Monthly water situation report: Hertfordshire and North London Area

1 Summary - July 2025

July was wetter than recent months across the Hertfordshire and North London area (the "Area"), receiving only 103% of the long term average (LTA) rainfall. The rainfall for all areal units ended the month in the normal band, supported by several intense rainfall events during the middle and latter part of the month. Despite this, soil moisture deficits (SMDs) increased further, with all units ending the month significantly above the LTA and effective rainfall remained insignificant outside of the Chilterns East Colne and Lee Chalk units. River baseflows responded to rainfall, with chalk rivers ranging from normal to notably high, while clay and urban rivers remained more variable, from notably low to normal. Groundwater levels remained stable across the Area, with Mid-Chilterns Chalk sites in the normal band and Upper Lee Chalk sites above normal or notably high for the time of year.

1.1 Rainfall

July was wetter than recent months across the Area, receiving 103% of the LTA rainfall. All five areal rainfall units finished the month in the normal band. All units have been in the notably low band for total rainfall over the past three months, except for North London, which was below normal. For total rainfall over the past six months, all units were in the exceptionally low band, except for North London and the Lower Lee, which were notably low. The wettest day of the month was 19 July, when 28.6mm was recorded at Wheathampstead STW (Lee Chalk). On the same day, 26.2mm was measured at the Avenue North, Wembley (North London) and 26.0mm at Oaklands College, St Albans (Chilterns East Colne). There were 12 "dry" days during July (<0.2mm rainfall recorded in a day).

1.2 Soil moisture deficit and recharge

The effective rainfall across the Area remained limited during July. Only the Chilterns East Colne and Lee Chalk units recorded any effective rainfall, both slightly above or close to the LTA, while the clay and urban catchments received none. Soils continued to dry during the month, with month end SMDs well above the LTA across all five areal rainfall units. The SMDs for both Lee Chalk and Chilterns East Colne units increased and all units ended the month with deficits higher than their LTAs.

1.3 River flows

River baseflows across the Area responded to several intense rainfall events during July. The majority of the Area's Chalk rivers were within the normal monthly mean flow band for July. The exceptions to this were the Ver at Colney Street, which recorded above normal flows and the Mimram at Panshanger where notably high flows were observed. In contrast, flows in the clay and urban rivers generally fell in the lower flow bands. The Brent at Monks Park was in the normal band, while the Crane at Cranford and the Ingrebourne at Upminster were both below

normal. The Roding at Redbridge remained in the notably low band. There were nine flood alerts issued during the month, majority of which were issued on 18 and 19 July, along with two flood warnings in response to high rainfall.

1.4 Groundwater levels

Groundwater levels across the Area remained stable during July. Indicator sites across the Area ranged from the normal to the notably high. In the Mid-Chilterns Chalk, all sites ended the month in the normal band. In the Upper Lee Chalk, levels remained above normal at the majority of sites, while Therfield Rectory continuing to see groundwater levels in the notably high band for July.

1.5 Reservoir stocks

The Lee Valley group began the month at 94% of live capacity and ended at 95%, remaining well above LTA. The Lower Thames group began July at 90% and ended the month at 79%, falling well below LTA. The decline in the Lower Thames group reflects the ongoing dry weather and the low flow in the Thames, while the Lee Valley group has maintained more stable levels.

1.6 Environmental impact

In the Colne catchment, the chalk river sources moved slightly downstream from their positions in June:

- The source of the River Ver was just downstream of Markyate.
- The River Gade started flowing at Bradden Lane, between Great Gaddesen and Hemel Hempstead.
- The River Bulbourne had moved downstream to just above Northchurch.
- The source of the River Chess moved to just upstream of Chesham.
- The River Misbourne started flowing downstream of Great Missenden.

In the Upper Lee catchment, there were also slight downstream shifts since June:

- The River Mimram continued to flow at Whitwell Gas Compound.
- The source of the River Beane was just downstream of Cromer.
- The River Rib was flowing intermittently from Chapel Green STW, gaining a steadier flow in Buntingford.
- There was intermittent flow from Brent Pelham on the River Ash (Herts), before gaining a steadier flow above Much Hadham.
- The River Stort flowed intermittently from Lower Green, but flows were continuous downstream of Manuden.

To protect the environment, a number of abstraction licence flow constraints were in force during July, ranging from 4 to 11 per week, with a monthly total of 32.

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2 Rainfall

2.1 Rainfall map

Figure 2.1: Total rainfall for hydrological areas for the current month (up to 31 July 2025), classed relative to an analysis of respective historic totals. Table available in the appendices with detailed information.

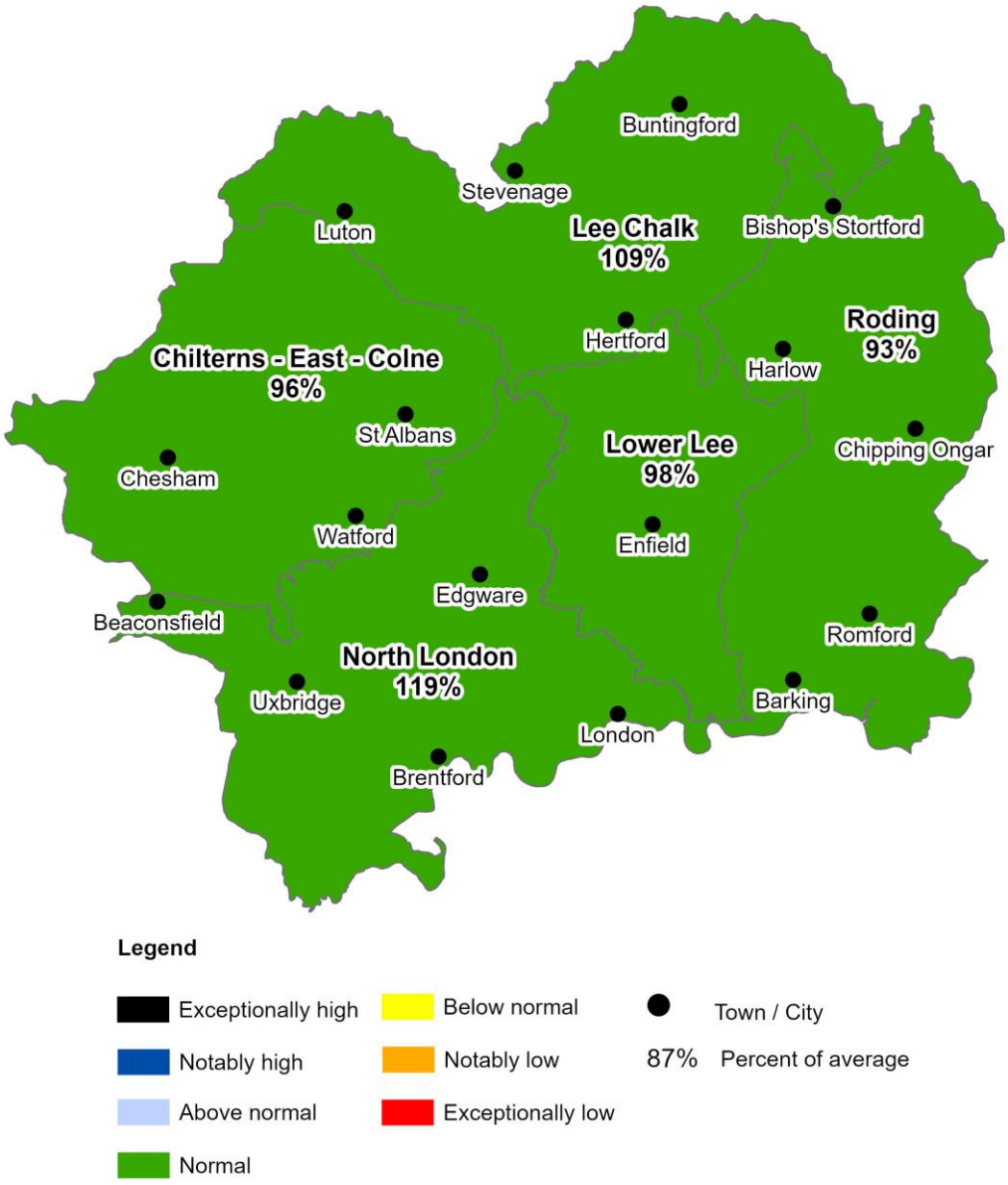
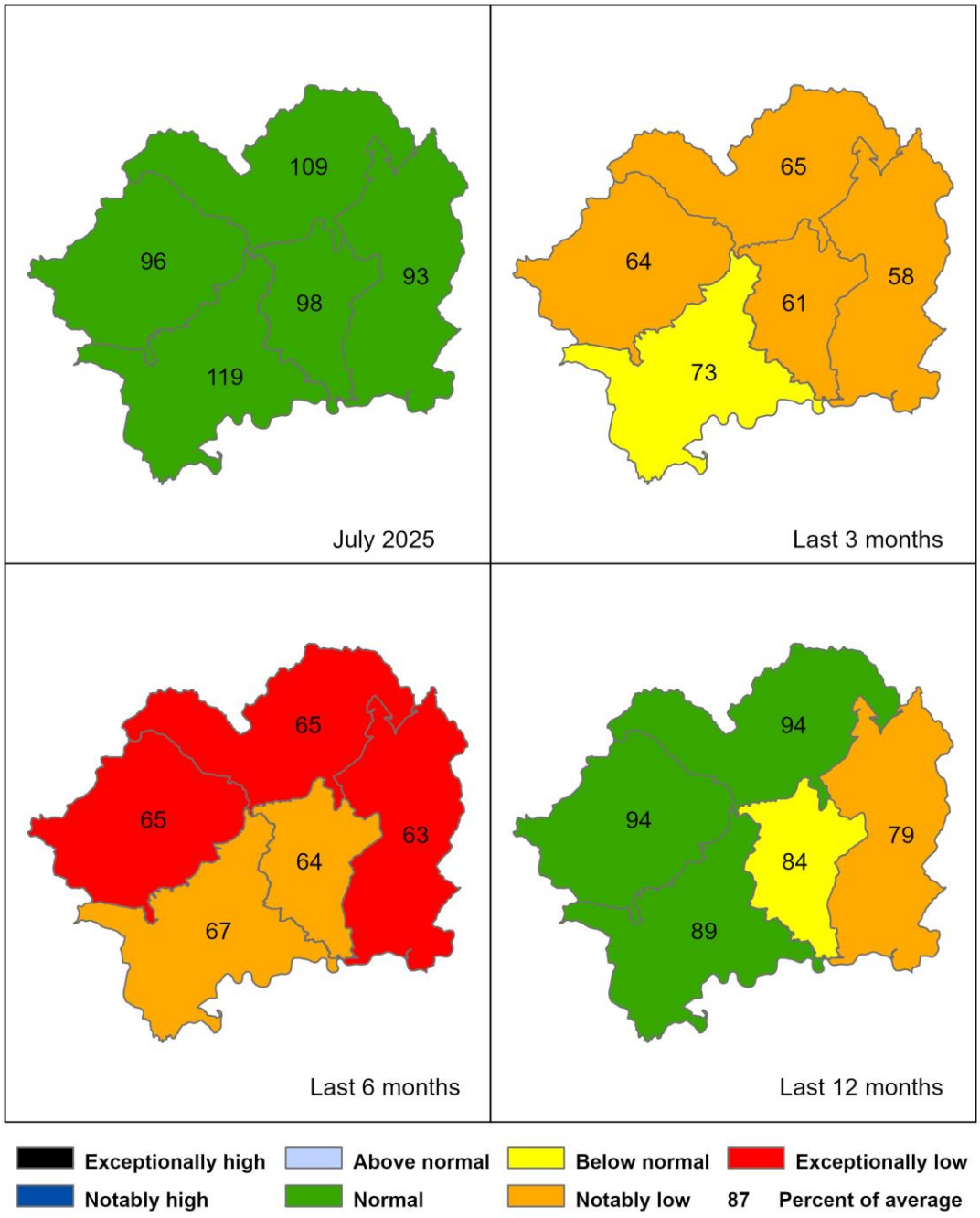


Figure 2.2: Total rainfall for hydrological areas for the current month (up to 31 July 2025), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. Table available in the appendices with detailed information.

