Monthly water situation report: North-west England

1 Summary – December 2025

Rainfall for north-west England during December was classed as above normal, having received 118% of the long-term average (LTA). In response to this, soil moisture deficit (SMD) has continued to remain saturated across Cumbria and Lancashire (CLA) and Greater Manchester, Merseyside and Cheshire (GMMC). As in November, river flows during December were predominantly between exceptionally high and notably high across Cumbria. Parts of Cheshire, particularly the Dane and Weaver catchments also experienced exceptionally high flows. Elsewhere in north-west England, river flows ranged from normal to notably high. Total reservoir stocks for north-west England have continued to see recovery, and most reservoirs are now at or near their average levels for this time of the year.

1.1 Rainfall

Rainfall for north-west England during December was classed as above normal receiving 118% of the LTA**.** CLA and GMMC received 123% and 113% of the LTA respectively, both classed as above normal.

North-west England recorded rainfall ranging from normal to exceptionally high during December. The lowest rainfall (in terms of LTA) was recorded in the Douglas and Ribble hydrological areas, each receiving 97% of the LTA. The highest rainfall (in terms of LTA) was recorded in the Esk (Cumbria) hydrological area with 157% of the LTA.

Looking at the past 3-month cumulative, rainfall totals have ranged from above normal (only in the Ribble hydrological area) to exceptionally high (in the Esk and Kent hydrological areas). All other hydrological areas received totals classed as notably high.

The 6-month cumulative rainfall shows a contrast between Cumbria and Northern Lancashire and Southern Lancashire and GMMC. Rainfall totals in the former were classed between exceptionally high and notably high, while rainfall totals in the latter were all classed as above normal.

The north south divide was also observed in the 12-month cumulative rainfall. Apart from the Esk hydrological area (classed as normal), rainfall in all other hydrological areas in the Cumbria and northern Lancashire was classed between above normal and exceptionally high. All hydrological areas in southern Lancashire and GMMC were classed as normal.

1.2 Soil moisture deficit and recharge

Soil moisture deficits across north-west England by the end of December remained below or equal to 10mm. For all hydrological areas, this was between -5 to 5mm from the respective LTAs for December.

1.3 River flows

In December, monthly mean river flows across north-west England ranged from normal to exceptionally high. Similar to the spatial pattern in rainfall over December, the highest river flow was found across Cumbria and Cheshire. River flows were highest (in terms of percentage of the LTA) in the Duddon catchment at Duddon Hall (186% of the LTA, classed as exceptionally high), and lowest in the Alt catchment at Kirkby (106% of the LTA, classed as normal).

Please note that data for Causey Bridges on the River Sankey in Cheshire was unavailable for December due to a fault 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 December.

Compared to the end of November, groundwater levels showed the following changes:

- Great Musgrave: decreasing from above normal to normal.
- Victoria Road: increasing from below normal to normal.

All other indicator sites remained at 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
- Furness Abbey: classed as exceptionally high
- Bruntwood Hall: classed as above normal
- Lea Lane: classed as normal
- Richmond Park: classed as exceptionally high

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

1.5 Reservoir stocks

Total reservoir stocks for north-west England increased from 85% at the end of November to 89% at the end of December. This is higher than the average of 88% at this time of the year, and higher than this time last year when total reservoir stock was 83%.

At the end of December, reservoir stock (in terms of percentage) was highest at Lake Vyrnwy at 100% full and lowest (in terms of percentage) at Ribble Supply District, which was 73% full.

The combined storage at Haweswater and Thirlmere was at 94%. This is higher than the average of 84% for this time of the year, and higher than this time last year when the stock was 72%.

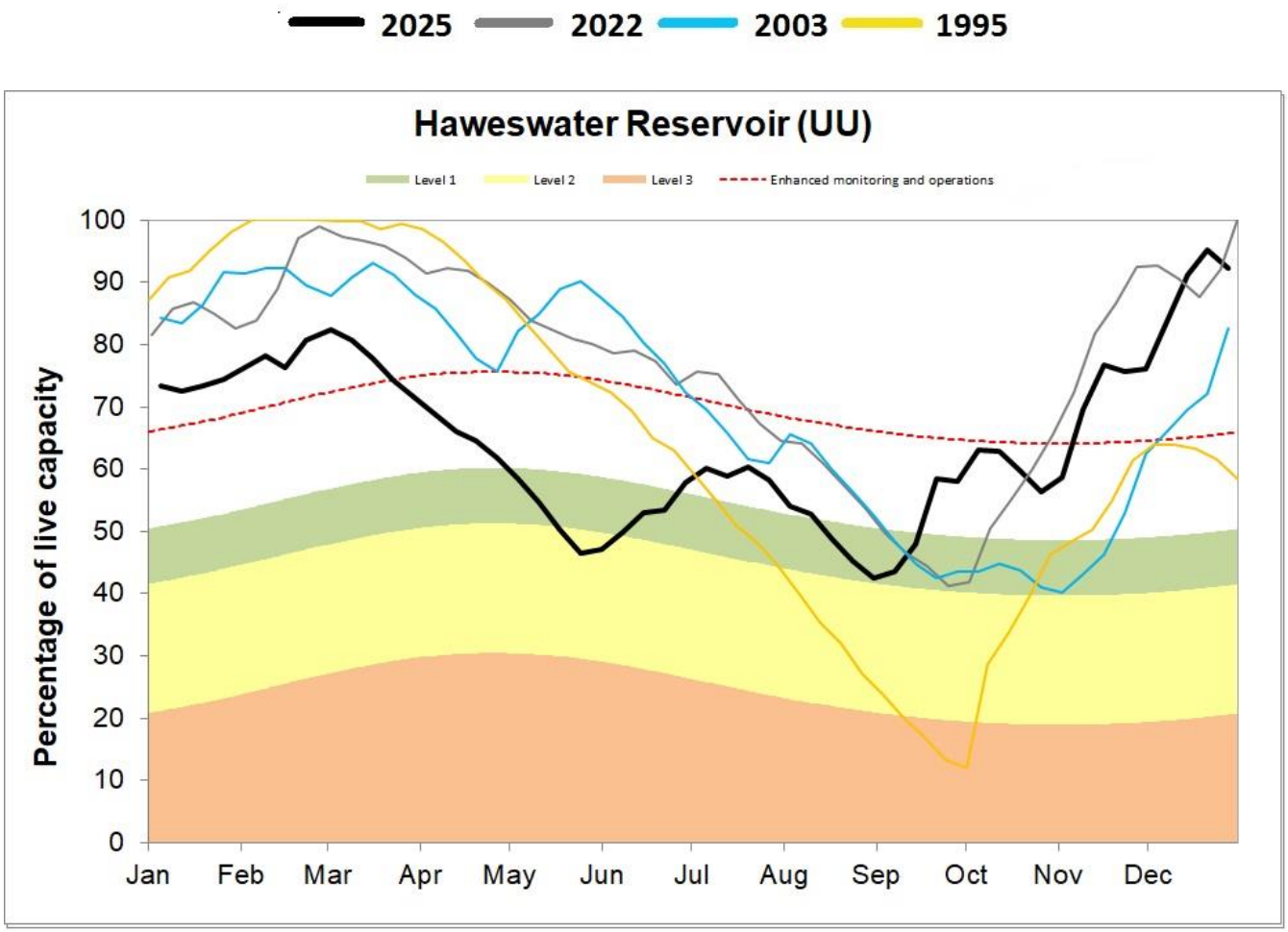
Reservoirs kept low for maintenance works include parts of the:

- 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) – Anglezarke, High Bullough, and Yarrow
- Longdendale System (Longdendale Reservoir Supply District) – Audenshaw No.1, Torside, and Woodhead
- Barnacre Group (Ribble Reservoir Supply District) – Barnacre North, and Barnacre South
- Cowpe System (Pennines West Reservoir Supply District) – Cragg
- Cowm System (Longdendale Reservoir Supply District) – Cowm
- Poaka Beck System (Lakes Reservoir Supply District) – Harlock
- Piethorne Valley System (Pennines East Reservoir Supply District) – Kitcliffe
- Ogden (Barley) System (Ribble Reservoir Supply District) – Ogden (Barley) Lower, and Ogden (Barley) Upper
- Ridgegate System (Stockport Reservoir Supply District) – Ridgegate
- Stocks System (Ribble Reservoir Supply District) – Stocks

1.6 Water abstraction restrictions and environmental impacts

No water abstraction restrictions were applied across CLA or GMC during December. Additionally, there has been no reported environmental incidents related to dry weather across north-west England.

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)).

