Monthly water situation report:

South-east England

1 Summary - July 2024

The south-east of England received 152% of the long term average (LTA) rainfall for July. The wettest days were 5 and 15 July, when the rainfall was widespread across the South east. It was the wettest July since 2012 for several areal rainfall units. After intense rainfall on 5 and 15 July, the soil moisture deficit (SMD) fluctuated but ended July close to the end of month LTA. The rivers had a largely a muted response to the heavy rainfall but remain in the above normal or higher categories as a legacy of the wet winter. There were 14 fluvial flood alerts and 2 fluvial warnings issued during the month. Groundwater levels have remained high across most sites, reflecting the cumulative effect of the significant rainfall in preceding months. Several sites recorded their highest or second-highest groundwater levels on record.

1.1 Rainfall

The south-east of England received 152% of the LTA rainfall for July. The wettest days were 5 and 15 June, when the rainfall was widespread across the south-east. Together, the rainfall on these days accounted for an average of 42% of the monthly total. Both Hertfordshire and North London (HNL) and Thames (THM) recorded the wettest day on 5 July for the top 5 raingauge totals. To the south, the highest rainfall totals were recorded for both Kent and South London (KSL) and Solent and South Downs (SSD) on 15 July.

The highest daily rainfall totals were 46.9mm at Worsham (THM) and 46.2mm at Epping Forest (HNL) on 5 July, demonstrating how widespread the heavy rainfall was. There were on average, 16 ‘dry’ days when there was less than 0.2mm rainfall recorded.

The total rainfall for the period from April to July was the wettest since 2012 for several areal units, including:

- Chilterns East (HNL)
- Cotswolds West (THM)
- Thame (THM)
- Lower Lee (HNL)
- Lee Chalk (HNL)
- West Sussex Chalk (SSD)
- East Sussex Chalk (SSD)

1.2 Soil moisture deficit and recharge

The SMDs rose at the beginning of the month, fell after the rainfall on 5 July, then rose steadily again. On 15 July the deficits dropped again and eventually ended the month close to the LTA for July. As would be expected at this time of year, recharge was insignificant across the south-east of England.

1.3 River flows

During July, the indicator flow sites continued to show the expected seasonal decline in flows. There was only a muted response to the heavy rainfall on both 5 and 15 July at most sites owing to the average soil moisture deficits. The two exceptions to this were the Ver at Colney Street and Mimram at Panshanger, both in HNL, which showed significant responses to the two rainfall events.
Despite the general seasonal decline in flows, of the 21 indicator sites, only 2 were in the normal category. These were the Coln at Bibury (THM) and the Rother at Udiam (KSL). Of the remaining 19 indicator sites, 7 were in the exceptionally high category. Six of these are chalk groundwater fed rivers and match the categories of the local groundwater sites. The Teise at Stonebridge (KSL) recorded exceptionally high flows owing to compensation flows.

Here are some notable observations for mostly groundwater fed rivers:

- Ver at Colney Street (HNL) recorded the highest July flow on record.
- Coln at Bibury (THM) recorded its highest flows since 2014.
- Thames at Farmoor (THM) recorded the fourth highest flow on record and the highest since 2012.
- Kennet at Marlborough (THM) recorded its highest flows since 2012.
- Mimram at Panshanger (HNL) recorded the second highest flow on record, the highest since 2001.
- Lee at Feildes Weir (HNL) and Darent at Hawley (KSL) both had flows ranking as the third and fifth highest on record, the highest since 2012 and 2014, respectively.

A total of 12 fluvial flood alerts and 2 fluvial flood warnings were issued during July.

	HNL	THM	SSD	KSL	Total
Fluvial Alerts	9	3	0	0	12
Fluvial Warnings	2	0	0	0	2
Totals	11	3	0	0	14

1.4 Groundwater levels

In July, groundwater levels showed seasonal declines and the influence of high rainfall in previous months. Despite the expected seasonal falls, many sites continued to maintain high groundwater levels.

Out of the 16 indicator sites, only 2 recorded levels in the normal category for July. These were Jackaments (THM) and Carisbrooke Castle (SSD). The remaining sites recorded levels above normal or higher. This reflects the cumulative effect of significant rainfall in preceding months.

The following sites recorded significant rankings:

- Wolverton (KSL, exceptionally high, highest on record)
- Stonor Estate (THM, exceptionally high, 2nd highest on record, highest since 2001)
- Lilley Bottom (HNL, exceptionally high, 3rd highest on record, highest since 2001)
- Ashley Green (HNL, notably high, 3rd highest on record, highest since 2001)
- West Meon (SSD, exceptionally high, 2nd highest on record, highest since 2001)
- Clanville Lodge (SSD, exceptionally high, 3rd highest on record, highest since 2001)

1.5 Reservoir stocks

The Lee reservoirs (HNL) recorded above the LTA storage for July. The reservoirs remain above average for July at all of the reservoirs across the south-east with just two exceptions. Both Arlington (SSD) and Powdermill (KSL) ended the month just below the monthly LTA.

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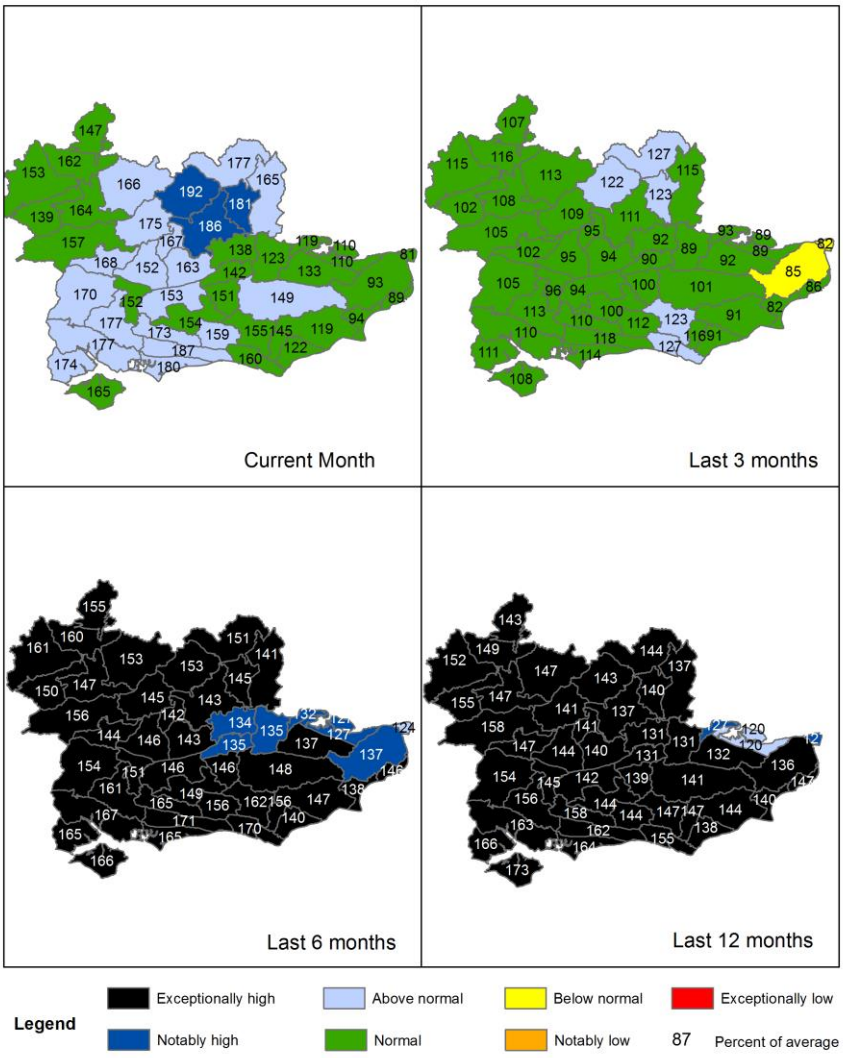
2 Maps

2.1 Rainfall map

Figure 2.1: Total rainfall for hydrological areas for the current month (up to 31 July 2024), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. A table is available in the appendices with detailed information.

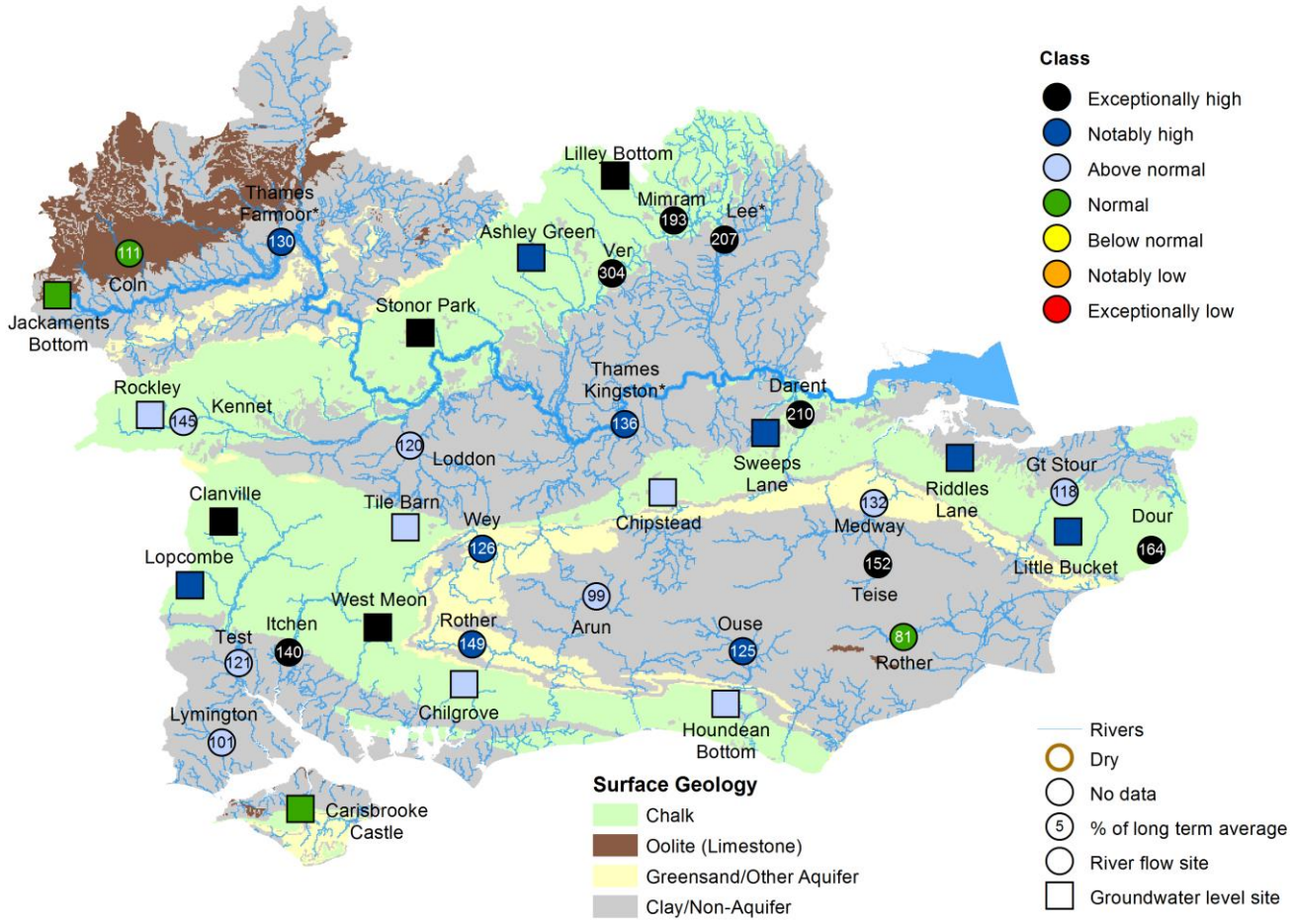


Rainfall data for 2024, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, 100024198, 2024). Rainfall data prior to 2024 was extracted from the Met Office HadUK 1km gridded rainfall dataset derived from registered rain gauges. (Source: Met Office. Crown copyright, 2024).

