

Monthly water situation report: Wessex Area

1 Summary - July 2024

July marked the return to wetter conditions following the driest June in 6 years. An average of 79mm fell across Wessex equating to 151% of the long term average (LTA). This increase in rainfall from last month also helped make this the wettest 6 month and 12 month periods on record since 1871. Soil moisture deficit (SMD) initially decreased during July in response to the high rainfall towards the beginning of the month but then increased to near the LTA by the end of the month. The majority of monthly mean flows in the north of Wessex were normal or above normal, while flows in the south were largely above normal or notably high.

Groundwater sites at the end of July varied between normal and notably high across most sites including those monitoring the Chalk aquifer. Throughout July, reservoir levels continued to decrease with Wessex Water ending the month at approximately 76% capacity and Bristol Water ending July at approximately 75% capacity.

1.1 Rainfall

An average of 79mm of rain fell across Wessex in July (151% of the LTA). Recorded monthly rainfall ranged from 115% to 221% of the July LTA with the lowest relative rainfall recorded in the Mendips and River Chew and the highest in the West Dorset Streams. Rainfall was concentrated on a couple of days towards the beginning of the month with an average of 22mm falling on 5 July (27% of rain during July) and 21mm falling on 8 July (26% of rain during July). In total, 61% of the month's total rainfall fell between 5 July and 8 July.

Hydrological areas across the north of Wessex received normal rainfall while those to the south of Wessex received either normal or above normal rainfall. Over the past 3 months, the picture in the north of Wessex is similar as most hydrological areas received normal quantities of rainfall. In the south of Wessex however, 3 of the areas which received above normal rainfall in July recorded notably high rainfall across the past 3 months. Due to the wet winter and spring, both the last 6 and 12 months recorded exceptionally high rainfall across all hydrological areas. This has been both the wettest 6-month period (February to July) and 12-month period (August to July) since records began in 1871.

1.2 Soil moisture

SMD in Wessex initially decreased for the first couple of weeks of July, before increasing again for the remainder of the month. At the end of July, the majority of Wessex recorded a SMD in the range of 71mm to 100mm. Small areas in the east of Wessex recorded a higher SMD in the range of 101mm to 130mm while a couple of small areas in the west of Wessex recorded lower SMD values in the range of 41mm to 70mm and 11mm to 40mm. When compared to the LTA, the majority of the south of Wessex recorded an SMD within 5mm of the LTA at the end of July. In the north east of Wessex, SMD was between 6mm and 25mm

above the LTA. However in the north west of Wessex, SMD was between 6mm and 25mm below the LTA.

1.3 River flows

In July, the majority of sites to the north and west of Wessex reported normal or above normal mean monthly flows. Sites to the south and east of Wessex, including those on the Chalk aquifer largely recorded above normal or notably high flows. Flows were higher on the Chalk largely because of groundwater supplied by the aquifer contributing towards river flows. East Stoke Combined and Baggs Mill, on the Dorset Frome and the Piddle respectively both recorded exceptionally high mean monthly flows. Most sites recorded flows peaking around 9 July and recorded falling flows towards the end of the month.

1.4 Groundwater levels

Groundwater levels at the end of July varied between normal and exceptionally high across Wessex. Didmarton 1 (monitoring the Inferior Oolite formation) was the only site to record exceptionally high levels at the end of the month. Amongst sites monitoring the Chalk aquifer, Kingston Russell Road was the only site to record notably high levels at the end of the month. The remaining sites monitoring the Chalk recorded either normal or above normal groundwater levels. Allington 2 (monitoring the Great Oolite formation) recorded normal levels and Overcompton (monitoring the Bridport Sand formation) recorded notably high levels at the end of July.

1.5 Reservoir stocks

Reservoir levels in Wessex continued to decrease throughout July. At the end of the month, Wessex Water reported reservoirs at approximately 76% capacity which is very similar to this time last year. Bristol Water reported reservoir levels of approximately 75% capacity at the end of July which is approximately 5% lower than this time last year.

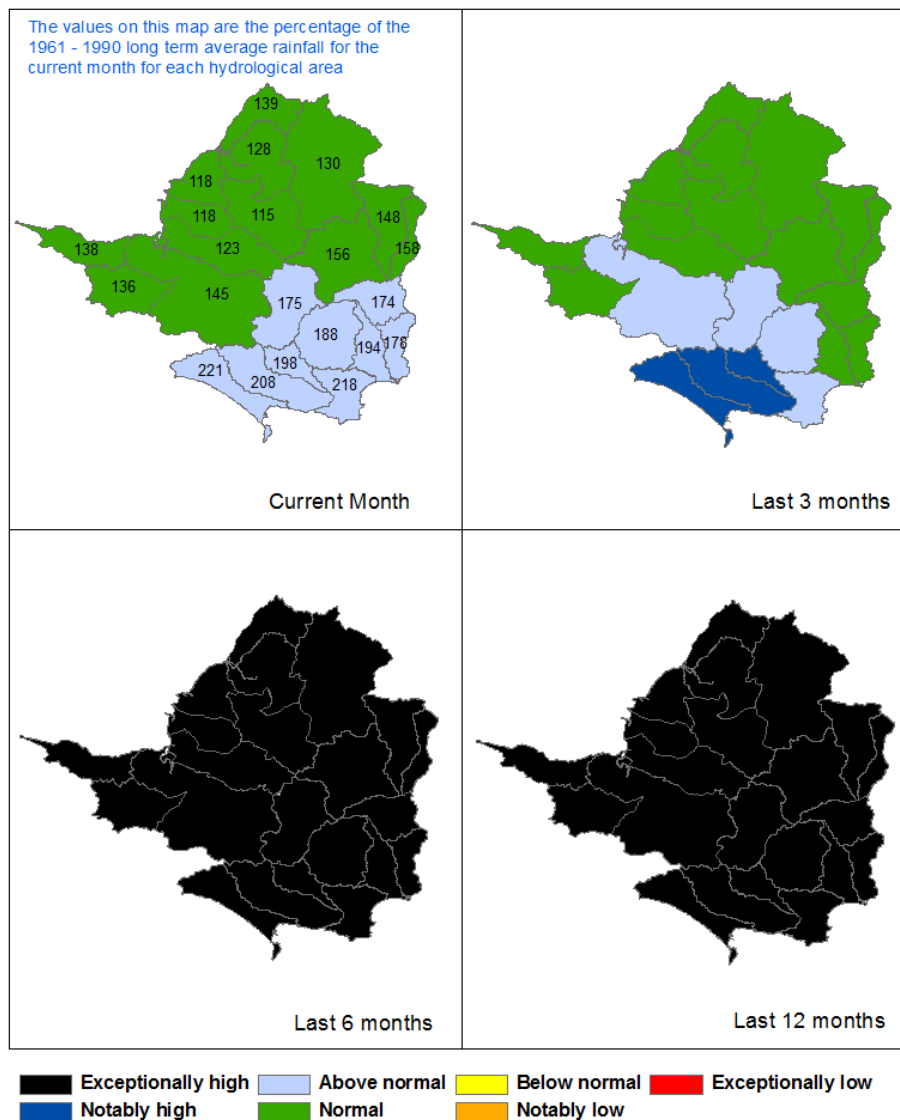
Author: Wessex Hydrology, hydrologywessex@environment-agency.gov.uk

