

Monthly water situation report: Hertfordshire and North London Area

1 Summary - June 2025

June was another dry month across the Hertfordshire and North London area, with only 48% of the long term average (LTA) rainfall. All areal units ended the month in the below normal band, continuing a period of notably low rainfall across the Area. As a result, soil moisture deficits (SMDs) increased further, with record or near-record levels in some catchments, and effective rainfall remained minimal. River baseflows declined, with chalk rivers generally within normal to notably high bands, while clay and urban rivers remained significantly depressed. Groundwater levels continued to fall through June but remained stable overall, with many sites still above normal or notably high for the time of year.

1.1 Rainfall

June was another dry month in the Hertfordshire and North London area (the “Area”), receiving only 48% of the LTA rainfall. All five areal rainfall units finished the month in the below normal band. All units have been in the notably low band for the past three months. Over the past six months, all were in the notably low band except for North London, which was below normal. There were 18 dry days during June (<0.2mm rainfall recorded in a day). The wettest day of the month, on average, was 7 June, when 16.0mm was recorded at Clavering STW (Lee Chalk unit). Over 10mm was also recorded at Heathrow, Allenby, and Northolt gauges, indicating that rainfall was associated with a single mid-month event that was most intense in North London and Lee Chalk.

1.2 Soil moisture deficit and recharge

The effective rainfall across the Area remained well below the LTA during June, resulting in no effective rainfall across the clay and urban catchments. Soils continued to dry throughout the month. By the end of June, all five areal rainfall units had SMDs well above the LTA. The Chilterns East Colne unit recorded the highest end-of-June SMD on record. In the Lee Chalk unit, the SMD was the second highest for June, exceeded only in 1976.

1.3 River flows

River baseflows across the Area declined further during June. Chalk rivers generally remained within the normal to notably high flow bands. Notably high flows were observed in the Mimram at Panshanger, and above normal flows were recorded for the Misbourne at Denham and the Ver at Colney Street. In contrast, flows in the clay and urban rivers were significantly reduced. The Roding at Redbridge and Ingrebourne at Upminster remained in the notably low band, while the Brent at Monks Park and Crane at Cranford were in the exceptionally low band. There were eight flood alerts issued during the month, corresponding to localised rainfall events.

1.4 Groundwater levels

Groundwater levels across the Area generally declined through June, as expected for the time of year, but remained stable overall. Indicator sites across the Area ranged from normal to notably high. In the Mid-Chilterns Chalk, Therfield Rectory and Lilley Bottom ended the month in the notably high band, with Lilley Bottom recording its second wettest June after 2014. In the Upper Lee Chalk, levels remained above normal or notably high at several sites.

1.5 Reservoir stocks

The Lee Valley group began the month at 93% of live capacity and ended at 94%. The Lower Thames group began June at 94% and ended the month at 90%.

1.6 Environmental impact

In the Colne catchment, the chalk river sources moved slightly upstream from their locations in May.

- The River Ver started flowing at Markyate STW.
- The River Gade started flowing at Bradden Lane.
- The River Bulbourne was flowing upstream of Dudswell village.
- The source of the River Chess stayed upstream of Chesham.
- The River Misbourne moved upstream and started flowing from Deep Mill Lane.

The chalk river sources in the Upper Lee showed some slight changes since May.

- The River Mimram started flowing at Whitwell Gas Compound.
- The River Beane started flowing below Church End Lane.
- The River Rib was flowing intermittently from Reed End, before gaining a steadier flow upstream of Vicarage Road.
- The River Ash (Herts) was flowing intermittently from Furneaux Pelham, before gaining a steadier flow below Hadham Ford.
- The River Stort was flowing above Poor Bridge.

To protect the environment, between 4 and 10 flow constraints were in force during June, within the expected summer range of up to 29.

Author: Groundwater and Hydrology, groundwaterhydrology@environment-agency.gov.uk

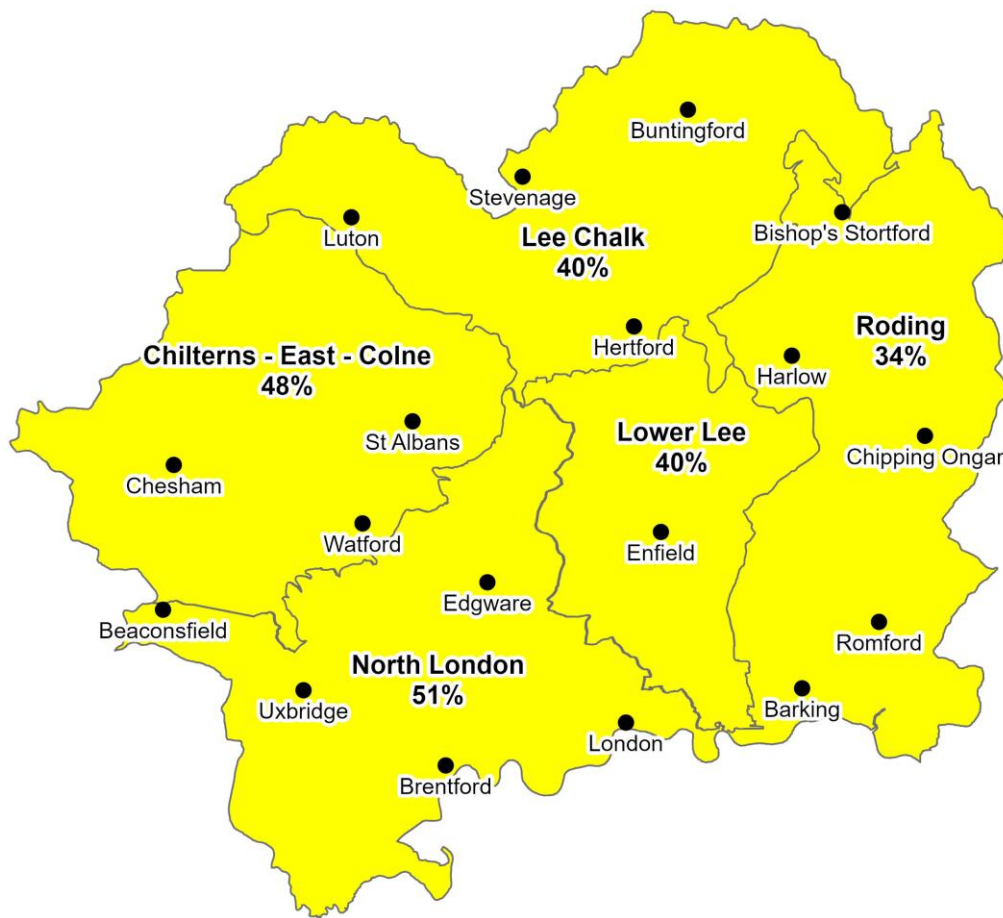
Contact Details: 03708 506 506

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2 Rainfall

2.1 Rainfall map

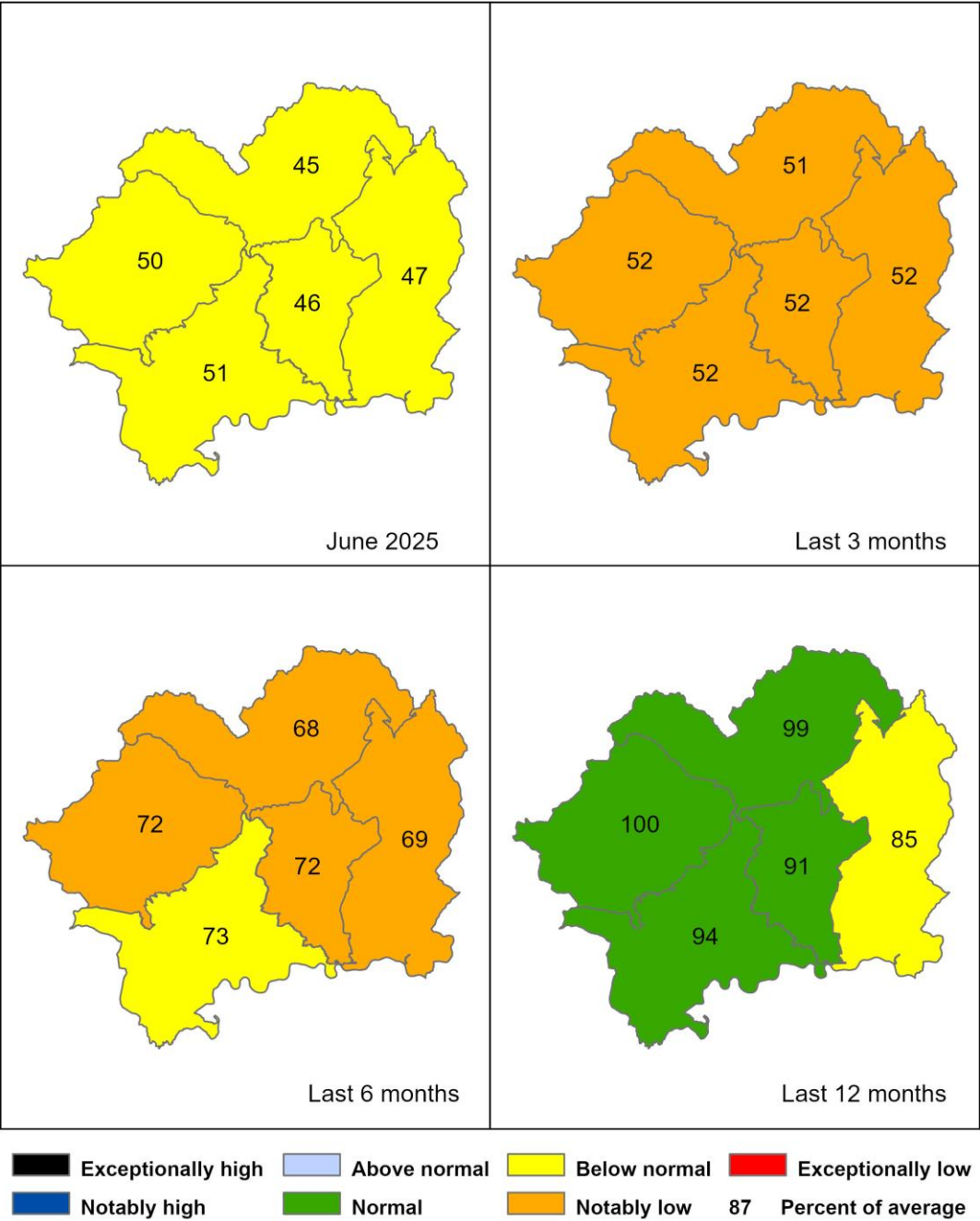
Figure 2.1: Total rainfall for hydrological areas for the current month (up to 30 June 2025), classed relative to an analysis of respective historic totals. Table available in the appendices with detailed information.



Legend

Exceptionally high	Below normal	Town / City
Notably high	Notably low	87% Percent of average
Above normal	Exceptionally low	
Normal		

Figure 2.2: 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.

