Monthly water situation report: North East Area

1 Summary - September 2025

September was the wettest month for the North East area since December 2023 with above average rainfall recorded in all catchments. Monthly mean river flows increased at all indicator sites and now fall within the normal, above normal or notably high ranges. Groundwater levels fall within the below normal, normal or notably high ranges. Soil moisture deficits (SMD) across the area have seen a substantial decrease and soils are slowly saturating following the prolonged dry weather over the summer. The change in reservoir stocks also reflects the wet month with all reservoirs recording an increase in stocks, with the exception of Derwent reservoir.

1.1 Rainfall

Monthly rainfall totals were above the long term average (LTA) for all catchments and ranged from 133% of the LTA in the Seaham catchment to 173% of the LTA in the Tyne catchment.

Analysis of the daily rainfall totals shows little rainfall was recorded in the first week of September. Significant rainfall totals were recorded across the area from 10 to 21 September: the largest totals since February 2025. From 19 to 21 September notable totals were recorded with many parts of the area receiving between 60 – 80% of the months LTA in a 48-hour period. During this event up to 60mm was recorded in the Coquet, Wansbeck and Blyth catchments. The final week of September was much drier with small, infrequent showers.

The cumulative 3-month rainfall totals are in the normal range for all catchments except the Seaham area which is classed as below normal. Longer term rainfall deficits remain, with the cumulative 12-month rainfall totals classed as notably low or exceptionally low. It is the 4th driest 12 months ending in September for the Seaham catchment, 7th driest for the Wear catchment and 8th driest for the Tees catchment and North East area as a whole.

1.2 Soil moisture deficit and recharge

Soil moisture deficits (SMDs) have decreased across the whole area since August. A north/south divide is forming with Northumberland and the Till drier than the southern catchments (Tyne, Wear and Tees). Deficits in the Tweed, Northumbria North Sea Tribs and Seaham catchments have decreased to the 41mm to 70mm range whilst those in the Tyne, Wear and Tees catchments have decreased to between 11mm to 40mm. Soils across the area are slowly saturating following the prolonged dry weather over the spring and summer.

1.3 River flows

Monthly mean river flows have increased this month at all indicator sites and fall within the normal, above normal or notably high ranges. Monthly mean flows ranged from 23% of the LTA at Hartford Bridge on the River Blyth to 181% of the LTA at Haydon Bridge on the River South Tyne.

Analysis of the daily mean flows shows that flows were in the exceptionally low and notably low ranges at the start of the month following a very dry August. They remained relatively low for the first week of September then increased rapidly from 10 September following a period of prolonged heavy rainfall.

From 10 September to 22 September all indicator sites recorded exceptionally high flows, with the exception of Hartford Bridge and Heaton Mill where daily mean flow flows peaked in the above normal and notably high ranges. Daily mean flows peaked on 20 September following a very intense 48 hours of rainfall with the highest flows being recorded in the area since February 2025. Daily mean flows receded following this rainfall event and fell within the normal or below normal ranges by the end of the month.

1.4 Groundwater levels

Groundwater levels have increased across all indicator sites following the prolonged rainfall with the exception of Town Law on the Till Fell Sandstone which has decreased from normal to below normal. Town Law is located within the more confined area of the aquifers which typically records a delayed response of 3 to 6 months to the observed weather. Royalty Observation, Red Lion and Aycliffe are classed as normal for the time of year. 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

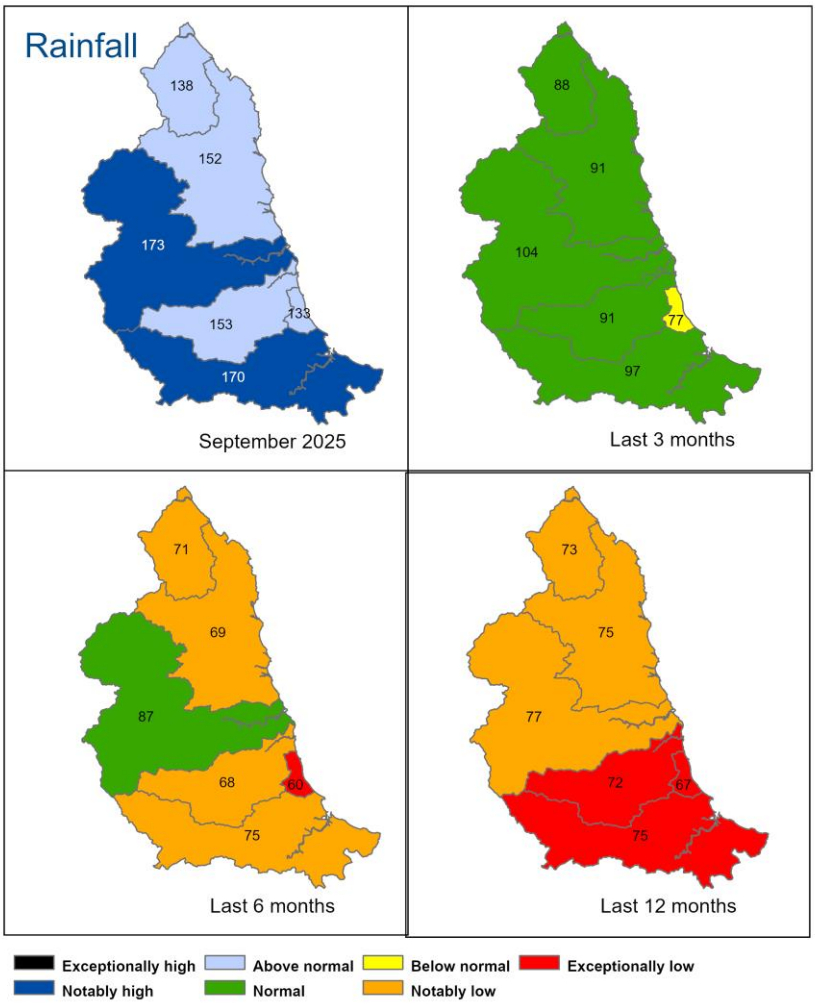
All reservoir stocks in the area have increased this month with the exception of Derwent reservoir which has recorded a decrease from 47.1% to 44.4%. Increases have ranged from 20.2% in the Durham group to 3.9% at Kielder. Reservoir stocks across the area remain below average for the time of year at Kielder, North Tynedale group, Derwent and Cow Green. Durham and the Lune and Balder group reservoir stocks are now slightly above average for September.