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2 Rainfall

2.1 Rainfall map

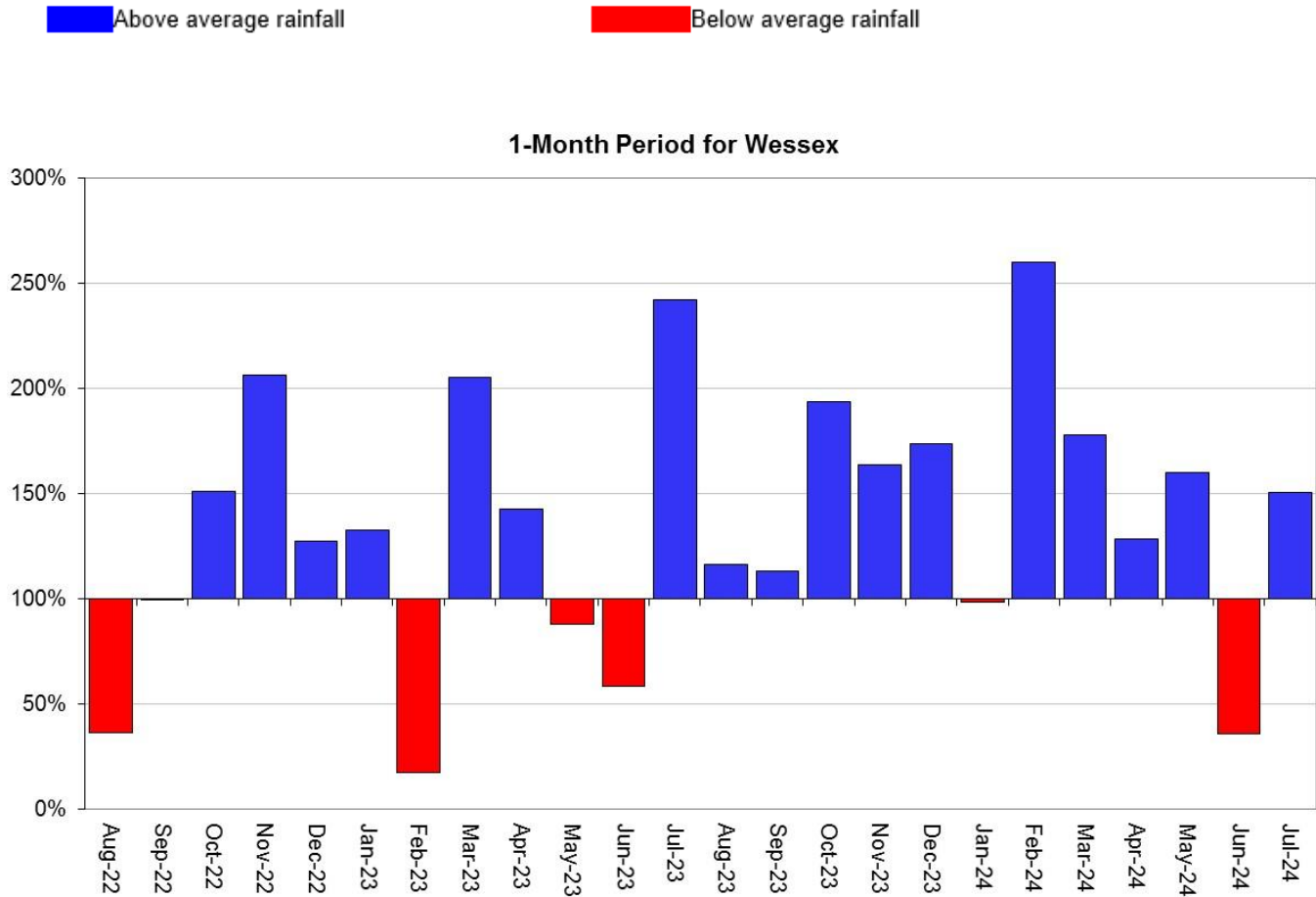
Figure 2.1: Total rainfall for hydrological areas for the current month (up to 31 July 2024), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. Table available in the appendices with detailed information.



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.

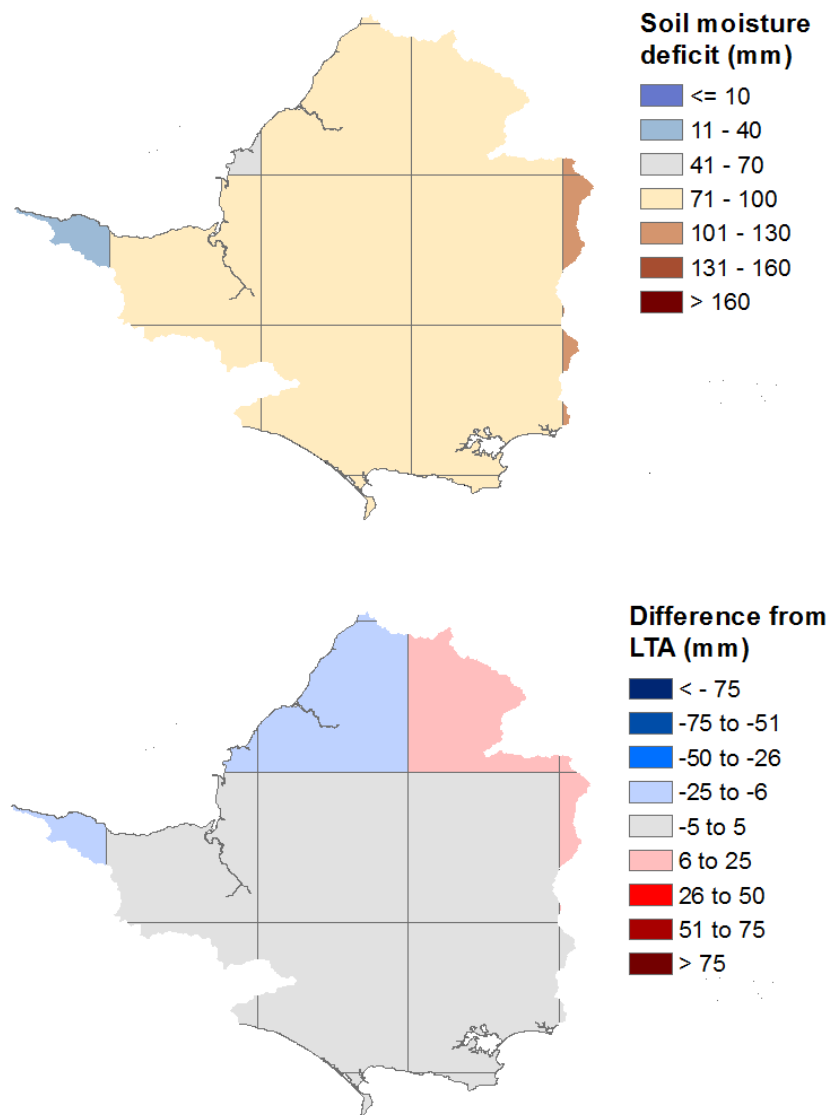


Rainfall data for 2023 and 2024, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, 100024198, 2024). Rainfall data prior to 2023, extracted from Met Office HadUK 1km gridded rainfall dataset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

