

Monthly water situation report: North-west England

1 Summary – November 2025

Rainfall for north-west England during November was classed as exceptionally high, having received 160% of the long-term average (LTA). Notably Cumbria experienced its third wettest November on record since 1871. In response to this, soil moisture deficit (SMD) has continued to remain saturated across Cumbria and Lancashire (CLA), and it has been further reduced across Greater Manchester, Merseyside, and Cheshire (GMC). Mean river flows have generally increased compared to October and were classed as between normal to exceptionally high. The highest river flows were seen in the catchments in Cumbria, and the Upper Mersey. Total reservoir stocks for north-west England has continued to see recovery, and most reservoirs are now at or near its average for this time of the year.

1.1 Rainfall

November has continued the trend of what has been a very wet autumn, predominantly characterised by the succession of low pressure systems throughout the month, including the Met Office named Storm Claudia on 14 November, which affected Cumbria and GMC in particular.

November's rainfall for north-west England as a whole was classed as exceptionally high, at 160% of the LTA. Cumbria observed 178% of the LTA, classed as exceptionally high, and Lancashire 144% of the LTA, classed as notably high. GMC observed 155% of the LTA, classed as notably high. November was also the third wettest on record for Cumbria since 1871 (154 years) at 289mm.

Cumbria received the heaviest rainfall that fell in north-west England during November, with all hydrological areas in Cumbria being classed as exceptionally high. The highest rainfall (in terms of the LTA) was observed in the Esk (Cumbria) hydrological area, at 188% (classed as exceptionally high) which also observed its second wettest November on record at 378mm, 34mm below the record in 2009. The lowest rainfall (in terms of the LTA) was observed in the Ribble hydrological area (classed as above normal). Also, the Derwent, and the Kent hydrological areas observed their third wettest November since 1871, while the Eden, and the Esk (Dumfries) hydrological areas observed their fifth wettest November since 1871.

The 3-month cumulative rainfall period, which coincides with the meteorological autumn (1 September to 30 November), was classed as exceptionally high for every single hydrological area in north-west England. This would explain the good recovery across north-west England from the dry weather seen earlier this year. It is worth noting this was the second wettest

metreological autumn for the Derwent hydrological area since 1871; third wettest for the Esk (Cumbria), the Eden, and the Kent hydrological areas; and the fifth wettest for the Esk (Dumfries), the Mersey and Irwell, and the Wyre and Lune hydrological areas since 1871. It was also the third wettest for Cumbria and the fourth wettest for north-west England as a whole.

The 6-month cumulative rainfall period which includes both the meteorological summer (1 June to 31 August) and autumn, shows the impact of the heavy rainfall seen in the last 3 months, with almost all of Cumbria with the exception of the Esk (Dumfries) hydrological area (classed as notably high) being classed as exceptionally high. In general, the further south it is, the drier it was with the Wyre and Lune hydrological area being classed as notably high, and the Cheshire Rivers Group hydrological area being classed as normal. Similar to the 3-month cumulative period, this was the third wettest 6-month period ending in November since 1871 for the Esk (Cumbria) and the Kent hydrological areas, and the fifth wettest for Cumbria as a whole.

The 12-month cumulative period replicates the spatial variability observed in the 6-month cumulative rainfall totals. The Esk (Cumbria), the Kent, and the Derwent hydrological areas recorded the highest rainfall, and were all classed as notably high. This was followed by the Wyre and Lune hydrological area, which was classed as above normal. All remaining hydrological areas fell within the class of normal.

1.2 Soil moisture deficit and recharge

In response to the rainfall received throughout November, SMD at the beginning of December across north-west England continued to recover and remained saturated across Cumbria and northern Lancashire. In the Cheshire Rivers Group hydrological area, observed SMD was less than 10mm which was 6 to 25mm wetter than the LTA. Across all other hydrological areas, SMD was at or close to the LTA.

1.3 River flows

Similar to the spatial pattern in rainfall over November, the highest river flow was found across Cumbria, northern Lancashire, and upland GMC. River flows were highest (in terms of percentage of the LTA) in the Ellen catchment at Bullgill (202% of the LTA, classed as exceptionally high), and lowest in the Glaze Brook catchment at Little Woolden Hall (116% of the LTA, classed as normal).

For the other 23 indicator sites reported:

- 7 sites (all in Cumbria with the exception of the Upper Mersey Catchment at Brinksway) were classed as exceptionally high

- 10 sites were classed as notably high
- 6 sites (all found in central Lancashire or GMC) were classed as above normal

Heavy rainfall recorded towards the first half of the month has resulted in several notable peaks in daily mean flow.

Daily mean flows above Q1 (this is where mean flow has been exceeded only 1% of the gauging record) were observed on 3 to 4 November at:

- Caton gauging station on the River Lune
- Cropple Howe gauging station on the River Esk
- Kirkby Stephen gauging station on the River Eden
- Kirkby gauging station on the River Alt
- Pooley Bridge Upstream gauging station on the River Eamont
- St Michaels gauging station on the River Wyre

And on 14 to 15 November at:

- Ashton Weir gauging station on the River Mersey
- Bollington Mill gauging station on the River Bollin
- Brinksway gauging station on the River Mersey
- Causey Bridges gauging station on Sankey Brook
- Portwood gauging station on the River Tame
- Rudheath gauging station on the River Dane

In addition, daily mean flows above Q0.1 (where the mean flow has been exceeded only 0.1% of the gauging record) were observed on 3 to 5 November at:

- Duddon Hall gauging station on the River Duddon
- Lunes Bridge gauging station on the River Lune
- Newby Bridge gauging station on the River Leven
- Seaton Mill gauging station on the River Derwent
- Sedgwick gauging station on the River Kent

And on 13 November at:

- Sheepmount gauging station on the River Eden

1.4 Groundwater levels

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

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

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

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.

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 68% at the end of October to 85% at the end of November. This is higher than the average of 84% at this time of the year, and higher than this time last year when total reservoir stock was 78%.

At the end of November, reservoir stock (in terms of percentage) was highest at Lake Vyrnwy at 100% full and lowest (in terms of percentage) at Rivington Reservoir Supply District, which was 71% full.

The combined storage at Haweswater and Thirlmere was at 80%. This is the same as the average of 80% for this time of the year, and higher than this time last year when the stock was 65%.

Reservoirs kept low for maintenance works include parts of the:

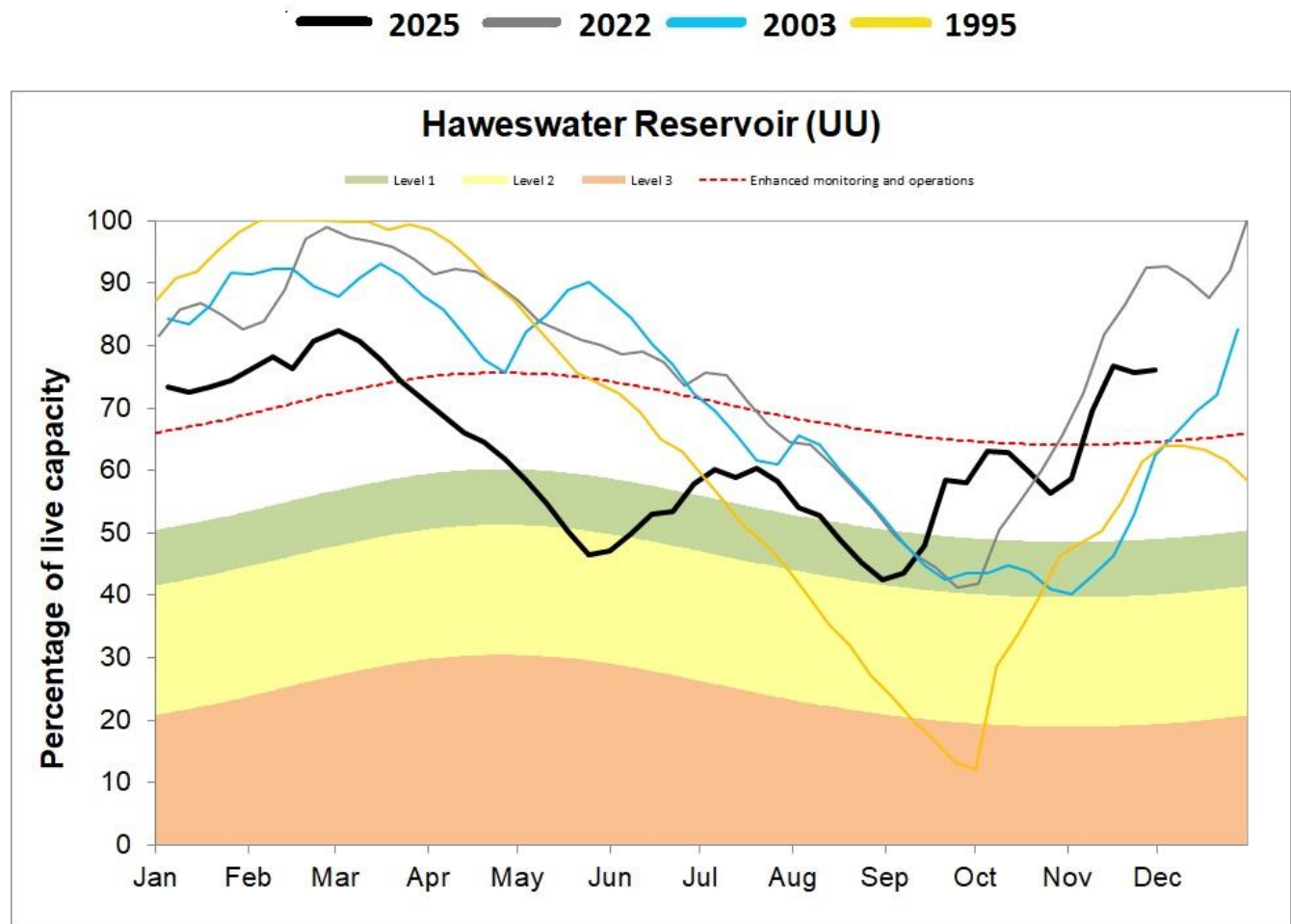
- Longridge System (Ribble Reservoir Supply District) – Alston No.1, Alston No.2, Spade Mill No.1, and Spade Mill No.2
- Rivington System (Rivington Reservoir Supply District) – Anglezarke, High Bullough, and Yarrow
- Longdendale System (Longdendale Reservoir Supply District) – Audenshaw No.1, Torside, 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
- Ridegate System (Stockport Reservoir Supply District) - Ridegate

1.6 Water abstraction restrictions and environmental impacts

No water abstraction restrictions were applied across CLA or GMC during November. 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)).



