Monthly water situation report: North-west England

1 Summary – August 2025

Rainfall for north-west England during August was classed as notably low, receiving 55% of the long-term average (LTA). Higher rainfall totals were observed in Cumbria, compared to southern Lancashire, and Greater Manchester, Merseyside and Cheshire (GMMC). Soil moisture deficit (SMD) was higher than expected for the time of year for Lancashire and GMMC, and lower than expected for Cumbria. August monthly mean river flows for north-west England were classed as between exceptionally low and normal, with lower flows observed in the south. Groundwater ranged from notably low to exceptionally high. Total reservoir stocks at the end of August for north-west England were 49%, remaining lower than average for this time of year. Some warnings and notices were issued to water abstraction licences across north-west England due to low river flows, however no environmental impacts were reported.

1.1 Rainfall

Rainfall for north-west England during August was classed as notably low, receiving 55% of the LTA. Cumbria and Lancashire (CLA) received 63% of the LTA and was classed as below normal, however GMMC received less rainfall, at 34% of the LTA, classed as exceptionally low.

North-west England saw a clear north-south spatial trend for August rainfall, being wetter in the north, and drier in southern areas. All hydrological areas south of the Wyre and Lune were classed as exceptionally low, with areas to the north classed between notably low and normal. The lowest rainfall (in terms of the LTA) was recorded in the Cheshire Rivers Group and Douglas hydrological areas with 33% of the LTA, classed as exceptionally low. The highest rainfall (in terms of the LTA) was recorded in the Kent hydrological area with 92% of the LTA, classed as normal.

The same spatial trend of Cumbria being wetter than Lancashire and GMMC can be observed when looking at cumulative rainfall over the past 3-month and 6-month periods. However, when looking at the 12-month cumulative period ending in August, this spatial trend is no longer observed, with all hydrological areas being classed as receiving below normal or normal rainfall. The exception to this, is the Esk (Dumfries) hydrological area which experienced the driest 12-month period on record, classed as exceptionally low.

1.2 Soil moisture deficit and recharge

Soil moisture deficit across north-west England by the end of August fell between 5mm and 120mm. As expected, it closely mirrors the spatial trend of August rainfall, resulting in SMD being higher than expected for the time of year for Lancashire and GMMC. In north and west Cumbrian hydrological areas, SMD was slightly lower than expected for the time of year.

1.3 River flows

August monthly mean river flows for north-west England were classed as between exceptionally low and normal. Lower flows were generally observed to the south, with seven flow sites in GMMC and south Lancashire classed as exceptionally low. Monthly mean river flows were generally higher in north Lancashire and Cumbria, classed between notably low and normal. Monthly mean river flows were lowest in the Upper Eden catchment at Kirkby Stephen (21% of the LTA, classed as notably low). Please note that due to station works, monthly mean flows recorded at the River Lune at Caton gauging station and at the River Leven at Newby Bridge gauging station have not been included in the August report.

1.4 Groundwater levels

Groundwater levels across north-west England were classed between notably low and exceptionally high. Groundwater classifications changed at:

- Bruntwood Hall, from above normal to exceptionally high.
- Great Musgrave, from exceptionally low to notably low.
- Richmond Park, from exceptionally high to notably high.

All other sites remained the same classification at:

- Brown Bank Lay By, classed as normal.
- Furness Abbey, classed as notably high.
- Lea Lane, 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 decreased from 61% at the end of July to 49% at the end of August. This is lower than the average of 75% usually seen at this time of year and lower than last year when reservoir stocks were 78%.

At the end of August, reservoir storage (in terms of percentage) was highest at Vyrnwy at 75% full and lowest at Rivington at 18%.

The combined storage at Haweswater and Thirlmere was 44% which is lower than the 68% average storage at this time of year and lower than last year when storage was 86%.

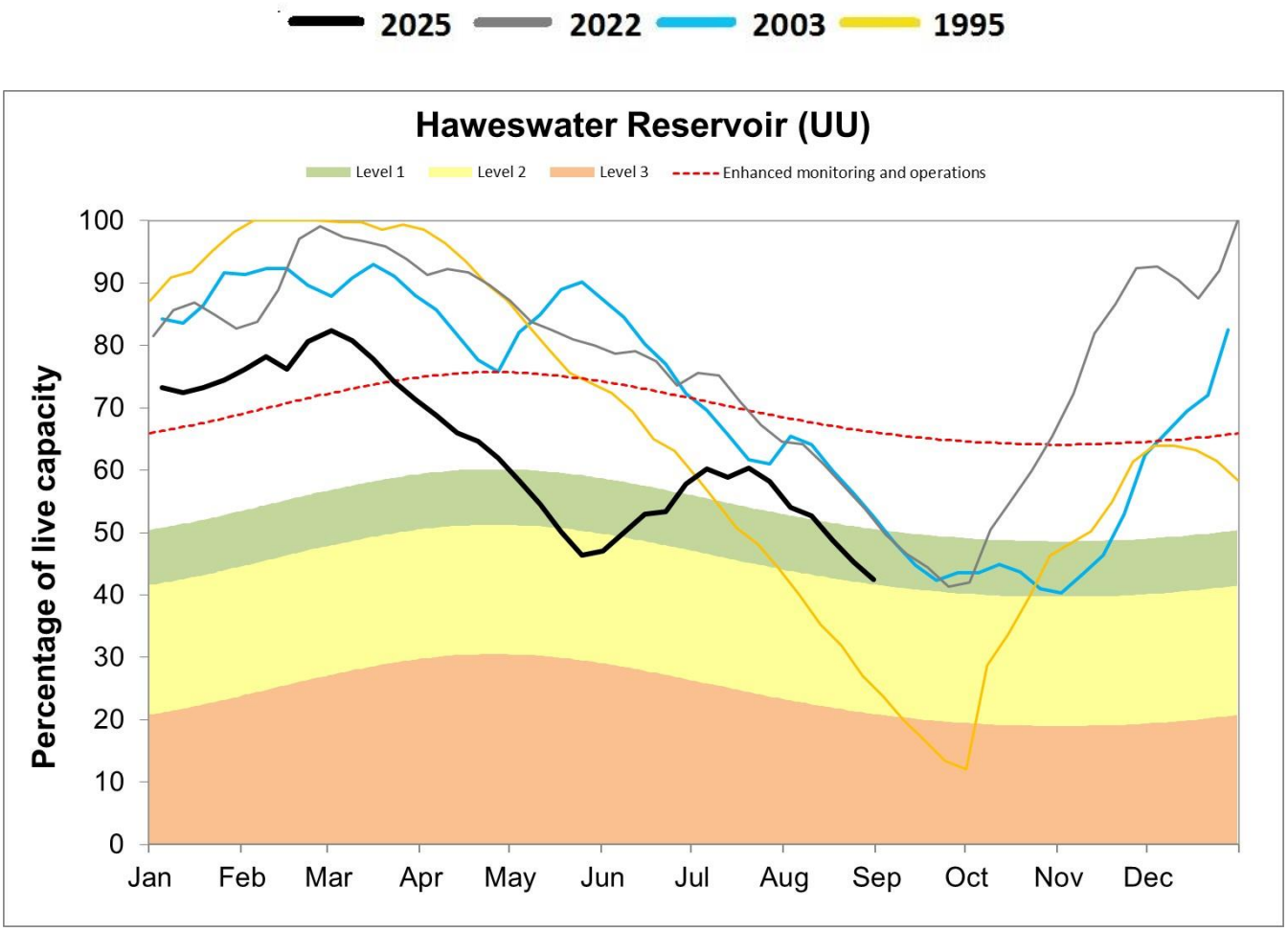
Reservoirs kept low for maintenance works include parts of the:

- 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, Cowm, Torside, Woodhead
- Pennines combined supply district – Cragg, Dingle, Kitcliffe
- Stockport supply district – Ridgegate

1.6 Water abstraction restrictions and environmental impacts

In CLA, seven water abstraction licences were issued with warnings or stop notices due to low river flows in August – all cleared by 1st September. In GMMC, four water abstraction licences were issued with stop notices – all resumed by 1st September. One ‘reduce’ notice from March is currently still active in GMMC. No environmental incidents due to low flows have been reported for August.

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)).

