Monthly water situation report: Solent and South Downs Area

Summary - April 2025

Solent and South Downs (SSD) had below average rainfall in April, receiving 49% (26.4mm) of the long term average (LTA of 53.9mm). Monthly mean river flows across SSD ranged from notably low to above normal and the end of month groundwater levels ranged from notably low to notably high. Soils across SSD ended the month much drier than the average for April. End of month reservoir stocks were above average at Ardingly Reservoir (Ouse) and were below average at Arlington Reservoir (Cuckmere).

1.1 Rainfall

After the exceptionally low rainfall in March, SSD had below average rainfall in April, receiving 49% (26.4mm) of the long term average (LTA of 53.9mm). The East Sussex Chalk, Pevensey Levels and Cuckmere areal units on the east received the highest rainfalls, above 30mm. The Test Chalk areal unit on the west received the lowest rainfall with only 17.6mm for the whole month, which represents 34% of LTA (51.7mm).

There were only three days with widespread rain, 14, 18 and 22 April. The majority of the month's rain fell on these three days. The rest of April was mostly dry with over 20 dry days.

The highest daily totals were recorded on 22 April, 22.2mm at Plumpton RG (East Sussex Chalk) and 20.8mm at Storrington (Western Rother Greensand).

The last 2 months has been the seventh driest on record for SSD, while it was the fourth driest on record for the Test Chalk areal unit. The exceptionally low 3-months rainfall total for the Sussex Coast areal unit were the seventh driest on record.

In contrast, over the longer time periods, the 15-month, 18-month and 24 month running totals remain high. Figures for the 15-month period (starting February 2024) were the eight highest total for the Test Chalk and the East Sussex Chalk areal units. Figures for the 18-month period (starting November 2023) were the 10th highest total for SSD and the fifth highest for the Test Chalk areal units. For the 24-month period (starting May 2023) it was the fifth highest total for SSD and the second highest for the Test Chalk areal unit.

All these statistics are based on records going back to 1871.

1.2 Soil moisture deficit and recharge

Soils across SSD ended the month much drier than the LTA for April.

1.3 River flows

Monthly mean river flows for April ranged from notably low to above normal across SSD.

Flows were notably low on the:

- River Wallington at North Fareham
- River Arun at Alfoldean

Flows were below normal on the:

- River Lymington at Brockenhurst
- River Adur at Sakeham
- River Ouse at Goldbridge
- River Cuckmere at Cowbeech

Flows were normal on the:

- River Test at Chilbolton
- River Meon at Mislingford
- River Medina at Blackwater
- River Rother at Iping Mill

Flows were above normal on the:

- River Test at Broadlands
- River Itchen at Allbrook and Highbridge

The notably low monthly mean flows for the River Arun at Alfoldean were the fifth lowest on record for April since 1970.

The notably low monthly mean flows for the River Wallington at North Fareham were the sixth lowest on record going back to 1976.

1.4 Groundwater levels

End of month groundwater levels for April ranged from notably low to notably high across SSD.

Groundwater levels were notably low at:

- Carisbrooke Castle (Isle of Wight)

Groundwater levels were below normal at:

- Beeding Hill (West Sussex Chalk)

Groundwater levels were normal at:

- Lopcombe Corner (Test Chalk)
- Catherington (East Hampshire Chalk)
- Harting Common (Western Rother Greensand)
- Chilgrove (West Sussex Chalk)
- Houndean Bottom (East Sussex Chalk)
- Cornish Farm (East Sussex Chalk)

Groundwater levels were above normal at:

- Clanville Gate (Test Chalk)
- West Meon (East Hampshire Chalk)
- Youngwoods Copse (Isle of Wight)

Groundwater levels were notably high at:

- Preston Candover (East Hampshire Chalk)

The notably high groundwater level at Preston Candover (East Hampshire Chalk) was the fourth highest on record for April since 1975. In contrast, the notably low groundwater level at Carisbrooke Castle (Isle of Wight) was the fourth lowest for April on a record going back to 1975.

1.5 Reservoir stocks

End of month reservoir stocks were above average at Ardingly Reservoir (Ouse) and were below average at Arlington Reservoir (Cuckmere).

Ardingly Reservoir (Ouse) was at 99% of total capacity (LTA 98%) and Arlington Reservoir (Cuckmere) was at 96.1% of total capacity (LTA 97.16%).

1.6 Environmental impact

Abstraction licence restrictions:

During April there was one licence restrictions in force, a reduced abstraction rate restriction on the River Meon, East Hampshire.

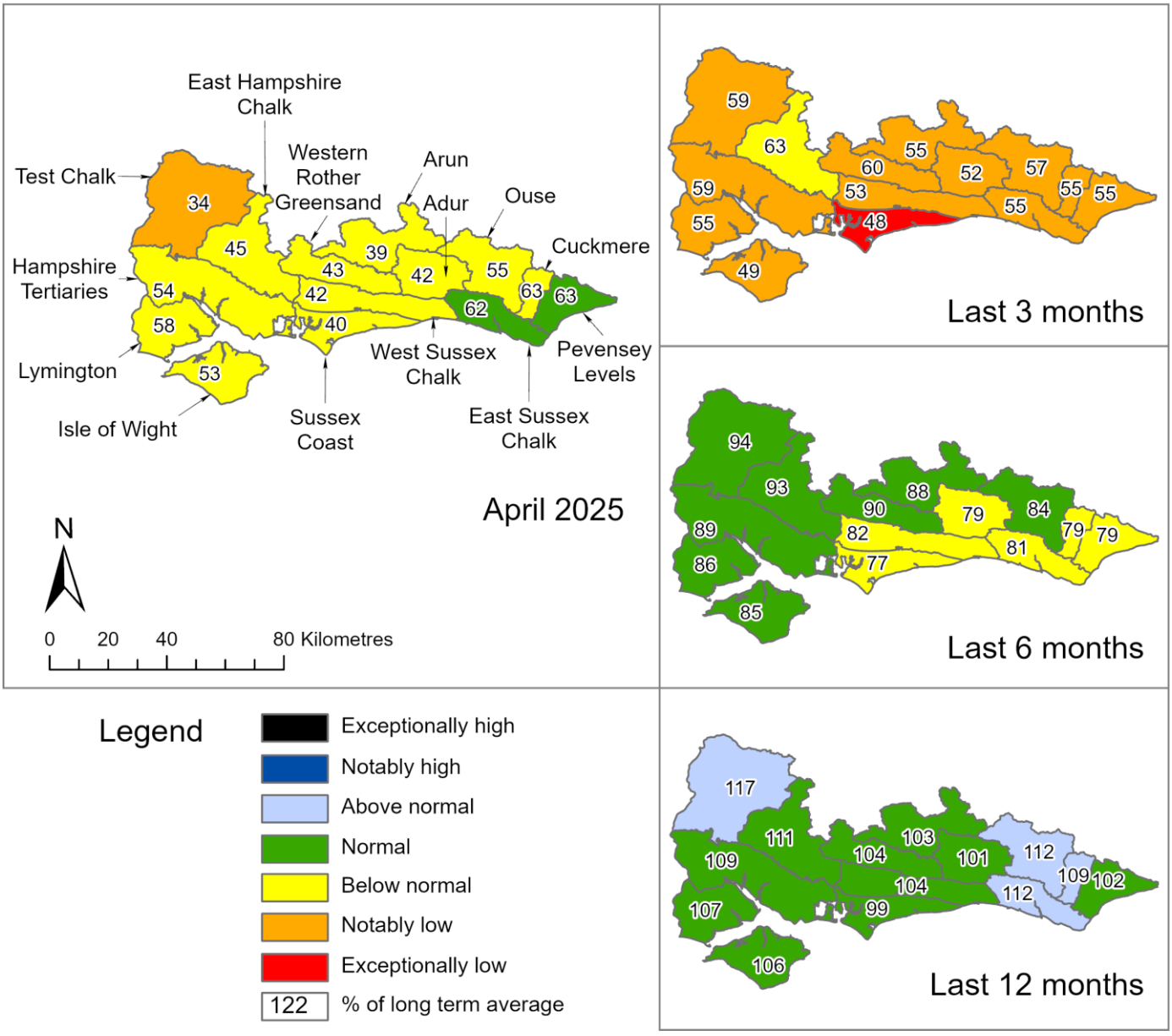
Author: HydrologySSD@environment-agency.gov.uk

Contact Details: 03708 506 506

2. Rainfall

2.1 Rainfall map

Figure 2.1: Total rainfall for hydrological areas for the current month (up to 30 April 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.



