Monthly water situation report: North East Area

1 Summary - July 2025

July was a wetter month than June, with normal rainfall recorded in all catchments. Monthly mean river flows increased at seven of the eight indicator sites and fell within the normal to below normal ranges. Groundwater levels have decreased across the area but four of the five groundwater indicator sites remain in the normal band for this time of year. Reservoir stocks varied across the area and remain below average for the time of year, with the exception of Kielder reservoir.

1.1 Rainfall

Monthly rainfall totals were below the long term average (LTA) for the Seaham catchment and approaching or above average elsewhere. Monthly totals ranged from 81% of the LTA in the Seaham area to 111% of the LTA in the Tweed catchment.

Analysis of the daily rainfall totals shows several periods of rain spread across the month, particularly between 1 and 8 July and between 15 and 23 July. The highest rainfall totals were recorded in the Tyne catchment, followed by the Tweed and Northumberland catchments. Lower totals were recorded in the Wear and Tees catchments. The cumulative 6-month rainfall totals are in the exceptionally low range for the whole area and 12-month rainfall totals are in the notably low range for the majority of catchments except Northumberland and the Wear which fall within the exceptionally low range. The Seaham and Wear catchments have both recorded their driest 5-month period ending in July since records began in 1871, while the Tees has recorded its second driest 5-month period ending in July since 1871.

1.2 Soil moisture deficit and recharge

Soil moisture deficits (SMDs) have remained consistent since June. SMDs have been between 101mm and 130 mm in the Seaham catchment, 41mm to 70mm in both the Tyne and Wear catchments, with the rest of the area falling within the 71mm to 100mm SMD banding. Soils are drier than average for the time of year, with the Seaham, Northumberland and Tweed catchments showing a 26mm to 50mm difference from the LTA, and the rest of the area showing a 6mm to 25mm difference.

1.3 River flows

Monthly mean river flows have varied this month as a result of localised rainfall in the area, notably in the Tyne catchment. Flows at most indicator sites were below normal, except for Rutherford Bridge, Haydon Bridge and Rothbury, which fell within the normal range. Rutherford Bridge on the River Greta recorded the largest increase in monthly mean flow, moving from 34% of the LTA in June to 67% of the LTA in July. Monthly mean flows ranged from 29% of the LTA at Hartford Bridge to 123% of the LTA at Haydon Bridge.

Analysis of the daily mean flows shows that flows were in the normal, below normal, notably low and exceptionally low ranges at the start of the month. Daily mean flows fluctuated across the indicator sites, with peaks around the first and fourth weeks of the month following rainfall. Most indicator sites, with the exception of Heaton Mill and Mitford, also recorded smaller peaks around 15 to 17 July with flows falling within the normal and above normal ranges. Neither Rothbury or Rutherford Bridge dropped to the notably low or exceptionally low ranges, both recording between below normal and notably high flows across the month. Haydon Bridge is the only site that recorded exceptionally high flows within the month which occurred during the first week. The other sites all recorded between exceptionally low and notably high flows.

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 slower decline. 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

Changes in reservoir stocks vary across the area. Kielder, the North Tynedale Group, and the Durham group have seen increases in stocks this month. The Lune and Balder group and Derwent recorded decreases in stocks with the largest decrease at Derwent reservoir being 8%. Cow Green fluctuated over the month, however it has returned to the same level as the

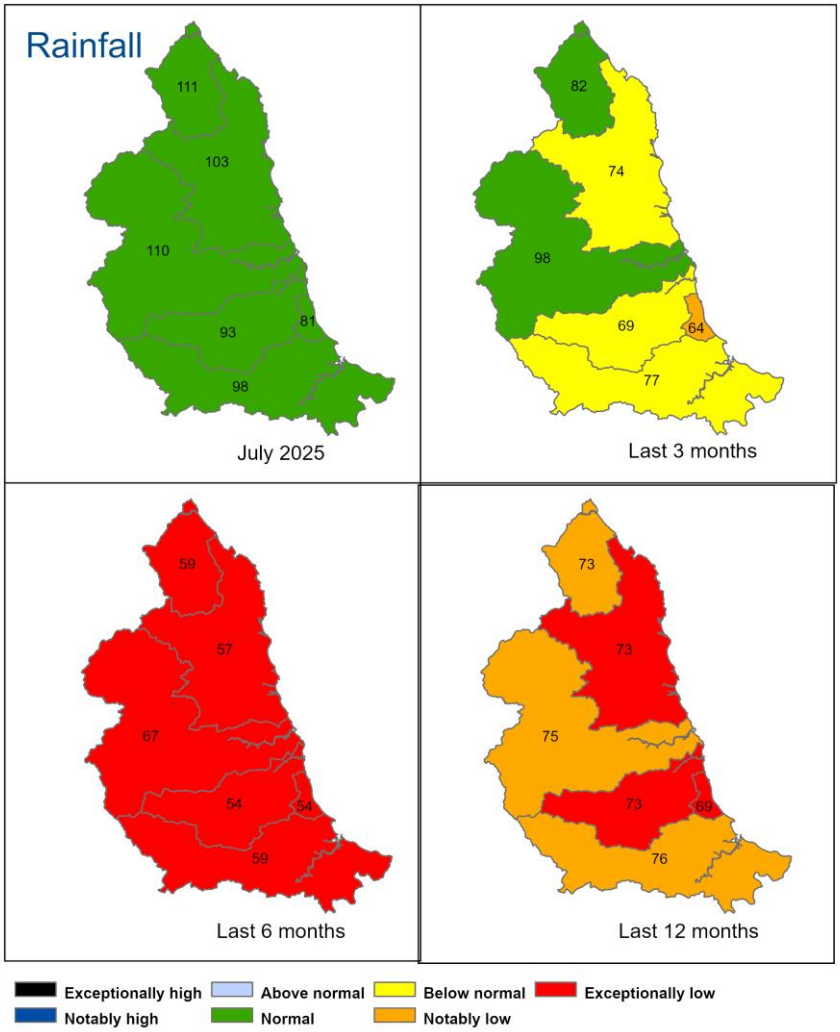
previous month. Reservoir stocks across the area remain below average for the time of year, with the exception of Kielder, which has risen to just above average.

