

Monthly water situation report: Wessex Area

1 Summary - March 2024

March was largely a continuation of the very wet weather of February. An average of 125mm rain fell in March, which is 178% of the long term average (LTA). This made March 2024 the ninth wettest since records began in 1871. The last 6 months have been the wettest 6 month period (October to March) since records began. Soil moisture deficit (SMD) remained close to zero throughout March. Monthly mean river flows were notably or exceptionally high across the area. Additionally, all groundwater monitoring sites in Wessex recorded exceptionally high levels at the end of March. During the month, reservoir levels for Wessex Water were close to 100%. Bristol Water's reservoir levels decreased slightly during the month from near 100% down to approximately 96%.

1.1 Rainfall

Wessex received an average of 125mm of rainfall during March (178% of the LTA) which is exceptionally high for the time of year. Rainfall peaked towards the end of the month with approximately 60% of the March LTA rainfall occurring between 26 and 28 March. A total of 104% LTA rainfall for the whole month fell at South Tidworth on these 3 days.

Overall March 2024 was the ninth wettest since records began in 1871. However given the high rainfall of the last few months, this year had the third wettest 3 month period (January to March) and the wettest 6 month period on record (October to March). The last 12 months (April to March) was also the third wettest on record. Most hydrological areas in the east of Wessex experienced exceptionally high rainfall while most in west Wessex experienced notably high rainfall. Over the longer term, all hydrological areas of Wessex received exceptionally high rainfall for the last 3, 6 and 12 months.

1.2 Soil moisture

SMD levels remained close to zero for all of March and at the end of the month it was very close to zero for all areas of Wessex and somewhat lower than the LTA for most of the area.

1.3 River flows

The monthly mean flows across all sites in Wessex were either exceptionally or notably high in March 2024. This month marked the highest mean monthly flows recorded during March since records began for several monitored sites. Omitting sites with data issues, the sites with record-breaking flows were the Upper Brue at Lovington; the Yeo at Pen Mill; the Upper Hampshire Avon at Amesbury; the River Wylfe at South Newton; the Middle Hampshire Avon at East Mills Combined; the Middle Stour at Hammoon; Sydling Water at Sydling St Nicholas; and the Asker at Bridport East Bridge.

After a very wet February, most flow sites in north Wessex began the month with exceptionally high flows while those in south Wessex had either notably high or above normal daily mean flows. By the end of March, most sites had notably or exceptionally high daily mean flows with the single exception of the River Isle at Ashford Mill which was above normal. The majority of daily mean flows were falling at the end of March.

1.4 Groundwater levels

All groundwater monitoring sites in Wessex ended March with exceptionally high levels. Due to the high rainfall over the last couple of months, Didmarton, Chitterne Down, Oakley Industrial Estate and Kingston Russell Road all experienced their highest monthly mean values recorded during March since their respective records began. All groundwater sites except for Delcombe (due to missing data) and Over Compton had rising levels at the end of the month.

1.5 Reservoir stocks

The reservoir levels remained close to 100% capacity during March for Wessex Water which is very similar to levels this time last year. Bristol Water's levels also began the month close to 100% but decreased slightly during the month, ending at approximately 96% capacity which is slightly lower than the end of March last year.

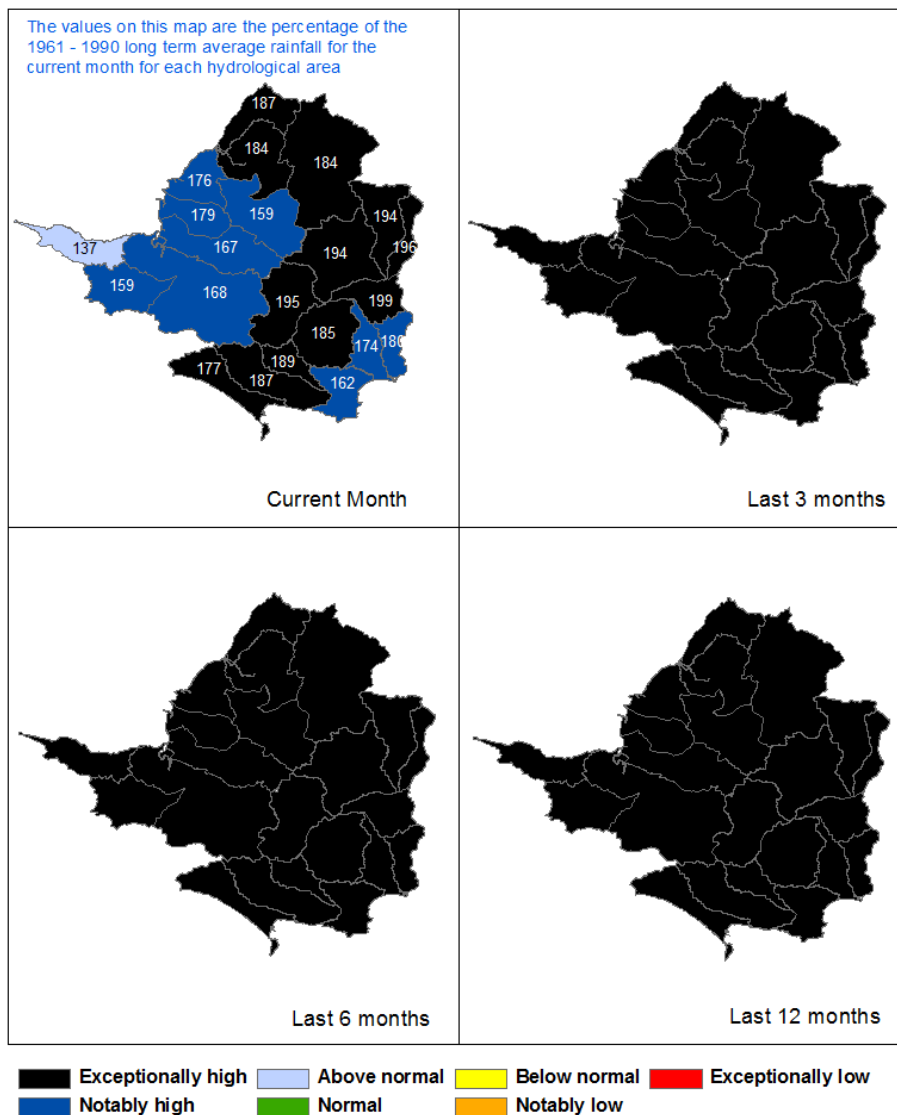
Author: Wessex Hydrology, hydrologywessex@environment-agency.gov.uk