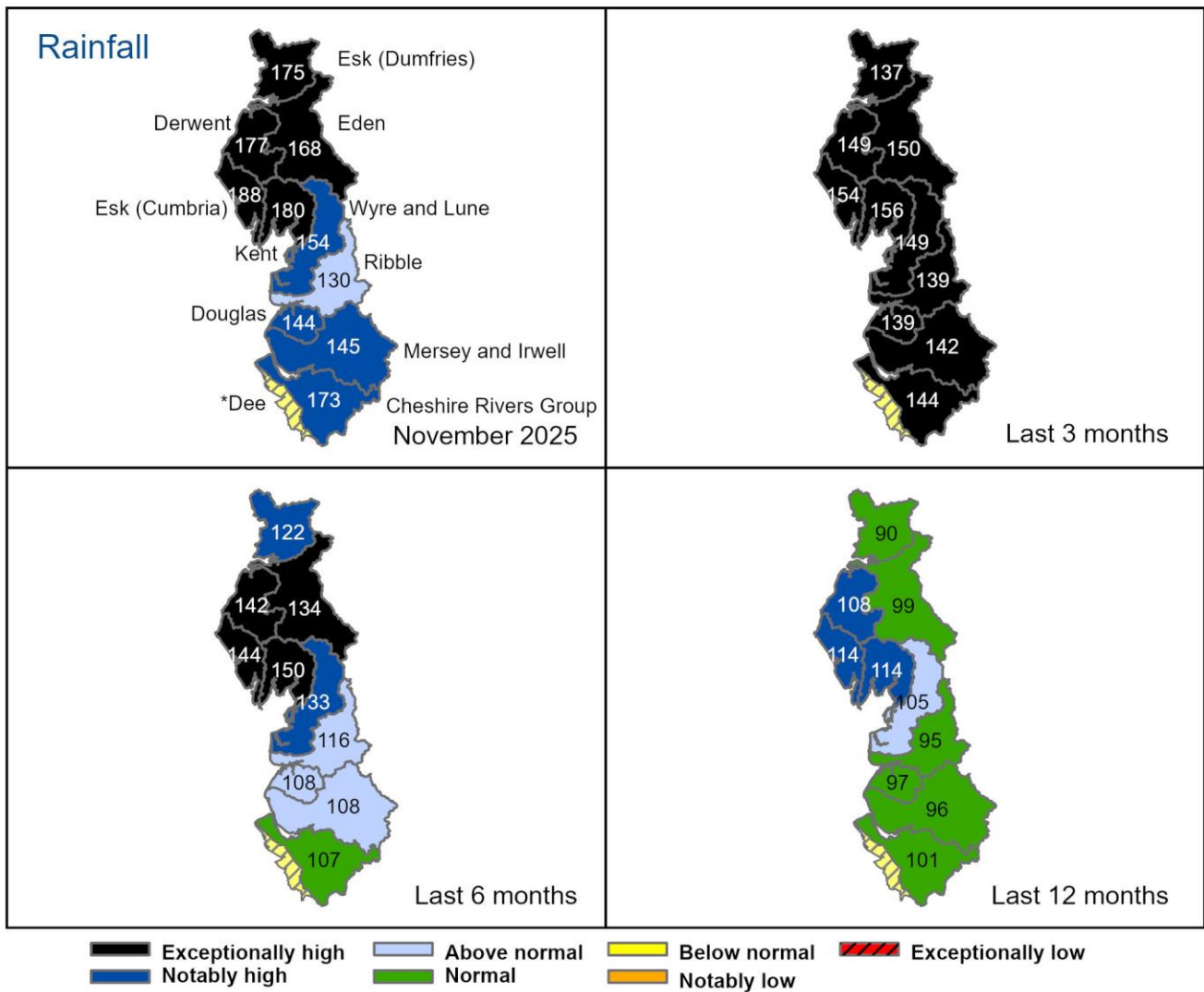
Author: Greater Manchester Merseyside and Cheshire Hydrology Team,
hydrology.GMMYCH@environment-agency.gov.uk

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2 Rainfall

2.1 Rainfall map

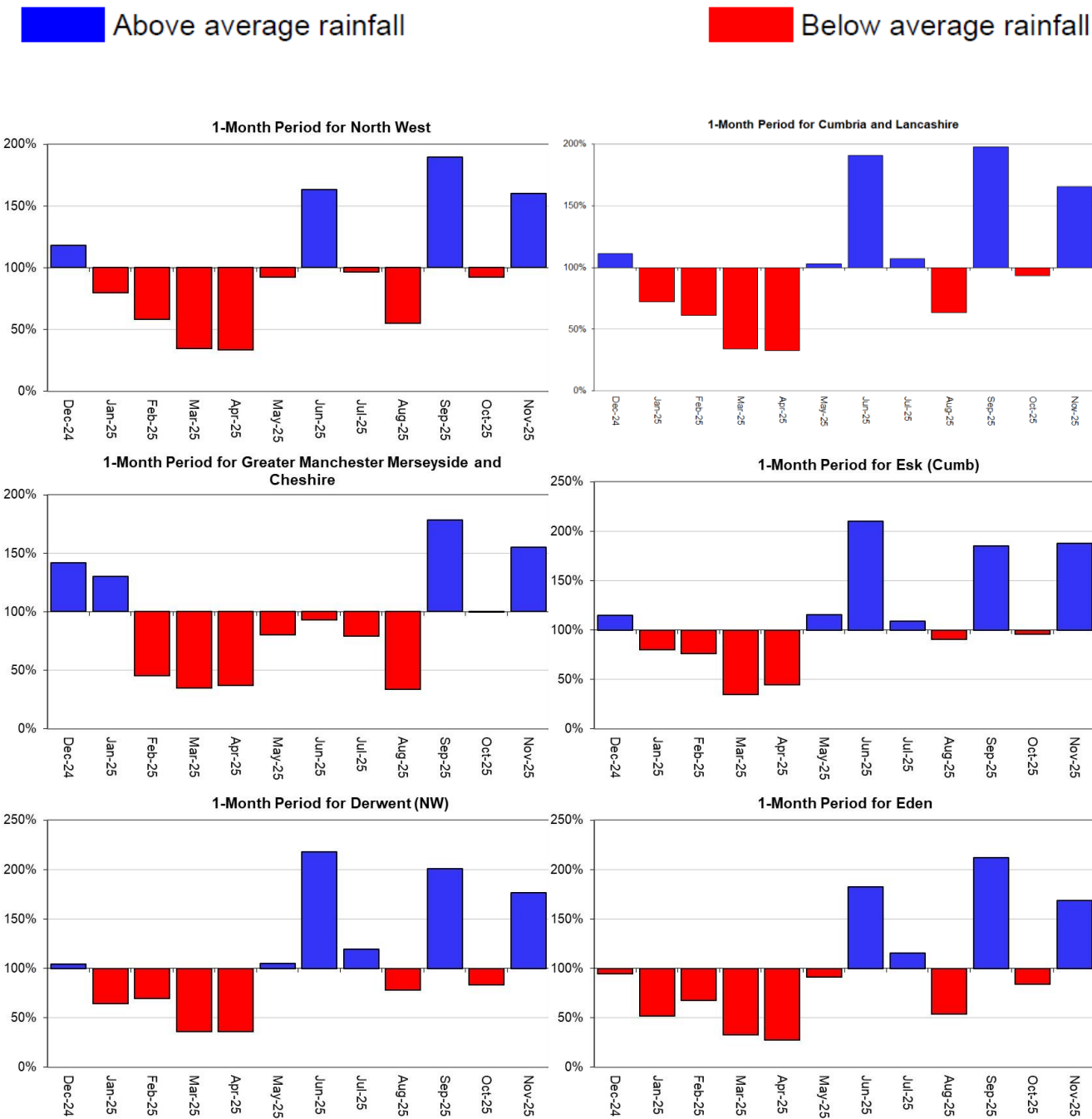
Figure 2.1: Total rainfall (as a percentage of the 1991 to 2020 long term average) for hydrological areas for the current month (up to 30 November 2025), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. Table available in the appendices with detailed information.