Reservoir or reservoir group	Percentage of current stocks	Percentage of previous month stocks
Kielder	84.8	80.9
North Tynedale group	53.2	45.3
Derwent	44.4	47.1
Durham group	67.8	47.6
Lune and Balder group	79.5	60.7
Cow Green	61.7	50.7

2 Rainfall

2.1 Rainfall map

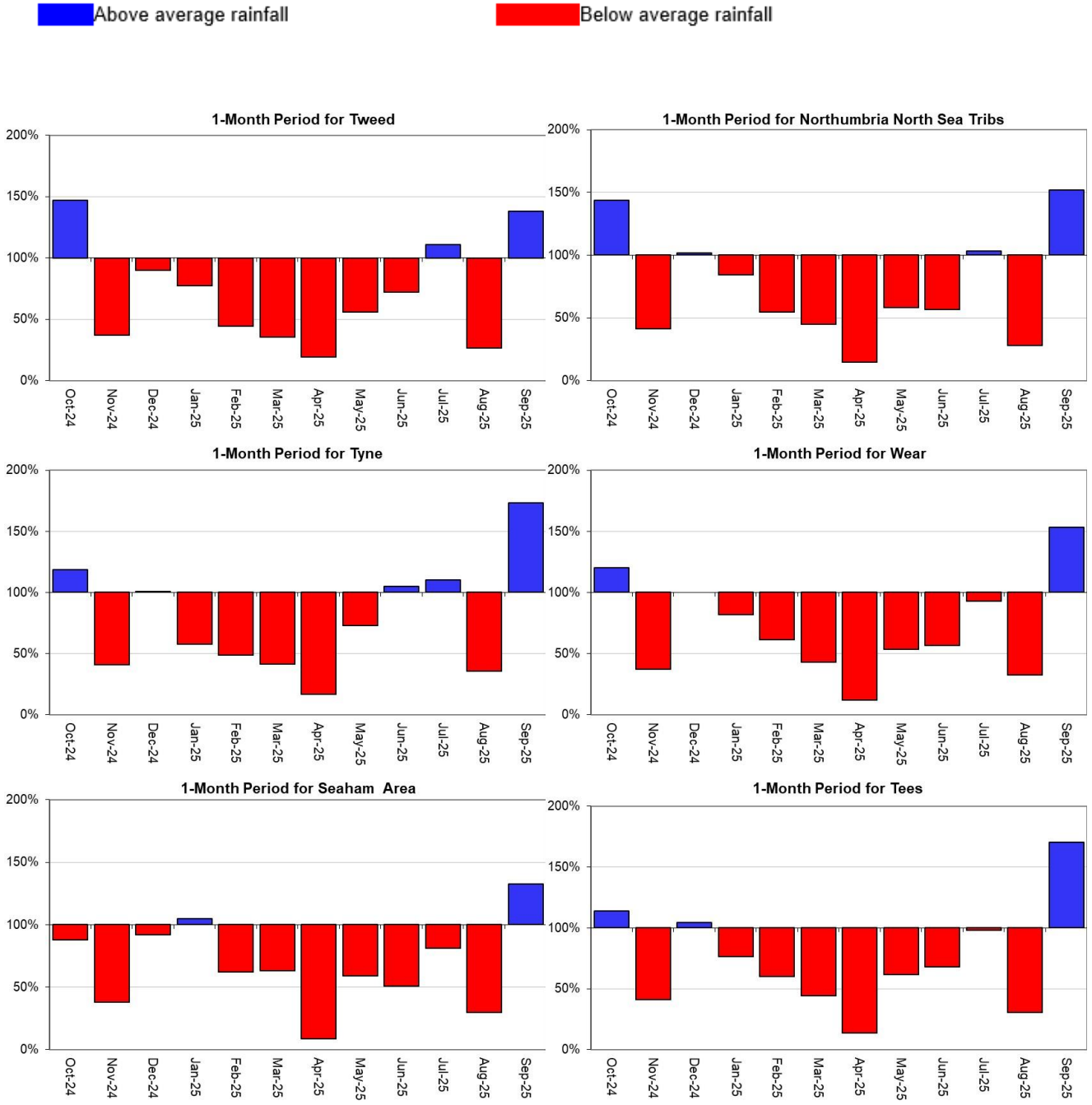
2.1: Total rainfall for hydrological areas for the current month (up to 30 September 2025), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. The numbers on the maps refer to the percentage of the 1991 to 2020 LTA. September totals were classed as notably high for the Tees and Tyne catchments and as above normal for the rest of the area. Table available in the appendices with detailed information.



