Monthly water situation report: Yorkshire Area

1 Summary - June 2025

June was another dry month with below average rainfall. Some rivers showed short-term responses to rainfall, but prolonged periods of summer low flows continued to be widespread in many catchments. Groundwater levels continued to fall in most aquifers. Reservoir stocks continued to fall. Most soils were classified as very dry and by month end only the north-west Pennines in the dry category.

1.1 Rainfall

Across Yorkshire it was the fifth or sixth consecutive month where monthly rainfall totals were below the long-term average (LTA). The catchment-average monthly rainfall continued to be below average for June and, at 40% to 85% of the LTA, ranged from below normal to normal for the time of the year. It was the third driest continuous six month period for the whole of Yorkshire since 1871, the second driest in the Swale, Derwent and Rye, the third driest in the Ure, Nidd and Calder and the fourth driest in the Aire, Wharfe and Ouse.

Low rainfall totals were recorded at many rain gauges in Yorkshire for the first 9 days of the month, with the most rainfall occurring on day 2 or day 9, typically recording around 20% of the LTA on either day. For the next 13 days until day 21, there was very little rain recorded with many entirely dry days across the Area. On day 22 widespread rainfall returned falling mainly in the western Pennine catchments and to a lesser extent in the eastern catchments of the Rye, Derwent, Hull and Humber. Daily totals ranged from around 15% LTA in the west to around 5% LTA in the east.

1.2 Soil moisture deficit

In the first 2 weeks soil moisture conditions in central and southern parts of the Area were classified as very dry but in the Upper Pennines, Derwent, Rye, Don and Rother soils were categorised as dry. By the third week soils across the Area had become very dry, with only the Upper Pennine ridge remaining in the dry category.

1.3 River flows

Monthly mean flows for many Yorkshire catchments were generally between 21% to 72% of the LTA, increasing to 127% in the Wharfe and 151% in the Ure. In the Pennine catchments of

northern Yorkshire monthly mean flows in the upper Wharfe and Ure were above the normal range or were normal for the time of year in the Swale, Nidd, Ouse and lower Wharfe. Elsewhere, the monthly mean flows were below normal in Aire and Calder and exceptionally low in the Don, Rother, Derwent, Rye and Esk.

Flows in the northern Pennine catchments remained at normal or above normal for the first 12 days with peak flow in the exceptionally high range on day 9 in the Ure, Wharfe and Aire catchments. From day 12 flows slowly receded until around day 22, when flows in the Aire and Calder temporarily increased for a day and then resumed a slow decline until month end. In response to rainfall, flows in the upper Pennine ridge of the Swale, Ure and Upper Wharfe increased to exceptionally or notably high on day 28 and 29.

In the southern Pennines, flows in the Don and Rother varied from notably low to normal until day 9. Following this, flows receded to notably low to exceptionally low until the end of the month. In the Derwent, Rye and Esk catchments that drain the North Yorkshire Moors flows remained exceptionally low throughout the month, except for day 8, 9 and 10 where flows increased temporarily to notably low in response to rainfall.

On the chalk-fed West Beck in the upper Hull catchment, flow steadily decreased through the month, from the below normal range between day 1 to day 7 to exceptionally low by month end.

1.4 Groundwater levels

Magnesian Limestone

The groundwater level within the Magnesian Limestone at Brick House Farm decreased and remained at above normal for the time of year.

Millstone Grit

The groundwater level within the Millstone Grit at Hill Top Farm decreased and remained at notably low for the time year. *It should be noted that this observation borehole is used for water abstraction by means of a pump. Therefore, the groundwater level recorded here may be subject to the effects of this.*

Sherwood Sandstone

The groundwater level within the Sherwood Sandstone at Great Ouseburn decreased and is now normal for the time of year. The groundwater level also significantly decreased at Riccall Approach Farm and became exceptionally low for the time of year, the significant decrease in May and June has been due to high rates of licensed abstraction for spray irrigation in the local area.

Corallian Limestone

The groundwater level within the Corallian Limestone at Sproxton decreased and remains below normal for the time of year.

Chalk

The groundwater level at Wetwang decreased and became notably low for the time of year. The groundwater level also decreased at Dalton Estate Well and remains below normal for the time of year.

1.5 Reservoir stocks

From the start of June reservoir stocks dropped below the minimum level on record and levels continued to fall. During the month Yorkshire reservoir stocks reduced by 6.8 %. By the final week of June Yorkshire reservoirs stocks were 21% below their LTA.

1.6 Environmental Impact

In the final week of June there were 58 abstraction licences subject to a Hands-Off Flow restriction and 78 abstractors were given advance warnings that flows were low. There were a small number of environmental incidents related to low flow and dry conditions.

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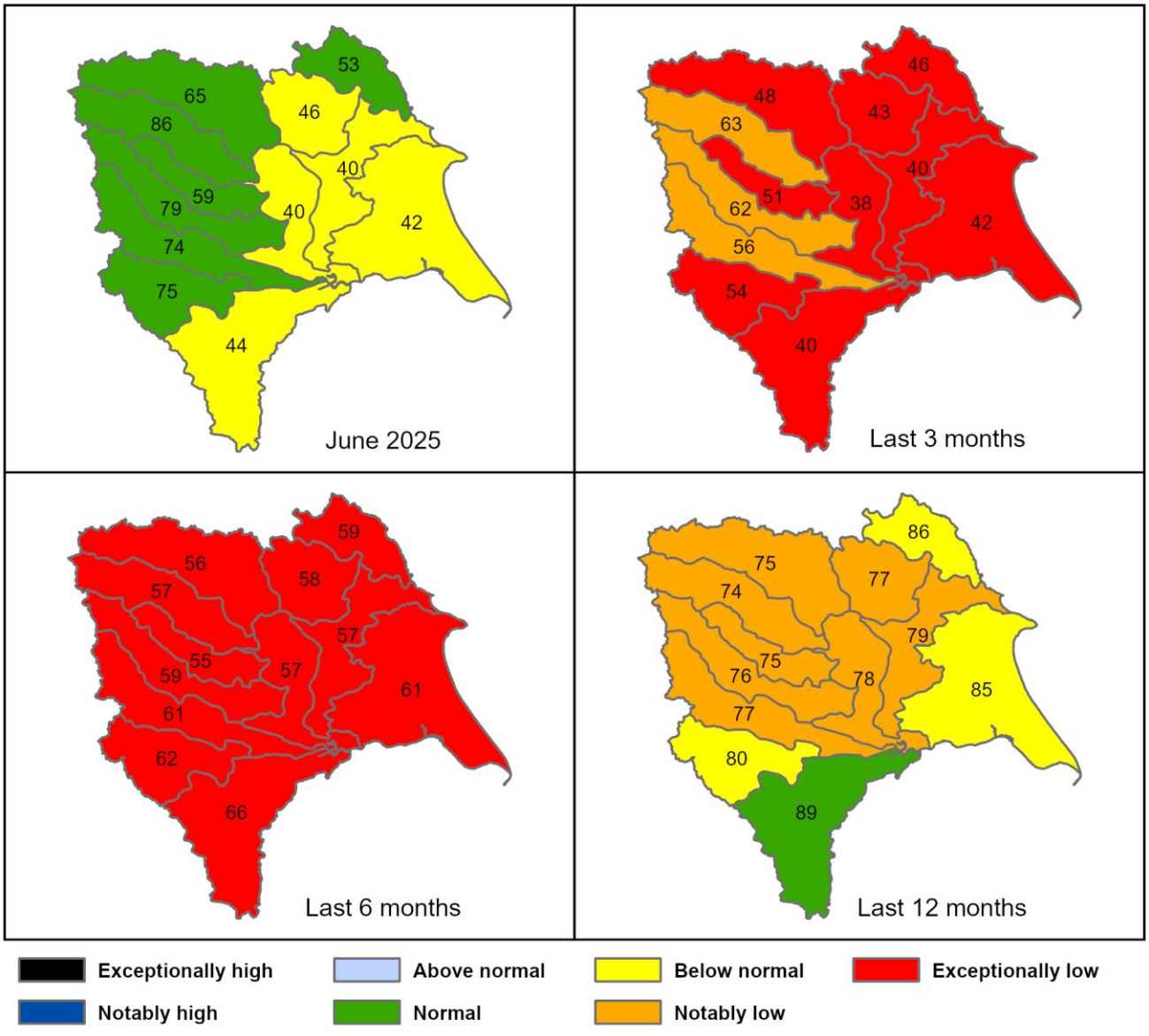
Contact Details: 020 84748174

