Monthly water situation report: Kent and South London Area

1 Summary - September 2025

During September, the Kent and South London (KSL) area received 116% of the long-term average (LTA) rainfall for the time of year, based on a whole-area average. Rainfall varied considerably between catchments, ranging from 80% of the LTA in North West Grain to 148% in Eastern Rother. All catchments recorded rainfall within the normal range, except Dover Chalk and Eastern Rother, which were above normal. At month-end, the average soil moisture deficit (SMD) across KSL was 155mm. Largely due to the relatively dry conditions between March and August 2025, this is still 29% higher than the LTA for this time of year. Compared to August, most catchments saw either an increase or decrease in SMD, with North Kent Chalk remaining unchanged. Effective rainfall averaged 3mm across the area (96% of the LTA), though this varied considerably between catchments. Monthly mean flows (MMFs) at key indicator sites were predominantly normal, however these ranged from below normal to above normal. Daily mean flows (DMFs) showed considerable variability, reflecting the distribution of rainfall and effective rainfall throughout the month. Groundwater levels in the Chalk and Greensand aquifers declined at all key sites, with rates and magnitudes of decline varying. By the end of September, groundwater levels were generally within the normal range, though Chalk sites ranged from below normal to above normal. Water company reservoir levels declined across the board, except at Weir Wood, where levels rose during the first half of the month. At month-end, all reservoirs were classified as below normal, apart from Weir Wood, which was notably high.

1.1 Rainfall

During September, the KSL area received 116% of the LTA rainfall for the time of year, based on a whole-area average. Rainfall received by individual catchments varied considerably, ranging from 80% of the LTA in North West Grain, to 148% in Eastern Rother. Rainfall totals were within the normal range for all catchments except Eastern Rother and Dover Chalk, which recorded above normal rainfall for September. The highest daily rainfall total of 28.8mm was observed on the second day of the month at Hartfield Rain Gauge in the Medway catchment.

Rainfall was particularly notable and widespread across the patch during two key periods: 1 to 4 and 10 to 16 of September. These wetter spells were driven by a succession of Atlantic low-pressure systems that brought frontal rainbands across the UK. These systems – typical of

early autumn – were steered by a southward-shifted and strengthened jet stream, which acted as a conveyor belt for unsettled weather.

September featured only one dry day across the KSL area, defined as a day with 0.2 mm or less of recorded rainfall. This occurred on 6 of September, and coincided with a brief interlude of high pressure, which became more notable in the final week of the month as conditions temporarily settled.

1.2 Soil moisture deficit and recharge

At the end of September, the KSL area had an average SMD of 155mm, which is 29% higher than the LTA for this time of year. Despite September's rainfall being within the normal range, the SMD remains relatively high due to the relatively dry conditions that persisted between March and August 2025. Across the area, SMDs in individual catchments were also generally above their respective LTAs on 30 September, based on catchment-scale averages. Compared to the end of August, each catchment either saw an increase or a decrease in SMD, except for the North Kent Chalk catchment, where SMD remained unchanged. Among the remaining catchment, the changes were evenly split, with approximately half showing an increase and half showing a decrease.

While the KSL area received an average of 3mm of effective rainfall during September – equivalent to 96% of the LTA – this varied considerably between catchments. For example, the South London catchment received no effective rainfall during the month, contributing to a sharp increase in its SMD. In contrast, the Dover Chalk catchment received 130% (10mm) of its LTA effective rainfall for September, resulting in a notable decrease in its SMD over the course of the month.

1.3 River flows

MMFs at key indicator sites for September were predominantly normal across the area. Below normal MMFs were recorded at the Wandle at Connolly’s Mill and the Ravensbourne at Catford in the northwest, while above normal flows were observed at the Mole at Dorking in the far west of the patch.

DMFs showed considerable variability across most sites, reflecting the distribution of rainfall and effective rainfall throughout the month. Flow peaks were less pronounced – but still evident – at sites supported by groundwater baseflow, such as the Dour at Crabble Mill. In contrast, flashy sites influenced by clay-rich catchments, including the Ravensbourne at Catford and the Mole at Dorking, exhibited more marked fluctuations in DMFs.

1.4 Groundwater levels

Groundwater levels in the Chalk and Greensand aquifers at all key indicator sites declined as expected for the time of year. The effective rainfall received, resulting in groundwater recharge, has the potential to slow the rate of decline of groundwater levels, as shown by the varied rate of decline across the Chalk sites. Chipstead in the west recorded a sharp and continuous drop throughout the month, partly due to the very low effective rainfall in the western part of the KSL area. While sites such as Fleete Reservoir in the east of the area showed a slower and more gradual decline, which is likely to be attributed to higher rates of effective rainfall observed in the eastern part of the KSL area. The only key indicator site monitoring the Greensand aquifer, Riverhead, followed a similar pattern, with a gradual decrease in groundwater levels.

By the end of the month, groundwater levels across the KSL area were generally within the normal range for the time of year. Nonetheless, variations were observed across the Chalk aquifer sites, with levels ranging from below normal at Chipstead in the central west to above normal at Riddles Lane in the north east.

1.5 Reservoir stocks

Of the five water company reservoirs in KSL, Bewl, Bough Beech and Powdermill experienced steady declines in water levels throughout September. Levels at Darwell reservoir remained relatively stable, with a slight increase compared to the end of August. In contrast, Weir Wood reservoir saw a more notable rise in levels, primarily during the first half of the month, before stabilising later.

By the end of September, the reservoirs held by the following live storage capacities. All were classified as below normal relative to their LTA levels – except Weir Wood, which was notably high for the time of year:

- Darwell – 41%
- Bewl – 48%
- Bough Beech – 49%
- Powdermill – 50%
- Weir Wood – 91%

1.6 Environmental impact

Widespread hands-off flow (HoF) restrictions remained in place across the Medway catchment throughout September, persisting from early April. In the Stour catchment, some of the widespread HoF restrictions introduced in early August also persisted throughout September.

Hands-off groundwater level restrictions affected a small number of abstractors in the Stour, South London and Darent catchments during September.

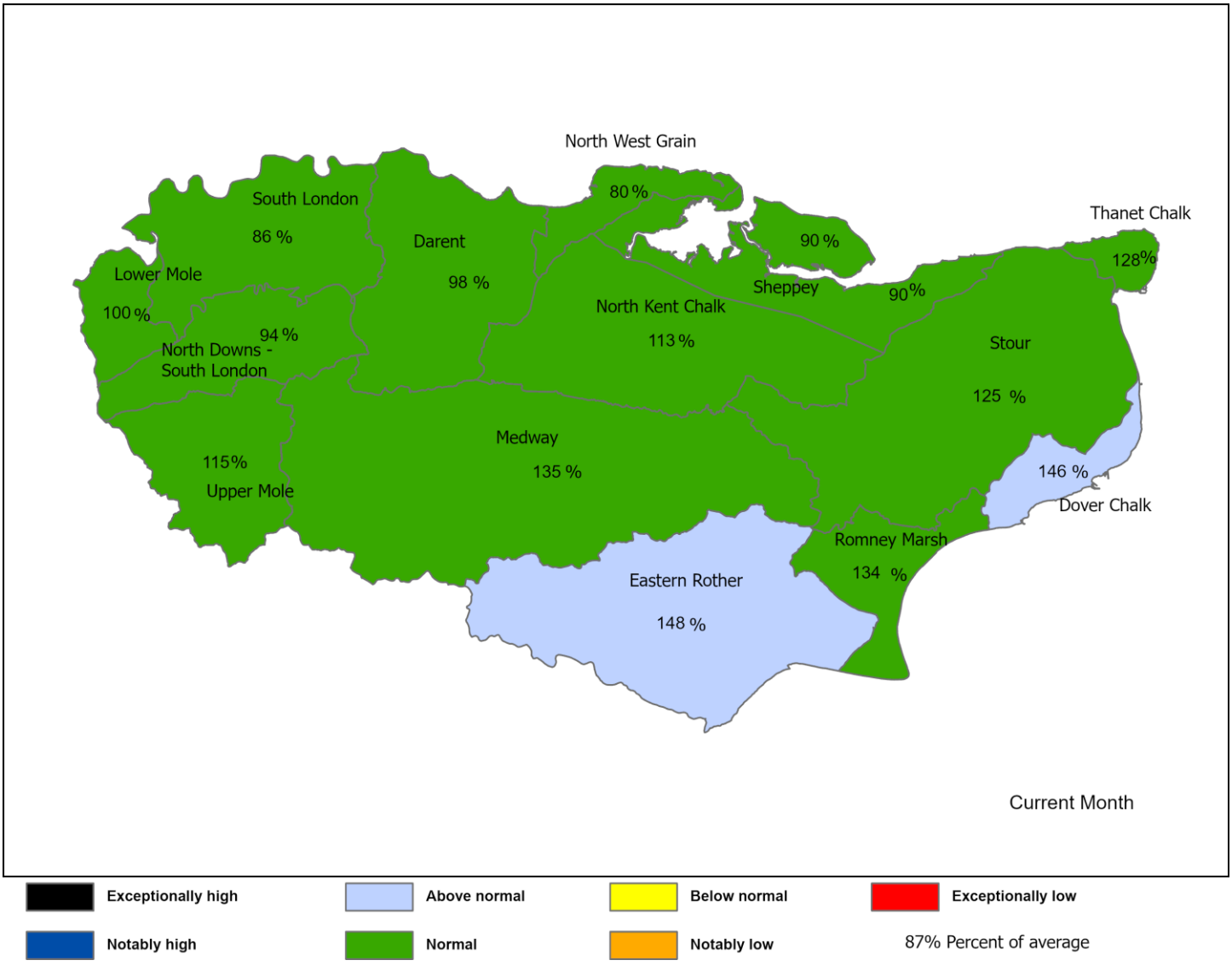
Author: Groundwater and Hydrology Team, ksl.gwh@environment-agency.gov.uk