Reservoir or reservoir group	Percentage of current stocks	Percentage of previous month stocks
Kielder	89.7	86.4
North Tynedale group	55.1	52.7
Derwent	56.8	64.7
Durham group	59.8	57.6
Lune and Balder group	69.1	73.9
Cow Green	65.8	65.8

2 Rainfall

2.1 Rainfall map

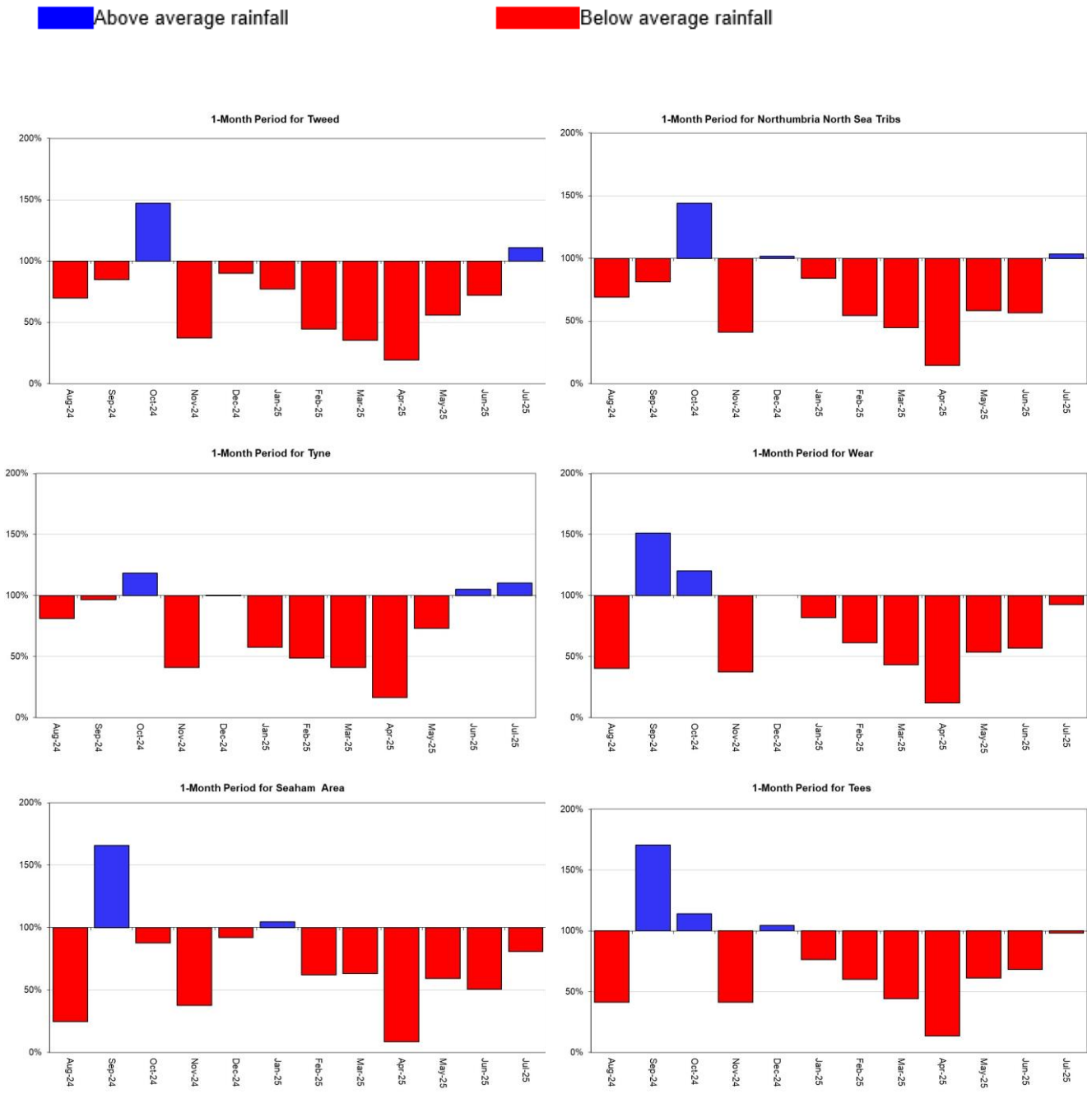
Figure 2.1: Total rainfall for hydrological areas for the current month (up to 31 July 2025), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. The numbers on the maps refer to the percentage of the 1991 to 2020 LTA. July rainfall totals were classed as normal for the whole area. All catchments are classed as exceptionally low for the last 6 month cumulative totals. Table available in the appendices with detailed information.