2.2 River flows and groundwater levels map

Figure 2.2: Monthly mean river flow for indicator sites for July 2024, expressed as a percentage of the respective long term average and classed relative to an analysis of historic July monthly means A table is available in the appendices with detailed information. Groundwater levels for indicator sites at the end of July 2024 are classed relative to an analysis of respective historic July levels. A table is 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	July % LTA	Effective Rainfall (mm) 31 day total	July % LTA	SMD (mm) Day 31	End Jul LTA
6010TH	Cotswolds - West (A)	81	153%	8	124%	47	54
6070TH	Berkshire Downs (G)	77	158%	8	192%	85	85
6130TH	Chilterns - West (M)	87	175%	9	214%	84	86
6162TH	North Downs - Hampshire (P)	80	153%	8	157%	88	83
6190TH	Wey - Greensand (S)	77	154%	7	151%	90	83
	Thames Average	77	158%	3	151%	82	81
	Thames Catchment Average	77	159%	4	160%	82	81
6140TH	Chilterns - East - Colne (N)	98	193%	11	239%	76	84
6600TH	Lee Chalk	92	177%	9	201%	80	91
6507TH	North London	89	188%	0	-	88	91
6509TH	Roding	81	165%	0	-	85	89
	Herts and North London	90	181%	4	220%	82	89
6230TH	North Downs - South London (W)	73	142%	7	145%	89	80
6706So	Darent	61	124%	5	120%	93	88

6707So	North Kent Chalk	67	134%	5	115%	91	86
6708So	Stour	49	94%	2	38%	95	86
6809So	Medway	72	149%	0	-	84	78
	Kent & South London Average	58	119%	2	71%	95	89
6701So	Test Chalk	82	171%	8	188%	86	84
6702So	East Hampshire Chalk	92	177%	9	181%	81	80
6703So	West Sussex Chalk	95	187%	9	170%	74	79
6804So	Arun	74	156%	0	0%	86	78
6805So	Adur	73	159%	0	0%	82	77
	Solent & South Downs Average	78	165%	3	135%	84	81
	South East Average	73	152%	3	129%	86	84

HadUK rainfall data. (Source: Met Office. Crown copyright, 2024).

EA effective rainfall and soil moisture deficit data (Source EA Soil Moisture Model 2024.)

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.

Summer period 01/04/2024 to 31/07/2024

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)	287	124%	64	139%
6070TH	Berkshire Downs (G)	252	115%	44	130%
6130TH	Chilterns - West (M)	249	115%	36	104%
6162TH	North Downs - Hampshire (P)	246	108%	49	124%
6190TH	Wey - Greensand (S)	246	109%	58	136%
	Thames Average	240	114%	33	131%
	Thames Catchment Average	242	114%	36	132%
6140TH	Chilterns - East - Colne (N)	281	127%	51	141%
6600TH	Lee Chalk	270	132%	42	145%
6507TH	North London	236	116%	13	92%
6509TH	Roding	232	120%	17	157%
	Herts and North London	255	124%	29	142%
6230TH	North Downs - South London (W)	230	102%	43	102%

6706So	Darent	212	103%	33	102%
6707So	North Kent Chalk	210	102%	29	85%
6708So	Stour	208	103%	34	119%
6809So	Medway	232	112%	36	154%
	Kent & South London Average	207	104%	27	115%
6701So	Test Chalk	252	117%	49	144%
6702So	East Hampshire Chalk	280	122%	62	153%
6703So	West Sussex Chalk	290	127%	70	146%
6804So	Arun	249	114%	50	166%
6805So	Adur	264	124%	57	194%
	Solent & South Downs Average	258	122%	50	165%
	South East Average	238	115%	36	140%

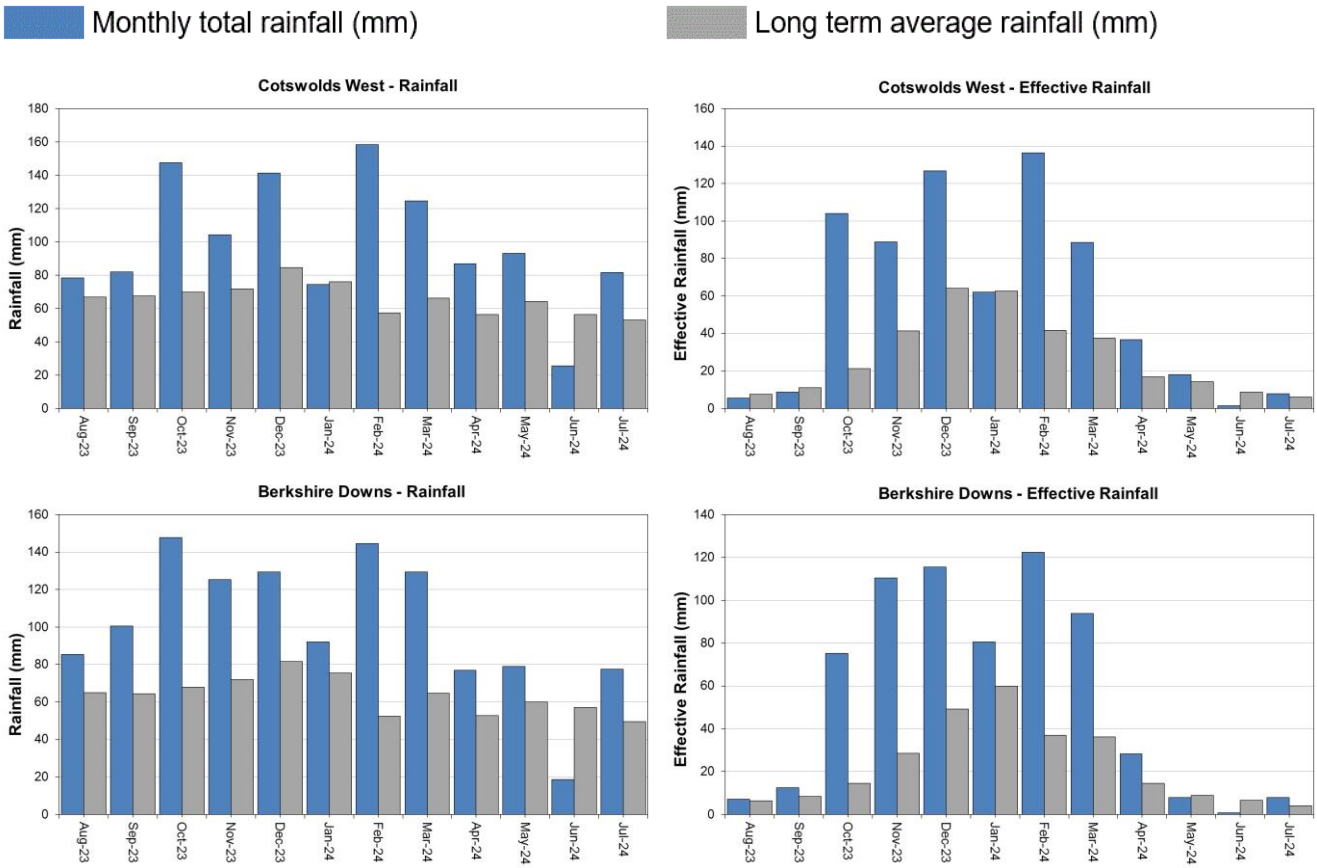
HadUK rainfall data. (Source: Met Office. Crown copyright, 2024).

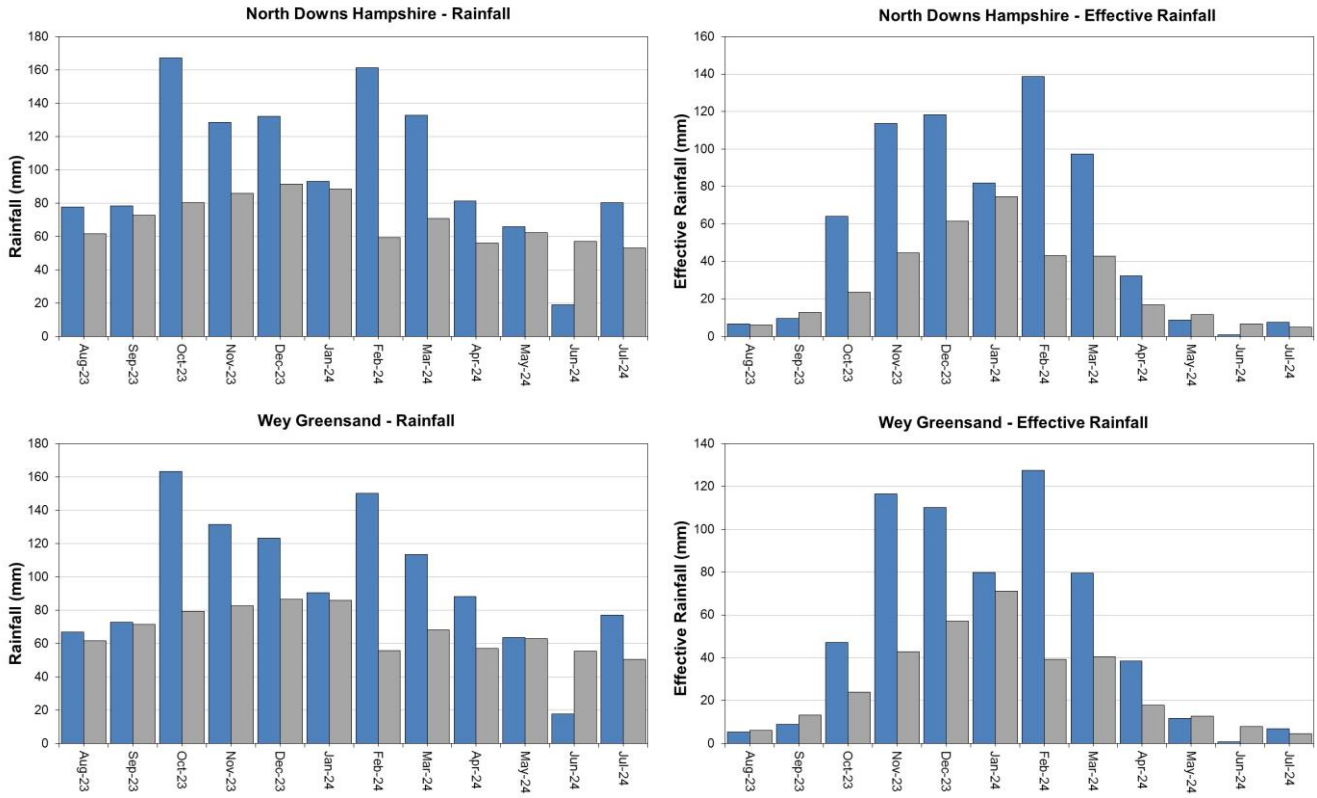
EA effective rainfall data (Source EA Soil Moisture Model 2024.)