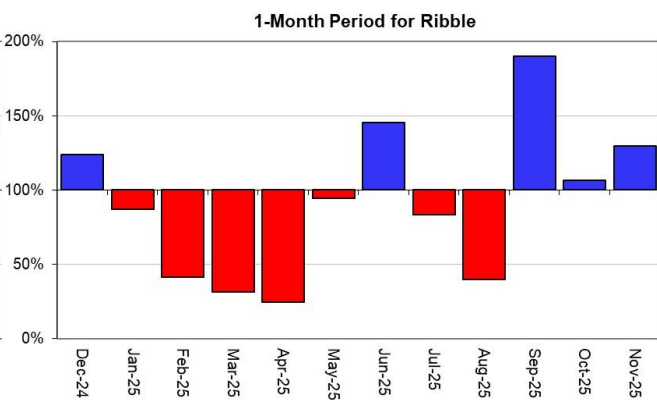
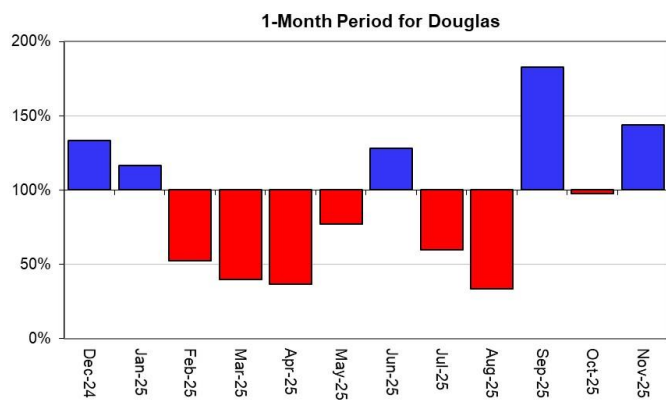
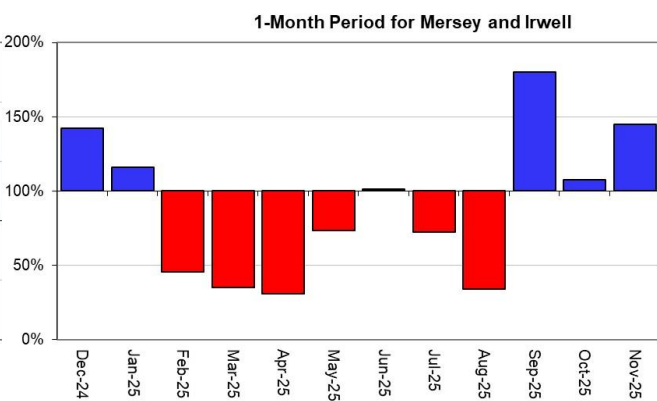
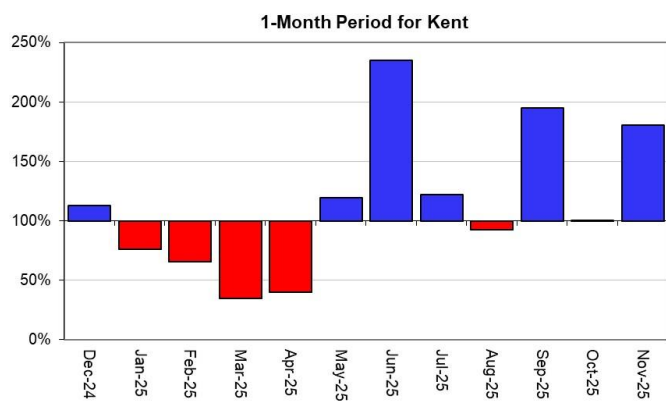
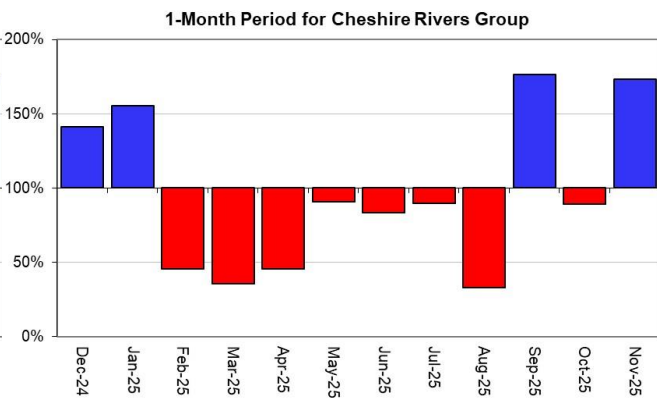
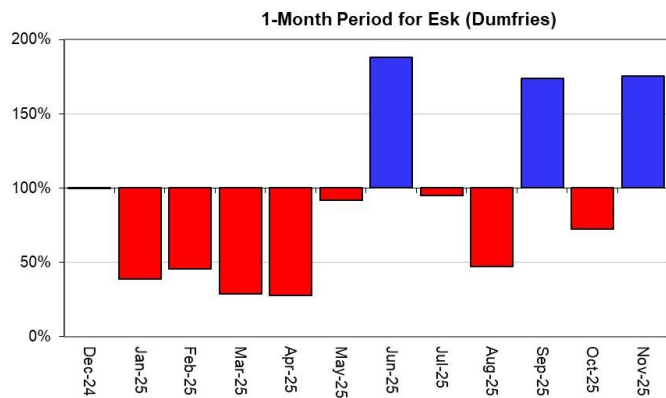


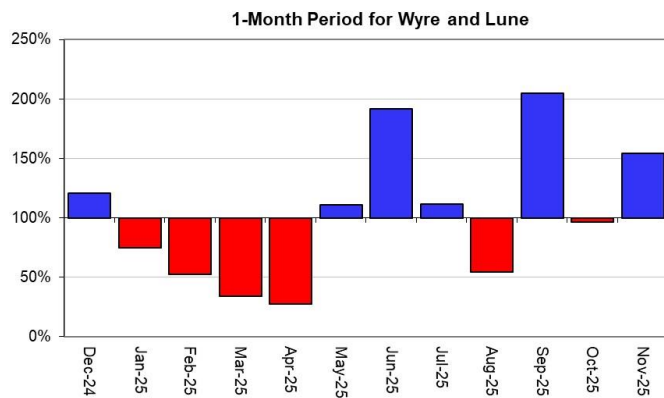
Rainfall data since January 2025, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, AC0000807064, 2025). Rainfall data prior to January 2025, extracted from Met Office HadUK 1km gridded rainfall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





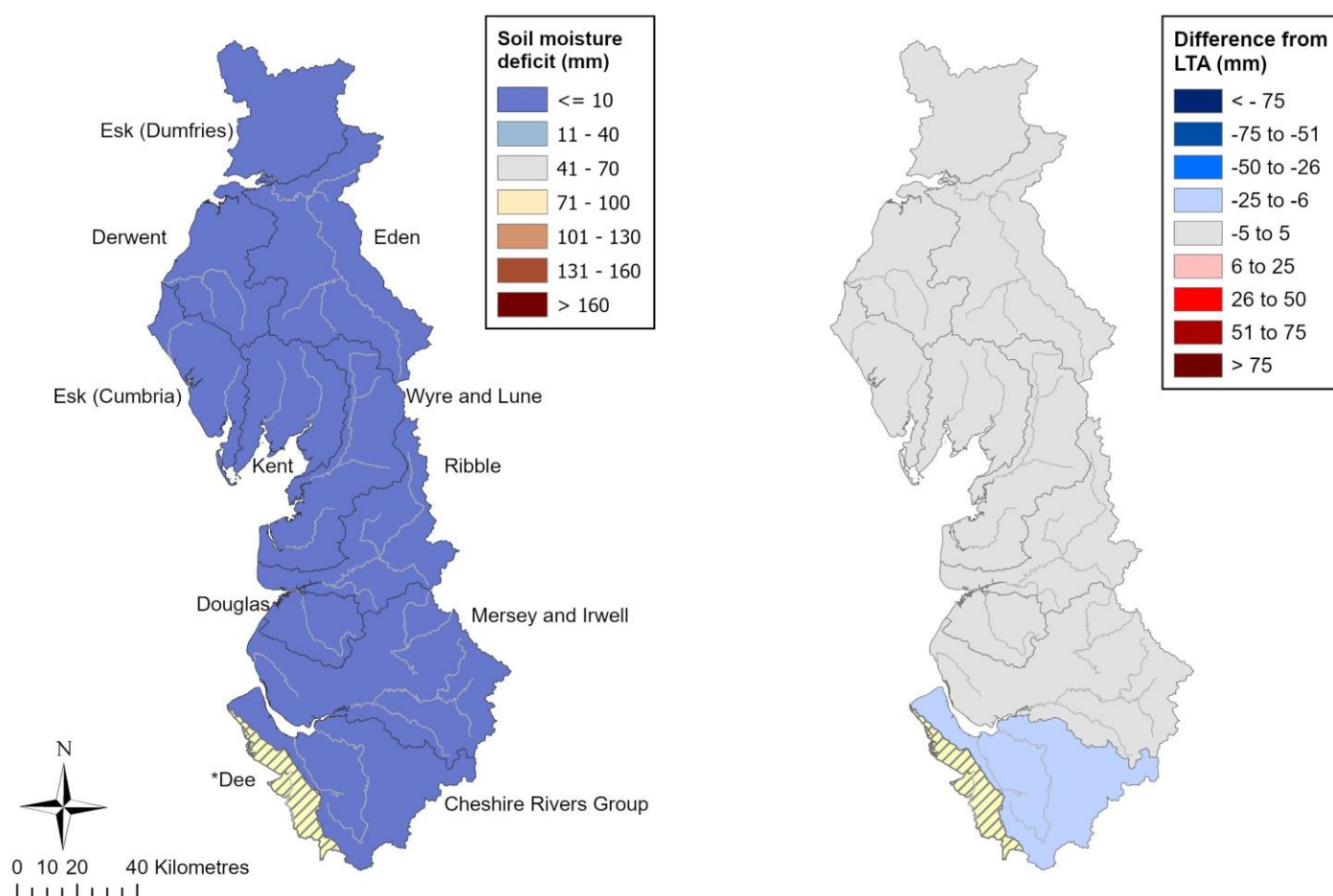


Rainfall data since January 2025, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, AC0000807064, 2025). Rainfall data prior to January 2025, extracted from Met Office HadUK 1km gridded rainfall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

3 Soil moisture deficit

3.1 Soil moisture deficit map

Figure 3.1: Soil moisture deficits for the week ending 03 December 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.