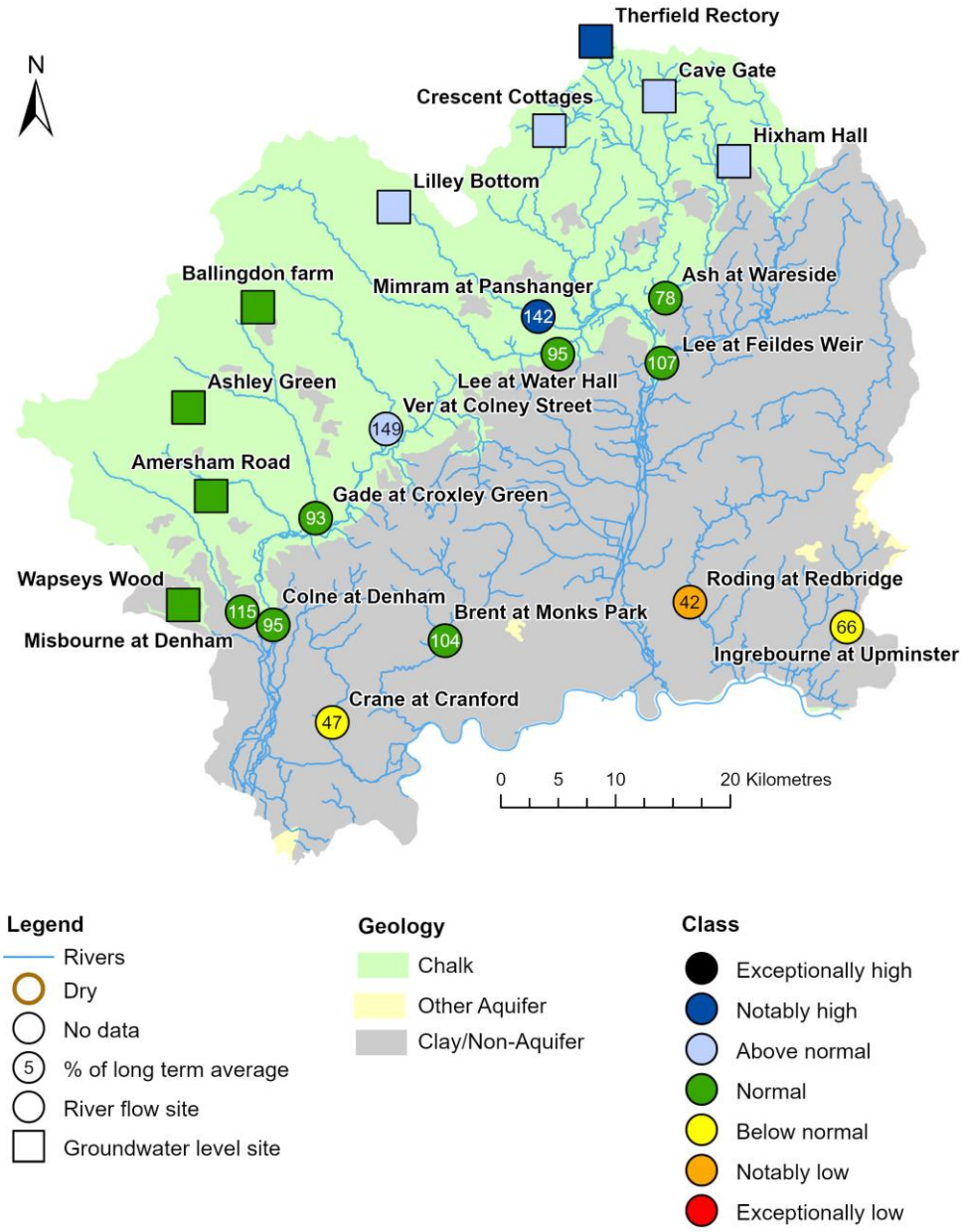


HadUK data based on the Met Office 1km gridded rainfall dataset derived from rain gauges (Source: Met Office. Crown copyright, 2025). Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Crown copyright. All rights reserved.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

3 River flows and Groundwater levels

3.1 River flows and Groundwater level map

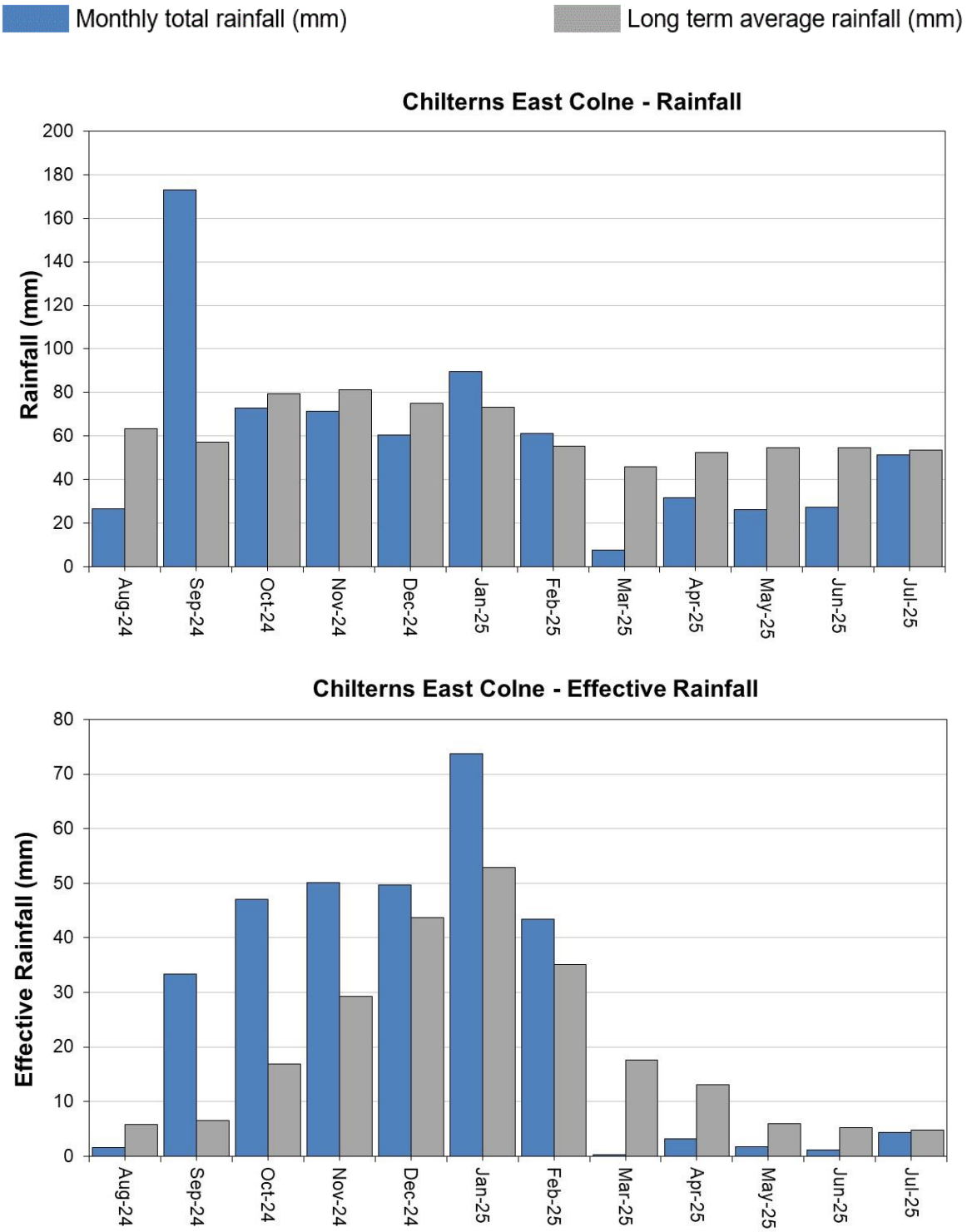
Figure 3.1: Monthly mean river flow and groundwater levels at our indicator sites for July 2025, expressed as a percentage of the respective long term average and classed relative to an analysis of historic July monthly means. Table available in the appendices with detailed information.



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.

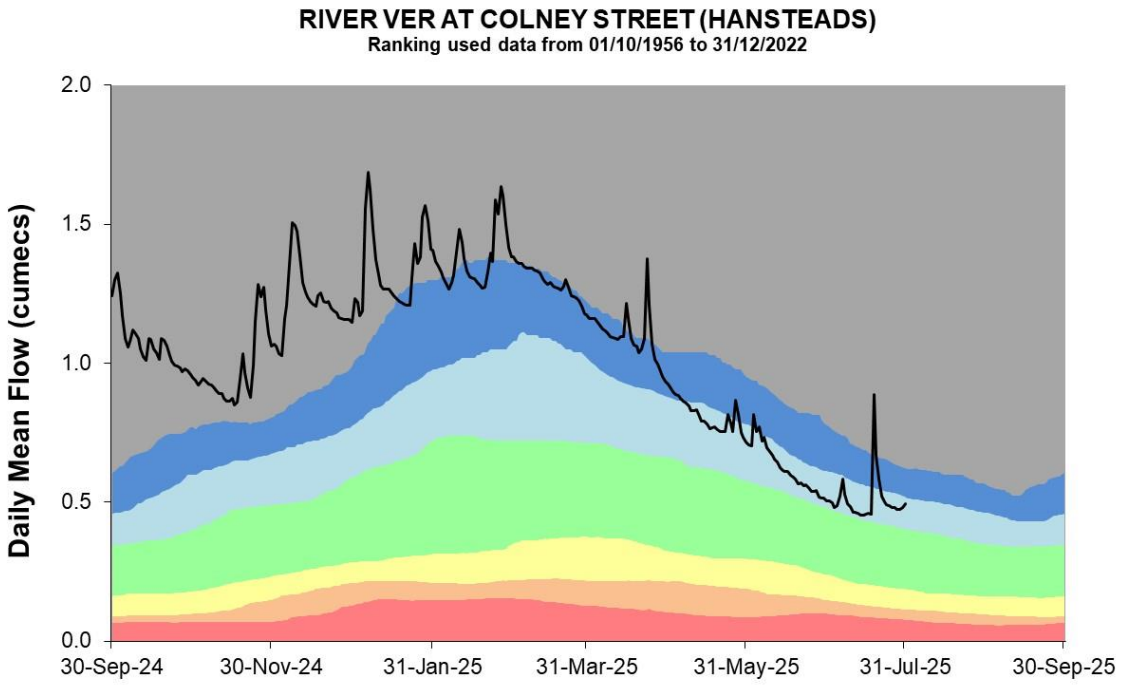


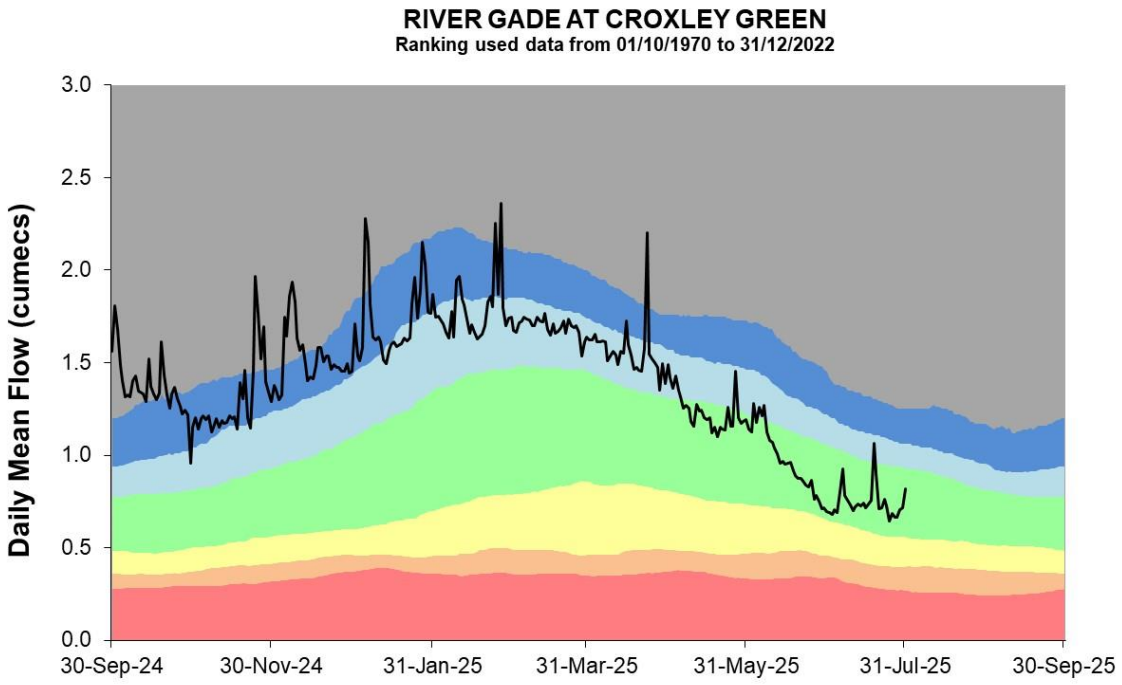
HadUK rainfall data (Source: Met Office. Crown copyright, 2025)

