Monthly water situation report: Hertfordshire and North London Area

1 Summary - March 2025

The Hertfordshire and North London area received just 6mm of rain in March (12% of the long term average), making it an exceptionally dry end to the winter period. Soil moisture deficits rose sharply across all hydrological areas. River flows varied widely, with some sites in the exceptionally low band, and River Brent at Monks Park recording its second lowest March flow on record. Groundwater levels remained high overall, with Lilley Bottom in the exceptionally high band. Chalk river source locations remained largely unchanged, and no new flood alerts or warnings were issued.

1.1 Rainfall

The Hertfordshire and North London area (the Area) received exceptionally low rainfall during March, with just 6mm of rainfall (12% of the long term average (LTA)) recorded. All five areal units recorded low rainfall totals which fell within the exceptionally low band. The wettest day of the month was 23 March, with 9mm recorded at Birch Green (west of the North London unit) and 5.6mm recorded at Rye Meads STW (north of the Lower Lee unit). With the exceptionally low rainfall, there were 24 dry days (days with less than 0.2mm of rain recorded). March marked the end of the winter period, which began in October, with the Area receiving 305mm of rain during this period, 91% of the LTA.

1.2 Soil moisture deficit and recharge

During March, soil moisture deficits (SMDs) increased significantly across the Area following an exceptionally dry month due to the low rainfall and the start to the growing season. All areal rainfall units ended the month with SMDs well above their long term averages, with the area wide SMD’s at three times the month end average. There was no effective rainfall due to the low rainfall and growing SMDs. Despite the dry end to winter, the Area received 175mm of effective rainfall during the winter period (October to March), equating to 131% of the LTA.

1.3 River flows

Monthly mean river flows varied widely across the Area, with sites ranging from exceptionally high to exceptionally low bandings. River Brent at Monks Park recorded its second lowest monthly mean flow on record (records begin in 1979), following 2021. There were no significant peaks in river flow during the month, aside from a small rise around 22–23 March observed at some sites, including Monks Park. One flood alert for the River Mimram, issued on 29 January, remained active, but no new flood alerts or warnings were issued in March.

1.4 Groundwater levels

Groundwater levels remained high during March, many sites saw a stabilisation in levels toward the end of the winter period. In the Upper Lee Chalk, three sites ended the month in the notably high band, while Lilley Bottom and Therfield Rectory in the exceptionally high band. Lilley Bottom recorded its second highest end of March level on record (records begin in 1979, highest in 1994). In the Mid-Chilterns Chalk, three sites were in the above normal band, while Ashley Green remained in the normal band. Two groundwater flood alerts issued on 19 December remained active during March: one for Flamstead (Mid-Chilterns Chalk/River Ver catchment), and one for Kimpton and Lilley Bottom (Lee Chalk/River Mimram catchment). No new groundwater flood alerts or warnings were issued.

1.5 Reservoir stocks

In the Lee Valley group, reservoir levels decreased from 99% to 91% of live capacity, ending March just at the average level. Reservoir stocks in the Lower Thames group started March at 93% of live capacity and ended the month at 95%, which was slightly below the average level.

1.6 Environmental impact

In the Colne catchment, the locations of chalk river sources showed little to no change since February.

- The River Ver started flowing close to Kensworth Lynch.
- The River Gade started flowing at Hudnall Corner.
- The River Bulbourne was flowing upstream of Dudswell village.
- The source of the River Chess reamined upstream of Chesham.
- The River Misbourne flowed continuously from Mobwell pond, above Great Missenden.

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

- The River Mimram started flowing above Whitwell Gas Compound.
- The River Beane started flowing above Cromer.
- The River Rib was flowing intermittently from Reed End, before gaining a steadier flow upstream of Buntingford.
- The River Ash (Herts) was flowing intermittently from Meesden, before gaining a steadier flow at Little Hadham.
- The River Stort was still flowing from its source above Langley Lower Green.

To protect the environment, during March a number of abstraction licence flow constraints were in force. This ranged between 6 and 14 per week, out of a March maximum of 51.

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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 March 2025), classed relative to an analysis of respective historic totals. Table available in the appendices with detailed information.

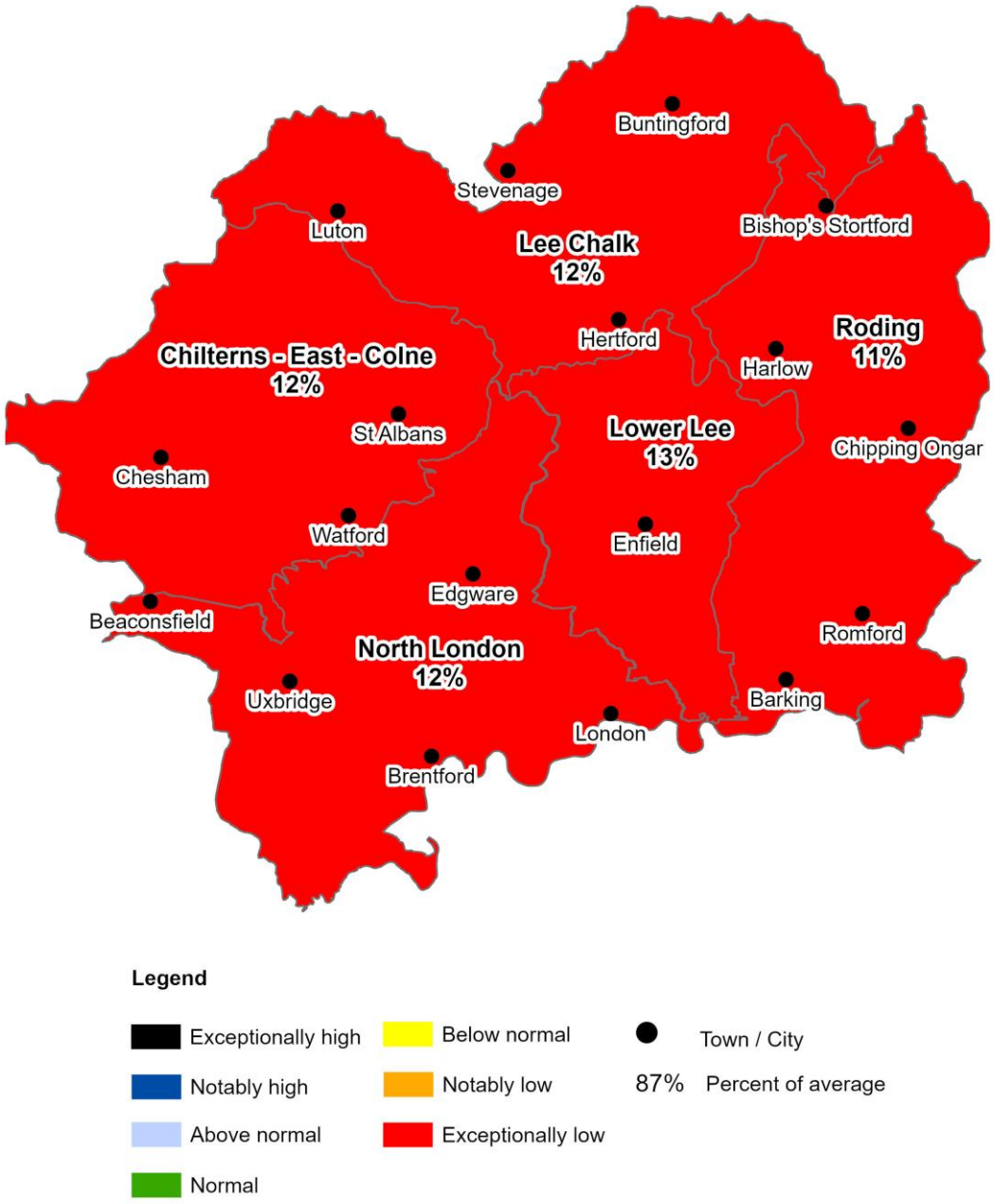
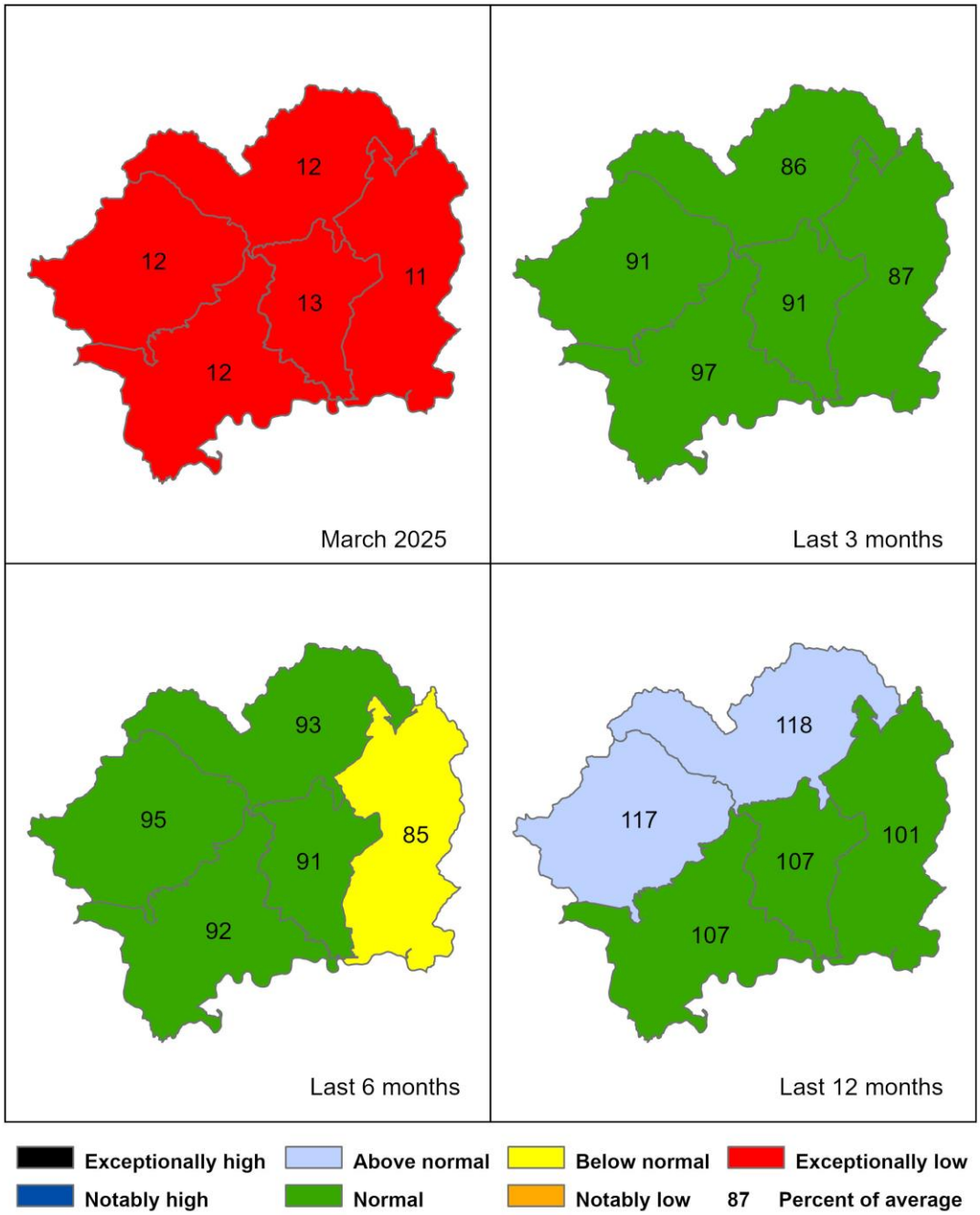


Figure 2.2: Total rainfall for hydrological areas for the current month (up to 31 March 2025), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. Table available in the appendices with detailed information.