2 Rainfall

2.1 Rainfall map

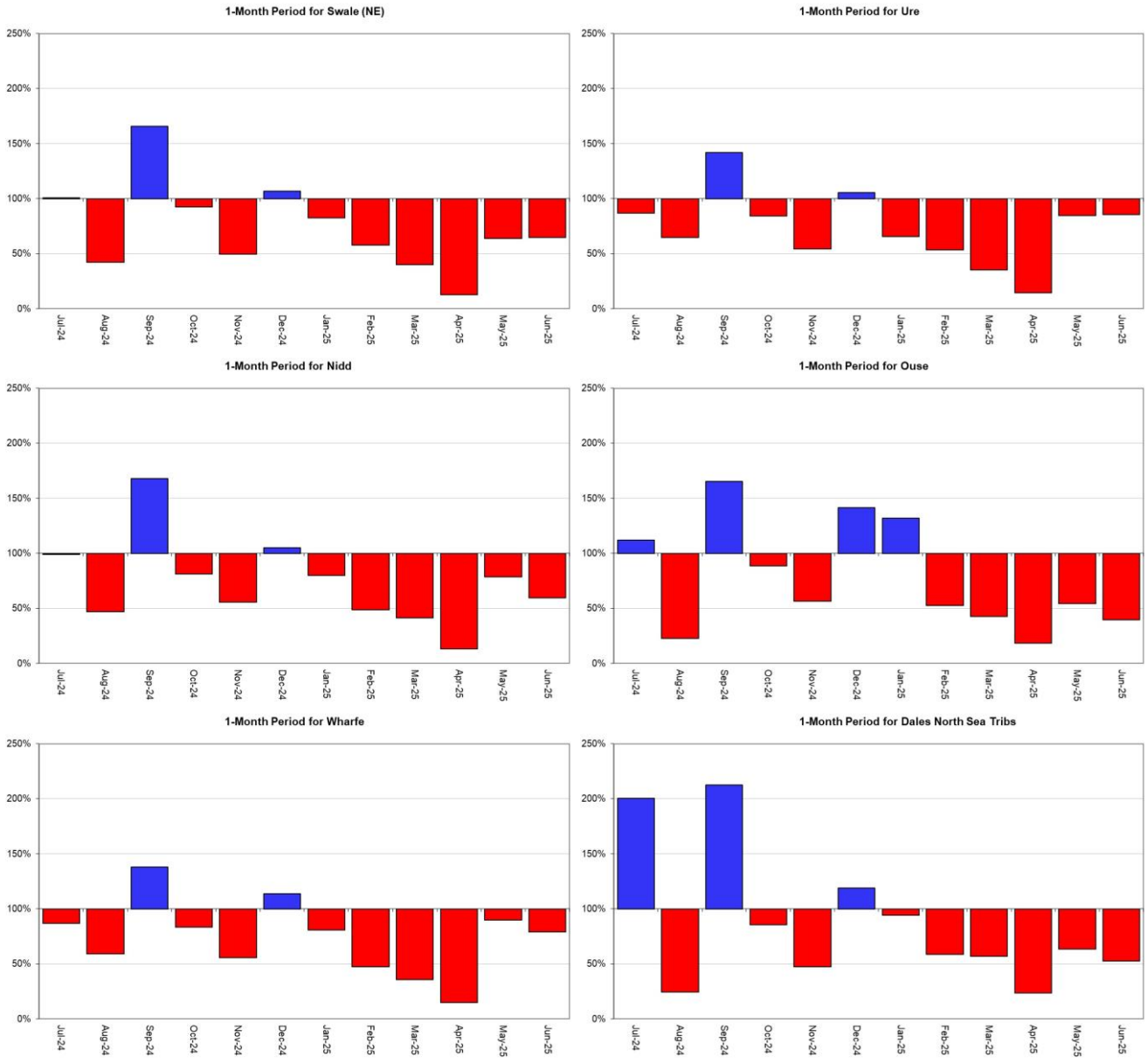
Figure 2.1: Total rainfall for hydrological areas for the current month (up to 30 June 2025), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. Table available in the appendices with detailed information.

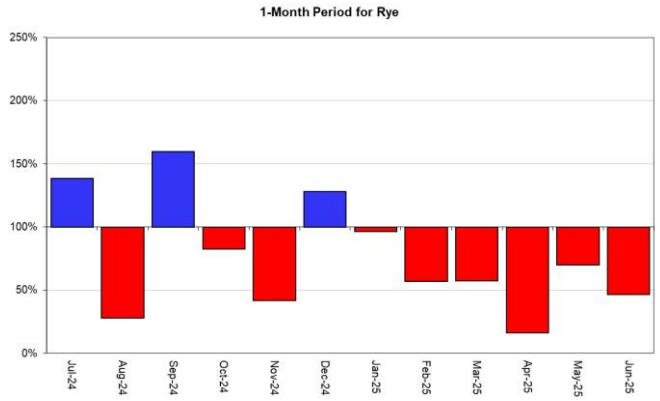


HadUK data based on the Met Office 1km gridded rainfall dataset derived from rain gauges (Source: Met Office. Crown copyright, 2025). Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Crown copyright. All rights reserved.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

2.2 Rainfall charts

Figure 2.2: Monthly rainfall totals for the past 24 months as a percentage of the 1961 to 1990 long term average for each region and for England.




