Monthly water situation report:

South-east England

1 Summary - January 2025

January was a wet month with 146% of the long-term average (LTA) rainfall recorded across the south-east of England. The first 6 days and the last 10 days accounted for an average of 94% of the monthly total. The soil moisture deficits (SMDs) rose steadily to the LTA up to around 19 January then dropped to zero to end the month below the LTA. Unsurprisingly the recharge was significant during the month, averaging about 160% of the LTA across the south-east. During January, the key indicator flow sites experienced flows ranging from normal to exceptionally high. Some groundwater-fed river sites recorded exceptionally high flows towards the Chilterns, including the Ver at Colney Street, Hertfordshire and North London (HNL). Rivers draining impermeable catchments recorded flows largely in the above normal category. There were 185 fluvial flood alerts, 32 flood warnings and 6 groundwater flood alerts issued during the month. Across the south-east of England, the groundwater levels varied from normal to exceptionally high. The expected steady rise of groundwater levels for this time of year continued during the month.

1.1 Rainfall

January was a wet month with 146% of the LTA rainfall recorded across the south-east of England. The first 6 days and the last 10 days accounted for an average of 94% of the monthly total. There was an average of 14 dry days during January, where the total rainfall for any day was less than 0.2mm. Storm Floriane moved across the south-east on 4 to 6 January bringing freezing conditions and heavy rainfall. Light snow fell overnight on 4 January and had melted by the end of the next day. There was also a light dusting of snow south of the M4 overnight on 8 January. The south-east of England was towards the calmer south of Storm Eowyn on 24 to 25 January. The rainfall from Storm Herminia impacted mainly the south coastal areas on 26 to 27 January.

The top 5 daily rainfall totals were recorded in Solent and South Downs (SSD). The top 3 were recorded on 4 January and the remaining 2 were on 26 January. The highest daily rainfall total was 41.3mm, recorded at Duncton, Western Rother Greensand, (SSD) on 4 January.

January had the highest monthly total rainfall since January 2014 for most of Thames (THM) and SSD. However, the rainfall totals for the 12 months ending January was the highest on record for a number of the areal units in THM, including Cotswolds West, Berkshire Downs and Cherwell. It was the highest January rainfall since 2001 for a high proportion of the units, including

- Test Chalk, SSD, second highest on record
- Chilterns East, HNL, third highest on record
- Lee Chalk, HNL, third highest on record
- Loddon, THM, third highest on record
- Medway, Kent and South London (KSL), fifth highest on record.

These statistics are reflected in the exceptionally high rainfall displayed for most of the south–east of England in the rainfall map below for the last 12 months.

1.2 Soil moisture deficit and recharge

The SMDs rose steadily up to the end of month LTA around 19 January then dropped to zero to end the month below the LTA. They were maintained at zero or close to zero by the rainfall from the storms. Unsurprisingly the recharge was significant during the month, averaging about 160% of the LTA across the south–east. Small peaks of recharge occurred on 5 and 26 January coinciding with the heaviest rainfall.

1.3 River flows

During January, the key indicator flow sites experienced flows ranging from normal to exceptionally high. Some groundwater-fed river sites recorded exceptionally high flows towards the Chilterns, including the Ver at Colney Street, HNL. These rivers are supported by the high groundwater component of the flow. Rivers draining impermeable catchments recorded flows largely in the above normal category.

Groundwater-fed rivers responded to the rainfall in the early part of the month with peaks around 10 January, which then declined to 23 January and then rose again with the rainfall from the storms. This trend in the variation of the flows was matched across the south east, with rivers draining groundwater catchments showing more gentle variations compared to the impermeable catchments.

The Ver at Colney Street and the Mimram at Panshanger (both HNL) had the second and third highest January flows on record respectively, after 2001. There were 185 fluvial flood alerts, 32 flood warnings and 6 groundwater flood alerts issued during the month.

	HNL	THM	SSD	KSL	Total
Flood Alerts	16	90	42	37	185
Flood Warnings	0	8	14	10	32
Groundwater flood alerts	0	1	5	0	6
Total	16	99	61	47	223

1.4 Groundwater levels

Across the south-east of England, the groundwater levels varied from normal to exceptionally high. Normal levels were recorded on the North and South Downs. Notably high levels were measured in the Test Chalk (SSD) and exceptionally high levels were recorded in the Chilterns and Lee Chalk (HNL). The expected steady rise of groundwater levels for this time of year continued during the month. Lilley Bottom (HNL) levels have been rising since September and have remained in the exceptionally high category for 4 months. They were the highest January levels on record. Levels at Ampney Crucis (Cotswolds West) and Stonor (Chilterns West), both THM, recorded their second and third highest January levels respectively.

1.5 Reservoir stocks

Reservoir storage for January was above the LTA at all reservoirs across the south-east with the exception of Arlington (SSD) which is well below the LTA and Darwell (KSL) which is just below the LTA.

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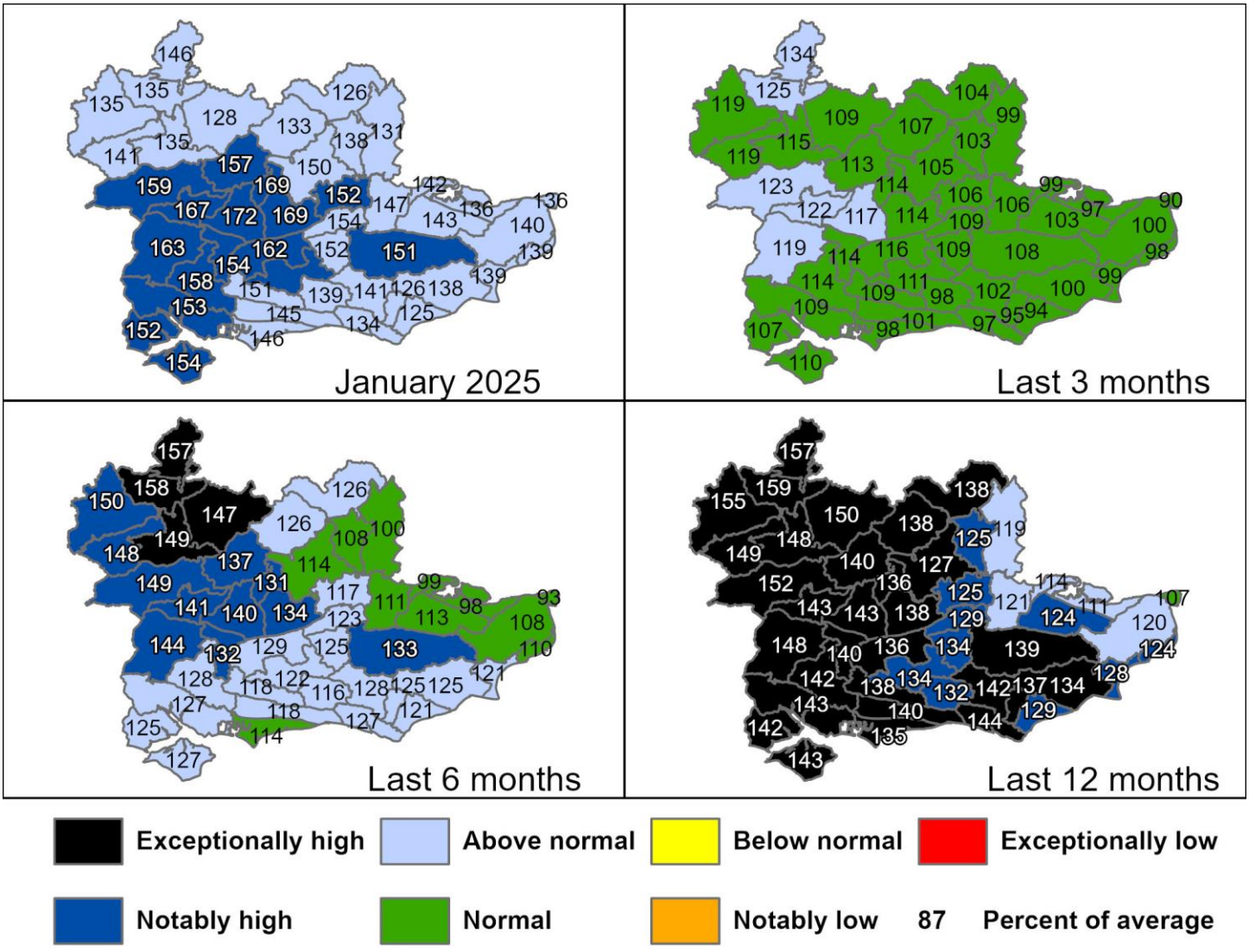
2 Maps

2.1 Rainfall map

Figure 2.1: Total rainfall for hydrological areas for the current month (up to 31 January 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.

