Monthly water situation report: Solent and South Downs Area

Summary - February 2025

Solent and South Downs (SSD) had average rainfall in February, receiving 112% (65mm) of the LTA (58mm). Monthly mean river flows across SSD ranged from normal to above normal and the end of month groundwater levels ranged from normal to notably high. Soils across SSD ended the month wetter than the average for February. End of month reservoir stocks were above average at Ardingly Reservoir (Ouse) and around average at Arlington Reservoir (Cuckmere).

1.1 Rainfall

SSD had average rainfall in February, receiving 112% (65mm) of the LTA (58mm). The East Hampshire Chalk areal unit in the west of SSD received the highest rainfall with 143% (89mm) of LTA (62.5). The Isle of Wight areal unit received the lowest rainfall with 85% (51mm) of LTA (60.4).

During the first ten days of February there were some moderate rainfall totals across the area. From the 10 until 18 February it was largely dry. The remainder of the month was mostly wet with 21 and 23 receiving the most rainfall. The highest daily rainfall totals were recorded on 23 February at the following locations:

- 32.8mm at Princes Marsh (Western Rother Greensand)
- 32.3mm at Duncton (Western Rother Greensand)
- 31.9mm at Petersfield (Western Rother Greensand)

The last 12 months (March to February) were seventh wettest on record for the Test Chalk areal unit.

Figures for 18-month period (starting September) were the second highest for SSD and all the Hampshire areal units. For the 24-month period (starting March) it was the wettest for SSD and all the Hampshire areal units. For East Sussex the early 2000's remains the wettest 24-month period while for West Sussex the 24-month period ending in 2014 is the wettest.

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

1.2 Soil moisture deficit and recharge

Soils across SSD ended the month wetter than the LTA for February.

1.3 River flows

Monthly mean river flows across SSD ranged from normal to above normal.

Flows were normal on the:

- River Lymington at Brockenhurst
- River Meon at Mislingford
- River Wallington at North Fareham
- River Medina at Blackwater
- River Adur at Sakeham
- River Ouse at Goldbridge
- River Cuckmere at Cowbeech

Flows were above normal on the:

- River Test at Chilbolton
- River Test at Broadlands
- River Itchen at Allbrook and Highbridge
- River Arun at Alfoldean
- River Rother at Iping Mill

The monthly mean flows for February were the seventh highest on record for the River Arun at Alfoldean (1970) and River Adur at Sakeham (1967).

1.4 Groundwater levels

End of month groundwater levels for February ranged from normal to notably high.

Groundwater levels were normal at:

- Catherington (East Hampshire Chalk)
- Carisbrooke Castle (Isle of Wight)
- Beeding Hill (West Sussex Chalk)
- Houndean Bottom (East Sussex Chalk)
- Cornish Farm (East Sussex Chalk)

Groundwater levels were above normal at:

- West Meon (East Hampshire Chalk)
- Harting Common (Western Rother Greensand)

Groundwater levels were notably high at:

- Clanville Gate (Test Chalk)
- Lopcombe Corner (Test Chalk)
- Youngwoods Copse (Isle of Wight)
- Preston Candover (East Hampshire Chalk)
- Chilgrove (West Sussex Chalk)

The notably high groundwater level at Preston Candover was the fourth highest for February in a record going back to 1975.

1.5 Reservoir stocks

End of month reservoir stocks were above average at Ardingly Reservoir (Ouse) and were around average at Arlington Reservoir (Cuckmere). Ardingly Reservoir (Ouse) was at 100% of total capacity (LTA 96%), and Arlington Reservoir (Cuckmere) was at 98% of total capacity (LTA 98.4%).

1.6 Environmental impact

Abstraction licence restrictions:

During February there were a total of two licence restrictions in force, one cessation and one reduced abstraction rate. The cessation was in force on the River Lymington (New Forest) and the reduced abstraction rate restriction was in force on the River Meon (East Hampshire).

Flood Alerts:

During February there were 11 fluvial flood alerts issued in the SSD area. There were 2 flood alerts in Hampshire and 9 in Sussex.

Also, there was 1 groundwater flood alert issued in Hampshire.

Flood Warnings:

During February there were 2 fluvial flood warnings issued in the SSD area. There was 1 flood warning in Hampshire and 1 in Sussex.

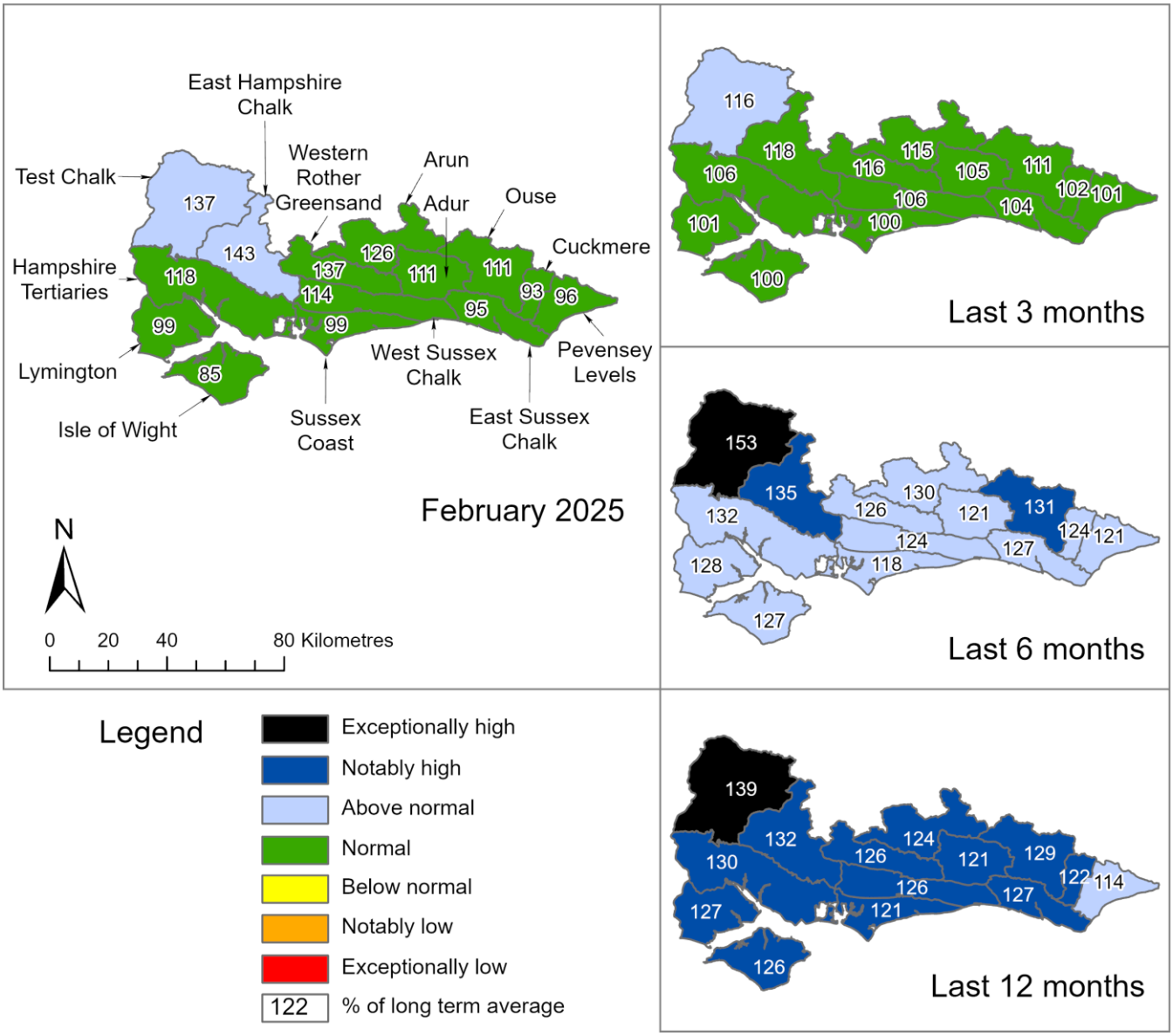
Author: HydrologySSD@environment-agency.gov.uk

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 28 February 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.

