Monthly water situation report: North-west England

1 Summary – July 2025

Rainfall for north-west England during July was classed as normal, receiving 97% of the long-term average (LTA). Higher rainfall totals were observed in Cumbria and Lancashire (CLA) compared to Greater Manchester, Merseyside and Cheshire (GMMC). Soil moisture deficit (SMD) was higher in GMMC compared to CLA. Monthly mean river flows in CLA were normal to exceptionally high, however were notably low to exceptionally low in some catchments in GMMC. Groundwater levels remain steady, most ranging from normal to exceptionally high. Total reservoir stocks at the end of July for north-west England were 61.3%, remaining lower than average for this time of year. Some warnings and notices were issued to water abstraction licences across the north-west due to low river flows, however no environmental impacts were reported.

1.1 Rainfall

Rainfall for north-west England during July was classed as normal, receiving 97% of the LTA. CLA received 107% of the LTA and was classed as normal, however GMMC received less rainfall, at 79% of the LTA (though this was still classed as normal).

For most individual hydrological areas within the north-west, rainfall was classed as normal - except for the River Douglas catchment, which was classed as below normal, having received only 60% of the LTA.

Looking back at the past 6 months, spanning February to the end of July, GMMC has experienced its 5th driest 6-month period ending July since 1871. This was particularly notable in the Mersey and Irwell, and Douglas catchments, which experienced their 5th and 6th driest 6-month periods ending July since 1871 respectively. This was largely due to the notably low rainfall in GMMC in both April and March (35-37% LTA respectively).

1.2 Soil moisture deficit and recharge

There is a clear north-south divide in SMD across the north-west. In Cumbria, SMD is 11-40mm, which is up to 25mm lower than the LTA for the northern part of Cumbria, and up to 5mm lower than the LTA for the southern part of Cumbria. This is owed to the wet weather in Cumbria in June, which allowed some recharge. SMD increases to 41-70mm in the Wyre and Lune catchment in the northern part of Lancashire, 6-25mm greater than the LTA. It increases further to 71-100mm in the Ribble catchment, in the southern part of Lancashire, which is 26-50mm greater than the LTA. Finally, in GMMC, SMD is the highest at 101-130mm widespread, 26-50mm higher than the LTA for July.

1.3 River flows

During July, monthly mean river flows in Cumbria were largely above normal, with values notably high in the Kent, Leven and Derwent catchments. Flow was exceptionally high in the River Ellen catchment in north Cumbria, at 284% of the LTA. In Lancashire, river flows were primarily normal. However, in GMMC, river flows dropped to notably low in the Mersey, Irwell, Bollin and Glaze catchments, and exceptionally low in the Sankey catchment at 48% of LTA.

1.4 Groundwater levels

Groundwater levels across the north-west predominately ranged from normal to exceptionally high, apart from Victoria Road in GMMC which was below normal, and Great Musgrave in Cumbria, which was exceptionally low. 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 stocks

At the end of July, the total reservoir stocks for north-west England were 61.3%, decreasing slightly compared to the end of June. Reservoir stocks are still lower than average for this time of year, at 89.7% of the July LTA.

Haweswater and Thirlmere stocks are at 58.6%, decreasing slightly compared to the end of June. This is about normal for this time of year at 100.4% of the July LTA. Storage in Haweswater particularly was 58.2%, stabilising after a period of recovery in June. Haweswater stocks were 4.8% above drought level 1 and 13.7% above drought level 2 at the end of July (see Figure 1 below).

Stocks in the Pennines Combined supply district continues to decline and was 41.2% at the end of July. This is lower than normal for this time of year at 79.3% of the July LTA.

July stocks in Celyn and Brenig, and Vyrnwy, were 74.4% and 87.3% respectively, decreasing compared to the end of June. This is lower than normal for this time of year at 76.2% of the July LTA.

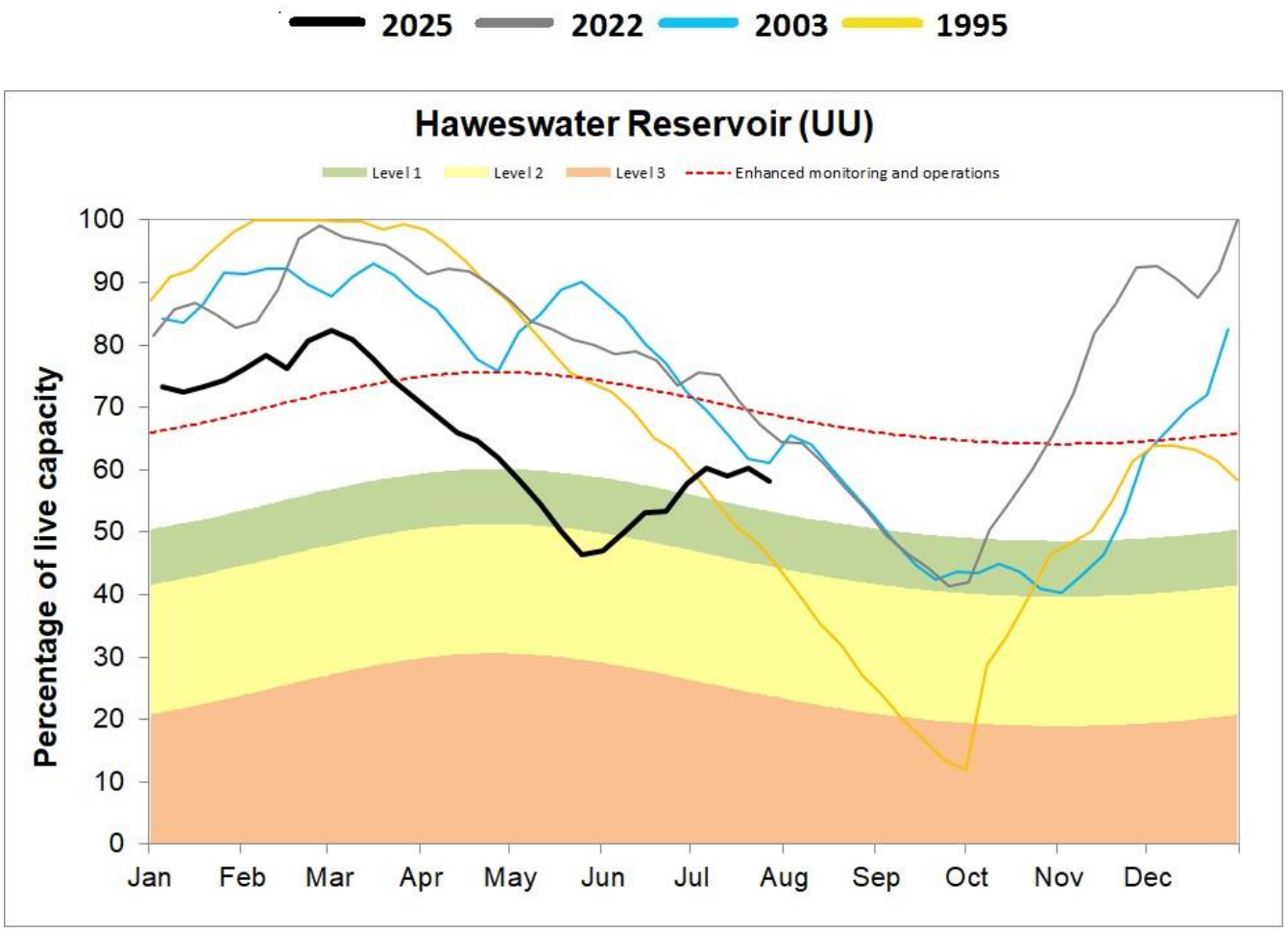
Reservoirs kept low for maintenance works include parts of the:

- 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, four water abstraction licences were issued with warnings or stop notices due to low river flows in July – three remain active. In GMMC, one 'reduce' notice and one warning were issued due to low flows. No environmental incidents due to low flows have been reported for July.

Figure 1: 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)).



