Monthly water situation report: Hertfordshire and North London Area

1 Summary - April 2025

Only 62% of the long term average (LTA) rainfall fell during April and the Hertfordshire and North London area experienced its second month in a row with lower than average rainfall. With the low rainfall and warm temperatures during April, there was very little effective rainfall. The Area's soils continued to dry throughout the month, ending April with significantly higher than normal soil moisture deficits. River baseflows and groundwater levels across the Area continued to decline during April.

1.1 Rainfall

Only 62% of the long term average (LTA) rainfall fell during April and the Hertfordshire and North London area ("the Area") experienced its second month in a row with lower than average rainfall. Both the areal rainfall units of North London and Chilterns-East-Colne had totals which fell into the below normal band for April. Over the last three months these same units had seen notably low rainfall for that period. With an average of 24 dry days (<0.2mm rain) most of the monthly rainfall fell in just a few days mid-month, between 13 to 15 May and 20 to 22 May. The largest daily rainfall total of 24mm was recorded at Chenies raingauge (Chilterns-East-Colne) on the 22 May.

1.2 Soil moisture deficit and recharge

With the low rainfall and warm temperatures during April, there was very little effective rainfall across the whole Area. Soils continued to dry throughout the month with soil moisture deficits doubling during April. Soil moisture deficits ended the month three times greater than would normally be expected, with North London recording the largest deficit.

1.3 River flows

Baseflows across the Area continued to decline during April, with only small peaks in river flows in response to the mid-month rainfall. As with March, there was a clear split in fortunes between the chalk rivers of the Chilterns and Upper Lee, and with the north London and Essex rivers. The majority of chalk river flow indicator sites experiencing monthly mean flows in the above normal band, with the Ver at Colney Street (with its 5th highest April mean flows on record (1956-present)) and the Mimram at Panshanger (with its 4th highest April mean flows on record (1952-present)) recording flows in the exceptionally high band. In contrast the runoff dominated rivers of north London and Essex only recorded monthly mean flows in the below normal band.

1.4 Groundwater levels

Across the month, groundwater levels continued their seasonal decline. However, groundwater levels remained buoyant with levels in the normal band or higher across the Mid-Chilterns Chalk, while the groundwater indicator sites in the Upper Lee Chalk were all in the notably high

band for April. Of note, the groundwater at Lilley Bottom OBH (Upper Lee Chalk) recorded its fourth highest end of April level on record (1979-present).

1.5 Reservoir stocks

Despite the warm weather and lower than average rainfall, reservoir stocks remained slightly above average in the Lee Valley and close to average in the Lower Thames reservoirs.

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 little to no change 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 April two (out of a summer maximum of 30) abstraction licence flow constraints were in force.

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

Contact Details: 03708 506 506

2 Rainfall

2.1 Rainfall map

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

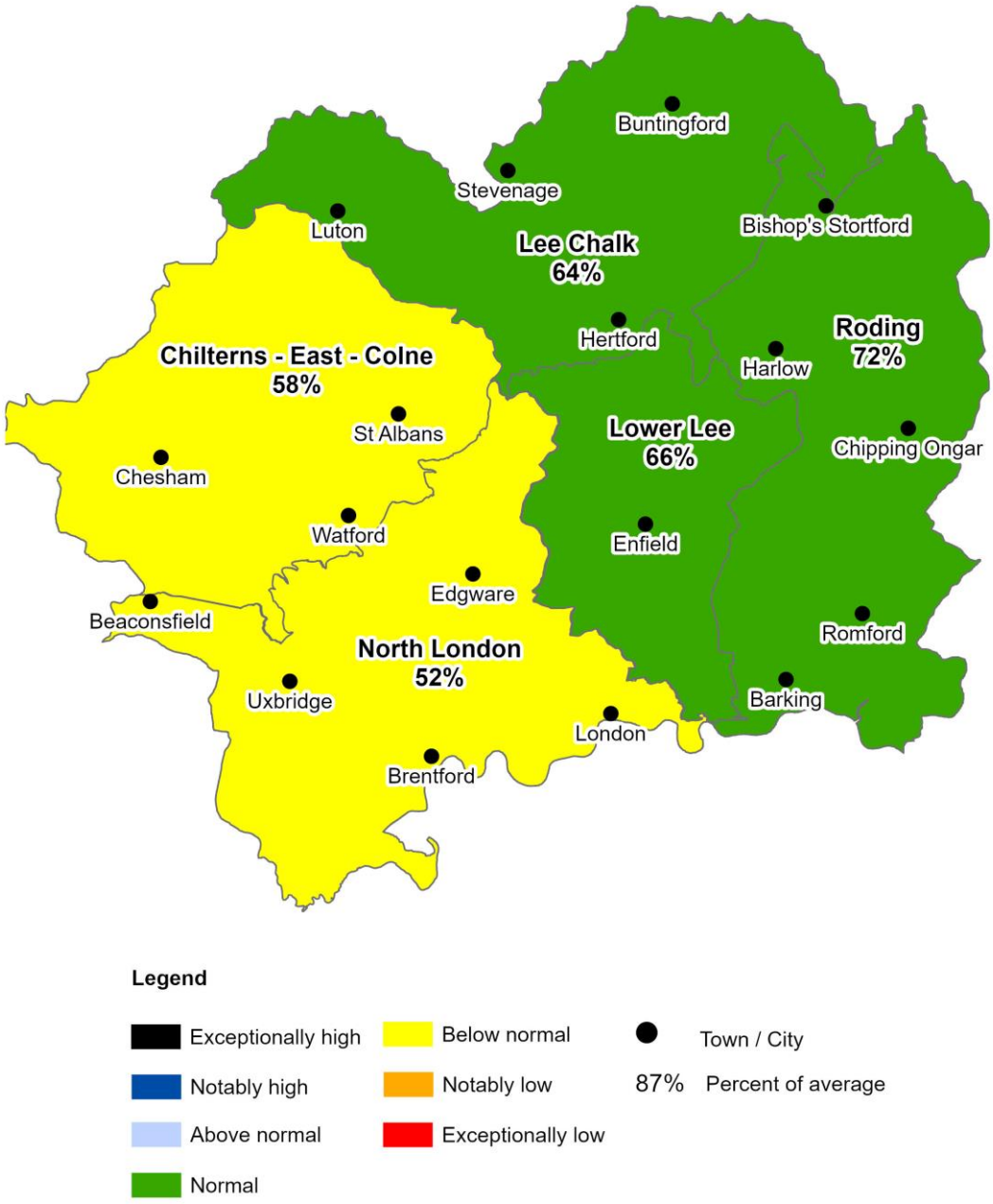
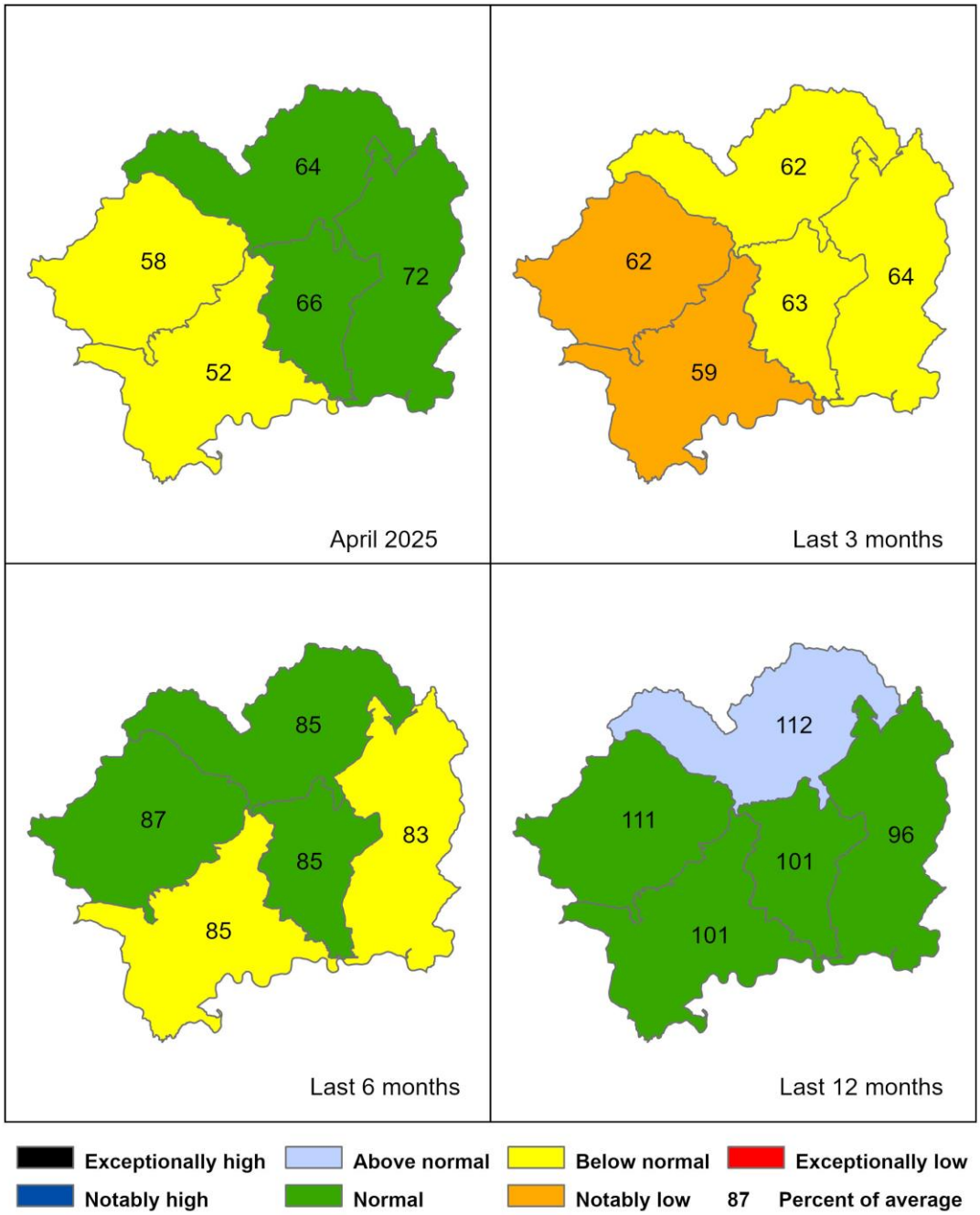


Figure 2.2: Total rainfall for hydrological areas for the current month (up to 30 April 2025), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. Table available in the appendices with detailed information.