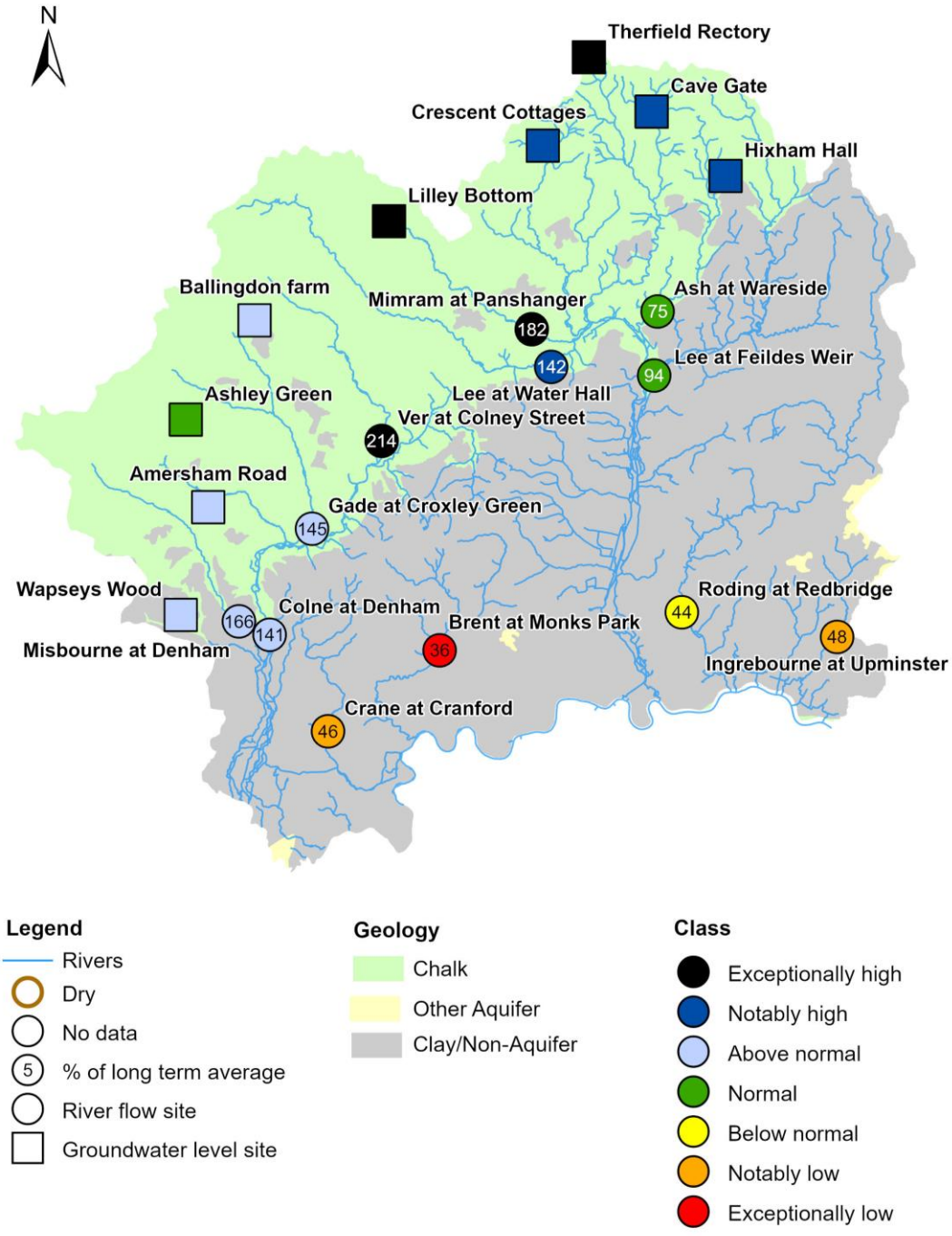


HadUK data based on the Met Office 1km gridded rainfall dataset derived from rain gauges (Source: Met Office. Crown copyright, 2025). Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Crown copyright. All rights reserved.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

3 River flows and Groundwater levels

3.1 River flows and Groundwater level map

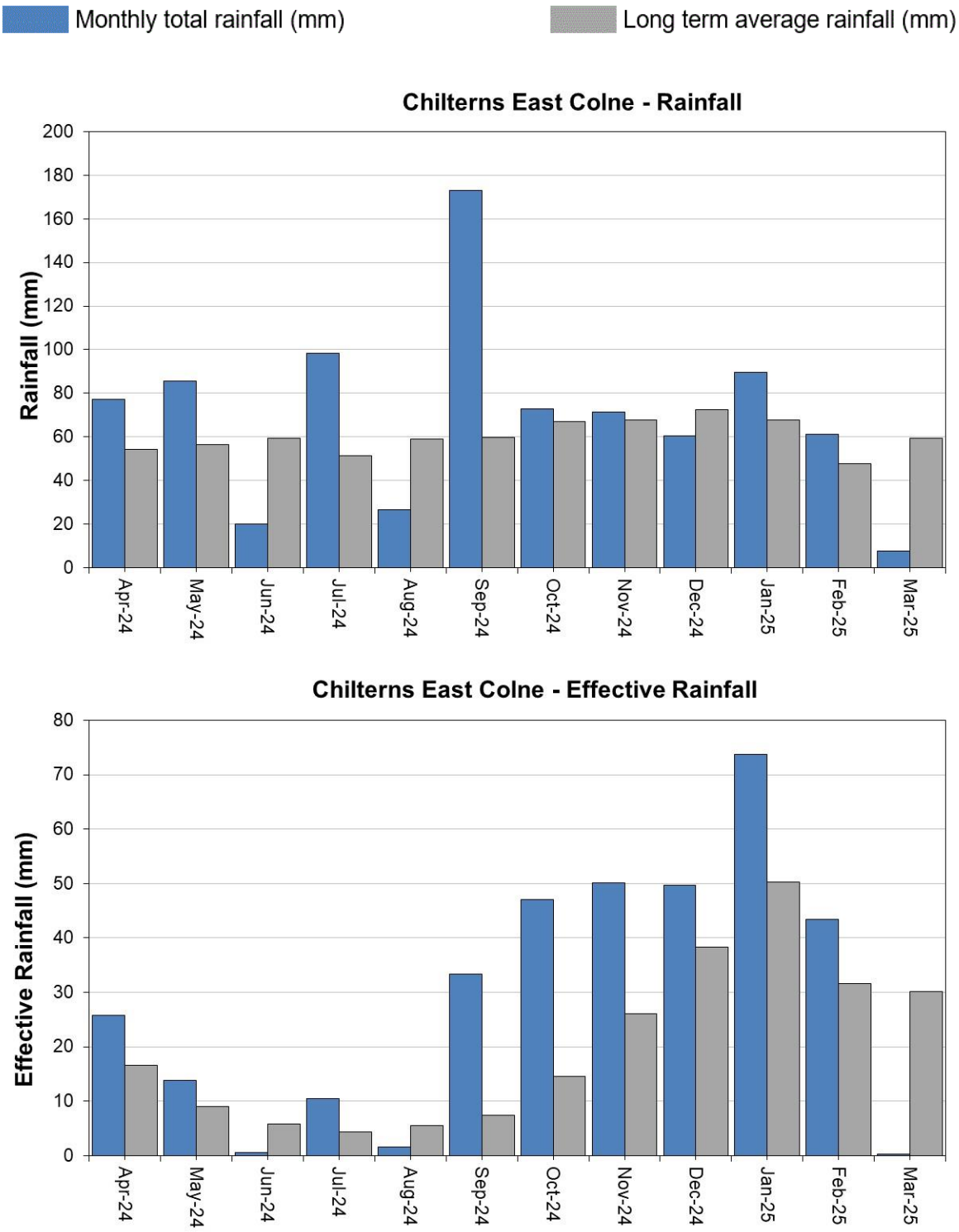
Figure 3.1: Monthly mean river flow and groundwater levels at our indicator sites for March 2025, expressed as a percentage of the respective long term average and classed relative to an analysis of historic March monthly means. Table available in the appendices with detailed information.



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 1961 to 1990 long term average for the Colne.

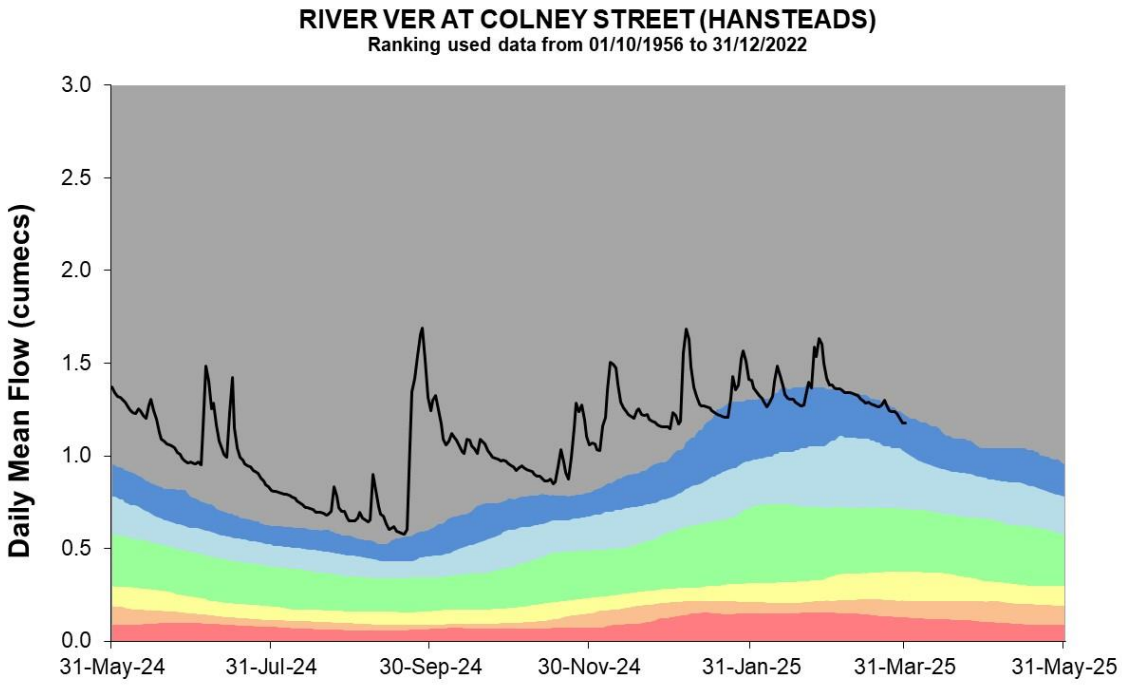


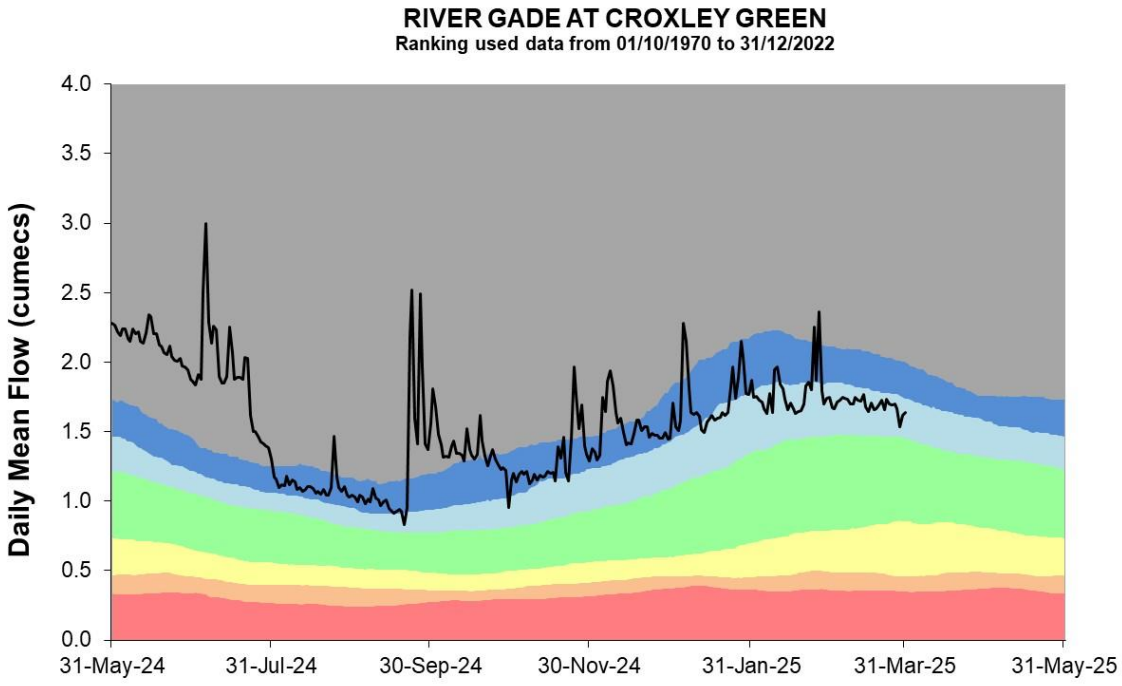
HadUK rainfall data (Source: Met Office. Crown copyright, 2025)