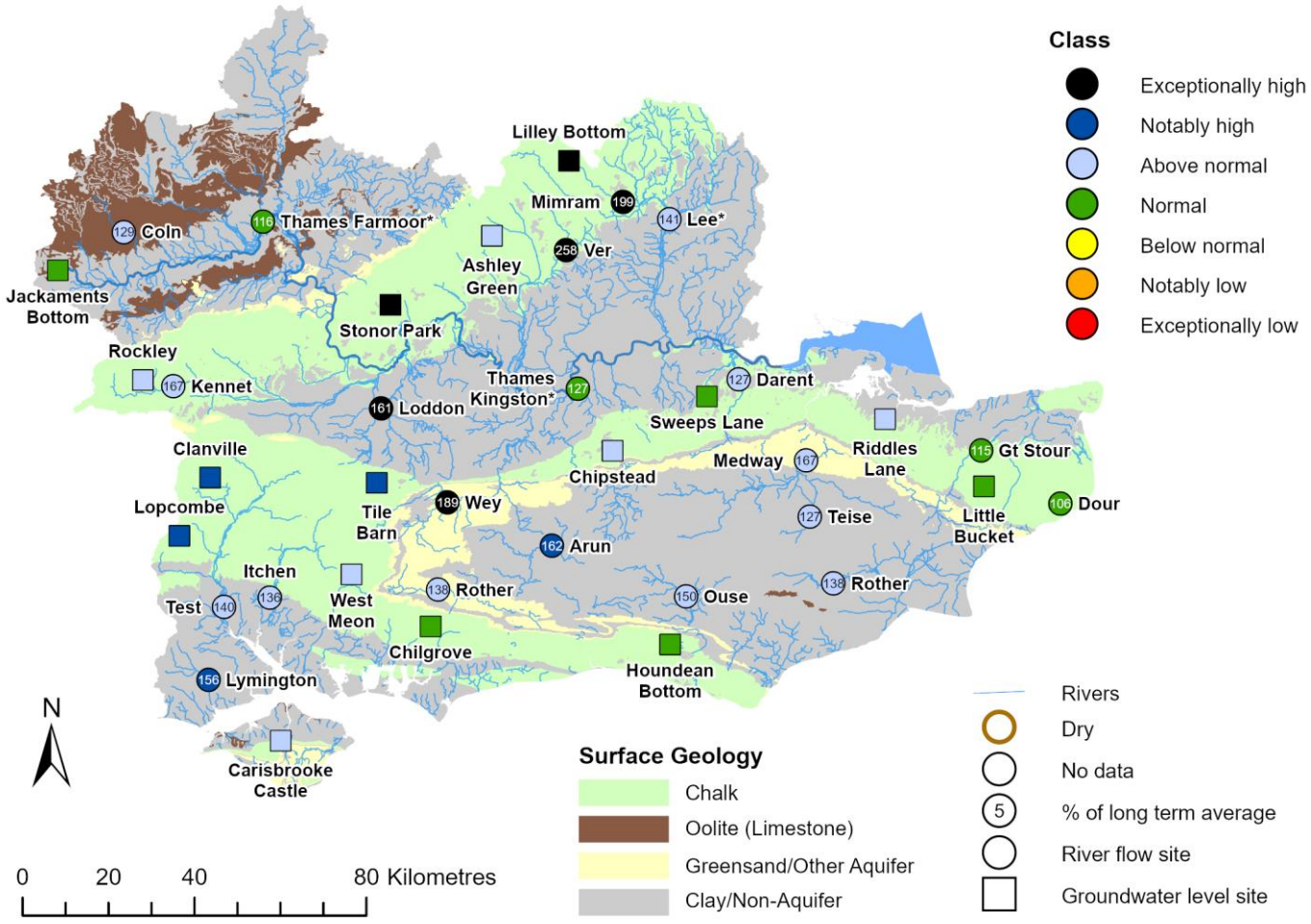


Rainfall data for Oct 2023 onwards, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, 100024198, 2025). Rainfall data prior to Oct 2023, extracted from Met Office HadUK 1km gridded rainfall 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 January 2025, expressed as a percentage of the respective long term average and classed relative to an analysis of historic January monthly means Table available in the appendices with detailed information. Groundwater levels for indicator sites at the end of January 2025, classed relative to an analysis of respective historic January 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.

Number	Hydrological Area	Rainfall (mm) 31 day Total	January % LTA	Effective Rainfall (mm) 31 day total	January % LTA	SMD (mm) Day 31	End Jan LTA
6010TH	Cotswolds - West (A)	103	135%	89	142%	1	2
6070TH	Berkshire Downs (G)	120	160%	105	175%	0	3
6130TH	Chilterns - West (M)	105	157%	89	179%	0	4
6162TH	North Downs - Hampshire (P)	141	159%	125	168%	0	1
6190TH	Wey - Greensand (S)	139	162%	124	174%	0	2
	Thames Average	104	153%	89	171%	0	4
	Thames Catchment Average	105	152%	90	169%	0	3
6140TH	Chilterns - East - Colne (N)	90	132%	74	147%	0	4
6600TH	Lee Chalk	71	126%	54	169%	0	13
6507TH	North London	86	149%	68	188%	0	7
6509TH	Roding	69	130%	52	163%	0	8
	Herts and North London	79	135%	62	165%	0	8
6230TH	North Downs - South London (W)	118	153%	102	166%	0	2
6706So	Darent	95	147%	79	173%	0	5

6707So	North Kent Chalk	97	143%	82	159%	0	4
6708So	Stour	95	140%	81	159%	0	3
6809So	Medway	117	152%	103	160%	0	1
	Kent & South London Average	96	144%	75	157%	2	9
6701So	Test Chalk	139	163%	123	176%	0	2
6702So	East Hampshire Chalk	149	158%	134	167%	0	1
6703So	West Sussex Chalk	135	144%	122	150%	0	1
6804So	Arun	132	155%	119	165%	0	1
6805So	Adur	117	138%	104	145%	0	1
	Solent & South Downs Average	127	146%	114	157%	0	1
	South East Average	106	146%	89	162%	1	5

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. 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.

Winter period 01/10/2024 to 31/01/2025

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)	373	124%	301	159%
6070TH	Berkshire Downs (G)	366	124%	294	193%
6130TH	Chilterns - West (M)	315	115%	243	188%
6162TH	North Downs - Hampshire (P)	399	115%	323	158%
6190TH	Wey - Greensand (S)	390	116%	301	155%
	Thames Average	326	119%	251	191%
	Thames Catchment Average	326	117%	250	183%
6140TH	Chilterns - East - Colne (N)	294	107%	221	171%
6600TH	Lee Chalk	247	106%	157	201%
6507TH	North London	247	102%	136	163%
6509TH	Roding	210	95%	77	109%
	Herts and North London	248	103%	142	160%
6230TH	North Downs - South London (W)	331	108%	239	143%

6706So	Darent	270	102%	134	114%
6707So	North Kent Chalk	309	110%	169	124%
6708So	Stour	319	106%	155	107%
6809So	Medway	350	112%	281	152%
	Kent & South London Average	298	106%	168	129%
6701So	Test Chalk	410	125%	339	183%
6702So	East Hampshire Chalk	424	116%	348	151%
6703So	West Sussex Chalk	402	106%	324	130%
6804So	Arun	380	113%	301	146%
6805So	Adur	353	102%	284	129%
	Solent & South Downs Average	381	109%	302	142%
	South East Average	326	110%	231	153%

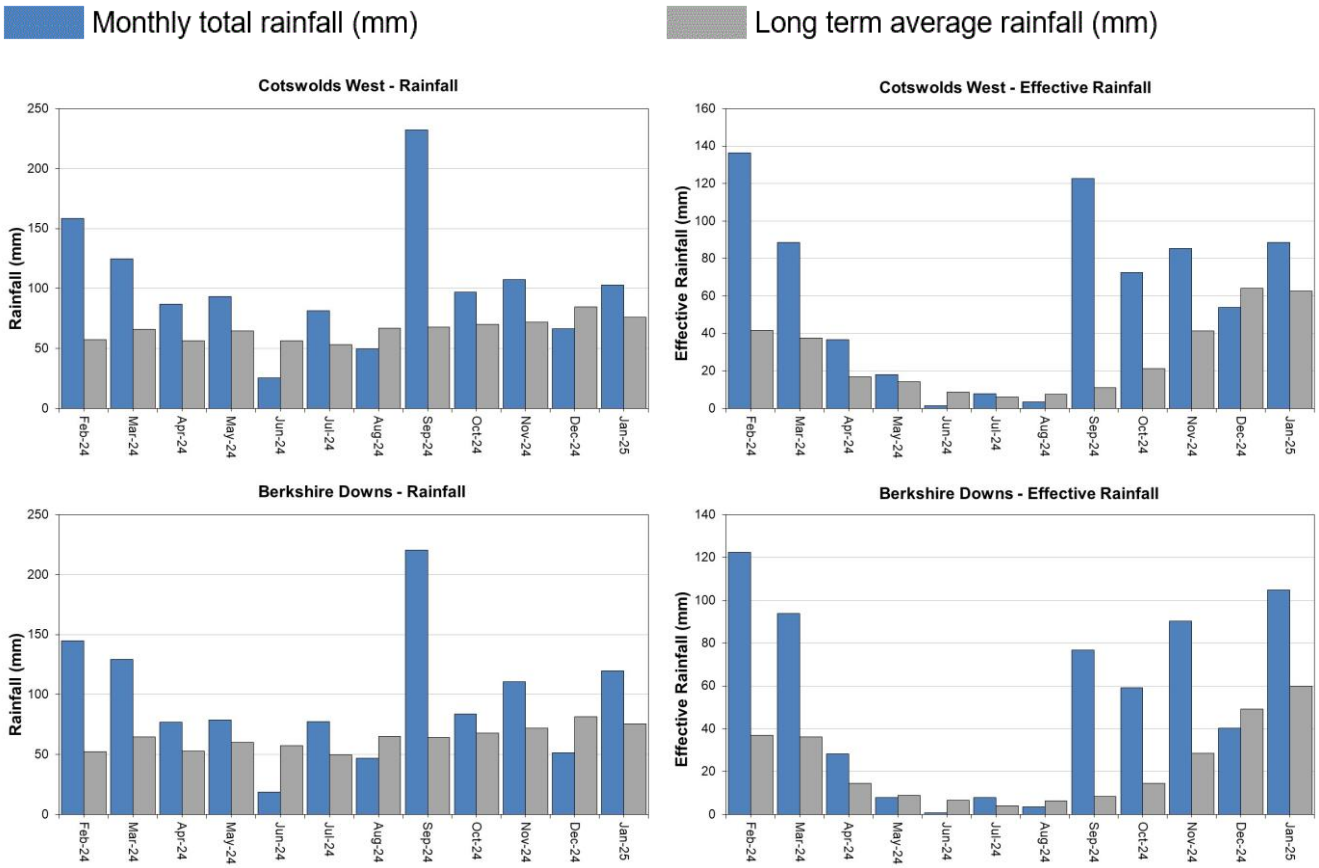
HadUK rainfall data. (Source: Met Office. Crown copyright, 2025).

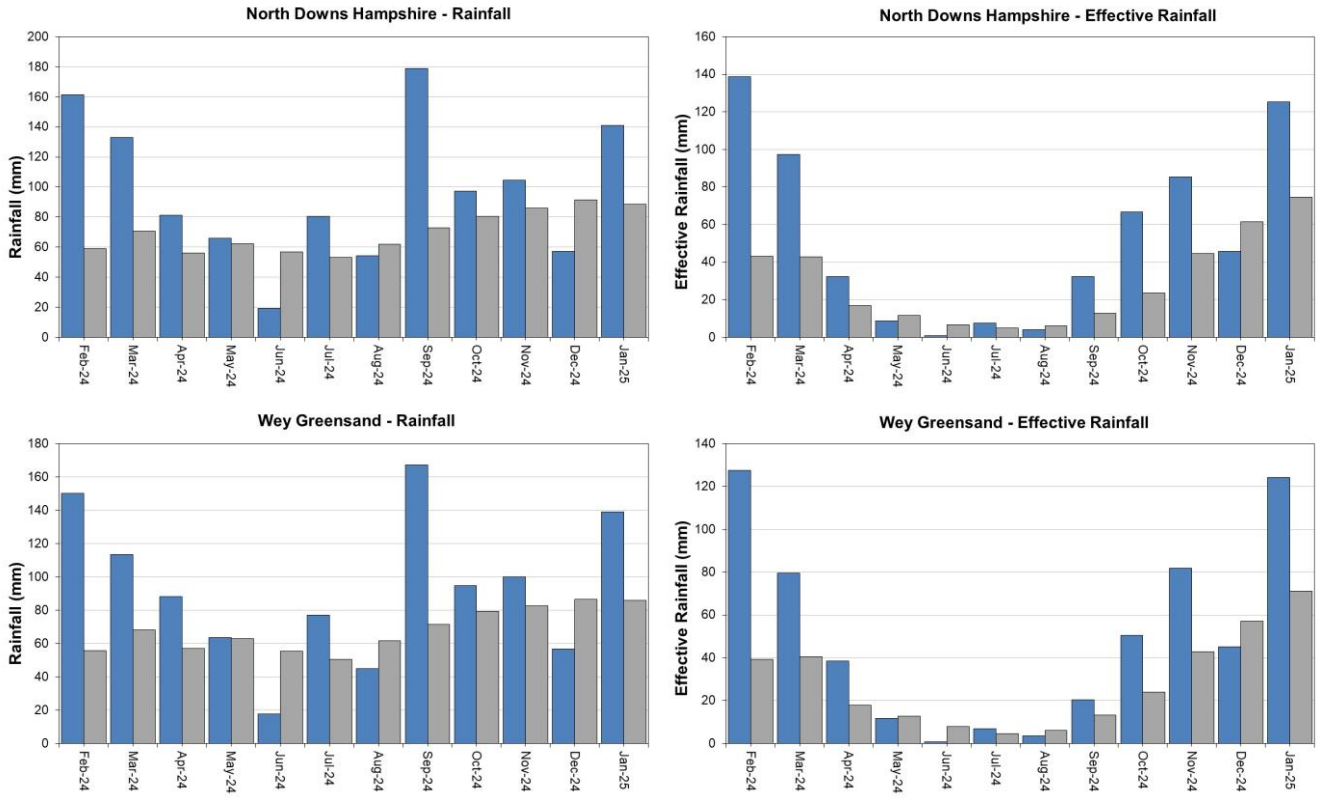
EA effective rainfall data (Source EA Soil Moisture Model 2025.)

