

# Monthly water situation report: Kent and South London Area

## 1 Summary - December 2024

The whole of the Kent and South London (KSL) area received 78% of the long-term average (LTA) rainfall during December. The rainfall received was below normal across catchments in the North-west and one catchment in the east. The rest of the Kent and south London area saw normal rainfall. At the end of December, Soil Moisture Deficits (SMDs) were 10mm or less in most catchments, except for three catchments in the northeast of KSL. Monthly mean flows (MMFs) are mostly normal in December with two key flow sites above normal in the northeast of the patch. Groundwater levels in the Chalk at most locations across the KSL area have begun to rise. Although they are rising, which for this time of the year is typical, groundwater levels in the Chalk in the KSL area can be described as normal or above normal. Only the Lower Greensand aquifer at Riverhead continued to register groundwater levels that are notably high for this of the year. Levels at the end of the month at the five water company reservoirs in the area ranged from normal to exceptionally high.

### 1.1 Rainfall

The whole of the KSL area received 78% of the LTA rainfall during December. Rainfall across the Kent and South London area received below normal across catchments in the north-west and one catchment in the east. The rest of the Kent and south London area saw normal rainfall. The long-term average rainfall received across catchments ranged from 57% in the South London area to 91% in the Stour and Dover chalk area. The highest daily rainfall total of 25.9mm for December was recorded at Charing PS rain gauge in the Stour catchment on 8 December. The next highest daily rainfall totals were on 9, 4, 18 and 5 December and ranged from 21.3mm to 13.8mm. Dry days, where less than 1mm of rainfall was received, were registered at the middle and end of the month.

### 1.2 Soil moisture deficit and recharge

At the end of November, SMDs were 10mm or less in almost all catchments, with exception of the Isle of Grain, Sheppey and Thanet. At the end of December SMDs were 10mm or less in almost all catchments again, with exception of the Isle of Grain, Sheppey and Thanet which saw slightly lower deficits than November. At the end of November, the difference in LTA ranged from -75 in the west and centre of the patch to -6 in the north and south. In December

the difference in LTA decreased in many of the catchments ranging from minus twenty-five to five.

### 1.3 River flows

MMFs are mostly normal in December with two key flow sites above normal. Eight out of the eleven key flow sites saw normal MMFs. Two key flow sites located in the North-west of the patch saw above normal MMFs, River Wandle at Connolly's mill and river Darent at Hawley, and one key flow site located also in the North-west of the area, saw below normal MMFs at river Ravensbourne at Catford. Dour at Crabble recorded the highest MMF highest percentage LTA of 127% for the month of December. Ravensbourne at Catford recorded the lowest percentage LTA of 61%.

### 1.4 Groundwater levels

At the end of December, groundwater in the Chalk can be found at levels that for this time of year are either normal or above normal. At the end of the month, levels at Wolverton and Little Bucket in the east but also Sweeps Lane in the west of the patch were normal. The Lower Greensand aquifer at Riverhead continued to register groundwater levels that are notably high. Groundwater levels in the Chalk at most locations across the KSL area have started to rise except Riddles Lane and Sweeps Lane which are levelling off. The rise in groundwater levels is consistent with the effective rainfall of 96% of the LTA. It is also consistent with the continued depletion of SMDs seen in most areas by the end of December.

### 1.5 Reservoir stocks

At the end of December, reservoir levels were:

- Normal at Darwell with 79% and Bewl at 63%
- Above normal at Bough Beech at 92%
- Weir Wood and Powdermill reservoirs were full at the end of this month. Weir Wood reservoir remained offline during December.

### 1.6 Environmental impact

Five fluvial flood alerts were issued from 5 to 10 December.

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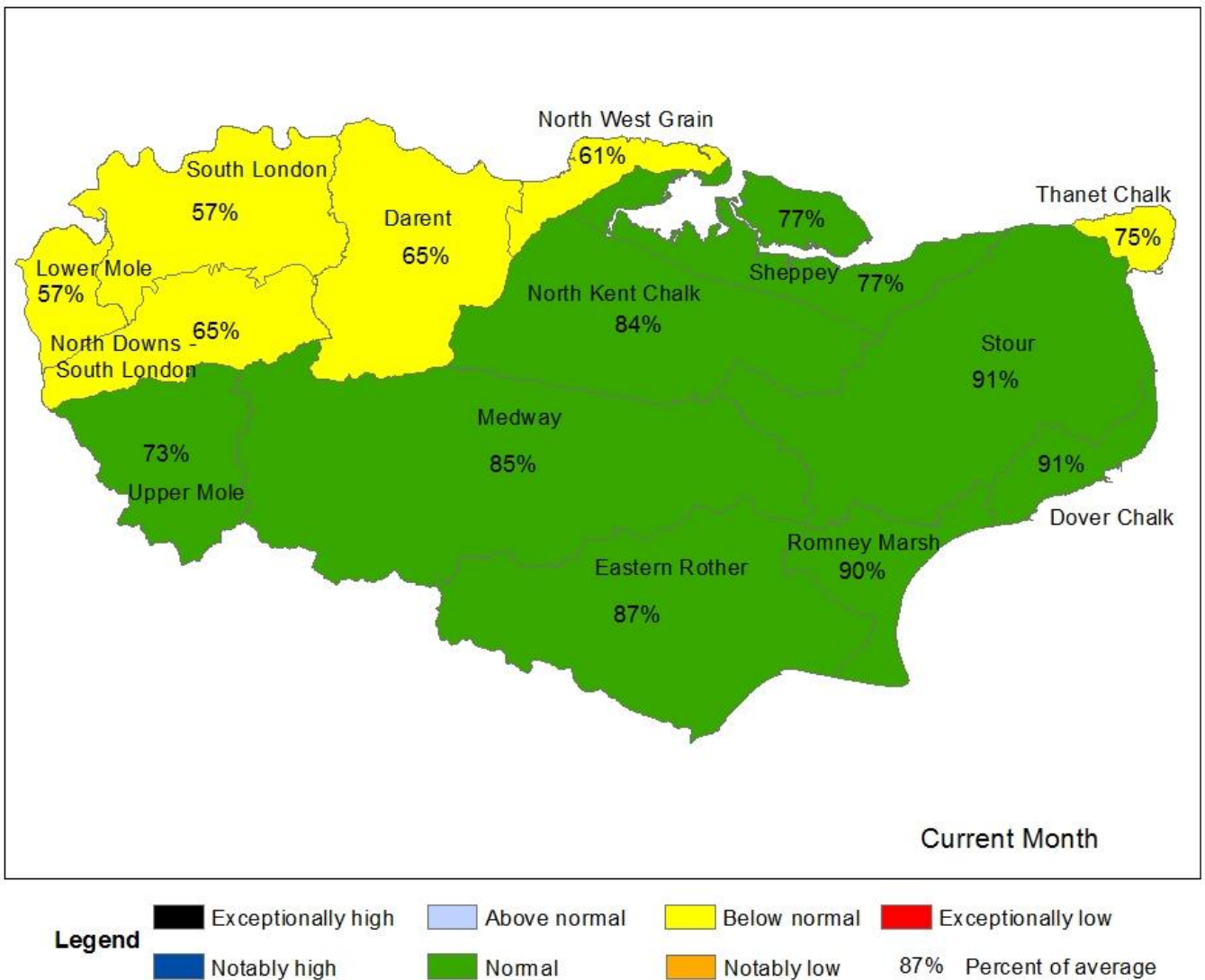
Contact Details: 03708 506 506