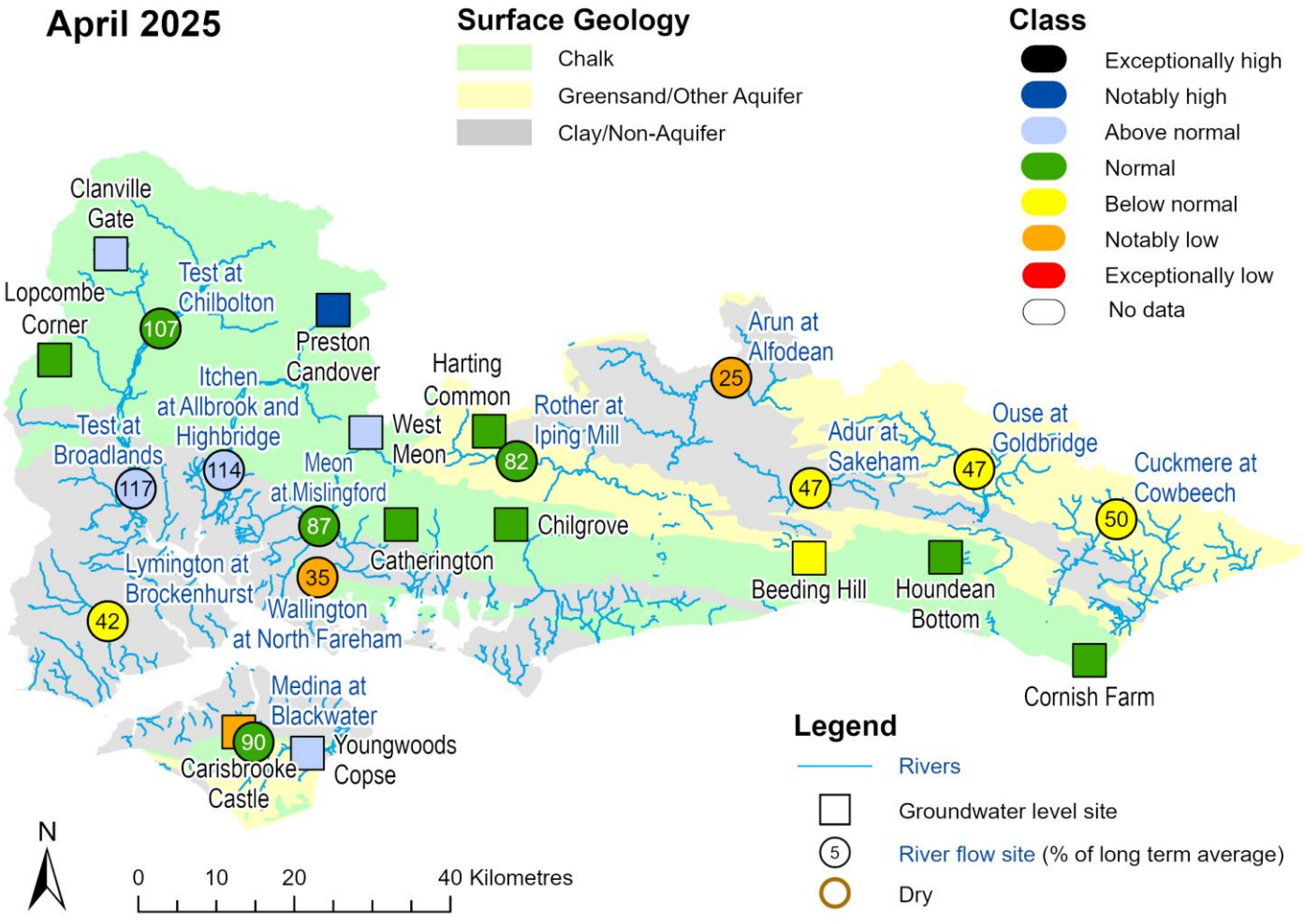
Rainfall data for October 2023 onwards, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, 100024198, 2025). Rainfall data prior to October 2023, extracted

from Met Office HadUK 1km gridded rainfall dataset derived from registered rain gauges (Source: Met Office. Crown copyright, 2025).

3 River flows and Groundwater levels

3.1 River flows and Groundwater level map

Figure 3.1: Monthly mean river flow and groundwater levels at our indicator sites for April 2025, expressed as a percentage of the respective long term average and classed relative to an analysis of historic April monthly means. Table available in the appendices with detailed information.

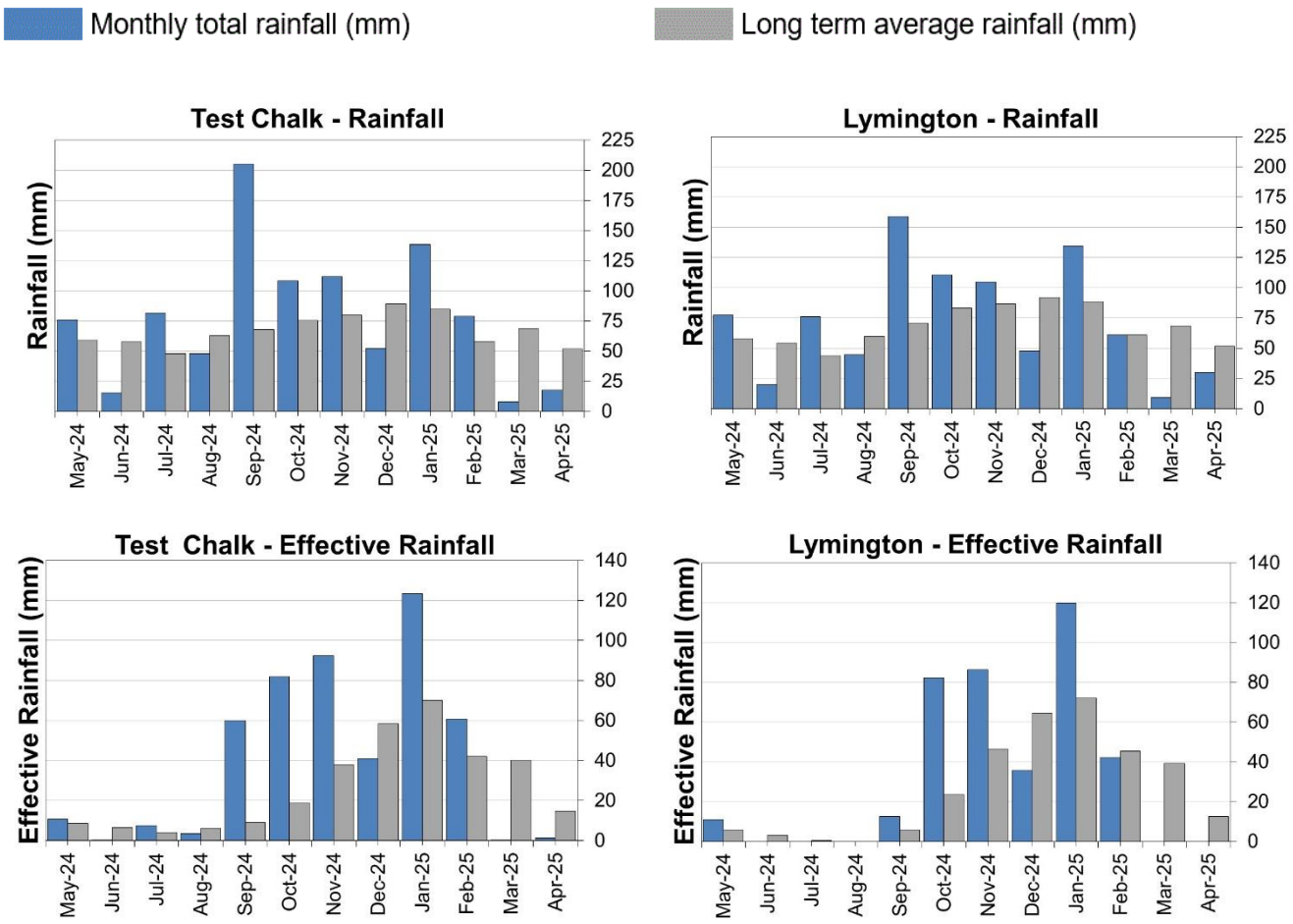


(Source: Environment Agency). Crown copyright. All rights reserved. Environment Agency, 100024198, 2025. Geological map reproduced with kind permission from UK Groundwater Forum, BGS copyright NERC. Crown copyright. All rights reserved. Environment Agency, 100024198, 2025.