Contact Details: 03708 506 506

2 Rainfall

2.1 Rainfall map one

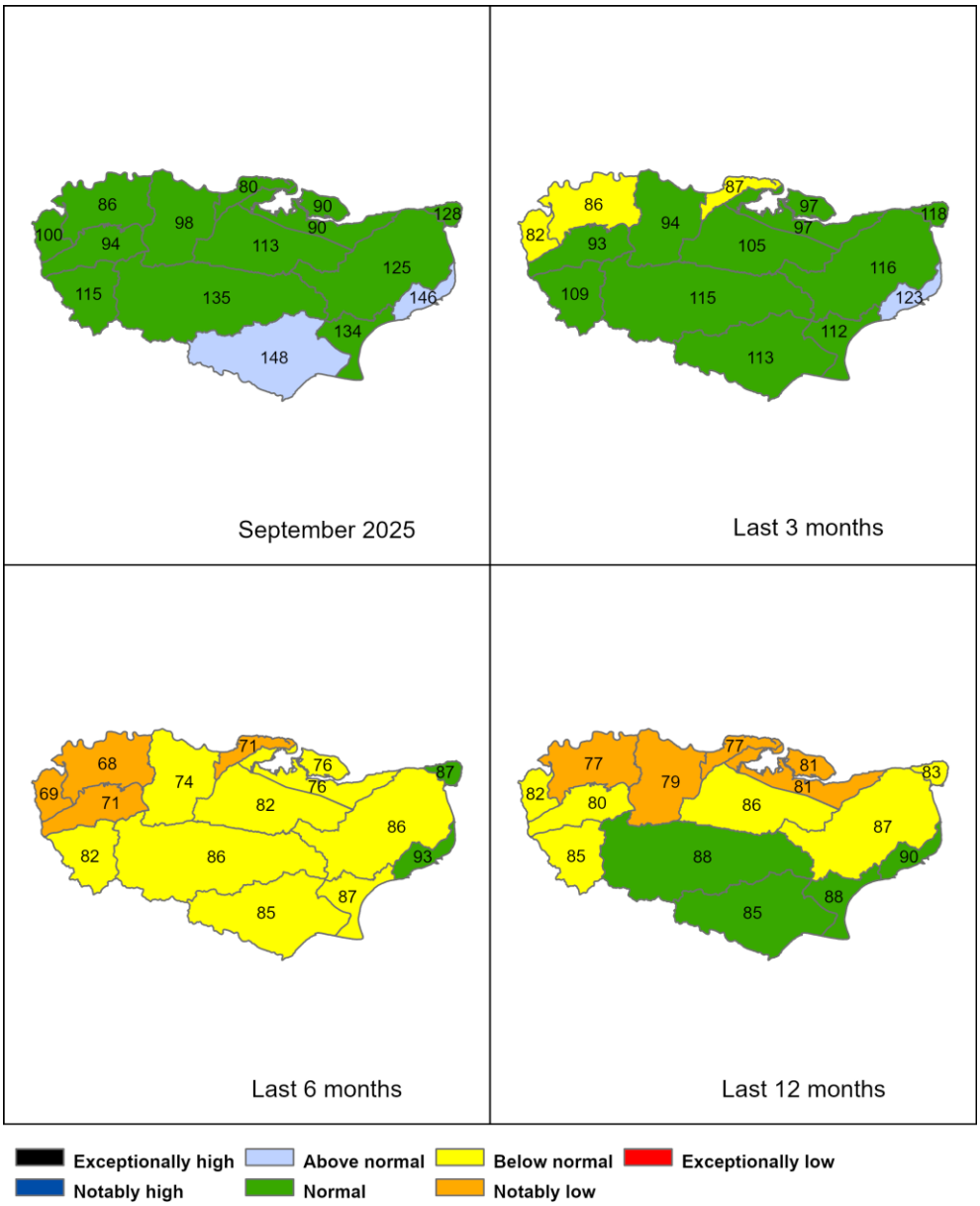
Figure 2.1: Total rainfall for hydrological areas across Kent and South London for the current month (up to 30 September 2025), classed relative of historic totals. The percentage of average uses the period of 1991 – 2020. Table available in the appendices with more detailed information.



HadUK data for October 2023 onwards, 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. Includes material based on Ordnance Survey 1:50 000 maps with the permission of the controller of His Majesty's Stationery Office © Crown copyright. All rights reserved. Environment Agency, AC0000807064, 2025.

