Monthly water situation report: North East Area

1 Summary – August 2025

August was a much drier month than July, with notably low and exceptionally low rainfall recorded in all catchments. Monthly mean river flows decreased at all of the indicator sites and fell within the notably low and exceptionally low ranges. Groundwater levels have decreased at two of the indicator sites and slightly increased at 3 of the 5 indicator sites. They remain in the normal and notably high bands for the time of year. Reservoir stocks continue to decrease and remain below average for the time of year.

1.1 Rainfall

Monthly rainfall totals were significantly below long term average (LTA) for all catchments and ranged from 26% of the LTA in the Tweed catchment to 36% of the LTA in the Tyne catchment.

Analysis of the daily rainfall totals show several periods of low rainfall totals spread across the month with the highest amount of rainfall at the beginning of the month and just before the middle of the month, followed by some sustained rainfall towards the end of the month. The highest cumulative rainfall totals were seen in the Tyne catchment with 32.3mm rainfall, whereas the lowest totals were recorded in the Tweed, Northumbria North Sea Tribs, and Seaham Area catchments with 20.7mm, 21.3mm, and 21.1mm of rainfall respectively. The cumulative 6-month and 12-month rainfall totals are in the exceptionally low range for the whole area. It has been the driest February-August on record for the Seaham Area and Tees catchments, the second driest for Tweed, Northumberland North Sea Tribs, and Wear catchments behind 1959, and the third driest for the Tyne catchment behind 1959 and 1887. It has been the second driest February-August on record for the North East Area as a whole behind 1959. For the year to date, 327mm of rain has been recorded in the North East Area which is only 2mm wetter than the driest years on record.

1.2 Soil moisture deficit and recharge

Soil moisture deficits (SMDs) have increased since July for the Wear and Northumbria North Sea Tribs catchments. The deficit in the Wear catchment has increased from 41mm to 70mm to 71mm to 100mm, and the deficit Northumbria North Sea Tribs catchment has increased from 71mm to 100mm to 101mm to 130mm. Soils are drier than average for the time of year with all catchments showing a 26mm to 50mm difference from the LTA, apart from the Northumbria North Sea Tribs catchment which has a 51mm to 75mm difference.

1.3 River flows

Monthly mean river flows have remained consistently low this month as a result of minimal rainfall across the area. Flows at all indicator sites have decreased from July with those at Heaton Mill, Mitford, Hartford Bridge, and Middleton falling in the exceptionally low category, and Rothbury, Haydon Bridge, Witton Park and Rutherford Bridge recording flows in the notably low category. Haydon Bridge on the South Tyne recorded the largest decrease in monthly mean flow, moving from 123% of the LTA in July to 24% of the LTA in August. Monthly mean flows ranged from 9% of the LTA at Hartford Bridge and Rutherford Bridge to 35% of the LTA at Witton Park where flows have been supported all month by releases from the Kielder tunnel.

Analysis of the daily mean flows show that flows at all indicator sites have fluctuated between normal, below normal, and notably low with half (Rutherford Bridge, Mitford, Heaton Mill, and Hartford Bridge) recording exceptionally low flows. These flows have generally decreased through the month with the exceptions of Hartford Bridge which began the month exceptionally low and ended on notably low, and Middleton which begun the month notably low, and ended the month on below normal, due to increased releases from Cow Green reservoir.

1.4 Groundwater levels

Groundwater levels across all catchments are now decreasing as a result of the prolonged dry weather over the preceding spring and summer months, but most remain in the normal range for the time of year. Groundwater levels at Aycliffe (NRA2) in the Magnesian Limestone and Royalty Observation in the Fell Sandstone are showing the steepest decline which is expected as both are located in the recharge, unconfined areas of the aquifers, which are more responsive to variations in rainfall. Townlaw in the Fell Sandstone, and Red Lion and West Hall Farm both in the Magnesian Limestone are showing a slight incline this month. These sites are located within the more confined areas of the aquifers which typically have a delayed response of 3 to 6 months to the observed dry weather. West Hall Farm remains within the notably high range. This seems to be the result of a reduction in nearby abstraction volumes rather than a climatic response.