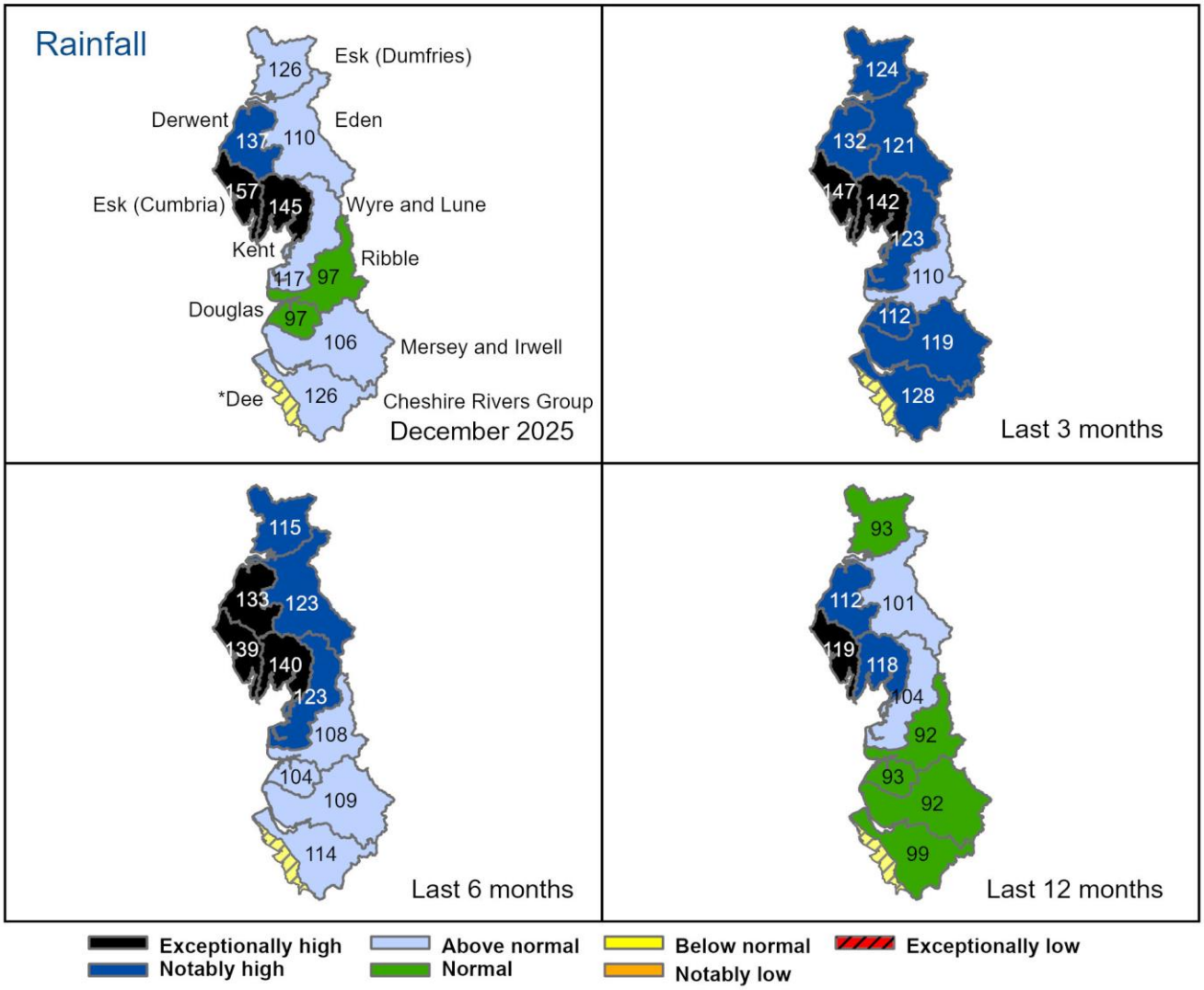


Author: Greater Manchester Merseyside and Cheshire Hydrology Team, hydrology.GMMYCH@environment-agency.gov.uk

2 Rainfall

2.1 Rainfall map

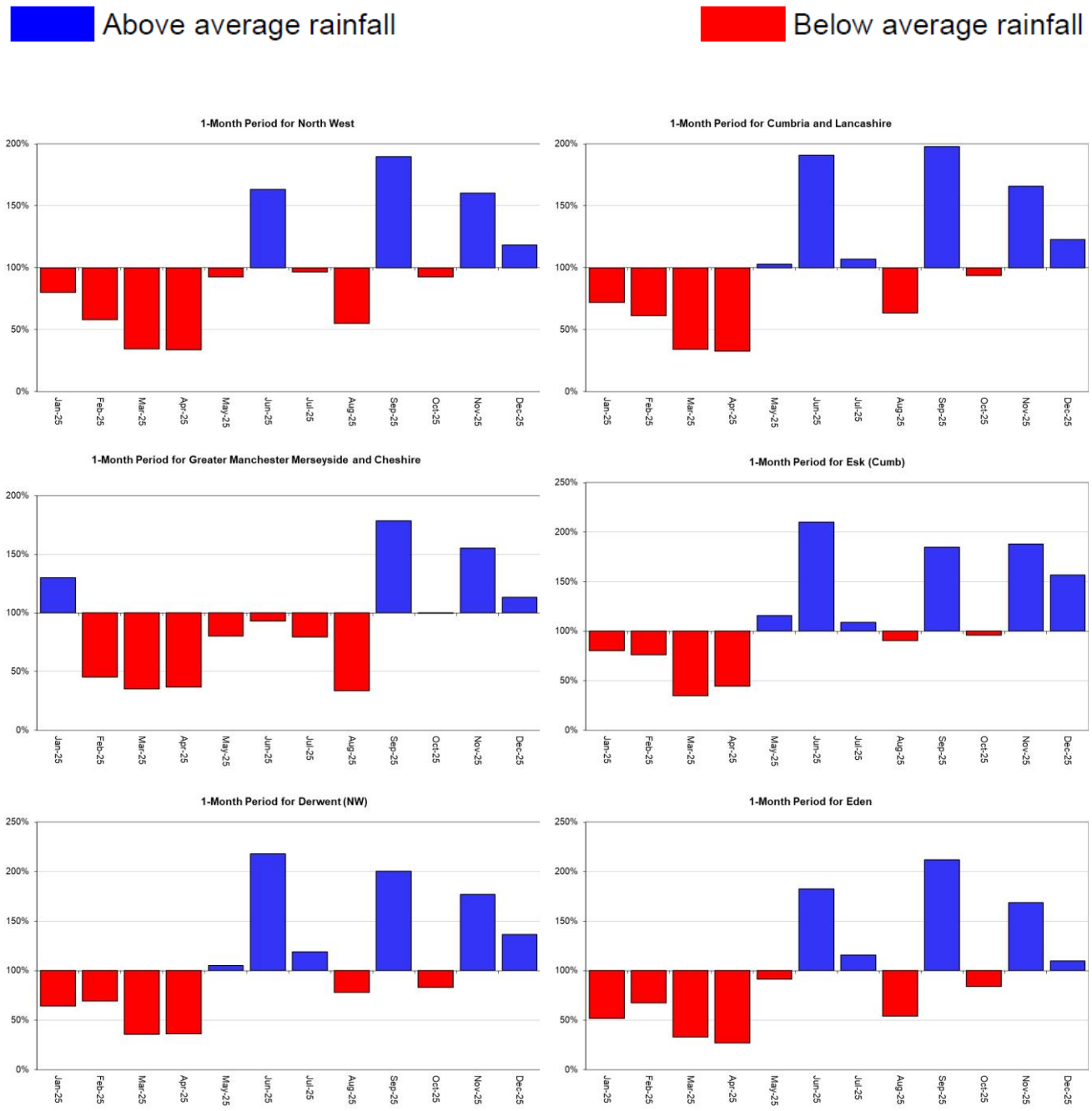
Figure 2.1: Total rainfall (as a percentage of the 1991 to 2020 long term average) for hydrological areas for the current month (up to 31 December 2025), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. Table available in the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

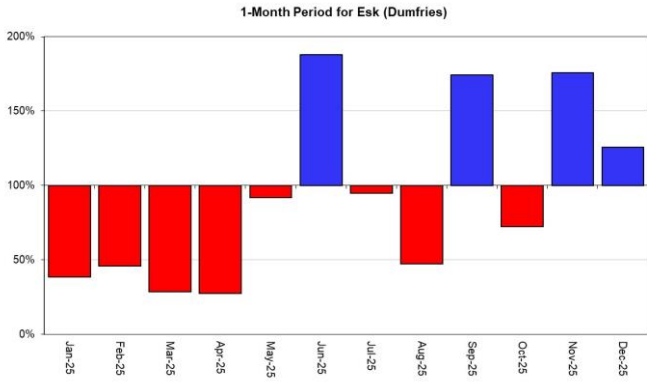


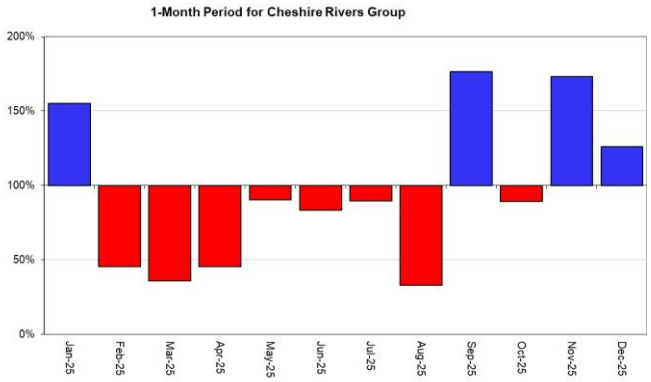
Rainfall data since January 2025, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, AC0000807064, 2026). Rainfall data prior to January 2025, extracted from Met Office HadUK 1km gridded rainfall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

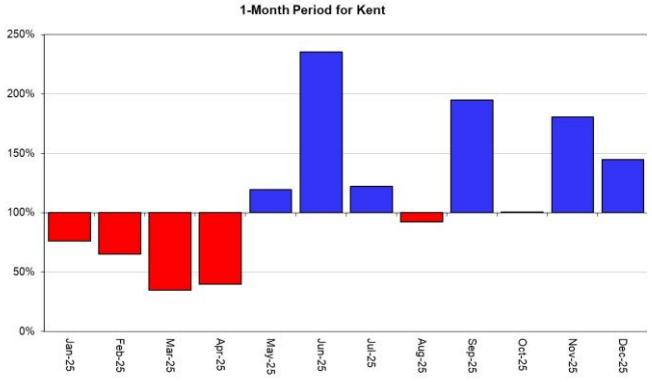
2.2 Rainfall charts

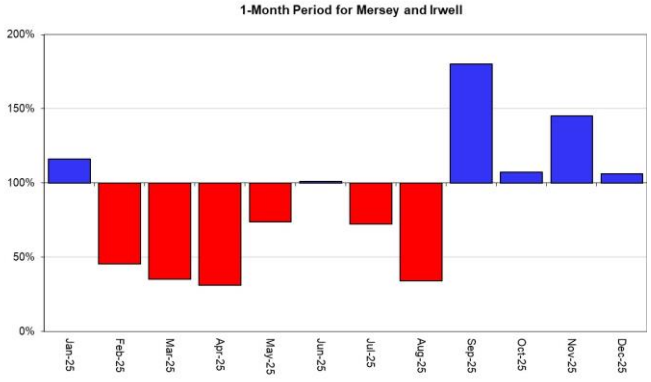
Figure 2.2: Monthly rainfall totals for the past 12 months expressed as a percentage of the 1991 to 2020 long term average for North-west England and its hydrological areas.