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## 2 Rainfall

### 2.1 Rainfall map one

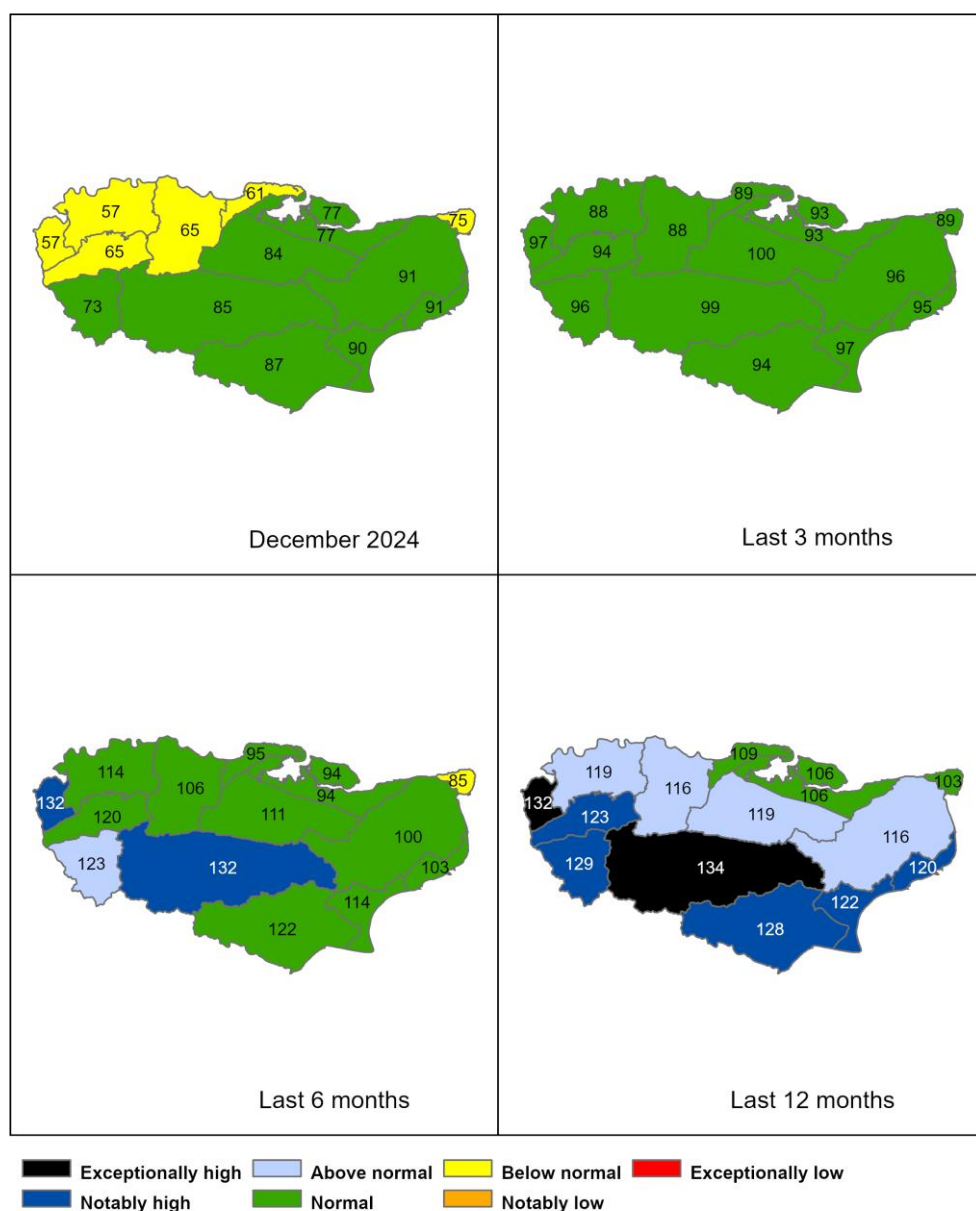
Figure 2.1: Total rainfall for hydrological areas across Kent and South London for the current month (up to 31 December 2024), classed relative to an analysis of respective historic totals. Table available in the appendices with more detailed information.



HadUK data based on the Met Office 1km gridded rainfall dataset derived from rain gauges (Source: Met Office. Crown copyright, 2025). Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. 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, 100026380, 2025.

## 2.2 Rainfall map two

Figure 2.2: Total rainfall for hydrological areas for the current month (up to 31 December 2024), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. Table available in the appendices with detailed information.