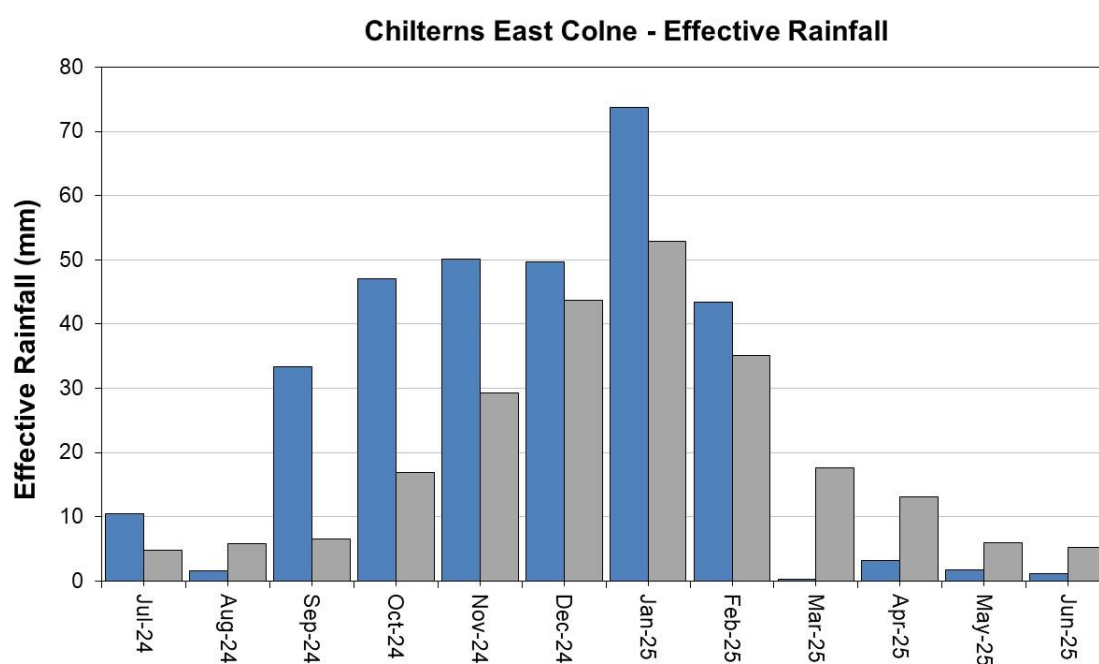
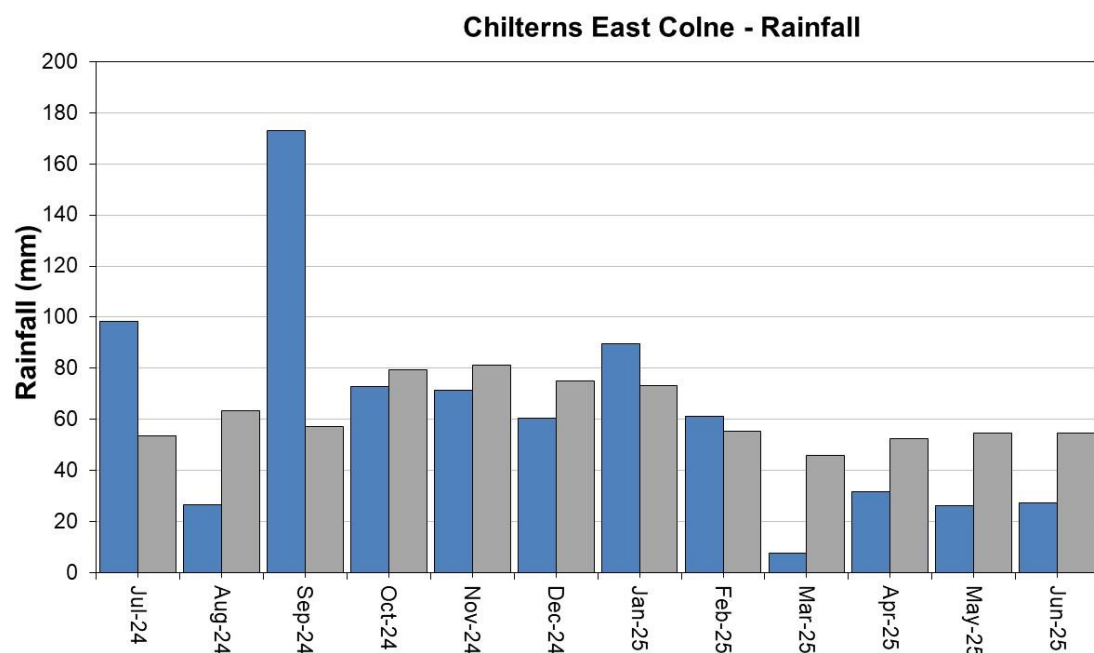
(Source: Environment Agency). Crown copyright. All rights reserved. Environment Agency, 100024198, 2025. Geological map reproduced with kind permission from UK Groundwater Forum, BGS copyright NERC. Crown copyright. All rights reserved. Environment Agency, 100024198, 2025.

4 Colne Catchment

4.1 Colne Rainfall and effective rainfall charts

Figure 4.1: Monthly rainfall and effective rainfall totals for the past 12 months compared to the 1991 to 2020 long term average for the Colne.

Monthly total rainfall (mm) Long term average rainfall (mm)

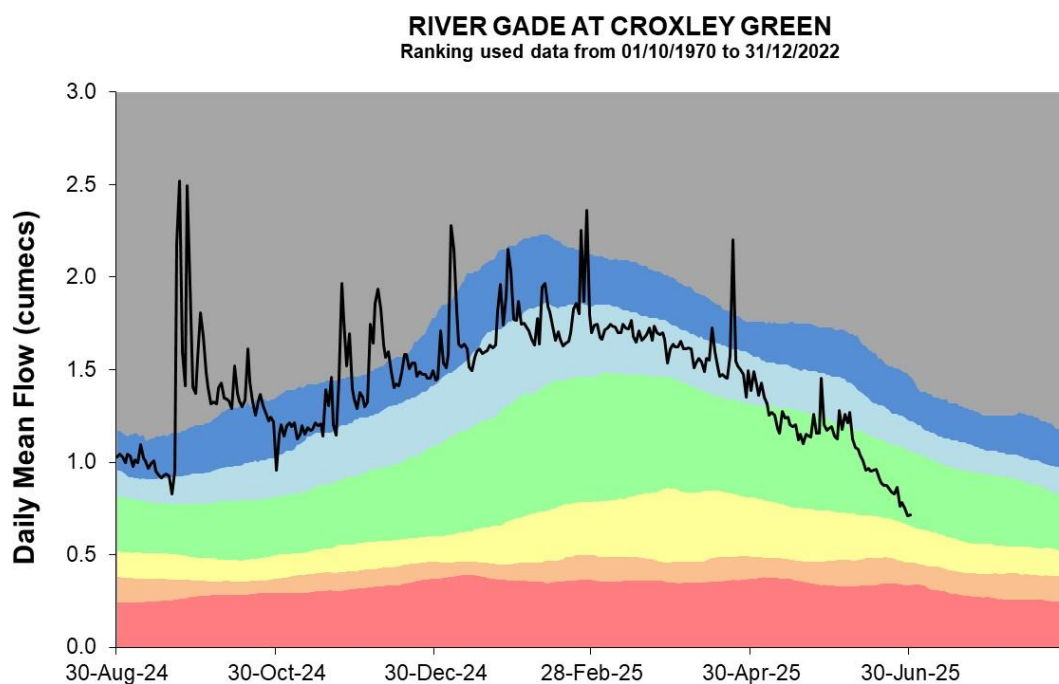
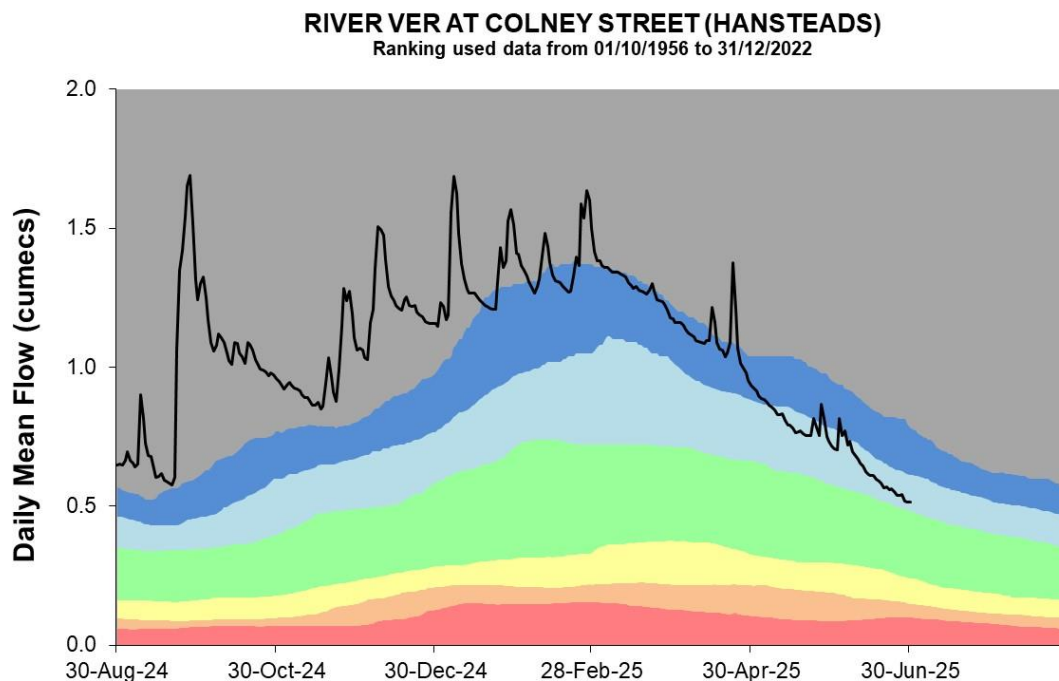


HadUK rainfall data (Source: Met Office. Crown copyright, 2025)

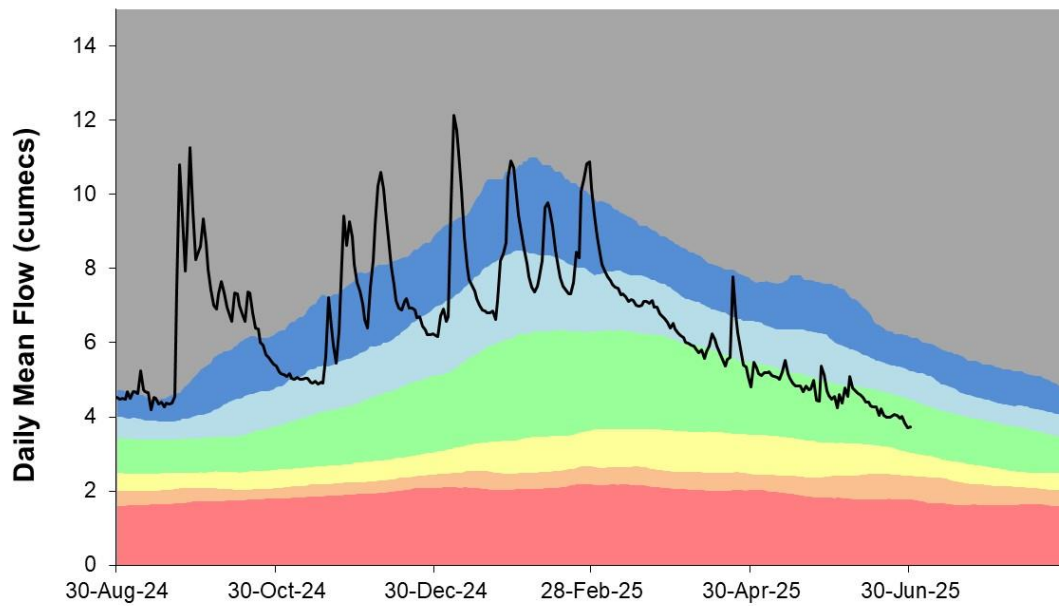
EA Soil Moisture Model effective rainfall data (Source: Environment Agency, 2025)

4.2 Colne River flow charts

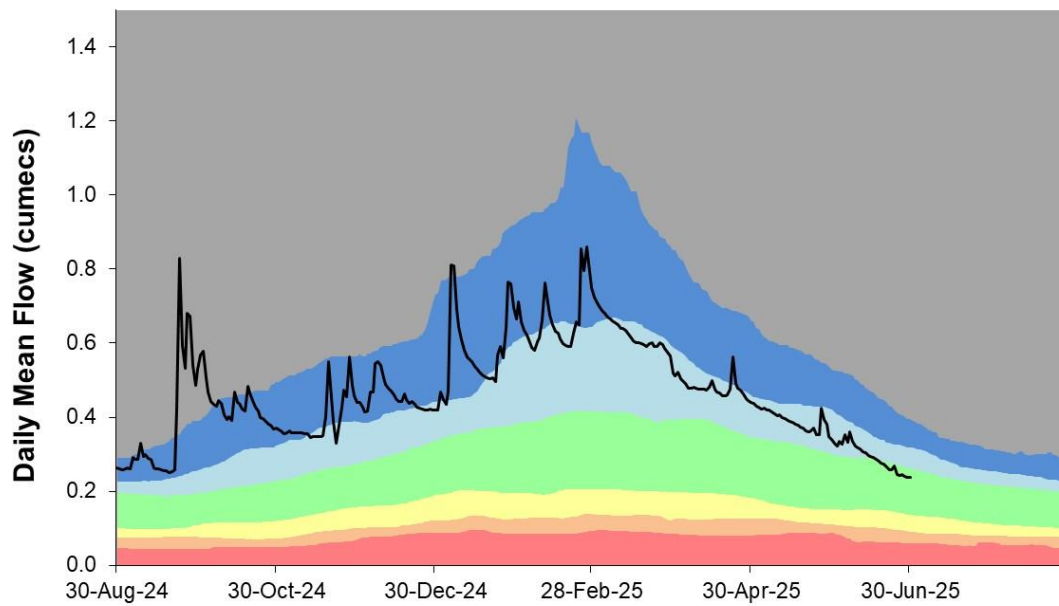
Figure 4.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