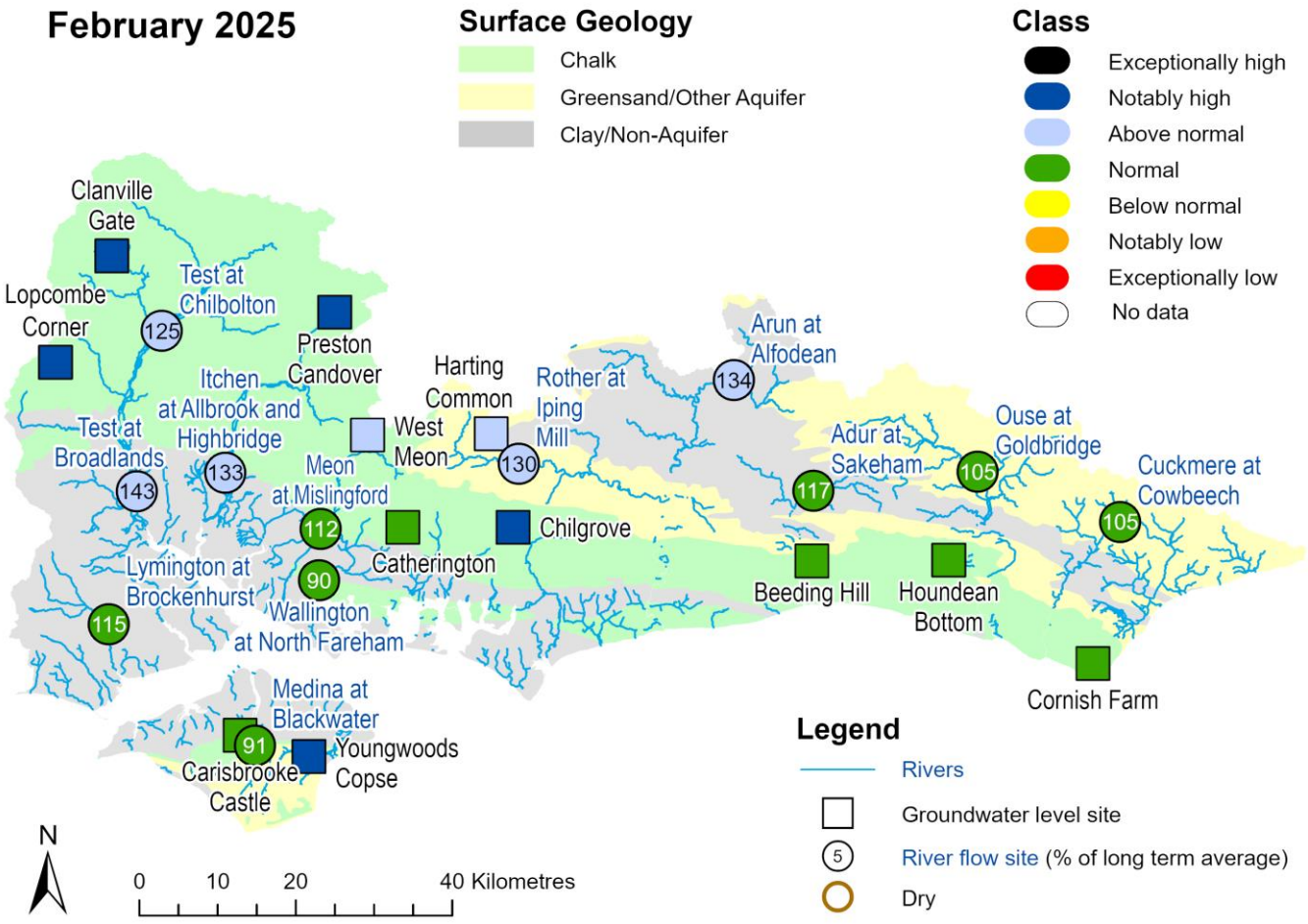


Rainfall data for October 2023 onwards, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, 100024198, 2025). Rainfall data prior to October 2023, extracted from Met Office HadUK 1km gridded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

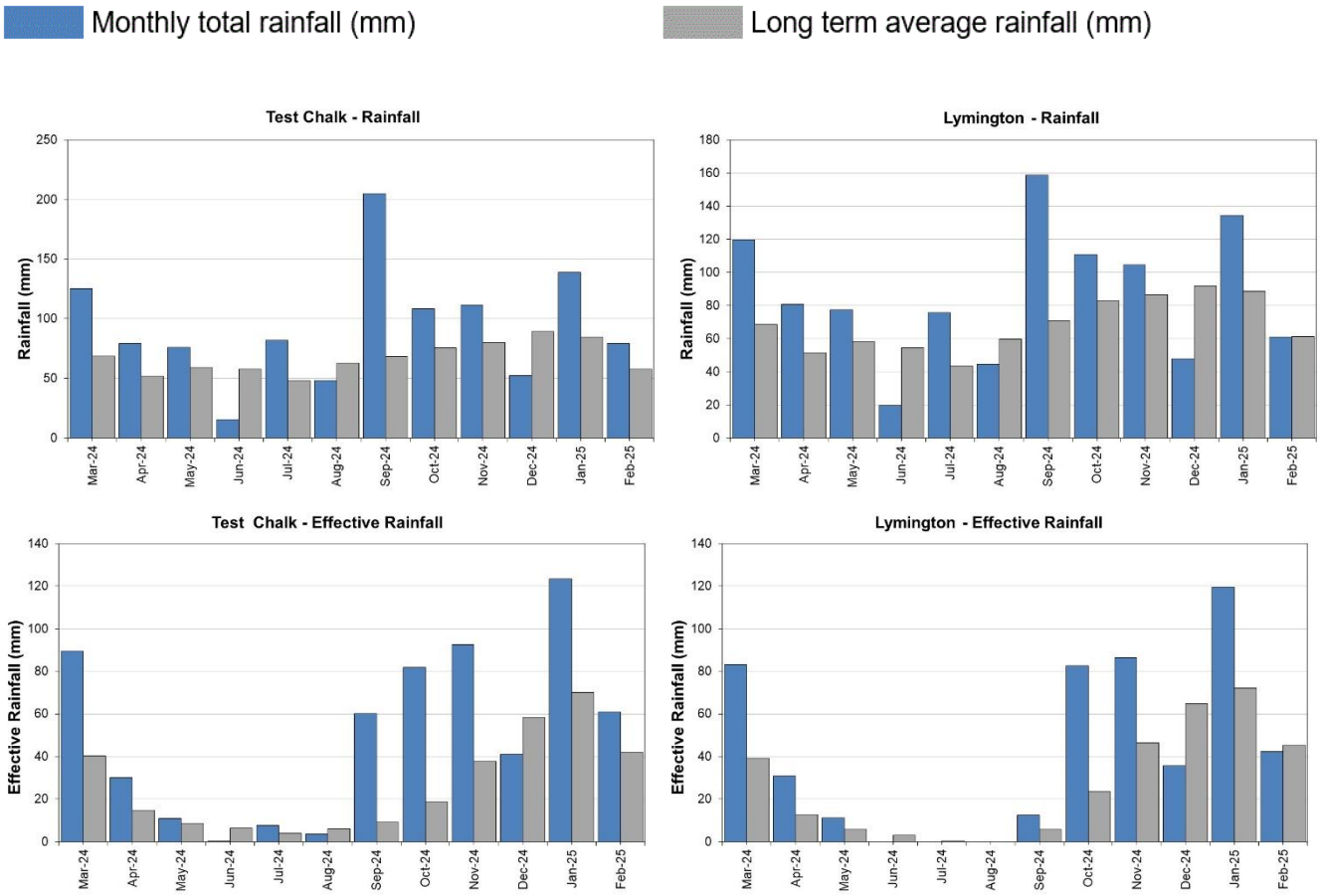


(Source: Environment Agency). Crown copyright. All rights reserved. Environment Agency, 100024198, 2025. Geological map reproduced with kind permission from UK Groundwater Forum, BGS copyright NERC. Crown copyright. All rights reserved. Environment Agency, 100024198, 2025.

