Monthly water situation report: Solent and South Downs Area

Summary - January 2025

Solent and South Downs (SSD) had above average rainfall in January, receiving 146% (127mm) of the LTA (87.3mm). Monthly mean river flows across SSD ranged from normal to notably high and the end of month groundwater levels ranged from normal to exceptionally high. Soils across SSD ended the month wetter than the average for January. End of month reservoir stock was above average at Ardingly Reservoir (Ouse) and was below average at Arlington Reservoir (Cuckmere).

1.1 Rainfall

SSD had above average rainfall in January, receiving 146% (127mm) of the LTA (87.3mm). The areal units in Hampshire received higher rainfall, than those in Sussex. The Test Chalk areal unit in the west of SSD received the highest rainfall with 163% (139mm) of LTA (84.4mm). While the Pevensey Levels areal unit on the eastern coast received the lowest rainfall with 125% (103mm) of LTA (82.2mm).

The New Year started very wet, about 50% of the month's rainfall fell between the 1 and 8 January. The wettest day of the month was 4 January, when over 20% of the month's rainfall fell in one day, also the SSD highest daily rainfall totals of January were recorded on this day:

- 41.3mm at Duncton RG (Western Rother Greensand)
- 40.0mm at Chilgrove House RG (West Sussex Chalk)
- 37.8mm at Walderton RG (West Sussex Chalk)

The middle of the month, between 9 and 20 January, was mostly dry for 12 consecutive days.

The other half of the month's rainfall fell between 21 and 31 January. During this period, the first named storm of 2025, Storm Éowyn, hit the UK between 23 and 24 January. While the main impacts from the storm were due to the wind, it also brought some very wet weather, with high daily rainfall totals on 26 January:

- 37.6mm at Testwood TBR (Hampshire Tertiaries)
- 36.3mm at Broughton RG (Test Chalk)

The last 12 months (February to January) has been the fifth wettest on record for SSD. The Test Chalk areal unit recorded their second wettest, and the East Sussex Chalk units its fourth wettest 12-month period. All the SSD areal units recorded rainfall in the top 10 wettest on record in the last 12 months.

Over the longer time periods, 18-month and 24 month running totals remain exceptionally high and were the wettest on record for SSD. These periods were also the wettest for: Test Chalk, East Hampshire Chalk, Isle of Wight, Hampshire Tertiaries and Lymington areal units.

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 (0mm) than the LTA for January (1mm)

1.3 River flows

Monthly mean river flows across SSD ranged from normal to notably high.

Flows were normal on the:

- River Meon at Mislingford
- River Wallington at North Fareham
- River Medina at Blackwater

Flows were above normal on the:

- River Test at Chilbolton
- River Test at Broadlands
- River Itchen at Allbrook and Highbridge
- River Rother at Iping Mill
- River Ouse at Goldbridge
- River Cuckmere at Cowbeech

Flows were notably high on the:

- River Lymington at Brockenhurst
- River Arun at Alfoldean
- River Adur at Sakeham

The monthly mean flows for January were the seventh highest on record for the River Arun at Alfoldean (1970) and River Adur at Sakeham (1967). Also, for the River Test at Chilbolton (1989) and the River Lymington at Brockenhurst (1960), the monthly mean flows were the 10th highest on record.

1.4 Groundwater levels

End of month groundwater levels for January ranged from normal to exceptionally high.

Groundwater levels were normal at:

- Catherington (East Hampshire Chalk)
- Harting Common (Western Rother Greensand)
- Chilgrove (West Sussex Chalk)
- Beeding Hill (West Sussex Chalk)
- Houndean Bottom (East Sussex Chalk)

Groundwater levels were above normal at:

- Carisbrooke Castle (Isle of Wight)
- West Meon (East Hampshire Chalk)
- Cornish Farm (East Sussex Chalk)

Groundwater levels were notably high at:

- Clanville Gate (Test Chalk)
- Lopcombe Corner (Test Chalk)
- Youngwoods Copse (Isle of Wight)

Groundwater levels were exceptionally high at:

- Preston Candover (East Hampshire Chalk)

The exceptionally high groundwater levels for January were the fourth highest at Preston Candover (1975). The notably high levels for January were the fifth highest at Youngwoods Copse (1978), and sixth highest at Clanville Gate (1966).

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 100% of total capacity (LTA 93%), and Arlington Reservoir (Cuckmere) was at 82.6% of total capacity (LTA 95.4%).

1.6 Environmental impact

Abstraction licence restrictions:
During January 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 January there were 42 fluvial flood alerts issued in the SSD area. In Hampshire 15, on the Isle of Wight 4, and in Sussex 23 fluvial flood alerts were issued.
Also, there were 4 groundwater flood alerts issued in the SSD area; all in Hampshire.

Flood Warnings:
During January there were 15 fluvial flood warnings issued in the SSD area. In Hampshire 5, on the Isle of Wight 1, and in Sussex 9 fluvial flood warnings were issued.

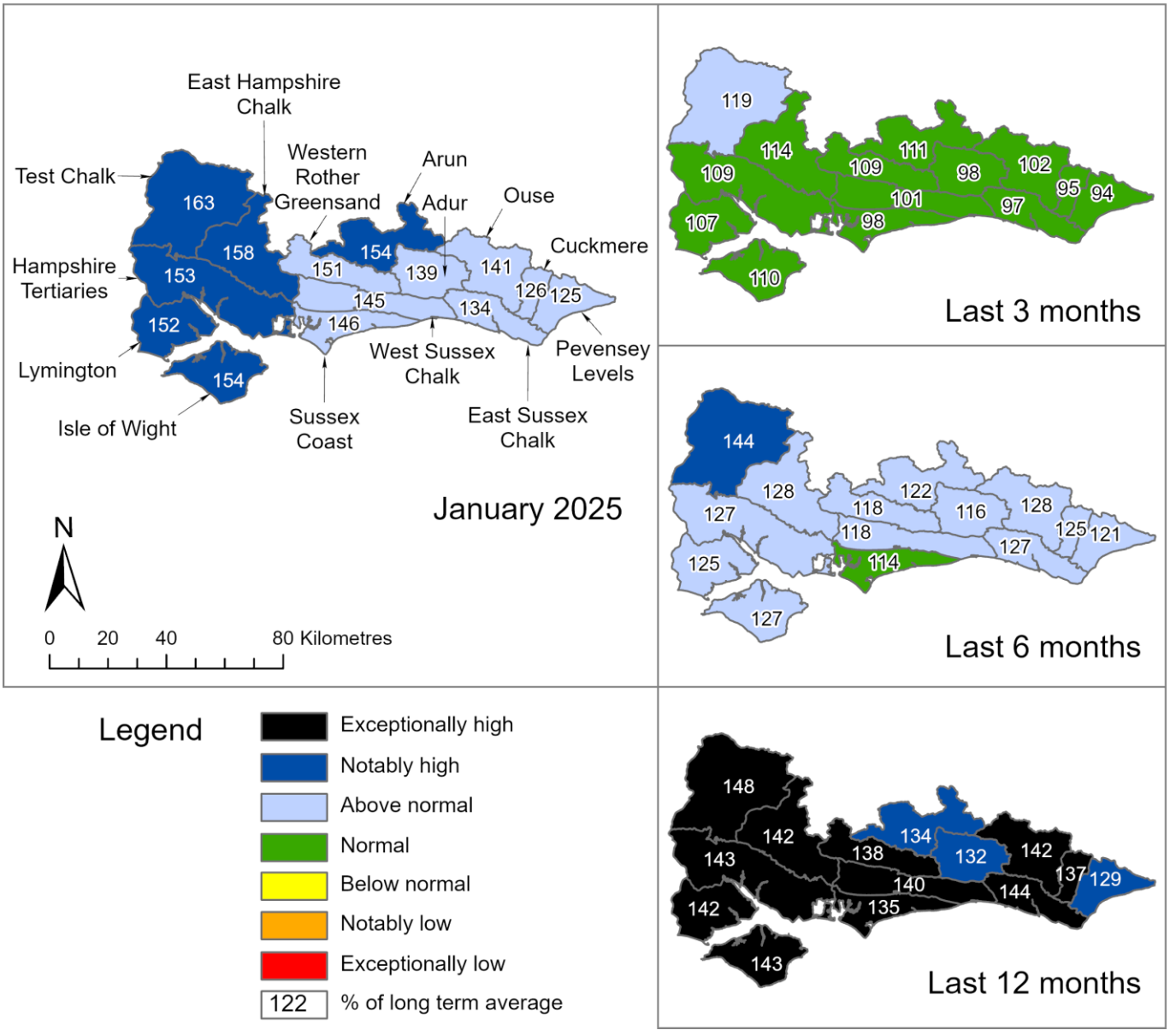
Author: HydrologySSD@environment-agency.gov.uk

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 31 January 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.

