

# Monthly water situation report: Wessex Area

## 1 Summary - February 2024

Wet weather returned for Wessex in February following a drier January. An average of 171mm fell in February, which is 260% of the long term average (LTA) making February 2024 the second wettest since records began in 1871 and the wettest in the last 101 years. It was also the second wettest 5 month period starting at the beginning of the water year (October to February). Soil moisture deficit (SMD) remained close to zero throughout February. Monthly mean river flows were notably or exceptionally high across all of Wessex bar the Wylfe at South Newton, Stour at Throop and Piddle at Baggs Mill which had above normal flows. The majority of groundwater monitoring sites in Wessex recorded exceptionally high levels at the end of February with the exception of Delcombe and Overcompton which were notably high and above normal respectively. During February, reservoir levels across Wessex were close to 100% for both Wessex Water and Bristol Water.

### 1.1 Rainfall

Wessex received an average of 171mm of rainfall during February (260% LTA) which is exceptionally high for the time of year. The start of the month was comparatively dry up until 6 February. Rainfall peaked towards the middle of the month with 32% falling between 6 and 10 February and 52% between 13 and 22 February. There was not a single day in February without rain somewhere in Wessex.

It was the wettest February for 101 years and the second wettest since our records began in 1871. It was also the fifth wettest 3 month period (December to February) and the second wettest 5 month period (October to February). The last 12 months (March to February) has also been the wettest for this period on record with an average cumulation of 1310mm, equating to 155% of the LTA. Nearly all hydrological areas received exceptionally high rainfall for the last 3 months and all for the last 6 and 12 months.

### 1.2 Soil moisture

SMD levels remained close to zero for all of February and at the end of the month it was close to zero for all areas of Wessex and slightly lower than the LTA.

### 1.3 River flows

The monthly mean flows across most sites in Wessex were either notably or exceptionally high except for South Newton, Throop and Baggs Mill which all recorded above normal mean monthly flows. February 2024 was the highest monthly mean flows recorded for the Sheppey at Fenny Castle, the Upper Brue at Lovington and the Asker at Bridport East Bridge since records at those sites began.

Following a slightly drier than average January, the majority of sites began February with normal daily mean flows. Flows increased at all sites during the month in response to high rainfall. By the end of February, most sites in north Wessex had exceptionally high flows while all sites in south Wessex had either notably high or above normal daily mean flows. The majority of flows were rising at the end of February.

## **1.4 Groundwater levels**

Groundwater levels at the majority of sites monitoring the Chalk in Wessex ended with exceptionally high levels, with the exception of Delcombe which recorded notably high levels. In the north of Wessex both Didmarton and Allington (monitoring the Inferior and Great Oolite formations respectively) recorded exceptionally high levels at the end of the month. Overcompton (monitoring the Bridport Sand) was the only site which recorded above normal levels at the end of the month.

Most sites showed increasing groundwater levels in response to the high rainfall. As a result, Didmarton, Chitterne Down and Oakley Industrial Estate all recorded the highest levels on record for the end of February.

## **1.5 Reservoir stocks**

The reservoir levels remained close to 100% during February for Wessex Water and Bristol Water, both ending the month on 100%. This is slightly higher than last year for both Wessex Water and Bristol Water.

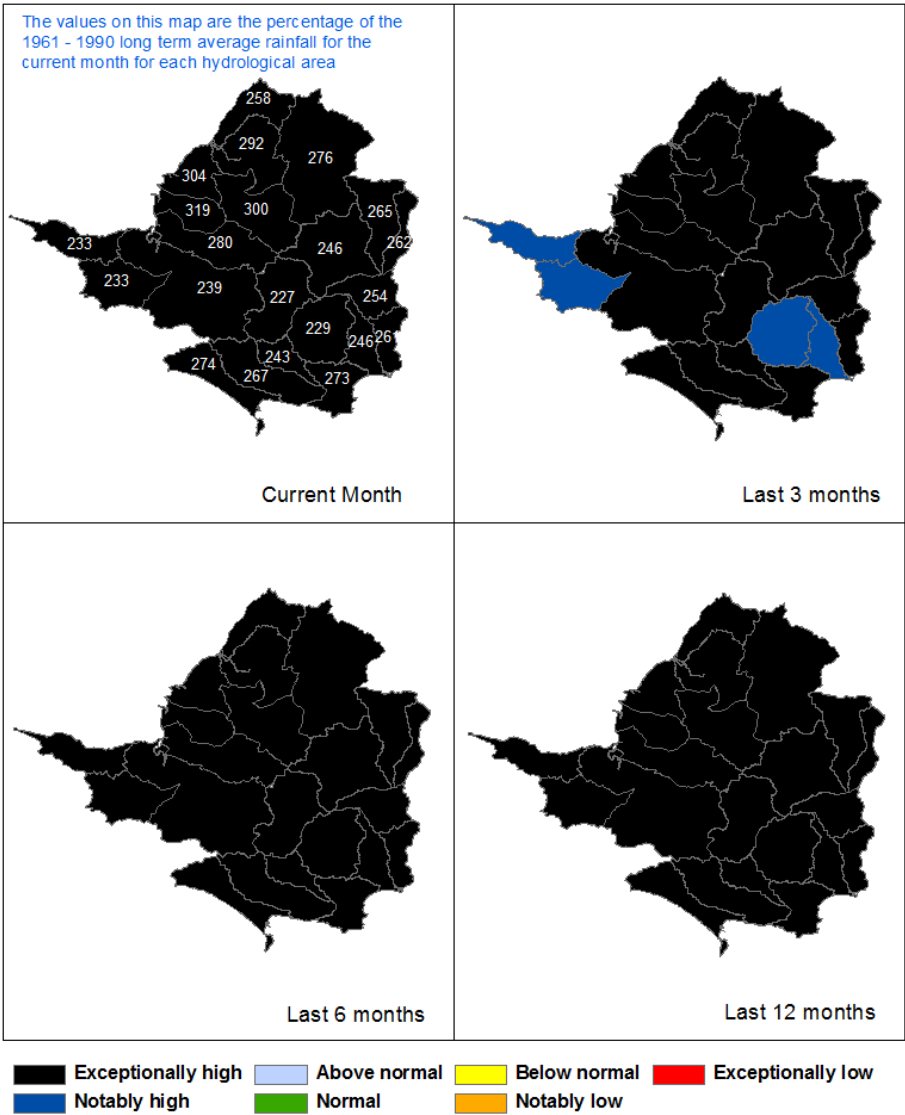
Author: Wessex Hydrology, [hydrologywessex@environment-agency.gov.uk](mailto:hydrologywessex@environment-agency.gov.uk)

