Monthly water situation report: Wessex Area

1 Summary - December 2024

December marked a shift away from the wetter weather of the previous three months with an average of 54mm of rainfall across Wessex, 58% of the long term average (LTA). Despite the drier end to the year, 2024 was the fifth wettest year on record since 1871. Soil moisture deficit (SMD) remained close to zero during December. In river catchments on the Chalk most monthly mean flows recorded were notably high except on the Dorset Stour which recorded normal mean flows. Monthly mean flows recorded across all catchments not on the Chalk aquifer were normal. Groundwater sites monitoring the Great and Inferior Oolite to the north of Wessex reported notably high and exceptionally high levels at the end of December while those further south including sites monitoring the Chalk reported either normal or above normal levels. Reservoirs ended December at around 99% capacity and 94% capacity for Wessex Water and Bristol Water respectively. For Wessex Water this was similar to levels this time the previous year. For Bristol Water, levels were slightly lower than they were in December 2023.

1.1 Rainfall

In December an average of 54mm (58% LTA) of rain fell across Wessex. All hydrological areas across Wessex received below normal rainfall. Rainfall during December was largely restricted to two periods: 45% of rain fell between 4 and 6 December and 28% between 17 and 20 December.

In the last 3 months, all hydrological areas have received normal rainfall on average. In the last 6 months, the majority of areas in Wessex received between above normal and notably high rainfall with 2 hydrological areas to the east receiving exceptionally high rainfall and the West Somerset Streams to the west of Wessex receiving normal rainfall. Over the past 12 months, almost all areas of Wessex received exceptionally high rainfall. Prior to December, 2024 was on course to be the wettest year on record. After a comparatively dry December, last year was instead the fifth wettest calendar year since records began in 1871. Overall, 2024 was slightly drier than 2023 which was the fourth wettest on record.

1.2 Soil moisture

Despite the lower rainfall, soil moisture deficit (SMD) in Wessex in December remained close to zero on average throughout the month. SMD at the end of December was near zero on average across all areas of Wessex. SMD at the end of December was within 5mm of the LTA across most of Wessex and between 6mm and 25mm lower than the LTA in some hydrological areas to the south and east of Wessex.

1.3 River flows

Amongst sites reporting rivers within Chalk catchments, the majority reported above normal to notably high mean monthly flows. The exceptions were sites monitoring the Dorset Stour which both recorded normal mean flows. All river flow reporting sites across Wessex outside of Chalk catchments recorded normal mean flows for December.

Daily mean flows decreased during December across all reporting sites following the high rainfall from November. By the end of the month, all reporting sites across Wessex recorded between normal and below normal daily mean flows. Reporting sites in Chalk catchments typically recorded higher daily mean flows than in other geologies as flows are supplemented by water from the aquifer.

1.4 Groundwater levels

The majority of groundwater monitoring sites across Wessex ended December reporting between normal to above normal levels. The two exceptions were Allington and Didmarton to the north of Wessex monitoring Oolite formations which reported notably high and exceptionally high levels respectively. Most sites monitoring the Chalk reported normal levels at the end of December except Tilshead and Chitterne Down which reported above normal levels. At the end of December, all sites except Allington showed slightly decreasing levels.

1.5 Reservoir stocks

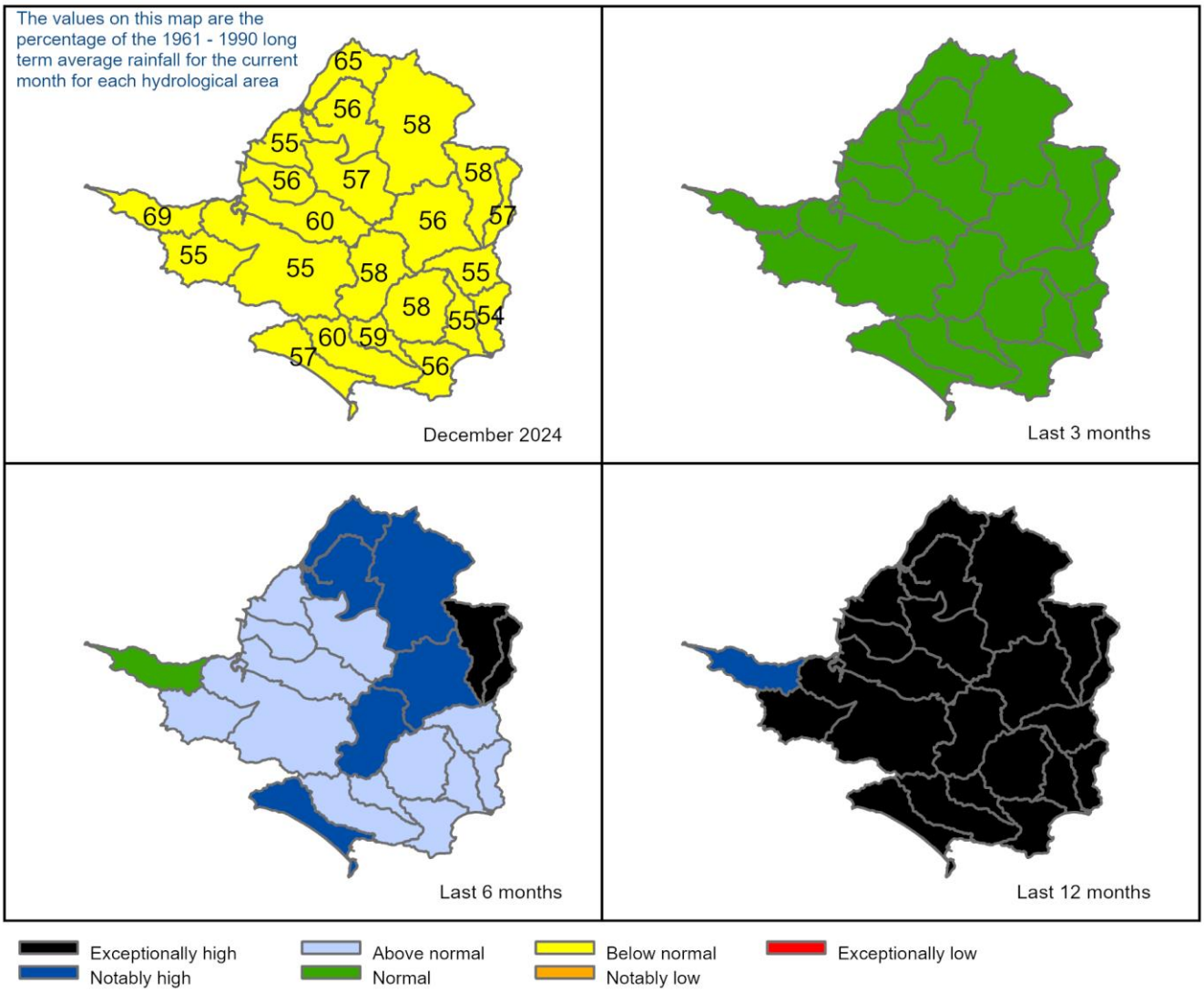
Wessex Water reservoir levels remained relatively constant during December, beginning and ending the month at approximately 99% capacity. Overall, Bristol Water reservoir levels increased slightly during December, having begun the month at approximately 91% capacity and ending December at approximately 94% capacity. The current combined levels for Wessex Water are similar to those recorded this time last year while for Bristol Water they are slightly lower than in December 2023. For both Wessex Water and Bristol Water, levels are significantly higher than in December 1995.