1.5 Reservoir stocks

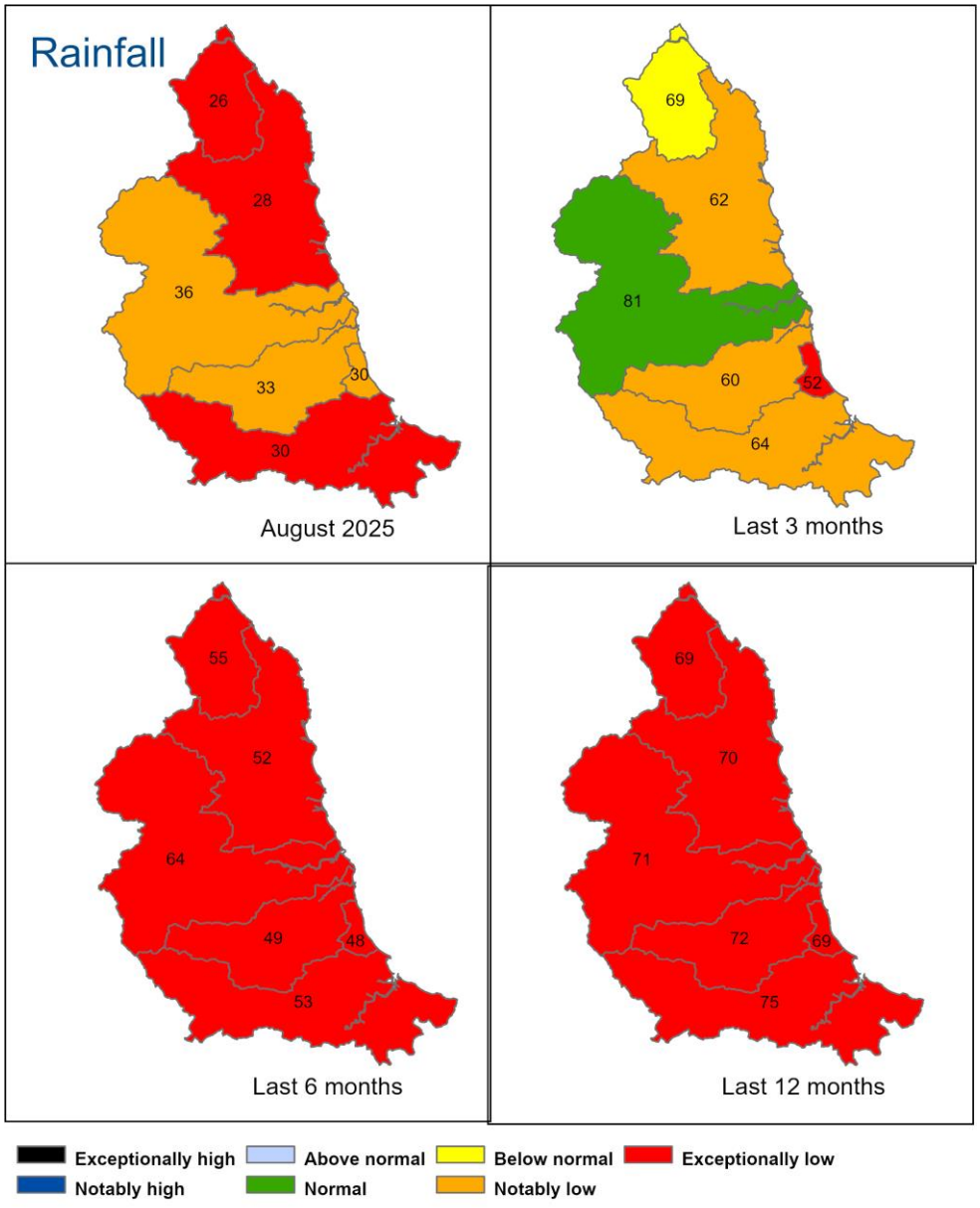
All reservoir stocks in the area have decreased this month. Decreases have ranged from 15.1% at Cow Green to 8.4% in the Lune and Balder Group. Reservoir stocks across the area remain below average from the time of year, including Kielder which was slightly above average in July.

Reservoir or reservoir group	Percentage of current stocks	Percentage of previous month stocks
Kielder	80.9	89.7
North Tynedale group	45.3	55.1
Derwent	47.1	56.8
Durham group	47.6	59.8
Lune and Balder group	60.7	69.1
Cow Green	50.7	65.8