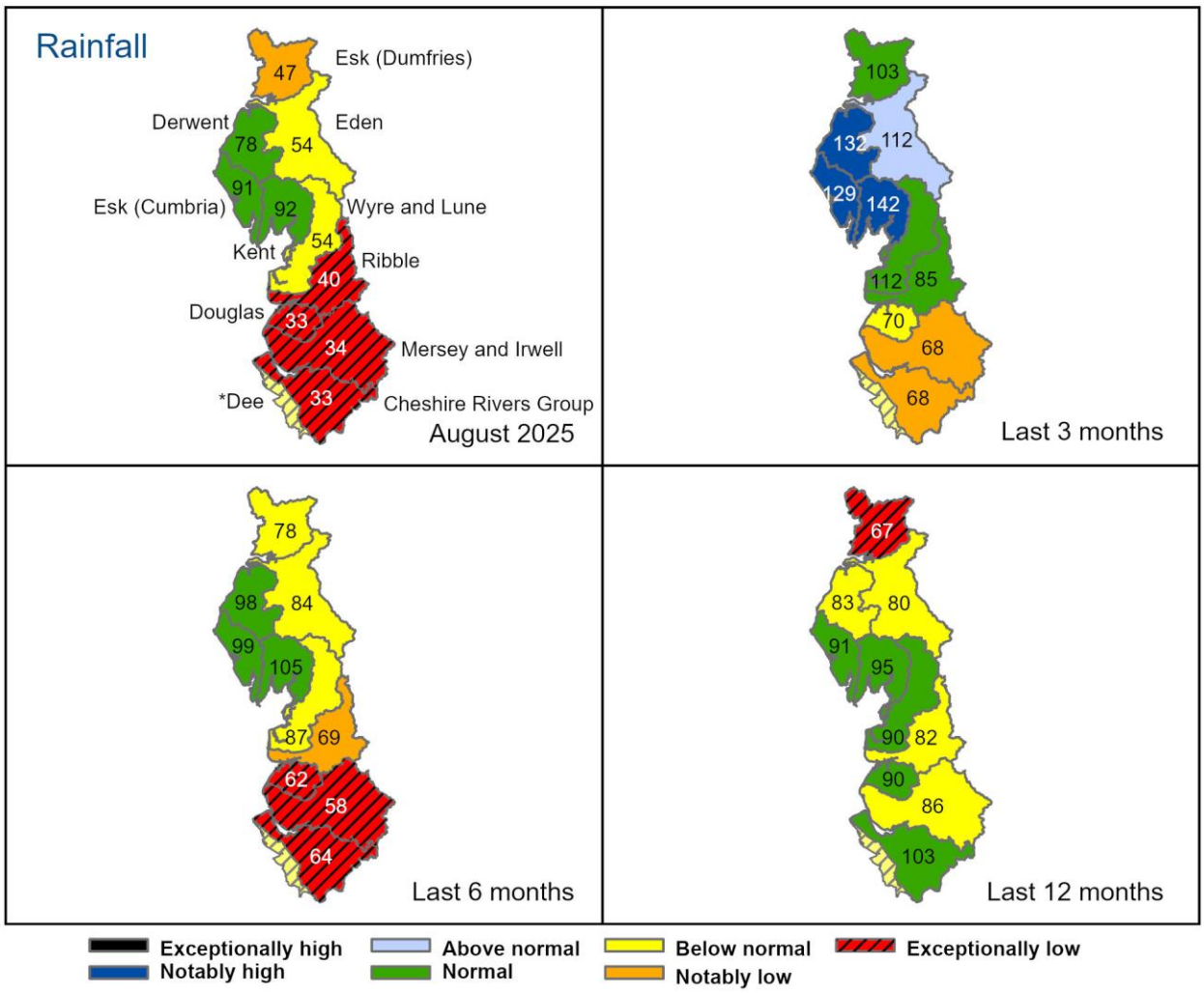


Author: Cumbria and Lancashire Hydrology Team, hydrology.CMBLNC@environment-agency.gov.uk

2 Rainfall

2.1 Rainfall map

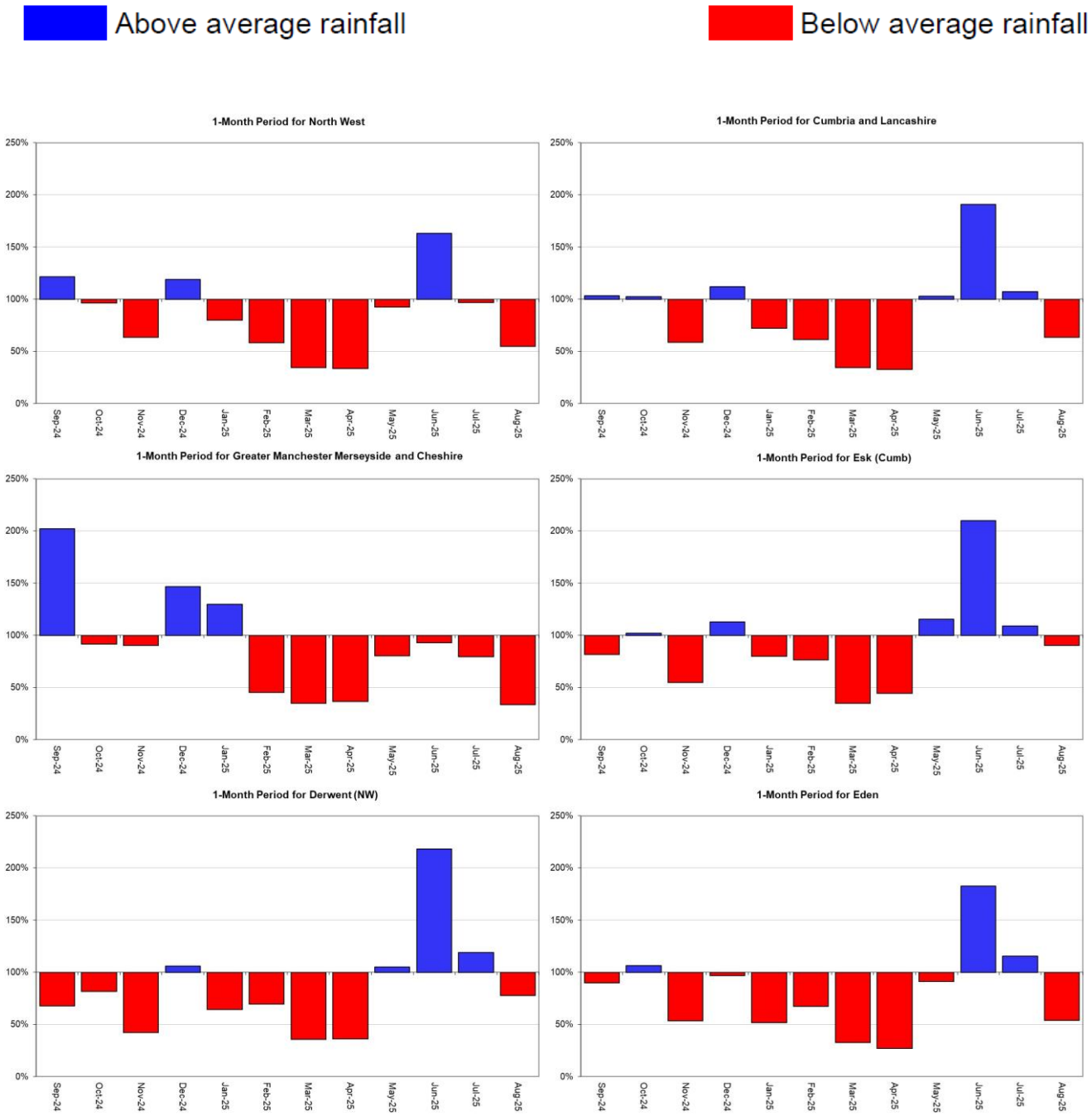
Figure 2.1: Total rainfall (as a percentage of the 1991 to 2020 long term average) for hydrological areas for the current month (up to 31 August 2025), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. Table available in the appendices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

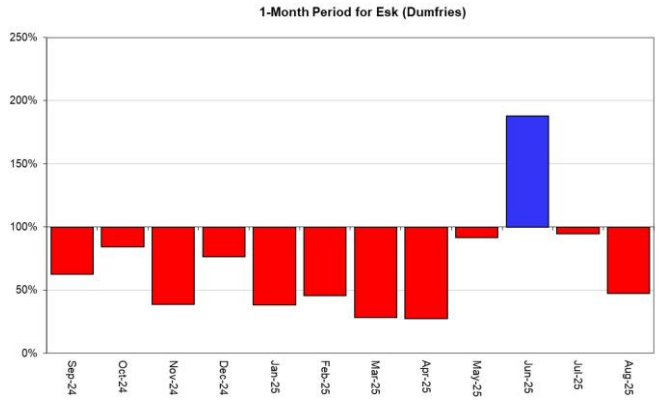


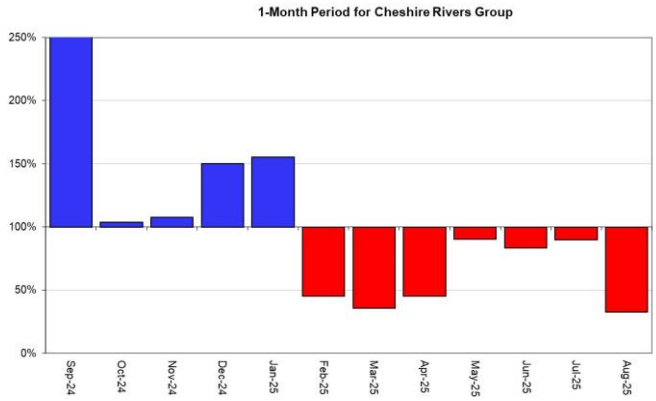
Rainfall data since October 2023, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, 100024198, 2025). Rainfall data prior to October 2023, extracted from Met Office HadUK 1km gridded rainfall dataset derived from registered rain gauges (Source: Met Office. Crown copyright, 2025).

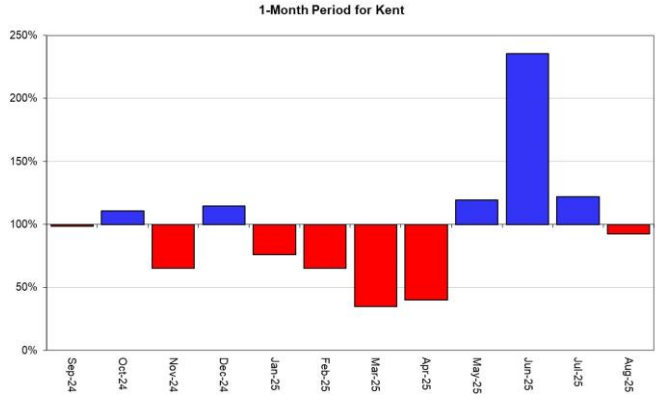
2.2 Rainfall charts

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)
250%
200%
150%
100%
50%
0%
Sep-24
Oct-24
Nov-24
Dec-24
Jan-25
Feb-25
Mar-25
Apr-25
May-25
Jun-25
Jul-25
Aug-25


1-Month Period for Cheshire Rivers Group
250%
200%
150%
100%
50%
0%
Sep-24
Oct-24
Nov-24
Dec-24
Jan-25
Feb-25
Mar-25
Apr-25
May-25
Jun-25
Jul-25
Aug-25