4 West Hampshire

4.1 West Hampshire Rainfall and effective rainfall charts

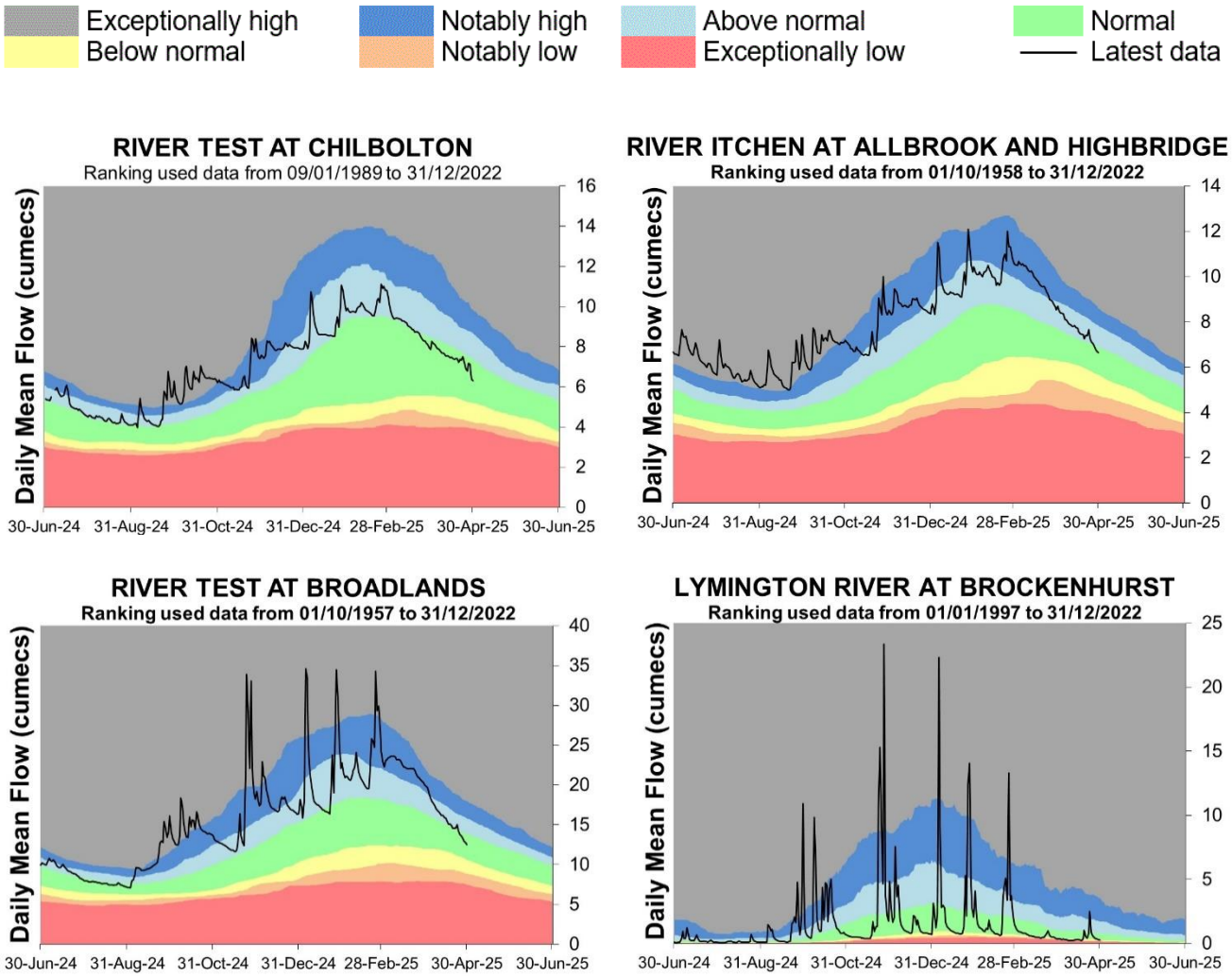
Figure 4.1: Monthly rainfall and effective rainfall totals for the past 12 months compared to the 1961 to 1990 long term average.



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

4.2 West Hampshire River flow charts

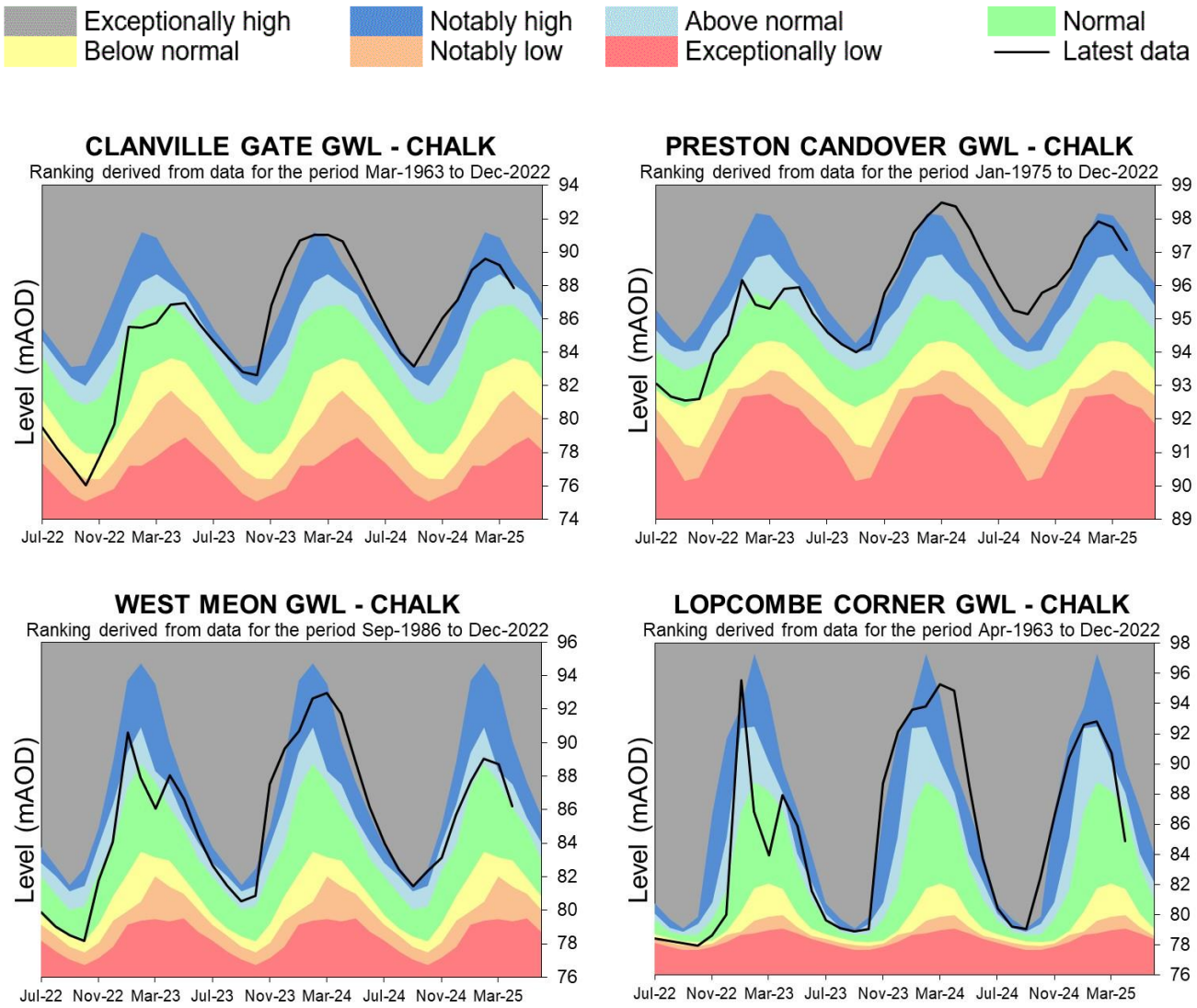
Figure 4.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



Source: Environment Agency, 2025.

4.3 West Hampshire Groundwater level charts

Figure 4.3: End of month groundwater levels at index groundwater level sites for major aquifers. 34 months compared to an analysis of historic end of month levels and long term maximum and minimum levels.