3 Soil moisture deficit

3.1 Soil moisture deficit map

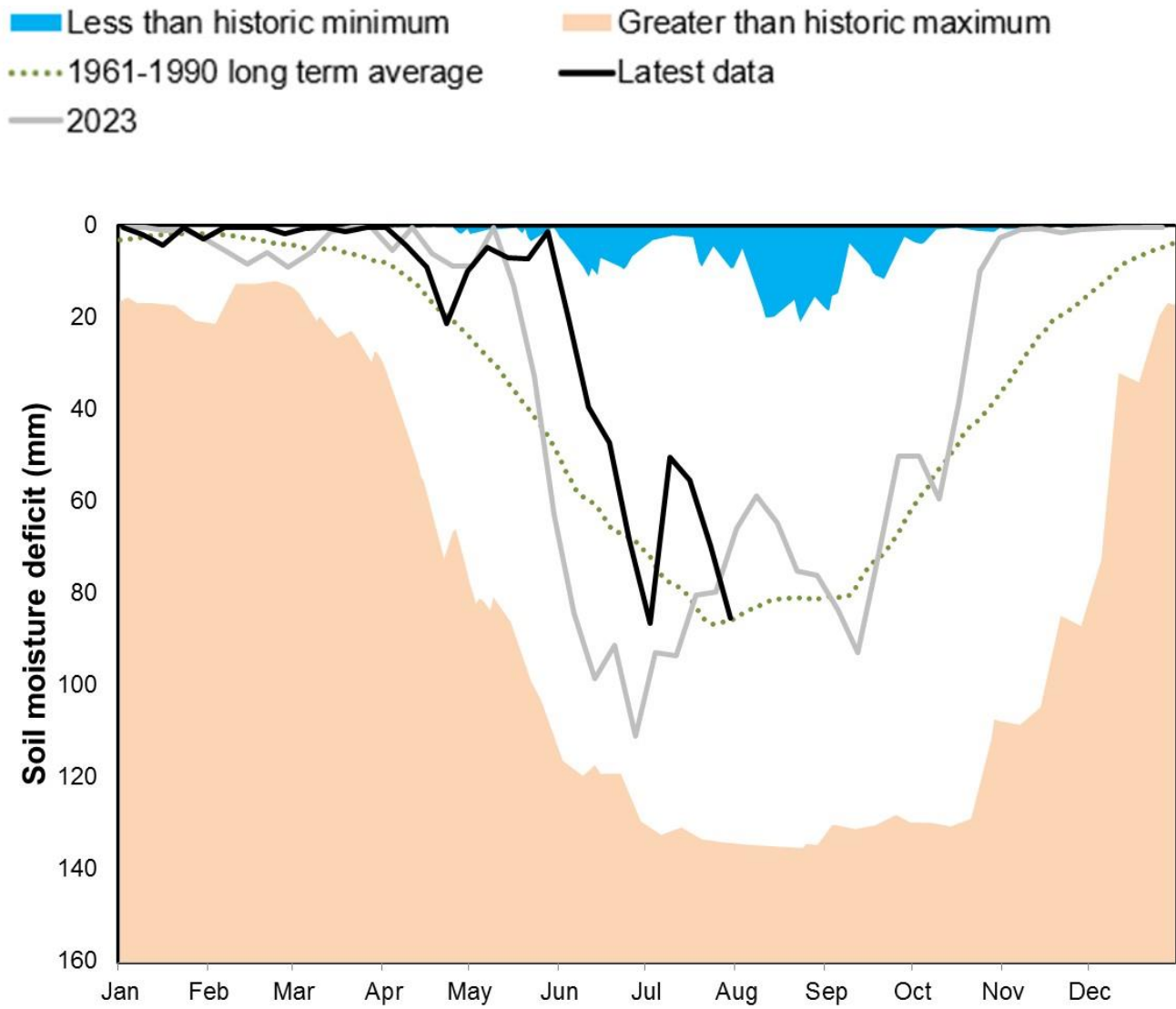
Figure 3.1: Soil moisture deficits for weeks ending 31 July 2024. Shows the difference (mm) of the actual soil moisture deficit from the 1961 to 1990 long term average soil moisture deficits. MORECS data for real land use.



(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

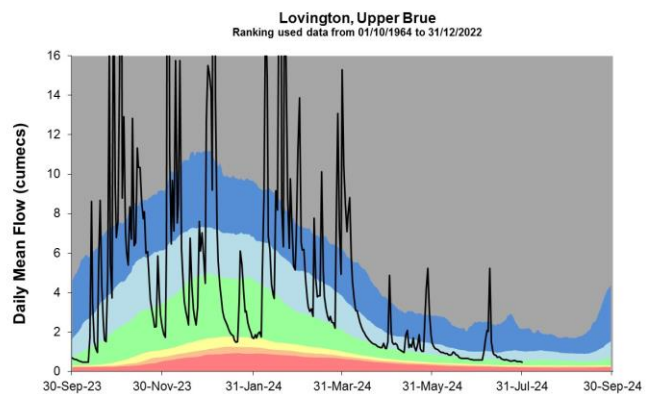
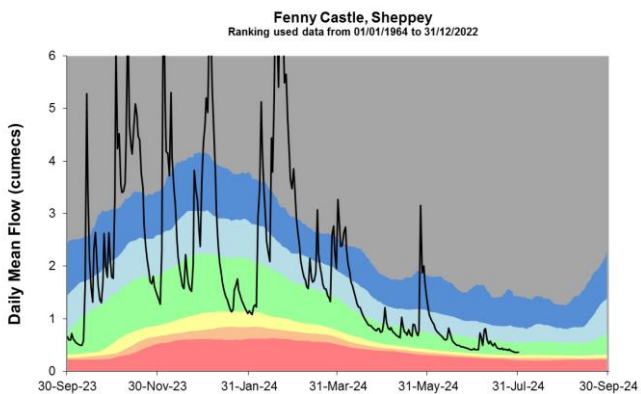
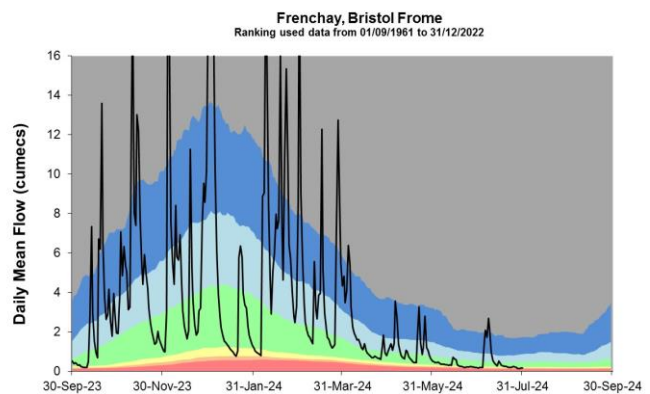
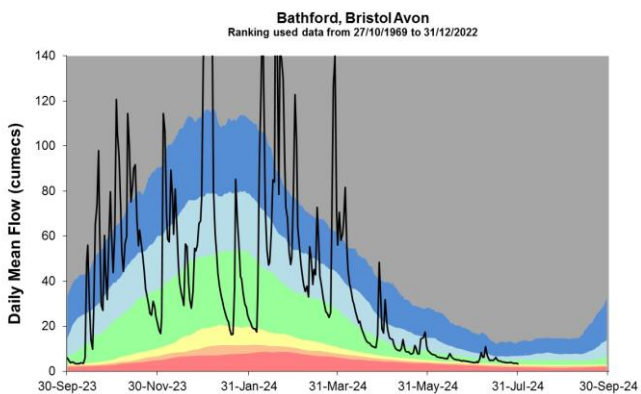
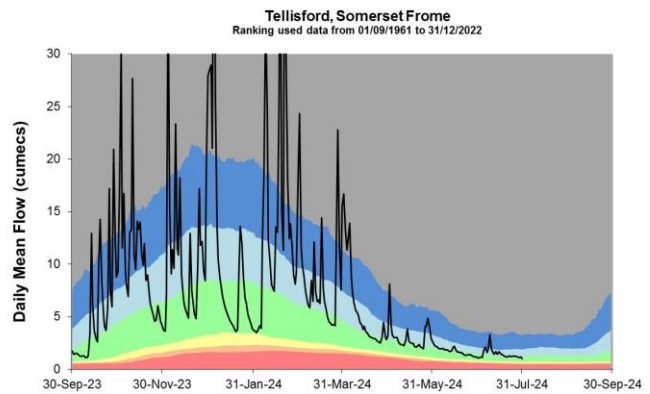
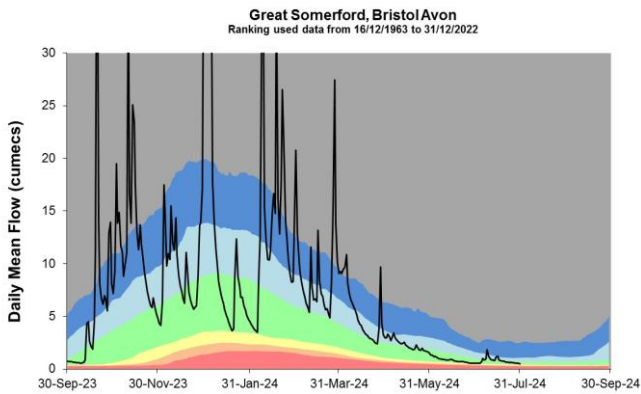
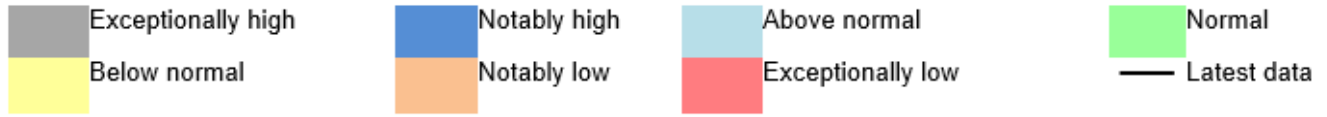
Figure 4.1: Monthly mean river flow for indicator sites for July 2024, expressed as a percentage of the respective long term average and classed relative to an analysis of historic July monthly means Table available in the appendices with detailed information.