1-Month Period for Kent
250%
200%
150%
100%
50%
0%
Sep-24
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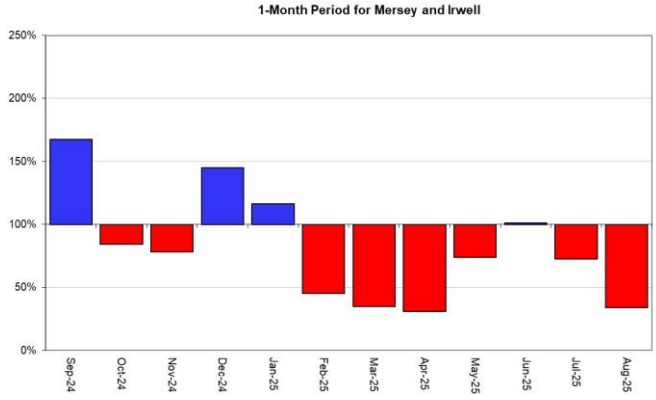
Nov-24
Dec-24
Jan-25
Feb-25
Mar-25
Apr-25
May-25
Jun-25
Jul-25
Aug-25


1-Month Period for Mersey and Irwell
250%
200%
150%
100%
50%
0%
Sep-24
Oct-24
Nov-24
Dec-24
Jan-25
Feb-25
Mar-25
Apr-25
May-25
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Jul-25
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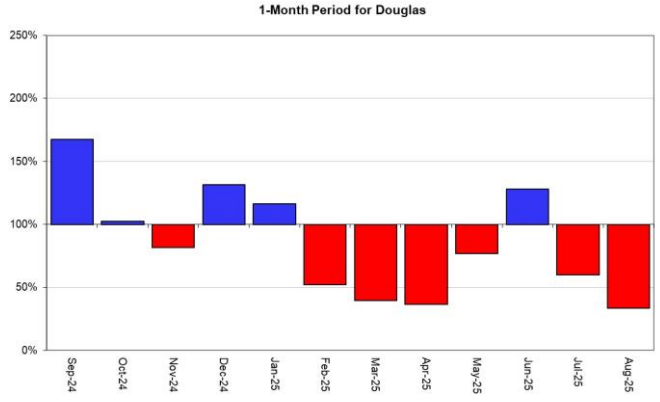
1-Month Period for Douglas
250%
200%
150%
100%
50%
0%
Sep-24
Oct-24
Nov-24
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Jan-25
Feb-25
Mar-25
Apr-25
May-25
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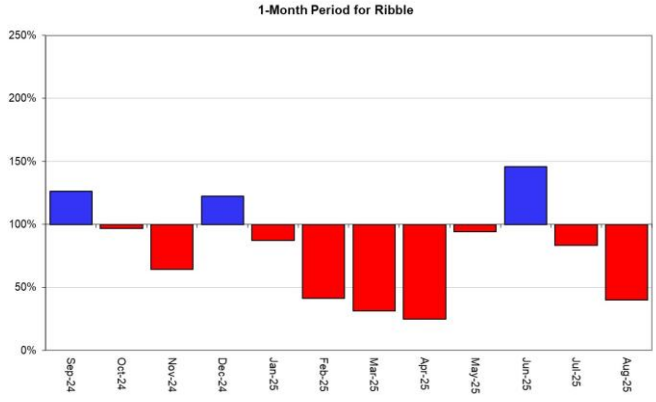
Jul-25
Aug-25


1-Month Period for Ribble
250%
200%
150%
100%
50%
0%
Sep-24
Oct-24
Nov-24
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Jan-25
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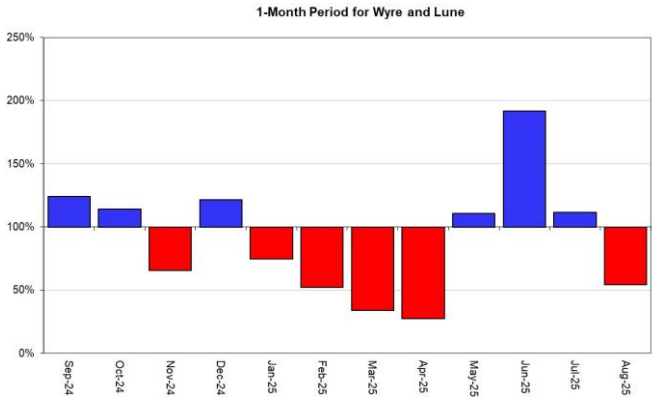
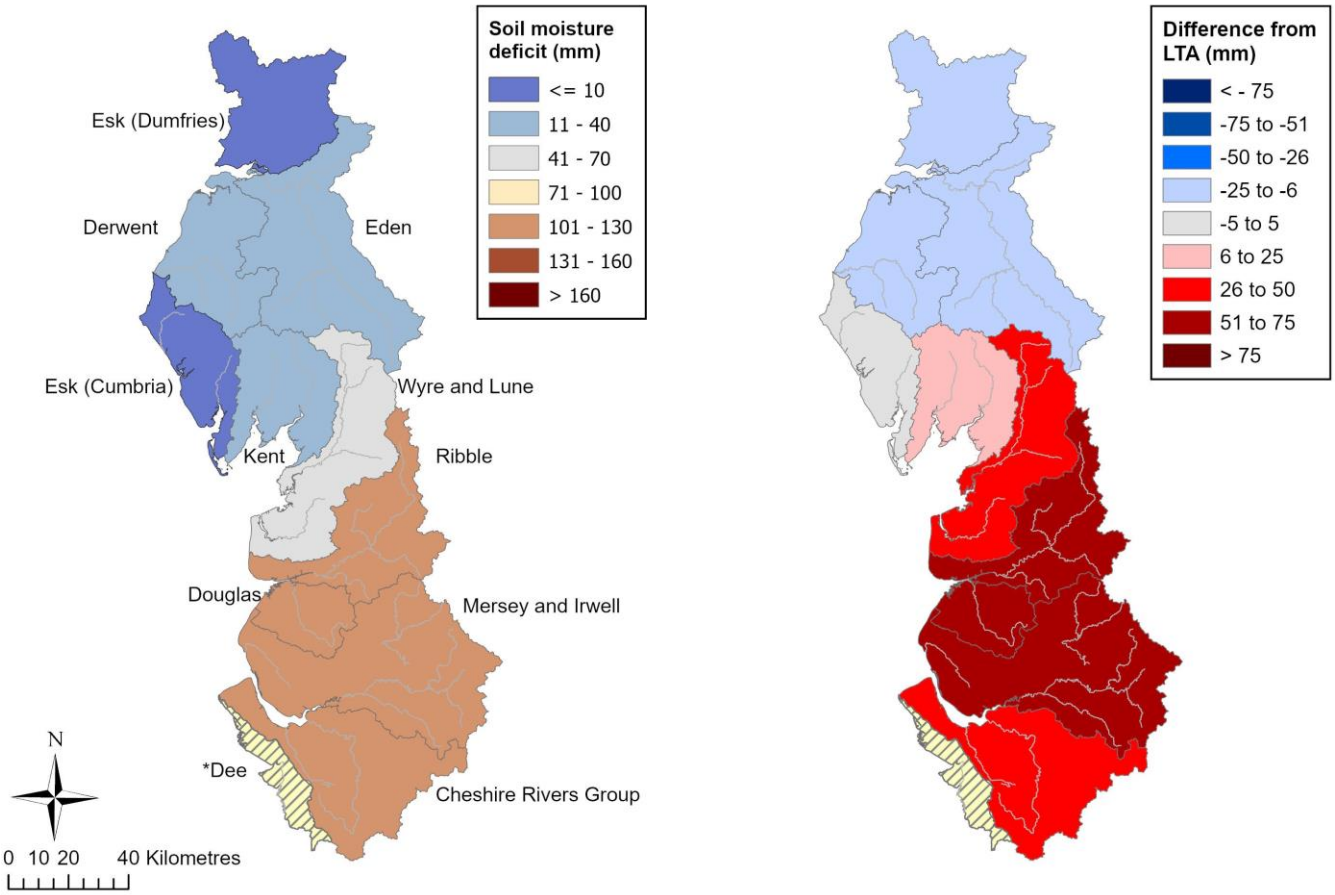


Rainfall data since October 2023, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, 100024198, 2025). Rainfall data prior to October 2023, extracted from Met Office HadUK 1km gridded rainfall dataset derived from registered rain gauges (Source: Met Office. Crown copyright, 2025).