HadUK data based on the Met Office 1km gridded rainfall dataset derived from rain gauges (Source: Met Office. Crown copyright, 2025). Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Crown copyright. All rights reserved. Environment Agency, 100024198, 2025.

2.2 Rainfall charts

Figure 2.2: Monthly rainfall totals for the past 24 months as a percentage of the 1991 to 2020 long term average for each region and for England.

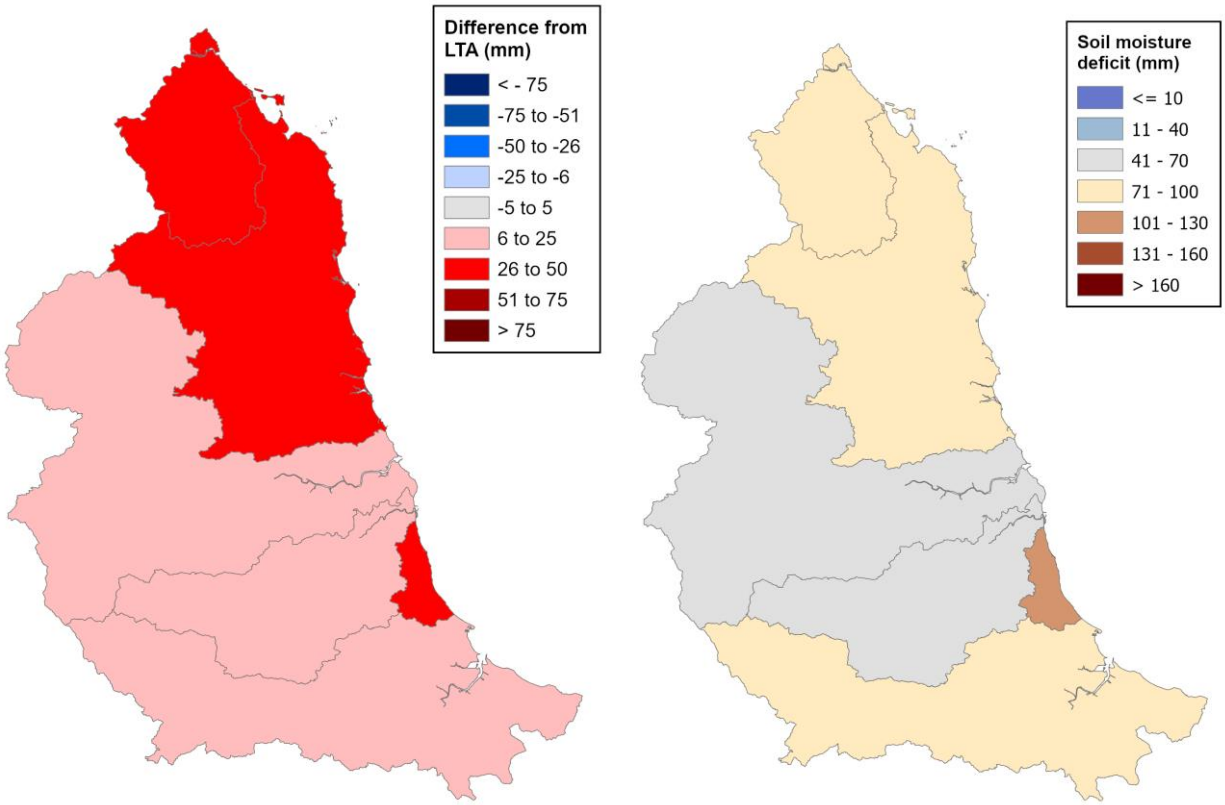


HadUK rainfall data. (Source: Met Office. Crown copyright, 2025).