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.



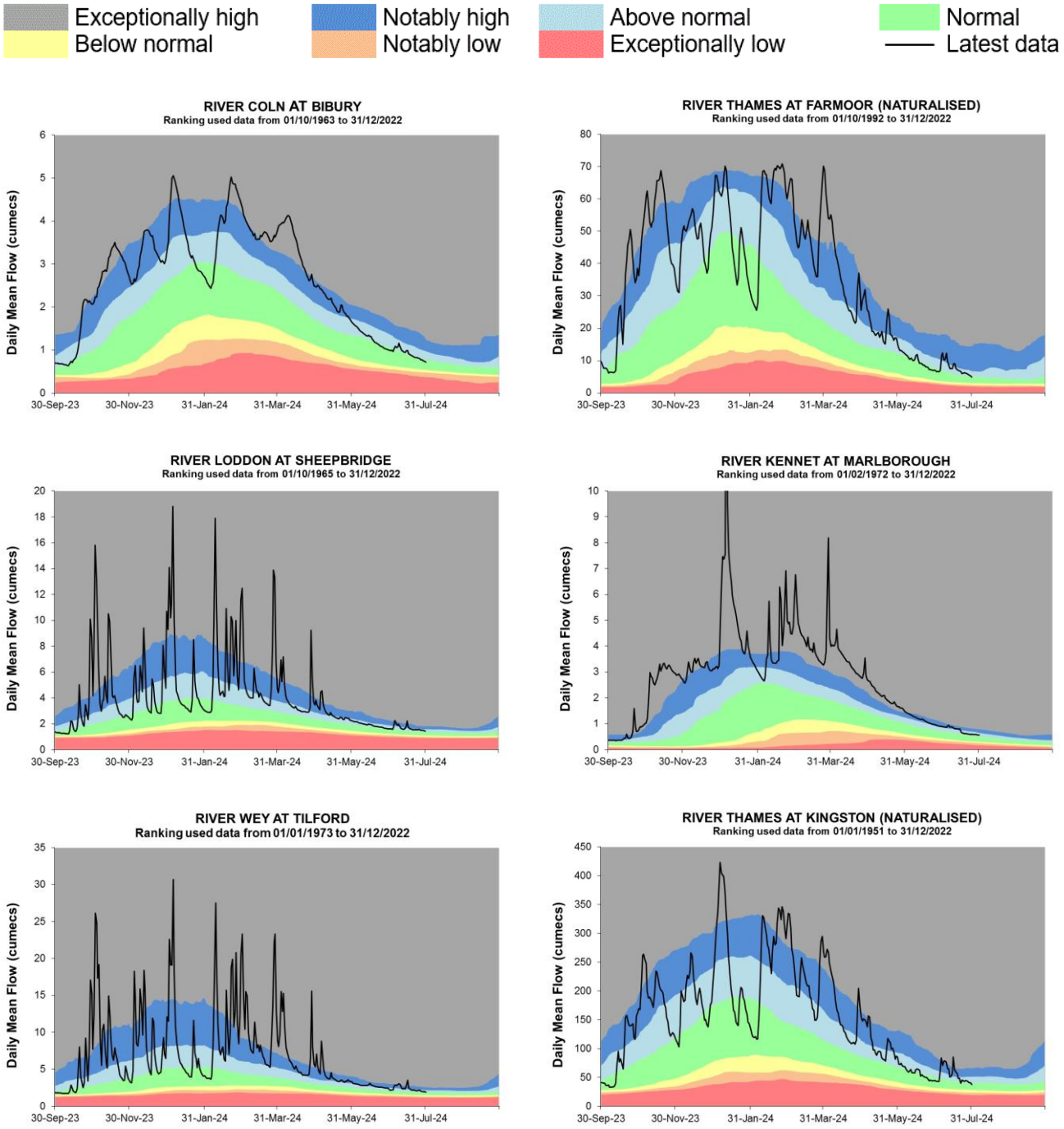


HadUK rainfall data. (Source: Met Office. Crown copyright, 2024).

EA effective rainfall data (Source EA Soil Moisture Model, 2024).

4.2 Thames River flow charts

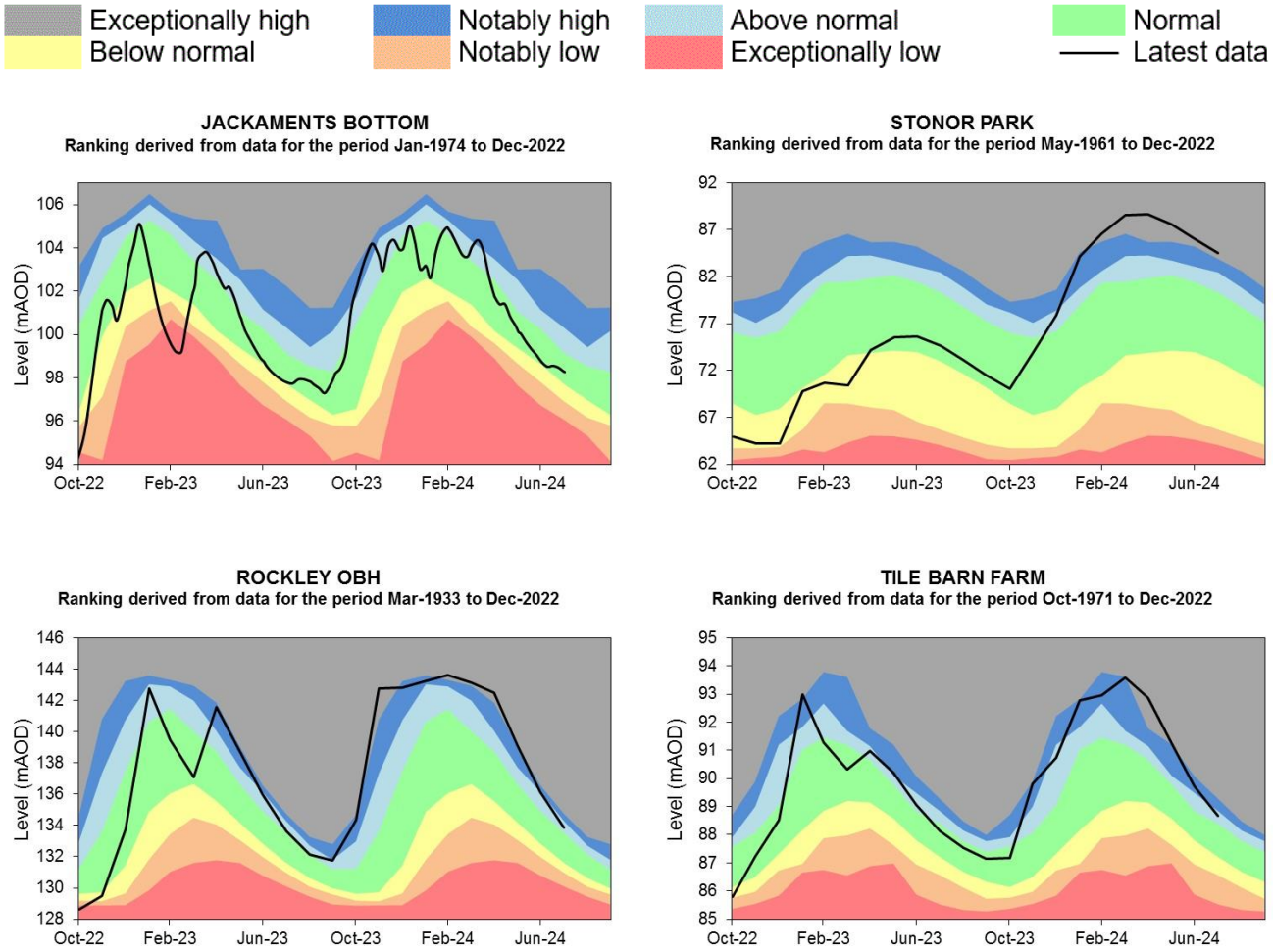
Figure 4.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



Source: Environment Agency. 2024

4.3 Thames Groundwater level charts

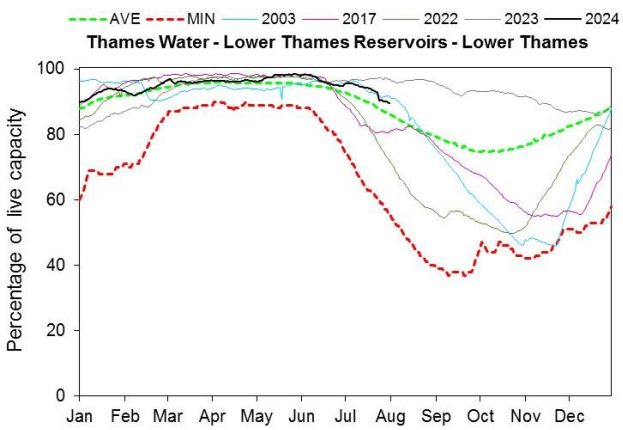
Figure 4.3: End of month groundwater levels at index groundwater level sites for major aquifers. 22 months compared to an analysis of historic end of month levels and long term maximum and minimum levels. Tile Barn Farm data has been estimated from 2 local sites since April 2022. A replacement is planned.