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 1961 to 1990 long term average for a selection of areal units.



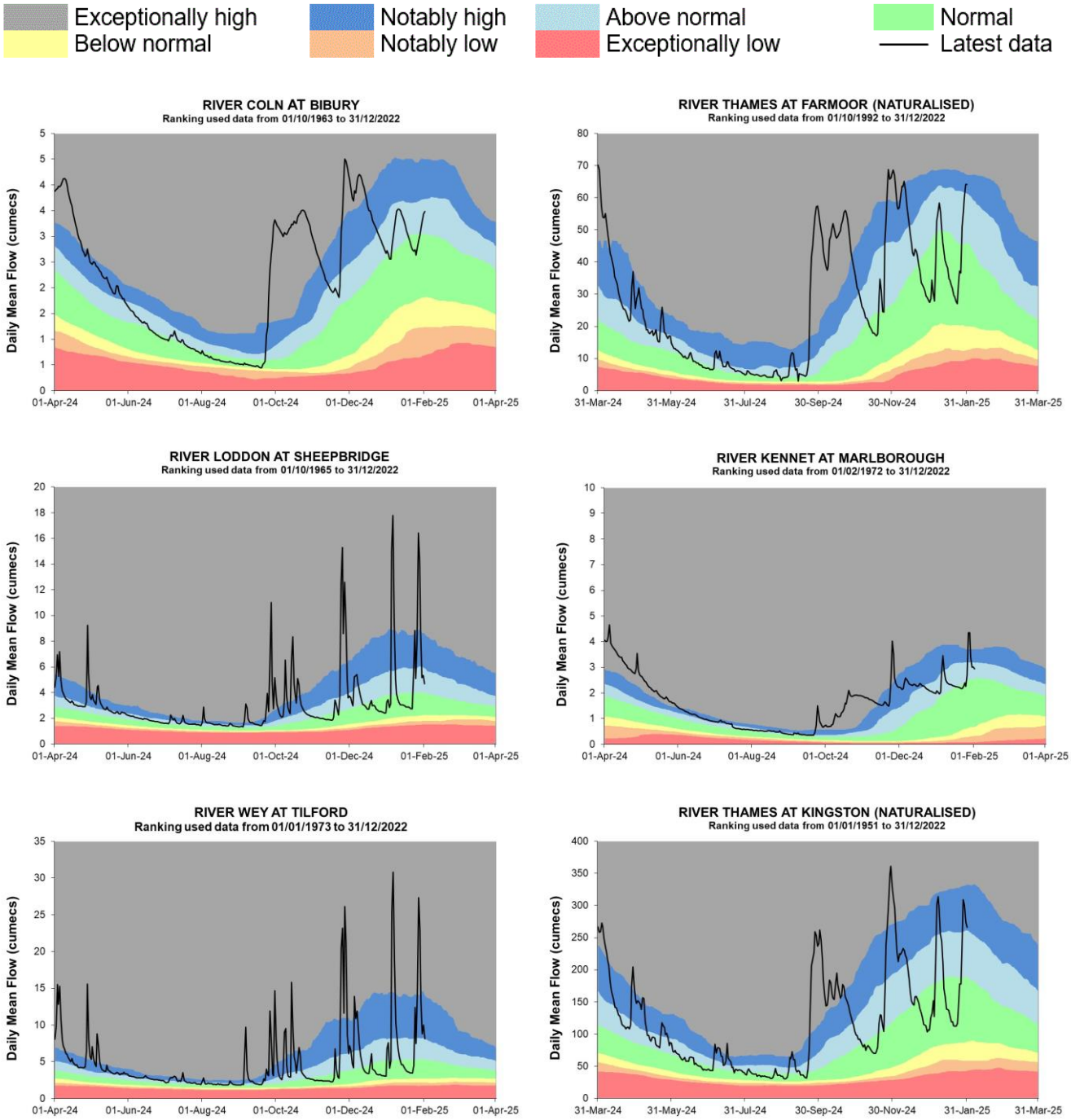


HadUK rainfall data. (Source: Met Office. Crown copyright, 2025).

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

4.2 Thames River flow charts

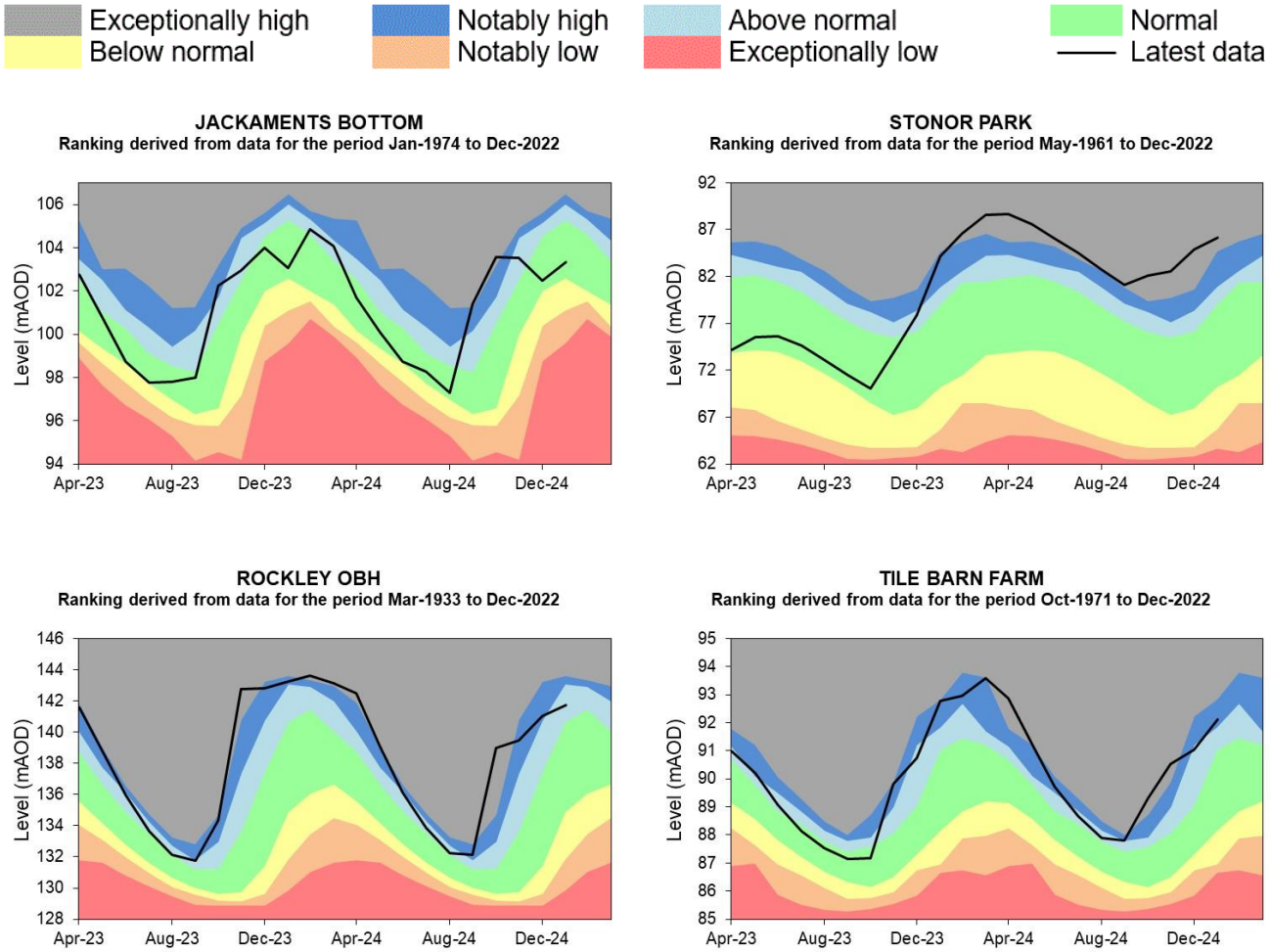
Figure 4.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



Source: Environment Agency. 2025

4.3 Thames Groundwater level charts

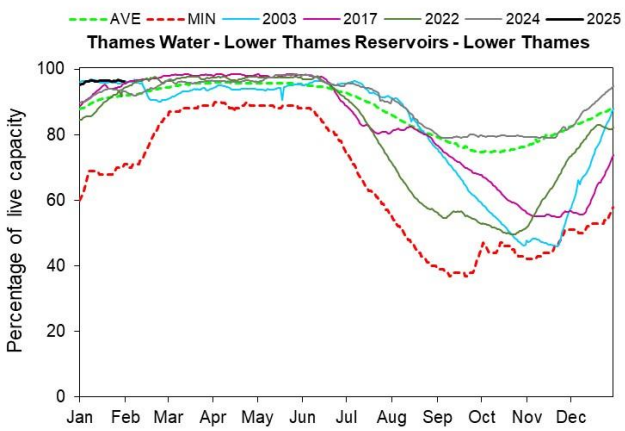
Figure 4.3: End of month groundwater levels at index groundwater level sites for major aquifers. 22 months compared to an analysis of historic end of month levels and long term maximum and minimum levels. Tile Barn Farm data has been estimated from 2 local sites since April 2022. A replacement is planned.