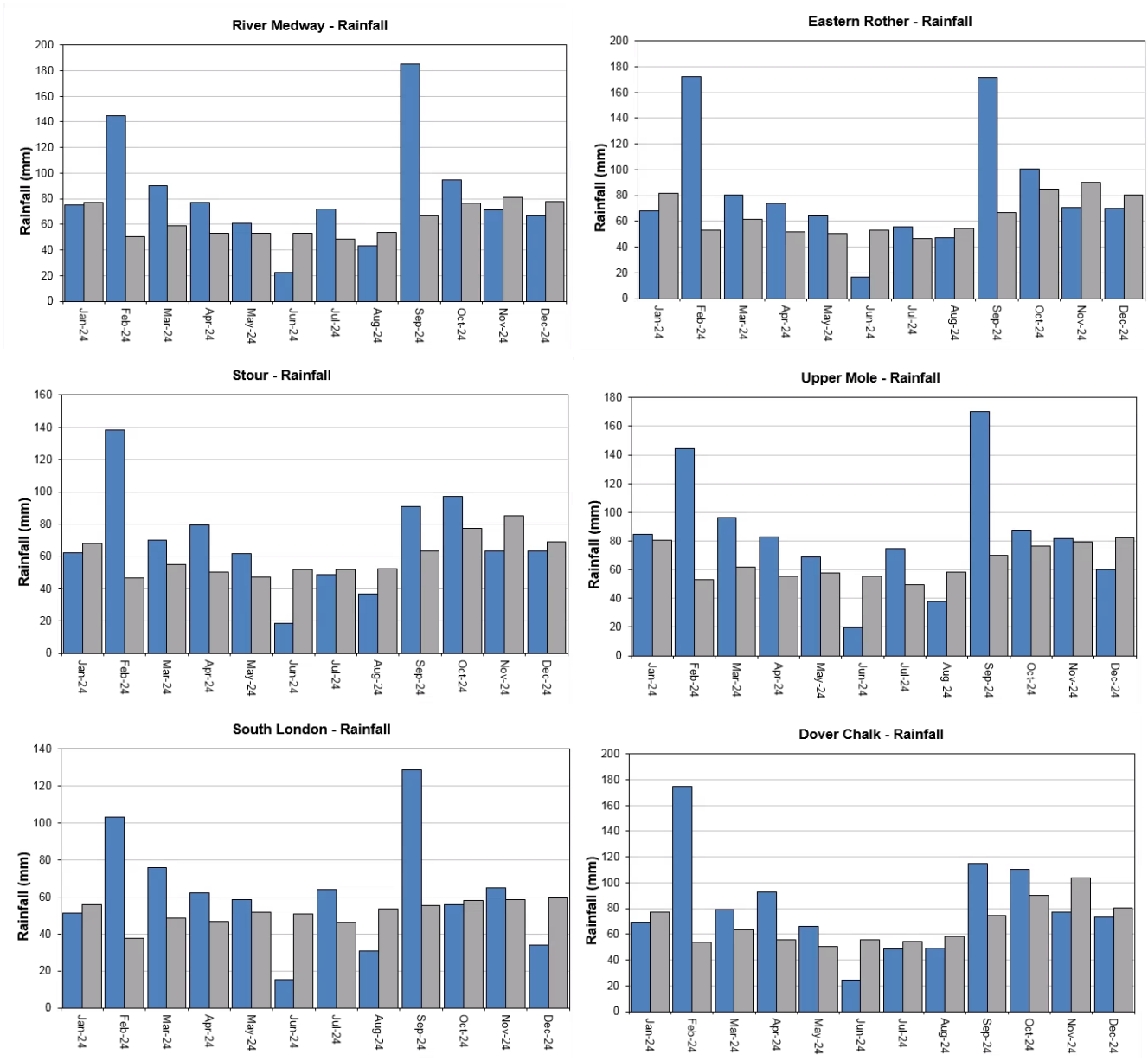


HadUK data based on the Met Office 1km gridded rainfall dataset derived from rain gauges (Source: Met Office. Crown copyright, 2025). Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Includes material based on Ordnance Survey 1:50 000 maps with the permission of the controller of His Majesty's Stationery Office © Crown copyright. All rights reserved. Environment Agency, 100026380, 2025.

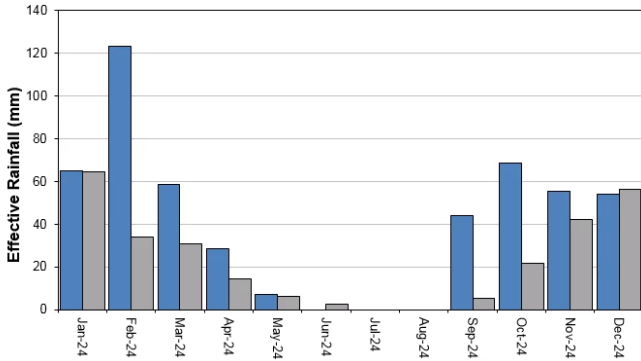
## 2.3 Rainfall and effective rainfall charts

Figure 2.3: : Monthly rainfall and effective rainfall totals for the past 12 months as a percentage of the 1961 to 1990 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).

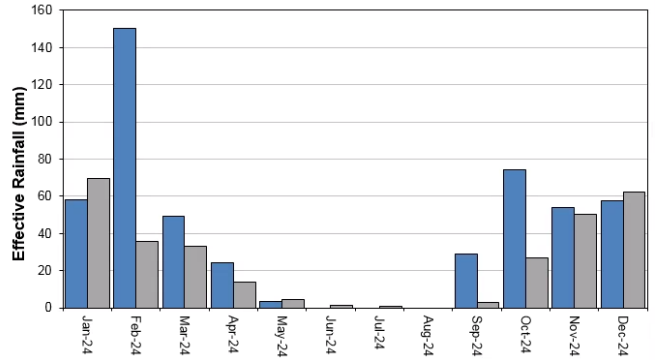
Monthly total rainfall (mm)
  Long term average rainfall (mm)



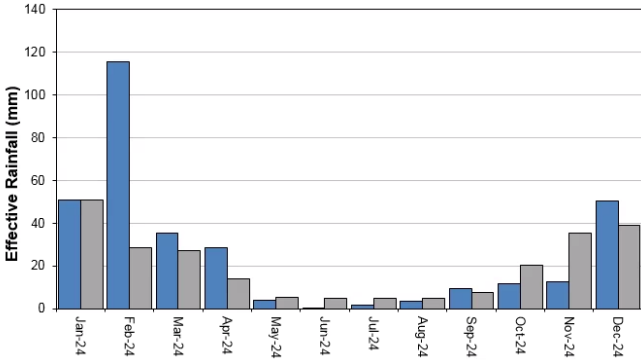
River Medway - Effective Rainfall



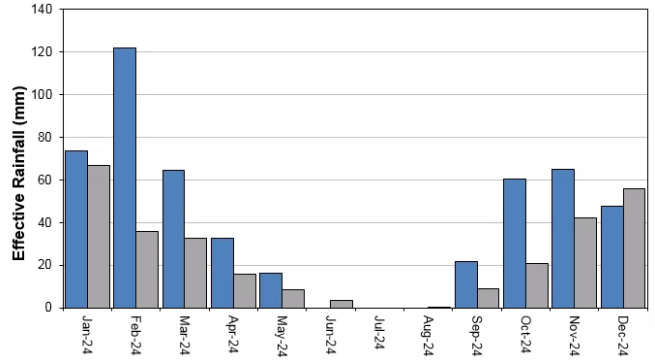
Eastern Rother - Effective Rainfall



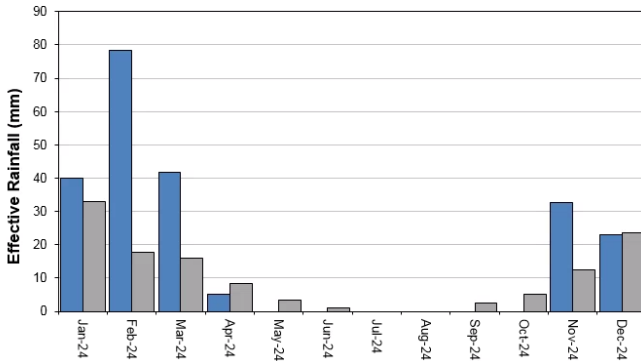
Stour - Effective Rainfall



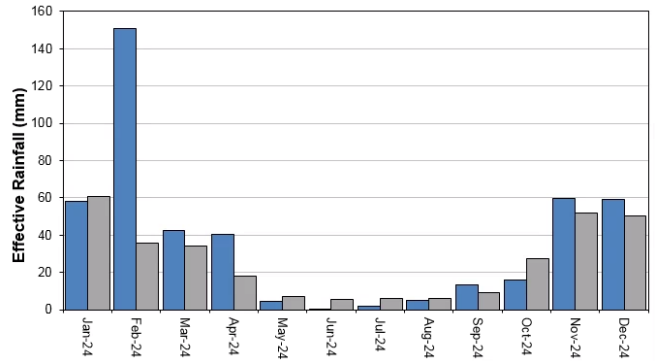
Upper Mole - Effective Rainfall



South London - Effective Rainfall



Dover Chalk - Effective Rainfall



## 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	December % LTA	Effective Rainfall (mm) 30 day Total	December % LTA
6230TH	North Downs - South London (W)	51	65%	40	84%
6505TH	Upper Mole	60	73%	47	85%
6508TH	South London	34	57%	23	97%
6706So	Darent	45	65%	34	99%
6707So	North Kent Chalk	59	83%	47	122%
6708So	Stour	63	91%	50	128%
6709So	Dover Chalk	73	92%	59	117%
6710So	Thanet Chalk	39	75%	5	39%
6809So	Medway	67	85%	54	97%
6810So	Eastern Rother	70	87%	57	93%

6811So	Romney Marsh	61	91%	47	119%
6812So	North West Grain	33	61%	0	0%
6813So	Sheppey	42	77%	0	0%
	Kent & South London Average	53	78%	36	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 01/10/2024 to 31/12/2024