1-Month Period for Rye
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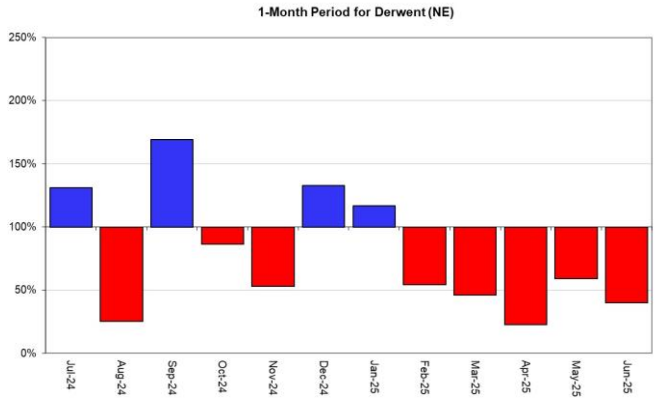
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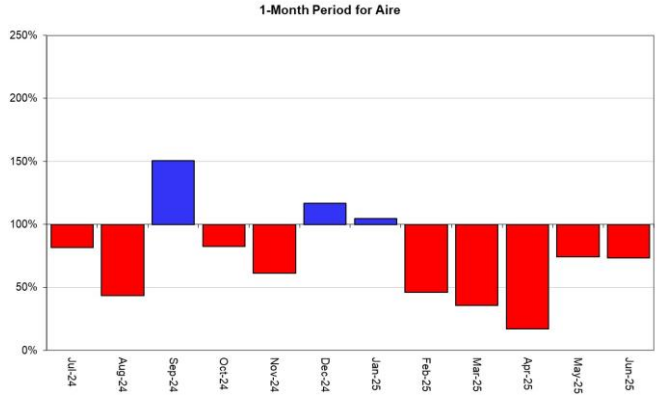
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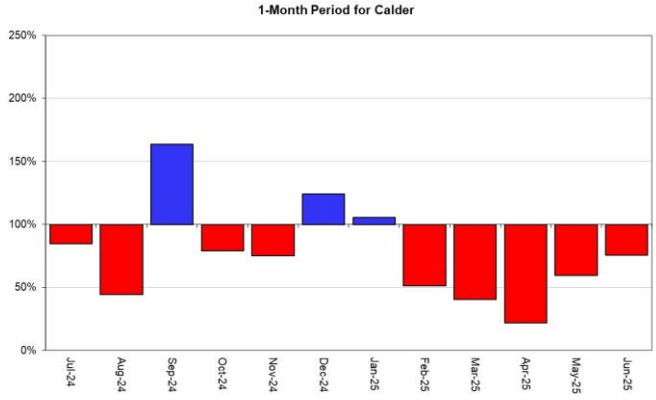
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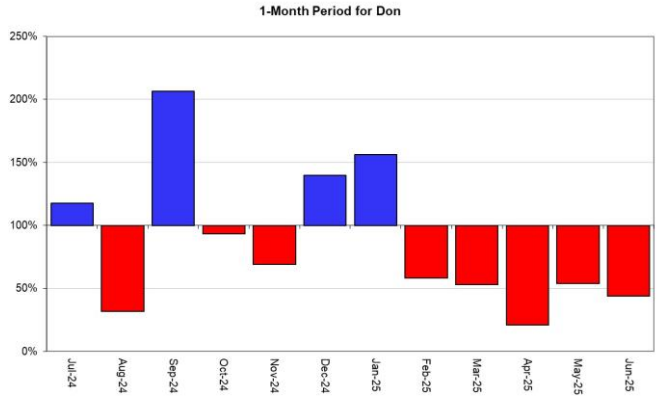
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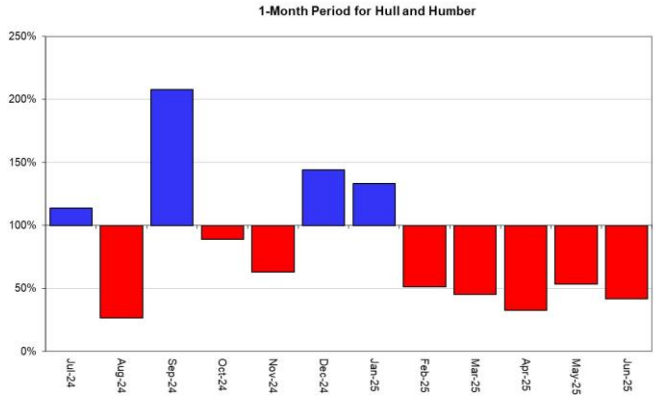
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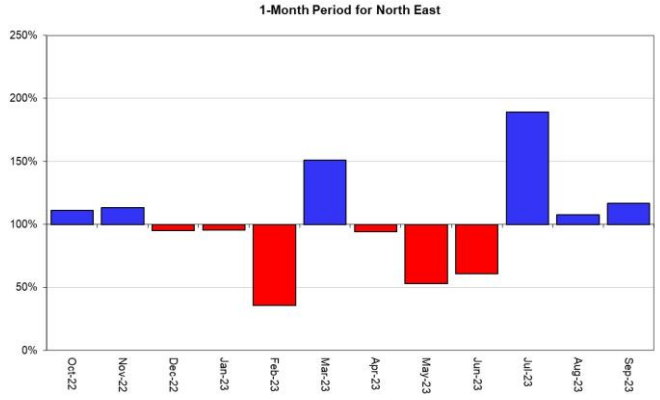
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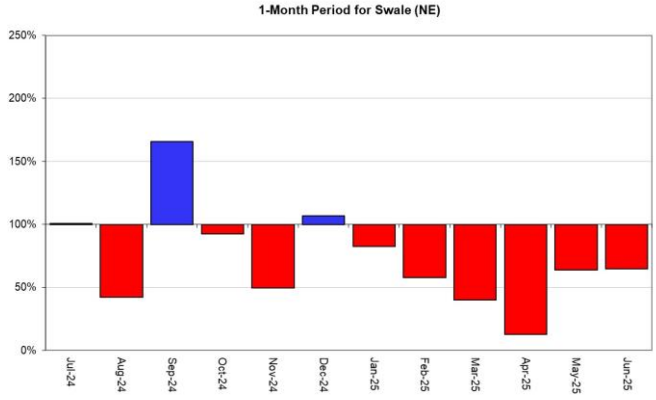
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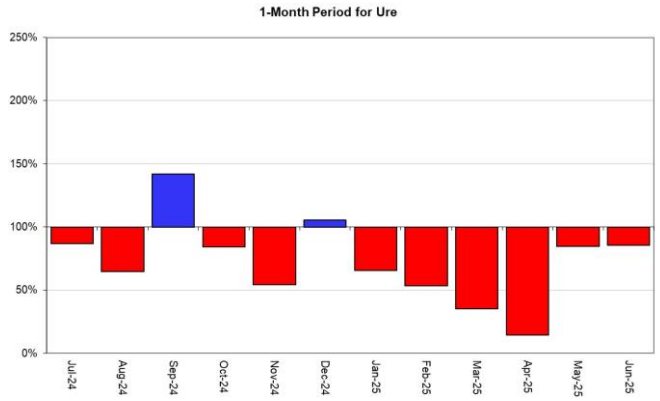