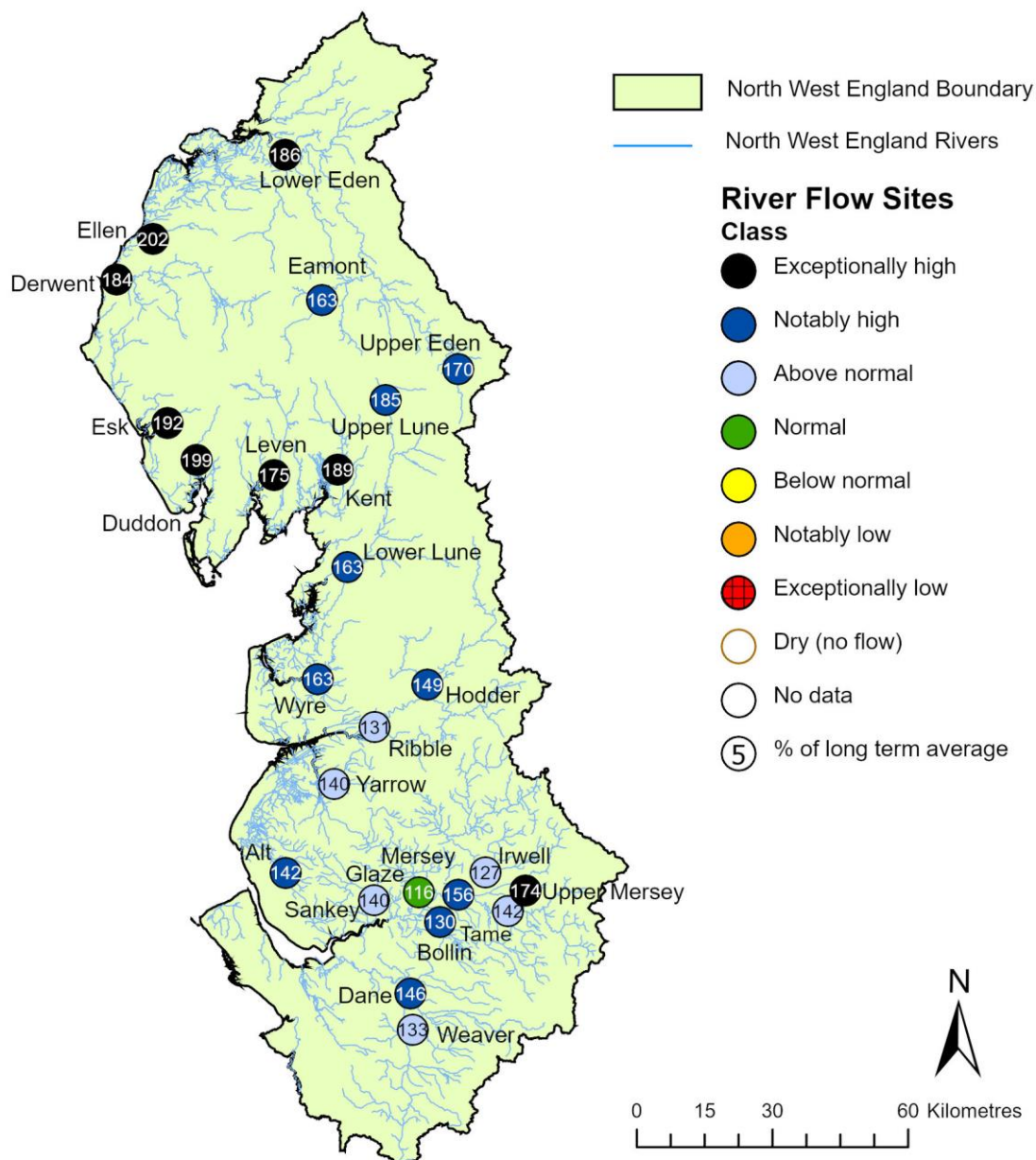


(Source: Met Office. Crown copyright, 2025). All rights reserved. Environment Agency, AC0000807064, 2025.

4 River flows

4.1 River flows map

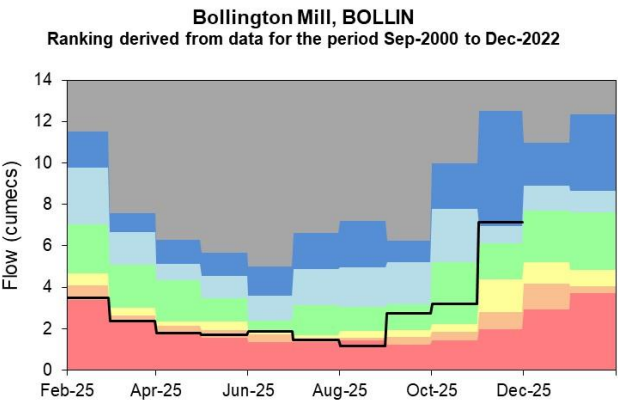
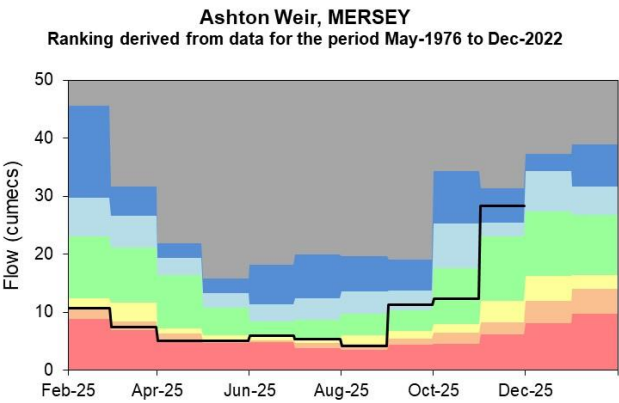
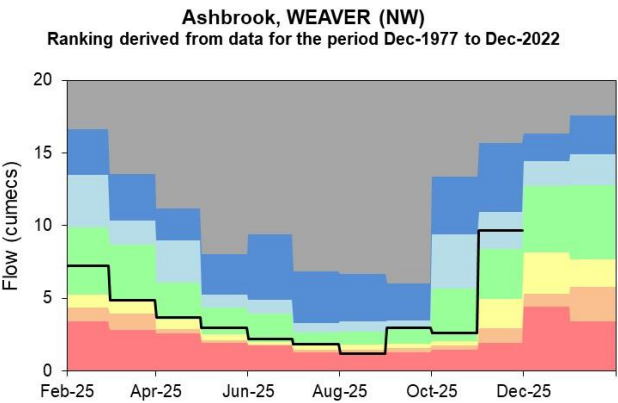
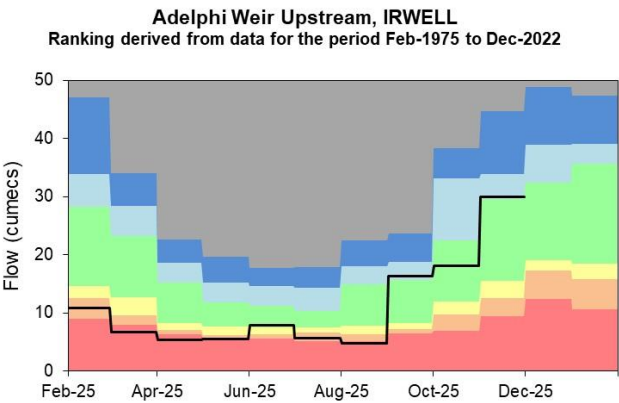
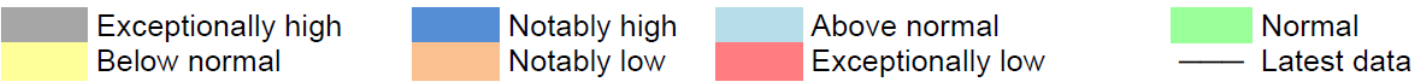
Figure 4.1: Monthly mean river flow for indicator sites for November 2025, expressed as a percentage of the respective long term average and classed relative to an analysis of historic November monthly means. Table available in the appendices with detailed information.



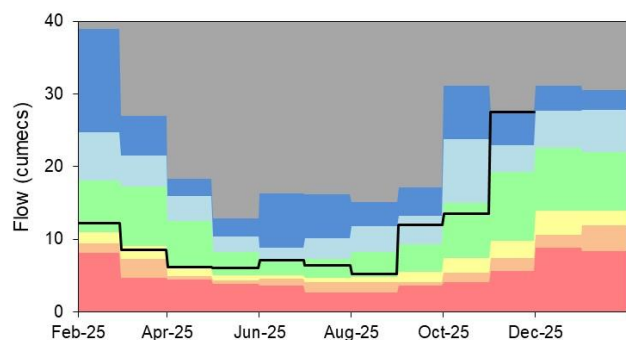
(Source: Environment Agency). Crown copyright. All rights reserved. Environment Agency, AC0000807064, 2025.

4.2 River flow charts

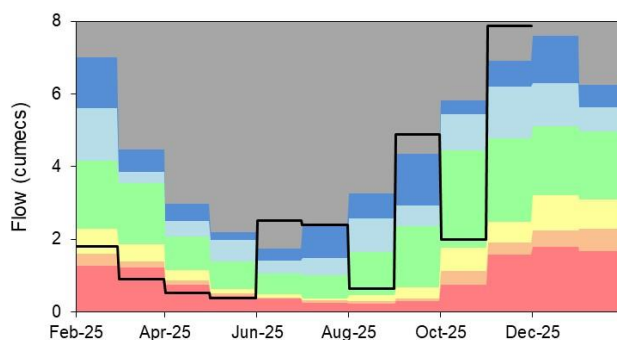
Figure 4.2: Monthly mean river flow for index sites over the past year, compared to an analysis of historic monthly mean flows.