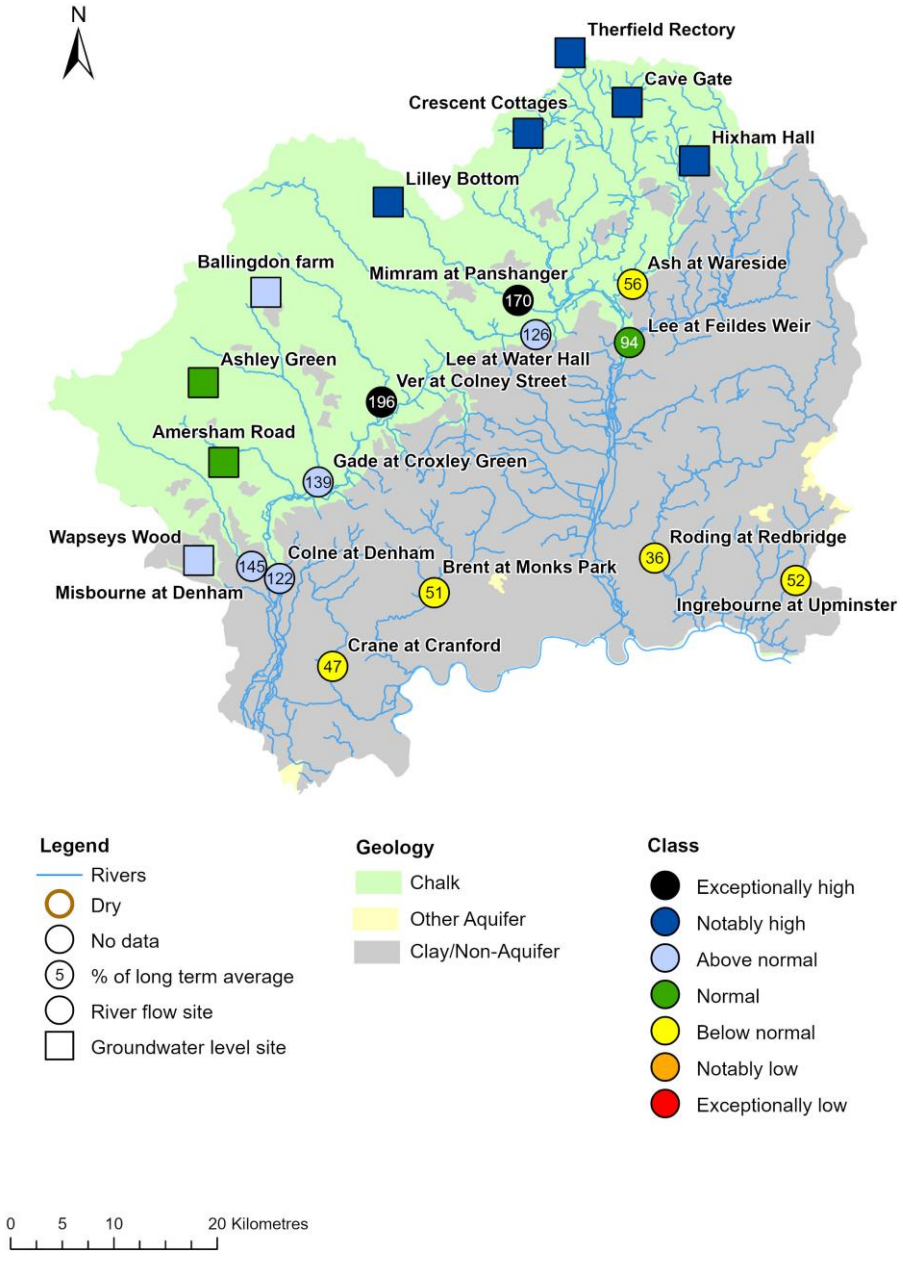


HadUK data based on the Met Office 1km gridded rainfall dataset derived from rain gauges (Source: Met Office. Crown copyright, 2025). Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Crown copyright. All rights reserved.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

3 River flows and Groundwater levels

3.1 River flows and Groundwater level map

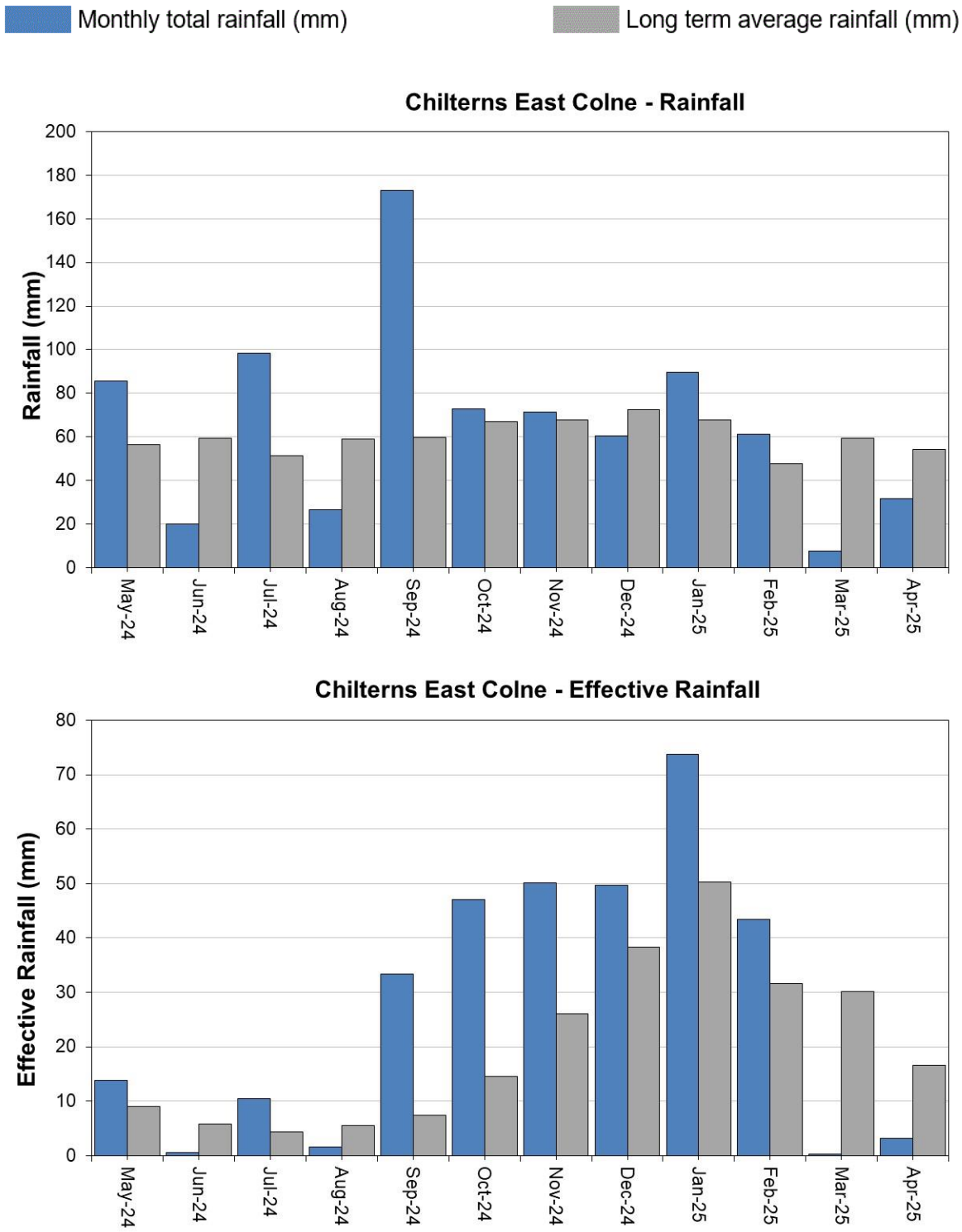
Figure 3.1: Monthly mean river flow and groundwater levels at our indicator sites for April 2025, expressed as a percentage of the respective long term average and classed relative to an analysis of historic April monthly means. Table available in the appendices with detailed information.



4 Colne Catchment

4.1 Colne Rainfall and effective rainfall charts

Figure 4.1: Monthly rainfall and effective rainfall totals for the past 24 months compared to the 1961 to 1990 long term average for the Colne.

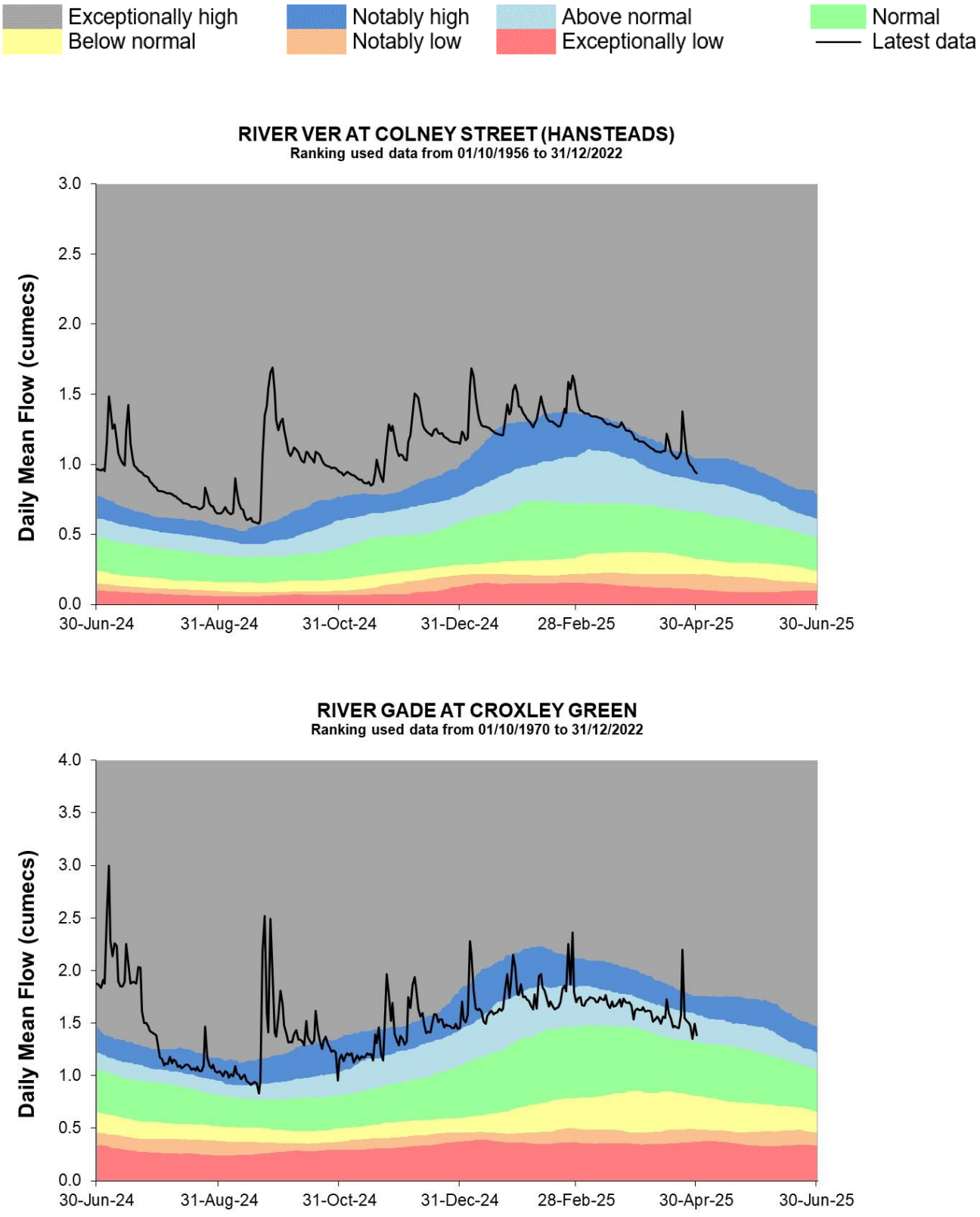


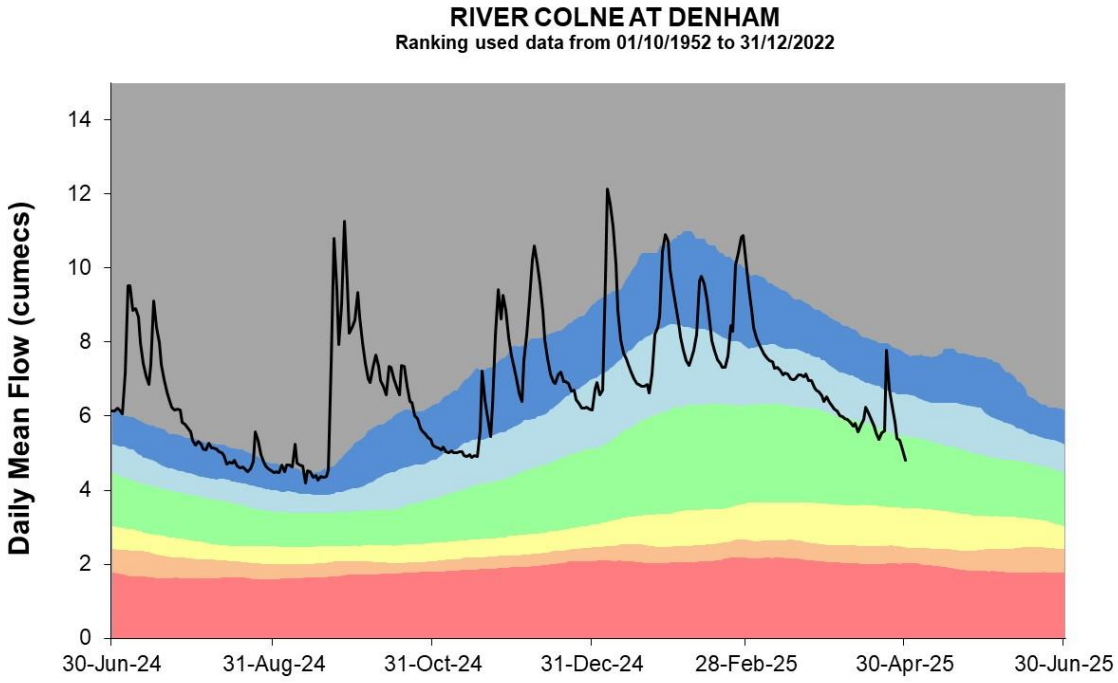
HadUK rainfall data (Source: Met Office. Crown copyright, 2025)

