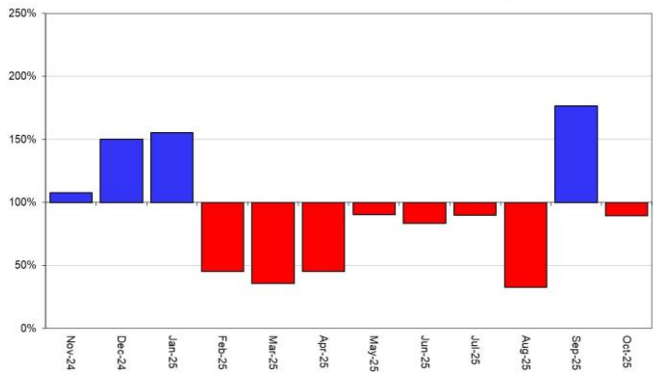
Figure 2.2: Monthly rainfall totals for the past 12 months expressed as a percentage of the 1991 to 2020 long term average for North-west England and its hydrological areas.



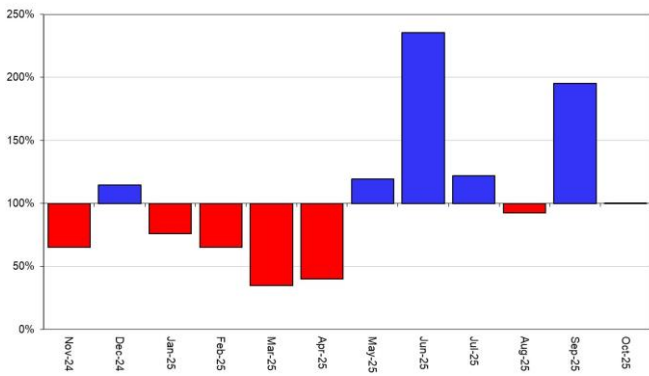
1-Month Period for Esk (Dumfries)



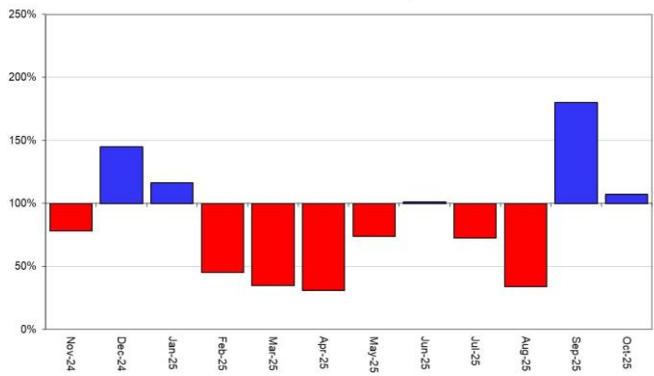
1-Month Period for Cheshire Rivers Group