RIVER COLNE AT DENHAM
Ranking used data from 01/10/1952 to 31/12/2022



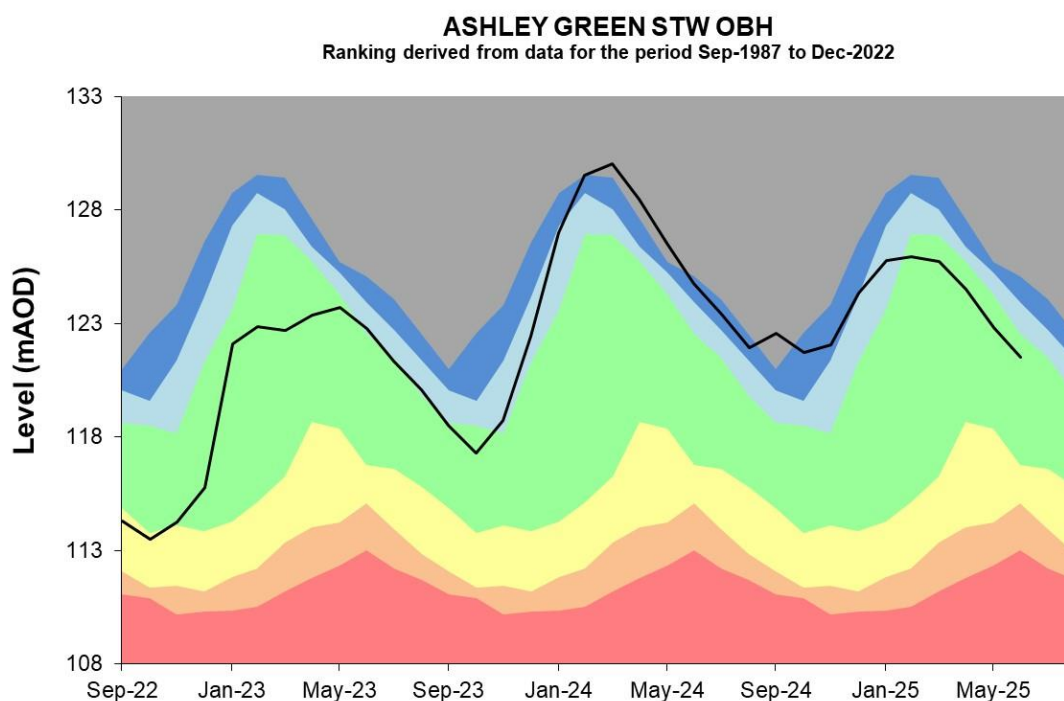
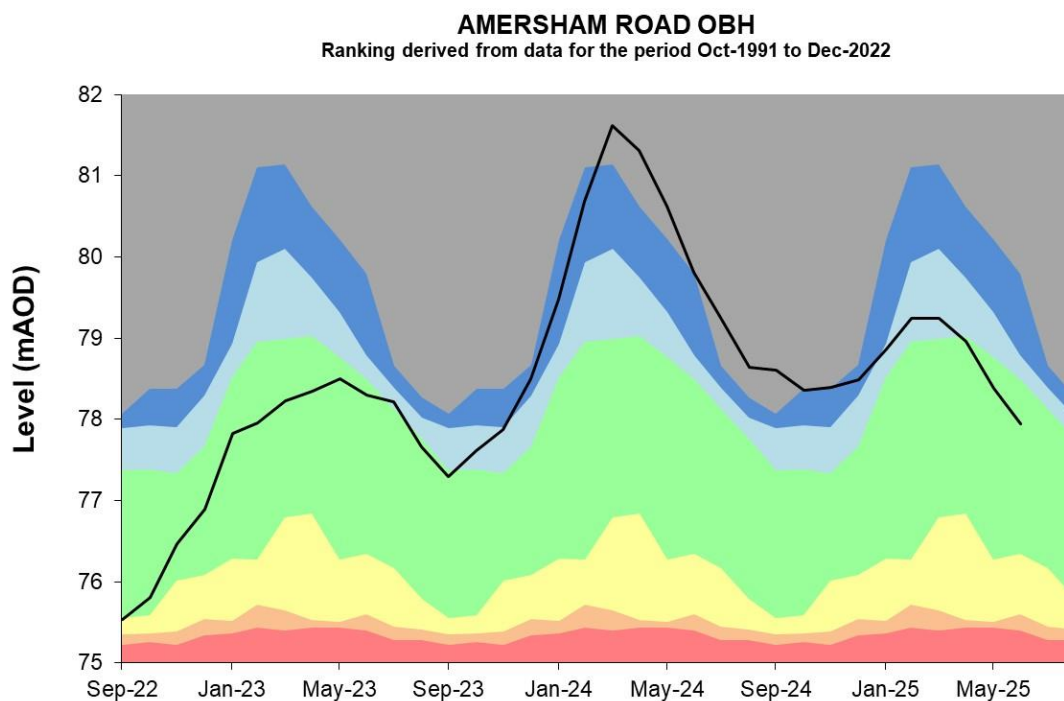
RIVER MISBOURNE AT DENHAM LODGE
Ranking used data from 01/07/1984 to 31/12/2022

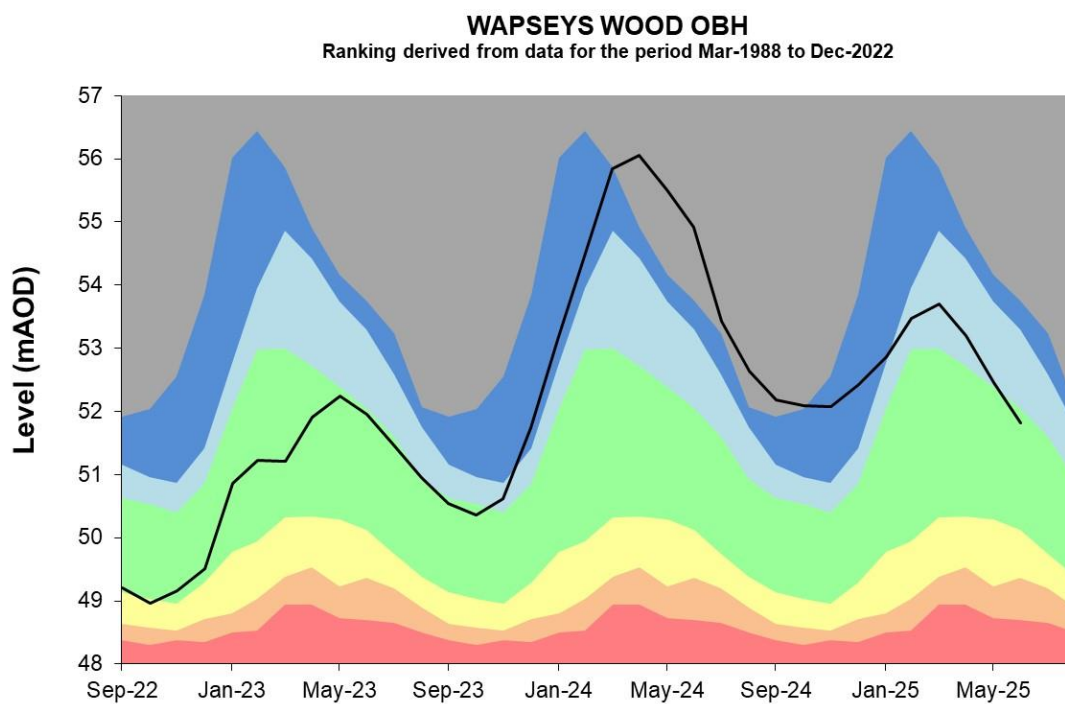
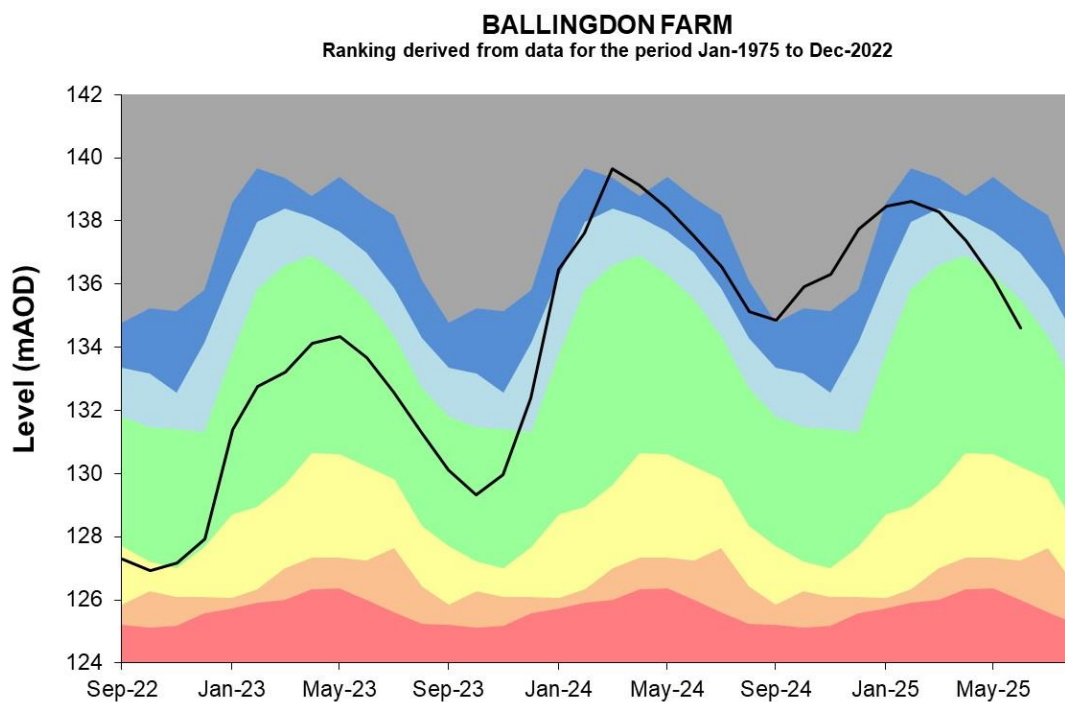


Source: Environment Agency, 2025

4.3 Colne Groundwater level charts

Figure 4.3: 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.





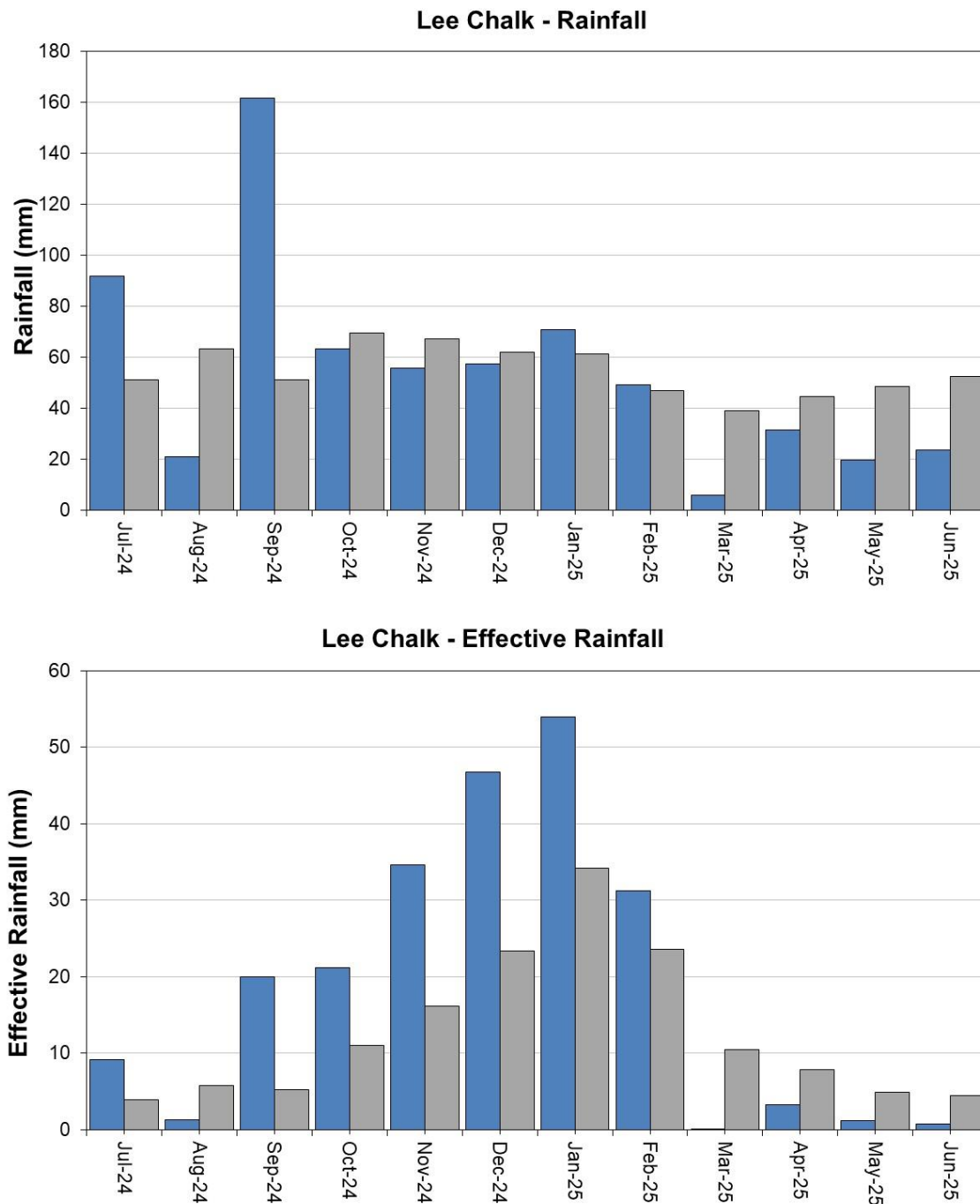
Source: Environment Agency, 2025

5 Upper Lee Catchment

5.1 Upper Lee Rainfall and Effective rainfall charts

Figure 5.1: Monthly rainfall and effective rainfall totals for the past 12 months compared to the 1991 to 2020 long term average for each region and for England.