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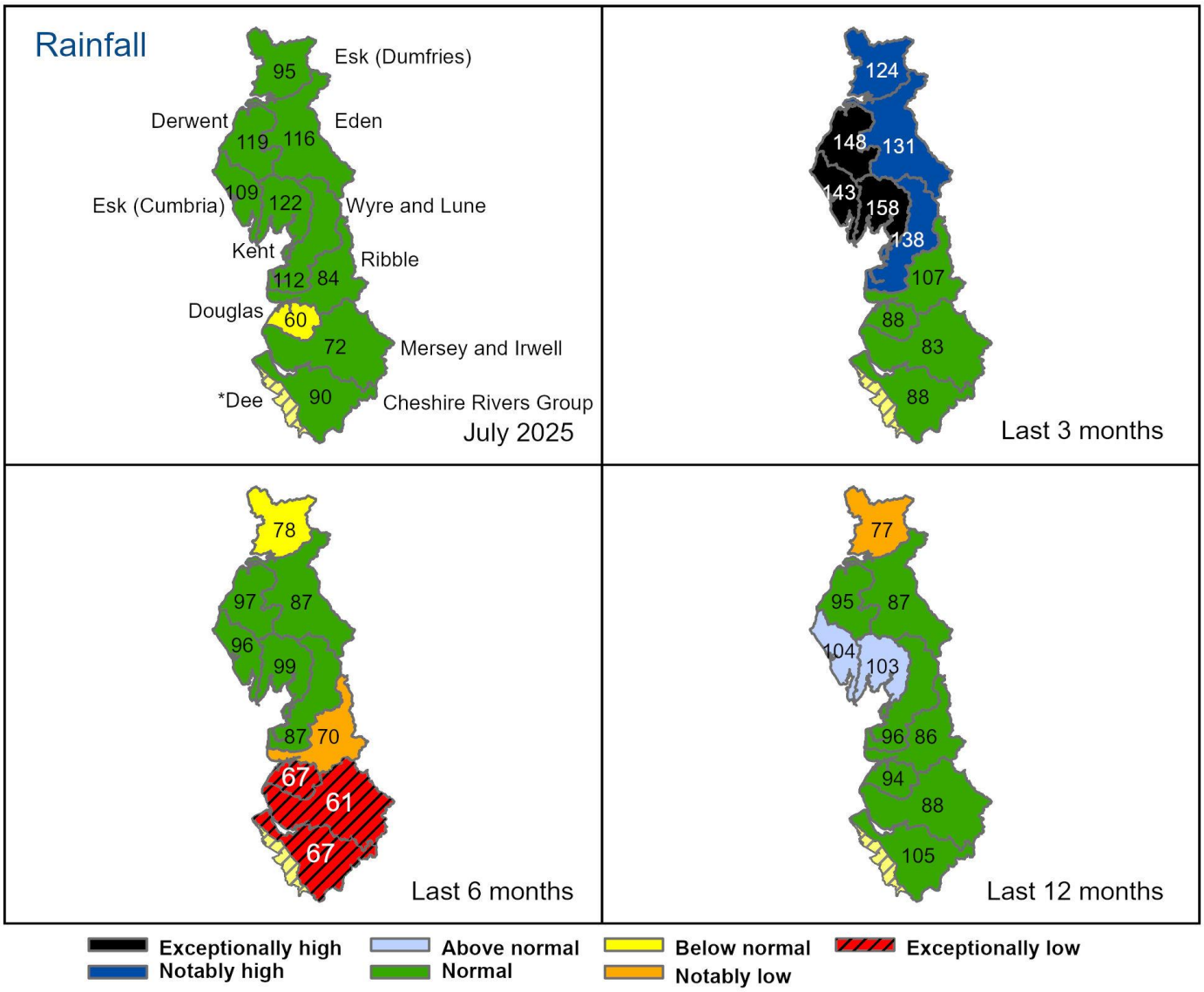
2 Rainfall

2.1 Rainfall map

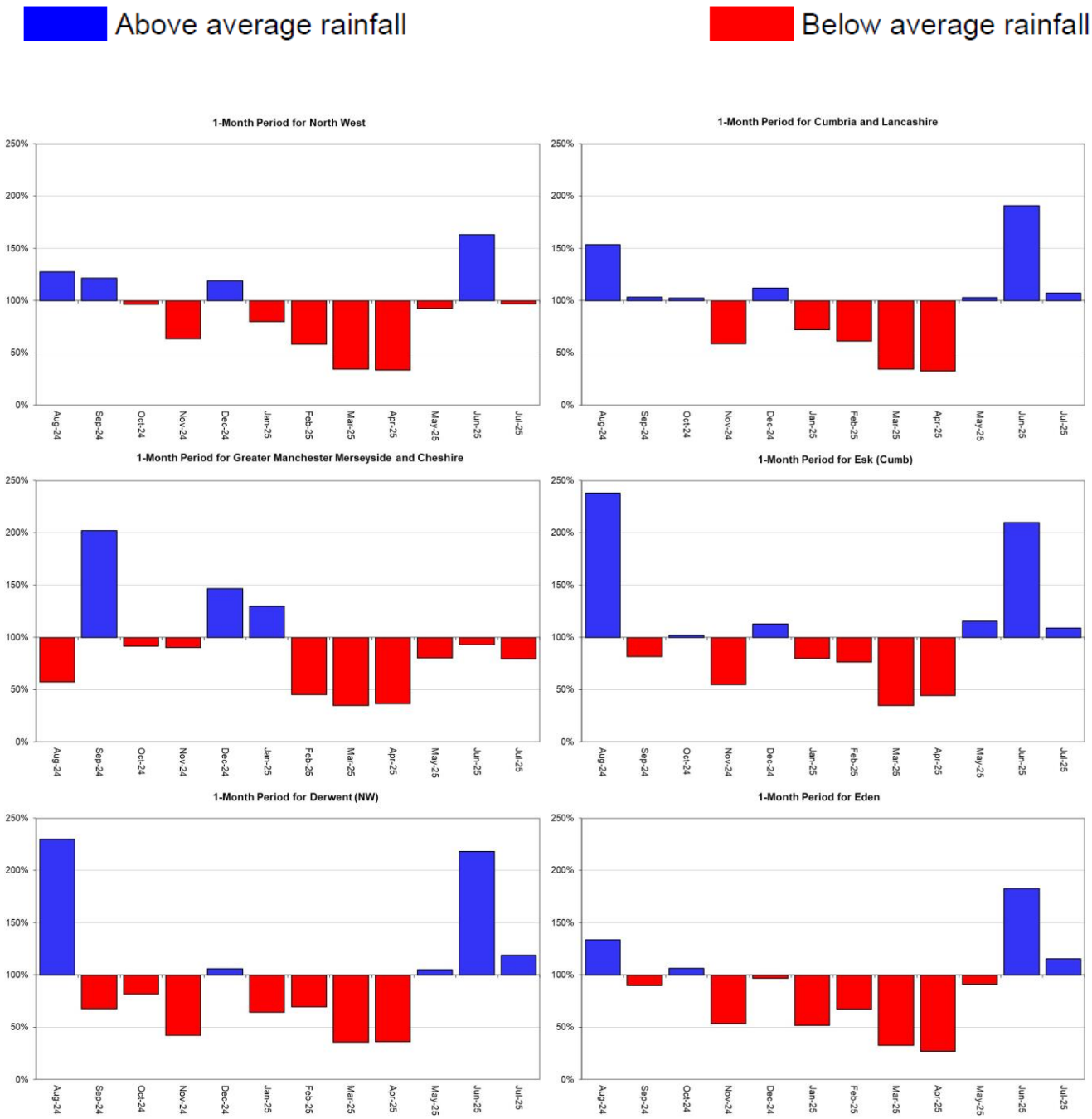
Figure 2.1: Total rainfall (as a percentage of the 1991 to 2020 long-term average) for hydrological areas for the current month (up to 31 July 2025), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. Table available in the appendices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



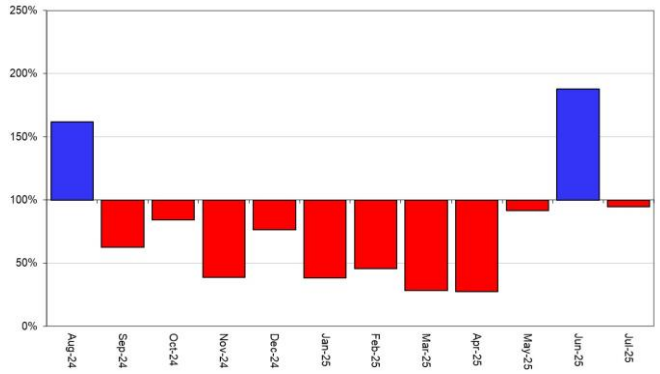
Rainfall data since October 2023, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, 100024198, 2025). Rainfall data prior to October 2023, extracted from Met Office HadUK 1km gridded rainfall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

2.2 Rainfall charts

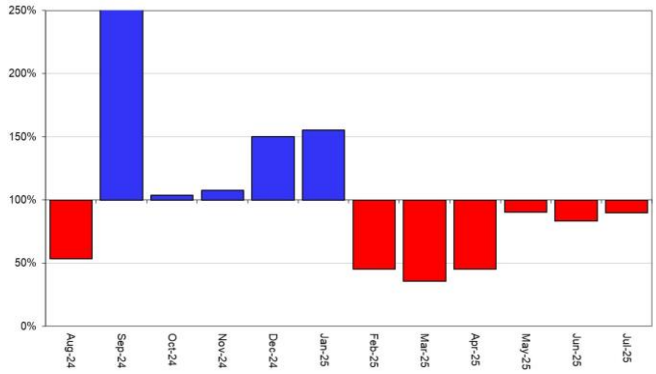
Figure 2.2: Monthly rainfall totals for the past 12 months expressed as a percentage of the 1991 to 2020 long term average for North-west England and its hydrological areas.