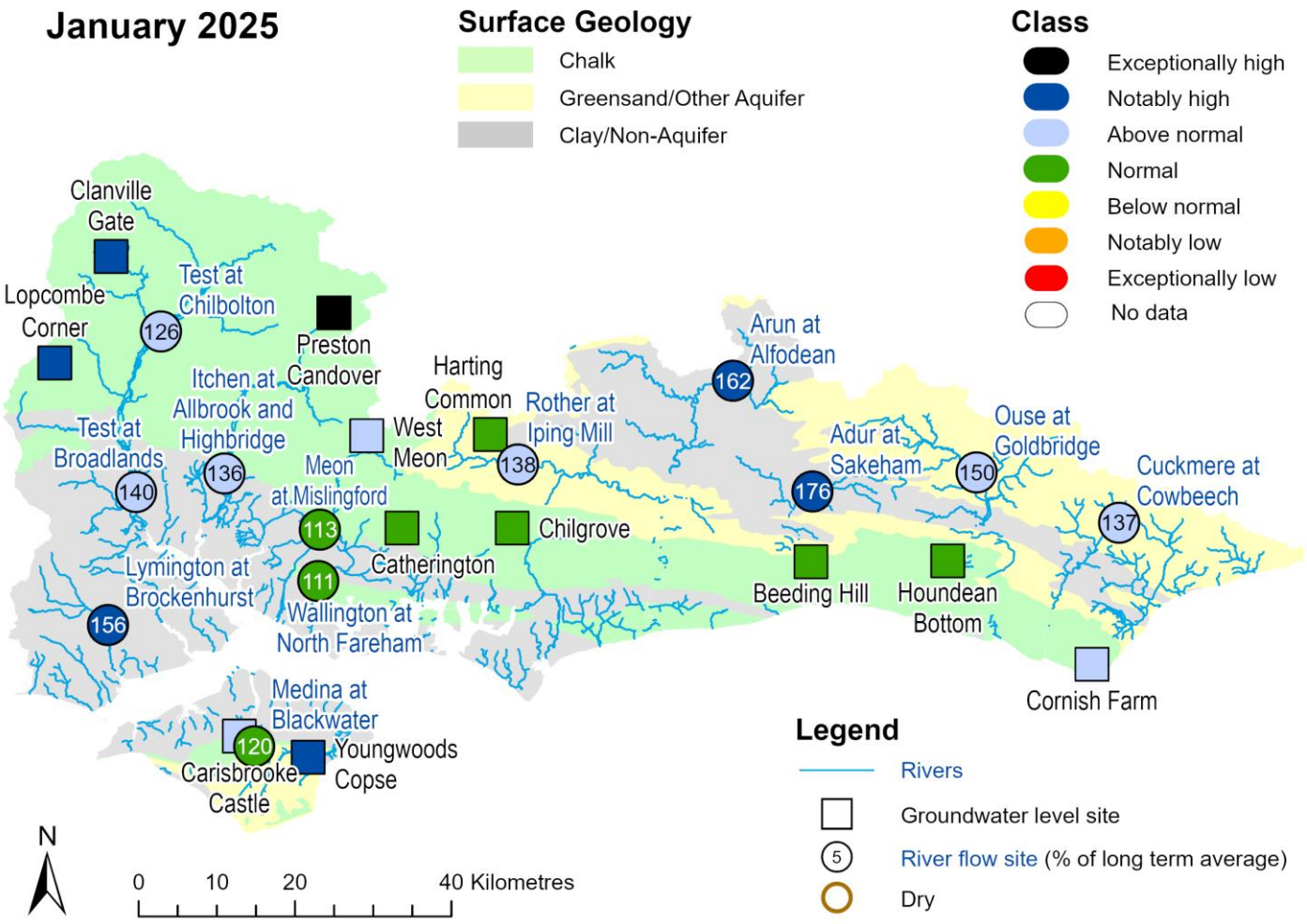


Rainfall data for October 2023 onwards, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, 100024198, 2025). Rainfall data prior to October 2023, extracted from Met Office HadUK 1km gridded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

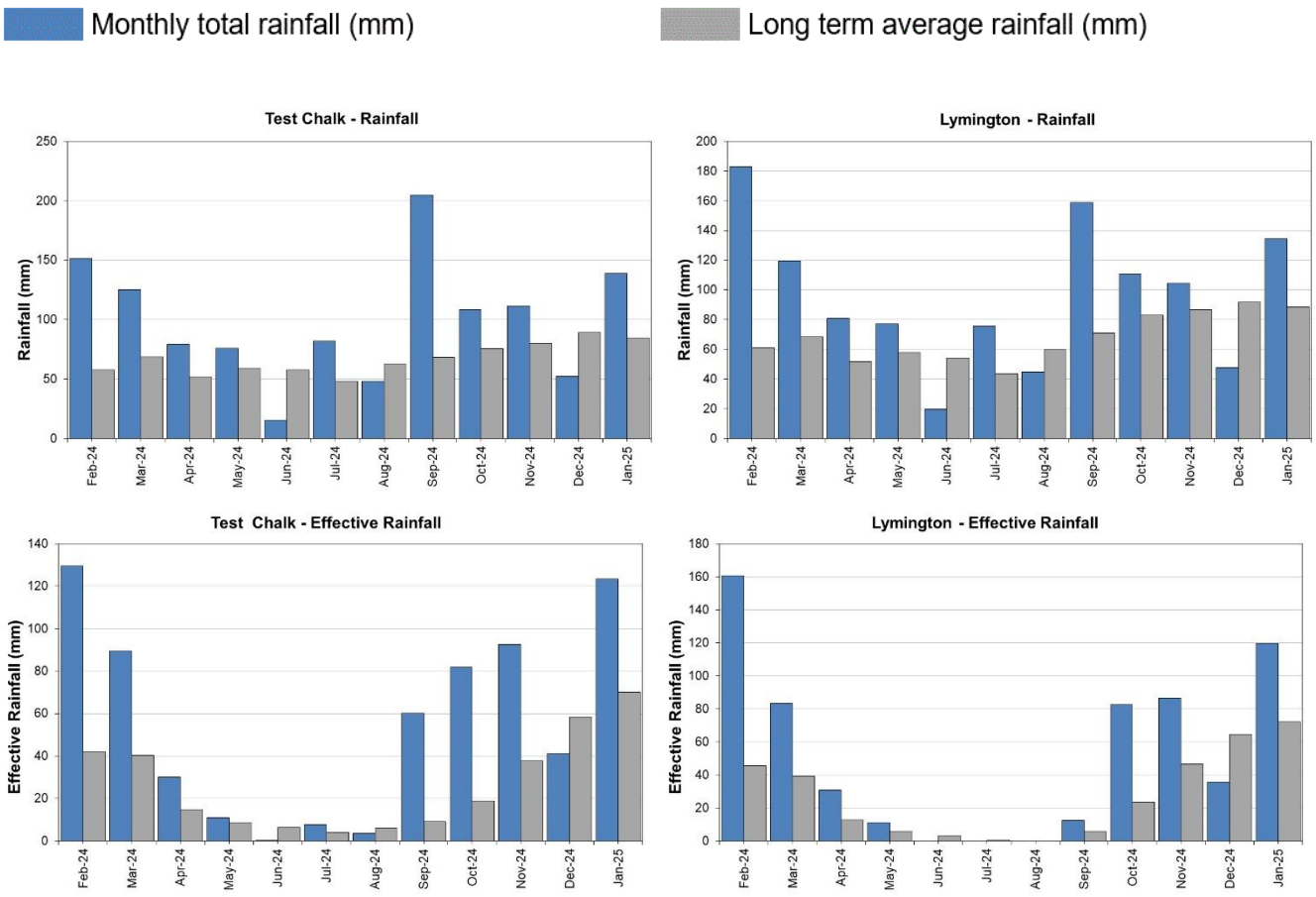
Figure 3.1: Monthly mean river flow and groundwater levels at our indicator sites for January 2025, expressed as a percentage of the respective long term average and classed relative to an analysis of historic January monthly means. Table available in the appendices with detailed information.



