

Monthly water situation report: Wessex Area

1 Summary - April 2024

April showed a slight reprieve to the very wet weather from the previous few months. An average of 68mm of rain fell across Wessex, 128% of the long term average (LTA). While April was not a record breaking month in terms of rainfall, the last 3, 6 and 12 months have been the wettest since records began in 1871. Soil moisture deficit (SMD) mainly remained close to 0mm, with some areas in the west of Wessex ranging between 11-40mm at the end of the month. Monthly mean river flows were exceptionally high, notably high or above normal across the area. All groundwater monitoring sites across Wessex recorded either exceptionally, or notably high levels at the end of April. Throughout April reservoir levels for Wessex Water remained close to 100%, with Bristol Water reservoir levels remaining consistent at around 95% capacity.

1.1 Rainfall

An average of 68mm of rain fell across Wessex in April (128% of the LTA), making it comparatively drier than previous months. April had a wet start with 41% of the monthly total rain falling between 1 to 4 April. A total of 91% LTA rainfall for the whole month fell at the Tollerdown rain gauge over these first 4 days.

April 2024 was the 49th wettest since records began in 1871. However, due to previously high rainfall, it has been the wettest 3 months (February to April), 6 months (November to April) and 12 months (May to April) since our records began. In April all hydrological areas recorded either normal or above normal rainfall. Most hydrological areas in the east of Wessex recorded above normal levels, with all but one area in the west of Wessex recording normal levels. Longer term, all hydrological areas across Wessex received exceptionally high rainfall for the past 3, 6 and 12 month periods.

1.2 Soil moisture

SMD mostly remained close to 0mm across Wessex during April, but some areas to the south and south-west of Wessex recorded a range of 11-40mm. The majority of Wessex recorded a SMD of 6-25% lower than the LTA, with areas to the west within 5% of the LTA.

1.3 River flows

All sites in Wessex recorded above normal, notably high or exceptionally high monthly mean flows in April 2024. All of the sites in the Chalk catchments were exceptionally high because previous months' heavy rainfall was still filtering through the aquifer. Sites in quicker

responding catchments had above normal or notably high flows, reflecting the rainfall seen during April. Half of the sites showed reduced flows at the end of the month in comparison to March, with the other half of sites maintaining the same banding. All daily mean flows decreased from the beginning of April to the end of the month in response to the lack of rainfall, after a sustained period of wet weather previously.

1.4 Groundwater levels

All groundwater sites across Wessex recorded exceptionally or notably high levels at the end of April. There was an even split between the sites monitoring the Chalk with 3 reporting notably high levels and 3 reporting exceptionally high levels. In the north of Wessex Didmarton (monitoring the Inferior Oolite formation) also recorded an exceptionally high level. After a sustained period of very wet weather Kingston Russell Road (monitoring the Chalk) and Didmarton reported their highest monthly mean values since their respective records began. By the end of the month all groundwater sites showed decreasing levels.

1.5 Reservoir stocks

The reservoir levels remained close to 100% capacity during April for Wessex Water, reporting at approximately 99% full which is similar to the levels recorded this time last year. Bristol Water reported to have approximately 95% full storage capacity which has remained steady throughout the month, this is around 5% lower than the end of April last year.

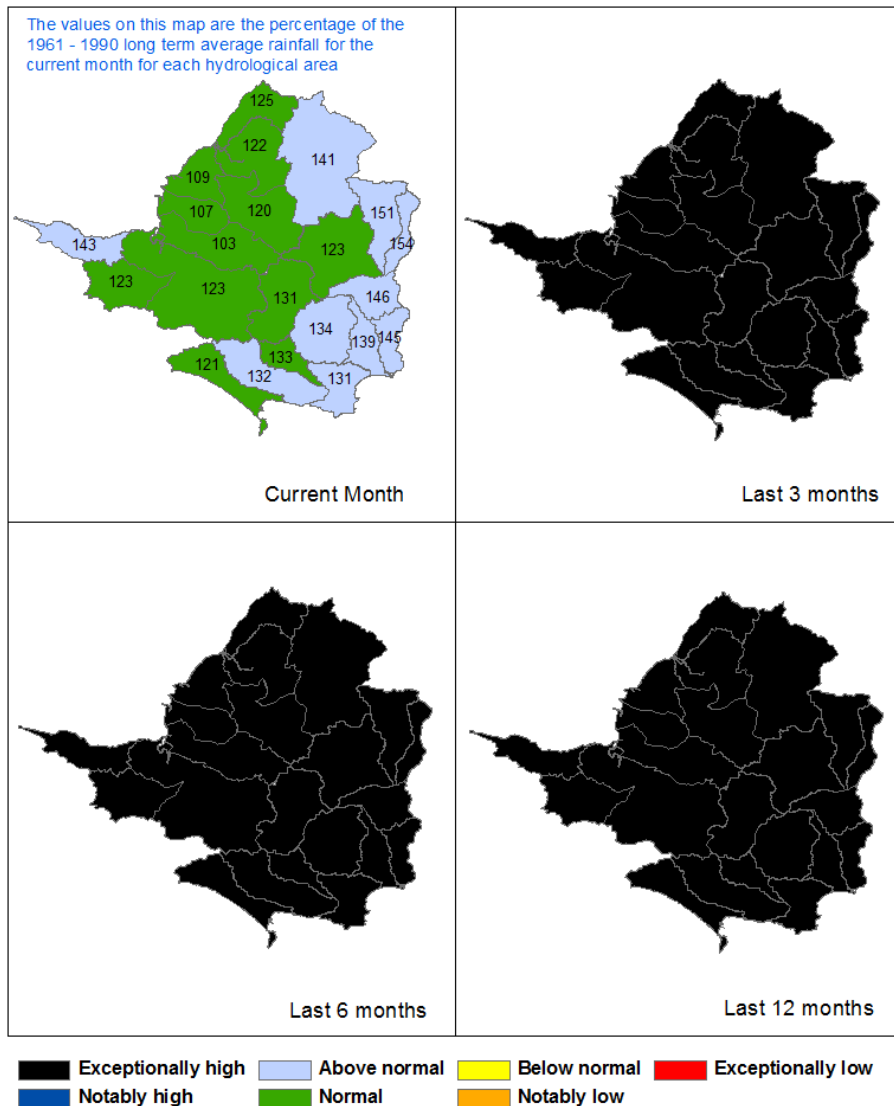
Author: Wessex Hydrology, hydrologywessex@environment-agency.gov.uk