Author: Wessex Hydrology, hydrologywessex@environment-agency.gov.uk

2 Rainfall

2.1 Rainfall map

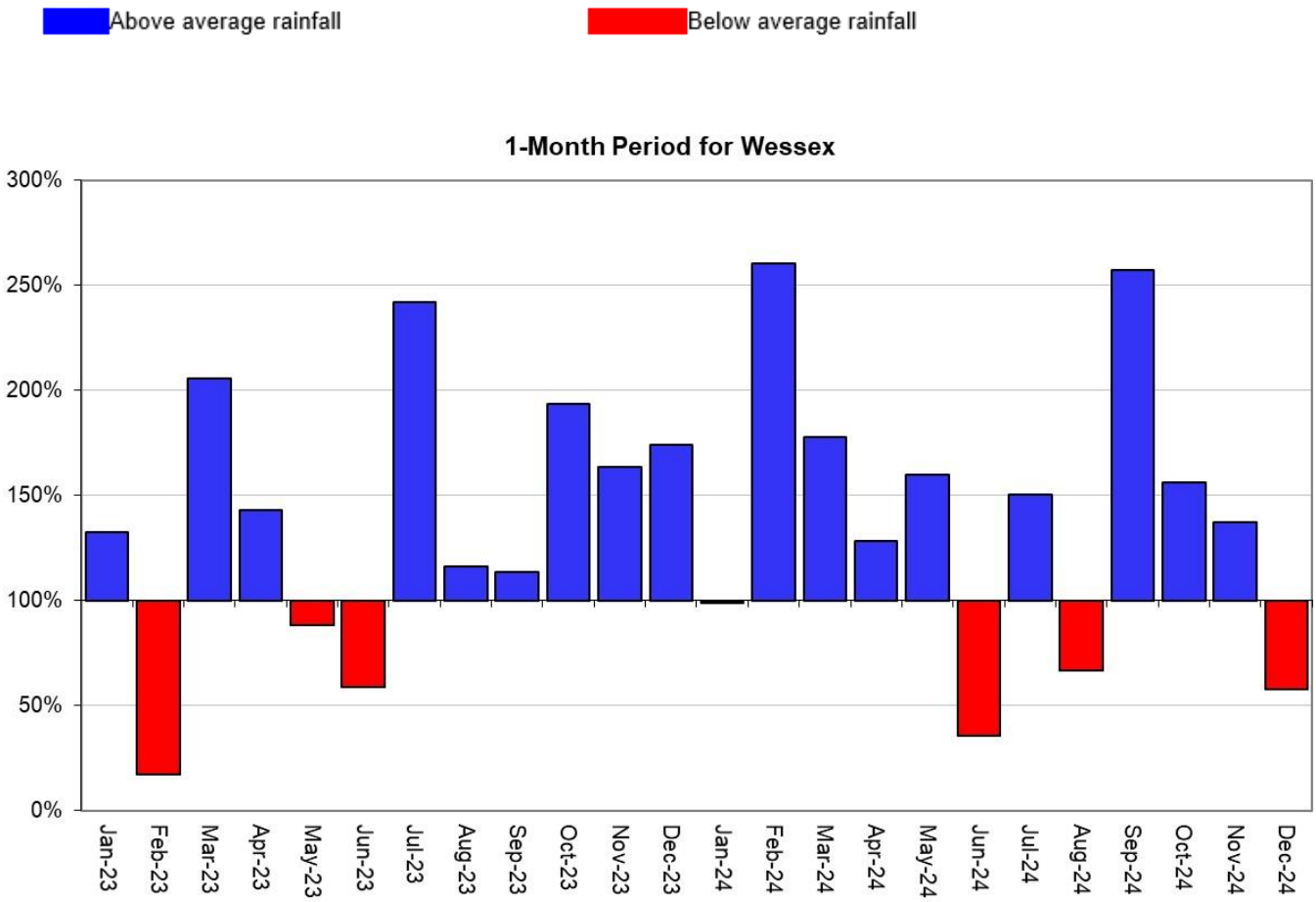
Figure 2.1: Total rainfall for hydrological areas for the current month (up to 31 December 2024), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. Table available in the appendices with detailed information.



Rainfall data for 2023 and 2024, 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 2023, extracted from Met Office HadUK 1km gridded rainfall dataset derived from registered rain gauges (Source: Met Office. Crown copyright, 2025).

2.2 Rainfall charts

Figure 2.2: Monthly rainfall totals for the past 24 months as a percentage of the 1961 to 1990 long term average for each region and for England.

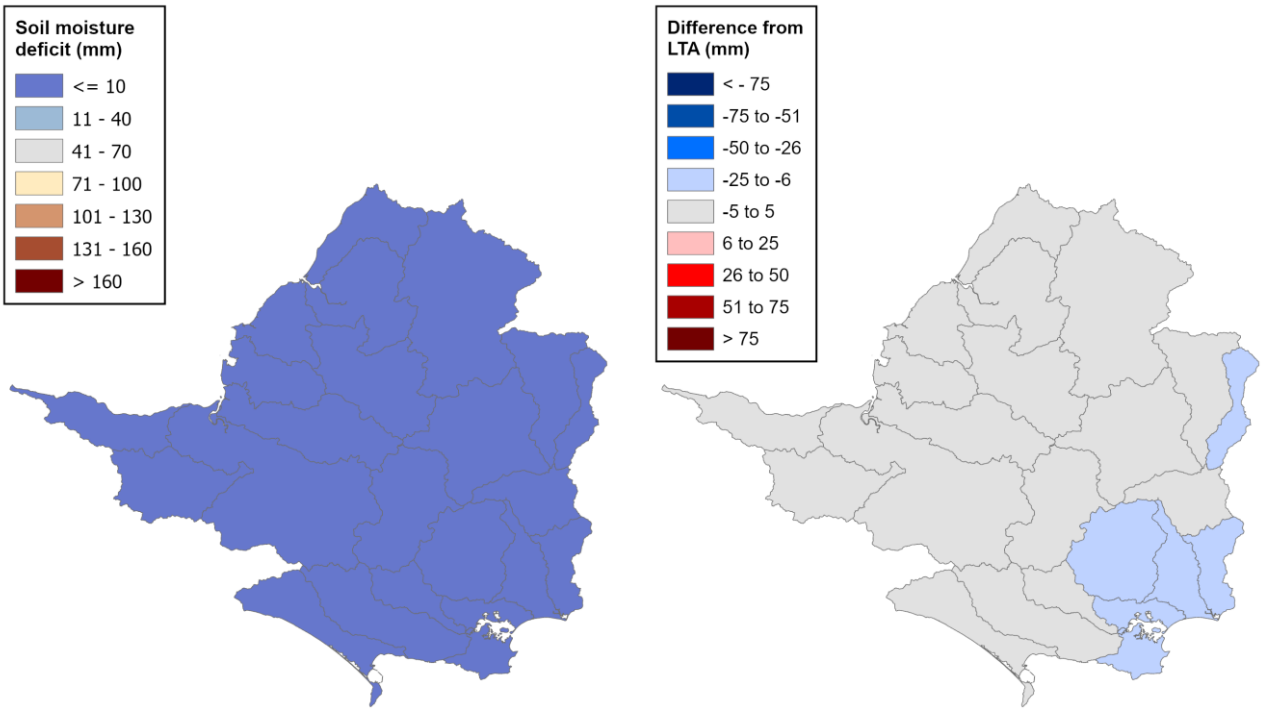


Rainfall data for 2023 and 2024, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, 100024198, 2025). Rainfall data prior to 2023, extracted from Met Office HadUK 1km gridded rainfall dataset derived from registered rain gauges (Source: Met Office. Crown copyright, 2025).