Rainfall data for Oct 2023 onwards, 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 Oct 2023, extracted from Met Office HadUK 1km gridded rainfall dataset derived from registered rain gauges (Source: Met Office. Crown copyright, 2025).

2.2 Rainfall charts

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.



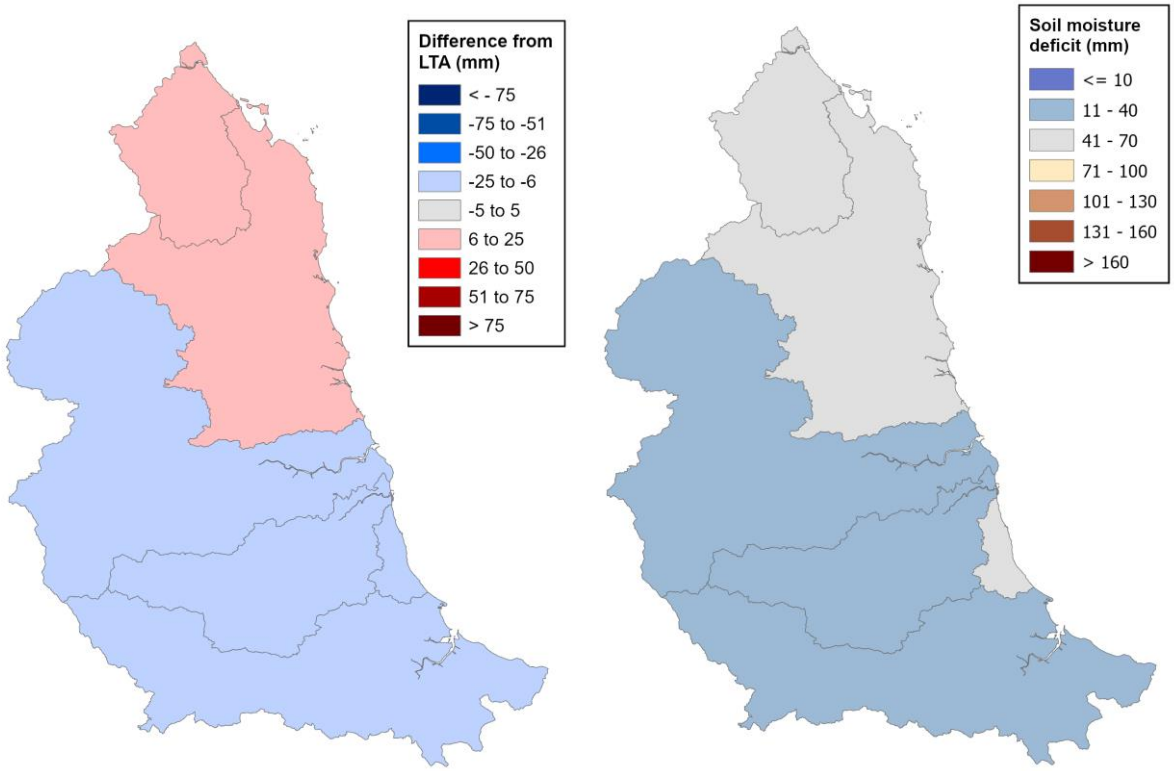
Rainfall data for Oct 2023 onwards, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, 2025). Rainfall data prior to Oct 2023, extracted from Met Office HadUK 1km

gridded rainfall dataset derived from registered rain gauges (Source: Met Office. Crown copyright, 2025).