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2 Rainfall

2.1 Rainfall map

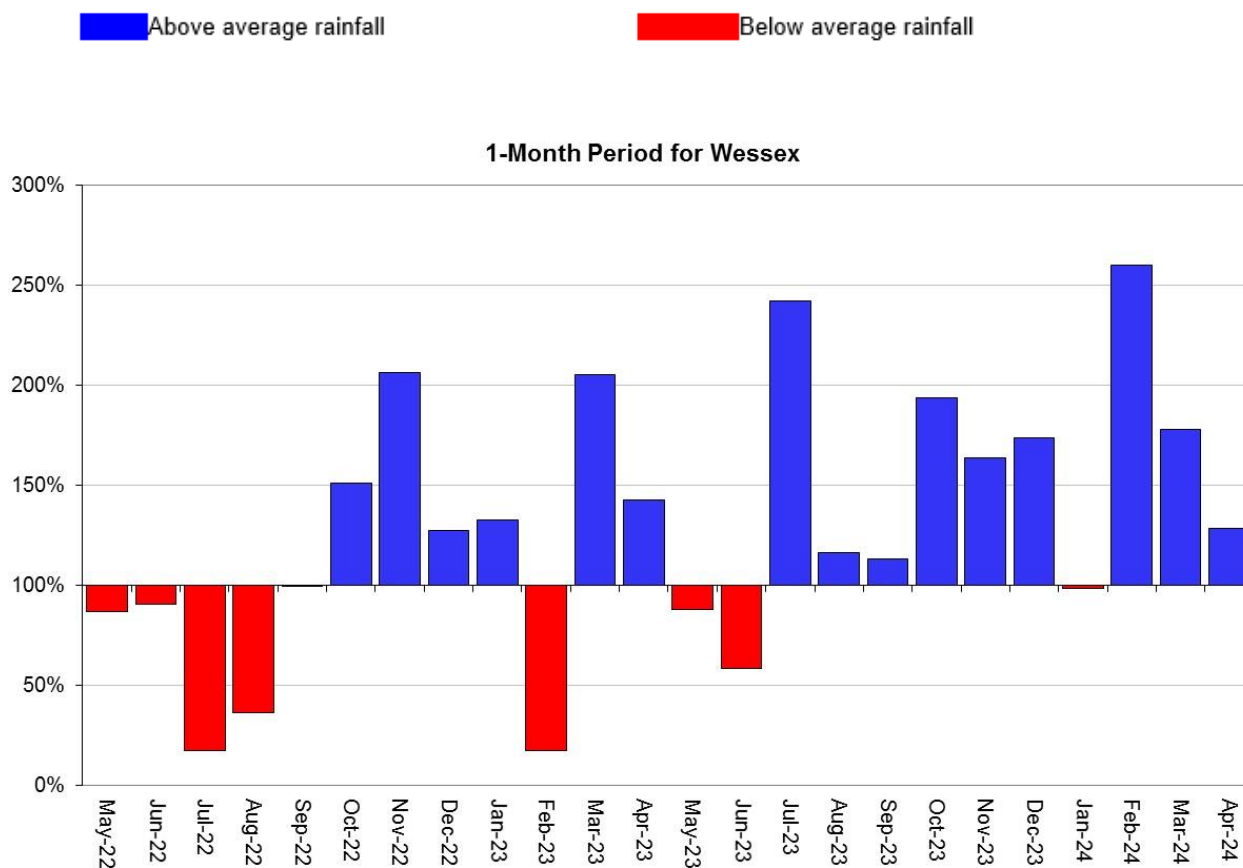
Figure 2.1: Total rainfall for hydrological areas for the current month (up to 30 April 2024), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. Table available in the appendices with detailed information.



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.

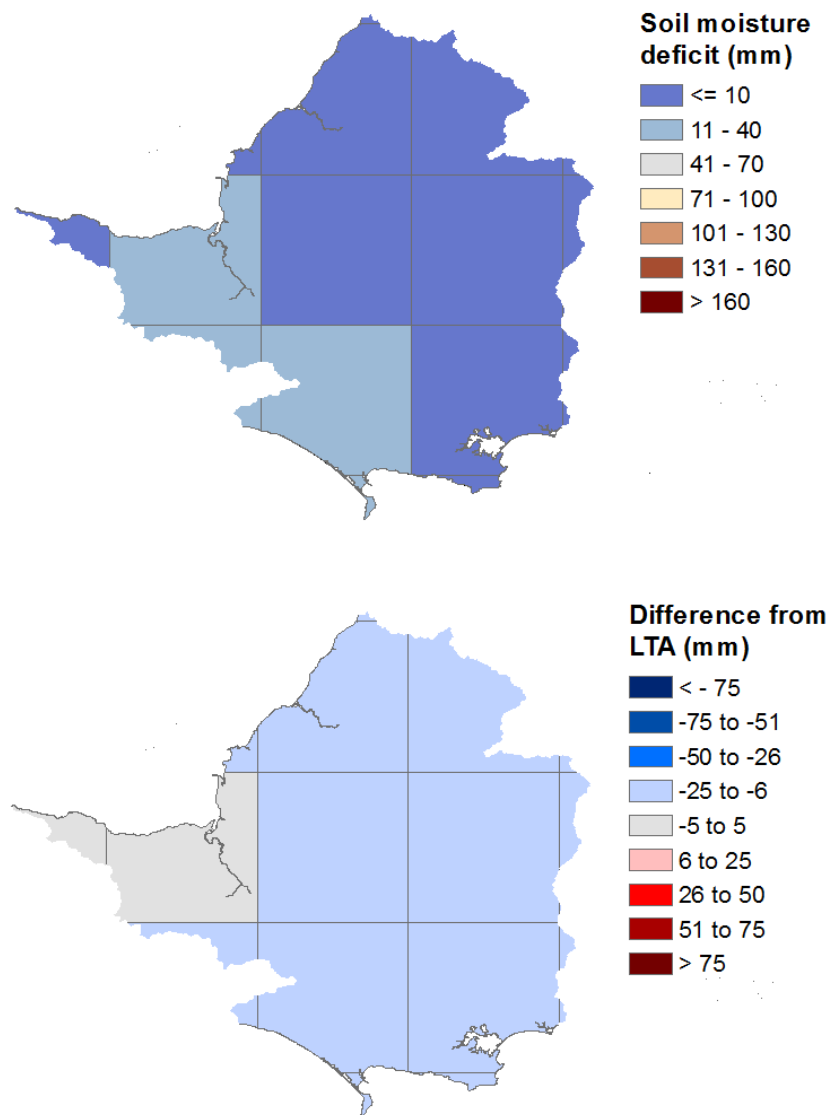


Rainfall data for 2023 and 2024, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, 100024198, 2024). Rainfall data prior to 2023, extracted from Met Office HadUK 1km gridded rainfall dataset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

3 Soil moisture deficit

3.1 Soil moisture deficit map

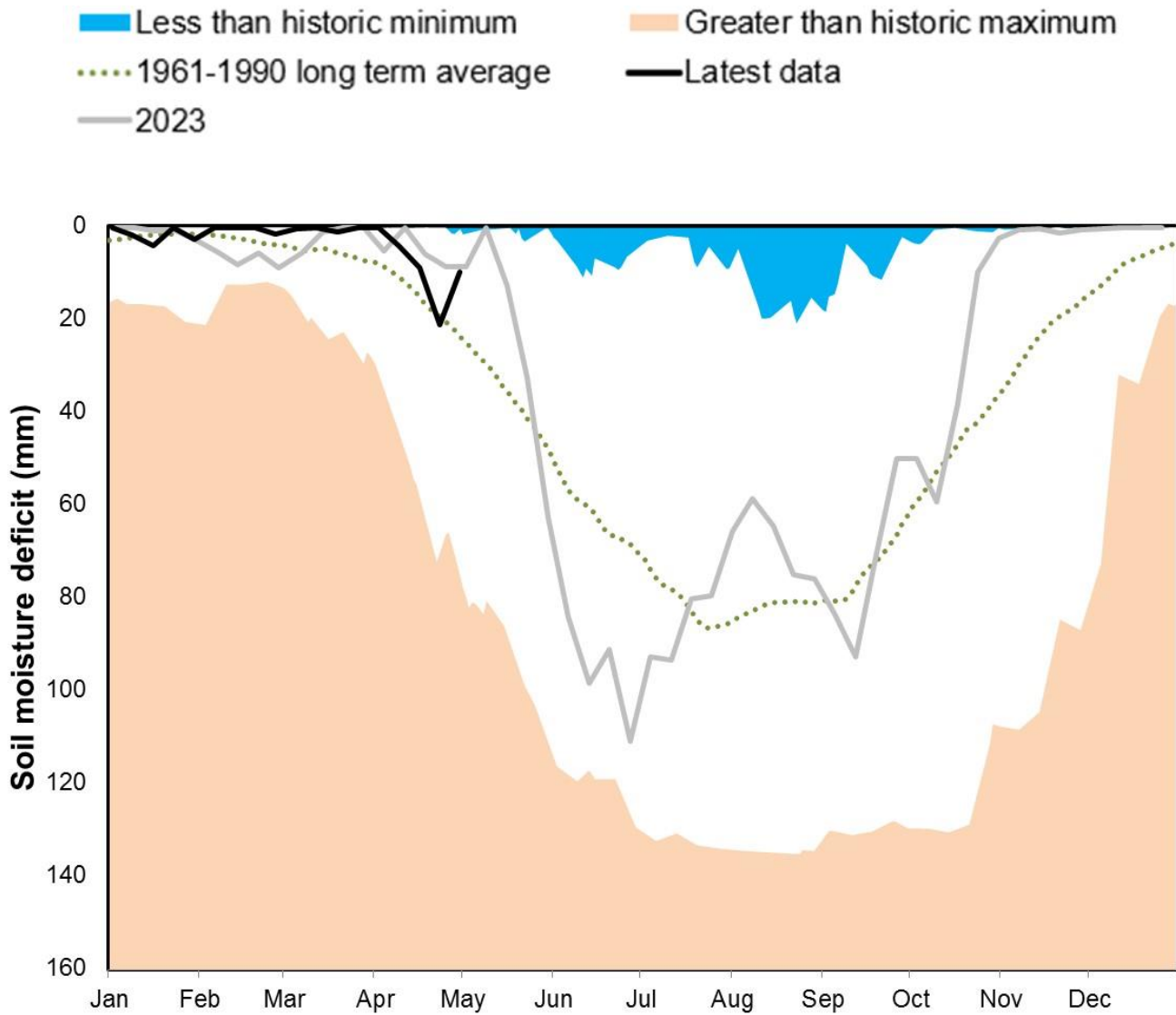
Figure 3.1: Soil moisture deficits for weeks ending 30 April 2024. Shows the difference (mm) of the actual soil moisture deficit from the 1961 to 1990 long term average soil moisture deficits. MORECS data for real land use.