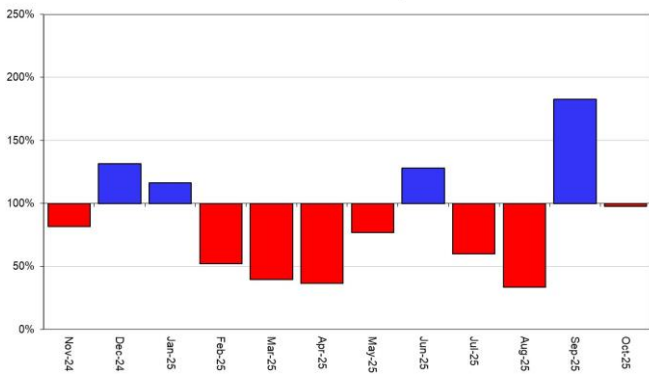
1-Month Period for Kent



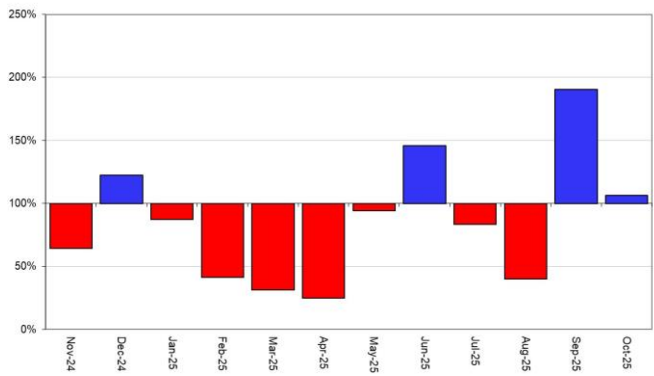
1-Month Period for Mersey and Irwell

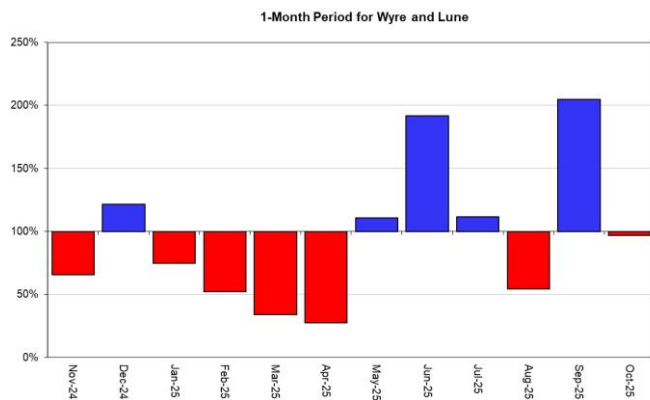


1-Month Period for Douglas



1-Month Period for Ribble



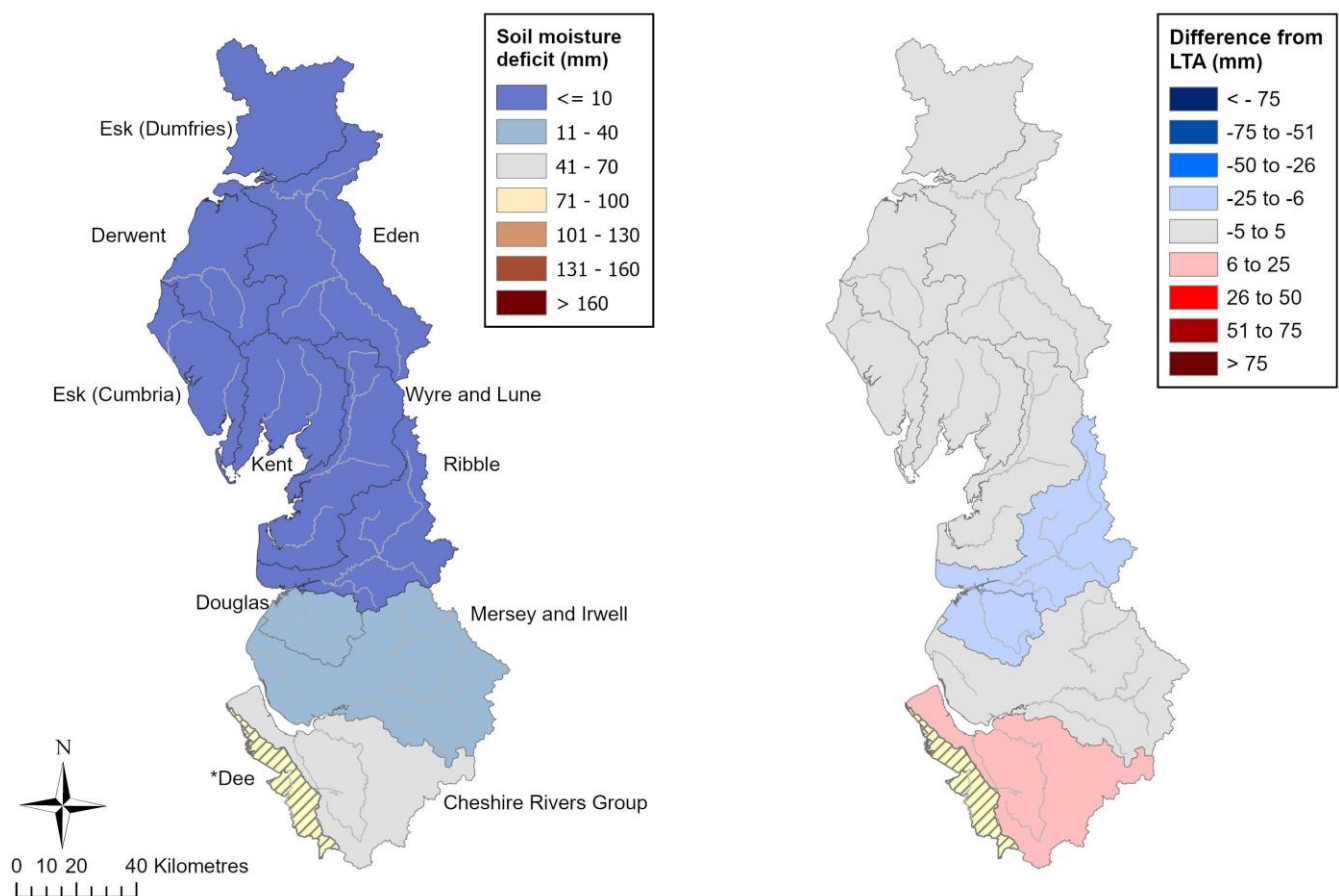


Rainfall data since October 2023, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, AC0000807064, 2025). Rainfall data prior to October 2023, extracted from Met Office HadUK 1km gridded rainfall dataset derived from registered rain gauges (Source: Met Office. Crown copyright, 2025).

3 Soil moisture deficit

3.1 Soil moisture deficit map

Figure 3.1: Soil moisture deficits for the week ending 29 October 2025. 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.

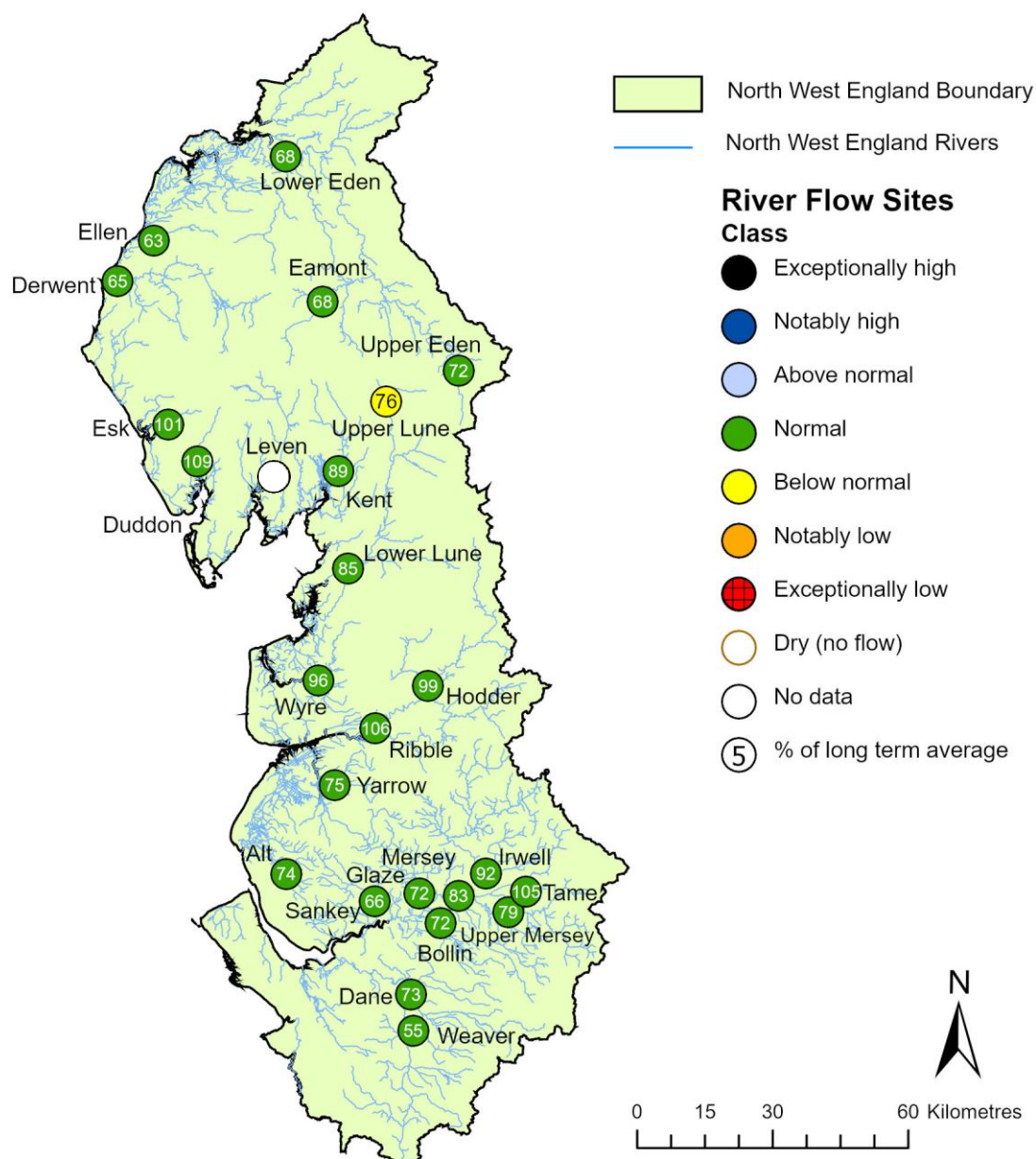


(Source: Met Office. Crown copyright, 2025). All rights reserved. Environment Agency, AC0000807064, 2025.