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2 Rainfall

2.1 Rainfall map

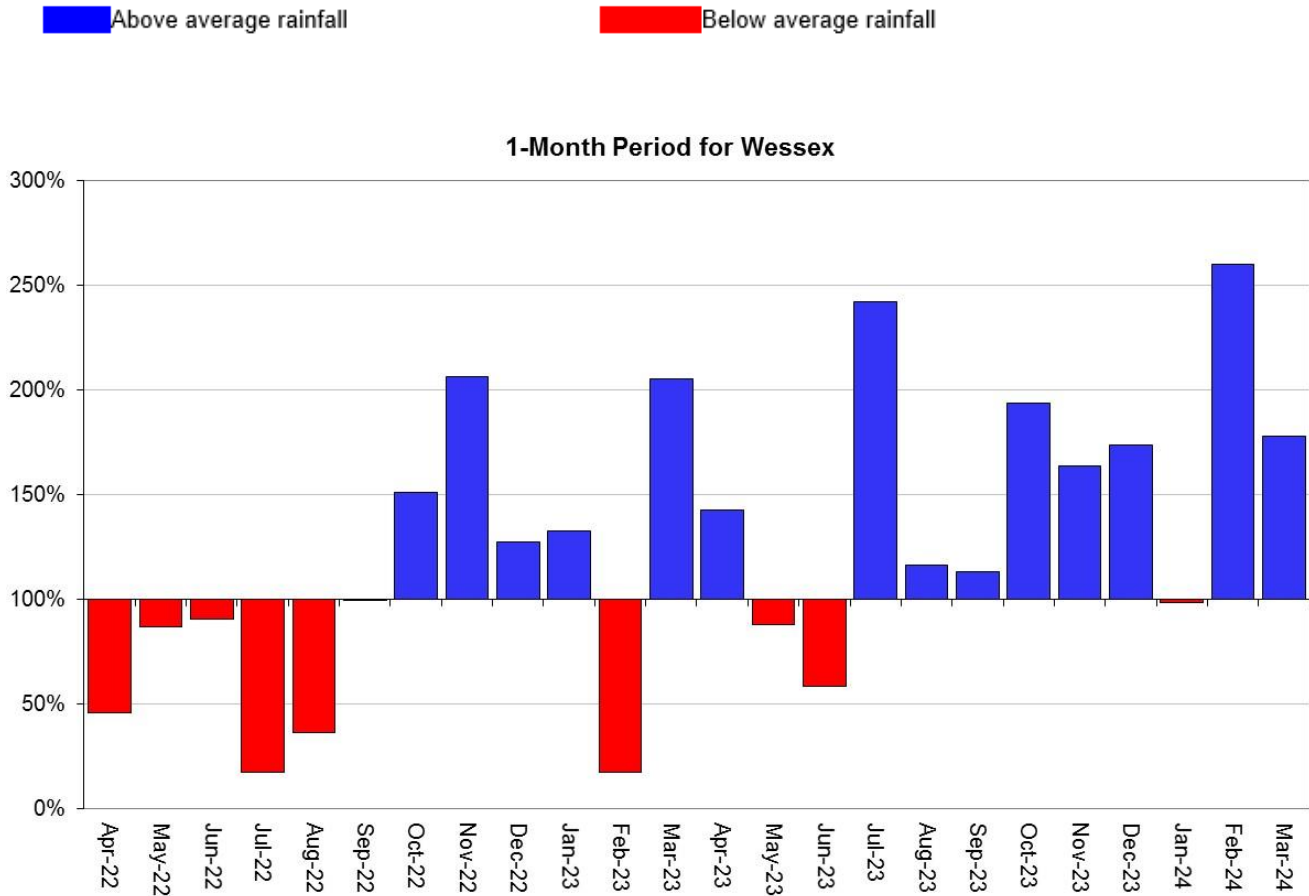
Figure 2.1: Total rainfall for hydrological areas for the current month (up to 31 March 2024), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. Table available in the appendices with detailed information.



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

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.

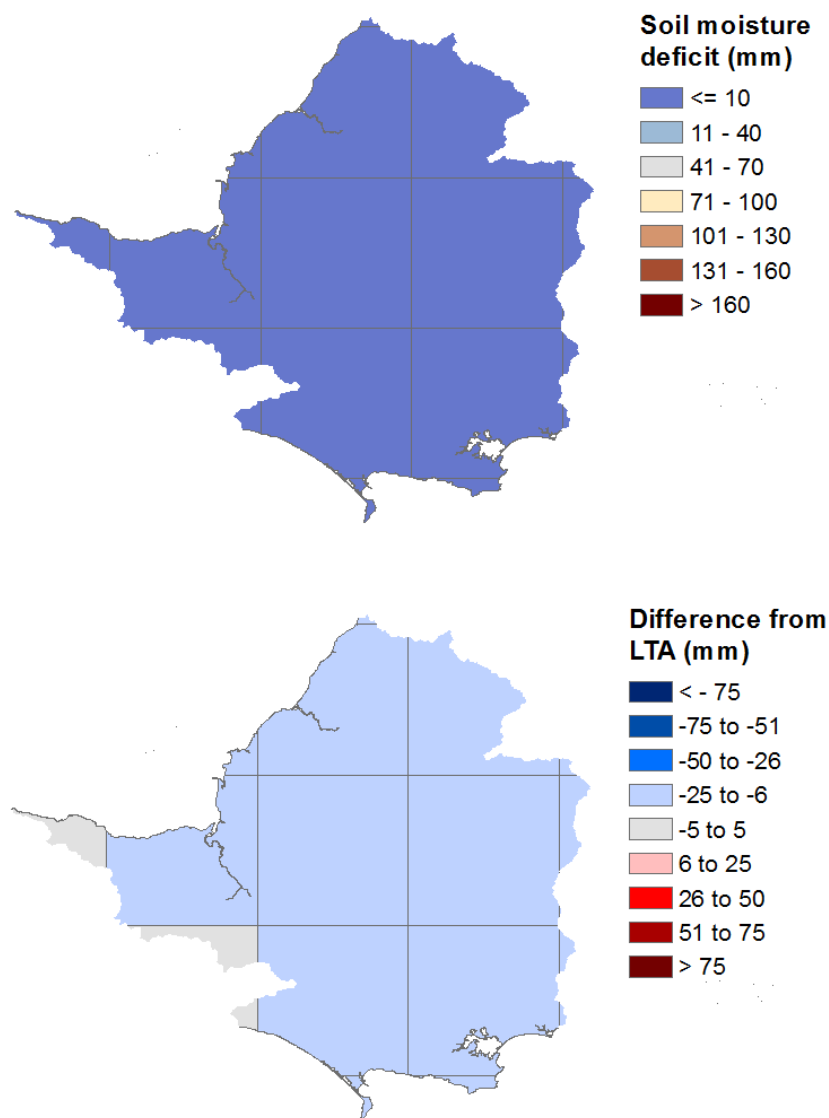


Rainfall data for 2023 and 2024, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, 100024198, 2024). Rainfall data prior to 2023, extracted from Met Office HadUK 1km gridded rainfall dataset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