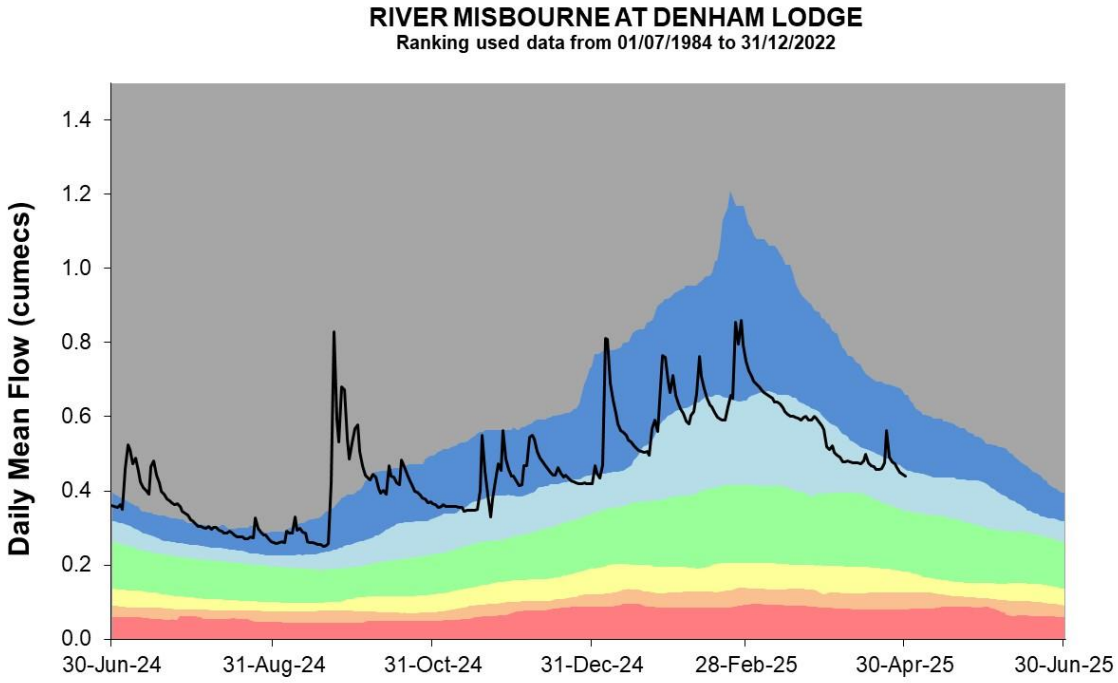
EA Soil Moisture Model effective rainfall data (Source: Environment Agency, 2025)

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.



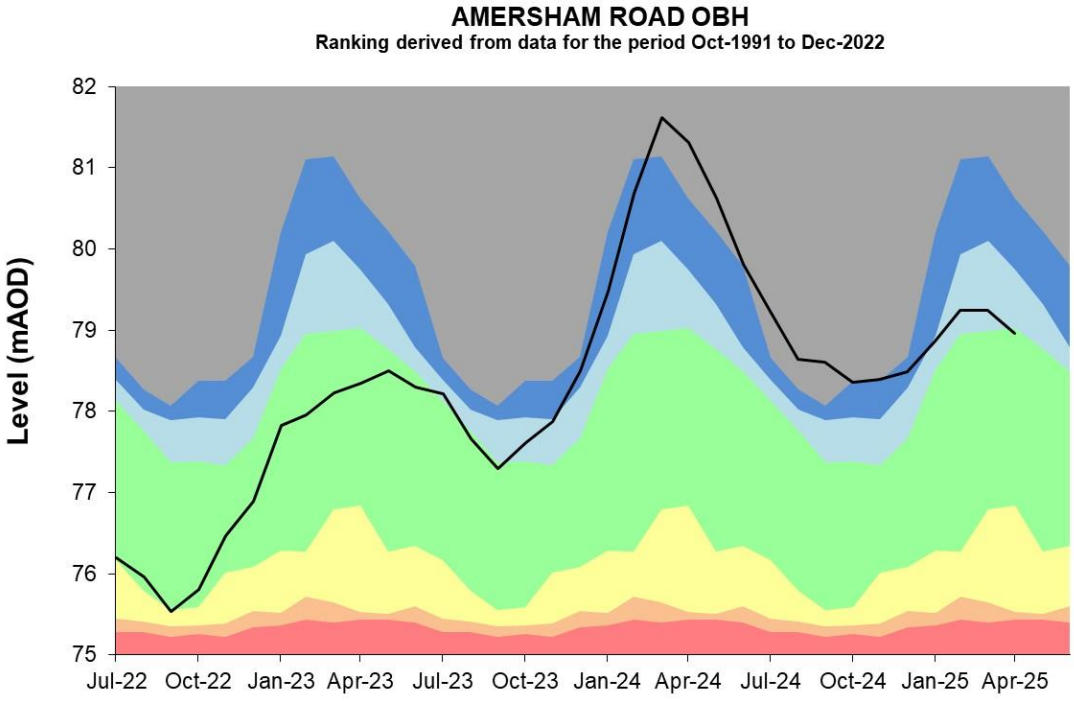


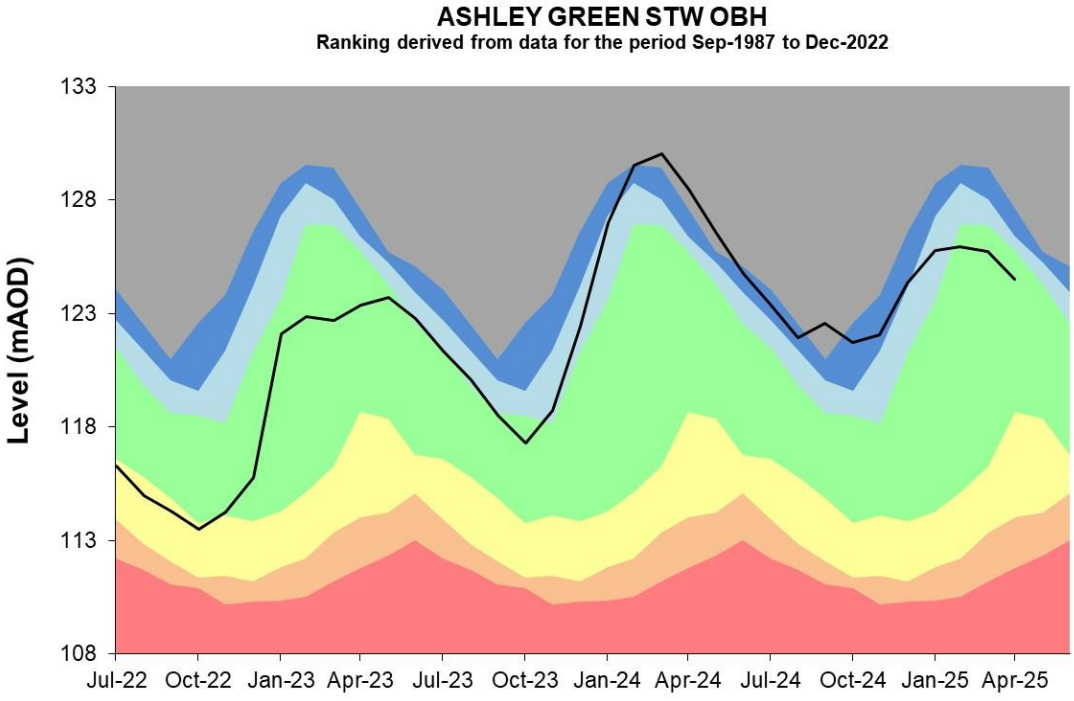


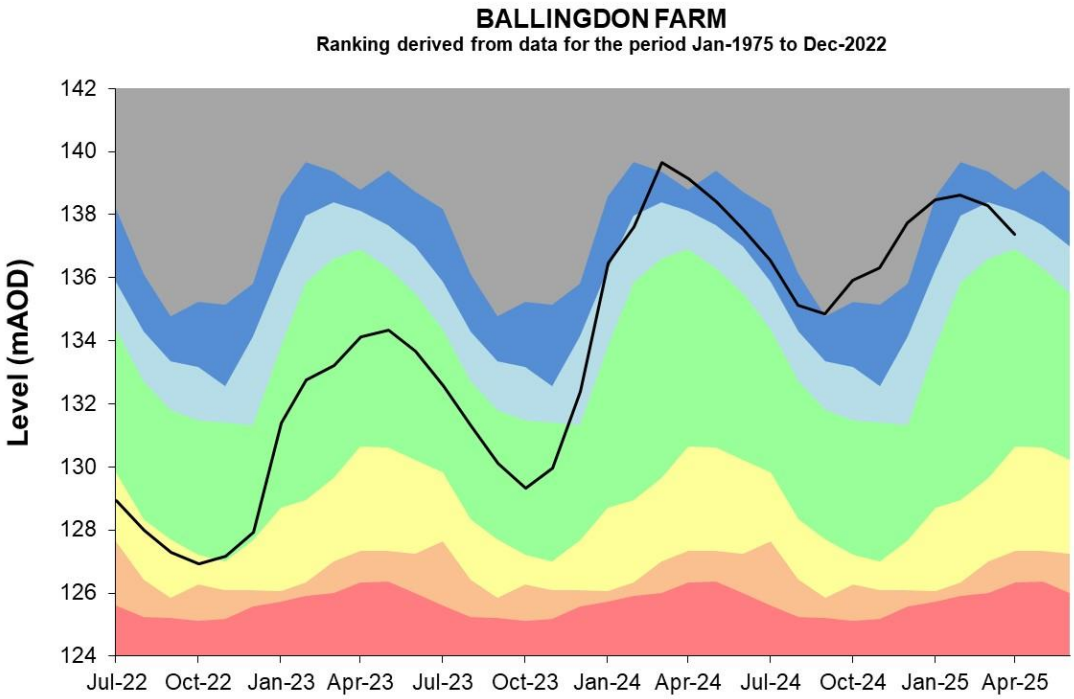
Source: Environment Agency, 2025

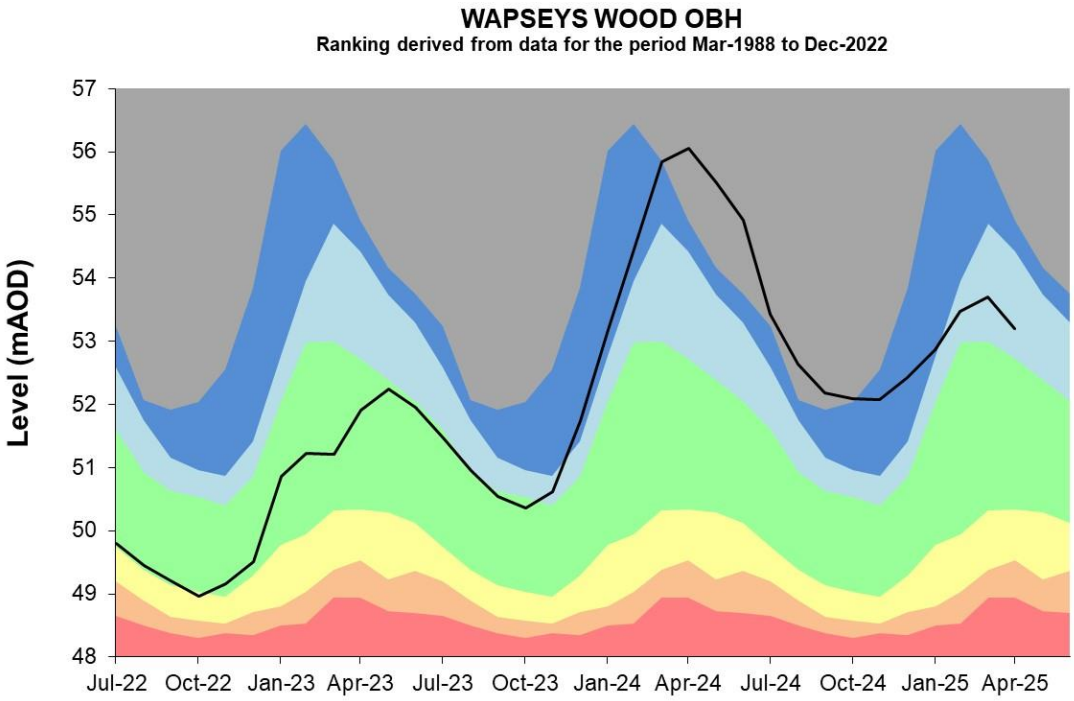
4.3 Colne Groundwater level charts

Figure 4.3: End of month groundwater levels at index groundwater level sites for major aquifers. 22 months compared to an analysis of historic end of month levels and long term maximum and minimum levels.