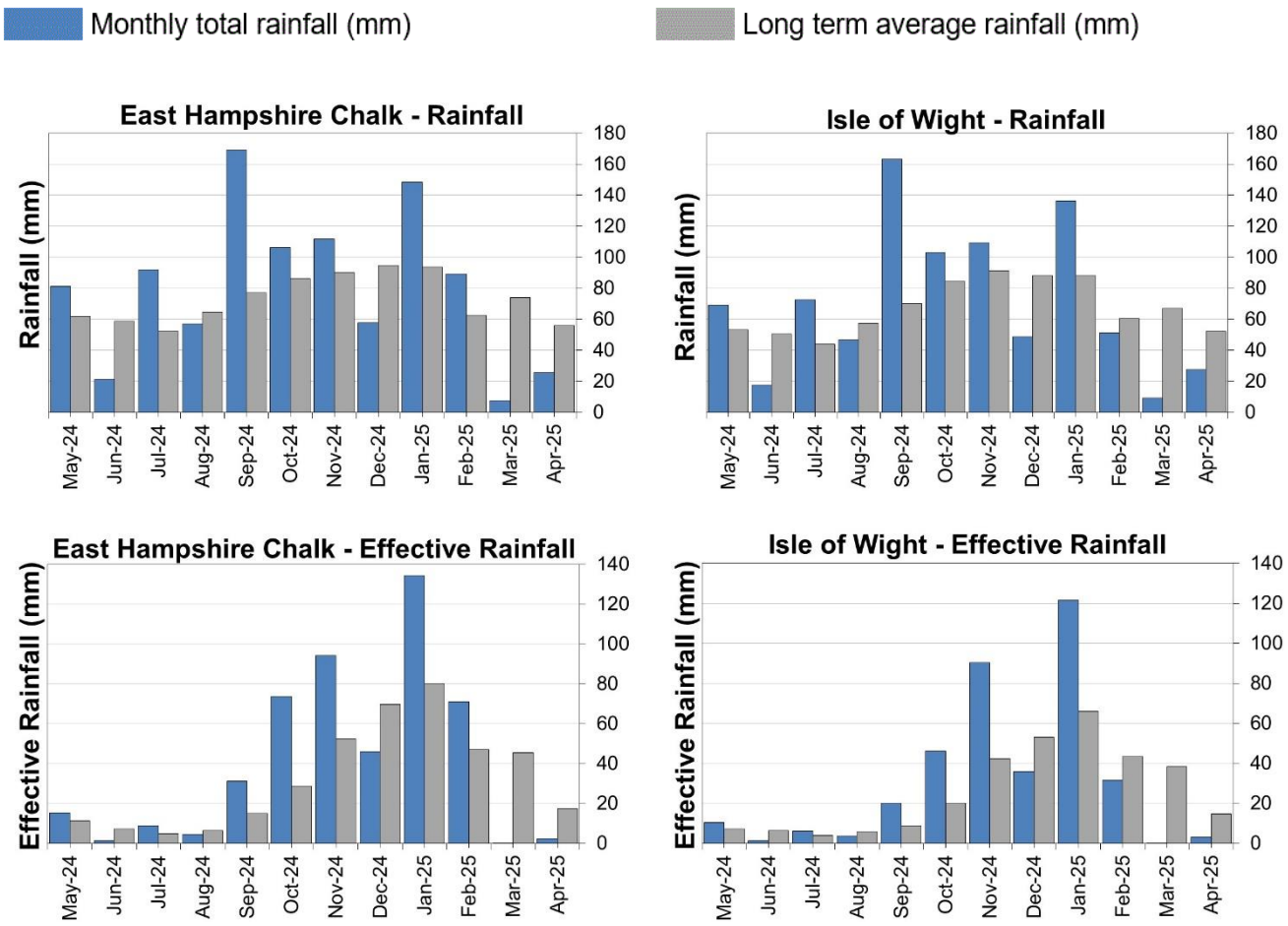


Source: Environment Agency, 2025.

5 East Hampshire and Isle of Wight

5.1 East Hampshire and Isle of Wight Rainfall and Effective rainfall charts

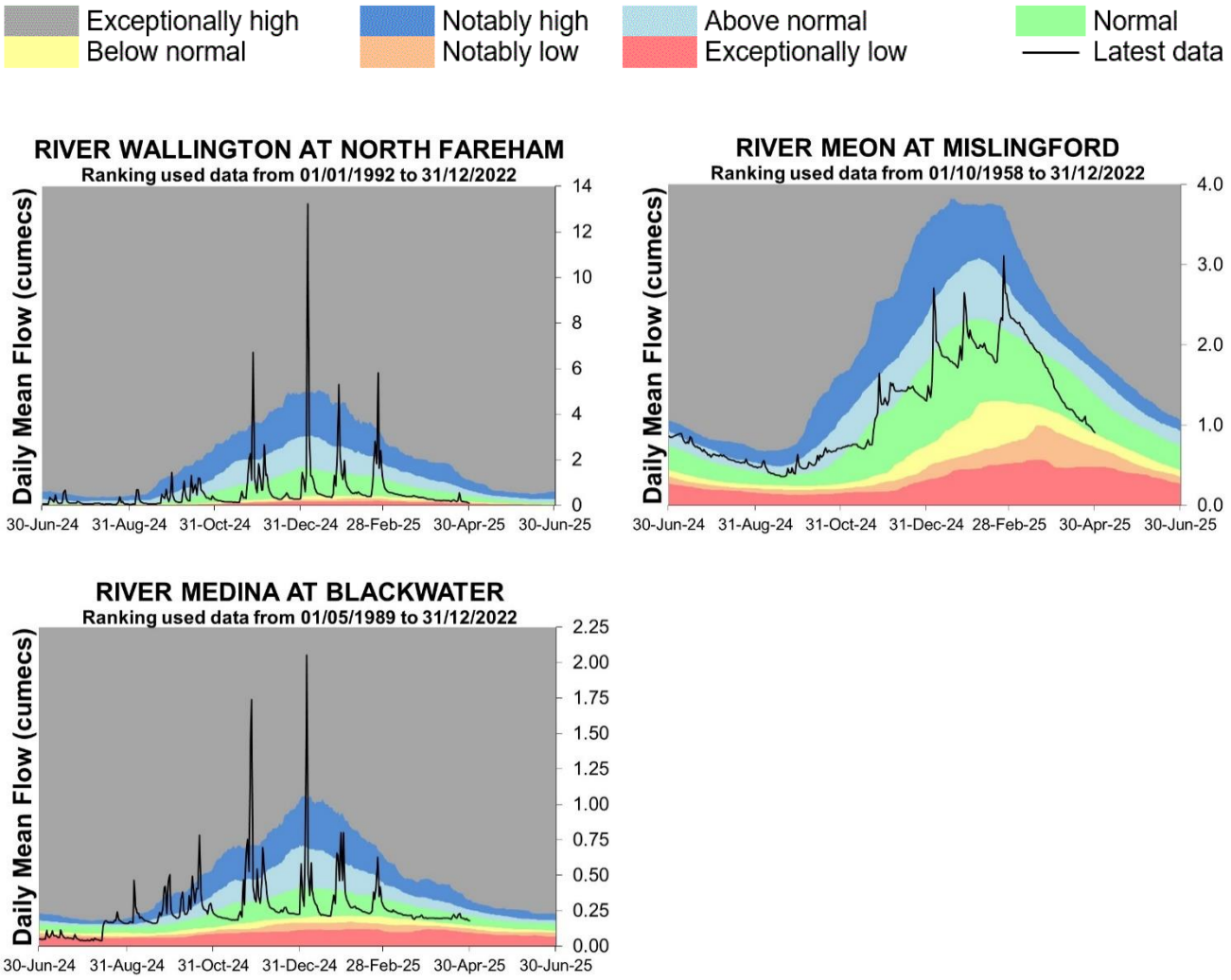
Figure 5.1: Monthly rainfall and effective rainfall totals for the past 12 months compared to the 1961 to 1990 long term average.



