Monthly water situation report:

South-east England

1 Summary - May 2025

May was the third consecutive month with below average rainfall, with only 42% of the long term average 1991-2020 (LTA) recorded across the south-east of England. There was an average of 23 ‘dry’ days when there was less than 0.2mm rainfall recorded. After a warm, sunny and dry few months, the weather became more changeable, comprising slightly lower temperatures and variable rainfall patterns. With reference to the rainfall map for the last 3 month totals below, the rainfall has been in the exceptionally low category across the south-east of England. The soil moisture deficits (SMDs) generally rose steadily during the month and there has been no significant recharge. Flows at the indicator sites have continued the expected seasonal decline which started at the beginning of March and ranged from exceptionally low to notably high across the south-east. The expected steady decline of groundwater levels for this time of year continued during the month. No fluvial or groundwater flood alerts were issued during May.

1.1 Rainfall

May was the third consecutive month with below average rainfall, with only 42% of the LTA (1991-2020) recorded across the south-east of England. There was an average of 23 ‘dry’ days when there was less than 0.2mm rainfall recorded. After a warm, sunny and dry few months, the weather became more changeable, comprising slightly lower temperatures and variable rainfall patterns. For example, on 11 May there was a band of heavy rainfall from the Cotswolds in the west to the East Sussex coast which resulted in the highest daily rainfall, 20mm, being recorded at Swindon, Thames (THM). On 2 May, there was an isolated rainfall cell from the Wey Greensand areal unit (THM) to the North London areal unit, Hertfordshire and North London (HNL) which resulted in the second highest daily rainfall total for the month, 19.5mm, being recorded at Leatherhead, Kent and South London (KSL). By contrast, on 27 May, there was widespread light rainfall across the south-east of England which resulted in daily totals of around 10mm being recorded at Radlett, HNL and Knockholt, KSL, both within the top 5 rainfall totals for their respective areas.

On the 23 and 27 May the widespread rainfall contributed 50%, on average, of the monthly total rainfall across the south-east for the month. However, the heavy isolated showers on 11 and 12 May only contributed, on average, 12% of the monthly total for the south-east.

With reference to the rainfall map for the last 3 month totals below, the rainfall has been in the exceptionally low category across the south-east of England. It was the driest period on record for both Cotswolds East and Upper Thames (THM) and the driest since 1893 for a number of

areal units, particularly Berkshire Downs and Ock, both THM and the Test, Solent and South Downs (SSD).

1.2 Soil moisture deficit and recharge

The SMDs generally rose steadily to end the month around 150% of the LTA for May. Owing to the high SMDs and low rainfall, there was no significant recharge during the month.

1.3 River flows

Flows at the indicator sites have continued the expected seasonal decline which started at the beginning of March. Those rivers supported by groundwater baseflow show a less steep decline than those draining impermeable catchments. Flows range from exceptionally low to notably high across the south-east. The Lymington River at Brockenhurst (SSD) recorded the lowest May flow on record, with flows in the exceptionally low category. Another example of an exceptionally low flow site was the Arun at Alfoldean, also in SSD, with the lowest flows since 2011. The Coln at Bibury and the Thames at Farmoor, both THM, recorded flows in the notably low range, possibly reflecting the low groundwater levels in the Cotswolds which provides the groundwater baseflow. However, the Mimram at Panshanger (HNL) fed by groundwater from the Lee Chalk, remained in the notably high range during May and was the 10th highest on record. No fluvial or groundwater flood alerts were issued during the month.

1.4 Groundwater levels

The expected steady decline of groundwater levels for this time of year continued during the month. Ten of the 16 indicator sites recorded levels in the normal range for May. Jackaments (THM) and Carisbrooke Castle (SSD) both had levels in the exceptionally low category and both recorded their second lowest May levels on record after 1976 and 2005 respectively. The levels for the Chilterns and Lee Chalk sites, Stonor (THM) and Lilley Bottom (HNL) respectively, remained relatively high in the notably high range.

1.5 Reservoir stocks

The dry weather has resulted in continued declines in some of the reservoir stocks across the south-east of England. Stocks at all reservoirs across the south-east are at or just below the LTA for May, with the exception of Weir Wood reservoir (KSL), which is above the monthly LTA.

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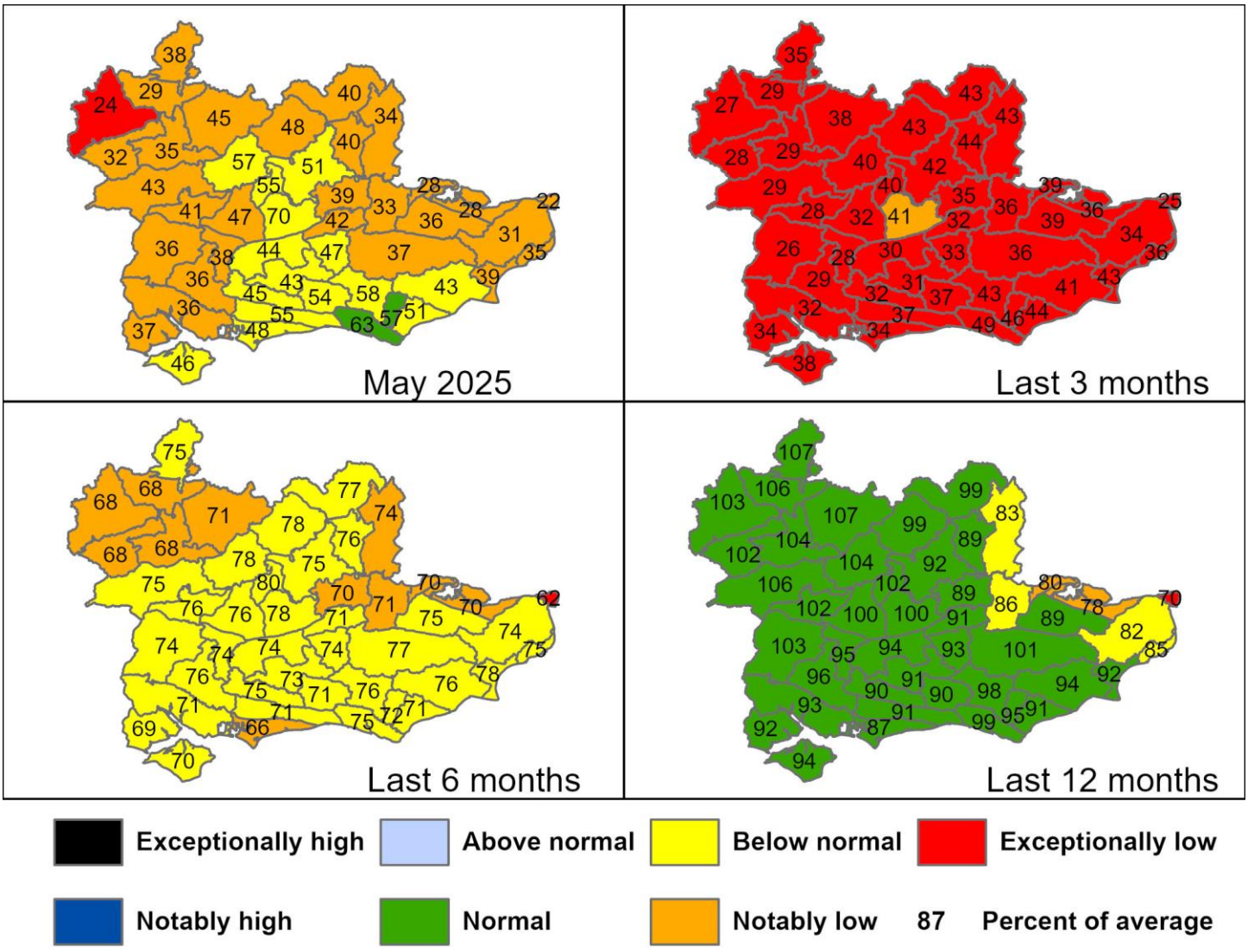
2 Maps

2.1 Rainfall map

Figure 2.1: Total rainfall for hydrological areas for the current month (up to 31 May 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. The numbers refer to the percentage of the 1991-2020 long term average.

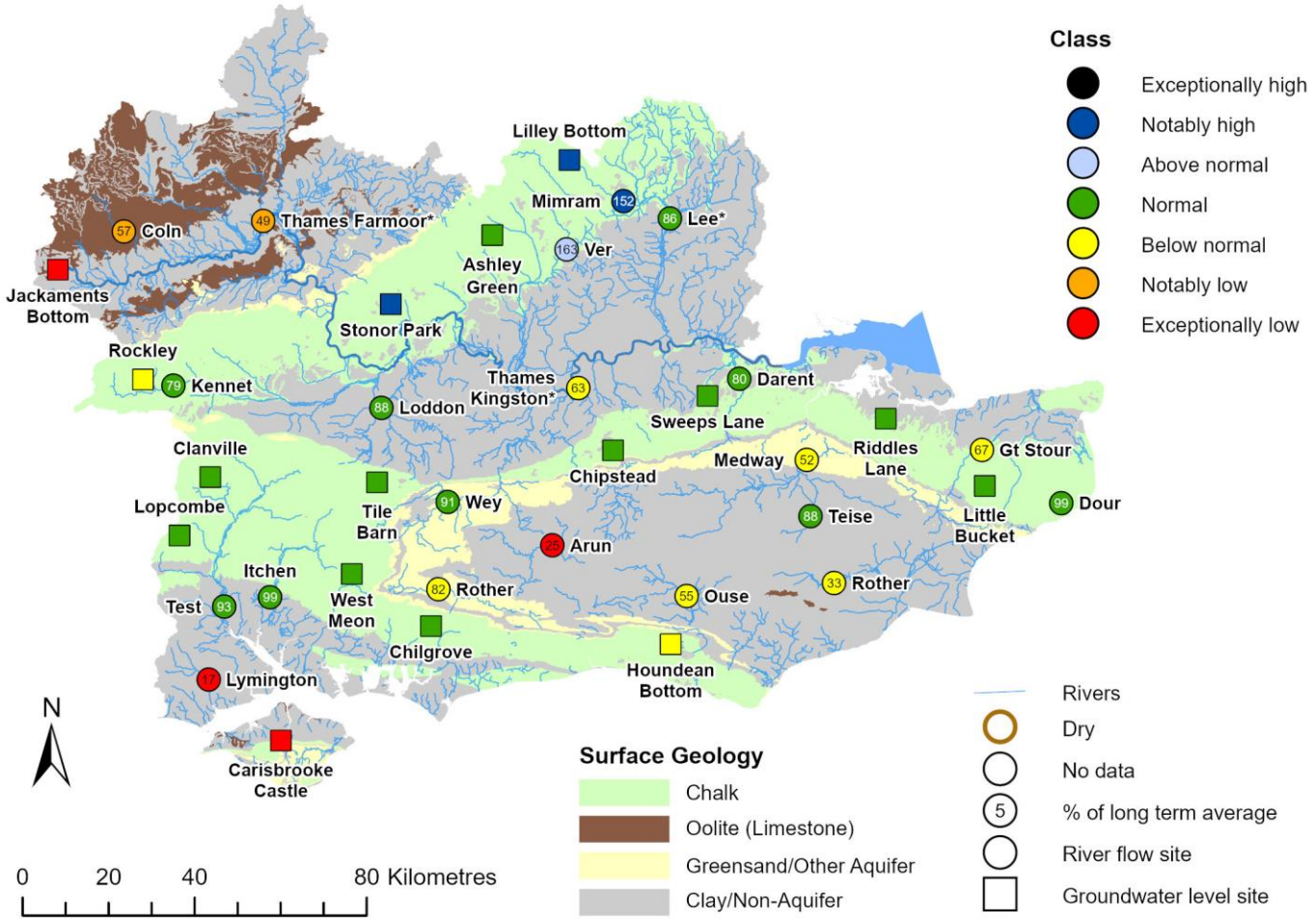


Rainfall data for 2025, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, 100024198, 2025). Rainfall data prior to 2025, extracted from Met Office HadUK 1km gridded rainfall dataset derived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

2.2 River flows and groundwater levels map

Figure 2.2: Monthly mean river flow for indicator sites for May 2025, expressed as a percentage of the respective long term average and classed relative to an analysis of historic May monthly means Table available in the appendices with detailed information. Groundwater levels for indicator sites at the end of May 2025, classed relative to an analysis of respective historic May levels. Table available in the appendices with detailed information.