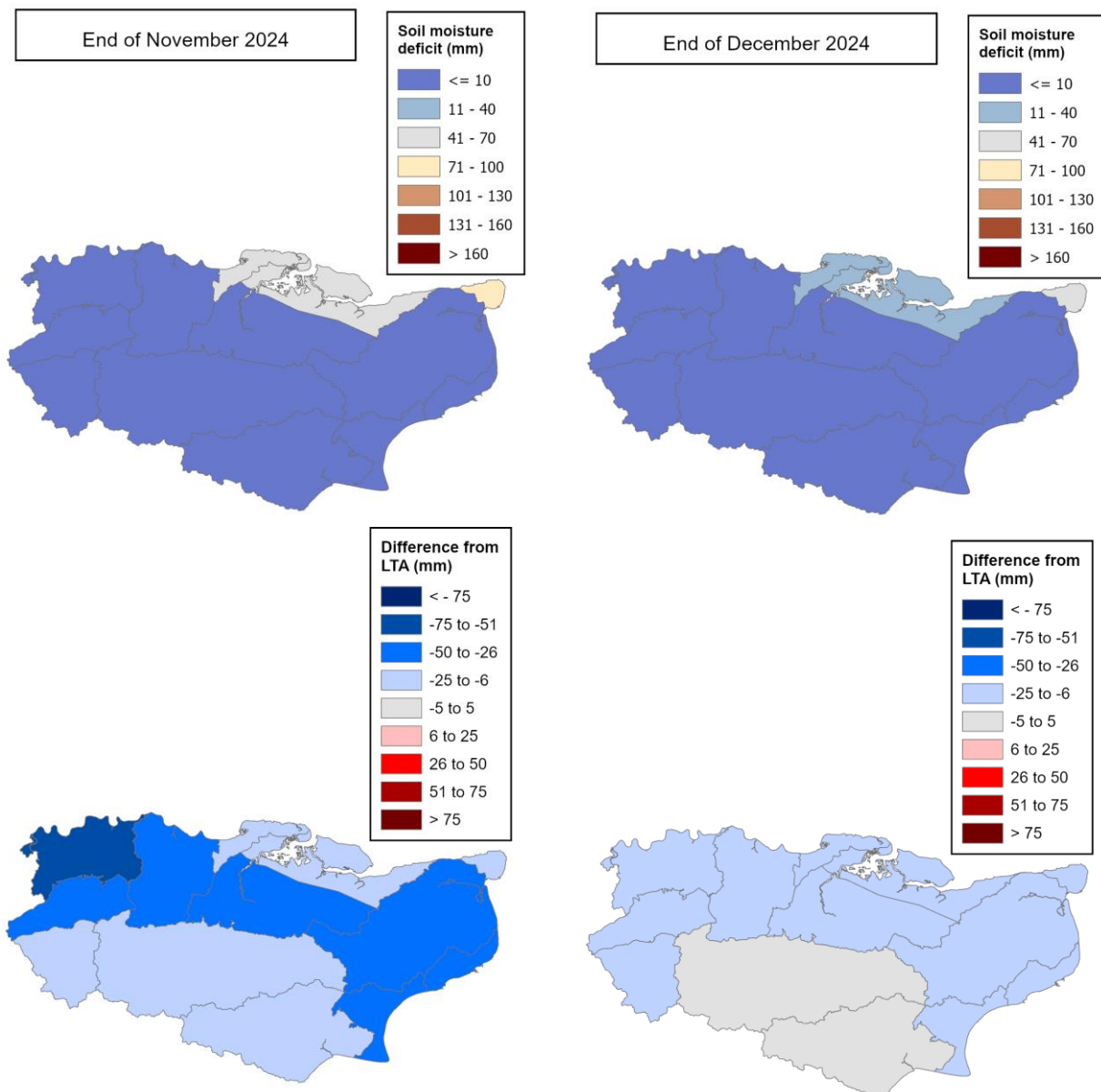
Number	Hydrological Area	Seasonal Rainfall (mm) Total	% LTA	Seasonal Effective Rainfall (mm) Total	% LTA
6230TH	North Downs - South London (W)	213	93%	137	129%
6505TH	Upper Mole	230	96%	173	145%
6508TH	South London	155	88%	56	134%
6706So	Darent	174	88%	55	76%
6707So	North Kent Chalk	212	100%	87	102%
6708So	Stour	223	96%	74	78%
6709So	Dover Chalk	260	95%	135	104%
6710So	Thanet Chalk	165	89%	19	56%
6809So	Medway	233	99%	178	148%
6810So	Eastern Rother	241	94%	186	133%

6811So	Romney Marsh	218	97%	119	130%
6812So	North West Grain	143	89%	0	0%
6813So	Sheppey	159	93%	0	0%
	Kent & South London Average	202	94%	94	113%

### 3 Soil moisture deficit

#### 3.1 Soil moisture deficit map

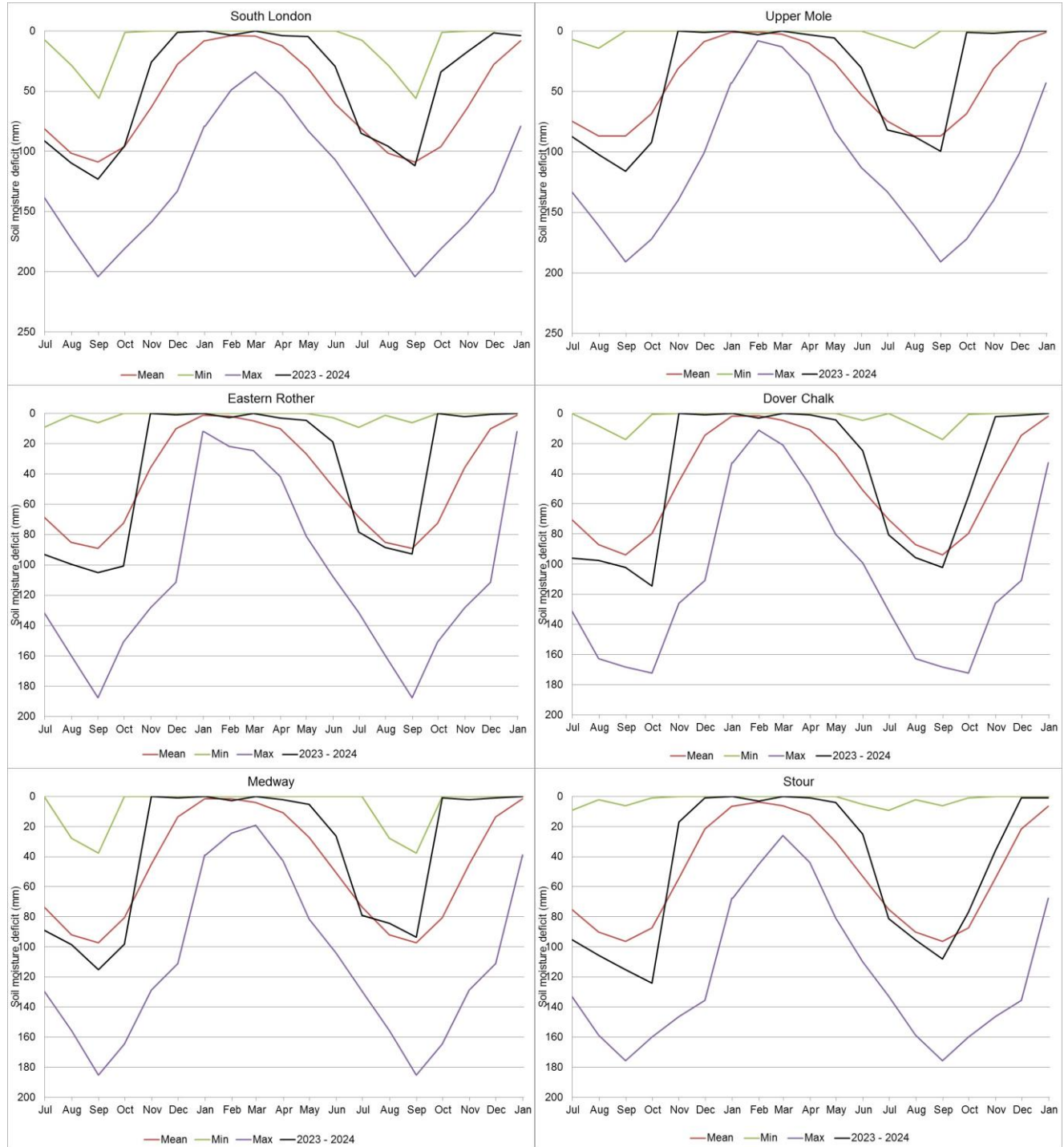
Figure 3.1: Soil moisture deficits for weeks ending 30 November (left panel) and 31 December 2024 (right panel). Top row shows actual soil moisture deficits (mm) and bottom row shows the difference (mm) of the actual from the 1961 to 90 long term average soil moisture deficits. EA Soil Moisture Deficit data (Source EA Soil Moisture Model).