3 Soil moisture deficit

3.1 Soil moisture deficit map

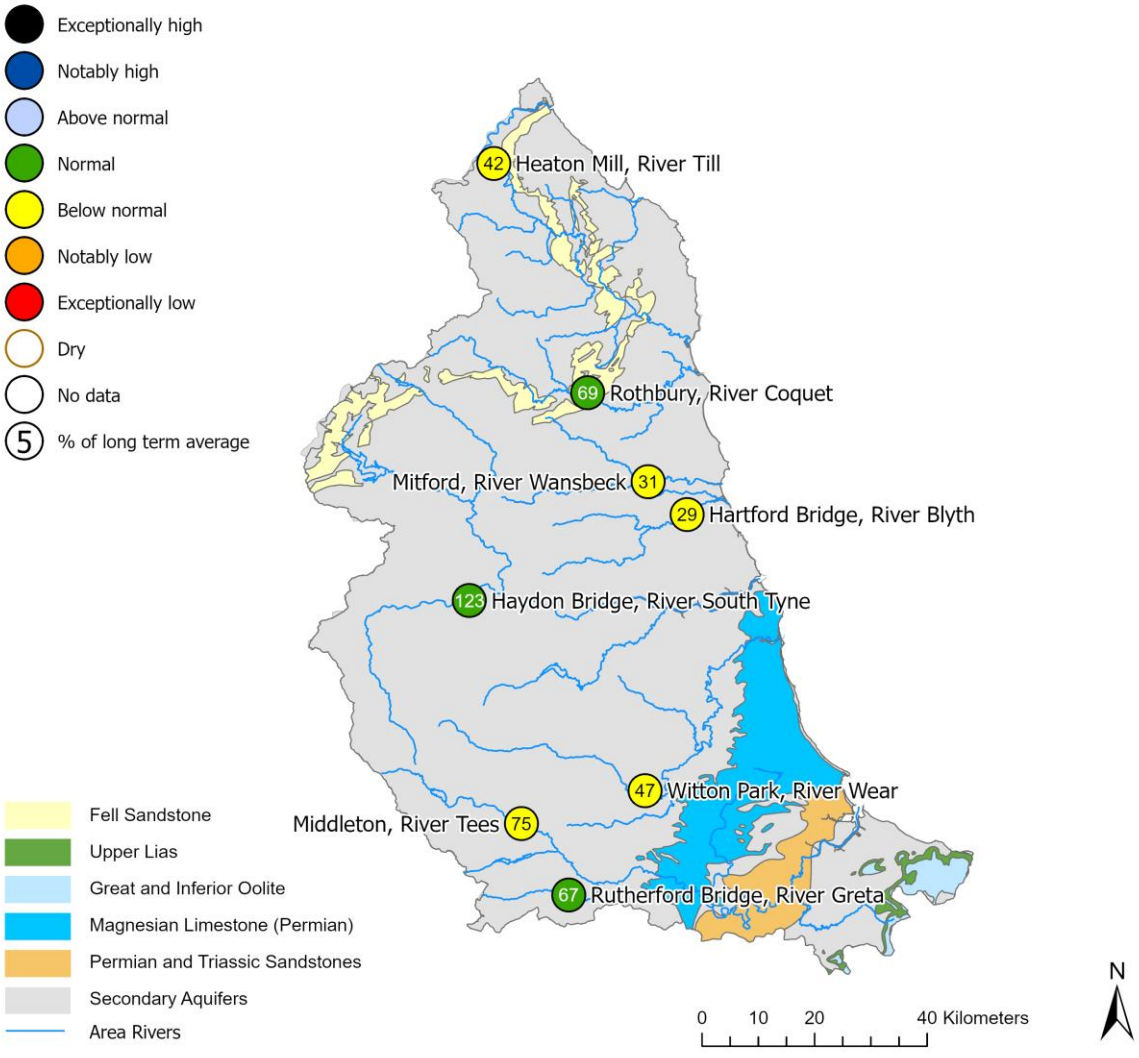
Figure 3.1: Soil moisture deficits for weeks ending 31 July 2025. The map on the left shows the difference (mm) of the actual soil moisture deficit from the 1991 to 2020 long term average soil moisture deficits. MORECS data for real land use.