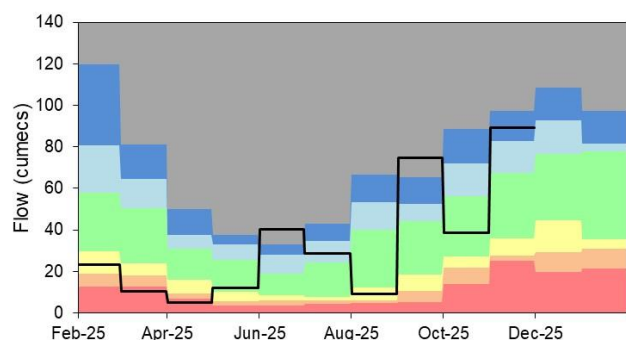
Brinksway, MERSEY
 Ranking derived from data for the period Jan-1974 to Dec-2022



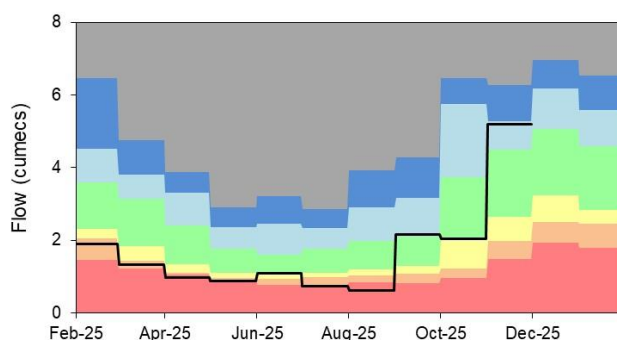
Bullgill, ELLEN
 Ranking derived from data for the period Jan-1976 to Dec-2022



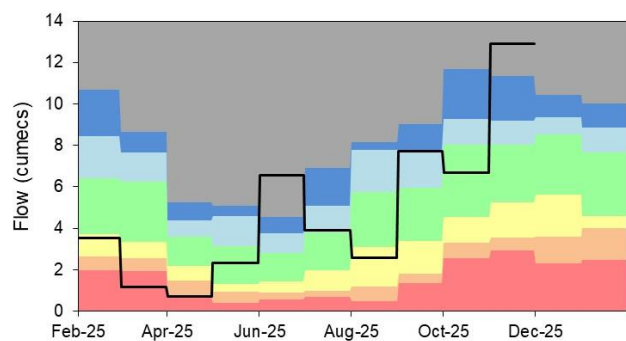
Caton, LUNE
 Ranking derived from data for the period Jan-1959 to Dec-2022



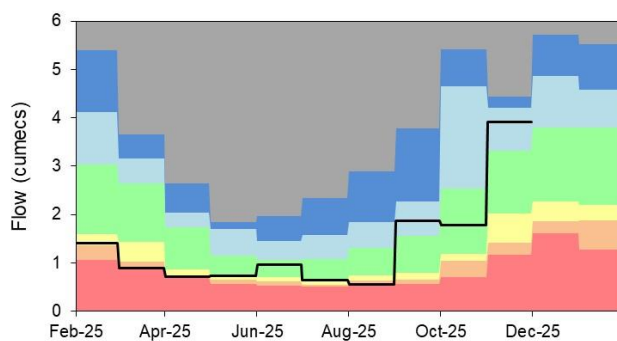
Causey Bridges, SANKEY
 Ranking derived from data for the period Jan-1977 to Dec-2022



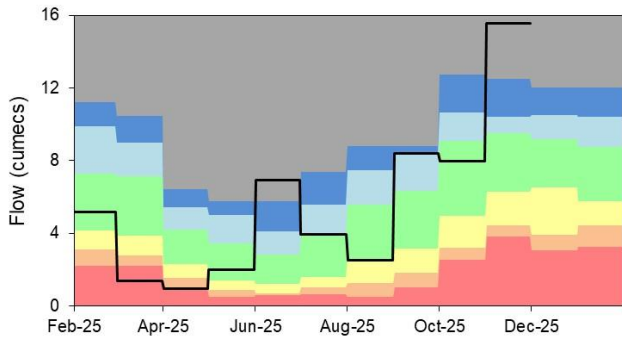
Crople How, ESK (NW)
 Ranking derived from data for the period Jan-1976 to Dec-2022



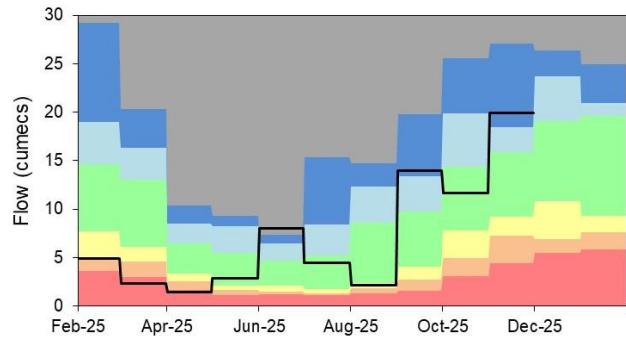
Croston, YARROW
 Ranking derived from data for the period Jan-1976 to Dec-2022



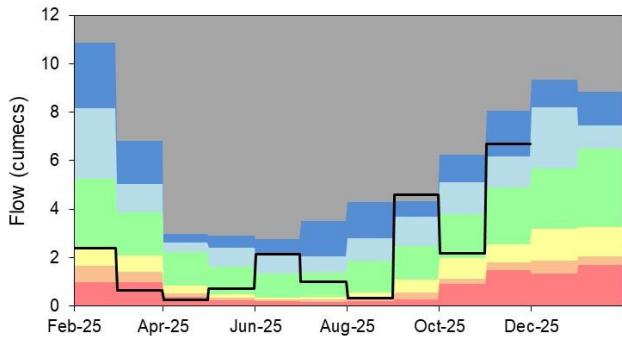
Duddon Hall, DUDDON
 Ranking derived from data for the period Mar-1968 to Dec-2022



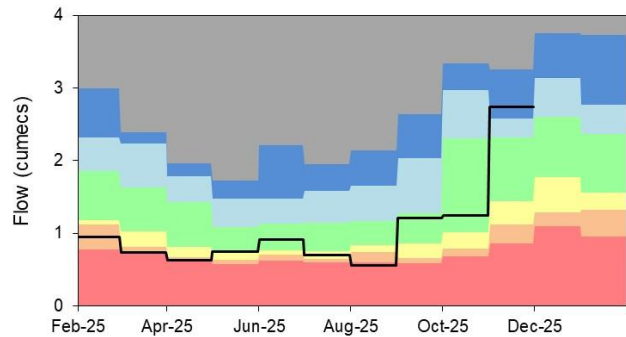
Hodder Place, HODDER
 Ranking derived from data for the period Jan-1976 to Dec-2022



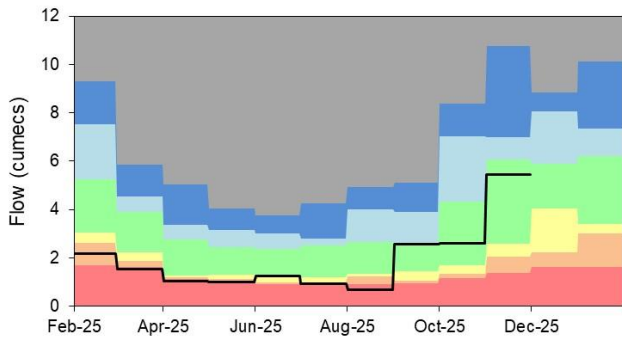
Kirkby Stephen, EDEN (NW)
 Ranking derived from data for the period Oct-1971 to Dec-2022



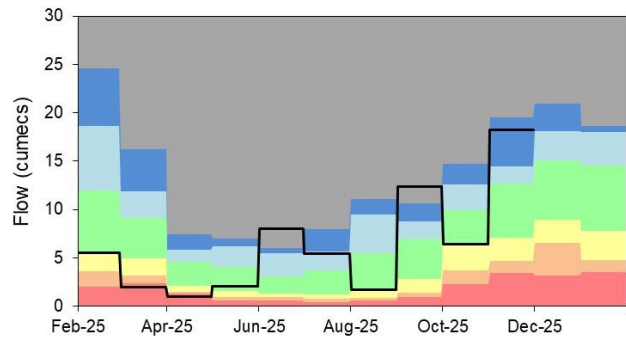
Kirkby, ALT
 Ranking derived from data for the period Oct-1977 to Dec-2022



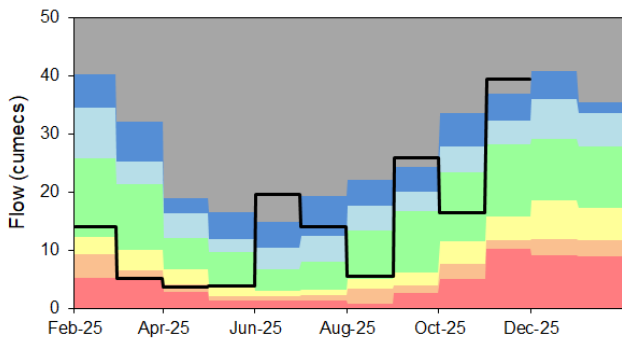
Little Woolden Hall Ultrasonic, GLAZE
 Ranking derived from data for the period Jul-1995 to Dec-2022



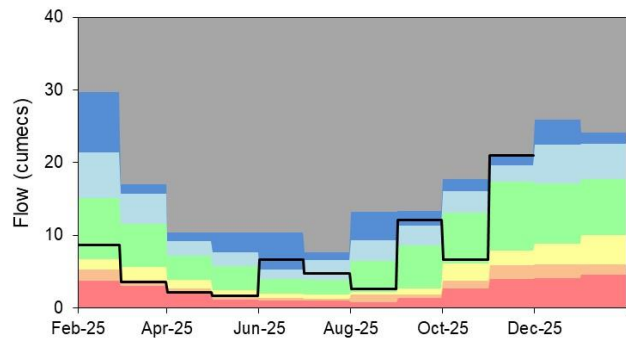
Lunes Bridge, LUNE
 Ranking derived from data for the period Dec-1979 to Dec-2022



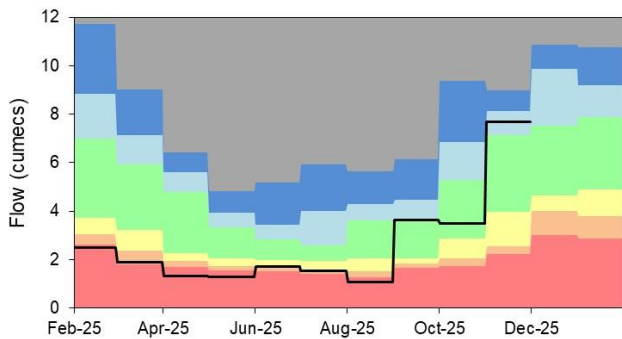
Newby Bridge FMS, LEVEN (NW)
 Ranking derived from data for the period Jan-1972 to Dec-2022