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## 2 Rainfall

### 2.1 Rainfall map

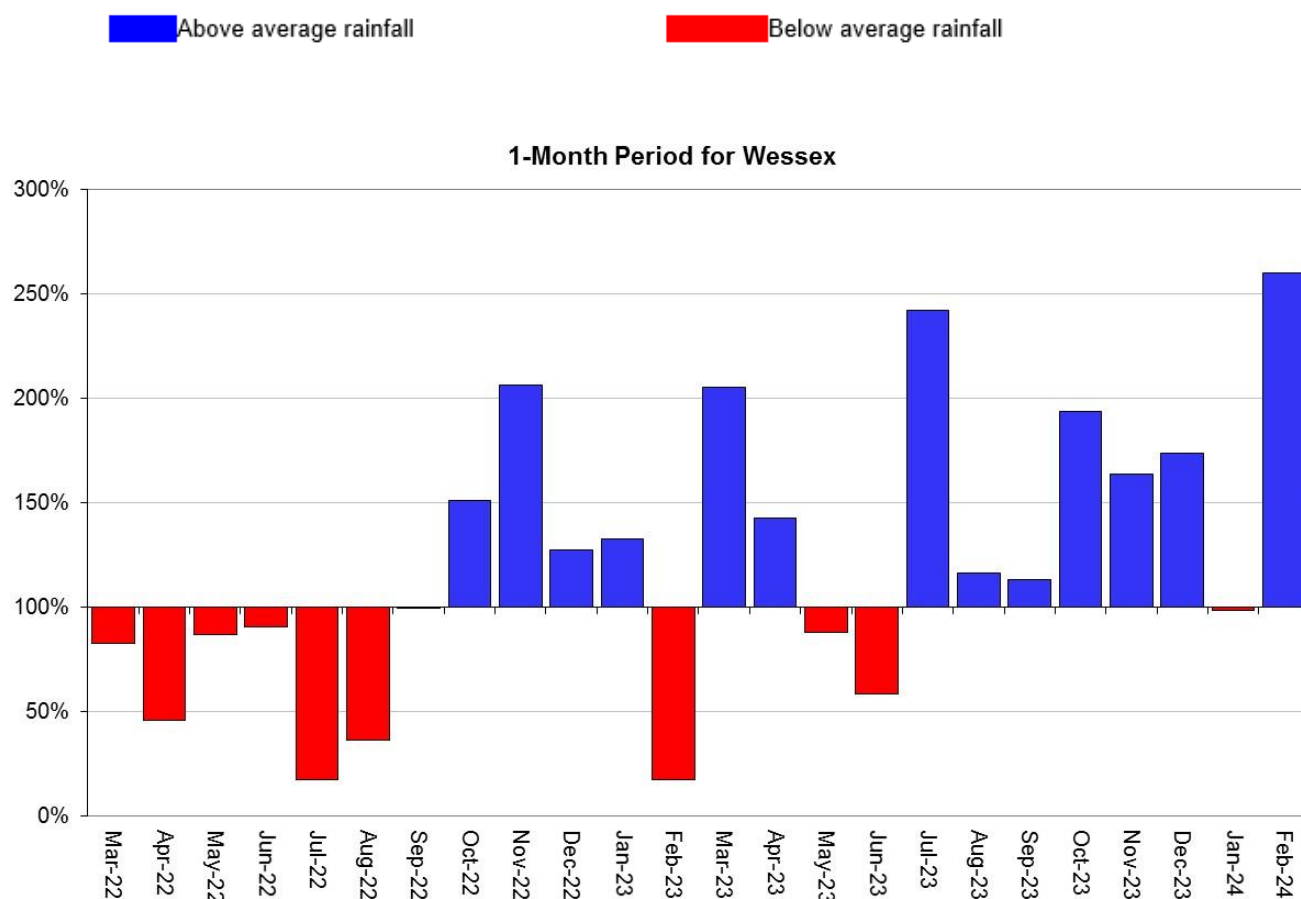
Figure 2.1: Total rainfall for hydrological areas for the current month (up to 29 February 2024), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. Table available in the appendices with detailed information.



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.

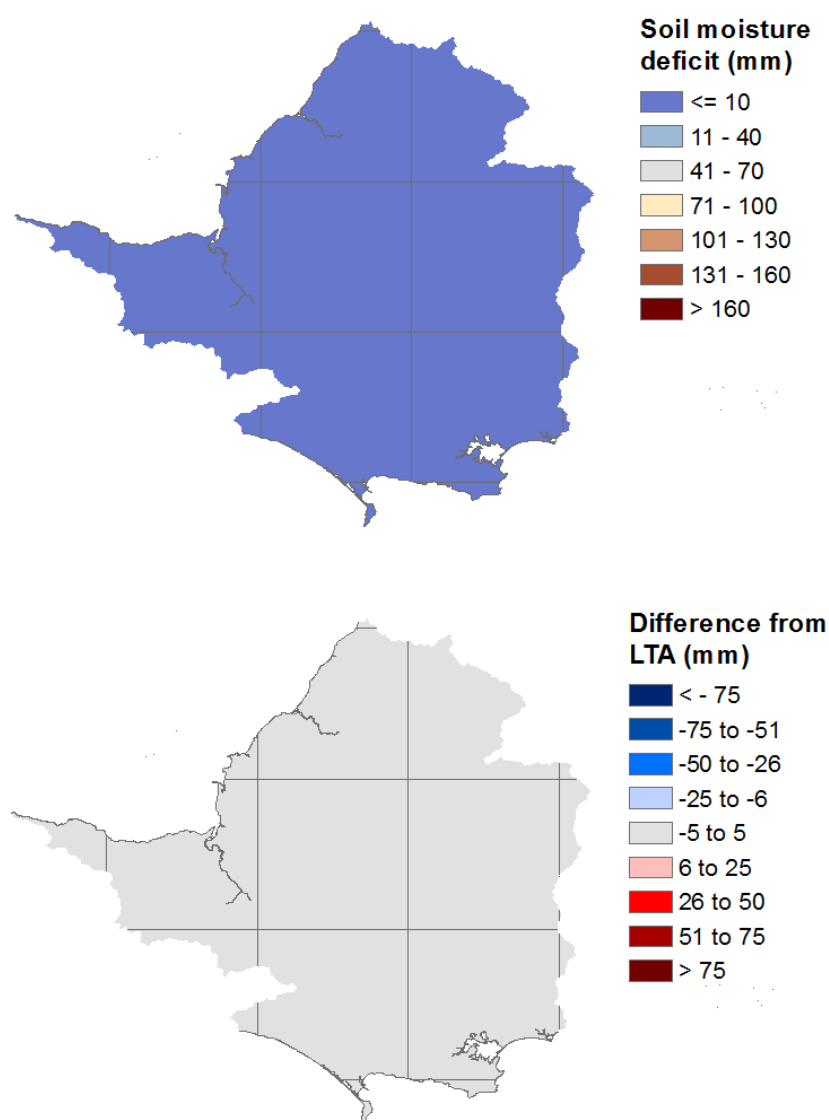


Rainfall data for 2023 and 2024, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, 100024198, 2024). Rainfall data prior to 2023, extracted from Met Office HadUK 1km gridded rainfall dataset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