Flows at gauging stations in the Medway catchment (KSL) might be affected by upstream reservoir releases.



3 Rainfall, effective rainfall and soil moisture deficit tables

3.1 Rainfall, effective rainfall and soil moisture deficit table

Figure 3.1: This is a second estimate of areal rainfall, effective rainfall (percolation or runoff) and SMDs for a selection of the hydrological areas across the South-east of England. There may be significant variation within each area which must be considered when interpreting these data. When additional meteorological data is available estimates are revised which will affect the period totals in Figure 3.2. The LTA period is 1991-2020.

Number	Hydrological Area	Rainfall (mm) 31 day Total	May % LTA	Effective Rainfall (mm) 31 day total	May % LTA	SMD (mm) Day 31	End May LTA
6010TH	Cotswolds - West (A)	16	24%	0	1%	66	30
6070TH	Berkshire Downs (G)	25	43%	1	15%	97	49
6130TH	Chilterns - West (M)	30	56%	2	31%	93	52
6162TH	North Downs - Hampshire (P)	20	37%	1	8%	98	51
6190TH	Wey - Greensand (S)	24	44%	1	12%	96	52
	Thames Average	23	41%	0	9%	92	49
	Thames Catchment Average	23	42%	0	11%	93	49
6140TH	Chilterns - East - Colne (N)	26	48%	2	28%	93	53
6600TH	Lee Chalk	20	40%	1	24%	96	68
6507TH	North London	24	50%	0	0%	97	61
6509TH	Roding	16	34%	0	0%	96	62
	Herts and North London	21	43%	1	22%	95	61
6230TH	North Downs - South London (W)	23	41%	1	17%	96	50
6706So	Darent	16	32%	1	16%	96	56

6707So	North Kent Chalk	18	35%	1	15%	95	53
6708So	Stour	16	30%	1	9%	98	54
6809So	Medway	19	37%	0	0%	92	49
	Kent & South London Average	17	35%	0	9%	99	64
6701So	Test Chalk	19	36%	1	12%	99	50
6702So	East Hampshire Chalk	20	36%	1	10%	96	50
6703So	West Sussex Chalk	30	55%	2	20%	92	49
6804So	Arun	23	43%	0	0%	95	49
6805So	Adur	29	53%	0	0%	92	48
	Solent & South Downs Average	24	47%	1	10%	94	51
	South East Average	21	42%	0	10%	95	55

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

EA effective rainfall and soil moisture deficit data (Source EA Soil Moisture Model 2025.)

3.2 Seasonal summary table of rainfall and effective rainfall

Figure 3.2 This is a seasonal estimate of areal rainfall and effective rainfall (percolation or runoff) for a selection of the hydrological areas across the South-east of England, expressed as totals and as a percentage of the LTA (1991-2020). There may be significant variation within each area which must be considered when interpreting these data. When additional meteorological data is available estimates are revised which will affect the period totals.

Summer period 01/04/2025 to 31/05/2025

Number	Hydrological Area	Seasonal Rainfall (mm) Total	Seasonal Rainfall as % LTA	Seasonal Effective Rainfall (mm) Total	Seasonal Effective Rainfall as % LTA
6010TH	Cotswolds - West (A)	40	32%	2	8%
6070TH	Berkshire Downs (G)	41	35%	2	10%
6130TH	Chilterns - West (M)	55	50%	4	20%
6162TH	North Downs - Hampshire (P)	42	35%	2	7%
6190TH	Wey - Greensand (S)	45	40%	3	9%
	Thames Average	43	40%	1	7%
	Thames Catchment Average	44	41%	1	8%
6140TH	Chilterns - East - Colne (N)	57	53%	5	25%
6600TH	Lee Chalk	51	55%	4	32%
6507TH	North London	49	52%	0	0%
6509TH	Roding	48	55%	0	0%
	Herts and North London	51	54%	2	18%
6230TH	North Downs - South London (W)	44	40%	3	14%

6706So	Darent	46	47%	4	26%
6707So	North Kent Chalk	48	49%	5	27%
6708So	Stour	41	42%	3	21%
6809So	Medway	47	45%	0	0%
	Kent & South London Average	43	45%	2	12%
6701So	Test Chalk	37	32%	2	7%
6702So	East Hampshire Chalk	45	38%	3	10%
6703So	West Sussex Chalk	55	49%	4	15%
6804So	Arun	45	42%	0	0%
6805So	Adur	52	49%	0	0%
	Solent & South Downs Average	51	48%	2	8%
	South East Average	46	45%	1	9%

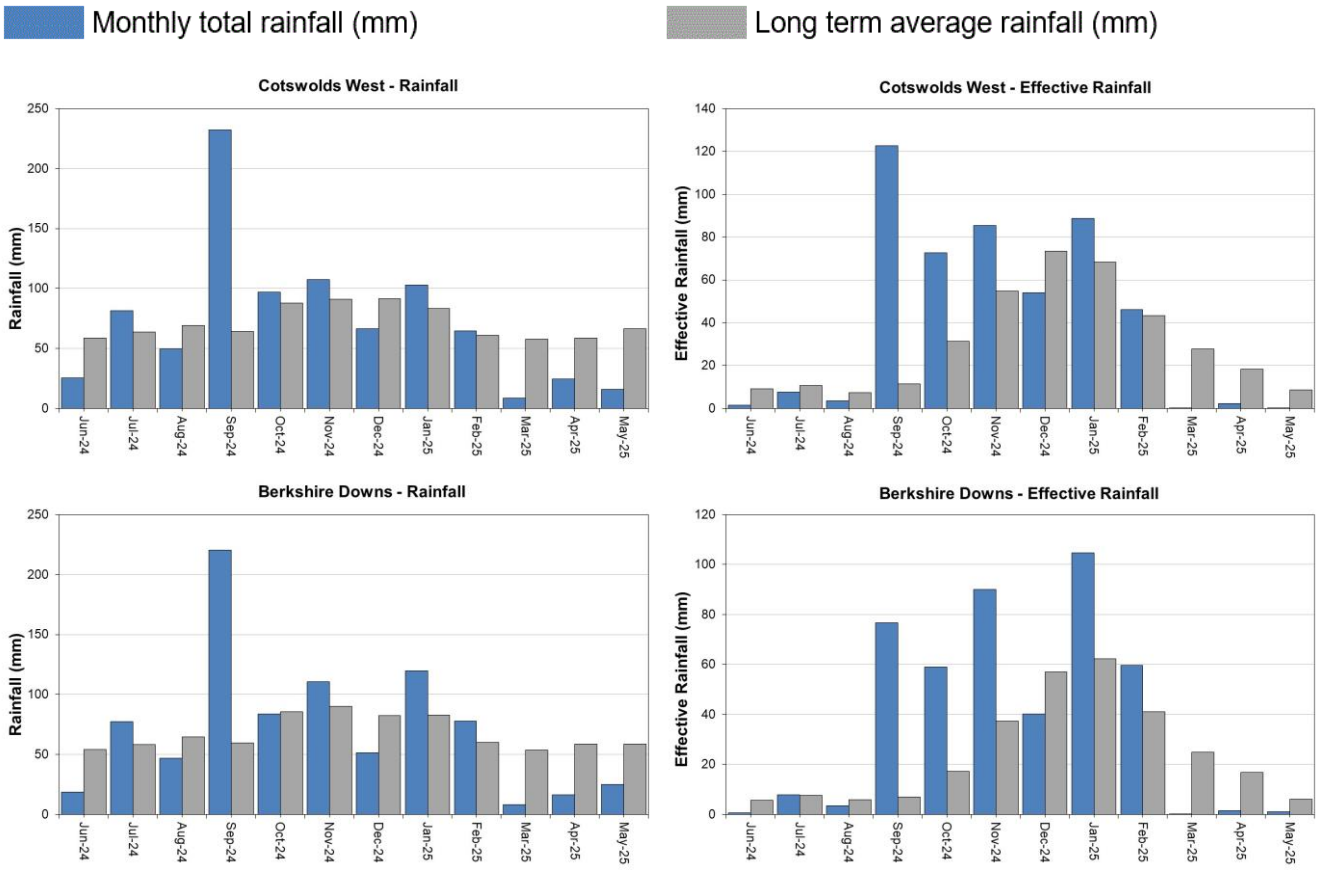
HadUK rainfall data. (Source: Met Office. Crown copyright, 2025).

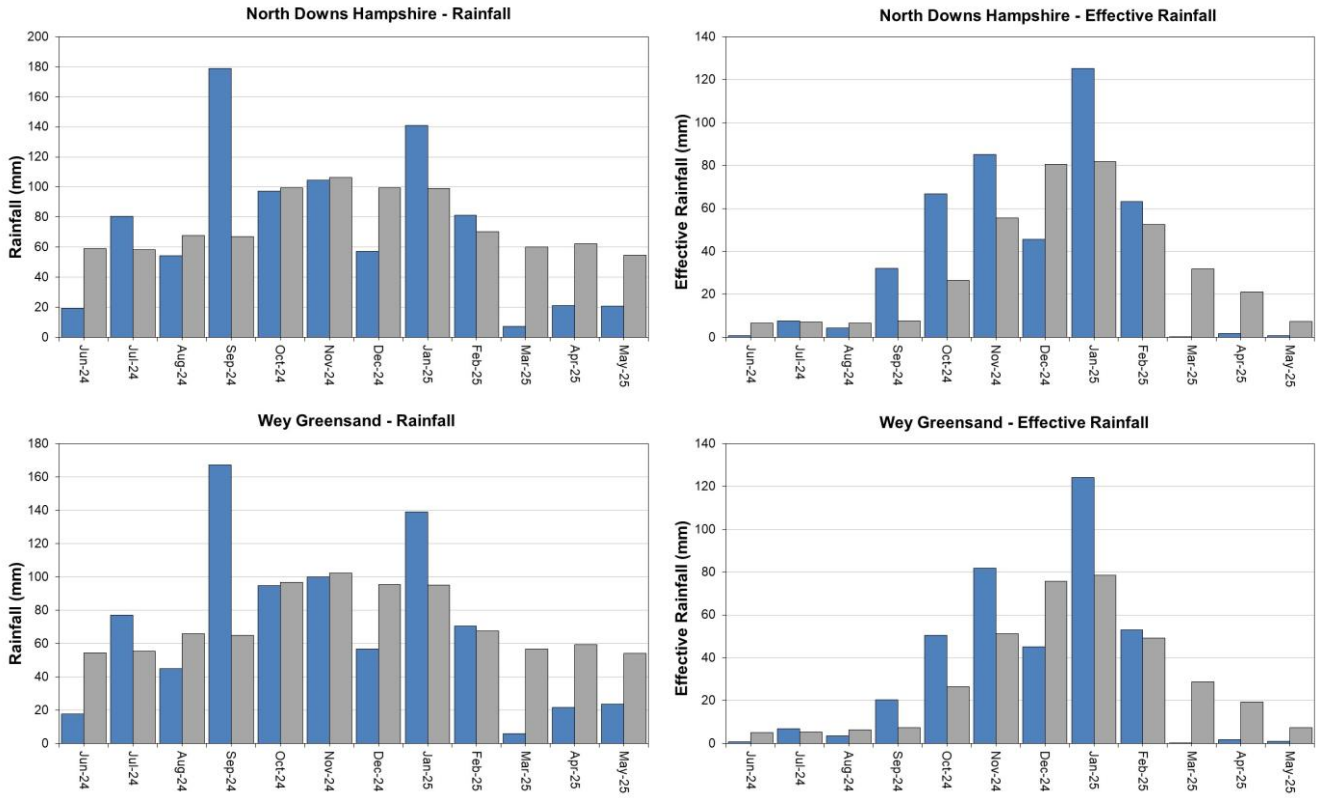
EA effective rainfall data (Source EA Soil Moisture Model 2025.)