4 River flows

4.1 River flows map

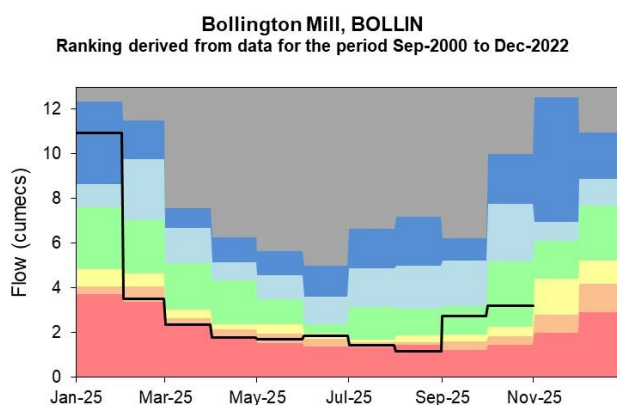
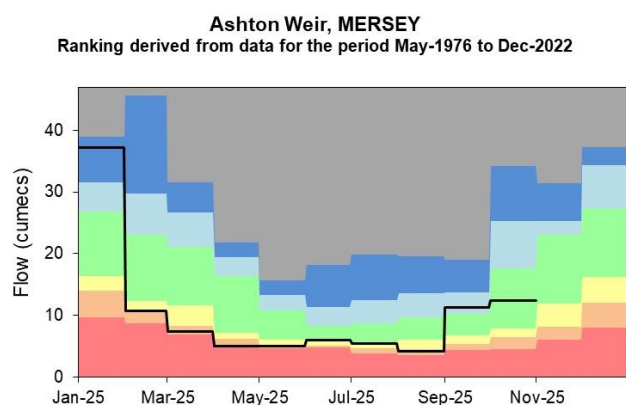
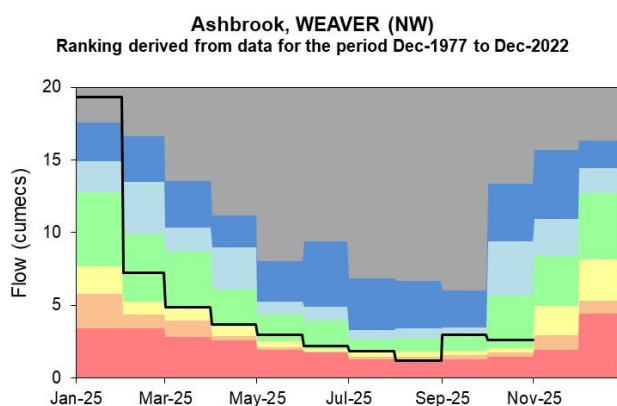
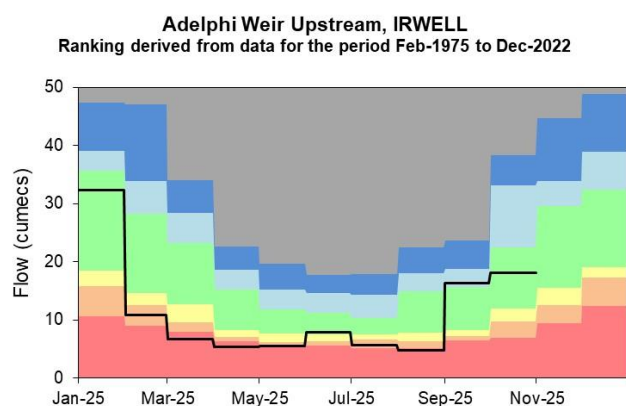
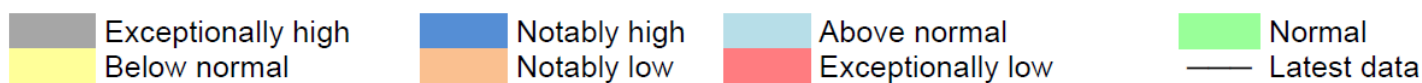
Figure 4.1: Monthly mean river flow for indicator sites for October 2025, expressed as a percentage of the respective long term average and classed relative to an analysis of historic October monthly means. Table available in the appendices with detailed information.



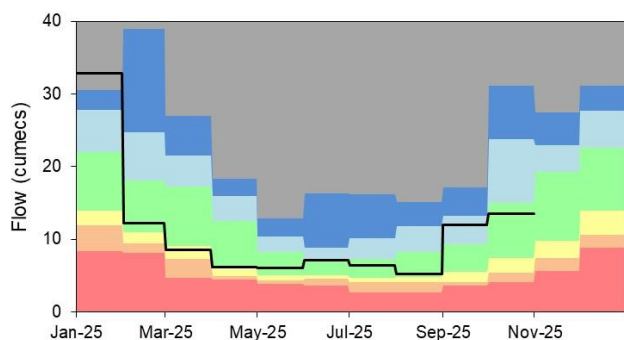
(Source: Environment Agency). Crown copyright. All rights reserved. Environment Agency, AC0000807064, 2025.

4.2 River flow charts

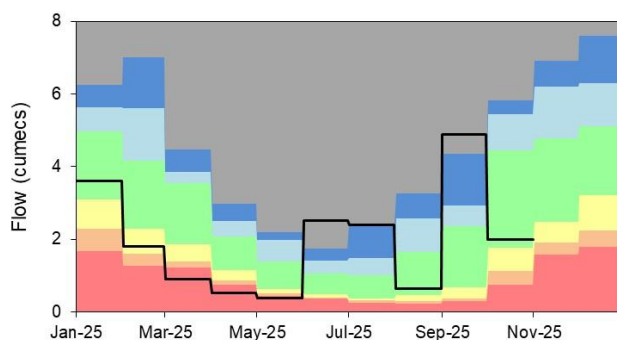
Figure 4.2: Monthly mean river flow for index sites over the past year, compared to an analysis of historic monthly mean flows.



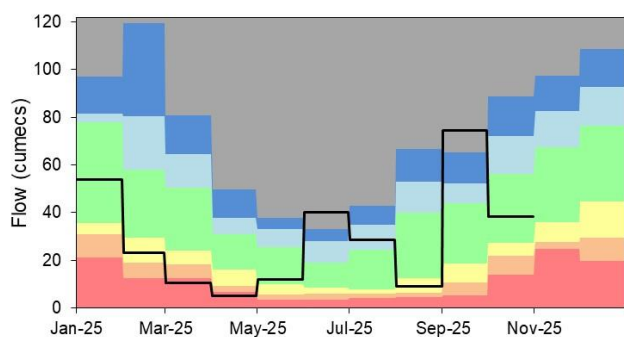
Brinksway, MERSEY
 Ranking derived from data for the period Jan-1974 to Dec-2022



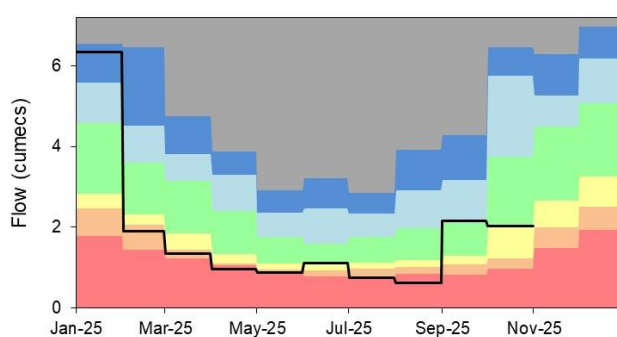
Bullgill, ELLEN
 Ranking derived from data for the period Jan-1976 to Dec-2022



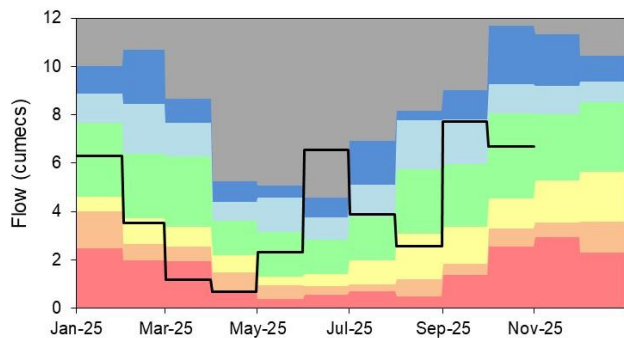
Caton, LUNE
 Ranking derived from data for the period Jan-1959 to Dec-2022



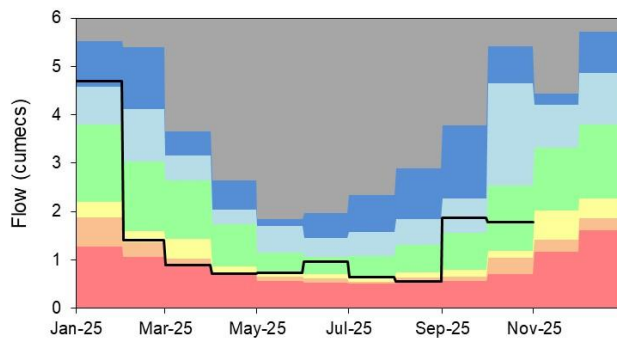
Causey Bridges, SANKEY
 Ranking derived from data for the period Jan-1977 to Dec-2022



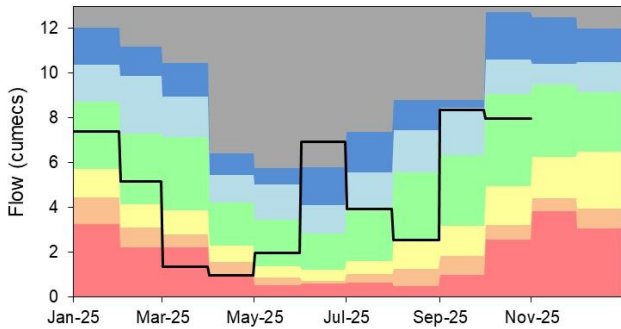
Crople How, ESK (NW)
 Ranking derived from data for the period Jan-1976 to Dec-2022