3 Soil moisture deficit

3.1 Soil moisture deficit map

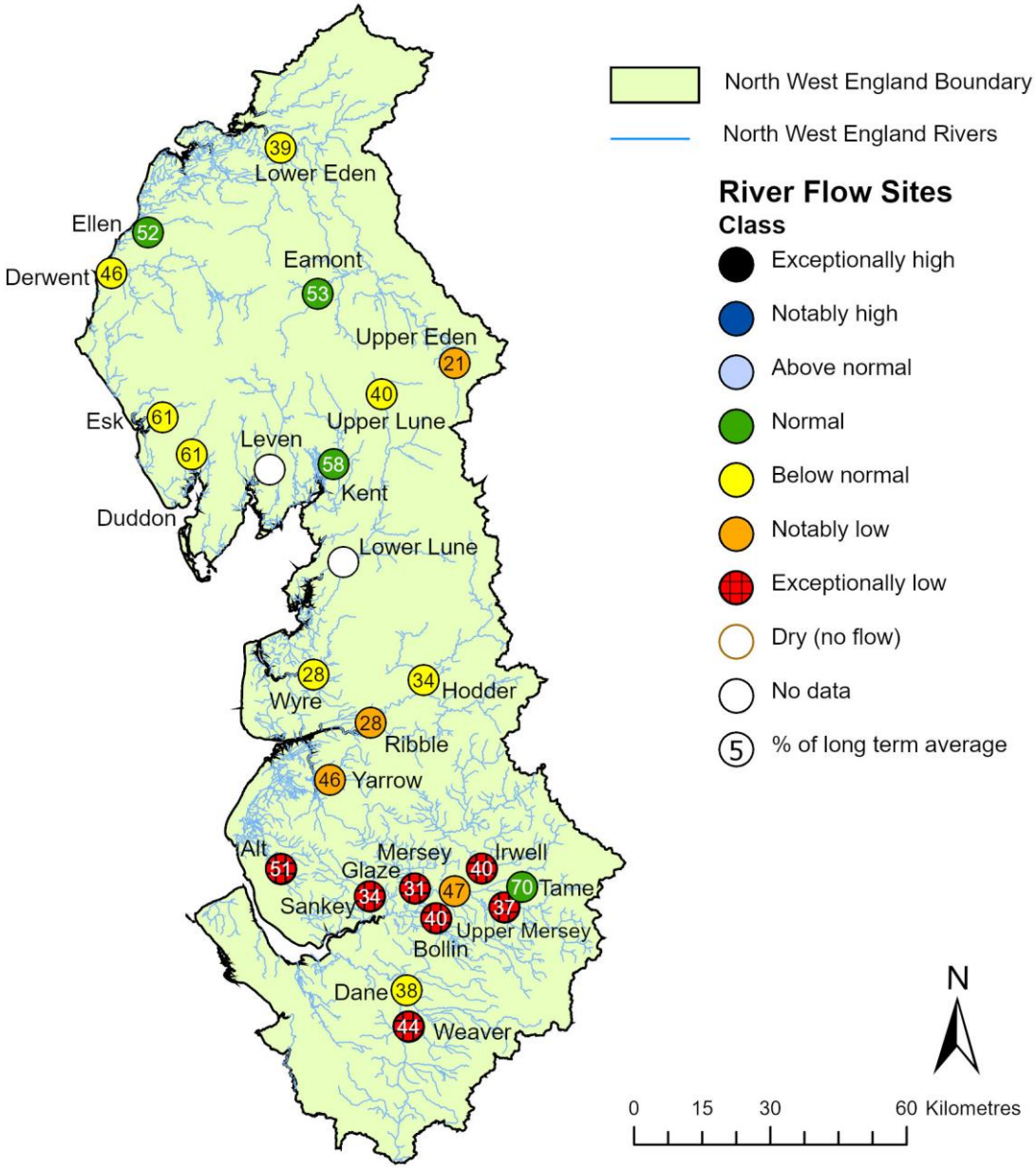
Figure 3.1: Soil moisture deficits for the week ending 31 August 2025. The map on the left shows actual soil moisture deficits (mm) and on the right shows the difference (mm) of the actual from the 1991 - 2020 long term average soil moisture deficits. MORECS data for real land use.



4 River flows

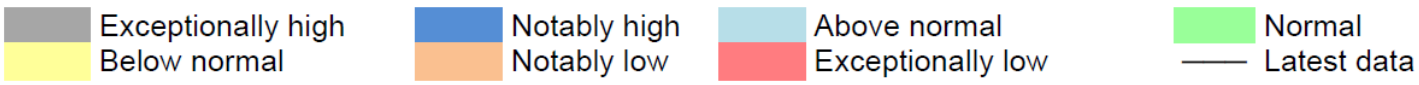
4.1 River flows map

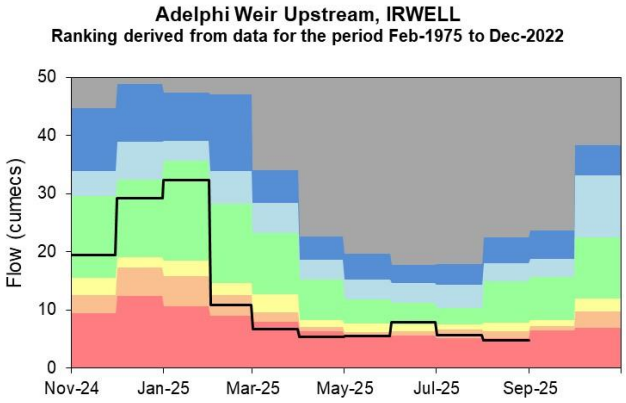
Figure 4.1: Monthly mean river flow for indicator sites for August 2025, expressed as a percentage of the respective long term average and classed relative to an analysis of historic August monthly means. Table available in the appendices with detailed information.

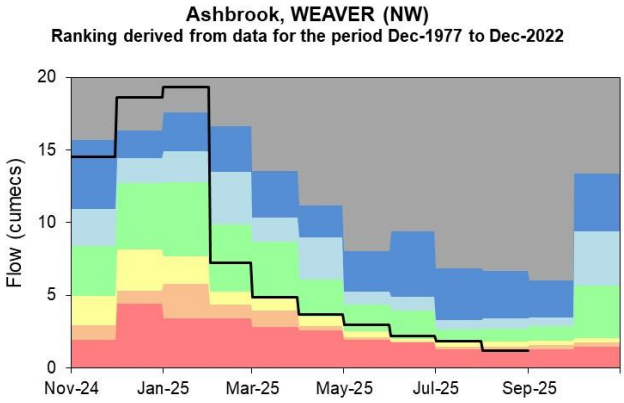


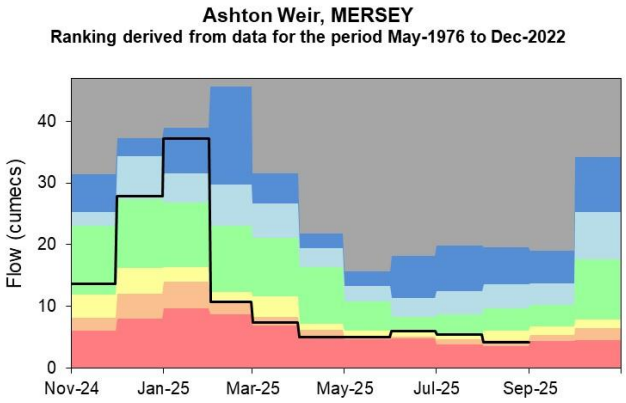
4.2 River flow charts

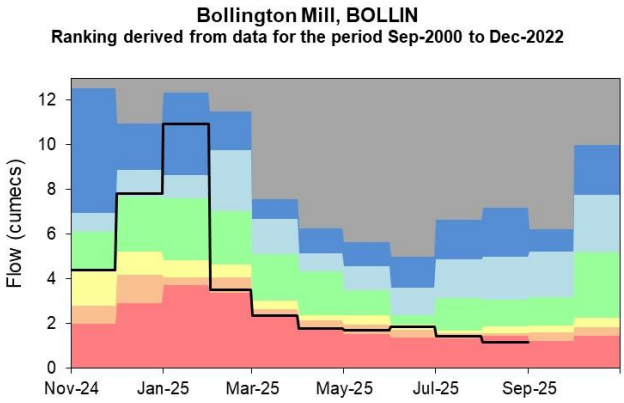
Figure 4.2: Monthly mean river flow for index sites over the past year, compared to an analysis of historic monthly mean flows.



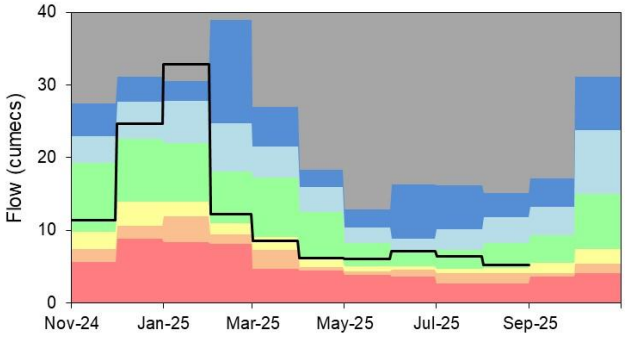




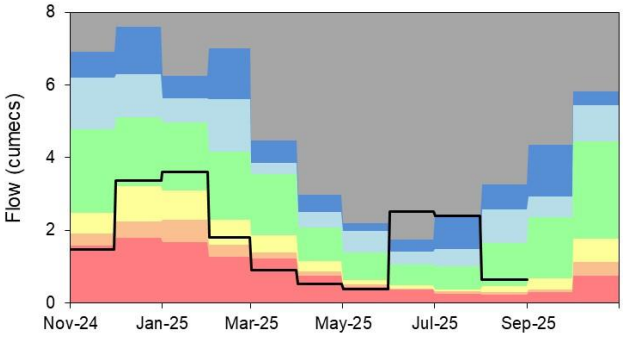




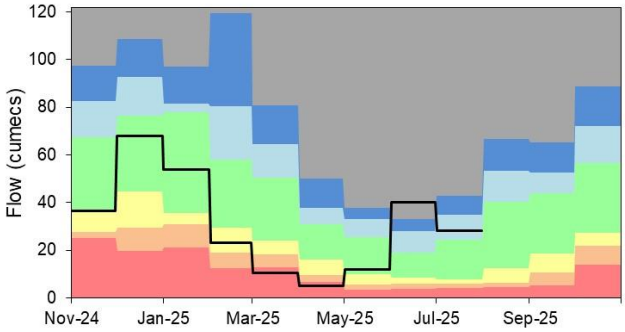
Brinksway, MERSEY
Ranking derived from data for the period Jan-1974 to Dec-2022



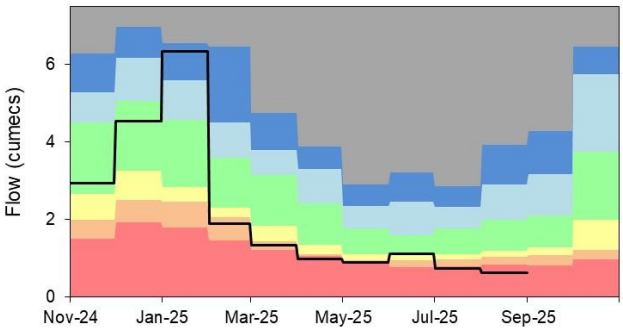
Bullgill, ELLEN
Ranking derived from data for the period Jan-1976 to Dec-2022