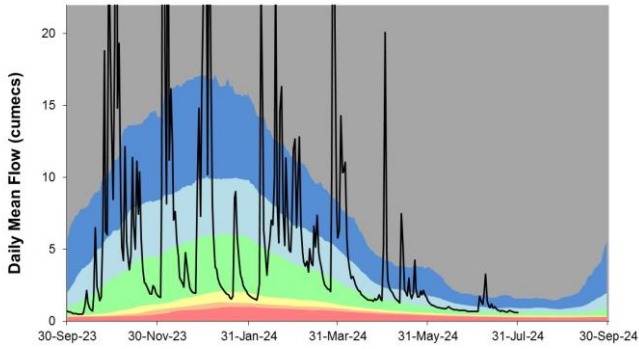
(Source: Environment Agency). Crown copyright. All rights reserved. Environment Agency, 100024198, 2024. Lower Hampshire Avon at Knapp Mill has been omitted due to ongoing data quality issues. The Stour at Throop and the Yeo at Pen Mill should be treated with caution due to existing data issues.

4.2 River flow charts

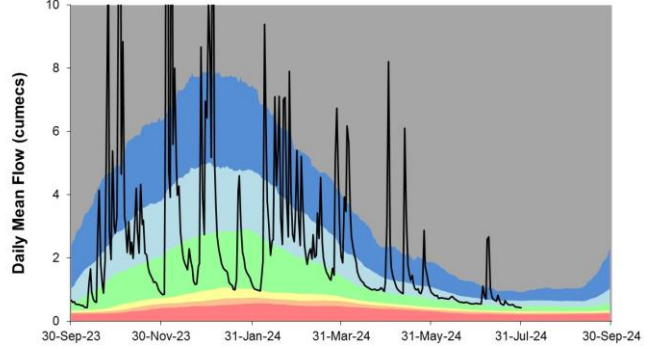
Figure 4.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows.



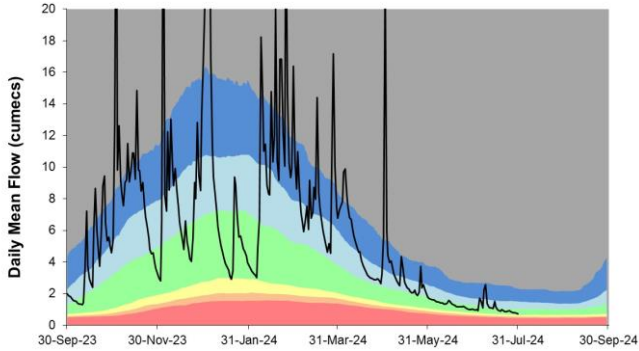
Pen Mill, Somerset Yeo
Ranking used data from 31/10/1963 to 31/12/2022



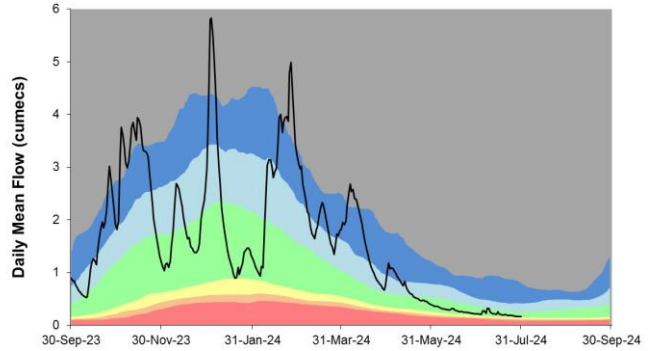
Ashford Mill, River Isle
Ranking used data from 01/10/1962 to 31/12/2022



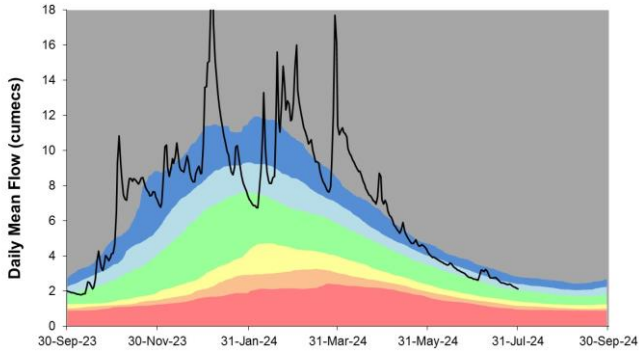
Bishops Hull, River Tone
Ranking used data from 01/02/1961 to 31/12/2022



