

Monthly water situation report: Wessex Area

1 Summary - August 2024

August was a return to drier conditions following a wet July. An average of 44mm fell across Wessex equating to 67% of the long term average (LTA). Despite the lower rainfall in August, the past 12 month period (starting in September 2023) has been the second wettest since records began in 1871. Soil moisture deficit (SMD) continued to increase for most of August until the last week of the month when it began to decrease in response to a period of rainfall. The majority of monthly mean flows recorded in the north west of Wessex were below normal, while flows in the south of Wessex were largely normal to above normal. Groundwater sites at the end of August were largely between normal and above normal. Throughout August, reservoir levels continued to decrease with Wessex Water ending the month at 63% capacity and Bristol Water ending August at 61% capacity.

1.1 Rainfall

An average of 44mm of rain fell across Wessex in August (67% of the LTA). Recorded monthly rainfall ranged from 21% to 92% of the August LTA. The lowest relative rainfall was recorded in the Tone and the highest recorded in Poole Harbour and Purbeck. Rainfall was concentrated on a few days, largely towards the end of the month. An average of 23mm fell between 22 August and 24 August (52% of rain during August). Hydrological areas across the north of Wessex received largely below normal rainfall and largely notably low rainfall in the west of Wessex. Across the south and east of Wessex, hydrological areas received normal amounts of rainfall. Over the past 3 months almost all of north Wessex received below normal rainfall and most of south Wessex received normal rainfall. Over the past 6 months, hydrological areas in the north of Wessex received normal to above normal rainfall and areas to the south received between above normal and exceptionally high rainfall. Over the past 12 months, almost all of Wessex received exceptionally high rainfall due to the wet winter and spring. This has been the second wettest 12-month period (September to August) since records began in 1871.

1.2 Soil moisture

SMD in Wessex continued to increase for the majority of August, before beginning to decrease towards the end of the month in response to rainfall. At the end of August, the majority of Wessex recorded a SMD in the range of 101mm to 130mm. Areas to the south and west of Wessex recorded a SMD in the range of 71mm to 100mm. The majority of Wessex had a SMD in the range of 6mm to 25mm greater than the LTA at the end of August.

1.3 River flows

In August, flow sites to the north west of Wessex largely reported below normal monthly mean flows with Frenchay (monitoring the Bristol Frome) recording notably low monthly mean flows. Sites across the northeast and south of Wessex largely reported between normal and above normal mean monthly flows with Baggs Mill (monitoring the Piddle) recording notably high flows. All sites monitoring flows on the Chalk aquifer except for Hammoon (monitoring the Dorset Stour) recorded mean monthly flows greater than the LTA. The majority of sites recorded flows peaking around 24 August following three days of high rainfall and flows in recession afterwards to the end of the month.

1.4 Groundwater levels

Groundwater levels at the end of August varied between normal and notably high across Wessex. Didmarton 1 (monitoring the Inferior Oolite formation) and Overcompton (monitoring the Bridport Sand formation) were the only sites to record notably high levels at the end of the month. Amongst the sites monitoring the Chalk aquifer, the two most southern sites Kingston Russell Road and Delcombe recorded above normal levels, whereas most of the northern sites monitoring the Chalk recorded normal levels at the end of August.

1.5 Reservoir stocks

Reservoir levels in Wessex continued to decrease throughout August. At the end of the month, Wessex Water reported reservoirs at approximately 63% capacity which is approximately 6% lower than this time last year. Bristol Water reported reservoir levels of approximately 61% capacity at the end of August which is approximately 16% lower than this time last year.