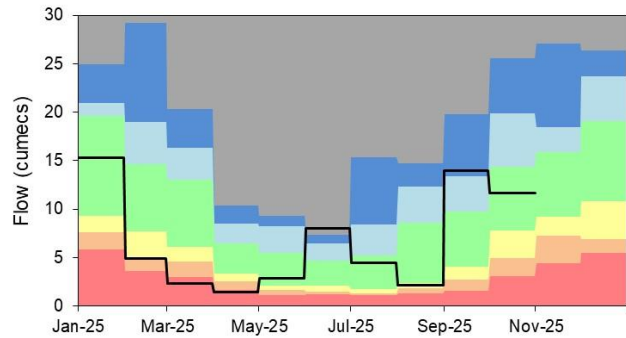
Croston, YARROW
 Ranking derived from data for the period Jan-1976 to Dec-2022



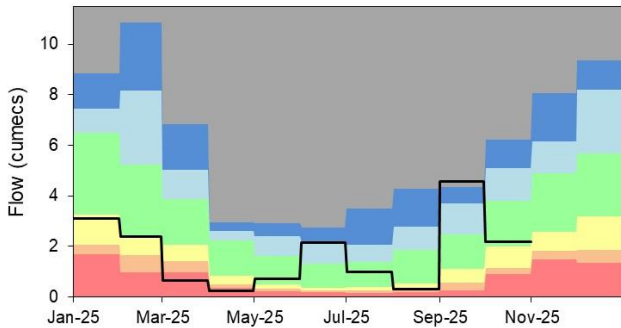
Duddon Hall, DUDDON
 Ranking derived from data for the period Mar-1968 to Dec-2022



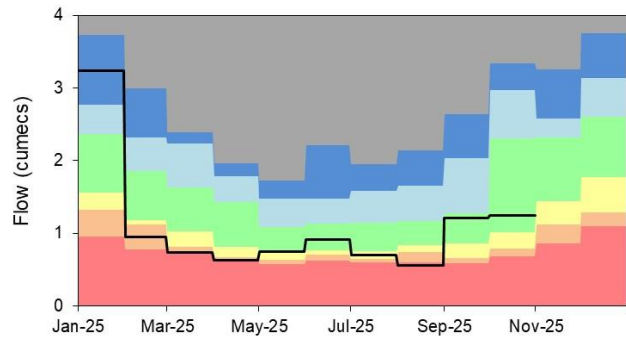
Hodder Place, HODDER
 Ranking derived from data for the period Jan-1976 to Dec-2022



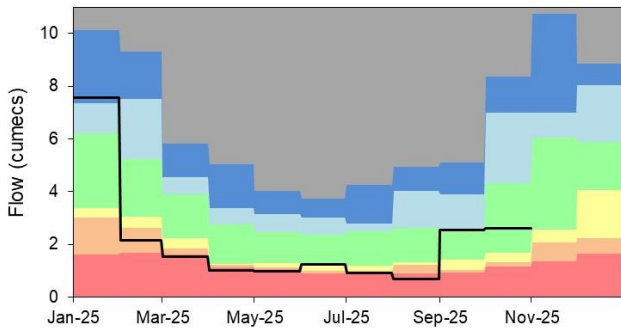
Kirkby Stephen, EDEN (NW)
 Ranking derived from data for the period Oct-1971 to Dec-2022



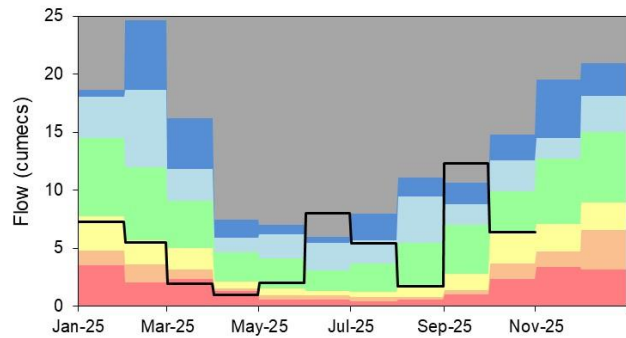
Kirkby, ALT
 Ranking derived from data for the period Oct-1977 to Dec-2022



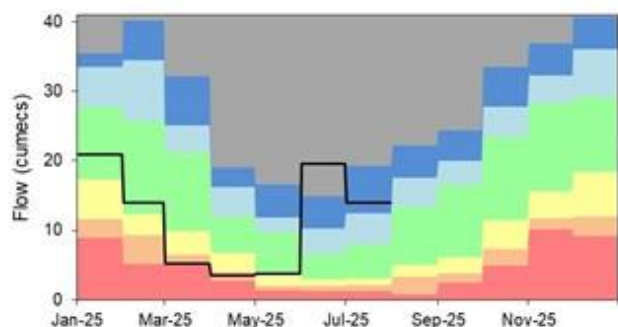
Little Woollen Hall Ultrasonic, GLAZE
 Ranking derived from data for the period Jul-1995 to Dec-2022



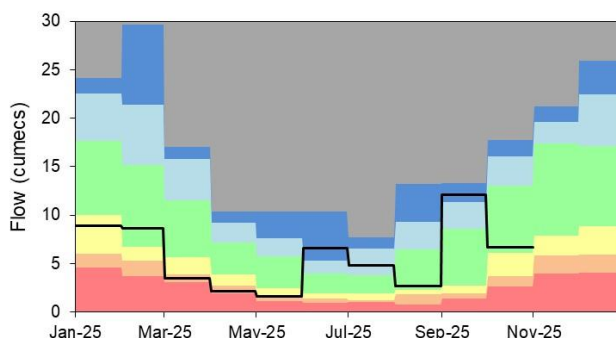
Lunes Bridge, LUNE
 Ranking derived from data for the period Dec-1979 to Dec-2022



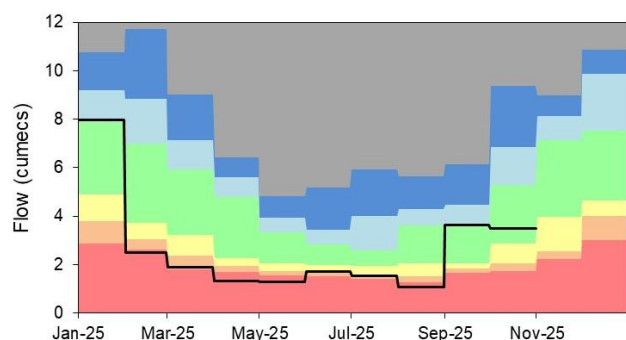
Newby Bridge FMS, LEVEN (NW)
 Ranking derived from data for the period Jan-1972 to Dec-2022



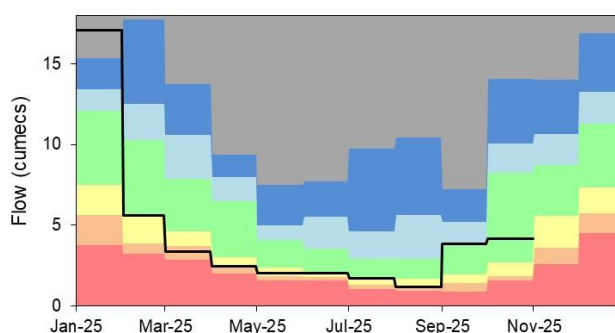
Pooley Bridge, EAMONT
 Ranking derived from data for the period Jul-1970 to Dec-2022