4 West Hampshire

4.1 West Hampshire Rainfall and effective rainfall charts

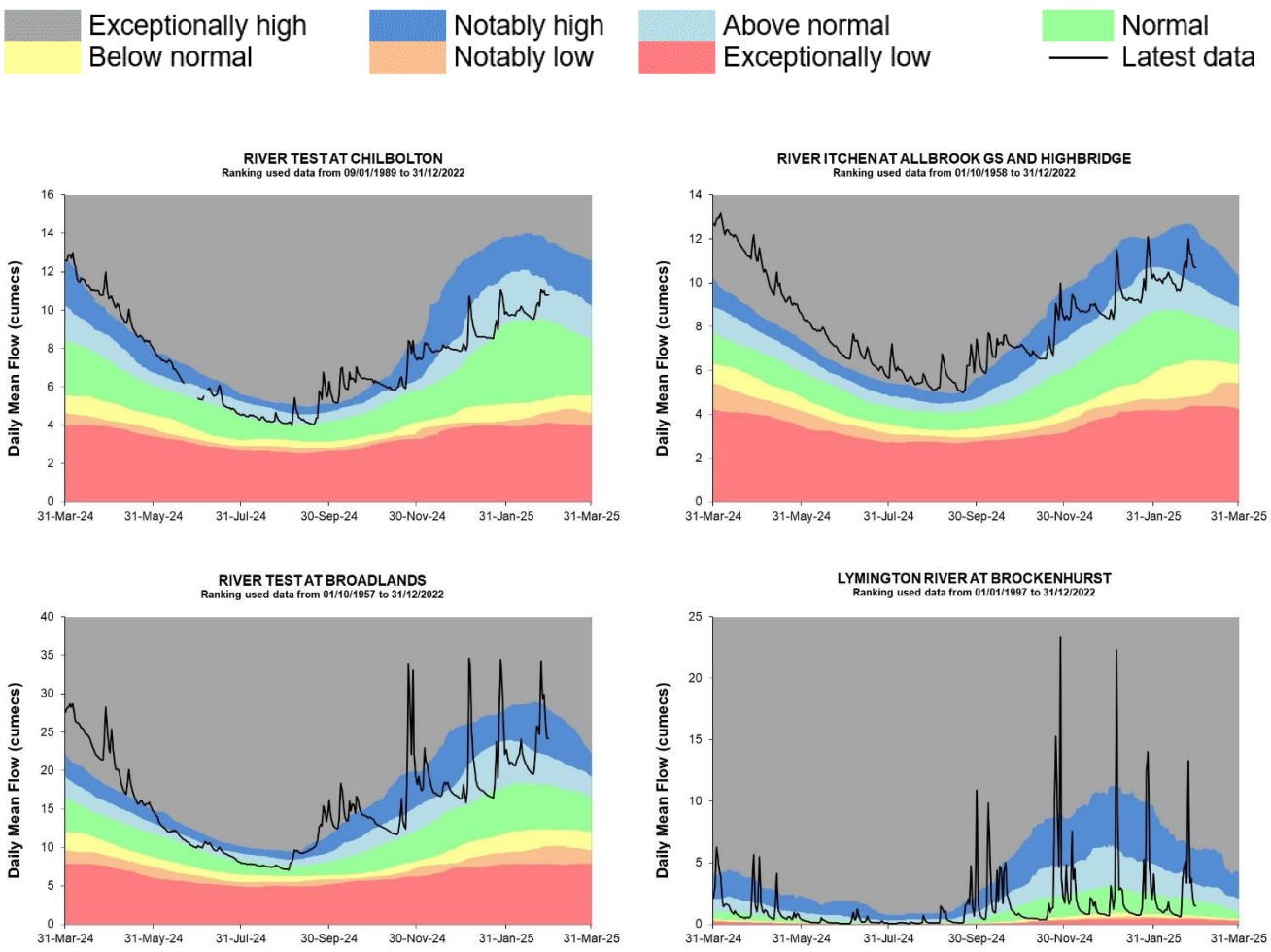
Figure 4.1: Monthly rainfall and effective rainfall totals for the past 12 months compared to the 1961 to 1990 long term average.



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

4.2 West Hampshire River flow charts

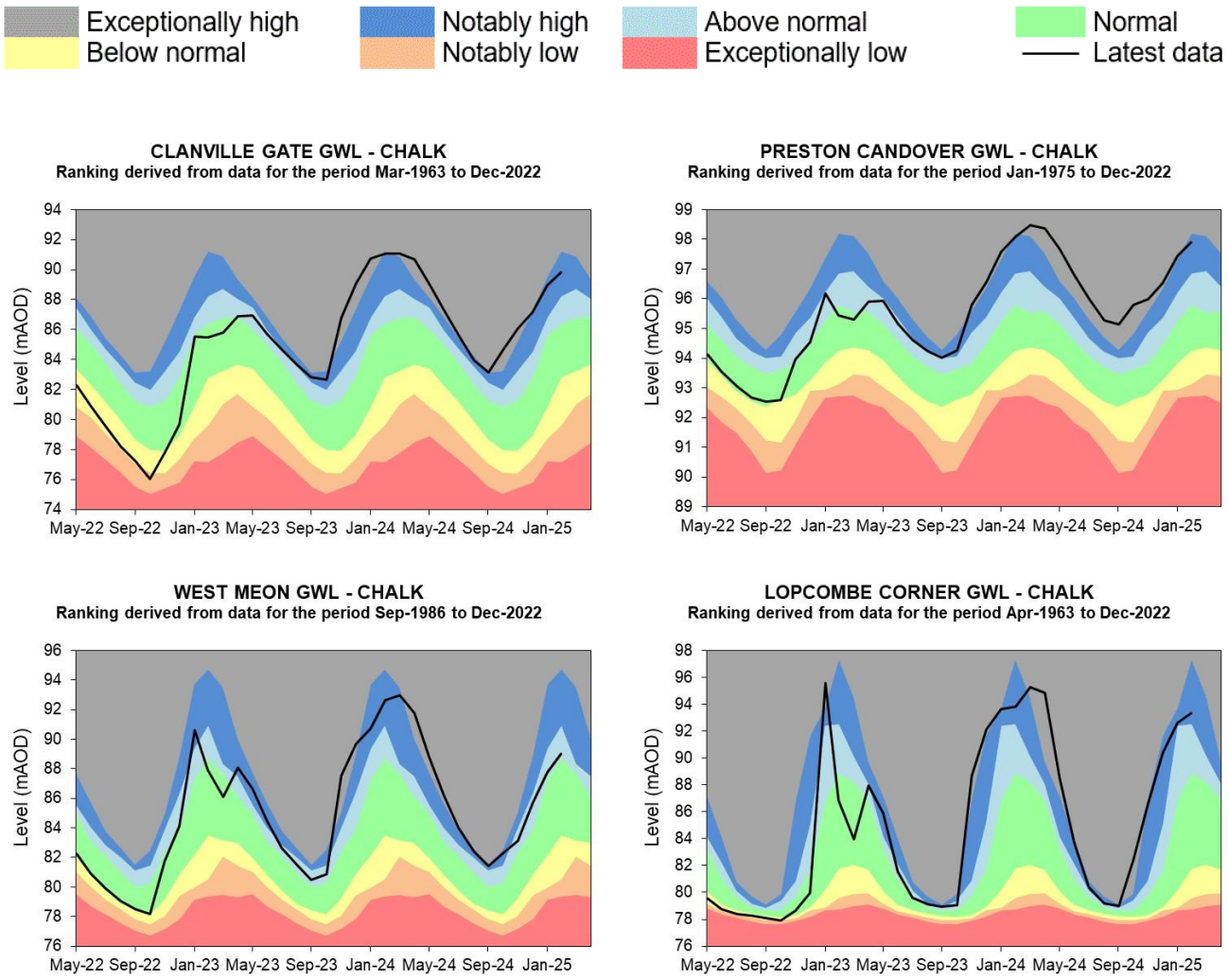
Figure 4.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



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.