4 Thames

4.1 Thames Rainfall and effective rainfall charts

Figure 4.1: Monthly rainfall and effective rainfall totals for the past 24 months compared to the 1991 to 2020 long term average for a selection of areal units.



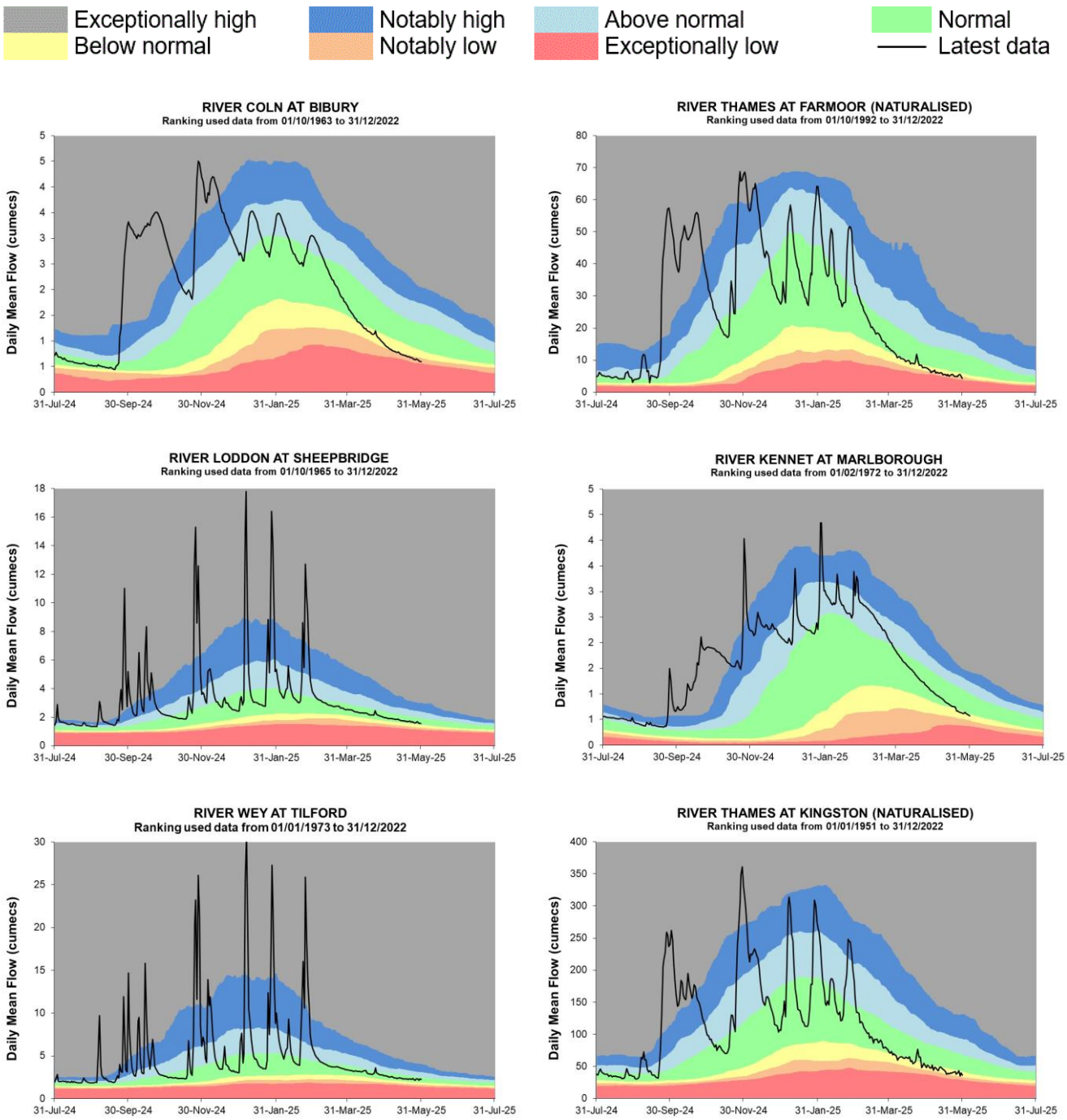


HadUK rainfall data. (Source: Met Office. Crown copyright, 2025).

EA effective rainfall data (Source EA Soil Moisture Model, 2025).

4.2 Thames River flow charts

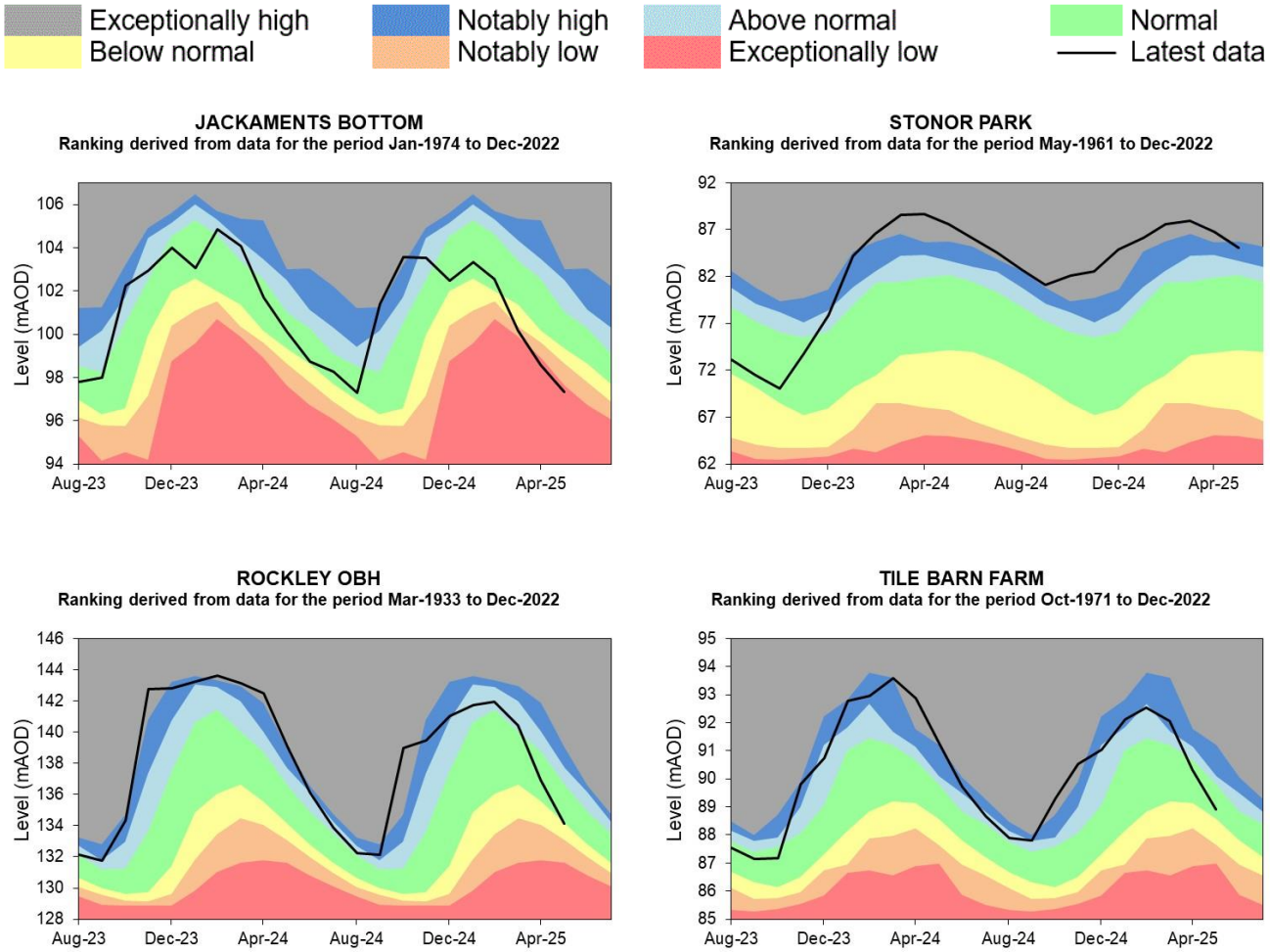
Figure 4.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



Source: Environment Agency. 2025

4.3 Thames Groundwater level charts

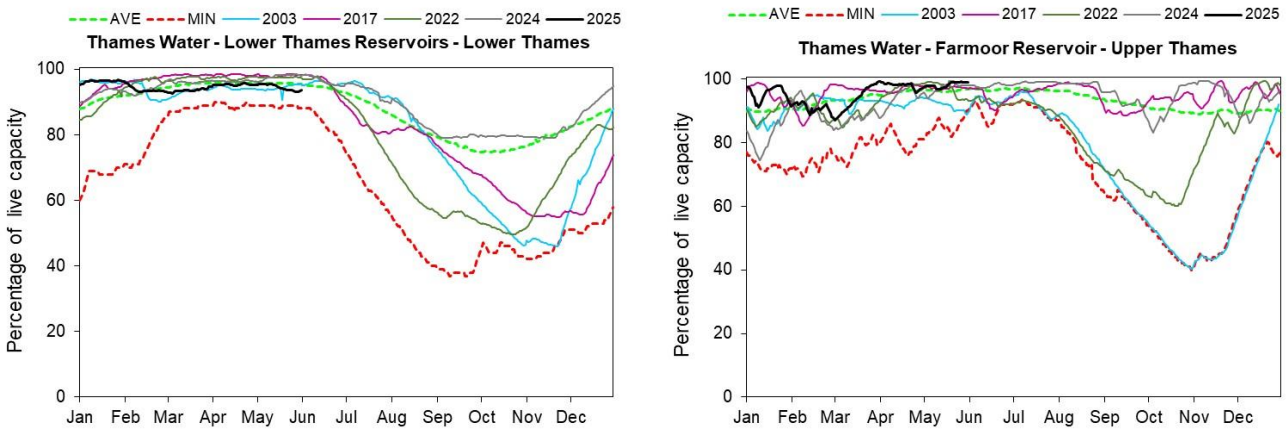
Figure 4.3: End of month groundwater levels at index groundwater level sites for major aquifers. 22 months compared to an analysis of historic end of month levels and long term maximum and minimum levels. Tile Barn Farm data has been estimated from 2 local sites since April 2022. A replacement is planned.