2.2 Rainfall map two

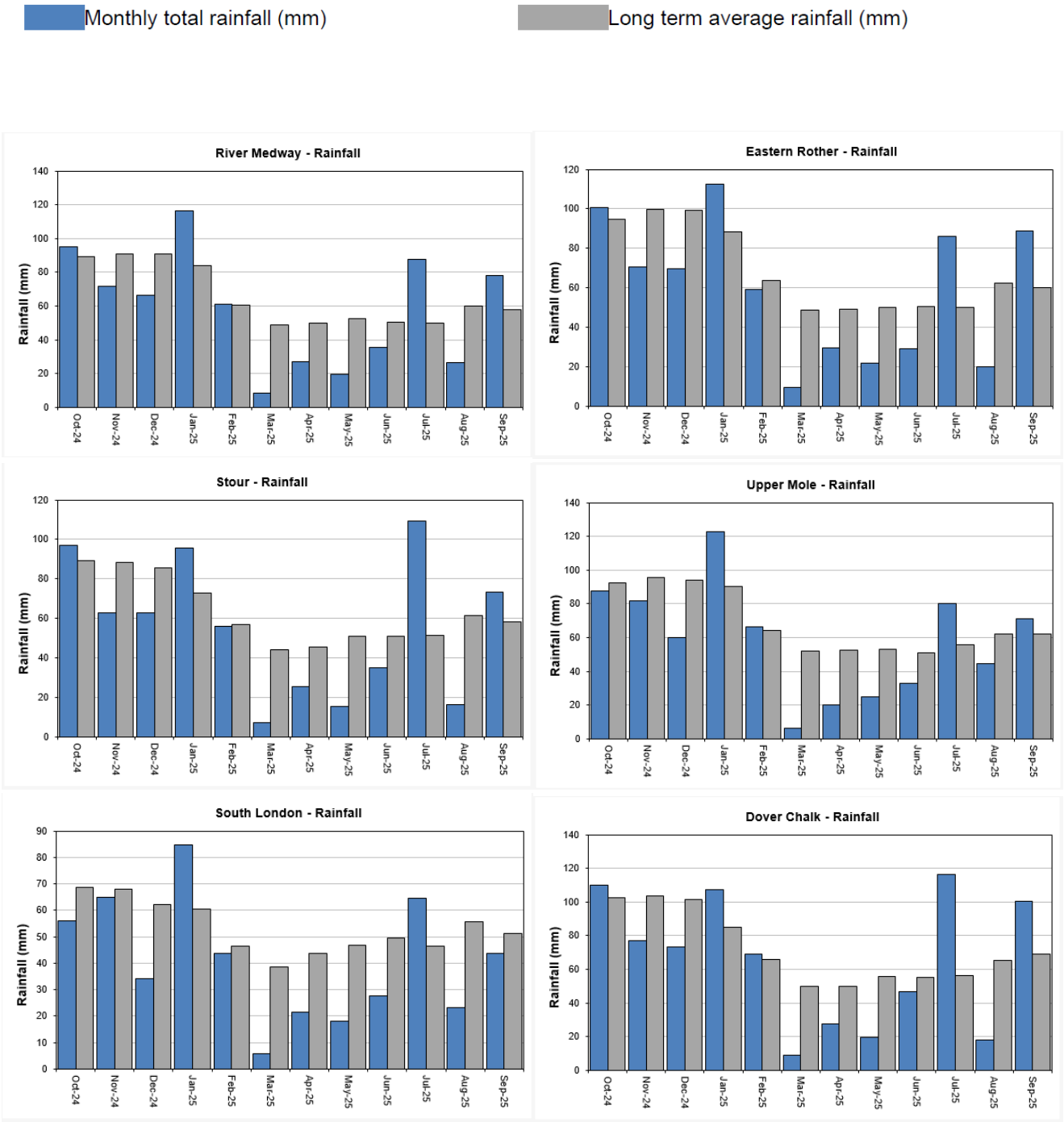
Figure 2.2: Total rainfall for hydrological areas for the current month (up to 30 September 2025), the last 3 months, the last 6 months, and the last 12 months, classed relative of historic totals. The percentage of average uses the period of 1991 – 2020. Table available in the appendices with detailed information.

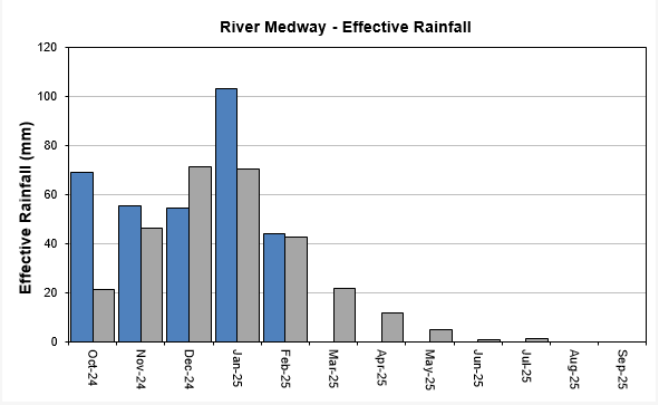


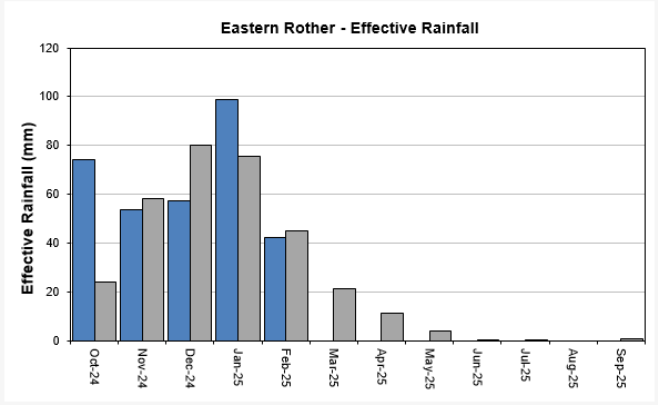
HadUK data for October 2023 onwards, based the Met Office 1km gridded rainfall dataset derived from rain gauges (Source: Met Office. Crown copyright, 2025). Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Includes material based on Ordnance Survey 1:50 000 maps with the permission of the controller of His Majesty's Stationery Office © Crown copyright. All rights reserved. Environment Agency, AC0000807064, 2025.

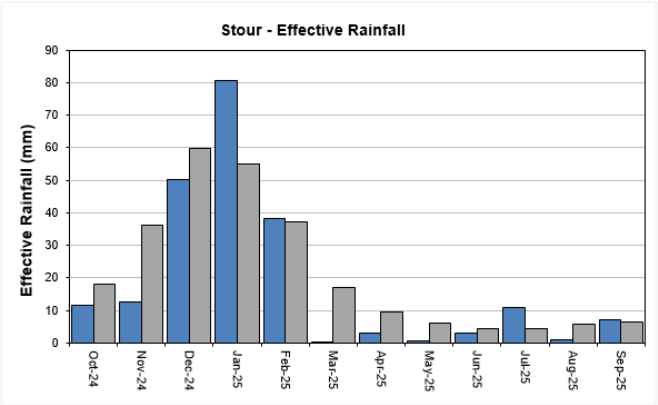
2.3 Rainfall and effective rainfall charts

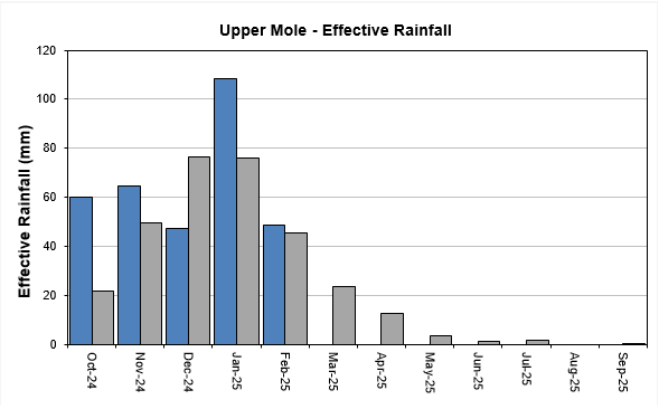
Figure 2.3: Monthly rainfall and effective rainfall totals for the past 12 months as a percentage of the 1991 to 2020 long term average (LTA) for a selection of areal units. HadUK rainfall data. (Source: Met Office. Crown copyright, 2025). EA effective rainfall data (Source EA Soil Moisture Model).

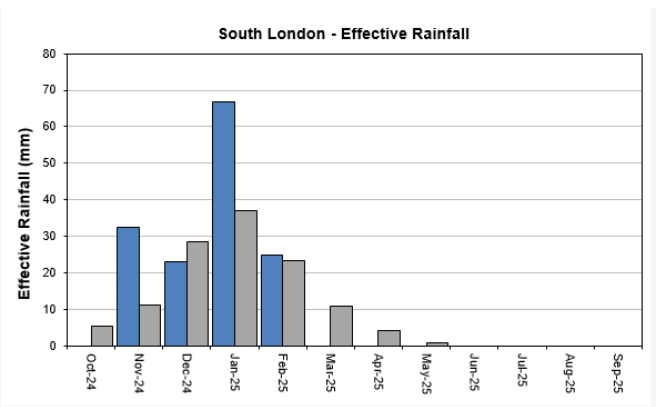


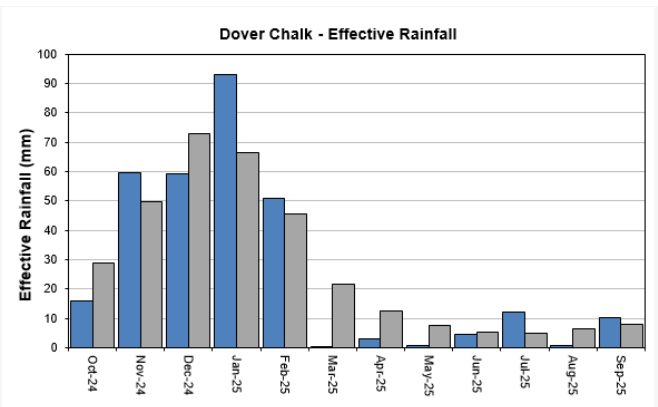

River Medway - Effective Rainfall
Effective Rainfall (mm)
0
20
40
60
80
100
120
Oct-24
Nov-24
Dec-24
Jan-25
Feb-25
Mar-25
Apr-25
May-25
Jun-25
Jul-25
Aug-25
Sep-25