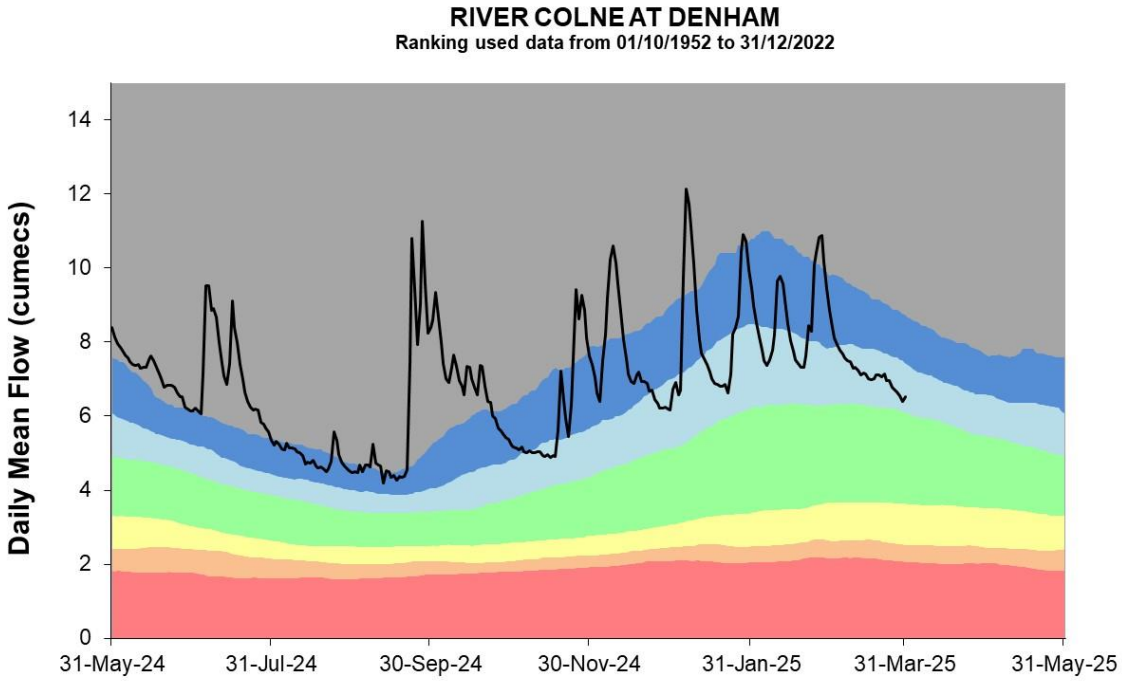
EA Soil Moisture Model effective rainfall data (Source: Environment Agency, 2025)

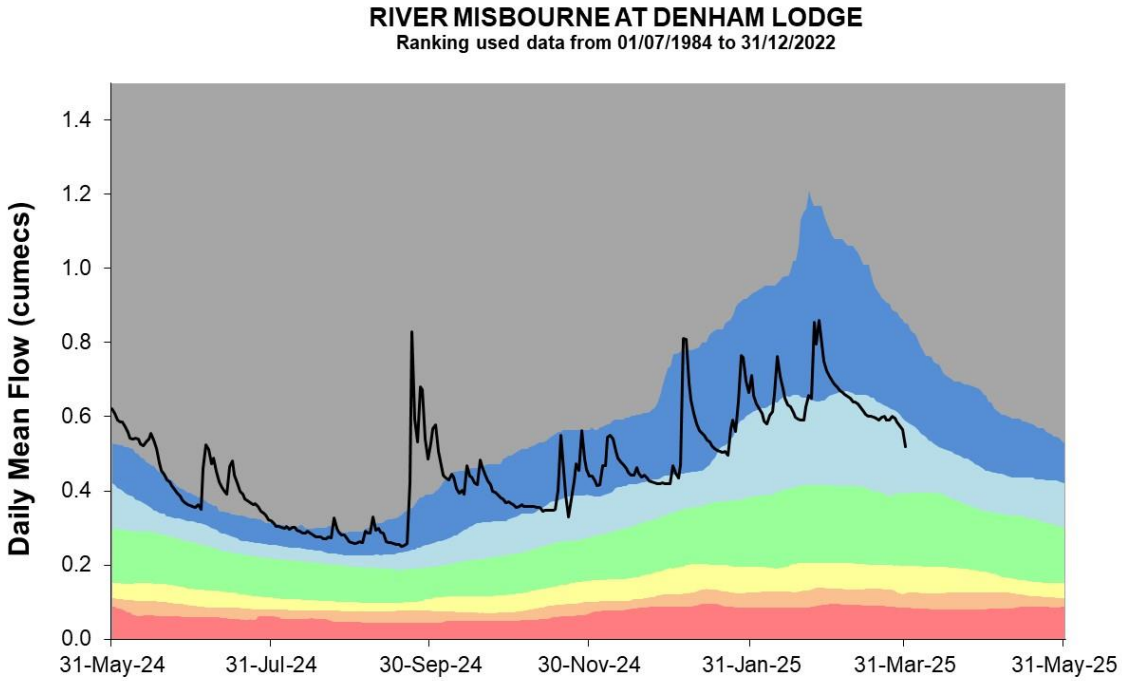
4.2 Colne River flow charts

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.