Monthly total rainfall (mm) Long term average rainfall (mm)

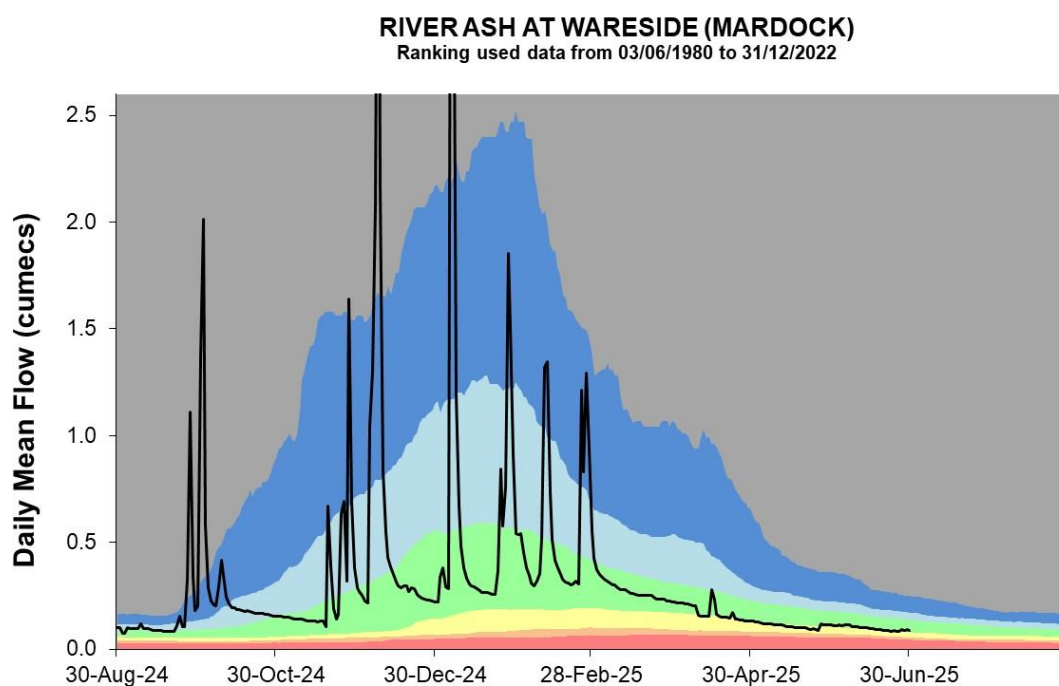
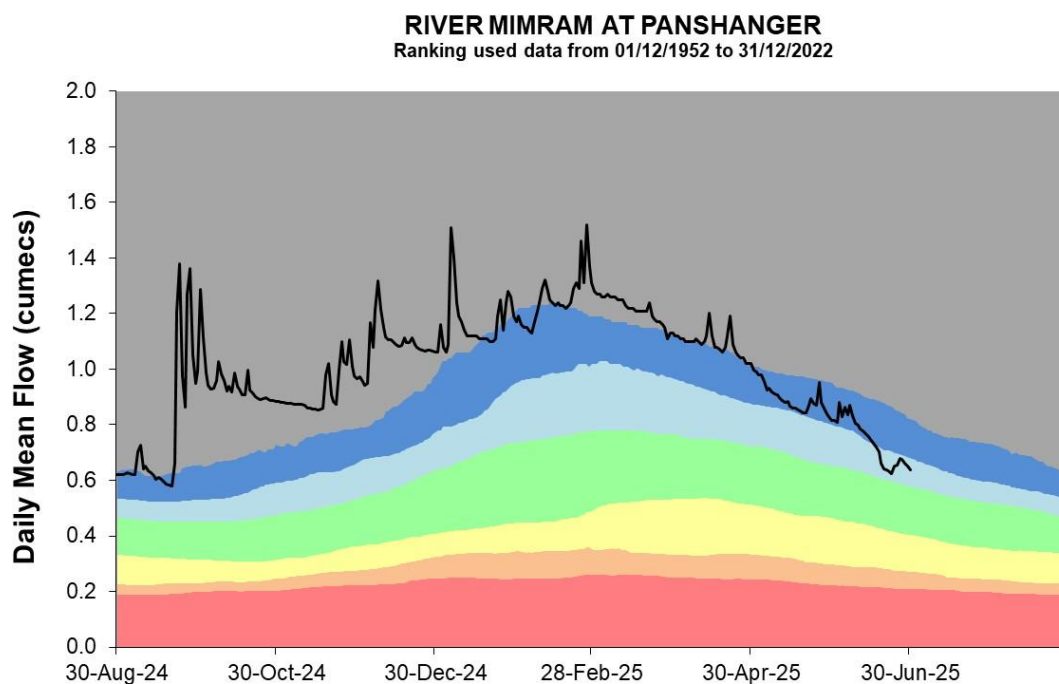


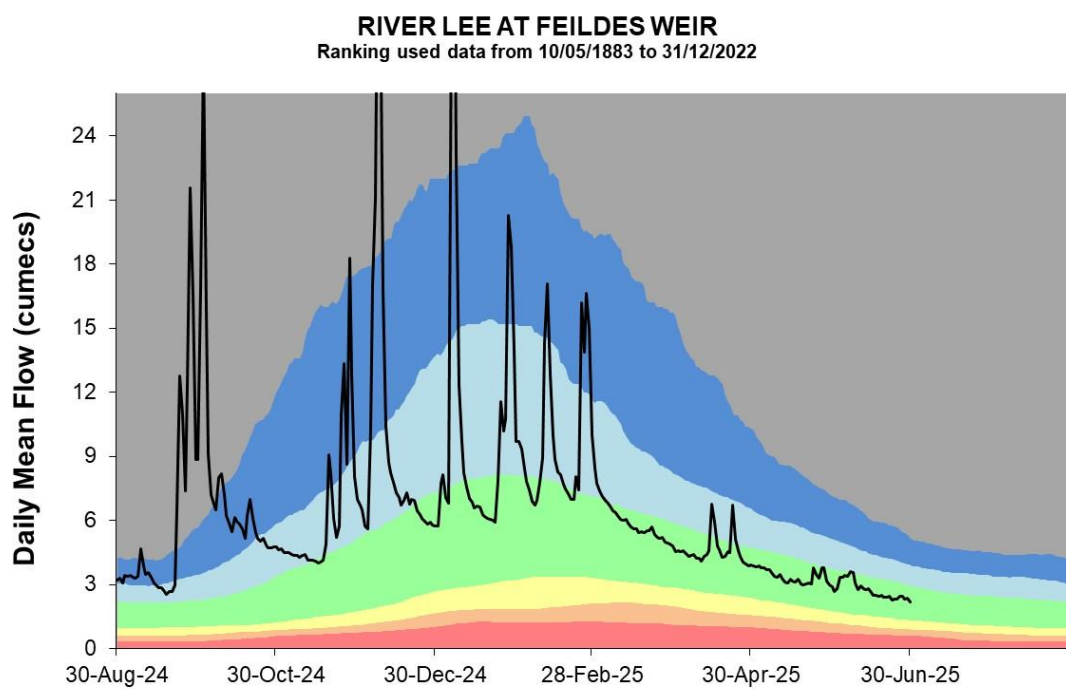
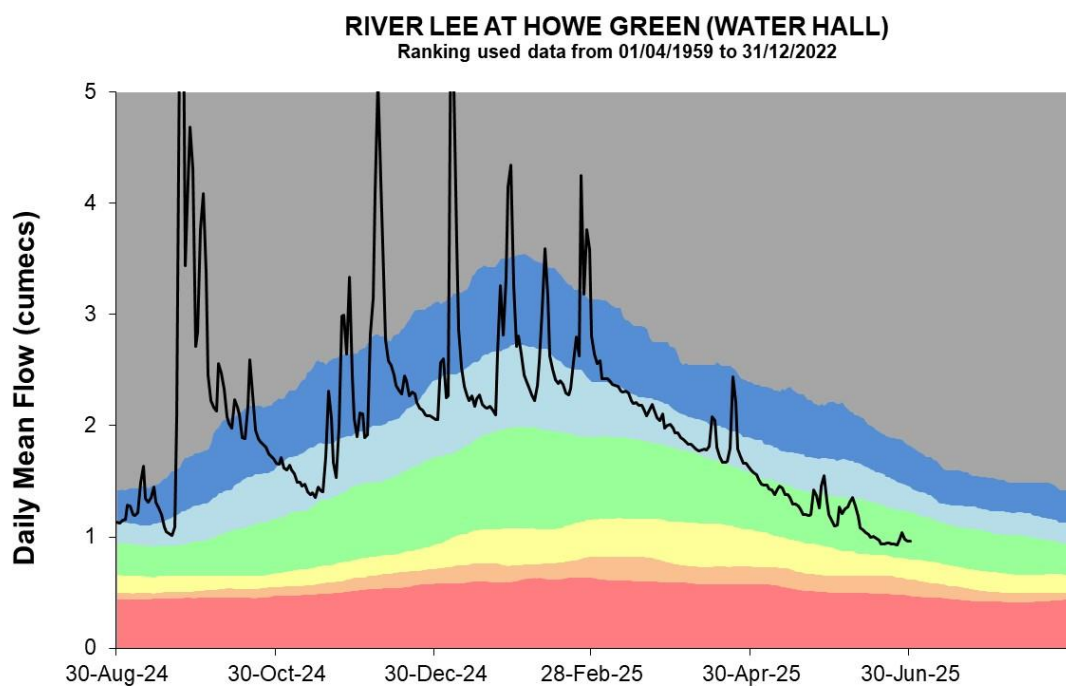
HadUK rainfall data (Source: Met Office. Crown copyright, 2025)

EA Soil Moisture Model effective rainfall data (Source: Environment Agency, 2025)

5.2 Upper Lee River flow charts

Figure 5.2 Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.