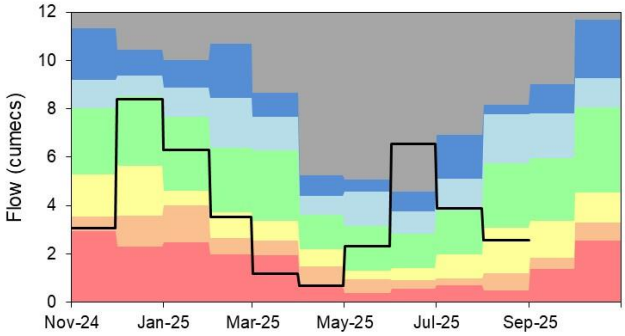
Caton, LUNE
Ranking derived from data for the period Jan-1959 to Dec-2022



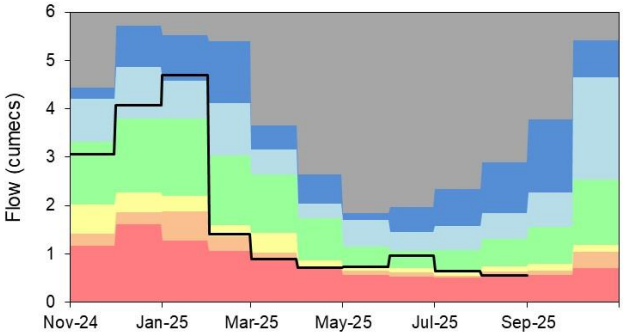
Causey Bridges, SANKEY
Ranking derived from data for the period Jan-1977 to Dec-2022



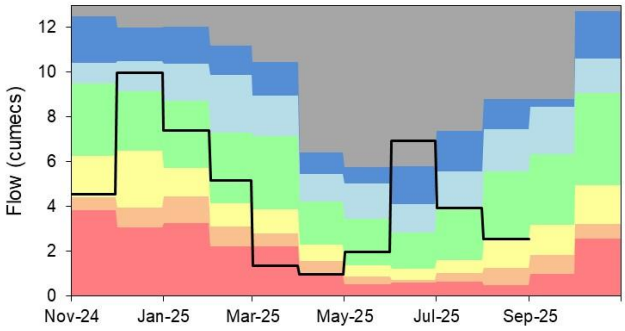
Cropple How, ESK (NW)
Ranking derived from data for the period Jan-1976 to Dec-2022



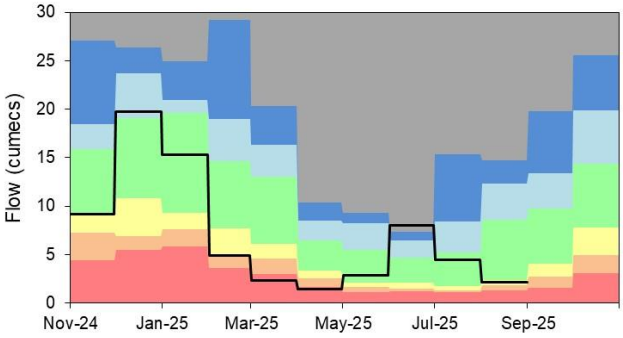
Croston, YARROW
Ranking derived from data for the period Jan-1976 to Dec-2022



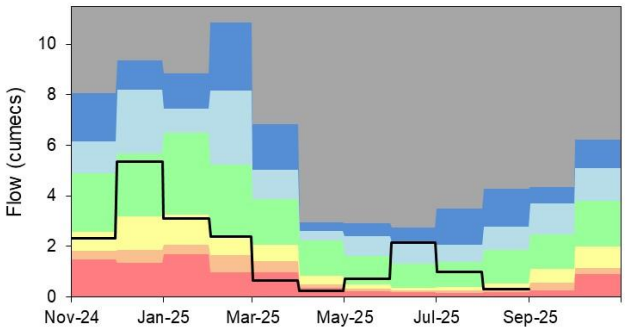
Duddon Hall, DUDDON
Ranking derived from data for the period Mar-1968 to Dec-2022



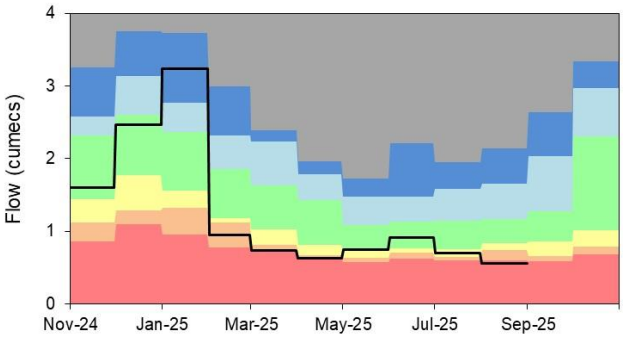
Hodder Place, HODDER
Ranking derived from data for the period Jan-1976 to Dec-2022



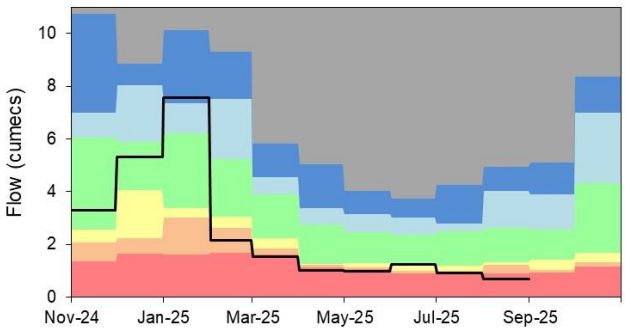
Kirkby Stephen, EDEN (NW)
Ranking derived from data for the period Oct-1971 to Dec-2022



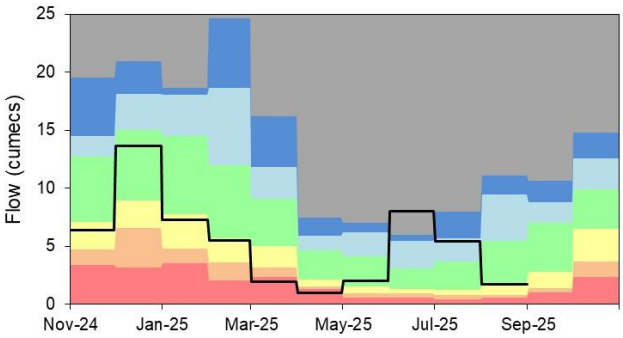
Kirkby, ALT
Ranking derived from data for the period Oct-1977 to Dec-2022



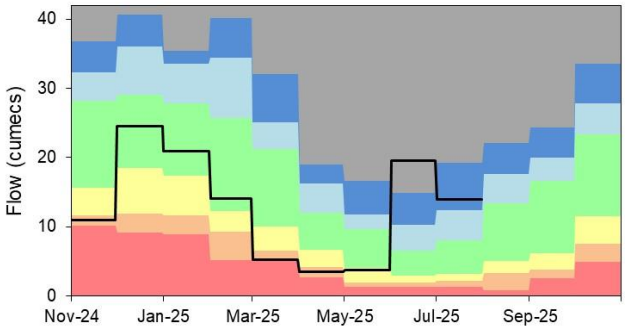
Little Woolden Hall Ultrasonic, GLAZE
Ranking derived from data for the period Jul-1995 to Dec-2022



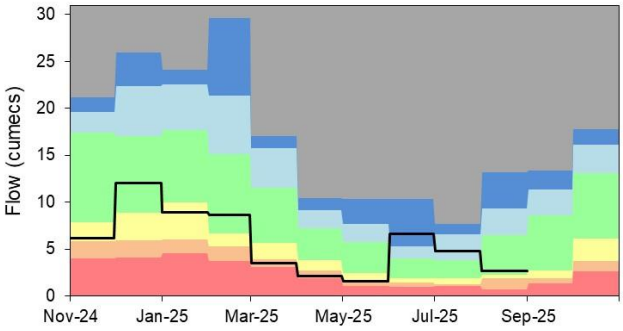
Lunes Bridge, LUNE
Ranking derived from data for the period Dec-1979 to Dec-2022



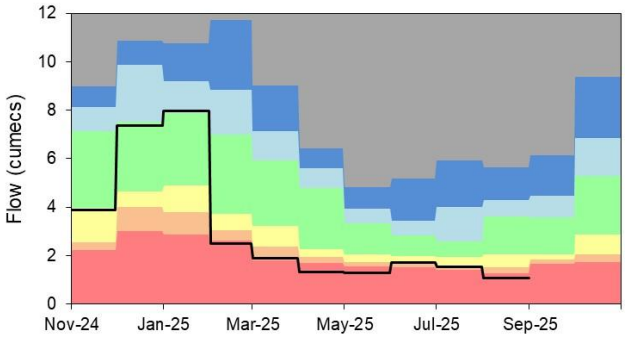
Newby Bridge FMS, LEVEN (NW)
Ranking derived from data for the period Jan-1972 to Dec-2022



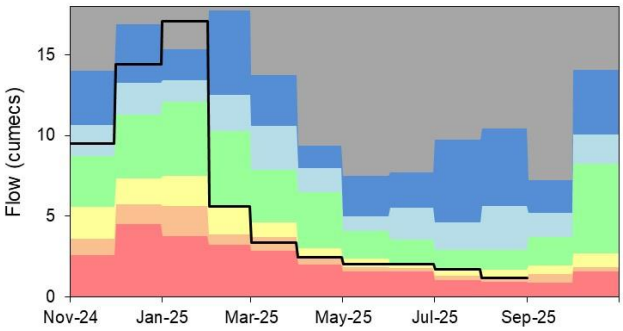
Pooley Bridge, EAMONT
Ranking derived from data for the period Jul-1970 to Dec-2022



