

Monthly water situation report: Wessex Area

1 Summary - October 2024

After the record breaking rainfall in the previous month, the wet weather continued into October with an average of 132mm of rainfall across Wessex, 158% of the long term average (LTA). There was rain through most of the month but 6 to 8 and 13 to 18 October were particularly wet periods. Soil moisture deficit (SMD) started the month around 10mm and gradually decreased towards zero at the end of the month. Monthly mean river flows across Wessex were all exceptionally high apart from the River Washford at Beggearn Huish which reported notably high flows. Eleven sites recorded their highest monthly mean flows for October on record. By the end of October daily mean flows were reducing across most reporting sites in Wessex, although sites in Chalk catchments remained notably or exceptionally high. All groundwater reporting sites across Wessex reported exceptionally high levels at the end of the month. Groundwater levels were shown to be decreasing for all reporting sites monitoring the Chalk aquifer bar the two most northern slower responding sites on the aquifer. Five sites recorded their highest levels on record for the end of October. Reservoirs were at around 95% and 82% capacity for Wessex Water and Bristol Water respectively, slightly higher than the levels seen this time last year.

1.1 Rainfall

In October an average of 132mm (158% LTA) of rain fell across Wessex. In general, hydrological areas in the east received normal rainfall and those in the west received above normal rainfall, although it was well above average for all areas. There were 2 periods of higher rainfall with 34% of the monthly total falling from 6 to 8 and 43% falling between 13 and 18 October. There was very little rainfall across Wessex from 20 October through to the end of the month. Nine out the past 12 months have received above average rainfall and it has been the wettest 9, 10 and 11 month periods to October since our records began in 1871.

Over the longer term, in the last 3 months hydrological areas received either notably high or exceptionally high levels of rainfall. In the last 6 months areas predominantly received notably high levels of rainfall with exceptionally high levels recorded in the south, whereas the last 12 month period is still recording as exceptionally high across all of Wessex.

1.2 Soil moisture

The soil moisture deficit (SMD) gradually decreased throughout the month from around 10mm on average to near zero on average across Wessex. The SMD at the end of October was significantly lower than the long term average (LTA) but similar to the SMD at this time last year.

1.3 River flows

All reporting sites across Wessex reported exceptionally high monthly mean flows in October, apart from one, the River Washford at Beggearn Huish, which recorded notably high monthly mean flows. Eleven of our 20 reporting sites recorded their highest monthly mean flows for October on record. This included sites in the Bristol Avon, Hampshire Avon, Stour and Dorset Frome catchments.

By the end of the month the daily mean flows were dropping across every site in response to the lack of rainfall towards the end of October. Sites in Chalk catchments ended the month with notably or exceptionally high flows as they are supplemented by water flowing from the aquifer. Most of the catchments with other geologies ended the month with normal flows.

1.4 Groundwater levels

All groundwater monitoring sites across Wessex ended October reporting exceptionally high levels. All sites showed increased levels from the previous month, in response to the record breaking rainfall from September.

By the end of the month all sites monitoring the Chalk showed decreasing levels, apart from the two most northerly sites reporting on the Chalk, Tilshead and Chitterne Down which reported slightly increasing levels. Didmarton (monitoring the Bridport Sands formation) and Chitterne Down, Oakley Industrial Estate, Delcombe and Kingston Russell Road (all monitoring the Chalk) recorded their highest levels on record for the end of October.

1.5 Reservoir stocks

Wessex Water reservoirs increased throughout October and ended the month around 95% full, with Bristol Water reservoirs also increasing throughout the month ending at around 82% capacity. The current combined levels are slightly higher than those recorded at this time last year for both Bristol Water and Wessex Water, and they are both significantly higher than the levels seen in October 1995.

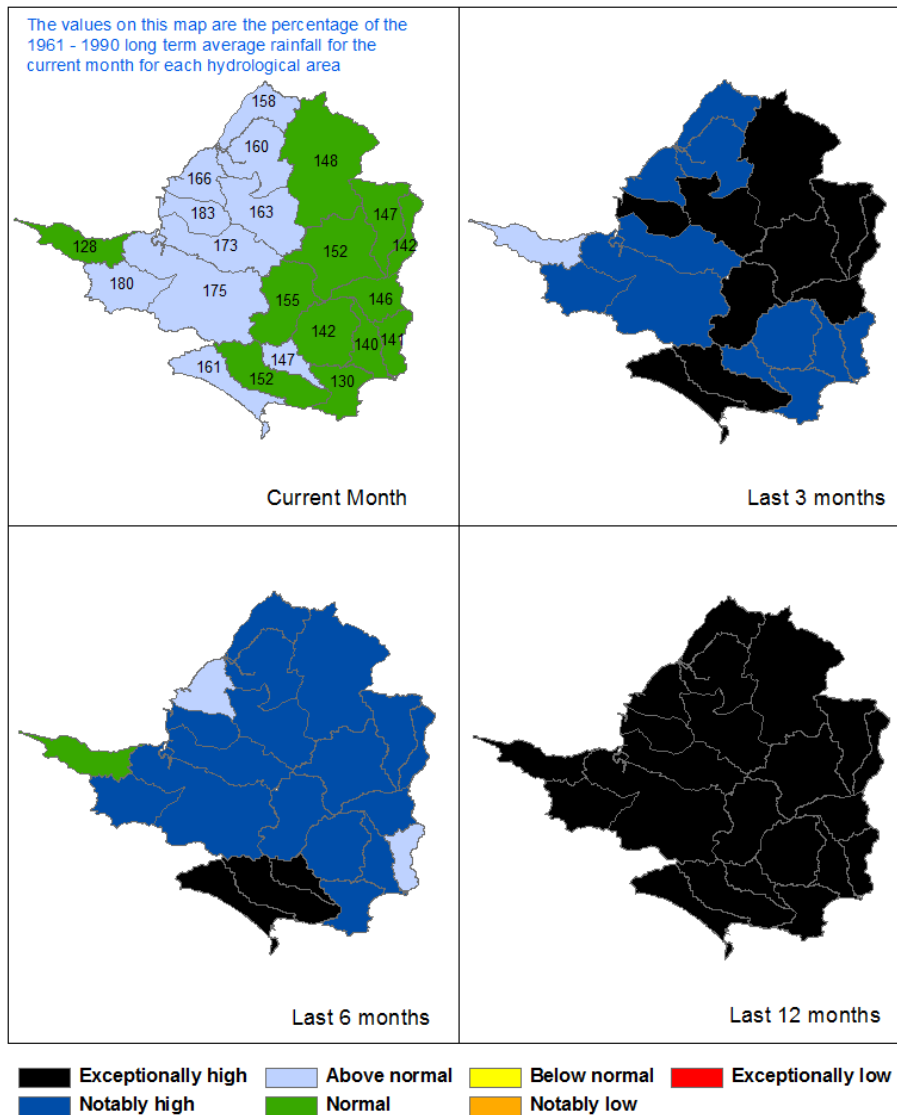
Author: Wessex Hydrology, hydrologywessex@environment-agency.gov.uk