Eastern Rother - Effective Rainfall
Effective Rainfall (mm)
0
20
40
60
80
100
120
Oct-24
Nov-24
Dec-24
Jan-25
Feb-25
Mar-25
Apr-25
May-25
Jun-25
Jul-25
Aug-25
Sep-25


Stour - Effective Rainfall
Effective Rainfall (mm)
0
10
20
30
40
50
60
70
80
90
Oct-24
Nov-24
Dec-24
Jan-25
Feb-25
Mar-25
Apr-25
May-25
Jun-25
Jul-25
Aug-25
Sep-25


Upper Mole - Effective Rainfall
Effective Rainfall (mm)
0
20
40
60
80
100
120
Oct-24
Nov-24
Dec-24
Jan-25
Feb-25
Mar-25
Apr-25
May-25
Jun-25
Jul-25
Aug-25
Sep-25


South London - Effective Rainfall
Effective Rainfall (mm)
0
10
20
30
40
50
60
70
80
Oct-24
Nov-24
Dec-24
Jan-25
Feb-25
Mar-25
Apr-25
May-25
Jun-25
Jul-25
Aug-25
Sep-25


Dover Chalk - Effective Rainfall
Effective Rainfall (mm)
0
10
20
30
40
50
60
70
80
90
100
Oct-24
Nov-24
Dec-24
Jan-25
Feb-25
Mar-25
Apr-25
May-25
Jun-25
Jul-25
Aug-25
Sep-25

2.4 Rainfall and effective rainfall table

Figure 2.4: This is a second estimate of areal rainfall and effective rainfall (percolation or runoff) for a selection of the hydrological areas across the Kent and South London area. 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 section 2.5.

Number	Hydrological Area	Rainfall (mm) 30 day Total	Sep % LTA	Effective Rainfall (mm) 30 day Total	Sep % LTA
6230TH	North Downs - South London (W)	58	94%	5	75%
6505TH	Upper Mole	71	115%	0	0%
6508TH	South London	44	86%	0	0%
6706So	Darent	54	98%	4	74%
6707So	North Kent Chalk	64	113%	6	95%
6708So	Stour	74	125%	7	112%
6709So	Dover Chalk	100	146%	10	130%
6710So	Thanet Chalk	62	128%	5	111%
6809So	Medway	78	135%	0	0%
6810So	Eastern Rother	89	148%	0	0%

6811So	Romney Marsh	73	134%	0	0%
6812So	North West Grain	38	80%	0	0%
6813So	Sheppey	45	90%	0	0%
	Kent & South London Average	65	116%	3	96%

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

EA effective rainfall data (Source EA Soil Moisture Model)

2.5 Seasonal summary table of rainfall and effective rainfall

Figure 2.5: This is a seasonal estimate of areal rainfall and effective rainfall (percolation or runoff) for a selection of the hydrological areas across the Kent and South London area, 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 01/04/2025 to 30/09/2025

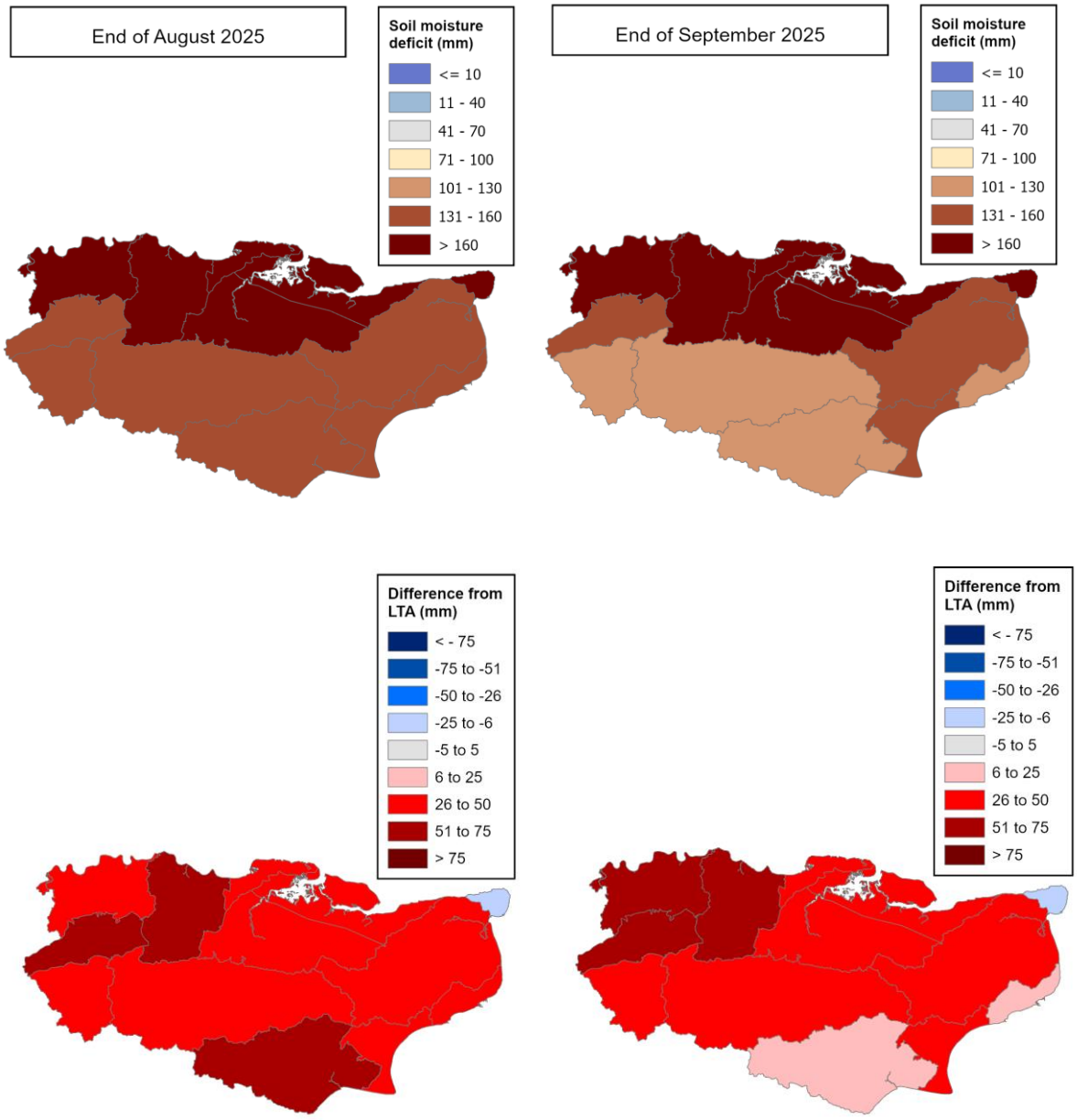
Number	Hydrological Area	Seasonal Rainfall (mm) Total	% LTA	Seasonal Effective Rainfall (mm) Total	% LTA
6230TH	North Downs - South London (W)	244	71%	21	45%
6505TH	Upper Mole	275	81%	0	0%
6508TH	South London	199	68%	0	0%
6706So	Darent	227	74%	18	51%
6707So	North Kent Chalk	253	81%	22	60%
6708So	Stour	275	86%	26	70%
6709So	Dover Chalk	328	93%	33	74%
6710So	Thanet Chalk	242	86%	21	85%
6809So	Medway	274	85%	0	0%
6810So	Eastern Rother	275	85%	0	0%