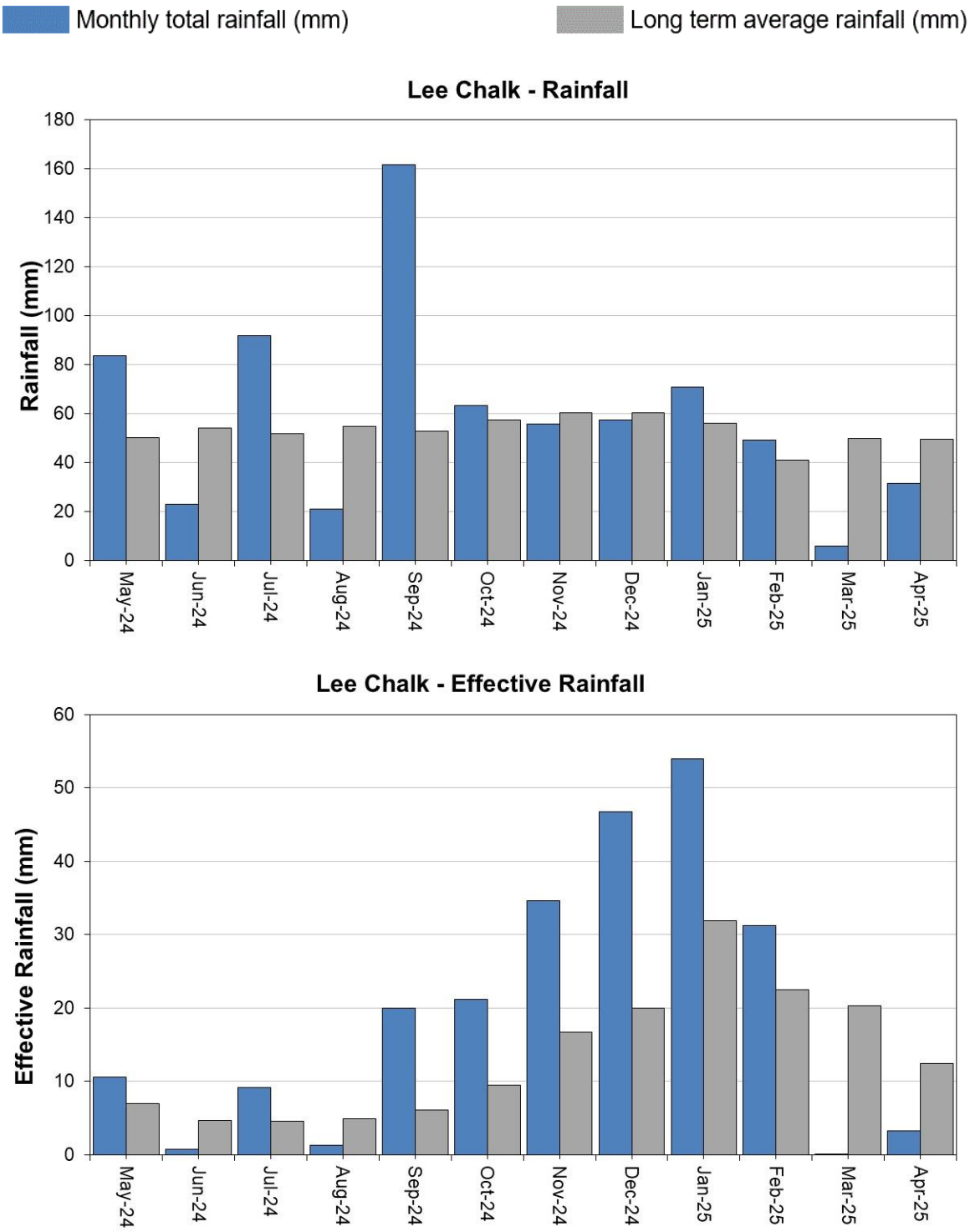


Source: Environment Agency, 2025

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 24 months compared to the 1961 to 1990 long term average for each region and for England.

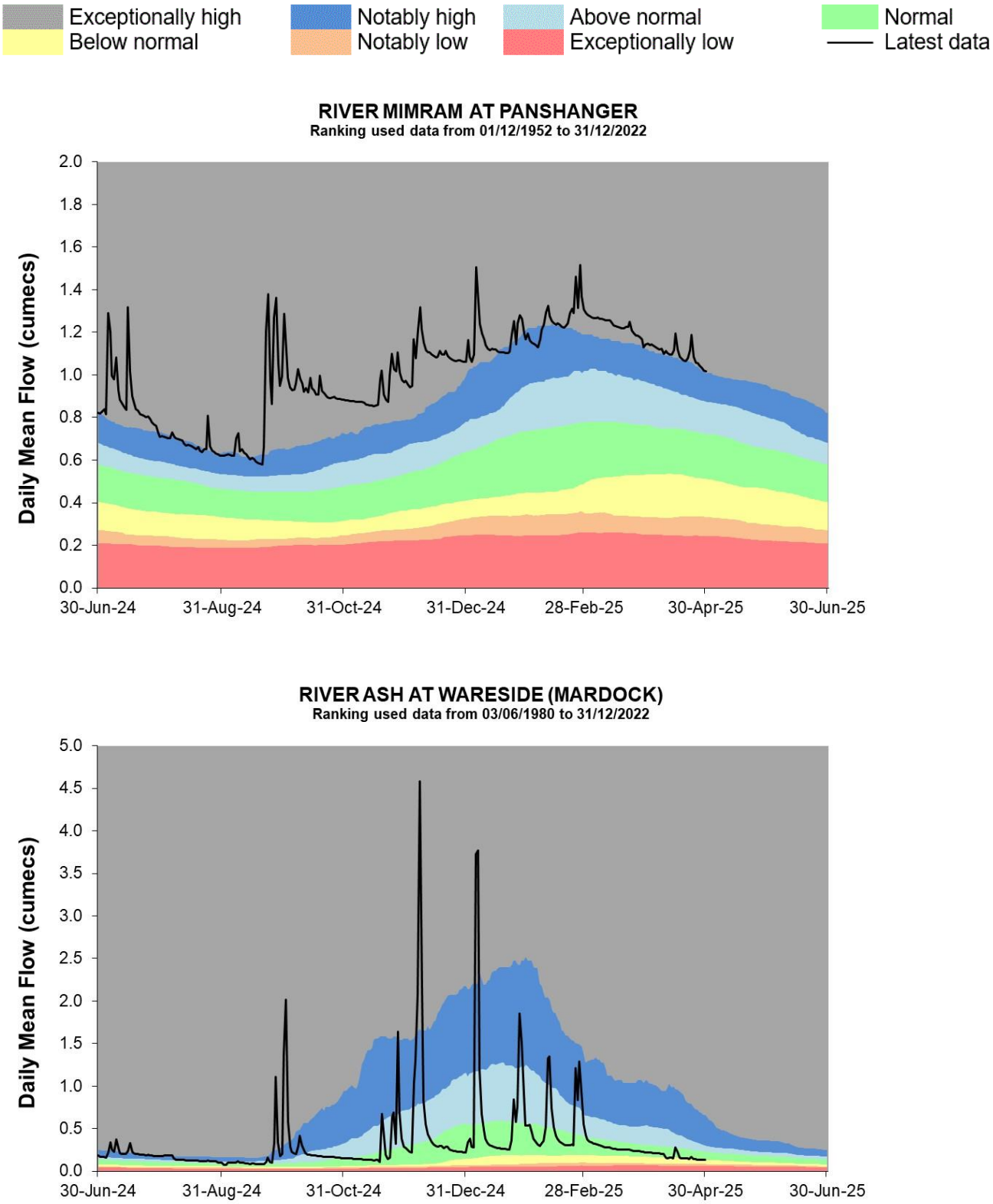


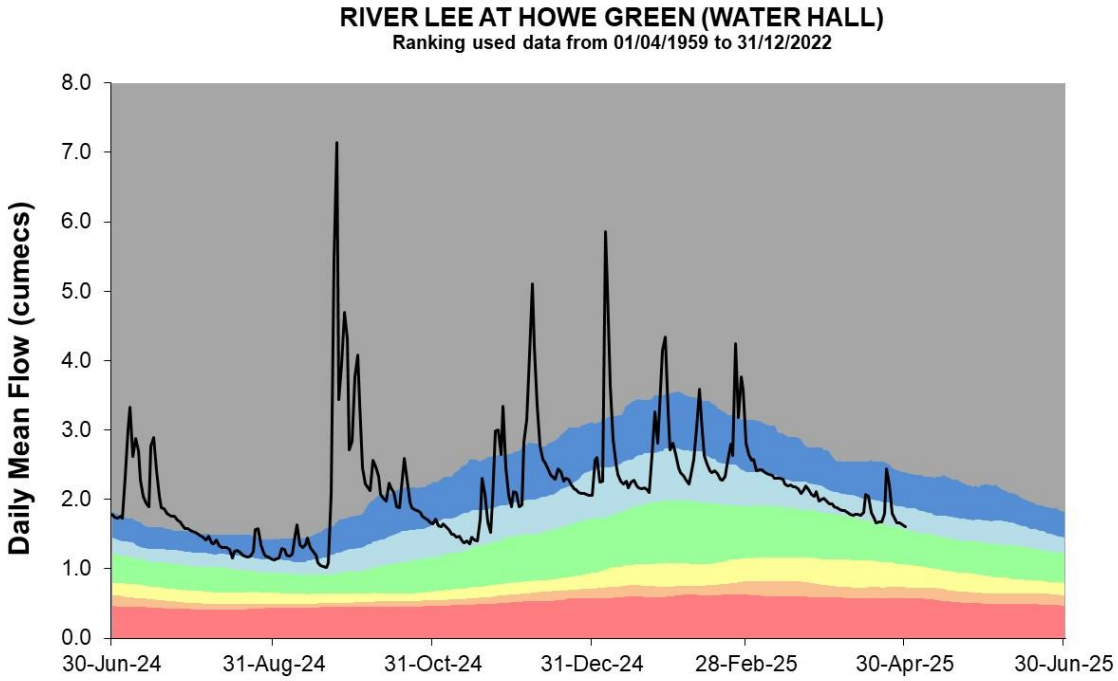
HadUK rainfall data (Source: Met Office. Crown copyright, 2025)