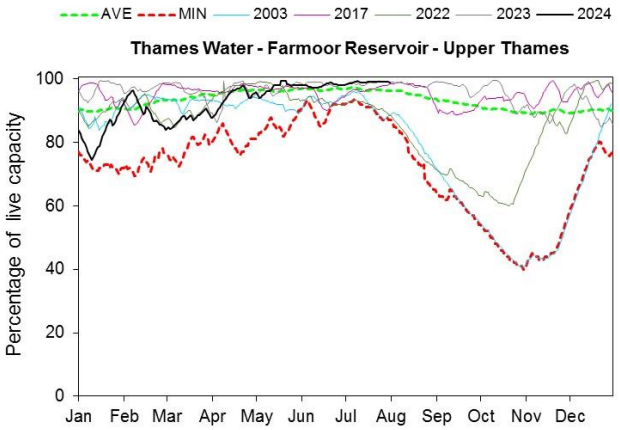


Source: Environment Agency, 2024.

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.



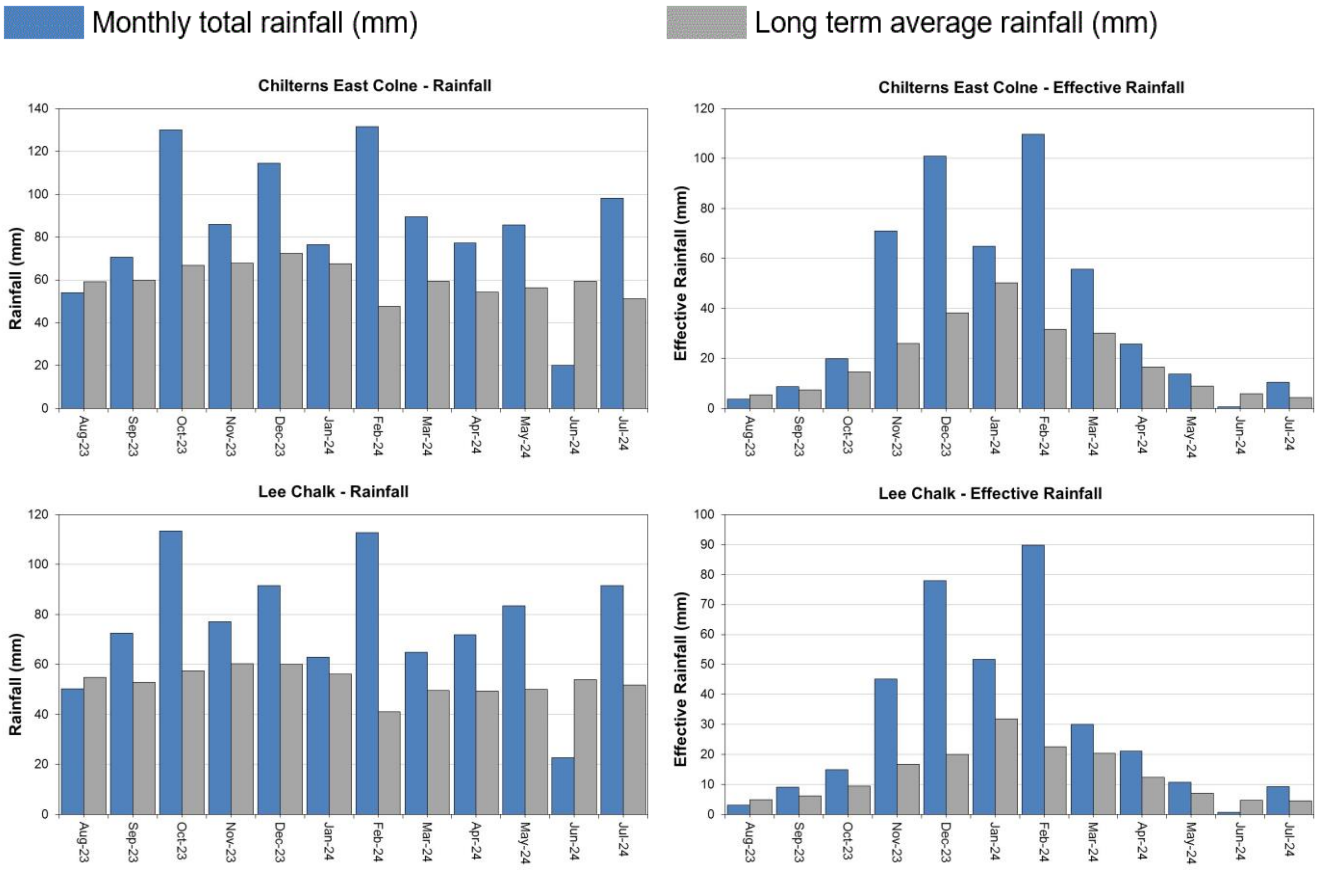


(Source: water companies).

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.

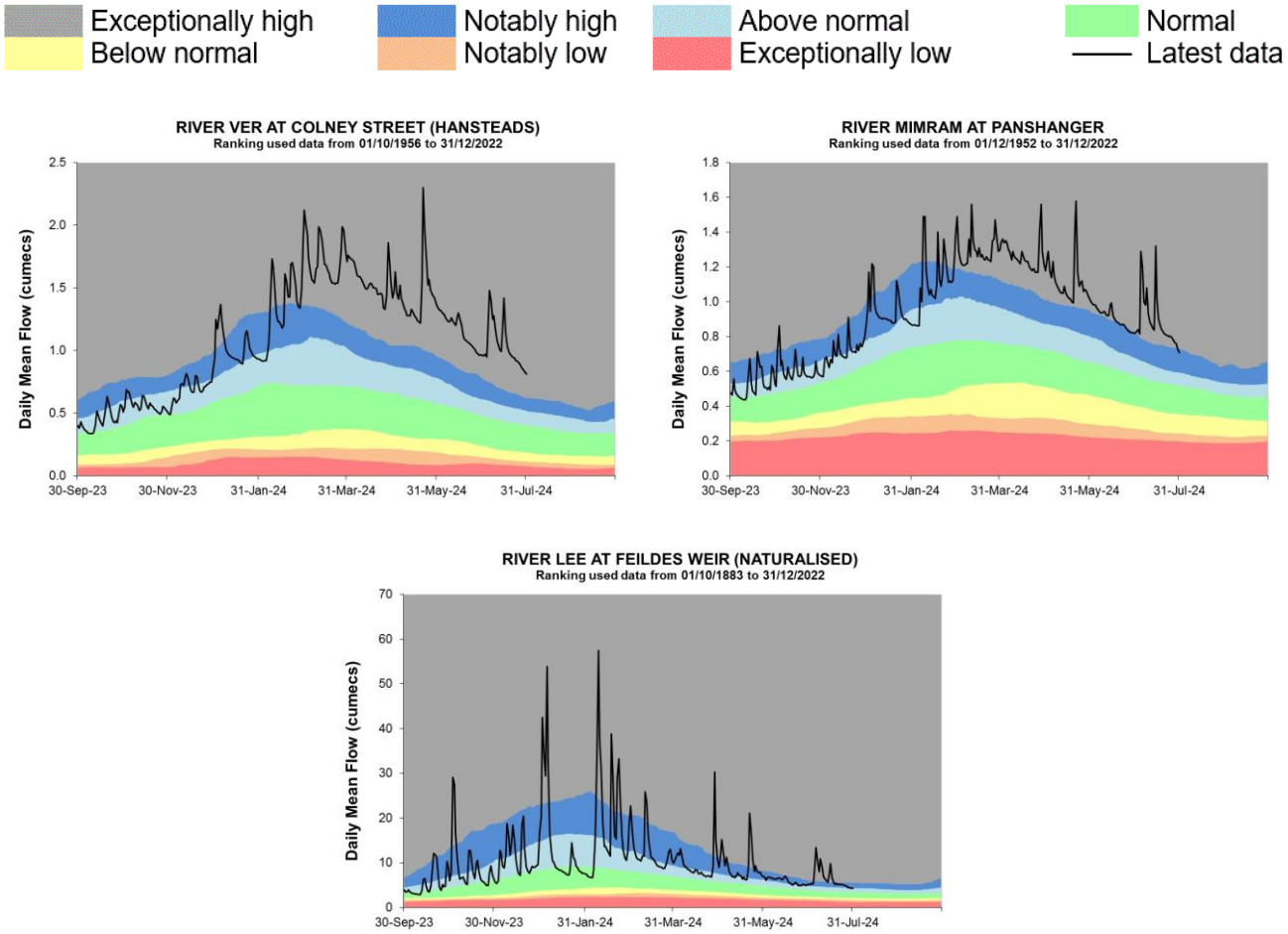


HadUK rainfall data. (Source: Met Office. Crown copyright, 2024).

EA effective rainfall data (Source EA Soil Moisture Model, 2024).

5.2 HNL River flow charts

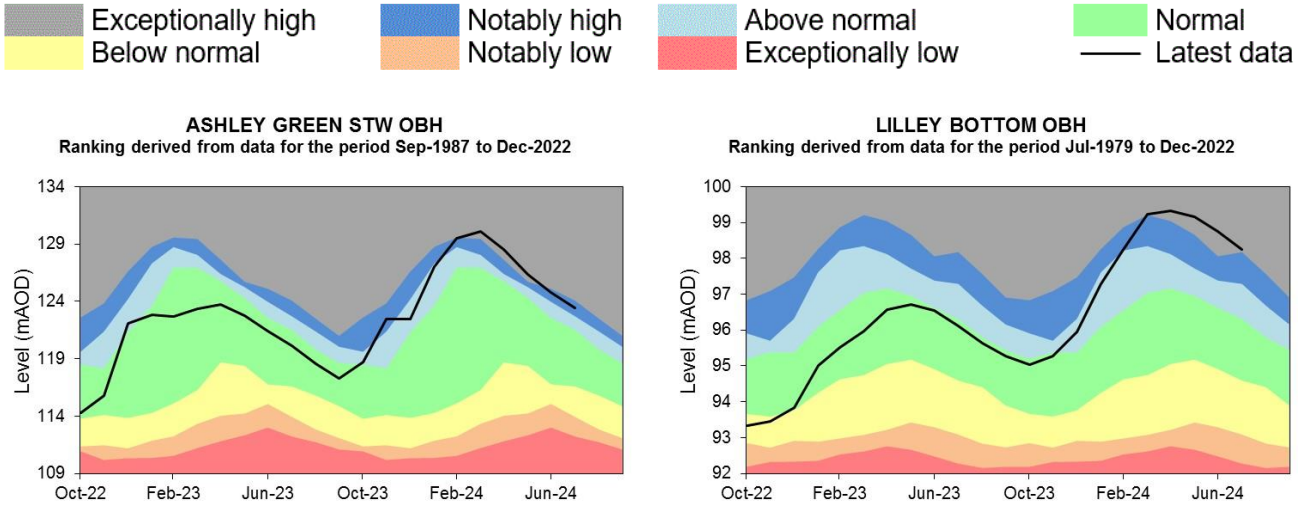
Figure 5.2 Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



Source: Environment Agency. 2024

5.3 HNL Groundwater level charts

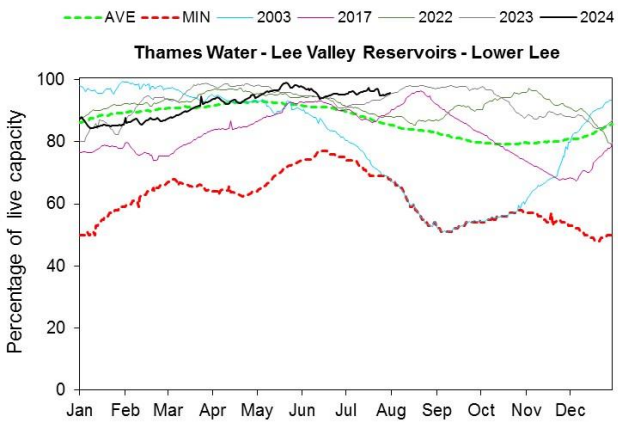
Figure 5.3: End of month groundwater levels at index groundwater level sites for major aquifers. 22 months compared to an analysis of historic end of month levels and long term maximum and minimum levels.