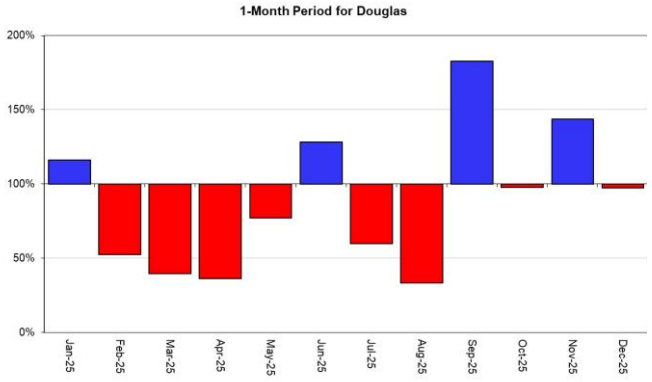


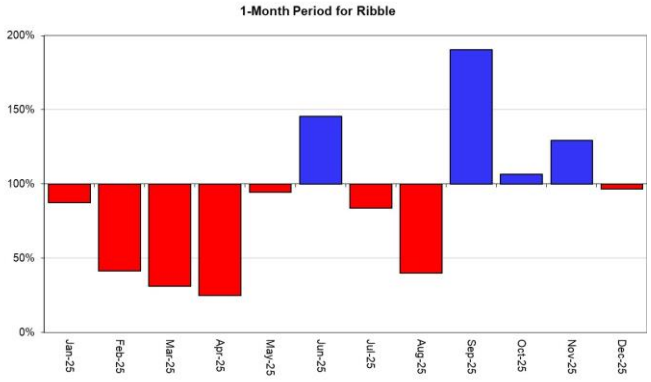

1-Month Period for Esk (Dumfries)
200%
150%
100%
50%
0%
Jan-25
Feb-25
Mar-25
Apr-25
May-25
Jun-25
Jul-25
Aug-25
Sep-25
Oct-25
Nov-25
Dec-25

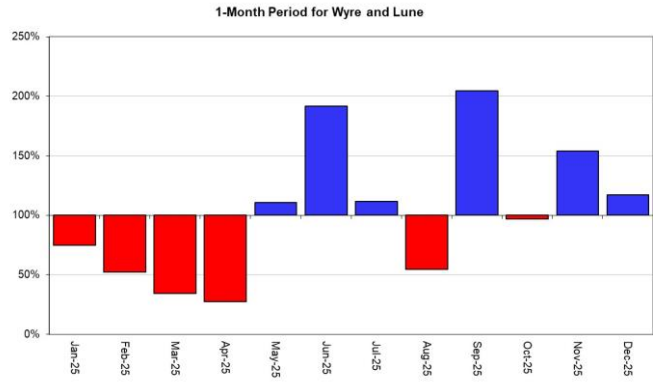

1-Month Period for Cheshire Rivers Group
200%
150%
100%
50%
0%
Jan-25
Feb-25
Mar-25
Apr-25
May-25
Jun-25
Jul-25
Aug-25
Sep-25
Oct-25
Nov-25
Dec-25


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


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


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


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

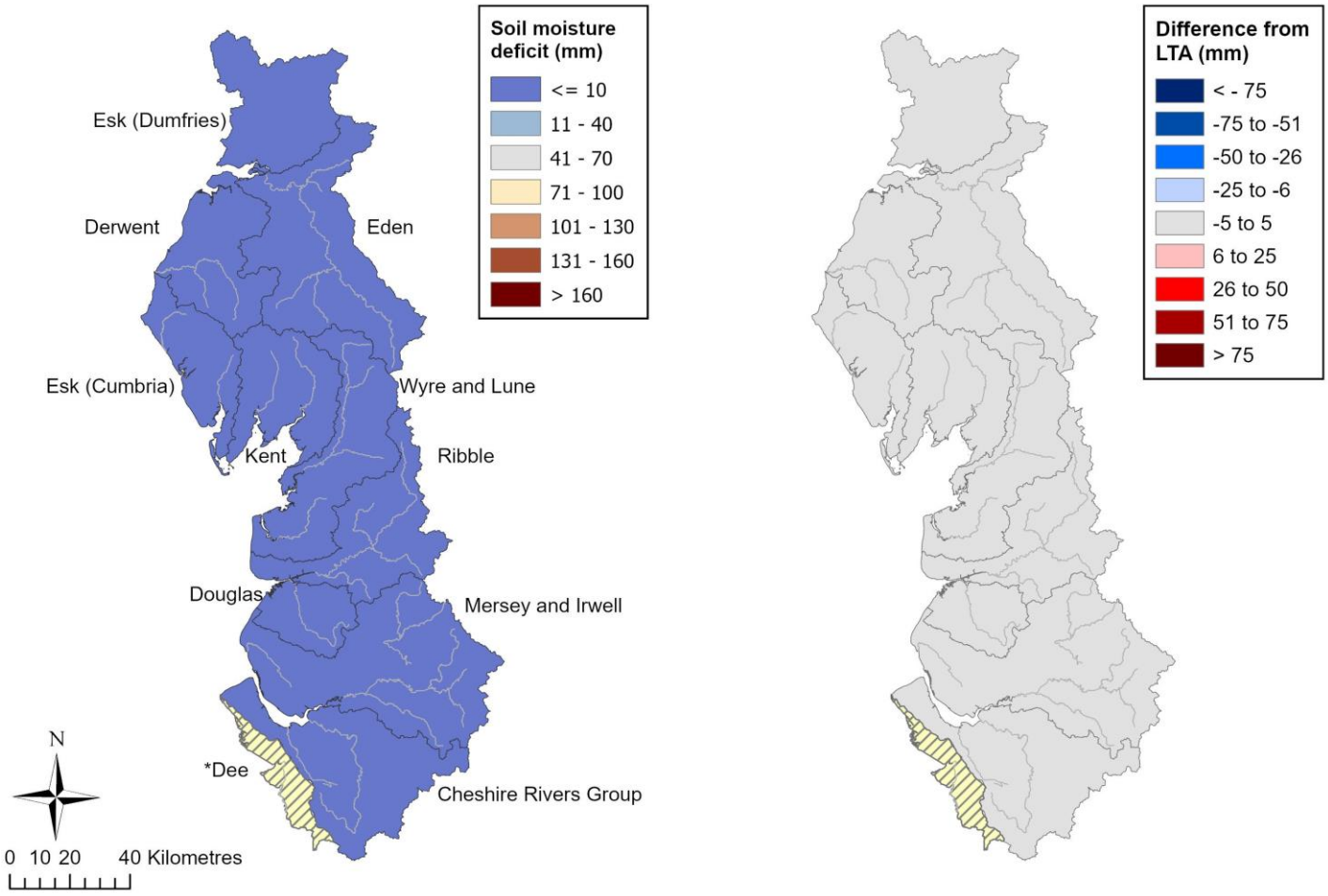


Rainfall data since January 2025, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, AC0000807064, 2026). Rainfall data prior to January 2025, extracted from Met Office HadUK 1km gridded rainfall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