3 Soil moisture deficit

3.1 Soil moisture deficit map

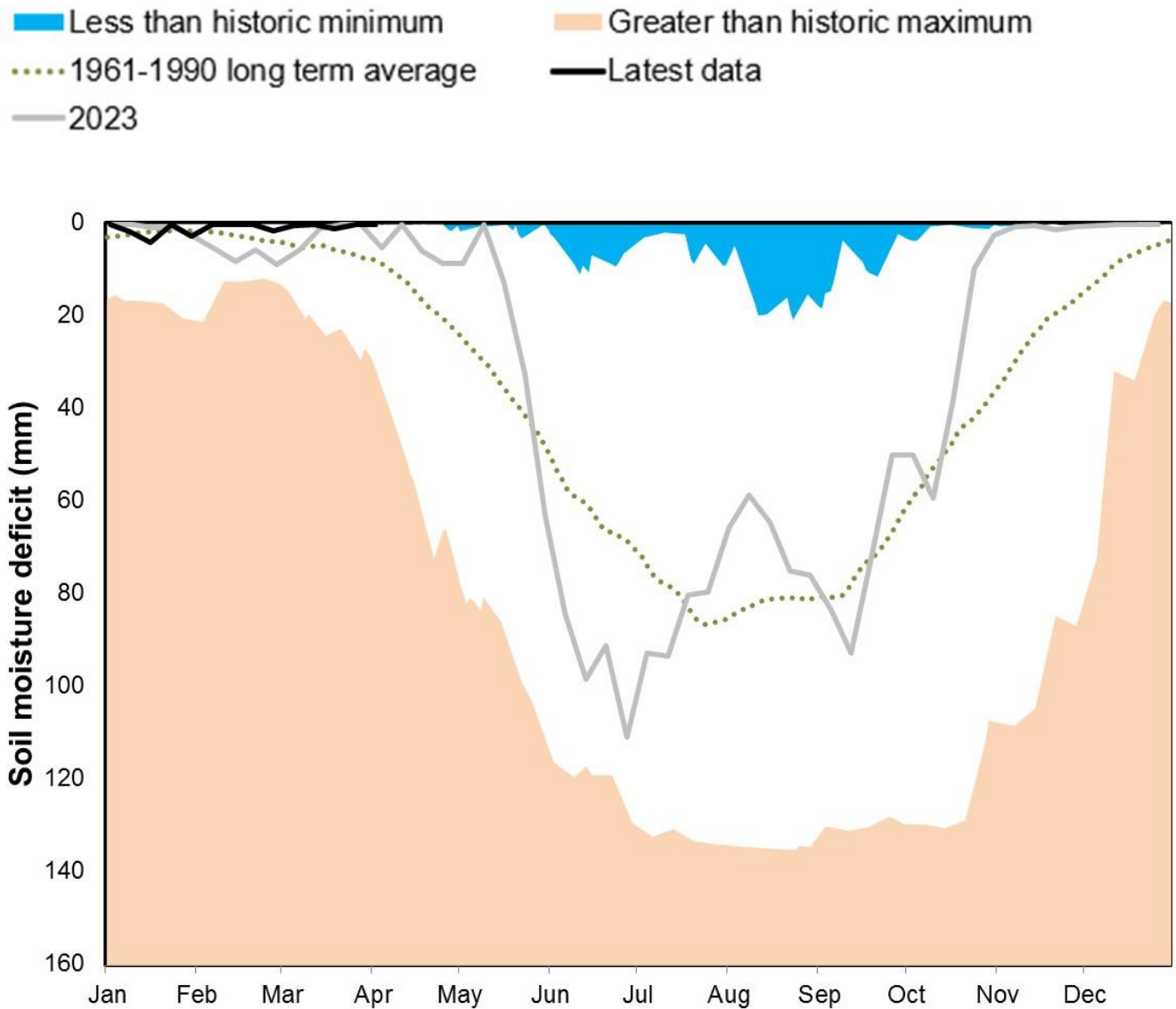
Figure 3.1: Soil moisture deficits for weeks ending 31 March 2024. Shows the difference (mm) of the actual soil moisture deficit from the 1961 to 1990 long term average soil moisture deficits. MORECS data for real land use.



(Source: Met Office. Crown copyright, 2024). All rights reserved. Environment Agency, 100024198, 2024.

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.