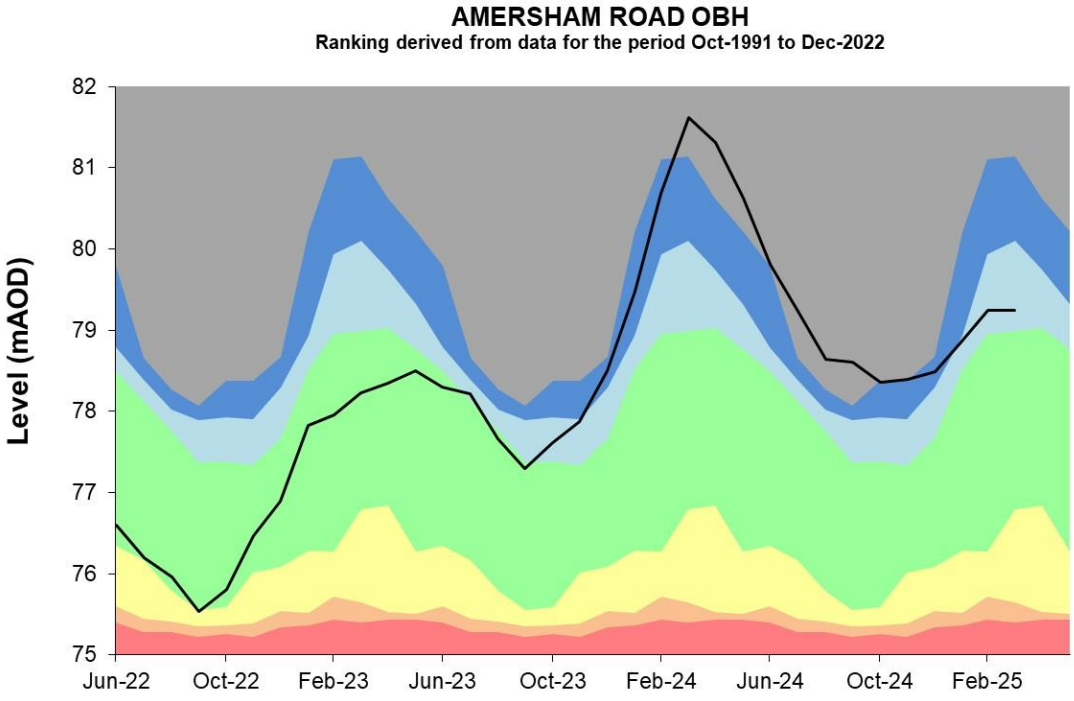


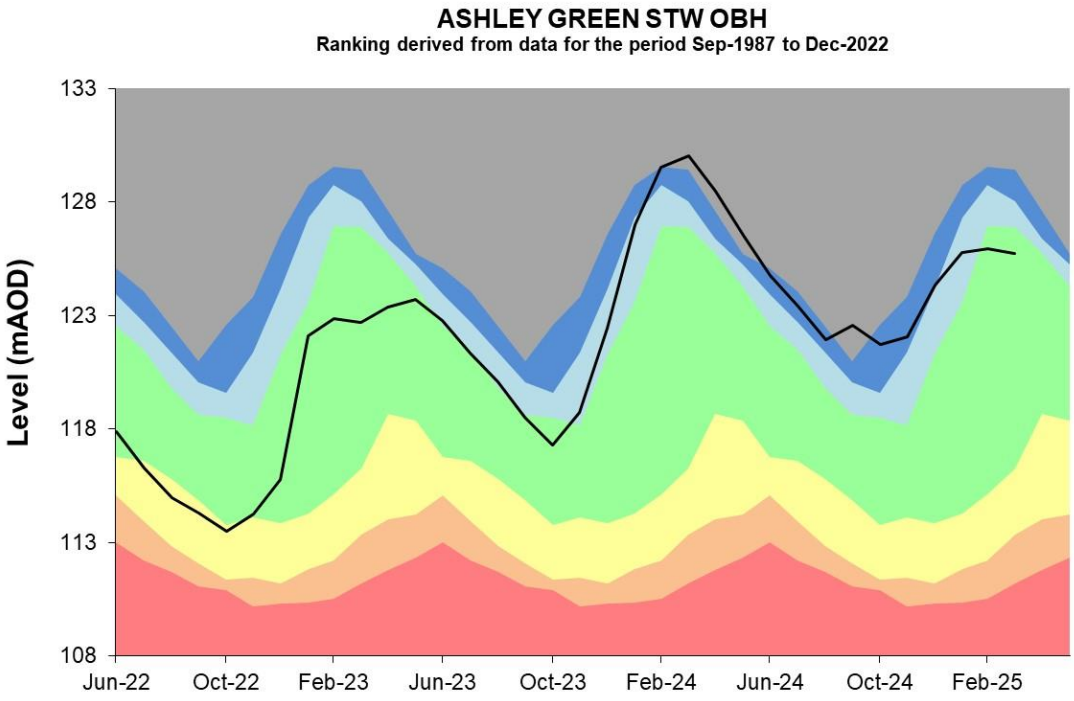


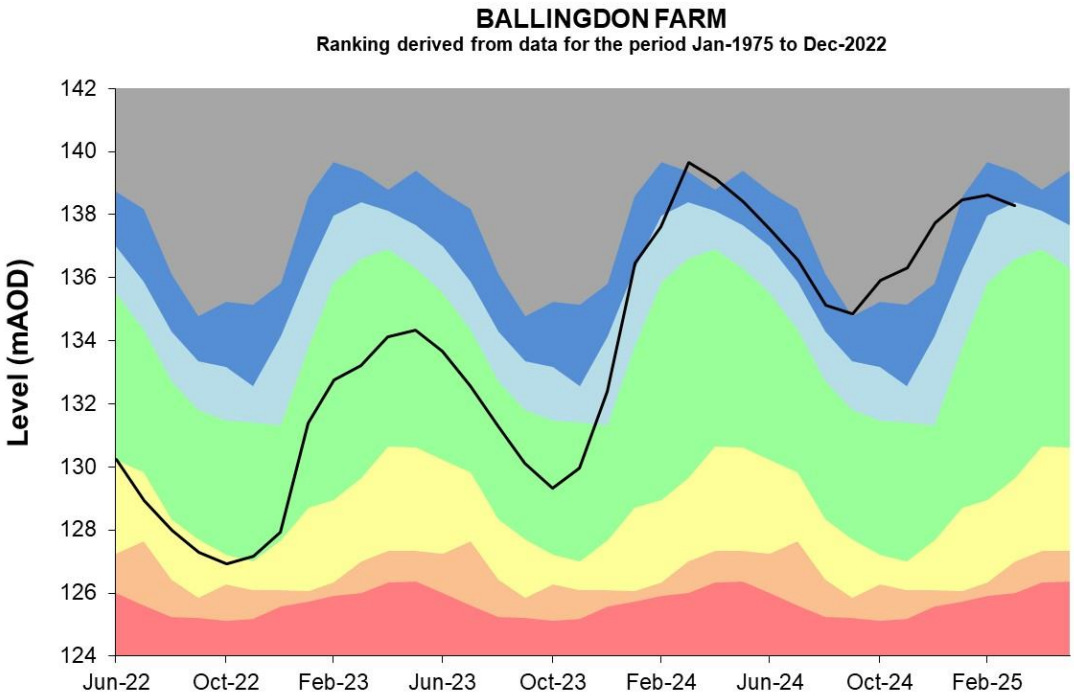
Source: Environment Agency, 2025

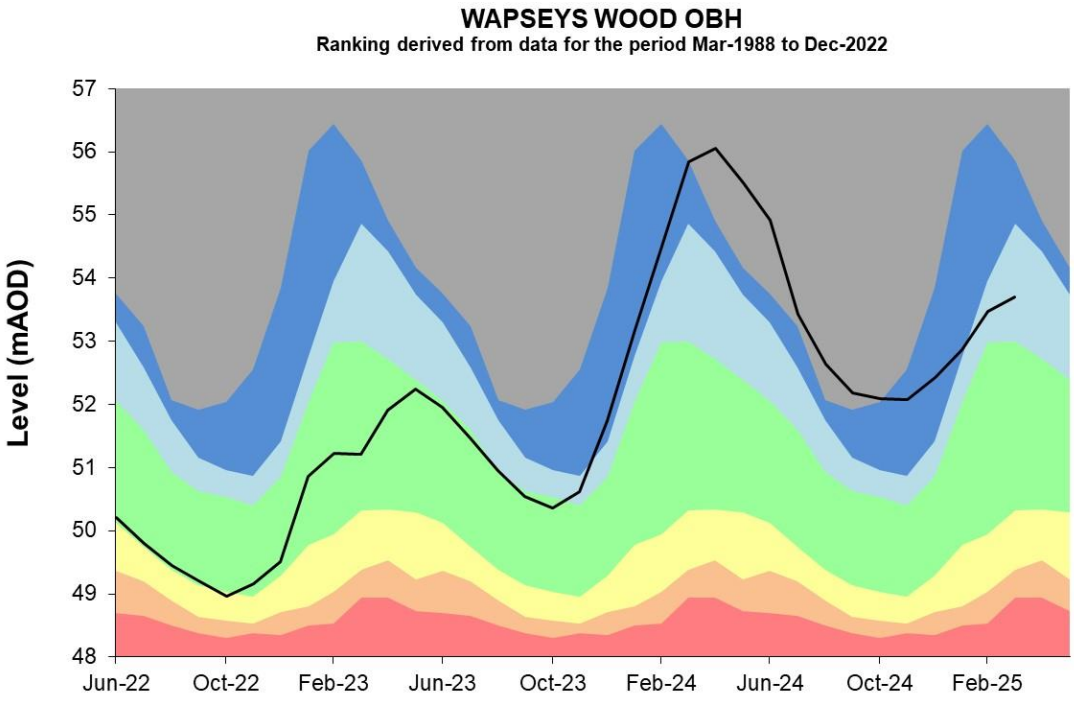
4.3 Colne Groundwater level charts

Figure 4.3: End of month groundwater levels at index groundwater level sites for major aquifers. 12 months compared to an analysis of historic end of month levels and long term maximum and minimum levels.







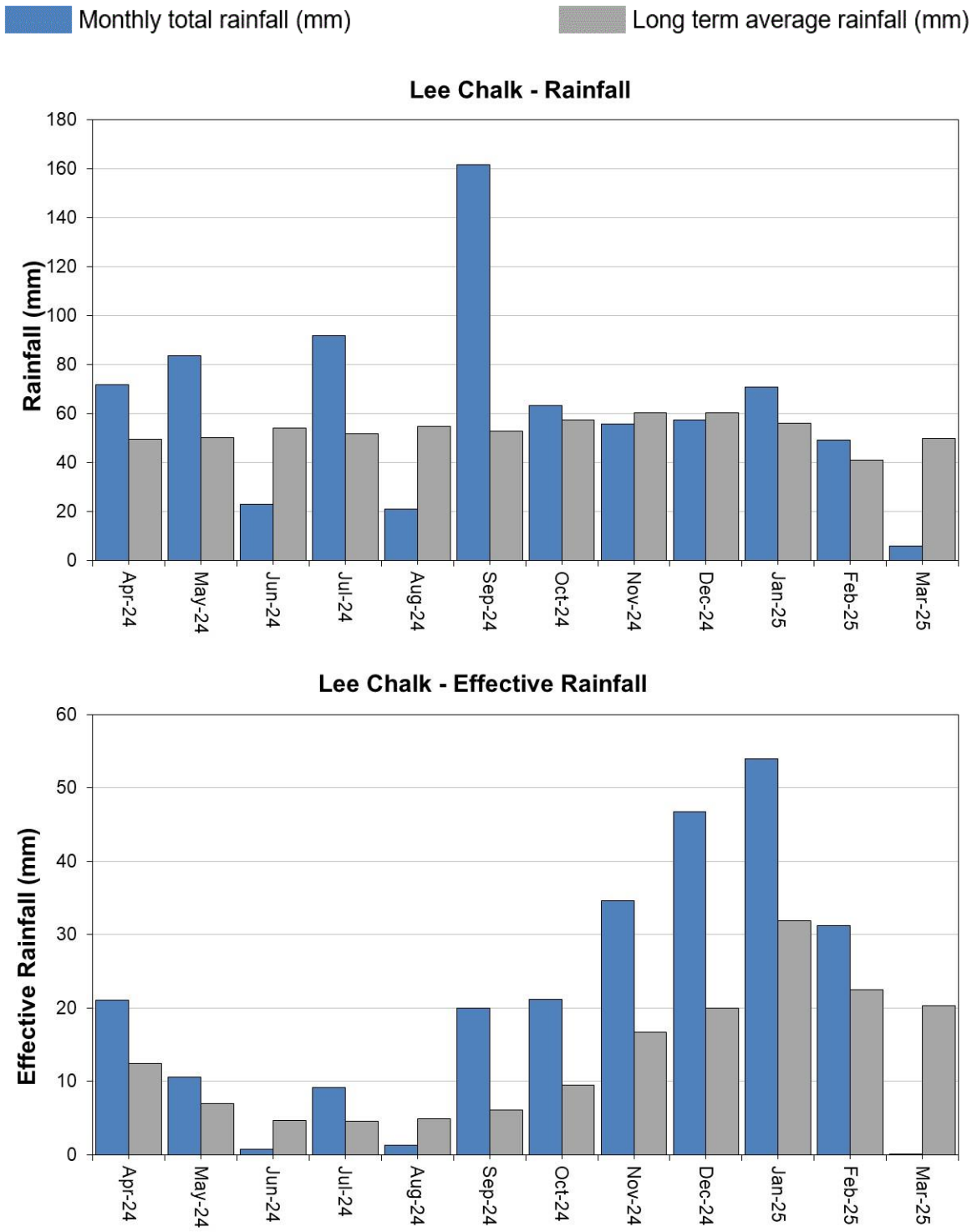


Source: Environment Agency, 2025

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 1961 to 1990 long term average for each region and for England.

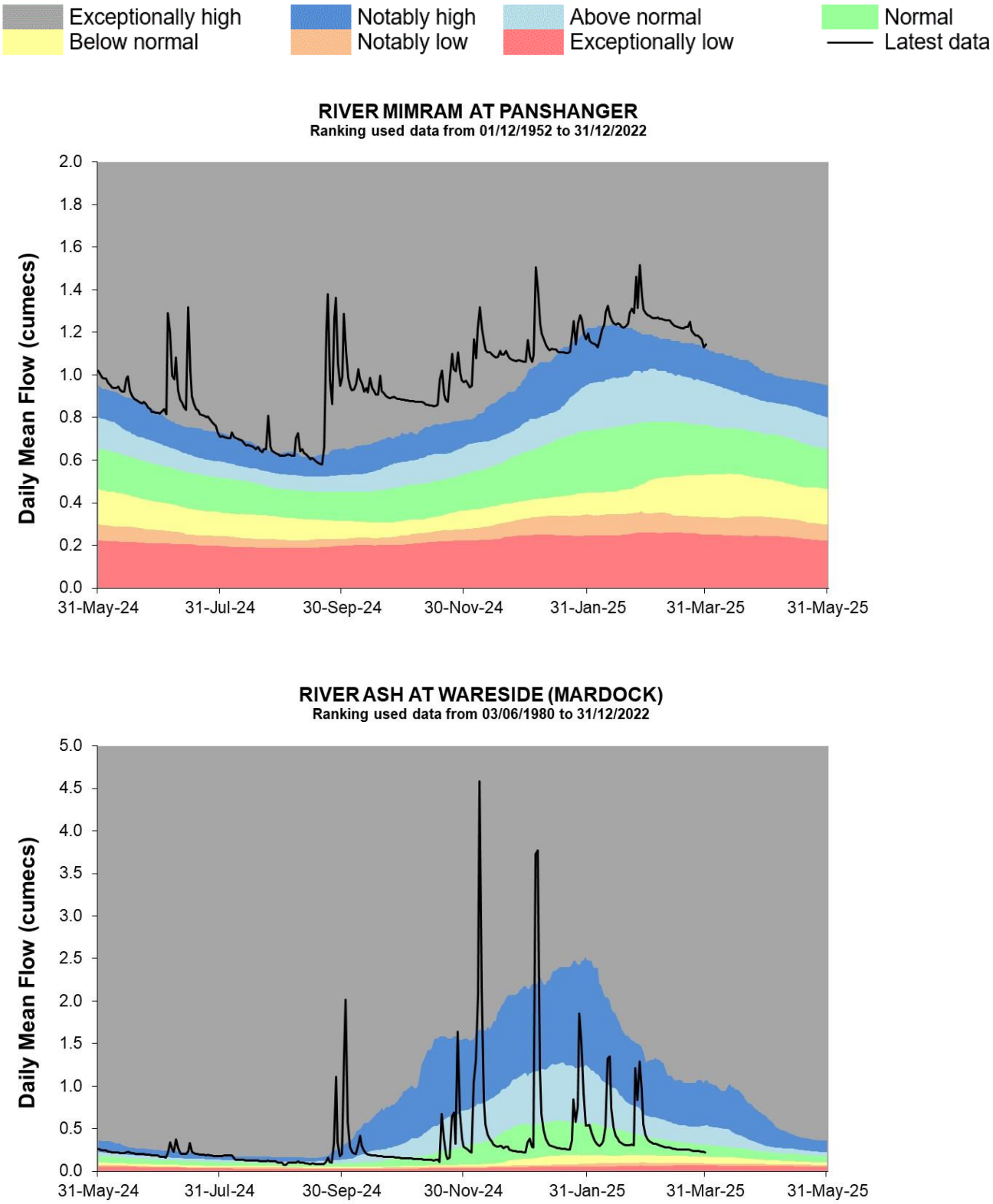


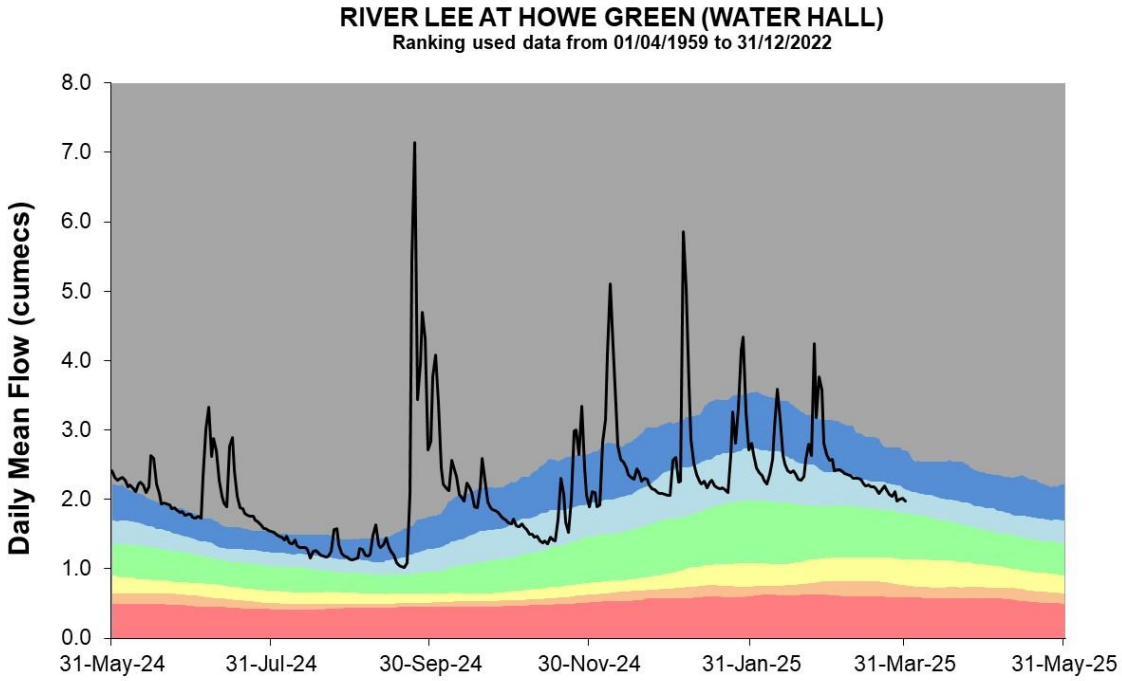
HadUK rainfall data (Source: Met Office. Crown copyright, 2025)