Source: Environment Agency, 2025.

4.4 Thames Reservoir stocks

Figure 4.4: End of month regional reservoir stocks compared to long term maximum, minimum and average stocks. Note: Historic records of individual reservoirs and reservoir groups making up the regional values vary in length.

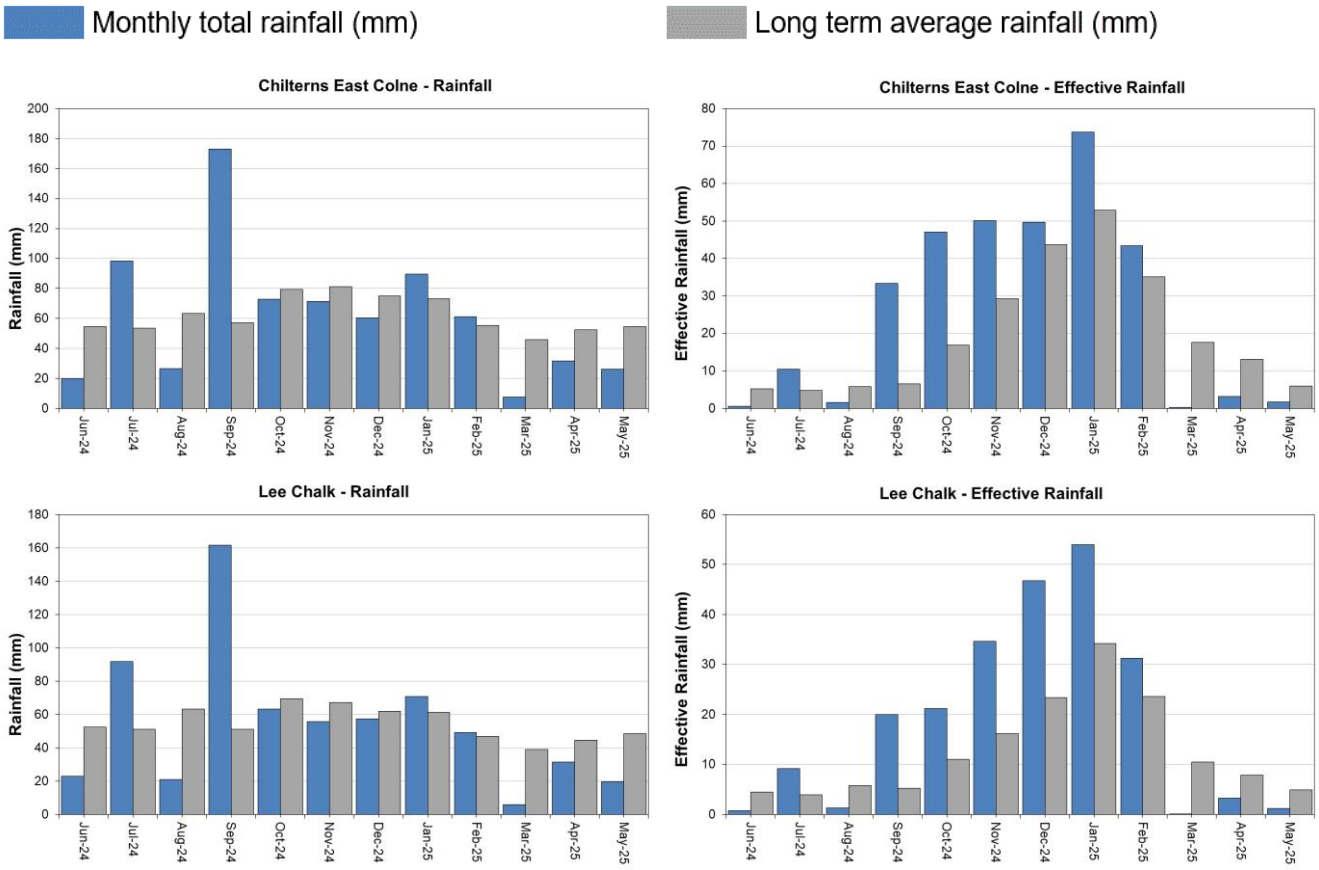


(Source: water companies).

5 Hertfordshire and North London (HNL)

5.1 HNL Rainfall and Effective rainfall charts

Figure 5.1: Monthly rainfall and effective rainfall totals for the past 24 months compared to the 1991 to 2020 long term average for a selection of areal units.

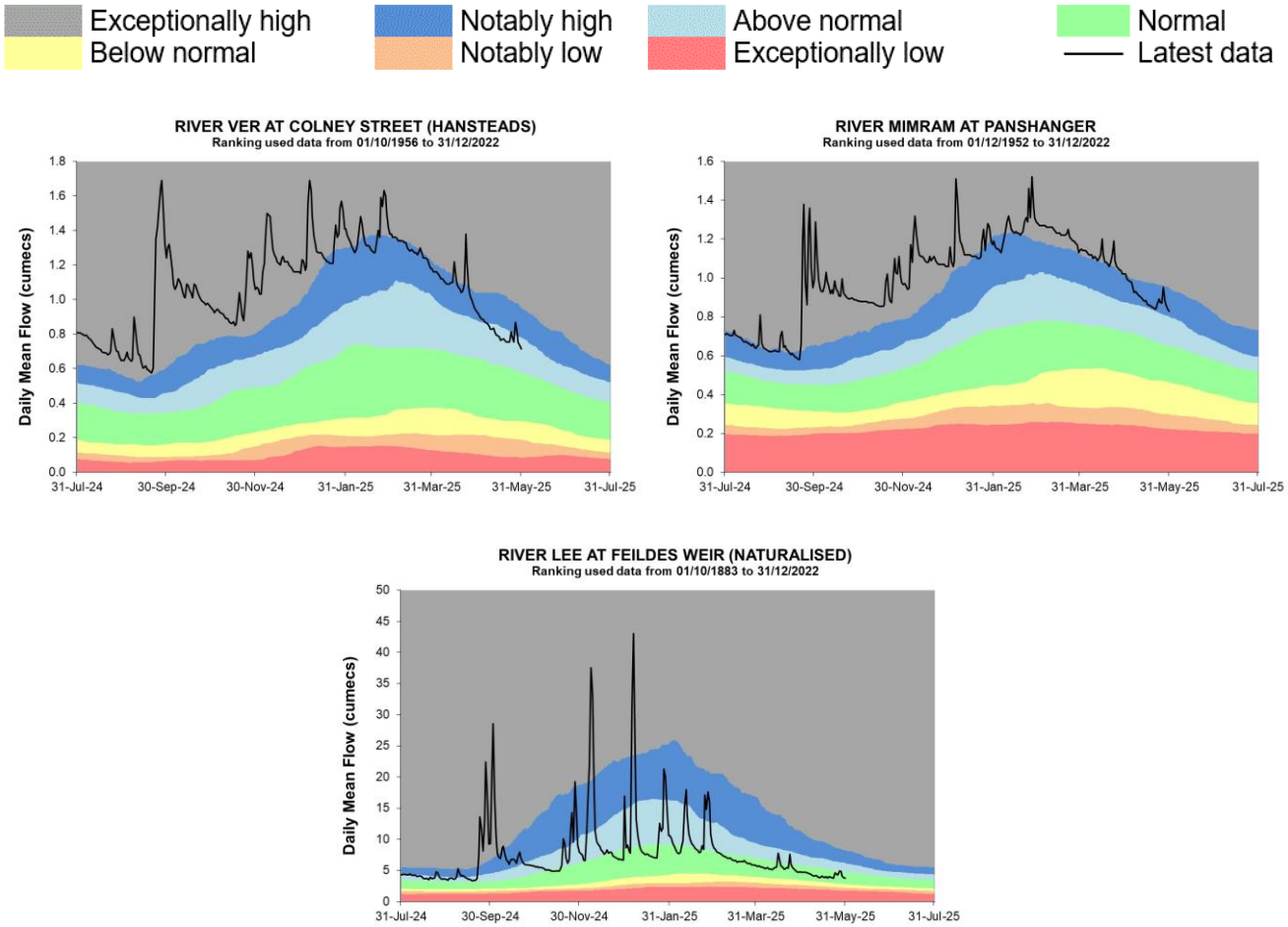


HadUK rainfall data. (Source: Met Office. Crown copyright, 2025).

EA effective rainfall data (Source EA Soil Moisture Model, 2025).

5.2 HNL River flow charts

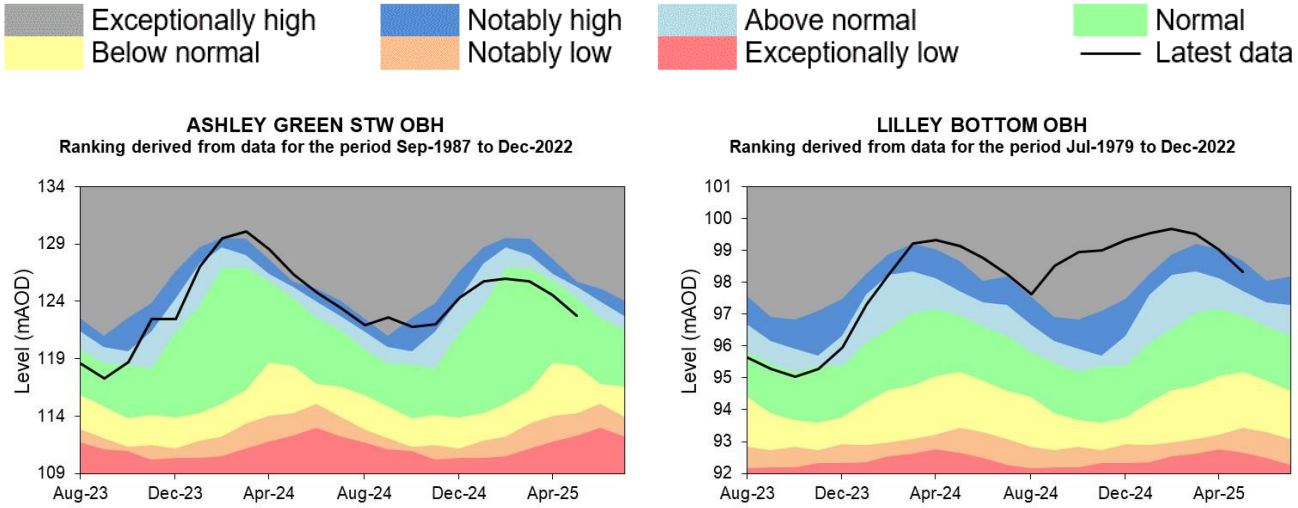
Figure 5.2 Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



Source: Environment Agency. 2025

5.3 HNL Groundwater level charts

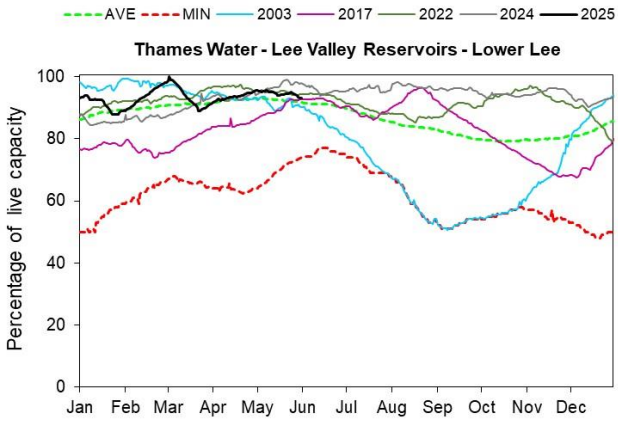
Figure 5.3: End of month groundwater levels at index groundwater level sites for major aquifers. 22 months compared to an analysis of historic end of month levels and long term maximum and minimum levels.