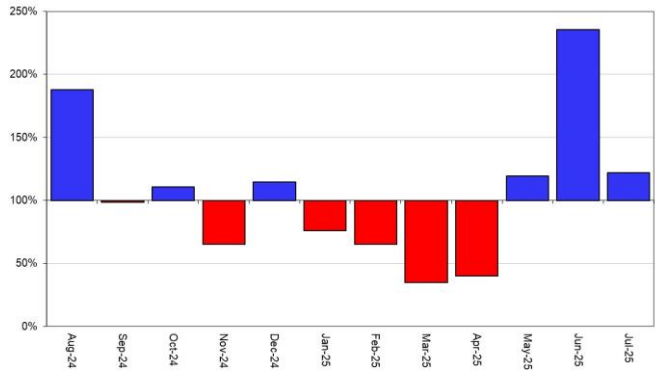
1-Month Period for Esk (Dumfries)



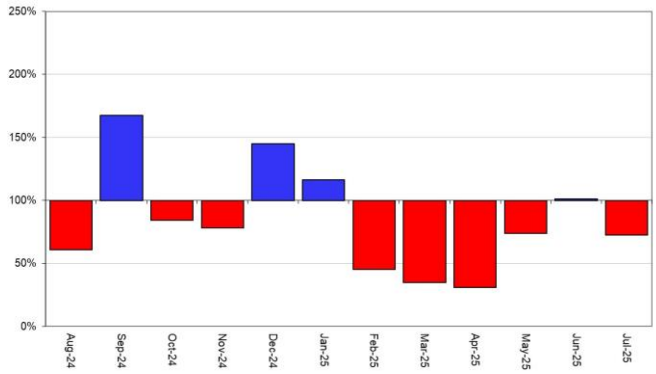
1-Month Period for Cheshire Rivers Group



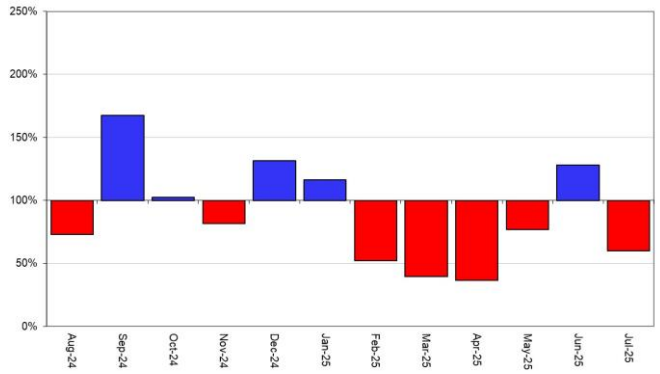
1-Month Period for Kent



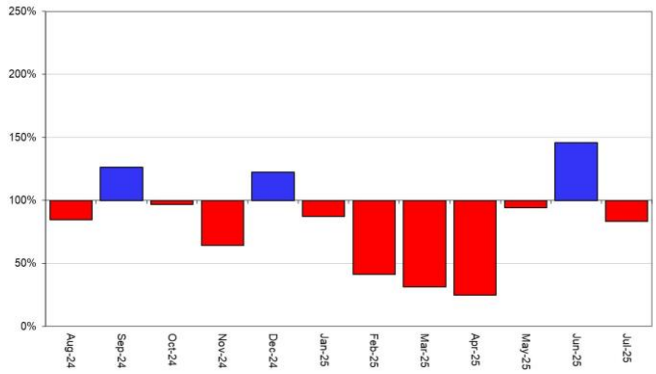
1-Month Period for Mersey and Irwell



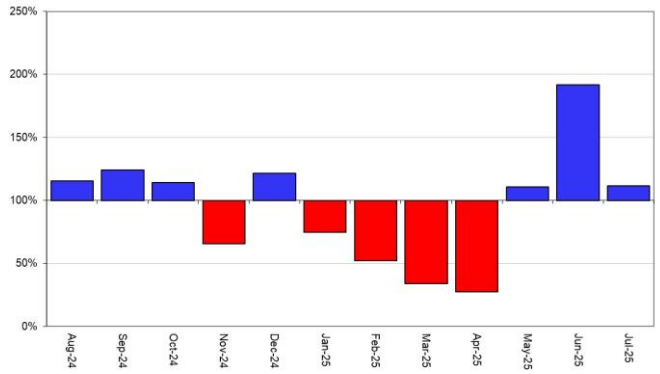
1-Month Period for Douglas



1-Month Period for Ribble



1-Month Period for Wyre and Lune

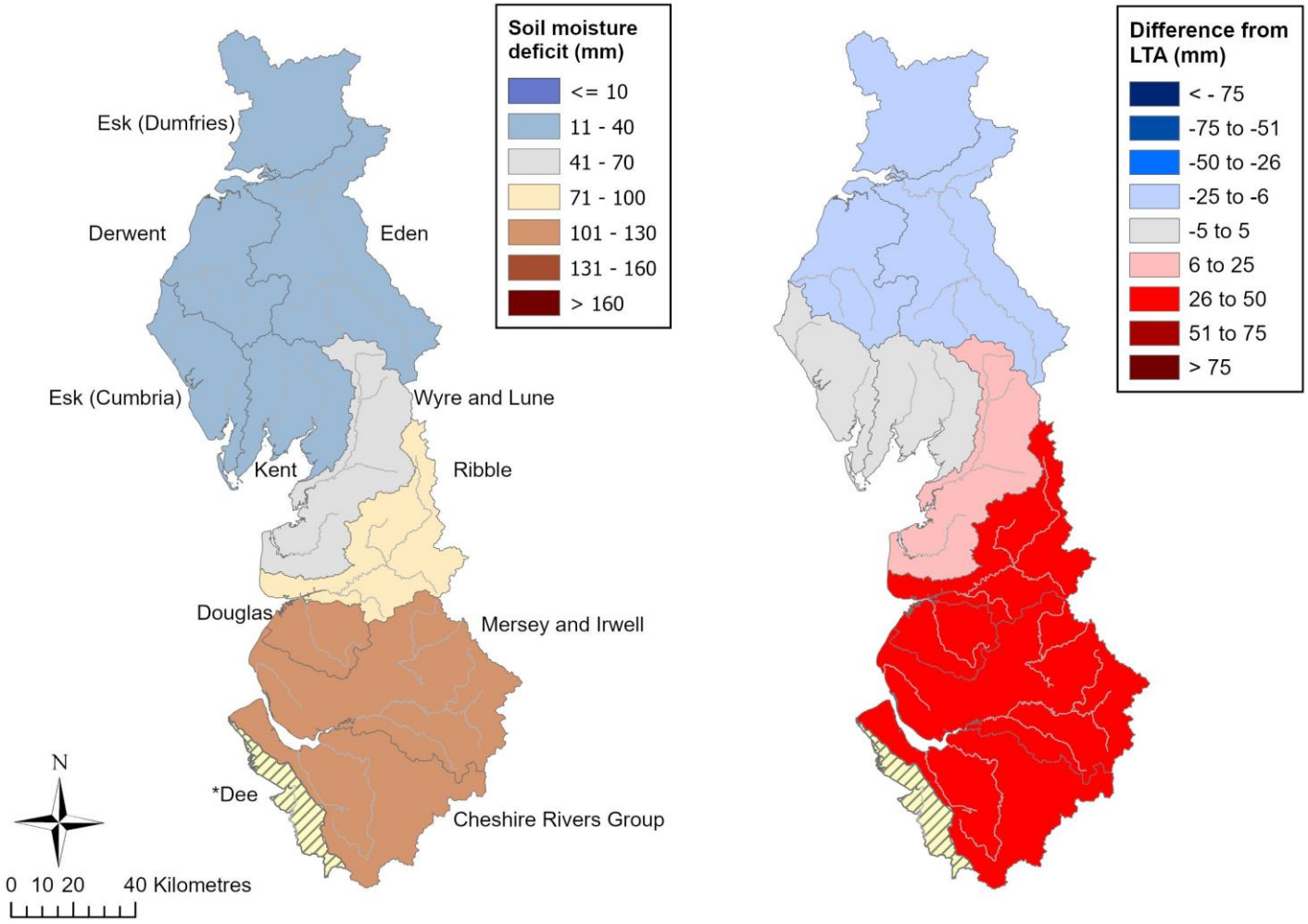


Rainfall data since October 2023, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, 100024198, 2025). Rainfall data prior to October 2023, extracted from Met Office HadUK 1km gridded rainfall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

3 Soil moisture deficit

3.1 Soil moisture deficit map

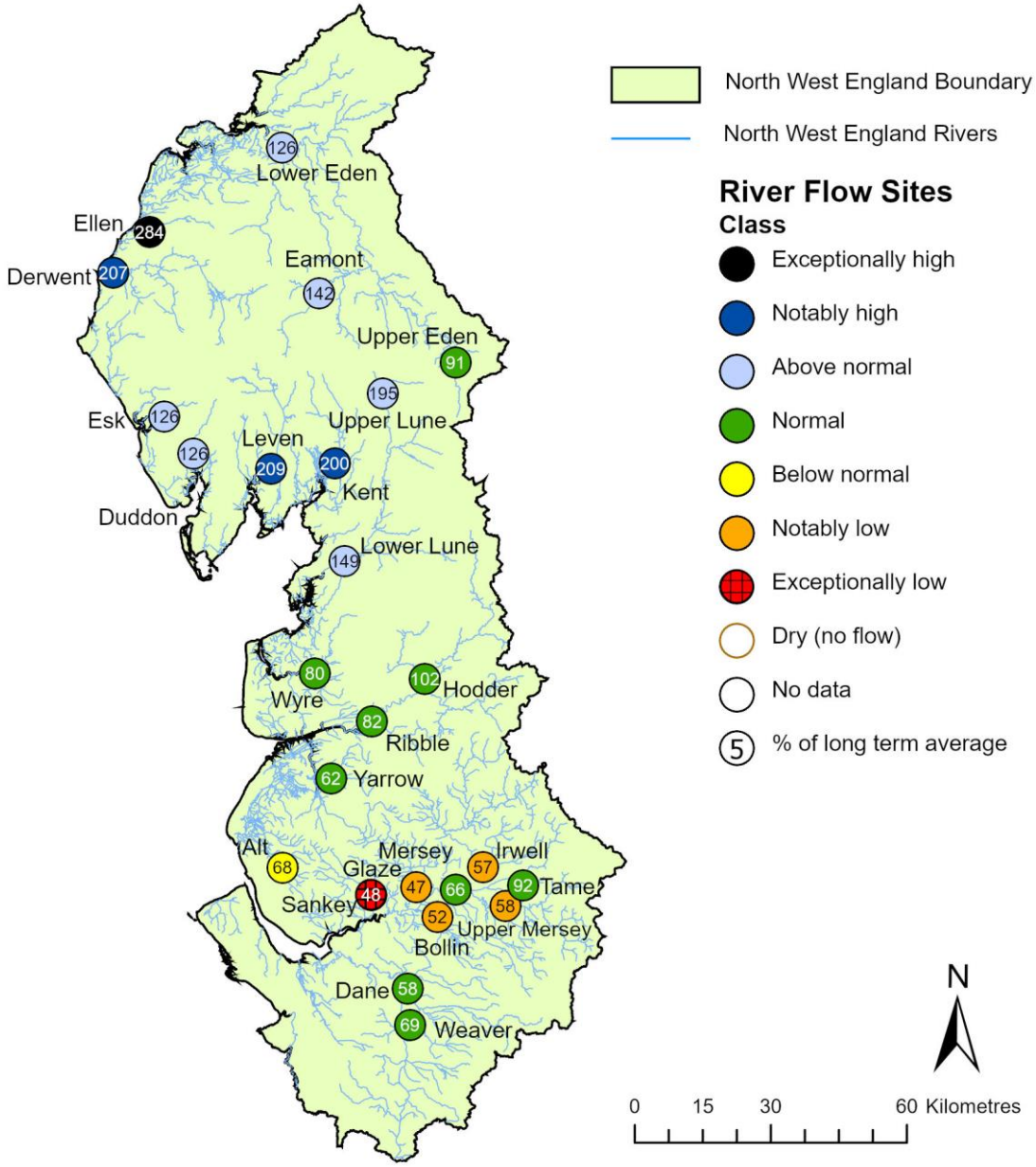
Figure 3.1: Soil moisture deficits for the week ending 27 July 2025. The map on the left shows actual soil moisture deficits (mm) and on the right shows the difference (mm) of the actual from the 1991 - 2020 long term average soil moisture deficits. MORECS data for real land use.