6811So	Romney Marsh	255	86%	0	0%
6812So	North West Grain	185	71%	0	0%
6813So	Sheppey	206	75%	0	0%
	Kent & South London Average	249	80%	11	47%

3 Soil moisture deficit

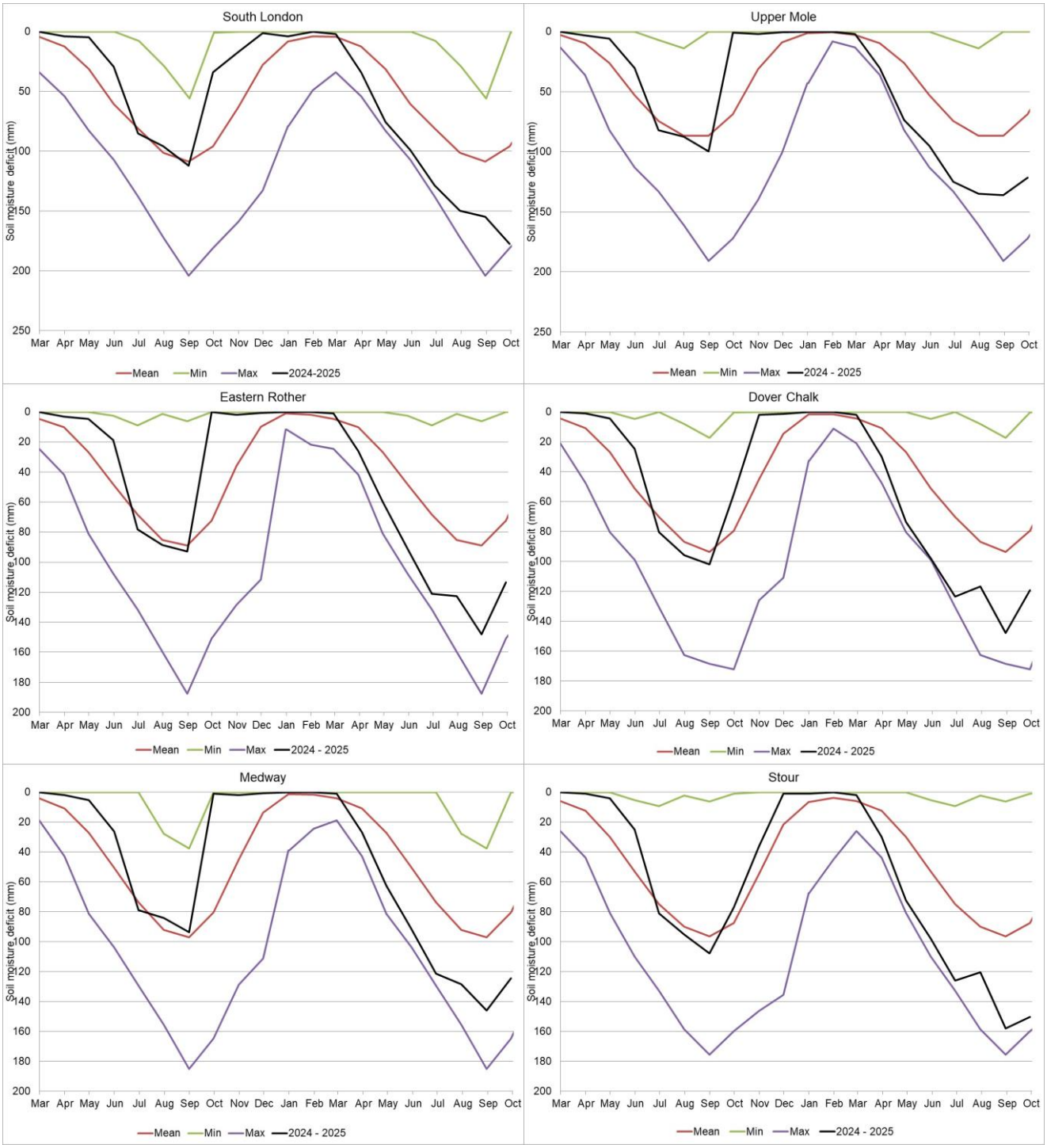
3.1 Soil moisture deficit map

Figure 3.1: Soil moisture deficits for weeks ending 31 August (left panel) and 30 September 2025 (right panel). Top row shows actual soil moisture deficits (mm) and bottom row shows the difference (mm) of the actual from the 1991 to 2020 long term average soil moisture deficits. EA Soil Moisture Deficit data (Source EA Soil Moisture Model).



3.2 Soil moisture deficit charts

Figure 3.2: Latest soil moisture deficit compared to maximum, minimum, and 1991 to 2020 long term average. EA soil moisture deficit data (Source EA Soil Moisture Model).



3.3 Soil moisture deficit table

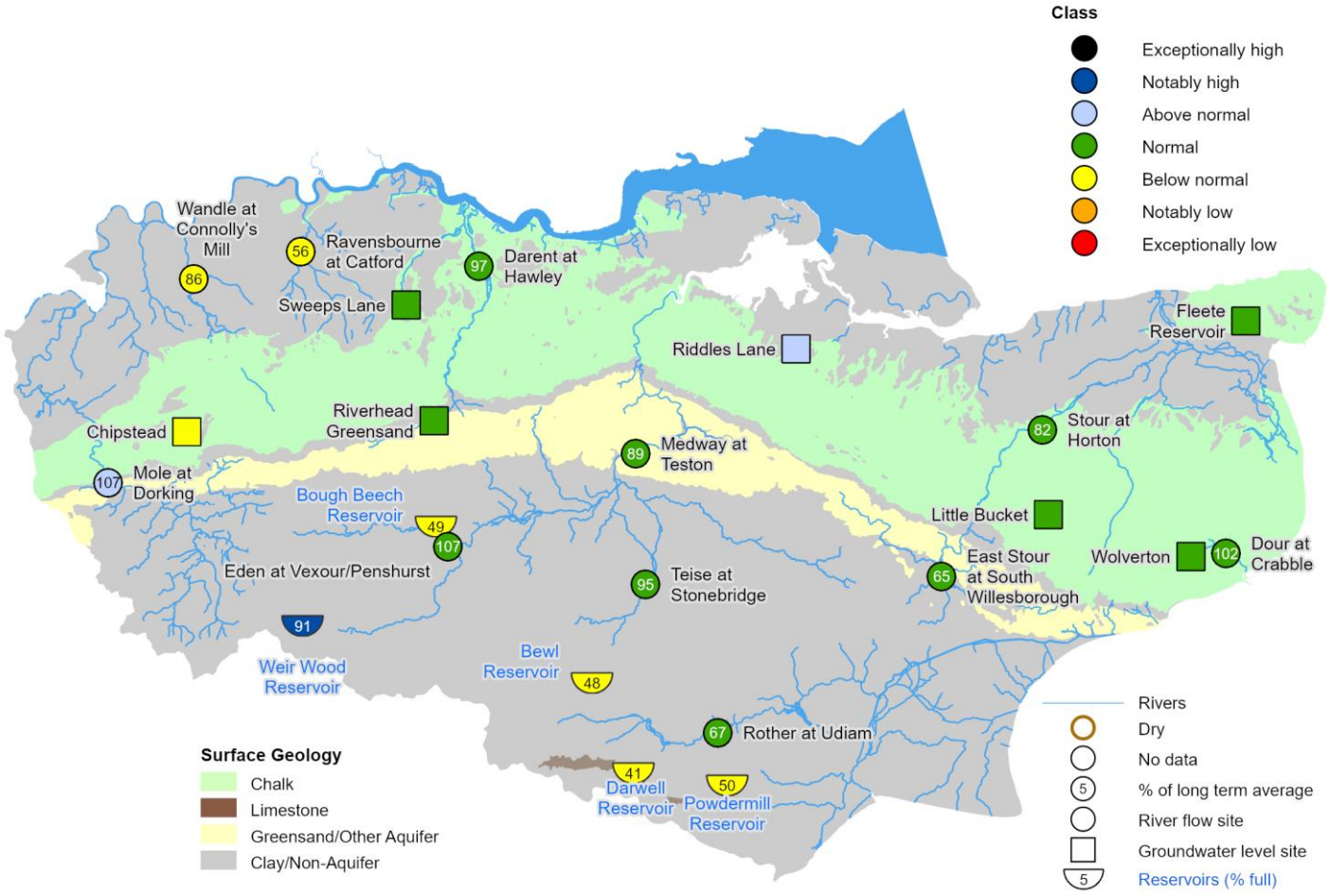
Figure 3.3: This is a second estimate of soil moisture deficit for the hydrological areas across the Kent and South London area. There may be significant variation within each area which must be considered when interpreting these data. EA soil moisture deficit data (Source EA Soil Moisture Model).