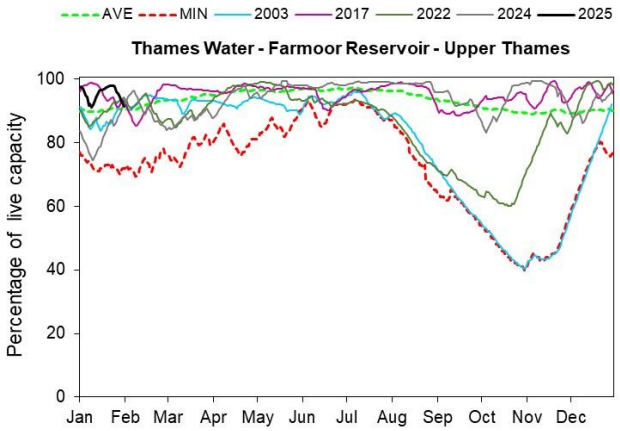


Source: Environment Agency, 2025.

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.



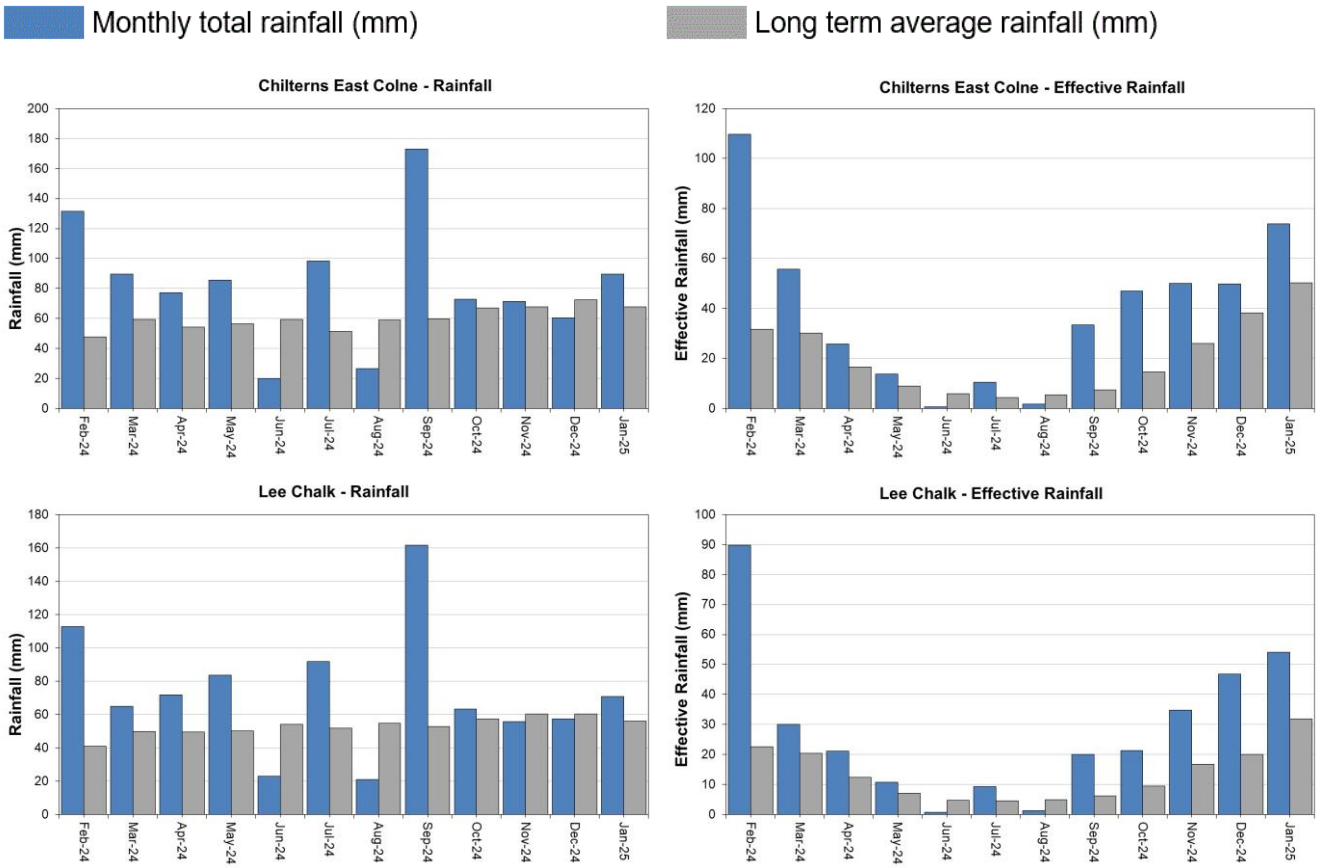


(Source: water companies).

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 1961 to 1990 long term average for a selection of areal units.

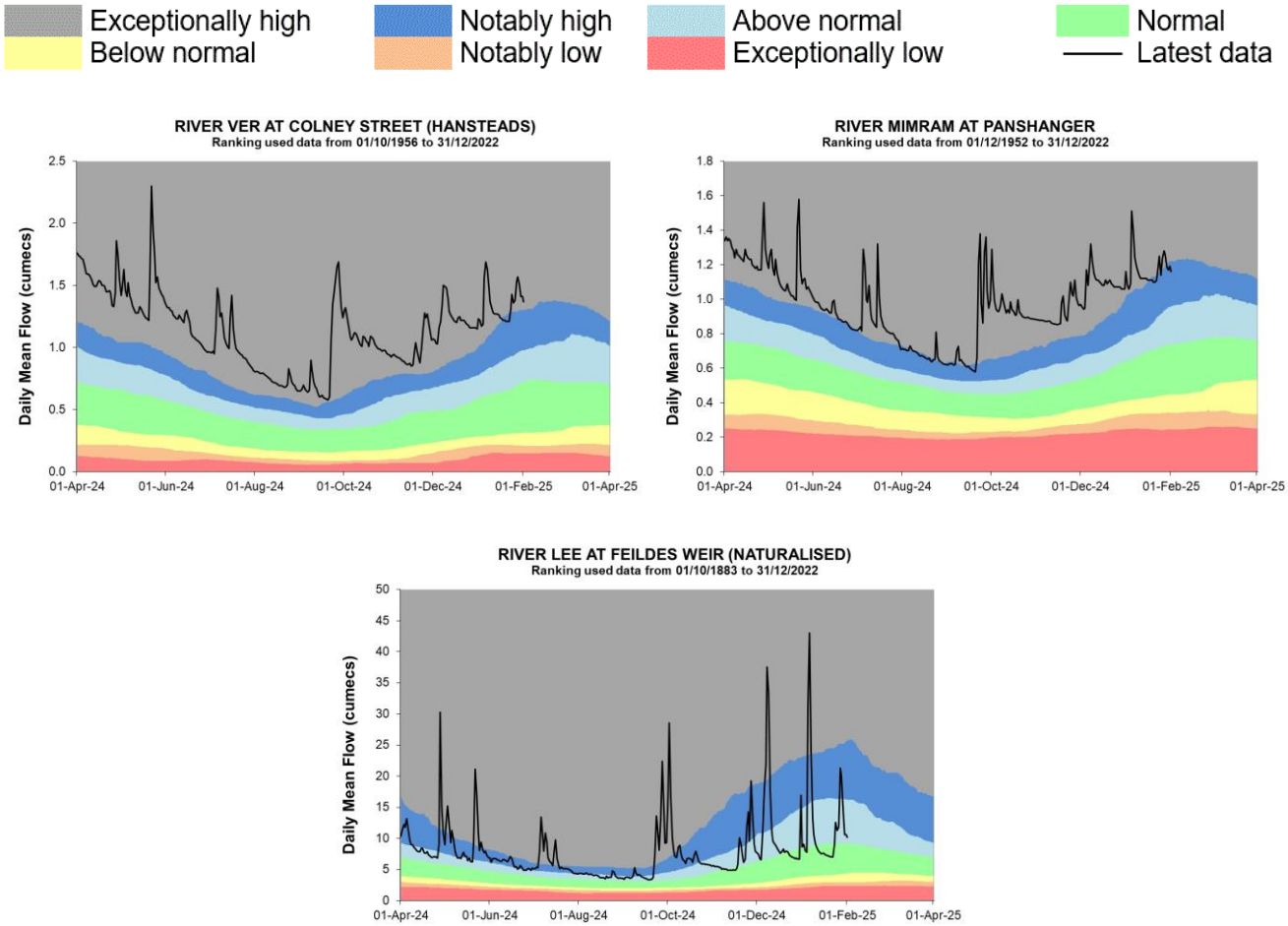


HadUK rainfall data. (Source: Met Office. Crown copyright, 2025).

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

5.2 HNL River flow charts

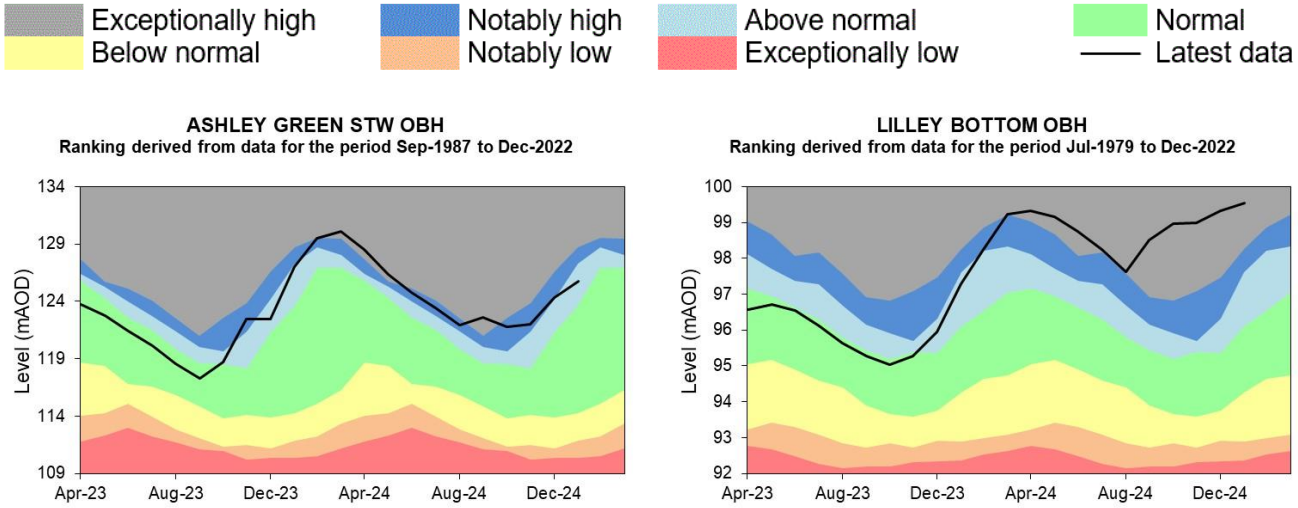
Figure 5.2 Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



Source: Environment Agency. 2025

5.3 HNL Groundwater level charts

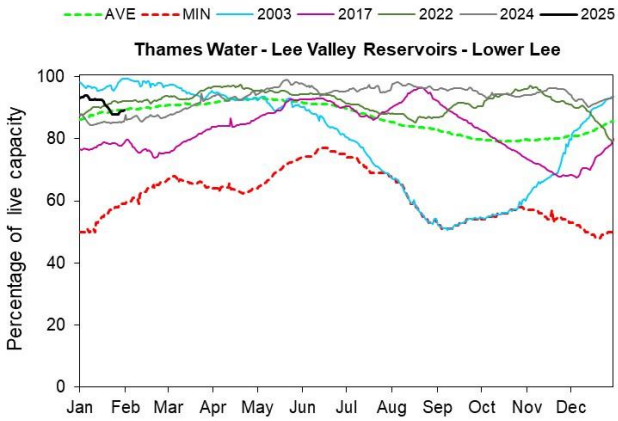
Figure 5.3: End of month groundwater levels at index groundwater level sites for major aquifers. 22 months compared to an analysis of historic end of month levels and long term maximum and minimum levels.