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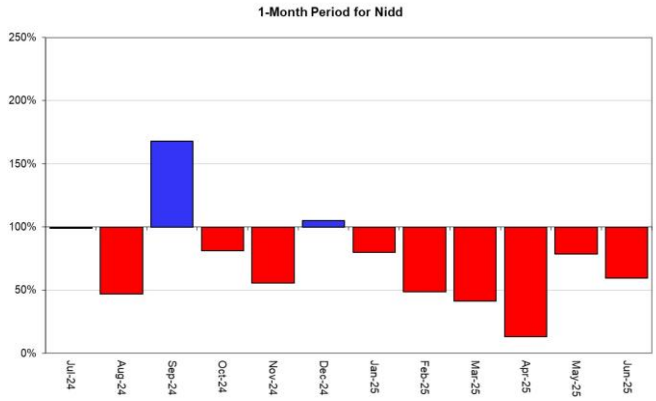
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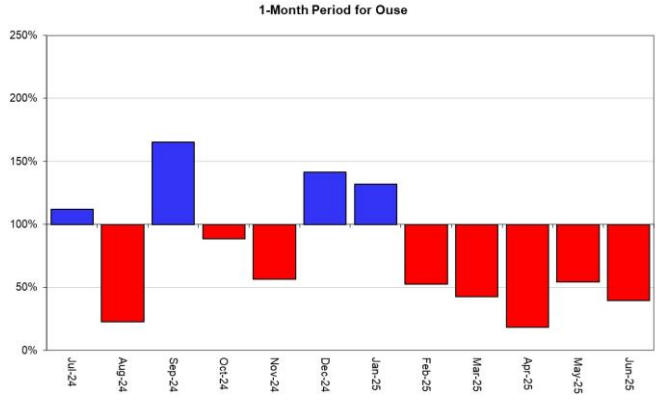
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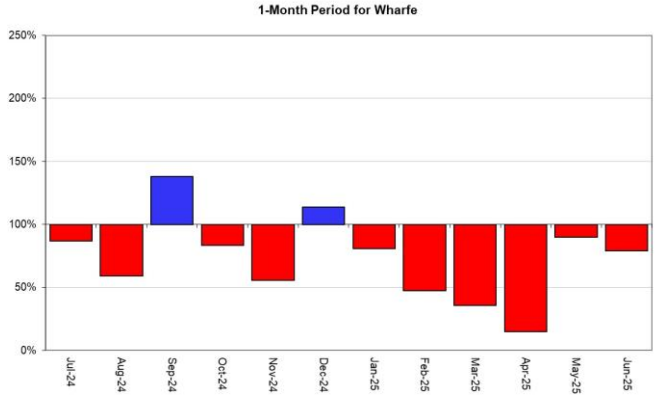
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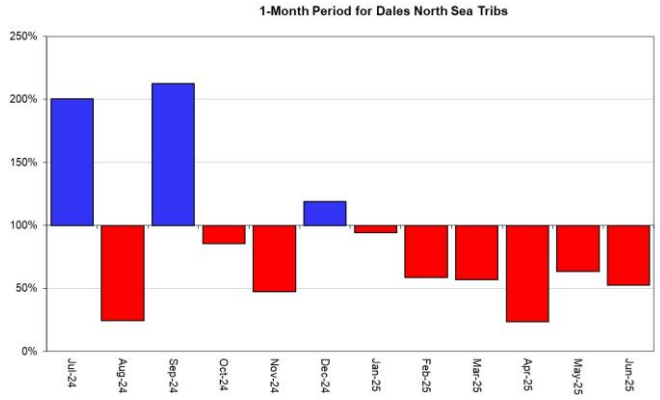
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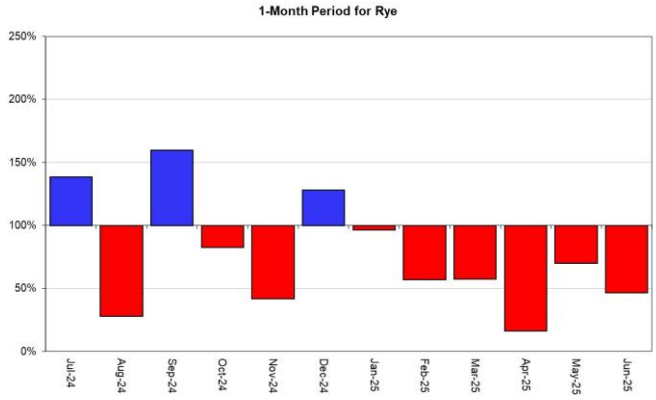
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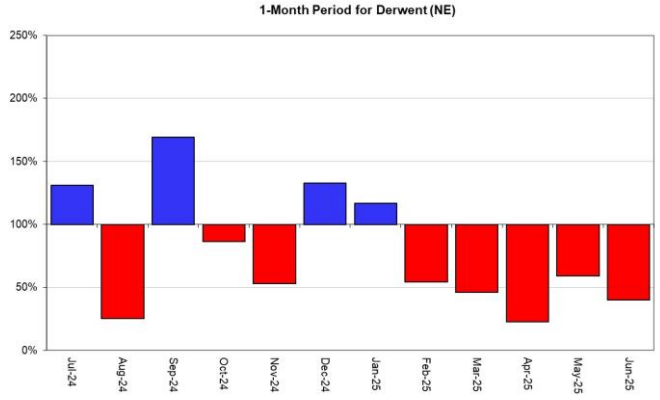
1-Month Period for Derwent (NE)
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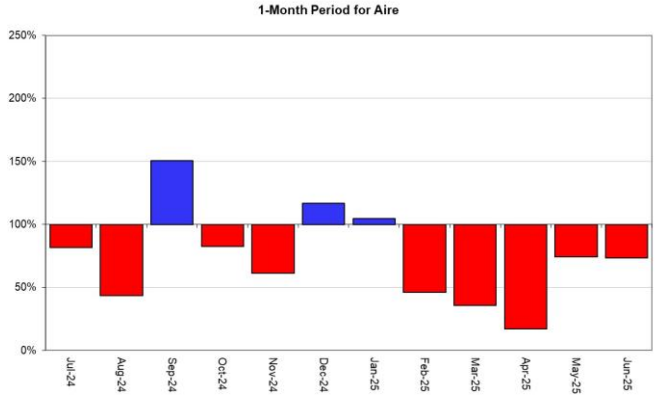
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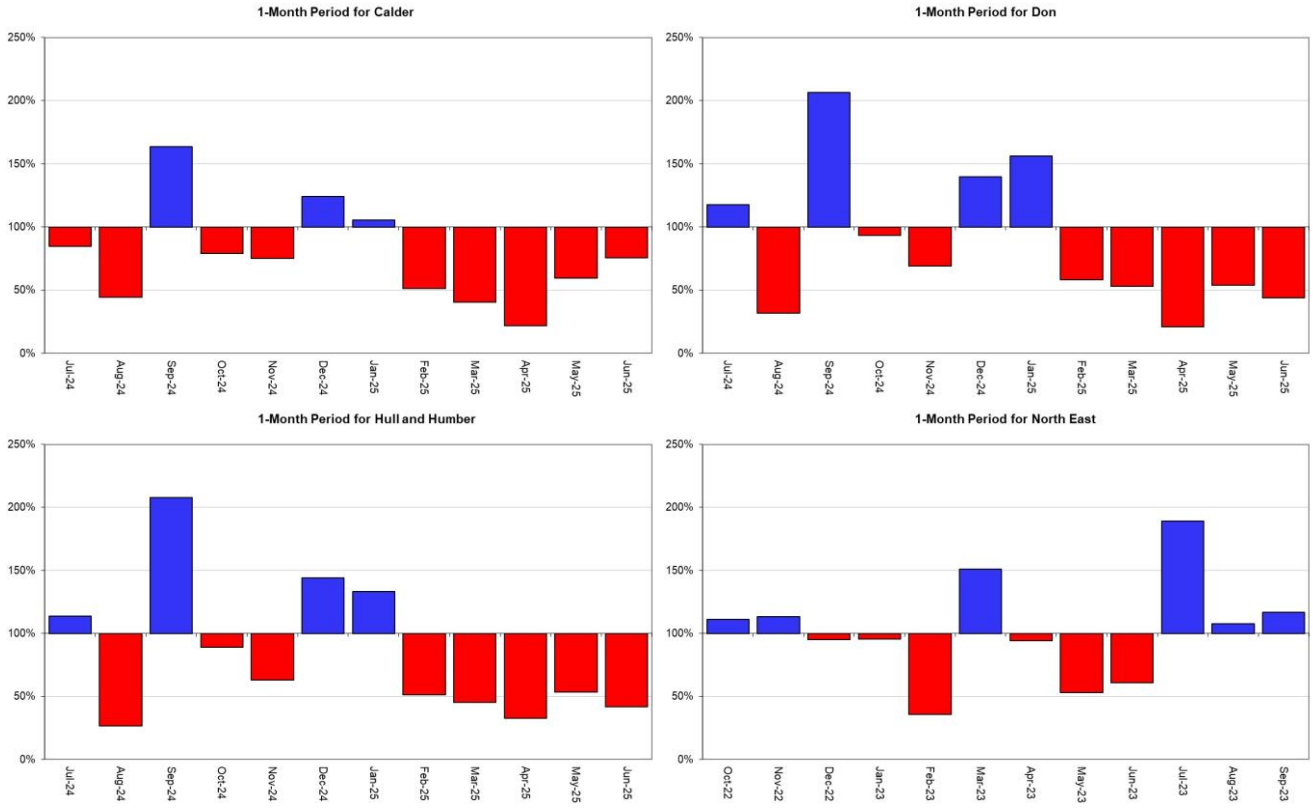
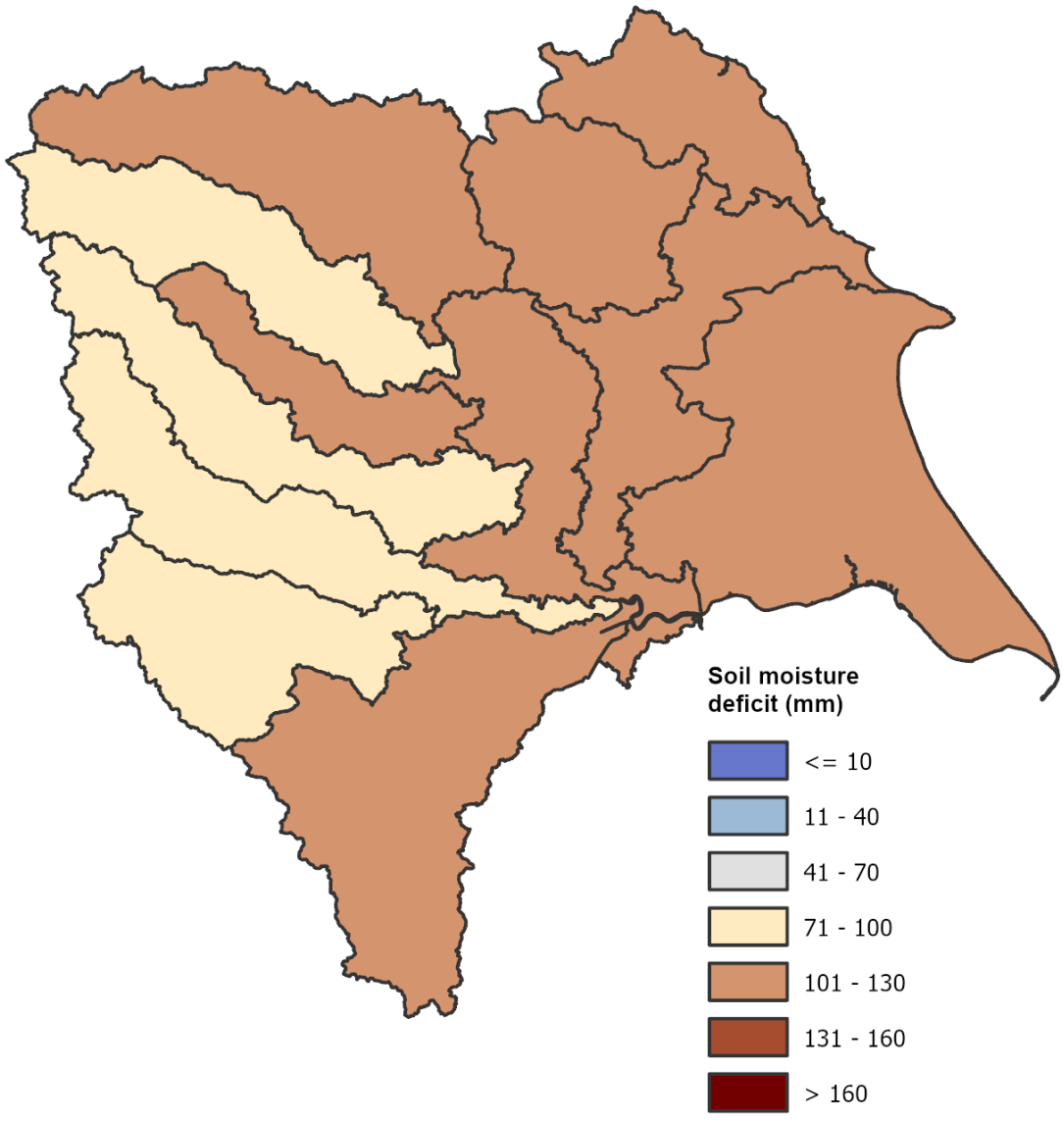