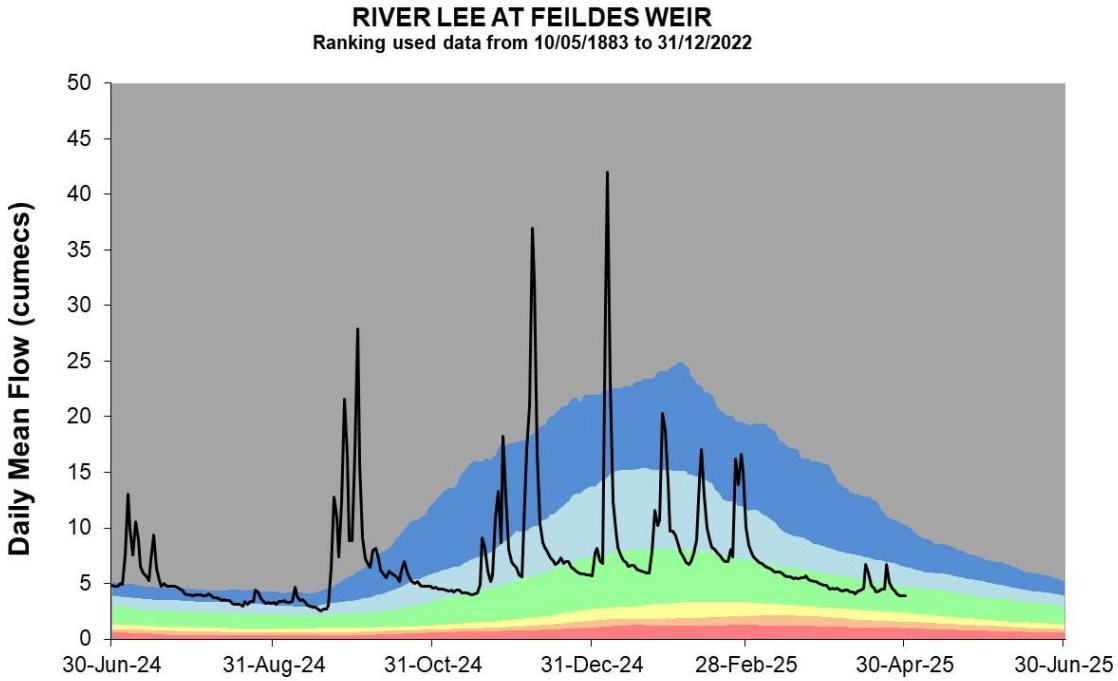
EA Soil Moisture Model effective rainfall data (Source: Environment Agency, 2025)

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.



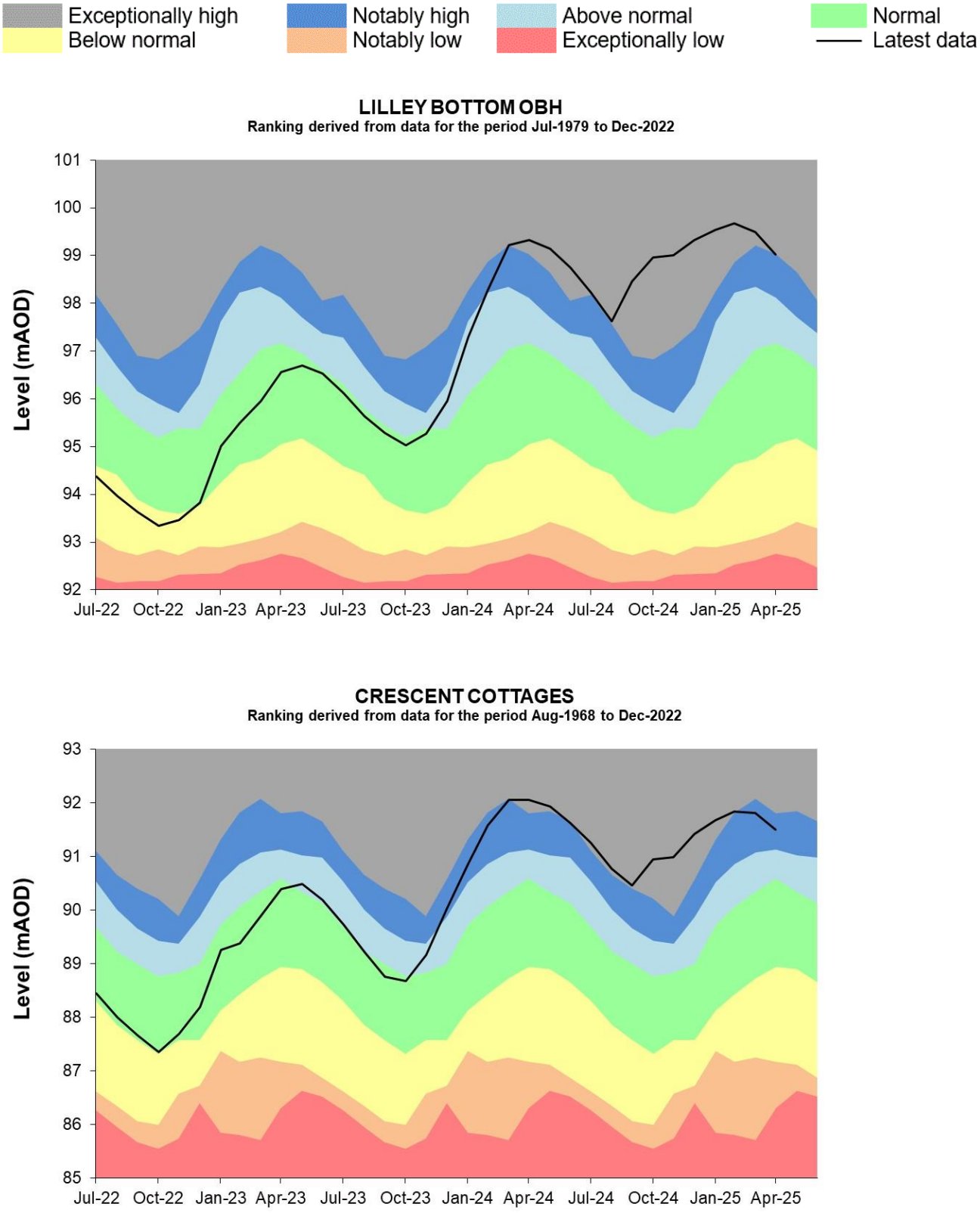




Source: Environment Agency, 2025

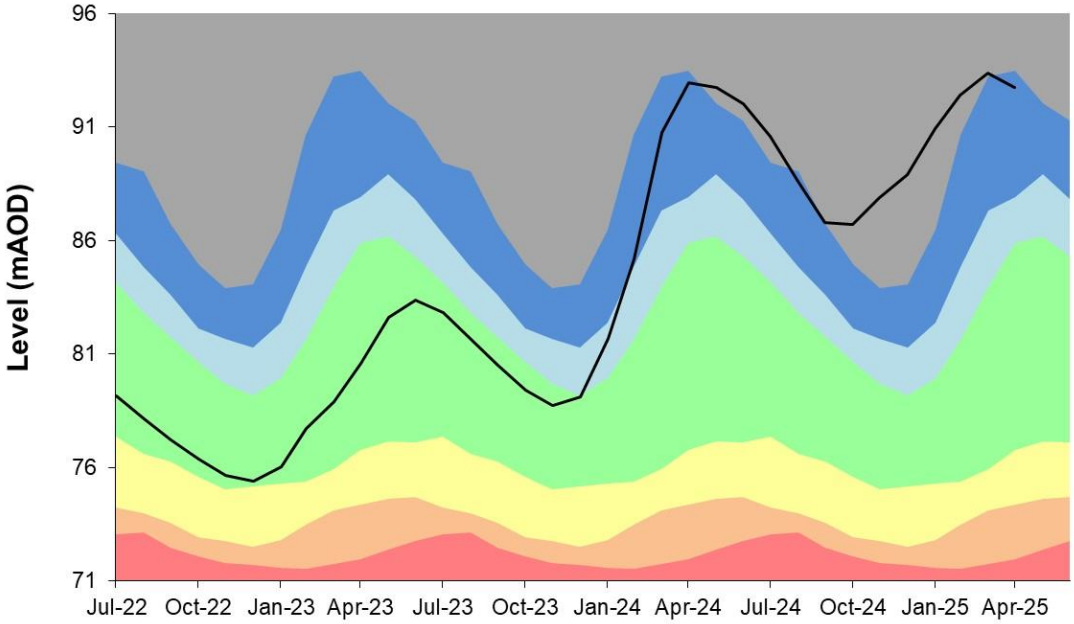
5.3 Upper Lee Groundwater level charts

Figure 5.3: End of month groundwater levels at index groundwater level sites for major aquifers. 22 months compared to an analysis of historic end of month levels and long term maximum and minimum levels.



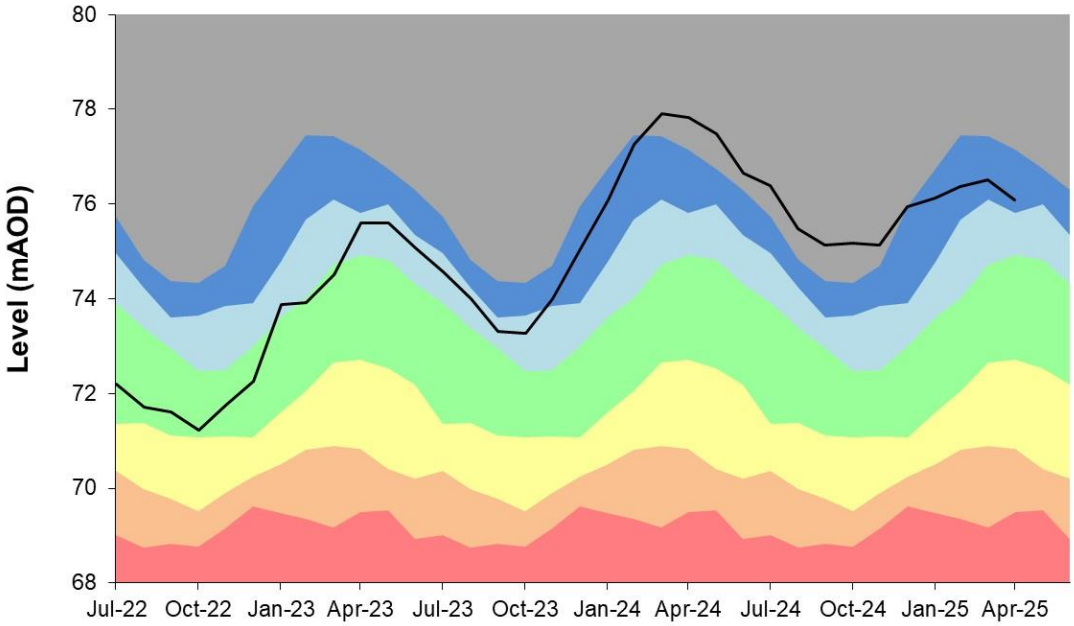
THERFIELD RECTORY

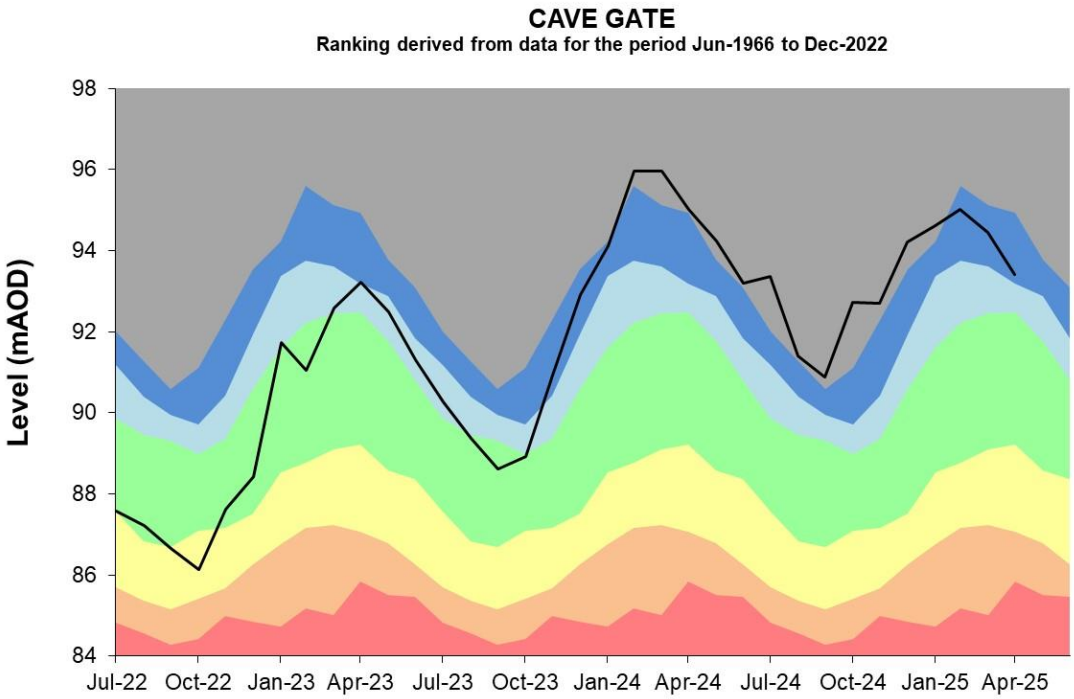
Ranking derived from data for the period Jan-1883 to Dec-2022