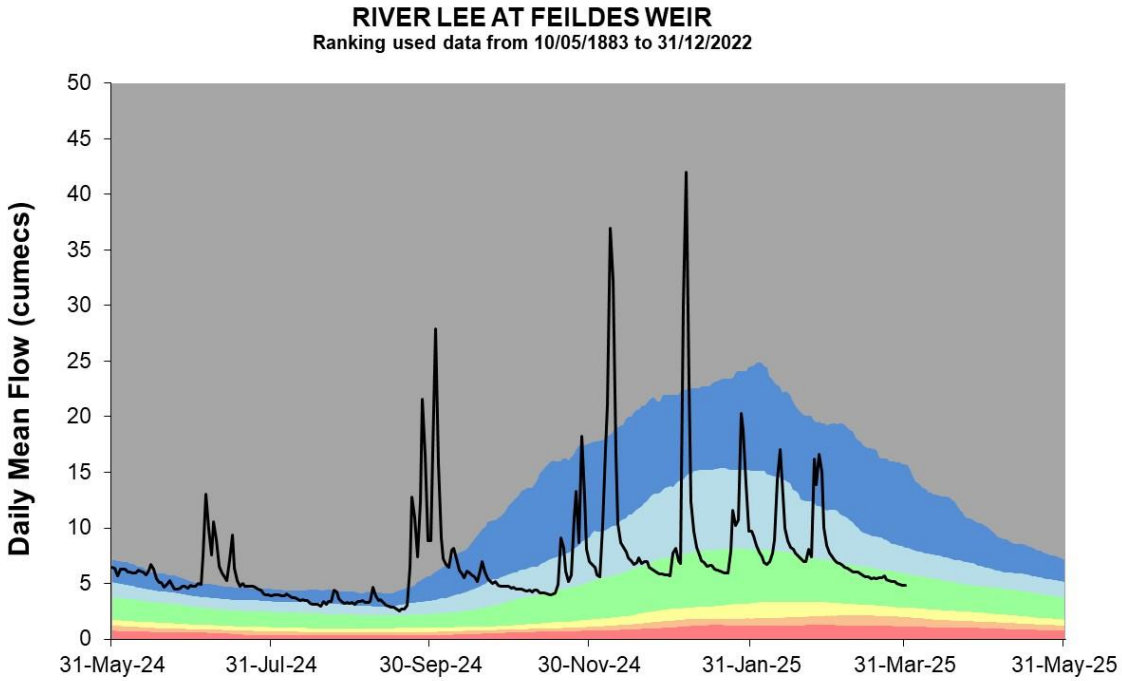
EA Soil Moisture Model effective rainfall data (Source: Environment Agency, 2025)

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.



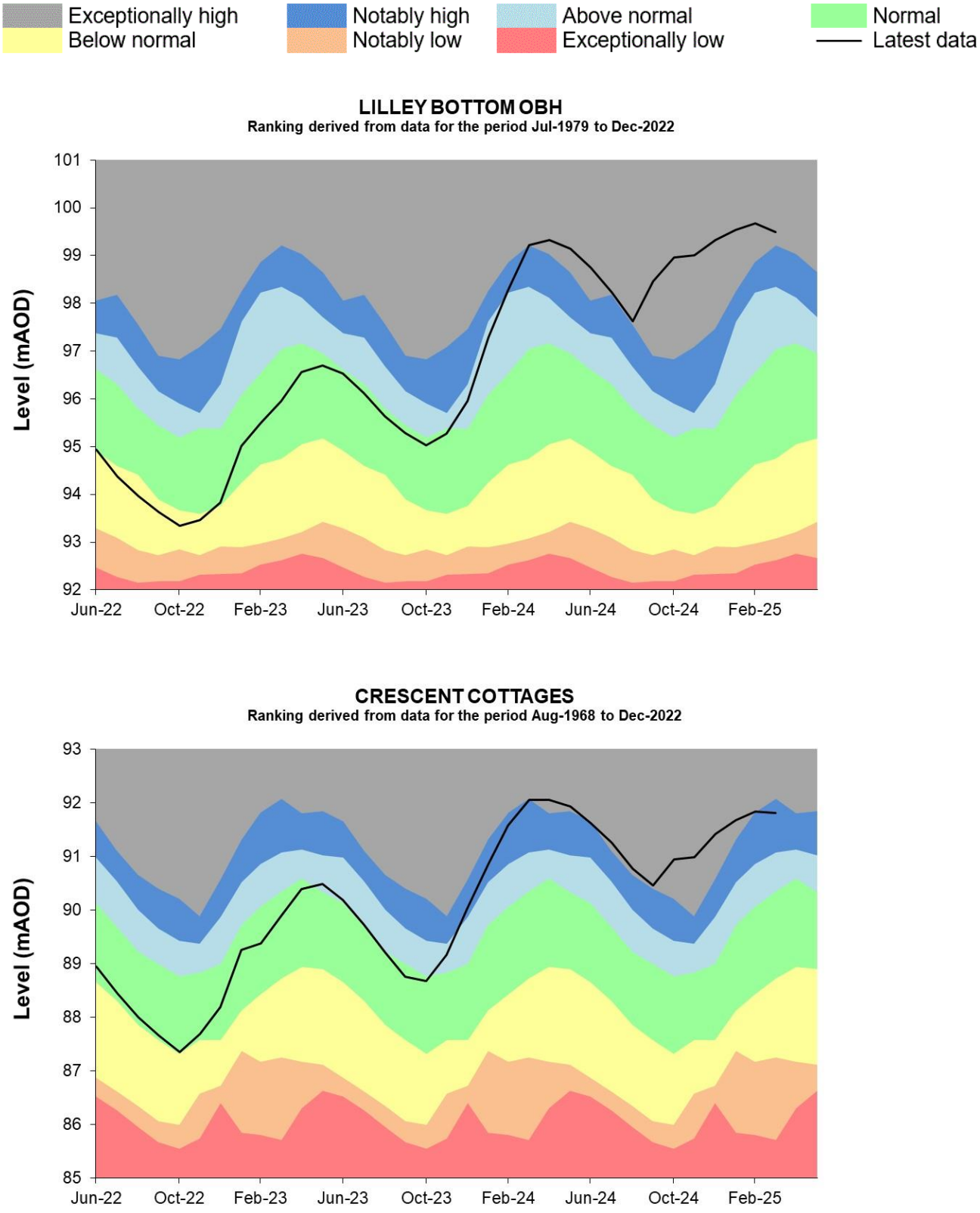




Source: Environment Agency, 2025

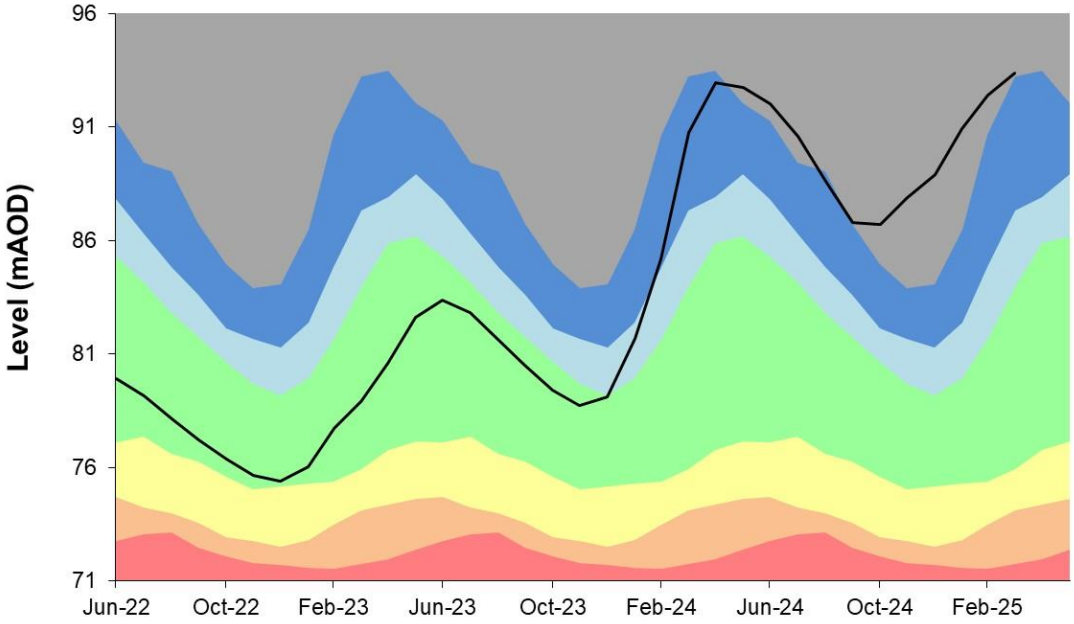
5.3 Upper Lee Groundwater level charts

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.