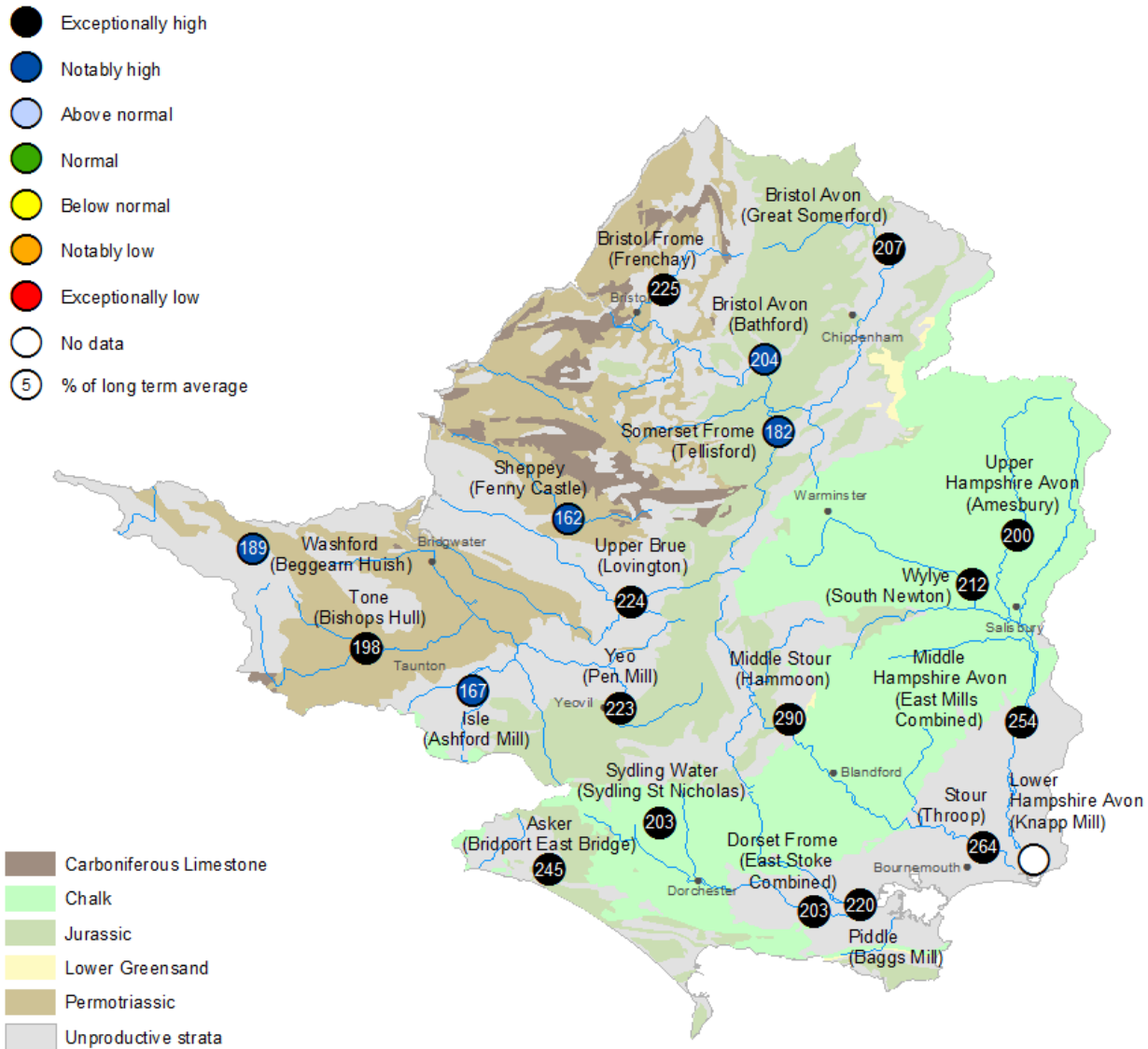


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4 River flows

4.1 River flows map

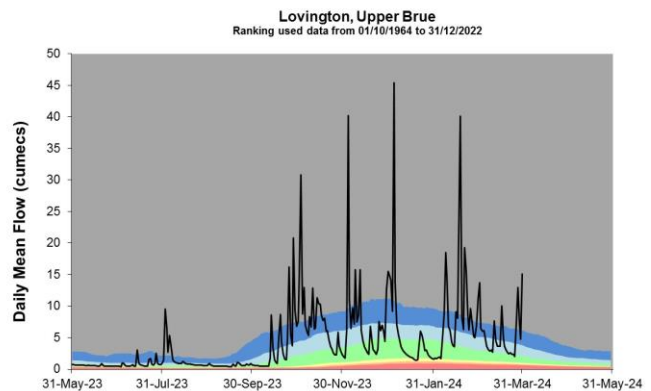
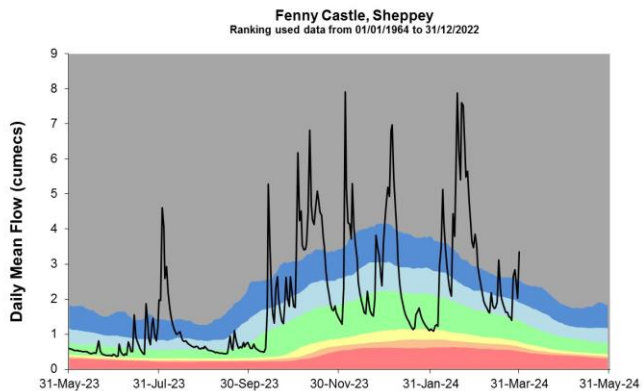
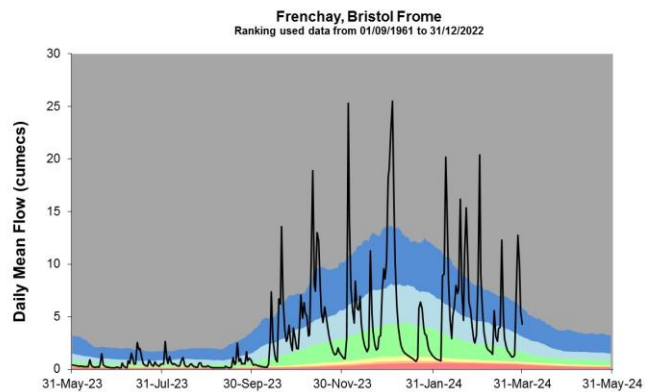
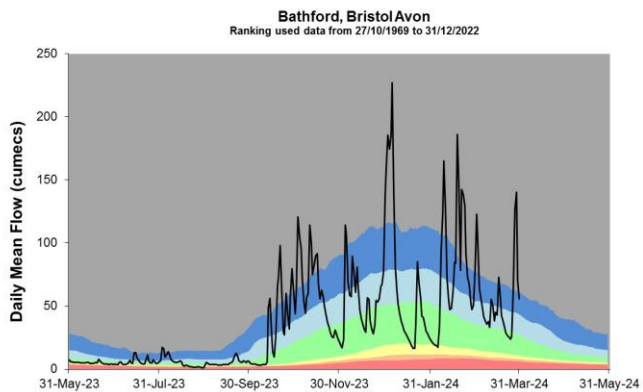
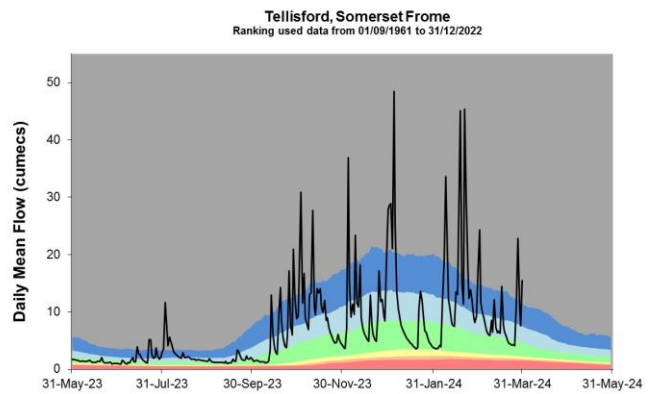
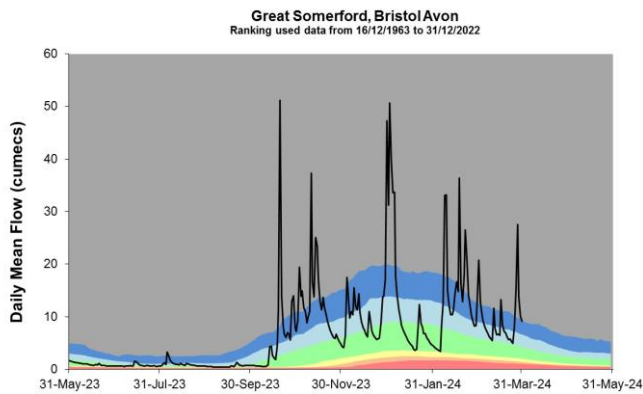
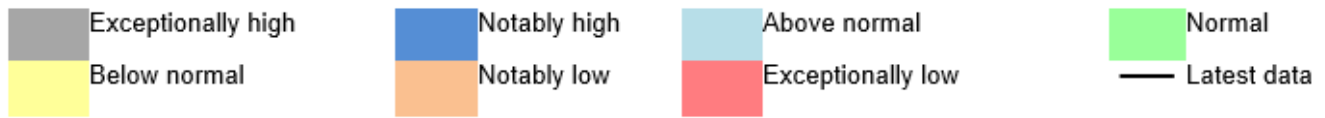
Figure 4.1: Monthly mean river flow for indicator sites for March 2024, expressed as a percentage of the respective long term average and classed relative to an analysis of historic March monthly means Table available in the appendices with detailed information.



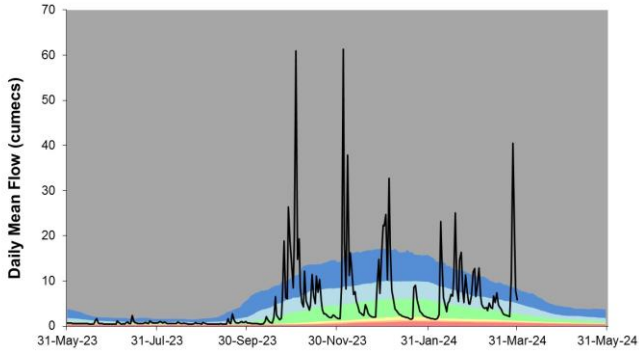
(Source: Environment Agency). Crown copyright. All rights reserved. Environment Agency, 100024198, 2024. Lower Hampshire Avon at Knapp Mill has been omitted due to data quality issues. The Stour at Throop, the Piddle at Baggs Mill, Dorset Frome at East Stoke Combined, Bristol Avon at Bathford and the Washford at Beggeam Huish should be used with caution due to ongoing data issues.

4.2 River flow charts

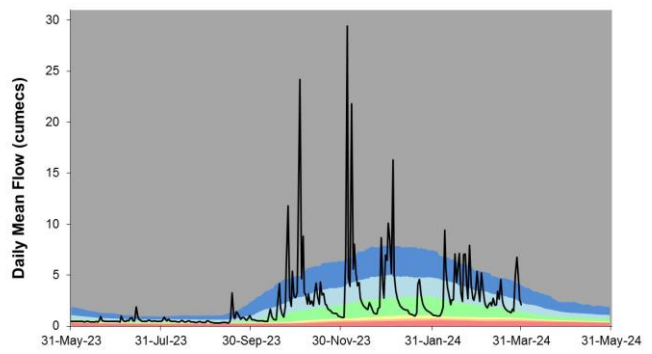
Figure 4.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows.



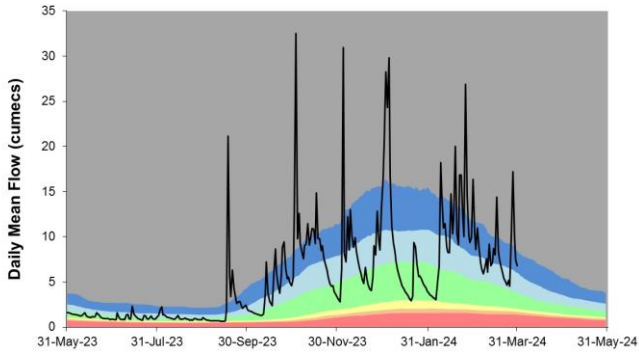
Pen Mill, Somerset Yeo
Ranking used data from 31/10/1963 to 31/12/2022



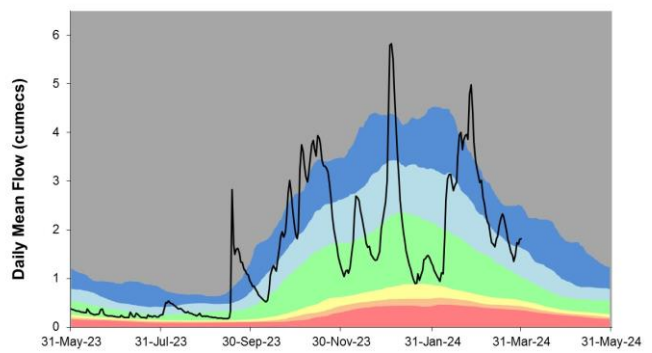
Ashford Mill, River Isle
Ranking used data from 01/10/1962 to 31/12/2022