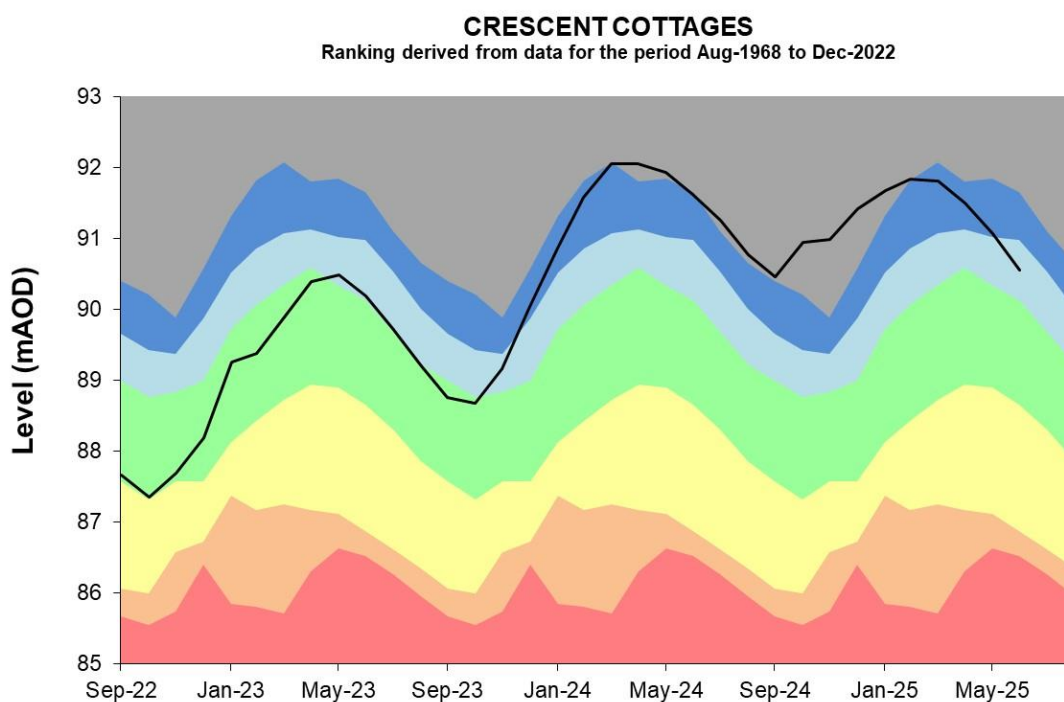
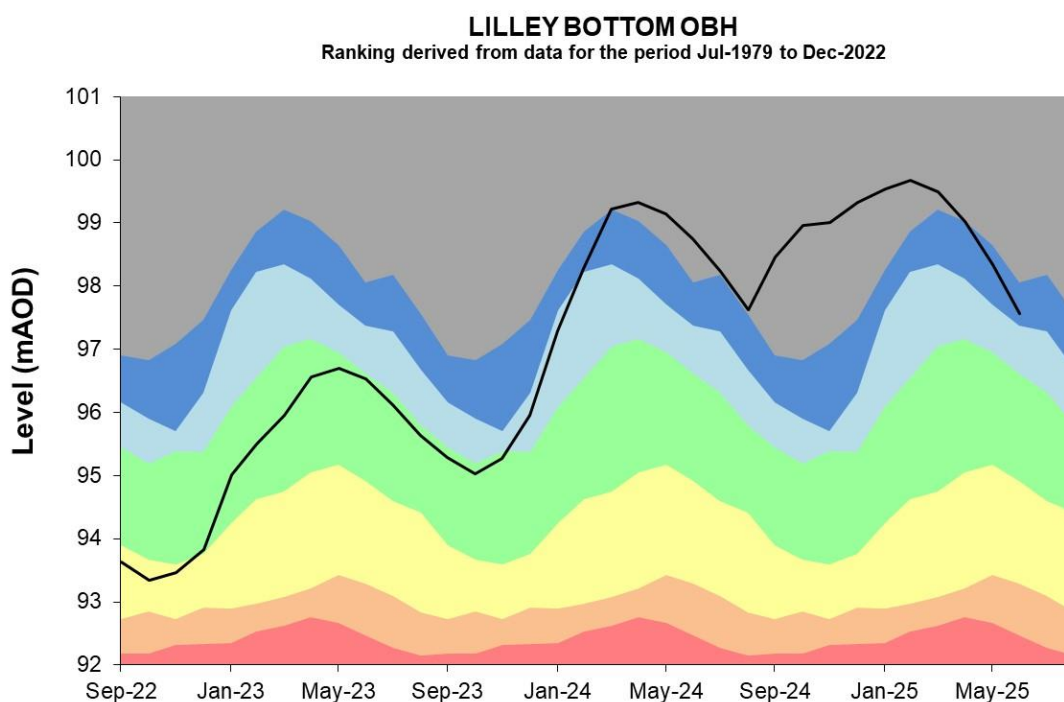




Source: Environment Agency, 2025

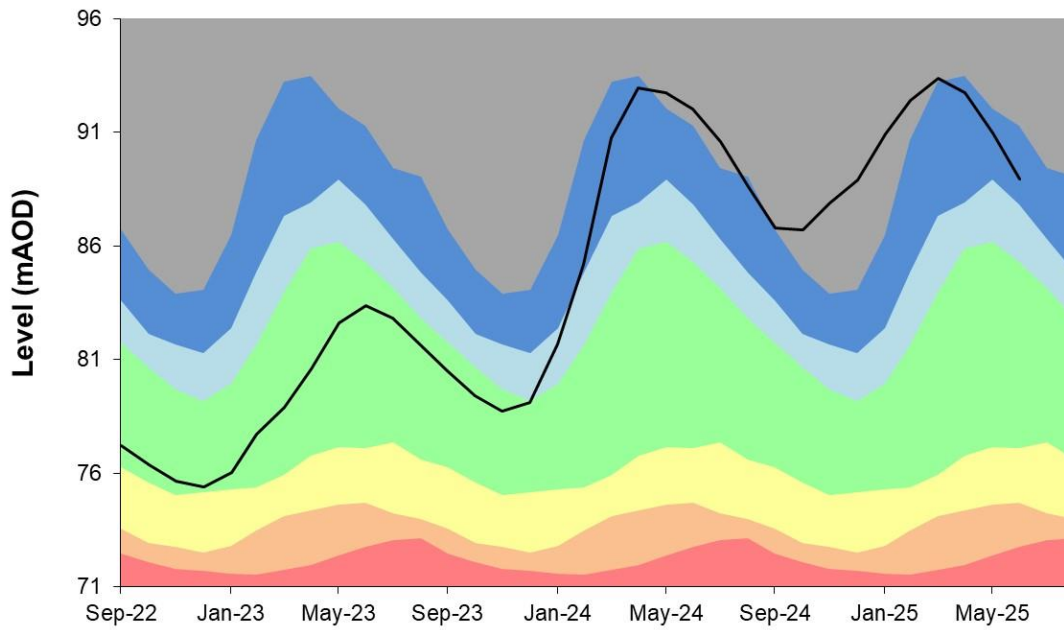
5.3 Upper Lee Groundwater level charts

Figure 5.3: 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.



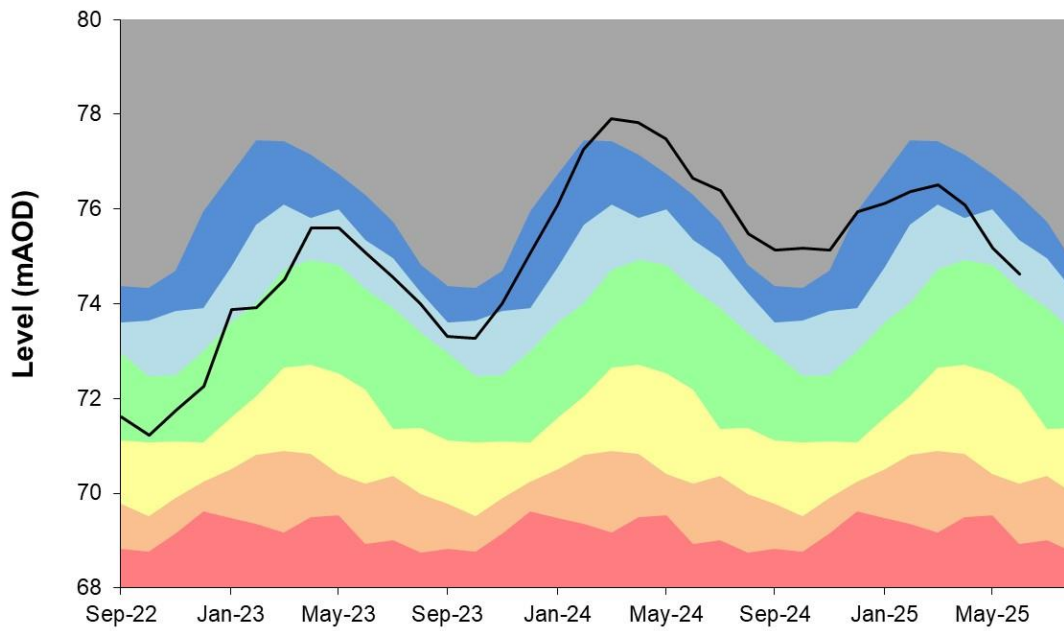
THERFIELD RECTORY

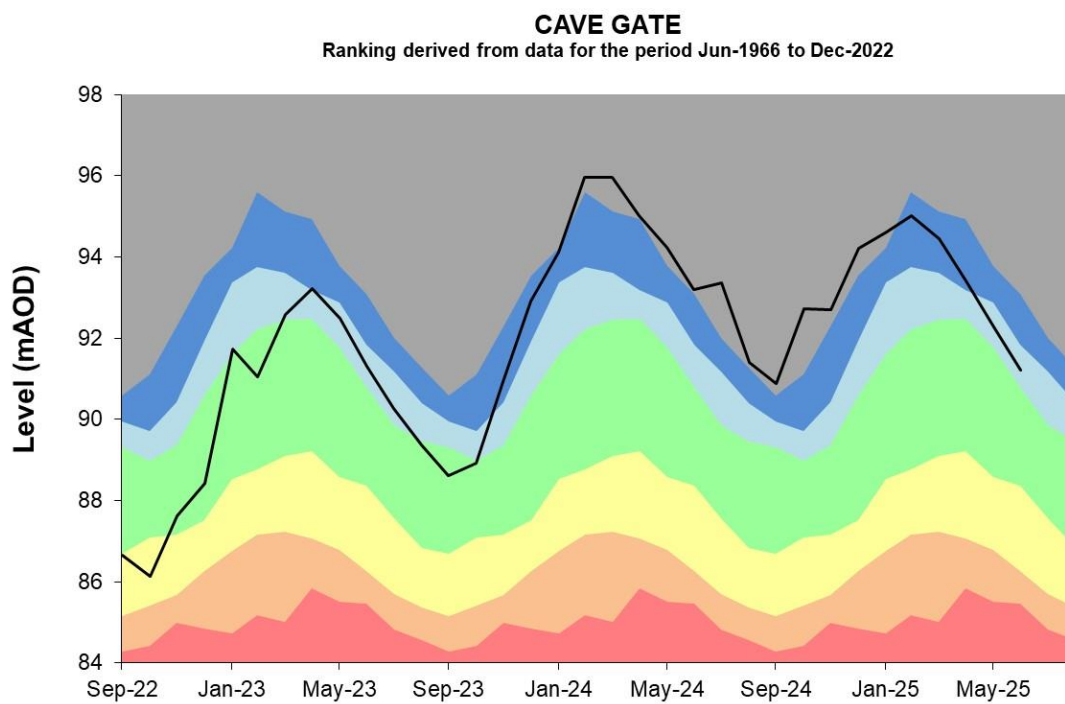
Ranking derived from data for the period Jan-1883 to Dec-2022