4 West Hampshire

4.1 West Hampshire Rainfall and effective rainfall charts

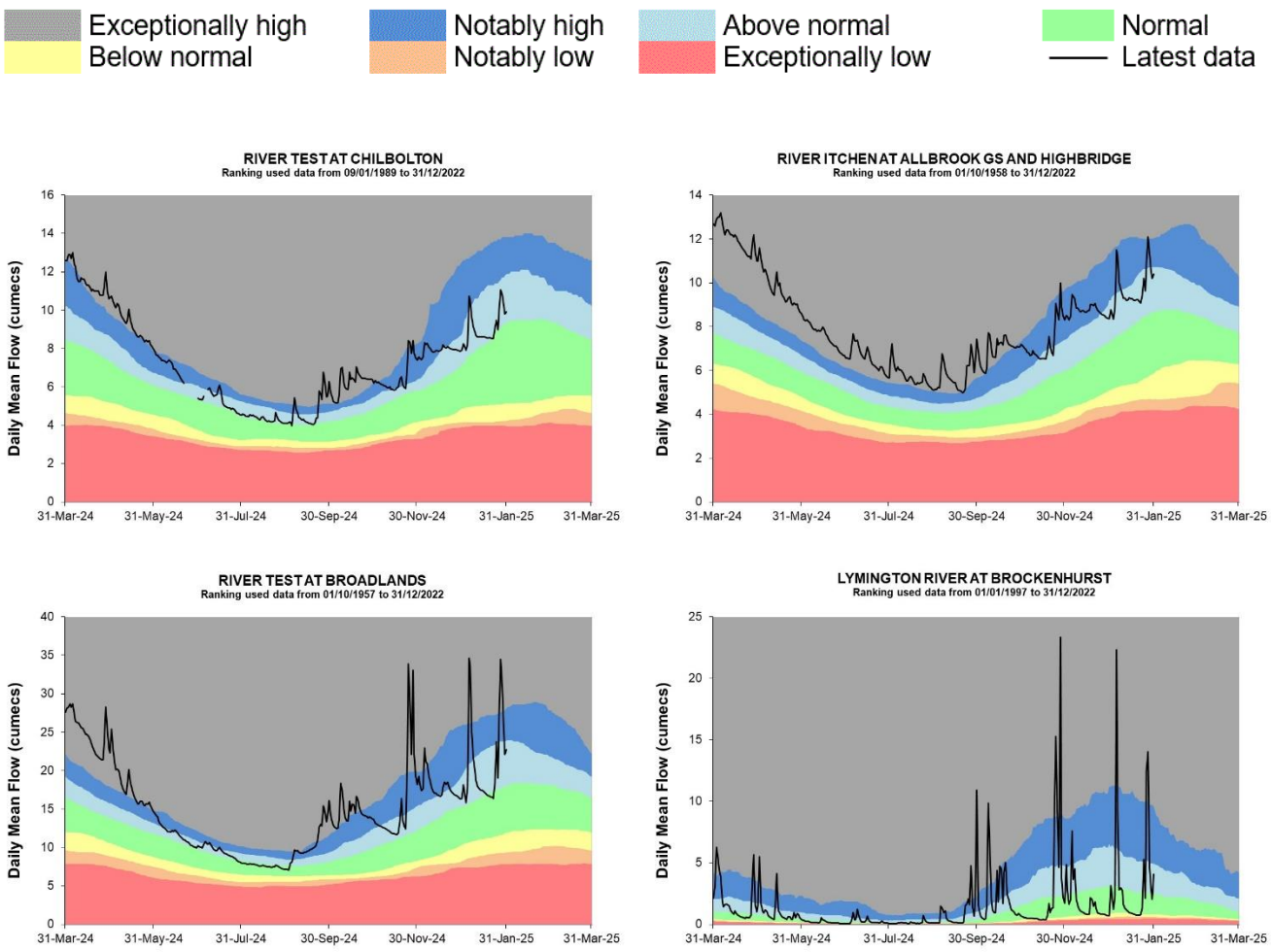
Figure 4.1: Monthly rainfall and effective rainfall totals for the past 12 months compared to the 1961 to 1990 long term average.



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

4.2 West Hampshire River flow charts

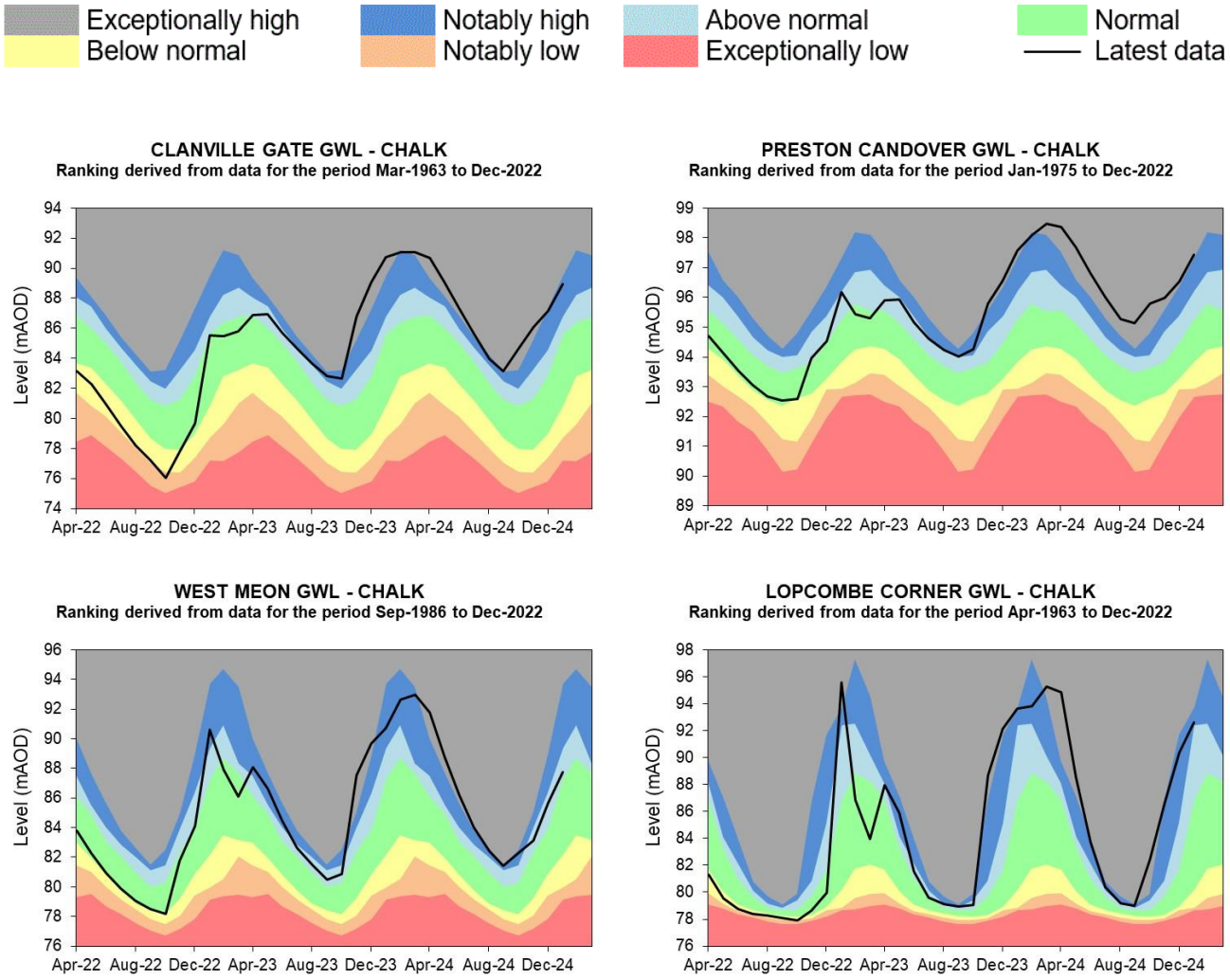
Figure 4.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



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.