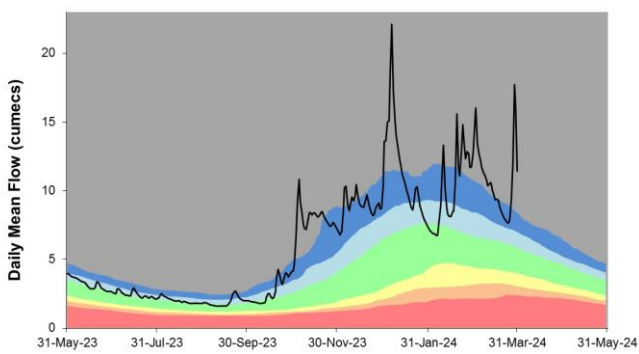
Bishops Hull, River Tone
Ranking used data from 01/02/1961 to 31/12/2022



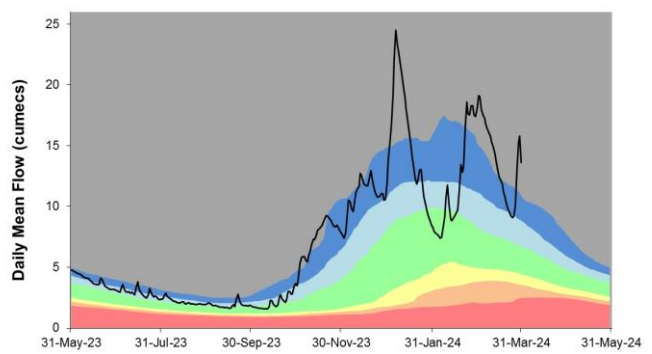
Beggearn Huish, Washford River
Ranking used data from 01/01/1967 to 31/12/2022



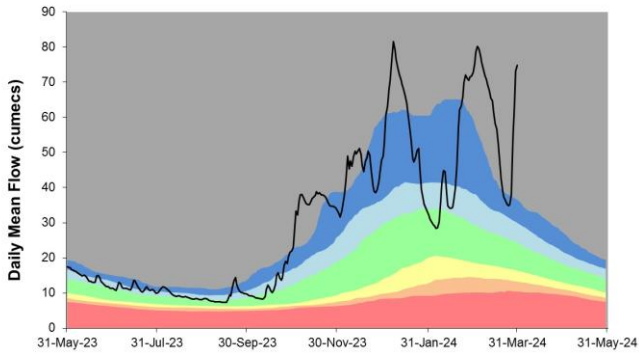
Amesbury, Upper Hampshire Avon
Ranking used data from 01/02/1965 to 31/12/2022



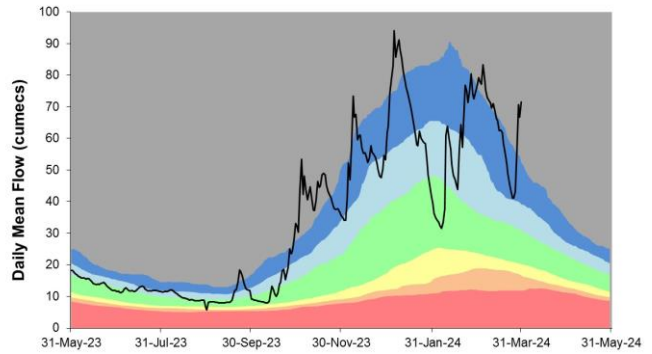
South Newton, River Wylfe
Ranking used data from 01/01/1967 to 31/12/2022

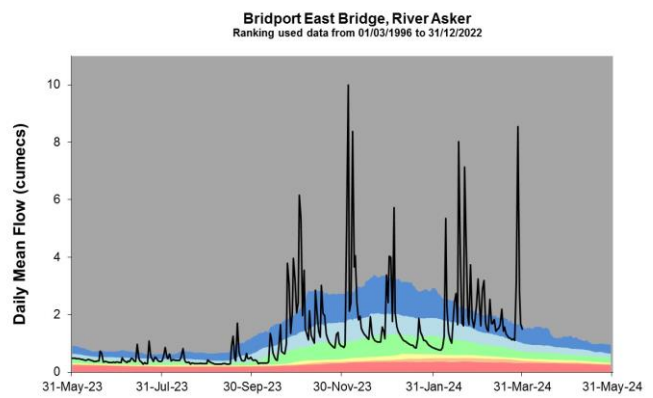
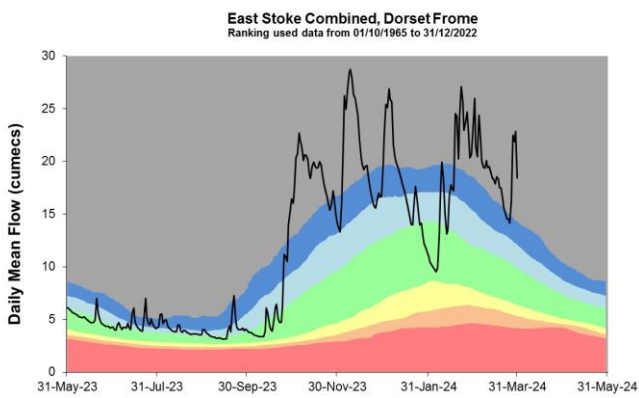
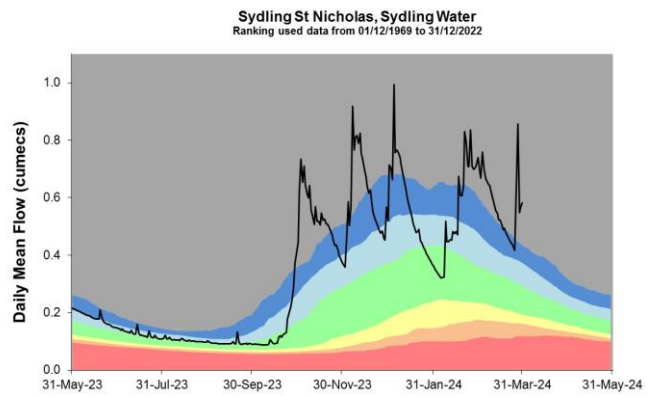
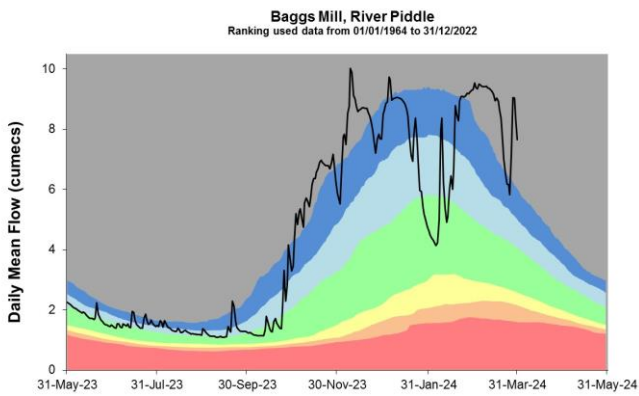
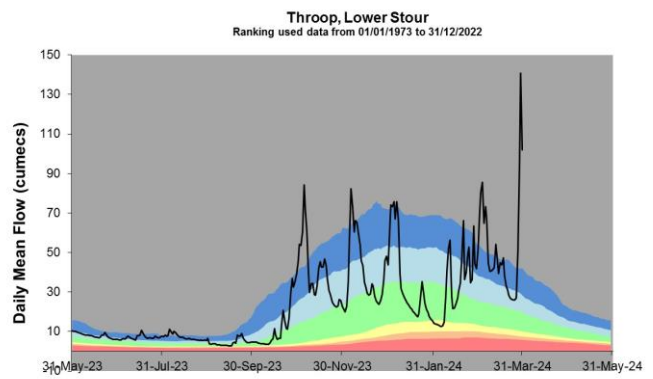
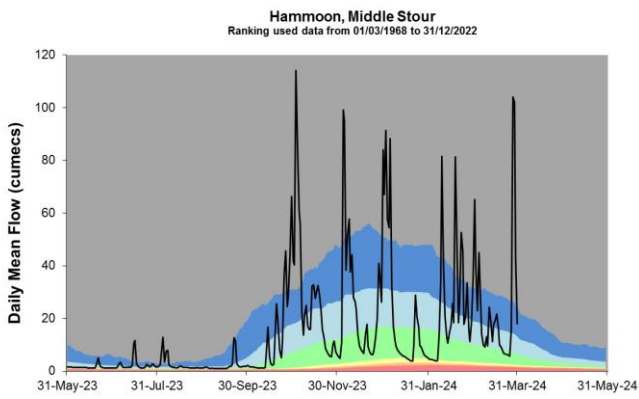