2 Rainfall

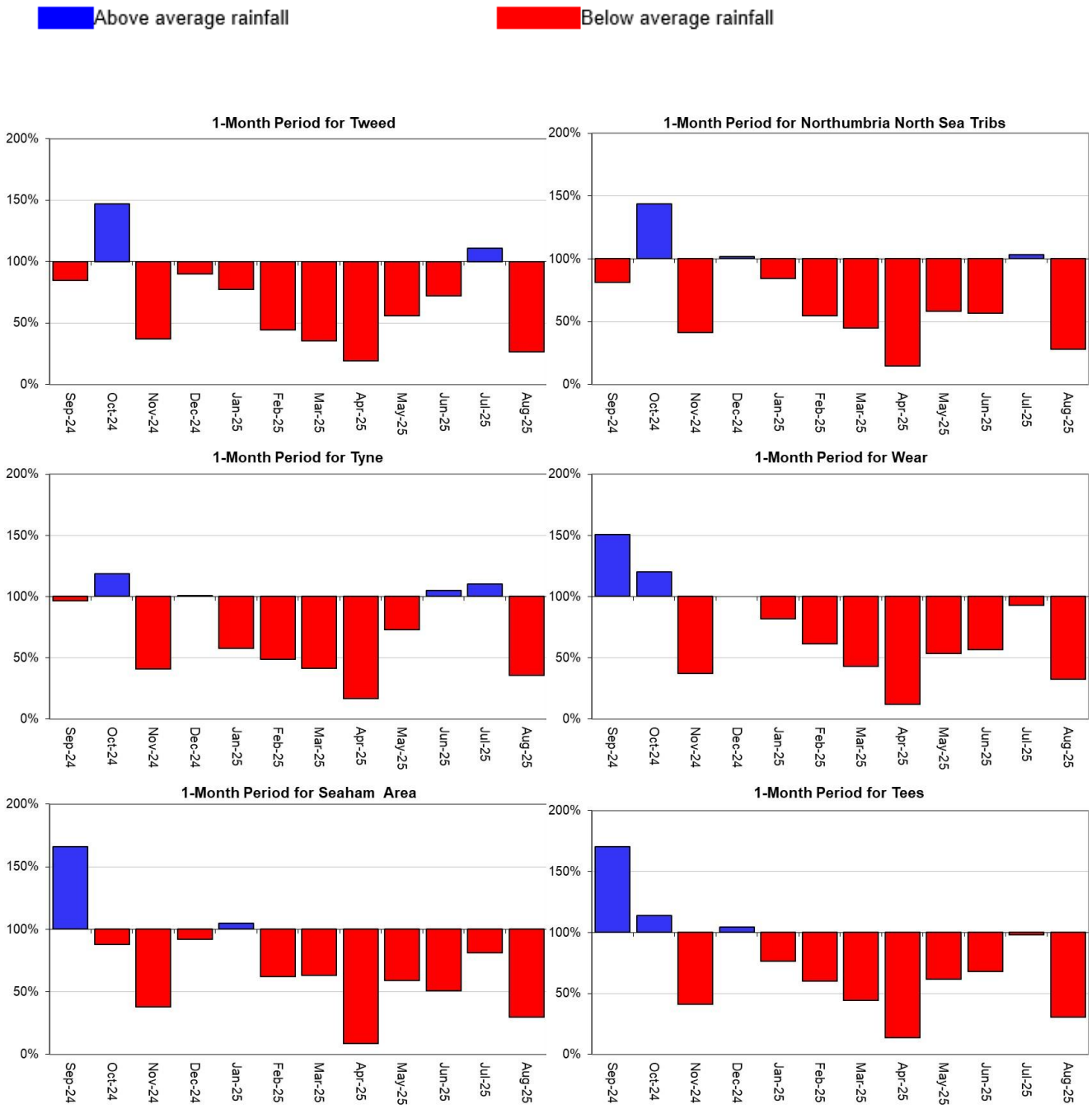
2.1 Rainfall map

Figure 2.1: Total rainfall for hydrological areas for the current month (up to 31 August 2025), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. The numbers on the maps refer to the percentage of the 1991 to 2020 LTA. August totals were classed as exceptionally low for the Tweed, Northumbria North Sea Tribs, and Tees catchments, and as notably low for the Tyne, Wear, and Seaham area catchments. 6 month and 12 month cumulative totals are classed as exceptionally low for all catchments. Table available in the appendices with detailed information.



2.2 Rainfall charts

Figure 2.2: Monthly rainfall totals for the past 12 months as a percentage of the 1991 to 2020 long term average for each hydrometric area in NEA.

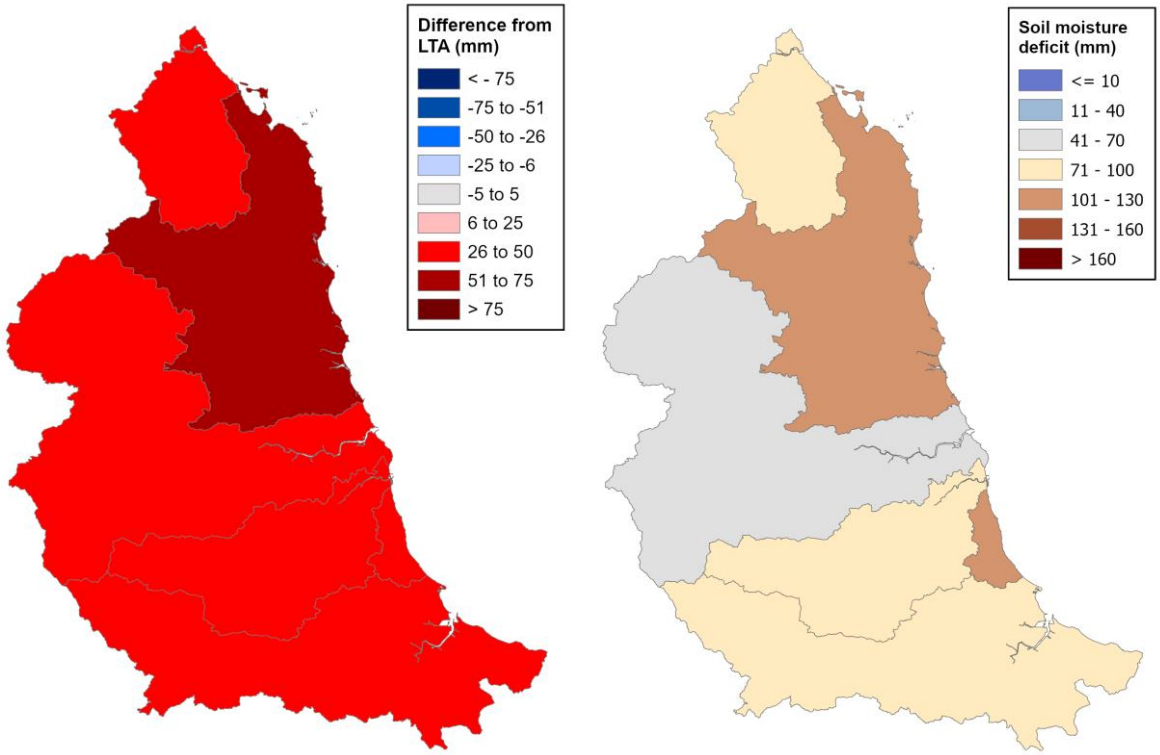


HadUK rainfall data. (Source: Met Office. Crown copyright, 2025).