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2 Rainfall

2.1 Rainfall map

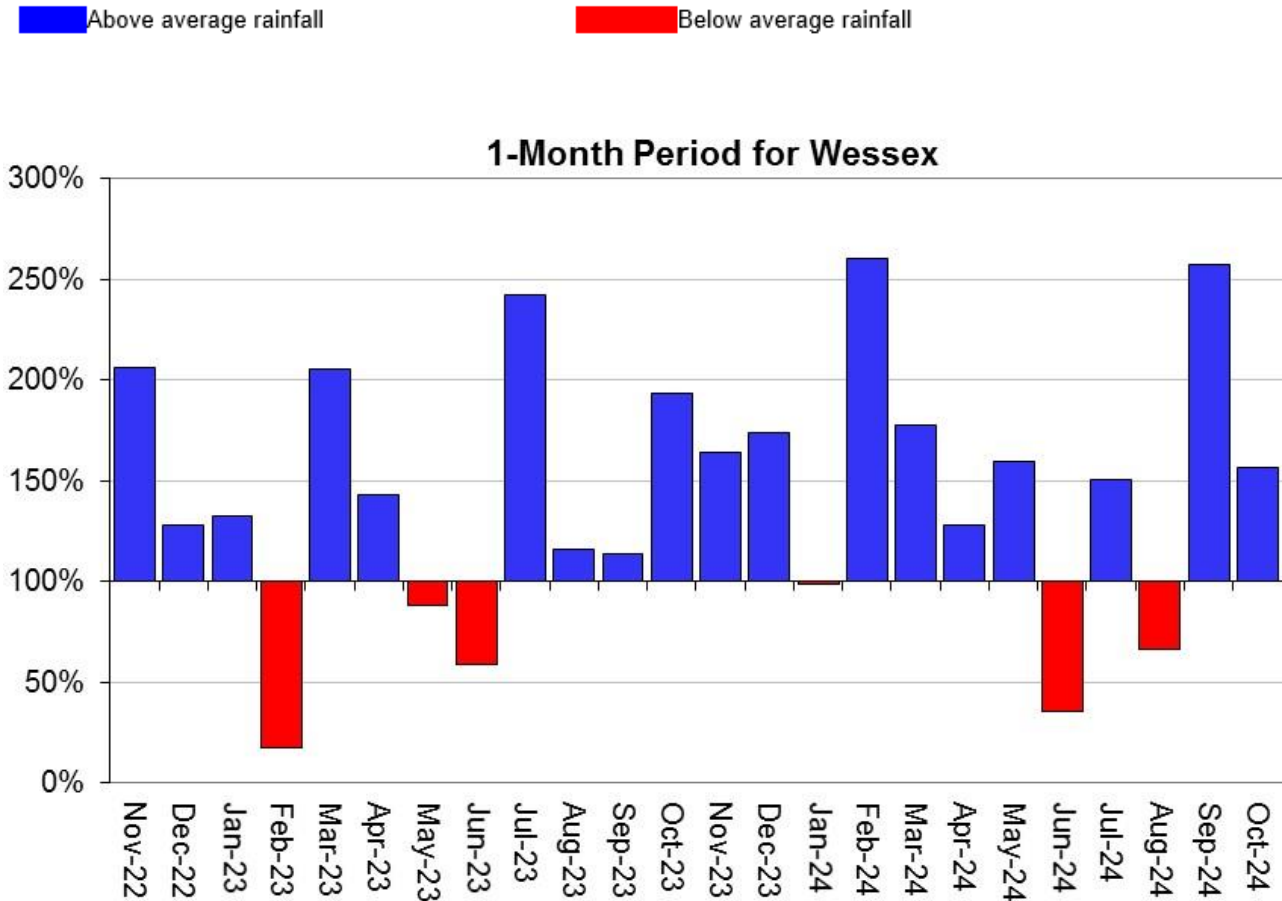
Figure 2.1: Total rainfall for hydrological areas for the current month (up to 31 October 2024), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. Table available in the appendices with detailed information.



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.

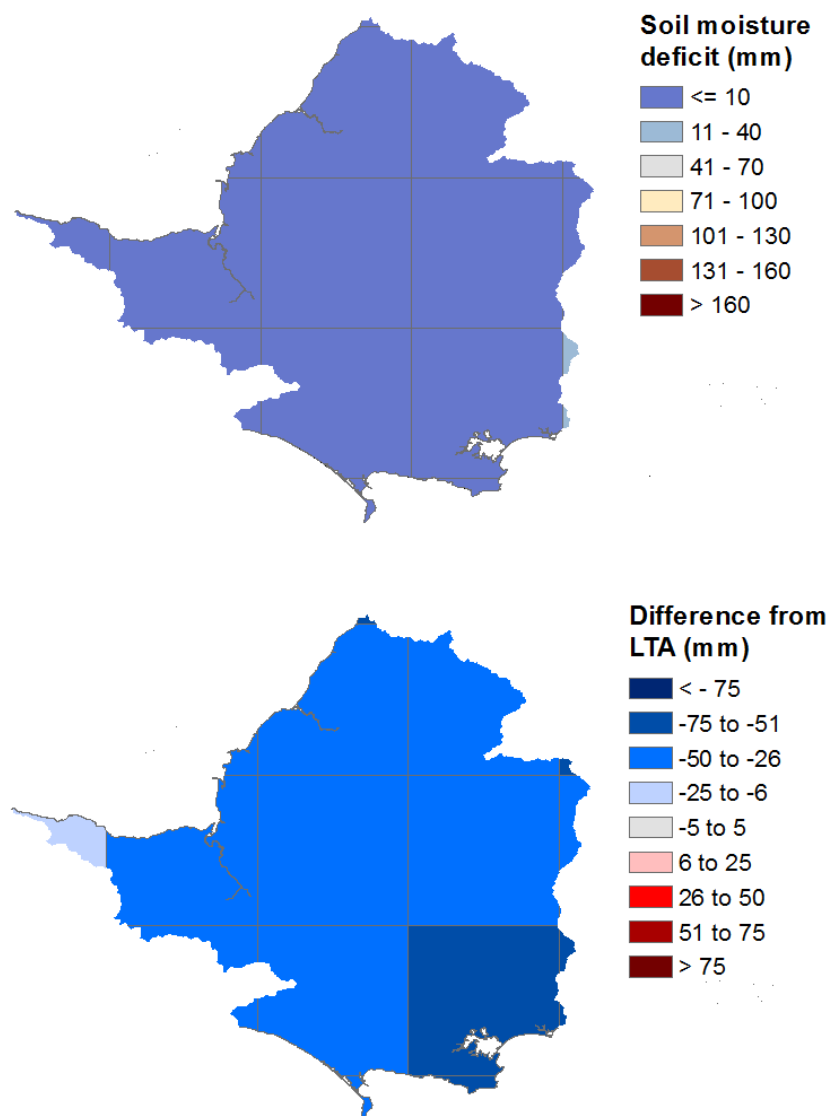


Rainfall data for 2023 and 2024, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, 100024198, 2024). Rainfall data prior to 2023, extracted from Met Office HadUK 1km gridded rainfall dataset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