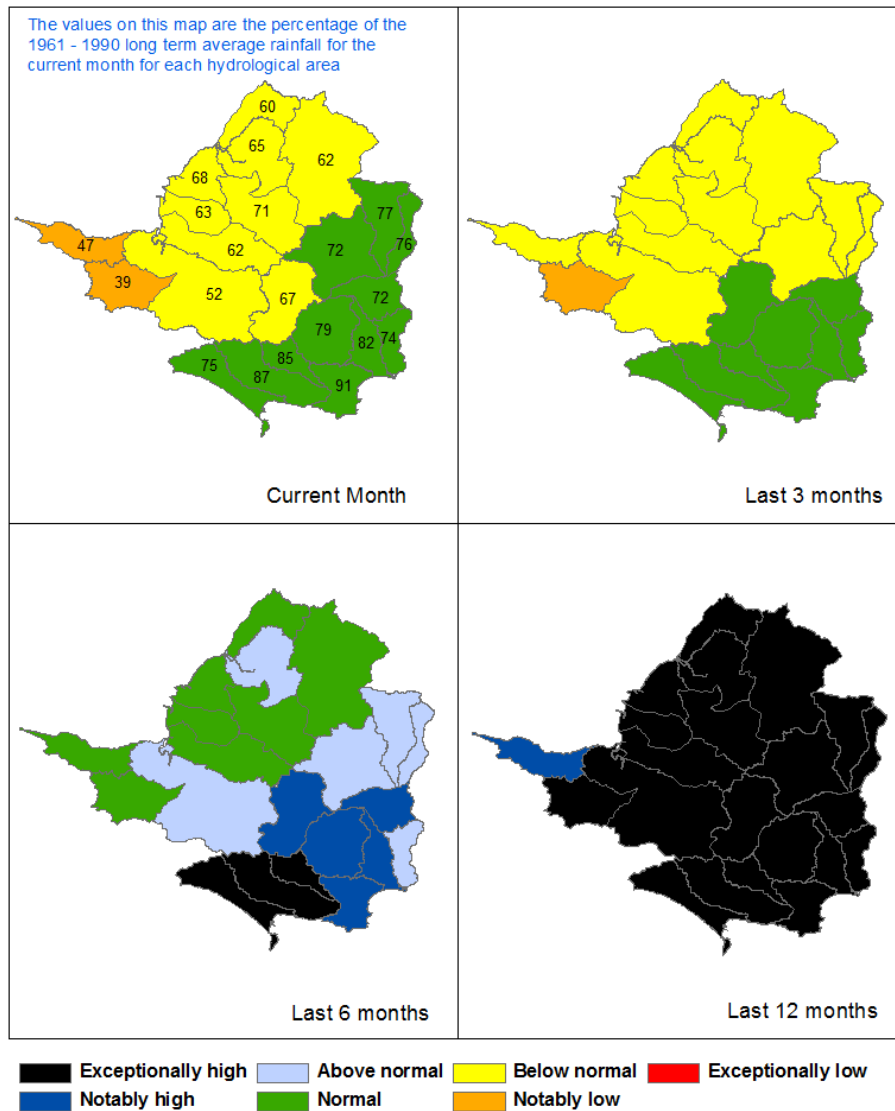
Author: Wessex Hydrology, hydrologywessex@environment-agency.gov.uk

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2 Rainfall

2.1 Rainfall map

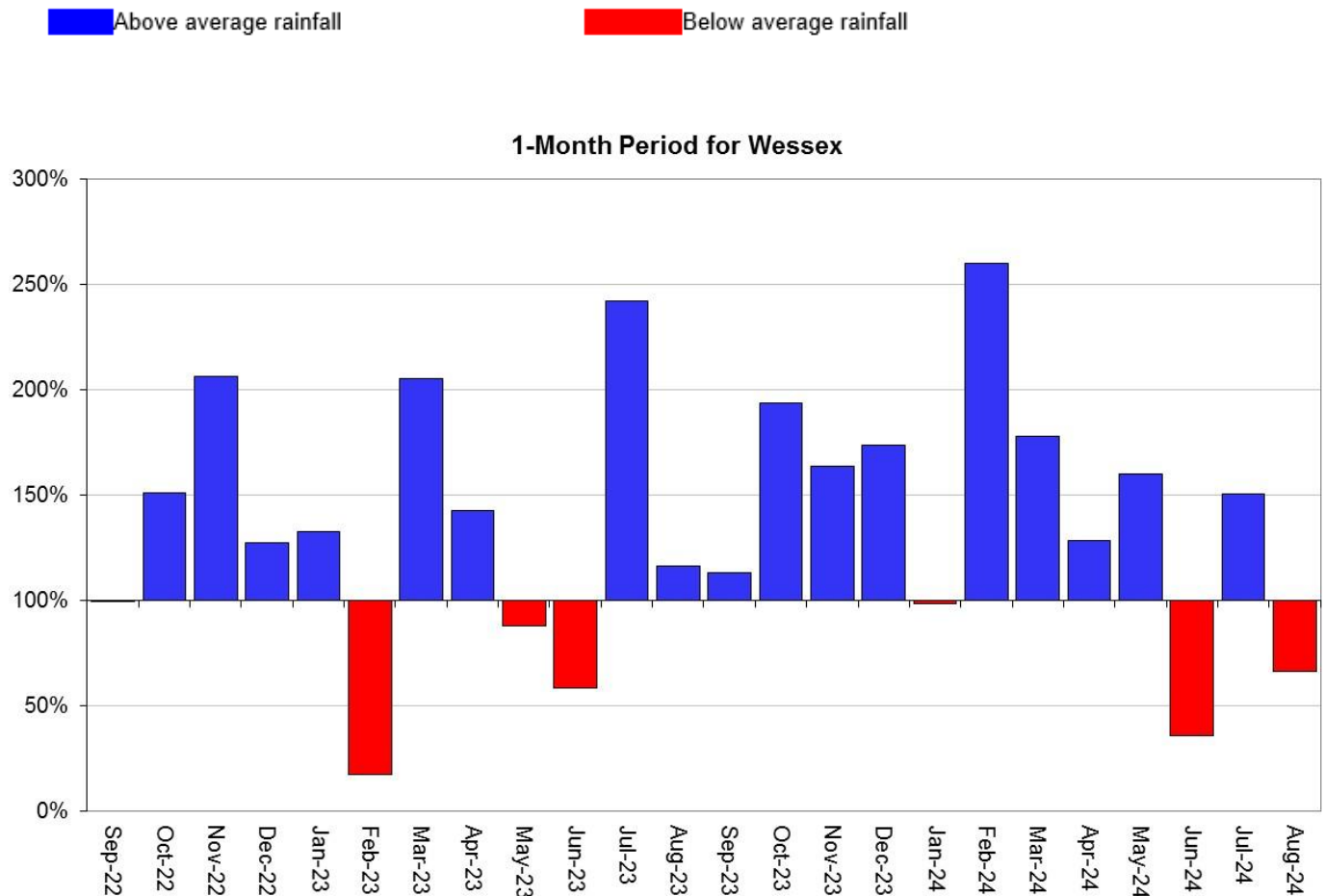
Figure 2.1: Total rainfall for hydrological areas for the current month (up to 31 August 2024), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. Table available in the appendices with detailed information.