Source: Environment Agency, 2024.

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.

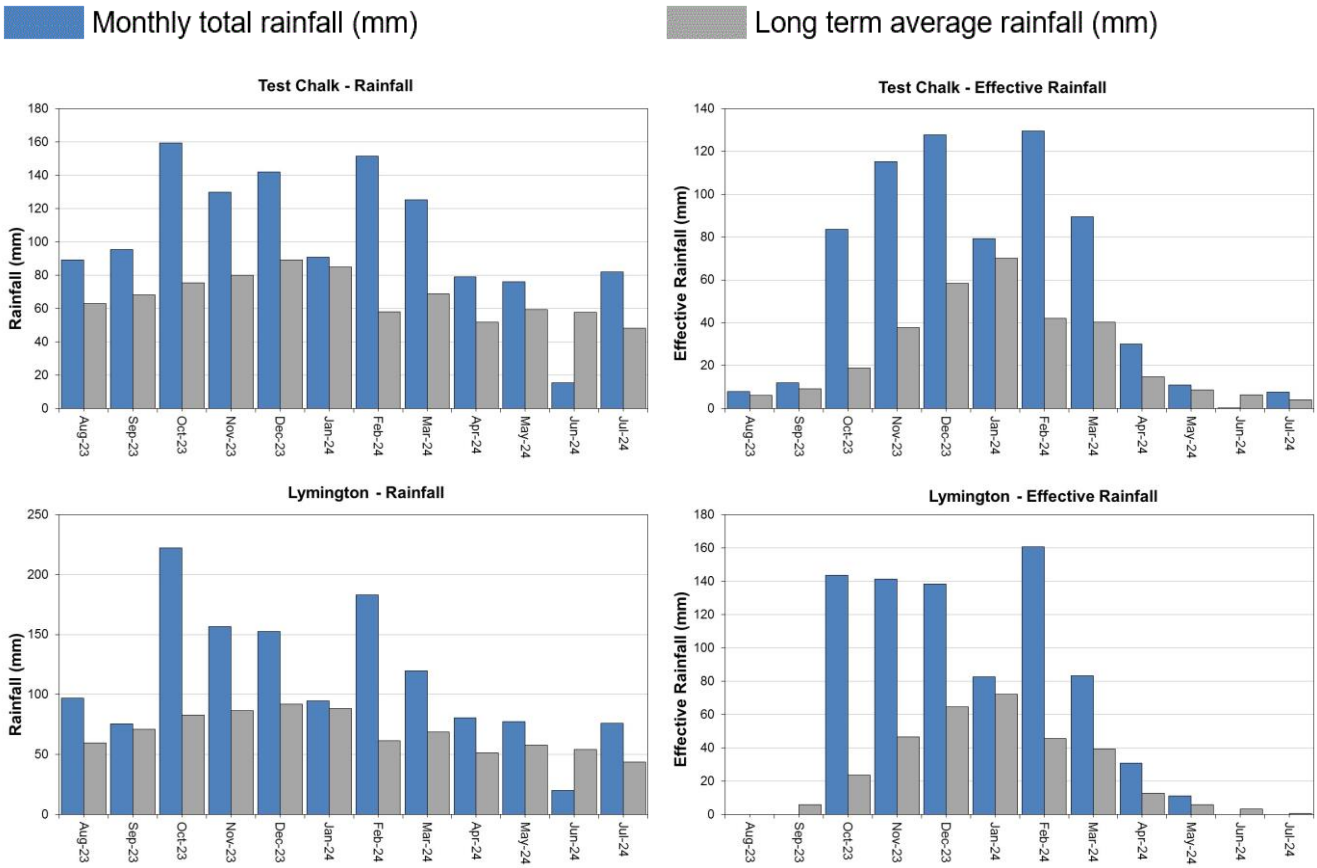


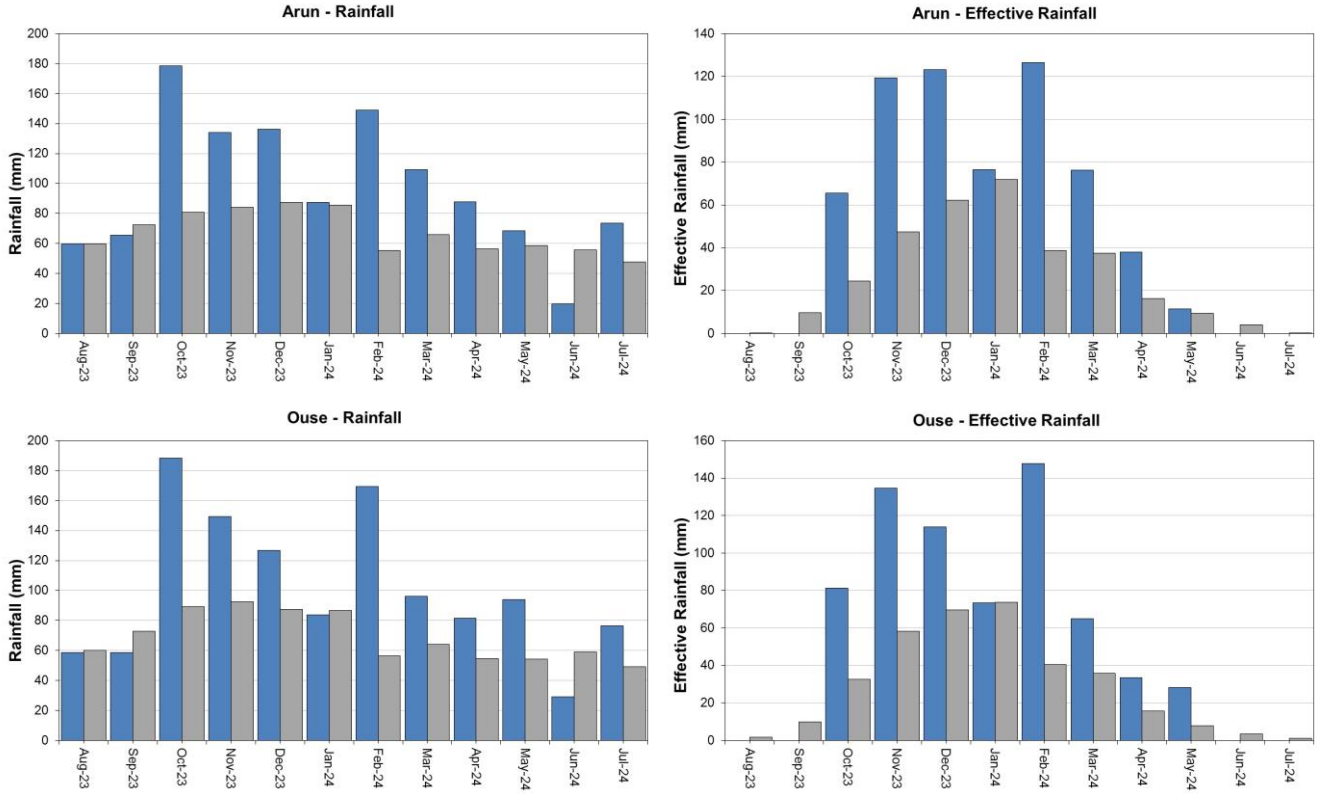
(Source: water companies).

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.