Rainfall data for 2024 and 2025, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, 100024198, 2025). Rainfall data prior to 2023, extracted from Met Office HadUK 1km gridded rainfall dataset derived from registered rain gauges (Source: Met Office. Crown copyright, 2025).

3 Soil moisture deficit

3.1 Soil moisture deficit map

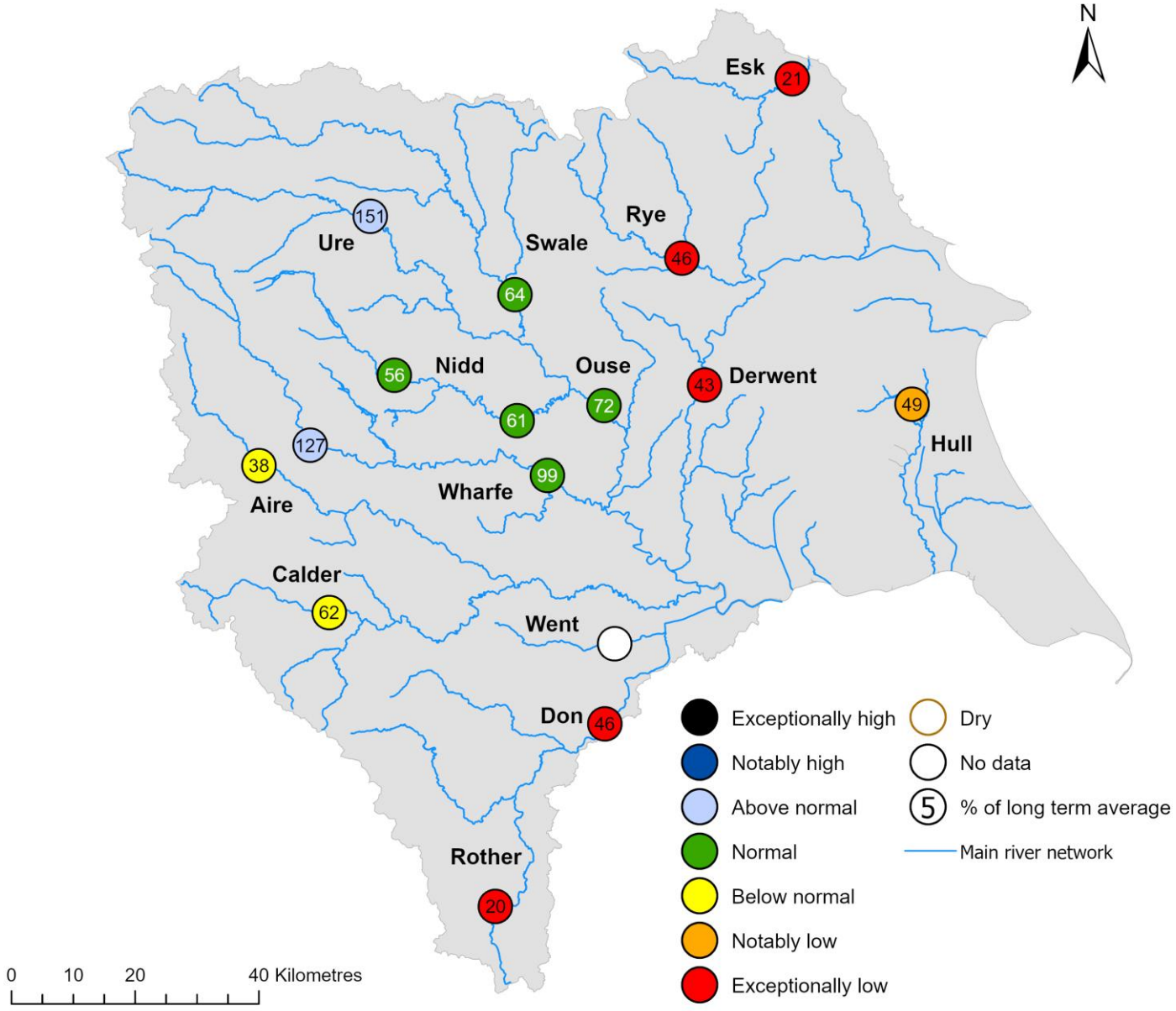
Figure 3.1: Soil moisture deficits for weeks ending 30 June 2025. Shows the difference (mm) of the actual soil moisture deficit from the 1961 to 1990 long term average soil moisture deficits. MORECS data for real land use.