## 3 Soil moisture deficit

### 3.1 Soil moisture deficit map

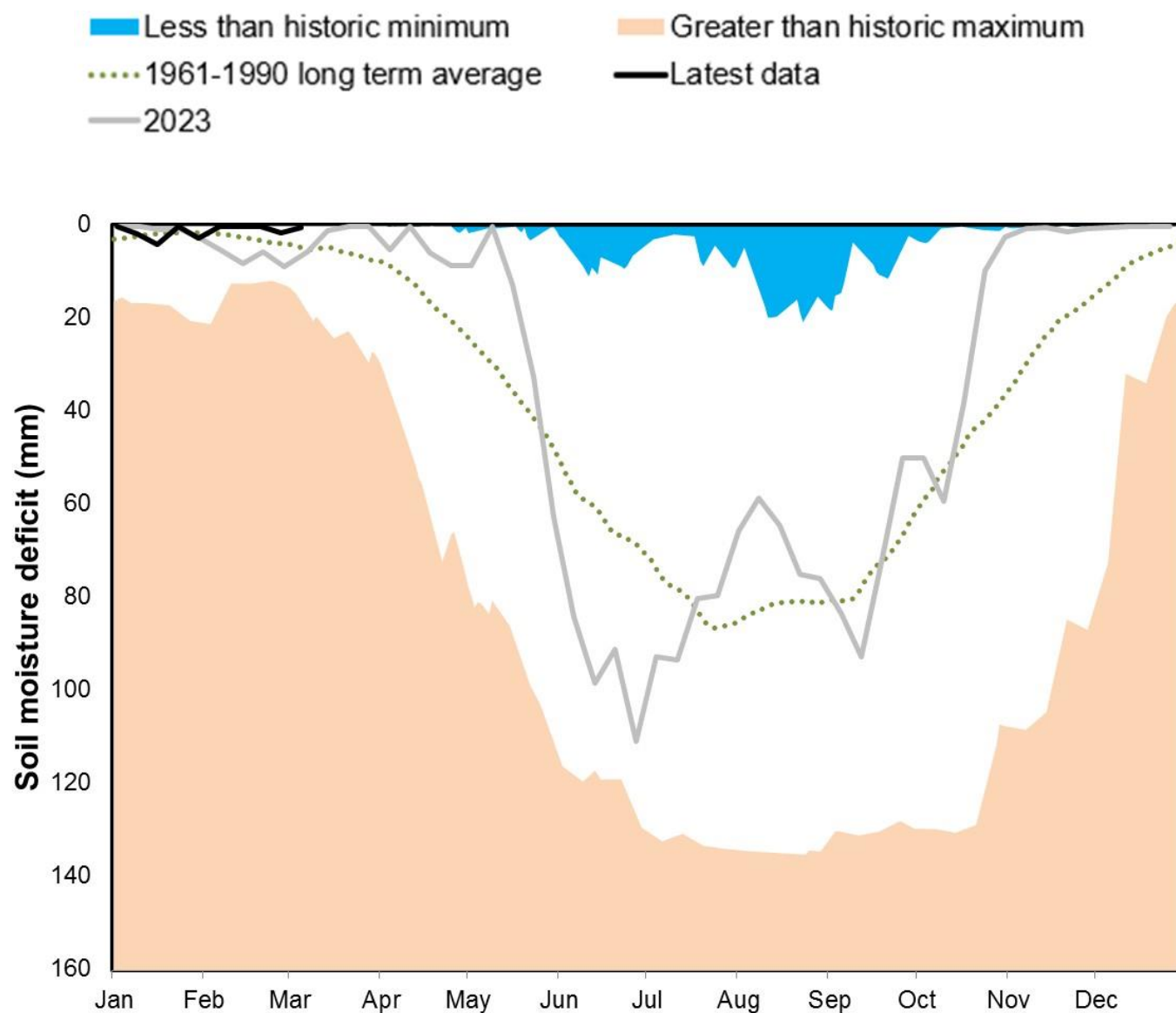
Figure 3.1: Soil moisture deficits for weeks ending 29 February 2024. Shows the difference (mm) of the actual soil moisture deficit from the 1961 to 1990 long term average soil moisture deficits. MORECS data for real land use.



(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

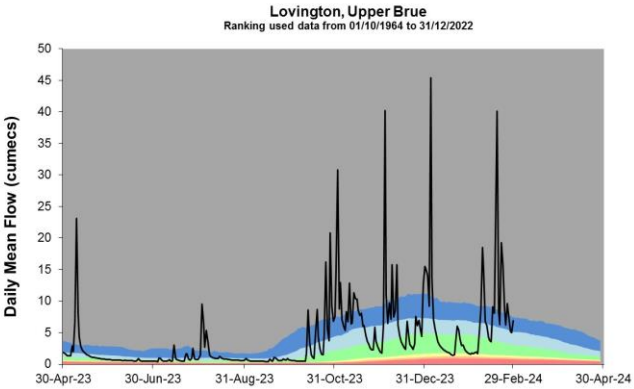
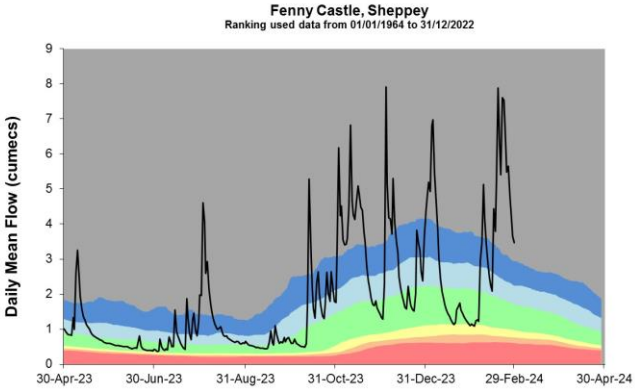
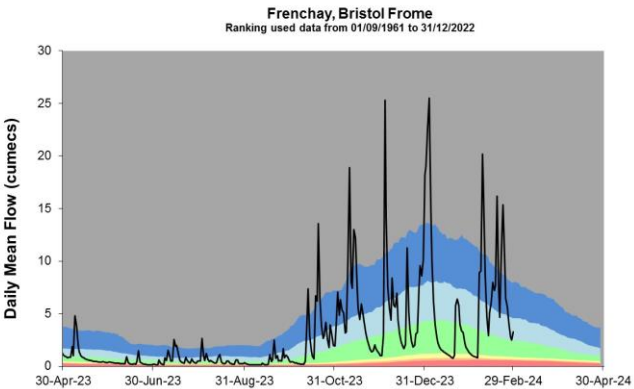
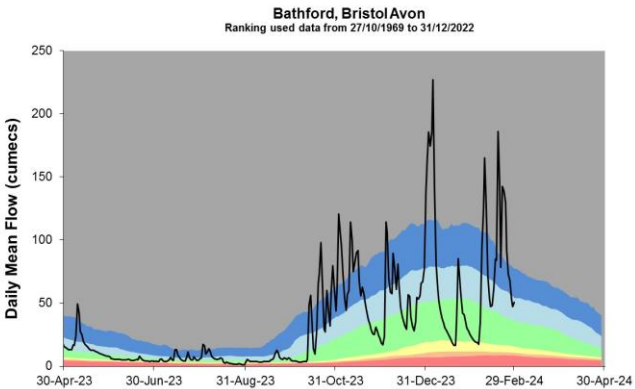
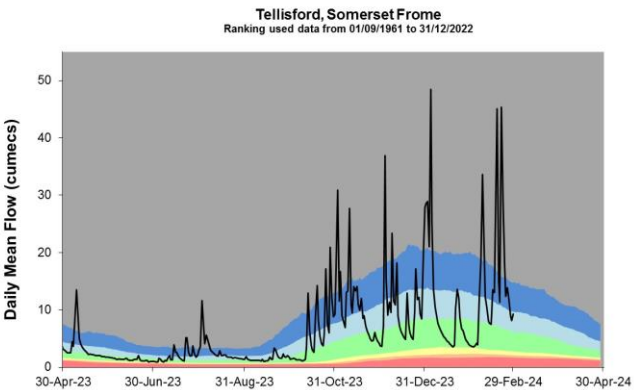
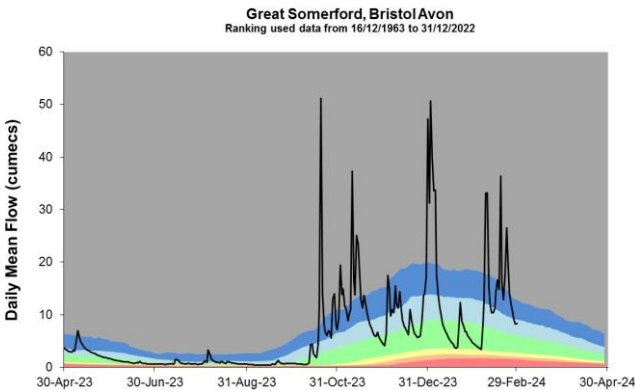
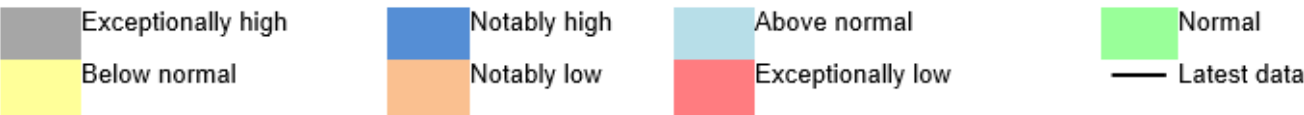
Figure 4.1: Monthly mean river flow for indicator sites for February 2024, expressed as a percentage of the respective long term average and classed relative to an analysis of historic February monthly means Table available in the appendices with detailed information.