3 Soil moisture deficit

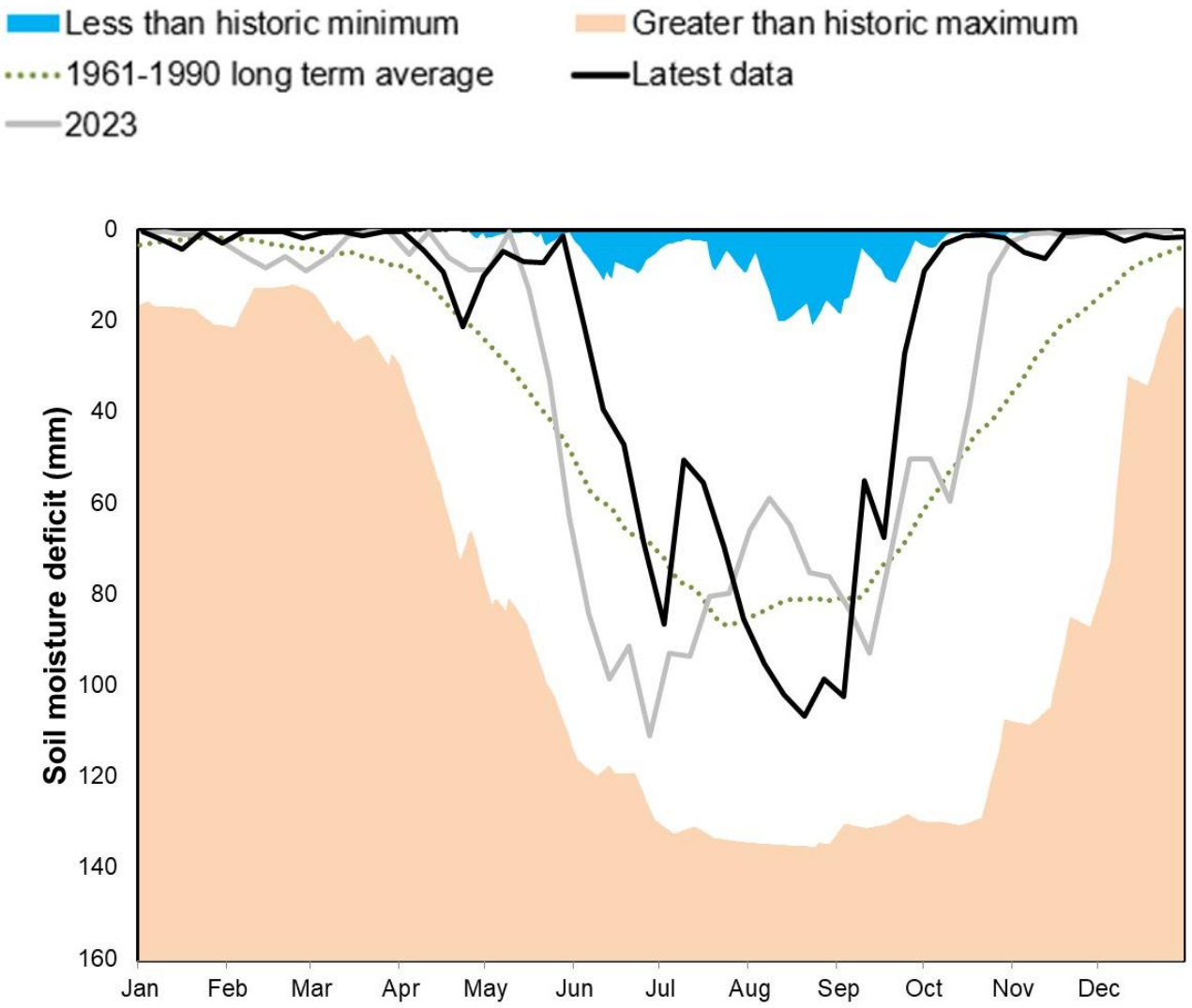
3.1 Soil moisture deficit map

Figure 3.1: Soil moisture deficits for weeks ending 31 December 2024. Shows the difference (mm) of the actual soil moisture deficit from the 1961 to 1990 long term average soil moisture deficits. MORECS data for real land use.



3.2 Soil moisture deficit charts

Figure 3.2: Latest soil moisture deficit compared to previous year, maximum, minimum, and 1961 to 1990 long term average. Weekly MORECS data for real land use.