3 Soil moisture deficit

3.1 Soil moisture deficit map

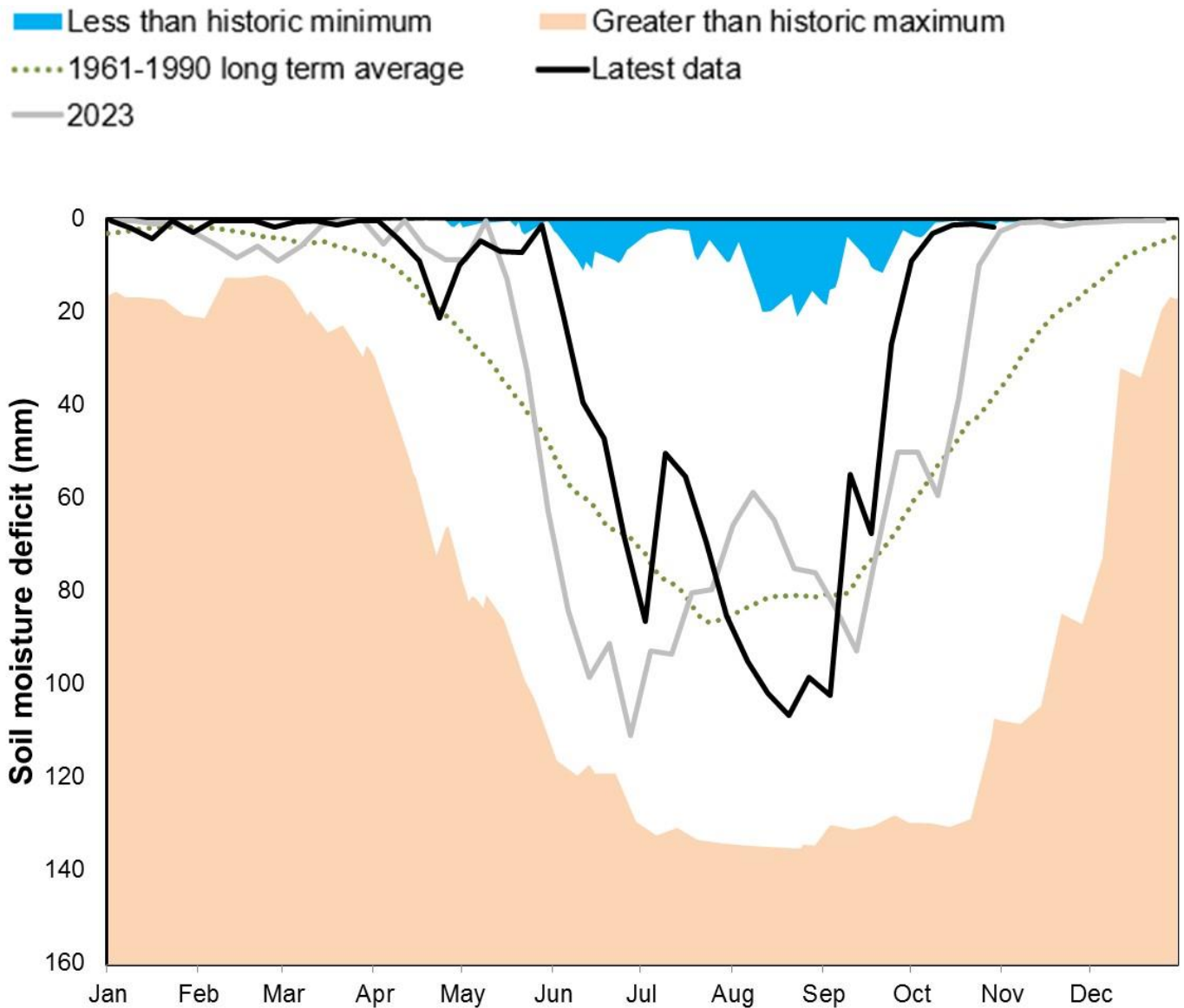
Figure 3.1: Soil moisture deficits for weeks ending 31 October 2024. Shows the difference (mm) of the actual soil moisture deficit from the 1961 to 1990 long term average soil moisture deficits. MORECS data for real land use.



(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.

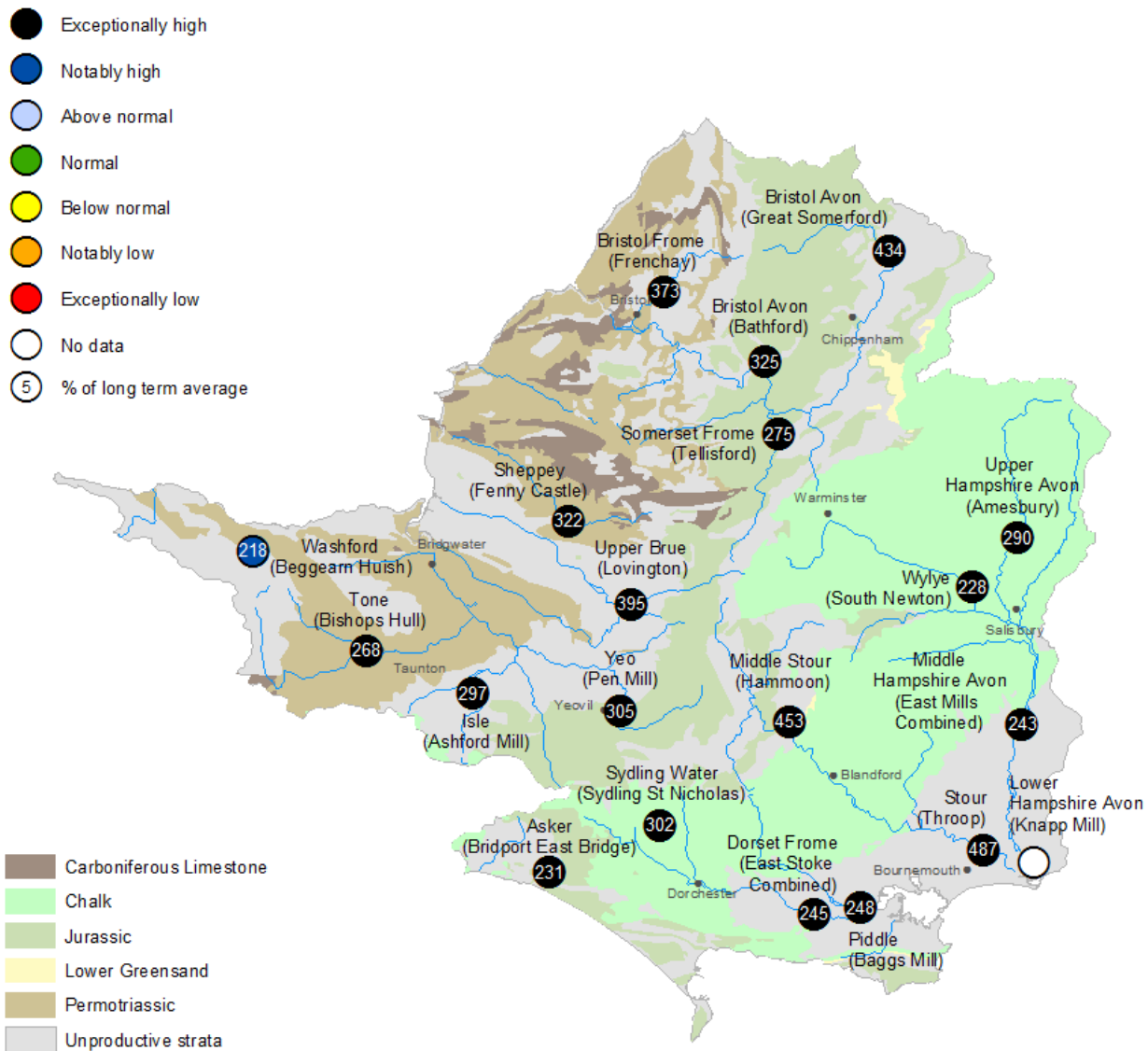


(Source: Met Office. Crown copyright, 2024). All rights reserved. Environment Agency, 100024198, 2024