HIXHAM HALL

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



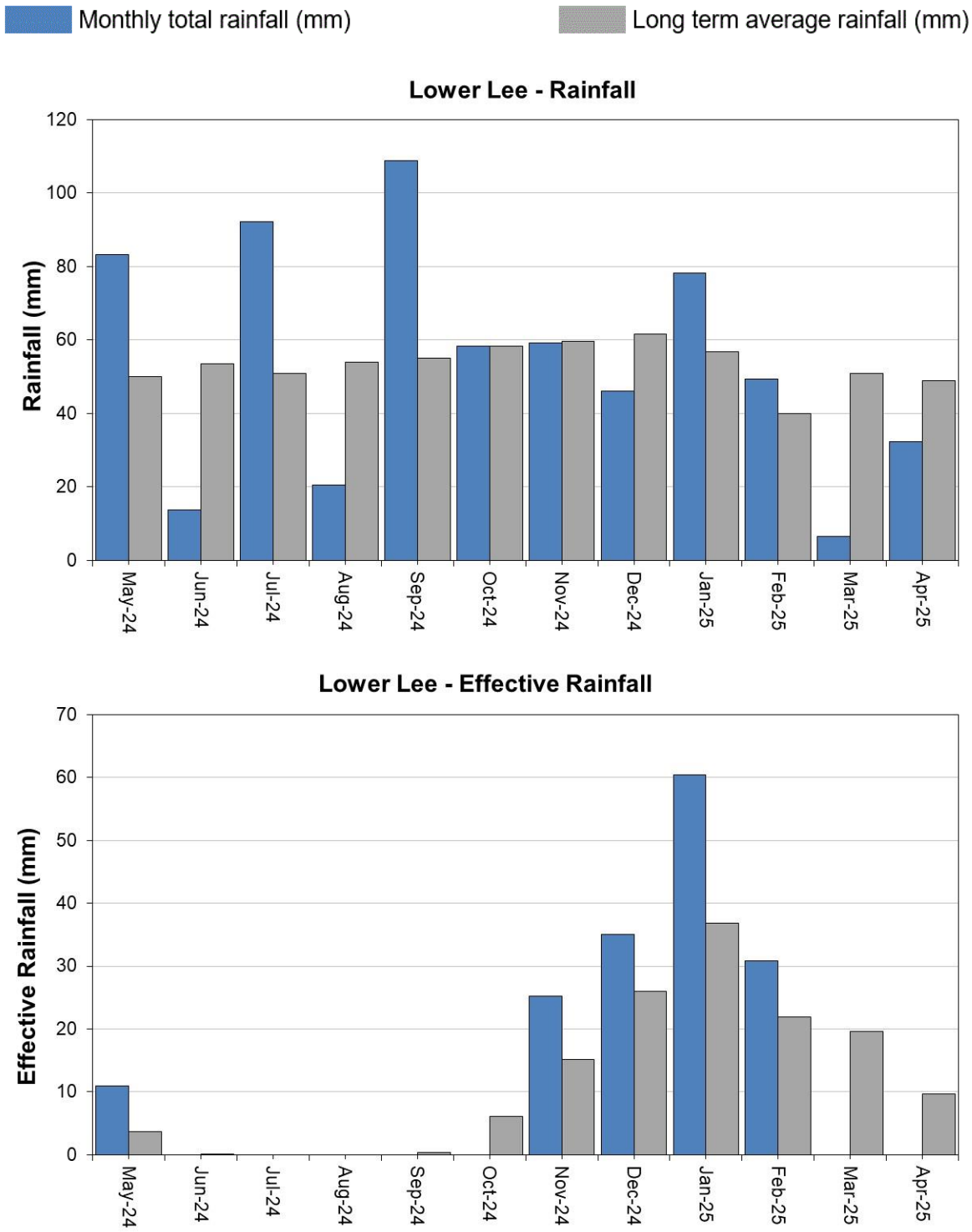


Source: Environment Agency, 2025

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 24 months as a percentage of the 1961 to 1990 long term average for the Lower Lee.

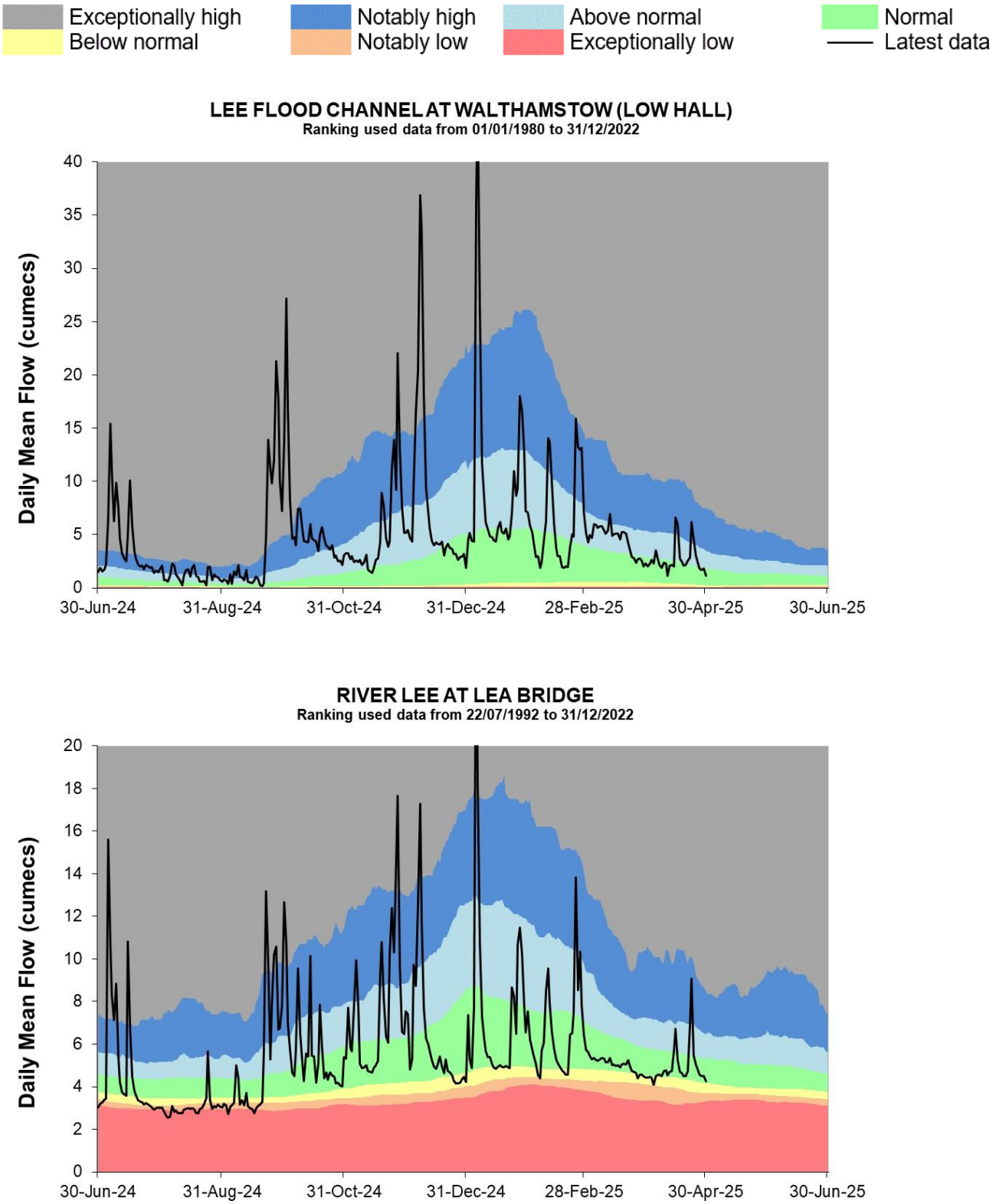


HadUK rainfall data (Source: Met Office. Crown copyright, 2025)

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.

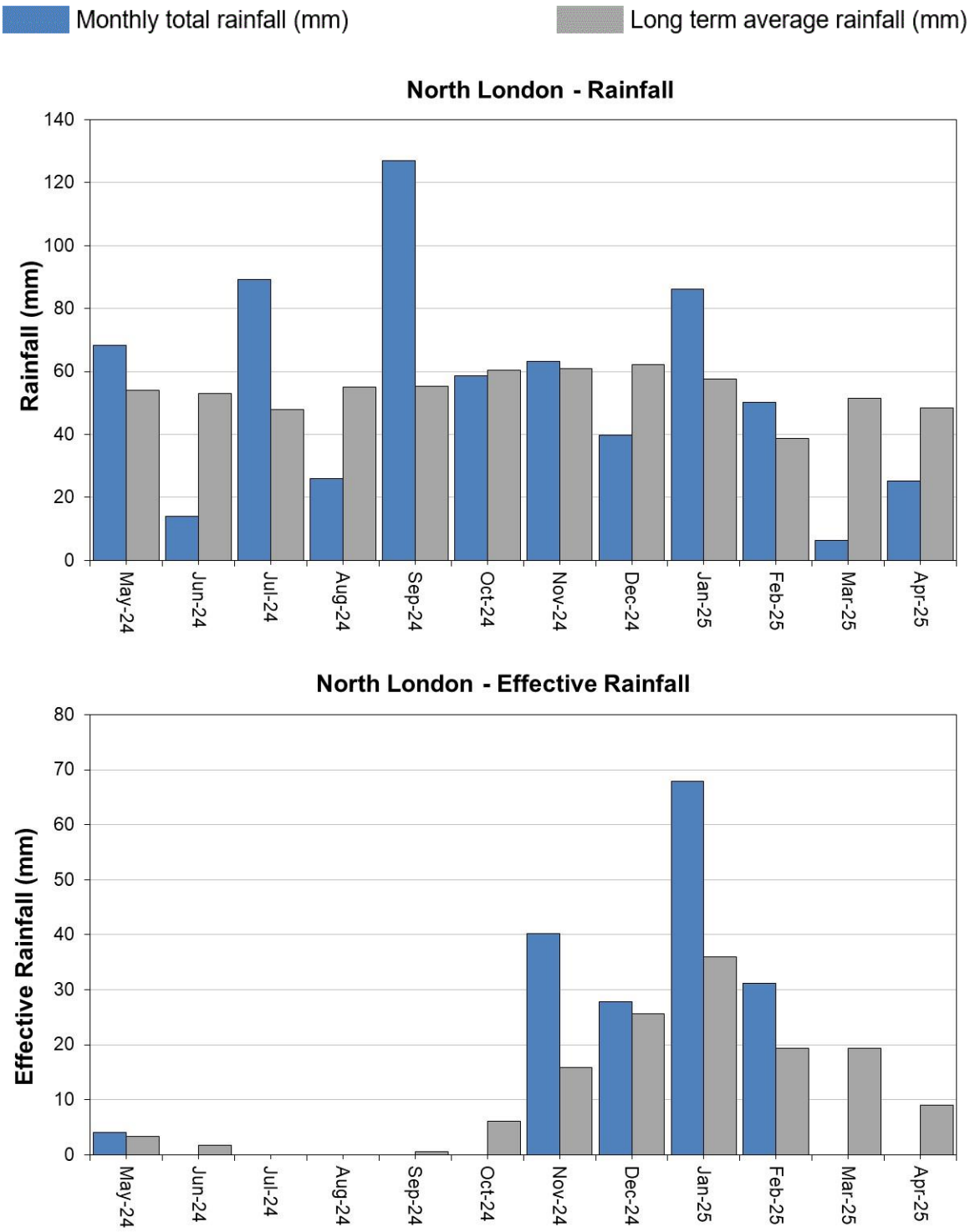


Source: Environment Agency, 2025

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 24 months compared to the 1961 to 1990 long term average for each region and for England.