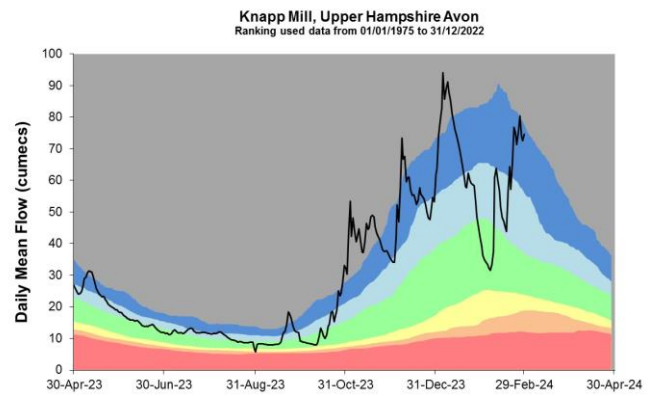
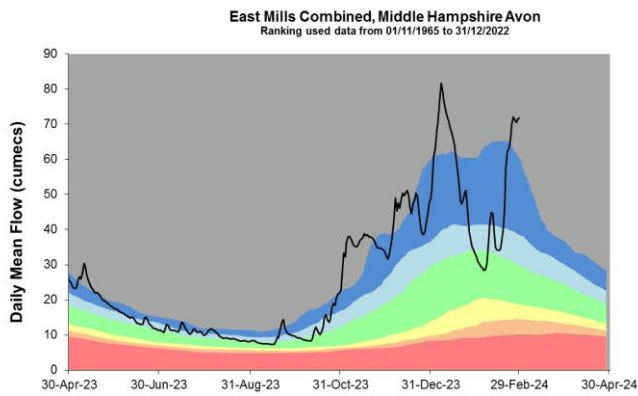
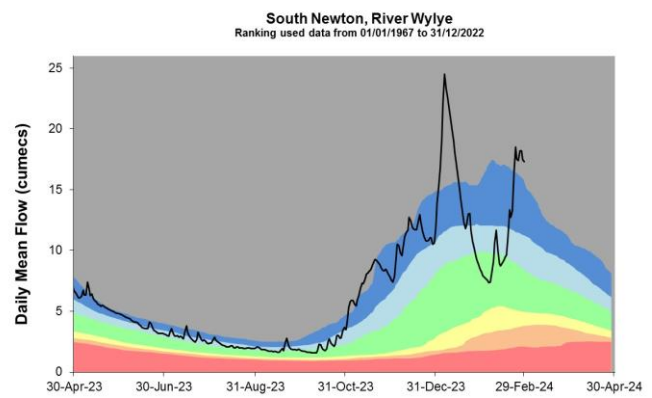
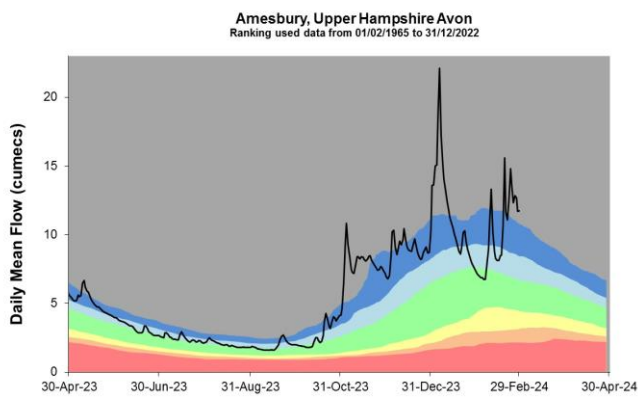
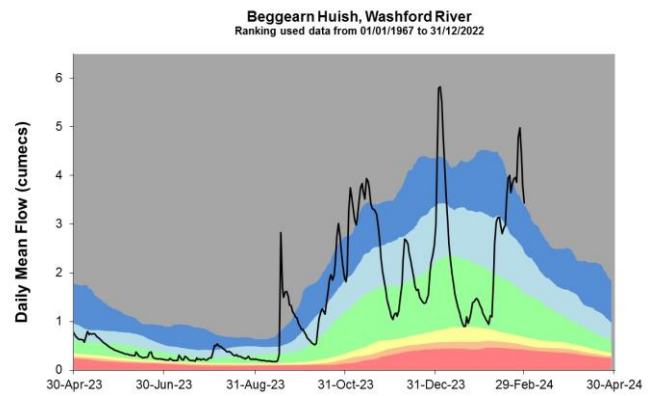
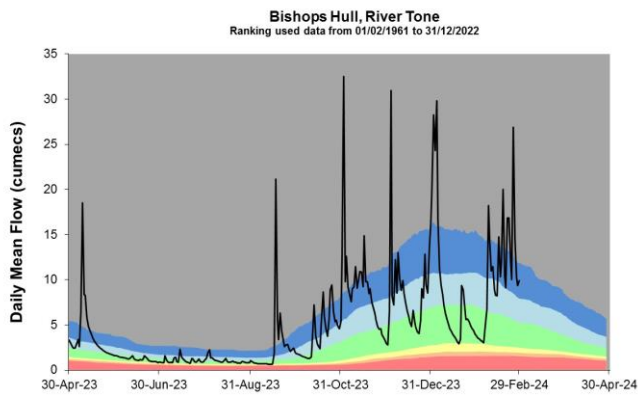
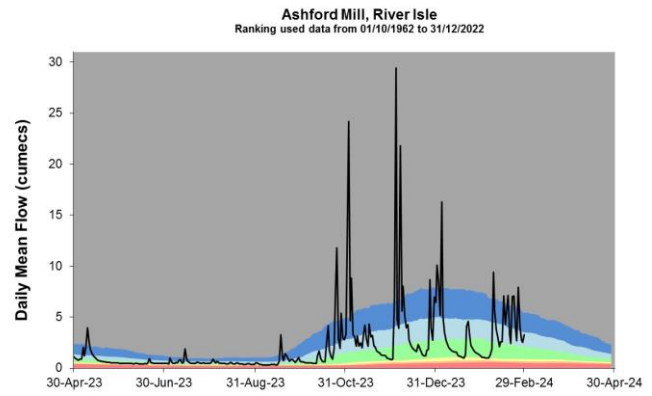
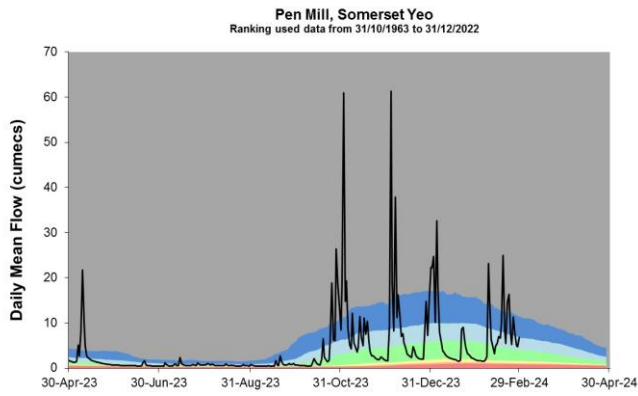
(Source: Environment Agency). Crown copyright. All rights reserved. Environment Agency, 100024198, 2024. Lower Hampshire Avon at Knapp Mill has been omitted due to data quality issues. The Stour at Throop, The Piddle at Baggs Mill, Dorset Frome at East Stoke and Sydling Water at Sydling St Nicholas should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