4 River flows

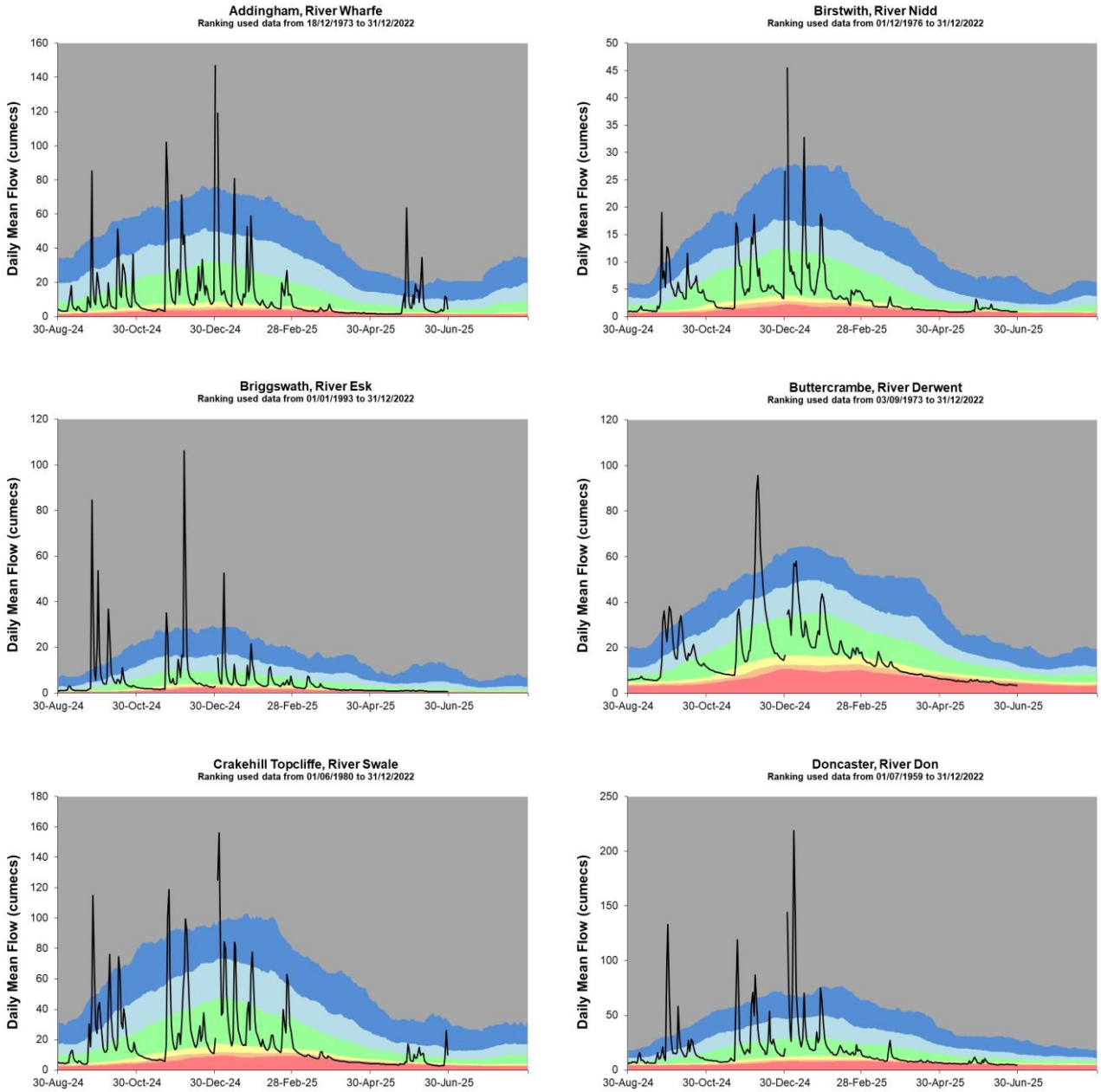
4.1 River flows map

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

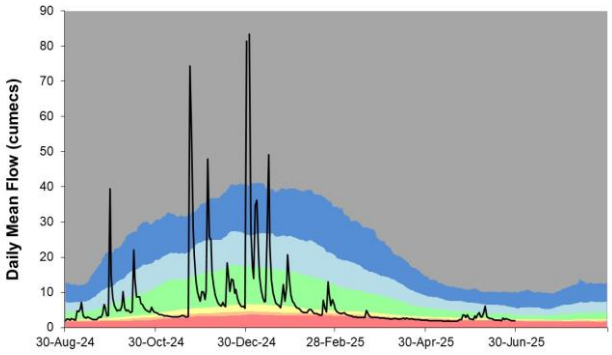


4.2 River flow charts

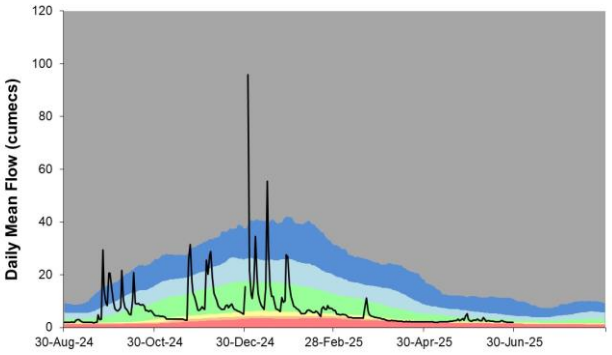
Figure 4.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows.



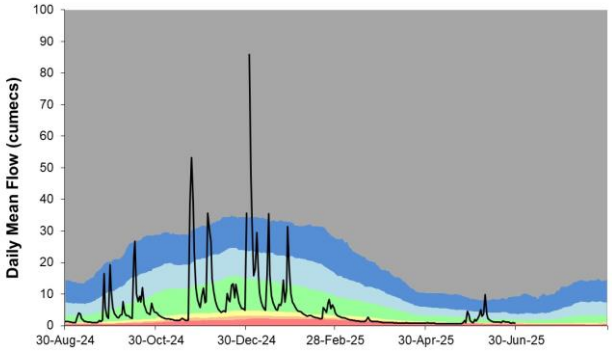
Elland, River Calder
Ranking used data from 01/07/1971 to 31/12/2022



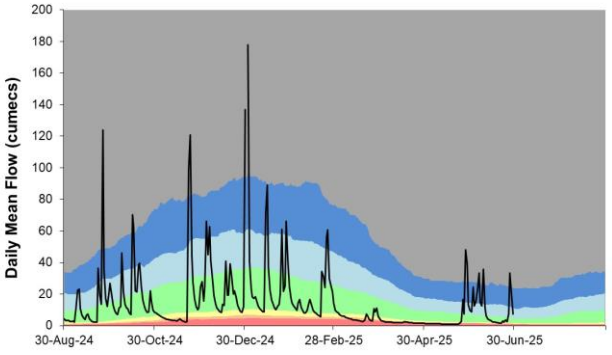
Hunsingore, River Nidd
Ranking used data from 01/10/1968 to 31/12/2022



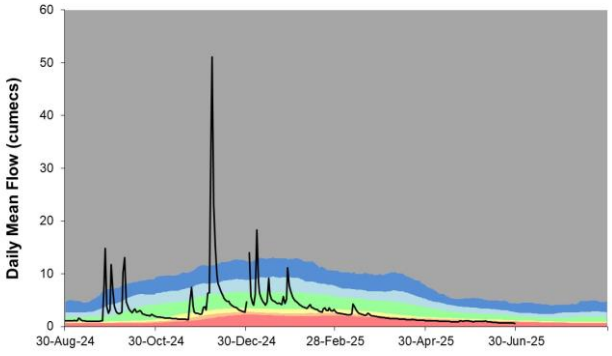
Kildwick, River Aire
Ranking used data from 01/08/1971 to 31/12/2022



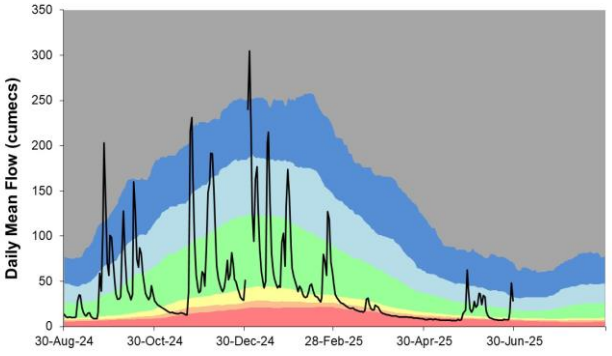
Kilgram Bridge, River Ure
Ranking used data from 01/08/1971 to 31/12/2022



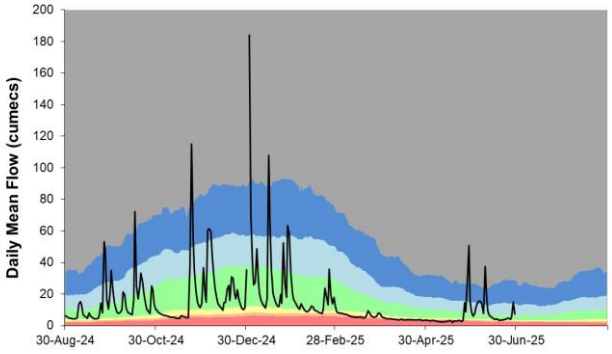
Ness, River Rye
Ranking used data from 01/09/1974 to 31/12/2022



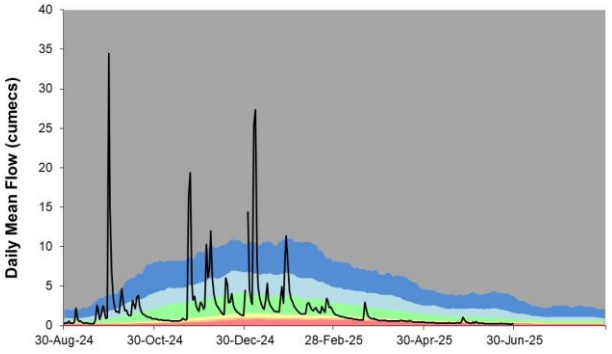
Skelton, River Ouse
Ranking used data from 18/09/1969 to 31/12/2022