4 River flows

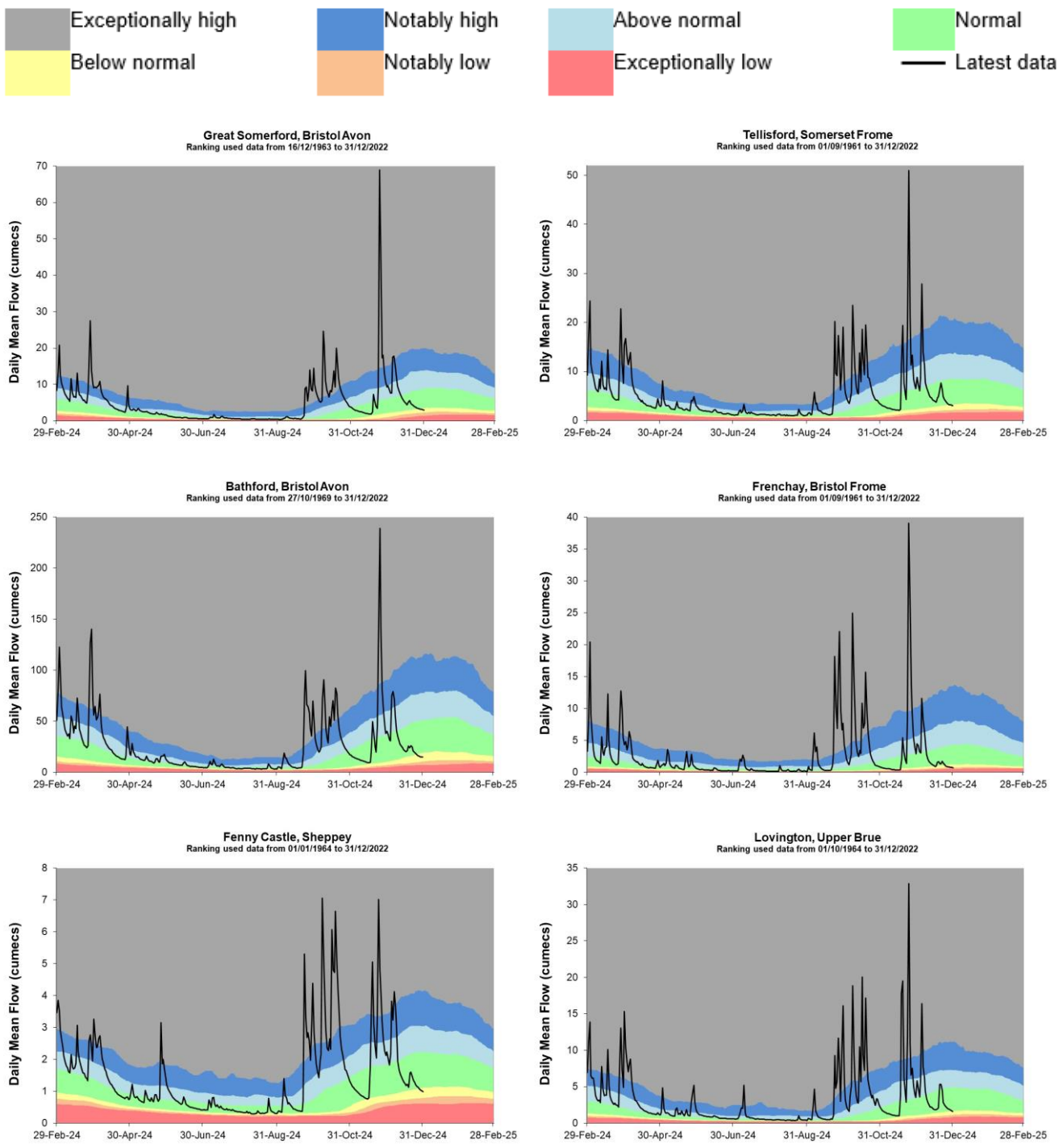
4.1 River flows map

Figure 4.1: Monthly mean river flow 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 Table available in the appendices with detailed information.

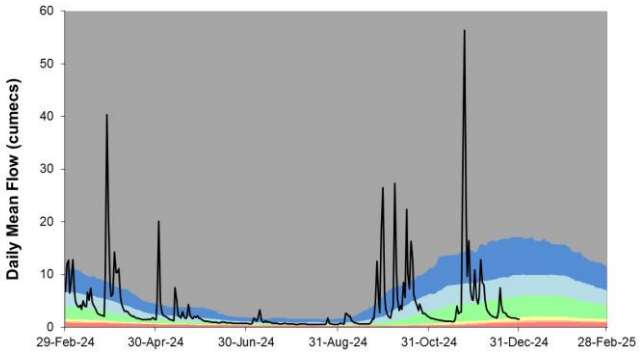
(Source: Environment Agency). Crown copyright. All rights reserved. Environment Agency, 100024198, 2025. The Stour at Throop and the Dorset Frome at East Stoke Combined should be treated with caution due to data issues.

4.2 River flow charts

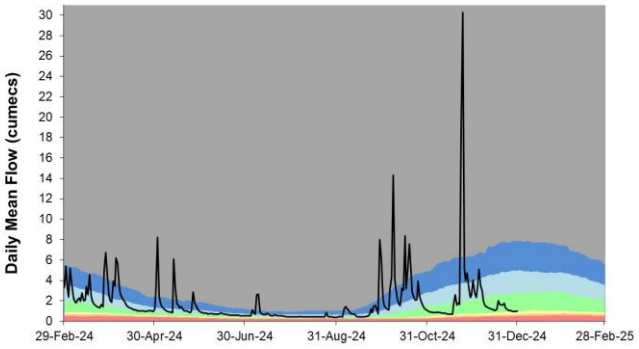
Figure 4.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows.



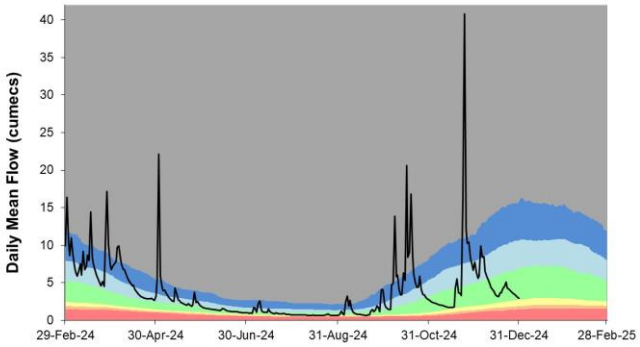
Pen Mill, Somerset Yeo
Ranking used data from 31/10/1963 to 31/12/2022



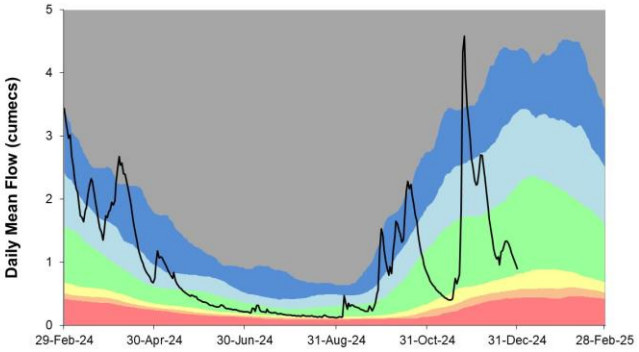
Ashford Mill, River Isle
Ranking used data from 01/10/1962 to 31/12/2022



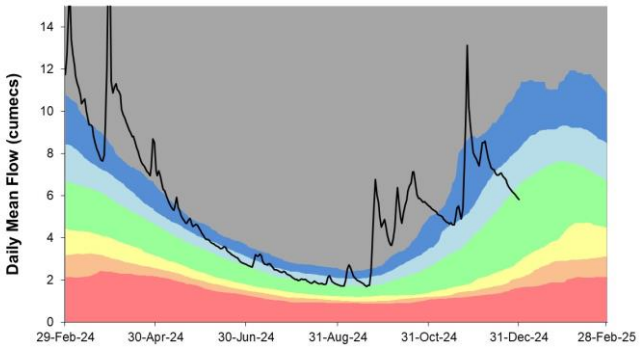
Bishops Hull, River Tone
Ranking used data from 01/02/1961 to 31/12/2022



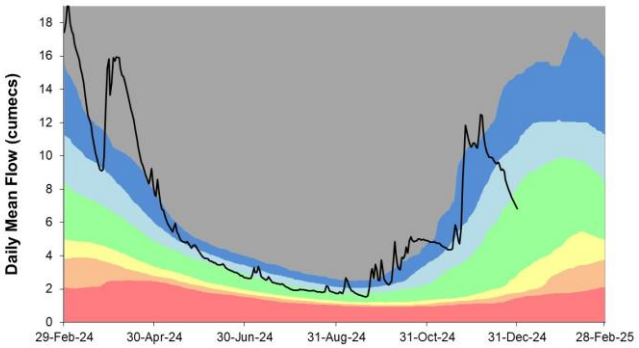
Beggearn Huish, Washford River
Ranking used data from 01/01/1967 to 31/12/2022