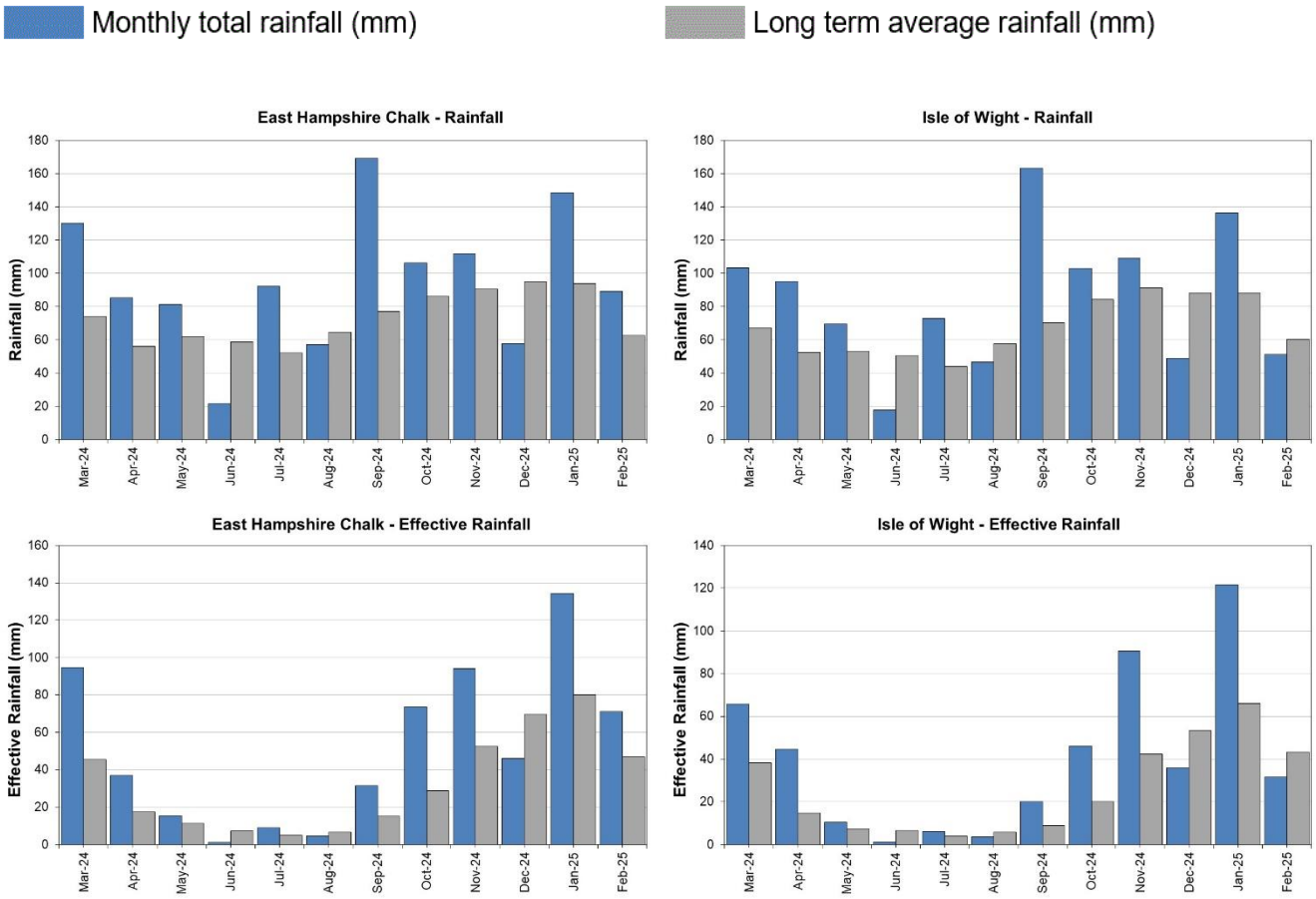


Source: Environment Agency, 2025.

5 East Hampshire and Isle of Wight

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

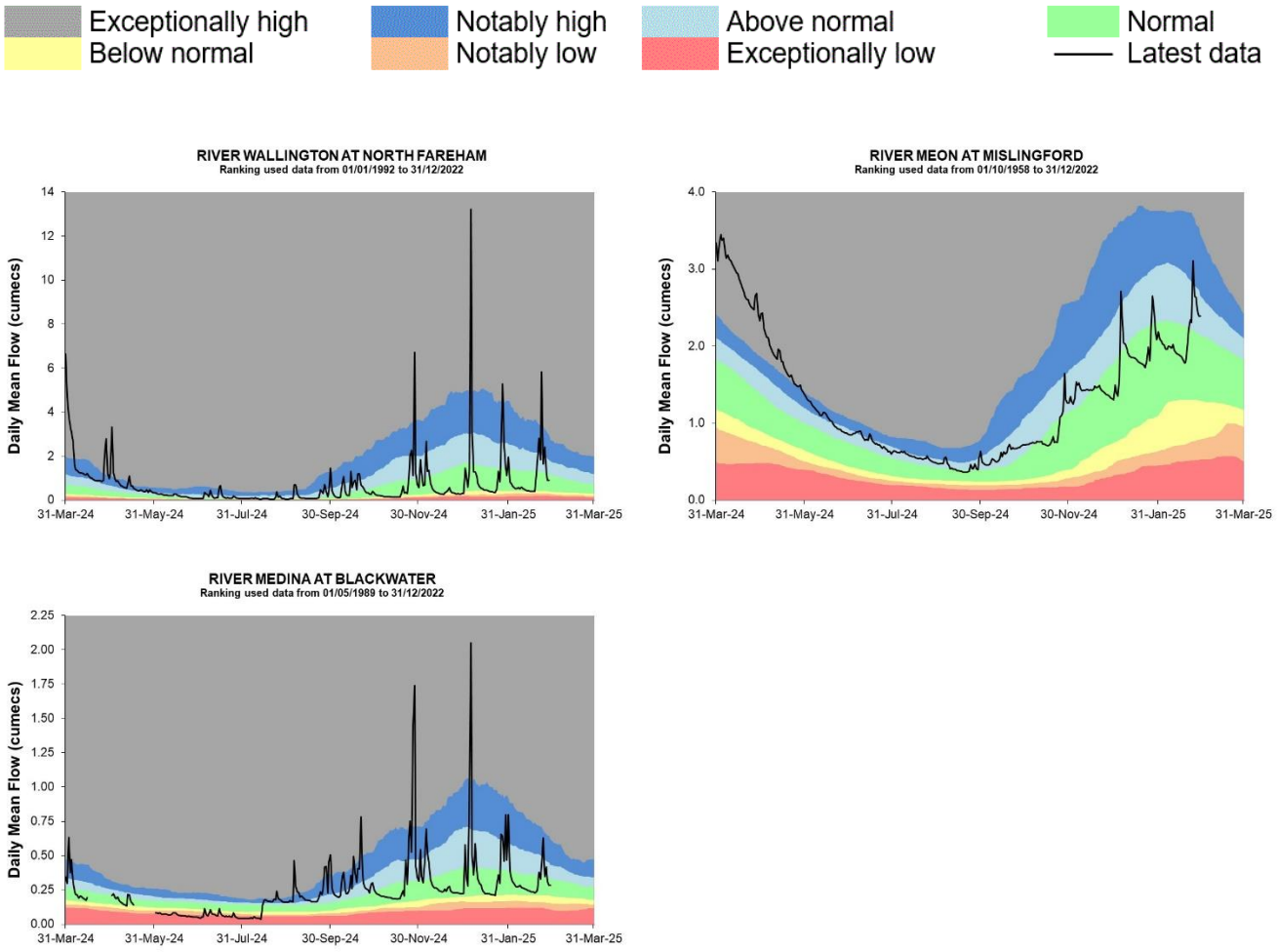
Figure 5.1: Monthly rainfall and effective rainfall totals for the past 12 months compared to the 1961 to 1990 long term average.