Source: Environment Agency, 2025.

5.4 HNL Reservoir stocks

Figure 5.4: End of month regional reservoir stocks compared to long term maximum, minimum and average stocks. Note: Historic records of individual reservoirs and reservoir groups making up the regional values vary in length.

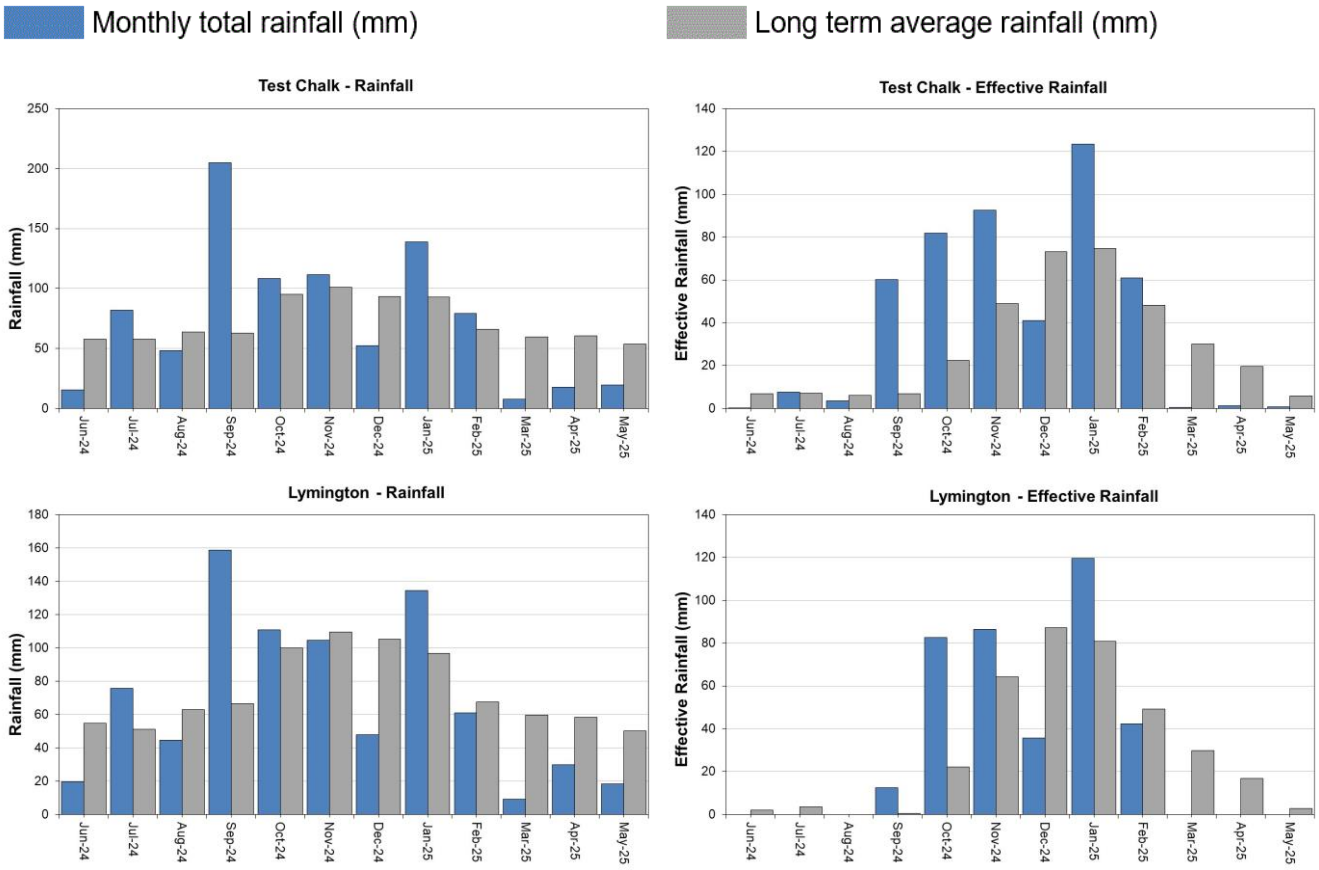


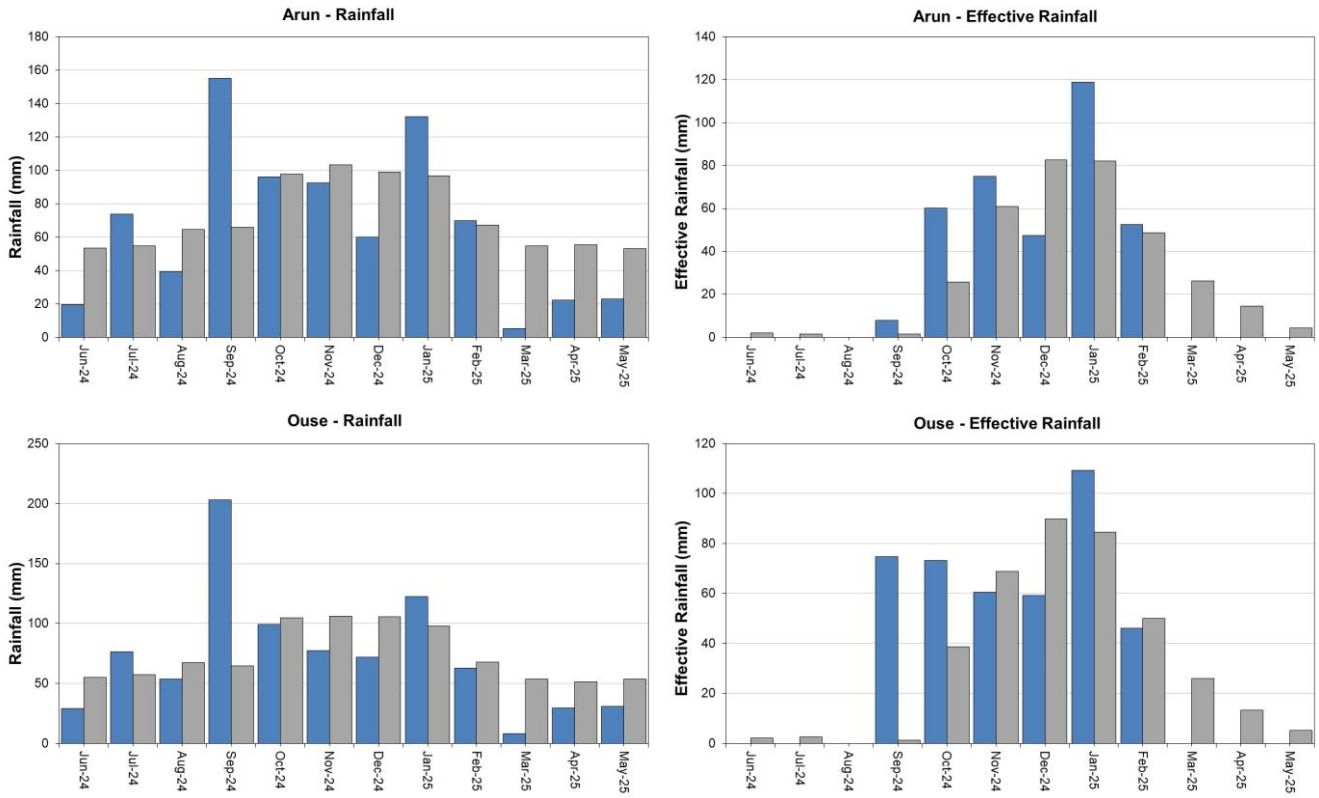
(Source: water companies).

6 Solent and South Downs (SSD)

6.1 SSD Rainfall and Effective Rainfall charts

Figure 6.1: Monthly rainfall and effective rainfall totals for the past 24 months as a percentage of the 1991 to 2020 long term average for a selection of areal units.



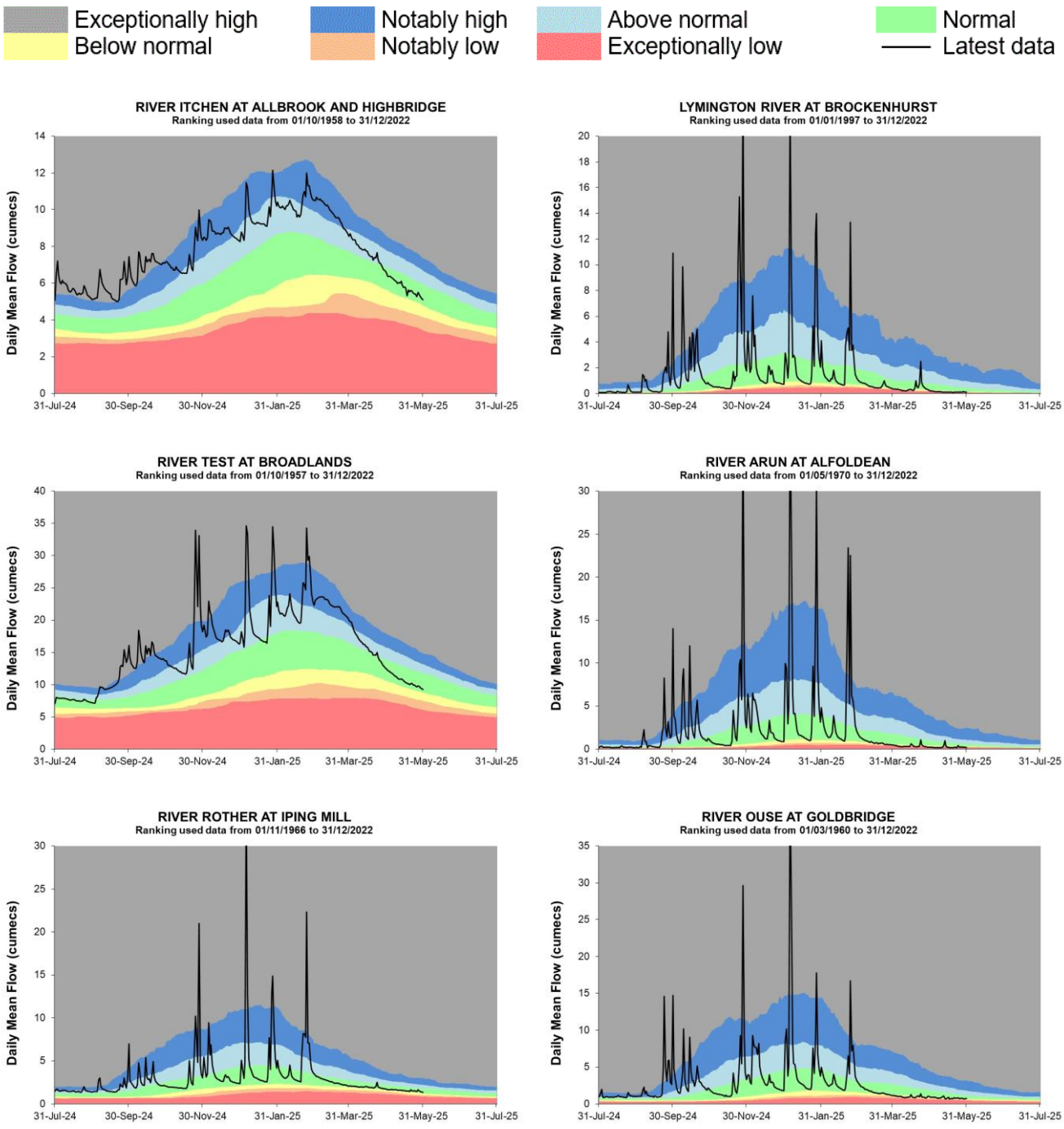


HadUK rainfall data. (Source: Met Office. Crown copyright, 2025).