4 River flows

4.1 River flows map

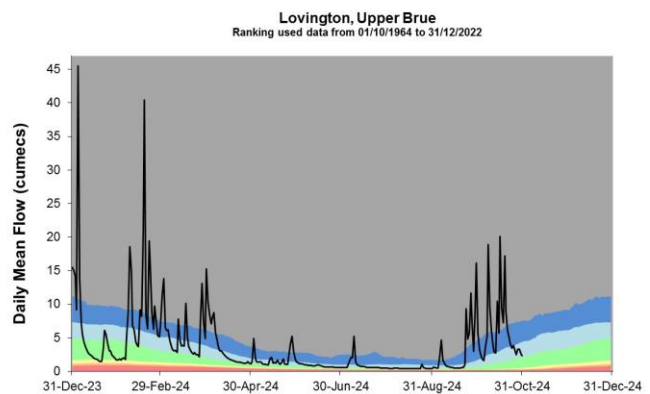
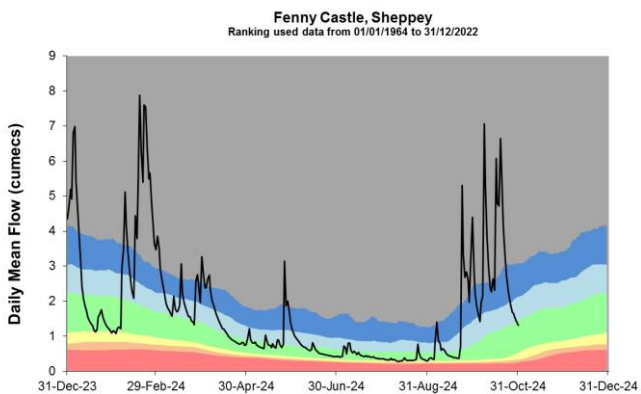
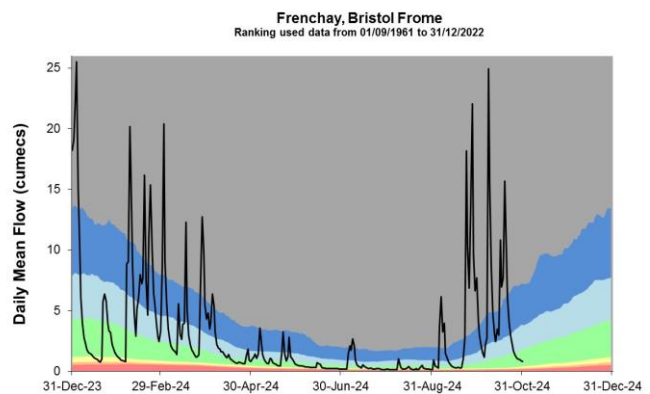
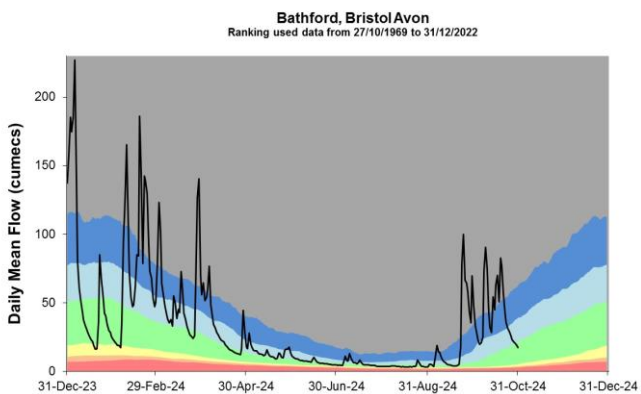
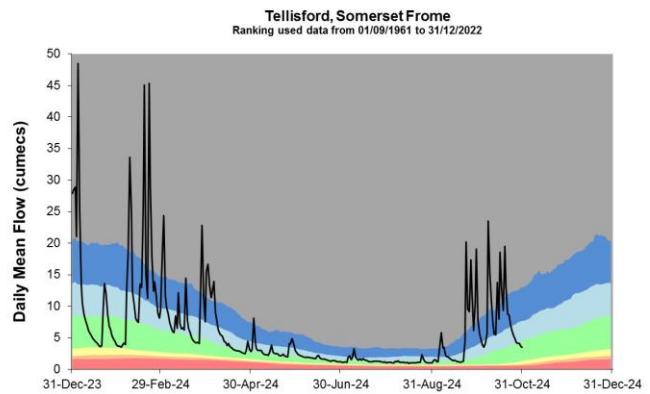
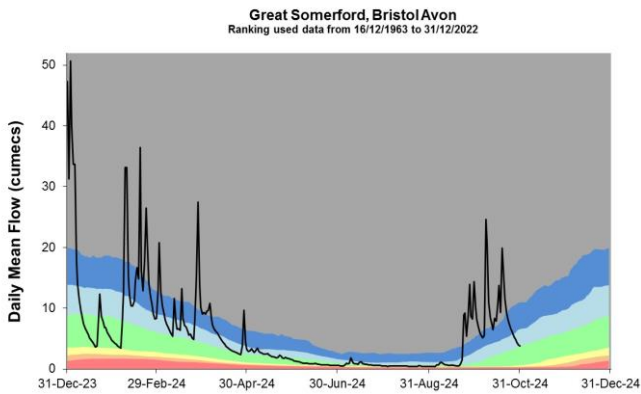
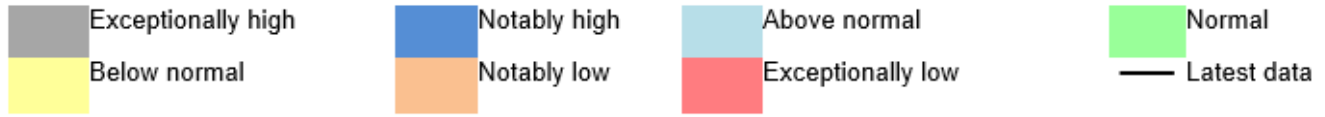
Figure 4.1: Monthly mean river flow for indicator sites for October 2024, expressed as a percentage of the respective long term average and classed relative to an analysis of historic October monthly means Table available in the appendices with detailed information.



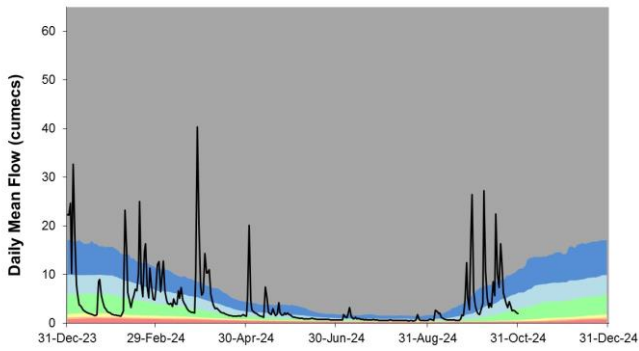
(Source: Environment Agency). Knapp Mill omitted due to flow bypassing the site. Known issues at Throop due to debris on the weir, data adjusted to account for this. Known issues at East Stoke Combined between 1 and 2 October, 8 to 10 October, 14 October and between 16 and 24 October, use data with caution. Crown copyright. All rights reserved. Environment Agency, 100024198, 2024.

4.2 River flow charts

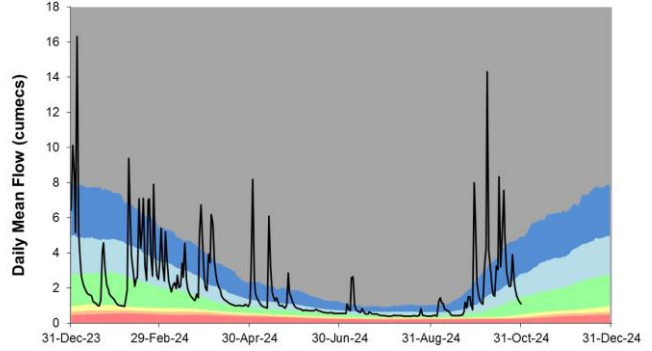
Figure 4.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows.



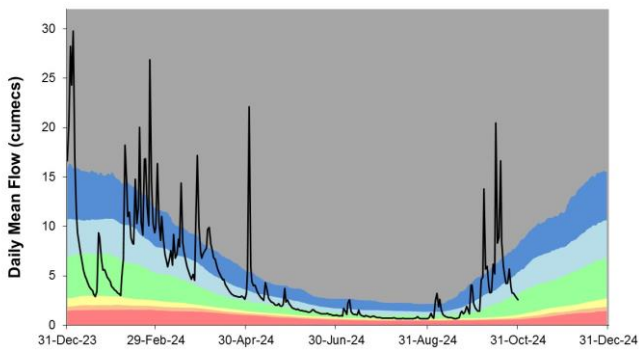
Pen Mill, Somerset Yeo
Ranking used data from 31/10/1963 to 31/12/2022



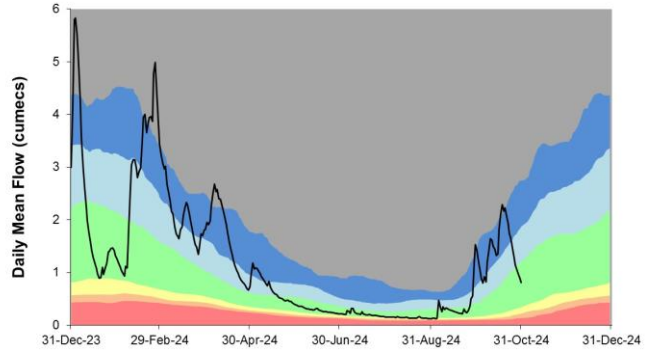
Ashford Mill, River Isle
Ranking used data from 01/10/1962 to 31/12/2022