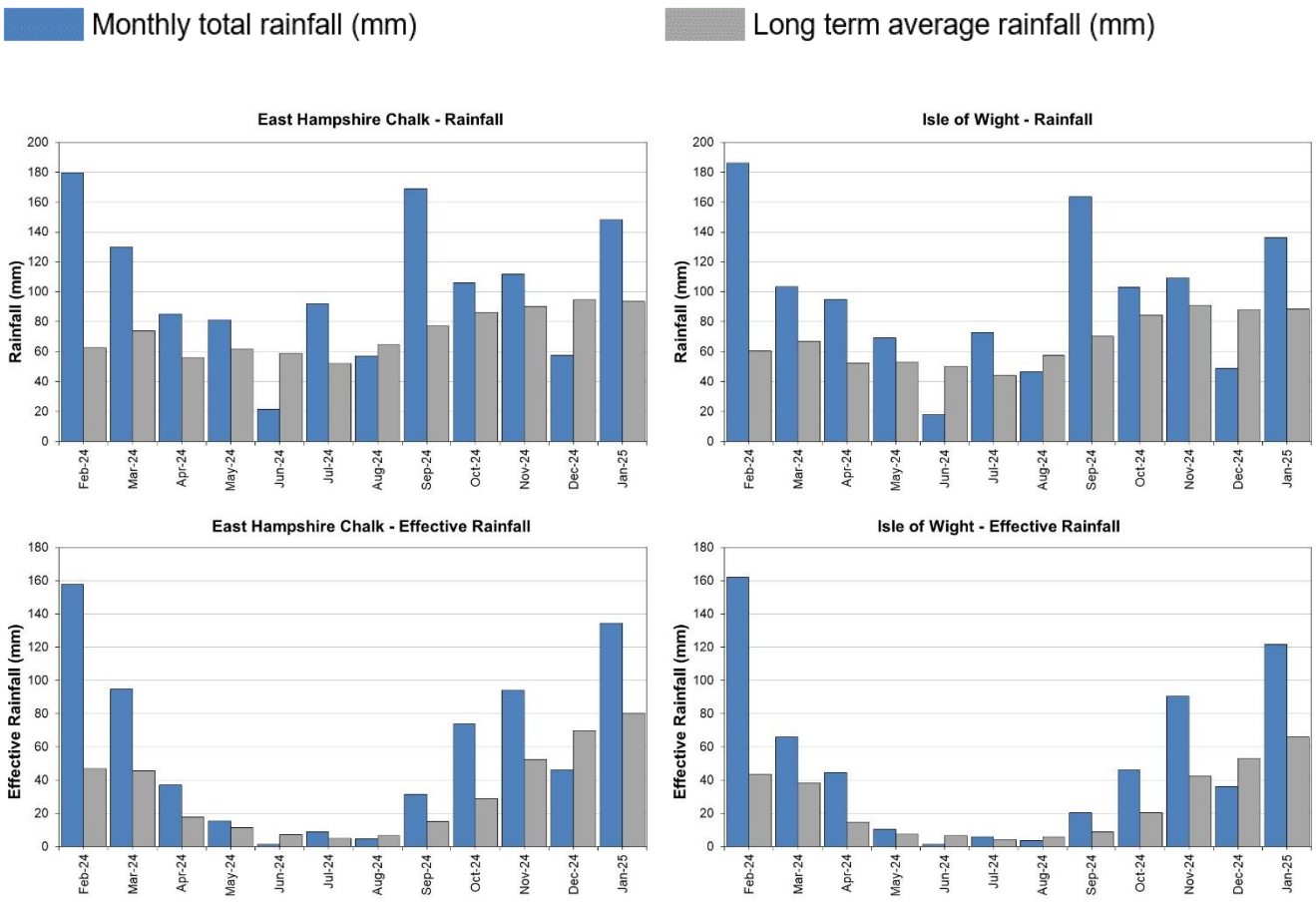


Source: Environment Agency, 2025.

5 East Hampshire and Isle of Wight

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

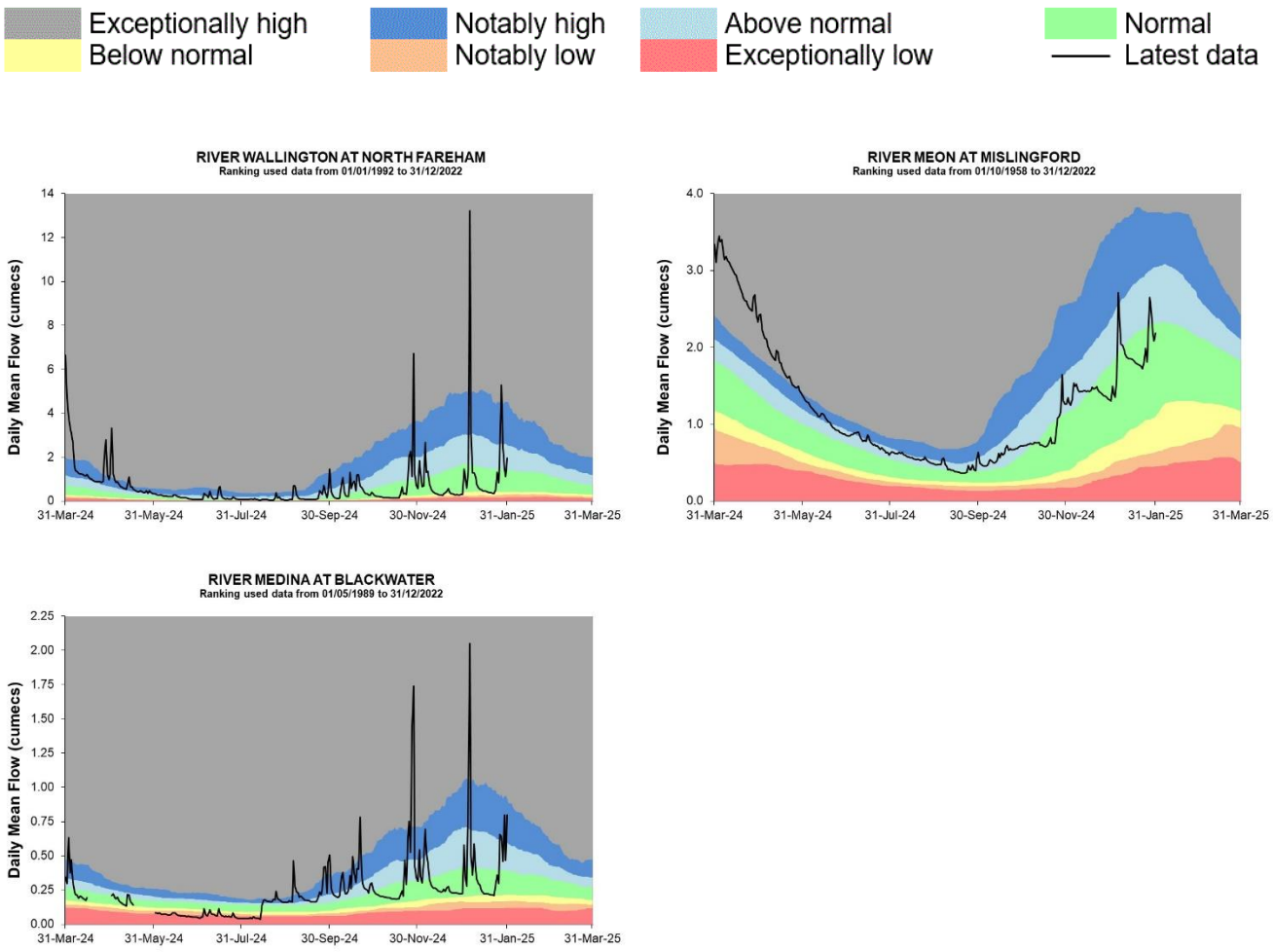
Figure 5.1: Monthly rainfall and effective rainfall totals for the past 12 months compared to the 1961 to 1990 long term average.