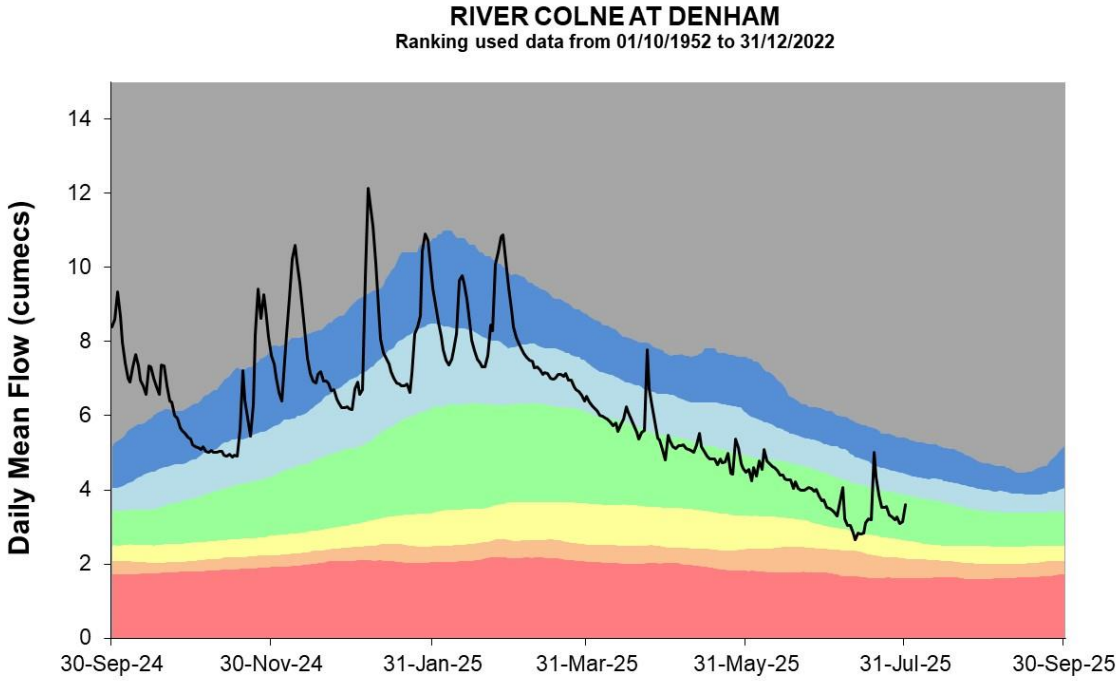
EA Soil Moisture Model effective rainfall data (Source: Environment Agency, 2025)

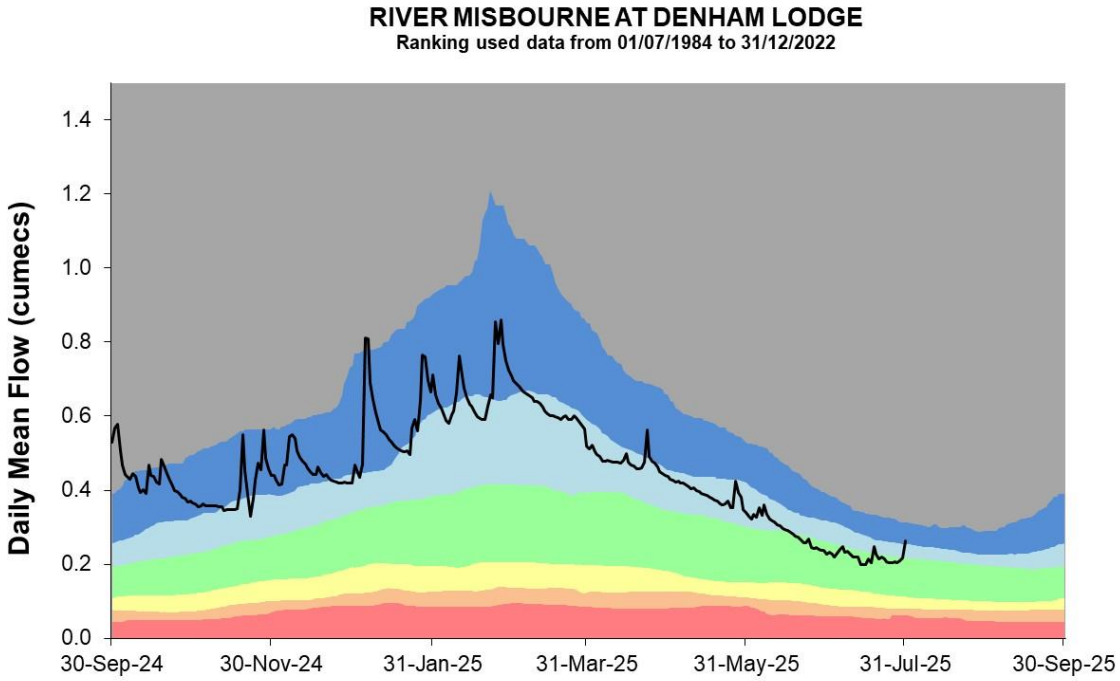
4.2 Colne River flow charts

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.