3 Soil moisture deficit

3.1 Soil moisture deficit map

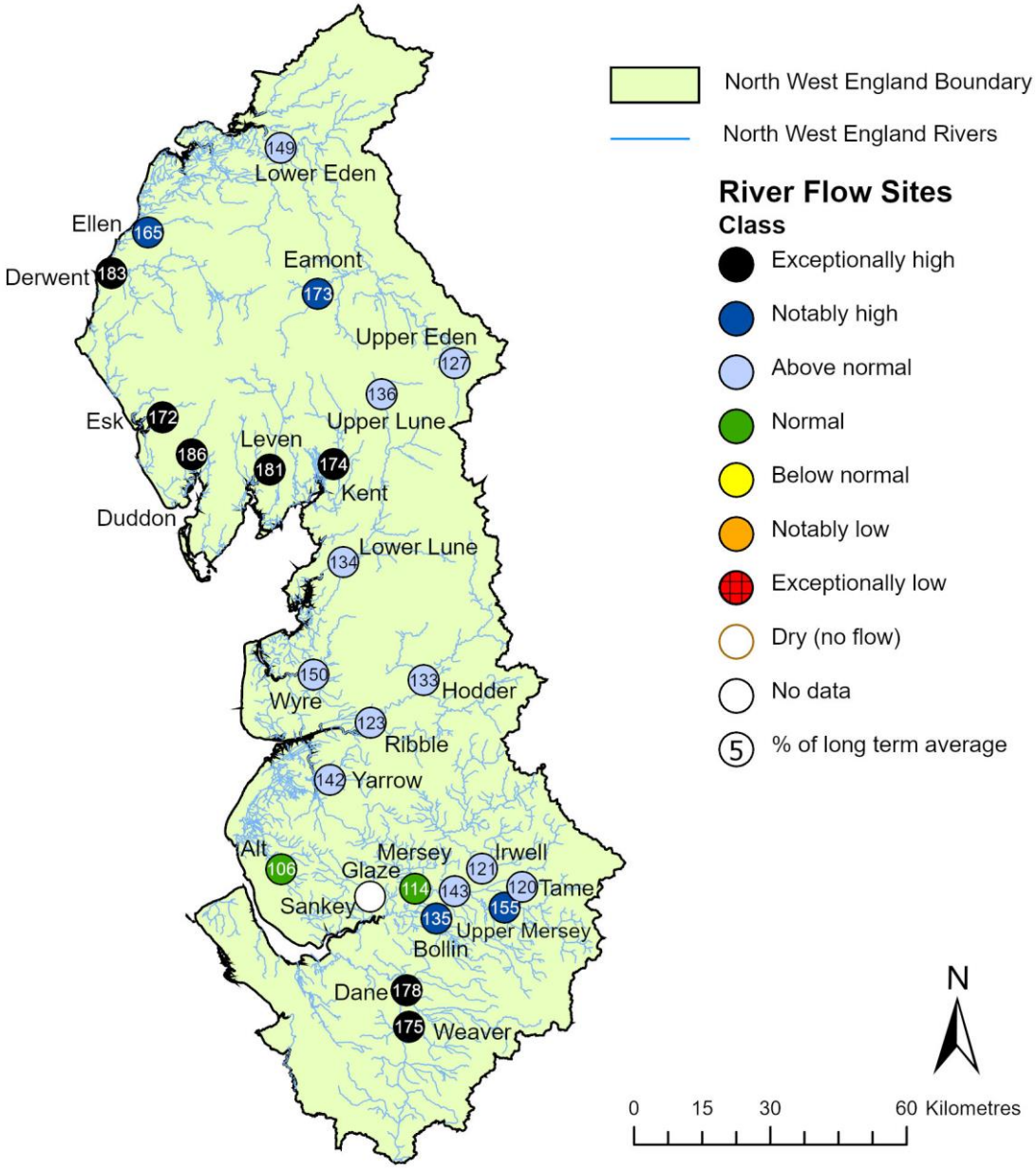
Figure 3.1: Soil moisture deficits for the week ending 30 April 2025. The map on the left shows actual soil moisture deficits (mm) and on the right shows the difference (mm) of the actual from the 1991 - 2020 long term average soil moisture deficits. MORECS data for real land use.



4 River flows

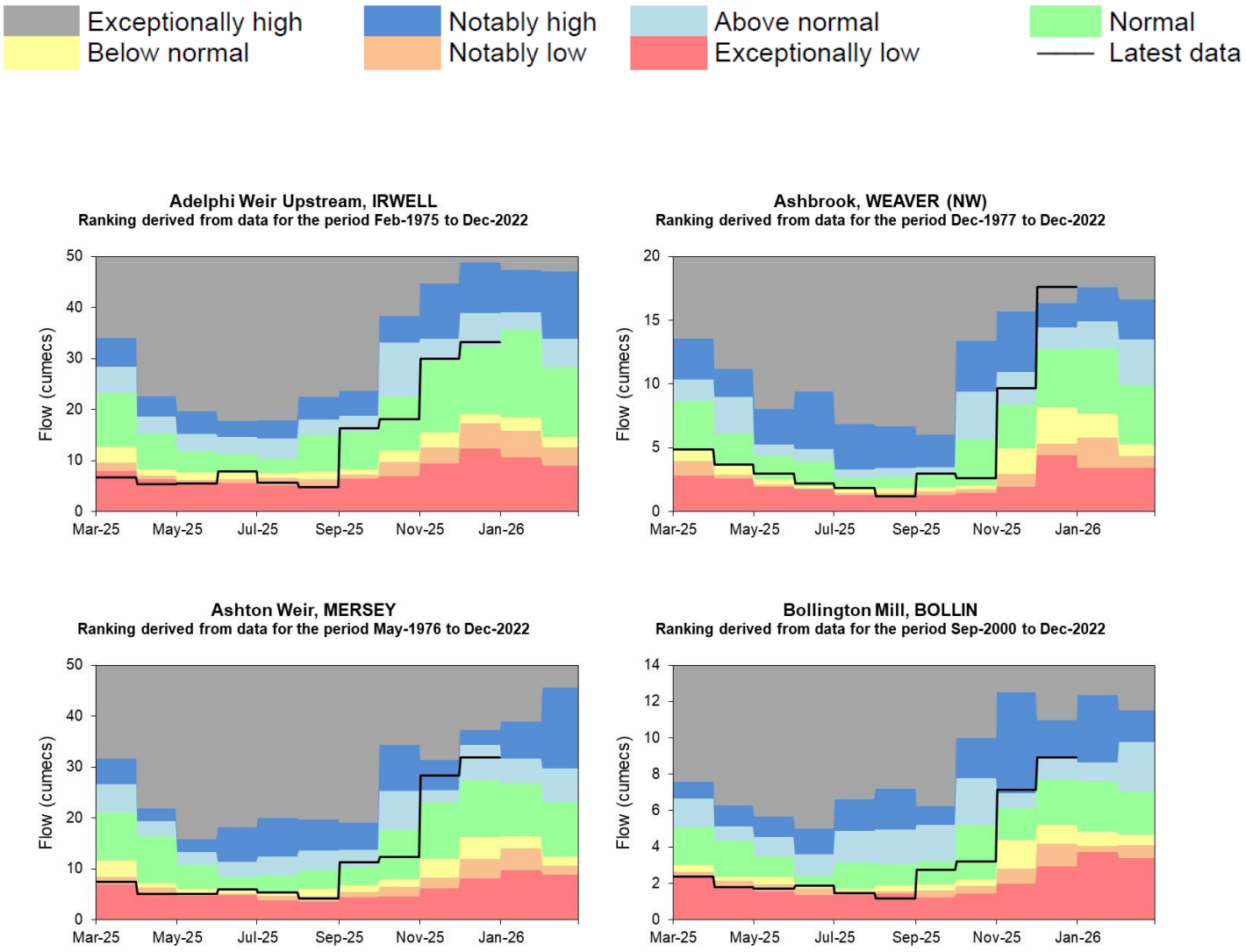
4.1 River flows map

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

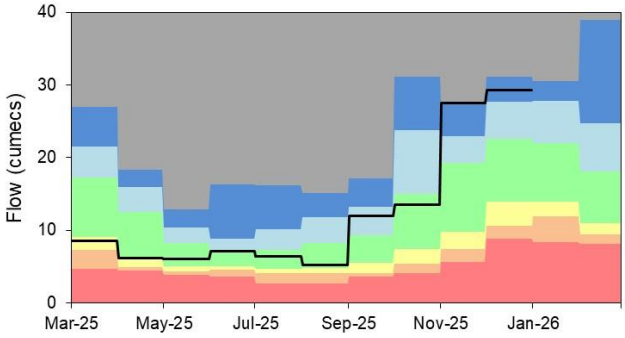


4.2 River flow charts

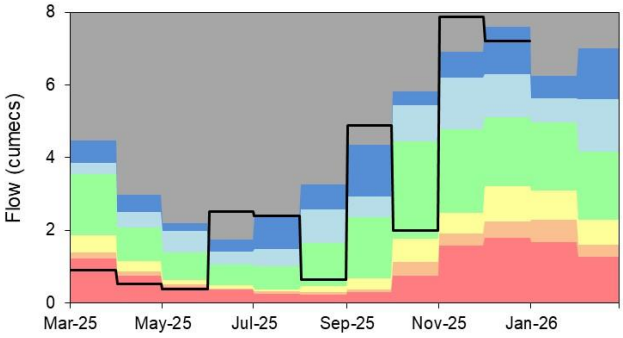
Figure 4.2: Monthly mean river flow for index sites over the past year, compared to an analysis of historic monthly mean flows.



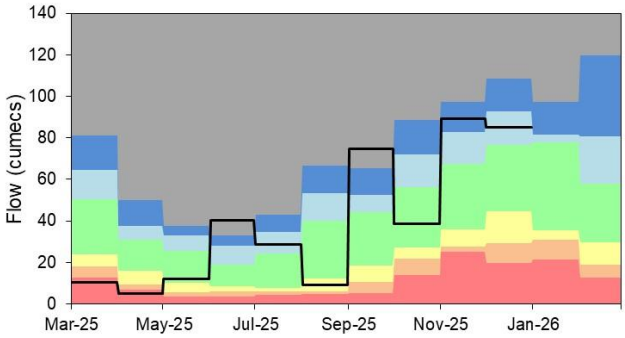
Brinksway, MERSEY
Ranking derived from data for the period Jan-1974 to Dec-2022



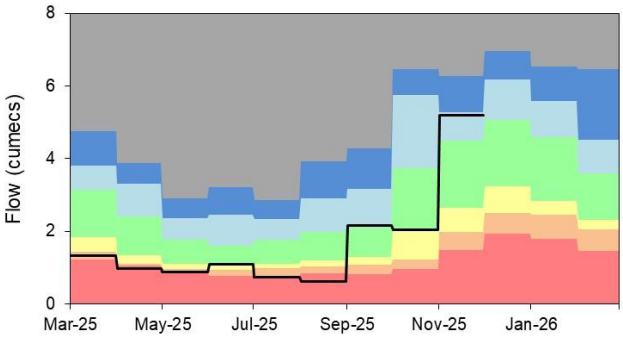
Bullgill, ELLEN
Ranking derived from data for the period Jan-1976 to Dec-2022