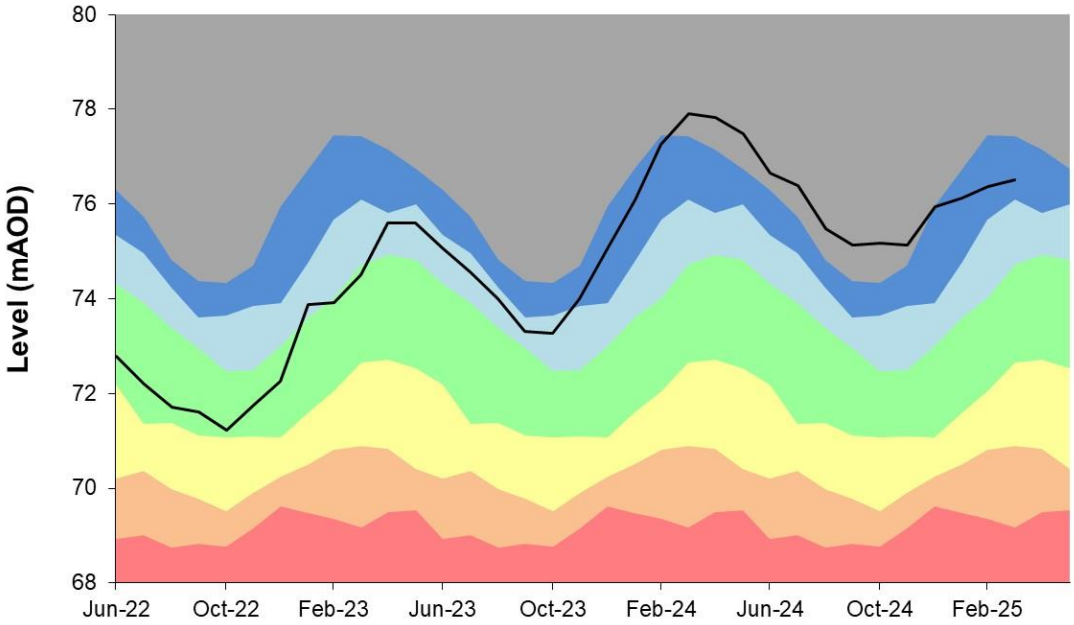
THERFIELD RECTORY

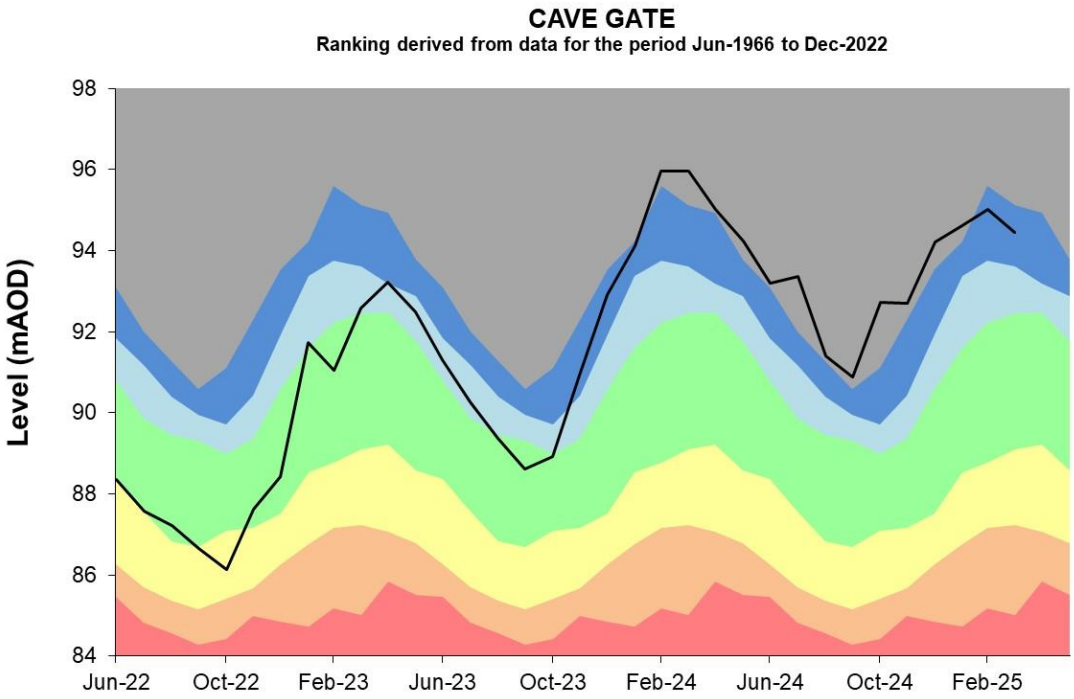
Ranking derived from data for the period Jan-1883 to Dec-2022



HIXHAM HALL

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



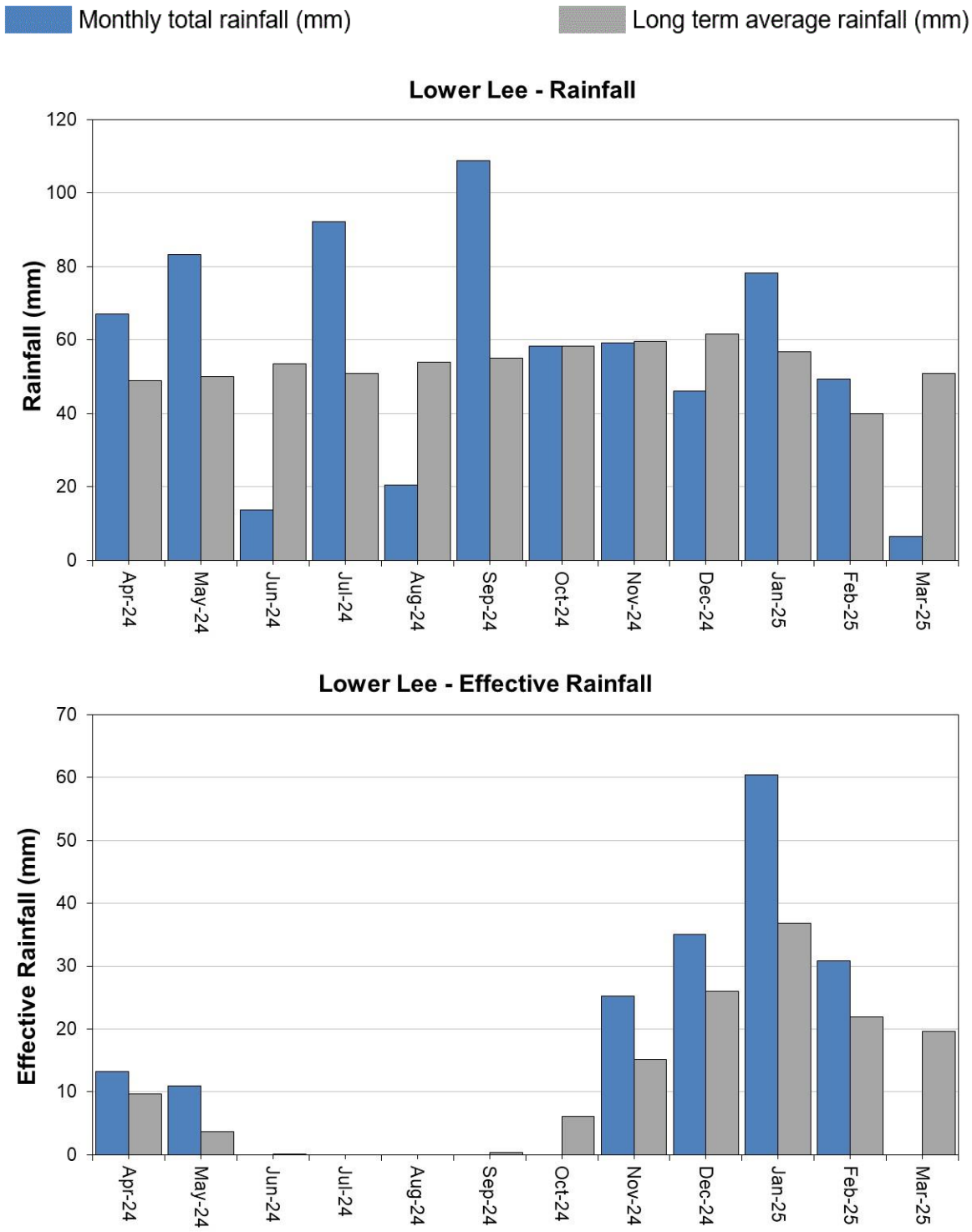


Source: Environment Agency, 2025

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 1961 to 1990 long term average for the Lower Lee.

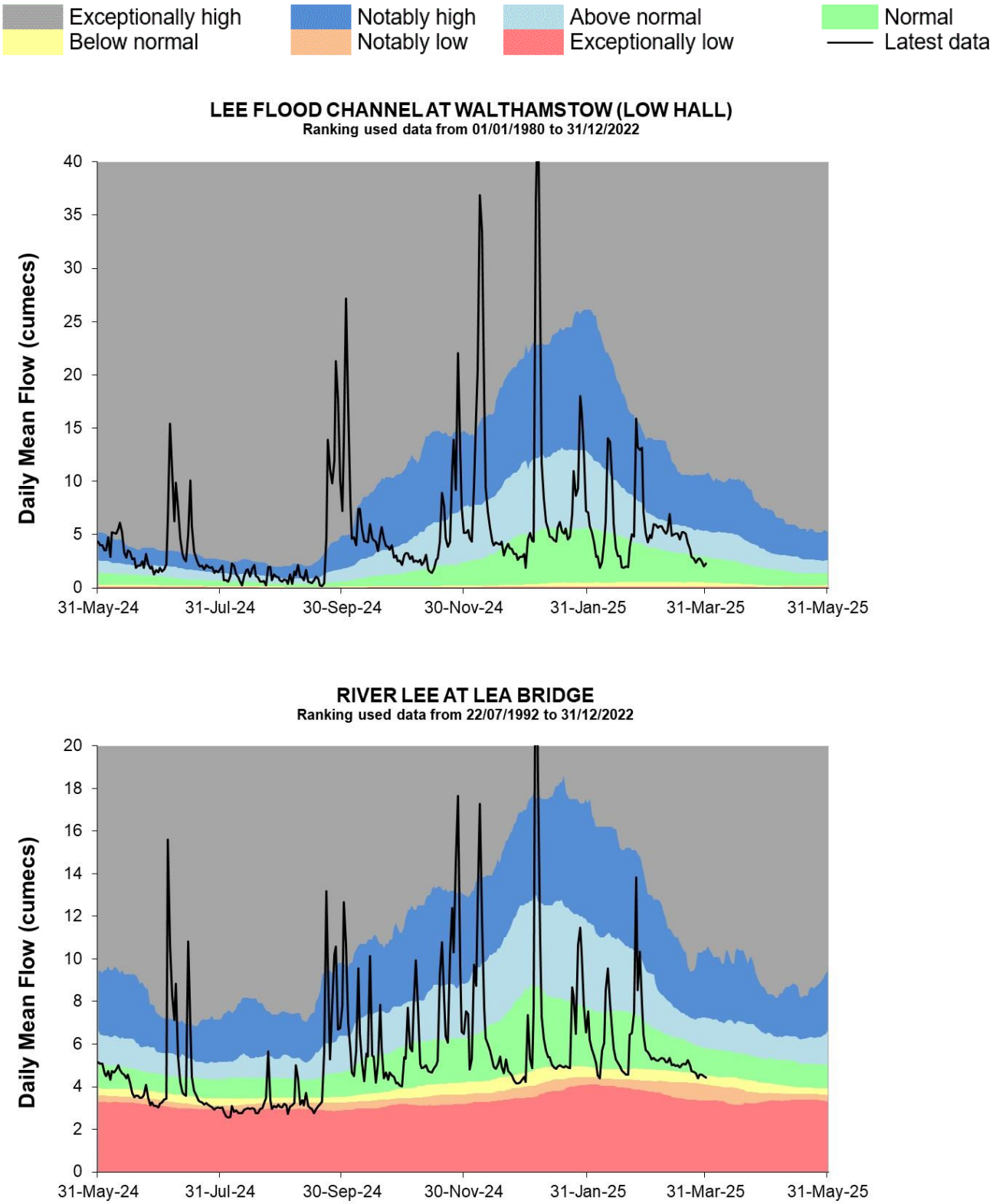


HadUK rainfall data (Source: Met Office. Crown copyright, 2025)

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.