(Source: Met Office. Crown copyright, 2025). All rights reserved. Environment Agency, 100024198, 2025.

### 3.2 Soil moisture deficit charts

Figure 3.2: Latest soil moisture deficit compared to maximum, minimum, and 1961 to 1990 long term average. EA soil moisture deficit data (Source EA Soil Moisture Model).



(Source: Met Office. Crown copyright, 2025). All rights reserved. Environment Agency, 100024198, 2025

### 3.3 Soil moisture deficit table

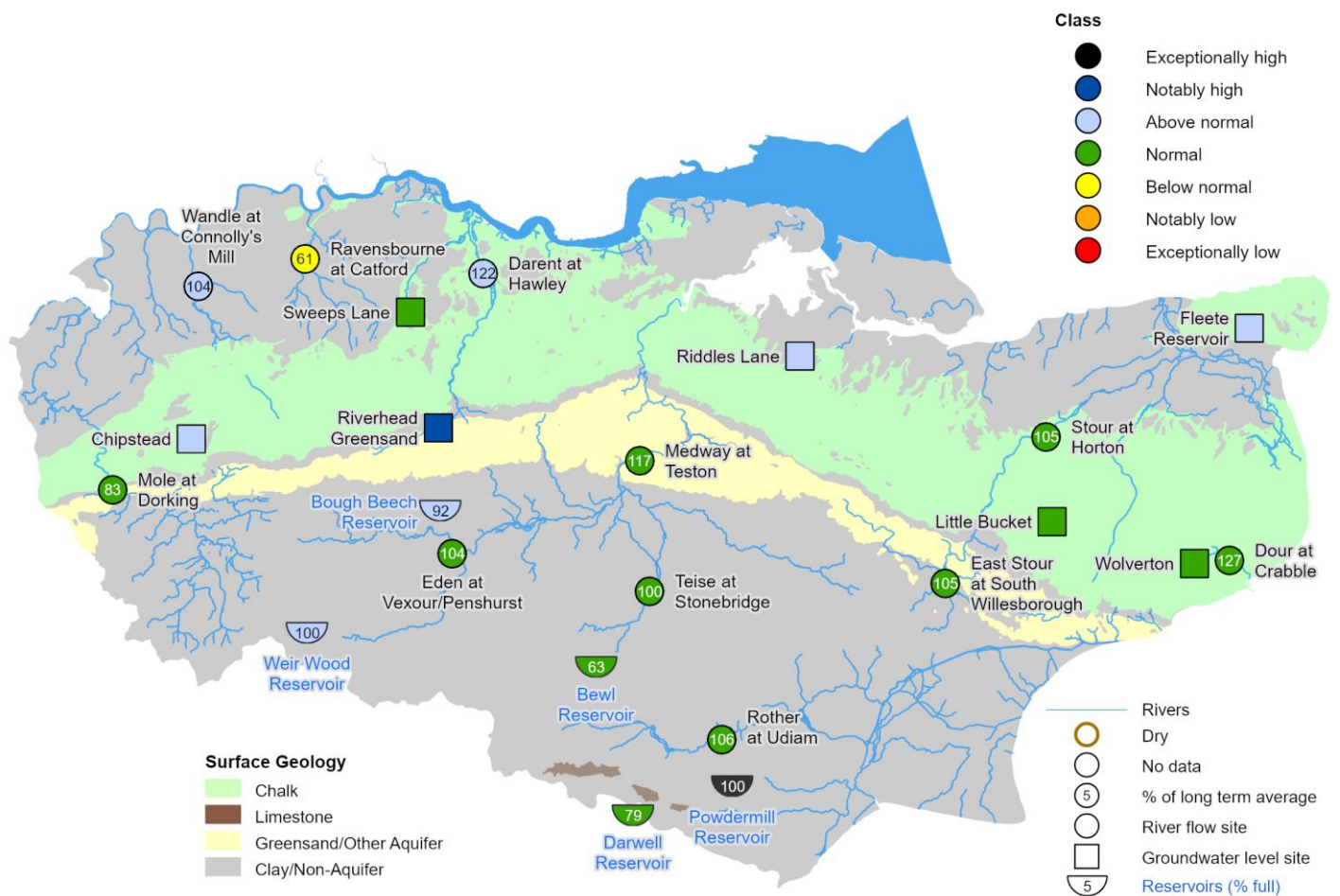
Figure 3.3: This is a second estimate of soil moisture deficit for the hydrological areas across the Kent and South London area. There may be significant variation within each area which must be considered when interpreting these data. EA soil moisture deficit data (Source EA Soil Moisture Model).

Number	Hydrological Area	SMD (mm) Day 31	End December LTA
6230TH	North Downs - South London (W)	2	13
6505TH	Upper Mole	0	7
6508TH	South London	4	26
6706So	Darent	2	22
6707So	North Kent Chalk	2	15
6708So	Stour	1	13
6709So	Dover Chalk	0	8
6710So	Thanet Chalk	66	78
6809So	Medway	0	5
6810So	Eastern Rother	0	3
6811So	Romney Marsh	0	9
6812So	North West Grain	22	37
6813So	Sheppey	19	33
	Kent & South London Average	9	21

# 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 December 2024, expressed as a percentage of the respective long term average and classed relative to an analysis of historic December monthly means. End of month groundwater levels for indicator sites for December 2024, expressed as a percentage of the respective long term average and classed relative to an analysis of historic December levels. Tables available in the appendices with detailed information. End of month levels for reservoirs for December 2024, expressed as percent full. (Source: Water Companies).