3 Soil moisture deficit

3.1 Soil moisture deficit map

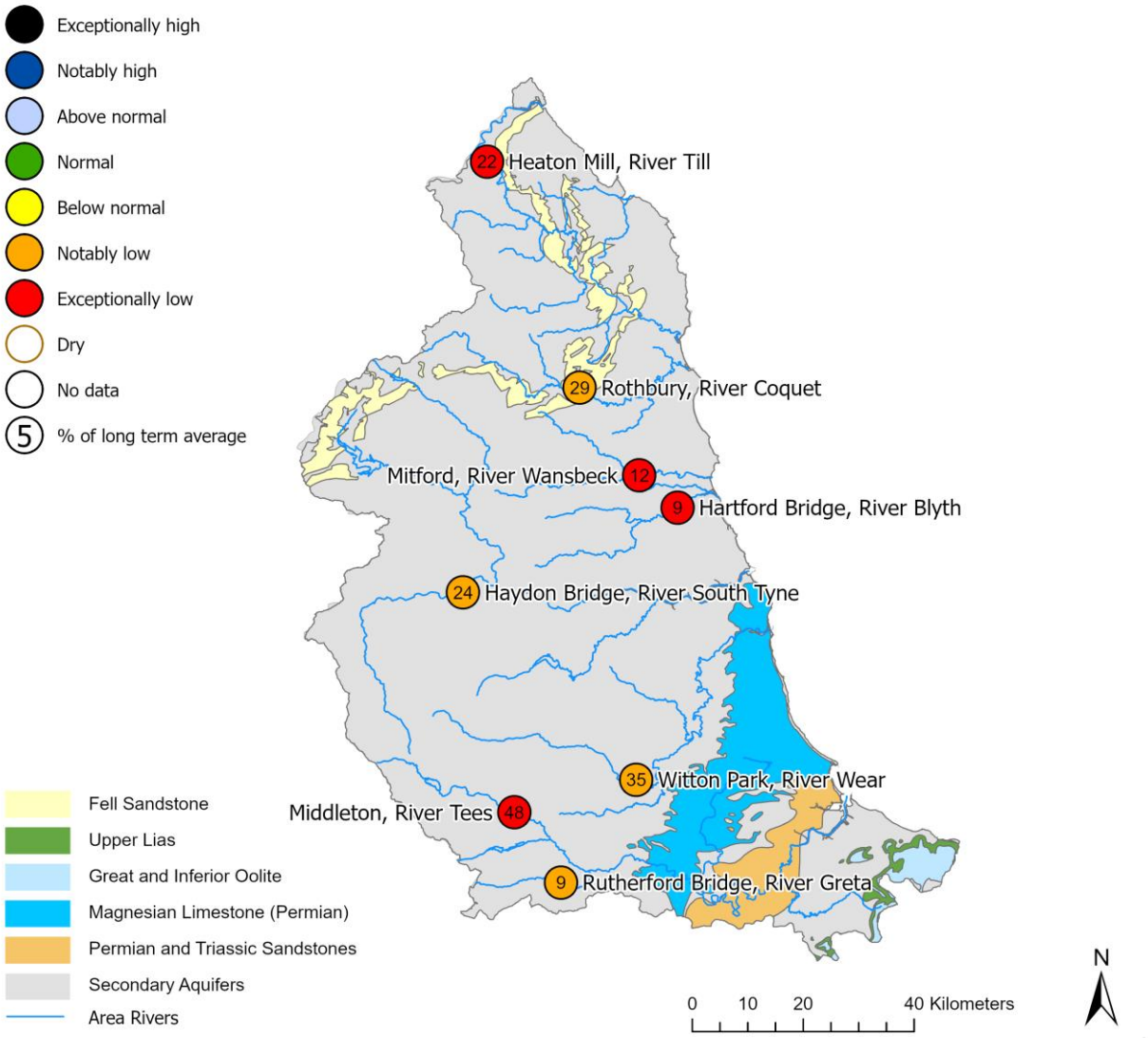
Figure 3.1: Soil moisture deficits for week ending 31 August 2025. The map on the left shows the difference (mm) of the actual soil moisture deficit from the 1991 to 2020 long term average soil moisture deficits. MORECS data for real land use.