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.

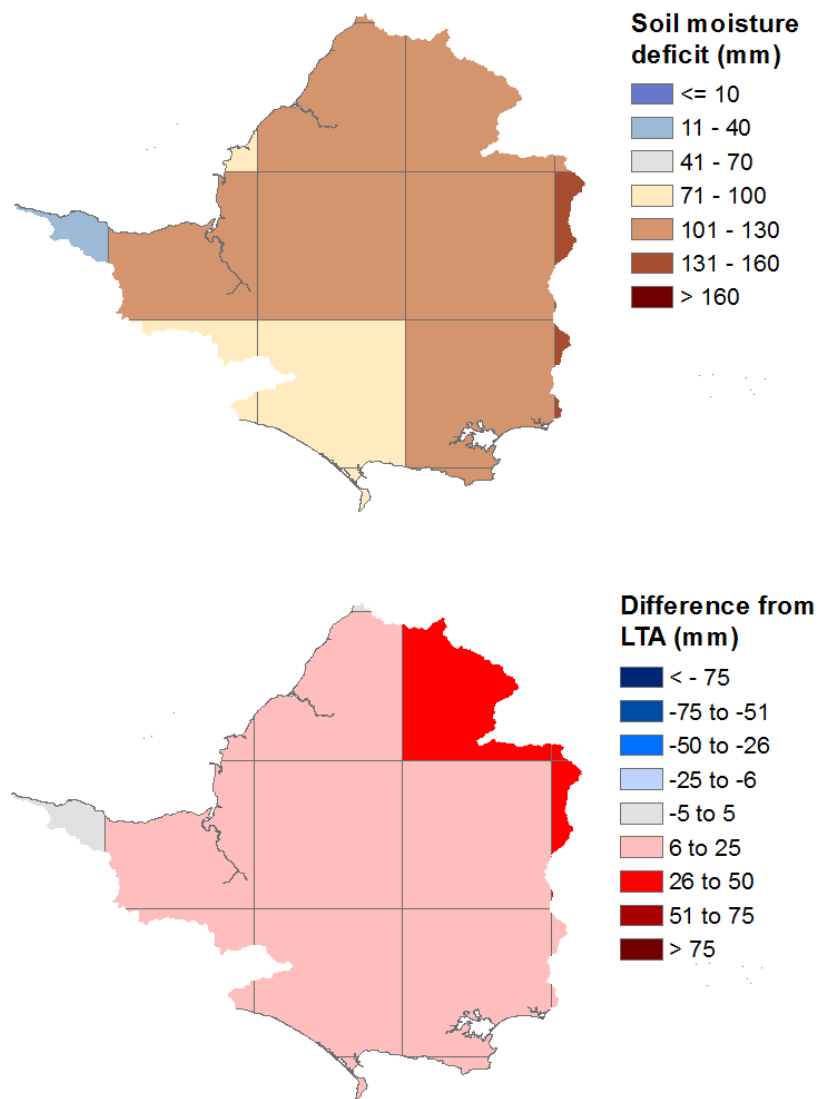


Rainfall data for 2023 and 2024, extracted from Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. (Source: Environment Agency. Crown Copyright, 100024198, 2024). Rainfall data prior to 2023, extracted from Met Office HadUK 1km gridded rainfall dataset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