4 River flows

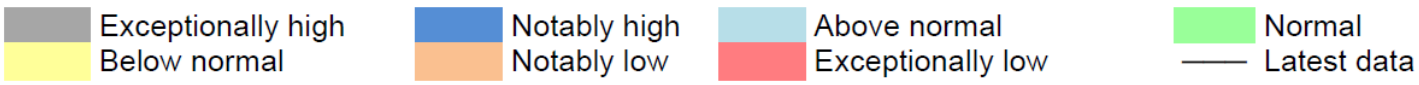
4.1 River flows map

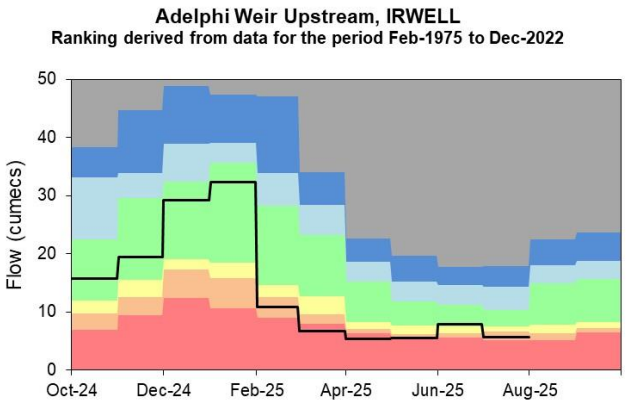
Figure 4.1: Monthly mean river flow for indicator sites for July 2025, expressed as a percentage of the respective long term average and classed relative to an analysis of historic July monthly means. Table available in the appendices with detailed information.

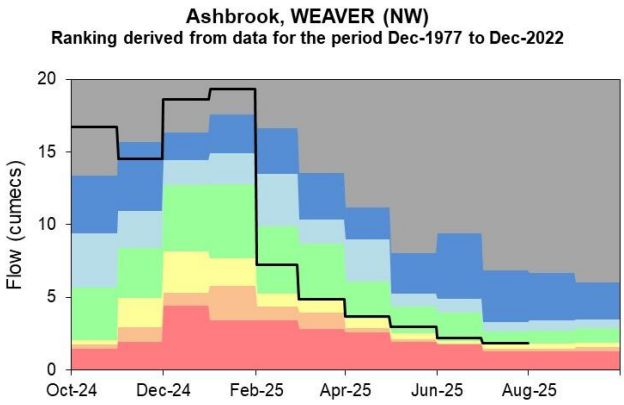


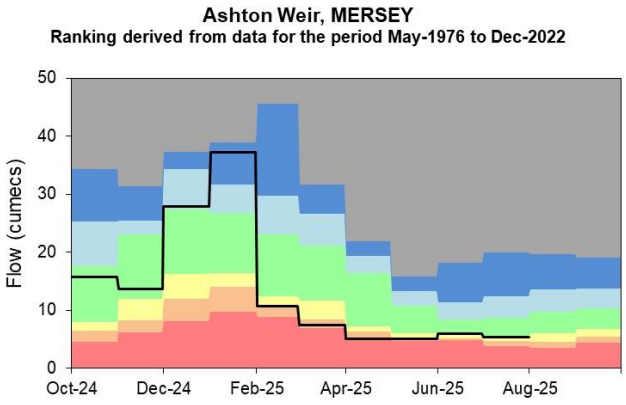
4.2 River flow charts

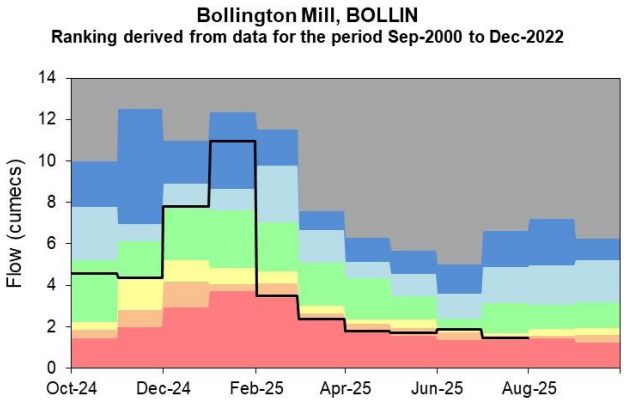
Figure 4.2: Monthly mean river flow for index sites over the past year, compared to an analysis of historic monthly mean flows.



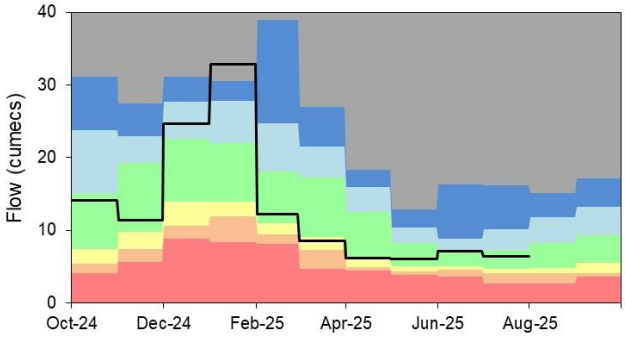




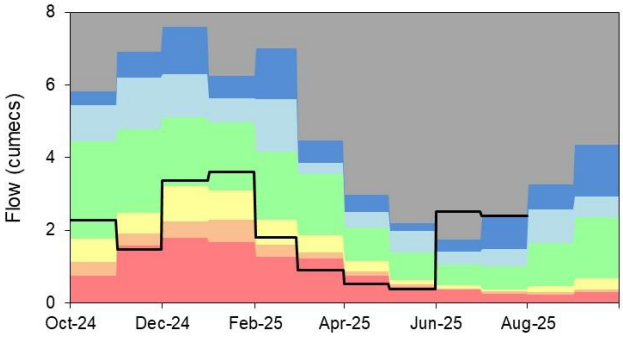




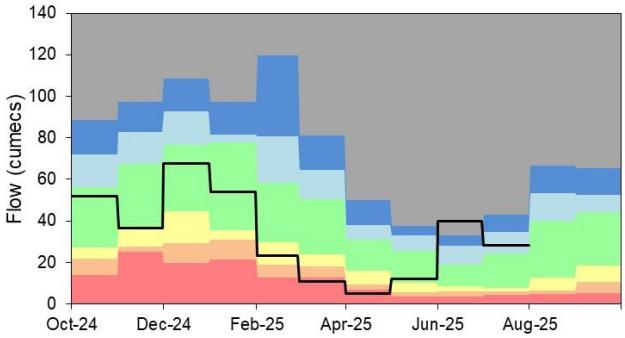
Brinksway, MERSEY
Ranking derived from data for the period Jan-1974 to Dec-2022



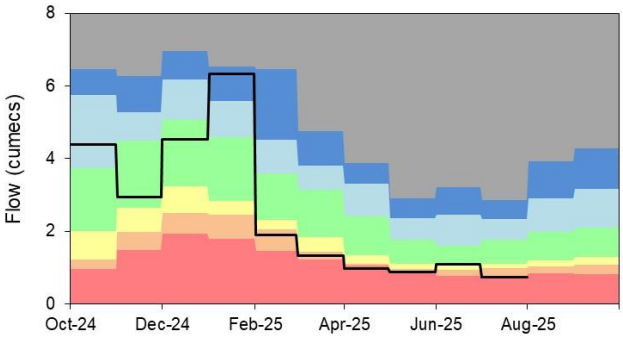
Bullgill, ELLEN
Ranking derived from data for the period Jan-1976 to Dec-2022