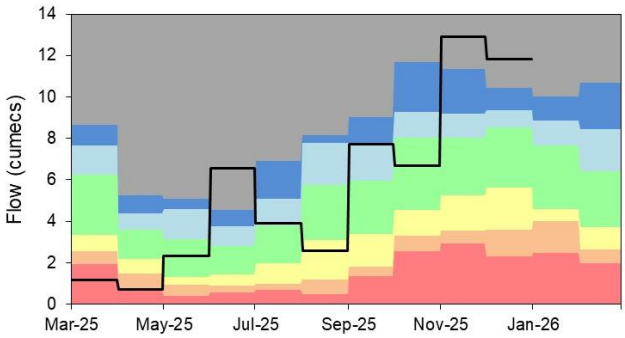
Caton, LUNE
Ranking derived from data for the period Jan-1959 to Dec-2022



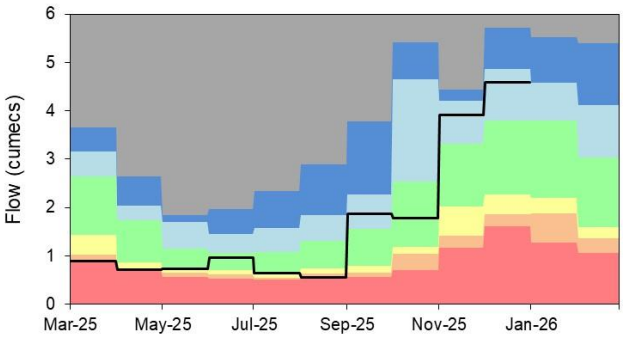
Causey Bridges, SANKEY
Ranking derived from data for the period Jan-1977 to Dec-2022



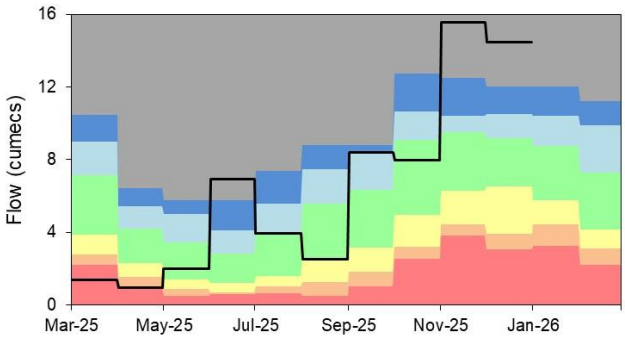
Cropple How, ESK (NW)
Ranking derived from data for the period Jan-1976 to Dec-2022



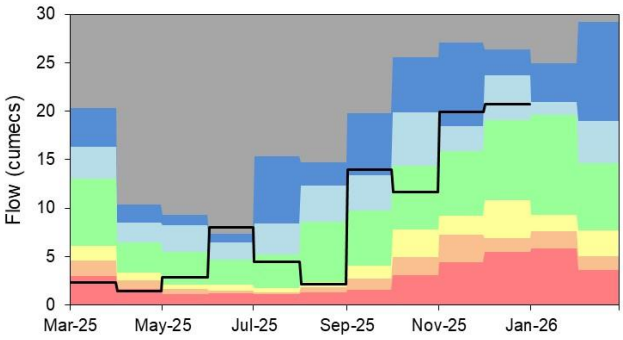
Croston, YARROW
Ranking derived from data for the period Jan-1976 to Dec-2022



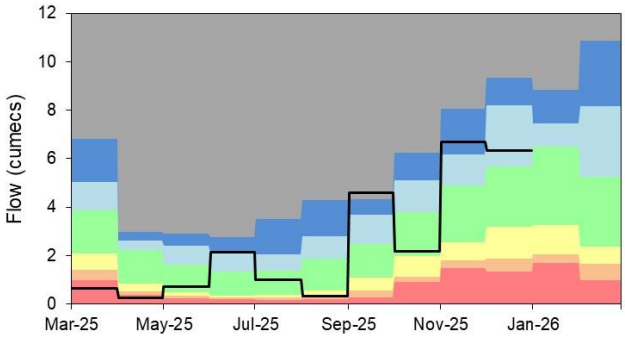
Duddon Hall, DUDDON
Ranking derived from data for the period Mar-1968 to Dec-2022



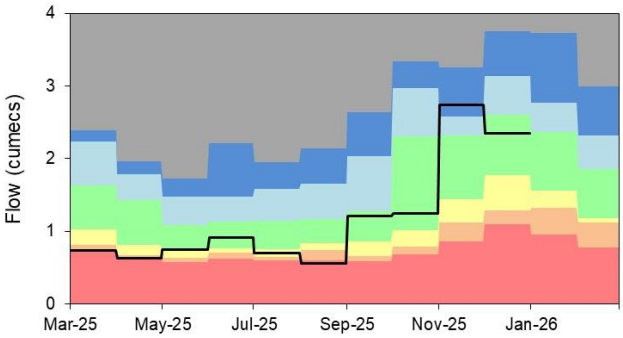
Hodder Place, HODDER
Ranking derived from data for the period Jan-1976 to Dec-2022



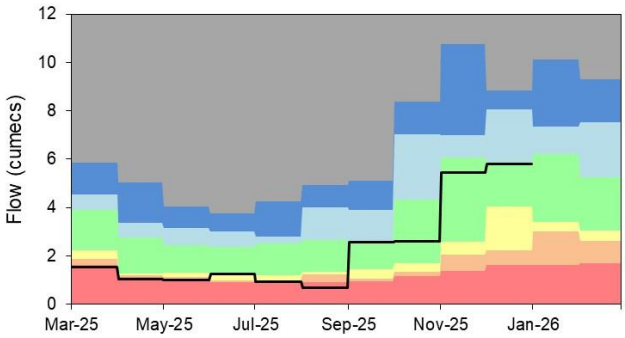
Kirkby Stephen, EDEN (NW)
Ranking derived from data for the period Oct-1971 to Dec-2022



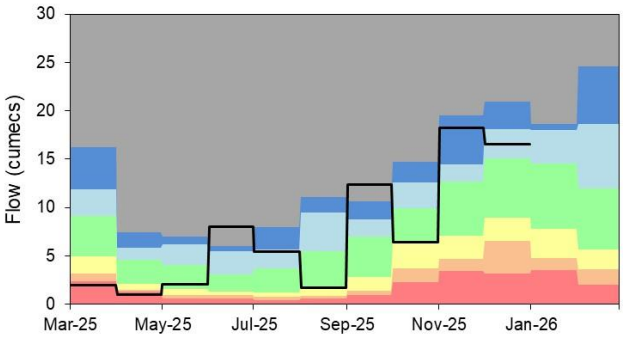
Kirkby, ALT
Ranking derived from data for the period Oct-1977 to Dec-2022



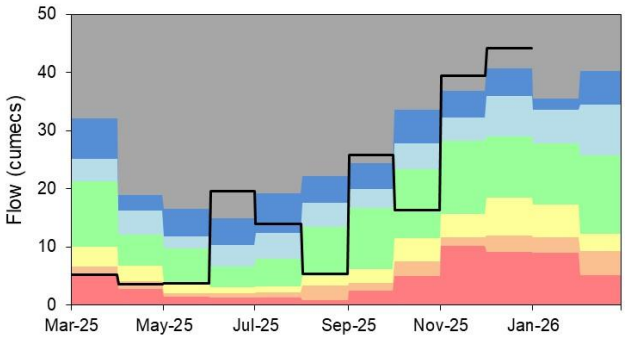
Little Woolden Hall Ultrasonic, GLAZE
Ranking derived from data for the period Jul-1995 to Dec-2022



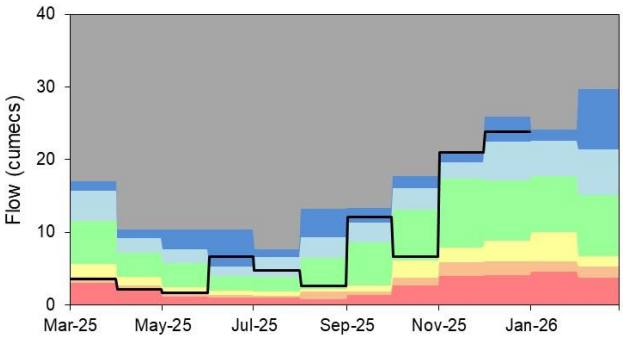
Lunes Bridge, LUNE
Ranking derived from data for the period Dec-1979 to Dec-2022



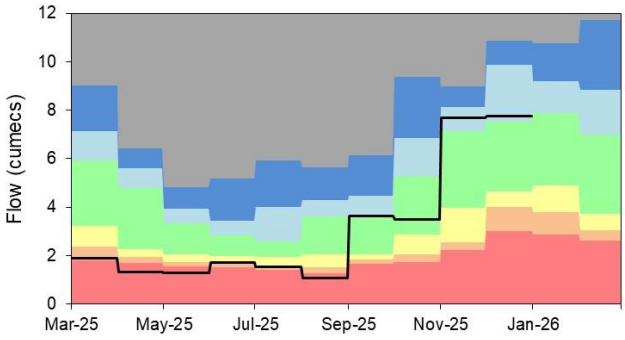
Newby Bridge FMS, LEVEN (NW)
Ranking derived from data for the period Jan-1972 to Dec-2022



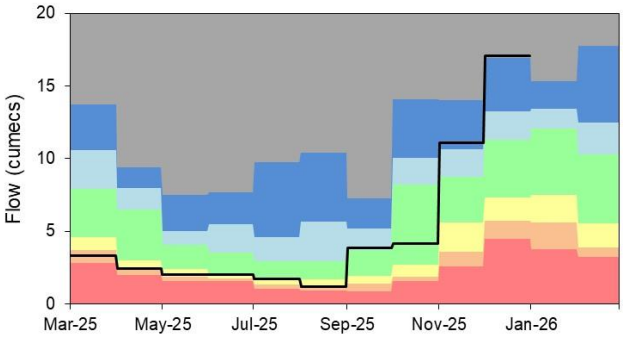
Pooley Bridge, EAMONT
Ranking derived from data for the period Jul-1970 to Dec-2022