EA effective rainfall data (Source EA Soil Moisture Model, 2025).

6.2 SSD River flow charts

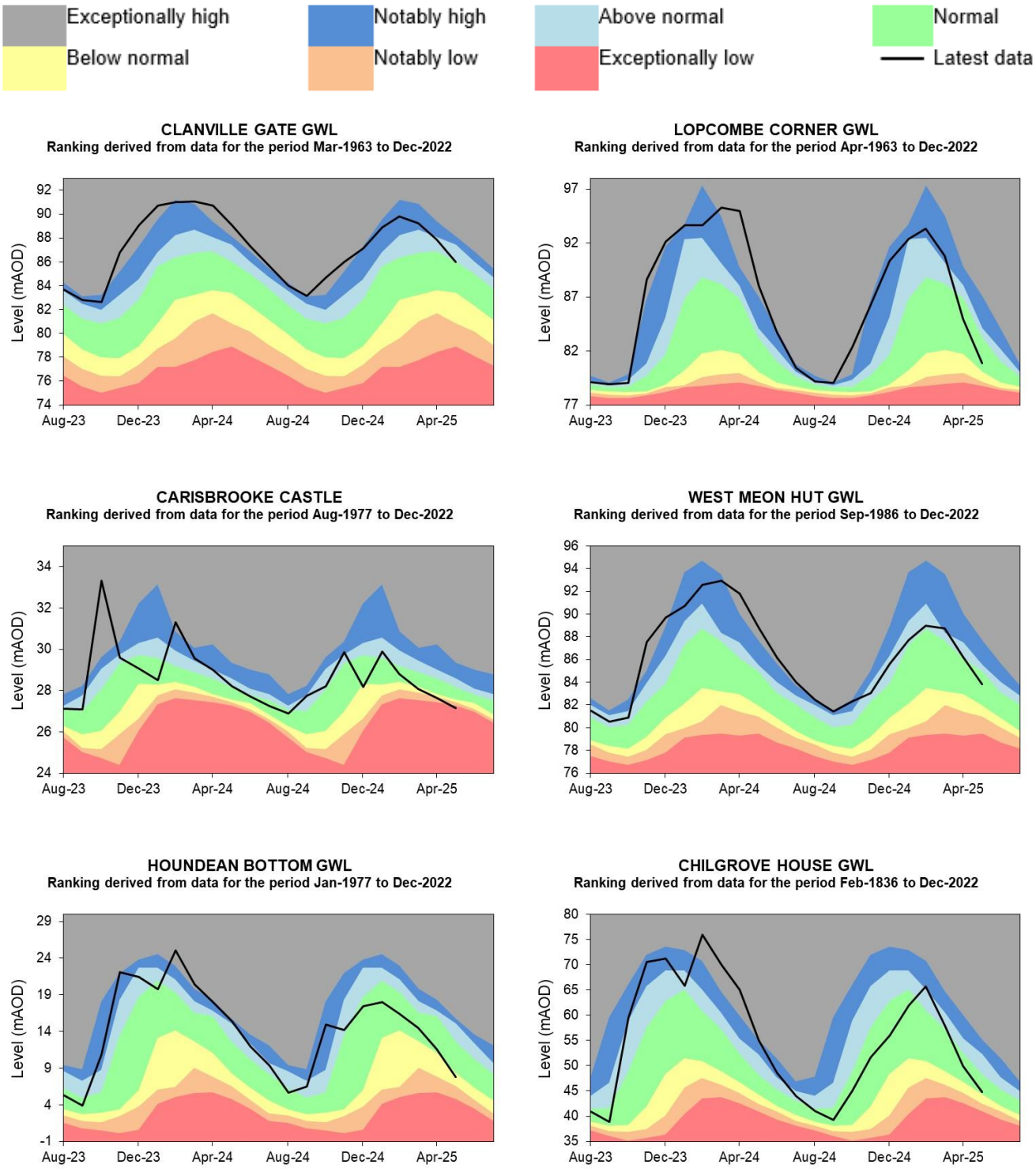
Figure 6.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



Source: Environment Agency. 2025

6.3 SSD Groundwater levels

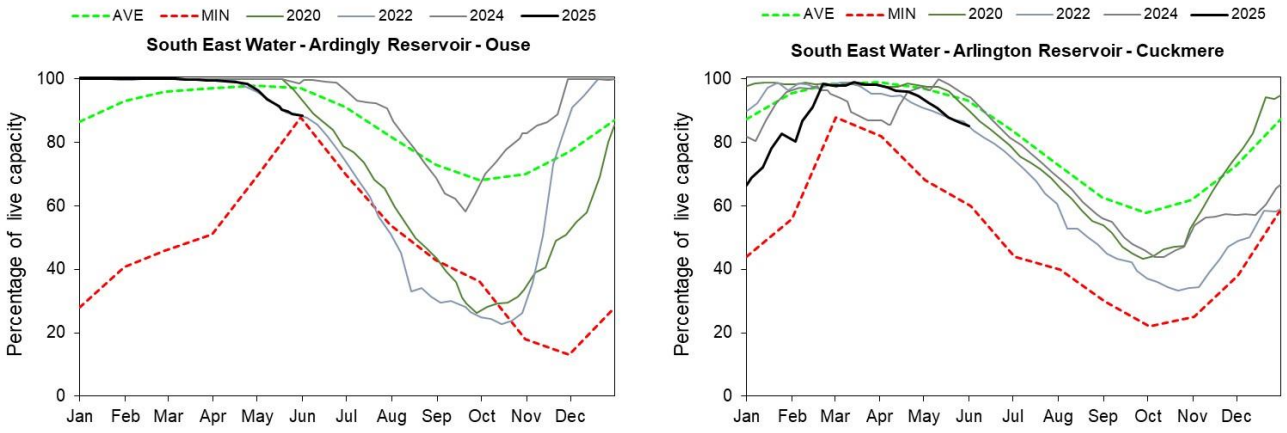
Figure 6.3: End of month groundwater levels at index groundwater level sites for major aquifers. 22 months compared to an analysis of historic end of month levels and long term maximum and minimum levels.



Source: Environment Agency, 2025.

6.4 SSD Reservoir stocks

Figure 6.4: End of month regional reservoir stocks compared to long term maximum, minimum and average stocks. Note: Historic records of individual reservoirs and reservoir groups making up the regional values vary in length.