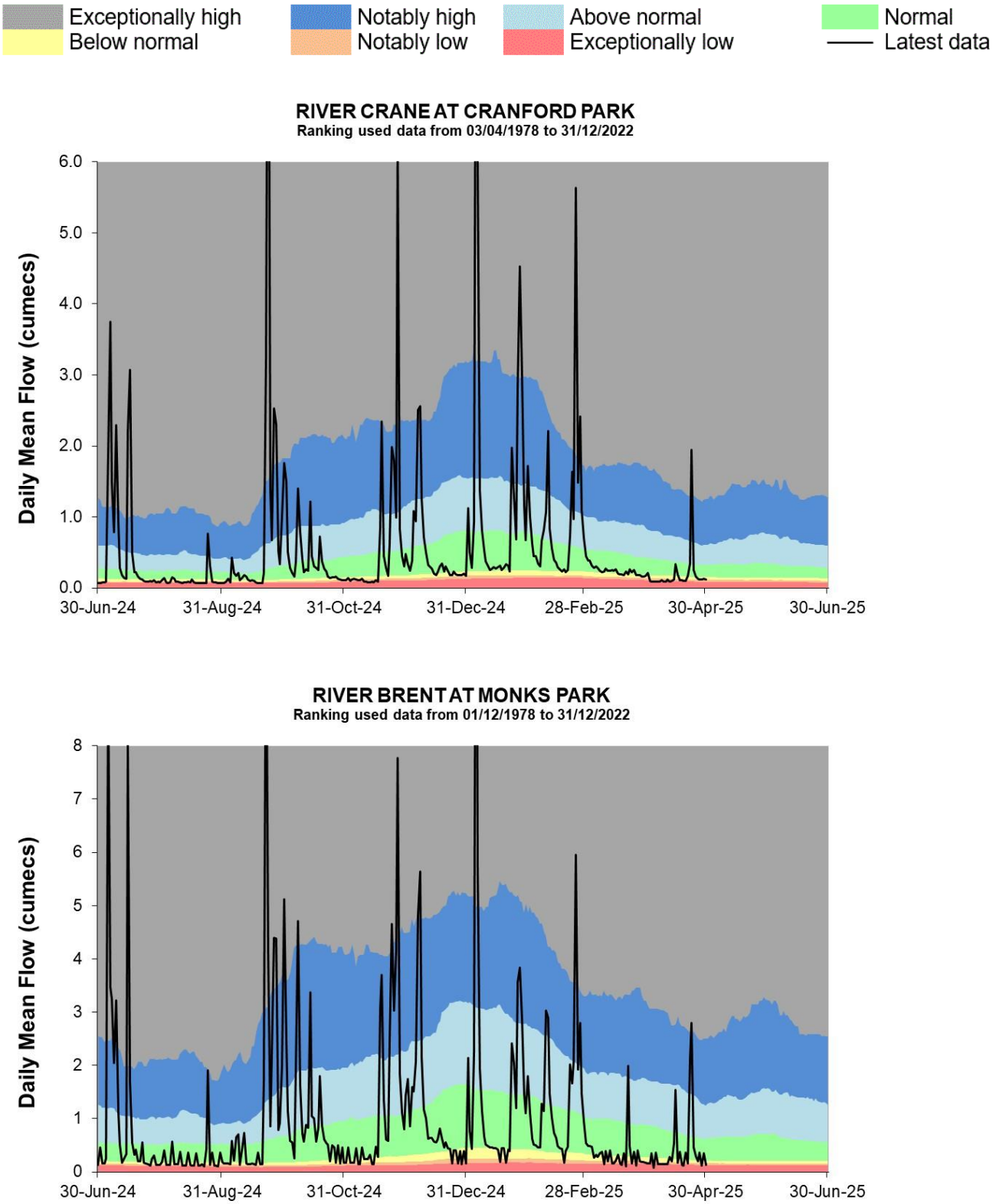


HadUK rainfall data (Source: Met Office. Crown copyright, 2025)

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.

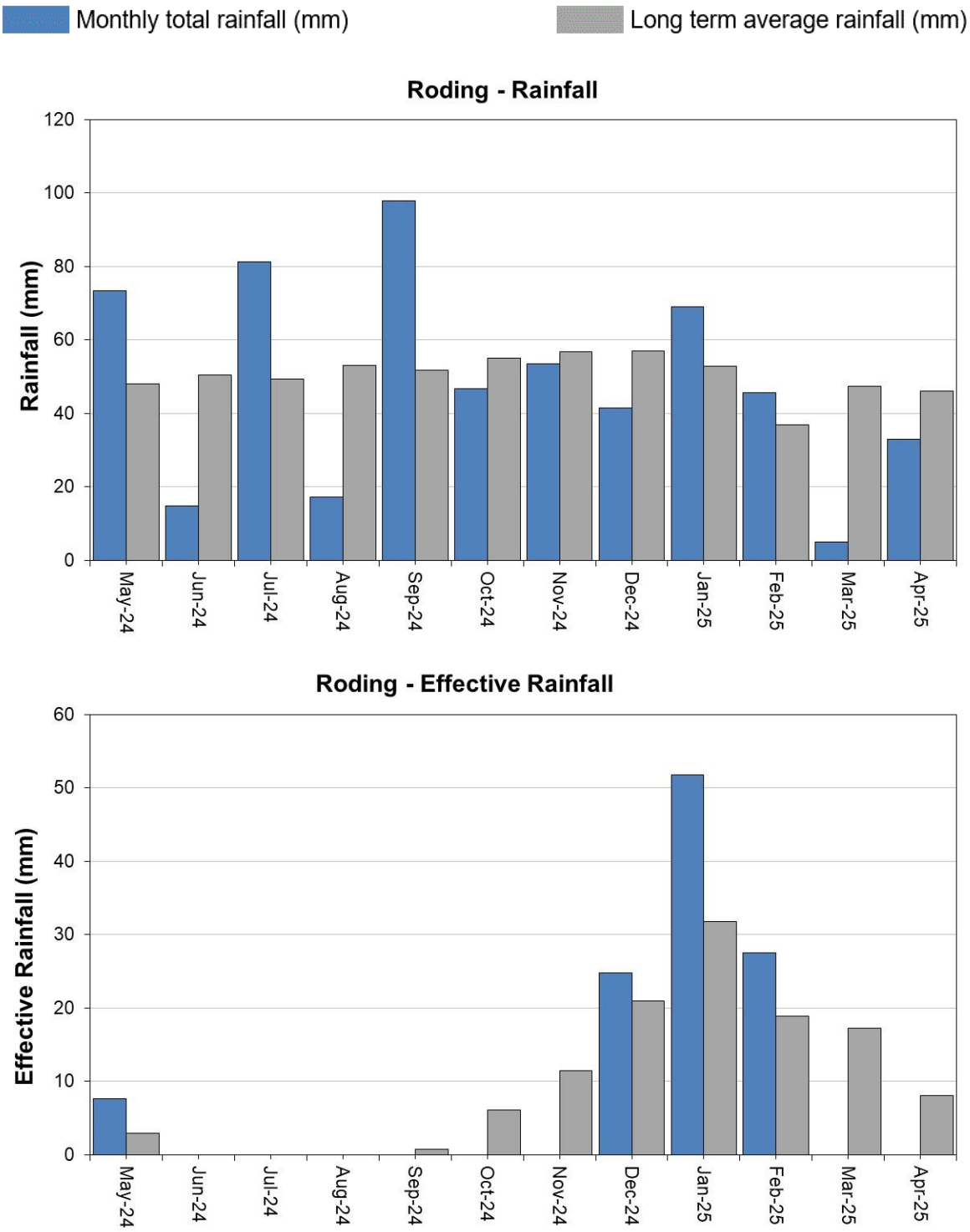


Source: Environment Agency, 2025

8 Roding Catchment

8.1 Roding Rainfall and Recharge chart

Figure 8.1: Monthly rainfall and recharge totals for the past 24 months compared to the 1961 to 1990 long term average for each region and for England.

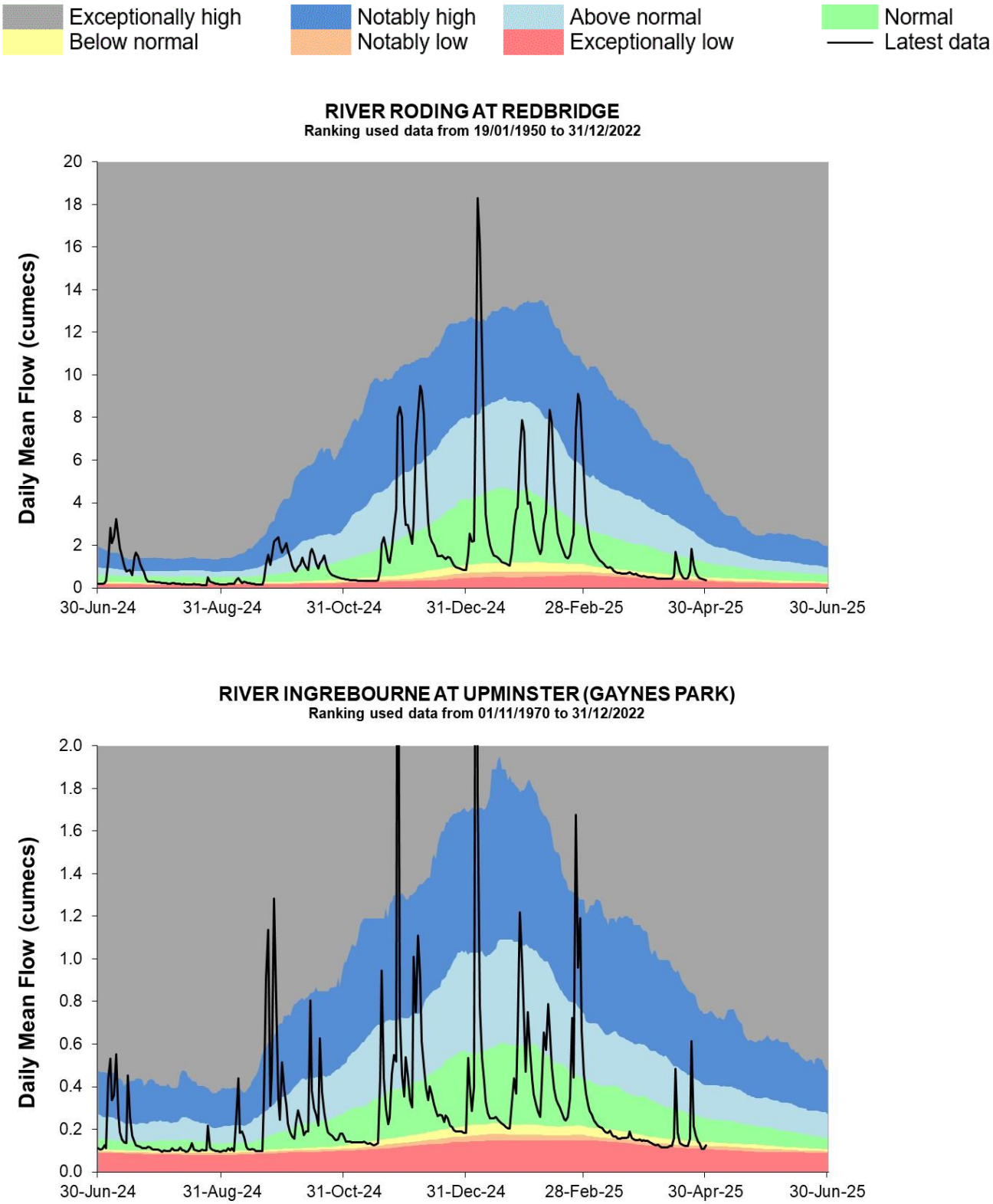


HadUK rainfall data (Source: Met Office. Crown copyright, 2025)