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

5.2 East Hampshire and Isle of Wight River flow charts

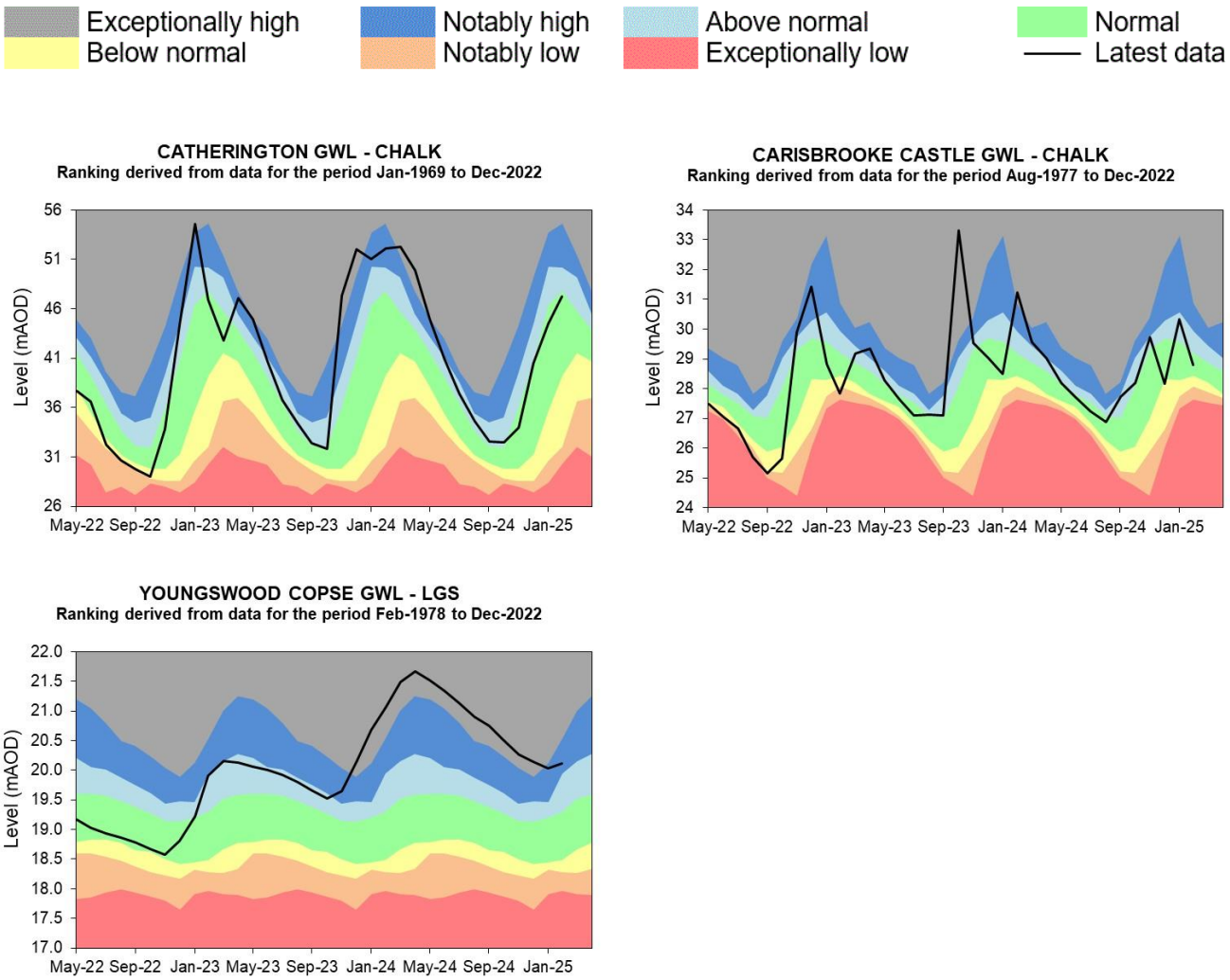
Figure 5.2 Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



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.

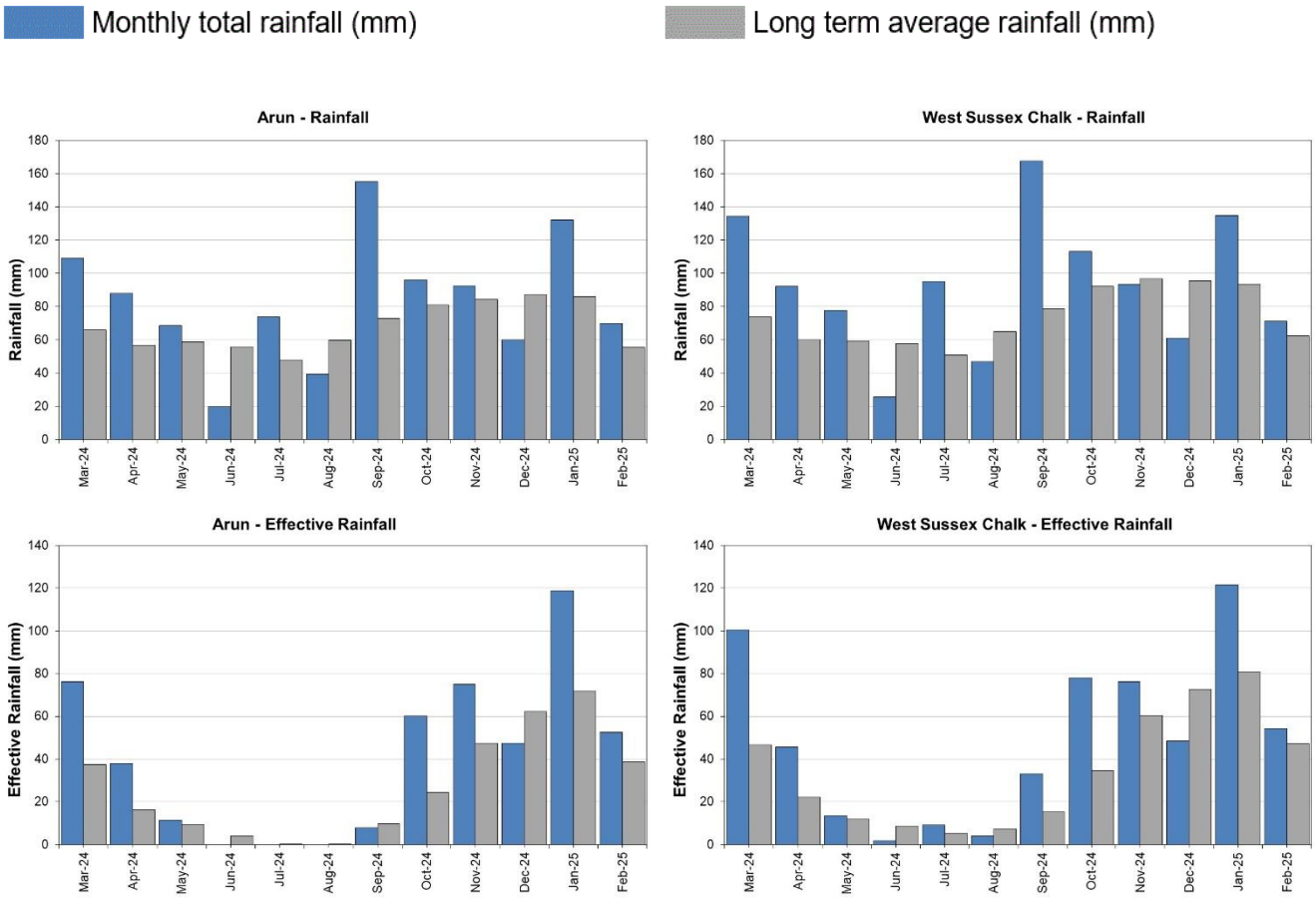


Source: Environment Agency, 2025.