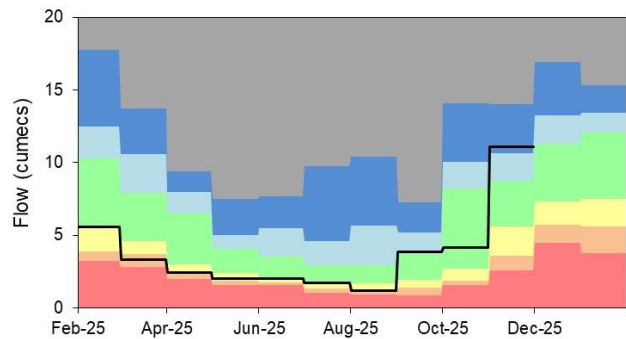
Pooley Bridge, EAMONT
 Ranking derived from data for the period Jul-1970 to Dec-2022



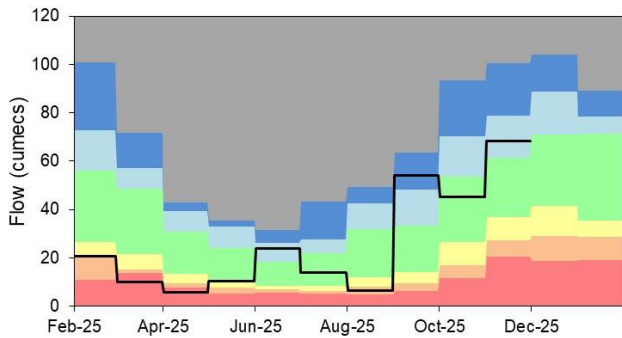
Portwood, TAME
 Ranking derived from data for the period Jan-1976 to Dec-2022



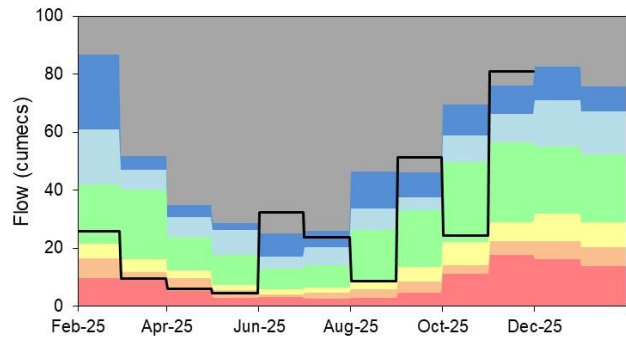
Rudheath, DANE
 Ranking derived from data for the period Jan-1976 to Dec-2022

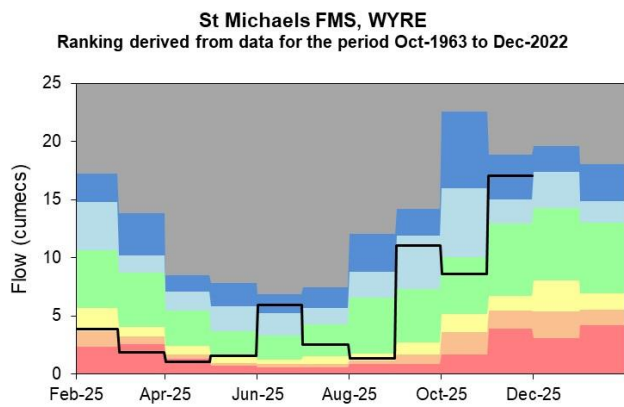
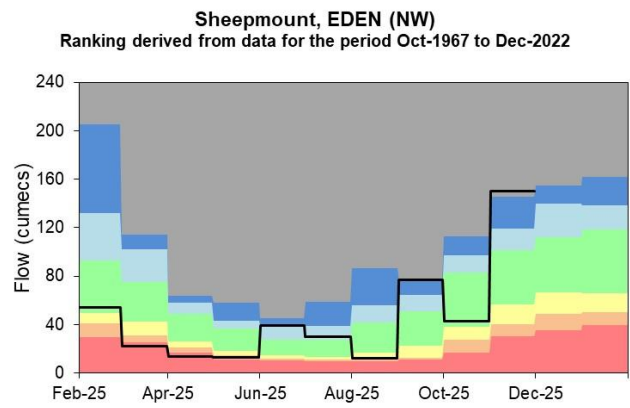
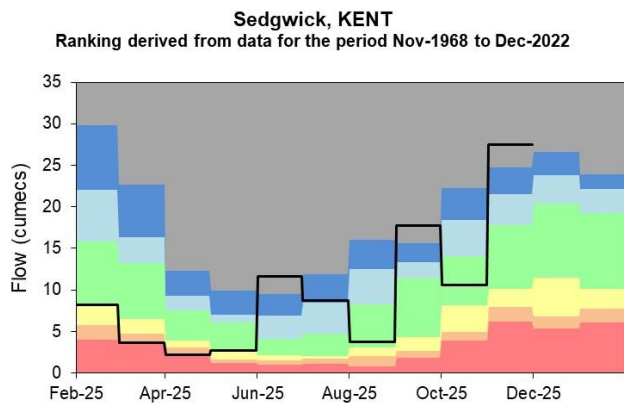


Samlesbury Pgs, RIBBLE (NW)
 Ranking derived from data for the period May-1960 to Dec-2022



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



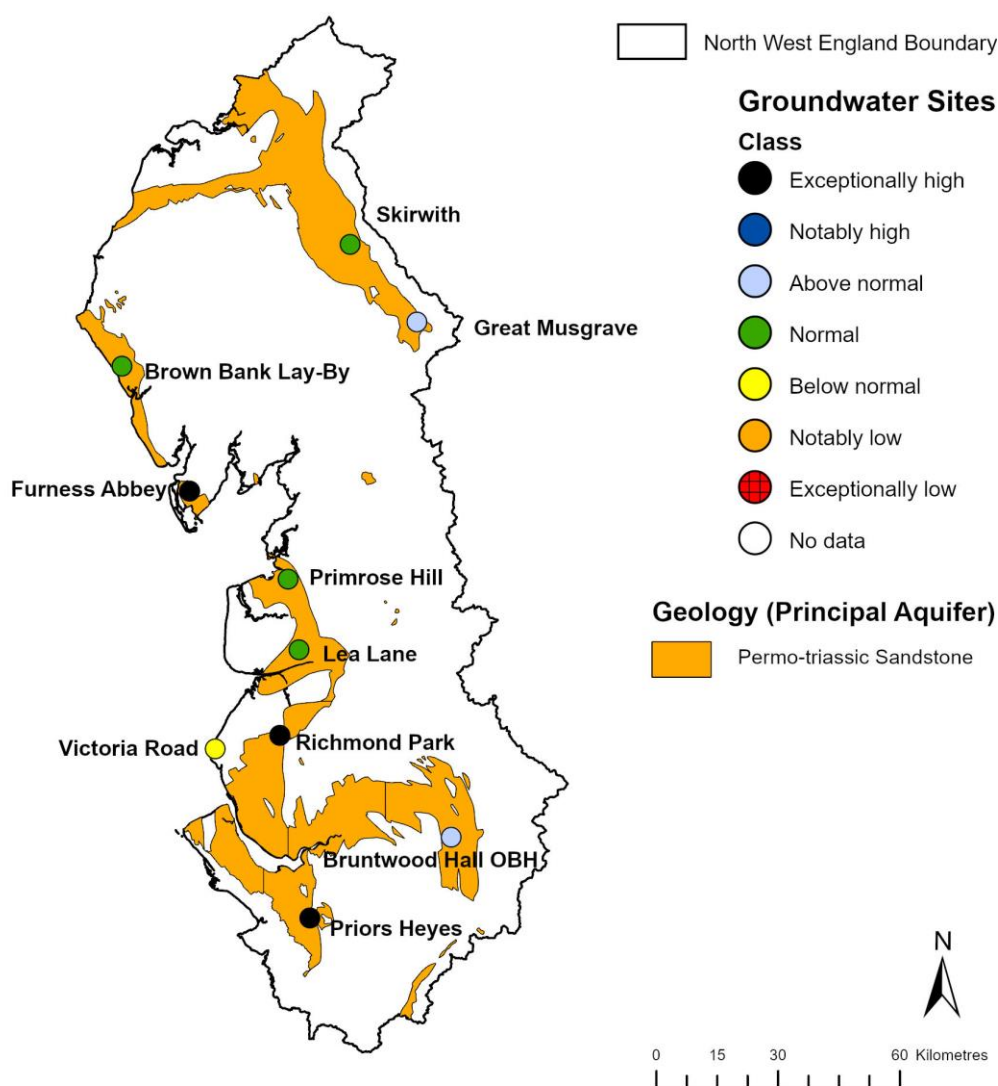


Source: Environment Agency.