4 River flows

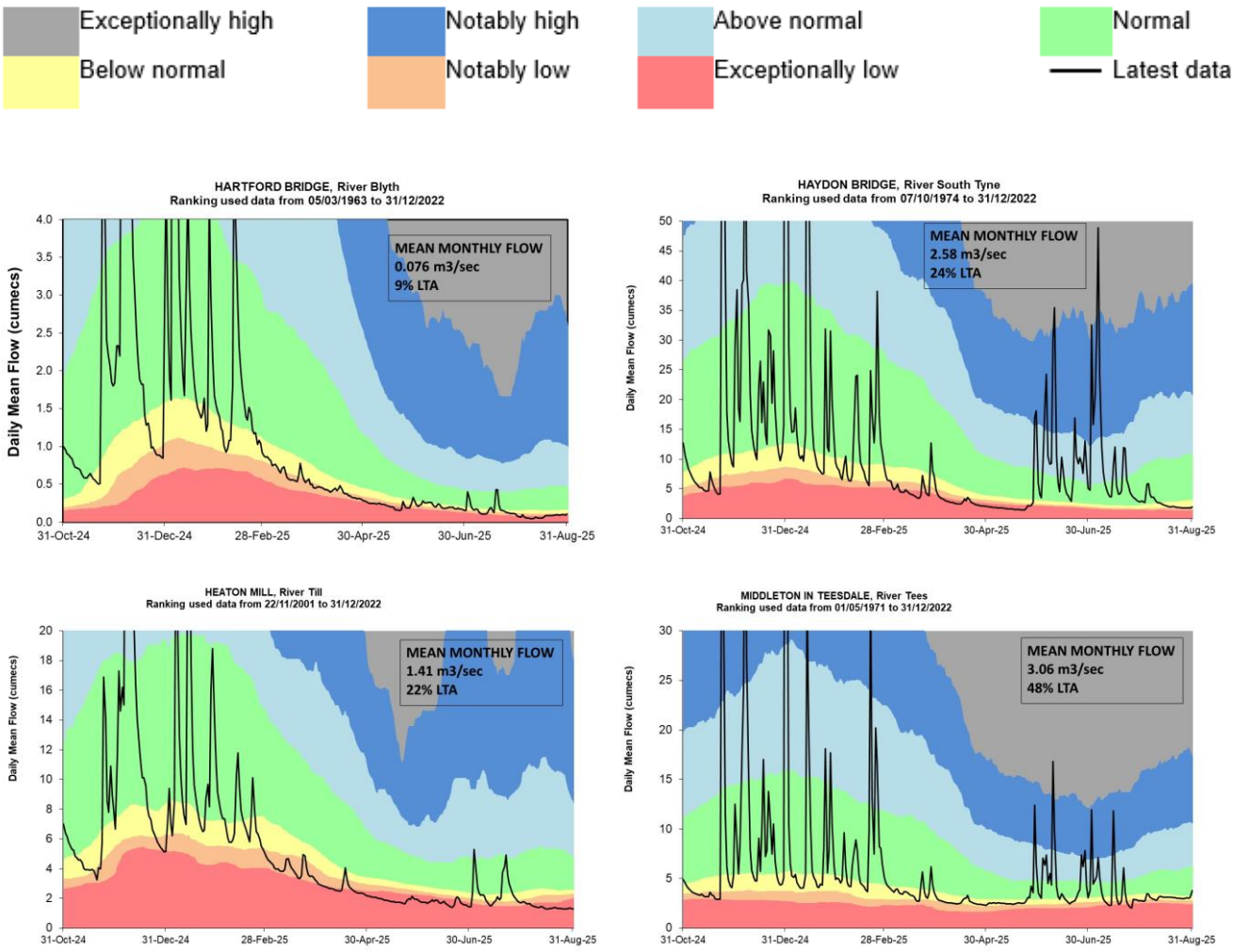
4.1 River flows map

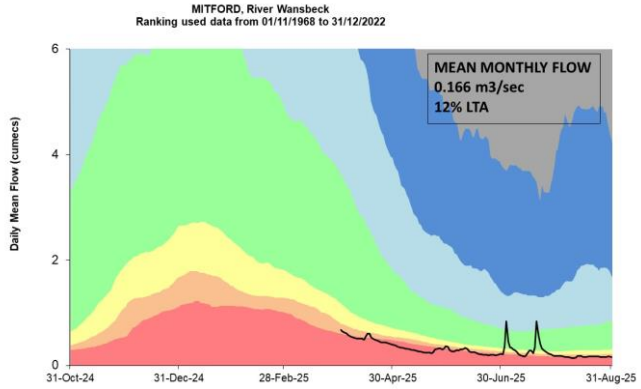
Figure 4.1: Monthly mean river flow for indicator sites for August 2025, expressed as a percentage of the respective long term average and classed relative to an analysis of historic August monthly means. Monthly mean flows vary across the area. Flows are classed as exceptionally low at Heaton Mill, Mitford, Hartford Bridge and Middleton, and are classed as notably low at Rothbury, Haydon Bridge, Witton Park and Rutherford Bridge. Flows at Witton Park and Middleton are being supported by reservoir releases. Table available in the appendices with detailed information.