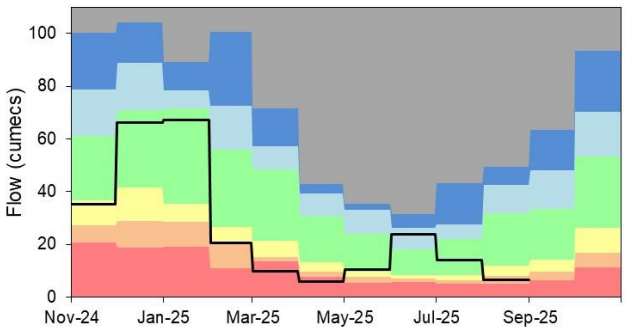
Portwood, TAME
Ranking derived from data for the period Jan-1976 to Dec-2022



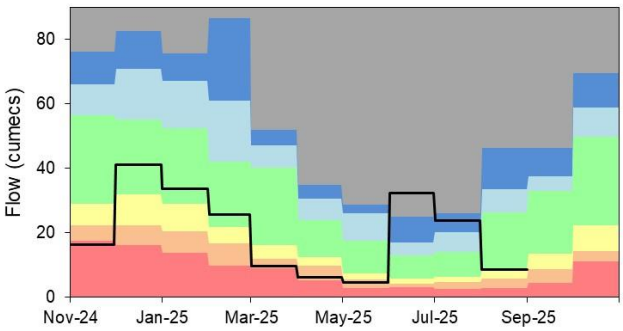
Rudheath, DANE
Ranking derived from data for the period Jan-1976 to Dec-2022

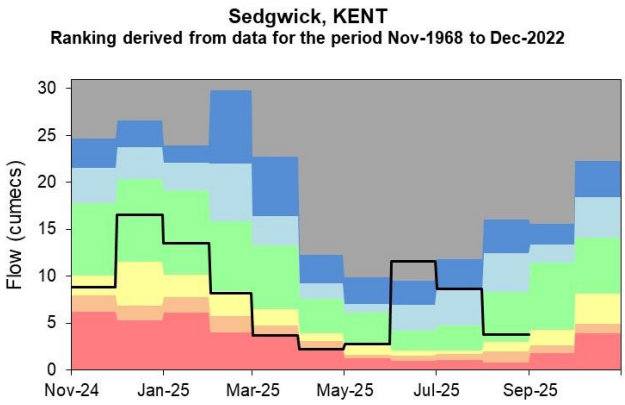


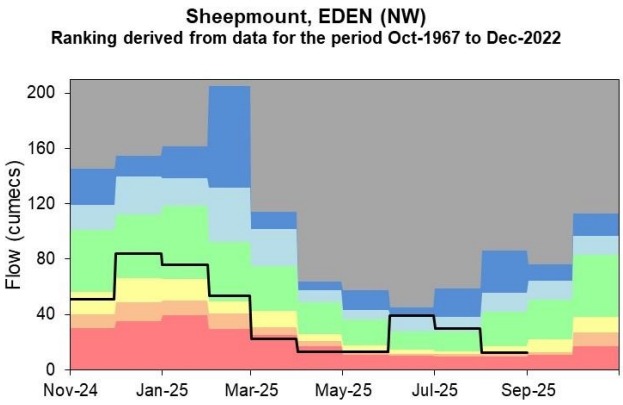
Samlesbury Pgs, RIBBLE (NW)
Ranking derived from data for the period May-1960 to Dec-2022

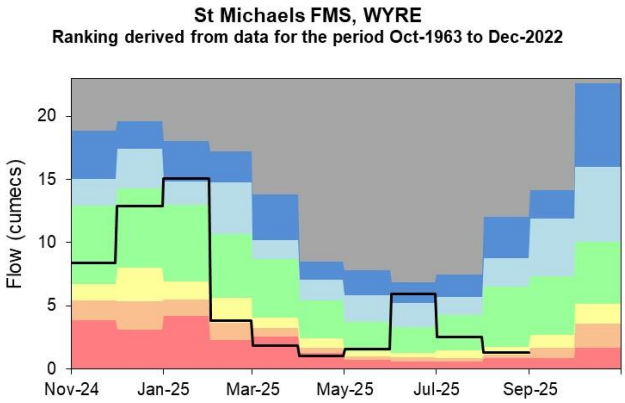


Seaton Mill, DERWENT (NW)
Ranking derived from data for the period Sep-1960 to Dec-2022







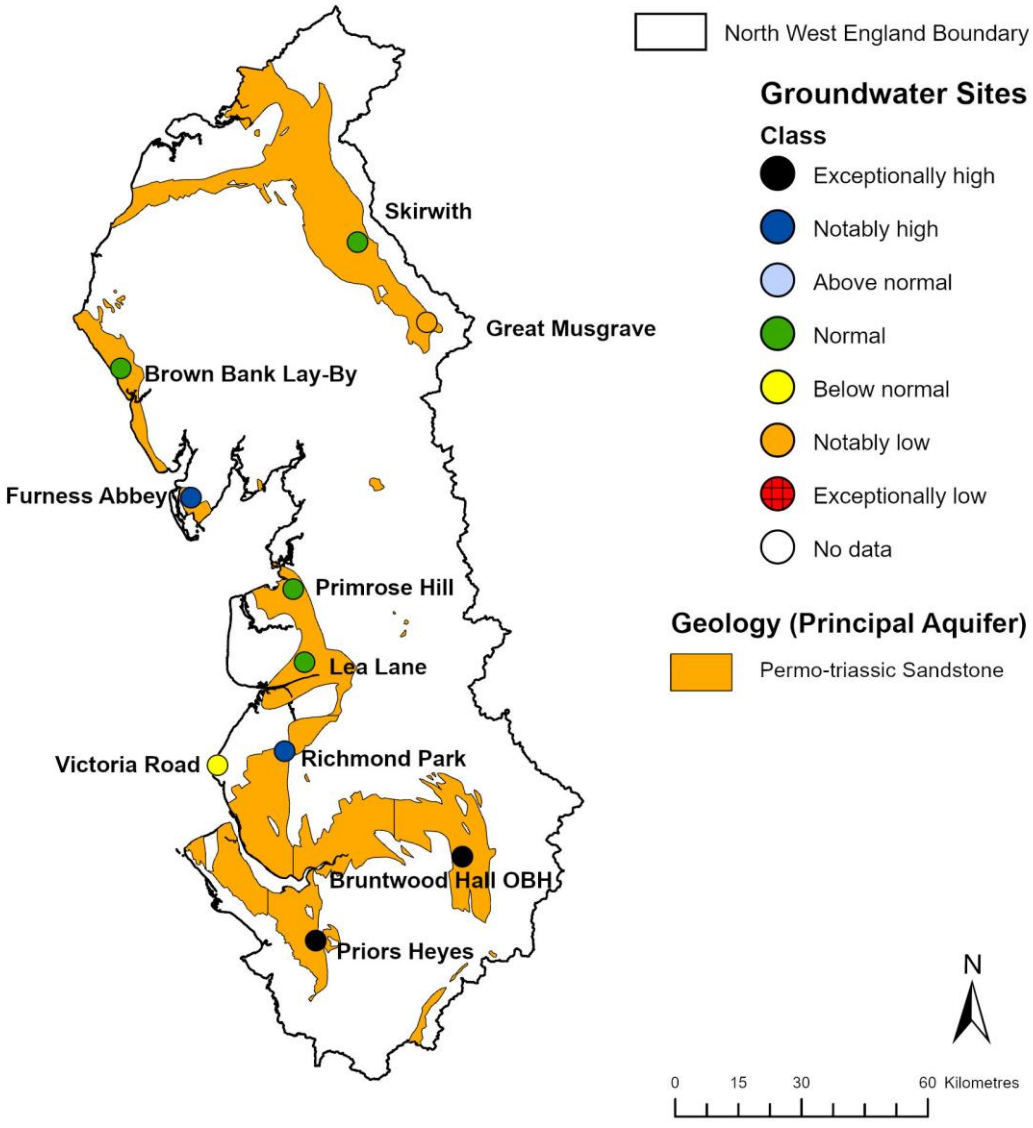


Source: Environment Agency.