3 Soil moisture deficit

3.1 Soil moisture deficit map

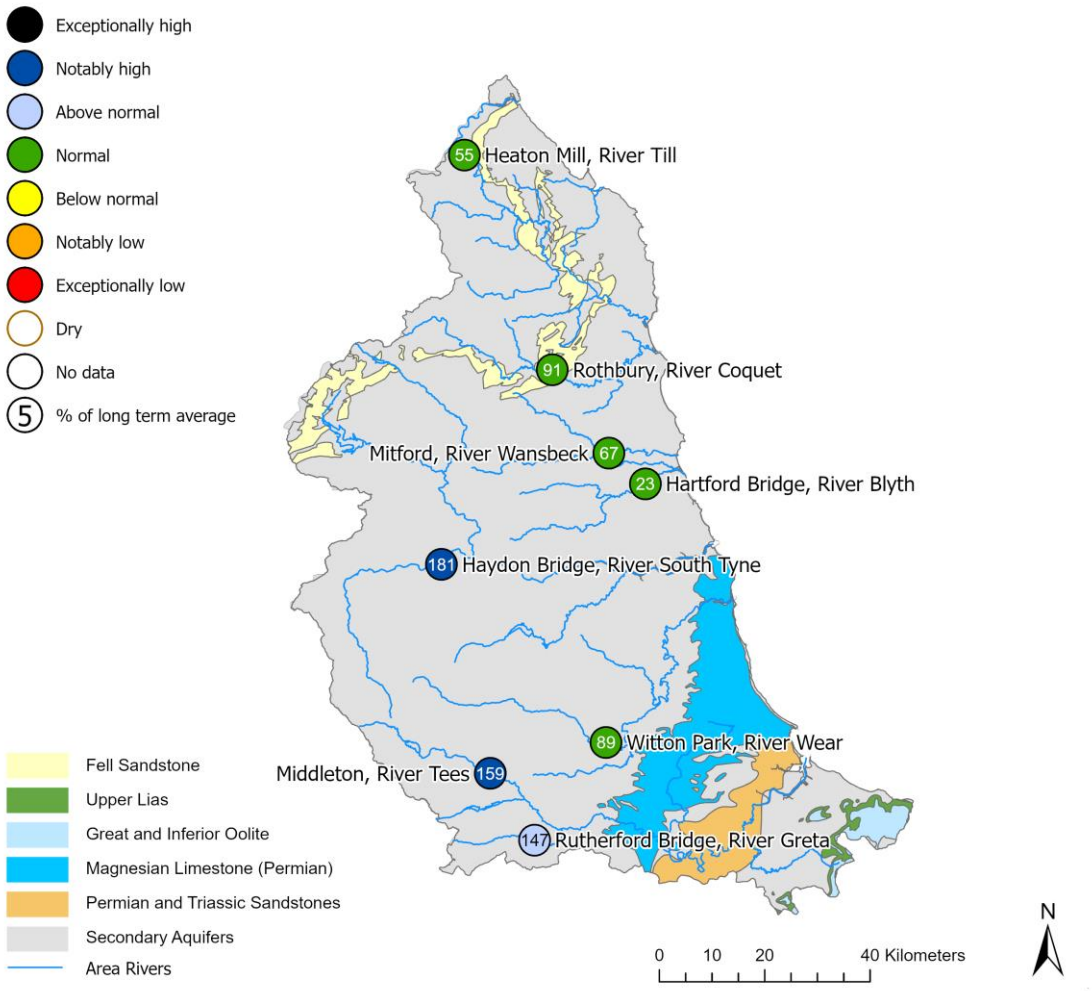
3.1: Soil moisture deficits for weeks ending 30 September 2025. The map on the left shows the difference (mm) of the actual soil moisture deficit from the 1991 to 2020 long term average soil moisture deficits. MORECS data for real land use.



4 River flows

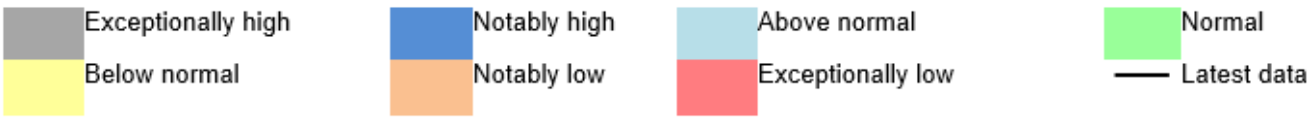
4.1 River flows map

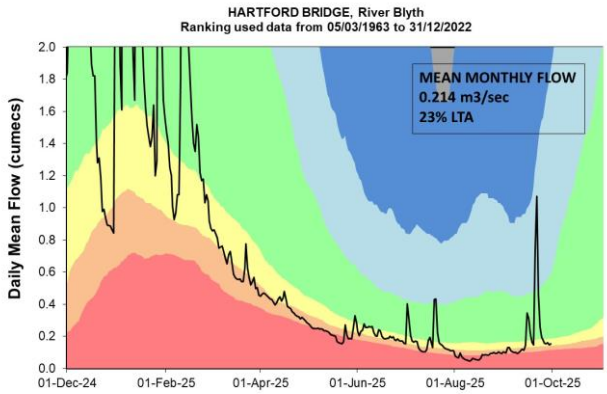
4.1: Monthly mean river flow for indicator sites for September 2025, expressed as a percentage of the respective long term average and classed relative to an analysis of historic September monthly means. Monthly mean flows are classed as notably high at Haydon Bridge and Middleton, as above normal at Rutherford Bridge and as normal for the rest of the area. Flows at Middleton are being supported by reservoir releases. Table available in the appendices with detailed information.