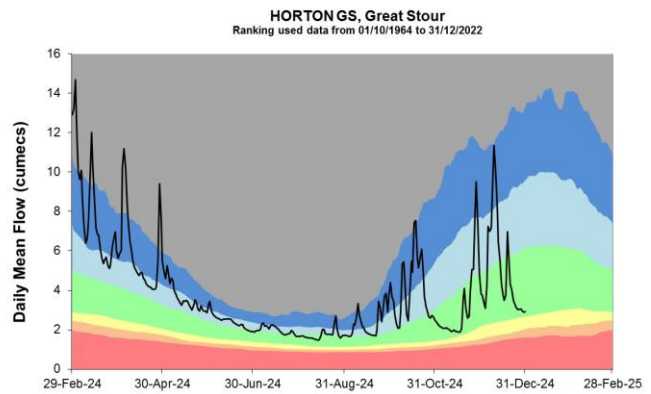
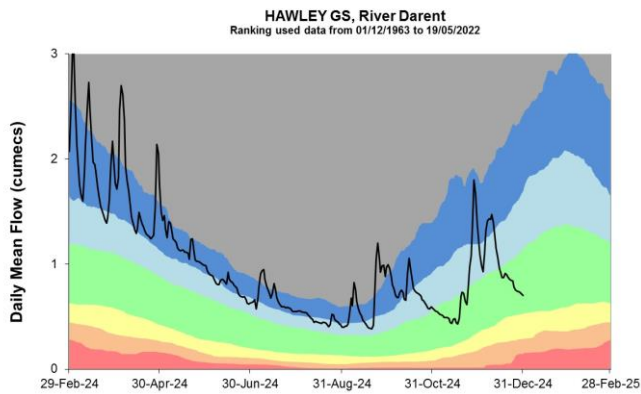
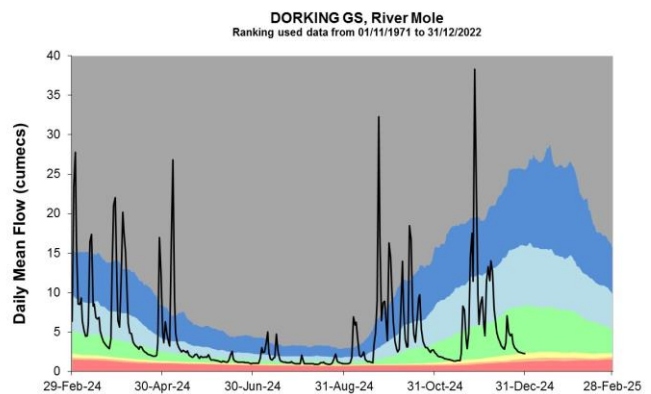
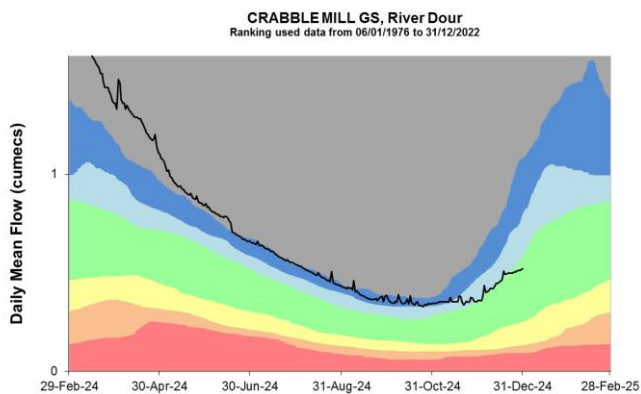
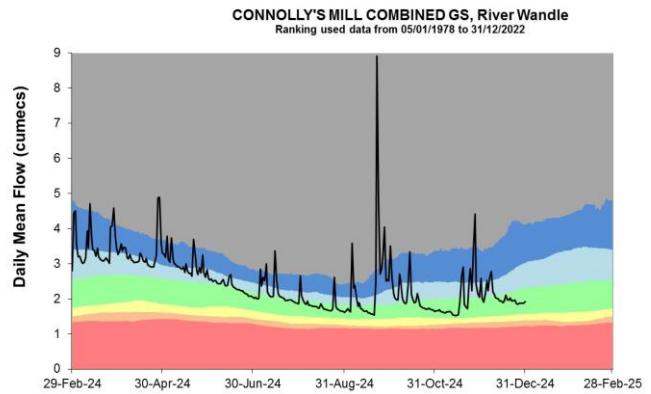
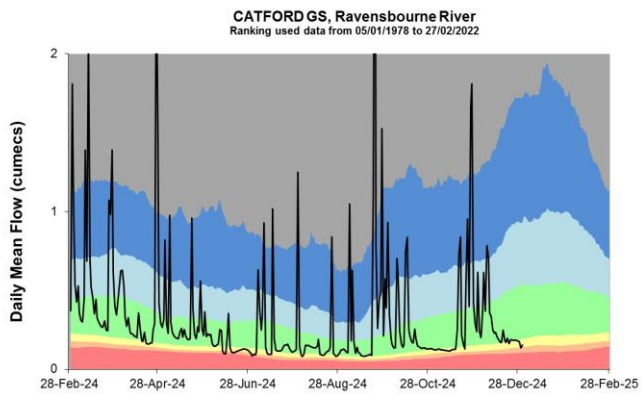
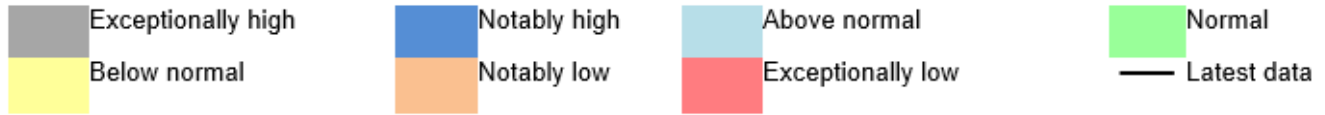
\*Weir Wood Reservoir is currently offline