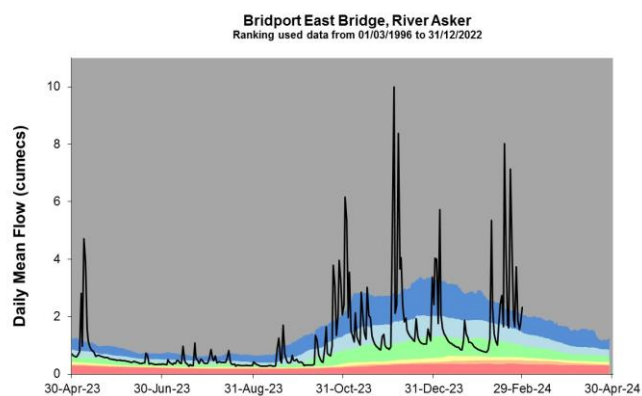
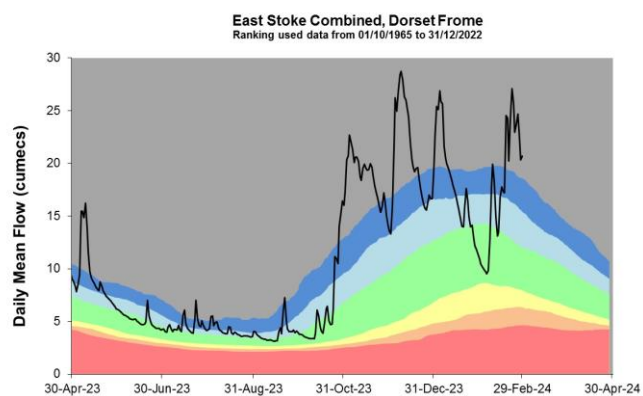
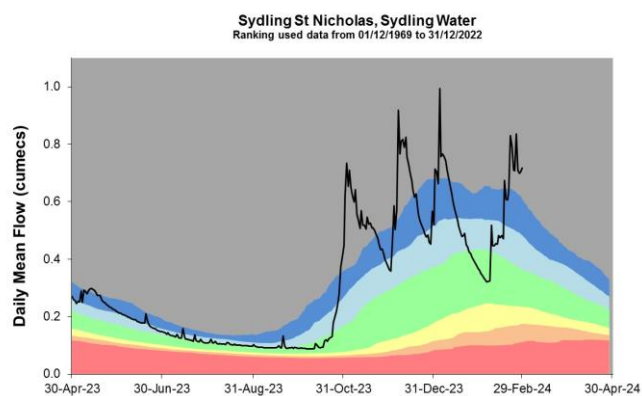
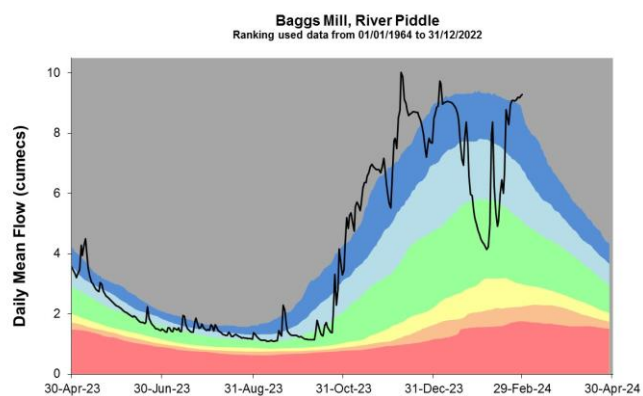
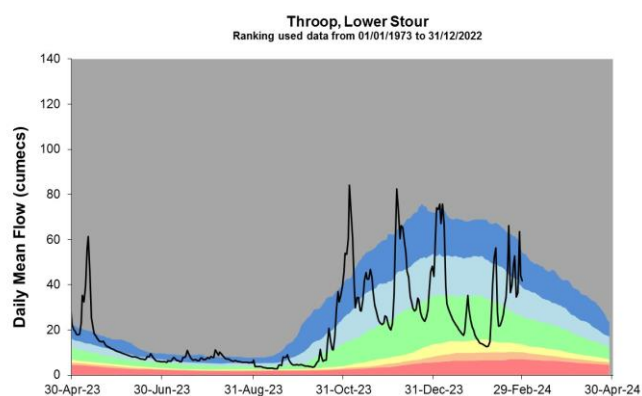
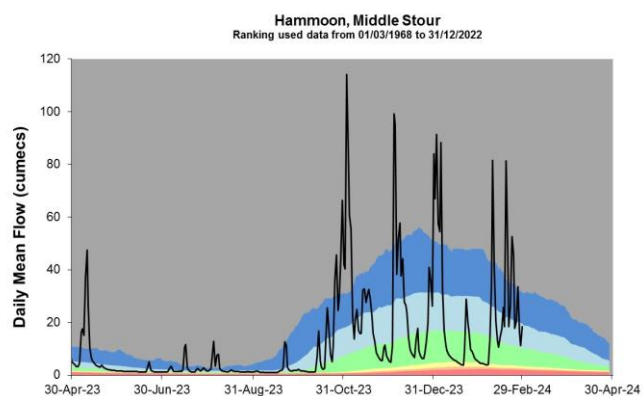
4.2 River flow charts