4 River flows

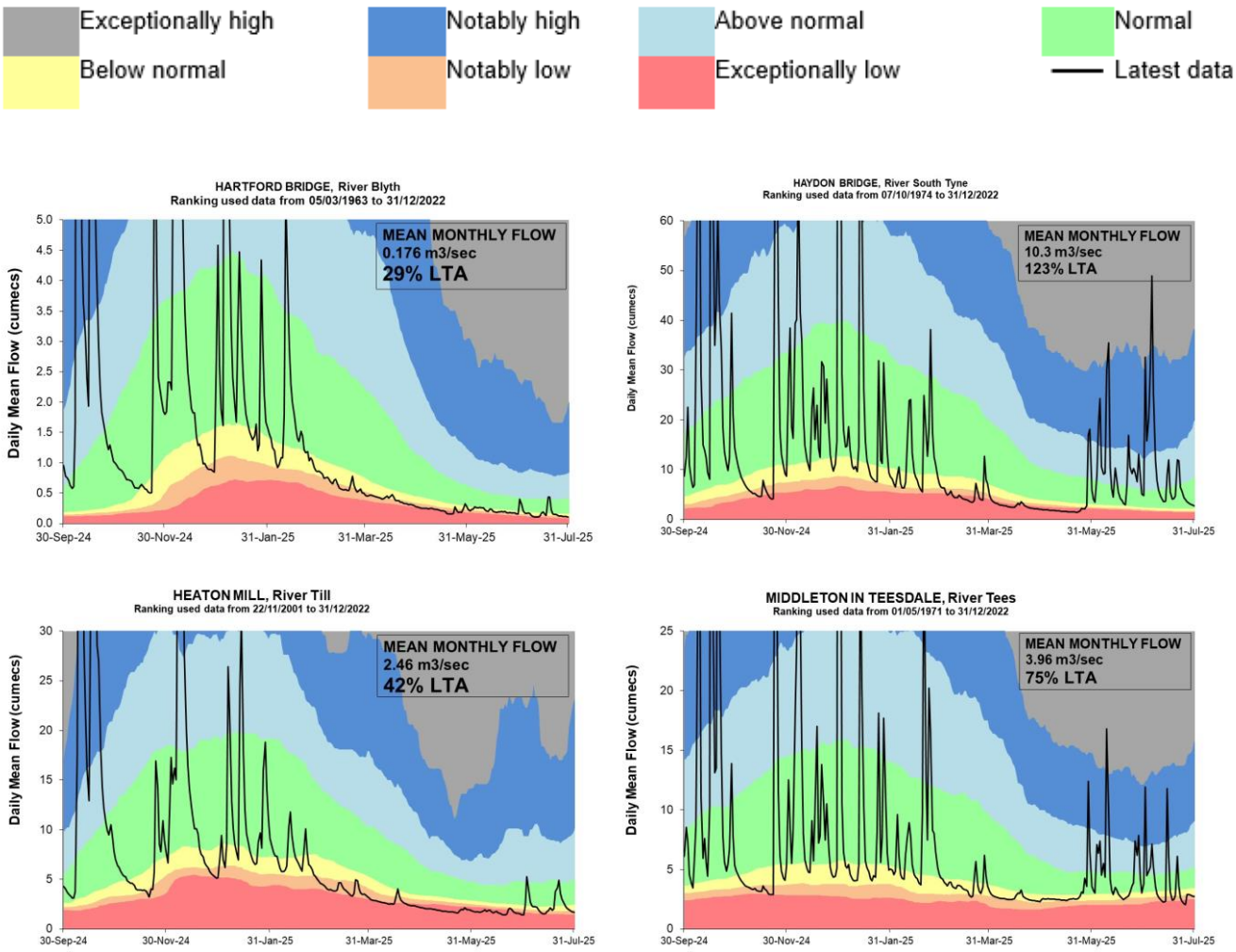
4.1 River flows map

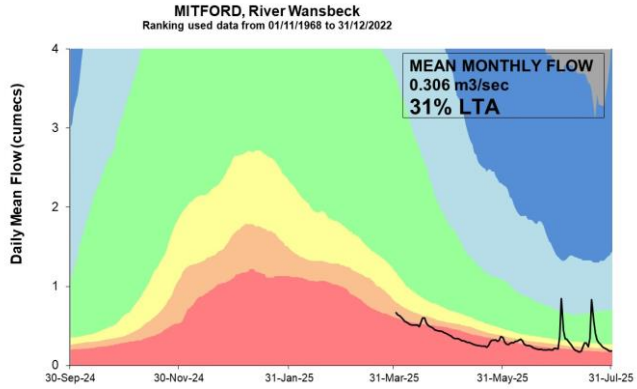
Figure 4.1: Monthly mean river flow for indicator sites for July 2025, expressed as a percentage of the respective long term average and classed relative to an analysis of historic July monthly means. Monthly mean flows vary across the area. Flows are classed as normal at Rothbury, Haydon Bridge and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