Tadcaster, River Wharfe
Ranking used data from 01/07/1991 to 31/12/2022



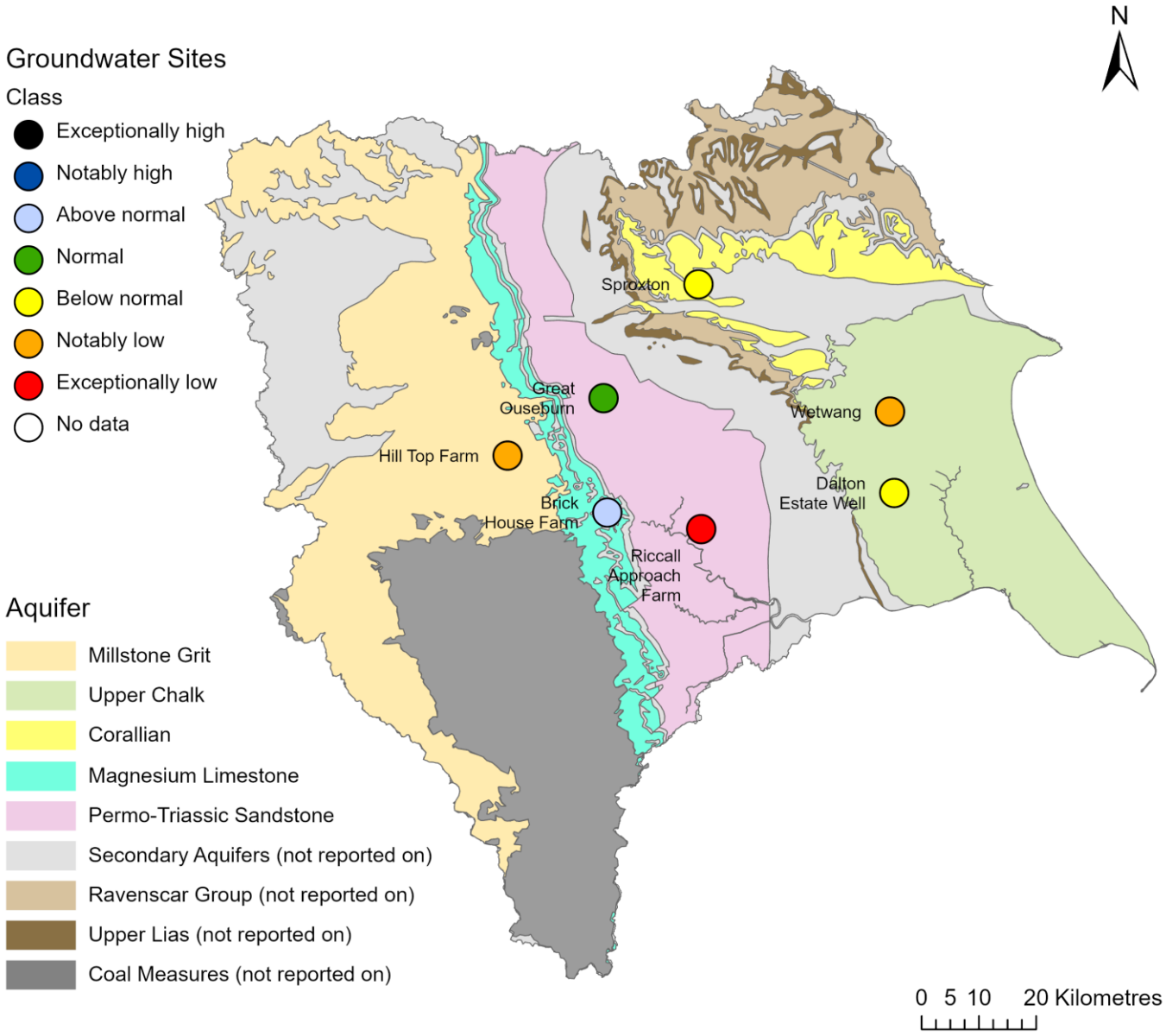
Whittington, River Rother
Ranking used data from 08/11/1979 to 31/12/2022



5 Groundwater levels

5.1 Groundwater levels map

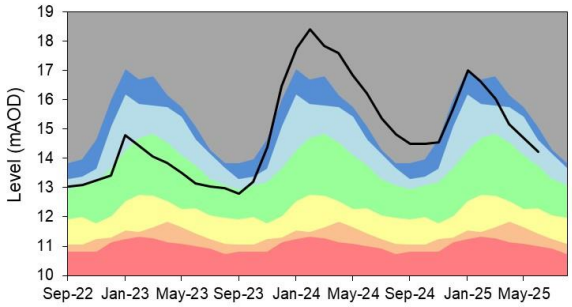
Figure 5.1: Groundwater levels for indicator sites at the end of June 2025, classed relative to an analysis of respective historic June levels. Table available in the appendices with detailed information.



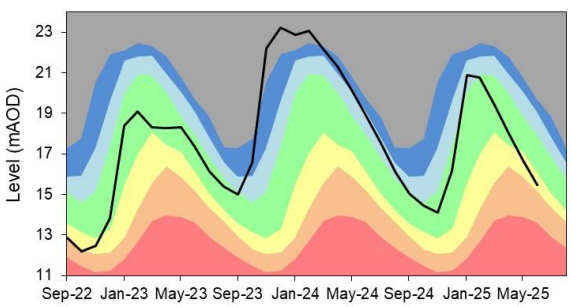
(Source: Environment Agency). Geological map reproduced with kind permission from UK Groundwater Forum, BGS copyright NERC. Crown copyright. All rights reserved. Environment Agency, 100024198, 2025.

5.2 Groundwater level charts

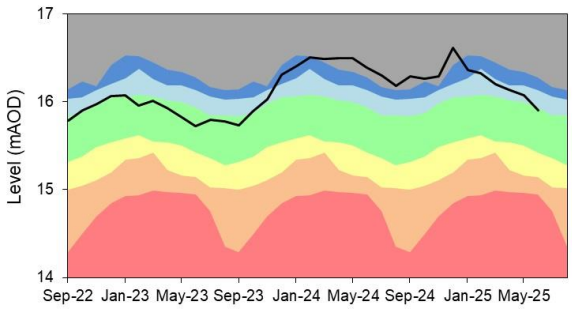
Brick House Farm
Ranking derived from data for the period Oct-1979 to Nov-2022



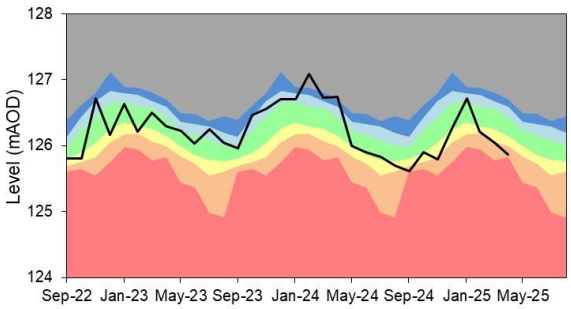
Dalton Estate Well
Ranking derived from data for the period Jan-1889 to Dec-2022



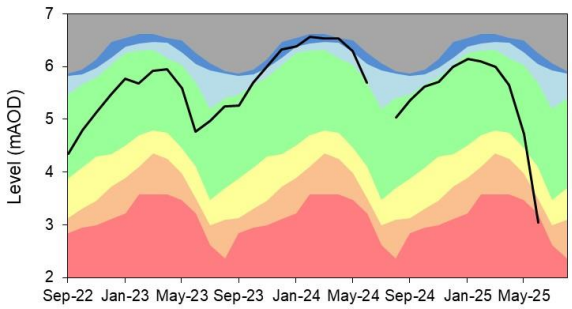
Great Ouseburn
Ranking derived from data for the period Jan-1976 to Dec-2022



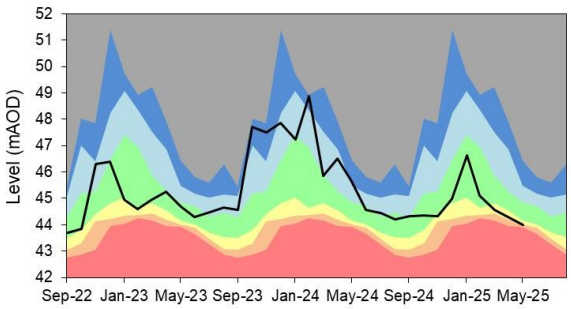
Hill Top Farm
Ranking derived from data for the period Oct-1973 to Nov-2022



Riccall Approach Farm
Ranking derived from data for the period Feb-1977 to Dec-2022