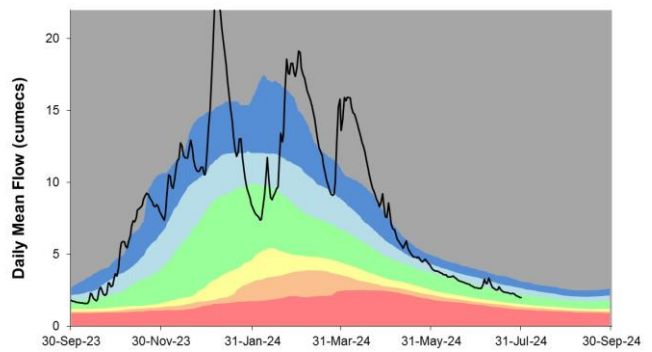
Beggearn Huish, Washford River
Ranking used data from 01/01/1967 to 31/12/2022



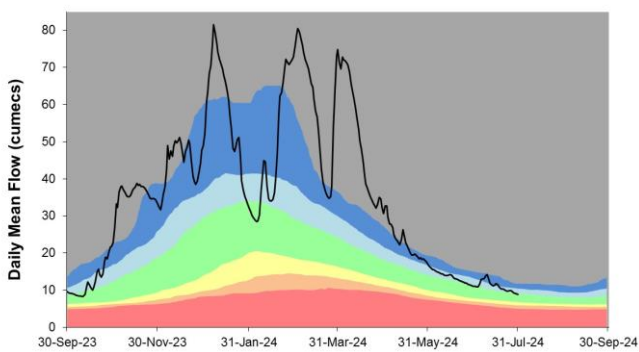
Amesbury, Upper Hampshire Avon
Ranking used data from 01/02/1965 to 31/12/2022



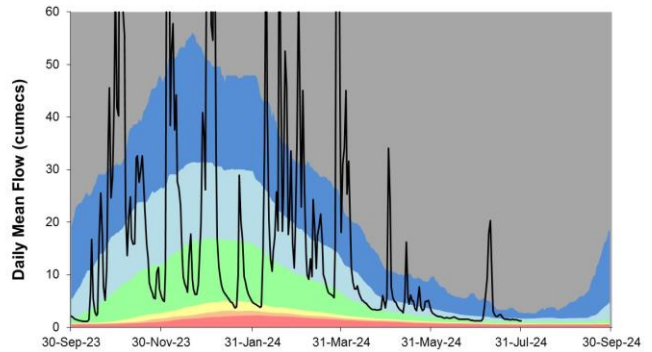
South Newton, River Wylde
Ranking used data from 01/01/1967 to 31/12/2022

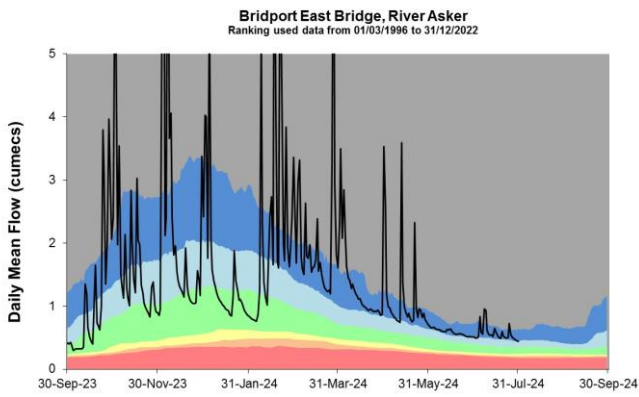
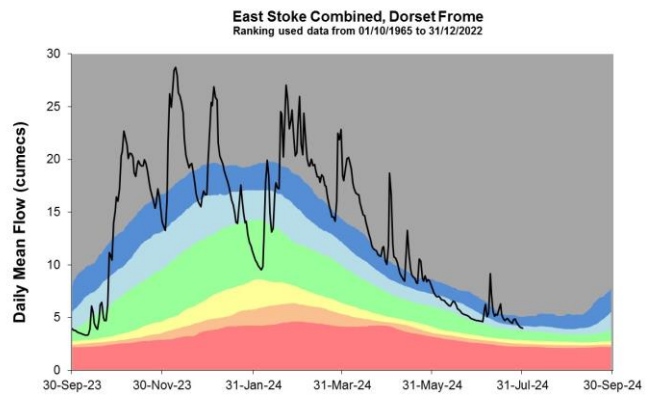
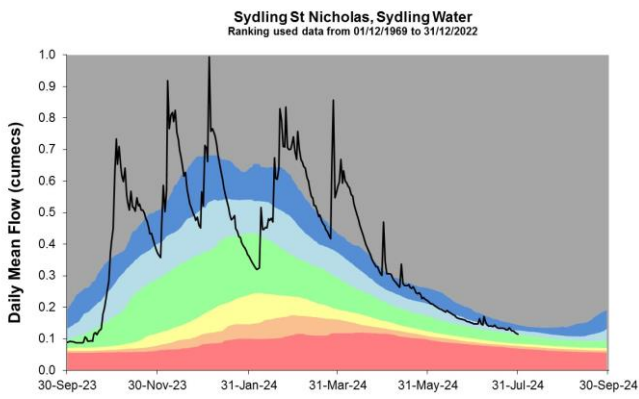
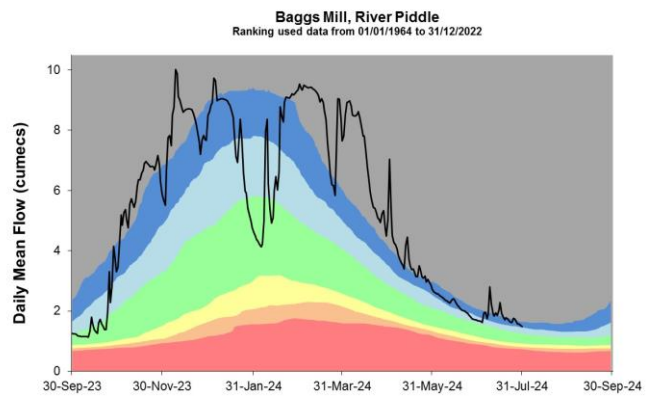
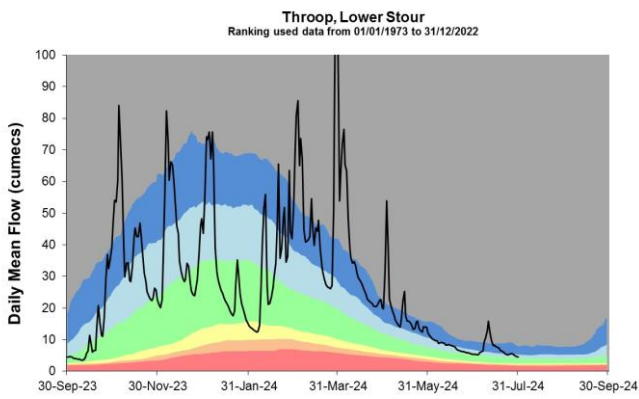


East Mills Combined, Middle Hampshire Avon
Ranking used data from 01/11/1965 to 31/12/2022