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.

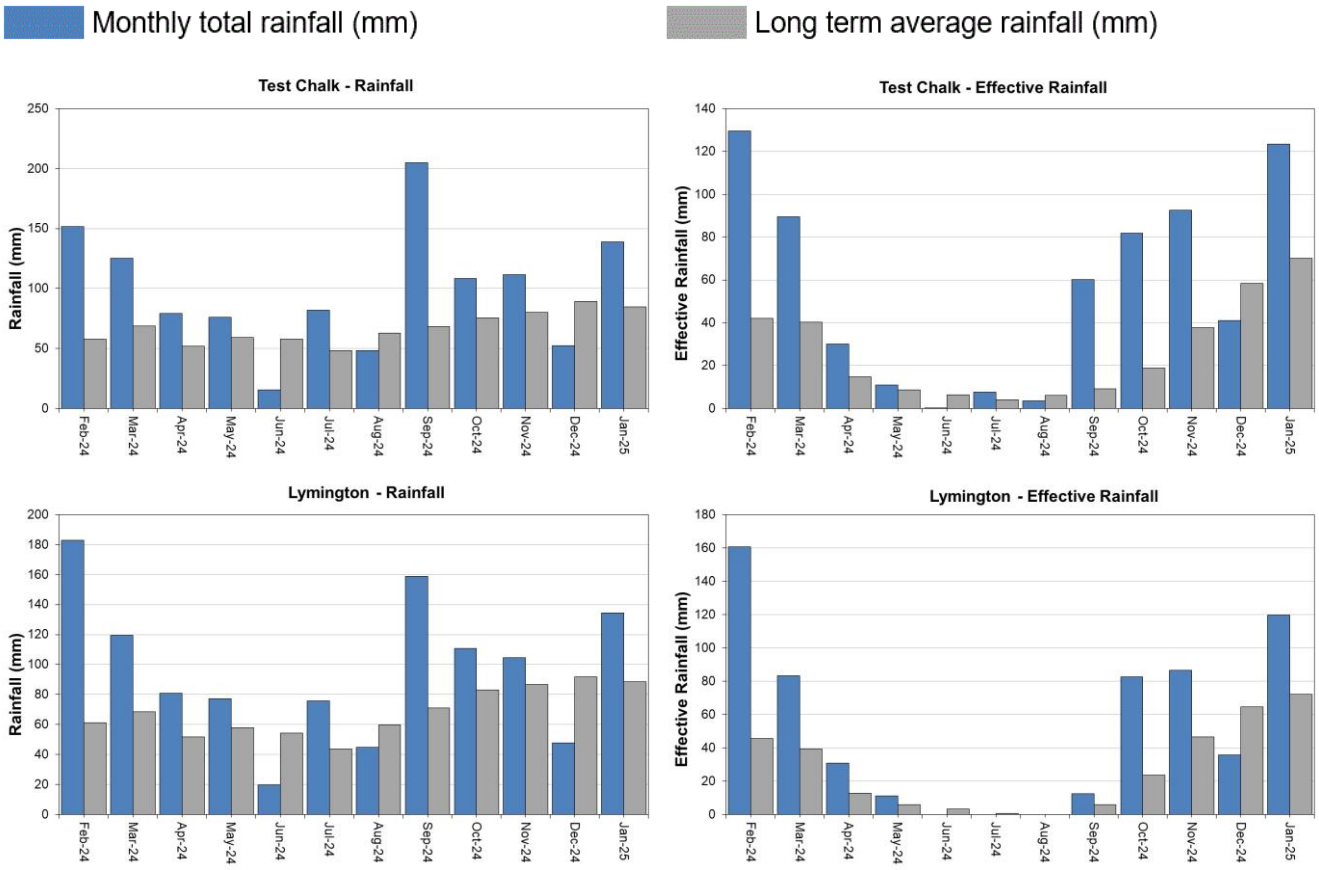


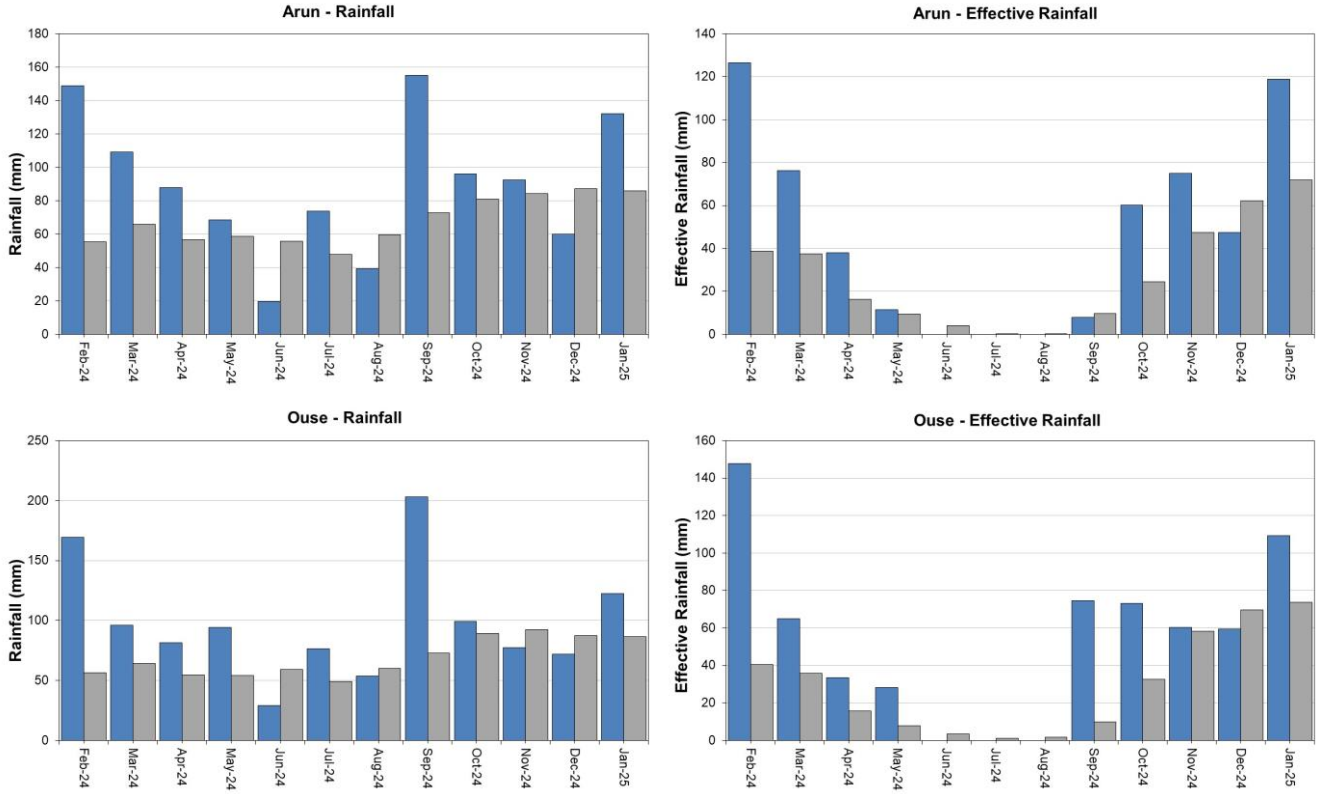
(Source: water companies).

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 1961 to 1990 long term average for a selection of areal units.



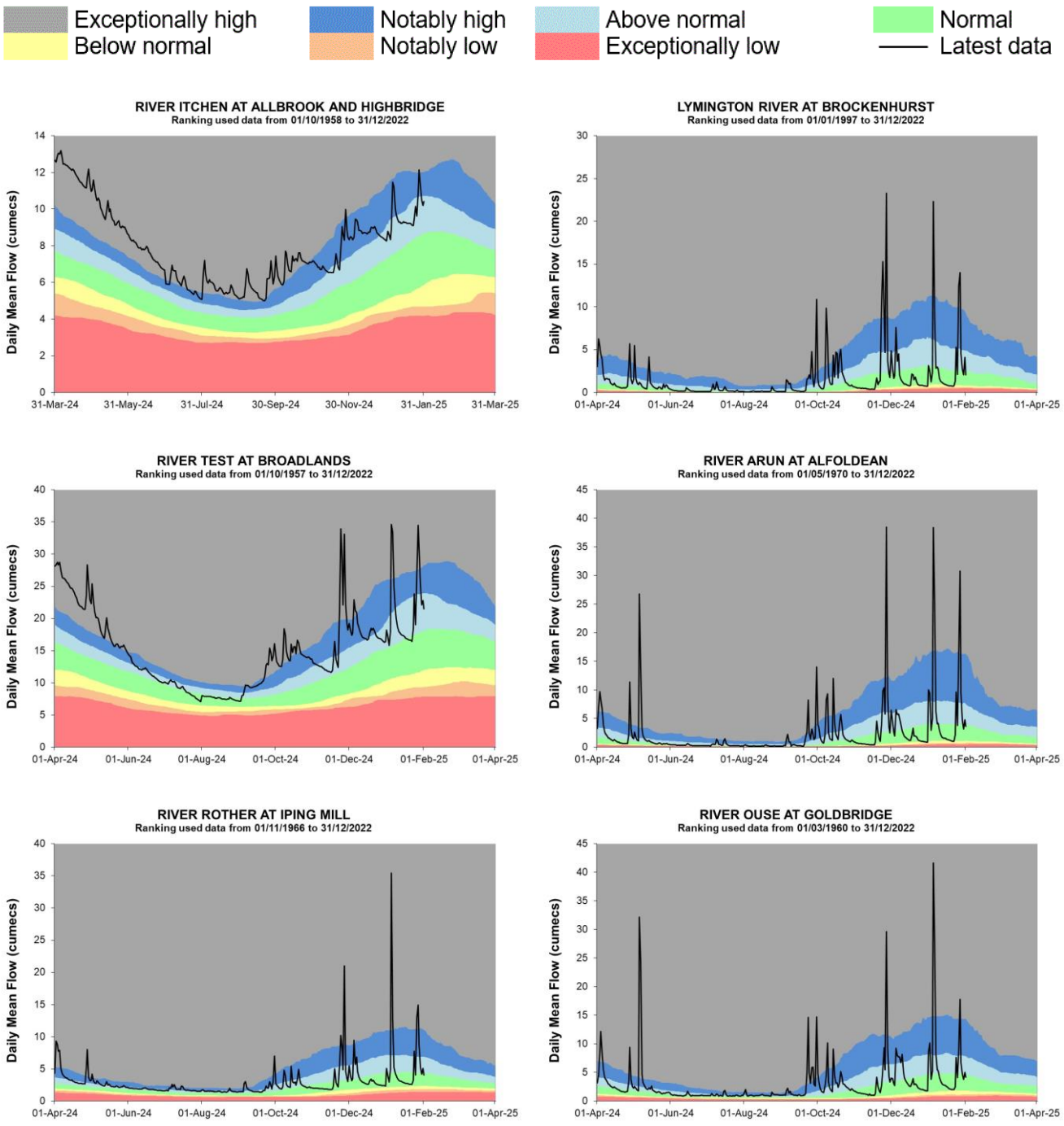


HadUK rainfall data. (Source: Met Office. Crown copyright, 2025).