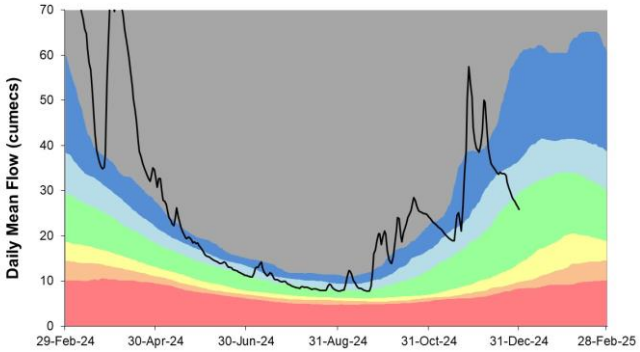
Amesbury, Upper Hampshire Avon
Ranking used data from 01/02/1965 to 31/12/2022



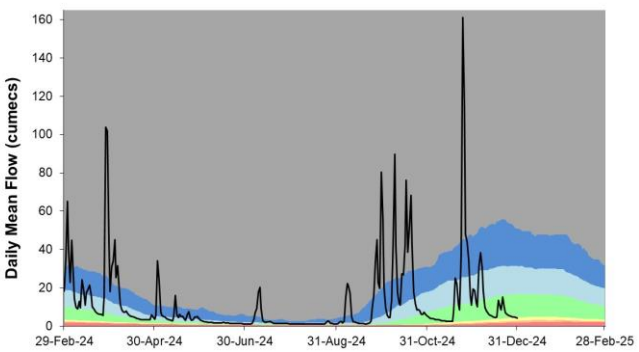
South Newton, River Wylye
Ranking used data from 01/01/1967 to 31/12/2022

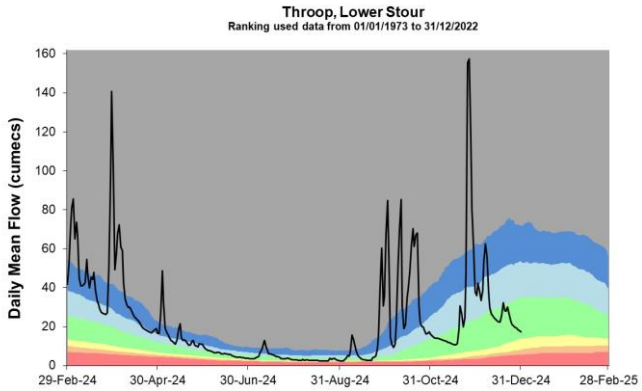


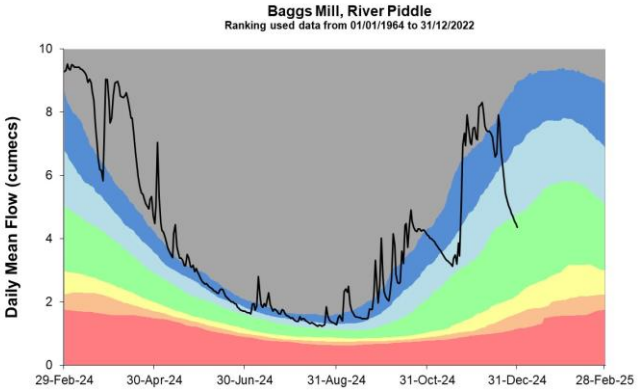
East Mills Combined, Middle Hampshire Avon
Ranking used data from 01/11/1965 to 31/12/2022

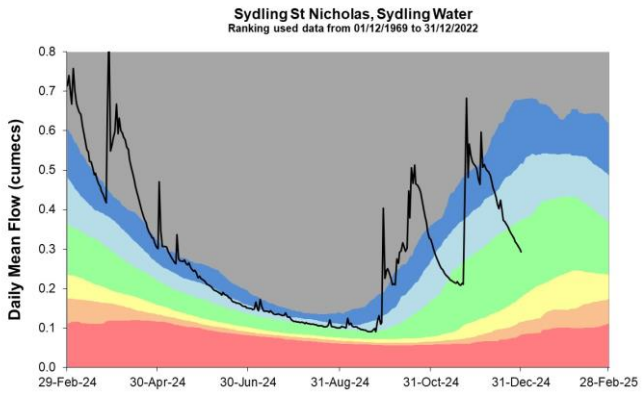


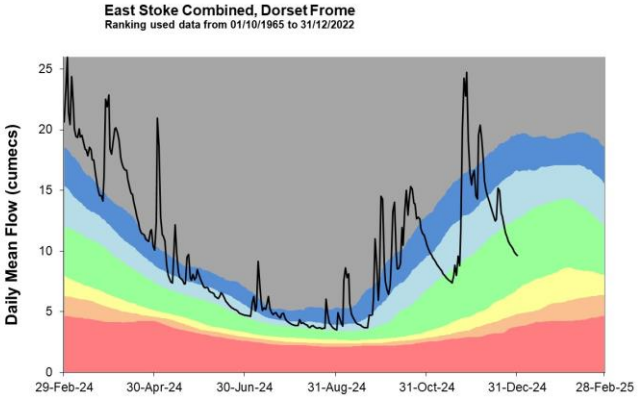
Hammoon, Middle Stour
Ranking used data from 01/03/1968 to 31/12/2022