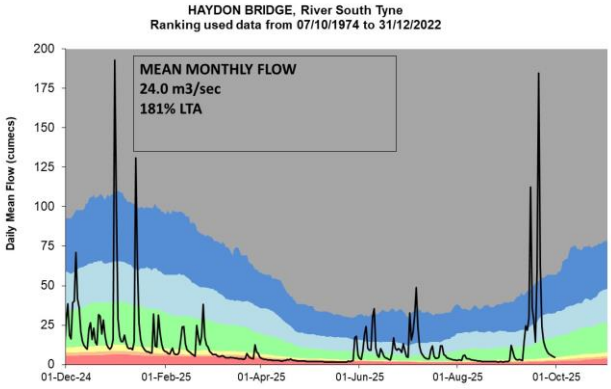


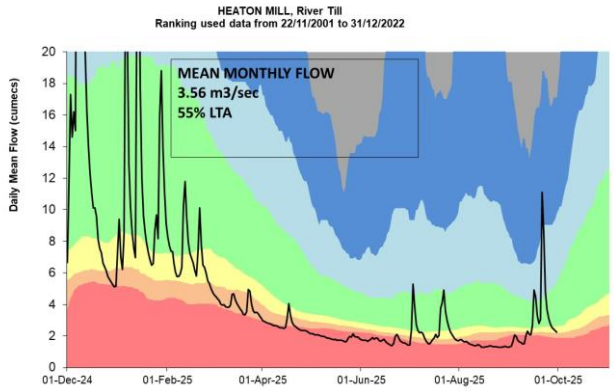
4.2 River flow charts

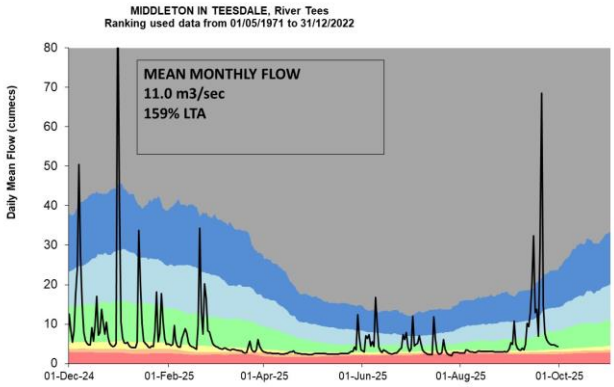
4.2: Daily mean river flow for index sites over the past 10 months, compared to an analysis of historic daily mean flows.