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







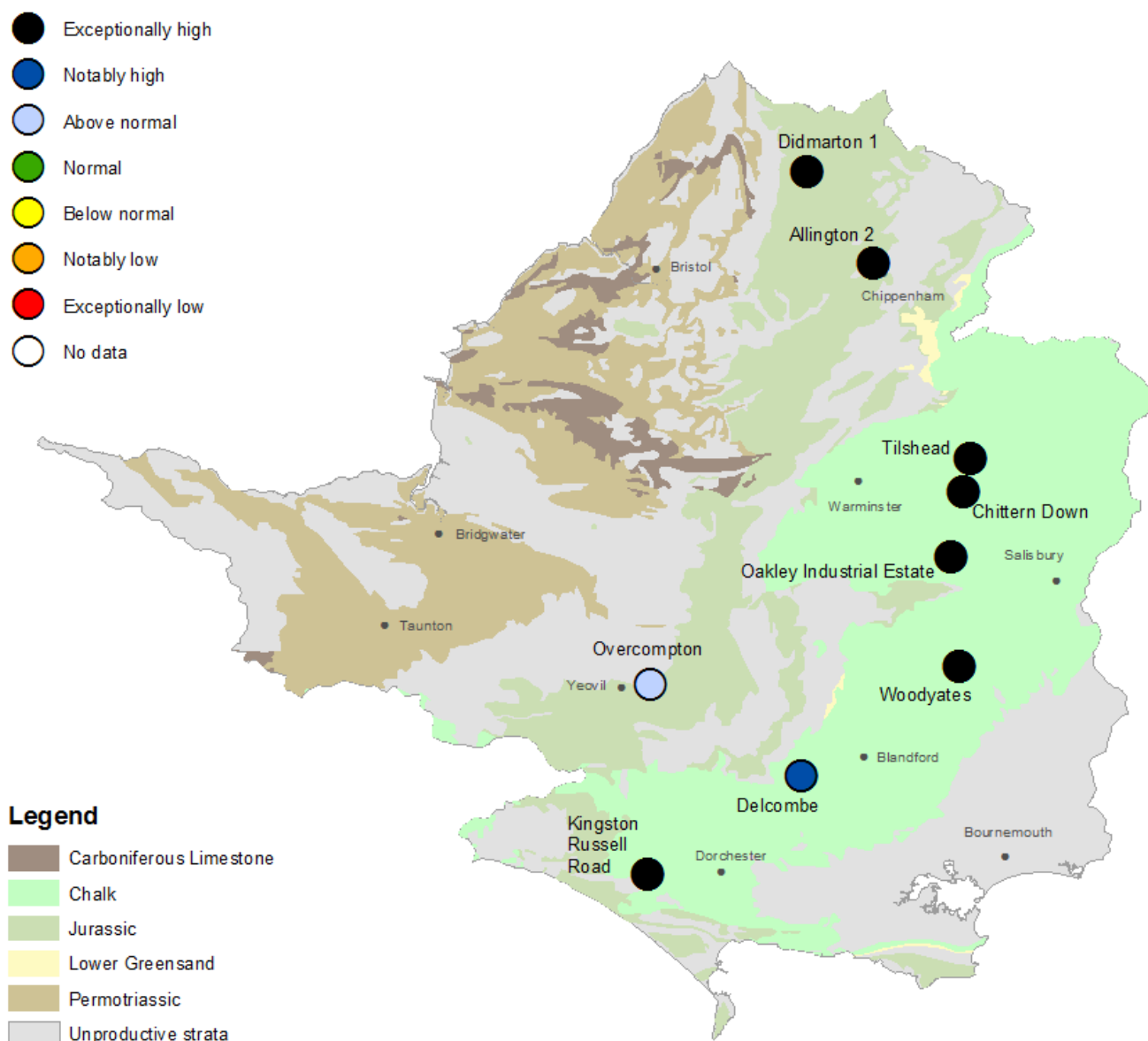


Source: Environment Agency, 2024. The Stour at Throop, The Piddle at Baggs Mill, Dorset Frome at East Stoke and Sydling Water at Sydling St Nicholas should be used with caution due to ongoing data issues.

## 5 Groundwater levels

### 5.1 Groundwater levels map

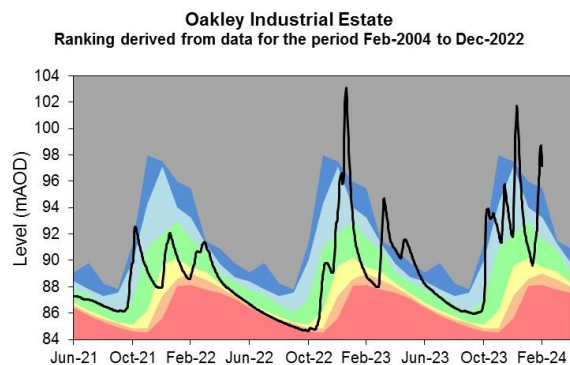
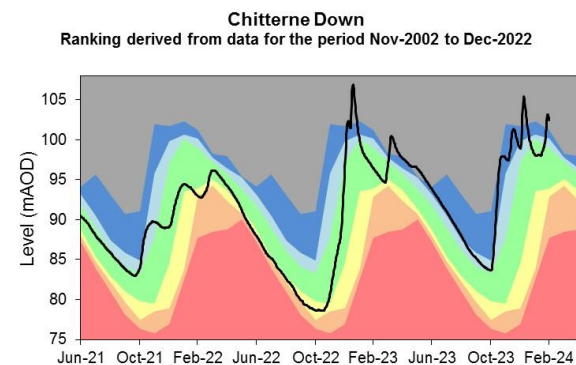
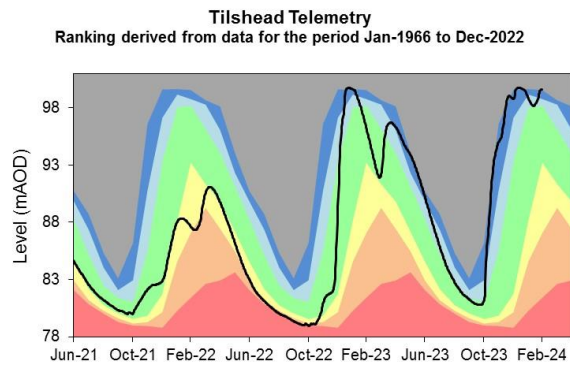
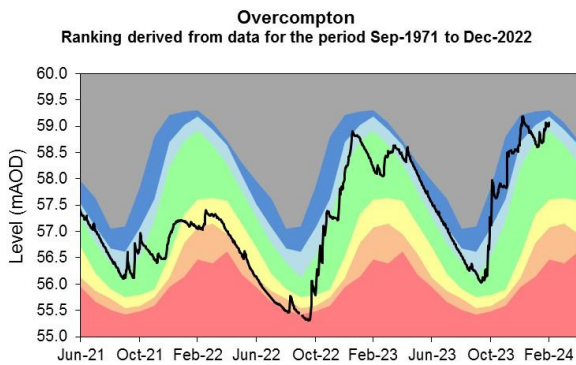
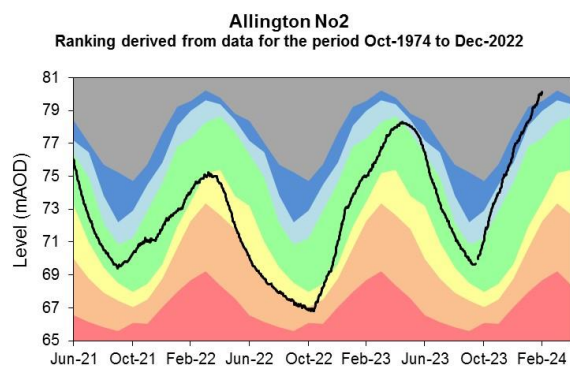
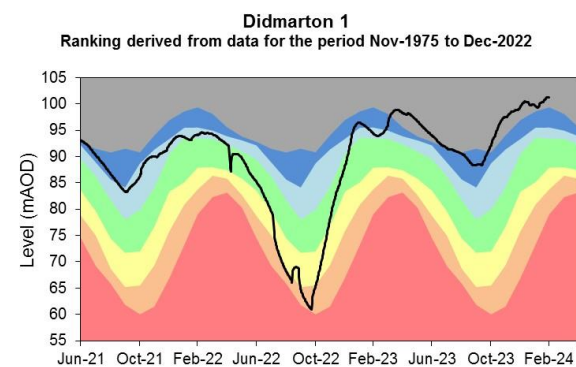
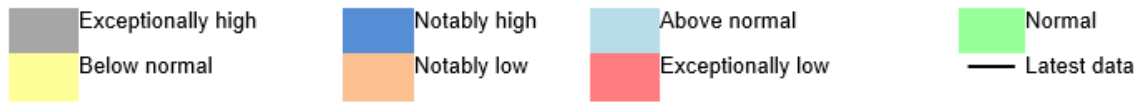
Figure 5.1: Groundwater levels for indicator sites at the end of February 2024, classed relative to an analysis of respective historic February levels. Table available in the appendices with detailed information.