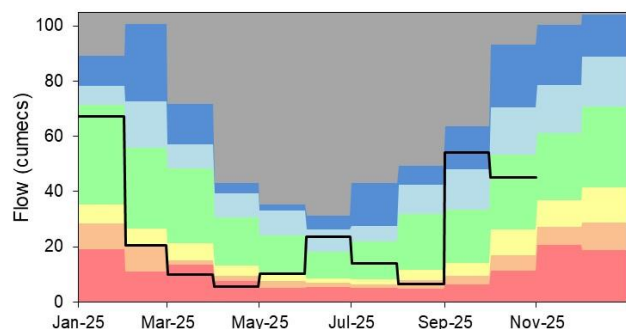
Portwood, TAME
 Ranking derived from data for the period Jan-1976 to Dec-2022



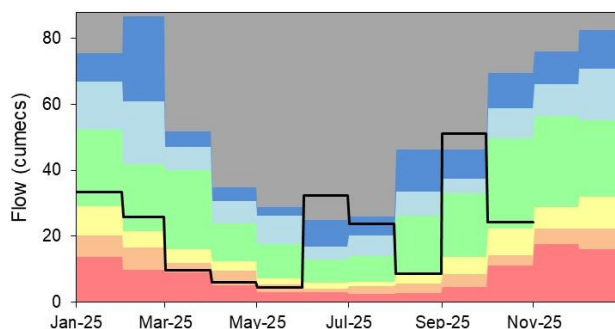
Rudheath, DANE
 Ranking derived from data for the period Jan-1976 to Dec-2022

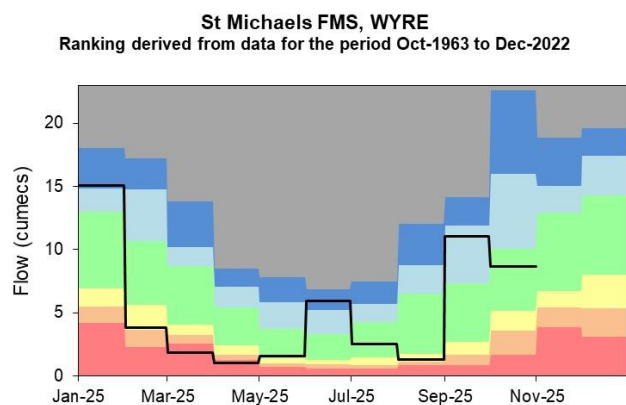
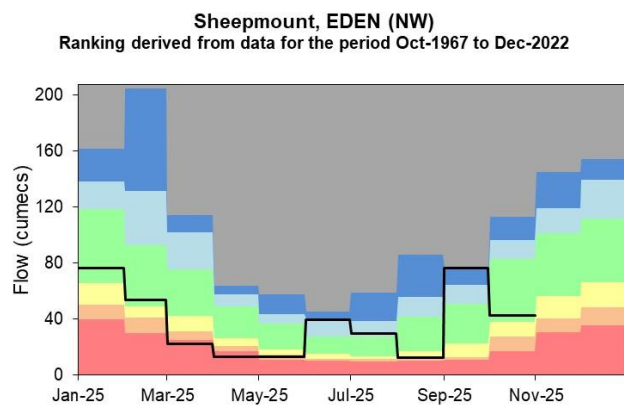
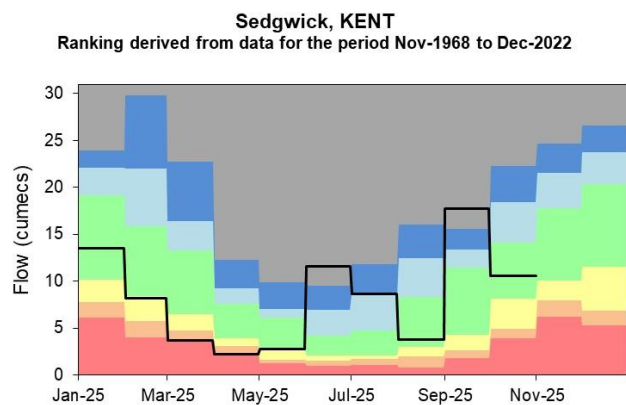


Samlesbury Pgs, RIBBLE (NW)
 Ranking derived from data for the period May-1960 to Dec-2022



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



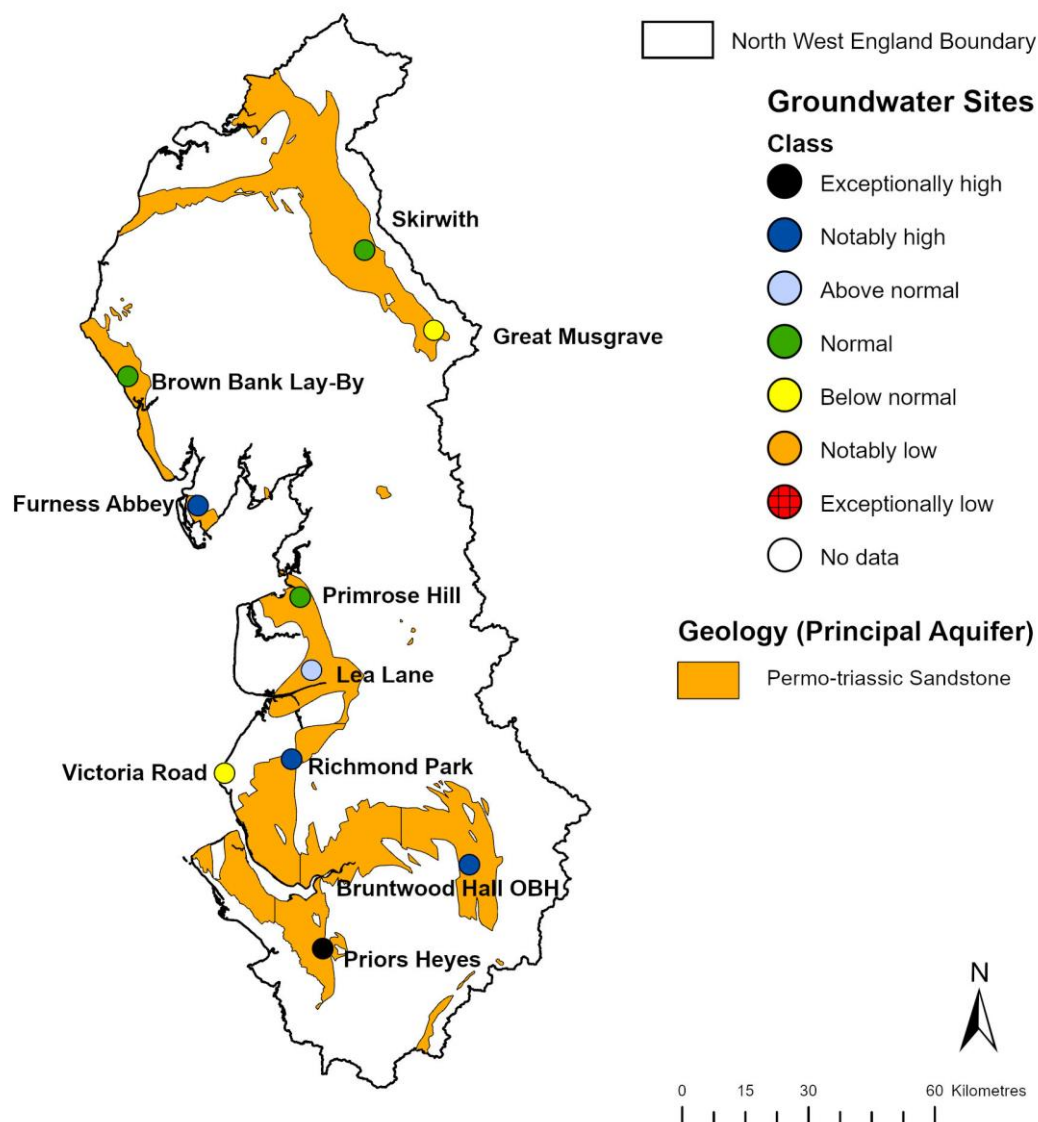


Source: Environment Agency.