Number	Hydrological Area	SMD (mm) Day 30	End September LTA
6230TH	North Downs - South London (W)	159	102
6505TH	Upper Mole	121	94
6508TH	South London	178	121
6706So	Darent	173	117
6707So	North Kent Chalk	161	112
6708So	Stour	150	109
6709So	Dover Chalk	119	103
6710So	Thanet Chalk	208	221
6809So	Medway	125	96
6810So	Eastern Rother	114	92
6811So	Romney Marsh	140	104
6812So	North West Grain	190	148
6813So	Sheppey	183	136
	Kent & South London Average	155	120

4 River flows, groundwater levels and reservoir stocks

4.1 River flows, groundwater levels and reservoir stocks map

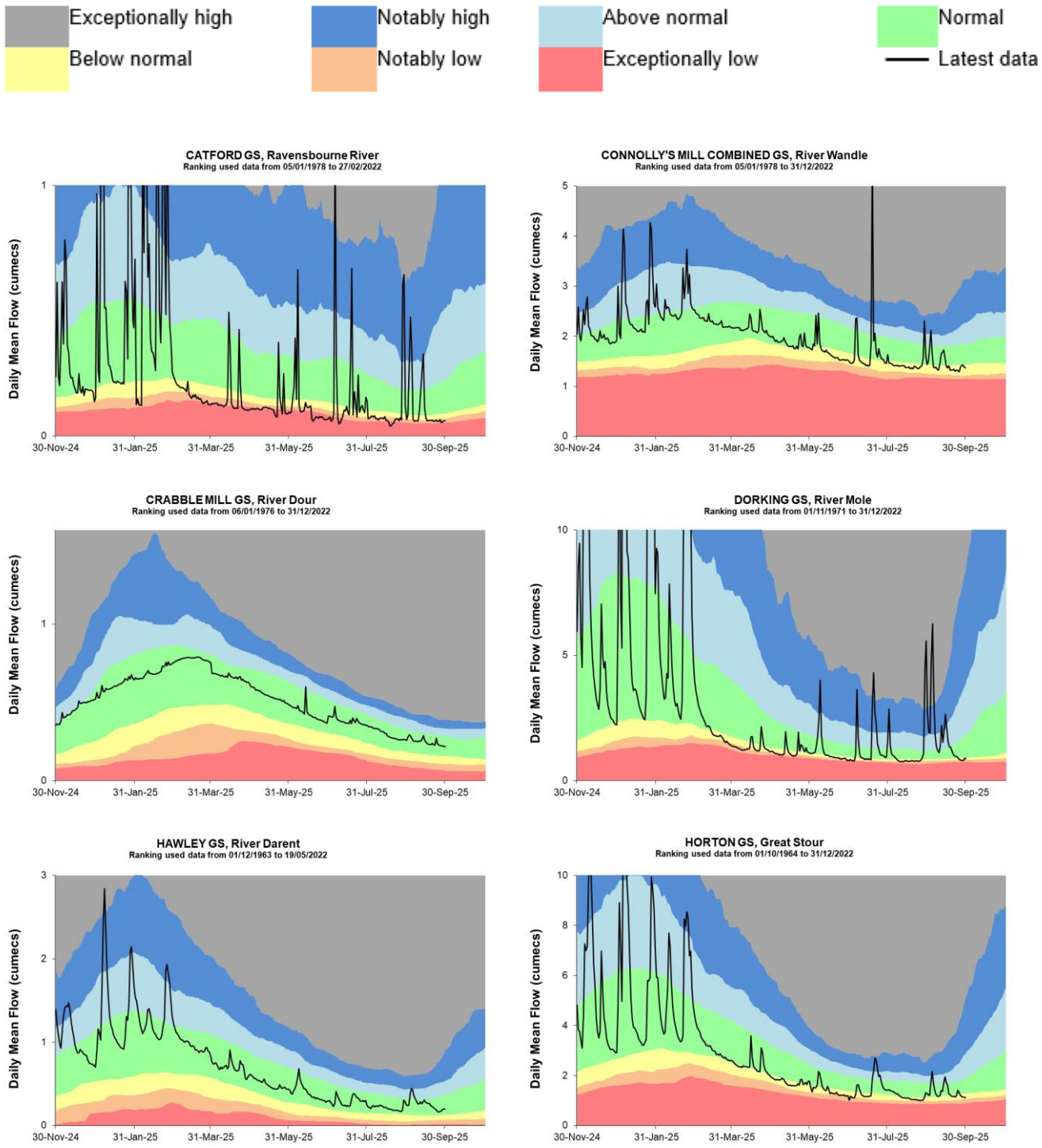
Figure 4.1: Monthly mean river flows* for indicator sites for September 2025, expressed as a percentage of the respective long term average (period 1992 – 2020) and classed relative to an analysis of historic September monthly means. End of month groundwater levels for indicator sites for September 2025, expressed as a percentage of the respective long term average and classed relative to an analysis of historic September levels. Tables available in the appendices with detailed information. End of month levels for reservoirs for September 2025, expressed as percent full. (Source: Water Companies).

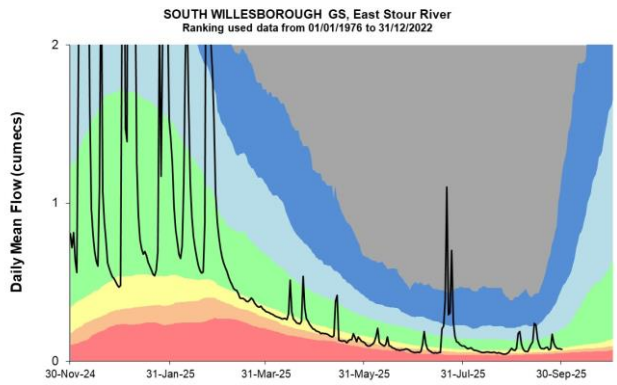


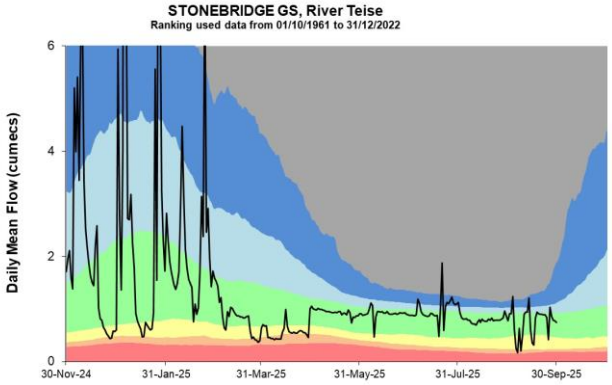
*Flows at gauging stations in the Medway catchment might be affected by upstream reservoir releases