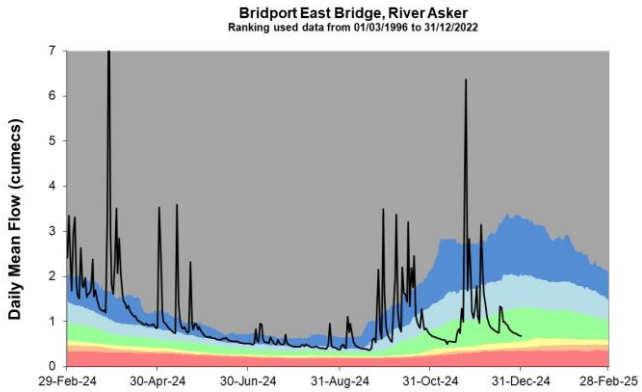










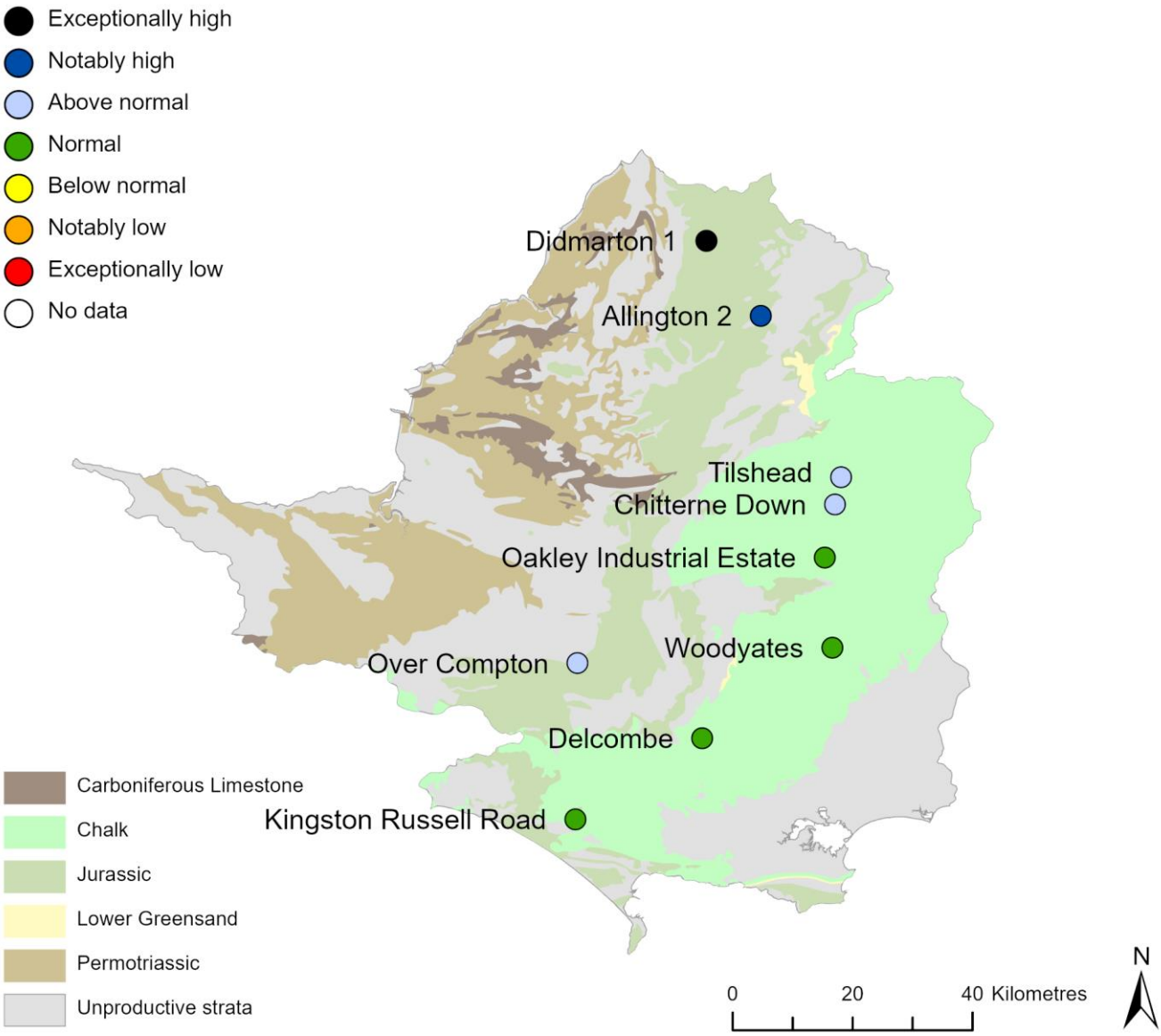


Source: Environment Agency, 2025. The Stour at Throop and the Dorset Frome at East Stoke Combined should be treated with caution due to data issues.

5 Groundwater levels

5.1 Groundwater levels map

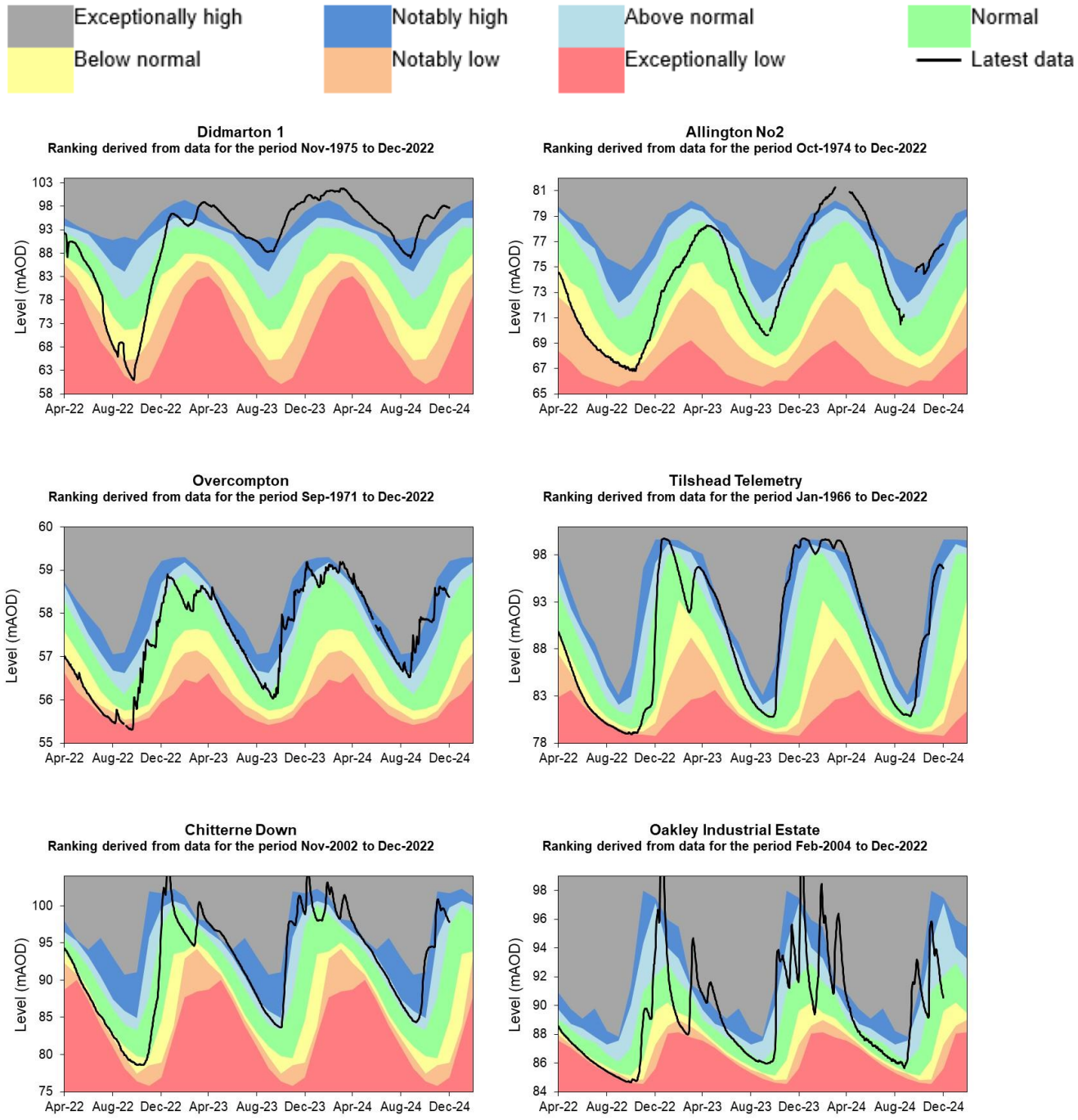
Figure 5.1: Groundwater levels for indicator sites at the end of December 2024, classed relative to an analysis of respective historic December levels. Table available in the appendices with detailed information.