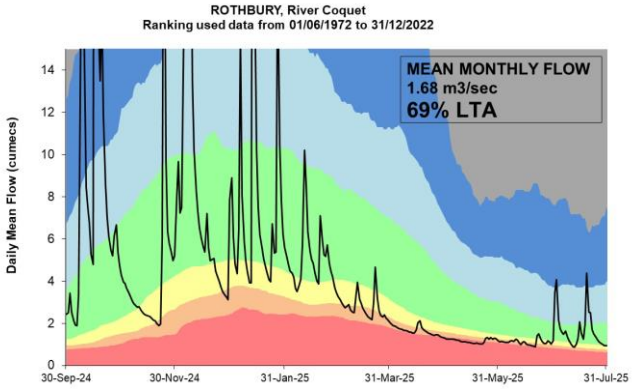


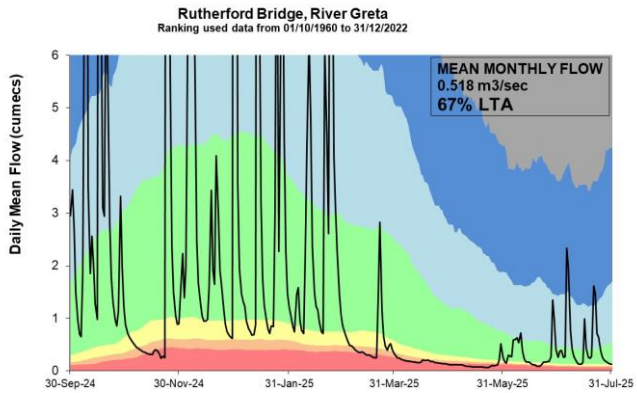
4.2 River flow charts

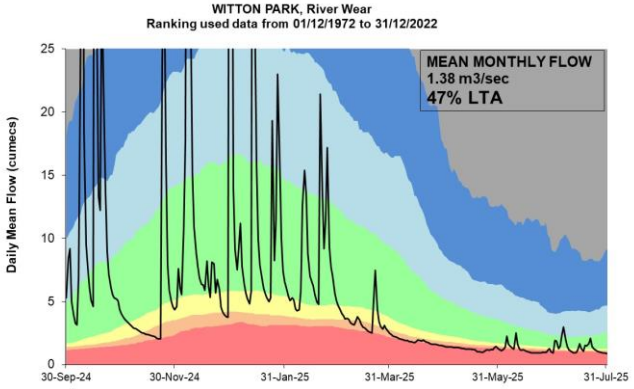
Figure 4.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows.









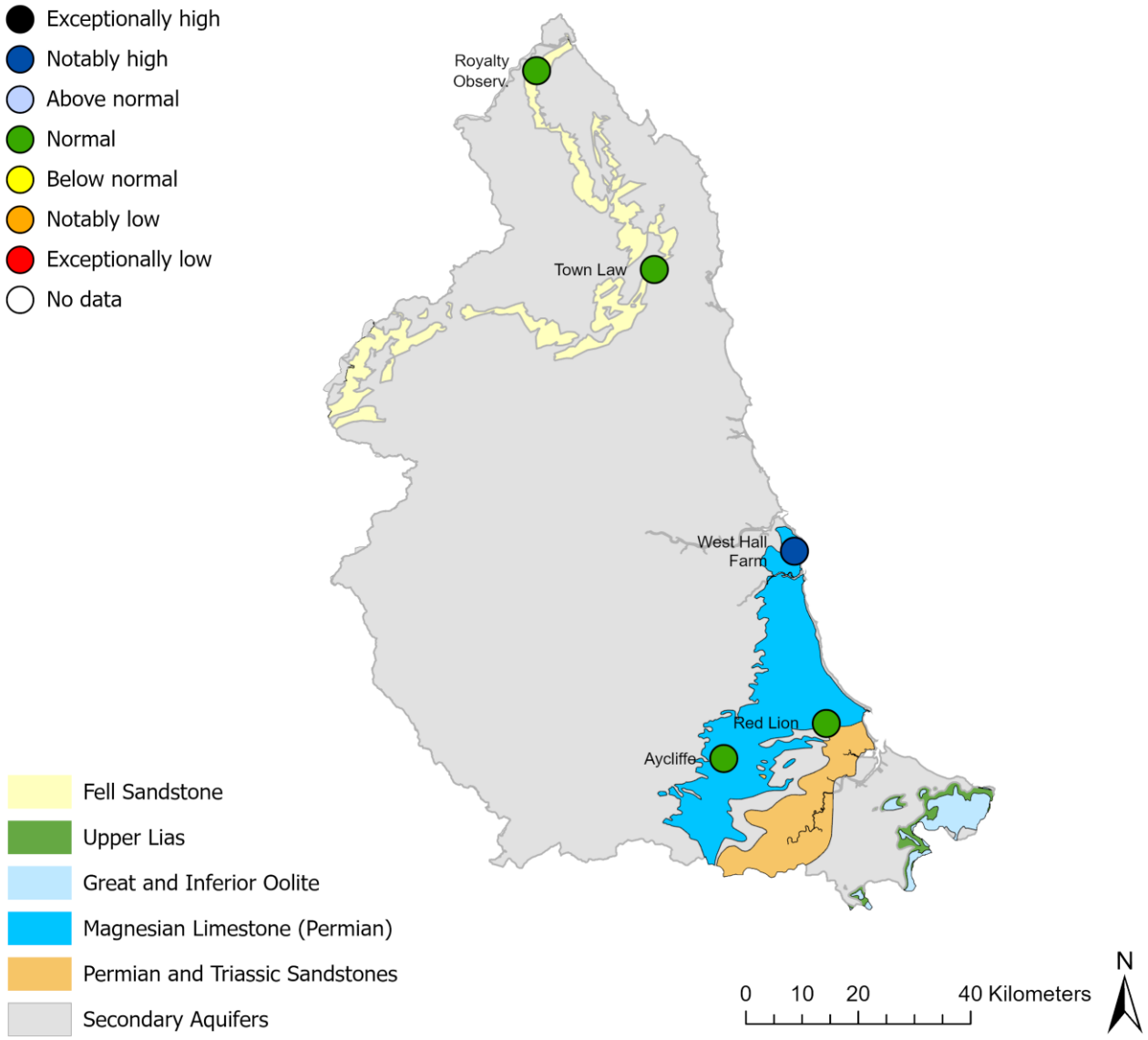


Source: Environment Agency.