(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.

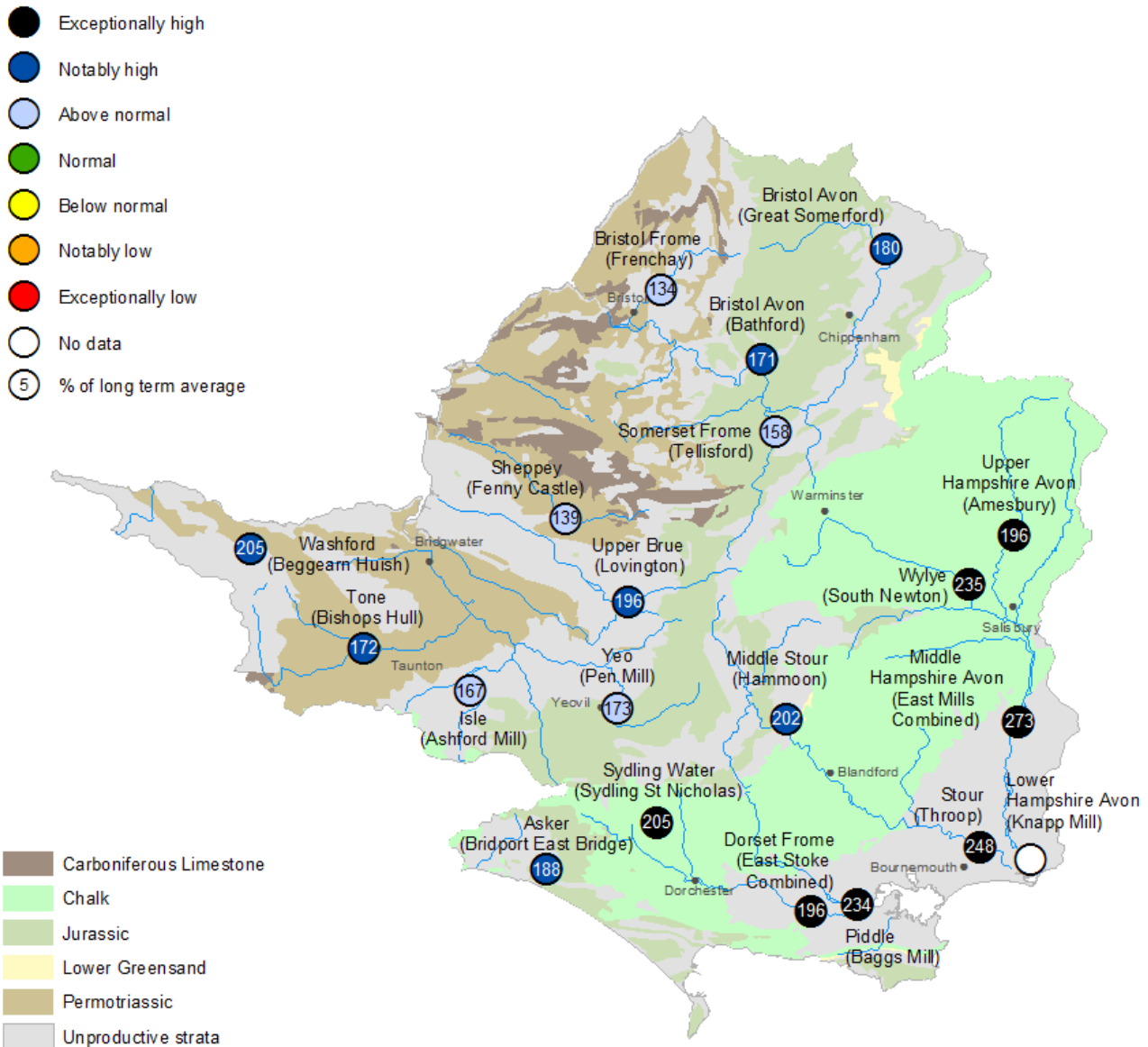


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4 River flows

4.1 River flows map

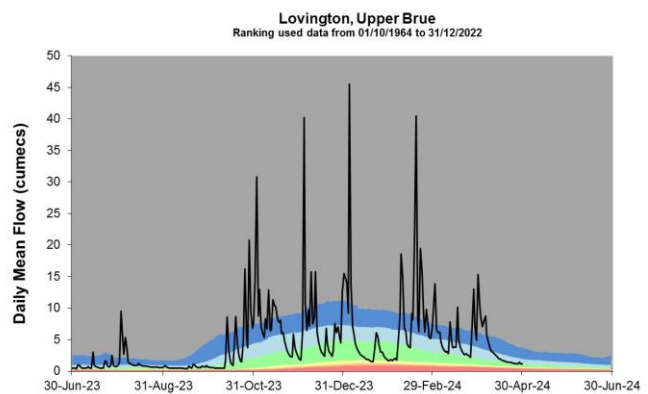
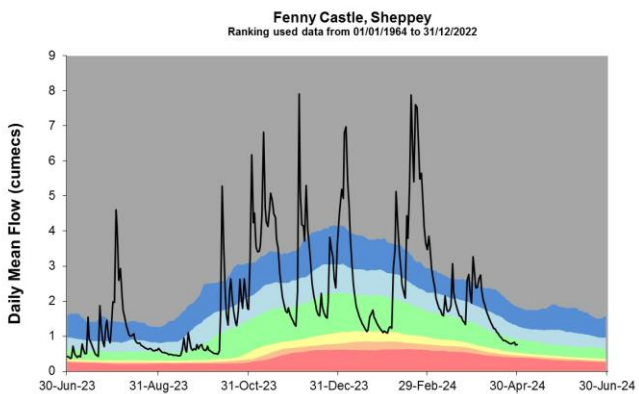
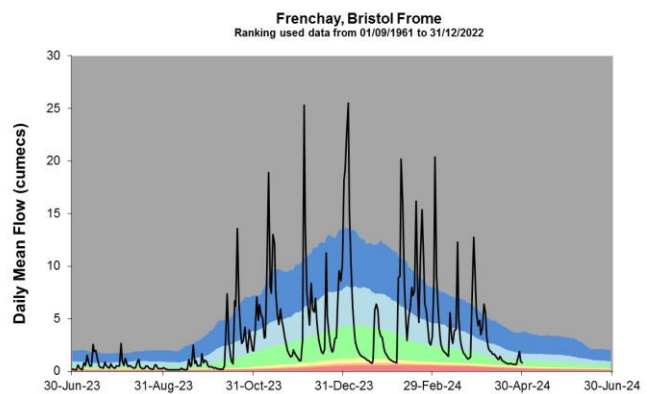
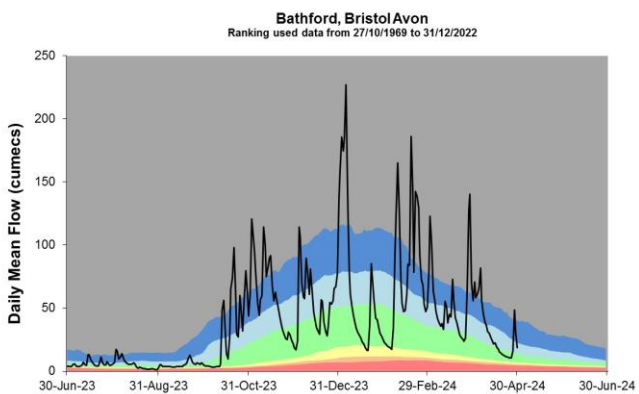
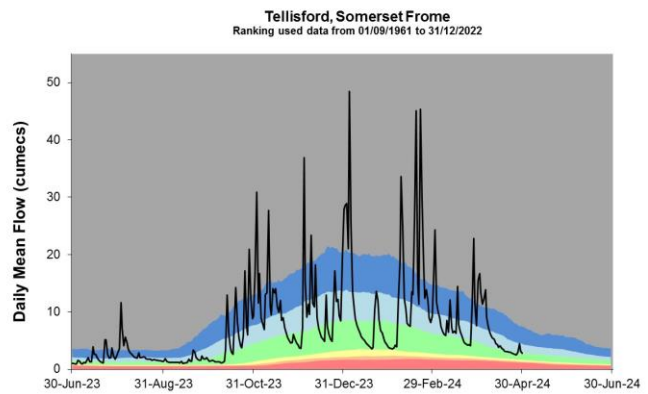
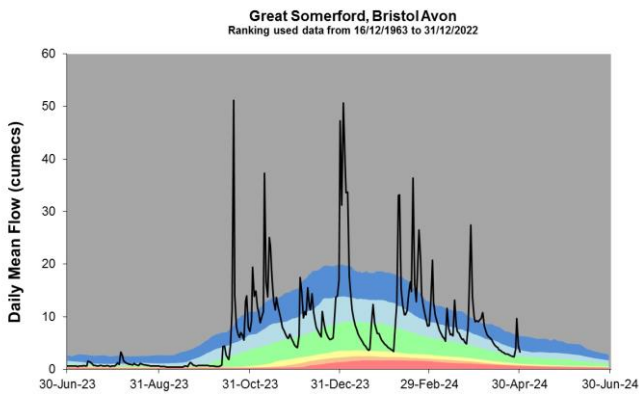
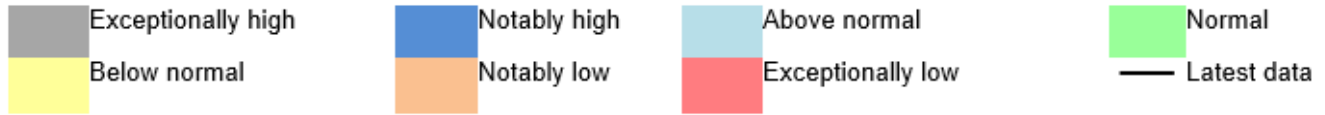