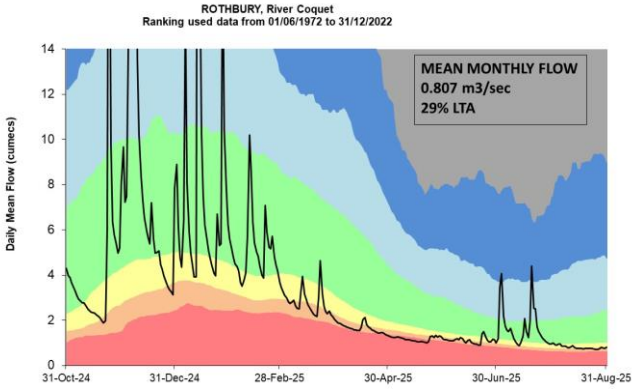


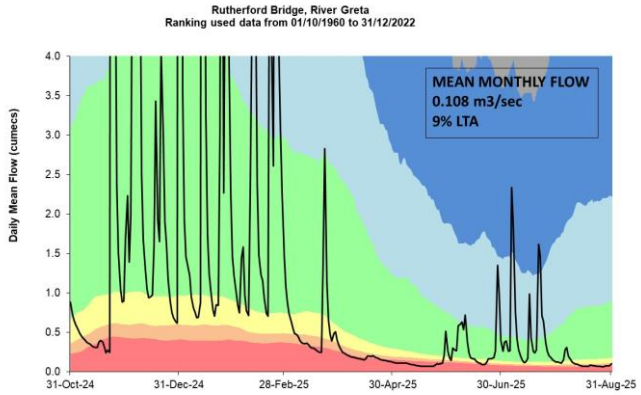
4.2 River flow charts

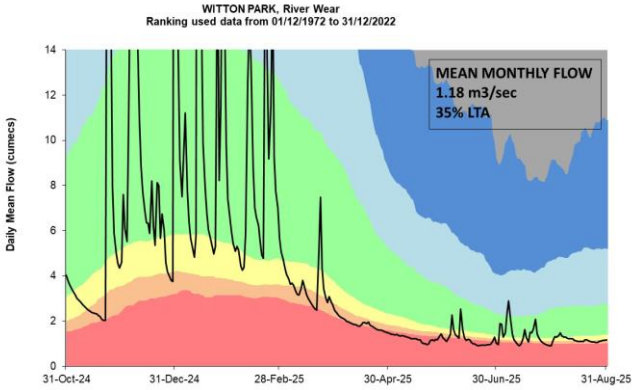
Figure 4.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows.









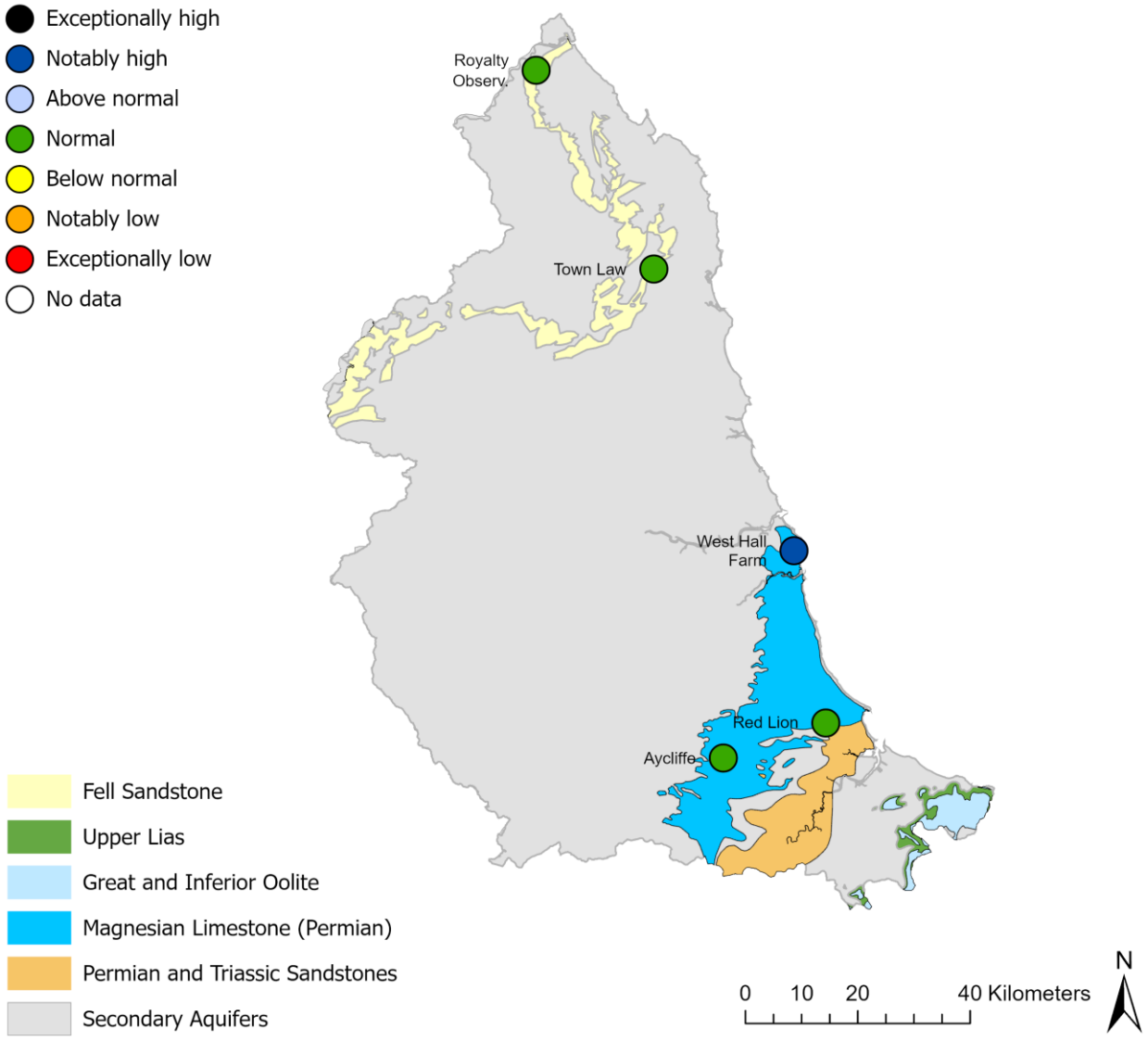


Source: Environment Agency.