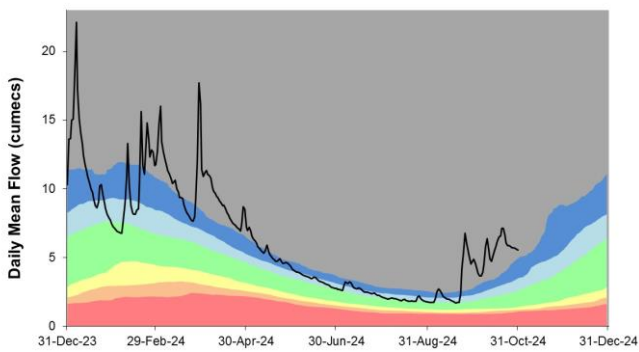
Bishops Hull, River Tone
Ranking used data from 01/02/1961 to 31/12/2022



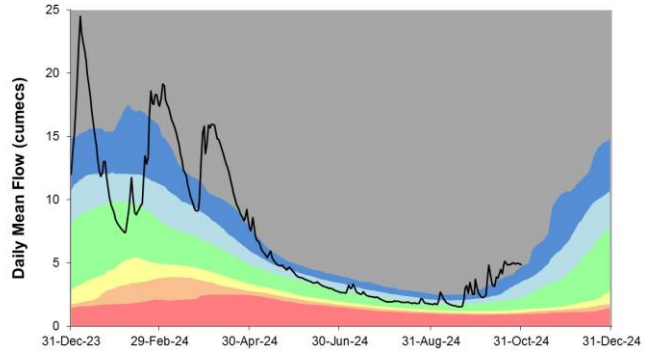
Beggearn Huish, Washford River
Ranking used data from 01/01/1967 to 31/12/2022



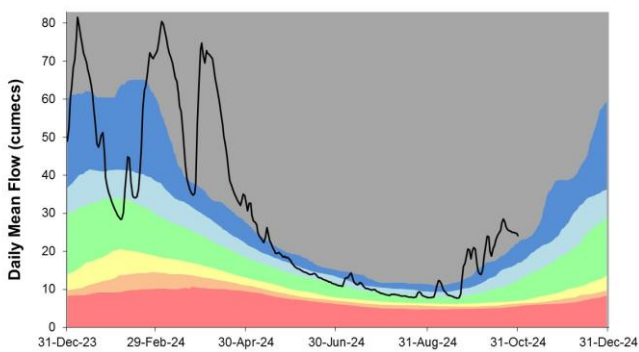
Amesbury, Upper Hampshire Avon
Ranking used data from 01/02/1965 to 31/12/2022



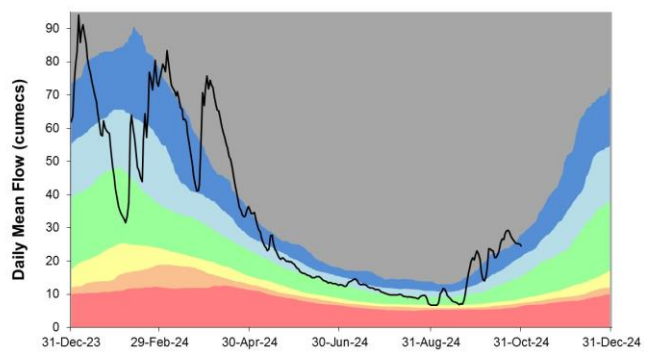
South Newton, River Wylde
Ranking used data from 01/01/1967 to 31/12/2022

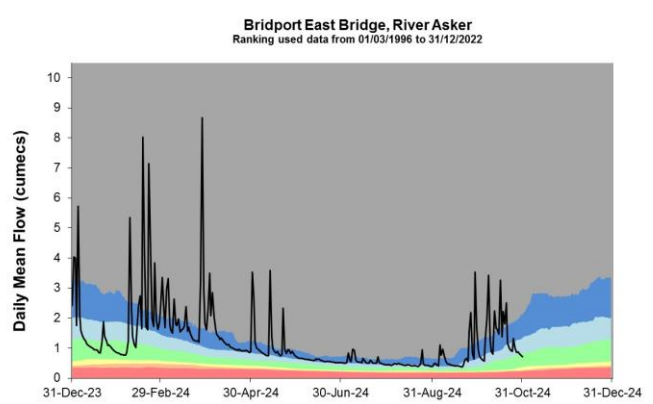
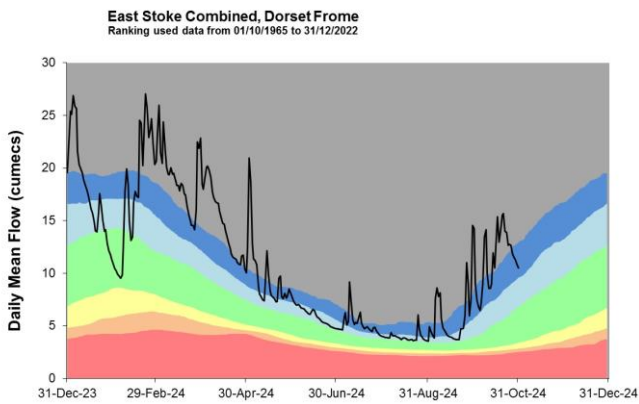
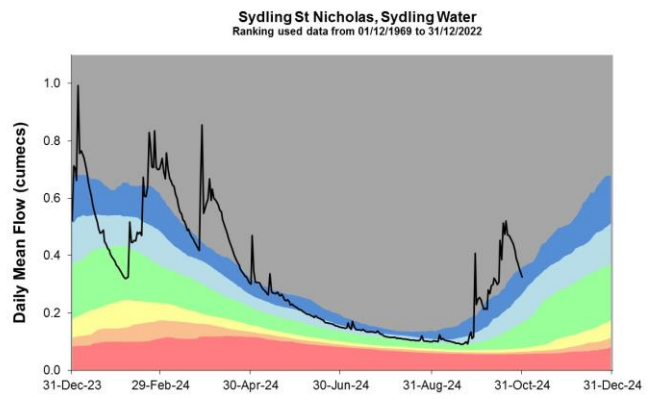
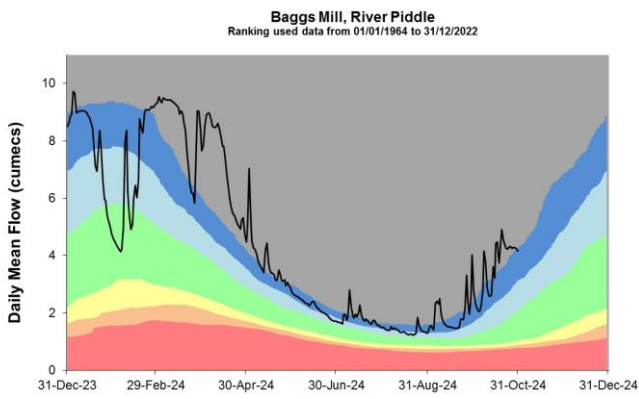
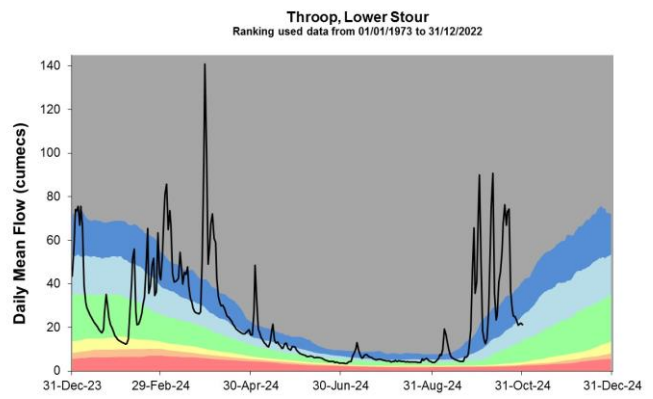
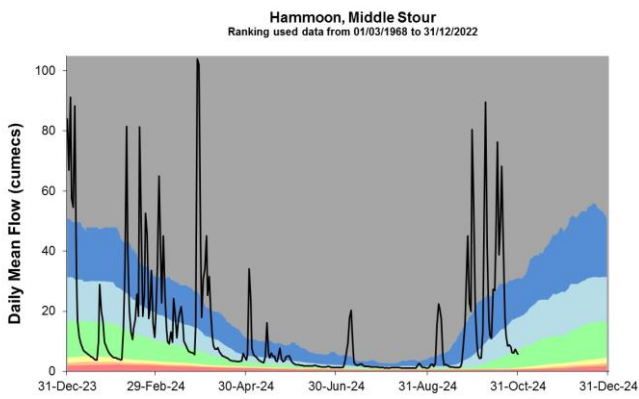