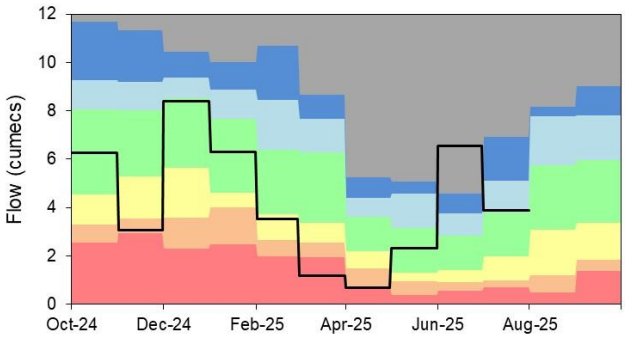
Caton, LUNE
Ranking derived from data for the period Jan-1959 to Dec-2022



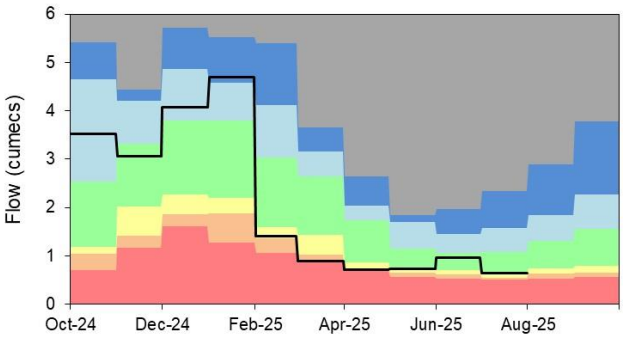
Causey Bridges, SANKEY
Ranking derived from data for the period Jan-1977 to Dec-2022



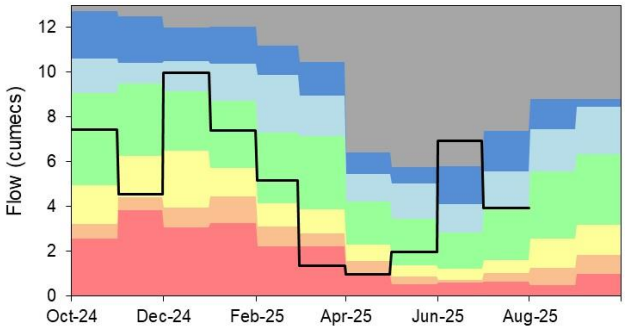
Cropple How, ESK (NW)
Ranking derived from data for the period Jan-1976 to Dec-2022



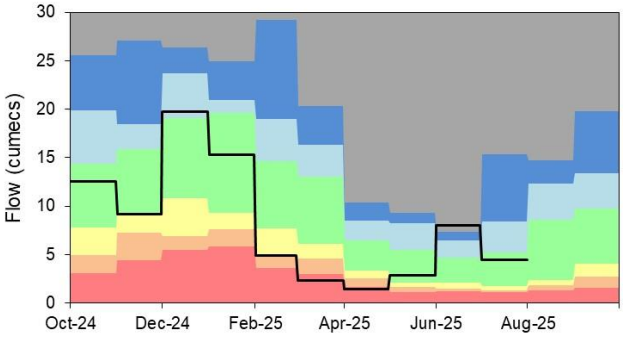
Croston, YARROW
Ranking derived from data for the period Jan-1976 to Dec-2022



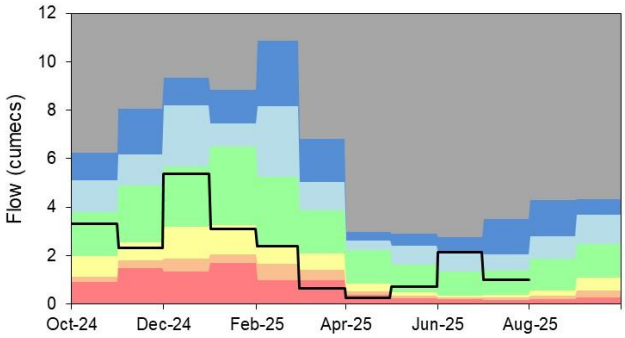
Duddon Hall, DUDDON
Ranking derived from data for the period Mar-1968 to Dec-2022



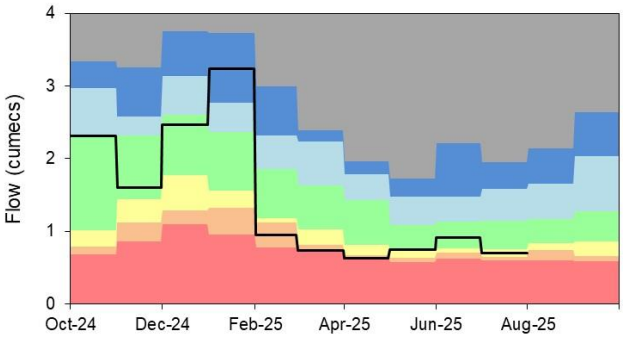
Hodder Place, HODDER
Ranking derived from data for the period Jan-1976 to Dec-2022



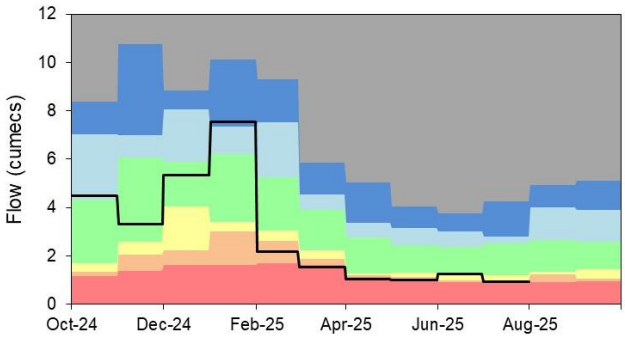
Kirkby Stephen, EDEN (NW)
Ranking derived from data for the period Oct-1971 to Dec-2022



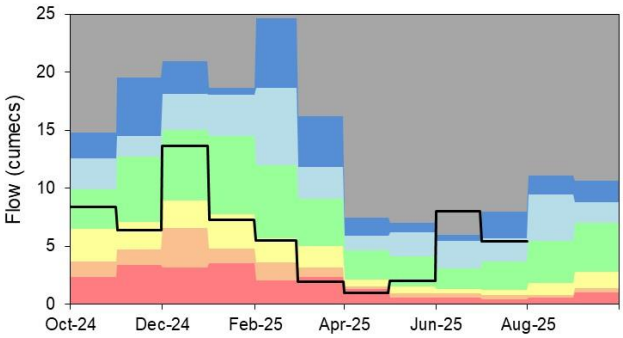
Kirkby, ALT
Ranking derived from data for the period Oct-1977 to Dec-2022



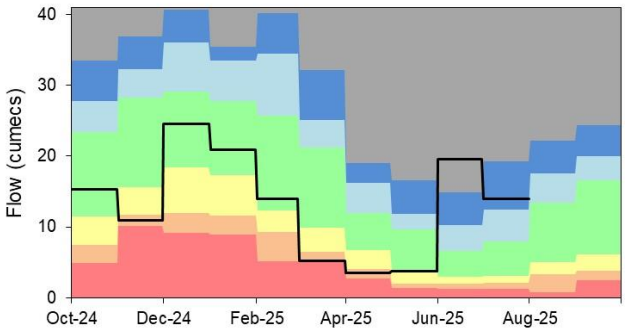
Little Woolden Hall Ultrasonic, GLAZE
Ranking derived from data for the period Jul-1995 to Dec-2022



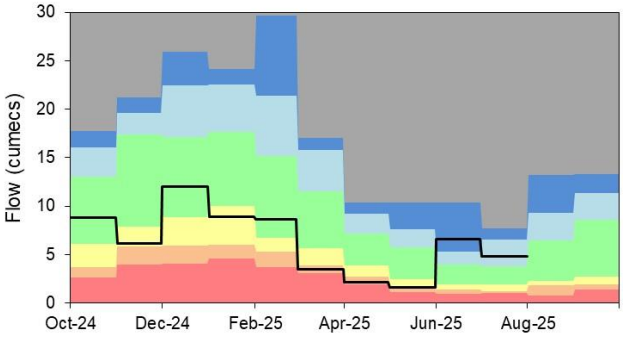
Lunes Bridge, LUNE
Ranking derived from data for the period Dec-1979 to Dec-2022



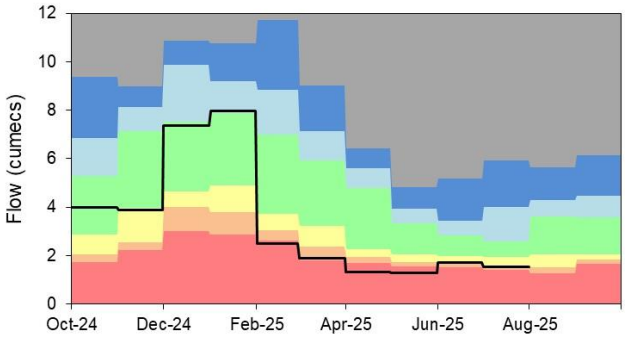
Newby Bridge FMS, LEVEN (NW)
Ranking derived from data for the period Jan-1972 to Dec-2022



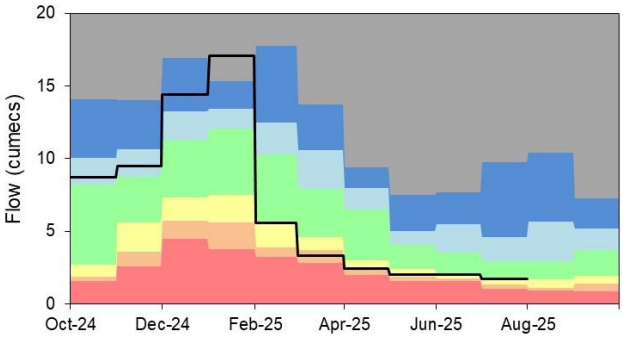
Pooley Bridge, EAMONT
Ranking derived from data for the period Jul-1970 to Dec-2022