5 Groundwater levels

5.1 Groundwater levels map

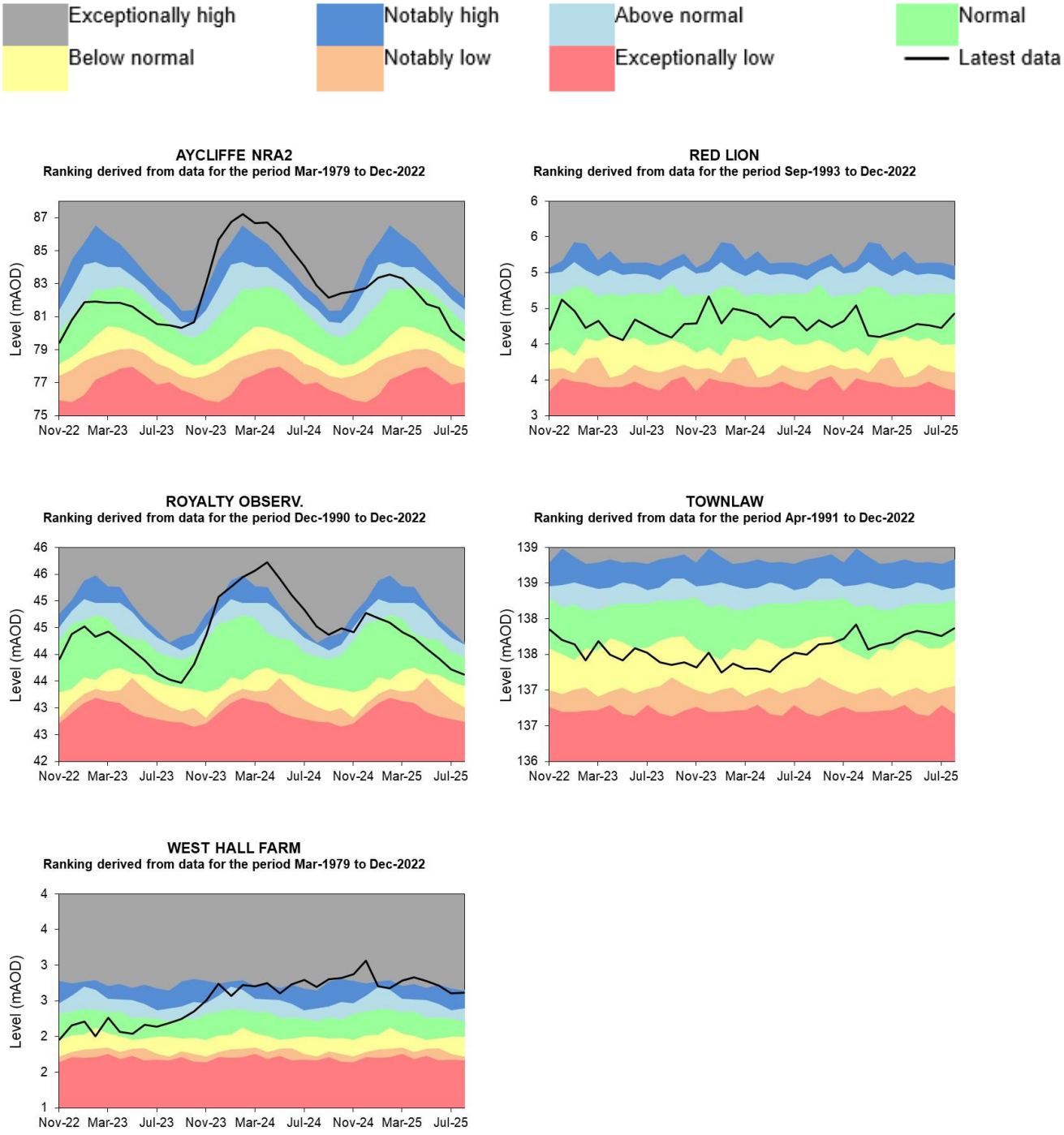
Figure 5.1: Groundwater levels for indicator sites at the end of August 2025, classed relative to an analysis of respective historic August levels. Groundwater levels are classed as notably high at West Hall Farm on the Magnesian Limestone and normal at all other indicator sites in the area. Table available in the appendices with detailed information.