HIXHAM HALL

Ranking derived from data for the period Jun-1964 to Dec-2022





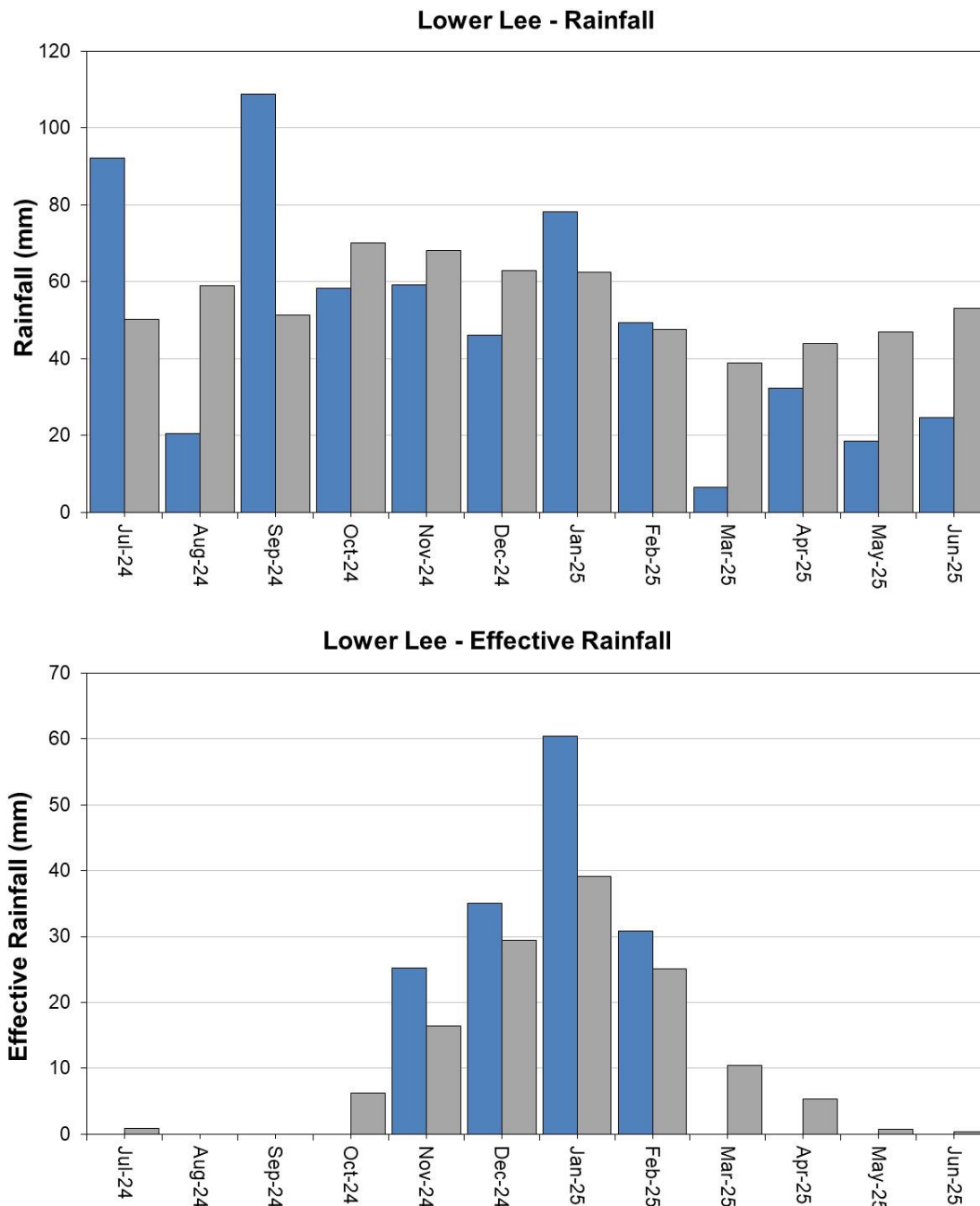
Source: Environment Agency, 2025

6 Lower Lee Catchment

6.1 Lower Lee Rainfall and Effective Rainfall charts

Figure 6.1: Monthly rainfall and effective rainfall totals for the past 12 months as a percentage of the 1991 to 2020 long term average for the Lower Lee.

Monthly total rainfall (mm) Long term average rainfall (mm)

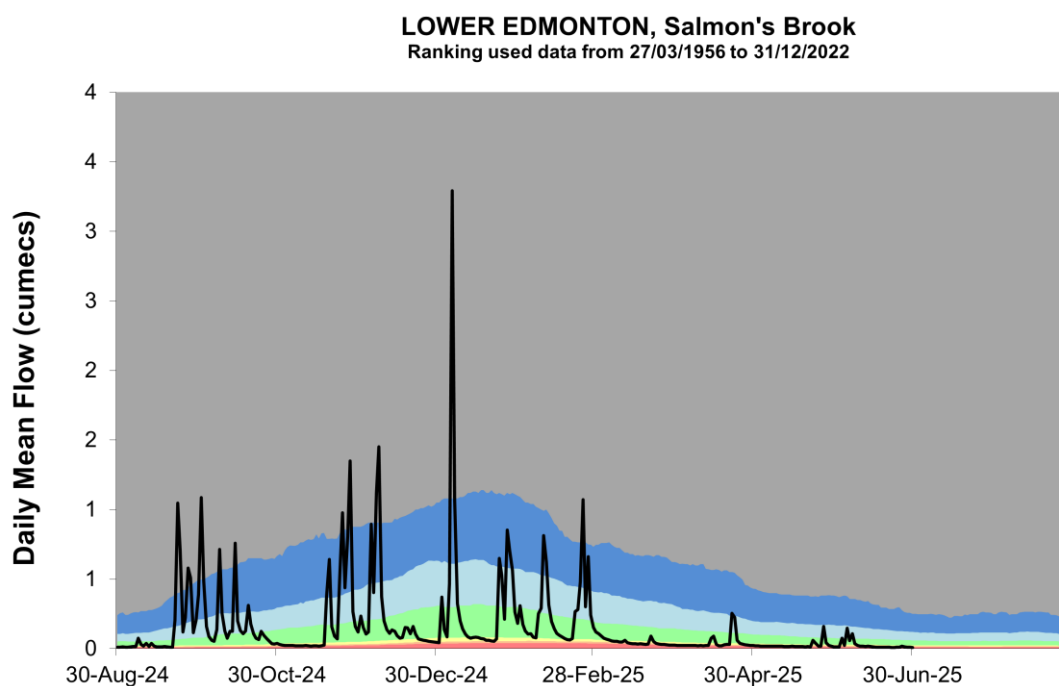
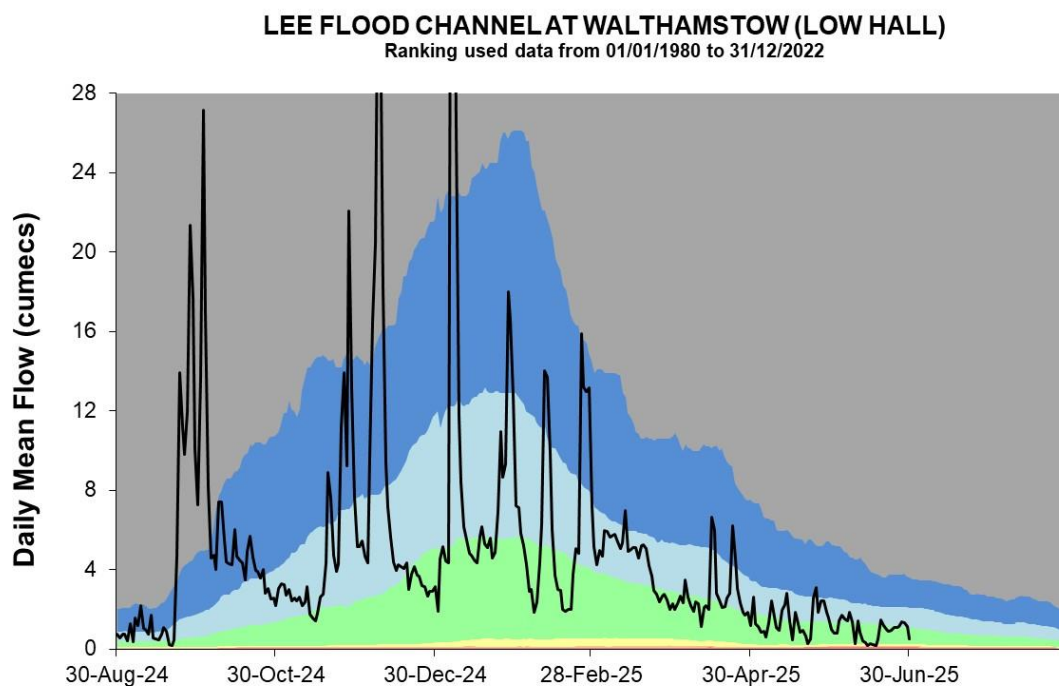


HadUK rainfall data (Source: Met Office. Crown copyright, 2025)

EA Soil Moisture Model effective rainfall data (Source: Environment Agency, 2025)

6.2 Lower Lee River flow charts

Figure 6.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



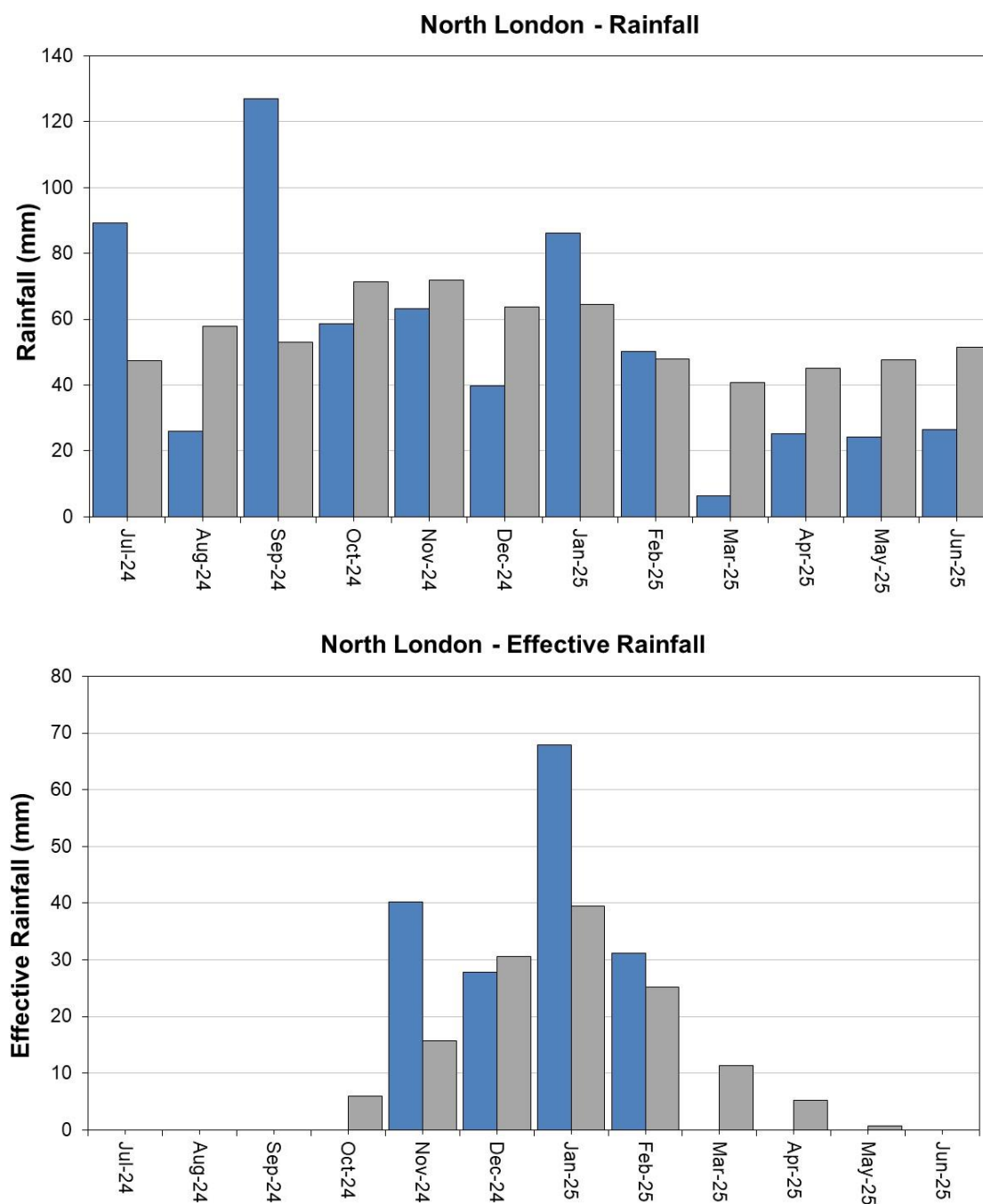
Source: Environment Agency, 2025

7 North London Catchment

7.1 North London Rainfall and Effective Rainfall charts

Figure 7.1: Monthly rainfall and effective rainfall totals for the past 12 months compared to the 1991 to 2020 long term average for each region and for England.