5 Groundwater levels

5.1 Groundwater levels map

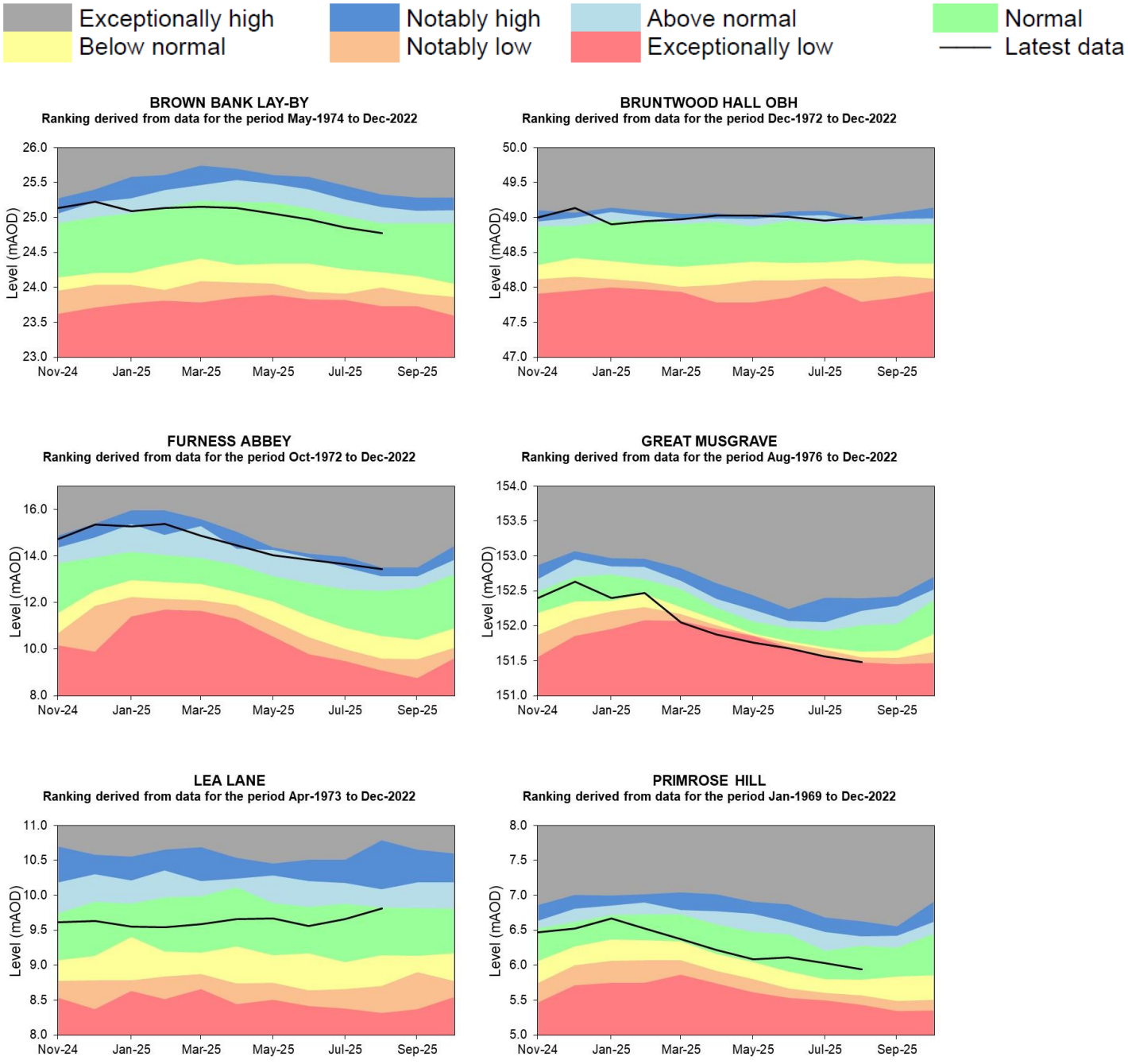
Figure 5.1: Groundwater levels for indicator sites at the end of August 2025, classed relative to an analysis of respective historic August levels. Table available in the appendices with detailed information. Please note Victoria Road Borehole sits within a superficial deposit as opposed to a bedrock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

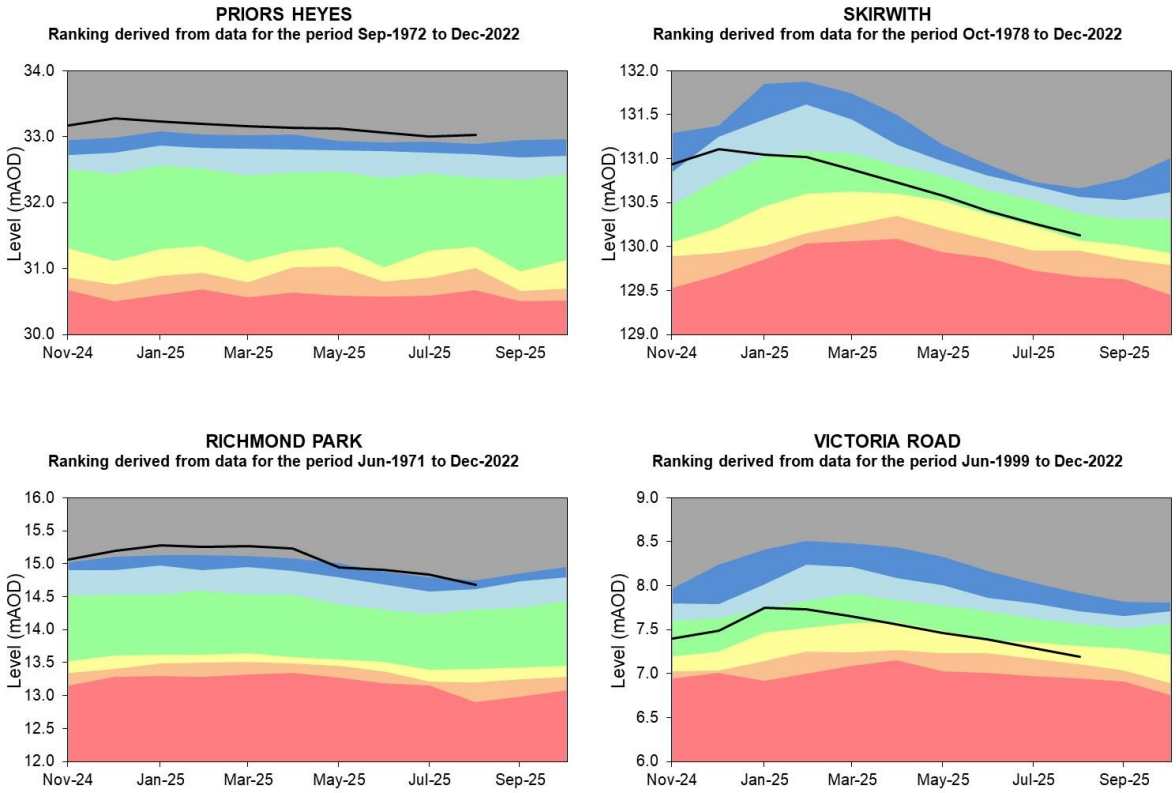


(Source: Environment Agency). Geological map reproduced with kind permission from UK Groundwater Forum, BGS copyright NERC. Crown copyright. All rights reserved. Environment Agency, 100024198, 2025.

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.