(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

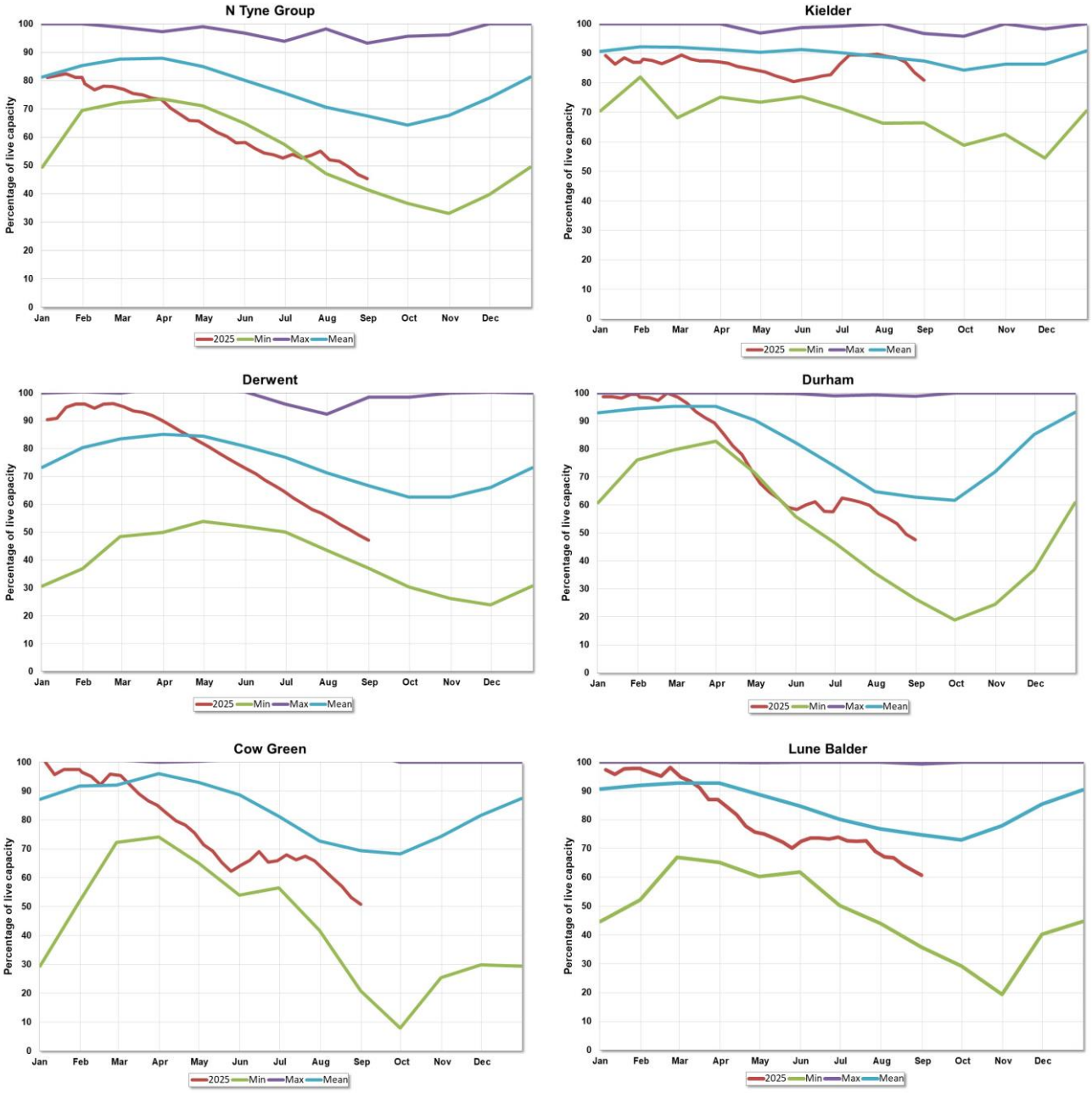
Figure 5.2: End of month groundwater levels at index groundwater level sites for major aquifers for the last 33 months compared to an analysis of historic end of month levels.



Source: Environment Agency, 2025.

6 Reservoir stocks

Figure 6.1: End of month reservoir stocks compared to long term maximum, minimum and average stocks. Note: Historic records of individual reservoirs and reservoir groups making up the regional values vary in length.



(Source: water companies).

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	August 2025 rainfall % of long term average 1991 to 2020	August 2025 band	June 2025 to August 2025 cumulative band	March 2025 to August 2025 cumulative band	September 2024 to August 2025 cumulative band
Northumbria North Sea Tribs	28	Exceptionally Low	Notably low	Exceptionally low	Exceptionally low
Seaham Area	30	Notably Low	Exceptionally low	Exceptionally low	Exceptionally low
Tees	30	Exceptionally Low	Notably low	Exceptionally low	Exceptionally low
Tweed	26	Exceptionally Low	Below normal	Exceptionally low	Exceptionally low
Tyne	36	Notably Low	Normal	Exceptionally low	Exceptionally low
Wear	33	Notably Low	Notably low	Exceptionally low	Exceptionally low

8.2 River flows table

Site name	River	Catchment	Jun 2022 band	May 2022 band
Hartford Bridge	Blyth	Blyth	Exceptionally low	Below normal
Haydon Bridge	South Tyne	South Tyne	Notably low	Normal
Heaton Mill	Till	Till	Exceptionally low	Below normal
Middleton In Teesdale	Tees	Tees	Exceptionally low	Below normal
Mitford	Wansbeck	Wansbeck	Exceptionally low	Below normal
Rothbury	Coquet	Coquet	Notably low	Normal
Rutherford Bridge	Greta	Greta	Notably low	Normal
Witton Park	Wear	Wear	Notably low	Below normal

8.3 Groundwater table

Site name	Aquifer	End of Jun 2022 band	End of May 2022 band
Aycliffe Nra2	Skerne Magnesian Limestone	Normal	Normal
Red Lion	Skerne Magnesian Limestone	Normal	Normal
Royalty Observ.	Till Fell Sandstone	Normal	Normal
Townlaw	Till Fell Sandstone	Normal	Normal
West Hall Farm	Wear Magnesian Limestone	Notably high	Notably high