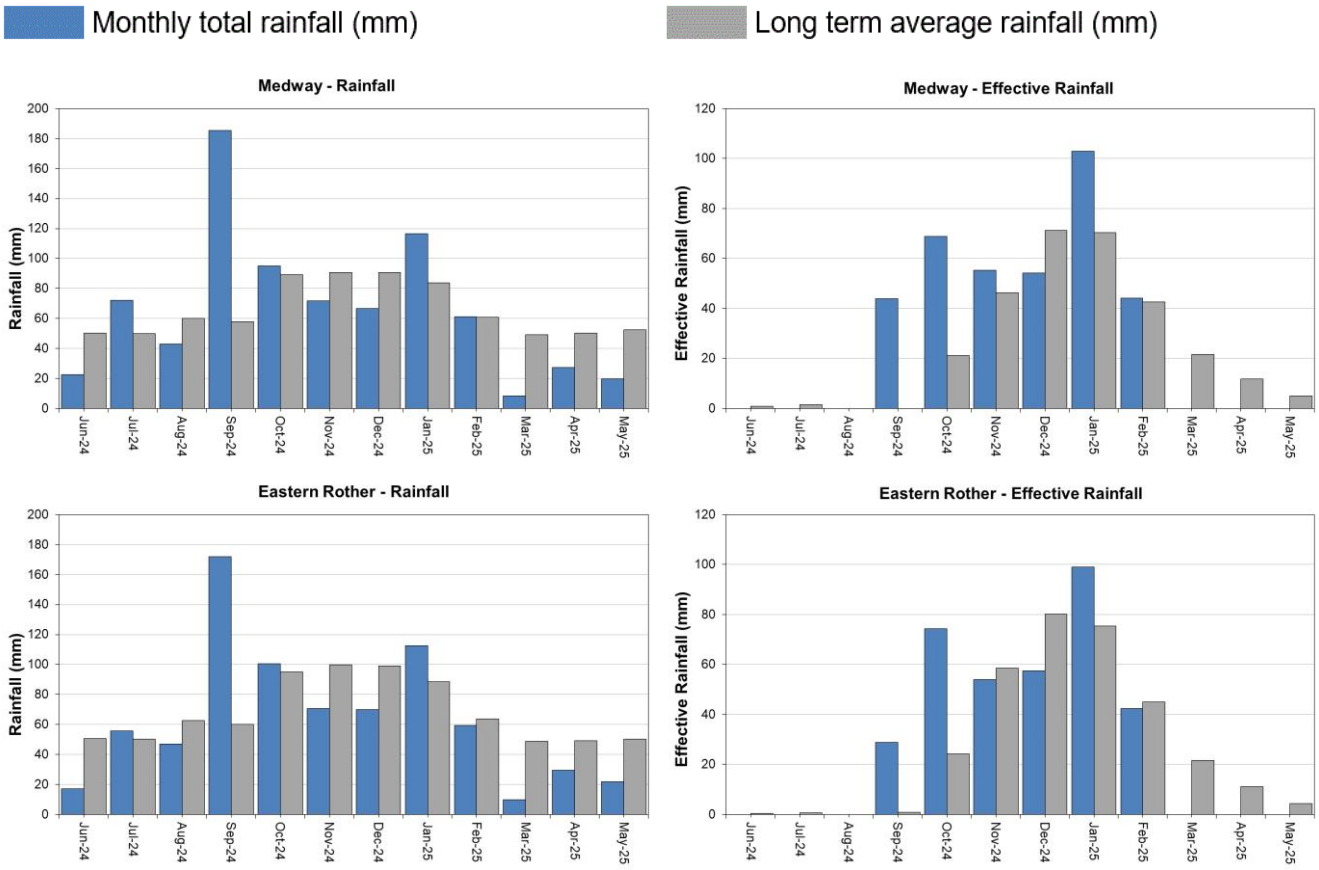


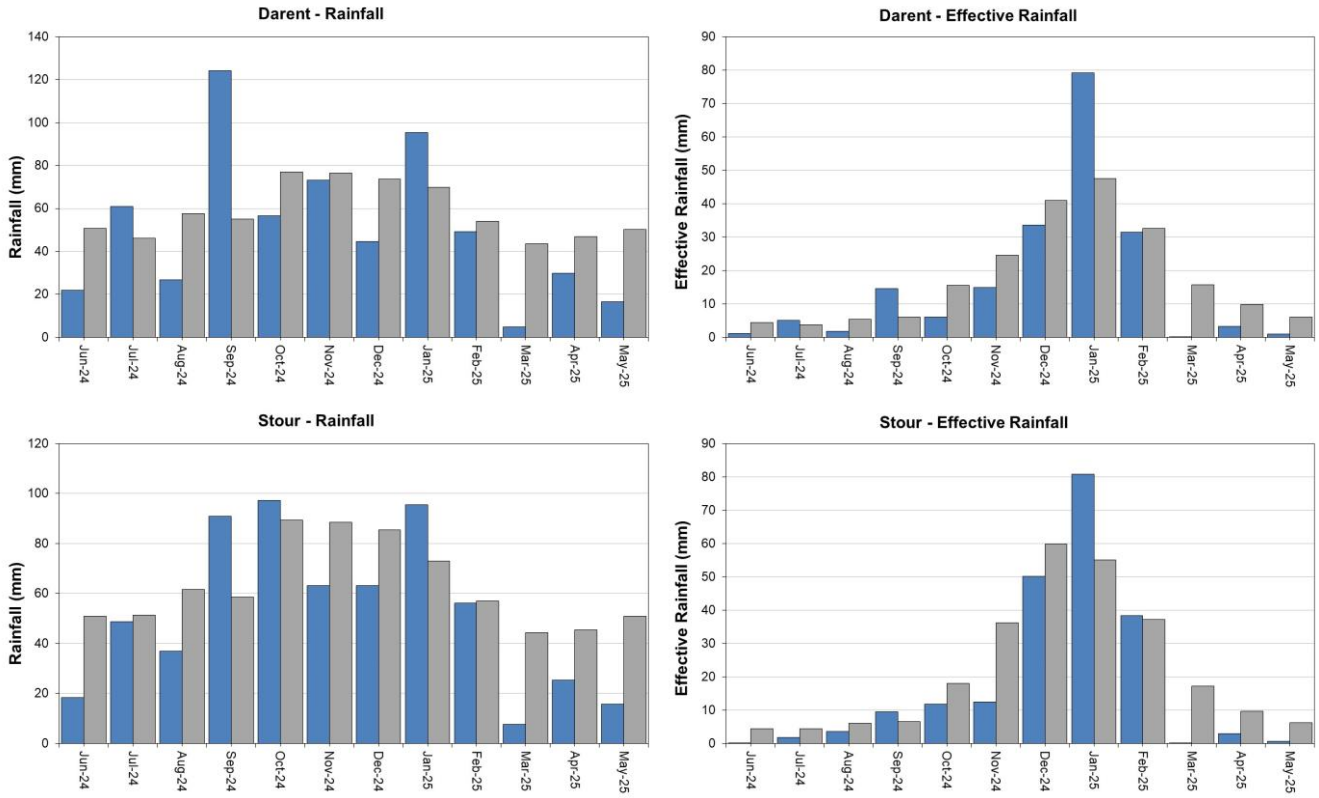
(Source: water companies).

7 Kent and South London (KSL)

7.1 KSL Rainfall and Effective Rainfall charts

Figure 7.1: Monthly rainfall and effective rainfall totals for the past 24 months compared to the 1991 to 2020 long term average for a selection of areal units.



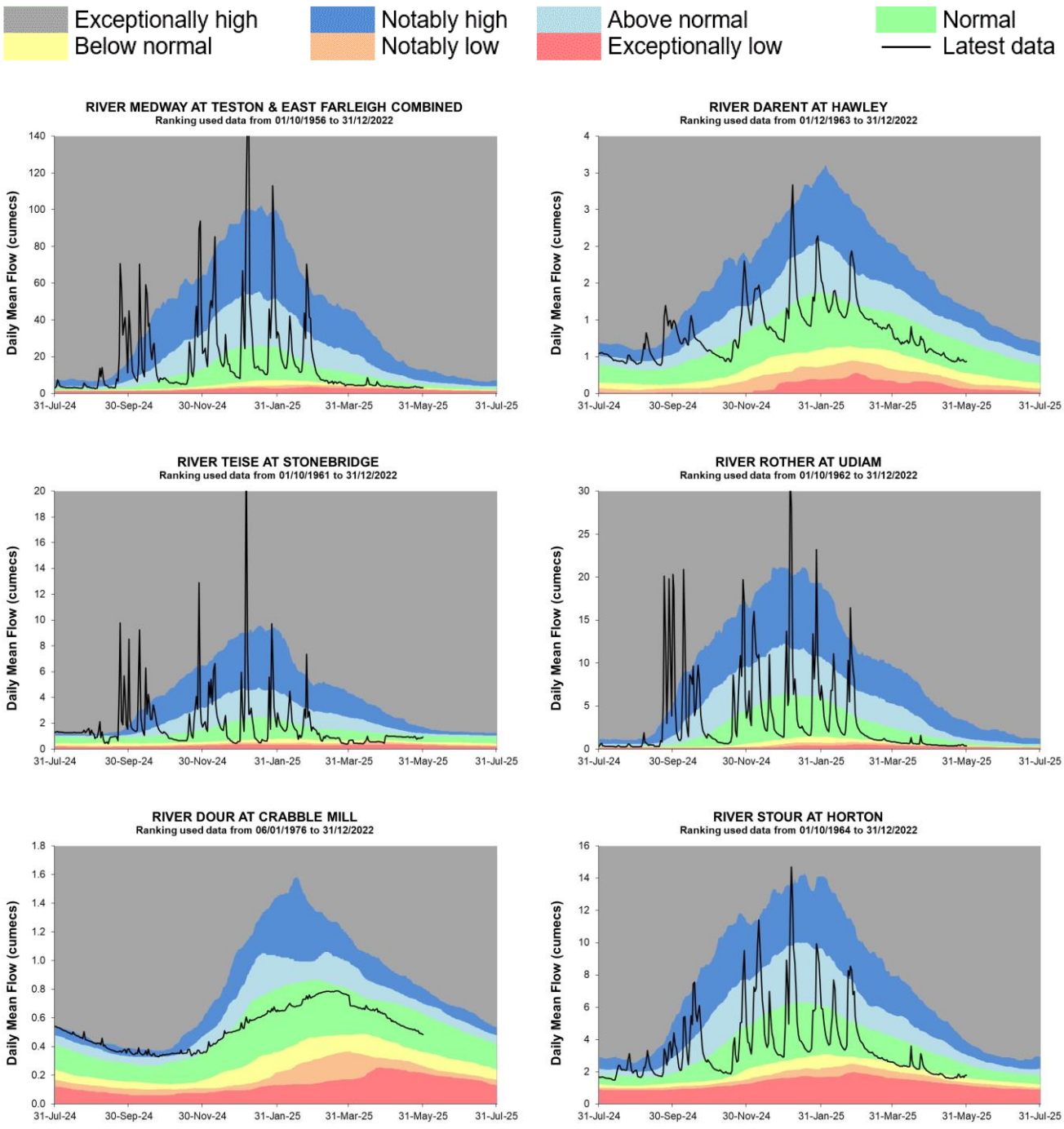


HadUK rainfall data. (Source: Met Office. Crown copyright, 2025).

EA effective rainfall data (Source EA Soil Moisture Model, 2025).

7.2 KSL River flow charts

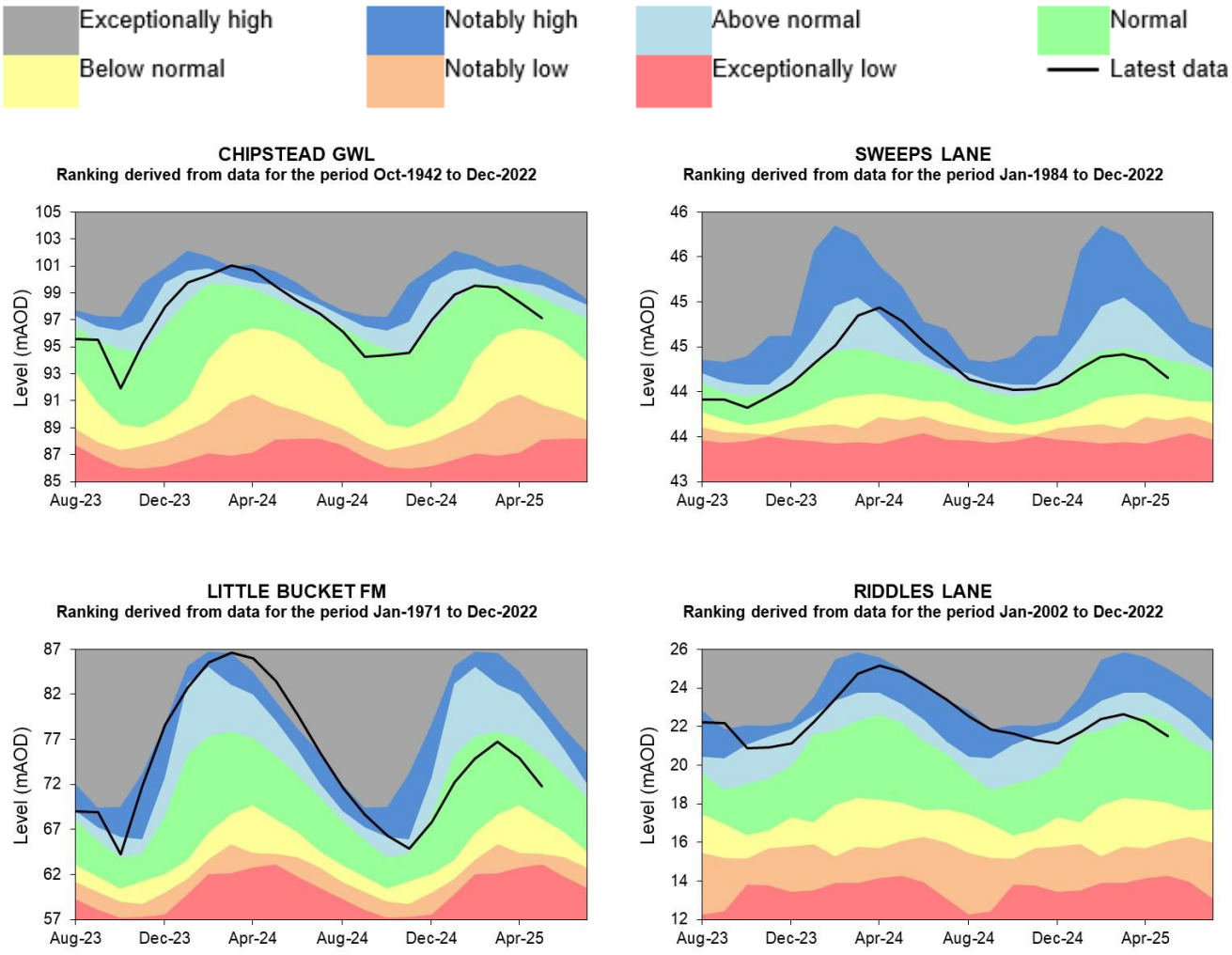
Figure 7.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



Source: Environment Agency. 2025 .