5 Groundwater levels

5.1 Groundwater levels map

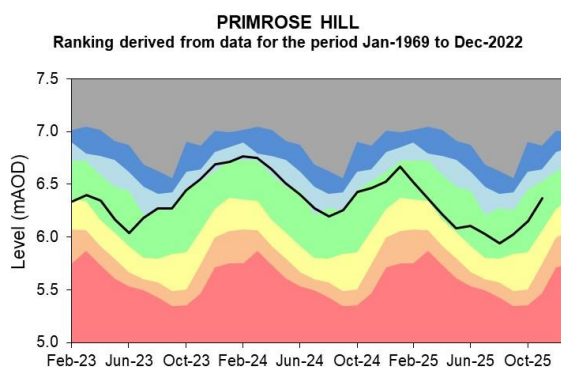
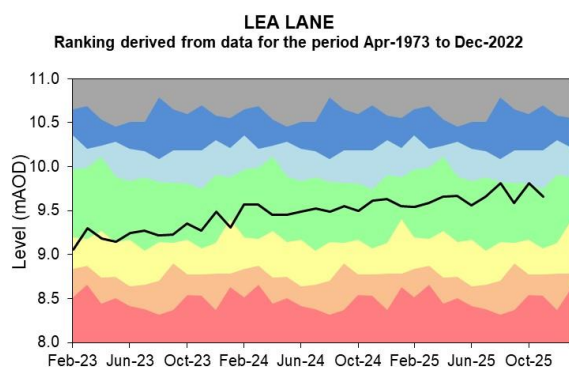
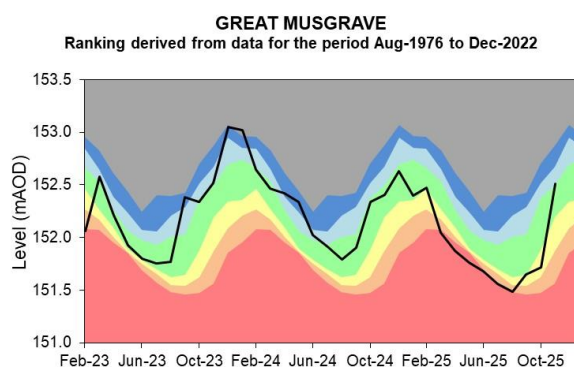
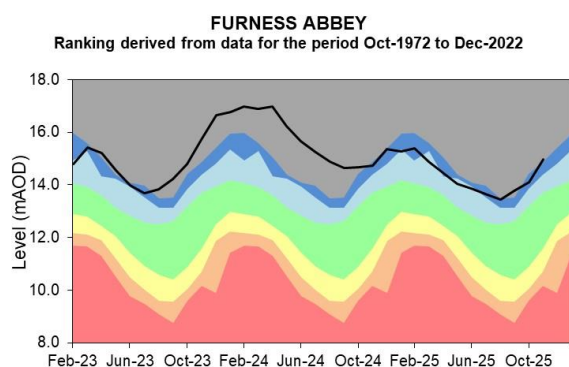
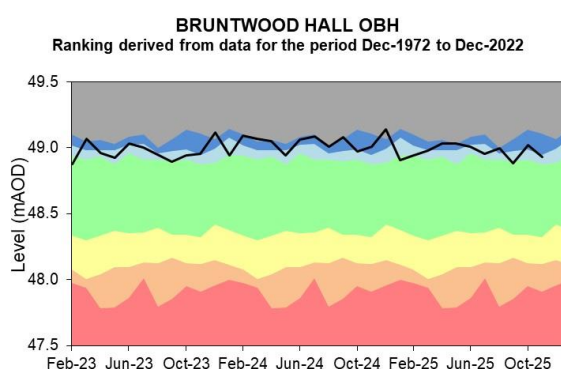
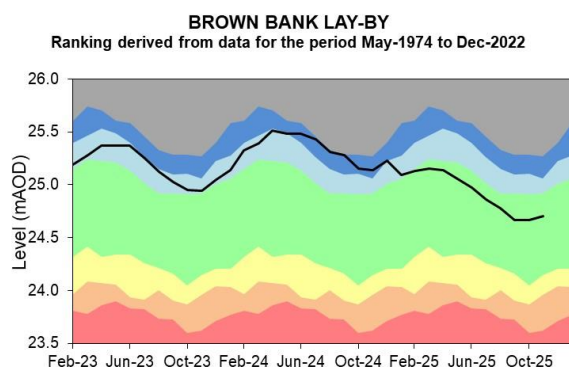
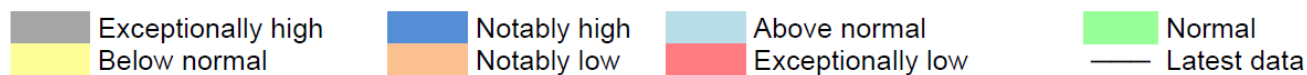
Figure 5.1: Groundwater levels for indicator sites at the end of November 2025, classed relative to an analysis of respective historic November levels. Table available in the appendices with detailed information. Please note Victoria Road Borehole sits within a superficial deposit as opposed to a bedrock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

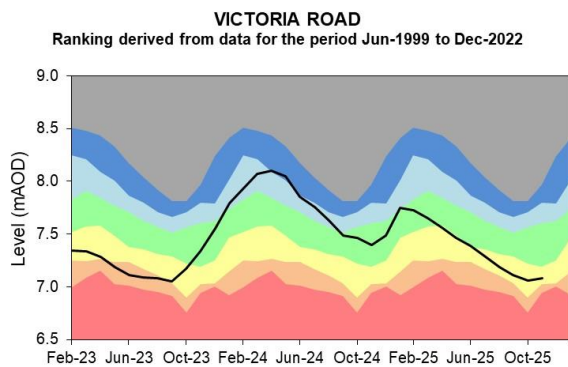
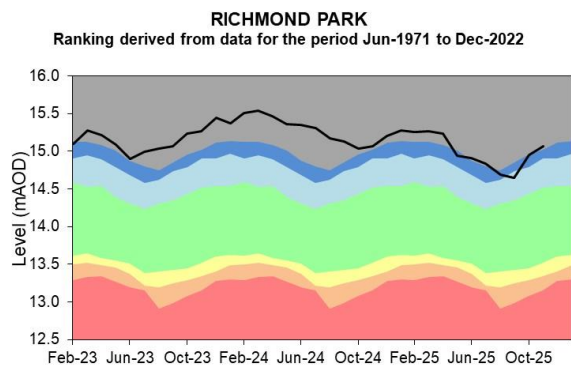
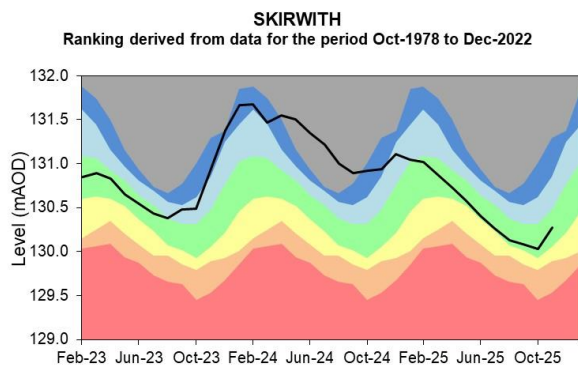
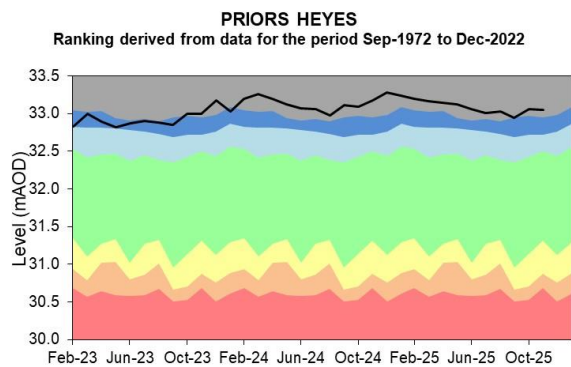


(Source: Environment Agency). Geological map reproduced with kind permission from UK Groundwater Forum, BGS copyright NERC. Crown copyright. All rights reserved. Environment Agency, AC0000807064, 2025.

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.