East Mills Combined, Middle Hampshire Avon
Ranking used data from 01/11/1965 to 31/12/2022



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



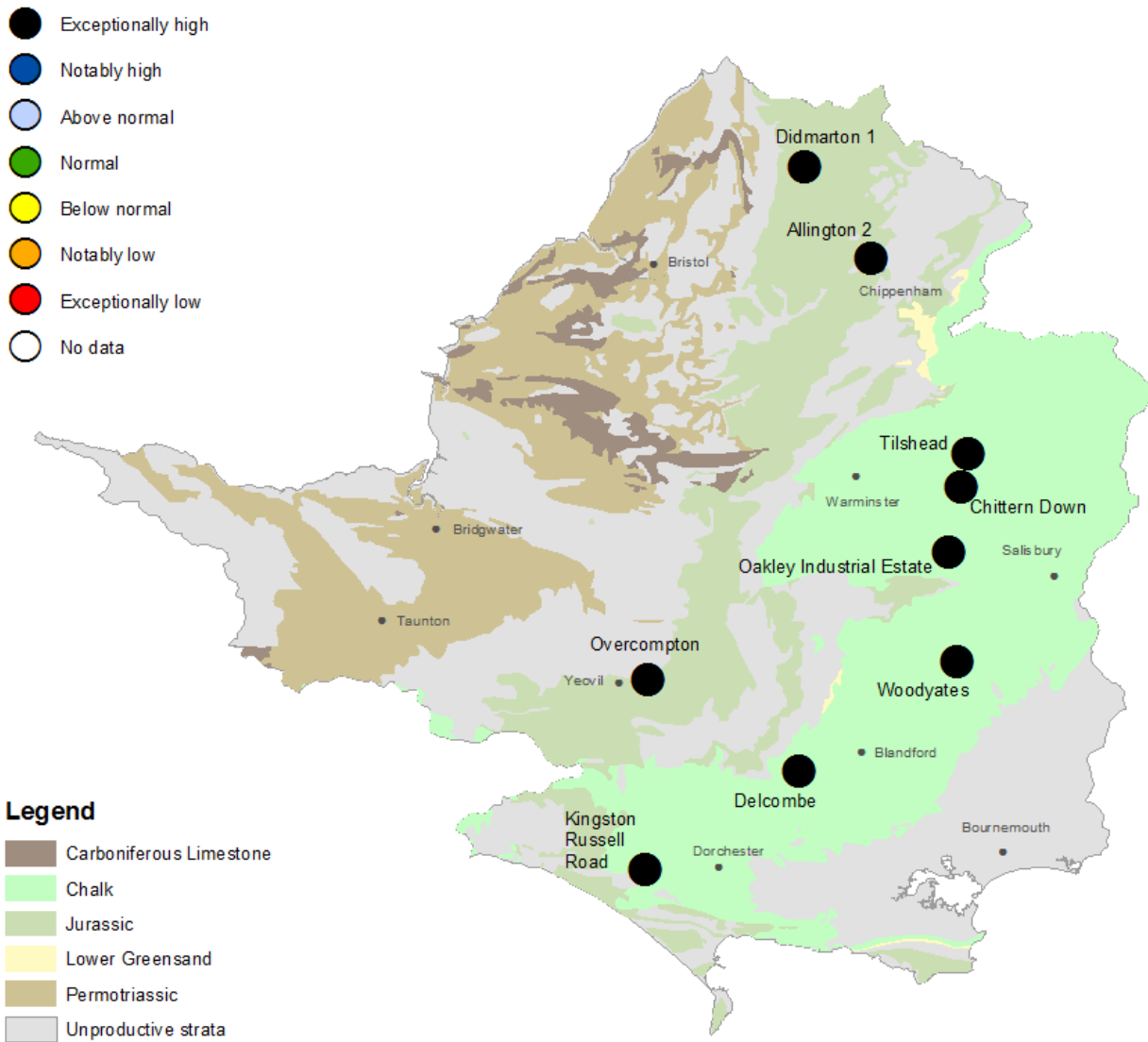


Source: Environment Agency, 2024.

5 Groundwater levels

5.1 Groundwater levels map

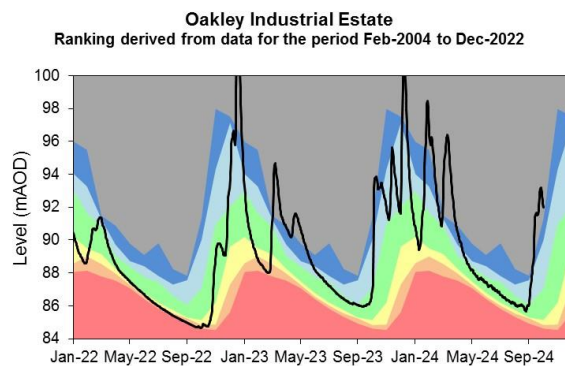
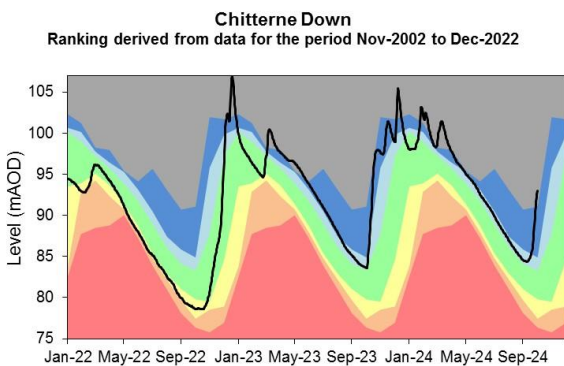
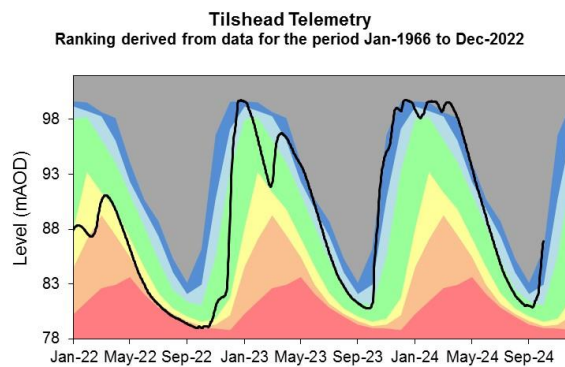
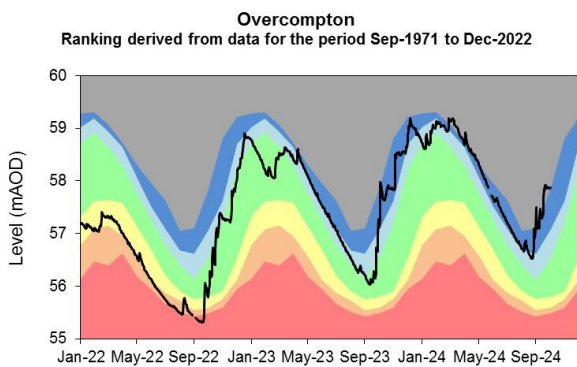
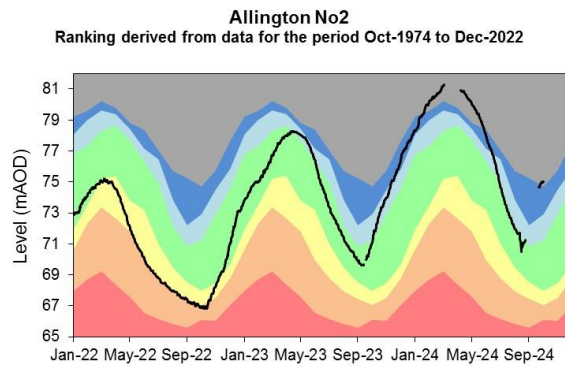
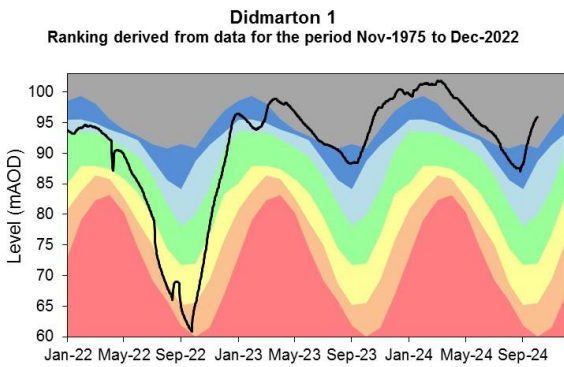
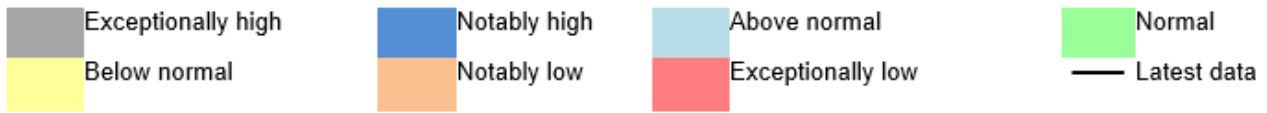
Figure 5.1: Groundwater levels for indicator sites at the end of October 2024, classed relative to an analysis of respective historic October levels. Table available in the appendices with detailed information.