Figure 4.1: Monthly mean river flow for indicator sites for April 2024, expressed as a percentage of the respective long term average and classed relative to an analysis of historic April monthly means Table available in the appendices with detailed information.

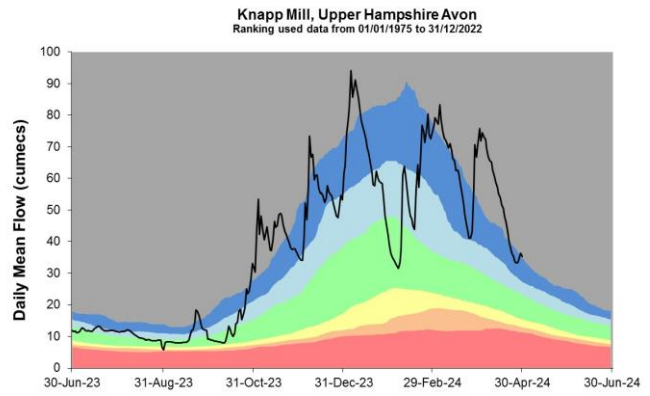
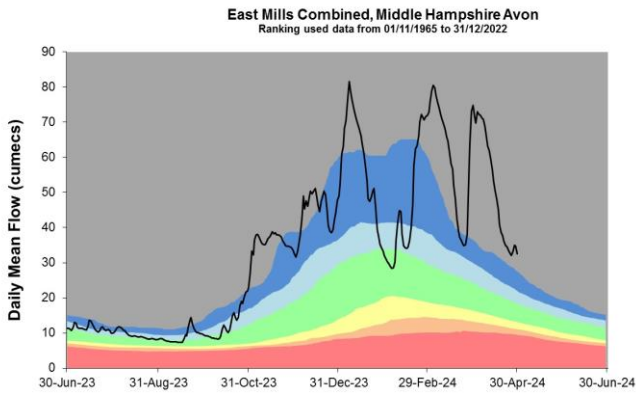
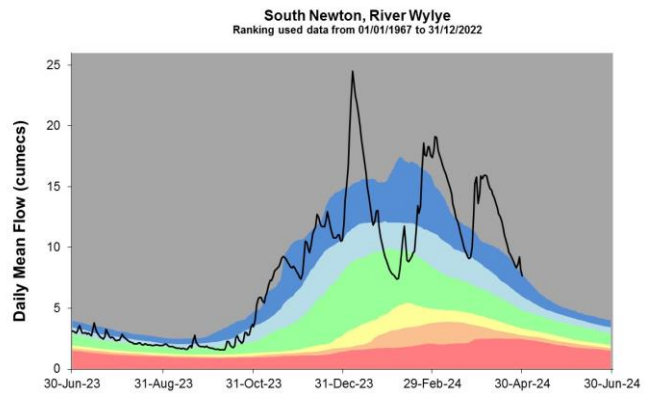
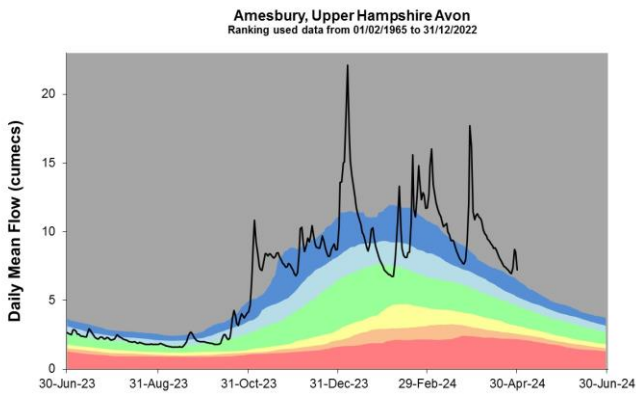
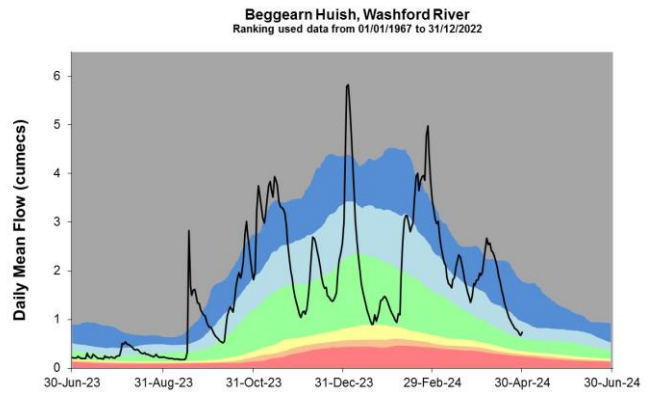
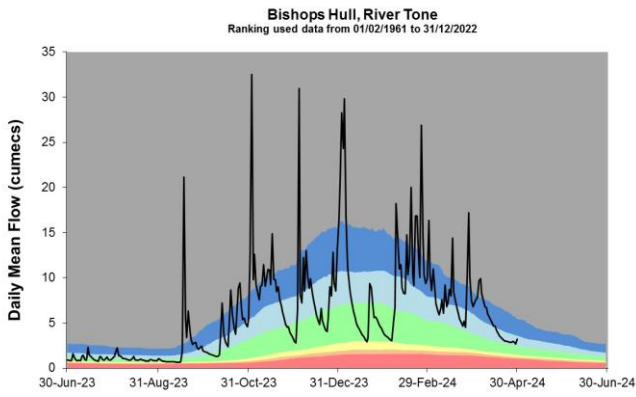
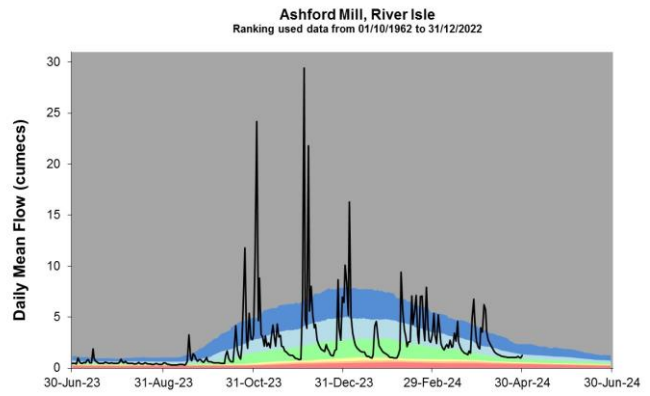
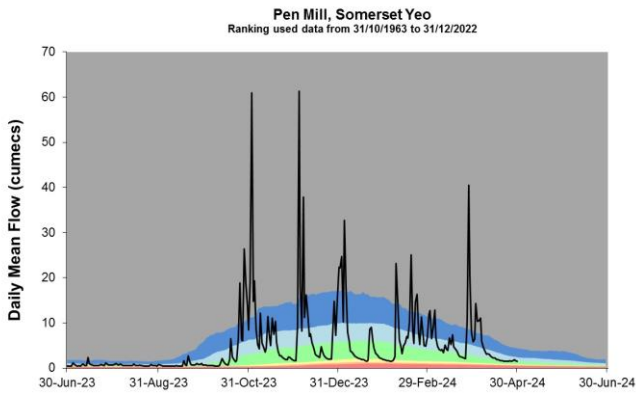