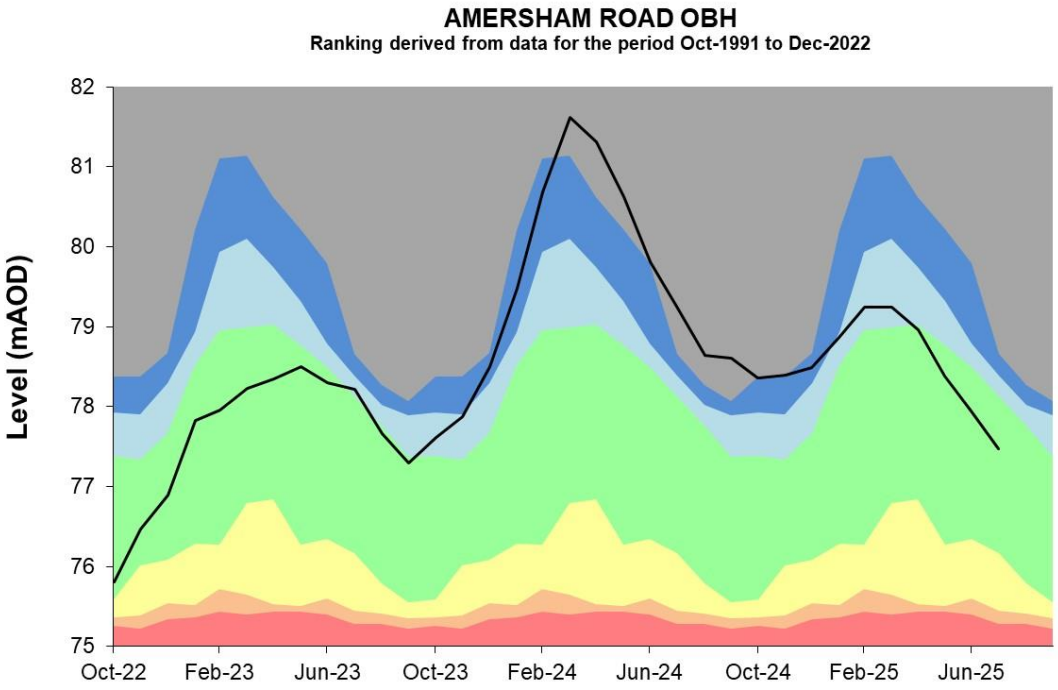


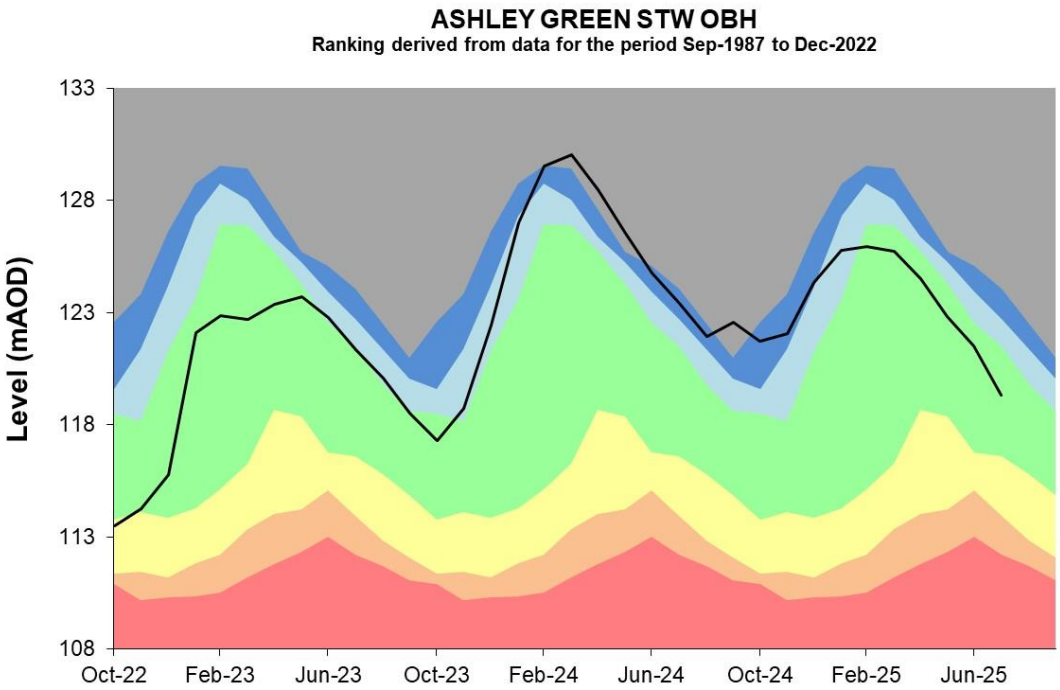


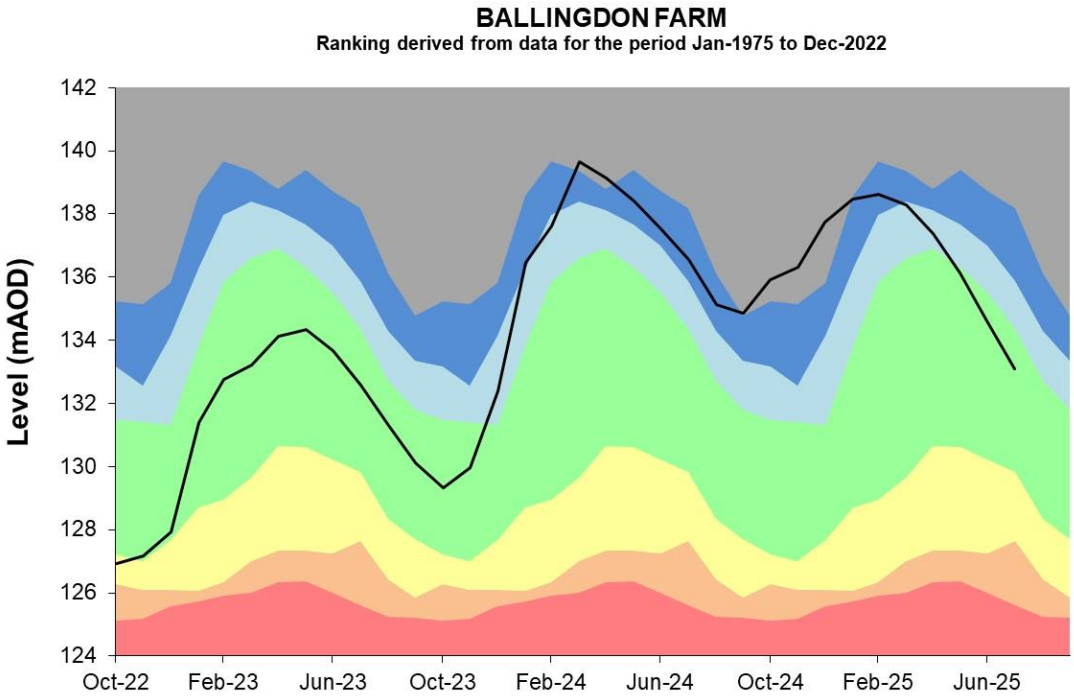
Source: Environment Agency, 2025

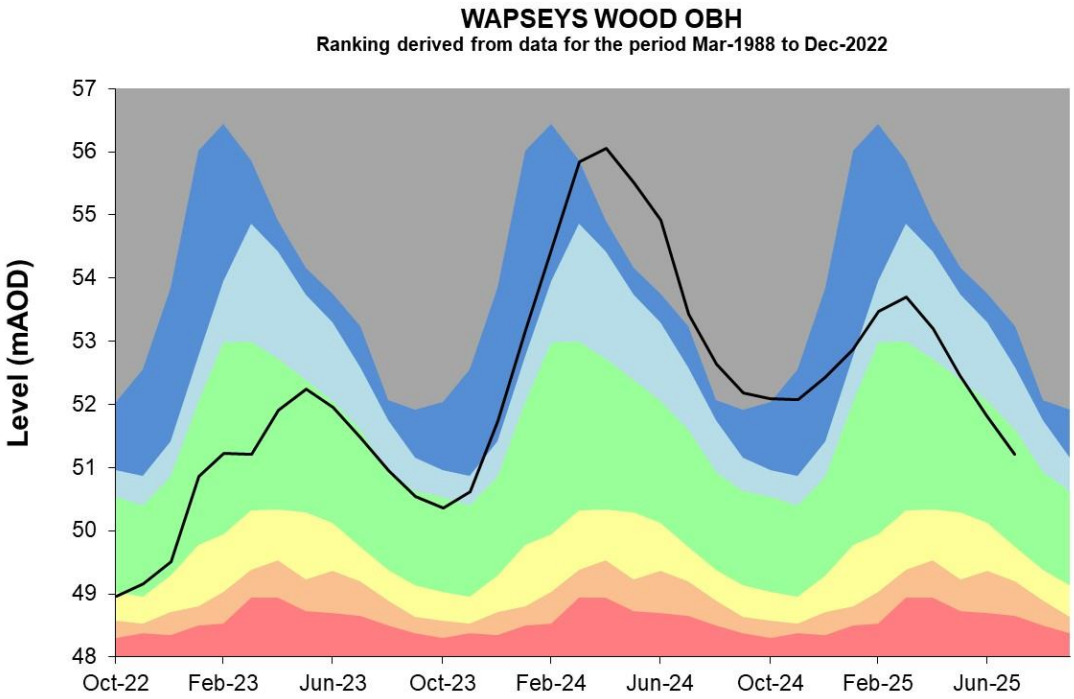
4.3 Colne Groundwater level charts

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.







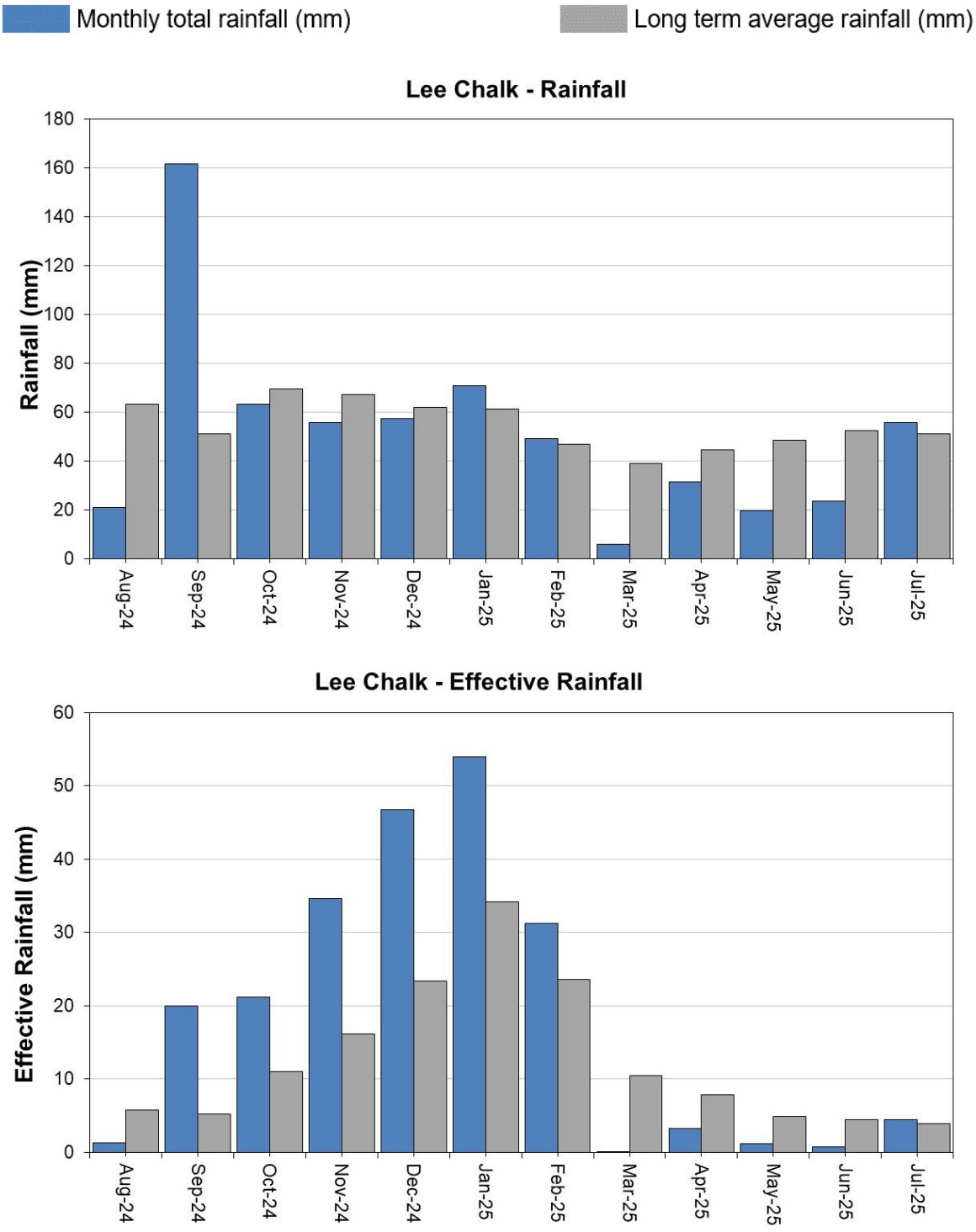


Source: Environment Agency, 2025

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.

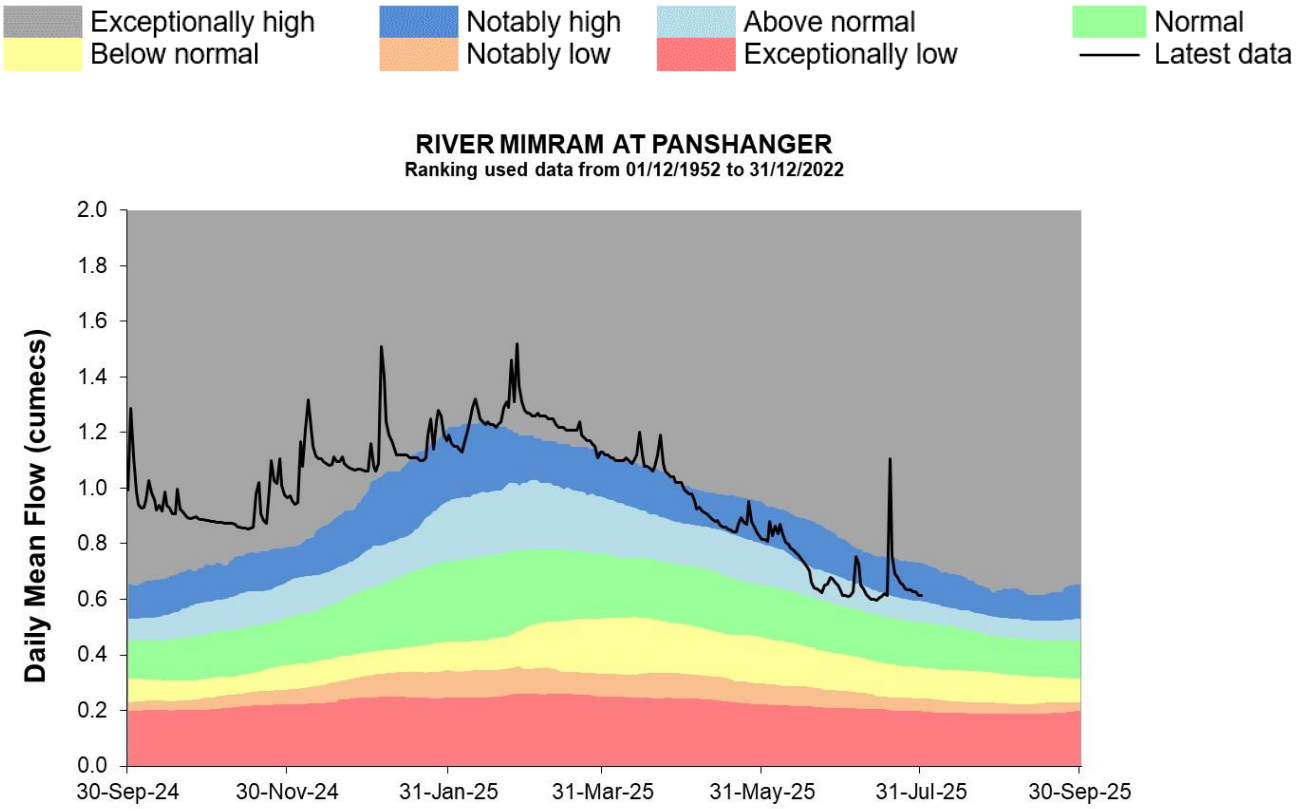


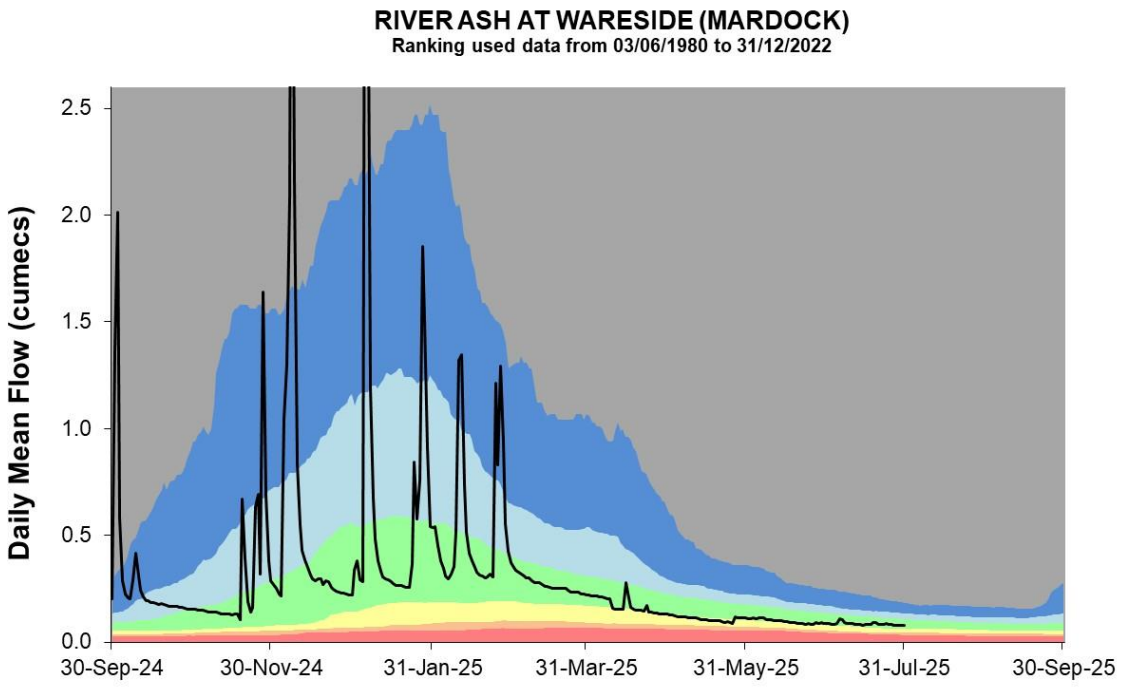
HadUK rainfall data (Source: Met Office. Crown copyright, 2025)