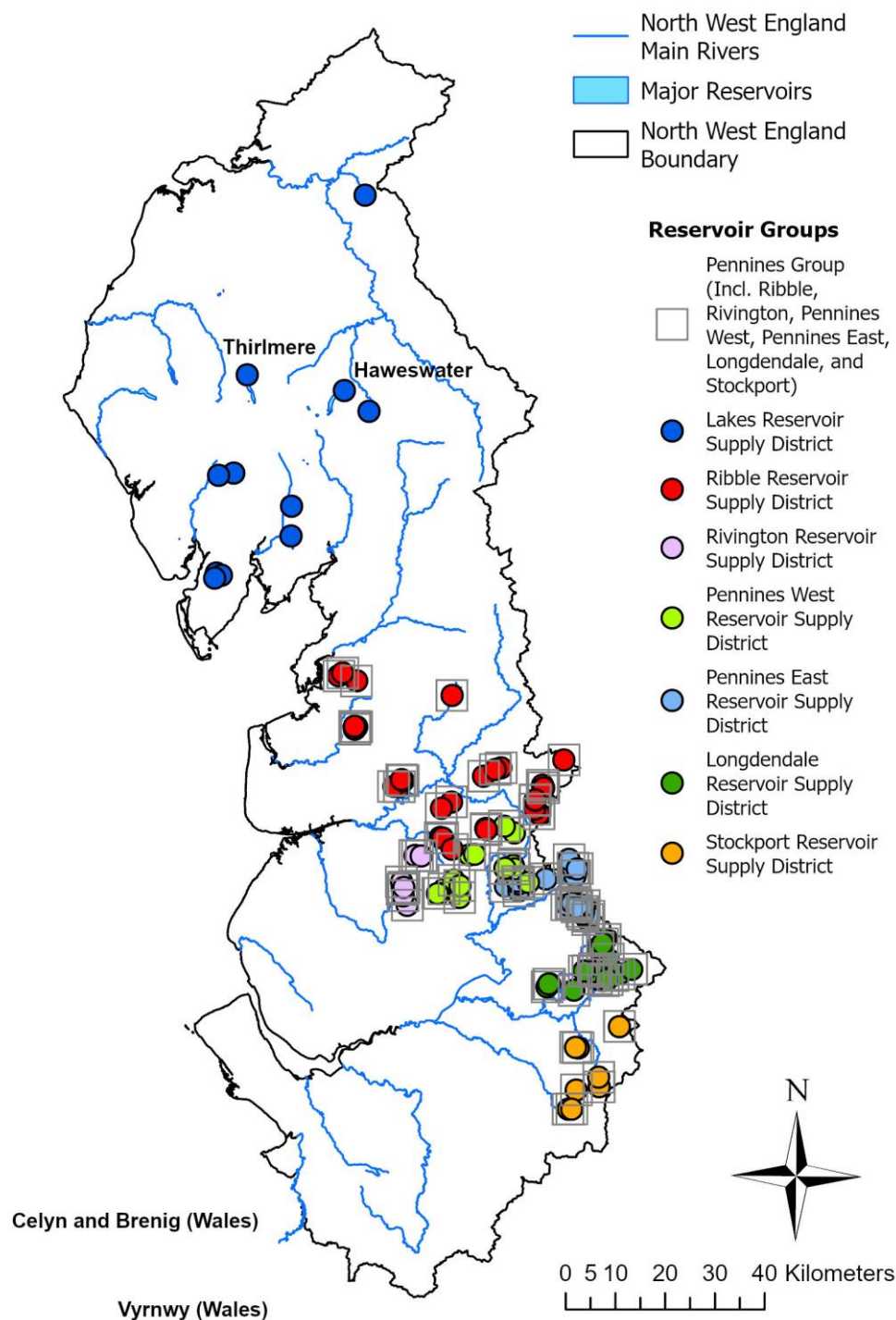
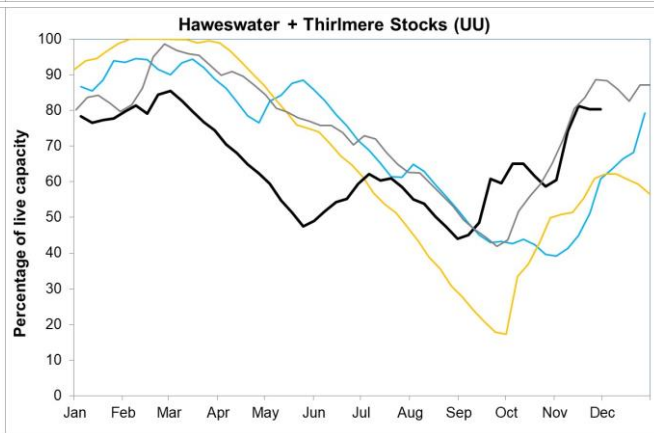
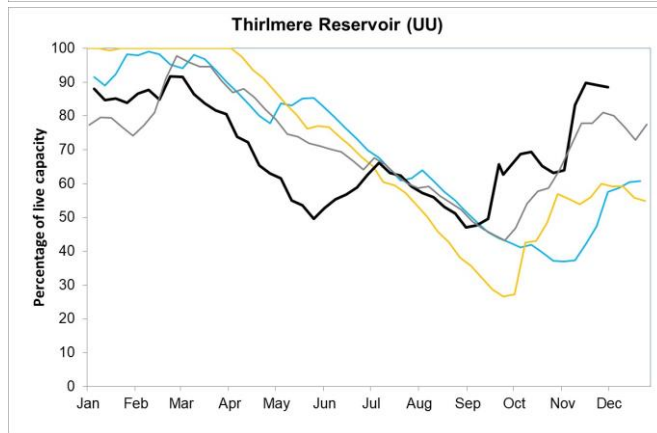
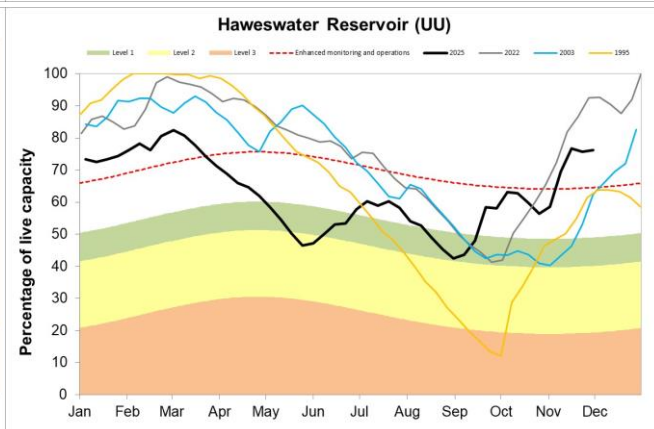
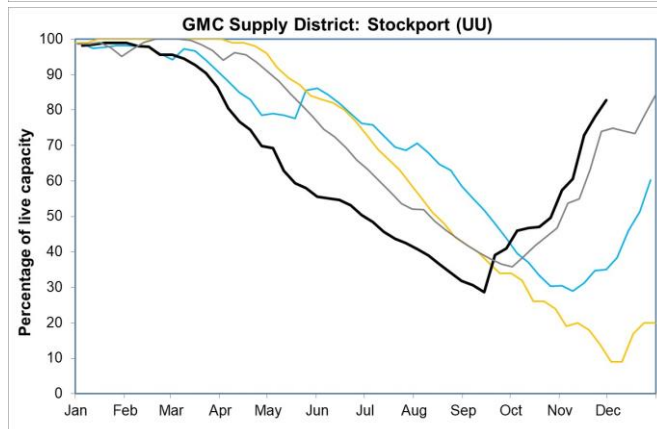
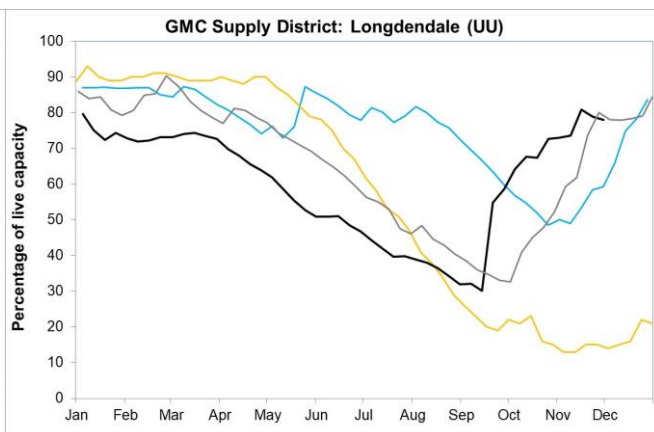
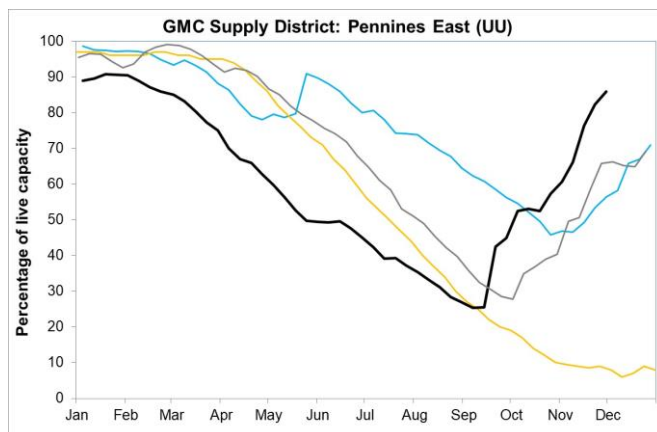
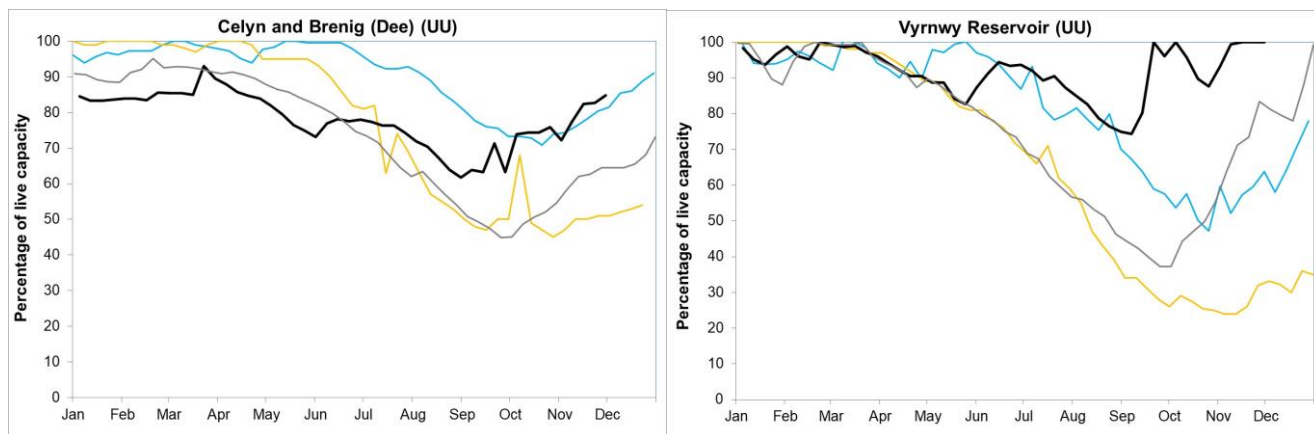


Figure 6.2: End of month reservoir stocks for supply districts across North-west England and selected individual reservoirs for current year (2025) and representative years: 1995, 2003 and 2022. Note: Historic records of individual reservoirs and reservoir groups making up the regional values vary in 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	Nov 2025 rainfall % of long term average 1991 to 2020	Nov 2025 band	Sep 2025 to November cumulative band	Jun 2025 to November cumulative band	Dec 2024 to November cumulative band
Cheshire Rivers Group	173	Notably High	Exceptionally high	Normal	Normal
Derwent (North West)	177	Exceptionally High	Exceptionally high	Exceptionally high	Notably high
Douglas	144	Notably High	Exceptionally high	Above normal	Normal
Eden	169	Exceptionally High	Exceptionally high	Exceptionally high	Normal
Esk (Cumbria)	188	Exceptionally High	Exceptionally high	Exceptionally high	Notably high
Esk (Dumfries)	175	Exceptionally High	Exceptionally high	Notably high	Normal
Kent	180	Exceptionally High	Exceptionally high	Exceptionally high	Notably high
Mersey And Irwell	145	Notably High	Exceptionally high	Above normal	Normal
Ribble	130	Above Normal	Exceptionally high	Above normal	Normal

Wyre And Lune	154	Notably High	Exceptionally high	Notably high	Above normal
North West	160	Exceptionally High	Exceptionally high	Notably high	Above normal

8.2 River flows table

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

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

8.3 Groundwater table

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