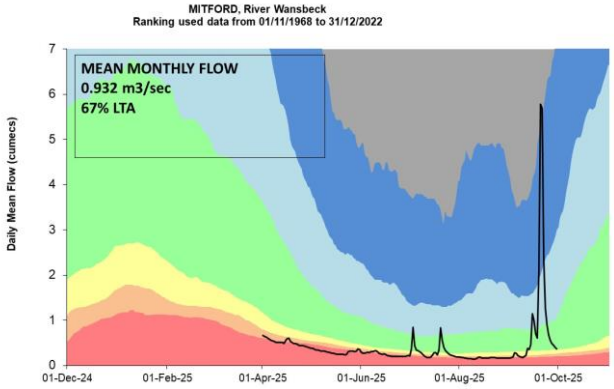


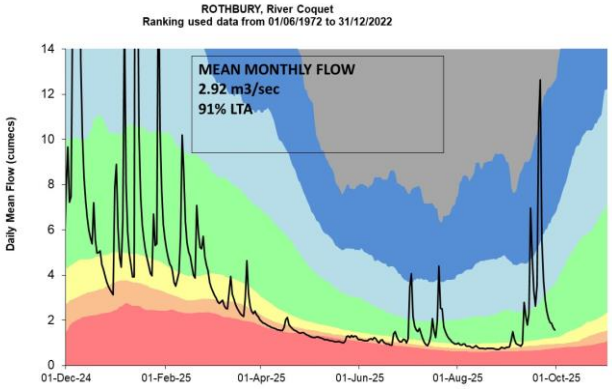


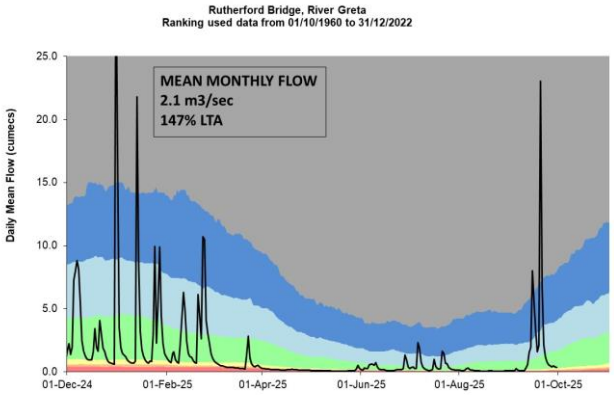


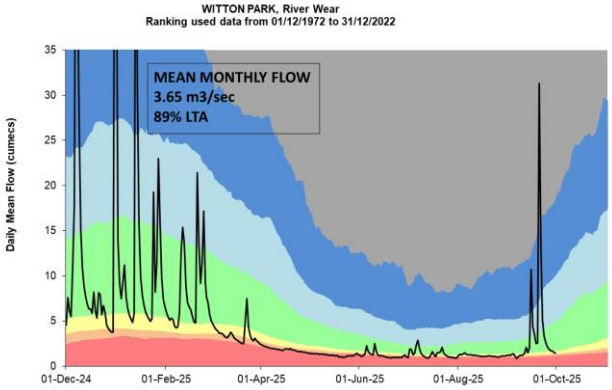










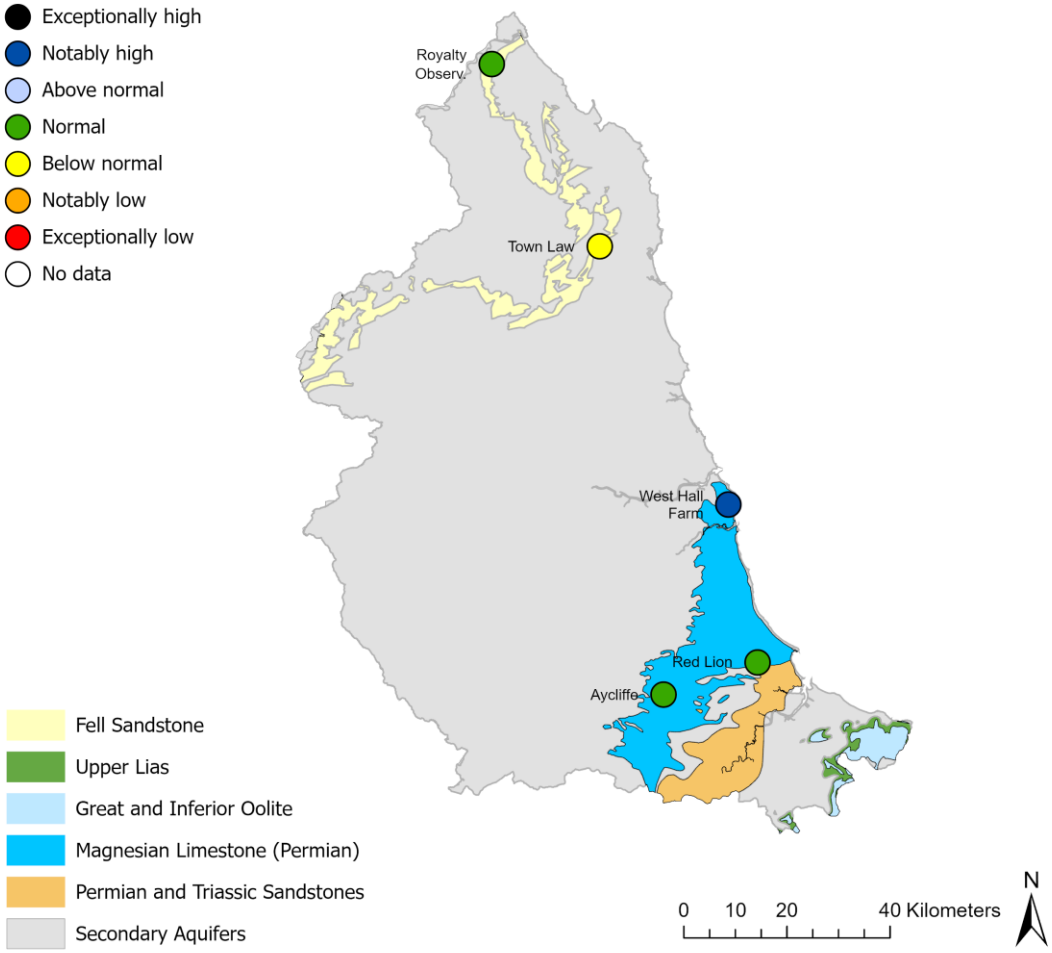


Source: Environment Agency.