5 Groundwater levels

5.1 Groundwater levels map

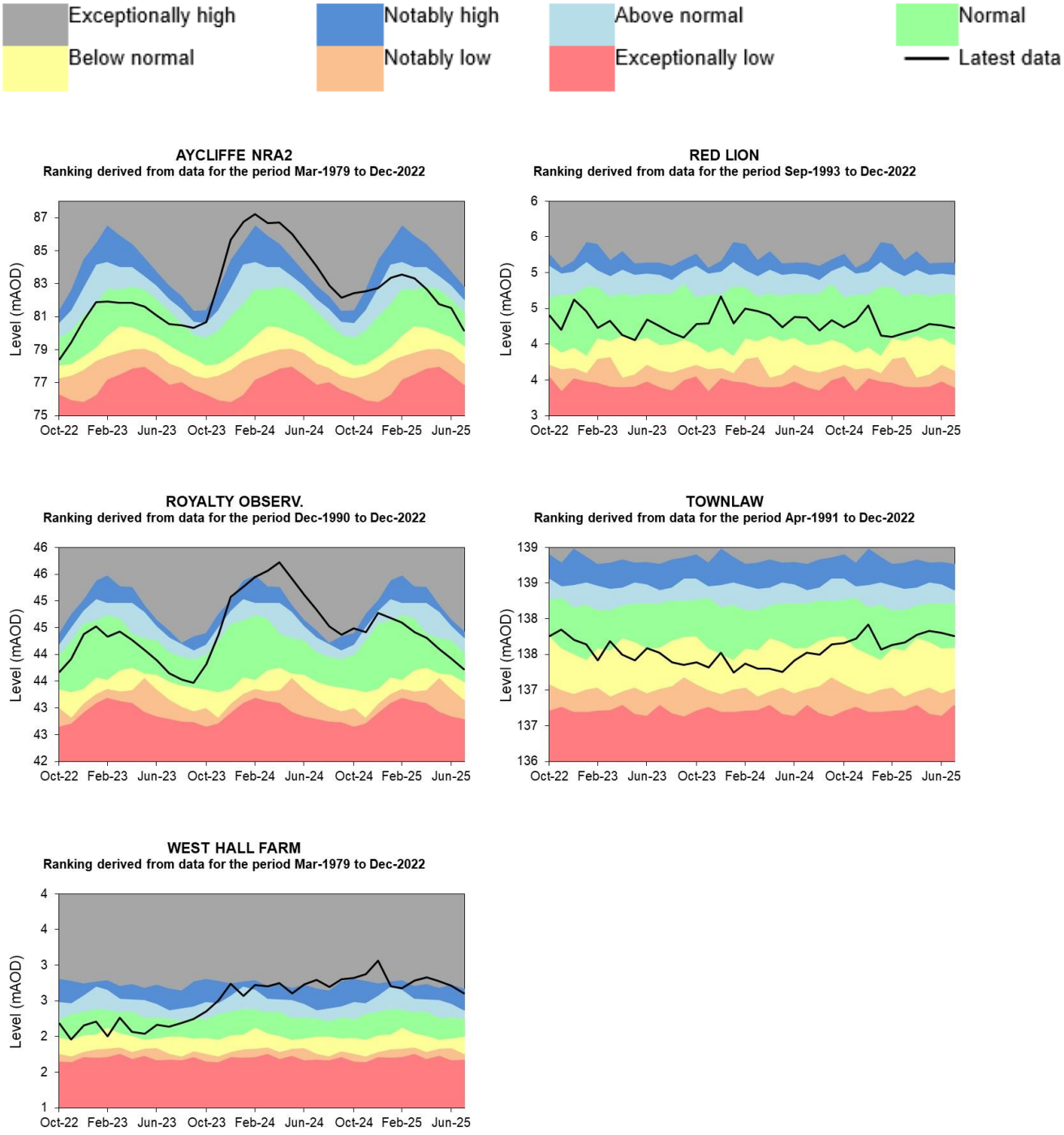
Figure 5.1: Groundwater levels for indicator sites at the end of July 2025, classed relative to an analysis of respective historic July levels. Groundwater levels are classed as notably high at West Hall Farm on the Magnesian Limestone and normal at all other indicator sites in the area. Table available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