7.3 KSL Groundwater levels

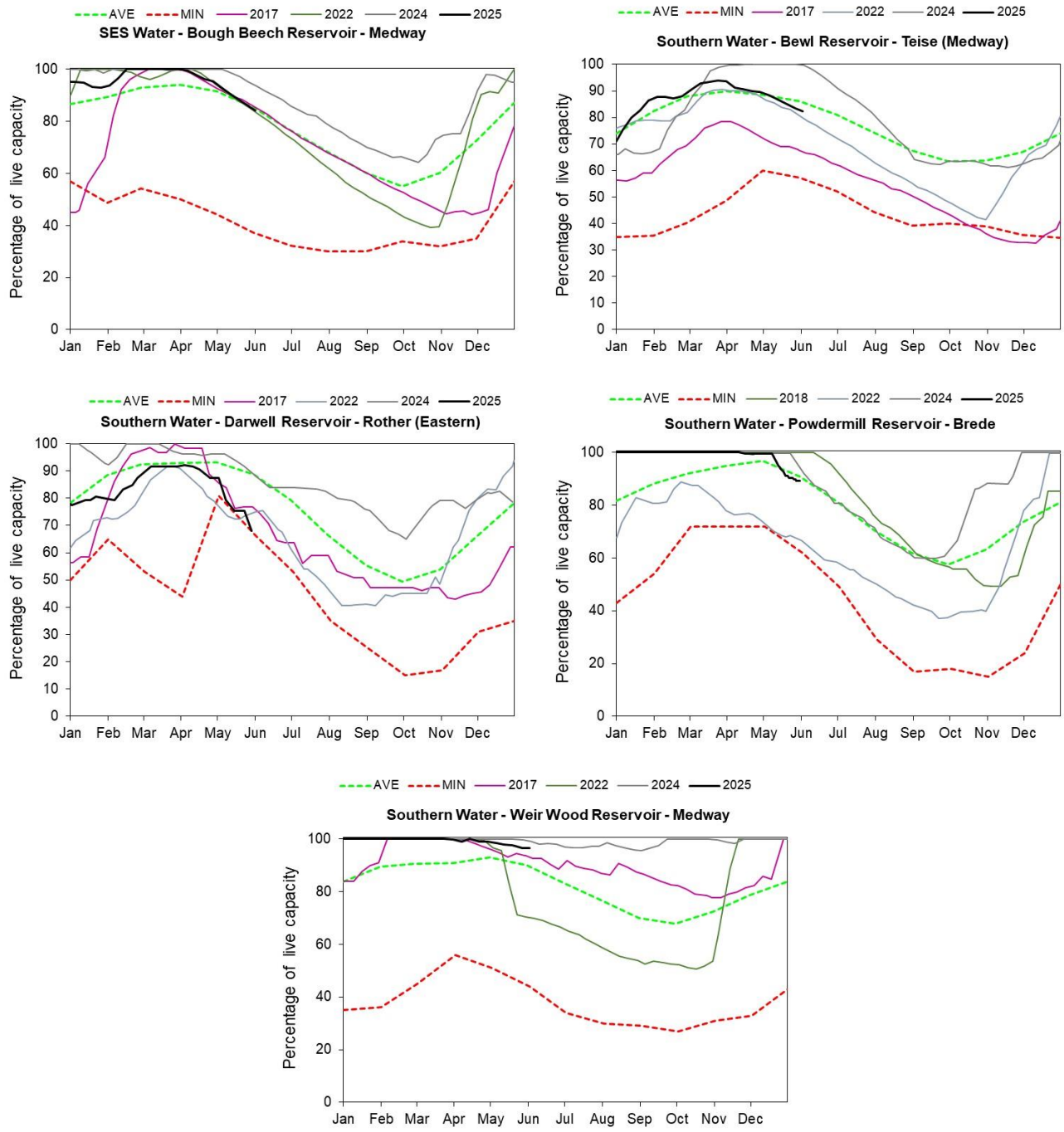
Figure 7.3: End of month groundwater levels at index groundwater level sites for major aquifers. 22 months compared to an analysis of historic end of month levels and long term maximum and minimum levels.



Source: Environment Agency. 2025

7.4 KSL Reservoir stocks

Figure 7.4: End of month regional reservoir stocks compared to long term maximum, minimum and average stocks. Note: Historic records of individual reservoirs and reservoir groups making up the regional values vary in length.



(Source: water companies).

8 Glossary

8.1 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).

8.2 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.

9 Appendices

9.1 Rainfall table

Hydrological area	May 2025 rainfall % of long term average 1991 to 2020	May 2025 band	Mar 2025 to May cumulative band	Dec 2024 to May cumulative band	Jun 2024 to May cumulative band
Cotswold West	24	Exceptionally Low	Exceptionally low	Notably low	Normal
Cotswold East	29	Notably Low	Exceptionally low	Notably low	Normal
Berkshire Downs	43	Notably Low	Exceptionally low	Below normal	Normal
Chilterns West	57	Below Normal	Exceptionally low	Below normal	Normal
Chilterns East Colne	48	Notably Low	Exceptionally low	Below normal	Normal
North Downs - Hampshire	38	Notably Low	Exceptionally low	Below normal	Normal
North Downs - South London	42	Notably Low	Exceptionally low	Below normal	Normal
Upper Thames	32	Notably Low	Exceptionally low	Notably low	Normal
Upper Cherwell	38	Notably Low	Exceptionally low	Below normal	Normal
Thame	45	Notably Low	Exceptionally low	Notably low	Normal
Loddon	47	Notably Low	Exceptionally low	Below normal	Normal
Lower Wey	70	Below Normal	Notably low	Below normal	Normal
Upper Mole	47	Below Normal	Exceptionally low	Below normal	Normal
Lower Lee	40	Notably Low	Exceptionally low	Below normal	Normal
North London	51	Below Normal	Exceptionally low	Below normal	Normal
South London	39	Notably Low	Exceptionally low	Notably low	Normal

Roding	34	Notably Low	Exceptionally low	Notably low	Below normal
Ock	35	Notably Low	Exceptionally low	Notably low	Normal
Enborne	41	Notably Low	Exceptionally low	Below normal	Normal
Cut	55	Below Normal	Exceptionally low	Below normal	Normal
Lee Chalk	40	Notably Low	Exceptionally low	Below normal	Normal
River Test	36	Notably Low	Exceptionally low	Below normal	Normal
East Hampshire Chalk	36	Notably Low	Exceptionally low	Below normal	Normal
West Sussex Chalk	55	Below Normal	Exceptionally low	Below normal	Normal
East Sussex Chalk	63	Normal	Exceptionally low	Below normal	Normal
Sw Isle Of Wight	46	Below Normal	Exceptionally low	Below normal	Normal
River Darent	33	Notably Low	Exceptionally low	Notably low	Below normal
North Kent Chalk	36	Notably Low	Exceptionally low	Below normal	Normal
Stour	31	Notably Low	Exceptionally low	Below normal	Below normal
Dover Chalk	35	Notably Low	Exceptionally low	Below normal	Below normal
Thanet Chalk	22	Notably Low	Exceptionally low	Exceptionally low	Exceptionally low
Western Rother Greensand	45	Below Normal	Exceptionally low	Below normal	Normal
Hampshire Tertiaries	36	Notably Low	Exceptionally low	Below normal	Normal
Lymington River Avon Water And O	37	Notably Low	Exceptionally low	Below normal	Normal
Sussex Coast	48	Below Normal	Exceptionally low	Notably low	Normal
River Arun	43	Below Normal	Exceptionally low	Below normal	Normal
River Adur	54	Below Normal	Exceptionally low	Below normal	Normal
River Ouse	58	Below Normal	Exceptionally low	Below normal	Normal

Cuckmere River	57	Normal	Exceptionally low	Below normal	Normal
Pevensey Levels	51	Below Normal	Exceptionally low	Below normal	Normal
River Medway	37	Notably Low	Exceptionally low	Below normal	Normal
Eastern Rother	43	Below Normal	Exceptionally low	Below normal	Normal
Romney Marsh	39	Notably Low	Exceptionally low	Below normal	Normal
North West Grain	28	Notably Low	Exceptionally low	Notably low	Notably low
Sheppy	28	Notably Low	Exceptionally low	Notably low	Notably low

9.2 River flows table

Site name	River	Catchment	May 2025 band	Apr 2025 band
Colney Street_hansteads		Colne	Above normal	Exceptionally high
Feildes Weir (nat)	Lee (middle)	Lee	Normal	Normal
Panshanger	Mimram	Lee	Notably high	Exceptionally high
Crabble Mill Gs	Dour	Little Stour	Normal	Normal
Hawley Gs	Darent	Darent and Cray	Normal	Normal
Horton Gs	Great Stour	Stour Kent	Below normal	Below normal
Stonebridge Gs	Teise	Teise	Normal	Notably low
Teston Farleigh Combined	Medway100	Medway Estuary	Below normal	Below normal
Udiam Gs	Rother	Rother Kent Lower	Below normal	Below normal
Alfoldean Gs	Arun	Arun	Exceptionally low	Notably low
Allbrook Gs And Highbridge	Itchen (so)	Itchen	Normal	Above normal
Broadlands	Test	Test Lower	Normal	Above normal
Brockenhurst Gs	Lymington	New Forest	Exceptionally low	Below normal
Goldbridge Gs	Ouse (so)	Ouse Sussex	Below normal	Below normal
Iping Mill Gs	Rother	West Rother	Below normal	Normal
Farmoor (naturalised)	River Thames	Thames	Notably low	Below normal
Kingston (naturalised)	River Thames	Thames North Bank	Below normal	Below normal
Marlborough	River Kennet	Kennet	Normal	Normal
Sheepbridge	River Loddon	Loddon	Normal	Normal
Tilford	River Wey	Wey Addleston Bourne	Normal	Normal

9.3 Groundwater table

Site name	Aquifer	End of May 2025 band	End of Apr 2025 band
Ashley Green Stw	Mid-chilterns Chalk	Normal	Normal
Lilley Bottom	Upper Lee Chalk	Notably high	Notably high
Little Bucket Fm	East Kent Chalk - Stour	Normal	Normal
Chipstead Gwl	Epsom North Downs Chalk	Normal	Normal
Riddles Lane	North Kent Swale Chalk	Normal	Normal
Sweeps Lane Gwl	West Kent Chalk	Normal	Normal
Houndean Bottom Gwl	Brighton Chalk Block	Below normal	Normal
Chilgrove House Gwl	Chichester-worthing-portsdown Chalk	Normal	Normal
Carisbrooke Castle	Isle Of Wight Central Downs Chalk	Exceptionally low	Notably low
West Meon Hut Gwl	River Itchen Chalk	Normal	Above normal
Clanville Gate Gwl	River Test Chalk	Normal	Above normal
Lopcombe Corner Gwl	River Test Chalk	Normal	Normal
Tile Barn Farm	Basingstoke Chalk	Normal	Normal
Rockley Obh	Berkshire Downs Chalk	Below normal	Normal
Jackaments Bottom Obh	Burford Oolitic Limestone (inferior)	Exceptionally low	Exceptionally low
Stonor Estate	South-west Chilterns Chalk	Notably high	Exceptionally high

9.4 South-east England areal units for reference