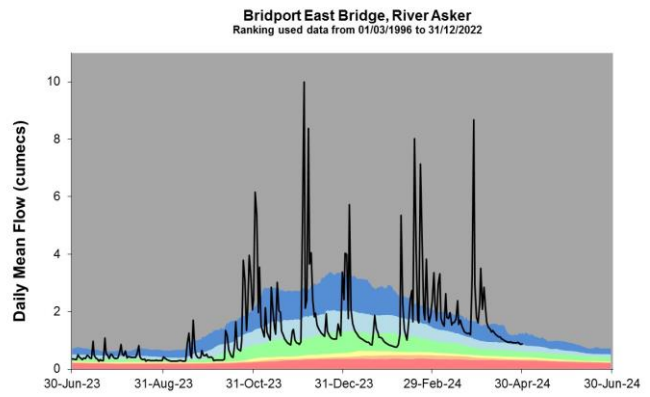
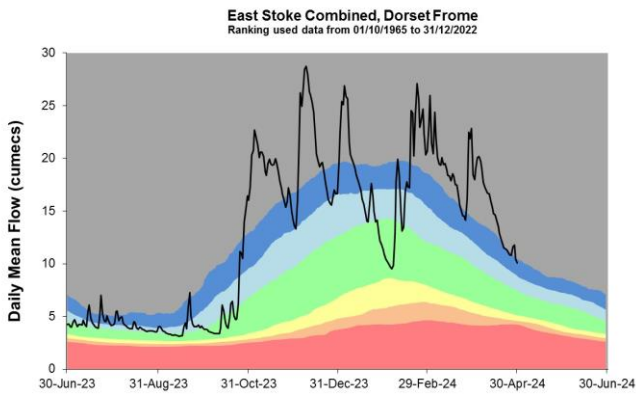
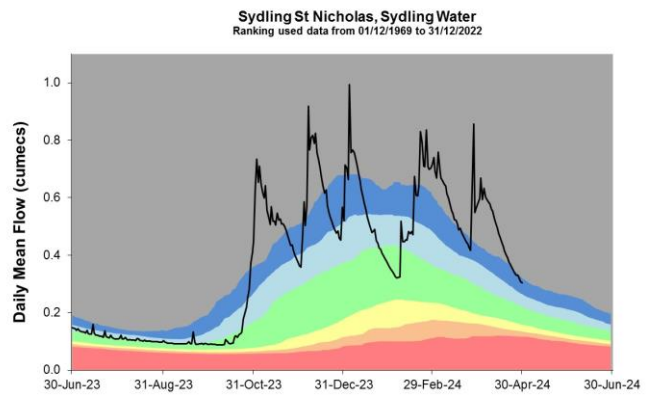
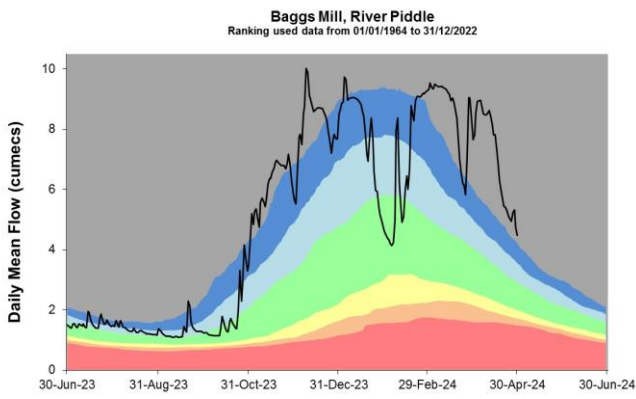
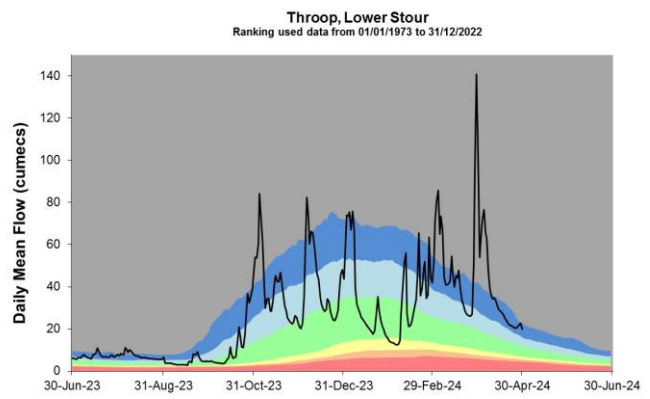
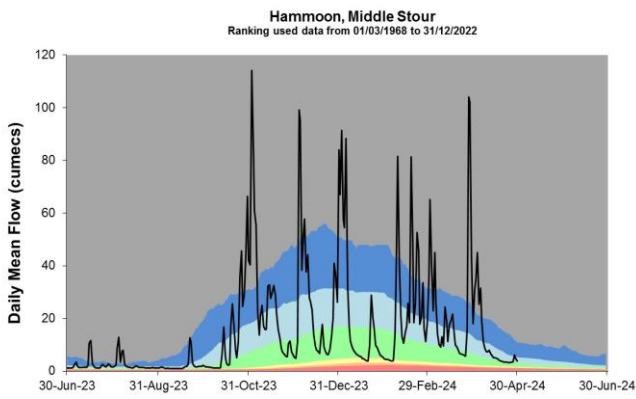
(Source: Environment Agency). Crown copyright. All rights reserved. Environment Agency, 100024198, 2024. Lower Hampshire Avon at Knapp Mill has been omitted due to ongoing data quality issues. The Stour at Throop, the Dorset Frome at East Stoke Combined and the Piddle at Baggs Mill should be used with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