6 West Sussex

6.1 West Sussex Rainfall and Effective Rainfall charts

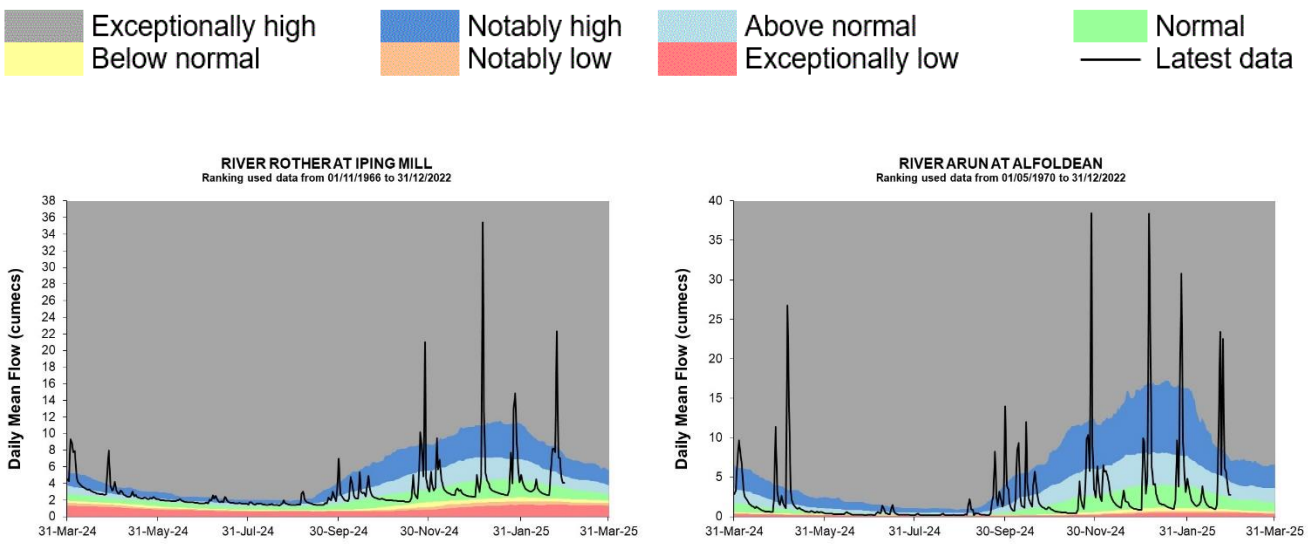
Figure 6.1: Monthly rainfall and effective rainfall totals for the past 12 months as a percentage of the 1961 to 1990 long term average.



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

6.2 West Sussex River flow charts

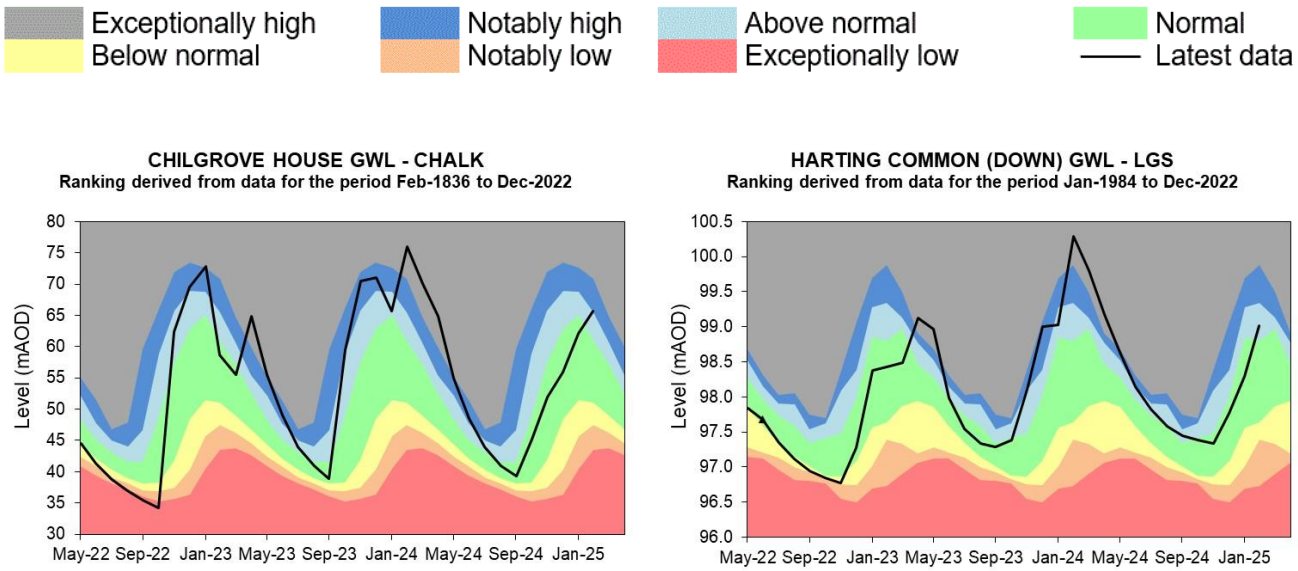
Figure 6.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



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.