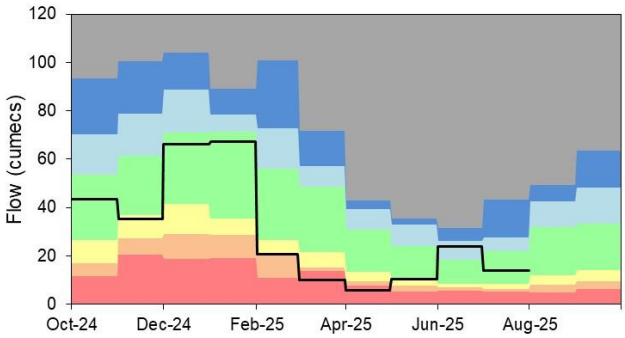
Portwood, TAME
Ranking derived from data for the period Jan-1976 to Dec-2022



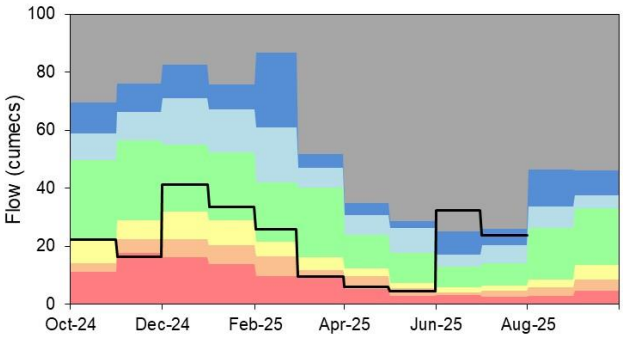
Rudheath, DANE
Ranking derived from data for the period Jan-1976 to Dec-2022

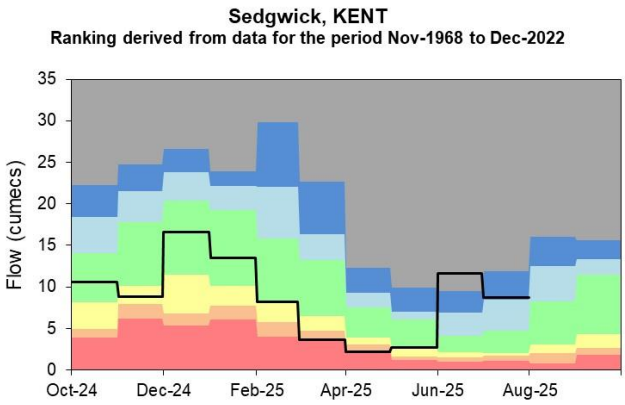


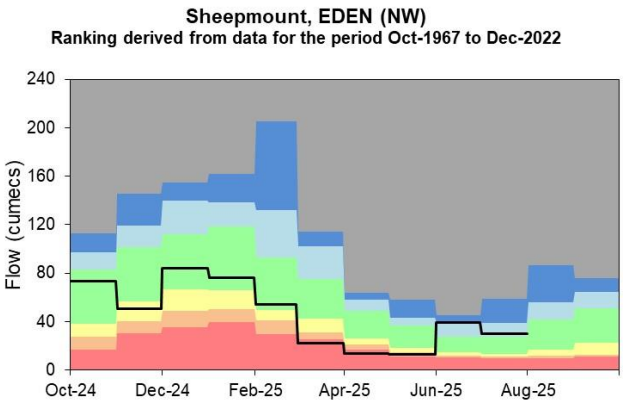
Samlesbury Pgs, RIBBLE (NW)
Ranking derived from data for the period May-1960 to Dec-2022

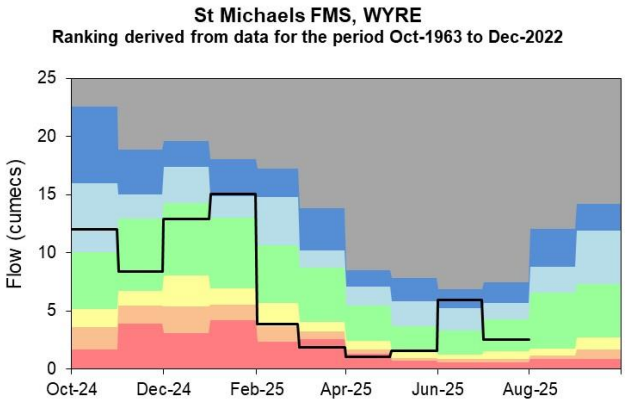


Seaton Mill, DERWENT (NW)
Ranking derived from data for the period Sep-1960 to Dec-2022







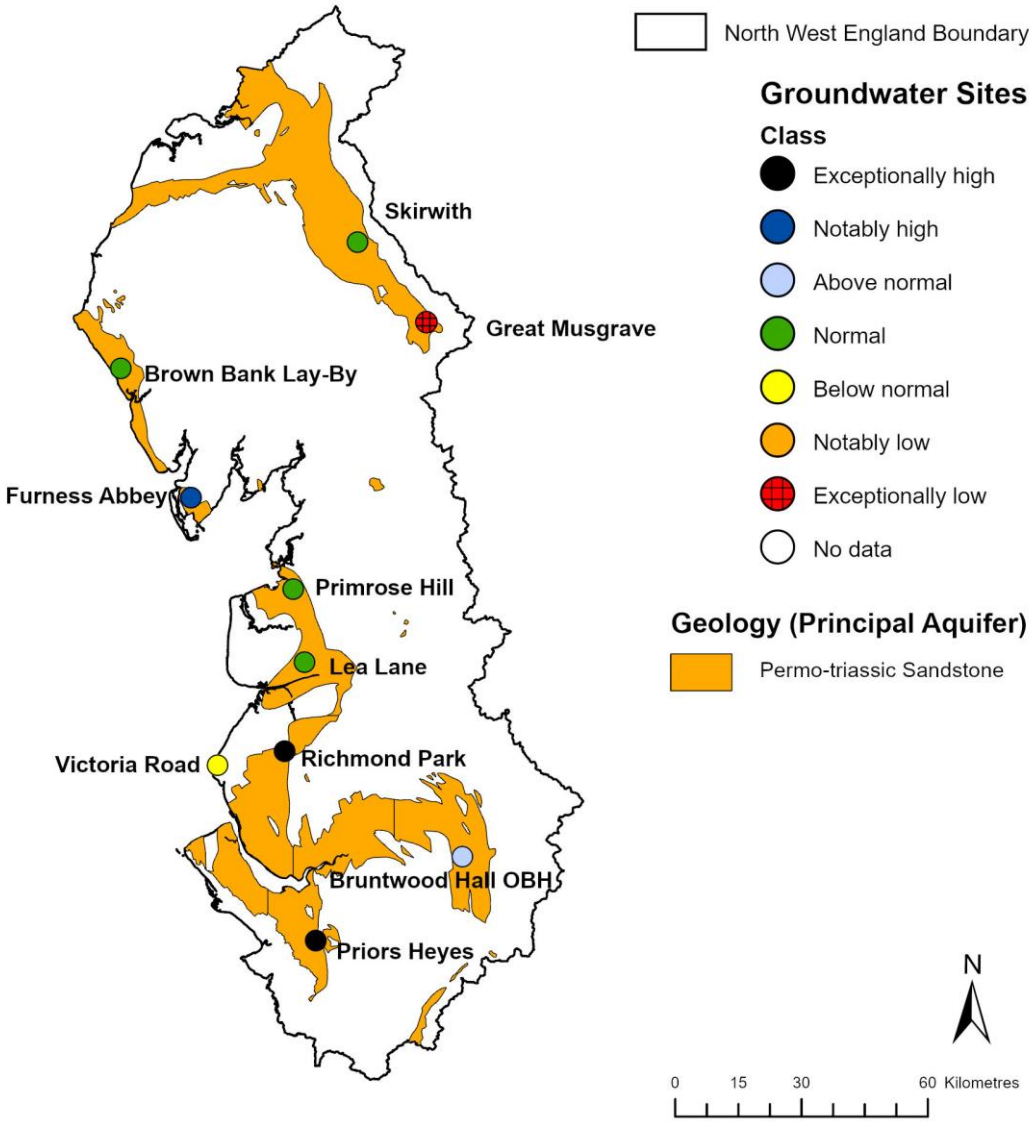


Source: Environment Agency.