Sproxton
Ranking derived from data for the period May-1975 to Dec-2022



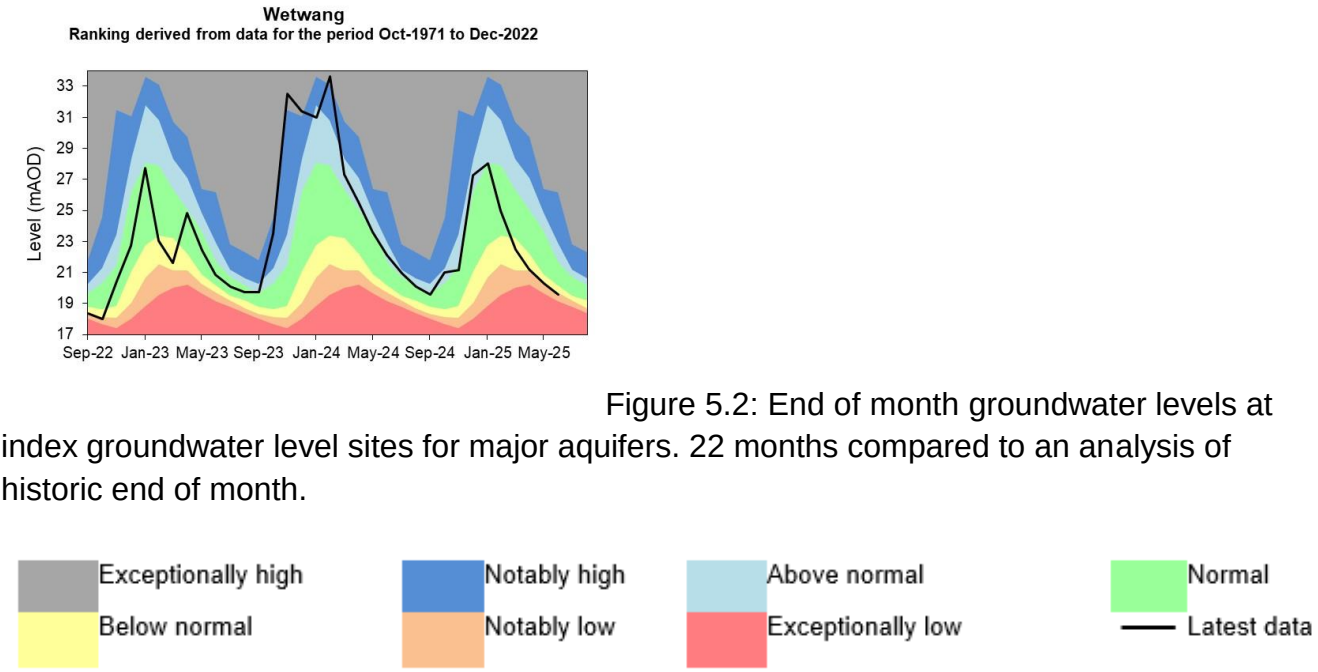
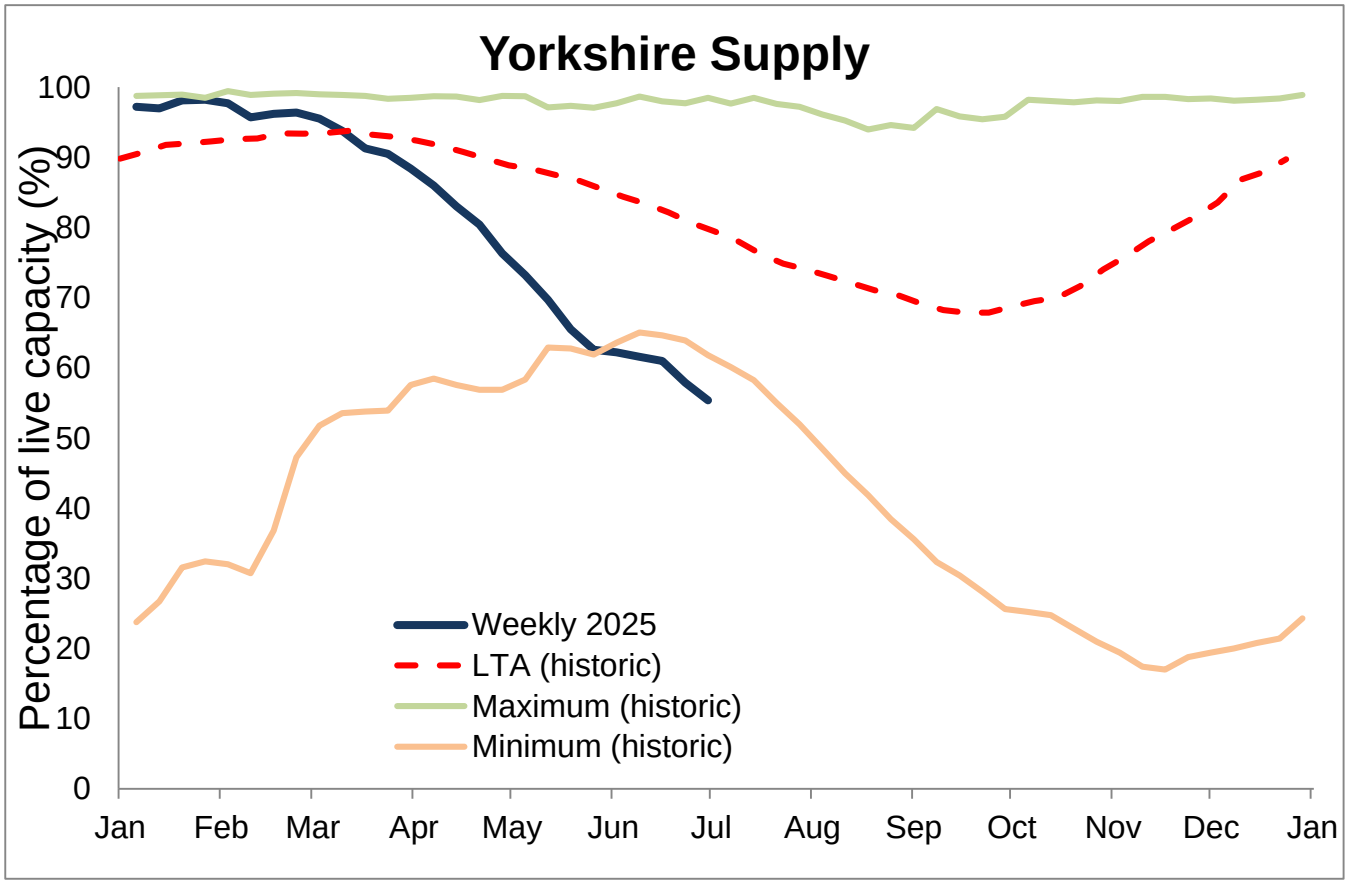


Figure 5.2: End of month groundwater levels at index groundwater level sites for major aquifers. 22 months compared to an analysis of historic end of month.

 N.B. Hill Top Farm observation borehole is used for abstraction. Therefore the groundwater level record will be directly affected by pumping

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.



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 1961 to 1990. 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	Jun 2025 rainfall % of long term average 1961 to 1990	Jun 2025 band	Apr 2025 to June cumulative band	Jan 2025 to June cumulative band	Jul 2024 to June cumulative band
Aire	74	Normal	Notably low	Exceptionally low	Notably low
Calder	76	Normal	Exceptionally low	Exceptionally low	Below normal
Dales North Sea Tribs	53	Normal	Exceptionally low	Exceptionally low	Below normal
Derwent (ne)	40	Below Normal	Exceptionally low	Exceptionally low	Notably low
Don	44	Below Normal	Exceptionally low	Exceptionally low	Normal
Hull And Humber	42	Below Normal	Exceptionally low	Exceptionally low	Below normal
Nidd	59	Normal	Exceptionally low	Exceptionally low	Notably low
Ouse	40	Below Normal	Exceptionally low	Exceptionally low	Notably low
Rye	46	Below Normal	Exceptionally low	Exceptionally low	Notably low

Swale (ne)	65	Normal	Exceptionally low	Exceptionally low	Notably low
Ure	86	Normal	Notably low	Exceptionally low	Notably low
Wharfe	79	Normal	Notably low	Exceptionally low	Notably low

8.2 River flows table

Site name	River	Catchment	Jun 2025 band	May 2025 band
Addingham	Wharfe	Wharfe Middle	Above normal	Normal
Birstwith	Nidd	Nidd Middle	Normal	Notably low
Briggswath	Esk	Esk Yorks	Exceptionally low	Notably low
Buttercrambe	Derwent	Derwent Yorks Middle	Exceptionally low	Exceptionally low
Crakehill Topcliffe	Swale	Swale Lower	Normal	Notably low
Doncaster	Don	Don Lower	Exceptionally low	Notably low
Elland	Calder	Calder Yorks Upper	Below normal	Exceptionally low
Hunsingore	Nidd	Nidd Lower	Normal	Below normal
Kildwick	Aire	Aire Upper	Below normal	Notably low
Kilgram Bridge	Ure	Ure Middle	Above normal	Normal
Ness	Rye	Rye	Exceptionally low	Below normal
Skelton	Ouse	Ouse Yorks	Normal	Notably low
Tadcaster	Wharfe	Wharfe Lower	Normal	Below normal

Walden Stubbs	Went	Don Lower		
Wansford Snakeholm Lock	West Beck	Hull Upper	Notably low	Notably low
Whittington	Rother	Rother Yorks	Exceptionally low	Exceptionally low

8.3 Groundwater table

Site name	Aquifer	End of Jun 2025 band	End of May 2025 band
Dalton Estate Well	Hull & East Riding Chalk	Below normal	Below normal
Wetwang	Hull & East Riding Chalk	Notably low	Below normal
Hill Top Farm	Millstone Grit	Notably low	
Great Ouseburn	Sherwood Sandstone	Normal	Above normal
Riccall Approach Farm	Sherwood Sandstone	Exceptionally low	Normal
Sproxton	Corallian Limestone	Below normal	Below normal
Brick House Farm	Wharfe Magnesian Limestone	Above normal	Above normal