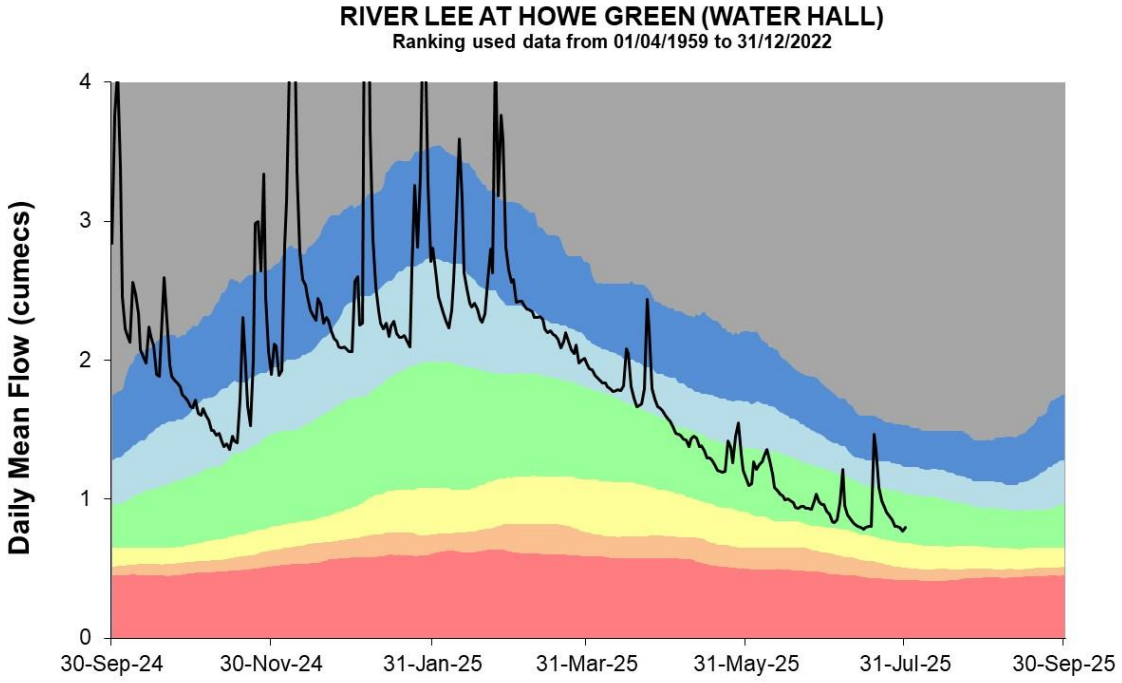
EA Soil Moisture Model effective rainfall data (Source: Environment Agency, 2025)

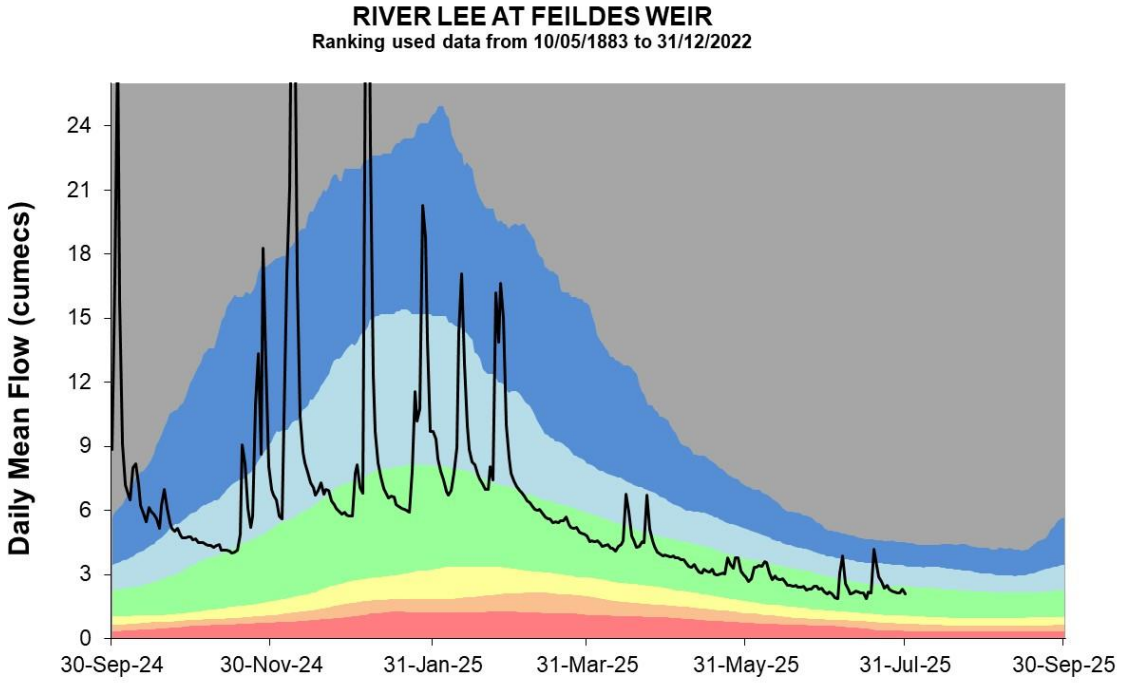
5.2 Upper Lee River flow charts

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.





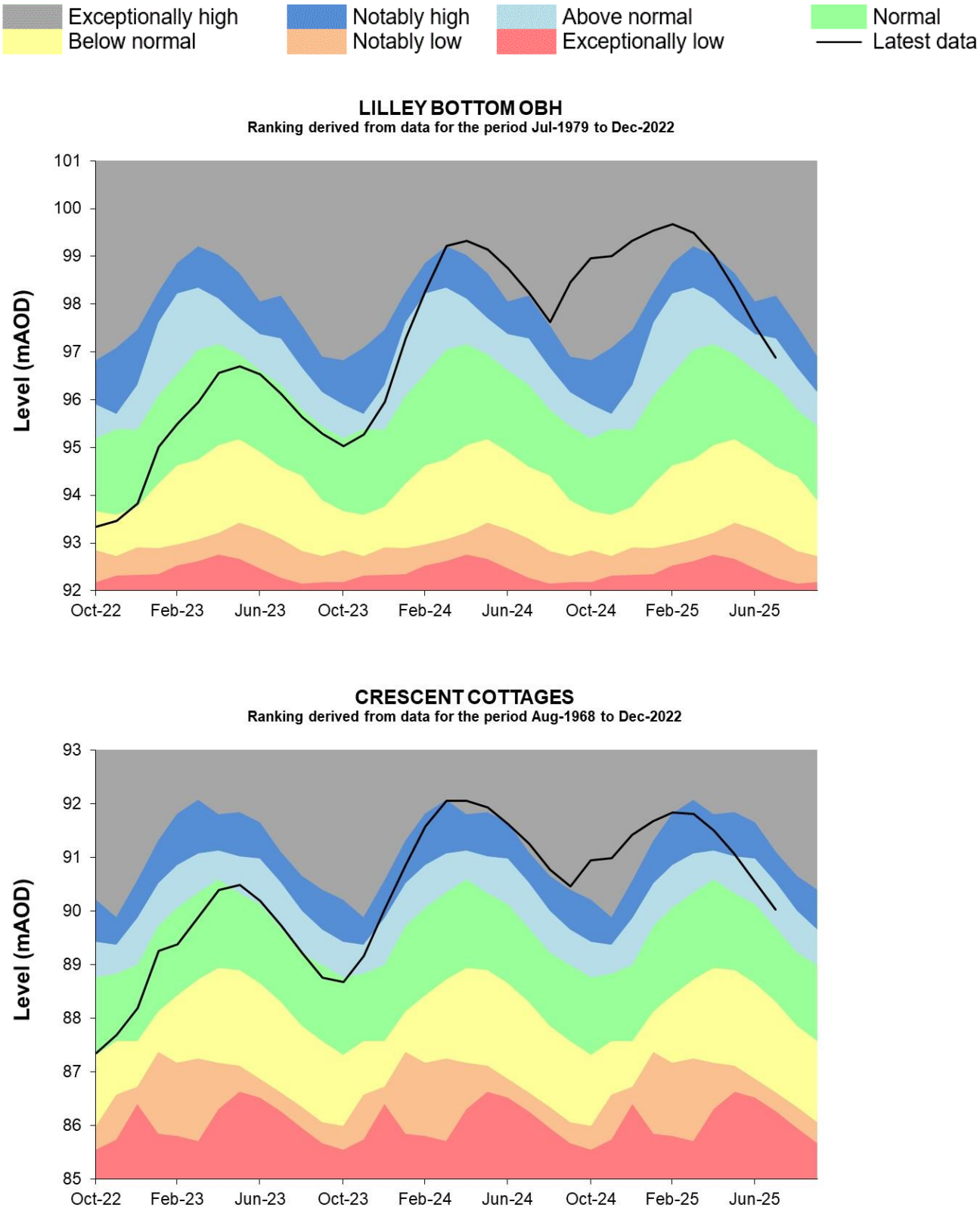




Source: Environment Agency, 2025

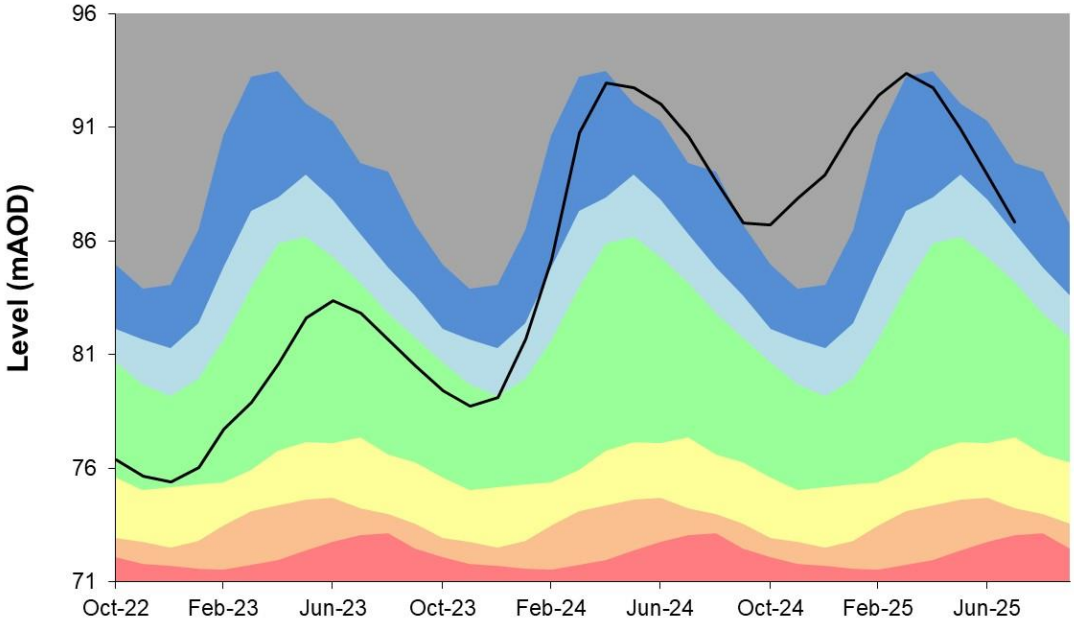
5.3 Upper Lee Groundwater level charts

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.