Monthly total rainfall (mm) Long term average rainfall (mm)

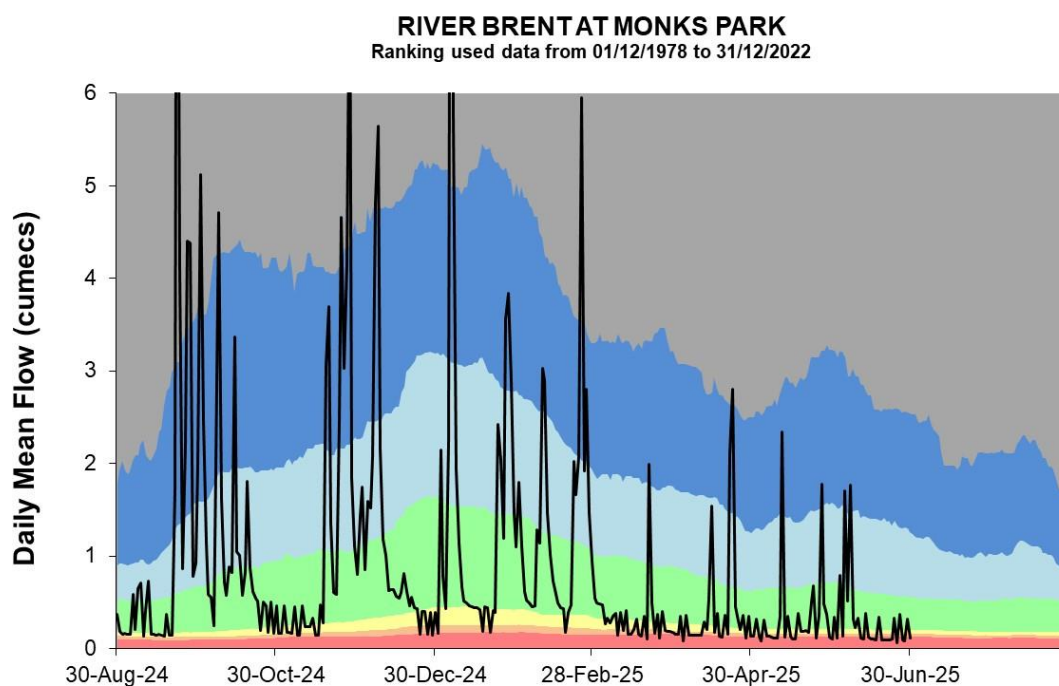
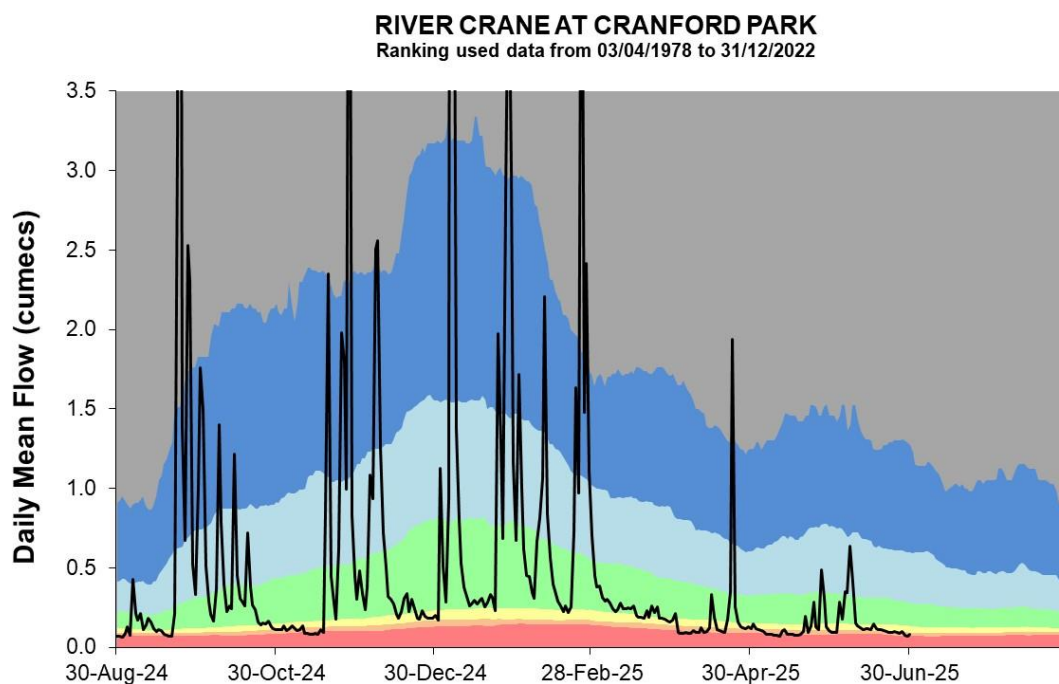


HadUK rainfall data (Source: Met Office. Crown copyright, 2025)

EA Soil Moisture Model effective rainfall data (Source: Environment Agency, 2025)

7.2 North London River flow charts

Figure 7.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.

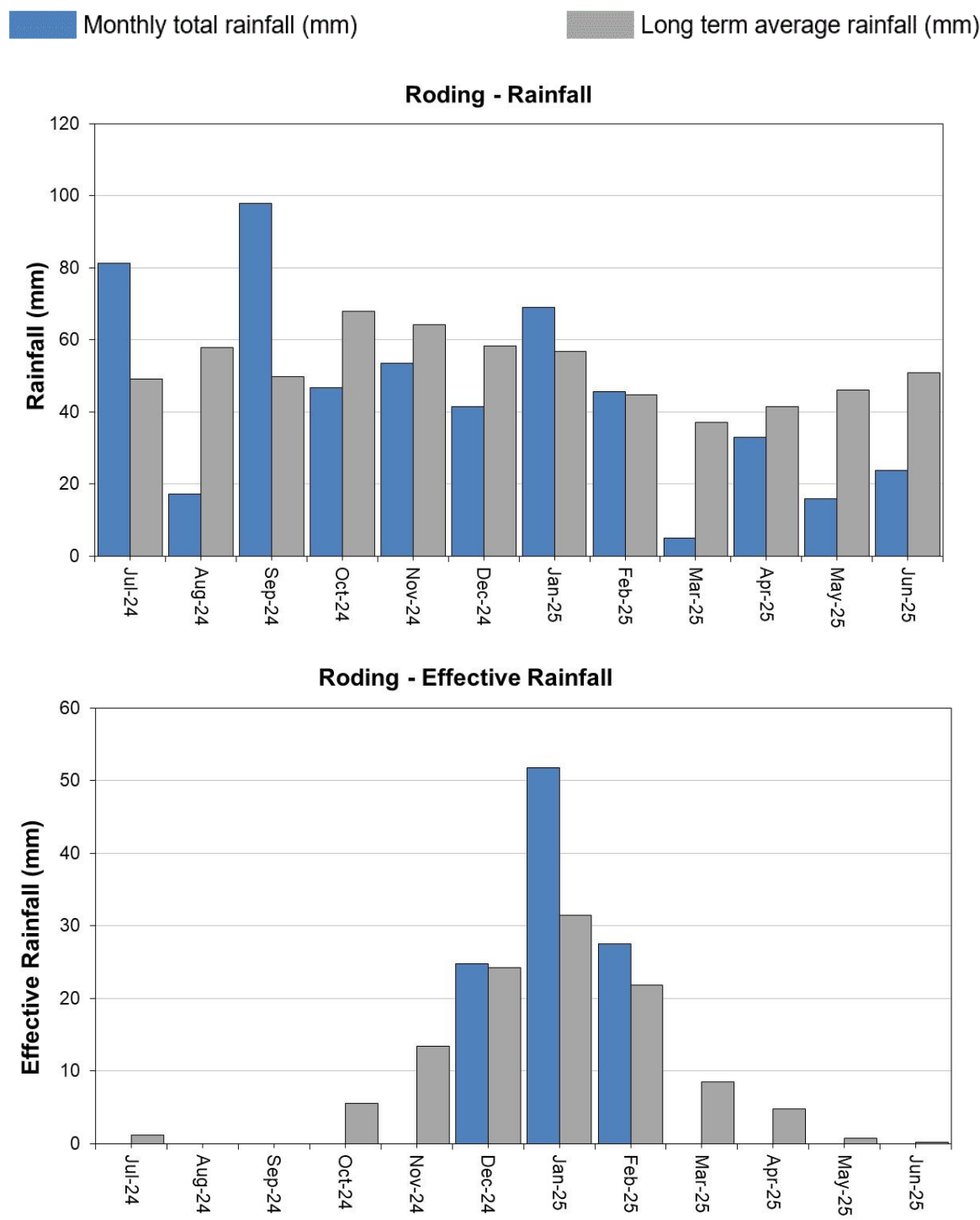


Source: Environment Agency, 2025

8 Roding Catchment

8.1 Roding Rainfall and Recharge chart

Figure 8.1: Monthly rainfall and recharge totals for the past 12 months compared to the 1991 to 2020 long term average for each region and for England.

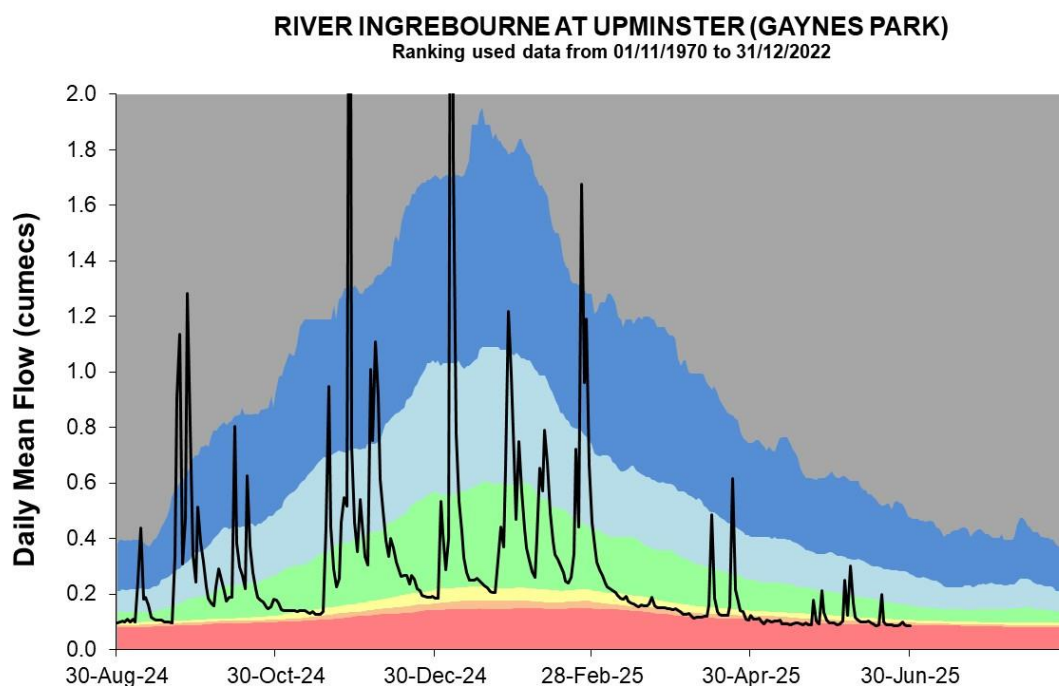
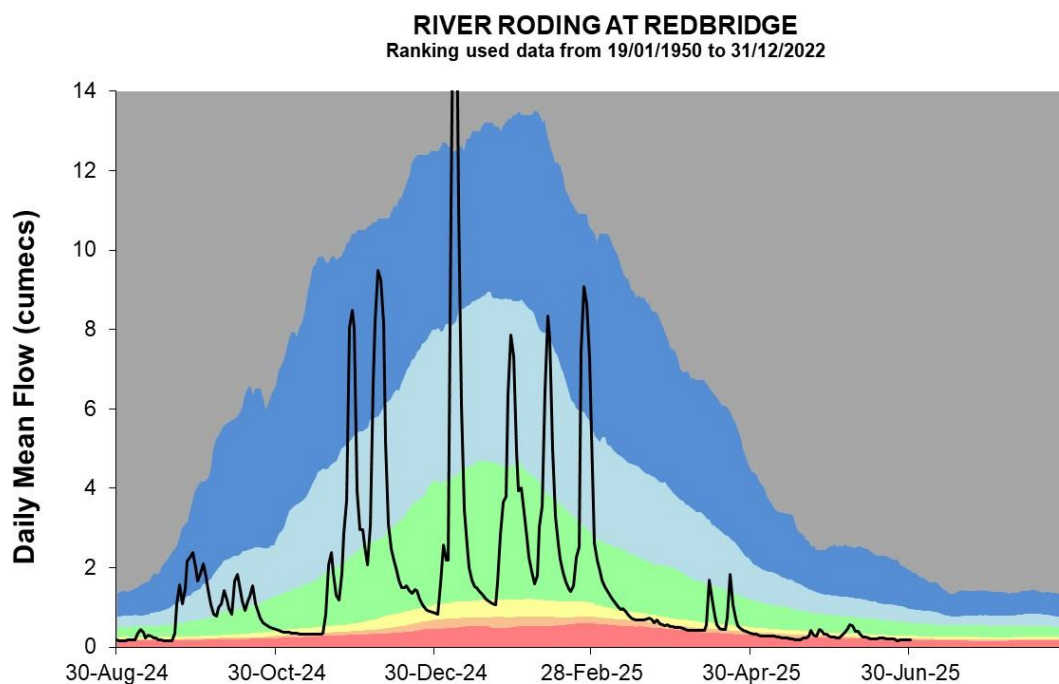


HadUK rainfall data (Source: Met Office. Crown copyright, 2025)

EA Soil Moisture Model effective rainfall data (Source: Environment Agency, 2025)

8.2 Roding River flow charts

Figure 8.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.