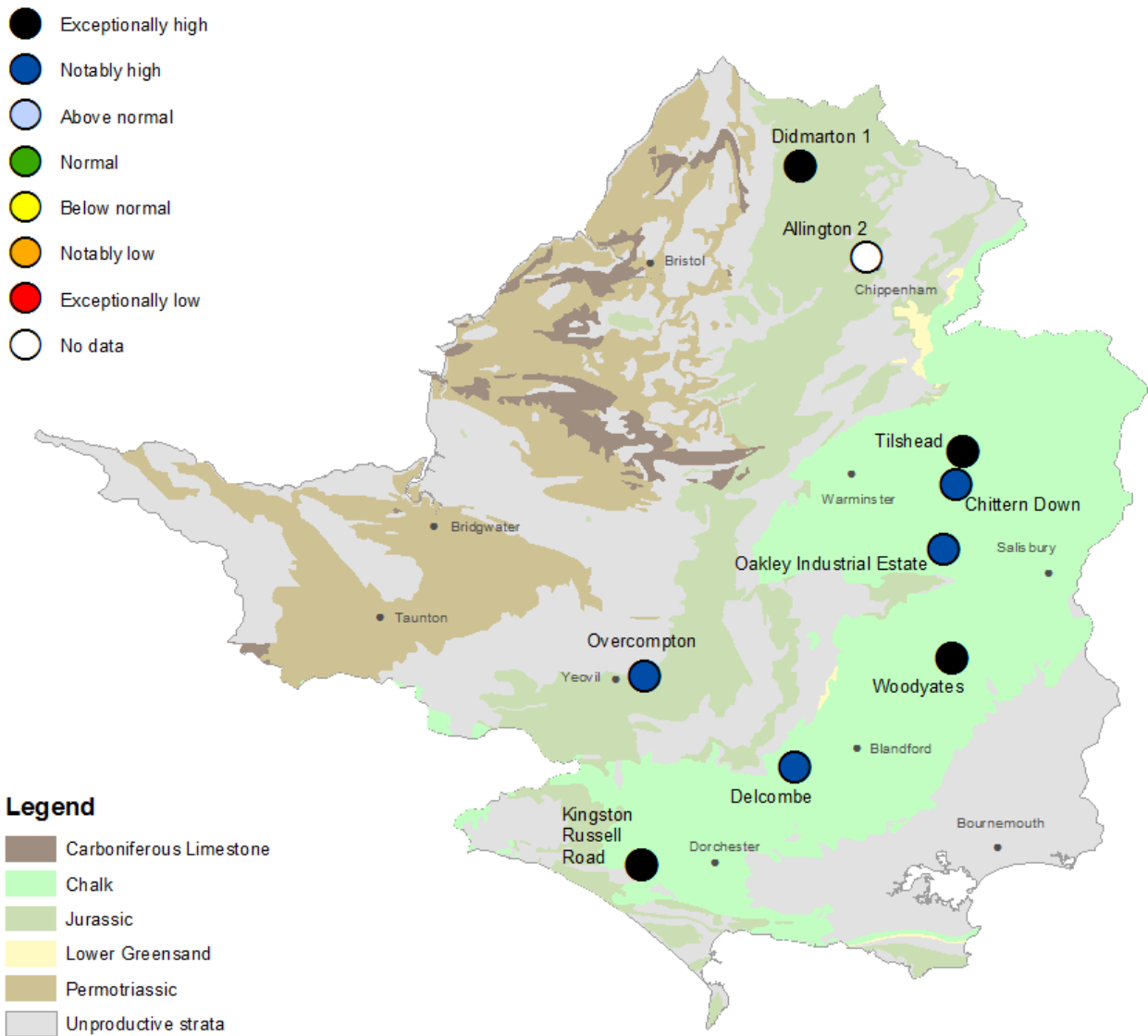


Source: Environment Agency, 2024. The Stour at Throop, the Piddle at Baggs Mill, Dorset Frome at East Stoke Combined should be used with caution due to ongoing data issues.

5 Groundwater levels

5.1 Groundwater levels map

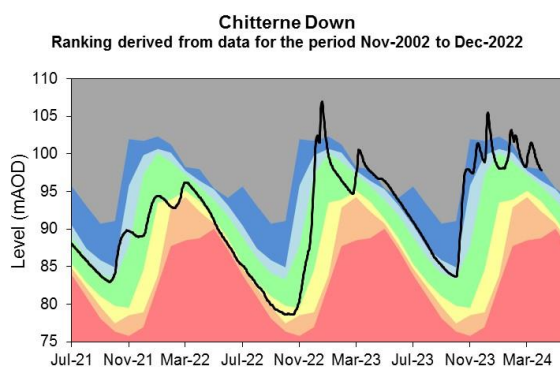
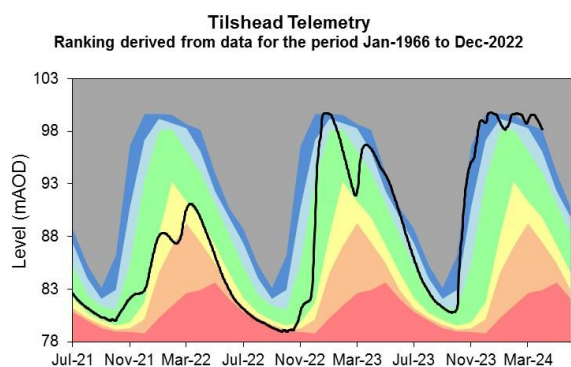
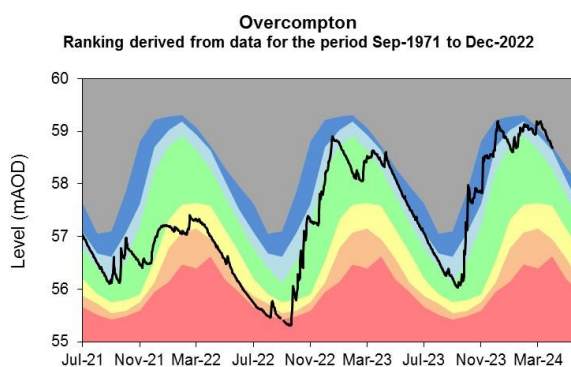
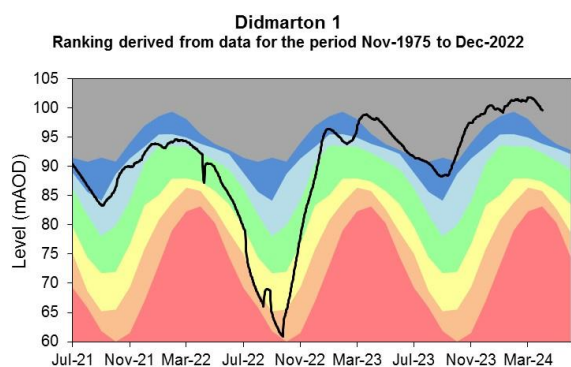
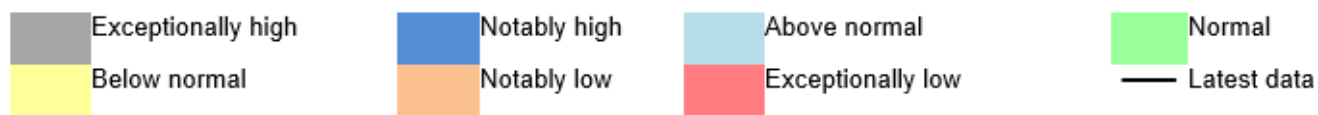
Figure 5.1: Groundwater levels for indicator sites at the end of April 2024, classed relative to an analysis of respective historic April levels. Table available in the appendices with detailed information.