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

5.2 East Hampshire and Isle of Wight River flow charts

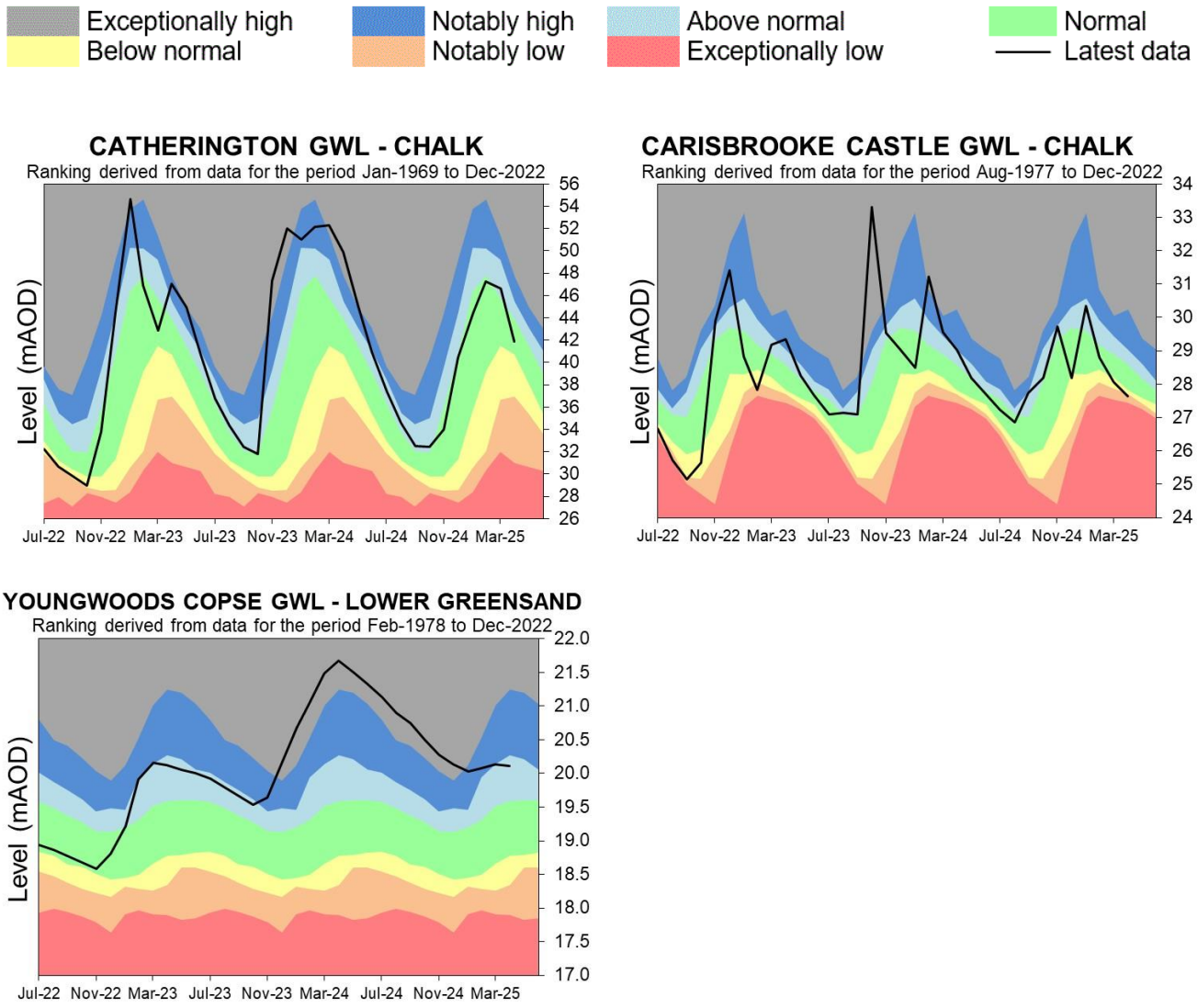
Figure 5.2 Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



Source: Environment Agency, 2025.

5.3 East Hampshire and Isle of Wight Groundwater level charts

Figure 5.3: End of month groundwater levels at index groundwater level sites for major aquifers. 34 months compared to an analysis of historic end of month levels and long term maximum and minimum levels.

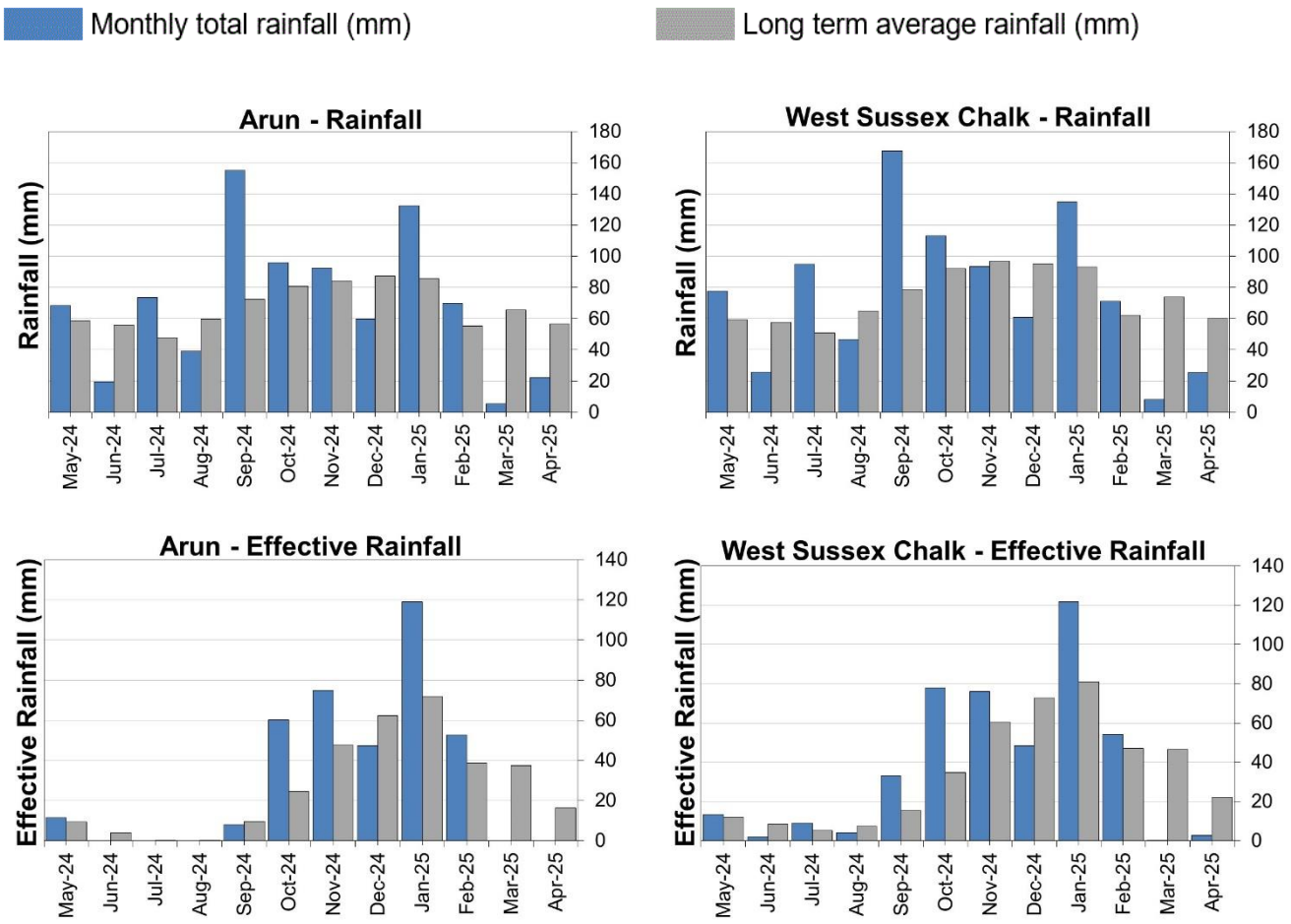


Source: Environment Agency, 2025.

6 West Sussex

6.1 West Sussex Rainfall and Effective Rainfall charts

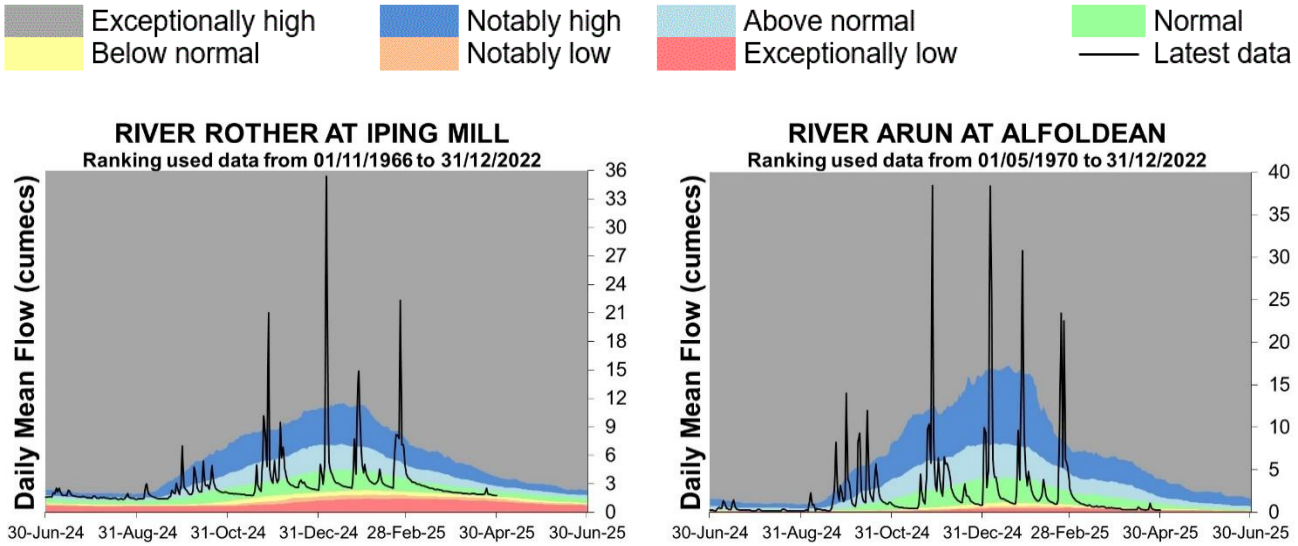
Figure 6.1: Monthly rainfall and effective rainfall totals for the past 12 months as a percentage of the 1961 to 1990 long term average.