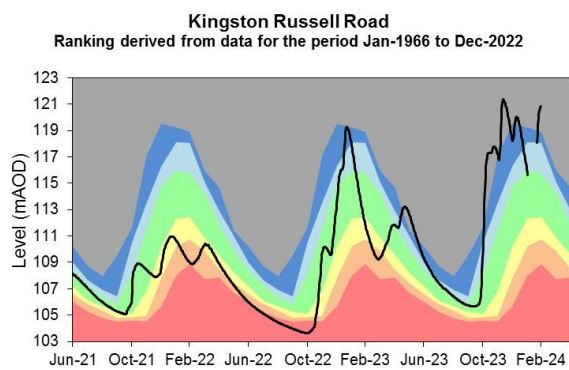
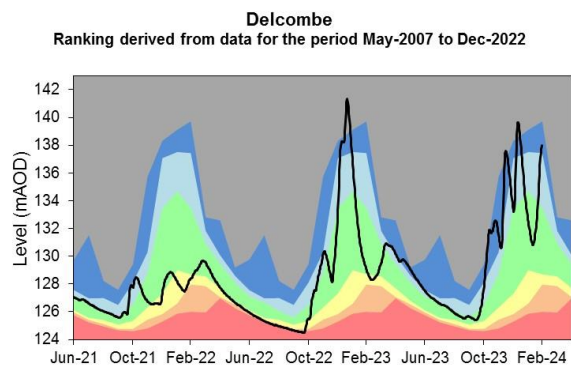
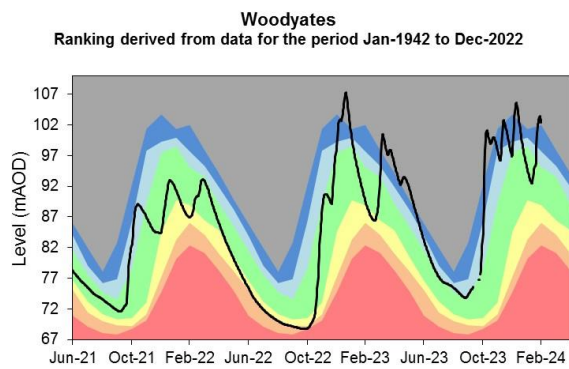


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## 5.2 Groundwater level charts

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.