5 Groundwater levels

5.1 Groundwater levels map

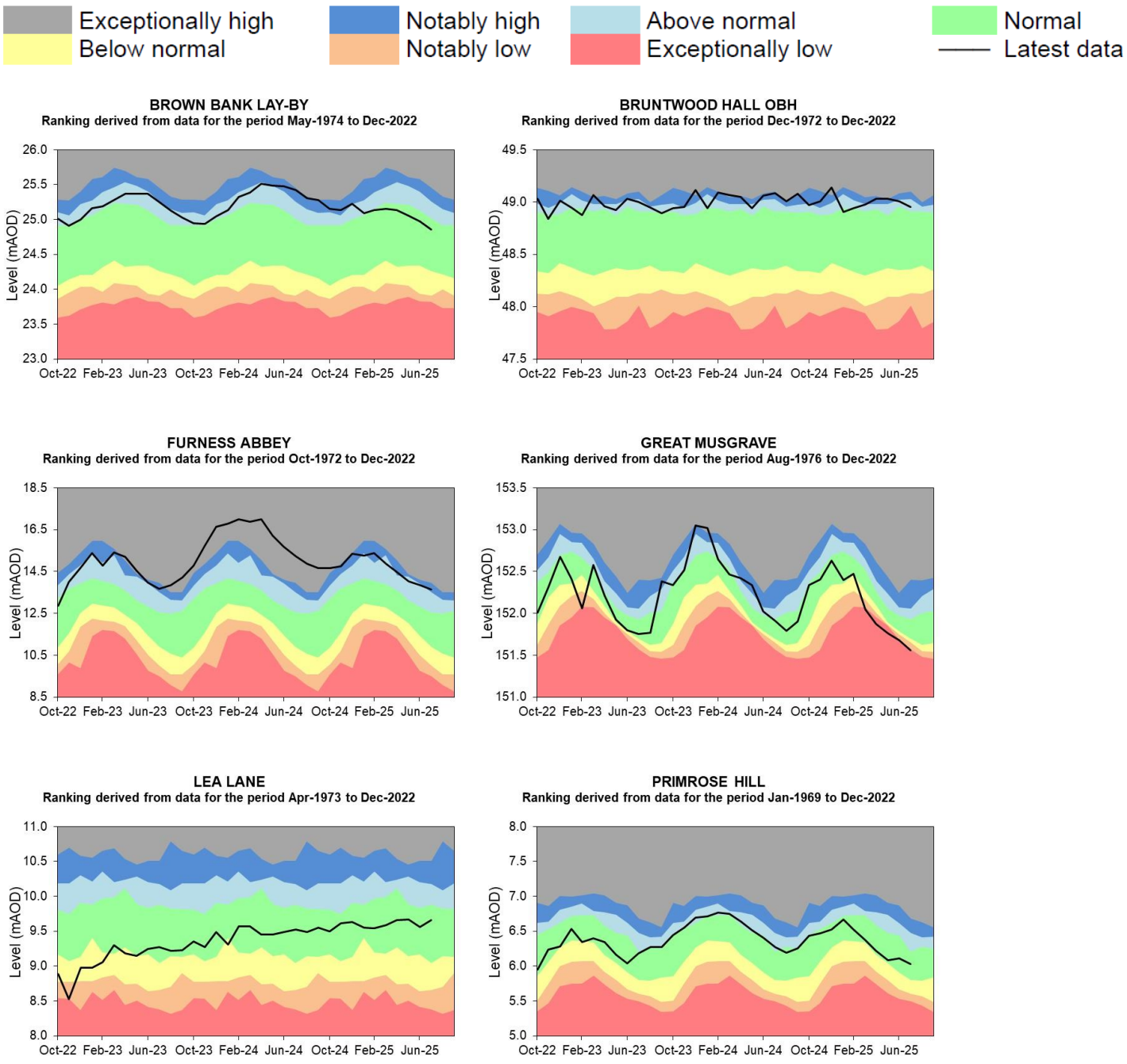
Figure 5.1: Groundwater levels for indicator sites at the end of July 2025, classed relative to an analysis of respective historic July levels. Table available in the appendices with detailed information. Please note Victoria Road Borehole sits within a superficial deposit as opposed to a bedrock aquifer.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

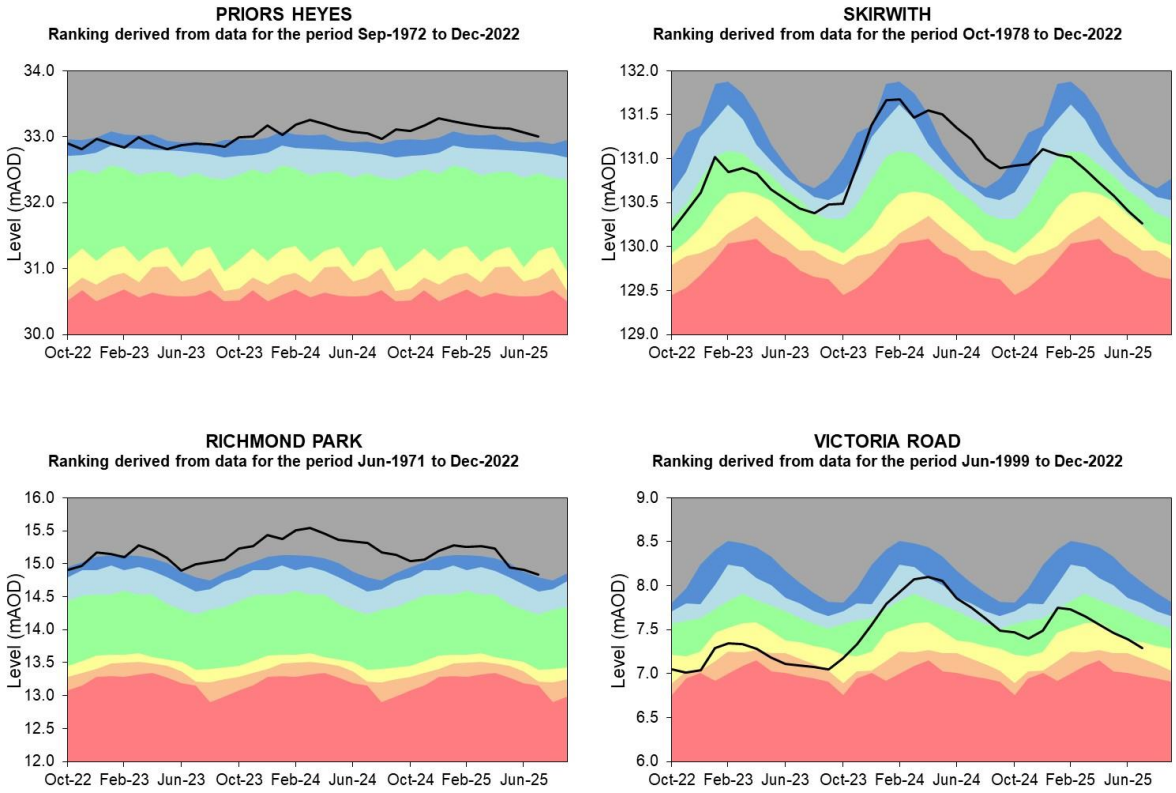


(Source: Environment Agency). Geological map reproduced with kind permission from UK Groundwater Forum, BGS copyright NERC. Crown copyright. All rights reserved. Environment Agency, 100024198, 2025.