5 Groundwater levels

5.1 Groundwater levels map

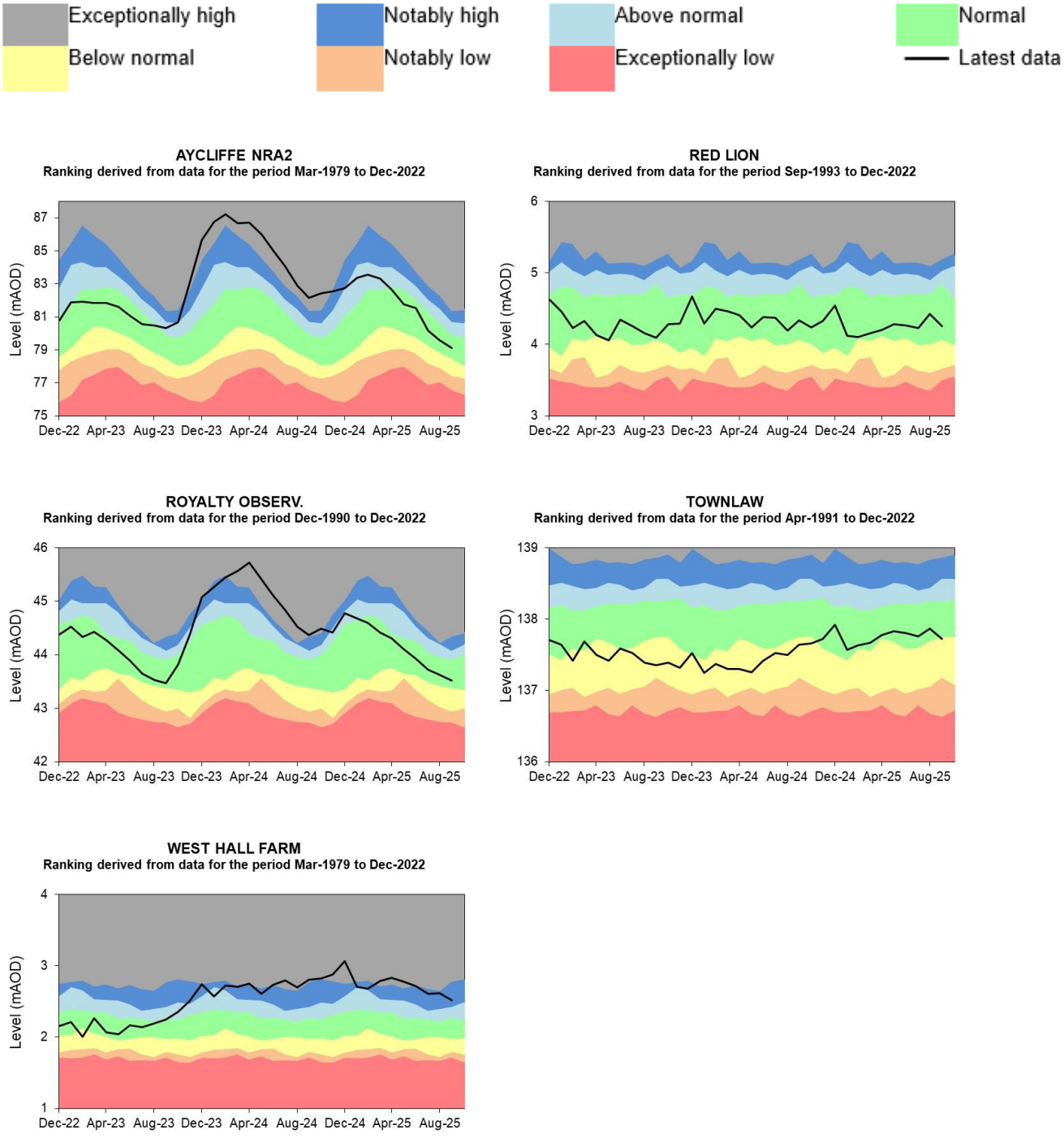
5.1: Groundwater levels for indicator sites at the end of September 2025, classed relative to an analysis of respective historic September levels. Groundwater levels are classed as notably high at West Hall Farm on the Magnesian Limestone. Royalty Observation, Red Lion and Aycliffe are classed as normal for the time of year. Town law on the Till Fell Sandstone is classed as below normal for September. 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, AC0000807064, 2025.

5.2 Groundwater level charts

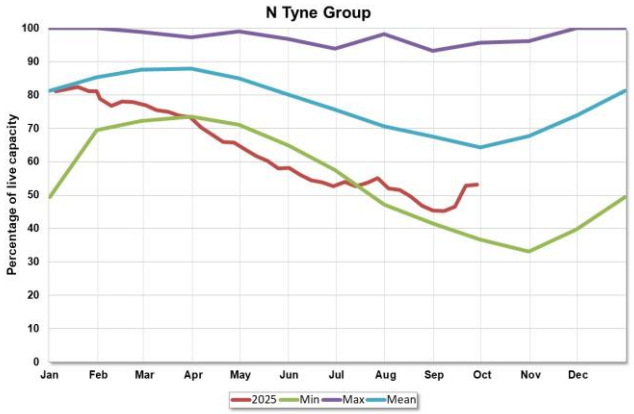
5.2: End of month groundwater levels at index groundwater level sites for major aquifers for the last 34 months compared to an analysis of historic end of month levels