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

6.2 SSD River flow charts

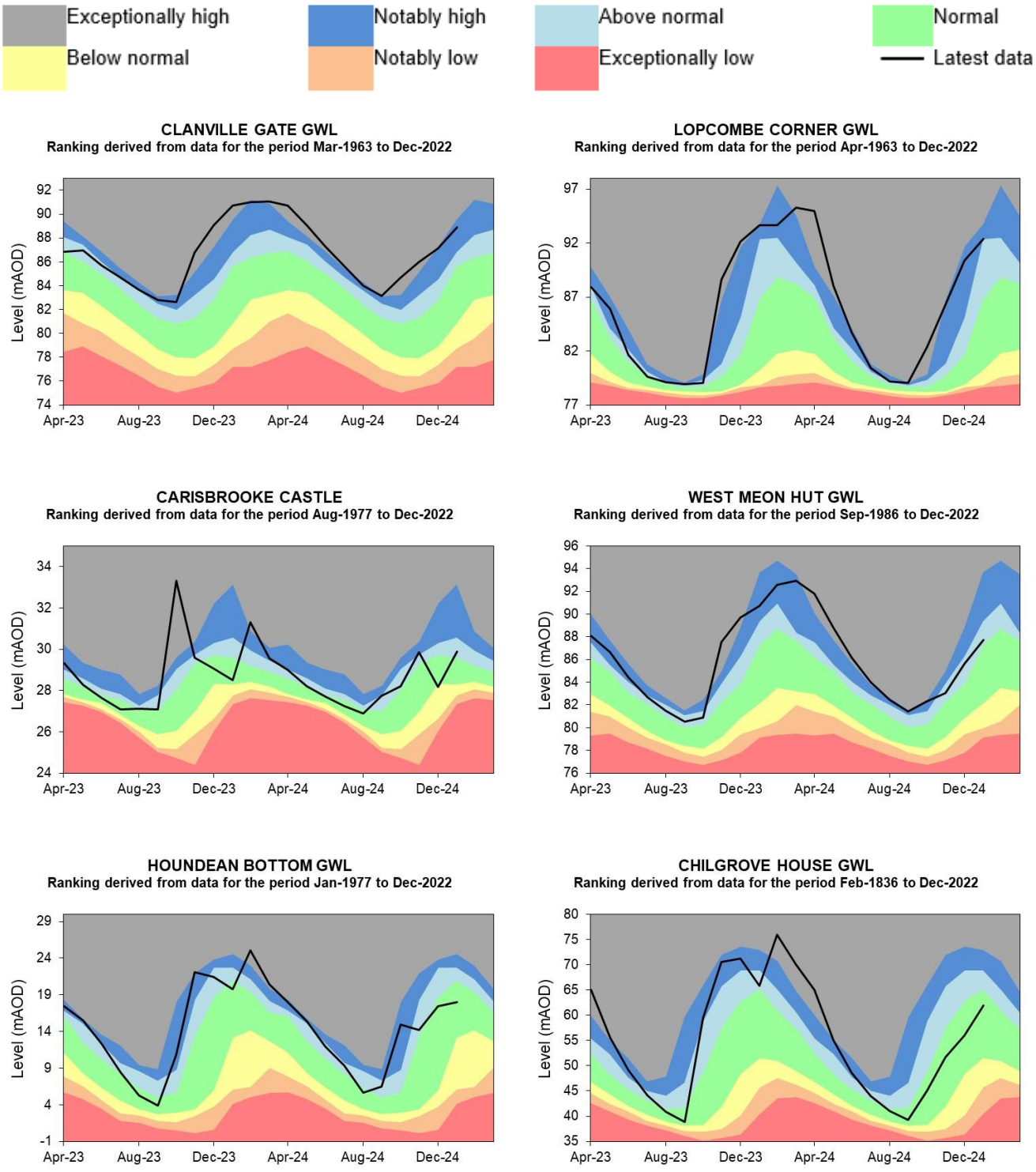
Figure 6.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



Source: Environment Agency. 2025

6.3 SSD Groundwater levels

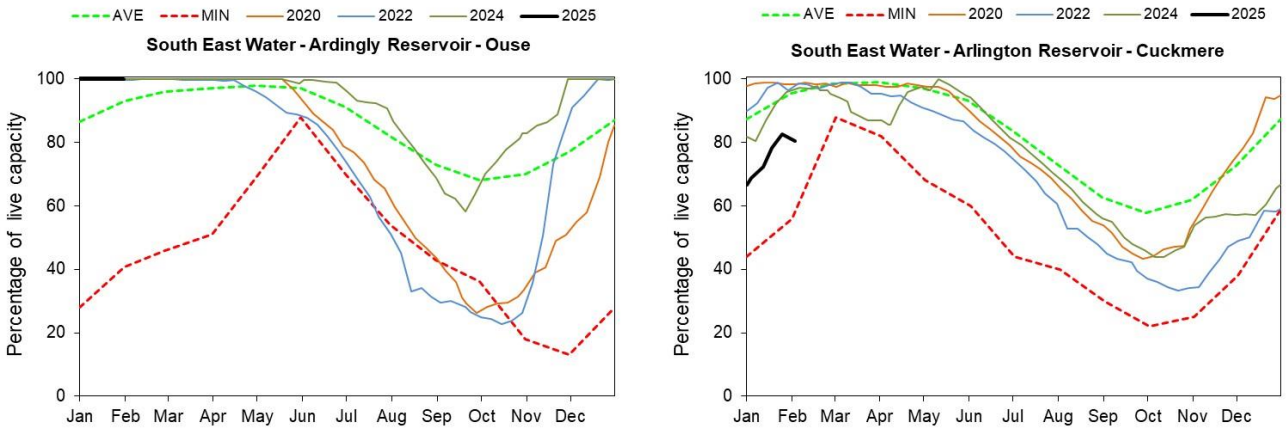
Figure 6.3: End of month groundwater levels at index groundwater level sites for major aquifers. 22 months compared to an analysis of historic end of month levels and long term maximum and minimum levels.



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.