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



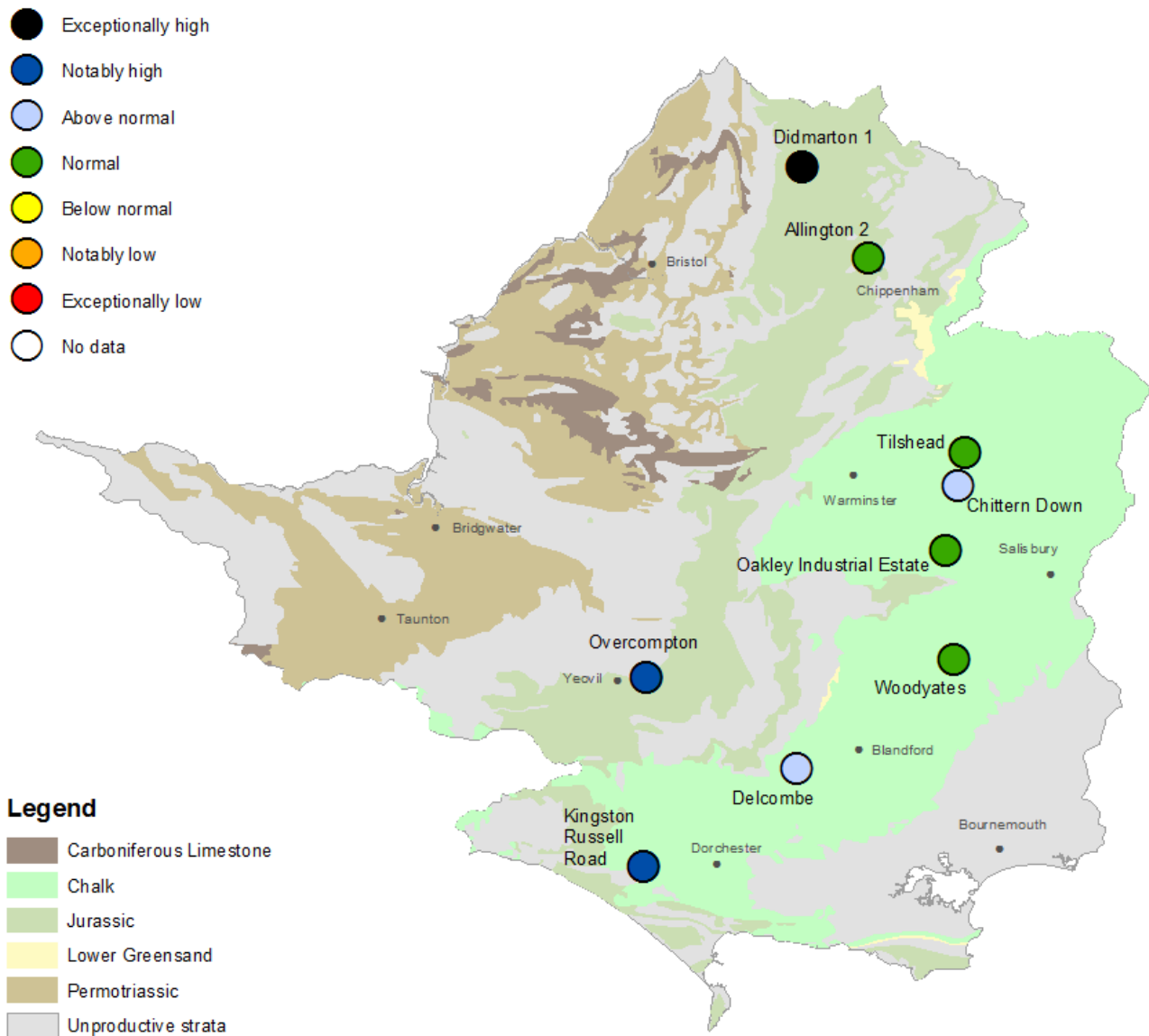


Source: Environment Agency, 2024. The Stour at Throop and the Yeo at Pen Mill should be treated with caution due to ongoing data issues.

5 Groundwater levels

5.1 Groundwater levels map

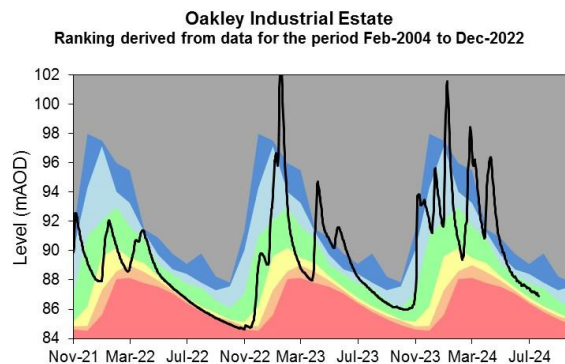
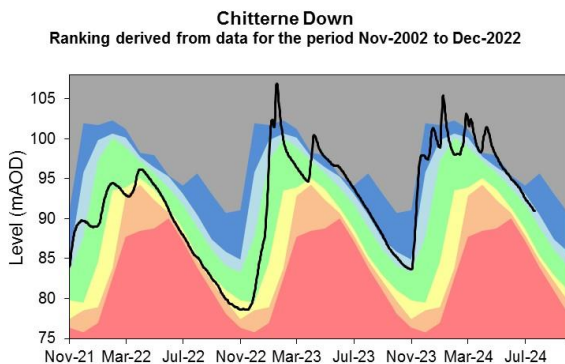
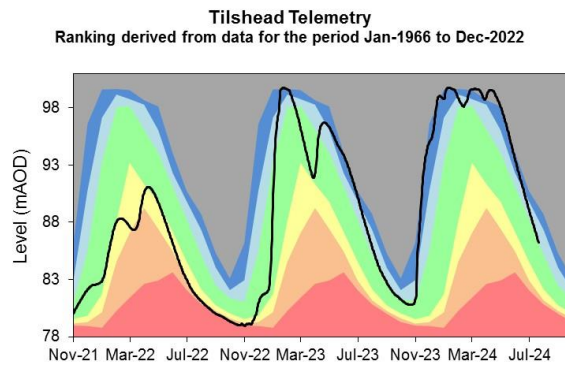
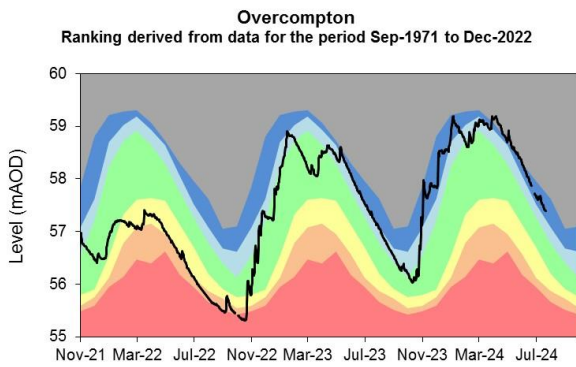
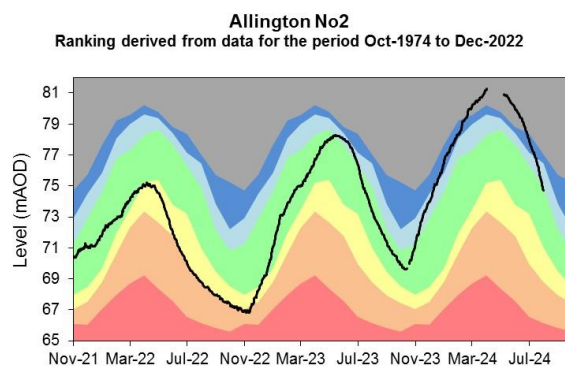
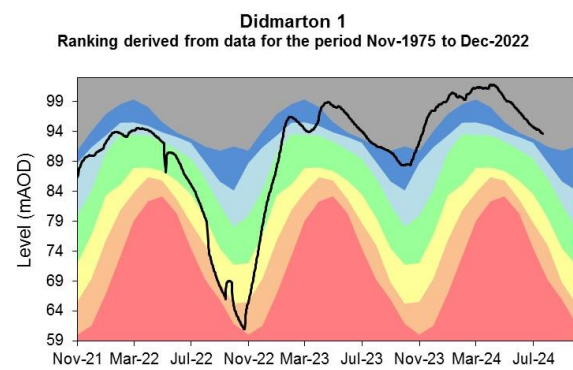
Figure 5.1: Groundwater levels for indicator sites at the end of July 2024, classed relative to an analysis of respective historic July levels. Table available in the appendices with detailed information.