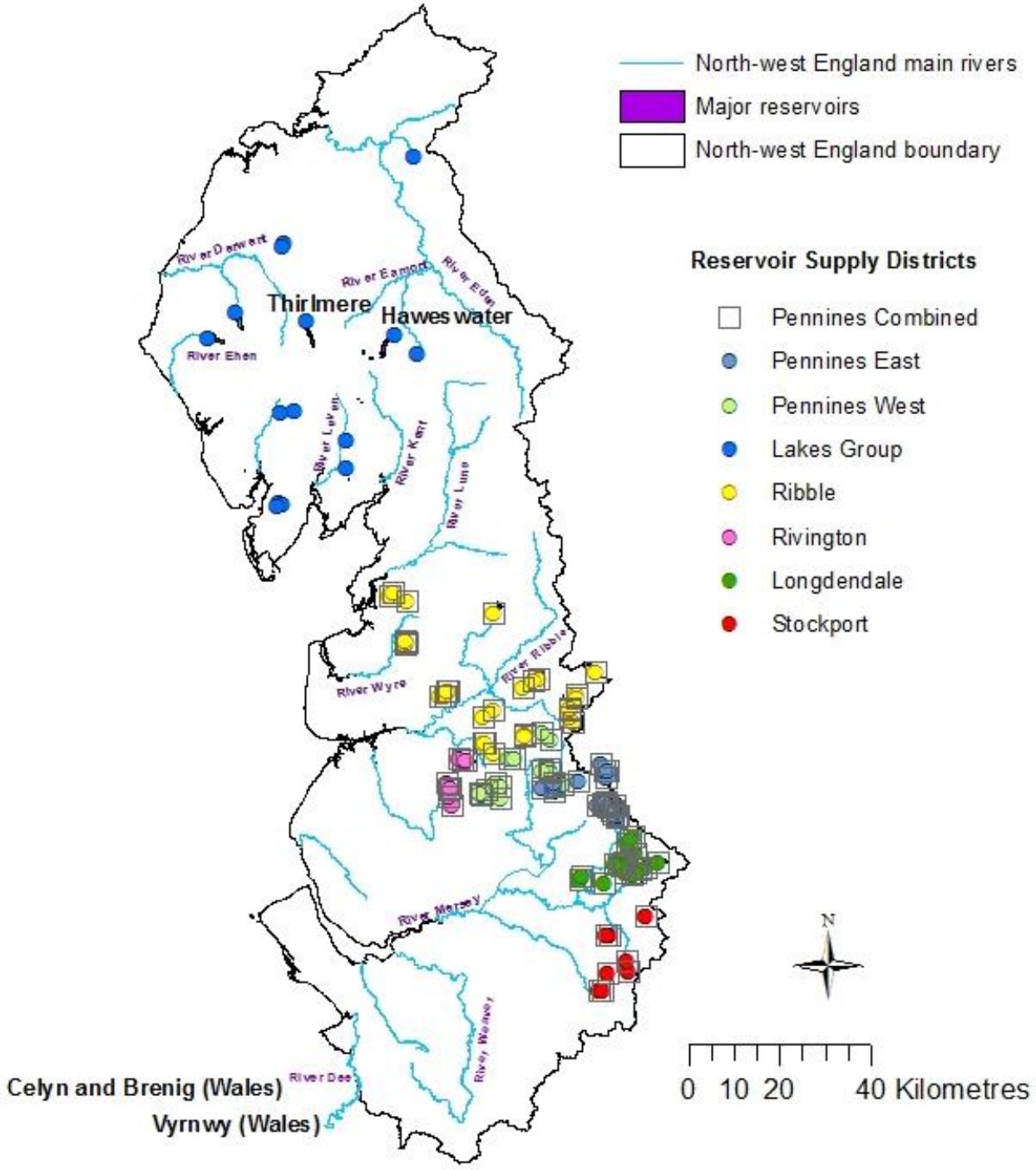
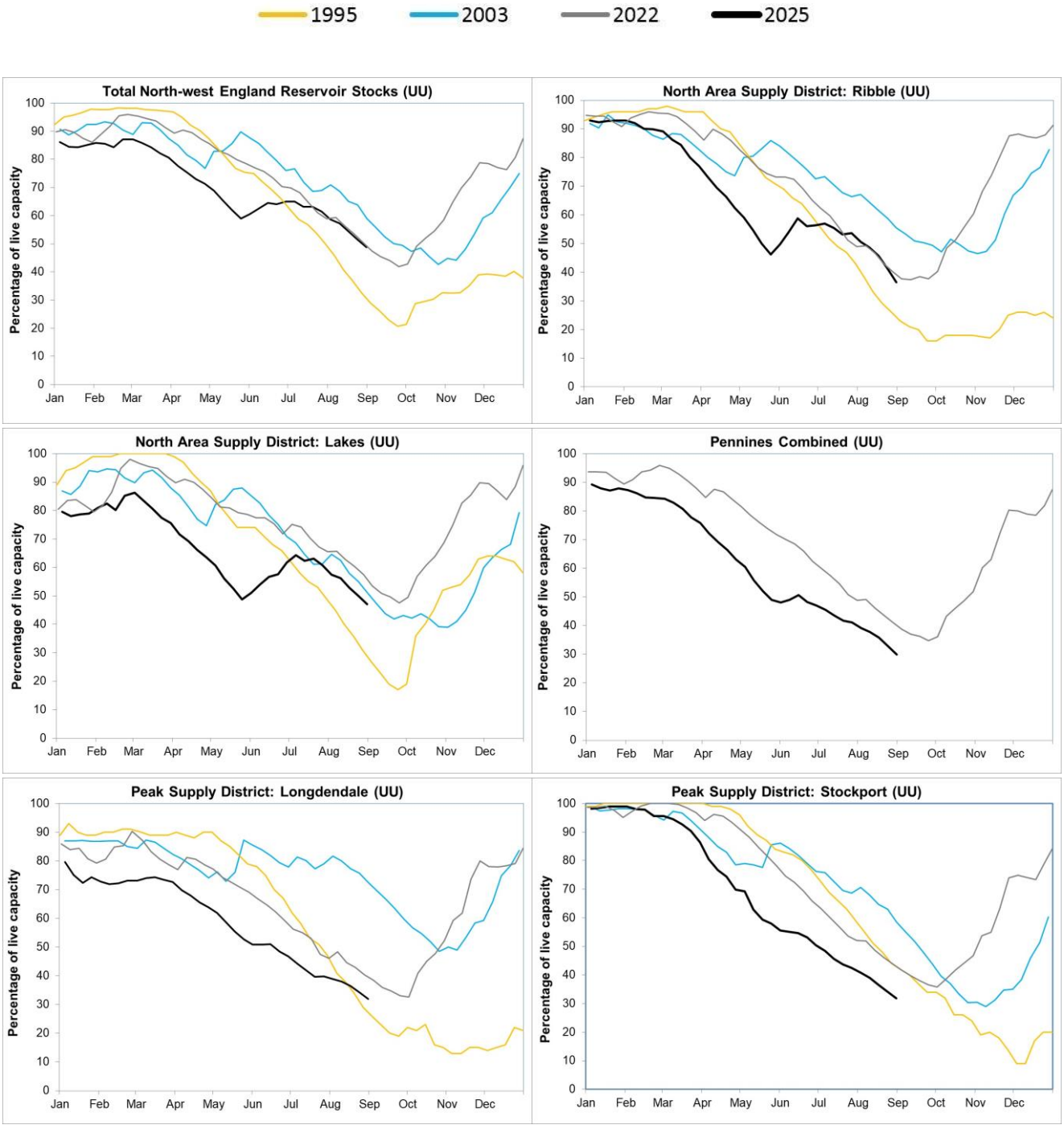
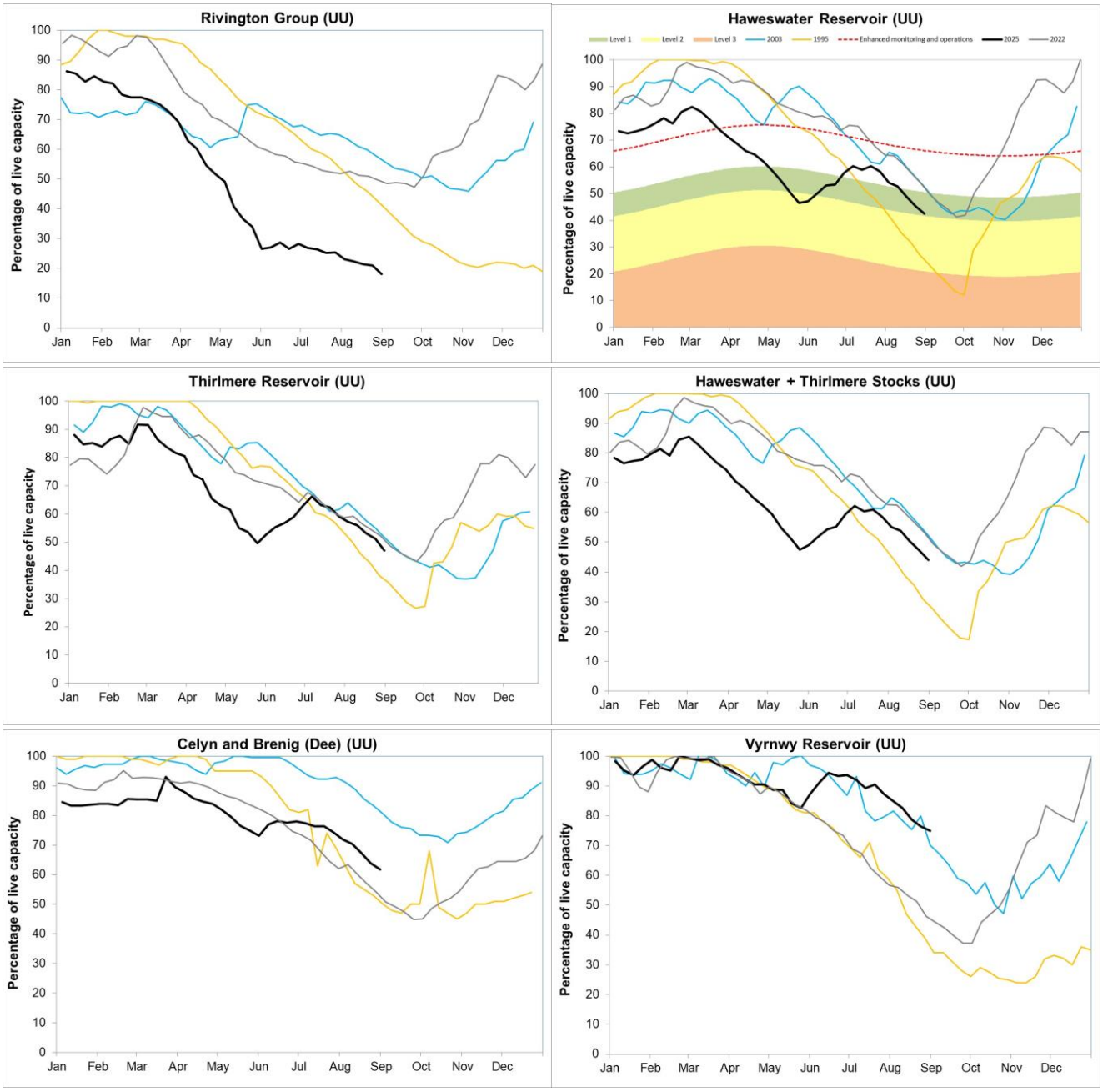


Figure 6.2: End of month reservoir storage for supply districts across North-west England and selected individual reservoirs for current year (2025) and representative years: 1995, 2003 and 2022. Note: Historic records of individual reservoirs and reservoir groups making up the regional values vary in 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	Aug 2025 rainfall % of long term average 1991 to 2020	Aug 2025 band	Jun 2025 to August cumulative band	Mar 2025 to August cumulative band	Sep 2024 to August cumulative band
Cheshire Rivers Group	33	Exceptionally Low	Notably low	Exceptionally low	Normal
Derwent (North West)	78	Normal	Notably high	Normal	Below normal
Douglas	33	Exceptionally Low	Below normal	Exceptionally low	Normal
Eden	54	Below Normal	Above normal	Below normal	Below normal
Esk (Cumbria)	91	Normal	Notably high	Normal	Normal
Esk (Dumfries)	47	Notably Low	Normal	Below normal	Exceptionally low
Kent	92	Normal	Notably high	Normal	Normal
Mersey And Irwell	34	Exceptionally Low	Notably low	Exceptionally low	Below normal
Ribble	40	Exceptionally Low	Normal	Notably low	Below normal
Wyre And Lune	54	Below Normal	Normal	Below normal	Normal

North West	55	Notably Low	Normal	Notably low	Below normal

8.2 River flows table

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

Kirkby Stephen	Eden (North West)	Eden Cumbria Upper	Notably low	Normal
Little Woolden Hall Ultrasonic	Glaze	Glaze	Exceptionally low	Notably low
Lunes Bridge	Lune	Lune Upper	Below normal	Above normal
Newby Bridge FMS	Leven (North West)	Leven Cumbria		Notably high
Pooley Bridge	Eamont	Eamont	Normal	Above normal
Portwood	Tame	Tame	Exceptionally low	Notably low
Rudheath	Dane	Dane	Below normal	Normal
Samlesbury PGS	Ribble (North West)	Ribble Lower	Notably low	Normal
Seaton Mill	Derwent (North West)	Derwent Cumbria Lower	Below normal	Notably high
Sedgwick	Kent	Levens Bridge	Normal	Notably high
Sheepmount	Eden (North West)	Eden Cumbria Lower	Below normal	Above normal
St Michaels FMS	Wyre	Brock	Below normal	Normal

8.3 Groundwater table

Site name	Aquifer	End of Aug 2025 band	End of Jul 2025 band
Brown Bank Lay-by	West Cumbria Permo-triassic Sandstone	Normal	Normal
Bruntwood Hall OBH	East Cheshire Permo-triassic Sandstone	Exceptionally high	Above normal
Furness Abbey	Furness Permo-triassic Sandstone	Notably high	Notably high
Great Musgrave	Eden Valley And Carlisle Basin Permo-triassic Sandstone	Notably low	Exceptionally low
Lea Lane	Fylde Permo-triassic Sandstone	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	Exceptionally high
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