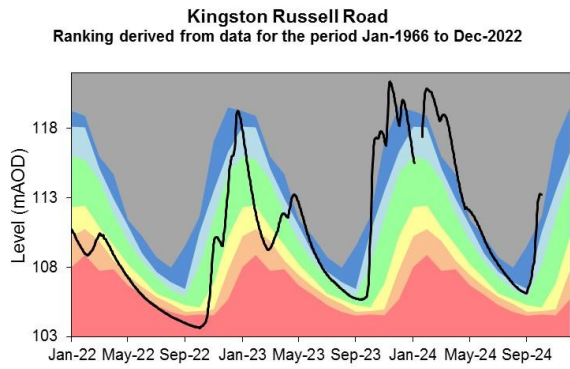
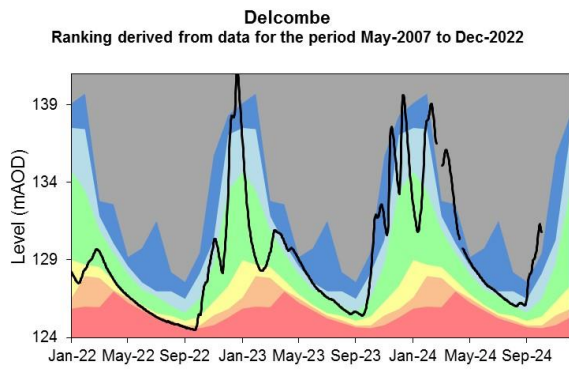
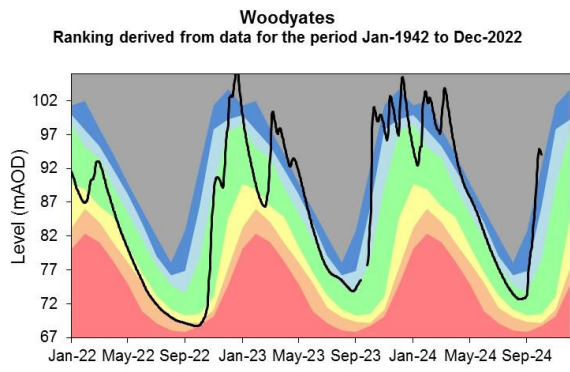


(Source: Environment Agency). Known data issues at Oakley Industrial Estate site use with caution data prior to 08/10/2024. Known data issues at Allington, use with caution up to 21/10/2024. Geological map reproduced with kind permission from UK Groundwater Forum, BGS copyright NERC. Crown copyright. 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.

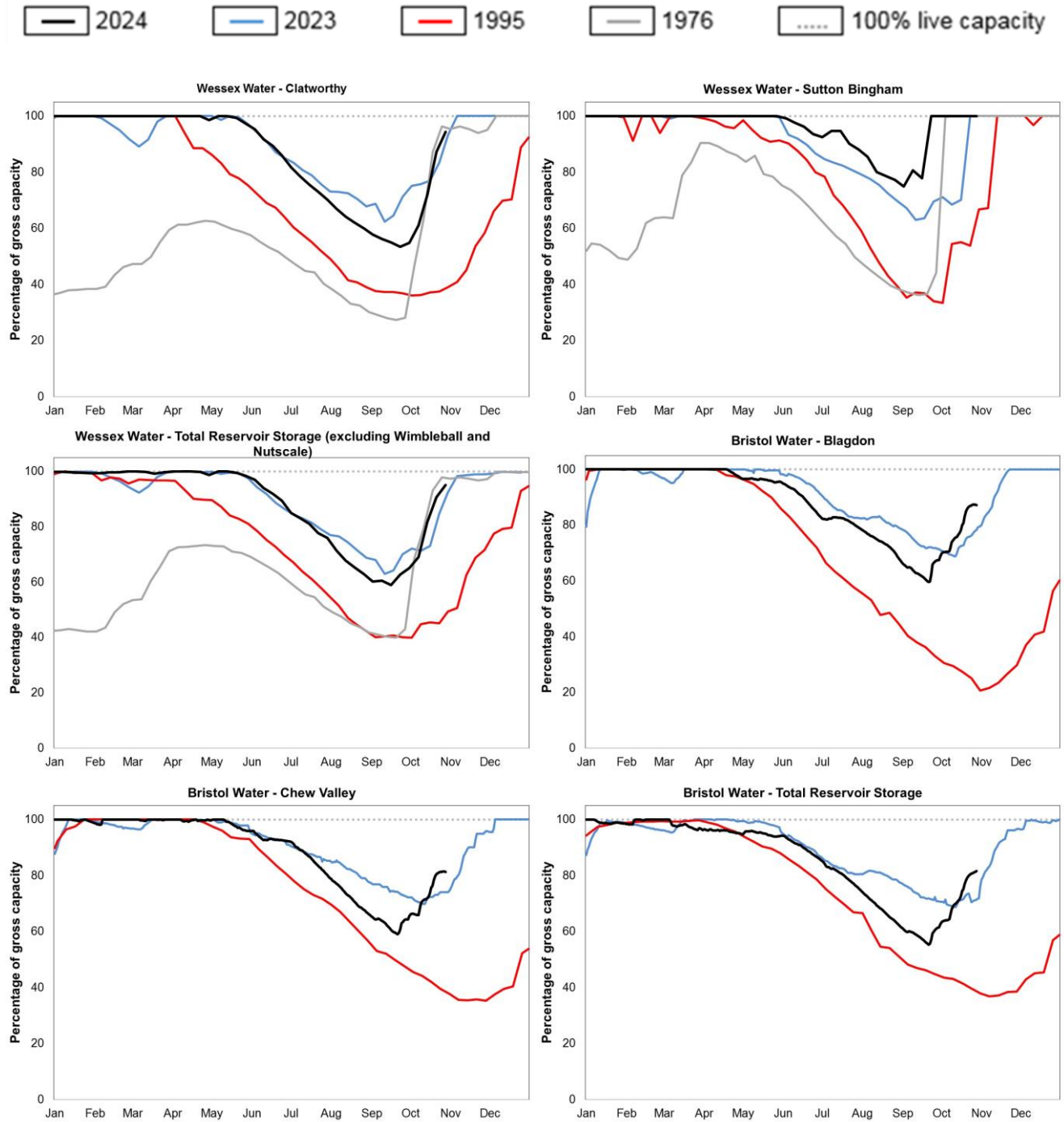




Source: Environment Agency, 2024.