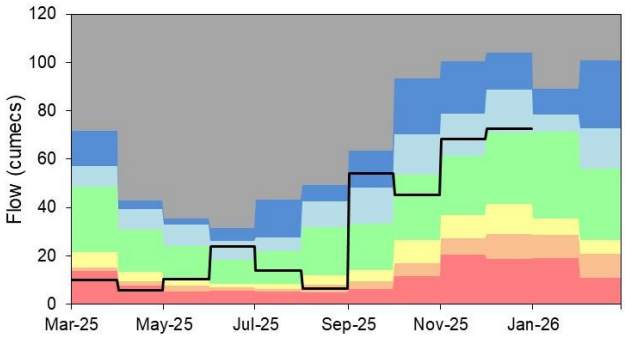
Portwood, TAME
Ranking derived from data for the period Jan-1976 to Dec-2022



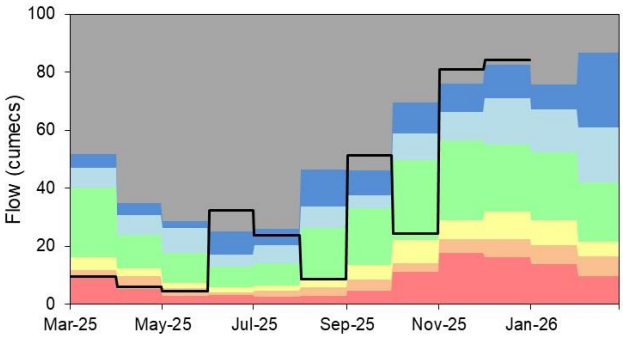
Rudheath, DANE
Ranking derived from data for the period Jan-1976 to Dec-2022

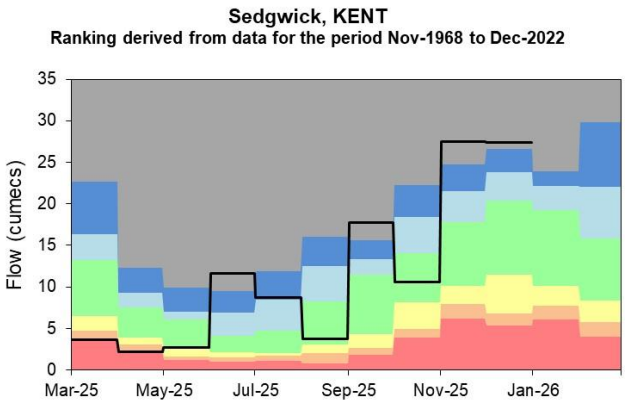


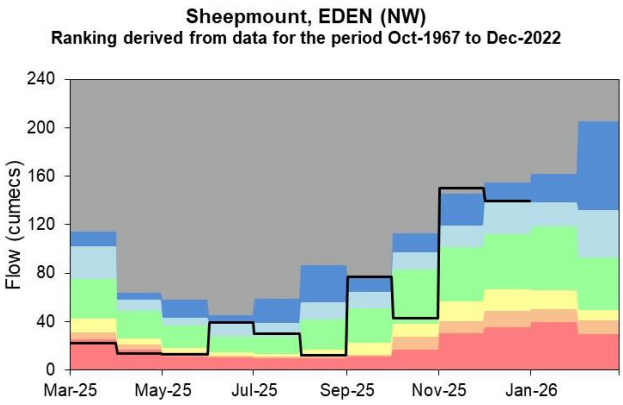
Samlesbury Pgs, RIBBLE (NW)
Ranking derived from data for the period May-1960 to Dec-2022

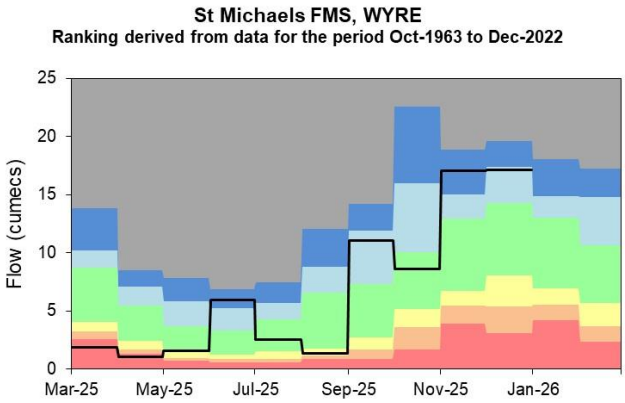


Seaton Mill, DERWENT (NW)
Ranking derived from data for the period Sep-1960 to Dec-2022







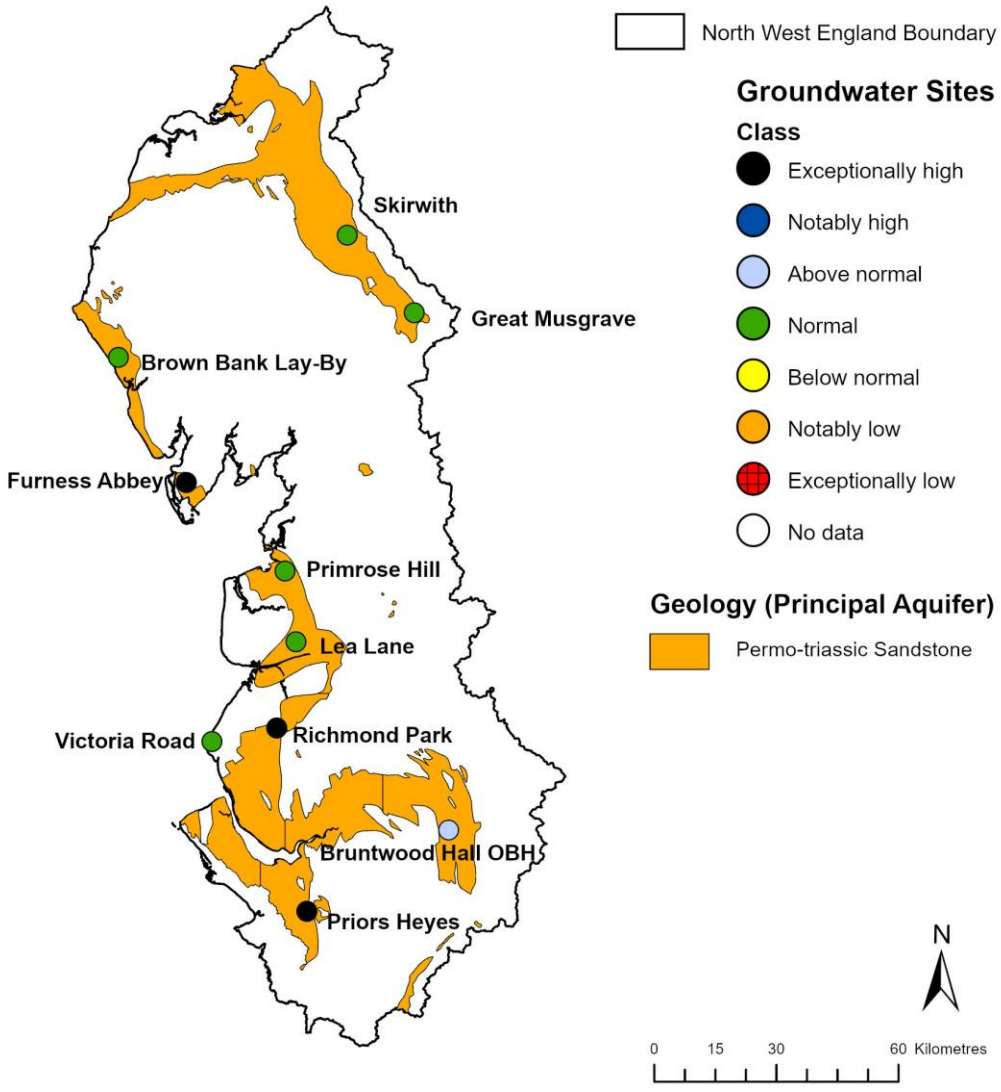


Source: Environment Agency.