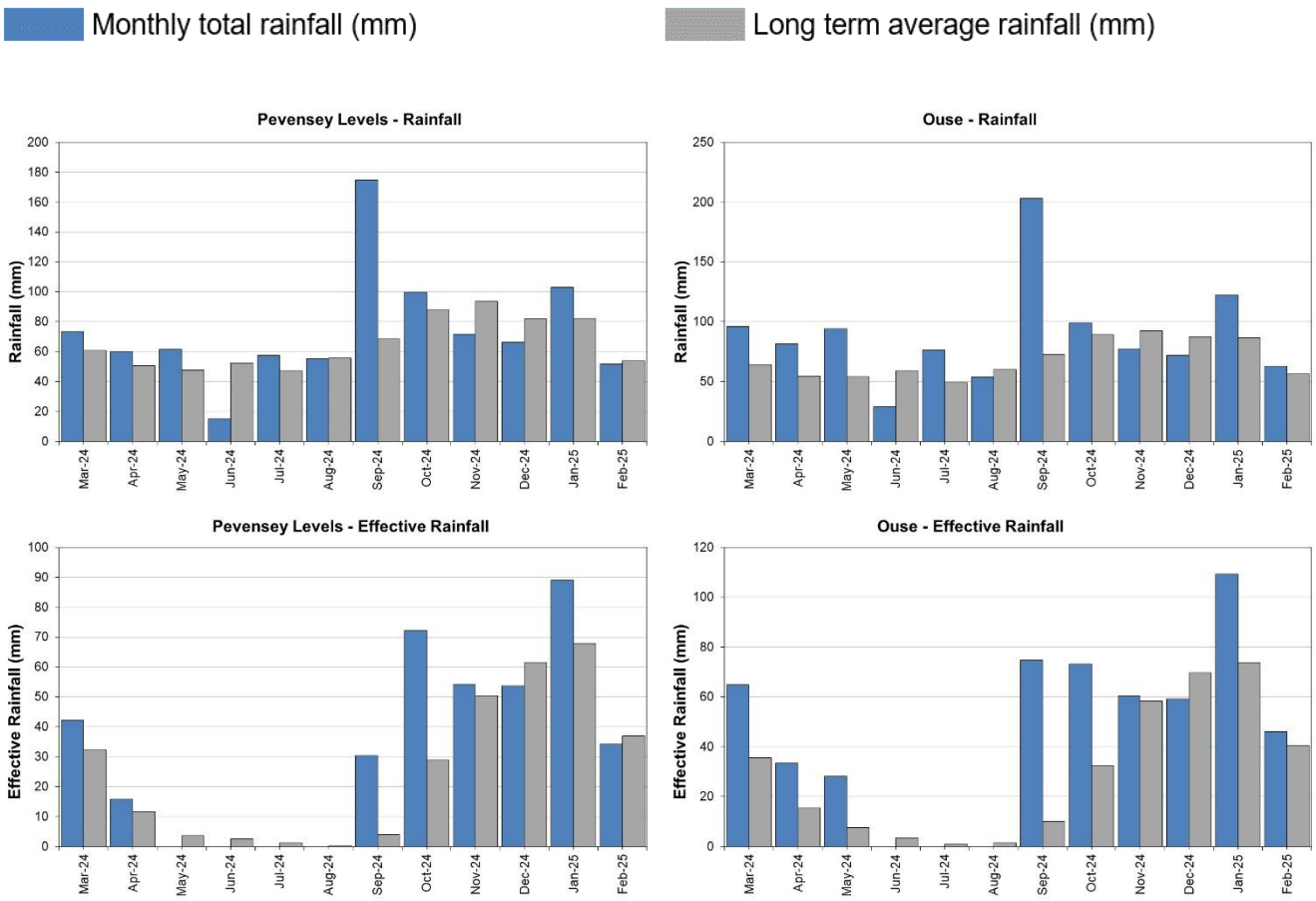


Source: Environment Agency, 2025.

7 East Sussex

7.1 East Sussex Rainfall and Effective Rainfall charts

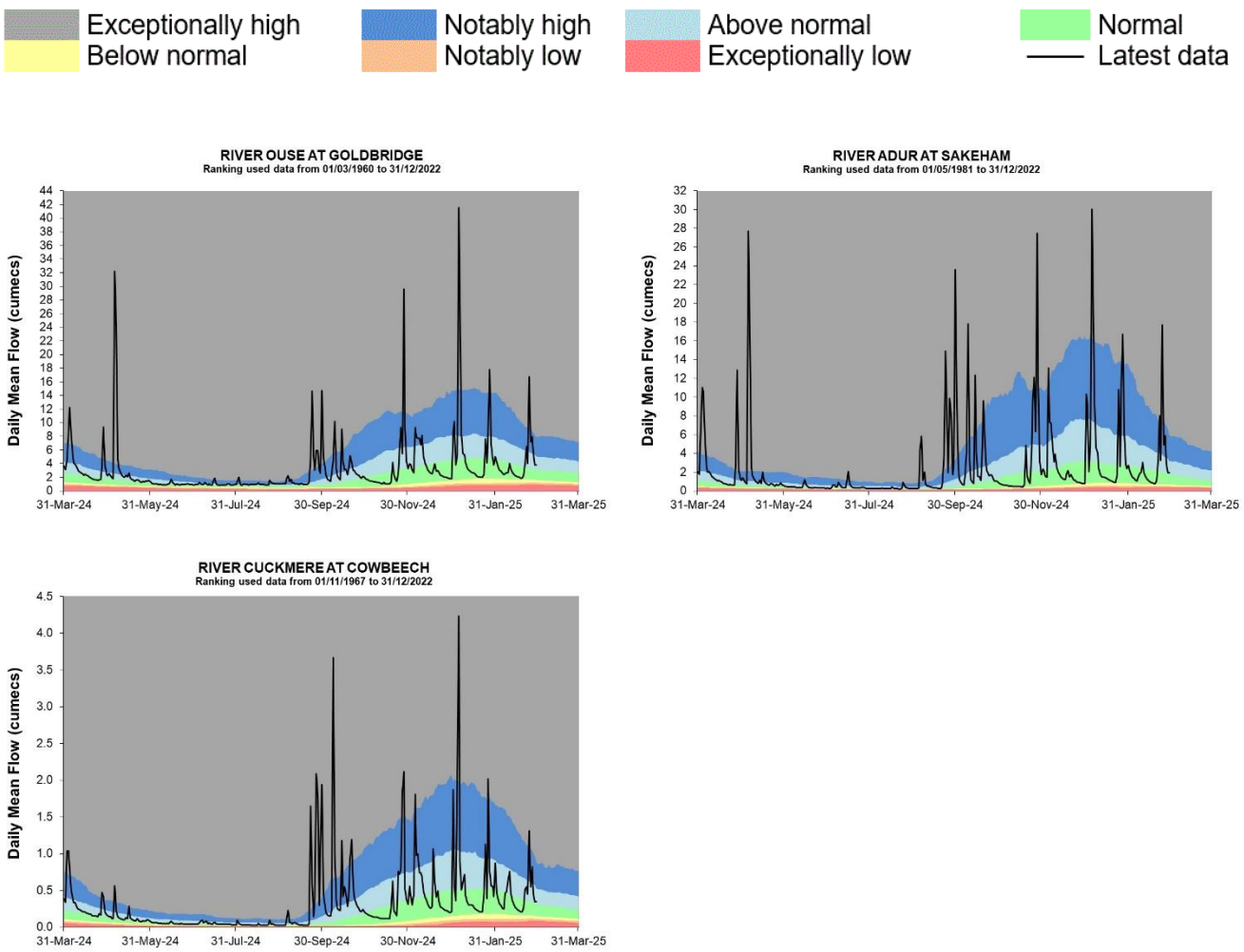
Figure 7.1: Monthly rainfall and effective rainfall totals for the past 12 months compared to the 1961 to 1990 long term average.