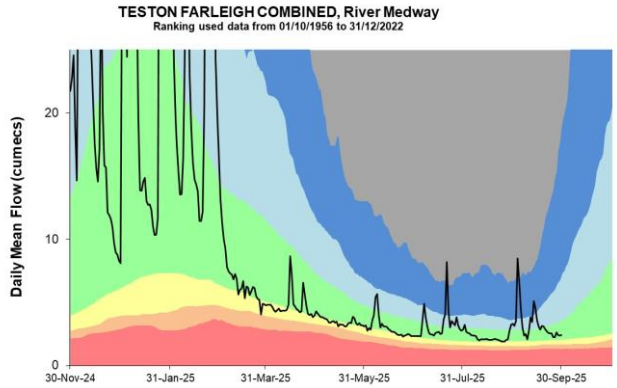
4.2 River flow charts

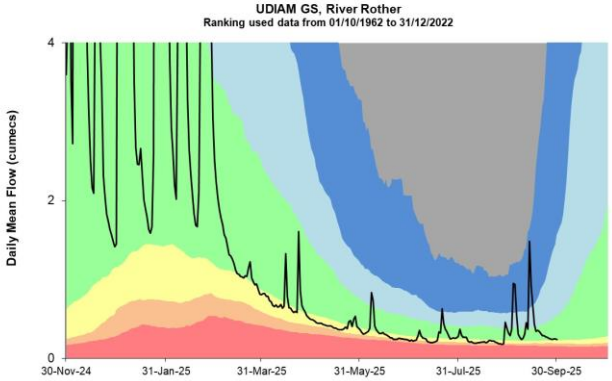
Figure 4.1: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.

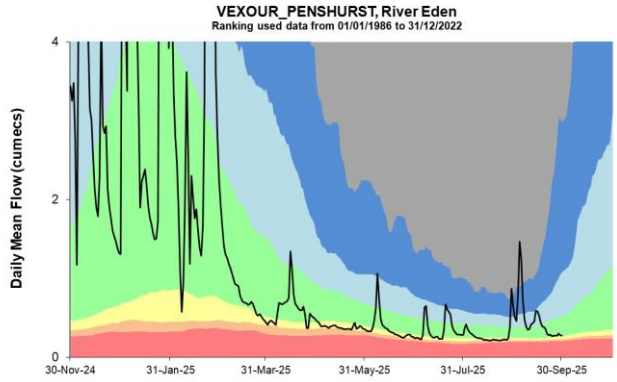










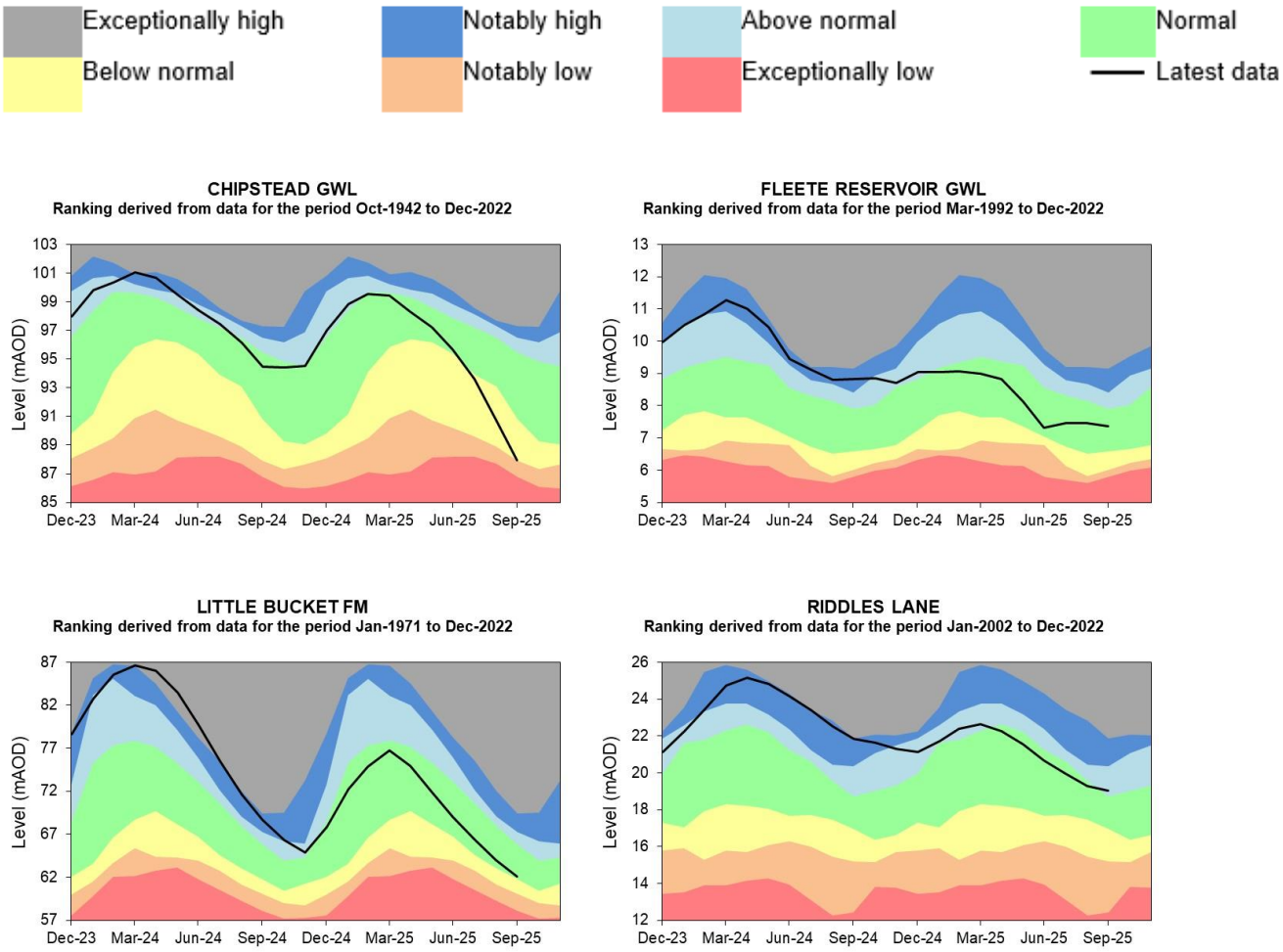


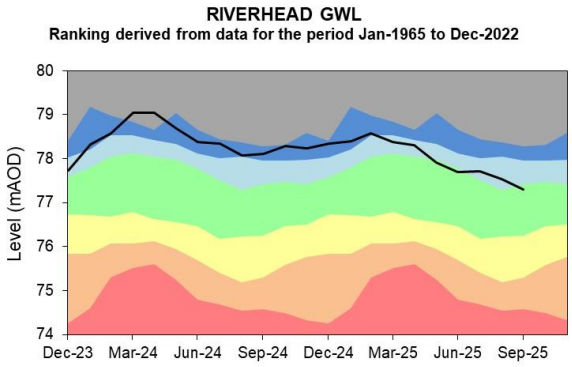
Source: Environment Agency.

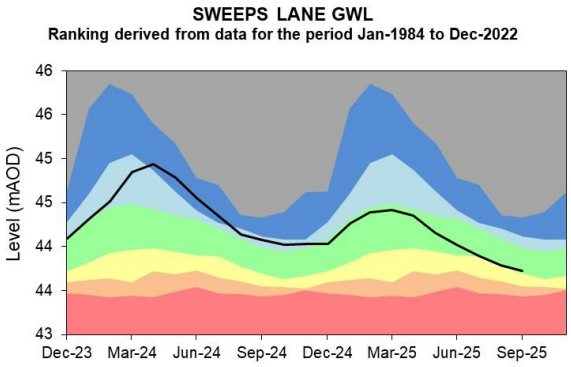
5 Groundwater levels

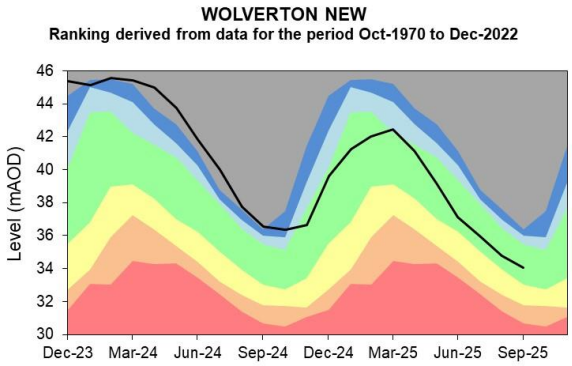
5.1 Groundwater level charts

Figure 5.1: 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.