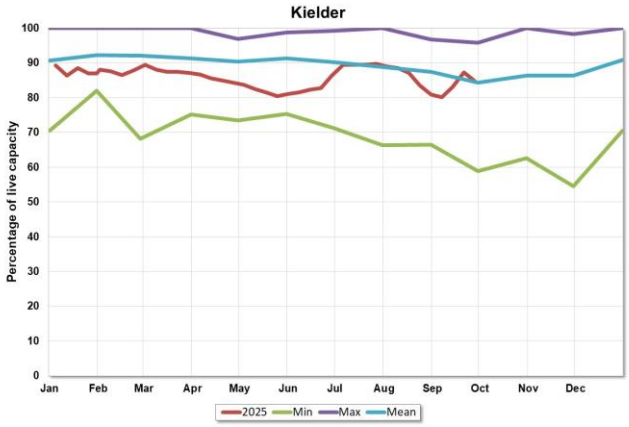


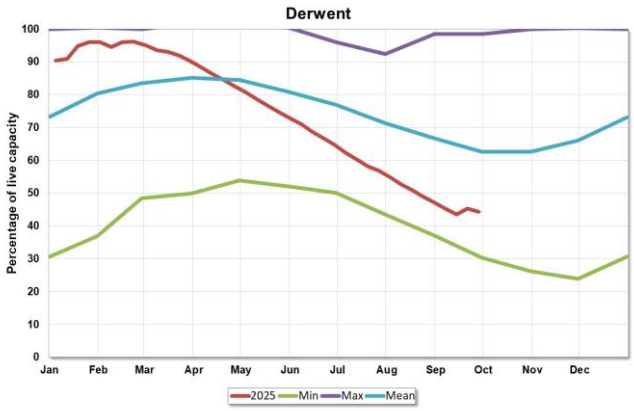
Source: Environment Agency, 2025.

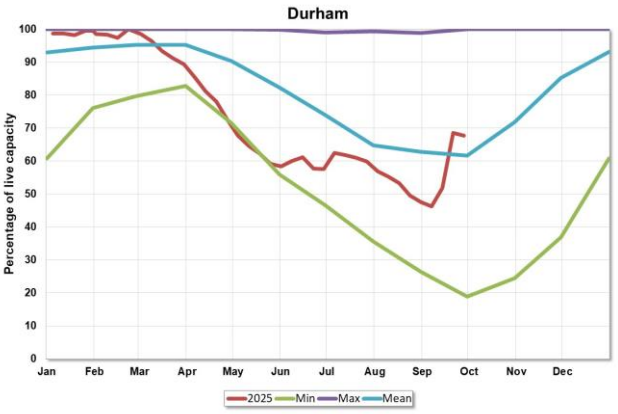
6 Reservoir stocks

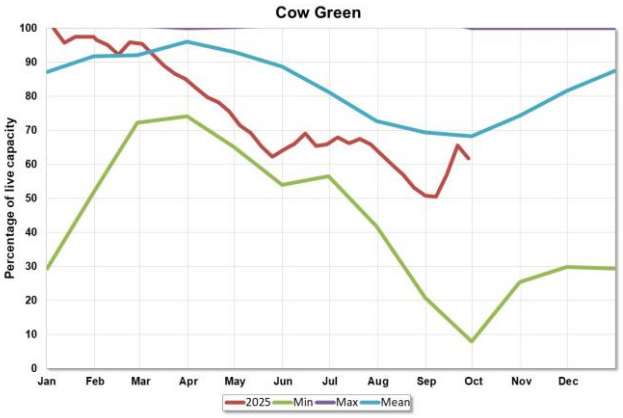
6.1: End of month regional reservoir stocks compared to long term maximum, minimum and average stocks. Note: Historic records of individual reservoirs and reservoir groups making up the regional values vary in length.

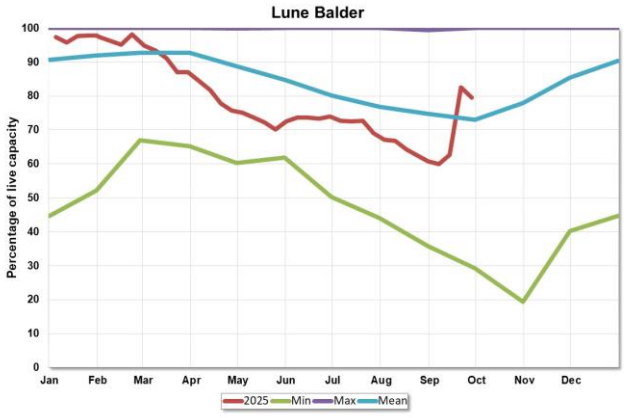












(Source: water companies).

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	September 2025 rainfall % of long term average 1991 to 2020	September 2025 band	Jul 2025 to September 2025 cumulative band	Apr 2025 to September 2025 cumulative band	Oct 2024 to September 2025 cumulative band
Northumbria North Sea Tribs	152	Above Normal	Normal	Notably low	Notably low
Seaham Area	133	Above Normal	Below normal	Exceptionally low	Exceptionally low
Tees	170	Notably High	Normal	Notably low	Exceptionally low
Tweed	138	Above Normal	Normal	Notably low	Notably low
Tyne	173	Notably High	Normal	Normal	Notably low
Wear	153	Above Normal	Normal	Notably low	Exceptionally low

8.2 River flows table

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

8.3 Groundwater table

Site name	Aquifer	End of Sep 2025 band	End of Aug 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	Below normal	Normal
West Hall Farm	Wear Magnesian Limestone	Notably high	Notably high