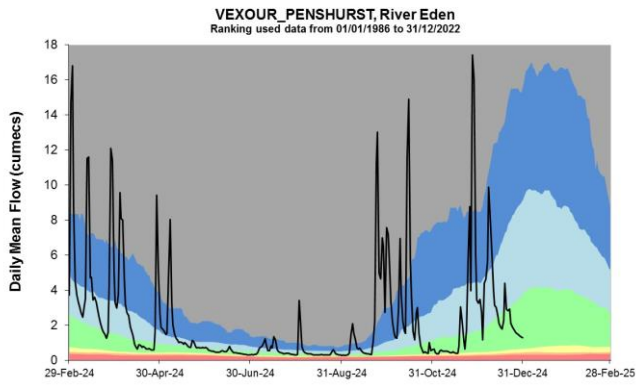
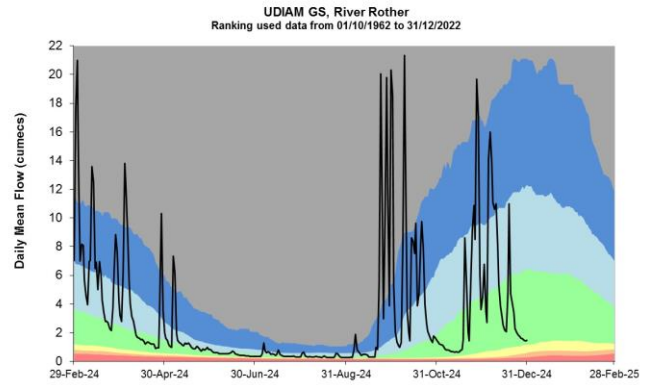
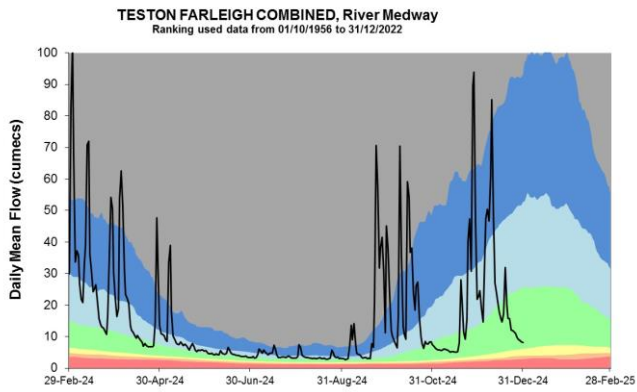
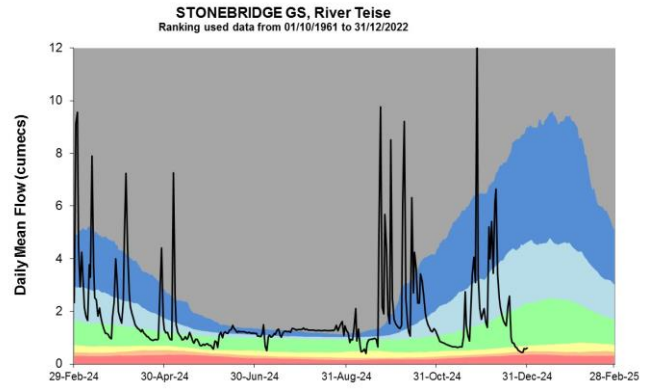
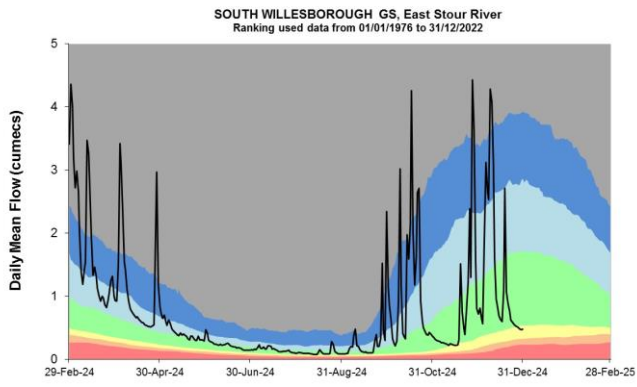
\*\*Flows at gauging stations in the Medway catchment might be affected by upstream reservoir releases

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## 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.





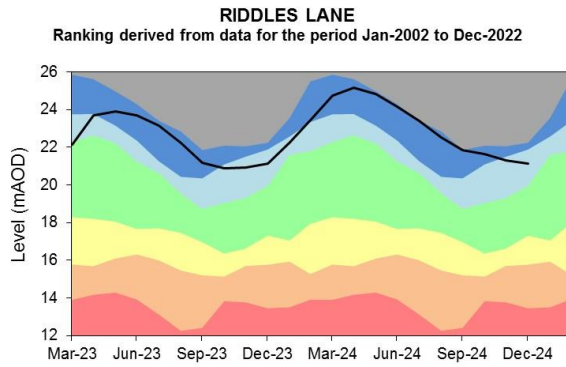
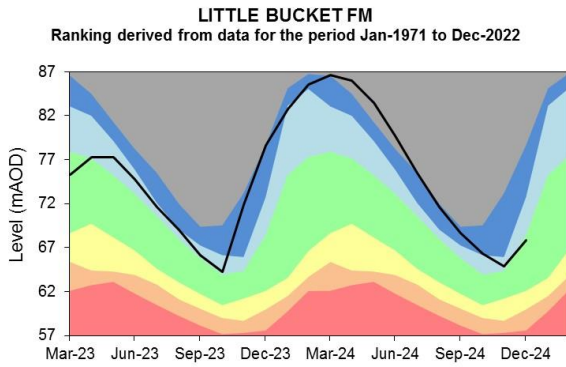
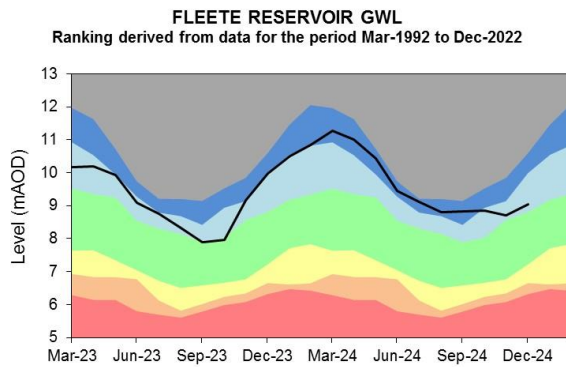
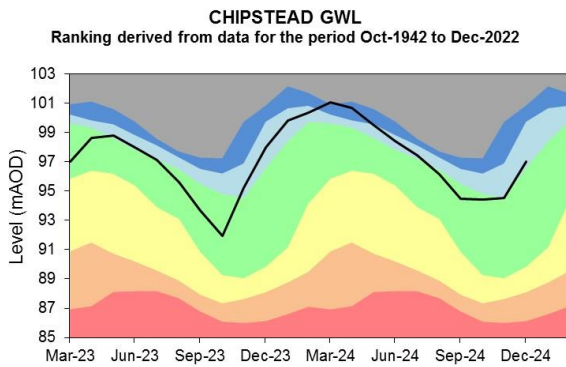
Source: Environment Agency.

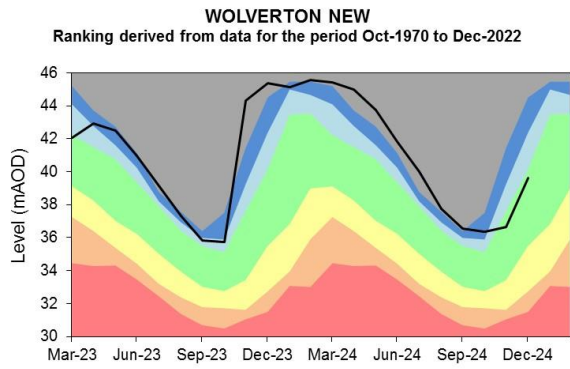
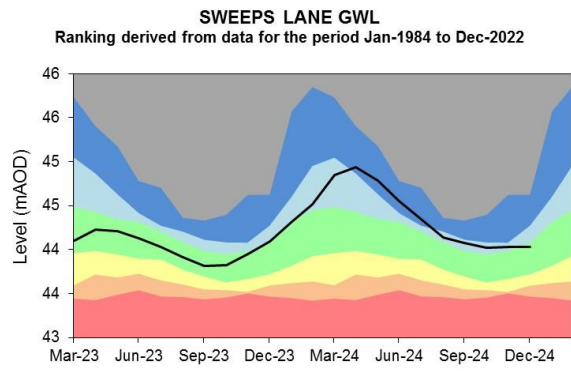
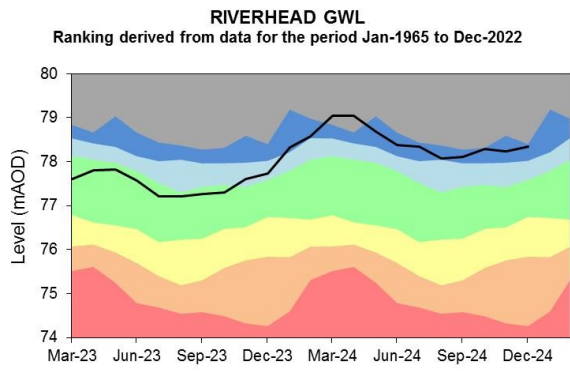