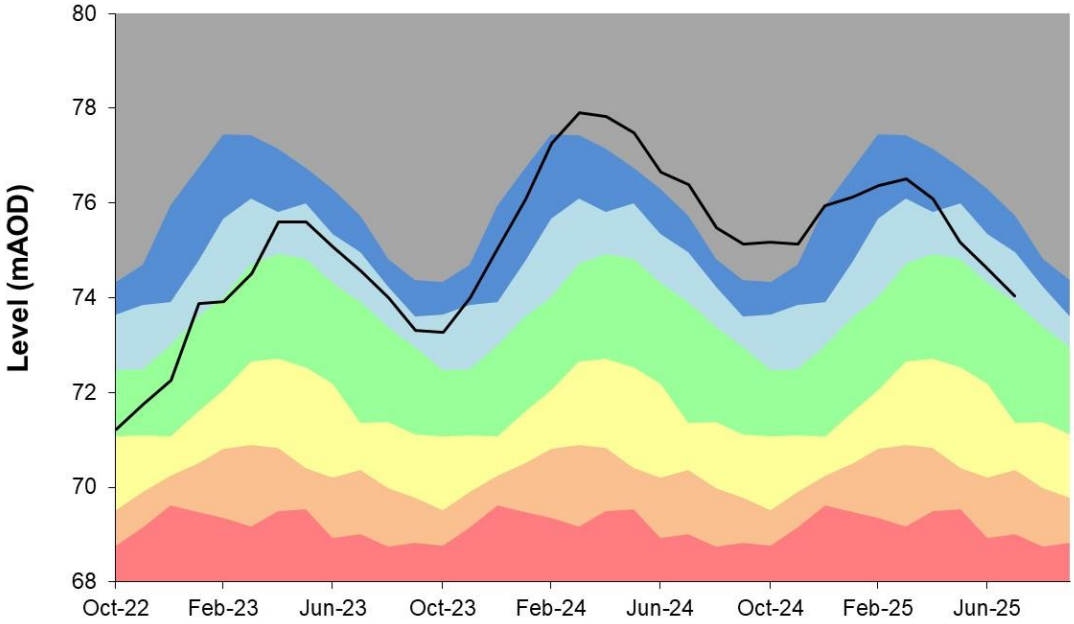
THERFIELD RECTORY

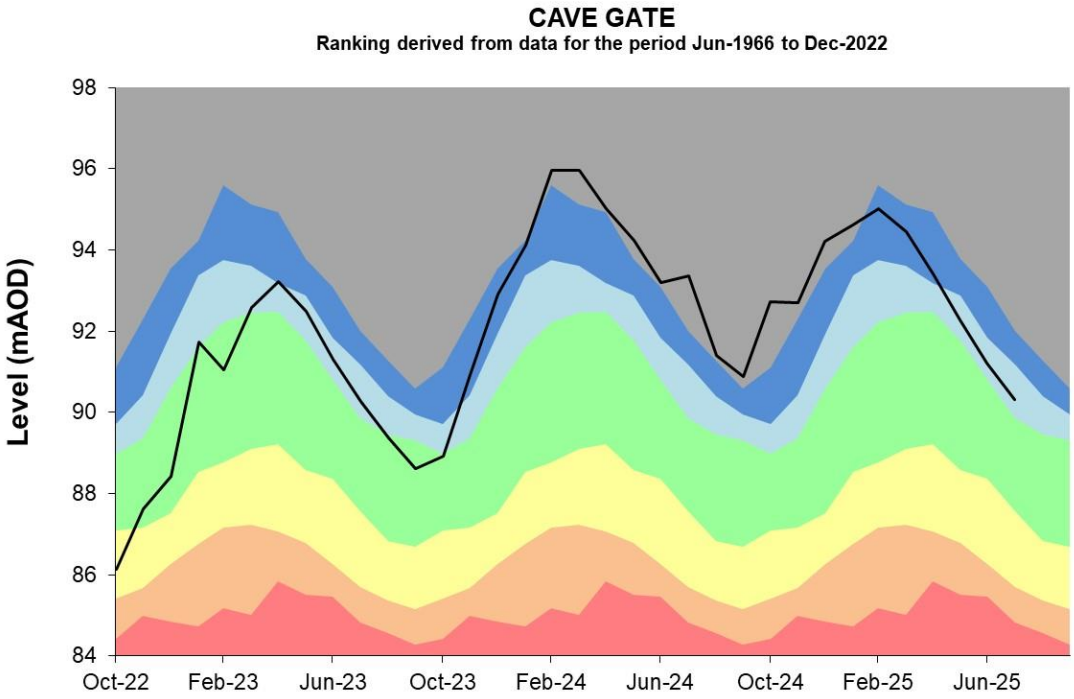
Ranking derived from data for the period Jan-1883 to Dec-2022



HIXHAM HALL

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



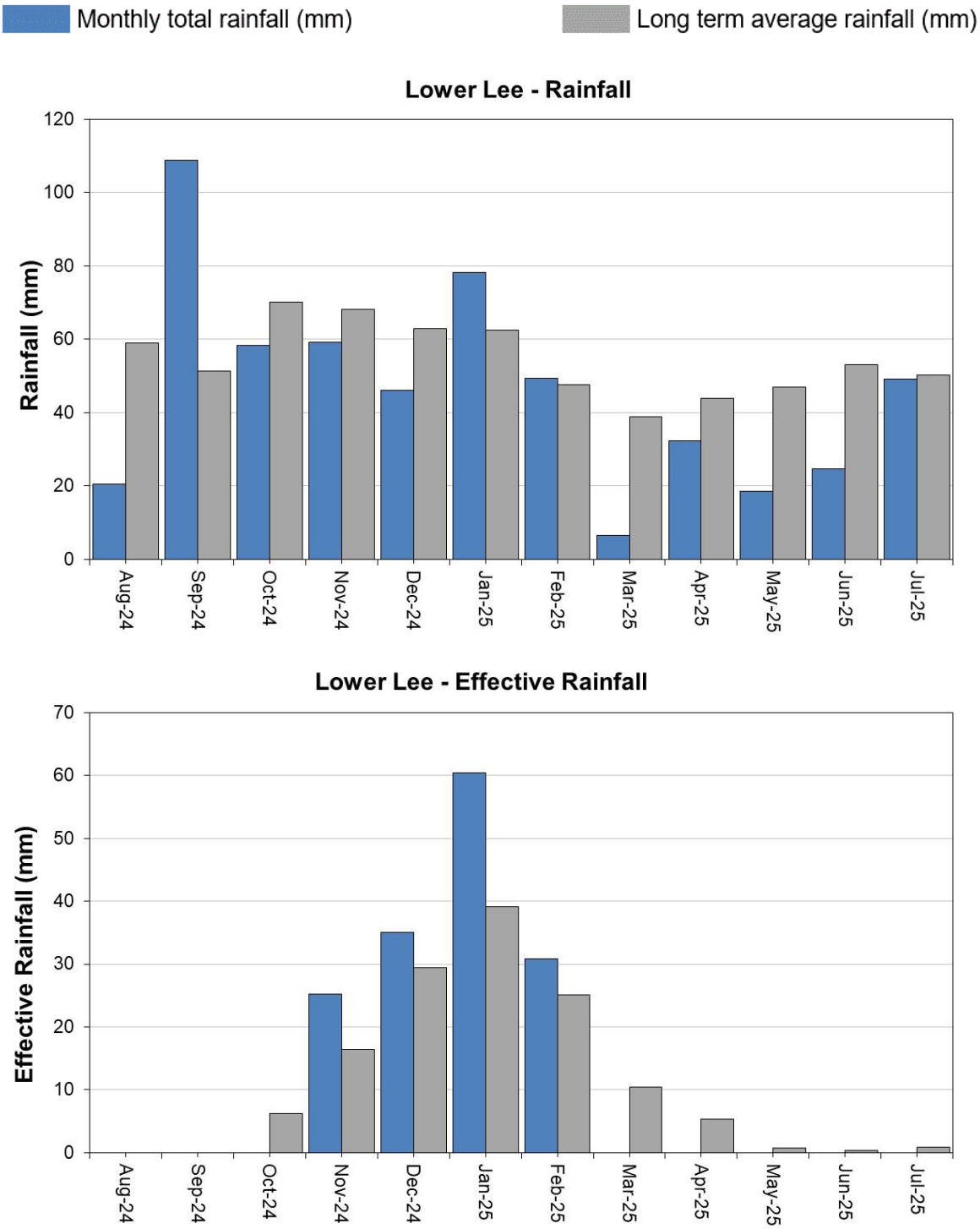


Source: Environment Agency, 2025

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.

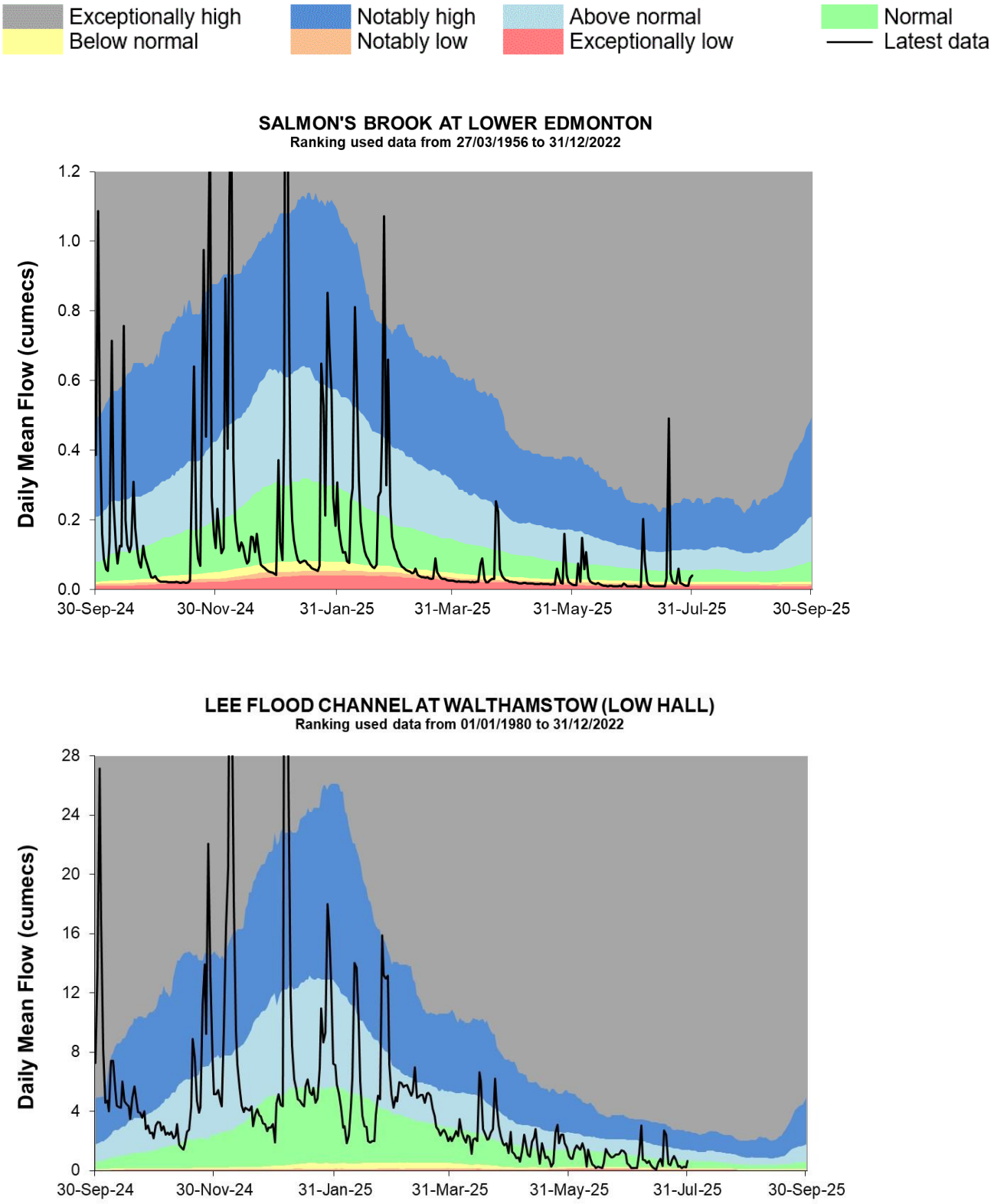


HadUK rainfall data (Source: Met Office. Crown copyright, 2025)

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.

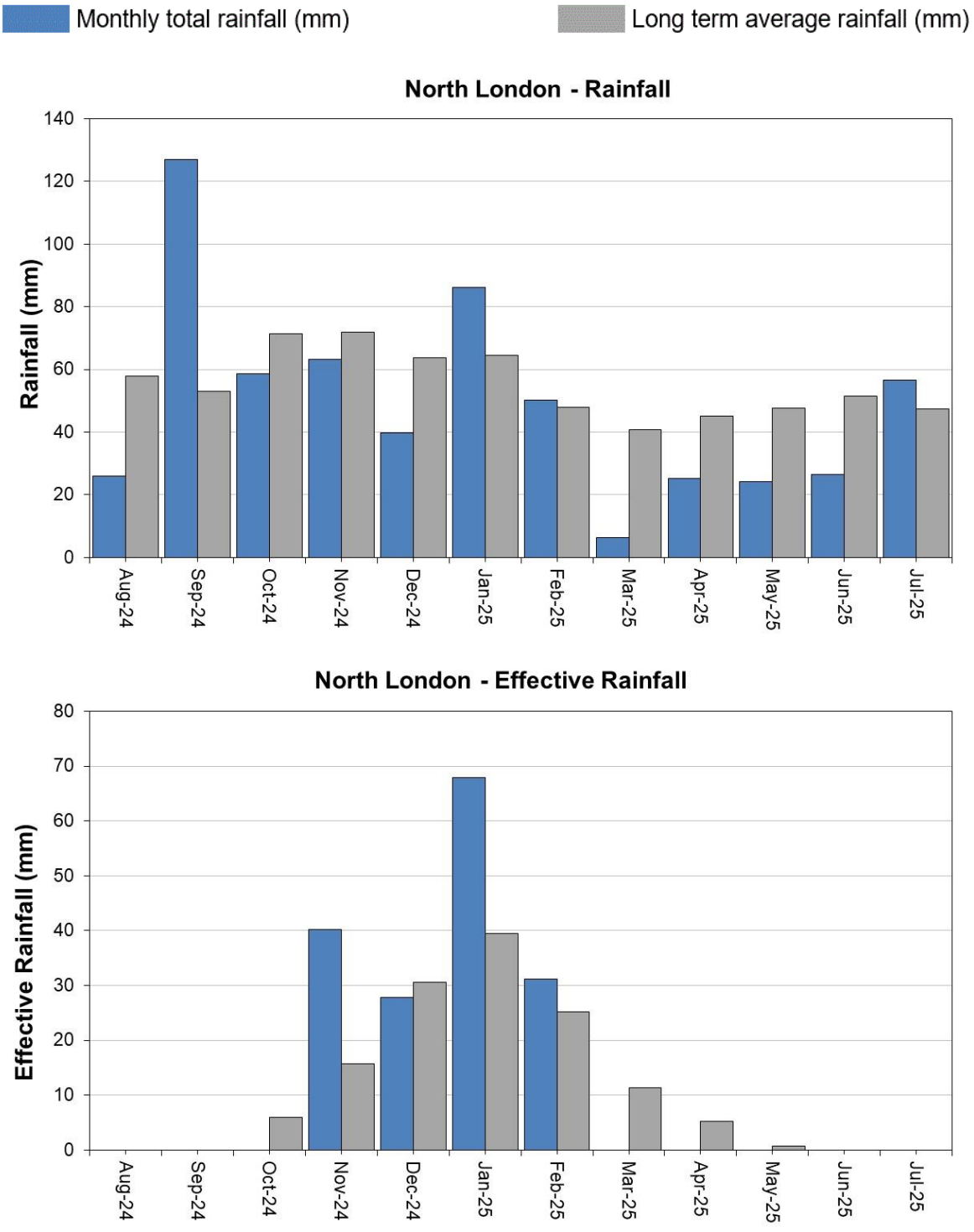


Source: Environment Agency, 2025

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.