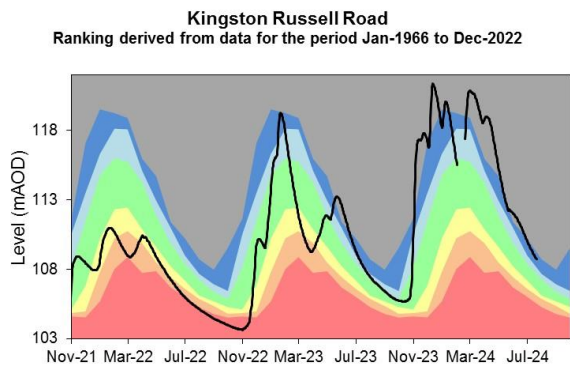
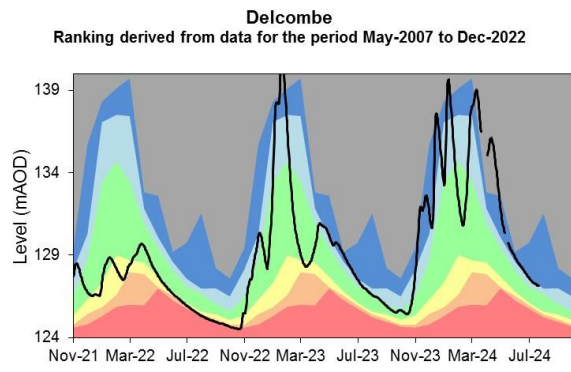
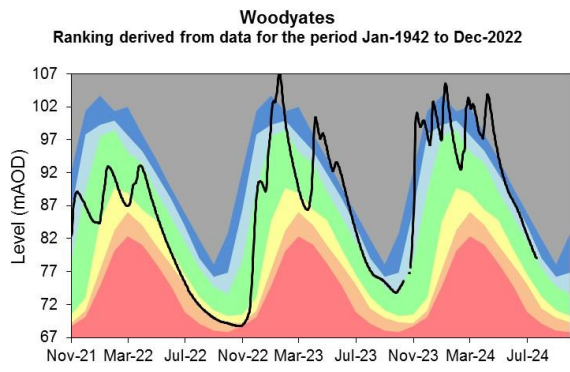


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5.2 Groundwater level charts

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.

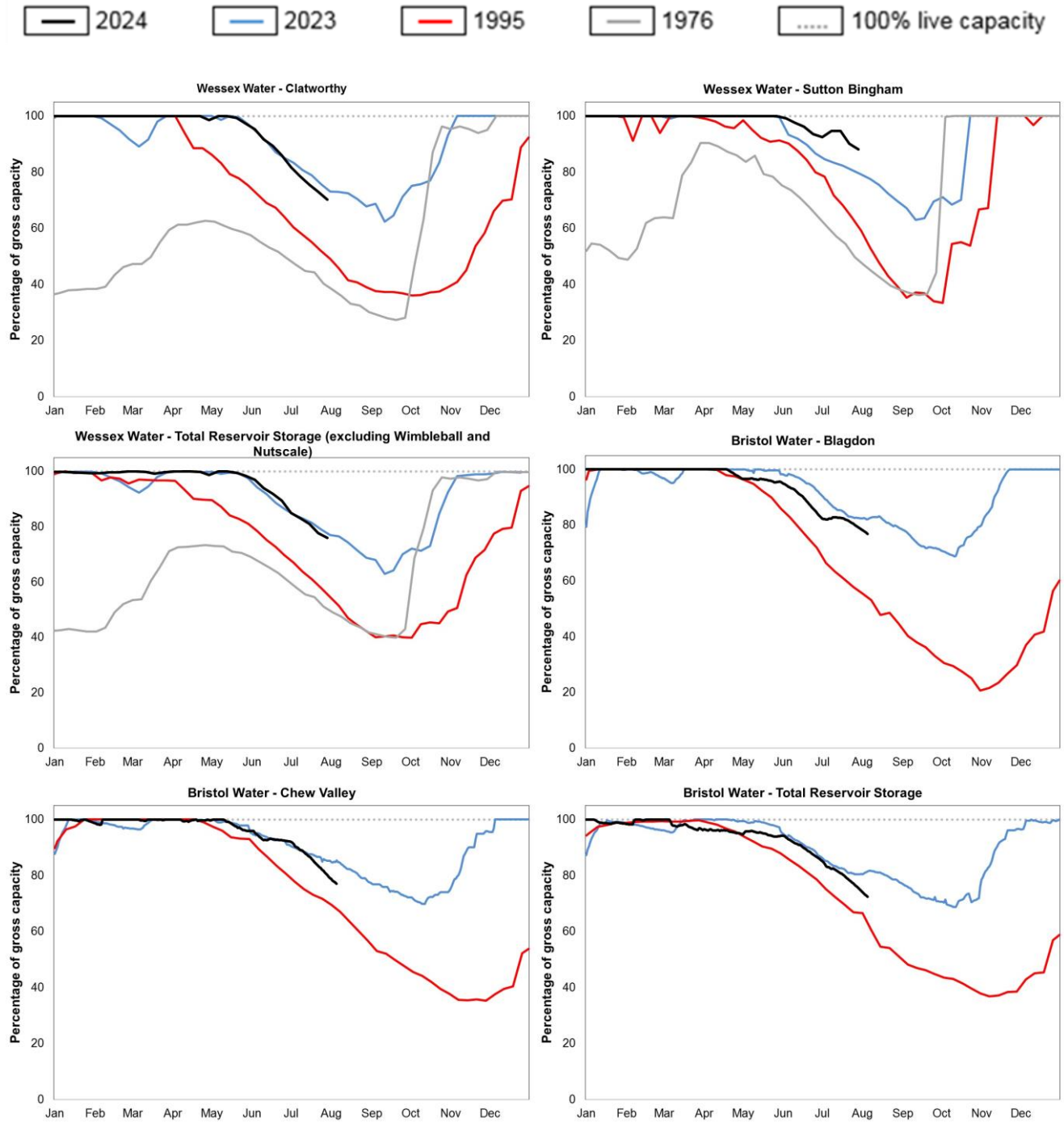




Source: Environment Agency, 2024. Oakley Industrial Estate should be treated with caution due to ongoing data issues.