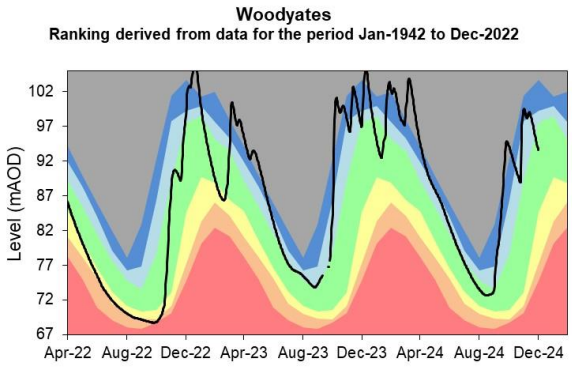


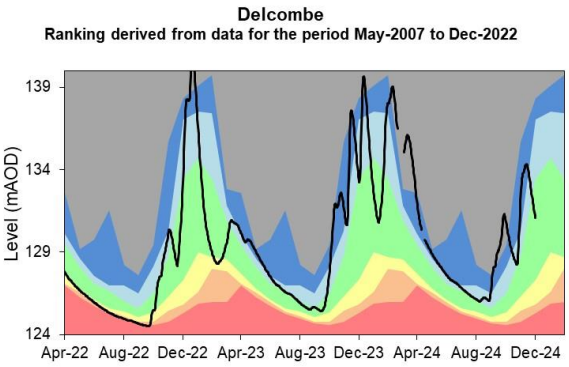
(Source: Environment Agency). Geological map reproduced with kind permission from UK Groundwater Forum, BGS copyright NERC. Crown copyright. All rights reserved. Environment Agency, 100024198, 2025. Allington should be treated with caution due to recent data issues.

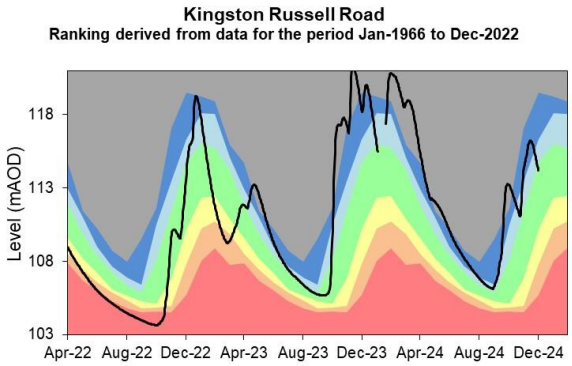
5.2 Groundwater level charts

Figure 5.2: 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.





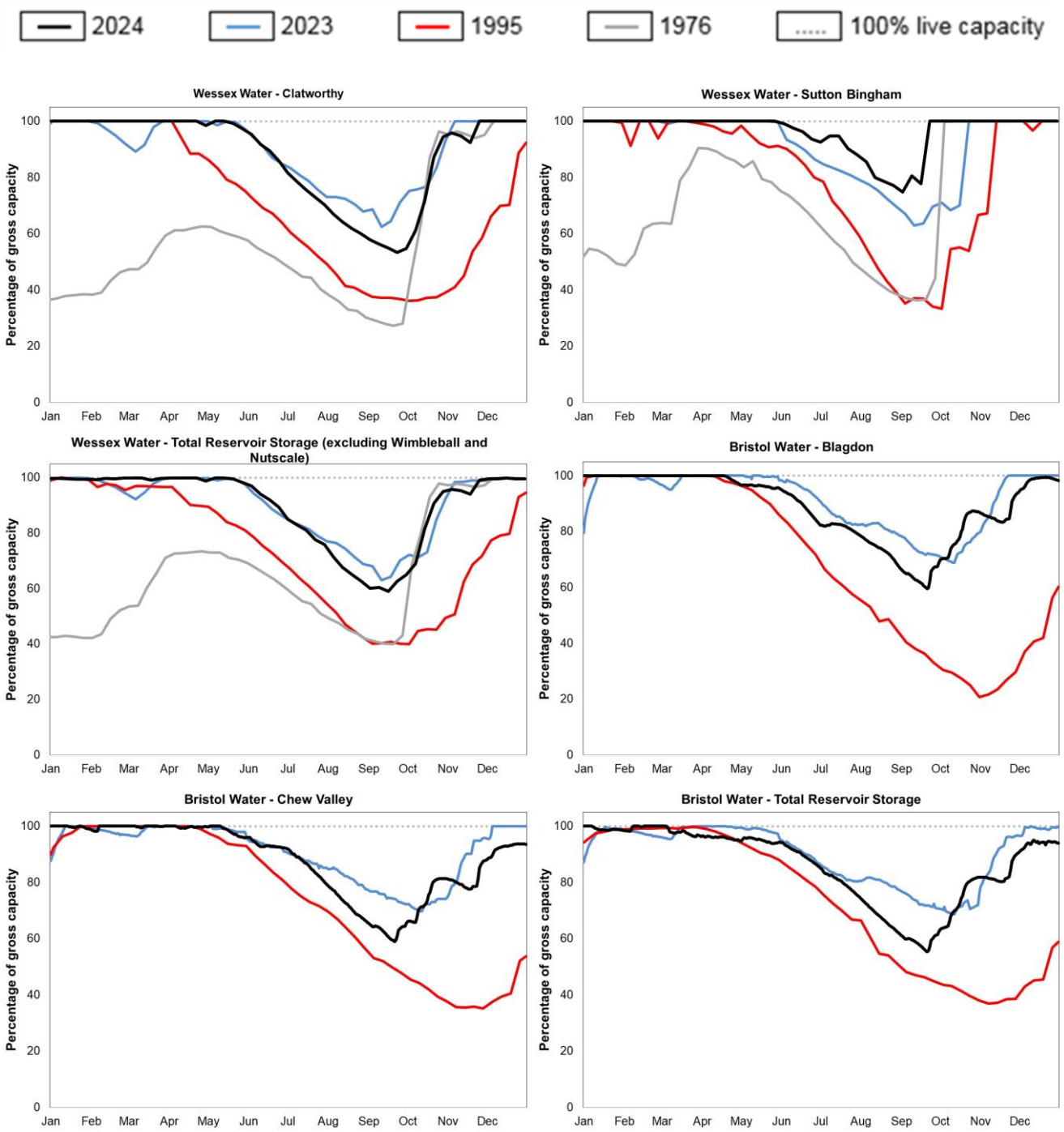




Source: Environment Agency, 2025. Allington should be treated with caution due to recent data issues.

6 Reservoir stocks

Figure 6.1: End of month regional reservoir stocks compared to the previous year, and if available, also a comparison to reservoir stocks in 1995 and 1976.



(Source: Wessex Water and Bristol Water).

7 Flood alerts and warnings

7.1 Flood alerts

Table 1: Fluvial, coastal and groundwater flood alerts issued during December

Area	Number of fluvial flood alerts in December	Number of coastal flood alerts in December	Number of groundwater flood alerts in December
North Wessex	9	4	0
South Wessex	9	6	0*

* 3 groundwater flood alerts issued prior to December remained in force

7.2 Flood warnings

Table 2: Fluvial, coastal and groundwater flood warnings issued during December

Area	Number of fluvial flood warnings in December	Number of coastal flood warnings in December	Number of groundwater flood warnings in December
North Wessex	1	1	0
South Wessex	7	0	1

7.3 Severe flood warnings

Table 3: Fluvial, coastal and groundwater severe flood warnings issued during December

Area	Number of fluvial severe flood warnings in December	Number of coastal severe flood warnings in December	Number of groundwater severe flood warnings in December
North Wessex	0	0	0
South Wessex	0	0	0

8 Stream support

8.1 Sites providing stream support

Table 4: End of December status for stream support sites.