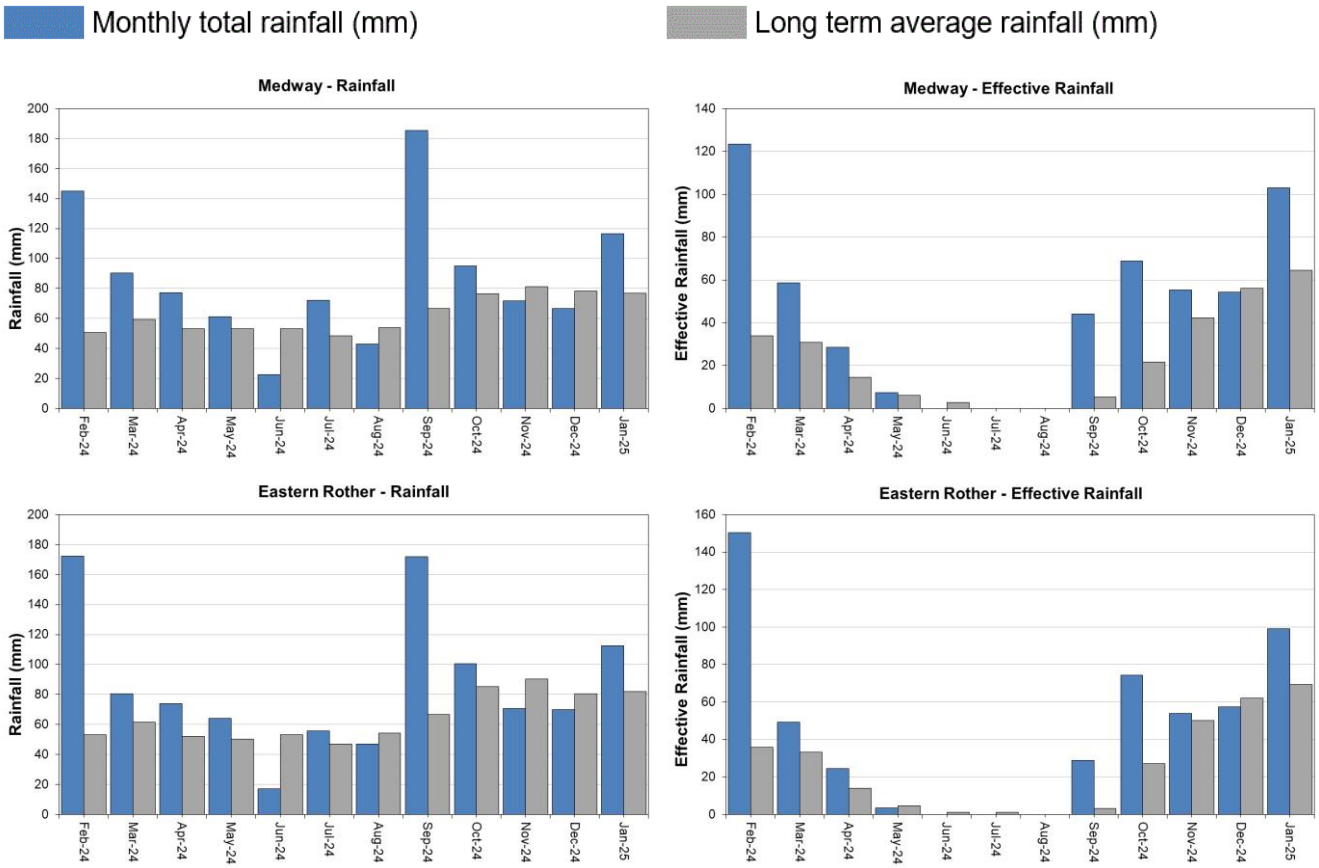


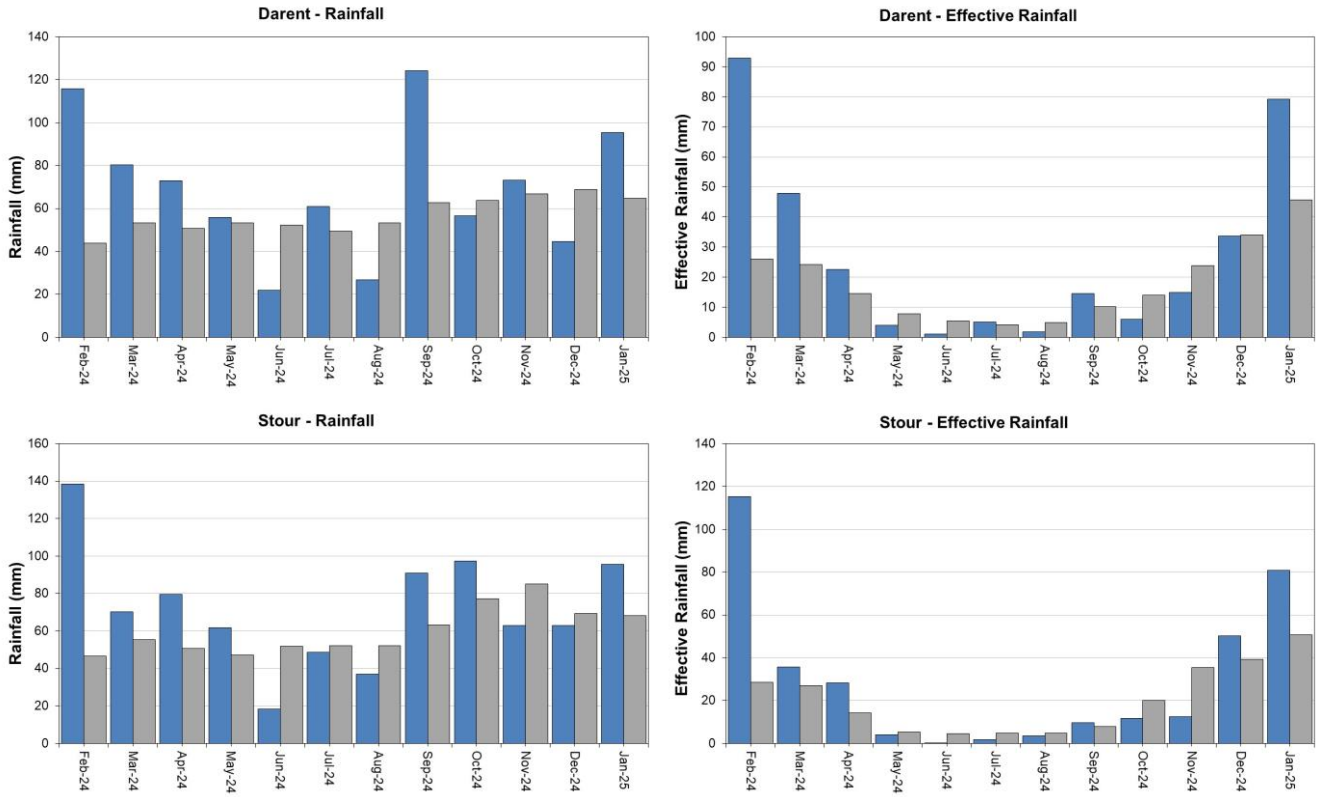
(Source: water companies).

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 1961 to 1990 long term average for a selection of areal units.



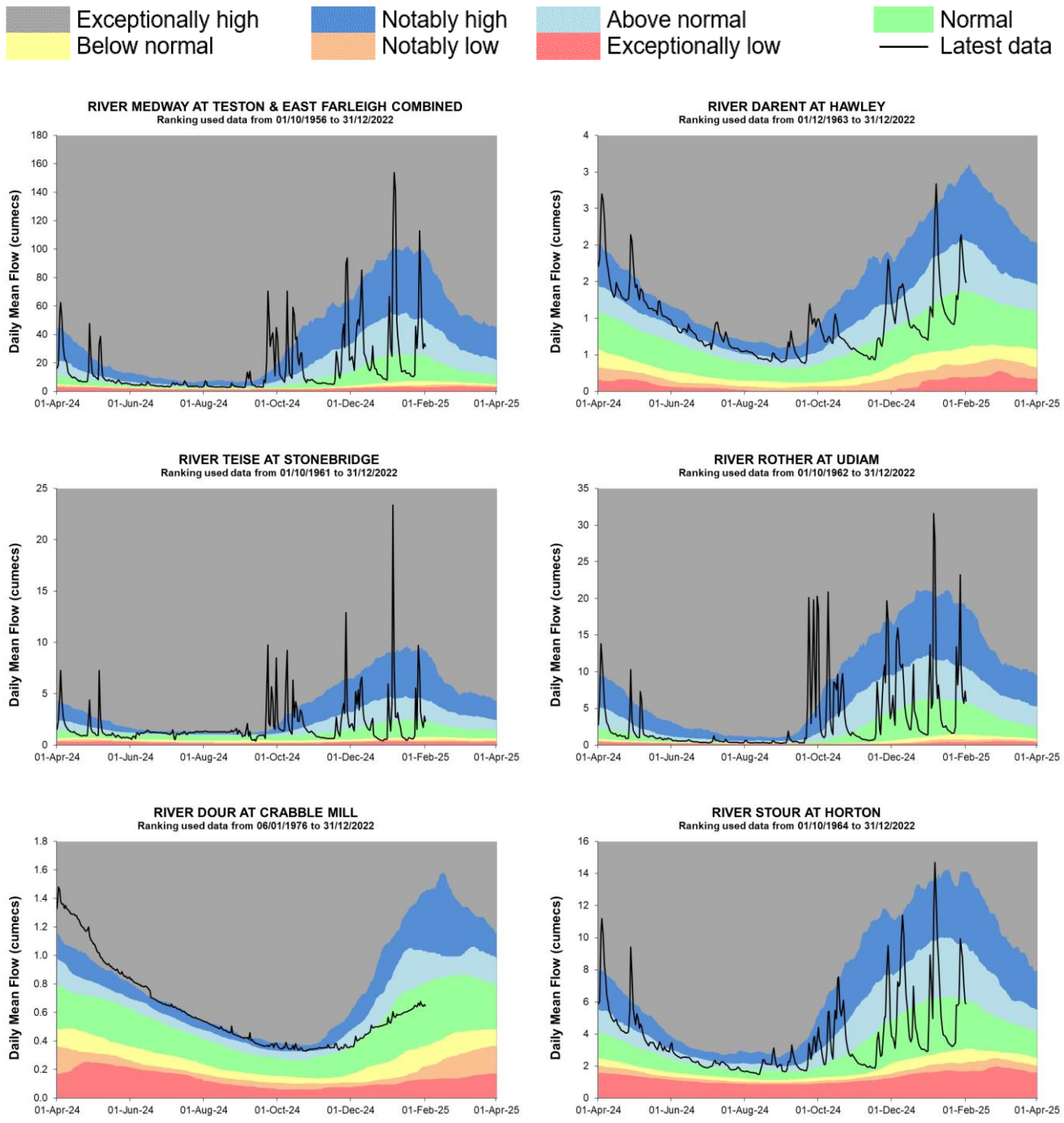


HadUK rainfall data. (Source: Met Office. Crown copyright, 2025).

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

7.2 KSL River flow charts

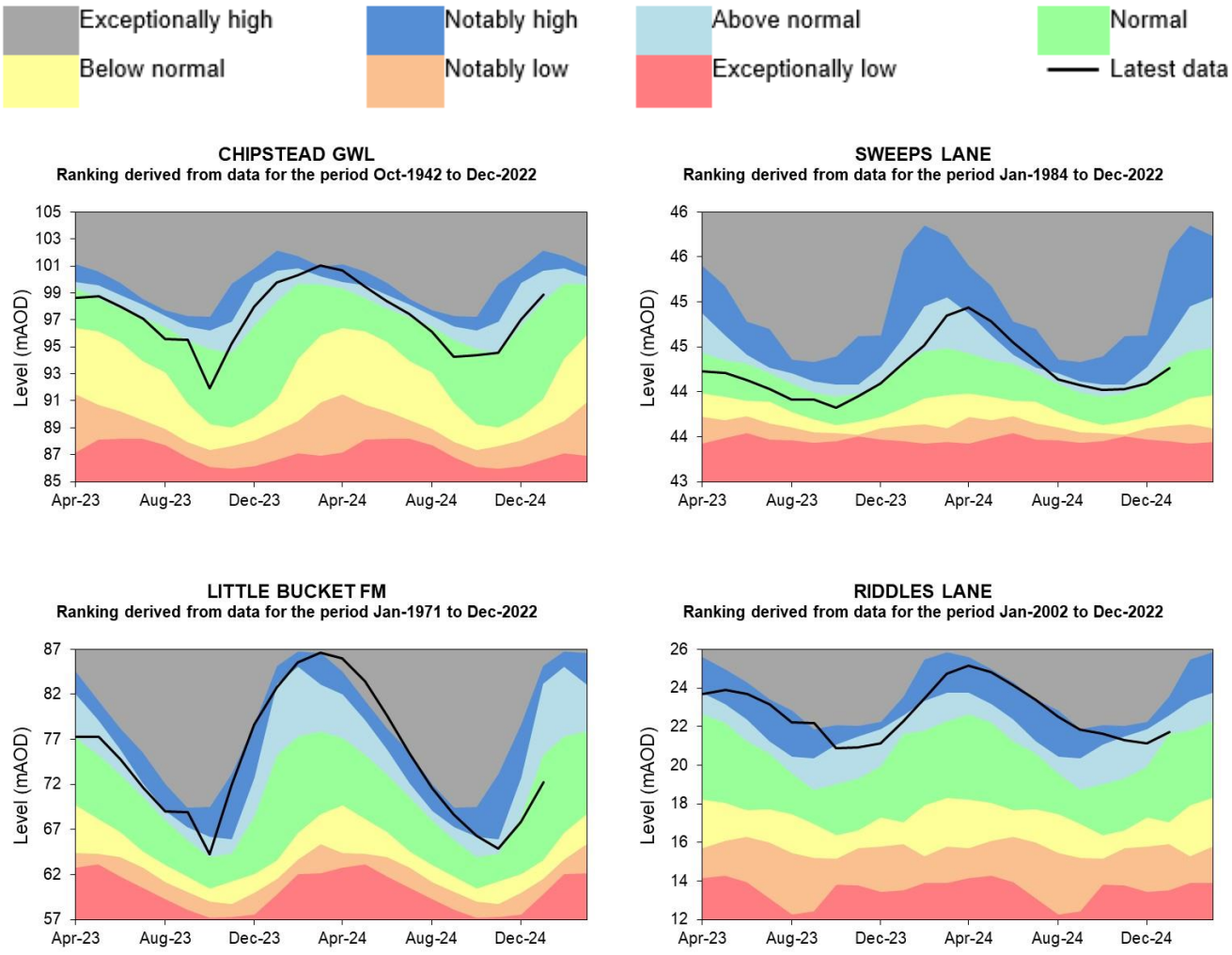
Figure 7.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



Source: Environment Agency. 2025 .