5 Groundwater levels

5.1 Groundwater levels map

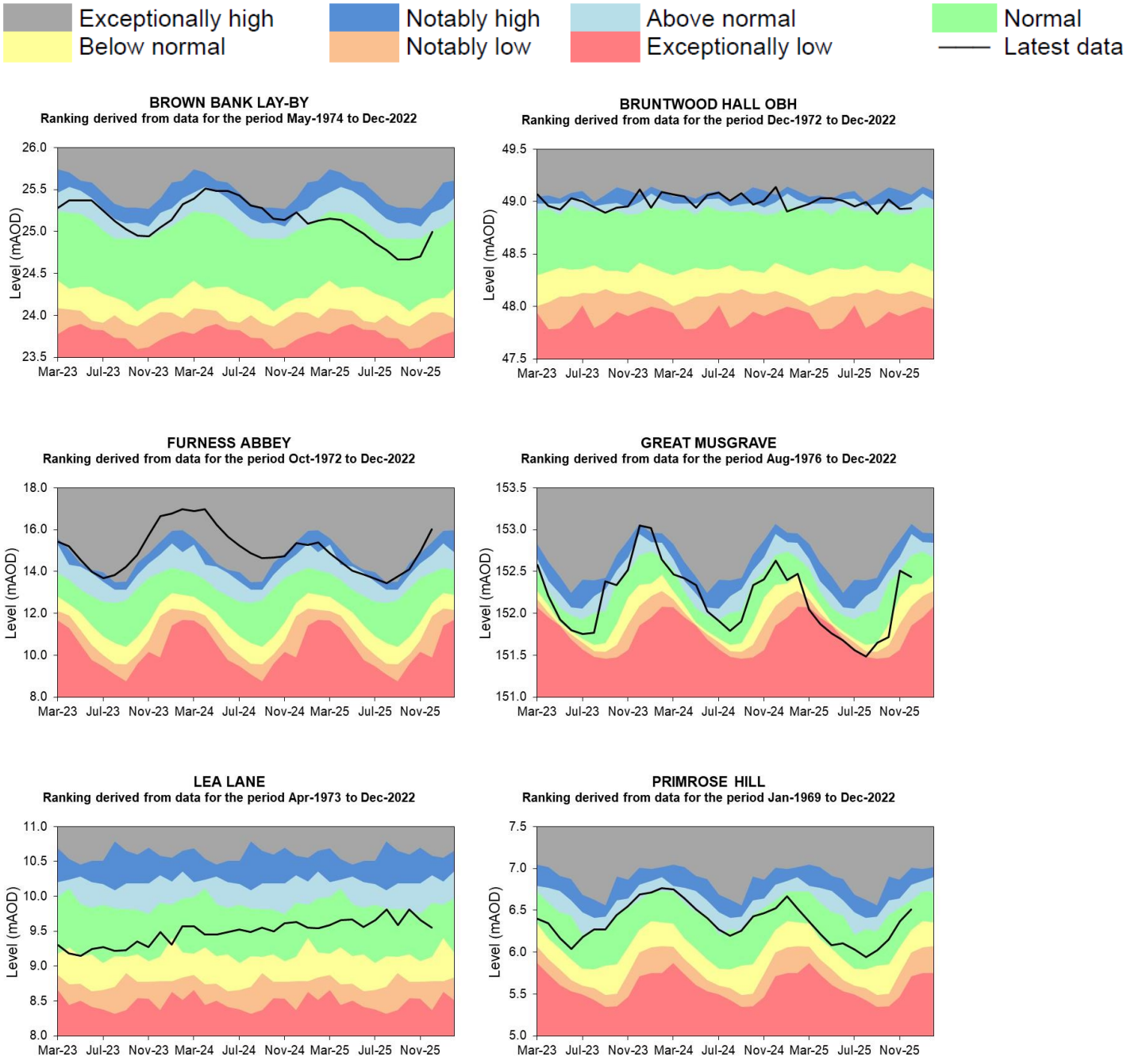
Figure 5.1: Groundwater levels for indicator sites at the end of December 2025, classed relative to an analysis of respective historic December levels. Table available in the appendices with detailed information. Please note Victoria Road Borehole sits within a superficial deposit as opposed to a bedrock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

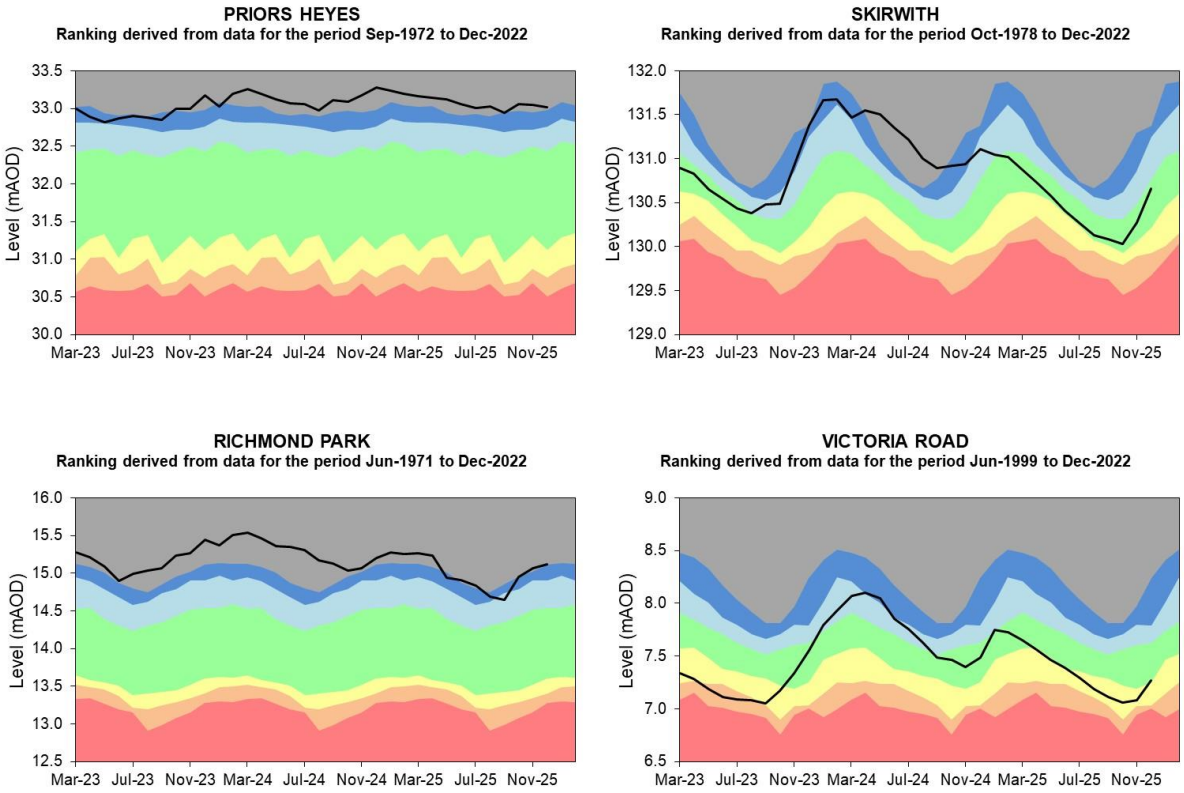


(Source: Environment Agency). Geological map reproduced with kind permission from UK Groundwater Forum, BGS copyright NERC. Crown copyright. All rights reserved. Environment Agency, AC0000807064, 2026.

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.