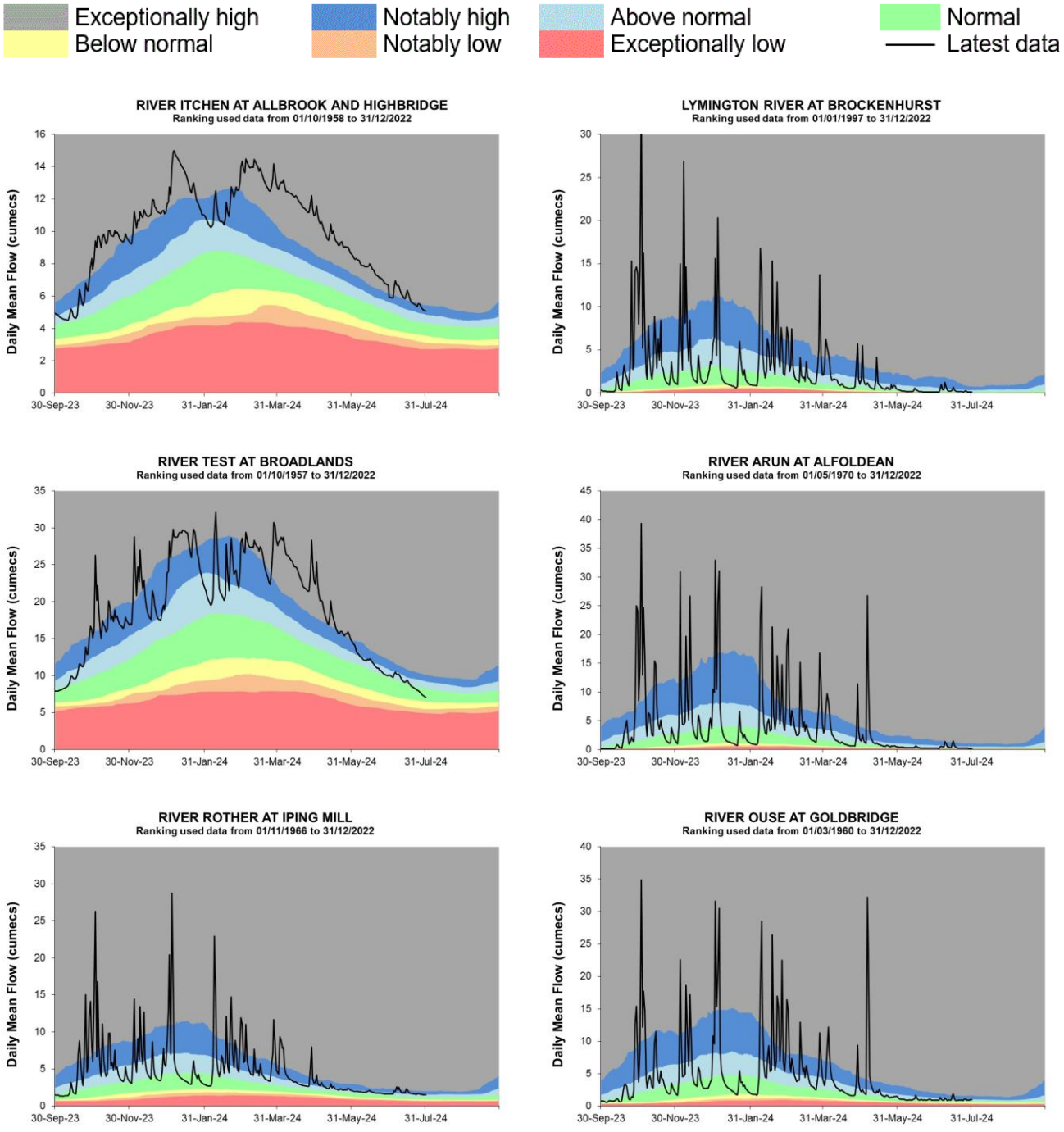


HadUK rainfall data. (Source: Met Office. Crown copyright, 2024).

EA effective rainfall data (Source EA Soil Moisture Model, 2024).

6.2 SSD River flow charts

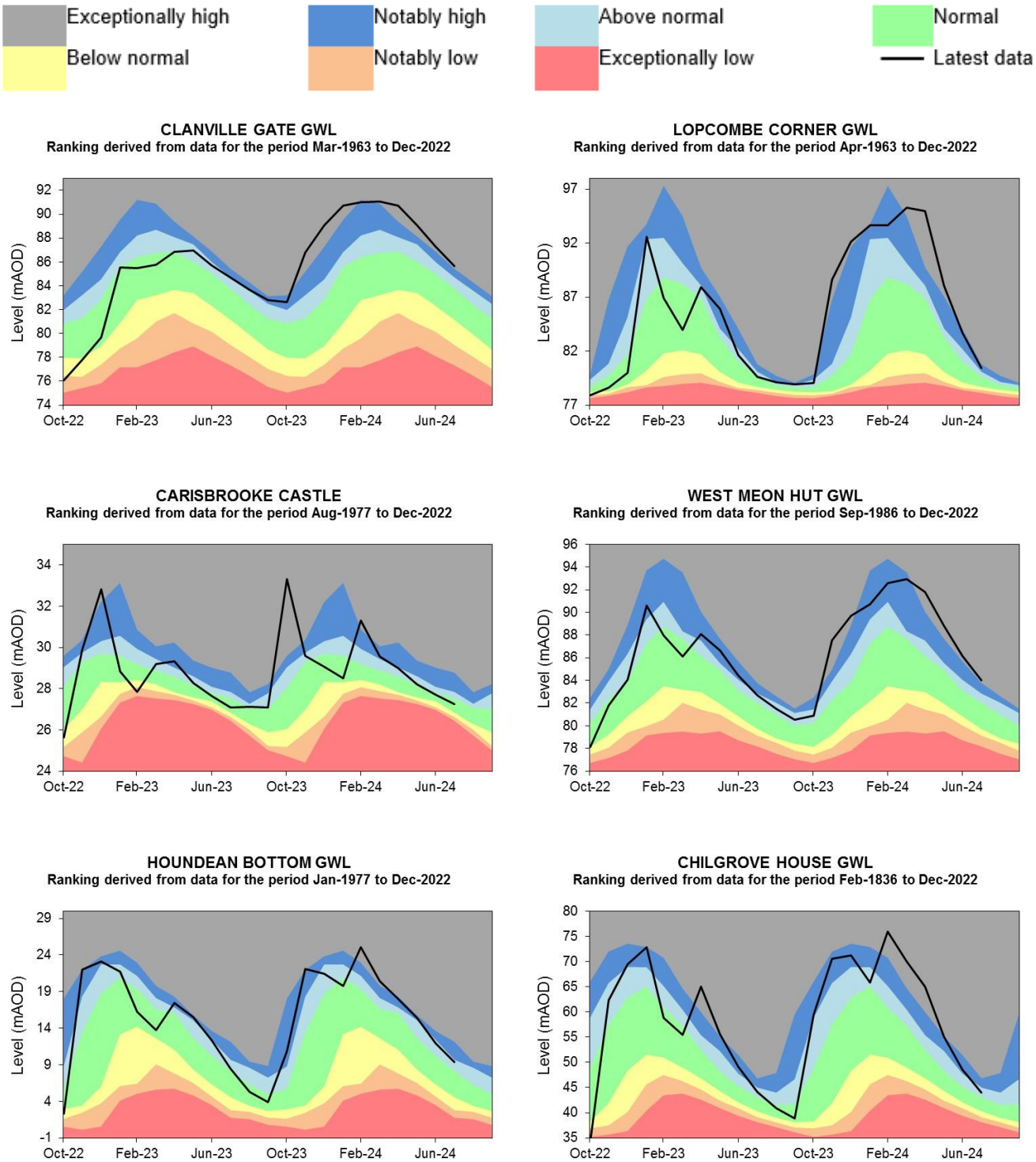
Figure 6.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



Source: Environment Agency. 2024

6.3 SSD Groundwater levels

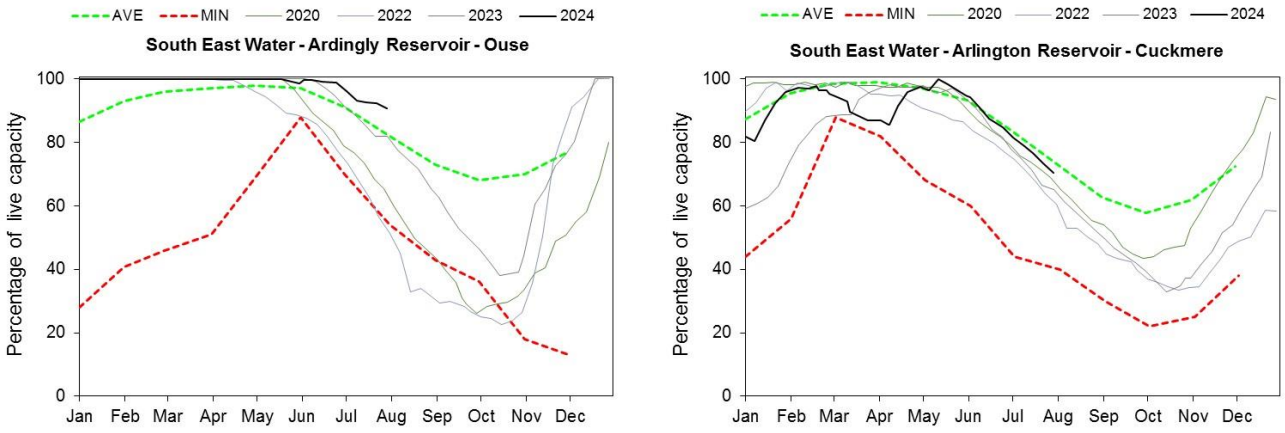
Figure 6.3: End of month groundwater levels at index groundwater level sites for major aquifers. 22 months compared to an analysis of historic end of month levels and long term maximum and minimum levels.



Source: Environment Agency, 2024.

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.