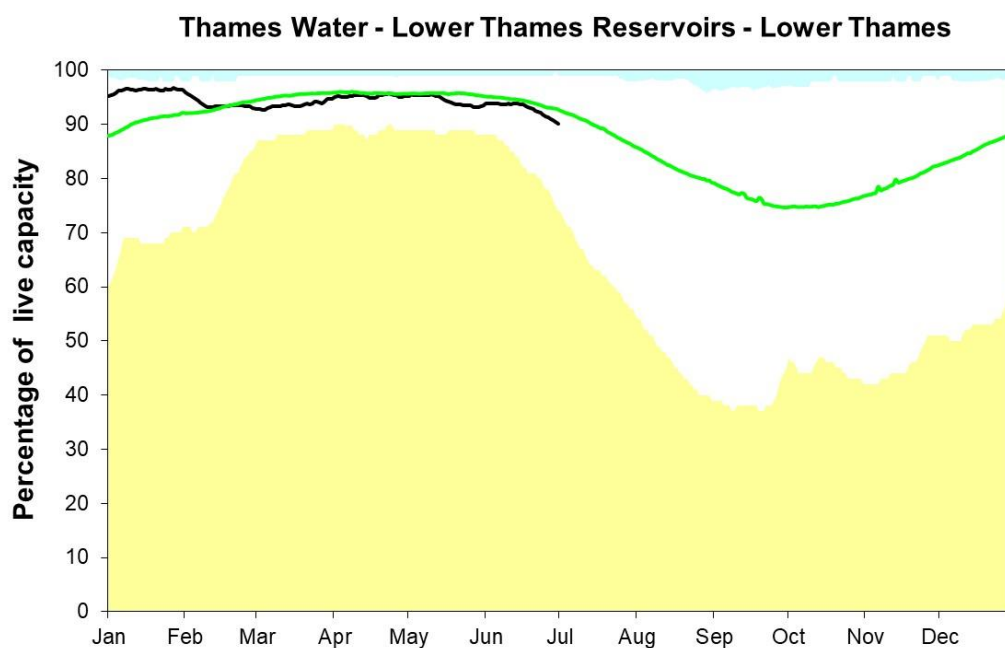
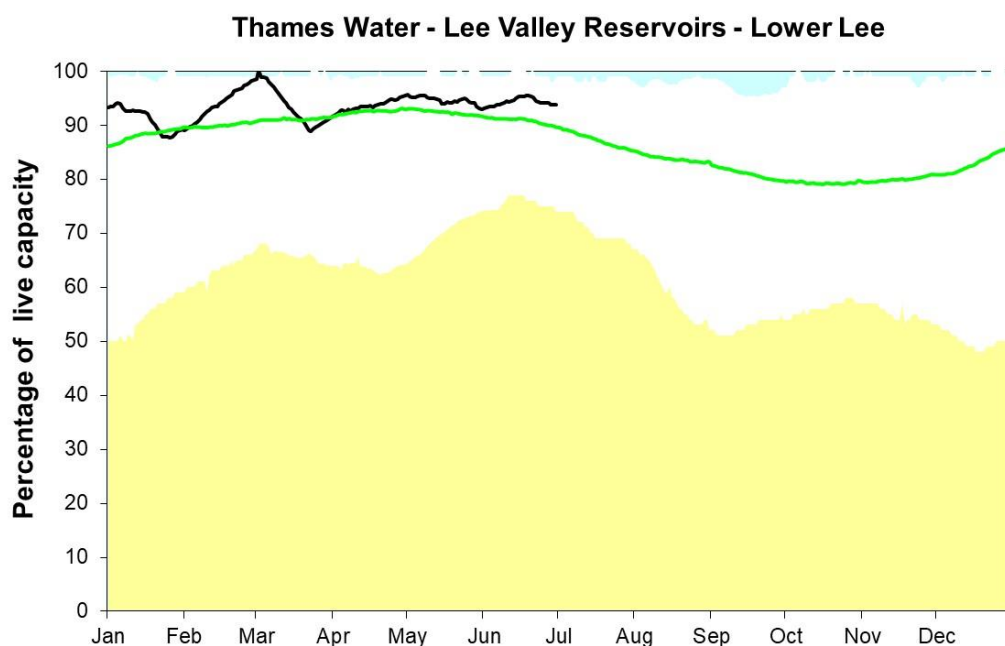


Source: Environment Agency, 2025

9 Reservoir stocks

Figure 9.1: End of month reservoir stocks for the Lower Thames reservoir group and the Lee Valley reservoir group 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.

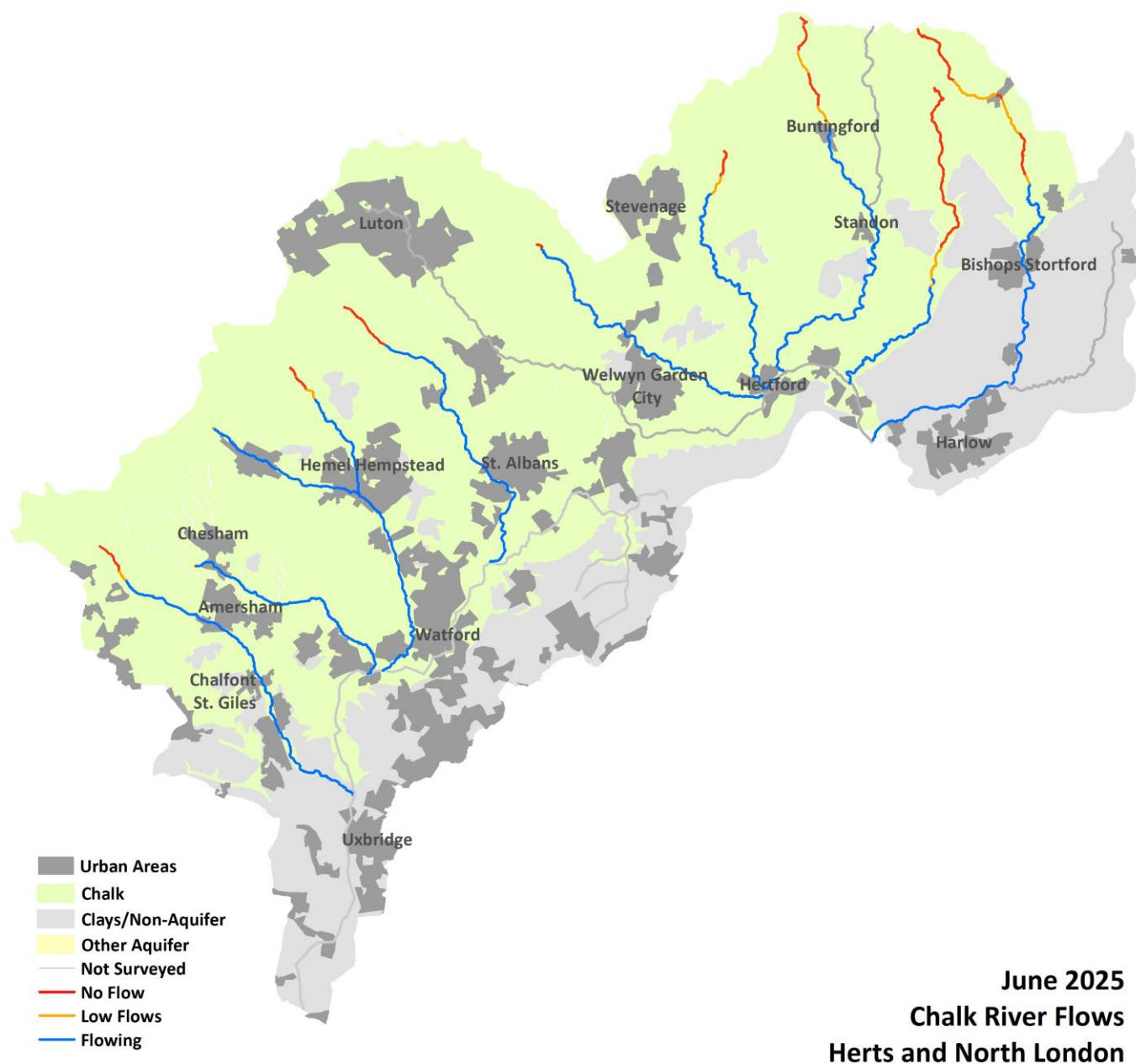
Below minimum Above maximum Average Latest data



Source: water companies, 2025

10 Chalk Rivers

Figure 10.1: Length of Chalk Rivers surveyed during the month and categorised as: Flowing, Low Flows, No Flow or Not Surveyed.



Source: Environment Agency, 2025

11 Glossary

11.1 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).

11.2 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.

12 Appendices

12.1 Rainfall table

Hydrological area	Jun 2025 total rainfall in mm	Jun 2025 rainfall long term average 1991 to 2020	Jun 2025 rainfall % of long term average 1991 to 2020	Summer Apr 2025 to Jun 2025 total rainfall in mm	Summer Apr 2025 to Jun 2025 rainfall % of long term average 1991 to 2020
Chilterns East Colne	27	54	50	85	52
Lee Chalk	24	53	45	75	51
Lower Lee	25	53	46	75	52
North London	27	52	51	76	52
Roding	24	51	47	72	52
Herts and North London total	25	52	48	76	52

12.2 Rainfall banding table

Hydrological area	Jun 2025 band	Apr 2025 to Jun 2025 cumulative band	Jan 2025 to Jun 2025 cumulative band	Jul 2024 to Jun 2025 cumulative band
Chilterns East Colne	Below normal	Notably low	Normal	Normal
Lee Chalk	Normal	Below normal	Normal	Above normal
Lower Lee	Normal	Below normal	Normal	Normal
North London	Below normal	Notably low	Below normal	Normal
Roding	Normal	Below normal	Below normal	Normal

12.3 Effective Rainfall table

Hydrological area	Jun 2025 total effective rainfall in mm	Jun 2025 effective rainfall long term average 1991 to 2020 in mm	Jun 2025 effective rainfall % of long term average 1991 to 2020	Summer Apr 2025 to Jun 2025 total effective rainfall in mm	Summer Apr 2025 to Jun 2025 effective rainfall % of long term average 1991 to 2020
Chilterns East Colne	1	5	21	6	24
Lee Chalk	1	4	16	5	29
Lower Lee	0	0	0	0	0
North London	0	0	0	0	0
Roding	0	0	0	0	0
Herts and North London total	0	2	18	2	18

12.4 Soil Moisture Deficit table

Hydrological area	Jun 2025 end of month Soil Moisture Deficit in mm	Jun 2025 end of month Soil Moisture Deficit long term average 1991 to 2020 in mm	May 2025 end of month Soil Moisture Deficit in mm	May 2025 end of month Soil Moisture Deficit long term average 1991 to 2020 in mm
Chilterns East Colne	125	72	93	53
Lee Chalk	128	87	96	68
Lower Lee	127	79	97	60
North London	128	81	97	61
Roding	127	81	96	62
Herts and North London total	127	80	95	61

12.5 River flows table

Site name	River	Catchment	Jun 2025 band	May 2025 band
Colney Street (Hansteads)	Ver	Colne	Above normal	Above normal
Croxley Green	Gade	Colne	Normal	Normal
Denham Lodge	Misbourne	Colne	Above normal	Above normal
Denham Colne	Colne	Colne	Normal	Normal
Howe Green (Water Hall)	Lee	Upper Lee	Normal	Normal
Panshanger	Mimram	Upper Lee	Notably high	Notably high
Wareside (Mardock)	Ash	Upper Lee	Normal	Below normal
Feildes Weir (naturalised)	Lee	Upper Lee	Normal	Normal
Brent (Monks Park)	Brent	North London	Notably low	Below normal
Cranford (Cranford Park)	Crane	North London	Notably low	Exceptionally low
Redbridge	Roding	Roding, Beam and Ingrebourne	Exceptionally low	Exceptionally low
Upminster (Gaynes Park)	Ingrebourne	Roding, Beam and Ingrebourne	Exceptionally low	Exceptionally low

12.6 Groundwater table

Site name	Aquifer	Jun 2025 band	May 2025 band
Ashley Green	Mid-Chilterns Chalk	Normal	Normal
Ballington Farm	Mid-Chilterns Chalk	Normal	Normal
Amersham Road	Mid-Chilterns Chalk	Normal	Normal
Wapseys Wood	Mid-Chilterns Chalk	Normal	Above normal
Lilley Bottom	Upper Lee Chalk	Notably high	Notably high
Crescent Cottages	Upper Lee Chalk	Above normal	Notably high
Cave Gate	Upper Lee Chalk	Above normal	Above normal
Hixham Hall	Upper Lee Chalk	Above normal	Above normal
Therfield Rectory	Upper Lee Chalk	Notably high	Notably high

12.7 Abstraction licence flow constraints

Number of flow constraints in force between 2 and 8 June 2025	Number of flow constraints in force between 7 and 13 August 2023	Number of flow constraints in force between 14 and 20 August 2023	Number of flow constraints in force between 23 and 29 August 2023
7	4	8	10