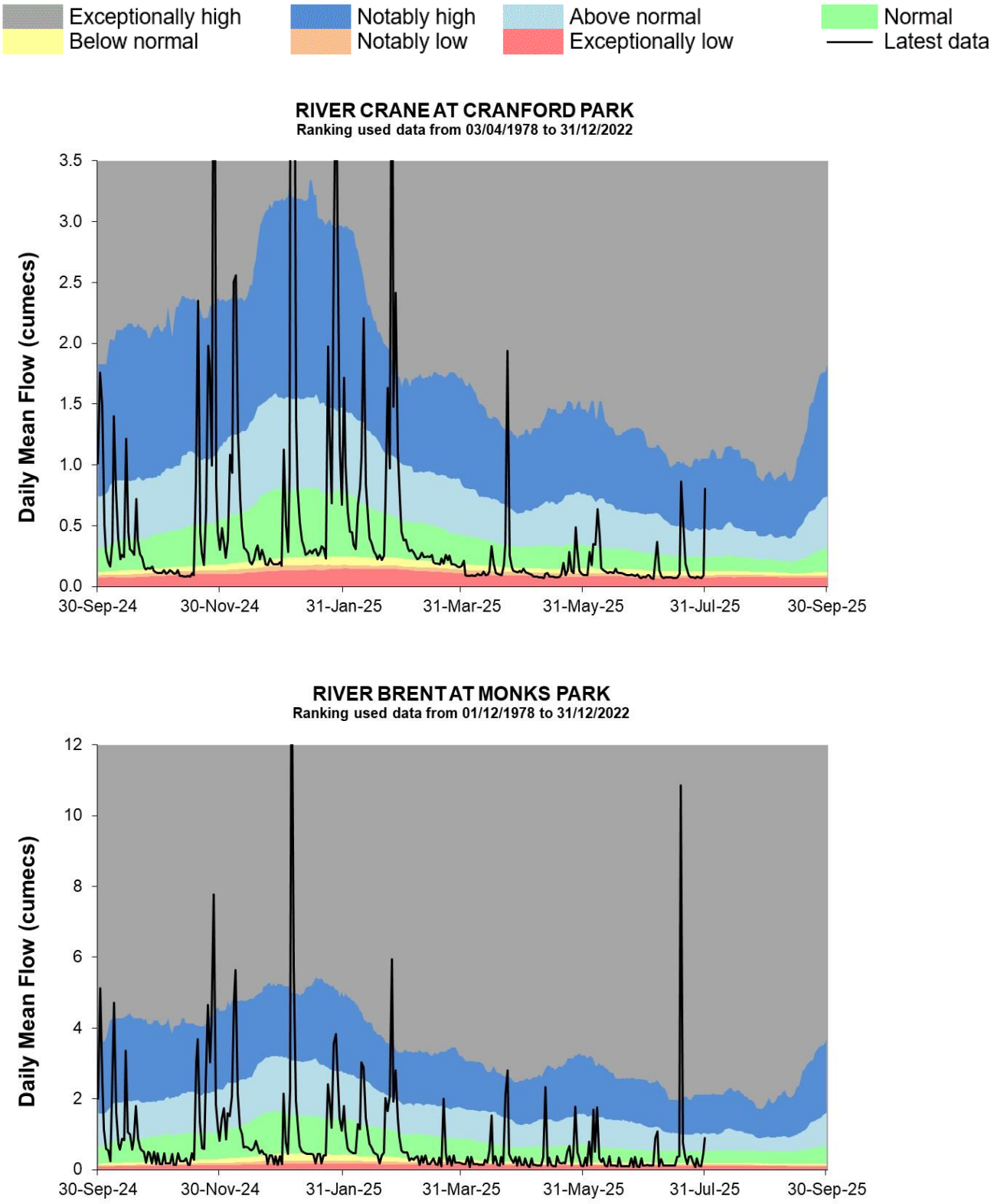


HadUK rainfall data (Source: Met Office. Crown copyright, 2025)

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.

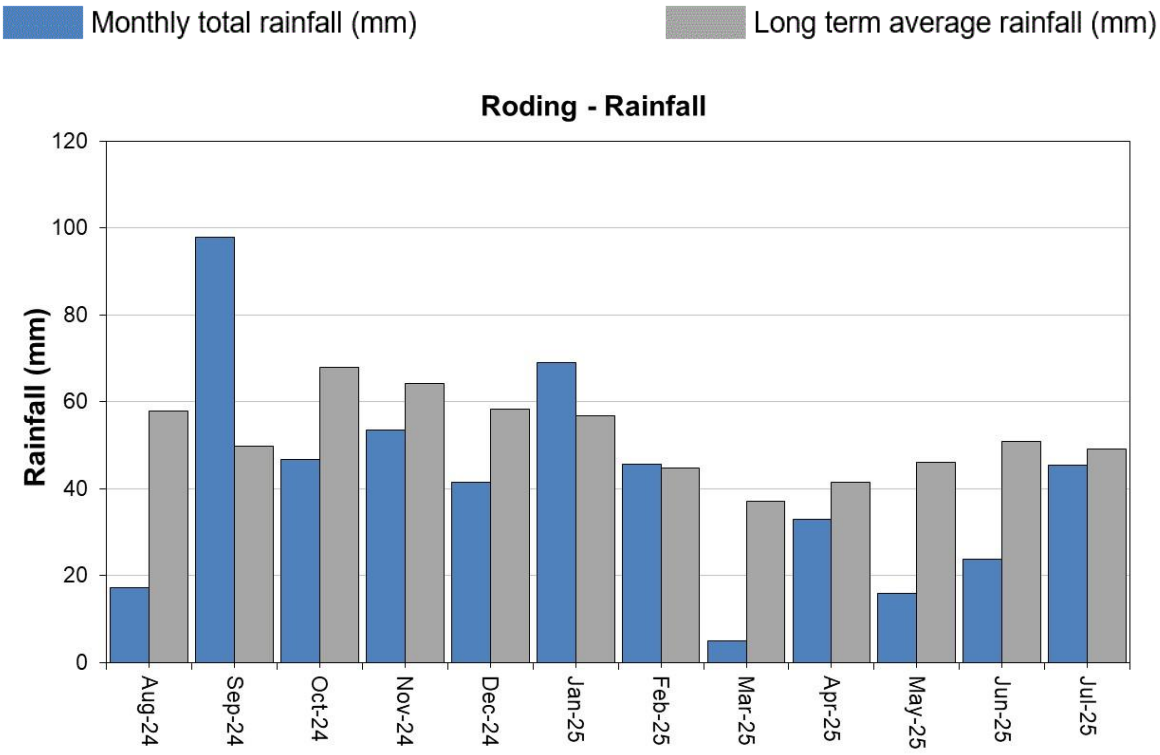


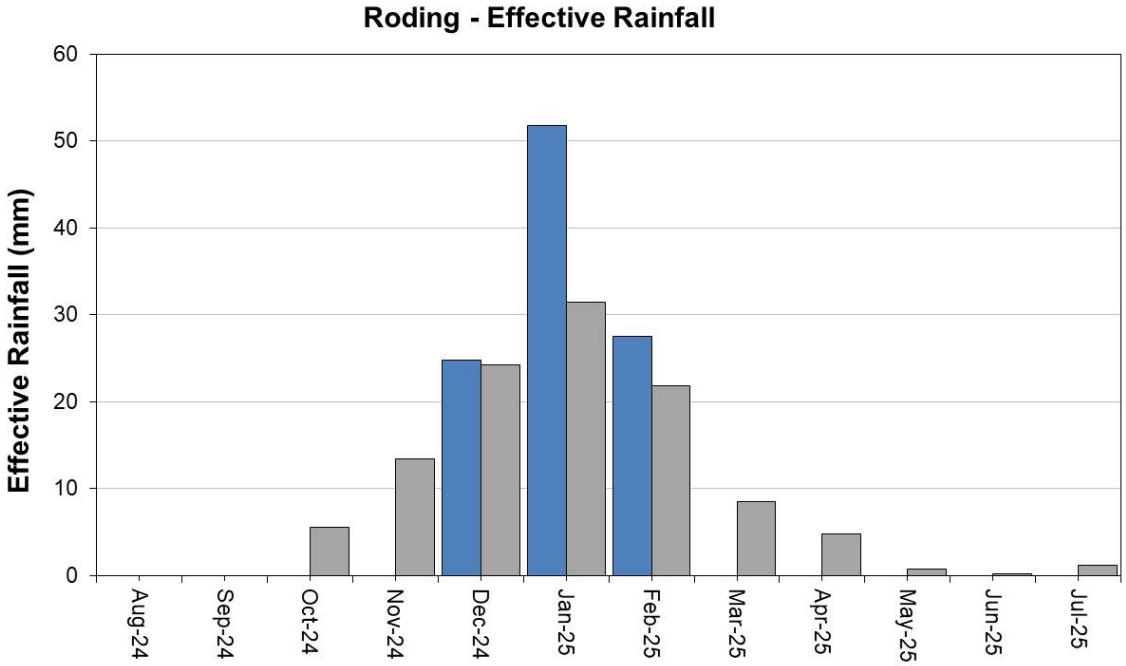
Source: Environment Agency, 2025

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.