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 stocks

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

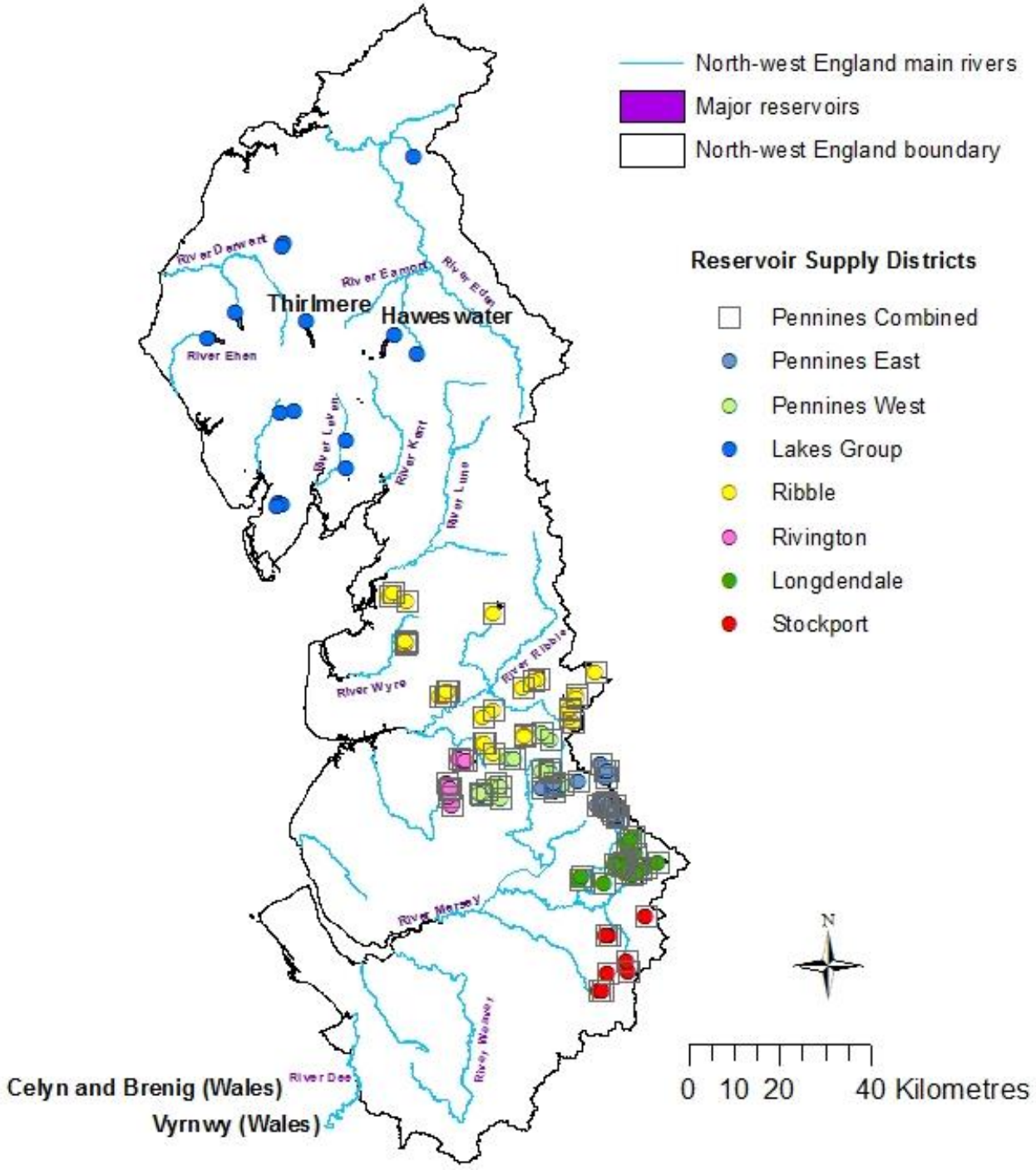
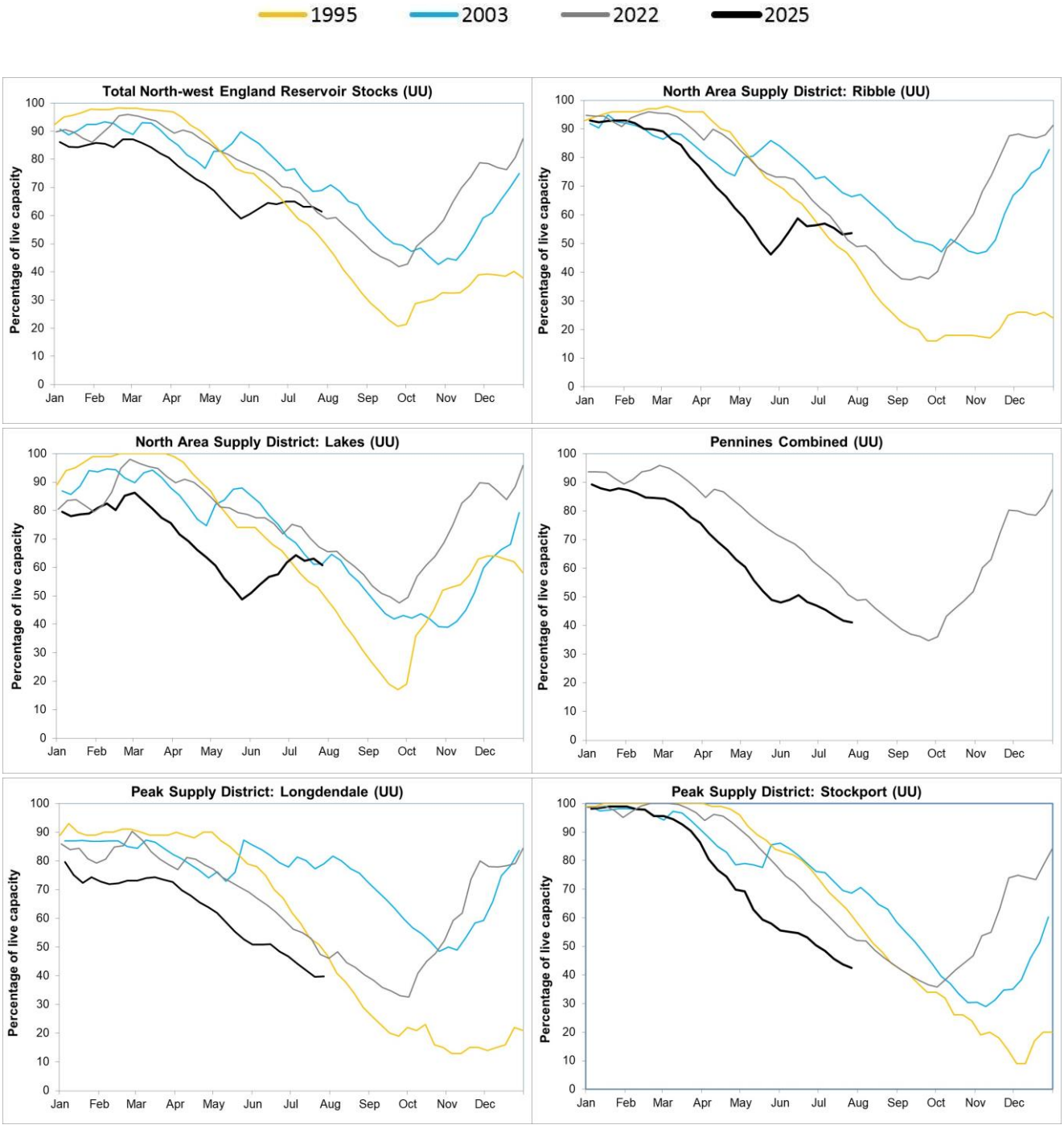
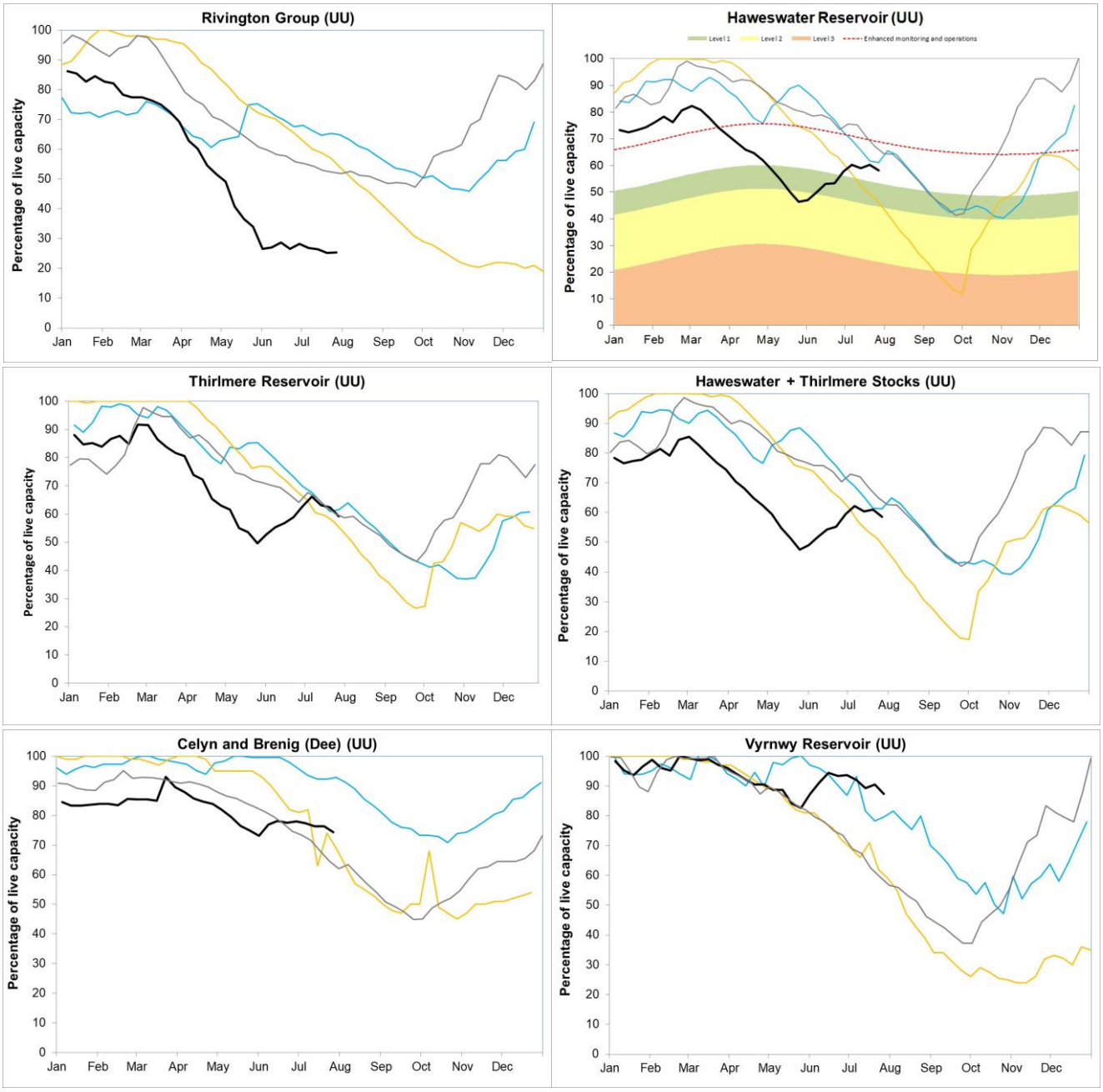


Figure 6.2: End of month reservoir stocks for supply districts across North-west England and selected individual reservoirs for current year (2025) and representative years: 1995, 2003 and 2022. Note: Historic records of individual reservoirs and reservoir groups making up the regional values vary in 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	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
Cheshire Rivers Group	90	Normal	Normal	Exceptionally low	Normal
Derwent (NW)	119	Normal	Exceptionally high	Normal	Normal
Douglas	60	Below Normal	Normal	Exceptionally low	Normal
Eden	116	Normal	Notably high	Normal	Normal
Esk (Cumbria)	109	Normal	Exceptionally high	Normal	Above normal
Esk (Dumfries)	95	Normal	Notably high	Below normal	Notably low
Kent	122	Normal	Exceptionally high	Normal	Above normal
Mersey and Irwell	72	Normal	Normal	Exceptionally low	Normal
Ribble	84	Normal	Normal	Notably low	Normal
Wyre and Lune	112	Normal	Notably high	Normal	Normal

North West	97	Normal	Above normal	Below normal	Normal

8.2 River flows table

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

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

8.3 Groundwater table

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