East Mills Combined, Middle Hampshire Avon
Ranking used data from 01/11/1965 to 31/12/2022



Knapp Mill, Upper Hampshire Avon
Ranking used data from 01/01/1975 to 31/12/2022



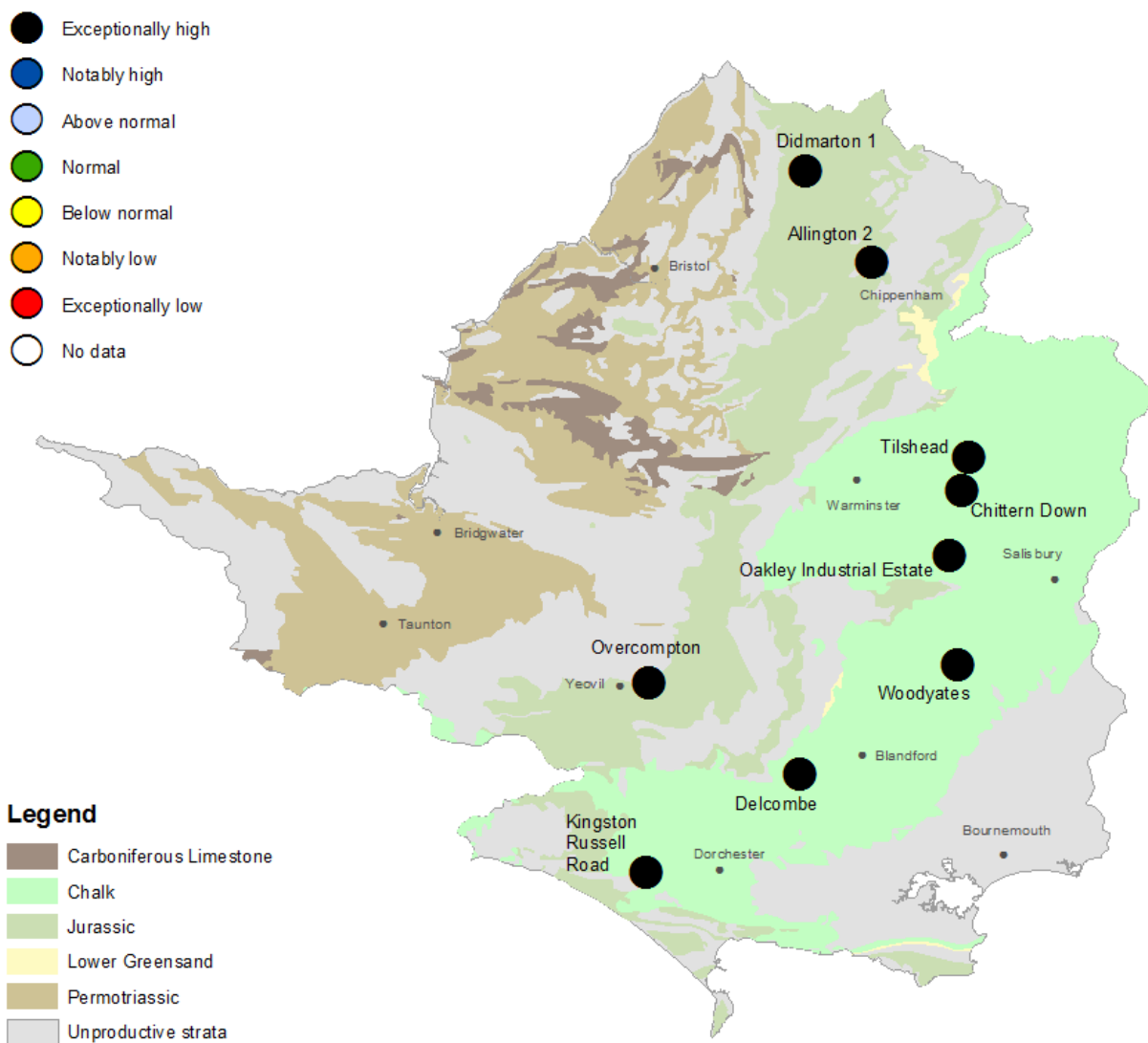


Source: Environment Agency, 2024. The Stour at Throop, the Piddle at Baggs Mill, Dorset Frome at East Stoke Combined, Bristol Avon at Bathford and the Washford at Beggeam Huish should be used with caution due to ongoing data issues.

5 Groundwater levels

5.1 Groundwater levels map

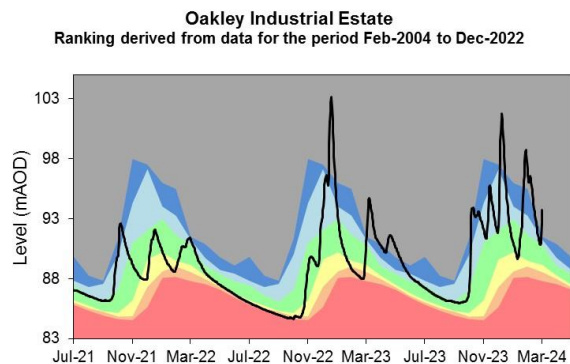
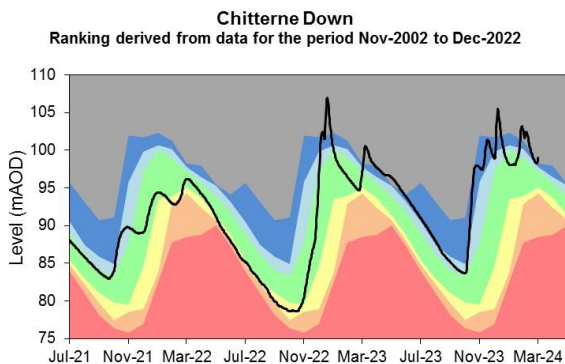
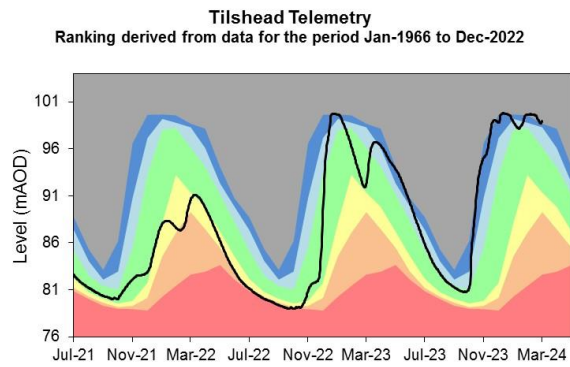
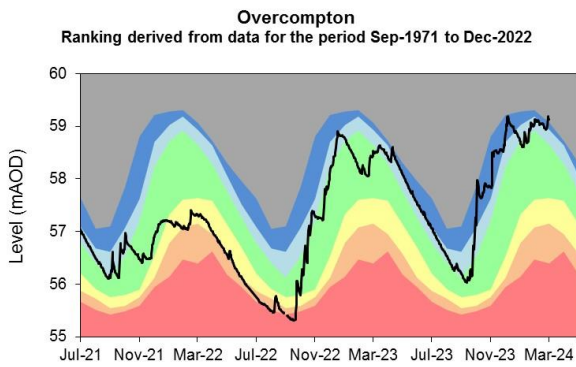
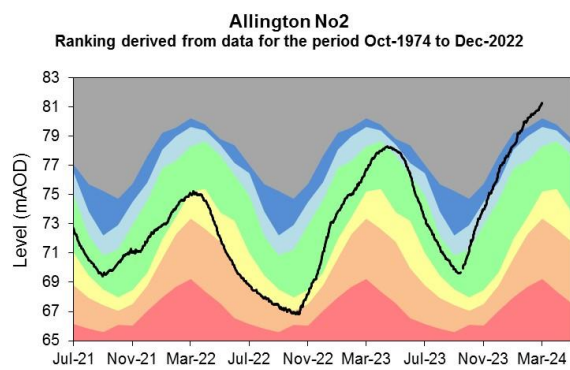
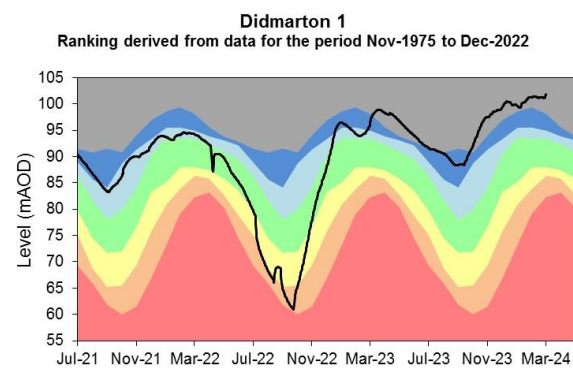
Figure 5.1: Groundwater levels for indicator sites at the end of March 2024, classed relative to an analysis of respective historic March levels. Table available in the appendices with detailed information.