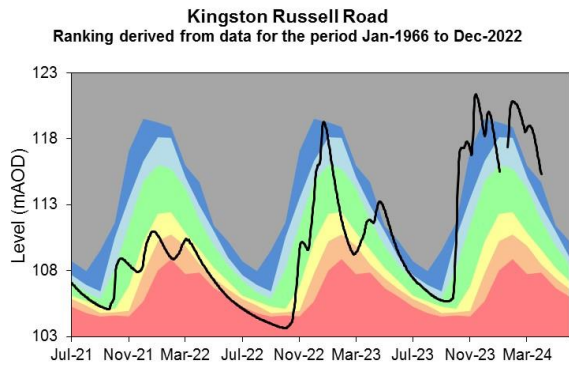
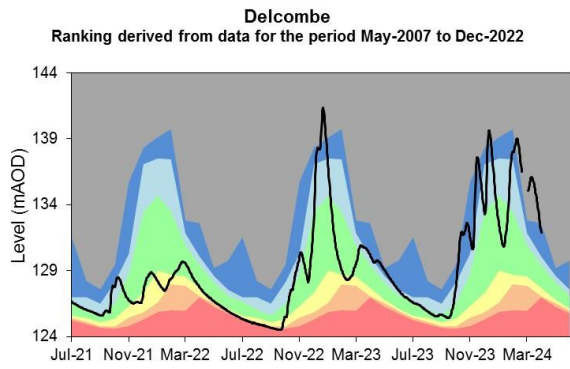
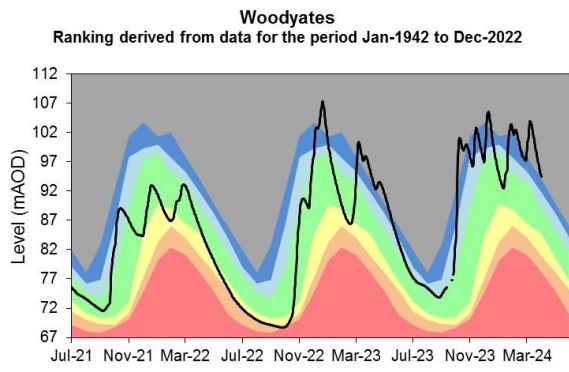
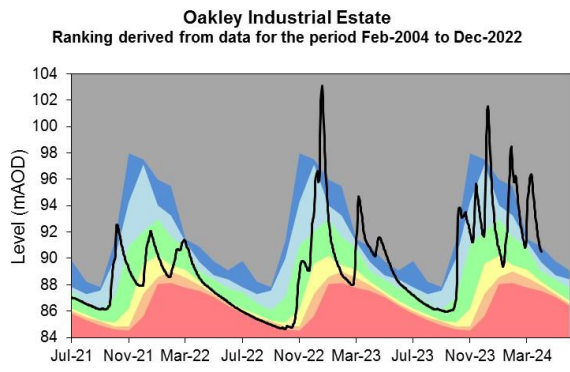


(Source: Environment Agency). Allington 2 has been omitted due to known data issues on site. Geological map reproduced with kind permission from UK Groundwater Forum, BGS copyright NERC. Crown copyright. All rights reserved. Environment Agency, 100024198, 2024.

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.

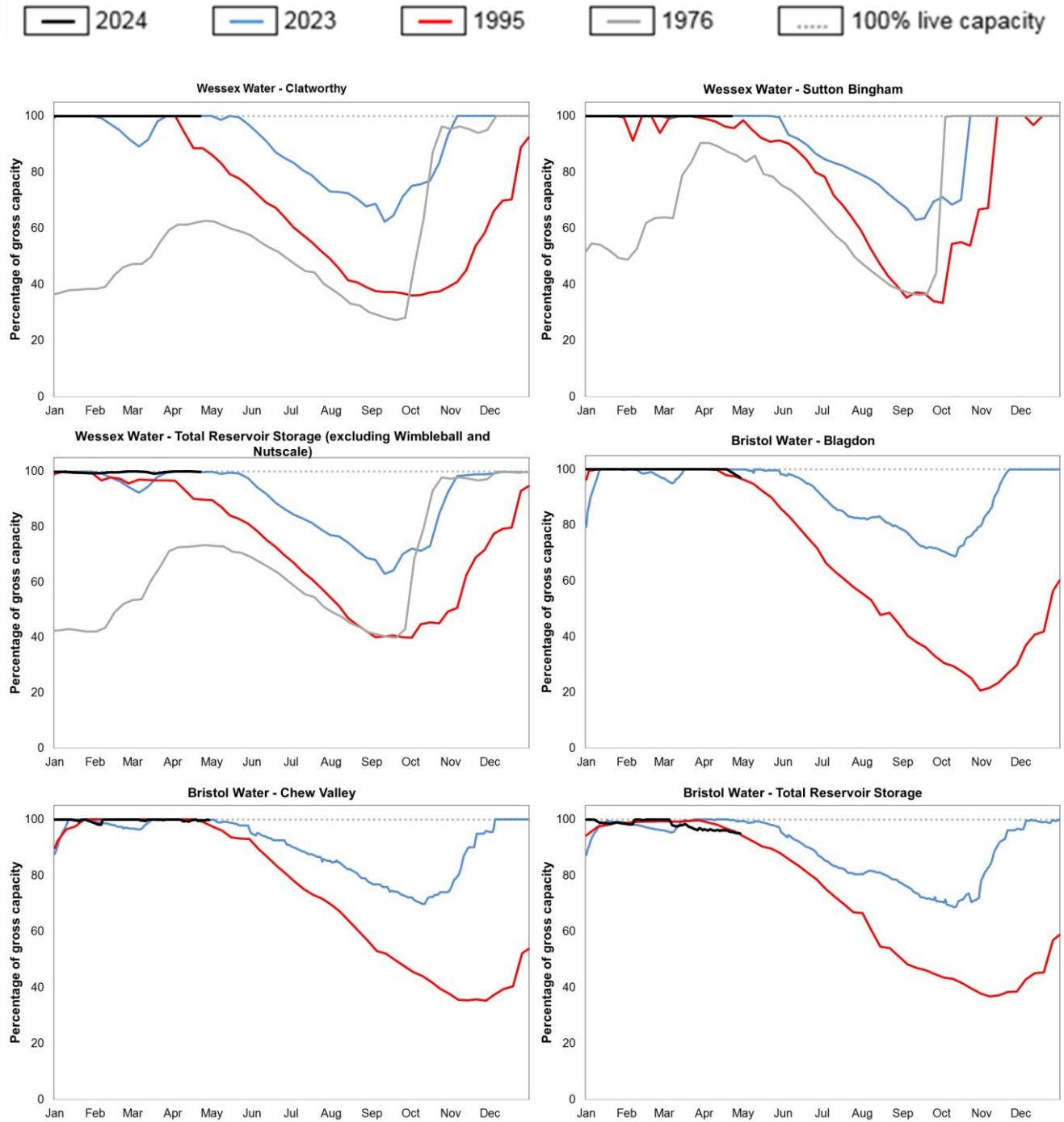




Source: Environment Agency, 2024.