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 October

Area	Number of fluvial flood alerts in October	Number of coastal flood alerts in October	Number of groundwater flood alerts in October
North Wessex	33	8	0
South Wessex	22	12	4

7.2 Flood warnings

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

Area	Number of fluvial flood warnings in October	Number of coastal flood warnings in October	Number of groundwater flood warnings in October
North Wessex	9	2	0
South Wessex	6	2	0

7.3 Severe flood warnings

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

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

8 Stream support

8.1 Sites providing stream support

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

Catchment	River	Stream support site	Gauging station	End of October 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	On
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 October

Catchment	Number of licences at restrict at the end of October	Number of licences at cease at the end of October
Bristol Avon	0	0
Dorset	1	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

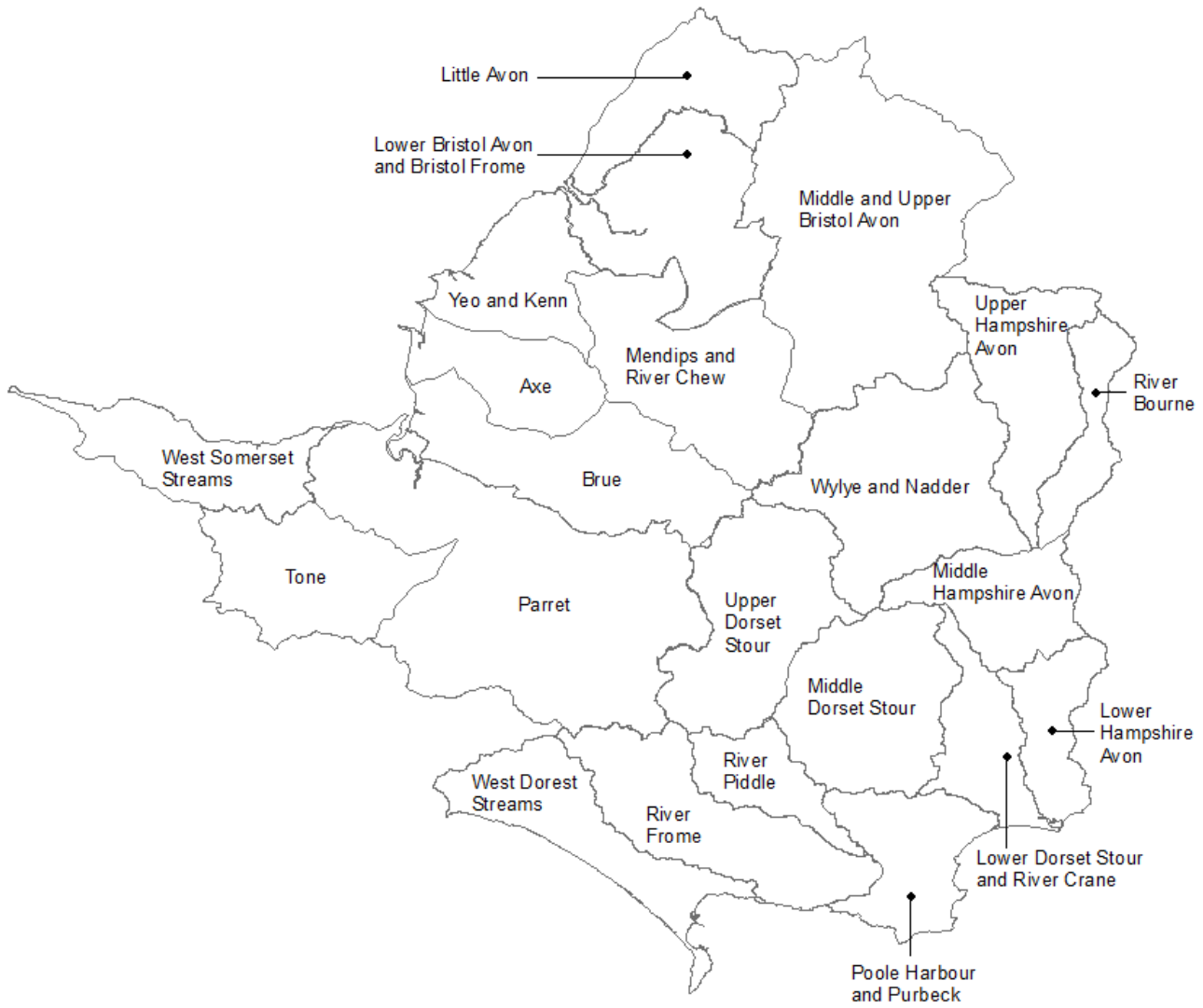
Value likely to fall within this band 8% of the time.

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	Oct 2024 rainfall % of long term average 1961 to 1990	Oct 2024 band	Aug 2024 to October cumulative band	May 2024 to October cumulative band	Nov 2023 to October cumulative band
Axe	183	Above Normal	Exceptionally high	Notably high	Exceptionally high
Brue	173	Above Normal	Notably high	Notably high	Exceptionally high
Little Avon	158	Above Normal	Notably high	Notably high	Exceptionally high
Lower Bristol Avon And Bristol Frome	160	Above Normal	Notably high	Notably high	Exceptionally high
Lower Dorset Stour And River Crane	140	Normal	Notably high	Notably high	Exceptionally high
Lower Hampshire Avon	141	Normal	Notably high	Above normal	Exceptionally high
Mendips And River Chew	163	Above Normal	Exceptionally high	Notably high	Exceptionally high
Middle And Upper Bristol Avon	148	Normal	Exceptionally high	Notably high	Exceptionally high

Middle Dorset Stour	142	Normal	Notably high	Notably high	Exceptionally high
Middle Hampshire Avon	146	Normal	Exceptionally high	Notably high	Exceptionally high
Parrett	175	Above Normal	Notably high	Notably high	Exceptionally high
Poole Harbour And Purbeck	130	Normal	Notably high	Notably high	Exceptionally high
River Bourne	143	Normal	Exceptionally high	Notably high	Exceptionally high
River Frome	152	Normal	Exceptionally high	Exceptionally high	Exceptionally high
River Piddle	147	Above Normal	Notably high	Exceptionally high	Exceptionally high
Tone	180	Above Normal	Notably high	Notably high	Exceptionally high
Upper Dorset Stour	155	Normal	Exceptionally high	Notably high	Exceptionally high
Upper Hampshire Avon	147	Normal	Exceptionally high	Notably high	Exceptionally high
West Dorset Streams	161	Above Normal	Exceptionally high	Exceptionally high	Exceptionally high

West Somerset Streams	128	Normal	Above normal	Normal	Exceptionally high
Wylve And Nadder	152	Normal	Exceptionally high	Notably high	Exceptionally high
Yeo And Kenn	166	Above Normal	Notably high	Above normal	Exceptionally high

11.2 River flows table

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

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

11.3 Groundwater table

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