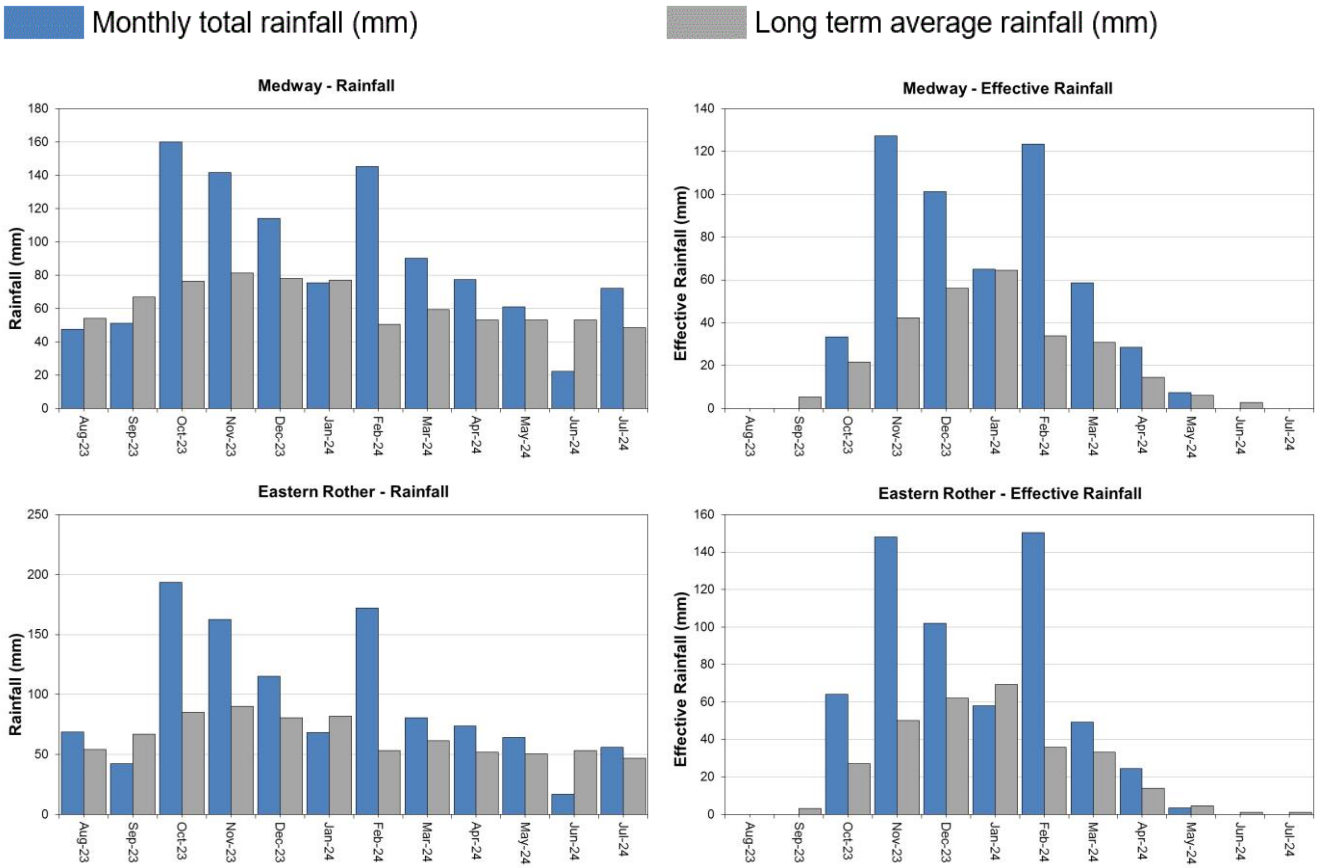


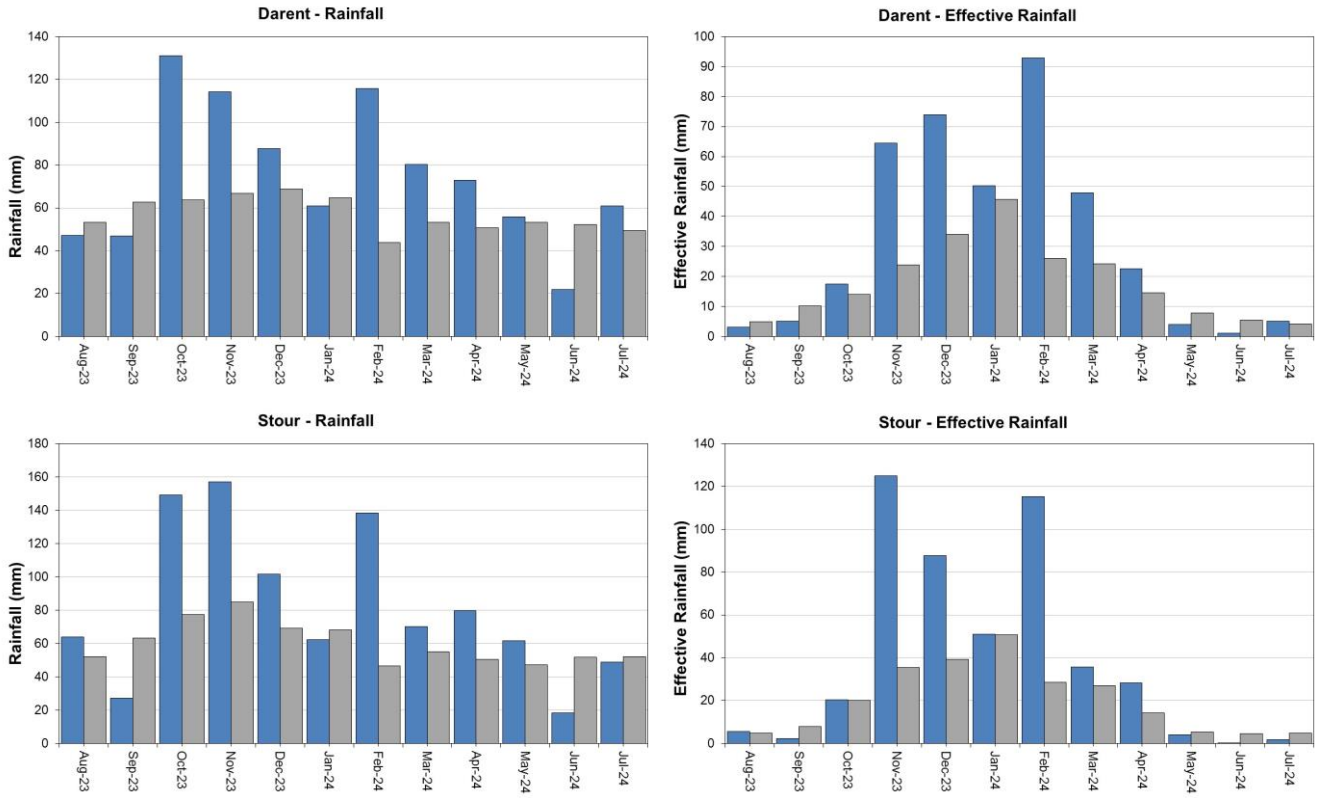
(Source: water companies).

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.



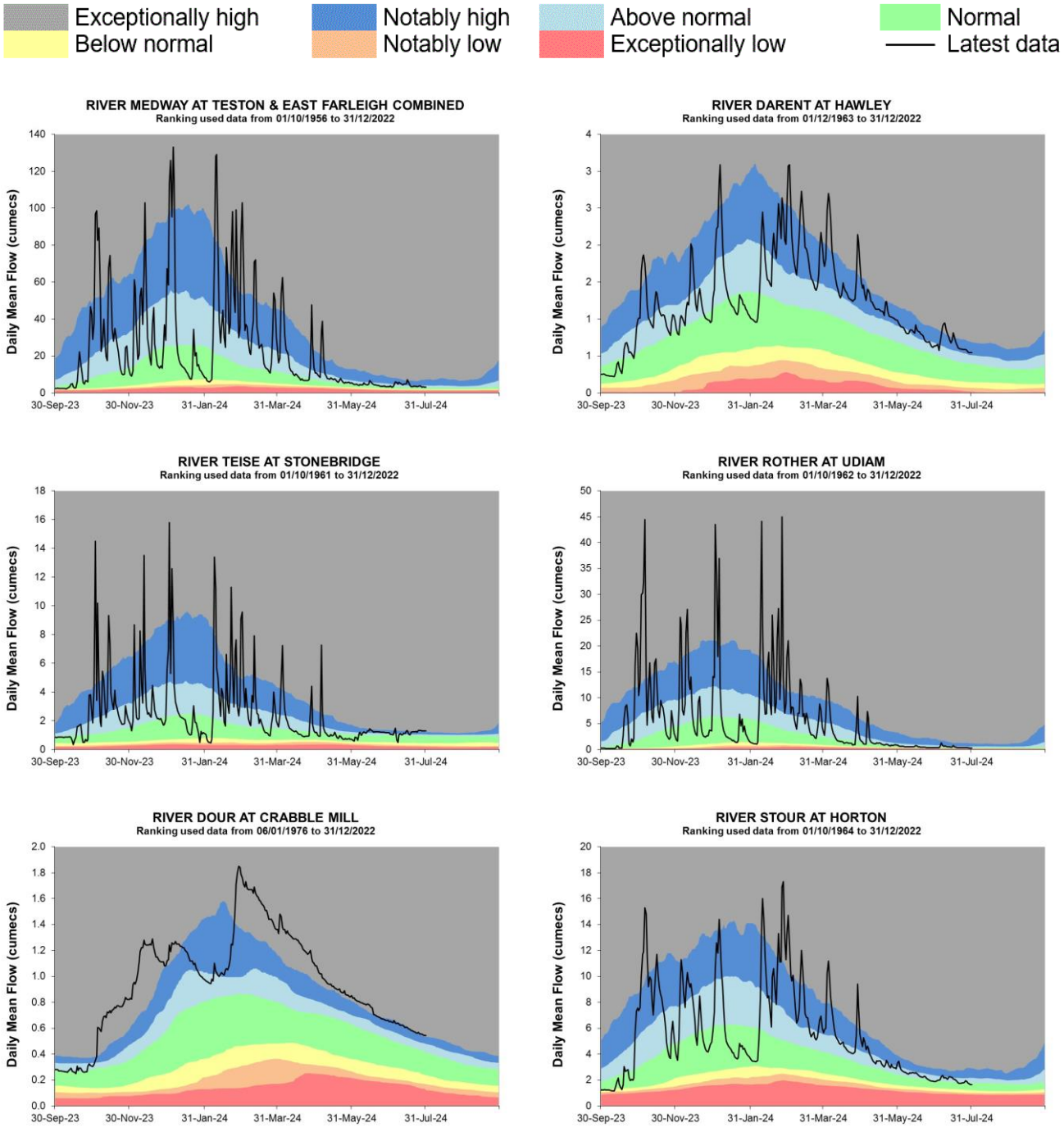


HadUK rainfall data. (Source: Met Office. Crown copyright, 2024).

EA effective rainfall data (Source EA Soil Moisture Model, 2024).

7.2 KSL River flow charts

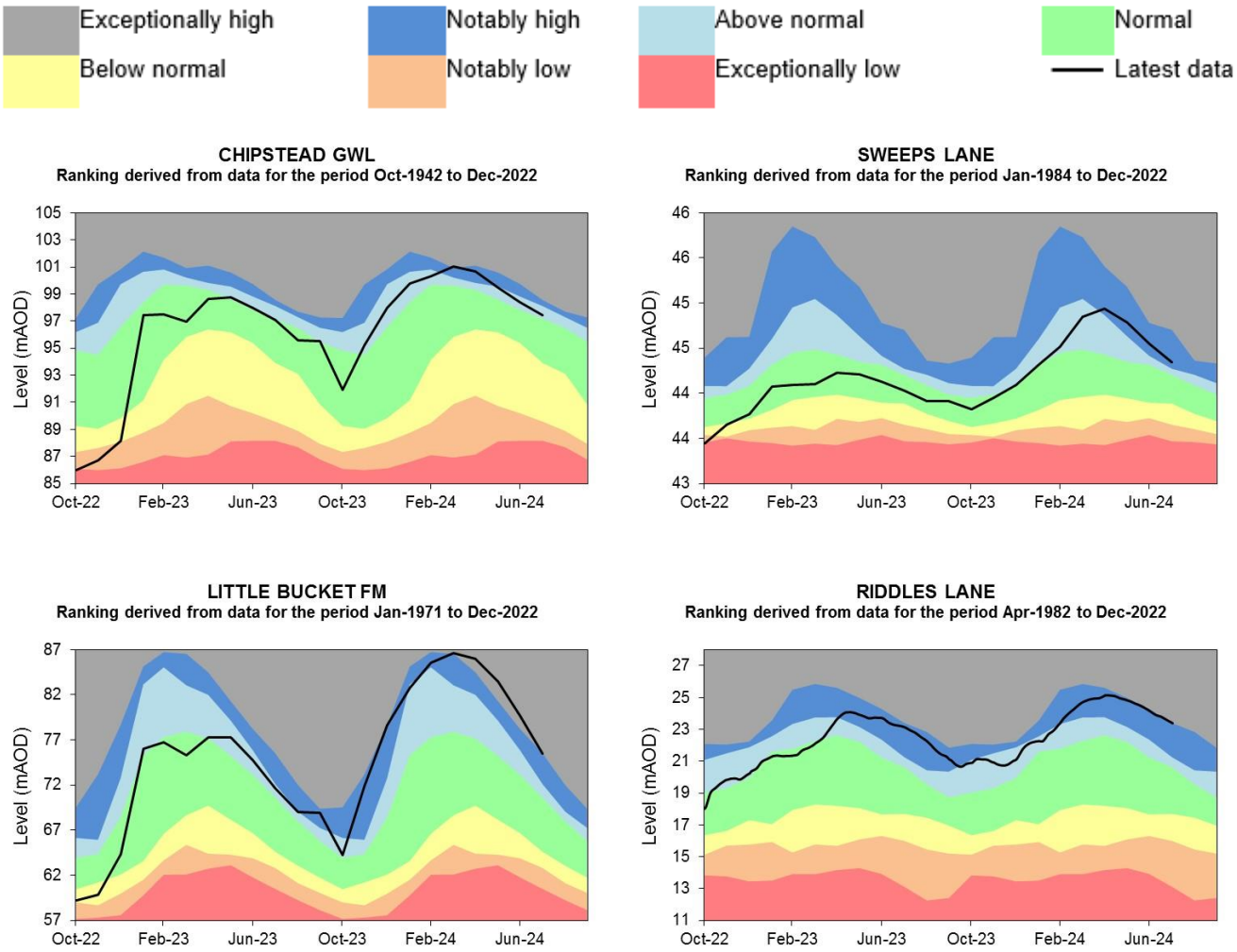
Figure 7.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



Source: Environment Agency. 2024 .