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 April

Area	Number of fluvial flood alerts in April	Number of coastal flood alerts in April	Number of groundwater flood alerts in April
North Wessex	6	9	0
South Wessex	6	10	0

7.2 Flood warnings

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

Area	Number of fluvial flood warnings in April	Number of coastal flood warnings in April	Number of groundwater flood warnings in April
North Wessex	13	0	0
South Wessex	13	7	16

7.3 Severe flood warnings

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

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

8 Stream support

8.1 Sites providing stream support

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

Catchment	River	Stream support site	Gauging station	End of April 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 April

Catchment	Number of licences at restrict at the end of April	Number of licences at cease at the end of April
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

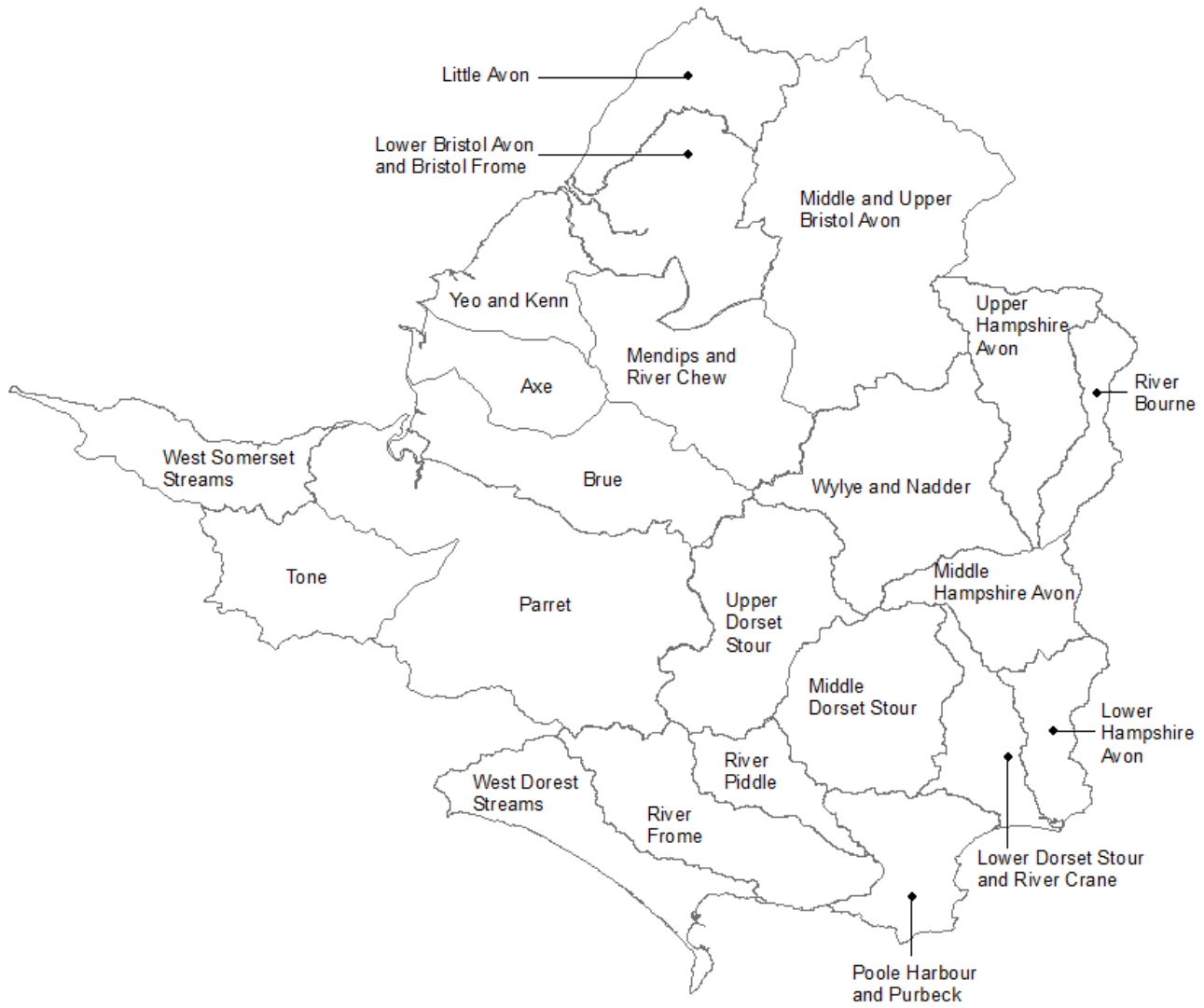
Value likely to fall within this band 8% of the time.

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.



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11 Appendices

11.1 Rainfall table

Hydrological area	Apr 2024 rainfall % of long term average 1961 to 1990	Apr 2024 band	Feb 2024 to April cumulative band	Nov 2023 to April cumulative band	May 2023 to April cumulative band
Axe	107	Normal	Exceptionally high	Exceptionally high	Exceptionally high
Brue	103	Normal	Exceptionally high	Exceptionally high	Exceptionally high
Little Avon	125	Normal	Exceptionally high	Exceptionally high	Exceptionally high
Lower Bristol Avon And Bristol Frome	122	Normal	Exceptionally high	Exceptionally high	Exceptionally high
Lower Dorset Stour And River Crane	139	Above Normal	Exceptionally high	Exceptionally high	Exceptionally high
Lower Hampshire Avon	145	Above Normal	Exceptionally high	Exceptionally high	Exceptionally high
Mendips And River Chew	120	Normal	Exceptionally high	Exceptionally high	Exceptionally high
Middle And Upper Bristol Avon	141	Above Normal	Exceptionally high	Exceptionally high	Exceptionally high

Middle Dorset Stour	134	Above Normal	Exceptionally high	Exceptionally high	Exceptionally high
Middle Hampshire Avon	146	Above Normal	Exceptionally high	Exceptionally high	Exceptionally high
Parrett	124	Normal	Exceptionally high	Exceptionally high	Exceptionally high
Poole Harbour And Purbeck	131	Above Normal	Exceptionally high	Exceptionally high	Exceptionally high
River Bourne	154	Above Normal	Exceptionally high	Exceptionally high	Exceptionally high
River Frome	132	Above Normal	Exceptionally high	Exceptionally high	Exceptionally high
River Piddle	133	Normal	Exceptionally high	Exceptionally high	Exceptionally high
Tone	123	Normal	Exceptionally high	Exceptionally high	Exceptionally high
Upper Dorset Stour	131	Normal	Exceptionally high	Exceptionally high	Exceptionally high
Upper Hampshire Avon	151	Above Normal	Exceptionally high	Exceptionally high	Exceptionally high
West Dorset Streams	121	Normal	Exceptionally high	Exceptionally high	Exceptionally high

West Somerset Streams	143	Above Normal	Exceptionally high	Exceptionally high	Exceptionally high
Wylde And Nadder	123	Normal	Exceptionally high	Exceptionally high	Exceptionally high
Yeo And Kenn	109	Normal	Exceptionally high	Exceptionally high	Exceptionally high

11.2 River flows table

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

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

11.3 Groundwater table

Site name	Aquifer	End of Apr 2024 band	End of Mar 2024 band
Allington No2	Upper Bristol Avon Great Oolite	Data unavailable	Exceptionally high
Chitterne Down	Upper Hampshire Avon Chalk	Notably high	Exceptionally high
Delcombe	Dorset Frome And Piddle Chalk/upper Greensand	Notably high	Exceptionally 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	Notably high	Exceptionally high
Tilshead	Upper Hampshire Avon Chalk	Exceptionally high	Exceptionally high
Woodyates	Dorset Stour Chalk	Exceptionally high	Exceptionally high
Oakley Industrial Estate	Upper Hampshire Avon Chalk	Notably high	Exceptionally high