# 5 Groundwater levels

## 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.



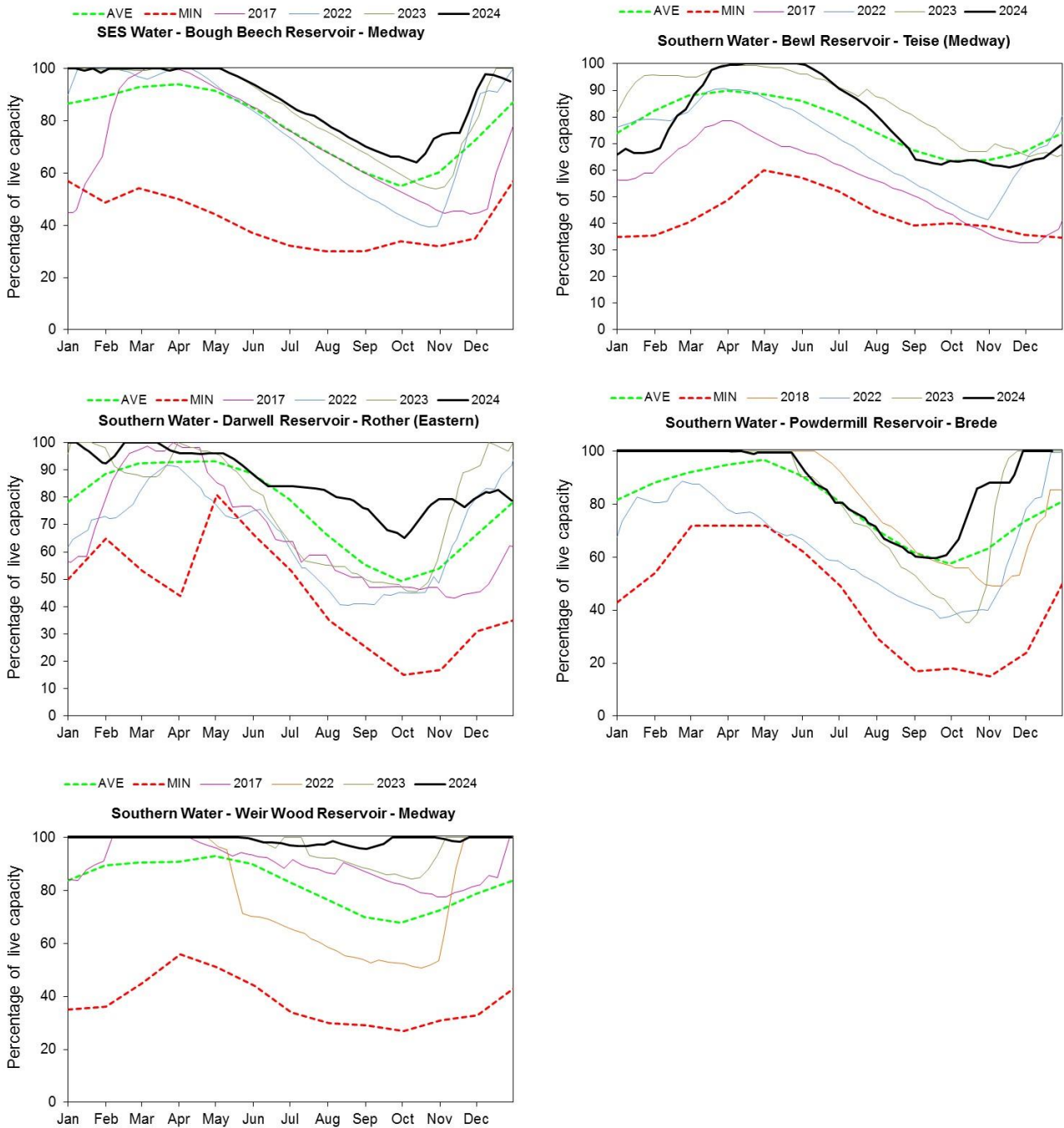


Source: Environment Agency, 2025.

# 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 ( $\text{m}^3\text{s}^{-1}$ ).

#### **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).

## 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	Dec 2024 rainfall % of long term average 1961 to 1990	Dec 2024 band	Oct 2024 to December cumulative band	Jul 2024 to December cumulative band	Jan 2024 to December cumulative band
North Downs - South London	65	Below Normal	Normal	Normal	Notably high
Upper Mole	73	Normal	Normal	Above normal	Notably high
South London	57	Below Normal	Normal	Normal	Above normal
River Darent	65	Below Normal	Normal	Normal	Above normal
North Kent Chalk	84	Normal	Normal	Normal	Above normal
Stour	91	Normal	Normal	Normal	Above normal
Dover Chalk	91	Normal	Normal	Normal	Notably high
Thanet Chalk	75	Below Normal	Normal	Below normal	Normal
River Medway	85	Normal	Normal	Notably high	Exceptionally high
Eastern Rother	87	Normal	Normal	Normal	Notably high

Romney Marsh	90	Normal	Normal	Normal	Notably high
North West Grain	61	Below Normal	Normal	Normal	Normal
Sheppy	77	Normal	Normal	Normal	Normal



## 8.2 River flows table

Site name	River	Catchment	Dec 2024 band	Nov 2024 band
Catford Gs	River Ravensbourne	Ravensbourne	Below normal	Normal
Connolly's Mill Combined Gs	River Wandle	Wandle	Above normal	Normal
Crabble Mill Gs	River Dour	Dour	Normal	Notably high
Dorking Gs	River Mole	Mole Surrey	Normal	Normal
Hawley Gs	River Darent and Cray	Darent and Cray	Above normal	Normal
Horton Gs	Great Stour River	Great Stour	Normal	Normal
South Willesborough Gs	East Stour River	East Stour	Normal	Normal
Stonebridge Gs	River Teise	Teise	Normal	Normal
Teston Farleigh Combined	River Medway	Medway (Middle)	Normal	Above normal
Udiam Gs	River Rother	Rother (Kent)	Normal	Normal
Vexour_penshurst	River Eden	Eden (Kent)	Normal	Above normal

### 8.3 Groundwater table

Site name	Aquifer	End of Dec 2024 band	End of Nov 2024 band
Fleete Reservoir Gwl	Isle Of Thanet Chalk	Above normal	Above normal
Chipstead Gwl	Epsom North Downs Chalk	Above normal	Above normal
Little Bucket Fm	East Kent Chalk - Stour	Normal	Above normal
Riddles Lane	North Kent Swale Chalk	Above normal	Above normal
Riverhead Gwl	Kent Greensand	Notably high	Notably high
Sweeps Lane Gwl	West Kent Chalk	Normal	Above normal
Wolverton New	East Kent Chalk - Stour	Normal	Normal