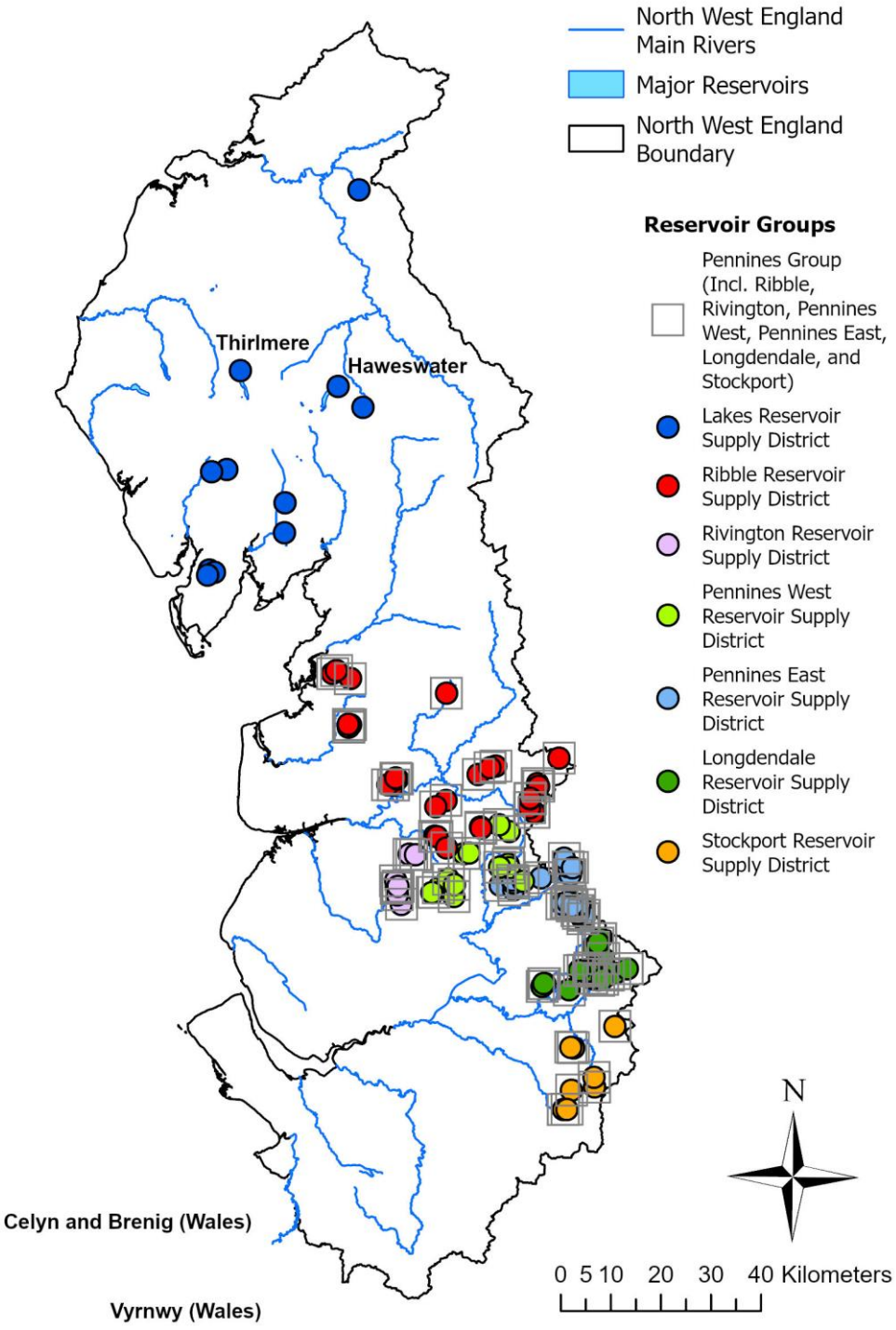
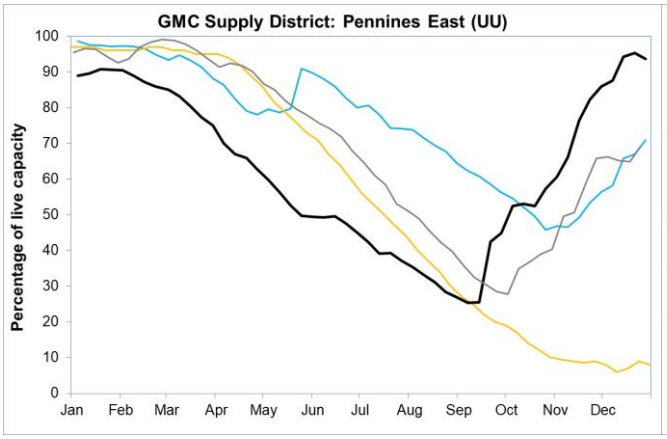
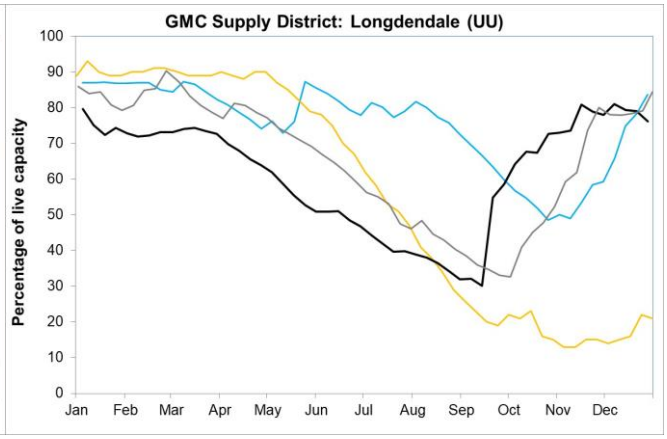
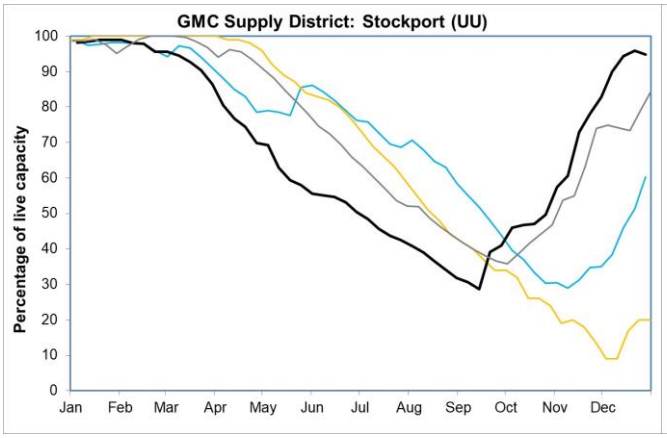
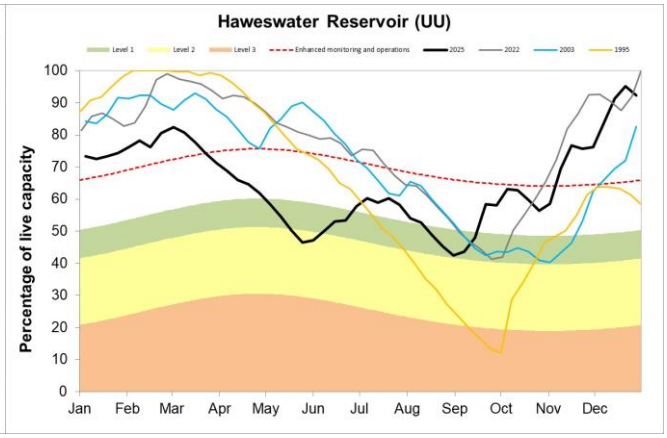


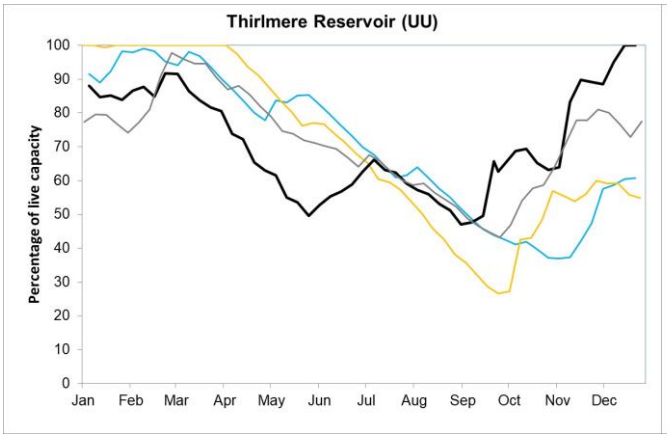
Figure 6.2: End of month reservoir stocks for supply districts across North-west England and selected individual reservoirs for current year (2025) and representative years: 1995, 2003 and 2022. Note: Historic records of individual reservoirs and reservoir groups making up the regional values vary in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

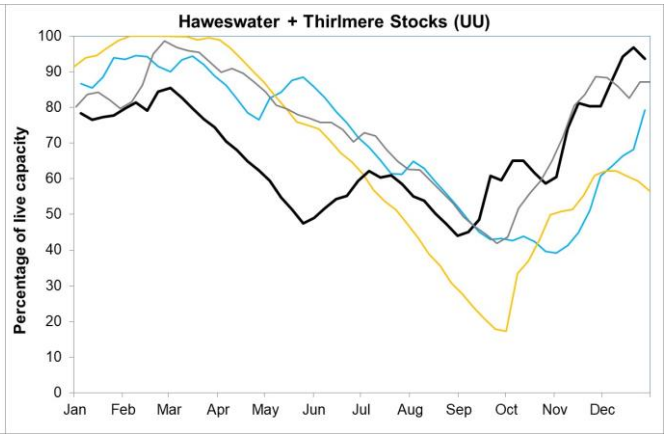

GMC Supply District: Pennines East (UU)
Percentage of live capacity
100
90
80
70
60
50
40
30
20
10
0
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

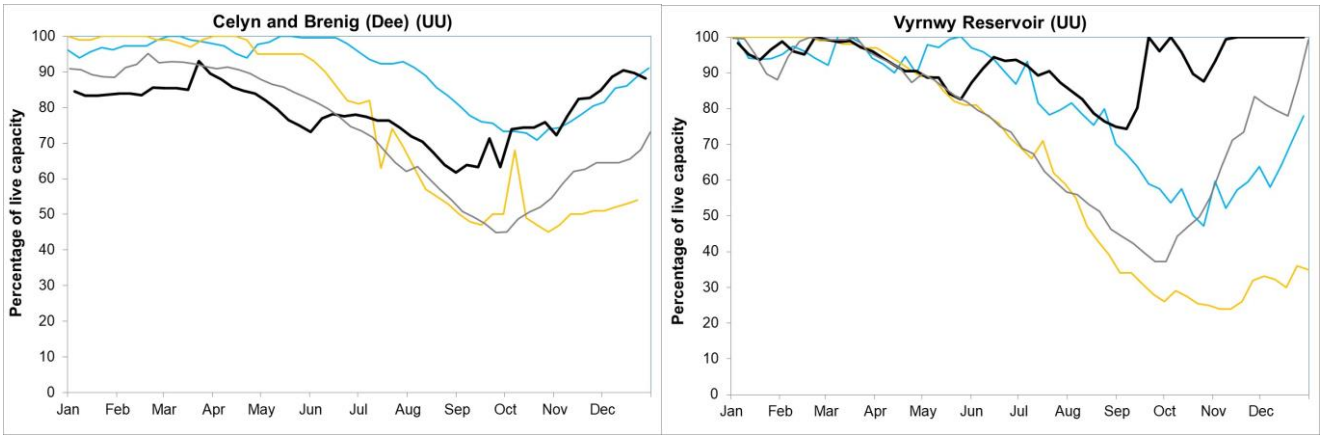

GMC Supply District: Longdendale (UU)
Percentage of live capacity
100
90
80
70
60
50
40
30
20
10
0
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec


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
2025
2022
2003
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.

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	Dec 2025 rainfall % of long term average 1991 to 2020	Dec 2025 band	Oct 2025 to December cumulative band	Jul 2025 to December cumulative band	Jan 2025 to December cumulative band
Cheshire Rivers Group	126	Above Normal	Notably high	Above normal	Normal
Derwent (North West)	137	Notably High	Notably high	Exceptionally high	Notably high
Douglas	97	Normal	Notably high	Above normal	Normal
Eden	110	Above Normal	Notably high	Notably high	Above normal
Esk (Cumbria)	157	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
Esk (Dumfries)	126	Above Normal	Notably high	Notably high	Normal
Kent	145	Exceptionally High	Exceptionally high	Exceptionally high	Notably high
Mersey And Irwell	106	Above Normal	Notably high	Above normal	Normal
Ribble	97	Normal	Above normal	Above normal	Normal
Wyre And Lune	117	Above Normal	Notably high	Notably high	Above normal

North West	118	Above Normal	Notably high	Notably high	Above normal

8.2 River flows table

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

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

8.3 Groundwater table

Site name	Aquifer	End of Dec 2025 band	End of Nov 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	Exceptionally high	Exceptionally high
Great Musgrave	Eden Valley And Carlisle Basin Permo-triassic Sandstone	Normal	Above normal
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	Normal	Below normal