5 Groundwater levels

5.1 Groundwater levels map

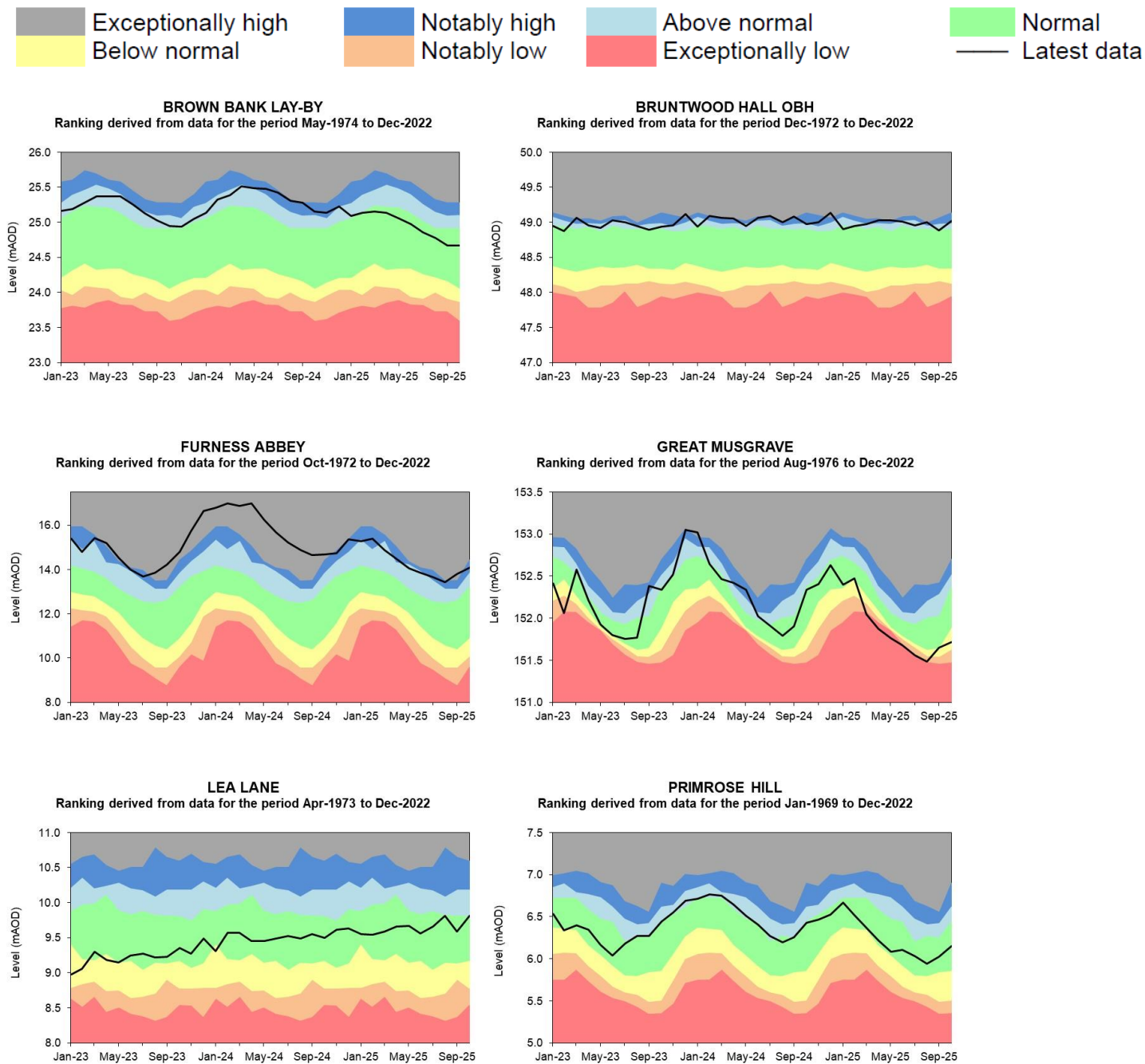
Figure 5.1: Groundwater levels for indicator sites at the end of October 2025, classed relative to an analysis of respective historic October levels. Table available in the appendices with detailed information. Please note Victoria Road Borehole sits within a superficial deposit as opposed to a bedrock aquifer. This is why the geology type is not marked on the map.

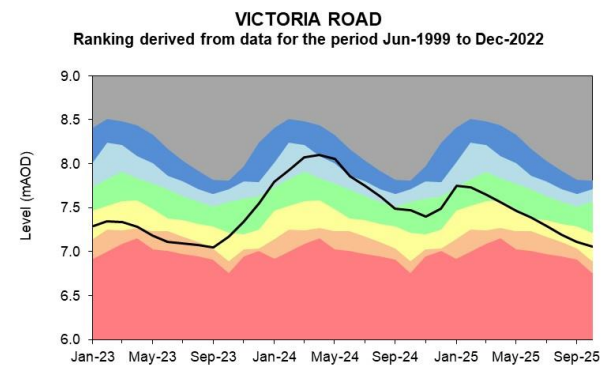
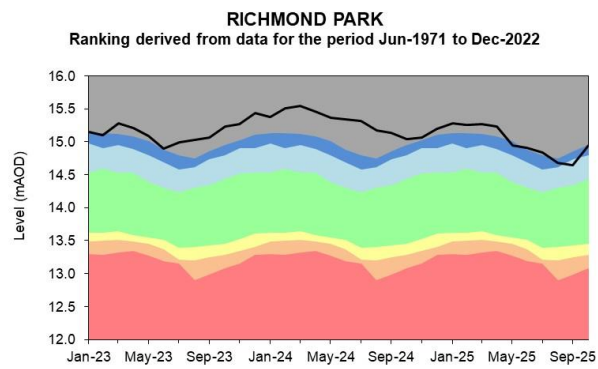
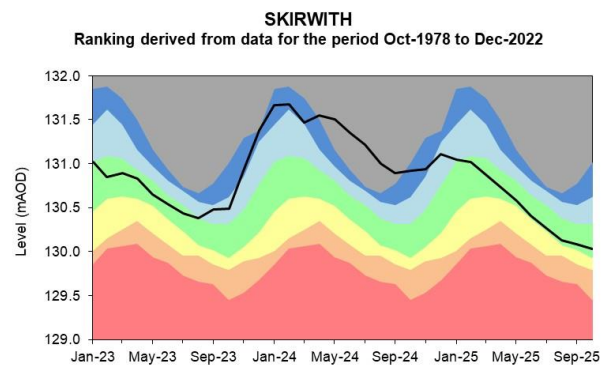
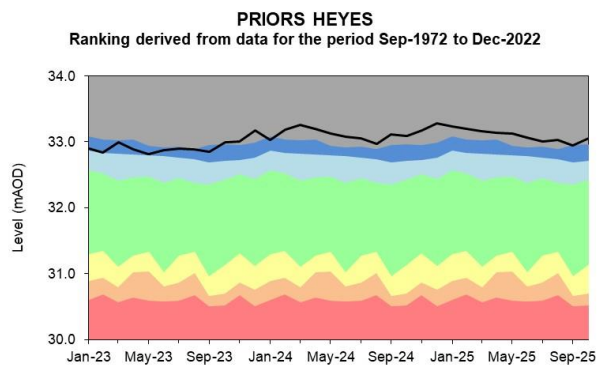


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5.2 Groundwater level charts

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, 2025.