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

8.2 Roding River flow charts

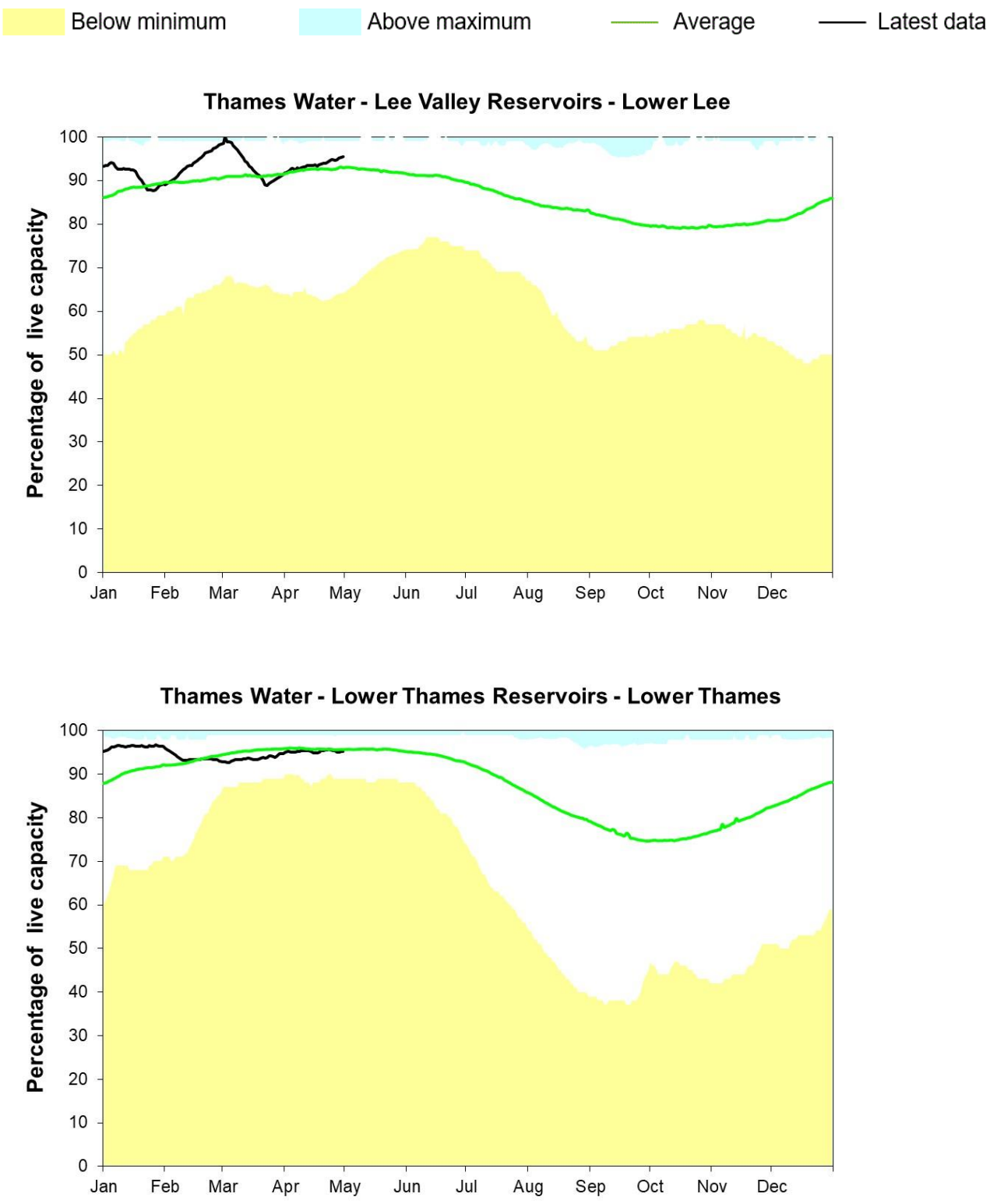
Figure 8.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



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

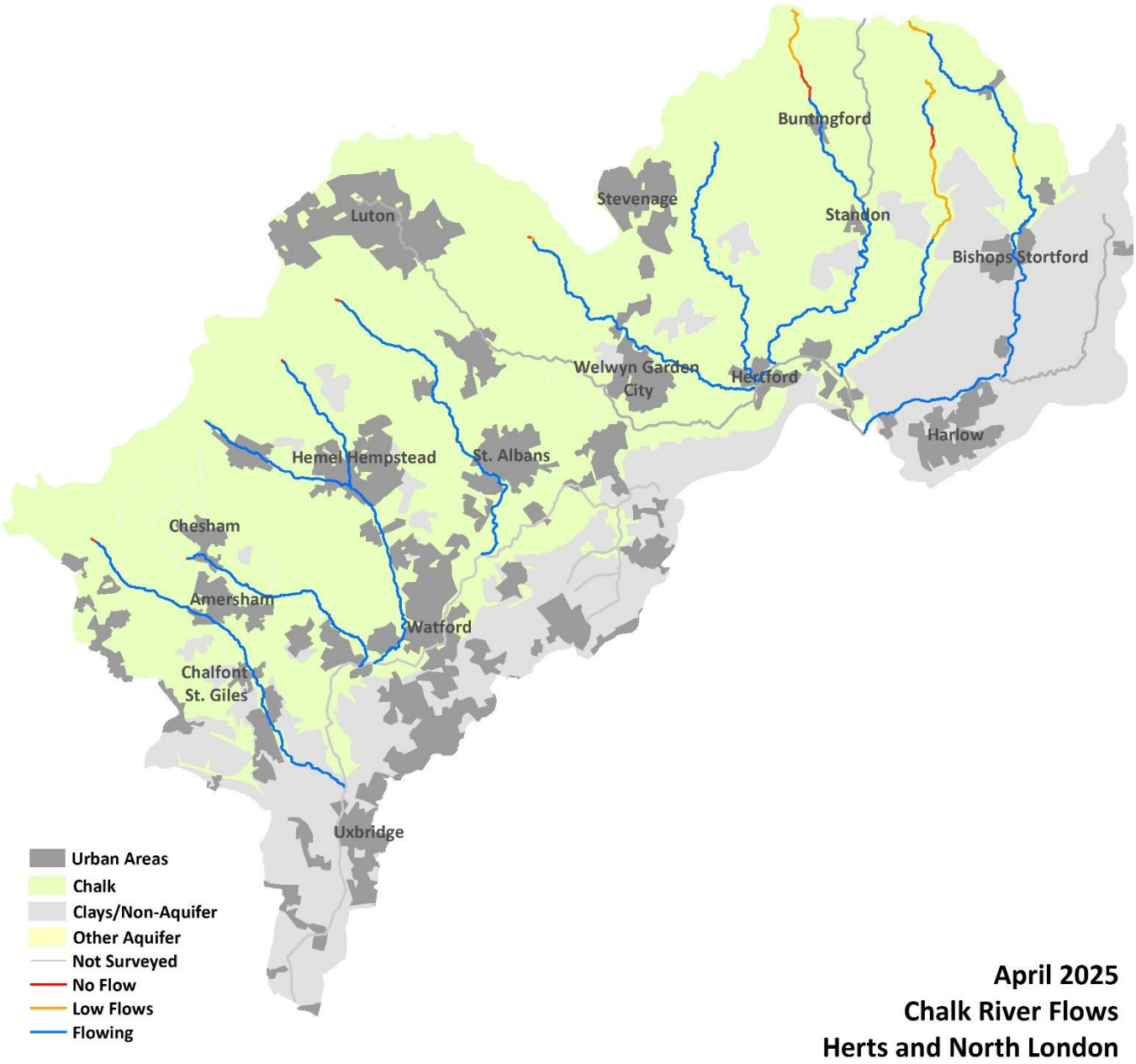


Figure 10.1: Length of Chalk Rivers surveyed during the month and categorised as: Flowing, Low Flows, No Flow or Not Surveyed.

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	April 2025 total rainfall in mm	April 2025 rainfall long term average 1961 to 1990	April 2025 rainfall % of long term average 1961 to 1990	Summer April 2025 to April 2025 total rainfall in mm	Summer April 2025 to April 2025 rainfall % of long term average 1961 to 1990
Chilterns East Colne	32	54	58	32	58
Lee Chalk	32	49	64	32	64
Lower Lee	32	49	66	32	66
North London	25	48	52	25	52
Roding	33	46	72	33	72
Herts and North London total	31	49	62	31	62

12.2 Rainfall banding table

Hydrological area	April 2025 band	Feb 2025 to April 2025 cumulative band	Nov 2024 to April 2025 cumulative band	May 2024 to April 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	April 2025 total effective rainfall in mm	April 2025 effective rainfall long term average 1961 to 1990 in mm	April 2025 effective rainfall % of long term average 1961 to 1990	Summer April 2025 to April 2025 total effective rainfall in mm	Summer April 2025 to April 2025 effective rainfall % of long term average 1961 to 1990
Chilterns East Colne	3	17	19	3	19
Lee Chalk	3	12	26	3	26
Lower Lee	0	10	0	0	0
North London	0	9	0	0	0
Roding	0	8	0	0	0
Herts and North London total	1	11	12	1	11

12.4 Soil Moisture Deficit table

Hydrological area	April 2025 end of month Soil Moisture Deficit in mm	April 2025 end of month Soil Moisture Deficit long term average 1961 to 1990 in mm	March 2025 end of month Soil Moisture Deficit in mm	March 2025 end of month Soil Moisture Deficit long term average 1961 to 1990 in mm
Chilterns East Colne	66	19	30	8
Lee Chalk	68	24	32	12
Lower Lee	65	22	34	10
North London	74	23	34	11
Roding	65	22	33	11
Herts and North London total	68	22	32	10

12.5 River flows table

Site name	River	Catchment	Aug 2023 band	Jul 2023 band
Colney Street (Hansteads)	Ver	Colne	Exceptionally high	Exceptionally high
Croxley Green	Gade	Colne	Above normal	Above normal
Denham Lodge	Misbourne	Colne	Above normal	Above normal
Denham Colne	Colne	Colne	Above normal	Above normal
Howe Green (Water Hall)	Lee	Upper Lee	Above normal	Notably high
Panshanger	Mimram	Upper Lee	Exceptionally high	Exceptionally high
Wareside (Mardock)	Ash	Upper Lee	Below normal	Normal
Feildes Weir (naturalised)	Lee	Upper Lee	Normal	Normal
Brent (Monks Park)	Brent	North London	Below normal	Exceptionally low
Cranford (Cranford Park)	Crane	North London	Below normal	Notably low
Redbridge	Roding	Roding, Beam and Ingrebourne	Below normal	Below normal
Upminster (Gaynes Park)	Ingrebourne	Roding, Beam and Ingrebourne	Below normal	Notably low

12.6 Groundwater table

Site name	Aquifer	Aug 2023 band	Jul 2023 band
Ashley Green	Mid-Chilterns Chalk	Normal	Normal
Ballingdon Farm	Mid-Chilterns Chalk	Above normal	Above normal
Amersham Road	Mid-Chilterns Chalk	Normal	Above normal
Wapseys Wood	Mid-Chilterns Chalk	Above normal	Above normal
Lilley Bottom	Upper Lee Chalk	Notably high	Exceptionally high
Crescent Cottages	Upper Lee Chalk	Notably high	Notably high
Cave Gate	Upper Lee Chalk	Notably high	Notably high
Hixham Hall	Upper Lee Chalk	Notably high	Notably high
Therfield Rectory	Upper Lee Chalk	Notably high	Exceptionally high

12.7 Abstraction licence flow constraints

Number of flow constraints in force between 7 and 13 April 2025	Number of flow constraints in force between 14 and 20 April 2025	Number of flow constraints in force between 21 and 27 April 2025	Number of flow constraints in force between 21 and 27 April 2025
2	2	2	2