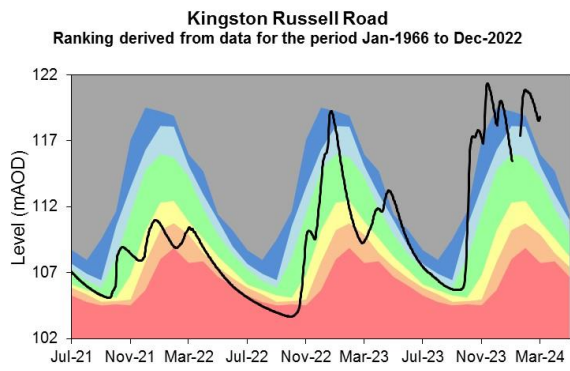
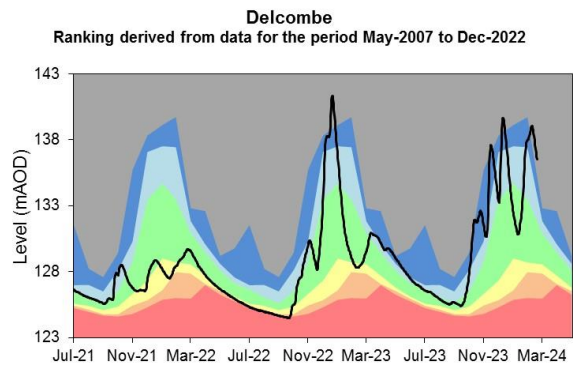
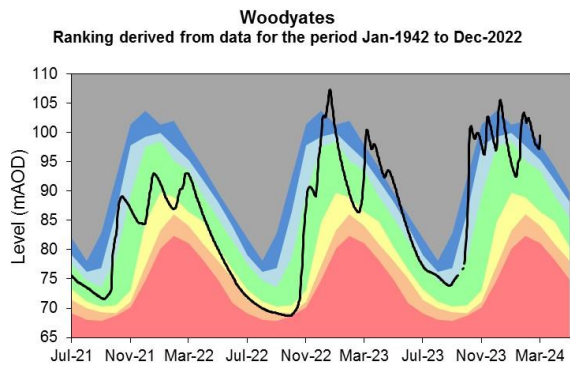


(Source: Environment Agency). Geological map reproduced with kind permission from UK Groundwater Forum, BGS copyright NERC. Crown copyright. All rights reserved. Environment Agency, 100024198, 2024. Delcombe should be taken with caution due to missing data since the 20 March.

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.

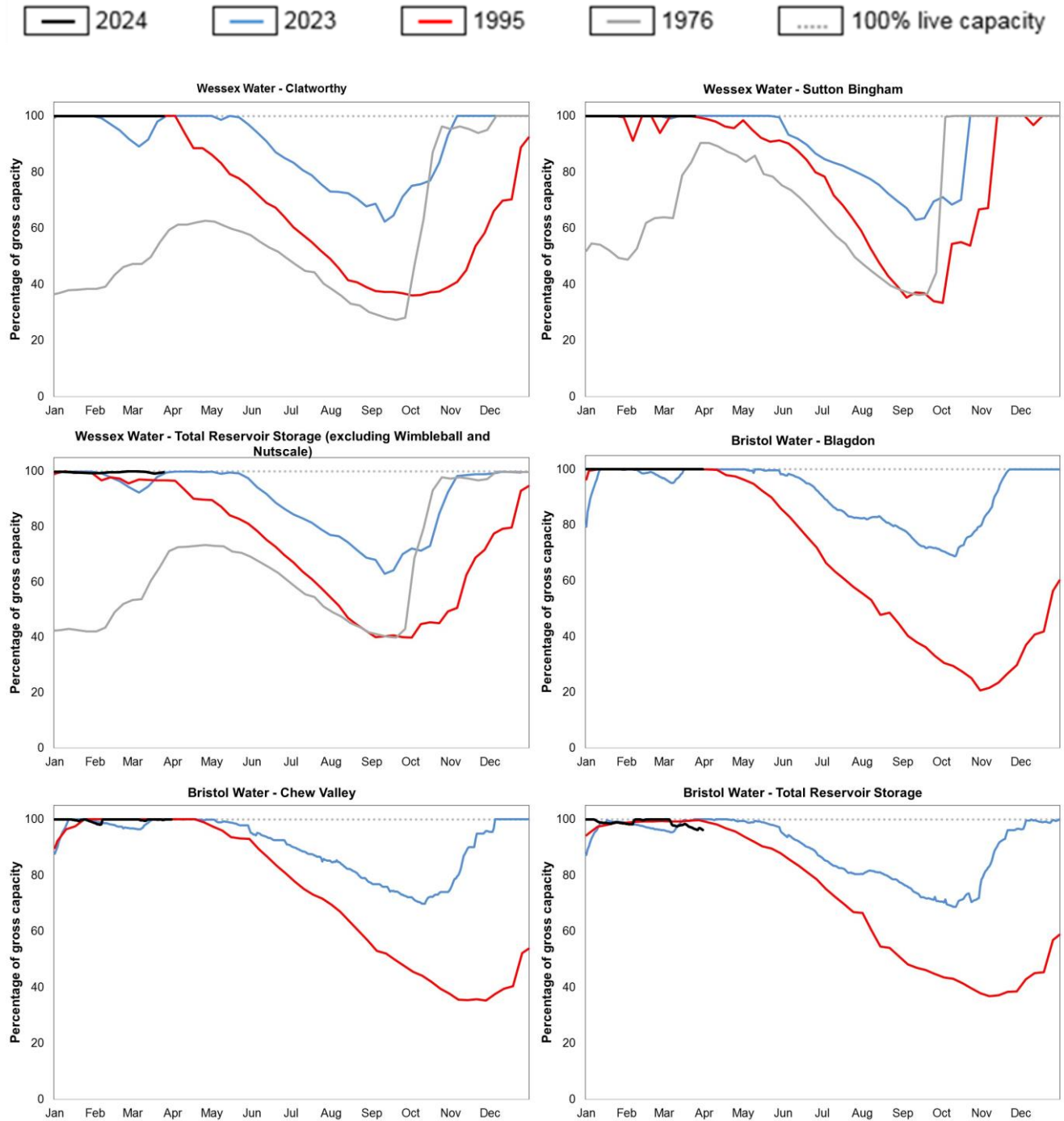




Source: Environment Agency, 2024. Delcombe should be taken with caution due to missing data since the 20 March.