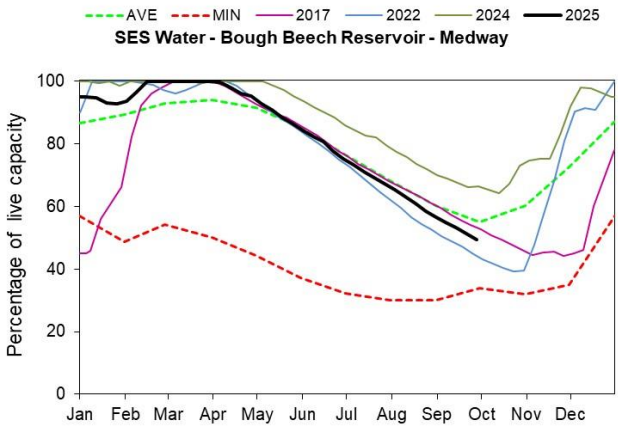


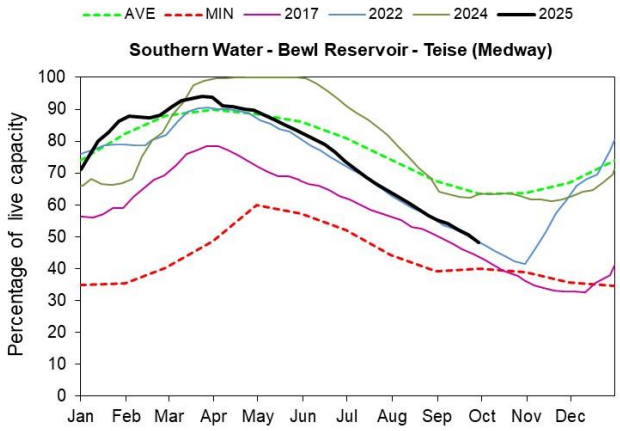
Source: Environment Agency, 2025.

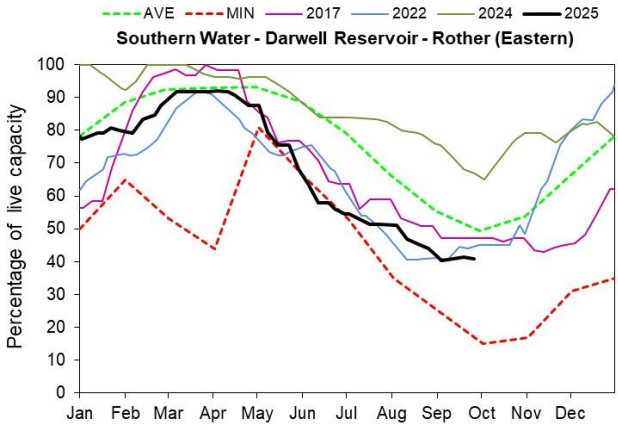
6 Reservoir stocks

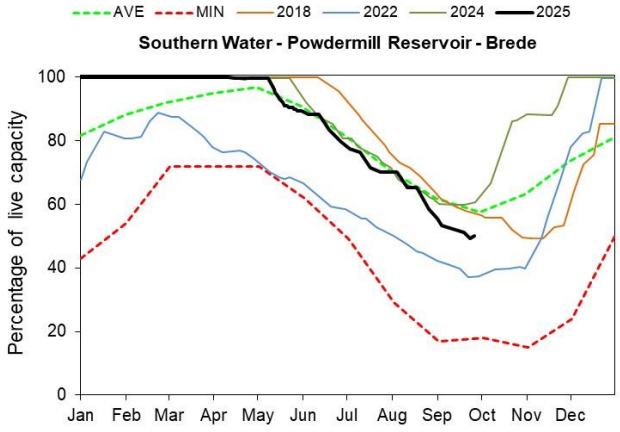
6.1 Reservoir stocks charts

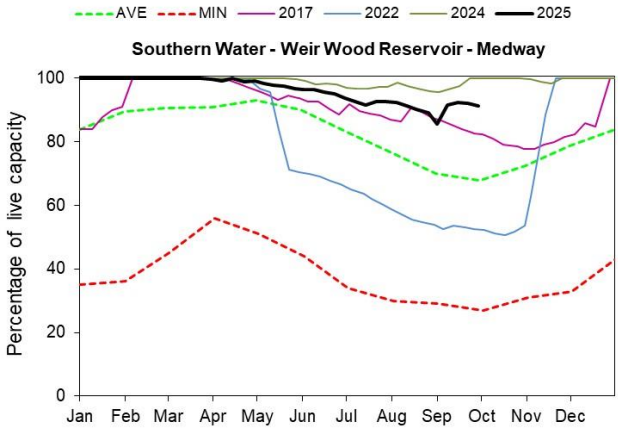
Figure 7.1: End of month regional reservoir stocks compared to long term maximum, minimum and average stocks. (Source: Water Companies). Note: Historic records of individual reservoirs and reservoir groups making up the regional values vary in length.











7 Glossary

7.1 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).

7.2 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.

8 Appendices

8.1 Rainfall table

Hydrological area	Sep 2025 rainfall % of long term average 1991 to 2020	Sep 2025 band	Jul 2025 to September cumulative band	Apr 2025 to September cumulative band	Oct 2024 to September cumulative band
North Downs - South London	94	Normal	Normal	Notably low	Below normal
Upper Mole	115	Normal	Normal	Below normal	Below normal
South London	86	Normal	Below normal	Notably low	Notably low
River Darent	98	Normal	Normal	Below normal	Notably low
North Kent Chalk	113	Normal	Normal	Below normal	Below normal
Stour	125	Normal	Normal	Below normal	Below normal
Dover Chalk	146	Above Normal	Above normal	Normal	Normal
Thanet Chalk	128	Normal	Normal	Normal	Below normal
Medway	135	Normal	Normal	Below normal	Normal
Eastern Rother	148	Above Normal	Normal	Below normal	Normal
Romney Marsh	134	Normal	Normal	Below normal	Normal

North West Grain	80	Normal	Below normal	Notably low	Notably low
Sheppy	90	Normal	Normal	Below normal	Notably low

8.2 River flows table

Site name	River	Catchment	Sep 2025 band	Aug 2025 band
Catford Gs	River Ravensbourne	Ravensbourne	Below normal	Exceptionally low
Connolly's Mill Combined Gs	River Wandle	Wandle	Below normal	Below normal
Crabble Mill Gs	River Dour	Dour	Normal	Normal
Dorking Gs	River Mole	Mole Surrey	Above normal	Normal
Hawley Gs	River Darent and Cray	Darent and Cray	Normal	Normal
Horton Gs	Great Stour River	Great Stour	Normal	Below normal
South Willesborough Gs	East Stour River	East Stour	Normal	Notably low
Stonebridge Gs	River Teise	Teise	Normal	Normal
Teston Farleigh Combined	River Medway	Medway (Middle)	Normal	Normal
Udiam Gs	River Rother	Rother (Kent)	Normal	Below normal
Vexour_penshurst	River Eden	Eden (Kent)	Normal	Normal

8.3 Groundwater table

Site name	Aquifer	End of Sep 2025 band	End of Aug 2025 band
Fleete Reservoir Gwl	Isle Of Thanet Chalk	Normal	Normal
Chipstead Gwl	Epsom North Downs Chalk	Below normal	Below normal
Little Bucket Fm	East Kent Chalk - Stour	Normal	Normal
Riddles Lane	North Kent Swale Chalk	Above normal	Normal
Riverhead Gwl	Kent Greensand	Normal	Above normal
Sweeps Lane Gwl	West Kent Chalk	Normal	Normal
Wolverton New	East Kent Chalk - Stour	Normal	Normal