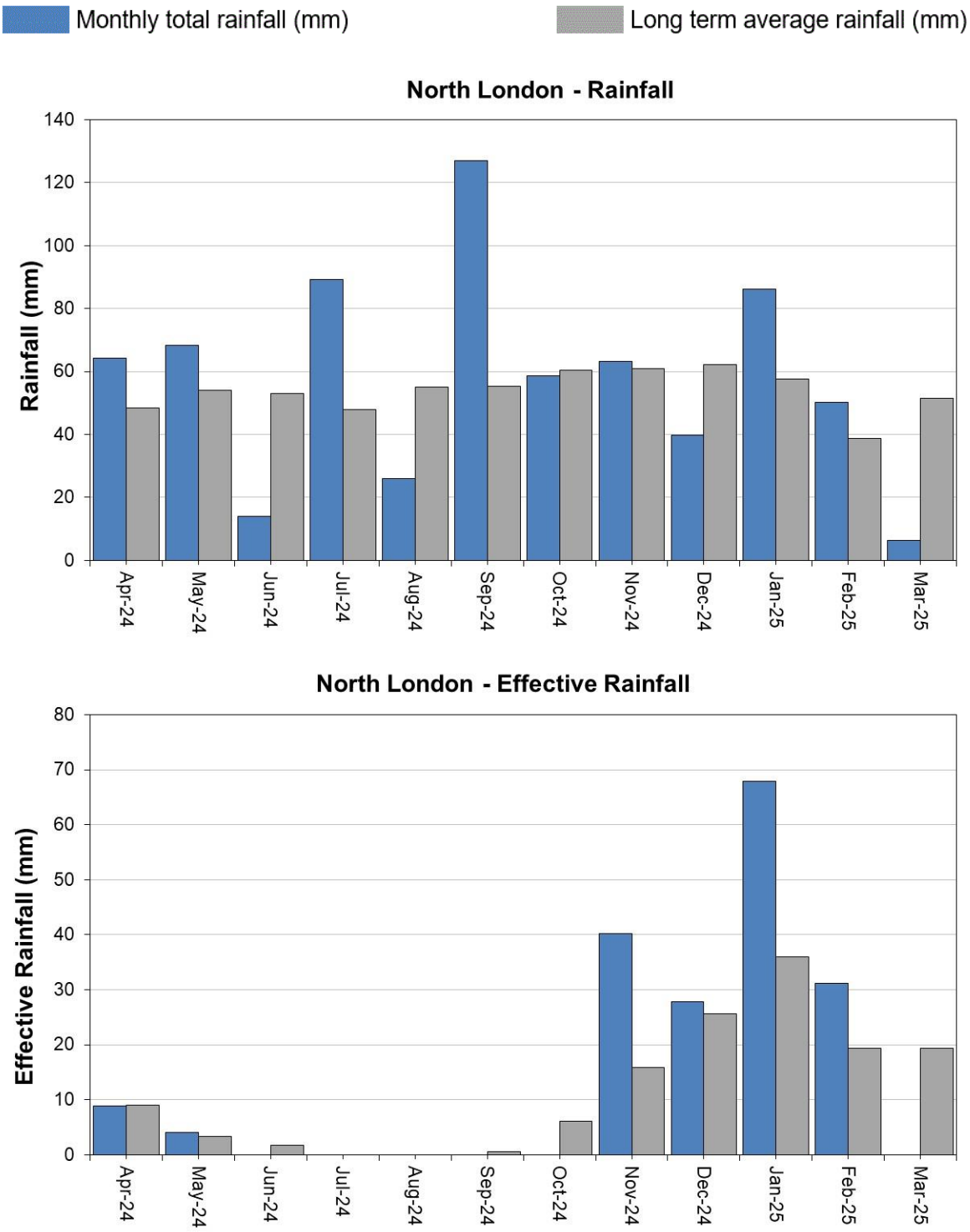


Source: Environment Agency, 2025

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 1961 to 1990 long term average for each region and for England.

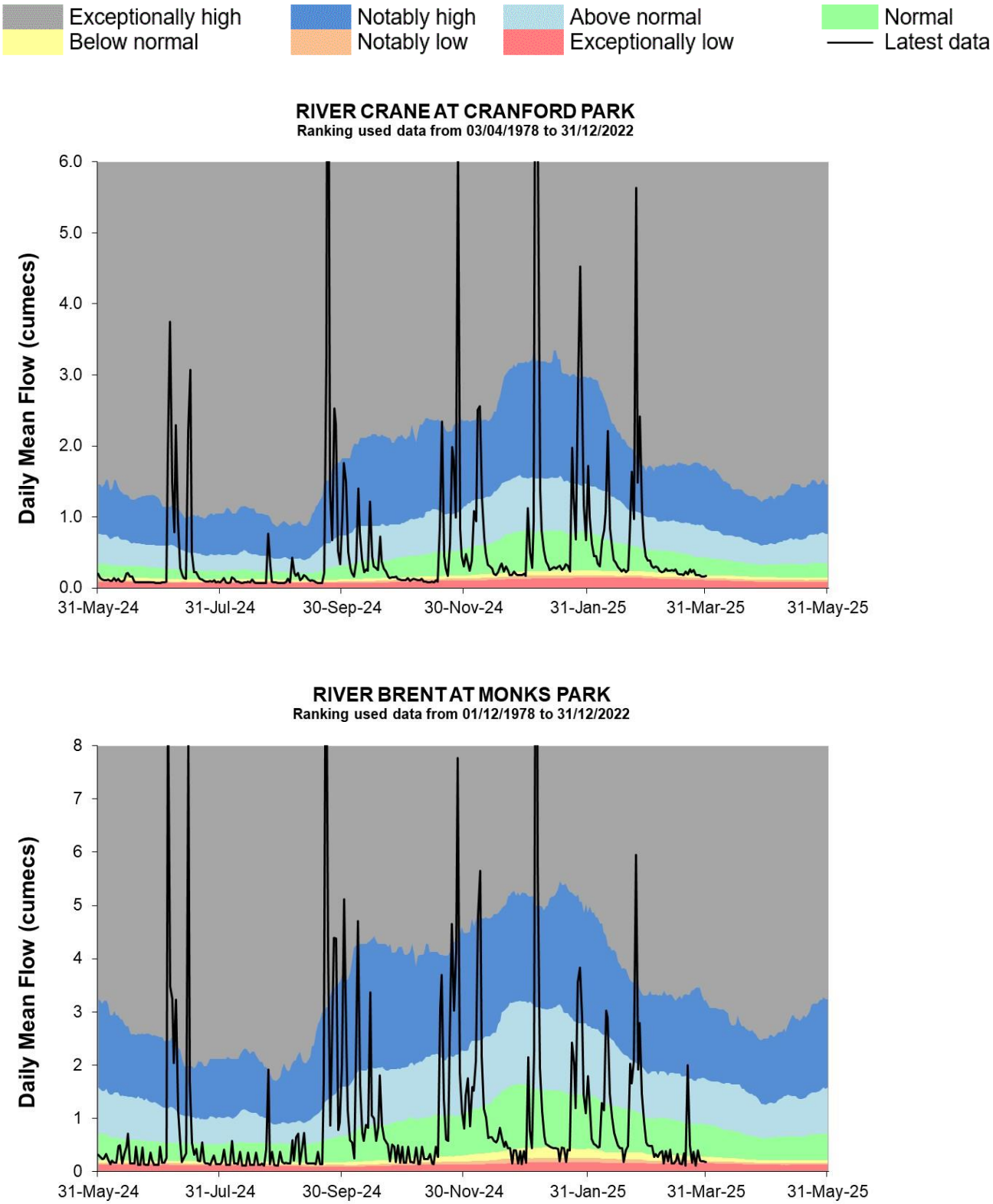


HadUK rainfall data (Source: Met Office. Crown copyright, 2025)

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.

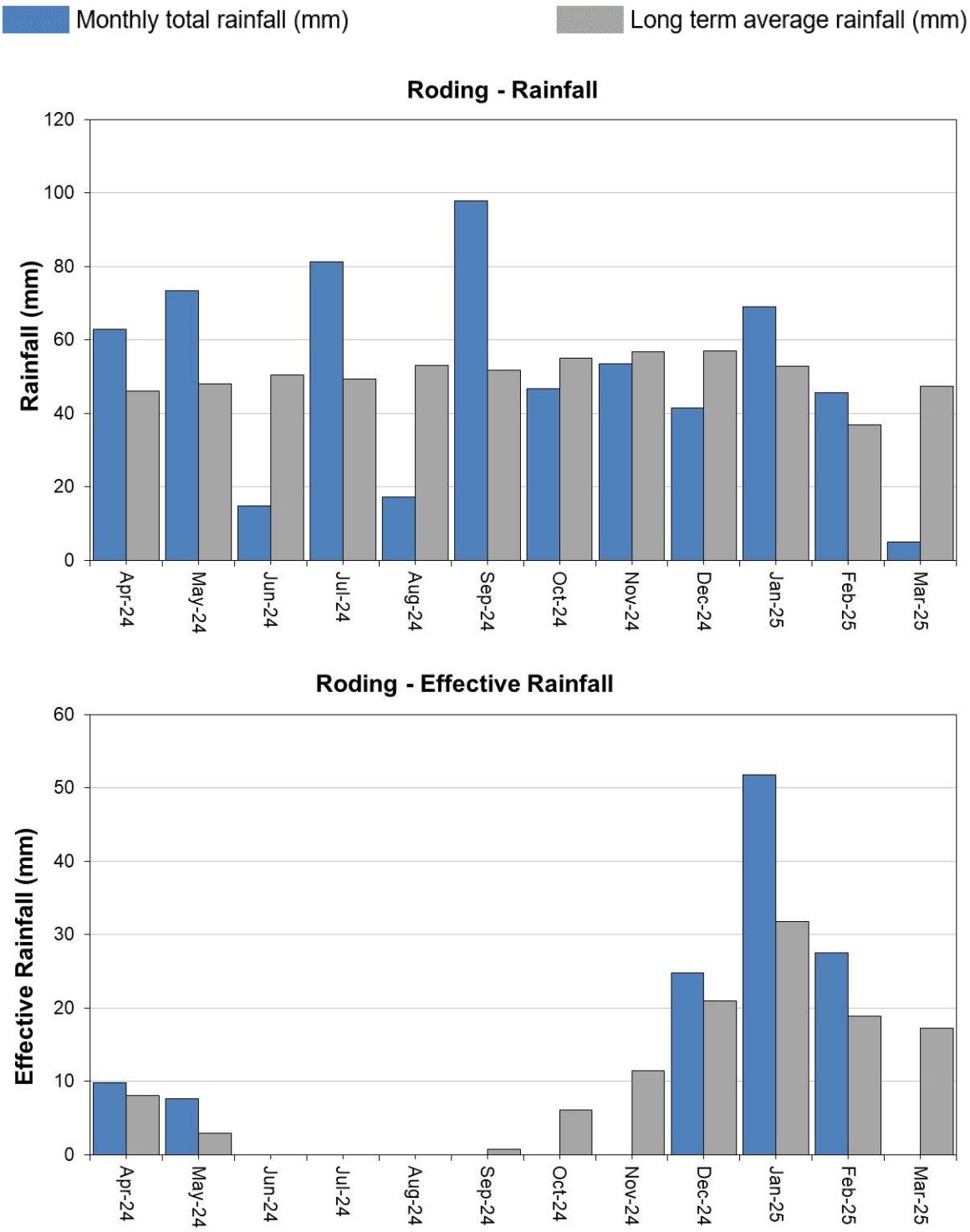


Source: Environment Agency, 2025

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 1961 to 1990 long term average for each region and for England.

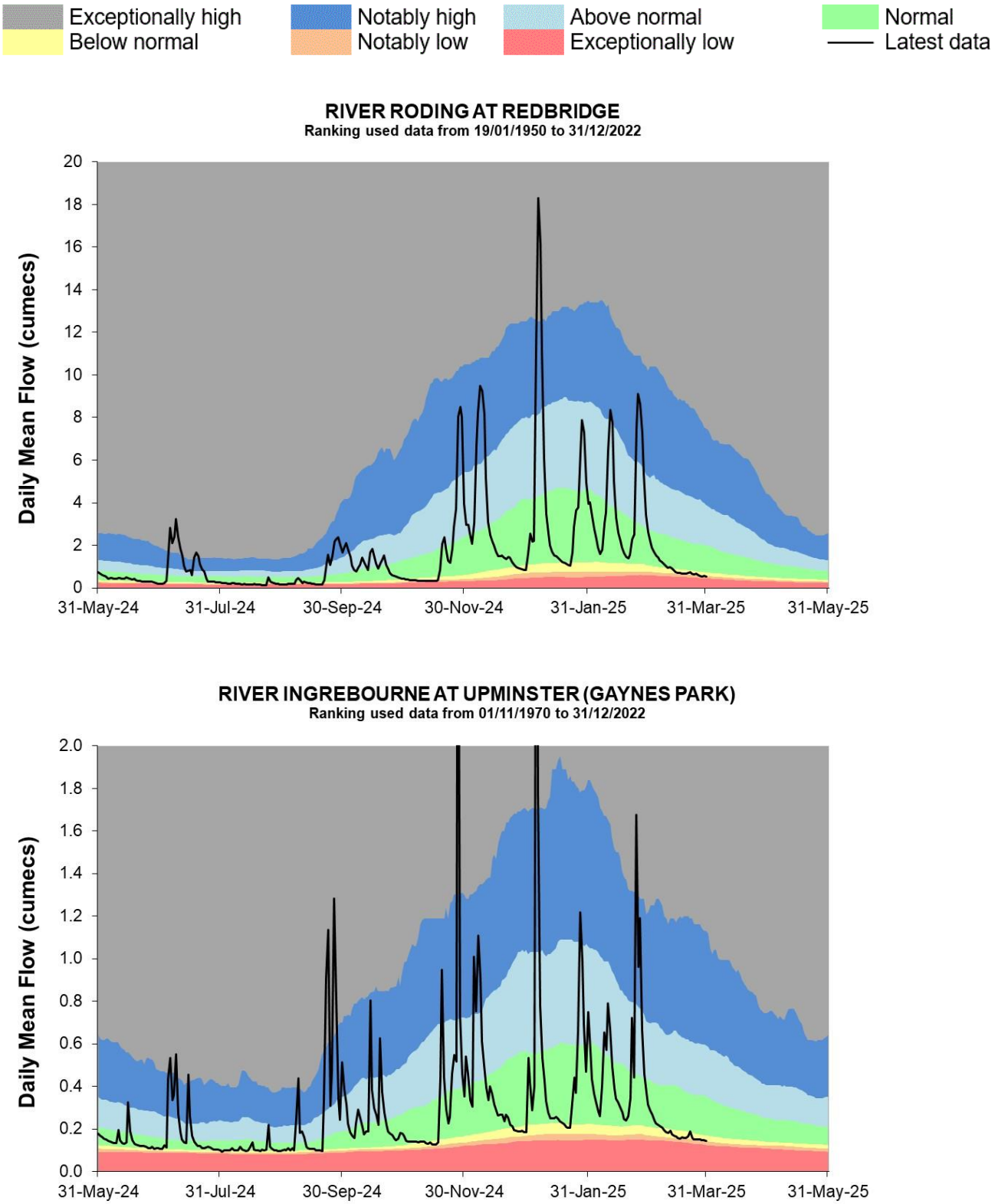


HadUK rainfall data (Source: Met Office. Crown copyright, 2025)