6 Reservoir storage

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

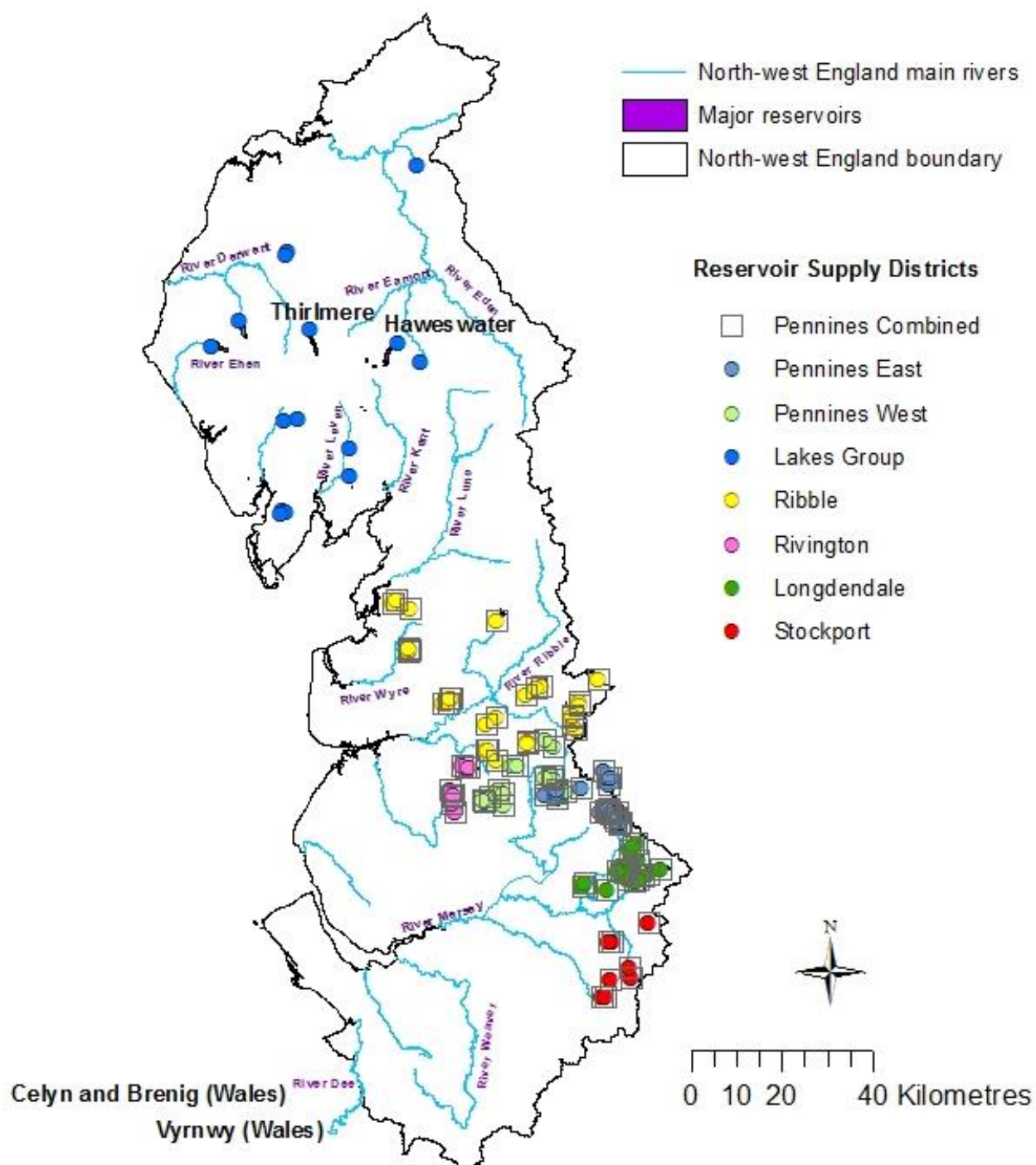
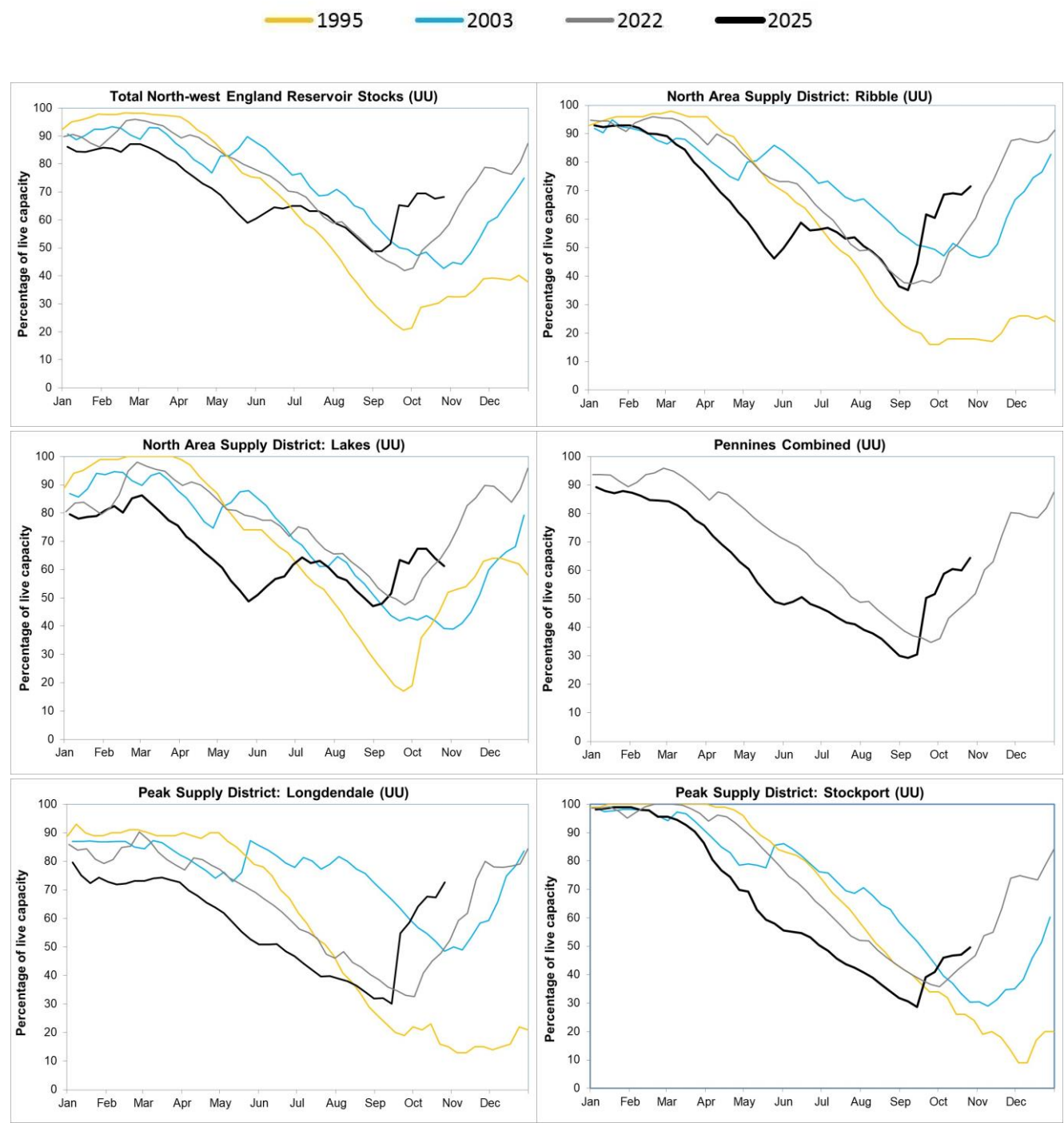
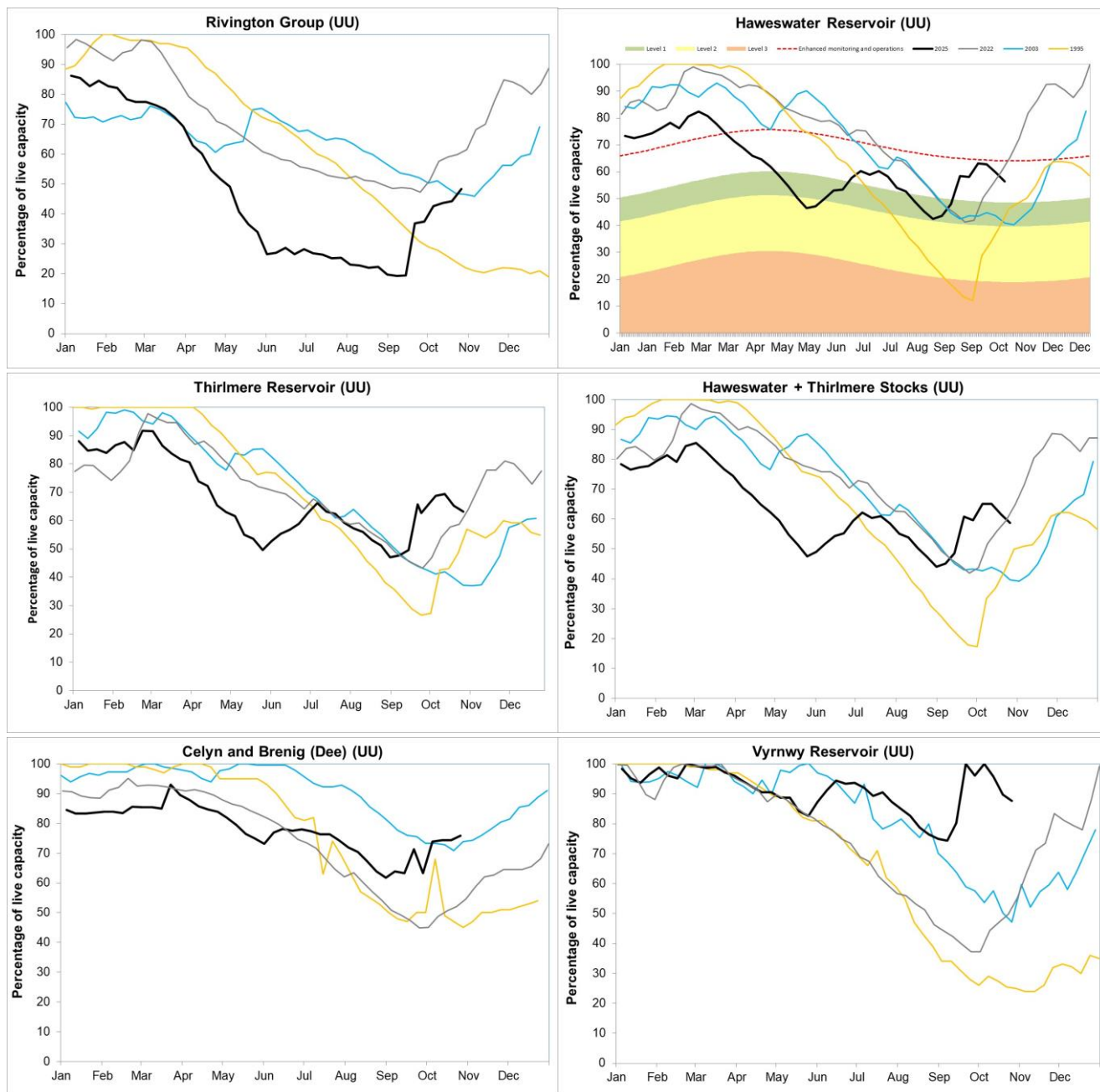