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

6.2 West Sussex River flow charts

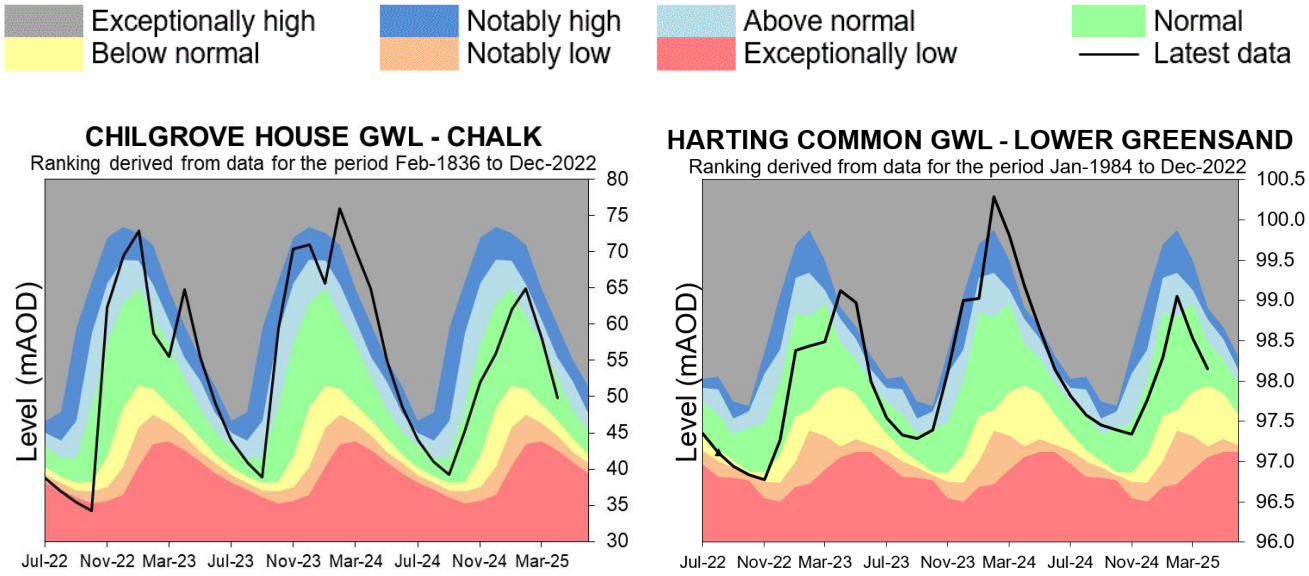
Figure 6.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



Source: Environment Agency, 2025.

6.3 West Sussex Groundwater level charts

Figure 6.3: End of month groundwater levels at index groundwater level sites for major aquifers. 34 months compared to an analysis of historic end of month levels and long term maximum and minimum levels.

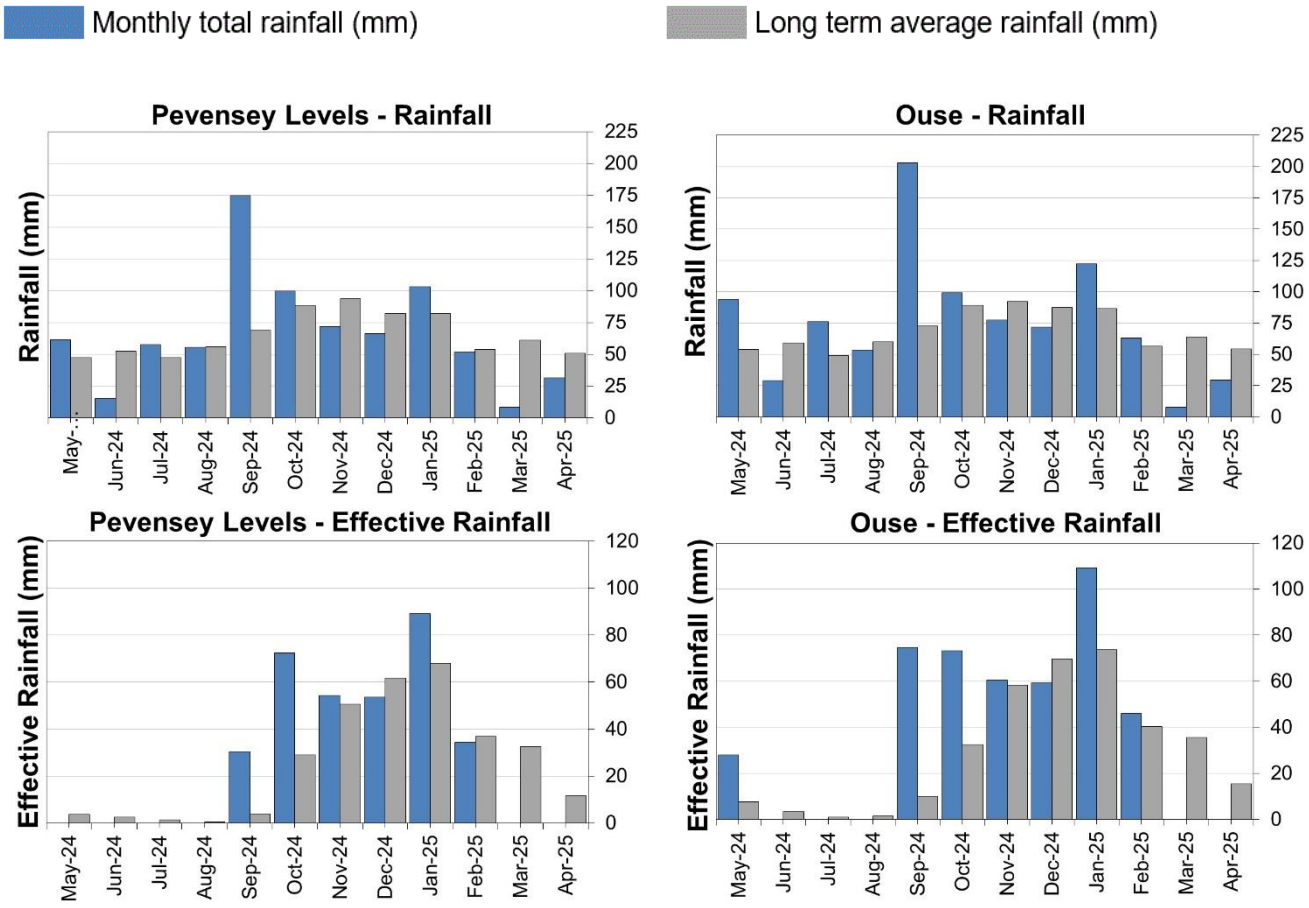


Source: Environment Agency, 2025.