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

8.2 Roding River flow charts

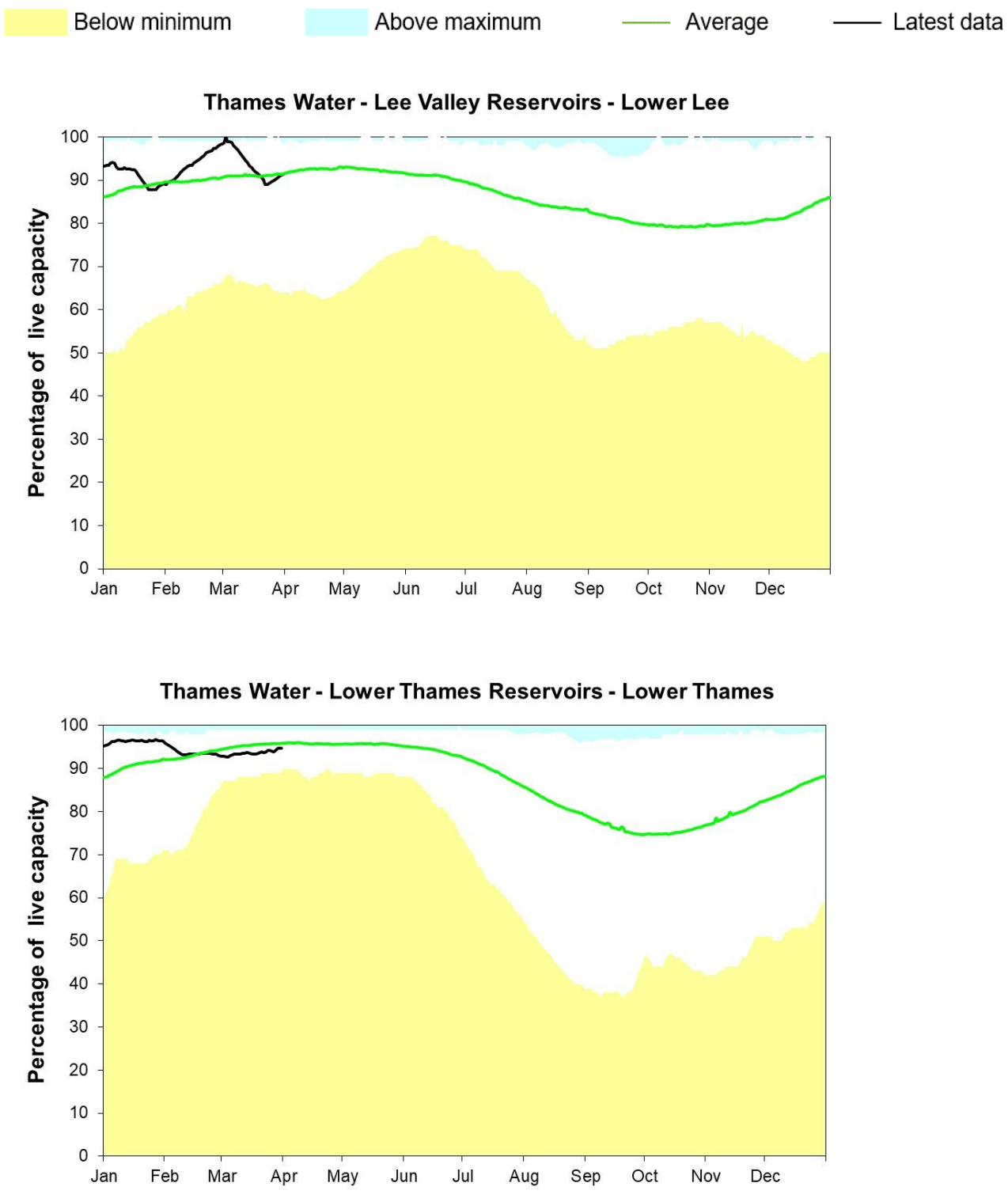
Figure 8.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



Source: Environment Agency, 2025

9 Reservoir stocks

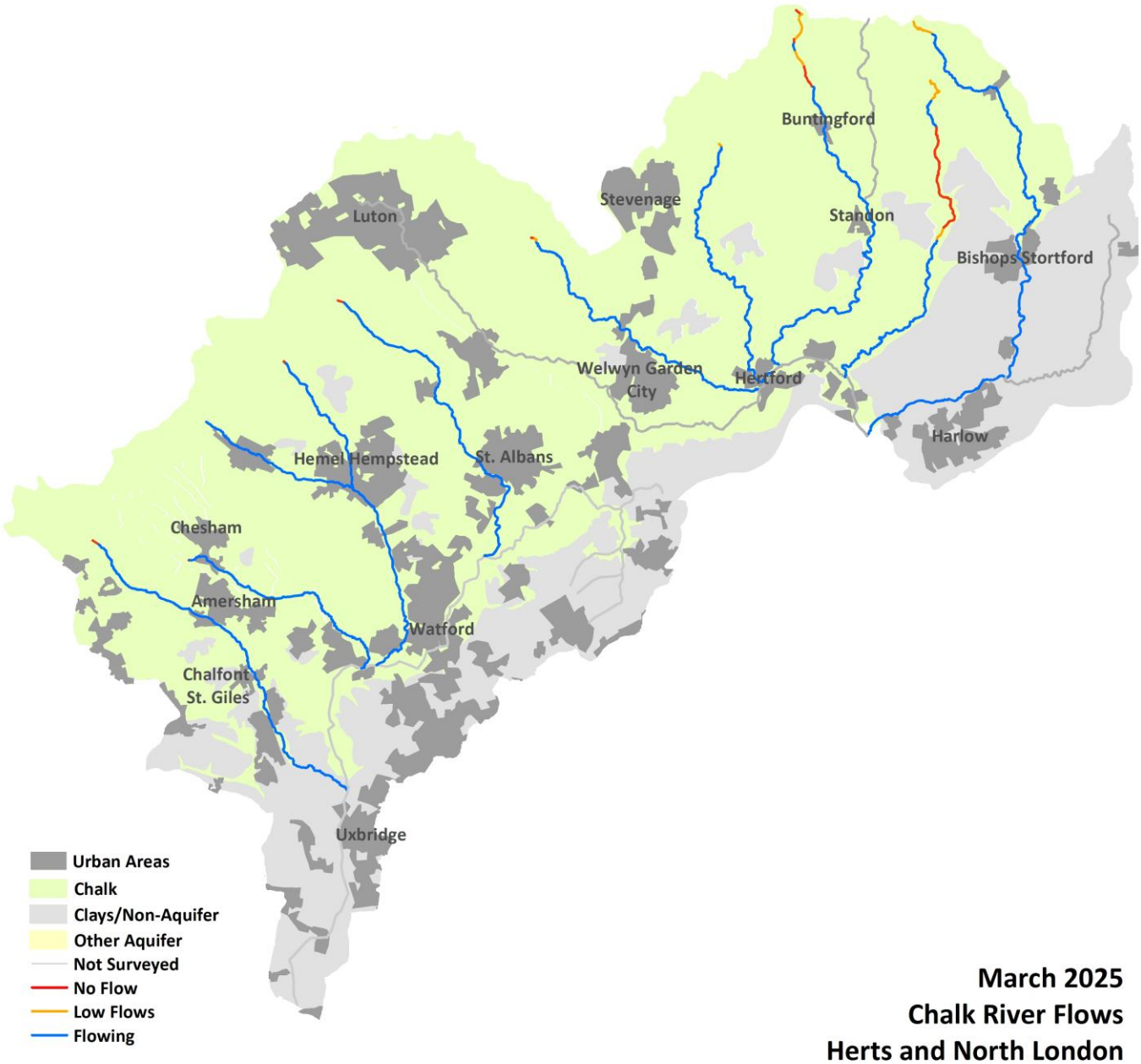
Figure 9.1: End of month reservoir stocks for the Lower Thames reservoir group and the Lee Valley reservoir group compared to long term maximum, minimum and average stocks. Note: Historic records of individual reservoirs and reservoir groups making up the regional values vary in length.



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 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).

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	Mar 2025 total rainfall in mm	Mar 2025 rainfall long term average 1961 to 1990	Mar 2025 rainfall % of long term average 1961 to 1990	Winter Oct 2024 to Mar 2025 total rainfall in mm	Winter Oct 2024 to Mar 2025 rainfall % of long term average 1961 to 1990
Chilterns East Colne	7	59	12	363	95
Lee Chalk	6	50	12	302	93
Lower Lee	7	51	13	297	91
North London	6	51	12	303	91
Roding	5	47	11	261	85
Herts and North London total	6	52	12	305	91

12.2 Rainfall banding table

Hydrological area	Mar 2025 band	Jan 2025 to Mar 2025 cumulative band	Oct 2024 to Mar 2025 cumulative band	Apr 2024 to Mar 2025 cumulative band
Chilterns East Colne	Exceptionally low	Normal	Normal	Above normal
Lee Chalk	Exceptionally low	Normal	Normal	Above normal
Lower Lee	Exceptionally low	Normal	Normal	Normal
North London	Exceptionally low	Normal	Normal	Normal
Roding	Exceptionally low	Normal	Below normal	Normal

12.3 Effective Rainfall table

Hydrological area	Mar 2025 total effective rainfall in mm	Mar 2025 effective rainfall long term average 1961 to 1990 in mm	Mar 2025 effective rainfall % of long term average 1961 to 1990	Winter Oct 2024 to Mar 2025 total effective rainfall in mm	Winter Oct 2024 to Mar 2025 effective rainfall % of long term average 1961 to 1990
Chilterns East Colne	0	30	1	264	138
Lee Chalk	0	20	1	188	155
Lower Lee	0	20	0	152	121
North London	0	19	0	167	136
Roding	0	17	0	104	98
Herts and North London total	0	21	0	175	131

12.4 Soil Moisture Deficit table

Hydrological area	Mar 2025 end of month Soil Moisture Deficit in mm	Mar 2025 end of month Soil Moisture Deficit long term average 1961 to 1990 in mm	Feb 2025 end of month Soil Moisture Deficit in mm	Feb 2025 end of month Soil Moisture Deficit long term average 1961 to 1990 in mm
Chilterns East Colne	30	8	1	4
Lee Chalk	32	12	2	9
Lower Lee	32	10	1	5
North London	34	11	1	6
Roding	33	11	1	7
Herts and North London total	32	10	1	6

12.5 River flows table

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

12.6 Groundwater table

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

12.7 Abstraction licence flow constraints

Number of flow constraints in force between 3 and 9 March 2025	Number of flow constraints in force between 10 and 16 March 2025	Number of flow constraints in force between 17 and 23 March 2025	Number of flow constraints in force between 24 and 30 March 2025
6	14	14	14