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

5.2 East Hampshire and Isle of Wight River flow charts

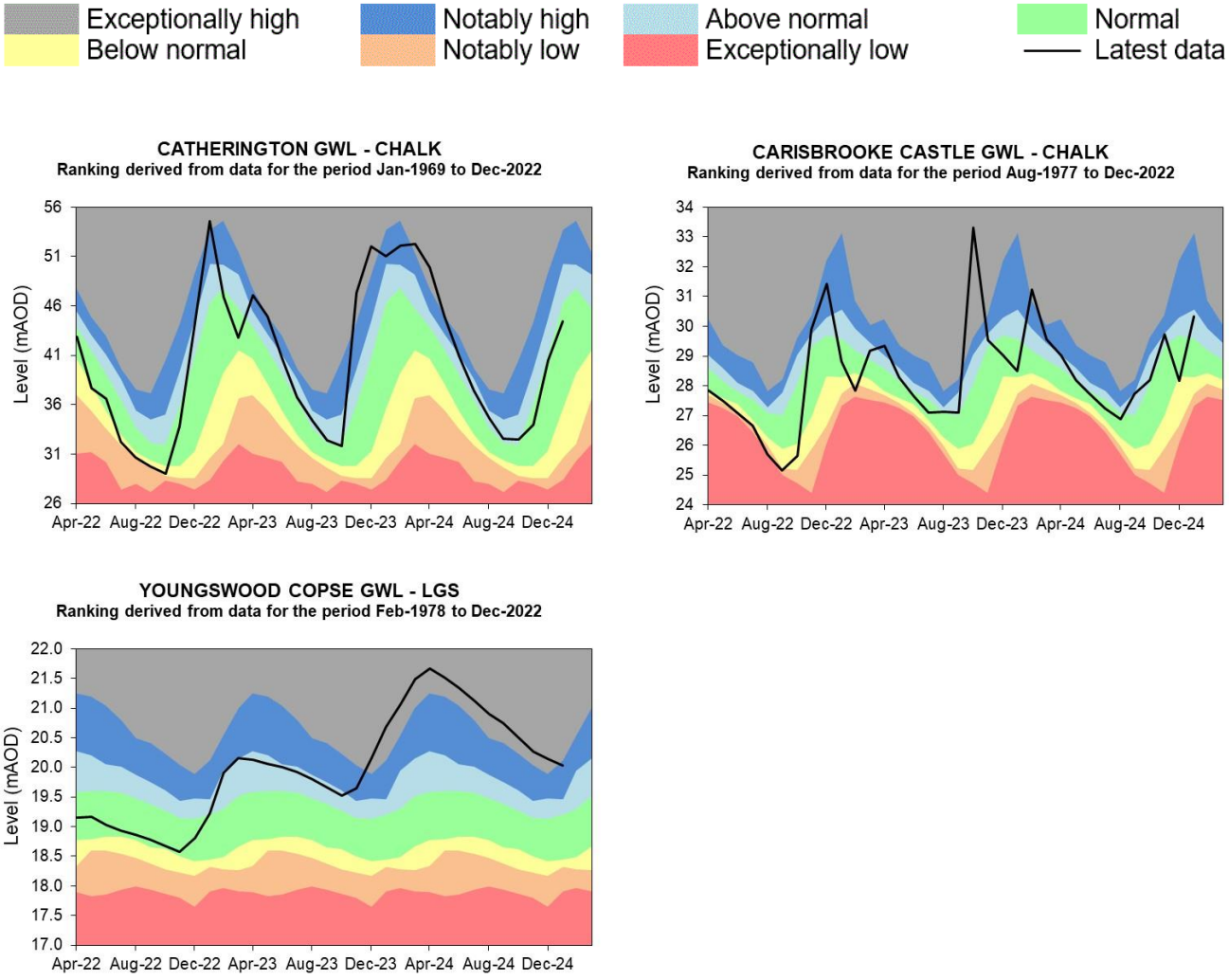
Figure 5.2 Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



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.

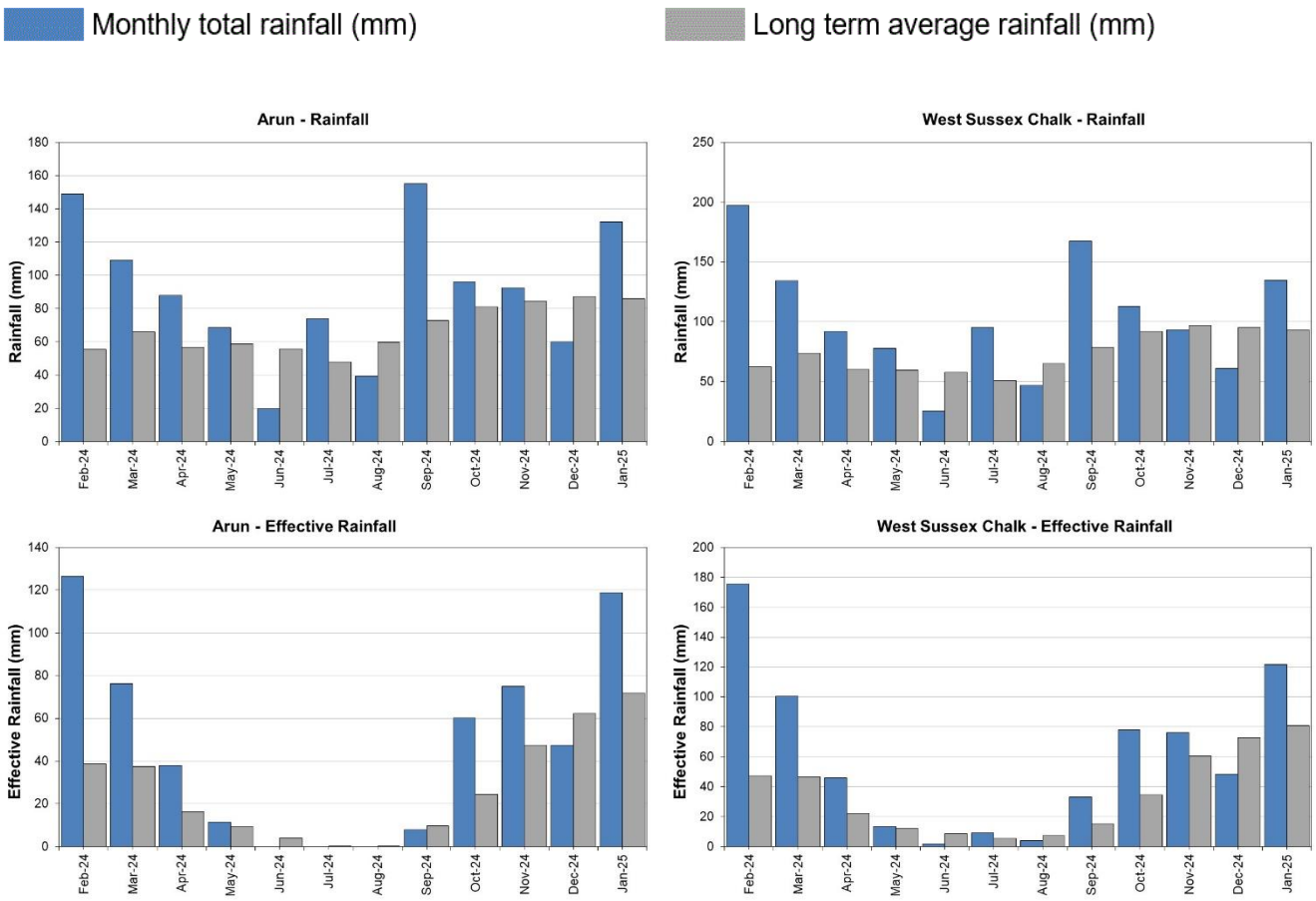


Source: Environment Agency, 2025.