7.3 KSL Groundwater levels

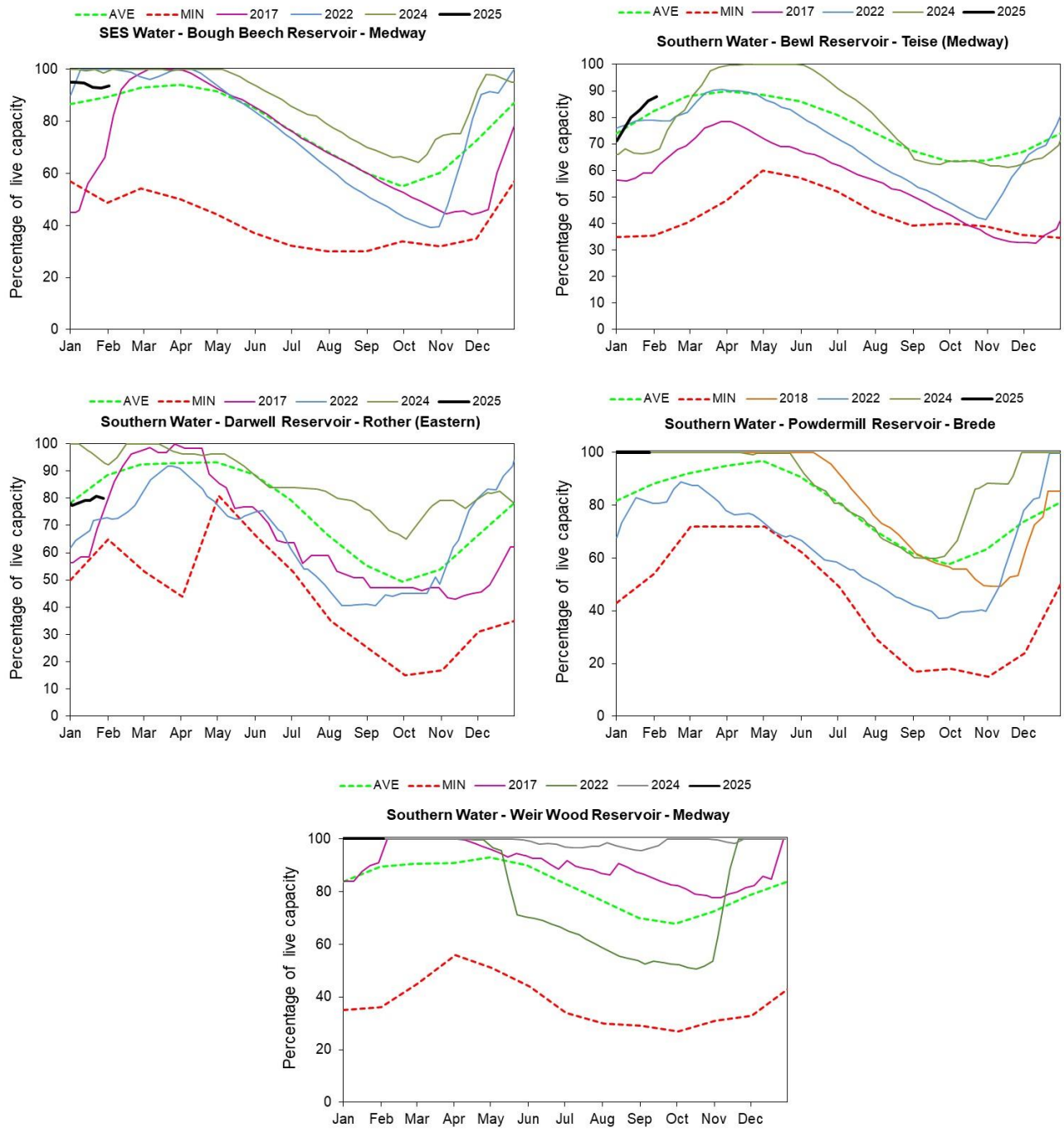
Figure 7.3: End of month groundwater levels at index groundwater level sites for major aquifers. 22 months compared to an analysis of historic end of month levels and long term maximum and minimum levels.



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 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).

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	Jan 2025 rainfall % of long term average 1961 to 1990	Jan 2025 band	Nov 2024 to January cumulative band	Aug 2024 to January cumulative band	Feb 2024 to January cumulative band
Cotswold West	135	Above Normal	Normal	Notably high	Exceptionally high
Cotswold East	135	Above Normal	Above normal	Exceptionally high	Exceptionally high
Berkshire Downs	159	Notably High	Above normal	Notably high	Exceptionally high
Chilterns West	157	Notably High	Normal	Notably high	Exceptionally high
Chilterns East Colne	133	Above Normal	Normal	Above normal	Exceptionally high
North Downs - Hampshire	159	Notably High	Normal	Notably high	Exceptionally high
North Downs - South London	154	Above Normal	Normal	Above normal	Notably high
Upper Thames	141	Above Normal	Normal	Notably high	Exceptionally high
Upper Cherwell	146	Above Normal	Above normal	Exceptionally high	Exceptionally high
Thame	128	Above Normal	Normal	Exceptionally high	Exceptionally high
Loddon	172	Notably High	Above normal	Notably high	Exceptionally high
Lower Wey	169	Notably High	Normal	Notably high	Exceptionally high
Upper Mole	152	Above Normal	Normal	Above normal	Notably high
Lower Lee	138	Above Normal	Normal	Normal	Notably high
North London	150	Above Normal	Normal	Normal	Exceptionally high
South London	152	Notably High	Normal	Above normal	Notably high

Roding	131	Above Normal	Normal	Normal	Above normal
Ock	136	Above Normal	Normal	Exceptionally high	Exceptionally high
Enborne	167	Notably High	Above normal	Notably high	Exceptionally high
Cut	169	Notably High	Normal	Notably high	Exceptionally high
Lee Chalk	126	Above Normal	Normal	Above normal	Exceptionally high
River Test	164	Notably High	Above normal	Notably high	Exceptionally high
East Hampshire Chalk	158	Notably High	Normal	Above normal	Exceptionally high
West Sussex Chalk	145	Above Normal	Normal	Above normal	Exceptionally high
East Sussex Chalk	134	Above Normal	Normal	Above normal	Exceptionally high
Sw Isle Of Wight	154	Notably High	Normal	Above normal	Exceptionally high
River Darent	147	Above Normal	Normal	Normal	Above normal
North Kent Chalk	143	Above Normal	Normal	Normal	Notably high
Stour	140	Above Normal	Normal	Normal	Above normal
Dover Chalk	139	Above Normal	Normal	Normal	Notably high
Thanet Chalk	136	Above Normal	Normal	Normal	Normal
Western Rother Greensand	151	Above Normal	Normal	Above normal	Exceptionally high
Hampshire Tertiaries	153	Notably High	Normal	Above normal	Exceptionally high
Lymington River Avon Water And O	152	Notably High	Normal	Above normal	Exceptionally high
Sussex Coast	146	Above Normal	Normal	Normal	Exceptionally high
River Arun	154	Notably High	Normal	Above normal	Notably high
River Adur	139	Above Normal	Normal	Above normal	Notably high
River Ouse	141	Above Normal	Normal	Above normal	Exceptionally high

Cuckmere River	126	Above Normal	Normal	Above normal	Exceptionally high
Pevensey Levels	126	Above Normal	Normal	Above normal	Notably high
River Medway	151	Notably High	Normal	Notably high	Exceptionally high
Eastern Rother	138	Above Normal	Normal	Above normal	Exceptionally high
Romney Marsh	139	Above Normal	Normal	Above normal	Notably high
North West Grain	142	Above Normal	Normal	Normal	Above normal
Sheppy	136	Above Normal	Normal	Normal	Above normal

9.2 River flows table

Site name	River	Catchment	Jan 2025 band	Dec 2024 band
Colney Street_hansteads	Ver	Colne	Exceptionally high	Exceptionally high
Feildes Weir (nat)	Lee (middle)	Lee	Above normal	Above normal
Panshanger	Mimram	Lee	Exceptionally high	Exceptionally high
Crabble Mill Gs	Dour	Little Stour	Normal	Normal
Hawley Gs	Darent	Darent and Cray	Above normal	Above normal
Horton Gs	Great Stour	Stour Kent	Normal	Normal
Stonebridge Gs	Teise	Teise	Above normal	Normal
Teston Farleigh Combined	Medway100	Medway Estuary	Above normal	Normal
Udiam Gs	Rother	Rother Kent Lower	Above normal	Normal
Alfoldean Gs	Arun	Arun	Notably high	Normal
Allbrook Gs And Highbridge	Itchen (so)	Itchen	Above normal	Notably high
Broadlands	Test	Test Lower	Above normal	Notably high
Brockenhurst Gs	Lymington	New Forest	Notably high	Normal
Goldbridge Gs	Ouse (so)	Ouse Sussex	Above normal	Normal
Iping Mill Gs	Rother	West Rother	Above normal	Normal
Farmoor (naturalised)	River Thames	Thames	Normal	Notably high
Kingston (naturalised)	River Thames	Thames North Bank	Normal	Above normal
Marlborough	River Kennet	Kennet	Above normal	Notably high
Sheepbridge	River Loddon	Loddon	Exceptionally high	Normal
Tilford	River Wey	Wey Addleston Bourne	Exceptionally high	Above normal

9.3 Groundwater table

Site name	Aquifer	End of Jan 2025 band	End of Dec 2024 band
Ashley Green Stw	Mid-chilterns Chalk	Above normal	Notably high
Lilley Bottom	Upper Lee Chalk	Exceptionally high	Exceptionally high
Little Bucket Fm	East Kent Chalk - Stour	Normal	Normal
Chipstead Gwl	Epsom North Downs Chalk	Above normal	Above normal
Riddles Lane	North Kent Swale Chalk	Above normal	Above normal
Sweeps Lane Gwl	West Kent Chalk	Normal	Above normal
Houndean Bottom Gwl	Brighton Chalk Block	Normal	Normal
Chilgrove House Gwl	Chichester-worthing-portsdown Chalk	Normal	Normal
Carisbrooke Castle	Isle Of Wight Central Downs Chalk	Above normal	Below normal
West Meon Hut Gwl	River Itchen Chalk	Above normal	Above normal
Clanville Gate Gwl	River Test Chalk	Notably high	Notably high
Lopcombe Corner Gwl	River Test Chalk	Notably high	Notably high
Tile Barn Farm	Basingstoke Chalk	Notably high	Above normal
Rockley Obh	Berkshire Downs Chalk	Above normal	Notably high
Jackaments Bottom Obh	Burford Oolitic Limestone (inferior)	Normal	Normal
Stonor Estate	South-west Chilterns Chalk	Exceptionally high	Exceptionally high

9.4 South-east England areal units for reference