7 East Sussex

7.1 East Sussex Rainfall and Effective Rainfall charts

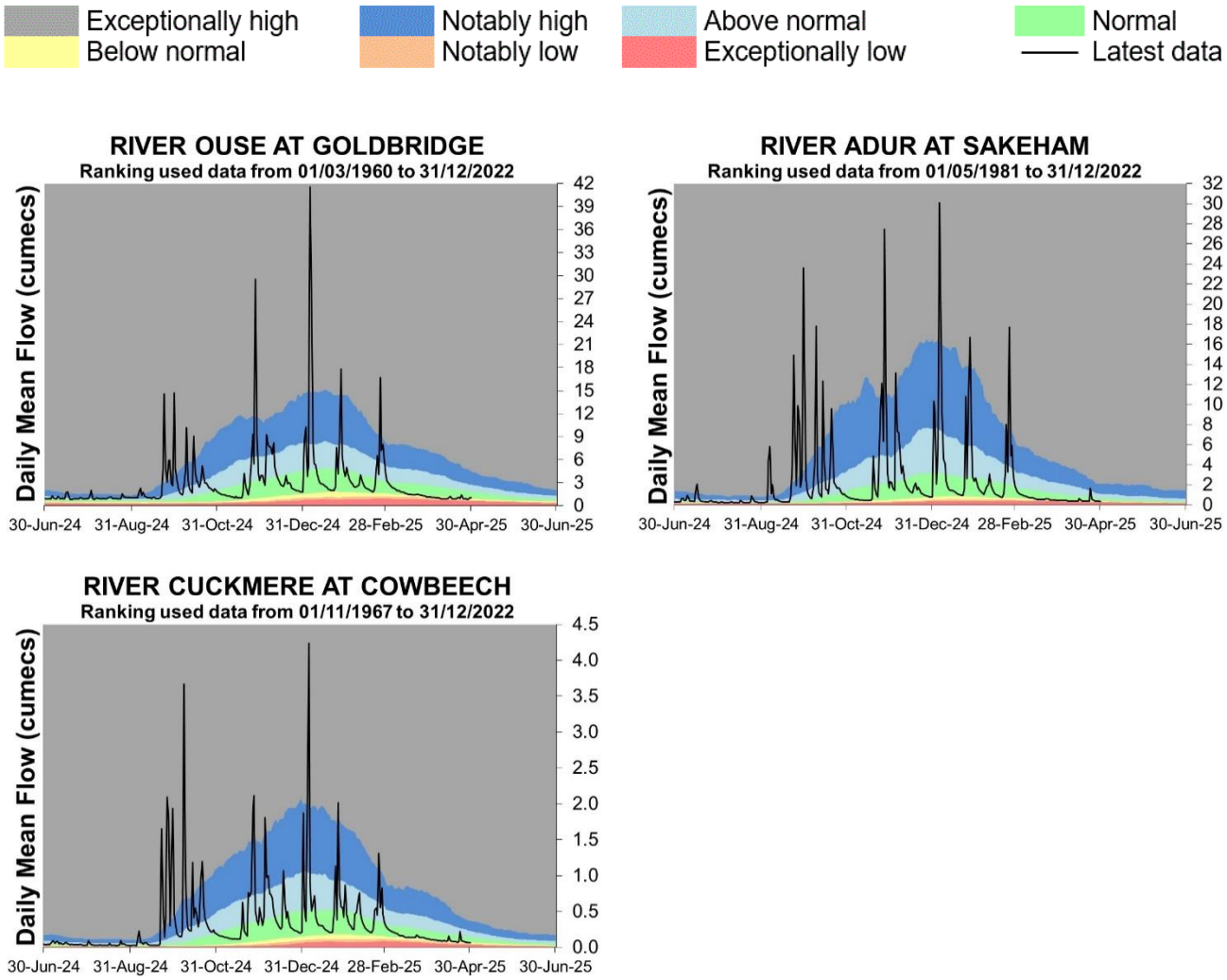
Figure 7.1: Monthly rainfall and effective rainfall totals for the past 12 months compared to the 1961 to 1990 long term average.



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

7.2 East Sussex River flow charts

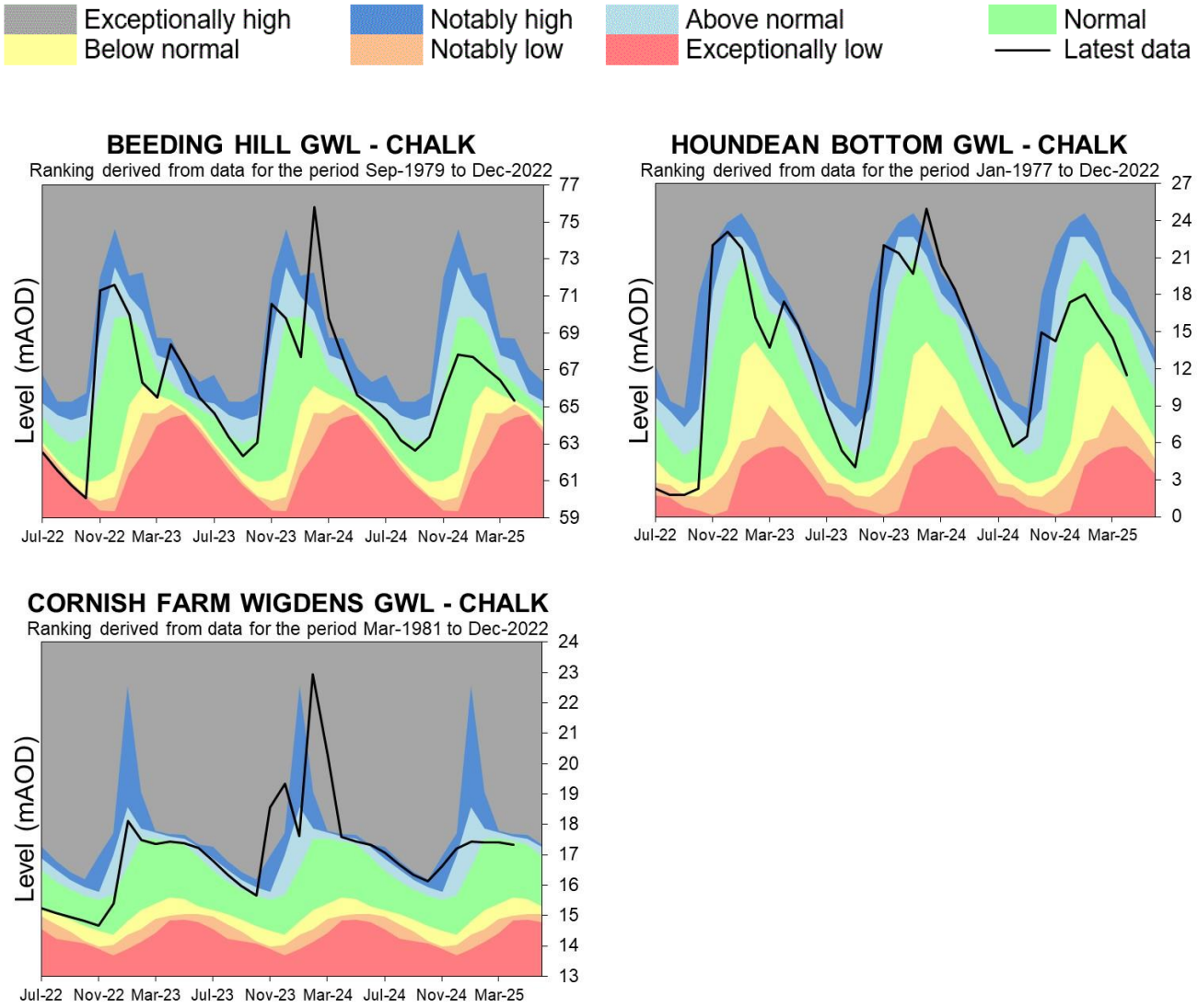
Figure 7.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



Source: Environment Agency, 2025.

7.3 East Sussex Groundwater level charts

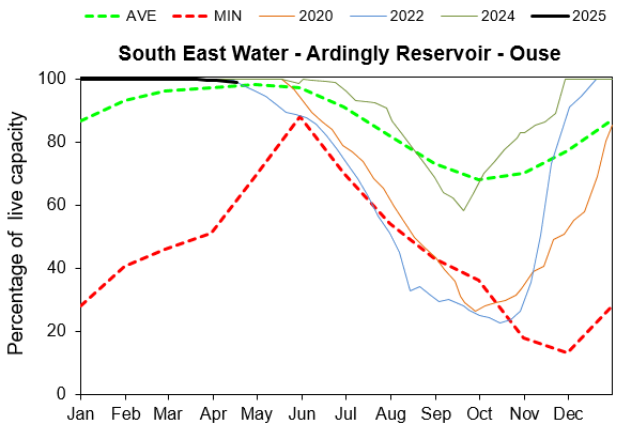
Figure 7.3: End of month groundwater levels at index groundwater level sites for major aquifers. 34 months compared to an analysis of historic end of month levels and long term maximum and minimum levels.

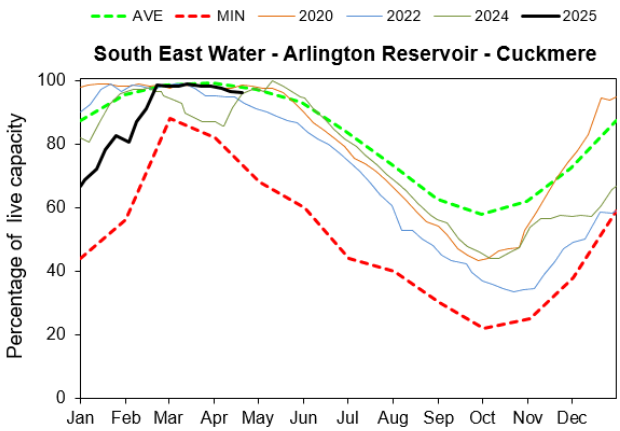


Source: Environment Agency, 2025.