6 West Sussex

6.1 West Sussex Rainfall and Effective Rainfall charts

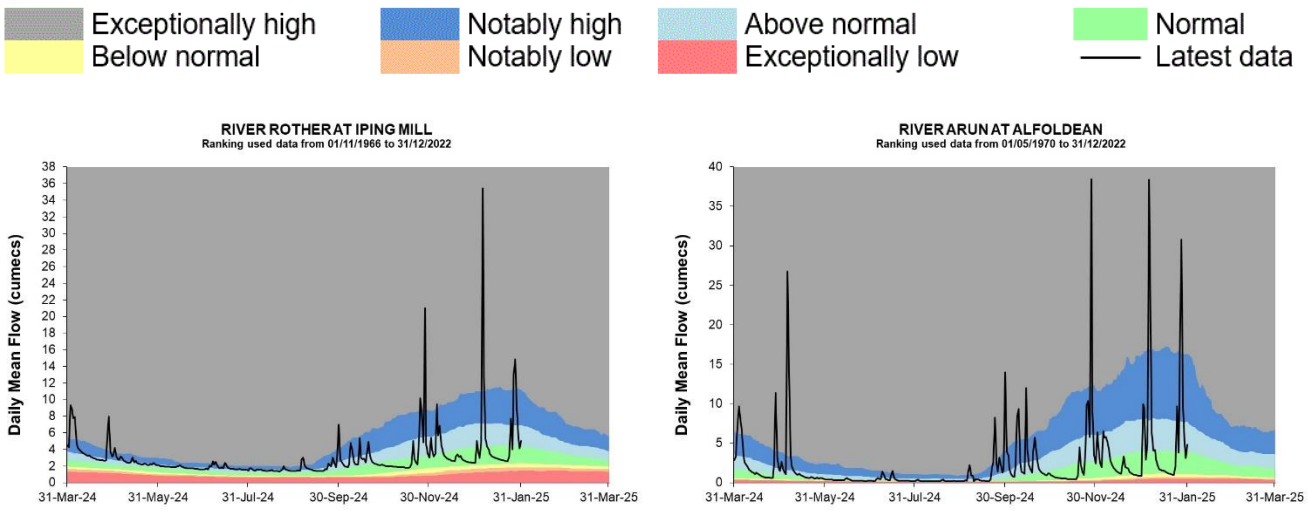
Figure 6.1: Monthly rainfall and effective rainfall totals for the past 12 months as a percentage of the 1961 to 1990 long term average.



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

6.2 West Sussex River flow charts

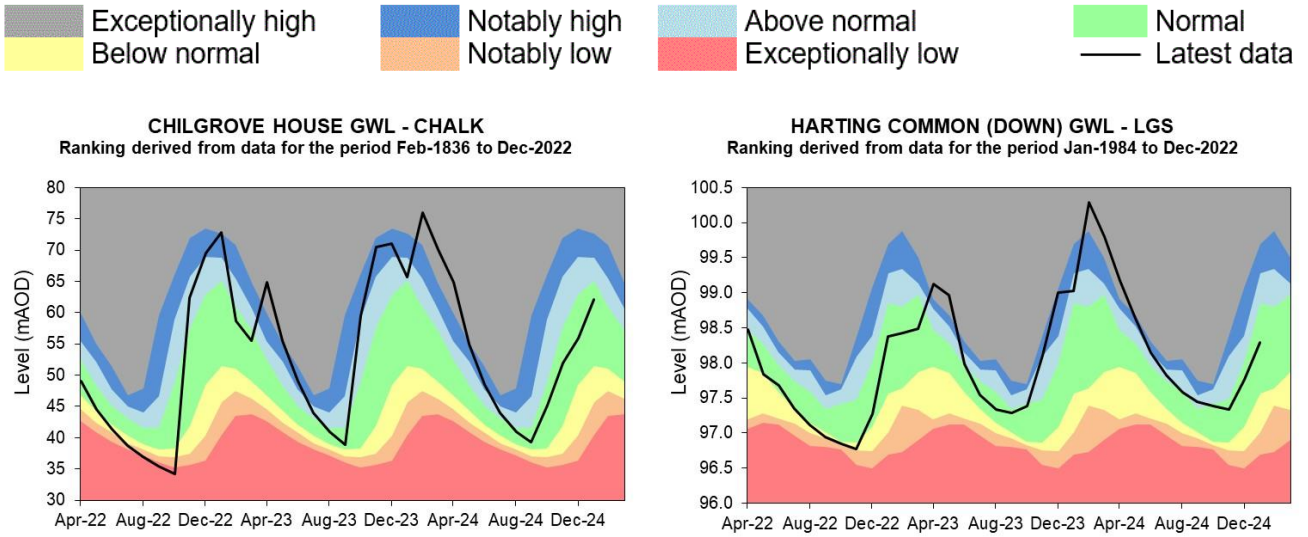
Figure 6.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



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.