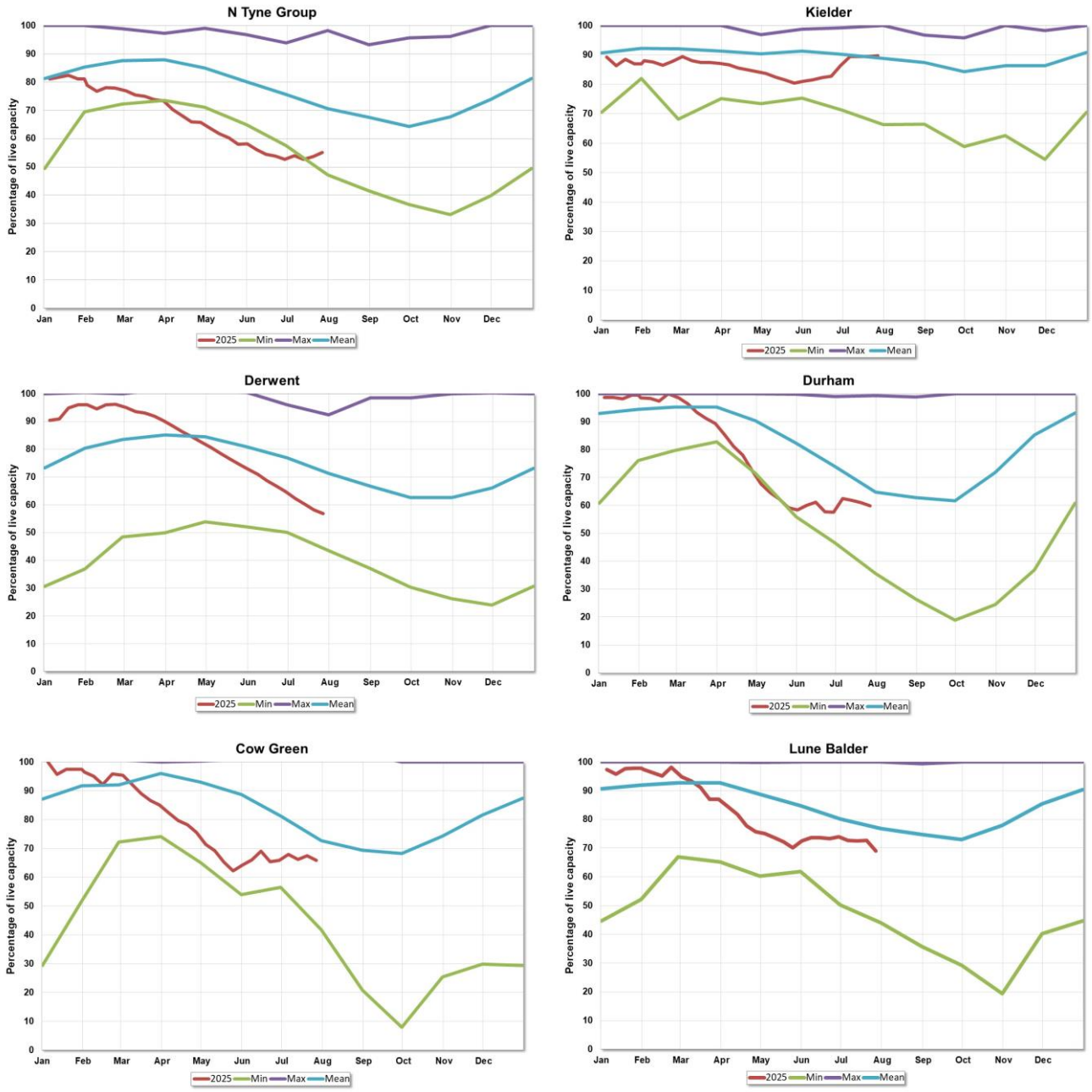
Figure 5.2: End of month groundwater levels at index groundwater level sites for major aquifers. 34 months compared to an analysis of historic end of month levels.



Source: Environment Agency, 2025.

6 Reservoir stocks

Figure 6.1: End of month regional 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 company).

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
Northumbria North Sea Tribs	104	Normal	Below normal	Exceptionally low	Exceptionally low
Seaham Area	81	Normal	Notably low	Exceptionally low	Exceptionally low
Tees	98	Normal	Below normal	Exceptionally low	Notably low
Tweed	111	Normal	Normal	Exceptionally low	Notably low
Tyne	110	Normal	Normal	Exceptionally low	Notably low
Wear	93	Normal	Below normal	Exceptionally low	Exceptionally low

8.2 River flows table

Site name	River	Catchment	Jul 2025 band	Jun 2025 band
Hartford Bridge	Blyth	Blyth	Below normal	Notably low
Haydon Bridge	South Tyne	South Tyne	Normal	Above normal
Heaton Mill	Till	Till	Below normal	Exceptionally low
Middleton In Teesdale	Tees	Tees	Below normal	Normal
Mitford	Wansbeck	Wansbeck	Below normal	Exceptionally low
Rothbury	Coquet	Coquet	Normal	Notably low
Rutherford Bridge	Greta	Greta	Normal	Normal
Witton Park	Wear	Wear	Below normal	Exceptionally low

8.3 Groundwater table

Site name	Aquifer	End of Jul 2025 band	End of Jun 2025 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