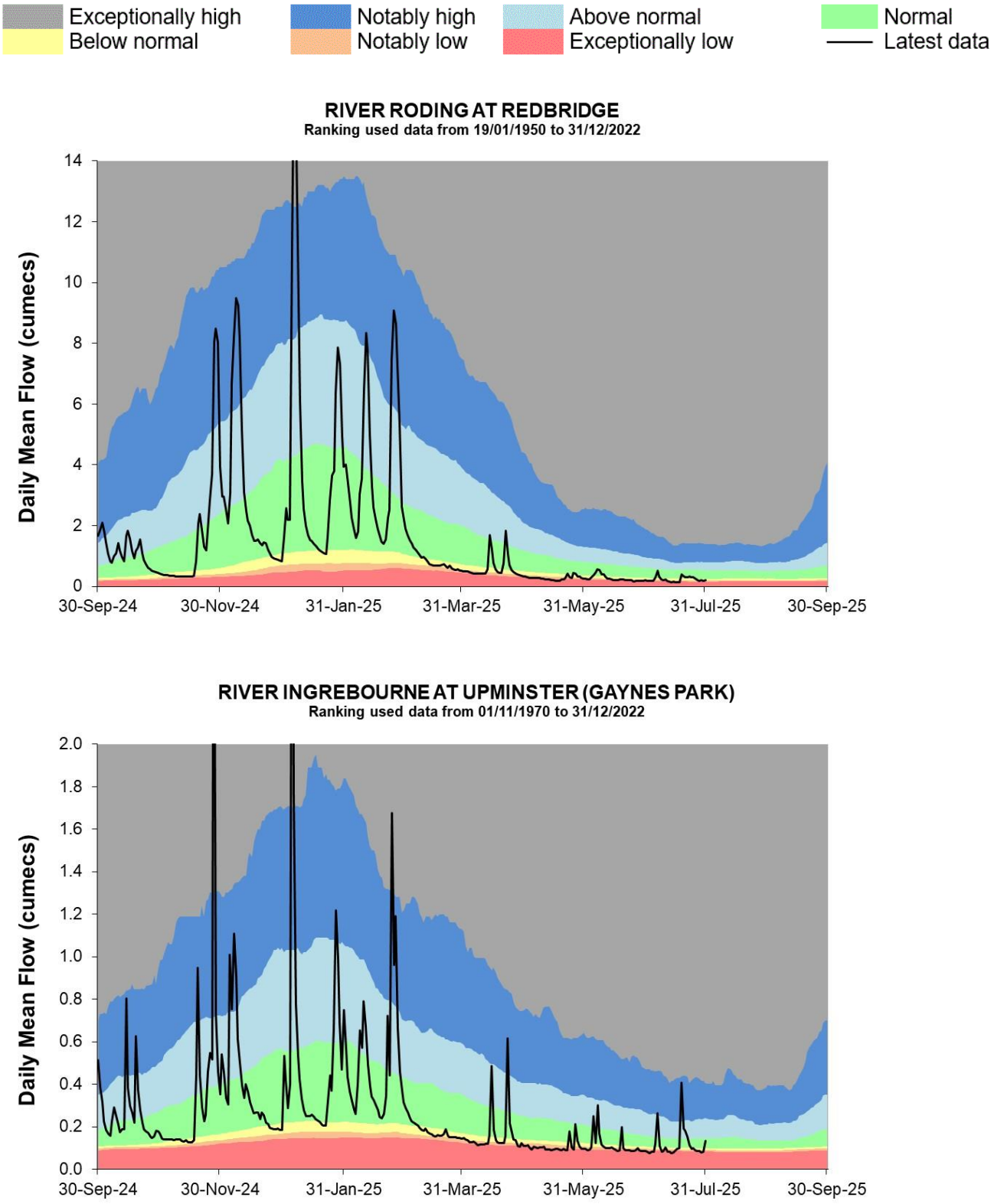


HadUK rainfall data (Source: Met Office. Crown copyright, 2025)

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

8.2 Roding River flow charts

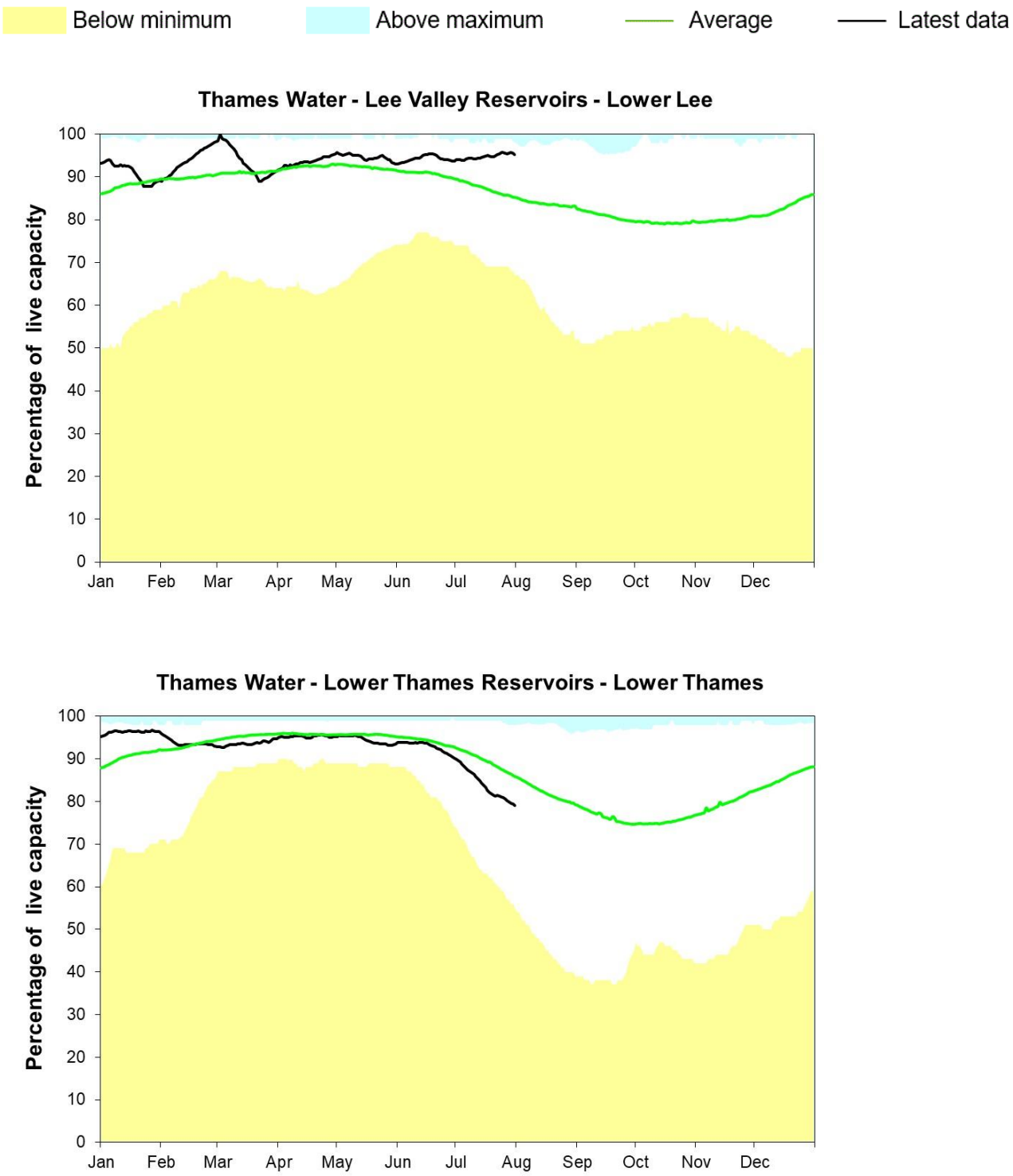
Figure 8.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



Source: Environment Agency, 2025

9 Reservoir stocks

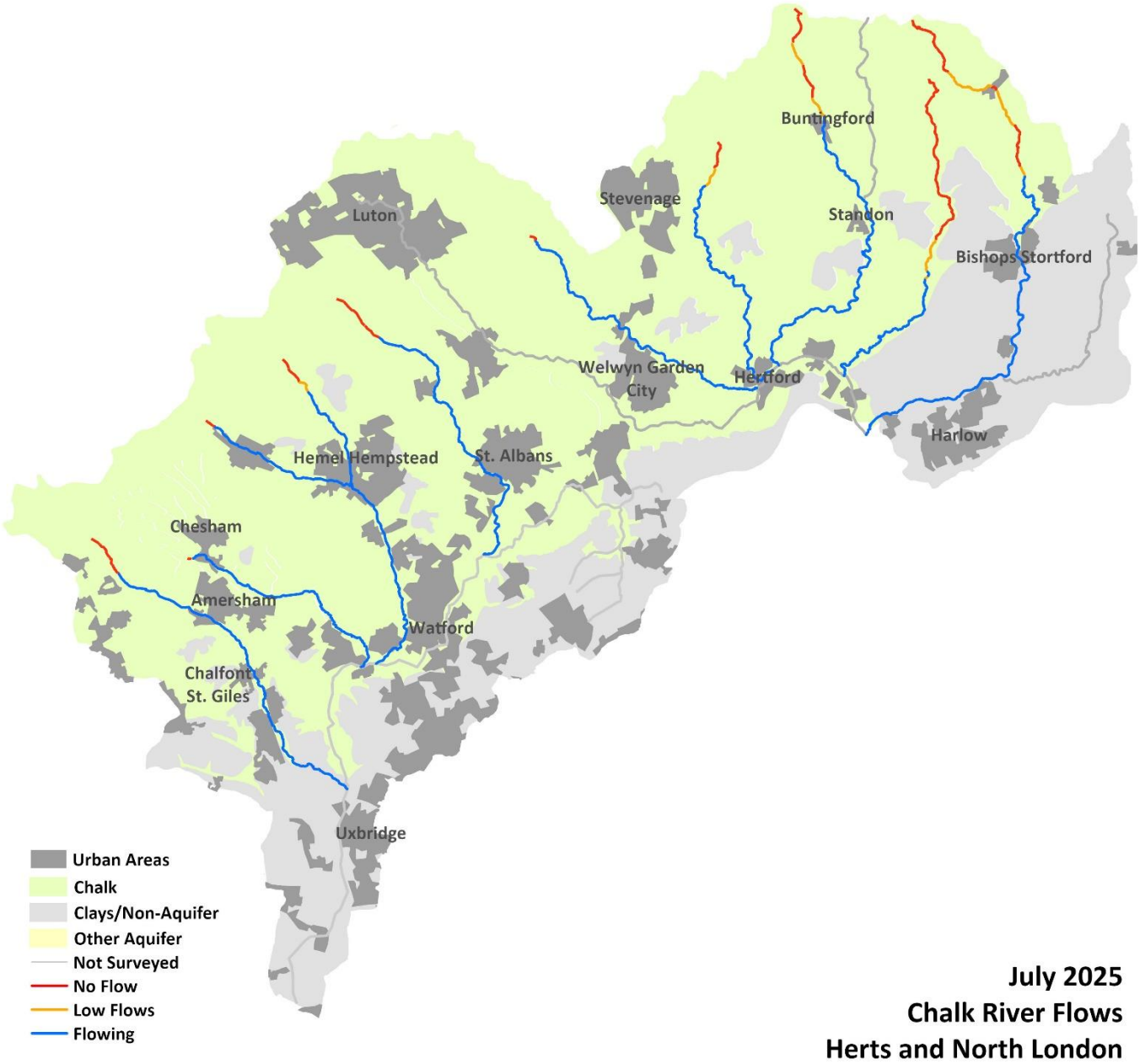
Figure 9.1: End of month reservoir stocks for the Lower Thames reservoir group and the Lee Valley reservoir group compared to long term maximum, minimum and average stocks. Note: Historic records of individual reservoirs and reservoir groups making up the regional values vary in length.



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	Jul 2025 total rainfall in mm	Jul 2025 rainfall long term average 1991 to 2020	Jul 2025 rainfall % of long term average 1991 to 2020	Summer Apr 2025 to Jul 2025 total rainfall in mm	Summer Apr 2025 to Jul 2025 rainfall % of long term average 1991 to 2020
Chilterns East Colne	51	54	96	136	63
Lee Chalk	56	51	109	130	66
Lower Lee	49	50	98	124	64
North London	57	47	119	132	69
Roding	46	49	93	118	63
Herts and North London total	52	50	103	128	65

12.2 Rainfall banding table

Hydrological area	Jul 2025 band	May 2025 to Jul 2025 cumulative band	Feb 2025 to Jul 2025 cumulative band	Aug 2024 to Jul 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	Jul 2025 total effective rainfall in mm	Jul 2025 effective rainfall long term average 1991 to 2020 in mm	Jul 2025 effective rainfall % of long term average 1991 to 2020	Summer Apr 2025 to Jul 2025 total effective rainfall in mm	Summer Apr 2025 to Jul 2025 effective rainfall % of long term average 1991 to 2020
Chilterns East Colne	4	5	89	10	36
Lee Chalk	5	4	115	10	45
Lower Lee	0	1	0	0	0
North London	0	0	0	0	0
Roding	0	1	0	0	0
Herts and North London total	2	2	82	4	28

12.4 Soil Moisture Deficit table

Hydrological area	Jul 2025 end of month Soil Moisture Deficit in mm	Jul 2025 end of month Soil Moisture Deficit long term average 1991 to 2020 in mm	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
Chilterns East Colne	152	92	134	72
Lee Chalk	154	105	138	87
Lower Lee	154	98	137	79
North London	152	101	137	81
Roding	155	99	136	81
Herts and North London total	153	99	136	80

12.5 River flows table

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

12.6 Groundwater table

Site name	Aquifer	Jul 2025 band	Jun 2025 band
Ashley Green	Mid-Chilterns Chalk	Normal	Normal
Ballingdon Farm	Mid-Chilterns Chalk	Normal	Normal
Amersham Road	Mid-Chilterns Chalk	Normal	Normal
Wapseys Wood	Mid-Chilterns Chalk	Normal	Normal
Lilley Bottom	Upper Lee Chalk	Above normal	Notably high
Crescent Cottages	Upper Lee Chalk	Above normal	Above normal
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 30 June and 6 July 2025	Number of flow constraints in force between 7 and 13 July 2025	Number of flow constraints in force between 14 and 20 July 2025	Number of flow constraints in force between 21 and 27 July 2025
7	8	11	4