Catchment	River	Stream support site	Gauging station	End of December status
Bristol Avon	Chalfield Brook	South Wraxall	Great Chalfield (Wessex Water)	Off
Bristol Avon	Chalfield Brook	Little Chalfield	Great Chalfield (Wessex Water)	Off
Bristol Avon	Charlton Stream	Charlton	Crabb Mill	Off
Bristol Avon	Gauze Brooke	Hullavington	Rodbourne	Off
Bristol Avon	Horscombe Stream	Tucking Mill	No Gauge	Off
Bristol Avon	Luckington Brook	Luckington	Fossway	Off
Bristol Avon	Rodbourne Brook	Lower Stanton St. Quinton	Startley	Off
Bristol Avon	Semington Brook	Easterton	No Gauge	Off
Bristol Avon	Sherston Avon	Stanbridge	Fossway	Off
Bristol Avon	Tetbury Avon	Tetbury	Brokenborough	Off
Dorset Frome	South Winterbourne	Winterbourne Abbas	Winterbourne Steepleton	Off

Dorset Frome	Watergates Stream	Watergates	No Gauge	On
Piddle	Devil’s Brook	Dewlish	Dewlish Woodsdown Cross	Off
Piddle	Piddle	Alton Mill	South House & Little Puddle	Off
Piddle	Piddle	Morningwell	South House & Little Puddle	Off
Piddle	Piddle	Briantspuddle	Briantspuddle	Off
Dorset Stour	Crichel Stream	Long Crichel	No Gauge	Off
Dorset Stour	Gussage Stream	Gussage All Saints	Bowerswain	Off
Dorset Stour	Allen	Wyke Down	All Hallows	Off
Dorset Stour	Pimperne Stream	Pimperne	No Gauge	Off
Hampshire Avon	Bourne	Porton	Salisbury Bourne	Off
Hampshire Avon	Chitterne Brook	Codford Road	Codford	Off
Hampshire Avon	Wylye	Brixton Deverill	Brixton Deverill & Heytesbury	Off
Hampshire Avon	Wylye	Kingston Deverill	Brixton Deverill & Heytesbury	Off

9 Abstraction licences subject to restrict or cease

9.1 Abstraction licences subject to restrict or cease

Table 5: Number of licences at restrict or cease at the end of December.

Catchment	Number of licences at restrict at the end of December	Number of licences at cease at the end of December
Bristol Avon	0	0
Dorset	0	0
Hampshire Avon	0	0
Somerset	0	1

10 Glossary

10.1 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).

10.2 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.

10.3 Rainfall Areas Map

Figure 6.2 Rainfall catchments in Wessex.

11 Appendices

11.1 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
Axe	56	Below Normal	Normal	Above normal	Exceptionally high
Brue	60	Below Normal	Normal	Above normal	Exceptionally high
Little Avon	65	Below Normal	Normal	Notably high	Exceptionally high
Lower Bristol Avon And Bristol Frome	56	Below Normal	Normal	Notably high	Exceptionally high
Lower Dorset Stour And River Crane	55	Below Normal	Normal	Above normal	Exceptionally high
Lower Hampshire Avon	54	Below Normal	Normal	Above normal	Exceptionally high
Mendips And River Chew	57	Below Normal	Normal	Above normal	Exceptionally high
Middle And Upper Bristol Avon	58	Below Normal	Normal	Notably high	Exceptionally high

Middle Dorset Stour	58	Below Normal	Normal	Above normal	Exceptionally high
Middle Hampshire Avon	55	Below Normal	Normal	Above normal	Exceptionally high
Parrett	55	Below Normal	Normal	Above normal	Exceptionally high
Poole Harbour And Purbeck	56	Below Normal	Normal	Above normal	Exceptionally high
River Bourne	57	Below Normal	Normal	Exceptionally high	Exceptionally high
River Frome	60	Below Normal	Normal	Above normal	Exceptionally high
River Piddle	59	Below Normal	Normal	Above normal	Exceptionally high
Tone	55	Below Normal	Normal	Above normal	Exceptionally high
Upper Dorset Stour	58	Below Normal	Normal	Notably high	Exceptionally high
Upper Hampshire Avon	58	Below Normal	Normal	Exceptionally high	Exceptionally high
West Dorset Streams	57	Below Normal	Normal	Notably high	Exceptionally high

West Somerset Streams	69	Below Normal	Normal	Normal	Notably high
Wylye And Nadder	56	Below Normal	Normal	Notably high	Exceptionally high
Yeo And Kenn	55	Below Normal	Normal	Above normal	Exceptionally high

11.2 River flows table

Site name	River	Catchment	Dec 2024 band	Nov 2024 band
Amesbury	Upper Hampshire Avon	Hampshire Avon	Notably high	Notably high
Ashford Mill	Isle	Parrett	Normal	Notably high
Baggs Mill	Piddle	Piddle	Notably high	Notably high
Bathford	Bristol Avon	Bristol Avon	Normal	Above normal
Beggearn Huish	Washford	Washford River	Normal	Normal
Bishops Hull	Tone	Tone	Normal	Above normal
Bridport East Bridge	Asker	Asker	Normal	Above normal
Fenny Castle	Sheppey	Brue	Normal	Above normal
East Mills Combined	Middle Hampshire Avon	Hampshire Avon	Notably high	Notably high
East Stoke Combined	Dorset Frome	Dorset Frome	Above normal	Notably high
Frenchay	Bristol Frome	Bristol Frome	Normal	Above normal
Great Somerford	Bristol Avon	Bristol Avon	Normal	Notably high

Hammoon	Middle Stour	Dorset Stour	Normal	Above normal
Knapp Mill	Lower Hampshire Avon	Hampshire Avon	Data unavailable	Data unavailable
Lovington	Upper Brue	Brue	Normal	Notably high
Pen Mill	Yeo	Parrett	Normal	Above normal
South Newton	River Wylye	Hampshire Avon	Notably high	Notably high
Sydling St Nicholas	Sydling Water	Dorset Frome	Notably high	Notably high
Tellisford	Somerset Frome	Bristol Avon	Normal	Above normal
Throop	Lower Stour	Dorset Stour	Normal	Above normal

11.3 Groundwater table

Site name	Aquifer	End of Dec 2024 band	End of Nov 2024 band
Allington No2	Upper Bristol Avon Great Oolite	Notably high	Exceptionally high
Chitterne Down	Upper Hampshire Avon Chalk	Above normal	Notably high
Delcombe	Dorset Frome And Piddle Chalk/upper Greensand	Normal	Notably high
Didmarton 1	Upper Bristol Avon Inferior Oolite	Exceptionally high	Exceptionally high
Kingston Russell Road	Dorset Frome Chalk	Normal	Notably high
Overcompton	Somerset Yeo Bridport Sand	Above normal	Notably high
Tilshead	Upper Hampshire Avon Chalk	Above normal	Notably high
Woodyates	Dorset Stour Chalk	Normal	Notably high
Oakley Industrial Estate	Upper Hampshire Avon Chalk	Normal	Notably high