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 March

Area	Number of fluvial flood alerts in March	Number of coastal flood alerts in March	Number of groundwater flood alerts in March
North Wessex	36	9	0
South Wessex	30	19	0

7.2 Flood warnings

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

Area	Number of fluvial flood warnings in March	Number of coastal flood warnings in March	Number of groundwater flood warnings in March
North Wessex	5	6	0
South Wessex	28	6	2

7.3 Severe flood warnings

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

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

8 Stream support

8.1 Sites providing stream support

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

Catchment	River	Stream support site	Gauging station	End of March 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	Wylde	Brixton Deverill	Brixton Deverill & Heytesbury	Off
Hampshire Avon	Wylde	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 March.

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

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

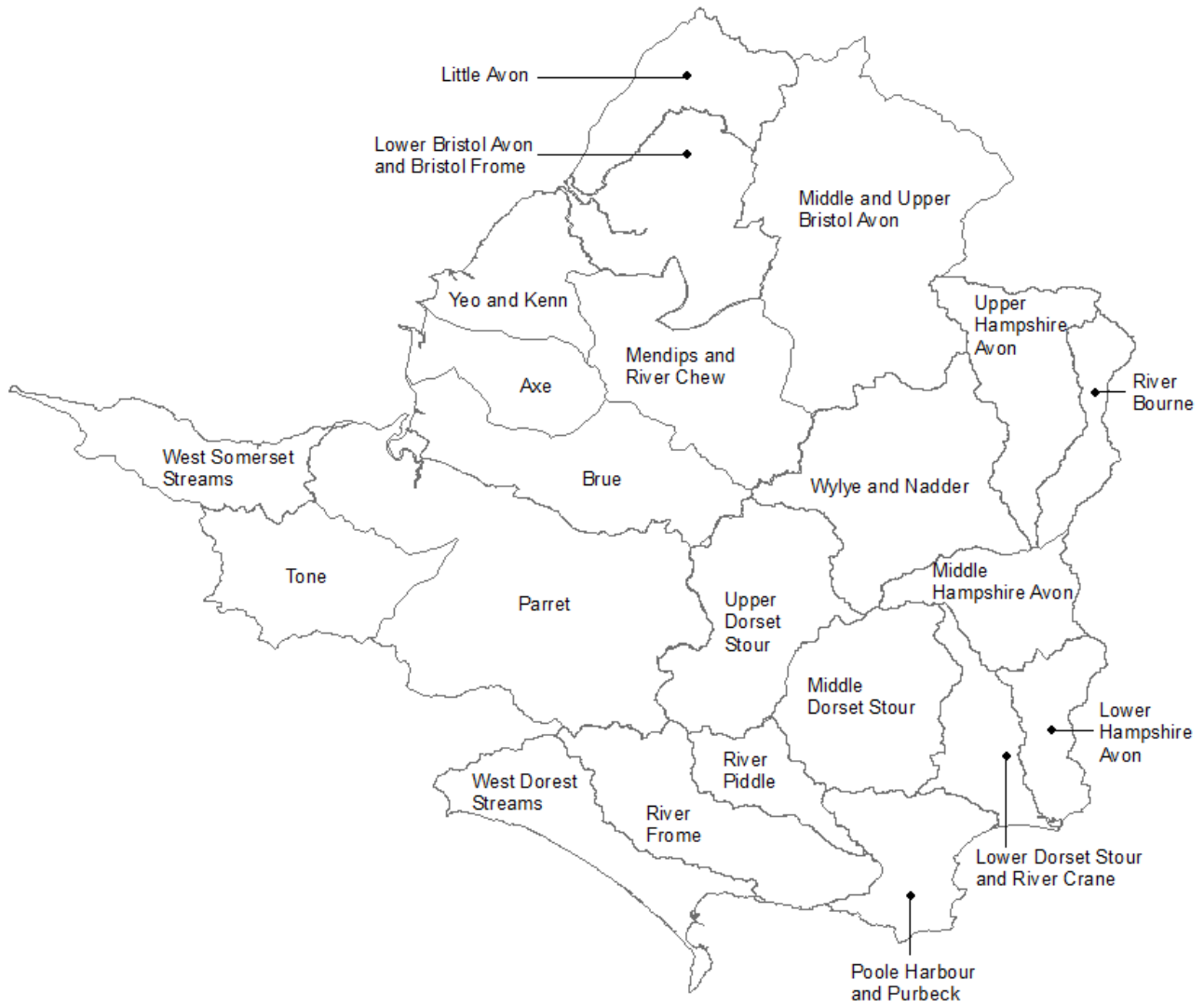
Value likely to fall within this band 8% of the time.

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.



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11 Appendices

11.1 Rainfall table

Hydrological area	Mar 2024 rainfall % of long term average 1961 to 1990	Mar 2024 band	Jan 2024 to March cumulative band	Oct 2023 to March cumulative band	Apr 2023 to March cumulative band
Axe	179	Notably High	Exceptionally high	Exceptionally high	Exceptionally high
Brue	167	Notably High	Exceptionally high	Exceptionally high	Exceptionally high
Little Avon	187	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
Lower Bristol Avon And Bristol Frome	184	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
Lower Dorset Stour And River Crane	174	Notably High	Exceptionally high	Exceptionally high	Exceptionally high
Lower Hampshire Avon	180	Notably High	Exceptionally high	Exceptionally high	Exceptionally high
Mendips And River Chew	159	Notably High	Exceptionally high	Exceptionally high	Exceptionally high
Middle And Upper Bristol Avon	184	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high

Middle Dorset Stour	185	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
Middle Hampshire Avon	199	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
Parrett	168	Notably High	Exceptionally high	Exceptionally high	Exceptionally high
Poole Harbour And Purbeck	162	Notably High	Exceptionally high	Exceptionally high	Exceptionally high
River Bourne	196	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
River Frome	187	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
River Piddle	189	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
Tone	159	Notably High	Exceptionally high	Exceptionally high	Exceptionally high
Upper Dorset Stour	195	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
Upper Hampshire Avon	194	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
West Dorset Streams	177	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high

West Somerset Streams	137	Above Normal	Exceptionally high	Exceptionally high	Exceptionally high
Wylde And Nadder	194	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
Yeo And Kenn	176	Notably High	Exceptionally high	Exceptionally high	Exceptionally high

11.2 River flows table

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

Great Somerford	Bristol Avon	Bristol Avon	Exceptionally high	Exceptionally high
Hammoon	Dorset Stour	Dorset Stour	Exceptionally high	Notably high
Knapp Mill	Hampshire Avon	Hampshire Avon	Exceptionally high	Above normal
Lovington	Brue	Brue	Exceptionally high	Exceptionally high
Pen Mill	Somerset Yeo	Parrett	Exceptionally high	Notably high
South Newton	Wylfe	Hampshire Avon	Exceptionally high	Above normal
Sydling St Nicholas	Sydling Water	Dorset Frome	Exceptionally high	Notably high
Tellisford	Somerset Frome	Bristol Avon	Notably high	Exceptionally high
Throop	Dorset Stour	Dorset Stour	Exceptionally high	Above normal

11.3 Groundwater table

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