8 Reservoir stocks

Figure 8.1: End of month 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).

9 Glossary

9.1 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).

9.2 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.

10 Appendices

10.1 Rainfall, effective rainfall and soil moisture deficit table

Figure 10.1: This is areal rainfall, effective rainfall (percolation or runoff) and soil moisture deficit for the hydrological areas across the SSD. 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 10.2

Hydrological Area	Rainfall (mm) 30 day Total	Rainfall April as %LTA	Effective Rainfall (mm) 30 day Total	Effective Rainfall April as %LTA	Soil Moisture Deficit (SMD) Day 30	SMD End of April LTA
Test Chalk	17.6	34%	1.3	9%	76	19
East Hampshire Chalk	25.4	45%	2.3	13%	72	18
West Sussex Chalk	25.3	42%	2.6	12%	69	16
East Sussex Chalk	32.9	62%	3.8	23%	63	17
Isle of Wight	27.4	52%	3.1	21%	72	20
Western Rother Greensand	25.7	42%	2.5	12%	71	17
Hampshire Tertiaries	27.2	54%	0.0	0%	72	20
Lymington	29.7	58%	0.0	0%	67	19
Sussex Coast	20.3	40%	0.0	0%	76	20
Arun	22.2	39%	0.0	0%	73	16
Adur	23.2	42%	0.0	0%	69	16
Ouse	29.6	54%	0.0	0%	61	16
Cuckmere	31.9	62%	0.0	0%	57	16
Pevensey Levels	31.4	62%	0.0	0%	63	17
SSD Average	26.4	49%	1.1	7%	69	18

10.2 Seasonal summary table of rainfall and effective rainfall

Summer season: 01/04/2025 to 30/09/2025

Hydrological Area	Seasonal Rainfall (mm) Total	Seasonal Rainfall as % LTA	Seasonal Effective Rainfall (mm) Total	Seasonal Effective Rainfall as % LTA
Test Chalk	18	34%	1	9%
East Hampshire Chalk	25	45%	2	13%
West Sussex Chalk	25	42%	3	12%
East Sussex Chalk	33	62%	4	23%
Isle of Wight	27	52%	3	21%
Western Rother Greensand	26	42%	3	12%
Hampshire Tertiaries	27	54%	0	0%
Lymington	30	58%	0	0%
Sussex Coast	20	40%	0	0%
Arun	22	39%	0	0%
Adur	23	42%	0	0%
Ouse	30	54%	0	0%
Cuckmere	32	62%	0	0%
Pevensey Levels	31	62%	0	0%
SSD Average	26	49%	1	7%

10.3 Rainfall banding table

Hydrological area	April 2025 band	February 2024 to April 2025 cumulative band	November 2024 to April 2025 cumulative band	May 2024 to April 2025 cumulative band
Test Chalk	Notably low	Notably low	Normal	Above normal
East Hampshire Chalk	Below normal	Below normal	Normal	Normal
West Sussex Chalk	Below normal	Notably low	Below normal	Normal
East Sussex Chalk	Normal	Notably low	Below normal	Above normal
Isle of Wight	Below normal	Notably low	Normal	Normal
Western Rother Greensand	Below normal	Notably low	Normal	Normal
Hampshire Tertiaries	Below normal	Notably low	Normal	Normal
Lymington	Below normal	Notably low	Normal	Normal
Sussex Coast	Below normal	Exceptionally low	Below normal	Normal
Arun	Below normal	Notably low	Normal	Normal
Adur	Below normal	Notably low	Below normal	Normal
Ouse	Below normal	Notably low	Normal	Above normal
Cuckmere	Below normal	Notably low	Below normal	Above normal
Pevensey Levels	Normal	Notably low	Below normal	Normal

10.4 River flows table

Site name	River	Catchment	April 2025 band	March 2025 band
Alfoldean Gs	Arun	Arun	Notably low	Notably low
Allbrook Gs+ Highbridge	Itchen (so)	Itchen	Above normal	Notably high
Blackwater	Medina	Isle of Wight	Normal	Below normal
Broadlands	Test	Test Lower	Above normal	Notably high
Brockenhurst GS	Lymington	New Forest	Below normal	Notably low
Chilbolton GS	Test	Test Upper	Normal	Normal
Cowbeech Gs	Cuckmere	Cuckmere	Below normal	Below normal
Goldbridge Gs	Ouse [so]	Ouse Sussex	Below normal	Below normal
Iping Mill Gs	Rother	West Rother	Normal	Normal
Mislingford GS	Meon	Meon	Normal	Above normal
North Fareham GS	Wallington	Wallington	Notably low	Below normal
Sakeham GS	Adur	Adur	Below normal	Below normal

10.5 Groundwater table

Site name	Aquifer	End of April 2025 band	End of March 2025 band
Carisbrooke Castle	Isle Of Wight Central Downs Chalk	Notably high	Below normal
Youngwoods Copse	Isle of Wight Lower Greensand	Normal	Normal
Clanville Gate Gwl	River Test Chalk	Below normal	Notably low
Lopcombe Corner Gwl	River Test Chalk	Below normal	Below normal
Preston Candover	River Itchen Chalk	Above normal	Normal
West Meon Hut Gwl	River Itchen Chalk	Normal	Normal
Catherington	River Meon Chalk	Normal	Below normal
Chilgrove House Gwl	Chichester-Worthing-Portsdown Chalk	Above normal	Exceptionally low
Beeding Hill Gwl	Brighton Chalk Block	Exceptionally high	Exceptionally low
Houndean Bottom Gwl	Brighton Chalk Block	Exceptionally high	Below normal
Harting Common Down	Western Rother Lower Greensand	Below normal	Below normal
Cornish Wigdens Gwtr	Eastbourne Chalk Block	Normal	Normal

10.6 Abstraction licence flow constraints

Number of flow constraints in force between 1 to 7 April 2025	Number of flow constraints in force between 8 to 14 April 2025	Number of flow constraints in force between 15 to 21 April 2025	Number of flow constraints in force between 22 to 30 April 2025
1	1	1	1

10.7 Solent and South Downs Areal Rainfall Units Map

10.8 SSD Areal Rainfall Monthly Long Term Averages

Hydrological Area	Jan LTA mm	Feb LTA mm	Mar LTA mm	Apr LTA mm	May LTA mm	Jun LTA mm	Jul LTA mm	Aug LTA mm	Sep LTA mm	Oct LTA mm	Nov LTA mm	Dec LTA mm
Test Chalk	84.8	57.9	68.7	51.7	59.0	57.3	47.9	62.5	67.9	75.4	79.9	89.1
East Hampshire Chalk	93.8	62.5	73.9	56.2	61.9	58.7	51.7	64.6	77.0	86.2	90.5	94.8
West Sussex Chalk	93.5	62.5	73.9	60.2	59.5	57.6	50.7	64.8	78.5	92.0	97.0	95.5
East Sussex Chalk	87.1	56.9	65.1	53.5	51.5	57.4	48.9	60.3	72.7	92.9	97.9	88.7
Isle of Wight	88.2	60.4	67.0	52.3	53.2	50.2	44.1	57.4	70.2	84.3	91.2	88.1
Western Rother Greensand	99.5	64.5	75.5	60.6	62.6	57.3	50.4	65.6	78.8	90.8	94.7	99.7
Hampshire Tertiaries	86.1	59.2	67.0	50.4	56.8	52.8	44.5	58.7	69.6	78.8	83.4	88.7
Lymington	88.5	61.2	68.5	51.5	57.9	54.3	43.4	59.3	71.0	83.0	86.8	91.8
Sussex Coast	76.6	51.3	60.7	50.2	50.2	47.7	41.9	53.0	63.7	77.2	80.8	78.9
Arun	85.5	55.1	65.5	56.5	58.5	55.6	47.2	59.4	72.4	80.5	83.9	86.9
Adur	84.8	55.1	63.8	55.3	56.2	55.6	46.0	59.6	71.5	85.7	88.8	86.0
Ouse	86.6	56.4	64.0	54.4	54.0	58.6	48.7	60.0	72.5	89.1	92.9	87.6
Cuckmere	84.8	55.2	61.8	51.2	50.1	57.5	48.5	59.8	71.5	90.8	93.7	85.0
Pevensey Levels	82.2	54.0	60.9	50.6	47.5	52.2	47.3	55.6	68.5	88.1	93.6	82.0
SSD Average	**87.3**	**58.0**	**66.9**	**53.9**	**55.6**	**55.2**	**47.2**	**60.0**	**71.8**	**85.3**	**89.6**	**88.8**