6 Reservoir stocks

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



(Source: Wessex Water and Bristol Water).

7 Flood alerts and warnings

7.1 Flood alerts

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

Area	Number of fluvial flood alerts in July	Number of coastal flood alerts in July	Number of groundwater flood alerts in July
North Wessex	0	0	0
South Wessex	1	0	0

7.2 Flood warnings

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

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

7.3 Severe flood warnings

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

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

8 Stream support

8.1 Sites providing stream support

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

Catchment	River	Stream support site	Gauging station	End of July status
Bristol Avon	Chalfield Brook	South Wraxall	Great Chalfield (Wessex Water)	On
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	On
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	On
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	On
Piddle	Piddle	Briantspuddle	Briantspuddle	On
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	On
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 July.

Catchment	Number of licences at restrict at the end of July	Number of licences at cease at the end of July
Bristol Avon	0	0
Dorset	0	1
Hampshire Avon	1	3
Somerset	1	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

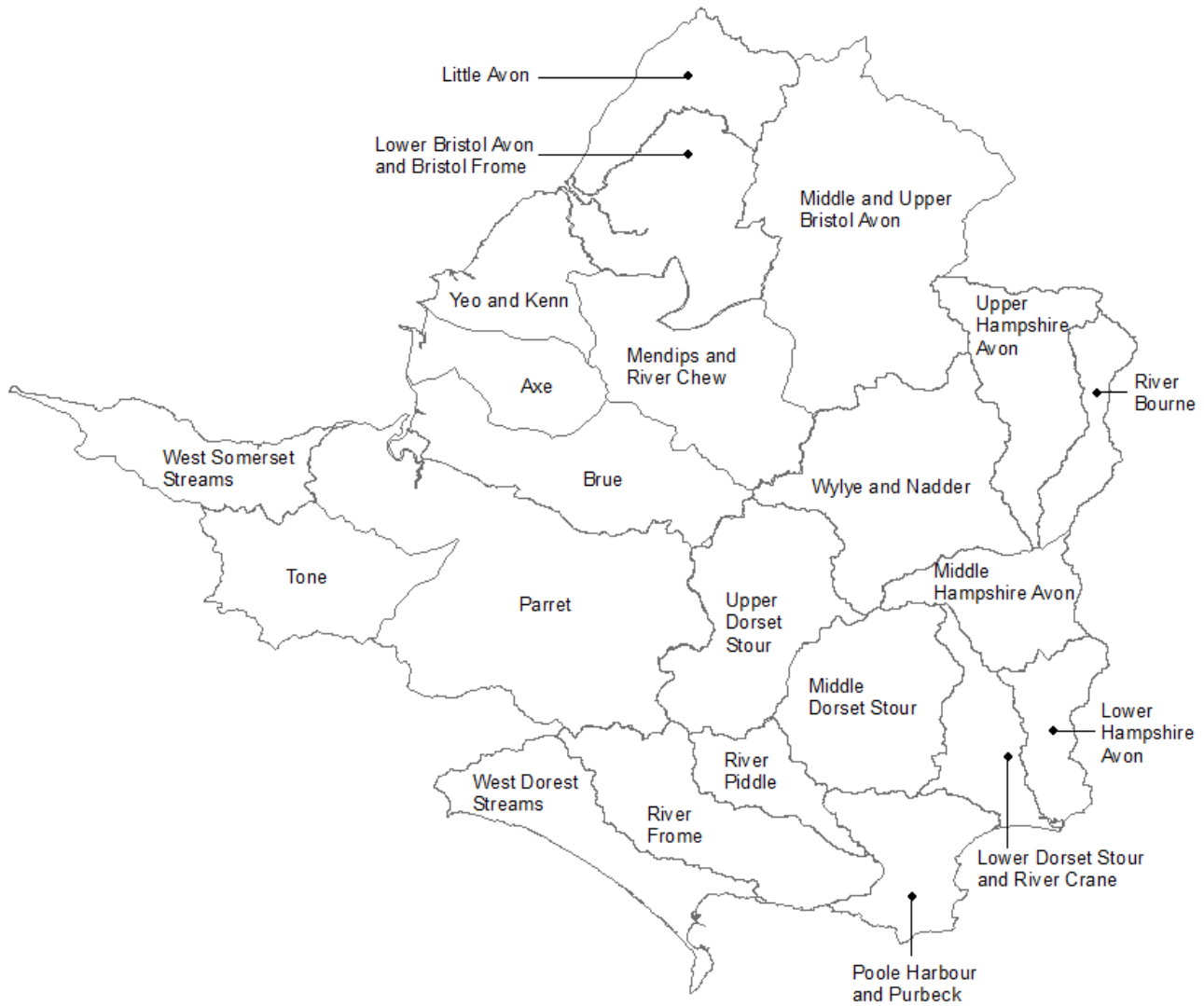
Value likely to fall within this band 8% of the time.

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	Jul 2024 rainfall % of long term average 1961 to 1990	Jul 2024 band	May 2024 to July cumulative band	Feb 2024 to July cumulative band	Aug 2023 to July cumulative band
Axe	118	Normal	Normal	Exceptionally high	Exceptionally high
Brue	123	Normal	Normal	Exceptionally high	Exceptionally high
Little Avon	139	Normal	Normal	Exceptionally high	Exceptionally high
Lower Bristol Avon And Bristol Frome	128	Normal	Normal	Exceptionally high	Exceptionally high
Lower Dorset Stour And River Crane	194	Above Normal	Normal	Exceptionally high	Exceptionally high
Lower Hampshire Avon	178	Above Normal	Normal	Exceptionally high	Exceptionally high
Mendips And River Chew	115	Normal	Normal	Exceptionally high	Exceptionally high
Middle And Upper Bristol Avon	130	Normal	Normal	Exceptionally high	Exceptionally high

Middle Dorset Stour	188	Above Normal	Above normal	Exceptionally high	Exceptionally high
Middle Hampshire Avon	174	Above Normal	Normal	Exceptionally high	Exceptionally high
Parrett	145	Normal	Above normal	Exceptionally high	Exceptionally high
Poole Harbour And Purbeck	218	Above Normal	Above normal	Exceptionally high	Exceptionally high
River Bourne	158	Normal	Normal	Exceptionally high	Exceptionally high
River Frome	208	Above Normal	Notably high	Exceptionally high	Exceptionally high
River Piddle	198	Above Normal	Notably high	Exceptionally high	Exceptionally high
Tone	136	Normal	Normal	Exceptionally high	Exceptionally high
Upper Dorset Stour	175	Above Normal	Above normal	Exceptionally high	Exceptionally high
Upper Hampshire Avon	148	Normal	Normal	Exceptionally high	Exceptionally high
West Dorset Streams	221	Above Normal	Notably high	Exceptionally high	Exceptionally high

West Somerset Streams	138	Normal	Normal	Exceptionally high	Exceptionally high
Wylde And Nadder	156	Normal	Normal	Exceptionally high	Exceptionally high
Yeo And Kenn	118	Normal	Normal	Exceptionally high	Exceptionally high

11.2 River flows table

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

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

11.3 Groundwater table

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