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

7.2 East Sussex River flow charts

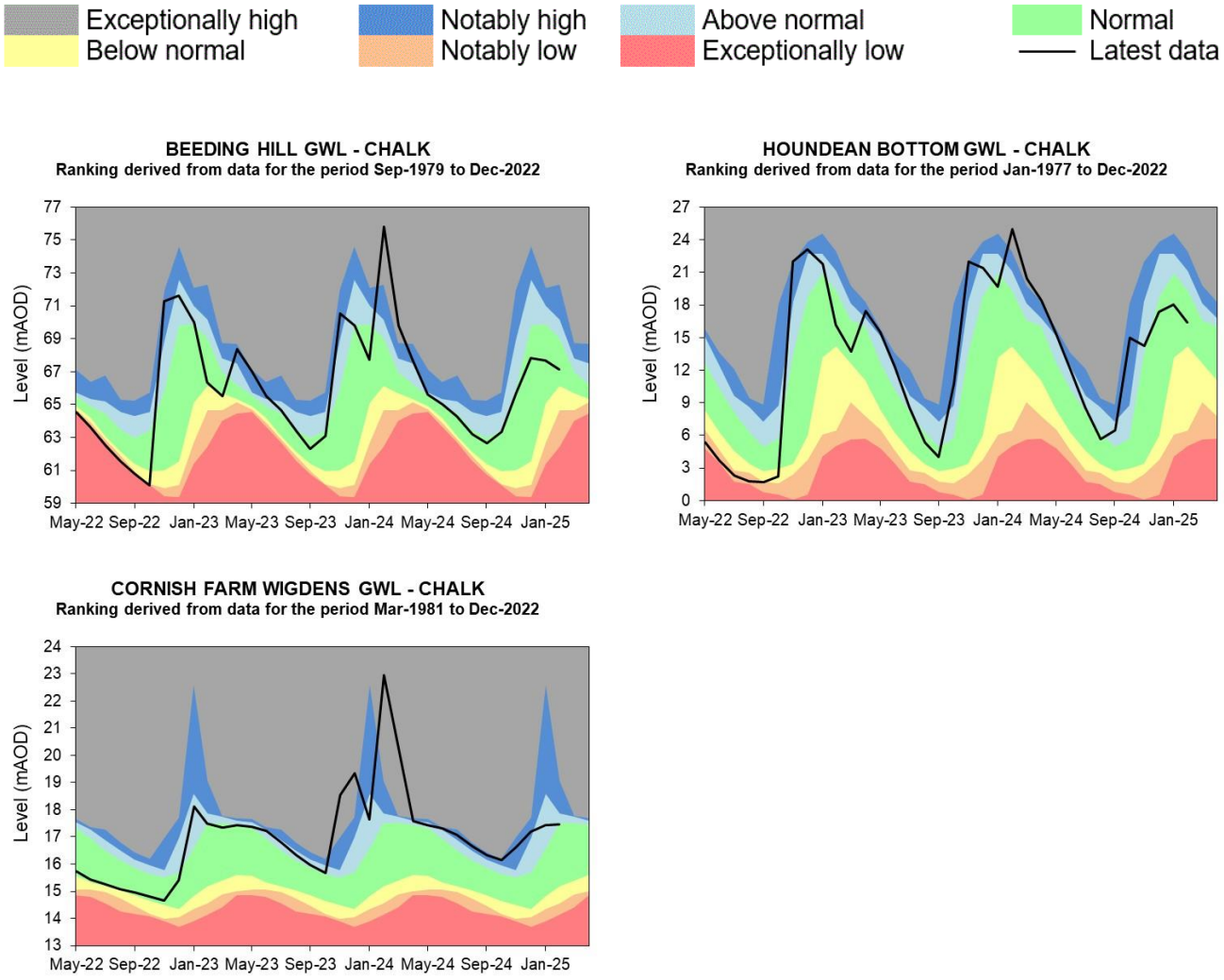
Figure 7.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



Source: Environment Agency, 2025.

7.3 East Sussex Groundwater level charts

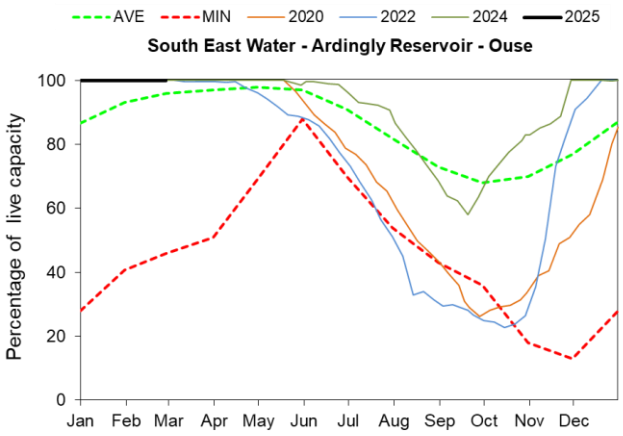
Figure 7.3: End of month groundwater levels at index groundwater level sites for major aquifers. 34 months compared to an analysis of historic end of month levels and long term maximum and minimum levels.

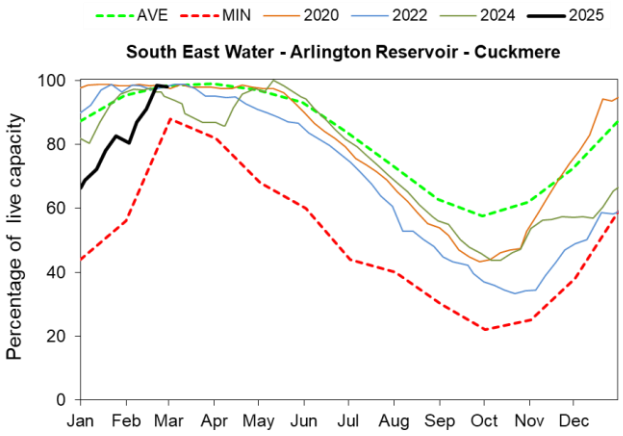


Source: Environment Agency, 2025.

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) 28 day Total	Rainfall February as %LTA	Effective Rainfall (mm) 28 day Total	Effective Rainfall February as %LTA	Soil Moisture Deficit (SMD) Day 28	SMD End of February LTA
Test Chalk	79	136%	61	144%	1	3
East Hampshire Chalk	89	143%	71	151%	1	2
West Sussex Chalk	71	114%	54	115%	1	2
East Sussex Chalk	54	95%	37	91%	1	3
Isle of Wight	51	85%	32	73%	1	3
Western Rother Greensand	88	137%	71	146%	2	2
Hampshire Tertiaries	70	118%	51	120%	2	3
Lymington	61	99%	42	93%	2	3
Sussex Coast	51	100%	32	97%	2	3
Arun	70	127%	53	136%	2	2
Adur	61	110%	44	112%	2	2
Ouse	63	112%	46	114%	1	2
Cuckmere	51	93%	34	87%	1	2
Pevensey Levels	52	96%	34	93%	1	3
SSD Average	65	112%	47	113%	1	3

10.2 Seasonal summary table of rainfall and effective rainfall

Winter season: 01/10/2024 to 28/02/2025

Hydrological Area	Seasonal Rainfall (mm) Total	Seasonal Rainfall as % LTA	Seasonal Effective Rainfall (mm) Total	Seasonal Effective Rainfall as % LTA
Test Chalk	489	126%	400	176%
East Hampshire Chalk	513	120%	419	151%
West Sussex Chalk	473	107%	378	128%
East Sussex Chalk	429	101%	342	129%
Isle of Wight	448	109%	326	145%
Western Rother Greensand	513	114%	404	134%
Hampshire Tertiaries	454	115%	359	156%
Lymington	458	111%	367	145%
Sussex Coast	378	104%	239	128%
Arun	450	115%	354	145%
Adur	413	103%	327	127%
Ouse	433	105%	348	127%
Cuckmere	404	99%	320	116%
Pevensey Levels	392	98%	304	123%
SSD Average	446	109%	349	137%

10.3 Rainfall banding table

Hydrological area	Feb 2025 band	Dec 2024 to Feb 2025 cumulative band	Sep 2024 to Feb 2025 cumulative band	Mar 2024 to Feb 2025 cumulative band
Test Chalk	Above normal	Above normal	Exceptionally high	Exceptionally high
East Hampshire Chalk	Above normal	Normal	Notably high	Notably high
West Sussex Chalk	Normal	Normal	Above normal	Notably high
East Sussex Chalk	Normal	Normal	Above normal	Notably high
Isle of Wight	Normal	Normal	Above normal	Notably high
Western Rother Greensand	Normal	Normal	Above normal	Notably high
Hampshire Tertiaries	Normal	Normal	Above normal	Notably high
Lymington	Normal	Normal	Above normal	Notably high
Sussex Coast	Normal	Normal	Above normal	Notably high
Arun	Normal	Normal	Above normal	Notably high
Adur	Normal	Normal	Above normal	Notably high
Ouse	Normal	Normal	Notably high	Notably high
Cuckmere	Normal	Normal	Above normal	Notably high
Pevensey Levels	Normal	Normal	Above normal	Above normal

10.4 River flows table

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

10.5 Groundwater table

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

10.6 Abstraction licence flow constraints

Number of flow constraints in force between 1 to 10 February 2025	Number of flow constraints in force between 11 to 17 February 2025	Number of flow constraints in force between 18 to 24 February 2025	Number of flow constraints in force between 25 to 28 February 2025
0	0	2	0

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**