Figure 6.2: End of month reservoir storage for supply districts across North-west England and selected individual reservoirs for current year (2025) and representative years: 1995, 2003 and 2022. Note: Historic records of individual reservoirs and reservoir groups making up the regional values vary in length.





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 2025 rainfall % of long term average 1991 to 2020	Oct 2025 band	Aug 2025 to October cumulative band	May 2025 to October cumulative band	Nov 2024 to October cumulative band
Cheshire Rivers Group	89	Normal	Normal	Normal	Normal
Derwent (North West)	83	Normal	Above normal	Exceptionally high	Normal
Douglas	98	Normal	Normal	Normal	Normal
Eden	84	Normal	Above normal	Above normal	Normal
Esk (Cumbria)	96	Normal	Above normal	Exceptionally high	Above normal
Esk (Dumfries)	86	Normal	Normal	Above normal	Notably low
Kent	100	Normal	Above normal	Exceptionally high	Above normal
Mersey And Irwell	107	Normal	Normal	Normal	Normal
Ribble	106	Normal	Normal	Above normal	Normal
Wyre And Lune	97	Normal	Above normal	Notably high	Normal
North West	93	Normal	Normal	Above normal	Normal

8.2 River flows table

Site name	River	Catchment	Oct 2025 band	Sep 2025 band
Adelphi Weir Upstream	Irwell	Irwell (Croal to Irk)	Normal	Above normal
Ashbrook	Weaver (nw)	Weaver Upper	Normal	Above normal
Ashton Weir	Mersey	Mersey Non Tidal	Normal	Above normal
Bollington Mill	Bollin	Bollin	Normal	Normal
Brinksway	Mersey	Mersey Non Tidal	Normal	Above normal
Bullgill	Ellen	Ellen Lower	Normal	Exceptionally high
Caton	Lune	Lune Lower Tidal	Normal	Exceptionally high
Causey Bridges	Sankey	Mersey Non Tidal	Normal	Above normal
Crople How	Esk (North West)	Esk (South West Lakes)	Normal	Above normal
Croston	Yarrow	Yarrow Lower	Normal	Above normal
Duddon Hall	Duddon	Duddon	Normal	Above normal
Hodder Place	Hodder	Hodder Lower	Normal	Notably high
Kirkby	Alt	Alt	Normal	Normal

Kirkby Stephen	Eden (North West)	Eden Cumbria Upper	Normal	Exceptionally high
Little Woolden Hall Ultrasonic	Glaze	Glaze	Normal	Normal
Lunes Bridge	Lune	Lune Upper	Below normal	Exceptionally high
Newby Bridge FMS	Leven (North West)	Leven Cumbria	No data (site temporarily suspended)	No data (site temporarily suspended)
Pooley Bridge	Eamont	Eamont	Normal	Notably high
Portwood	Tame	Tame	Normal	Above normal
Rudheath	Dane	Dane	Normal	Above normal
Samlesbury PGS	Ribble (North West)	Ribble Lower	Normal	Notably high
Seaton Mill	Derwent (north West)	Derwent Cumbria Lower	Normal	Exceptionally high
Sedgwick	Kent	Levens Bridge	Normal	Exceptionally high
Sheepmount	Eden (North West)	Eden Cumbria Lower	Normal	Exceptionally high
St Michaels FMS	Wyre	Brock	Normal	Above normal

8.3 Groundwater table

Site name	Aquifer	End of Oct 2025 band	End of Sep 2025 band
Brown Bank Lay-by	West Cumbria Permo-triassic Sandstone	Normal	Normal
Bruntwood Hall OBH	East Cheshire Permo-triassic Sandstone	Notably high	Normal
Furness Abbey	Furness Permo-triassic Sandstone	Notably high	Exceptionally high
Great Musgrave	Eden Valley And Carlisle Basin Permo-triassic Sandstone	Below normal	Normal
Lea Lane	Fylde Permo-triassic Sandstone	Above normal	Normal
Priors Heyes	West Cheshire Permo-triassic Sandstone	Exceptionally high	Exceptionally high
Primrose Hill	Fylde Permo-triassic Sandstone	Normal	Normal
Richmond Park	Rufford Permo-triassic Sandstone	Notably high	Above normal
Skirwith	Eden Valley And Carlisle Basin Permo-triassic Sandstone	Normal	Normal
Victoria Road Entrance	West Lancashire Quarternary Sand And Gravel Superficial Deposits	Below normal	Below normal