7.3 KSL Groundwater levels

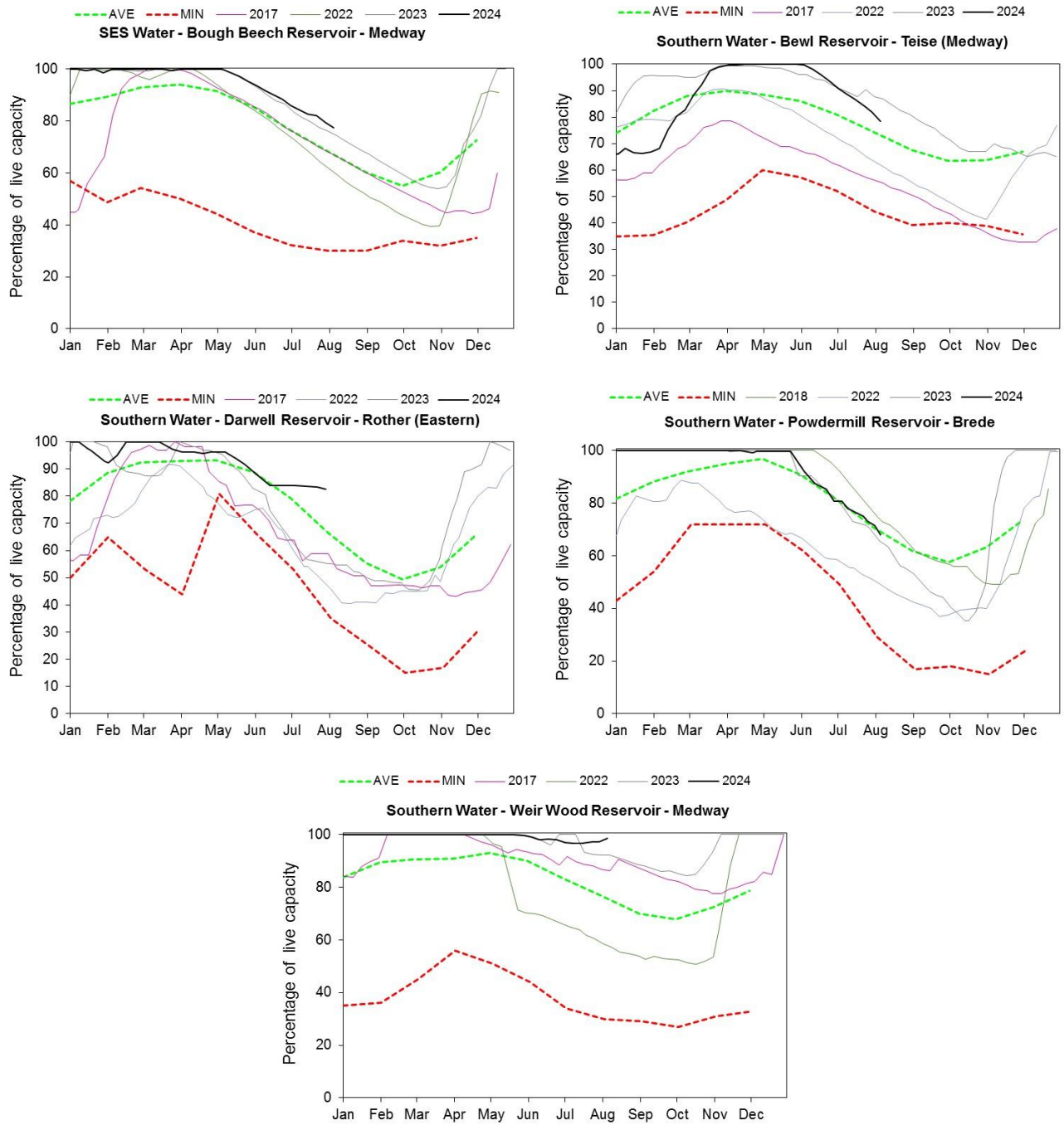
Figure 7.3: End of month groundwater levels at index groundwater level sites for major aquifers. 22 months compared to an analysis of historic end of month levels and long term maximum and minimum levels.



Source: Environment Agency. 2024

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	Jul 2024 rainfall % of long term average 1961 to 1990	Jul 2024 band	May 2024 to July cumulative band	Feb 2024 to July cumulative band	Aug 2023 to July cumulative band
Cotswold West	153	Normal	Normal	Exceptionally high	Exceptionally high
Cotswold East	162	Normal	Normal	Exceptionally high	Exceptionally high
Berkshire Downs	157	Normal	Normal	Exceptionally high	Exceptionally high
Chilterns West	175	Above Normal	Normal	Exceptionally high	Exceptionally high
Chilterns East Colne	192	Notably High	Above normal	Exceptionally high	Exceptionally high
North Downs - Hampshire	152	Normal	Normal	Exceptionally high	Exceptionally high
North Downs - South London	142	Normal	Normal	Notably high	Exceptionally high
Upper Thames	139	Normal	Normal	Exceptionally high	Exceptionally high
Upper Cherwell	147	Normal	Normal	Exceptionally high	Exceptionally high
Thame	166	Above Normal	Normal	Exceptionally high	Exceptionally high
Loddon	152	Above Normal	Normal	Exceptionally high	Exceptionally high
Lower Wey	163	Above Normal	Normal	Exceptionally high	Exceptionally high
Upper Mole	151	Normal	Normal	Exceptionally high	Exceptionally high
Lower Lee	181	Notably High	Above normal	Exceptionally high	Exceptionally high
North London	187	Notably High	Normal	Exceptionally high	Exceptionally high
South London	138	Normal	Normal	Notably high	Exceptionally high

Roding	165	Above Normal	Normal	Exceptionally high	Exceptionally high
Ock	164	Normal	Normal	Exceptionally high	Exceptionally high
Enborne	168	Above Normal	Normal	Exceptionally high	Exceptionally high
Cut	167	Above Normal	Normal	Exceptionally high	Exceptionally high
Lee Chalk	177	Above Normal	Above normal	Exceptionally high	Exceptionally high
River Test	170	Above Normal	Normal	Exceptionally high	Exceptionally high
East Hampshire Chalk	177	Above Normal	Normal	Exceptionally high	Exceptionally high
West Sussex Chalk	187	Above Normal	Normal	Exceptionally high	Exceptionally high
East Sussex Chalk	160	Normal	Above normal	Exceptionally high	Exceptionally high
Sw Isle Of Wight	165	Normal	Normal	Exceptionally high	Exceptionally high
River Darent	123	Normal	Normal	Notably high	Exceptionally high
North Kent Chalk	133	Normal	Normal	Exceptionally high	Exceptionally high
Stour	93	Normal	Below normal	Notably high	Exceptionally high
Dover Chalk	89	Normal	Normal	Exceptionally high	Exceptionally high
Thanet Chalk	81	Normal	Below normal	Above normal	Notably high
Western Rother Greensand	173	Above Normal	Normal	Exceptionally high	Exceptionally high
Hampshire Tertiaries	177	Above Normal	Normal	Exceptionally high	Exceptionally high
Lymington River Avon Water And O	174	Above Normal	Normal	Exceptionally high	Exceptionally high
Sussex Coast	180	Above Normal	Normal	Exceptionally high	Exceptionally high
River Arun	154	Normal	Normal	Exceptionally high	Exceptionally high
River Adur	159	Above Normal	Normal	Exceptionally high	Exceptionally high
River Ouse	155	Normal	Above normal	Exceptionally high	Exceptionally high

Cuckmere River	145	Normal	Normal	Exceptionally high	Exceptionally high
Pevensey Levels	122	Normal	Normal	Exceptionally high	Exceptionally high
River Medway	149	Above Normal	Normal	Exceptionally high	Exceptionally high
Eastern Rother	119	Normal	Normal	Exceptionally high	Exceptionally high
Romney Marsh	94	Normal	Normal	Exceptionally high	Exceptionally high
North West Grain	119	Normal	Normal	Notably high	Notably high
Sheppy	110	Normal	Normal	Notably high	Above normal

9.2 River flows table

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

9.3 Groundwater table

Site name	Aquifer	End of Jul 2024 band	End of Jun 2024 band
Ashley Green Stw	Mid-chilterns Chalk	Notably high	Notably high
Lilley Bottom	Upper Lee Chalk	Exceptionally high	Exceptionally high
Little Bucket Fm	East Kent Chalk - Stour	Notably high	Exceptionally high
Chipstead Gwl	Epsom North Downs Chalk	Above normal	Above normal
Riddles Lane	North Kent Swale Chalk	Notably high	Notably high
Sweeps Lane Gwl	West Kent Chalk	Notably high	Notably high
Houndean Bottom Gwl	Brighton Chalk Block	Above normal	Above normal
Chilgrove House Gwl	Chichester-worthing-portsdown Chalk	Above normal	Notably high
Carisbrooke Castle	Isle Of Wight Central Downs Chalk	Normal	Normal
West Meon Hut Gwl	River Itchen Chalk	Exceptionally high	Exceptionally high
Clanville Gate Gwl	River Test Chalk	Exceptionally high	Exceptionally high
Lopcombe Corner Gwl	River Test Chalk	Notably high	Notably high
Tile Barn Farm	Basingstoke Chalk	Above normal	Notably high
Rockley Obh	Berkshire Downs Chalk	Above normal	Above normal
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