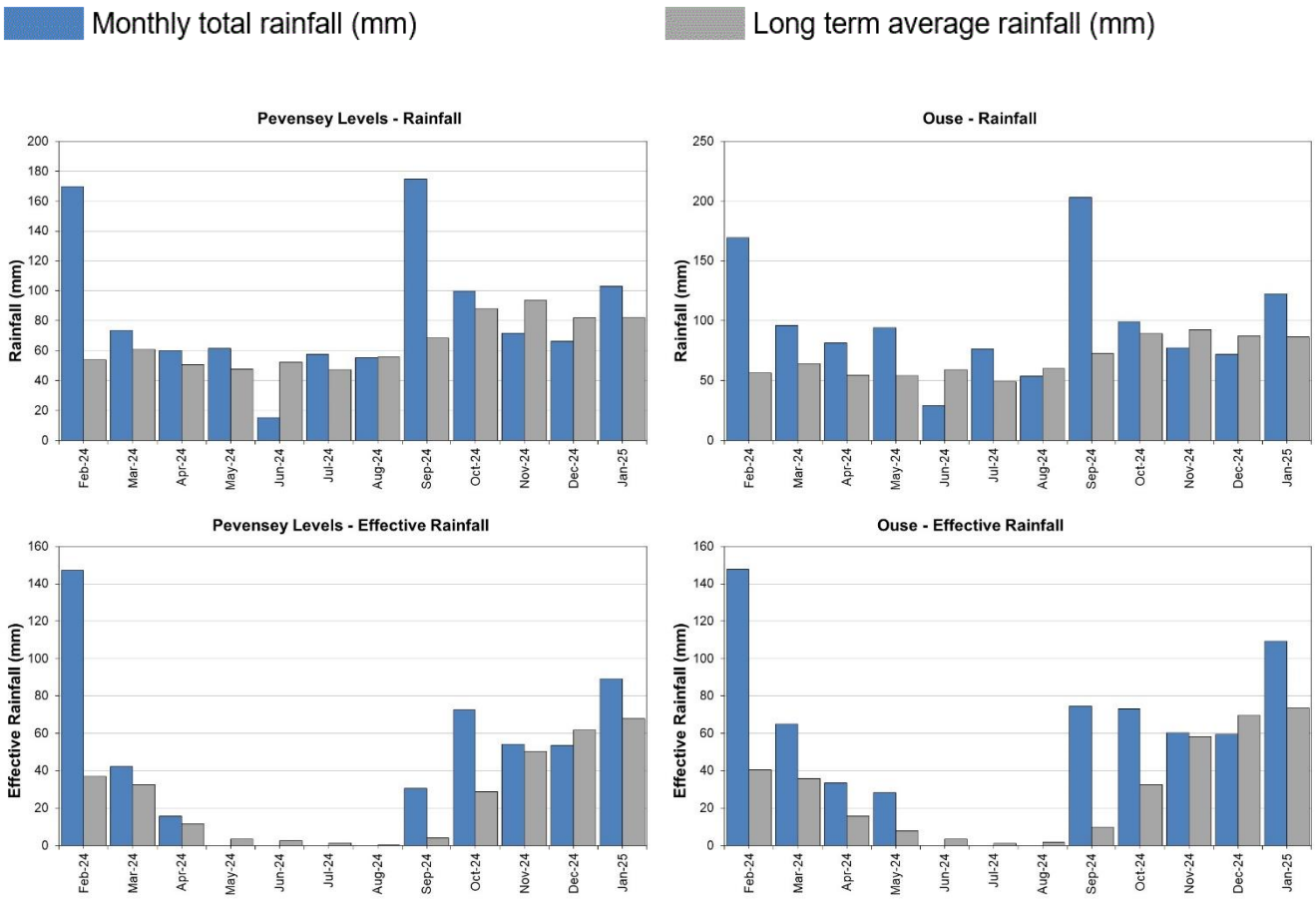


Source: Environment Agency, 2025.

7 East Sussex

7.1 East Sussex Rainfall and Effective Rainfall charts

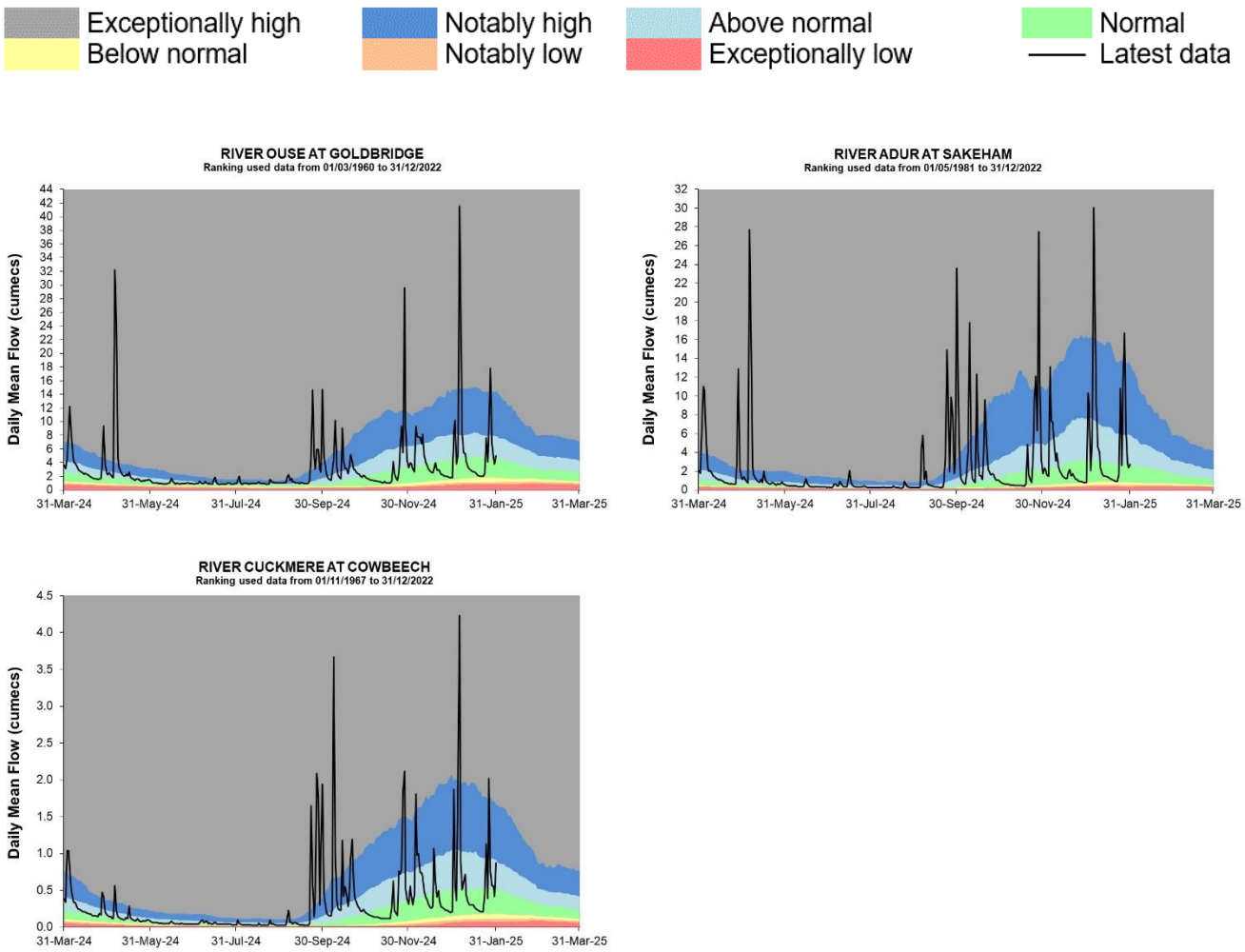
Figure 7.1: Monthly rainfall and effective rainfall totals for the past 12 months compared to the 1961 to 1990 long term average.



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

7.2 East Sussex River flow charts

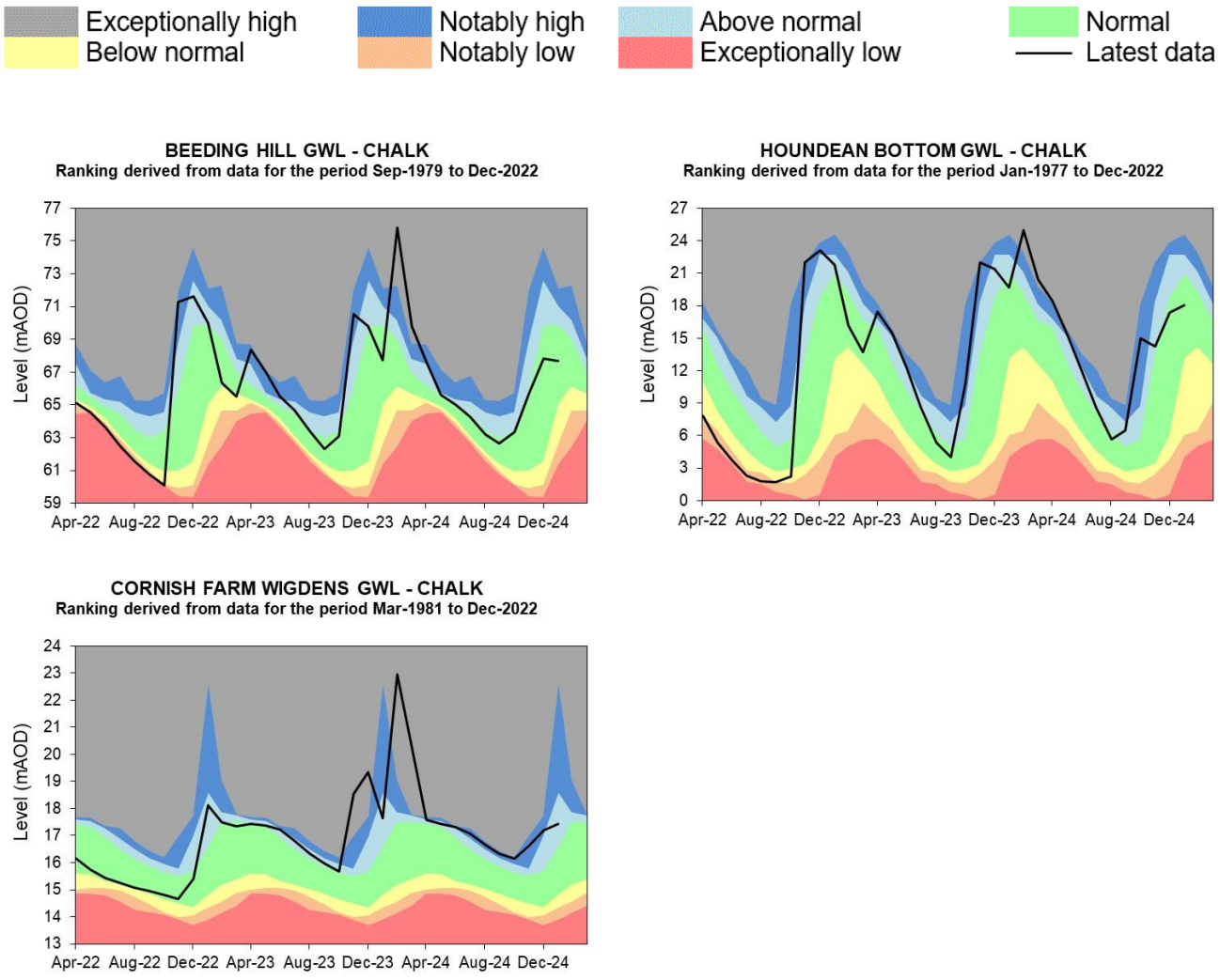
Figure 7.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.