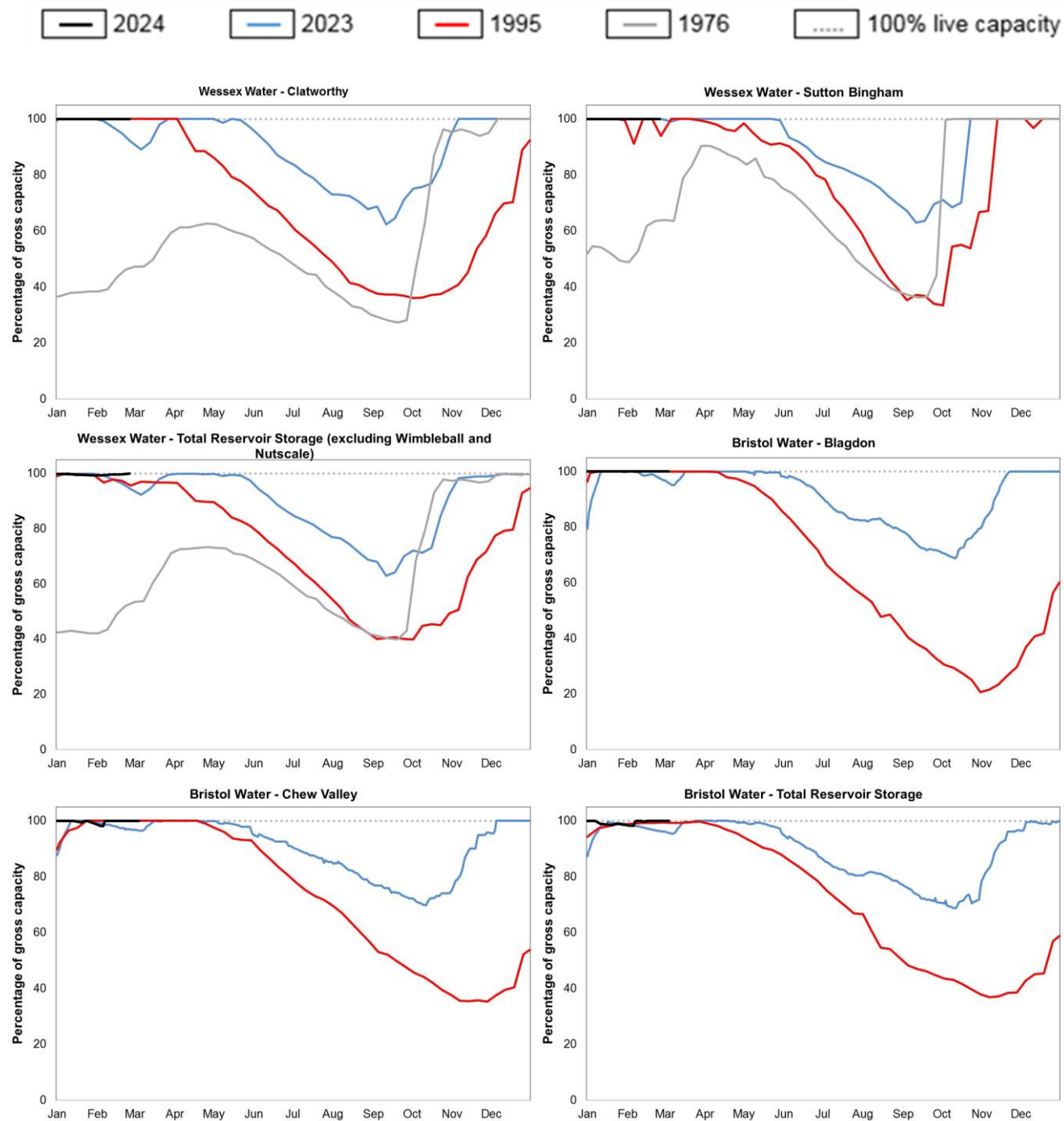


Source: Environment Agency, 2024. Kingston Russell Road is missing data between 2 and 19 February 2024 due to outstation issues.



## 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 February

Area	Number of fluvial flood alerts in February	Number of coastal flood alerts in February	Number of groundwater flood alerts in February
North Wessex	53	6	0
South Wessex	51	27	4

### 7.2 Flood warnings

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

Area	Number of fluvial flood warnings in February	Number of coastal flood warnings in February	Number of groundwater flood warnings in February
North Wessex	29	3	0
South Wessex	32	7	23

### 7.3 Severe flood warnings

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

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

## 8 Stream support

### 8.1 Sites providing stream support

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

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

Catchment	Number of licences at restrict at the end of February	Number of licences at cease at the end of February
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 ( $\text{m}^3\text{s}^{-1}$ ).

### **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**

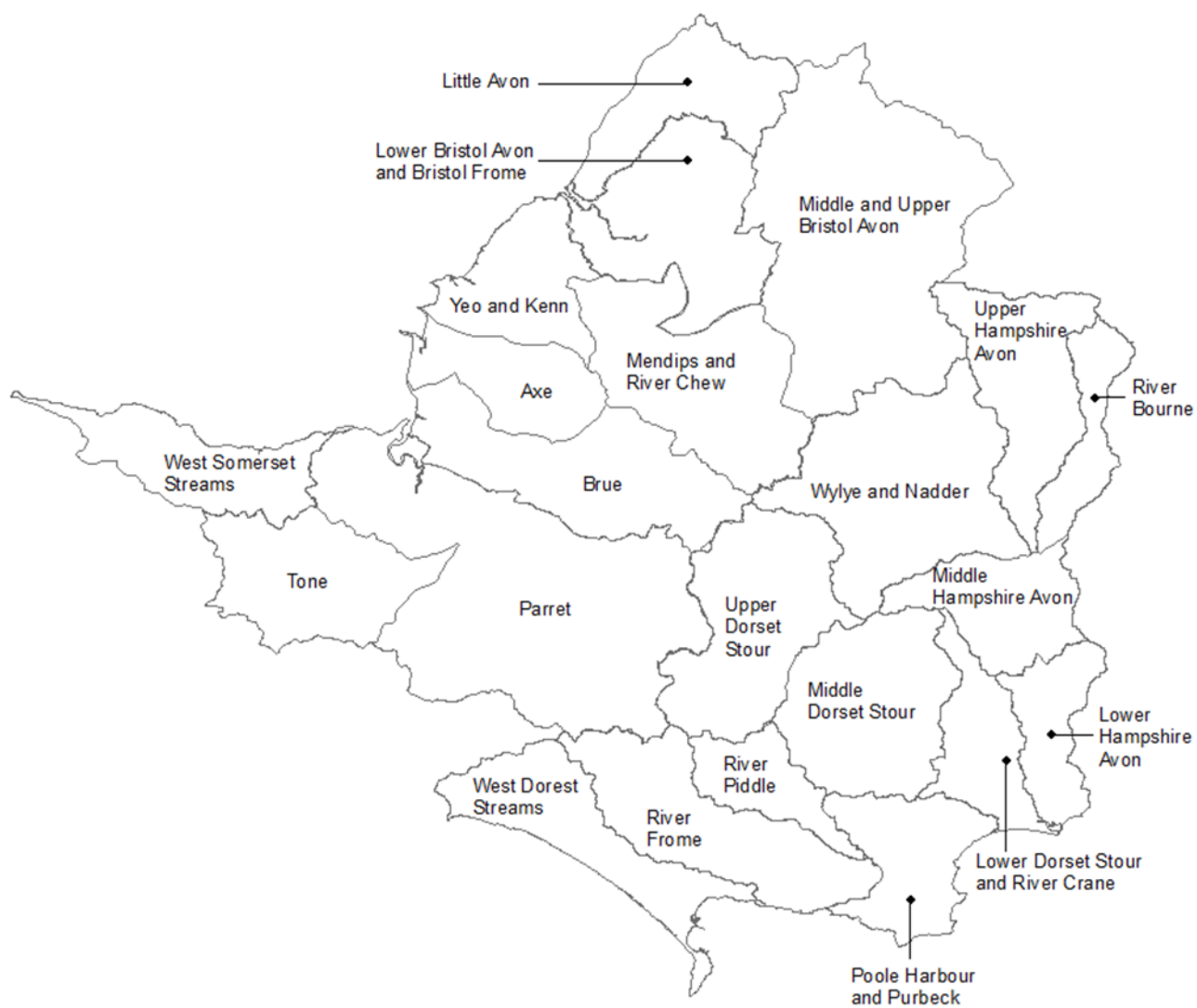
Value likely to fall within this band 8% of the time.

### **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	Feb 2024 rainfall % of long term average 1961 to 1990	Feb 2024 band	Dec 2023 to February cumulative band	Sep 2023 to February cumulative band	Mar 2023 to February cumulative band
Axe	319	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
Brue	281	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
Little Avon	258	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
Lower Bristol Avon And Bristol Frome	292	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
Lower Dorset Stour And River Crane	246	Exceptionally High	Notably high	Exceptionally high	Exceptionally high
Lower Hampshire Avon	261	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
Mendips And River Chew	300	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
Middle And Upper Bristol Avon	276	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high

Middle Dorset Stour	229	Exceptionally High	Notably high	Exceptionally high	Exceptionally high
Middle Hampshire Avon	254	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
Parrett	239	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
Poole Harbour And Purbeck	273	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
River Bourne	262	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
River Frome	267	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
River Piddle	243	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
Tone	233	Exceptionally High	Notably high	Exceptionally high	Exceptionally high
Upper Dorset Stour	227	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
Upper Hampshire Avon	265	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
West Dorset Streams	274	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high



West Somerset Streams	233	Exceptionally High	Notably high	Exceptionally high	Exceptionally high
Wylfe And Nadder	246	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high
Yeo And Kenn	305	Exceptionally High	Exceptionally high	Exceptionally high	Exceptionally high

## 11.2 River flows table

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

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

## 11.3 Groundwater table

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