Source: Environment Agency, 2025.

7.3 East Sussex Groundwater level charts

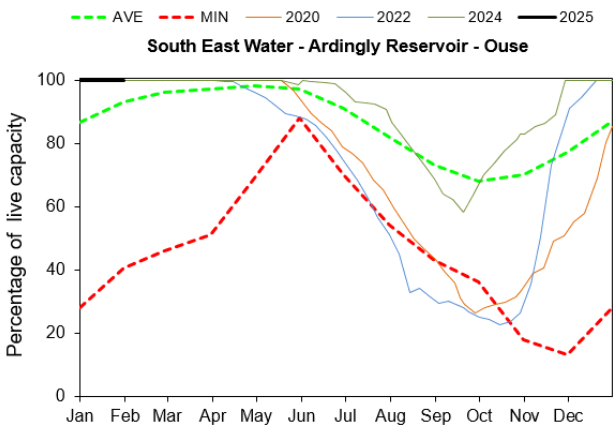
Figure 7.3: End of month groundwater levels at index groundwater level sites for major aquifers. 34 months compared to an analysis of historic end of month levels and long term maximum and minimum levels.

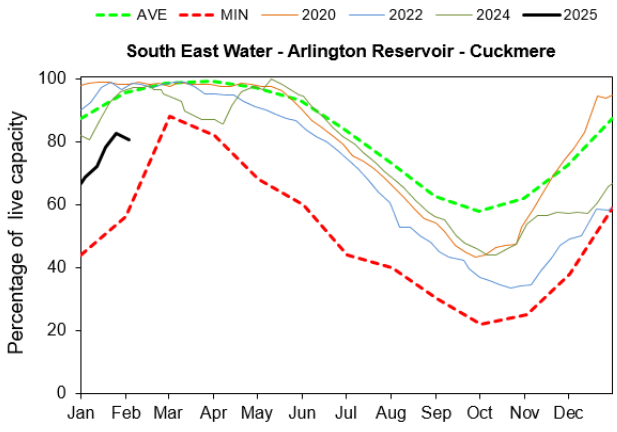


Source: Environment Agency, 2025.

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 January as %LTA	Effective Rainfall (mm) 30 day Total	Effective Rainfall January as %LTA	Soil Moisture Deficit (SMD) Day 30	SMD End of January LTA
Test Chalk	139	163%	123	176%	0	2
East Hampshire Chalk	149	158%	134	167%	0	1
West Sussex Chalk	135	144%	122	150%	0	1
East Sussex Chalk	117	135%	104	145%	0	1
Isle of Wight	136	154%	122	184%	1	4
Western Rother Greensand	150	150%	136	158%	0	1
Hampshire Tertiaries	132	153%	116	168%	1	1
Lymington	134	152%	120	166%	1	1
Sussex Coast	112	146%	97	163%	0	2
Arun	132	155%	119	165%	0	1
Adur	117	138%	104	145%	0	1
Ouse	122	141%	109	148%	0	1
Cuckmere	107	126%	94	130%	0	1
Pevensey Levels	103	125%	89	131%	0	1
SSD Average	127	146%	114	157%	0	1

10.2 Seasonal summary table of rainfall and effective rainfall

Winter season: 01/10/2024 to 31/03/2025

Hydrological Area	Seasonal Rainfall (mm) Total	Seasonal Rainfall as % LTA	Seasonal Effective Rainfall (mm) Total	Seasonal Effective Rainfall as % LTA
Test Chalk	410	125%	339	183%
East Hampshire Chalk	424	116%	348	151%
West Sussex Chalk	402	106%	324	130%
East Sussex Chalk	375	102%	305	136%
Isle of Wight	397	113%	294	162%
Western Rother Greensand	425	110%	333	132%
Hampshire Tertiaries	384	114%	308	164%
Lymington	397	113%	324	157%
Sussex Coast	327	104%	207	134%
Arun	380	113%	301	146%
Adur	353	102%	284	129%
Ouse	370	104%	302	129%
Cuckmere	353	100%	286	121%
Pevensey Levels	340	98%	269	129%
SSD Average	381	109%	302	142%

10.3 Rainfall banding table

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

10.4 River flows table

Site name	River	Catchment	End of January 2025 band	End of December 2024 band
Alfoldean Gs	Arun	Arun	Notably high	Normal
Allbrook Gs+ Highbridge	Itchen (so)	Itchen	Above normal	Notably high
Blackwater	Medina	Isle of Wight	Normal	Normal
Broadlands	Test	Test Lower	Above normal	Notably high
Brockenhurst GS	Lymington	New Forest	Notably high	Normal
Chilbolton GS	Test	Test Upper	Above normal	Notably high
Cowbeech Gs	Cuckmere	Cuckmere	Above normal	Normal
Goldbridge Gs	Ouse [so]	Ouse Sussex	Above normal	Normal
Iping Mill Gs	Rother	West Rother	Above normal	Normal
Mislingford GS	Meon	Meon	Normal	Normal
North Fareham GS	Wallington	Wallington	Normal	Below normal
Sakeham GS	Adur	Adur	Notably high	Normal

10.5 Groundwater table

Site name	Aquifer	End of January 2025 band	End of December 2024 band
Carisbrooke Castle	Isle Of Wight Central Downs Chalk	Above normal	Below normal
Youngwoods Copse	Isle of Wight Lower Greensand	Notably high	Exceptionally 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	Exceptionally 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	Normal	Normal
Beeding Hill Gwl	Brighton Chalk Block	Normal	Normal
Houndean Bottom Gwl	Brighton Chalk Block	Normal	Normal
Harting Common Down	Western Rother Lower Greensand	Normal	Normal
Cornish Wigdens Gwtr	Eastbourne Chalk Block	Above normal	Notably high

10.6 Abstraction licence flow constraints

Number of flow constraints in force between 1 to 6 January 2025	Number of flow constraints in force between 7 to 13 January 2025	Number of flow constraints in force between 14 to 20 January 2025	Number of flow constraints in force between 21 to 27 January 2025	Number of flow constraints in force between 28 to 31 January 2025
1	1	0	2	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**