3 Soil moisture deficit

3.1 Soil moisture deficit map

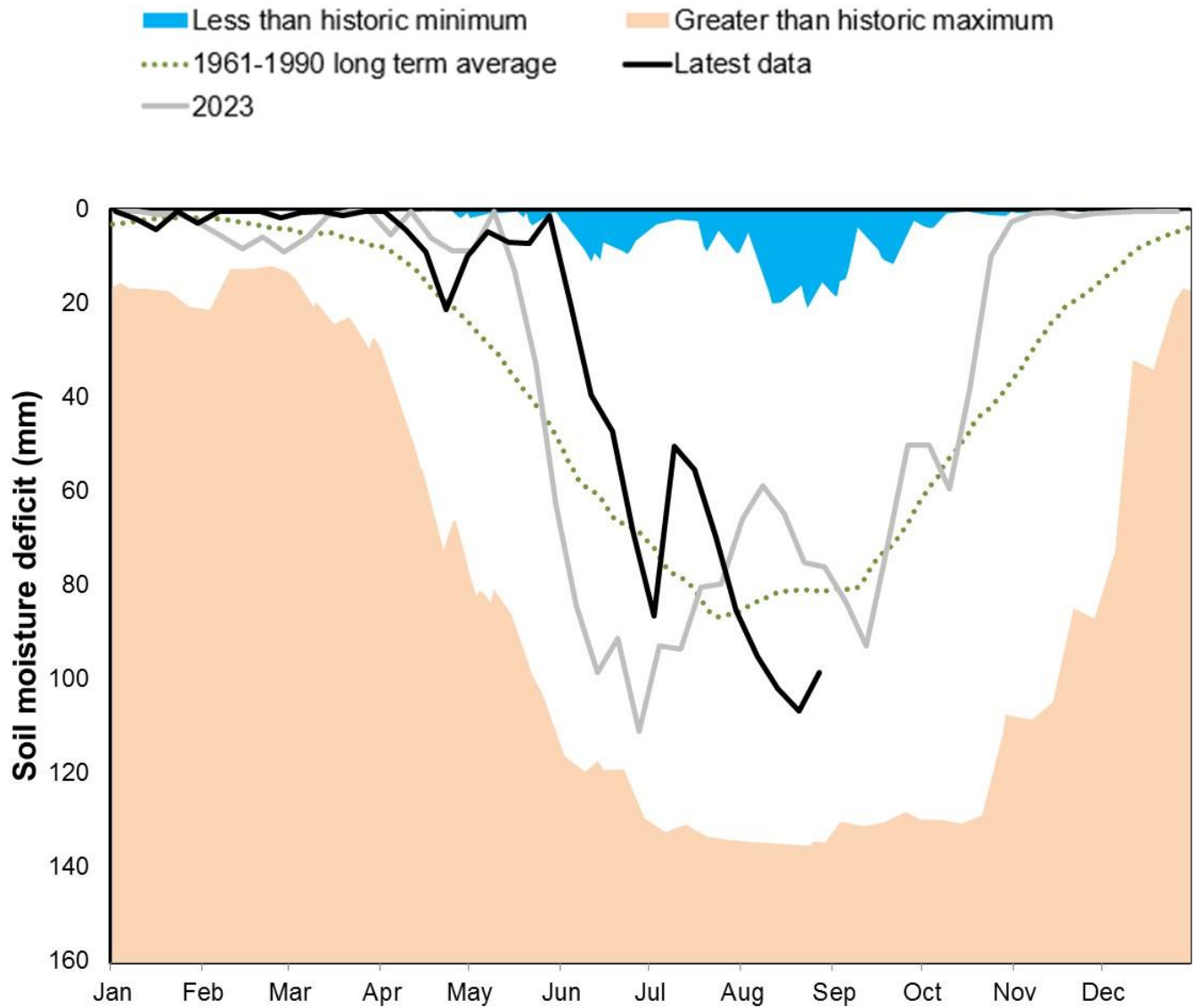
Figure 3.1: Soil moisture deficits for weeks ending 31 August 2024. Shows the difference (mm) of the actual soil moisture deficit from the 1961 to 1990 long term average soil moisture deficits. MORECS data for real land use.



(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.

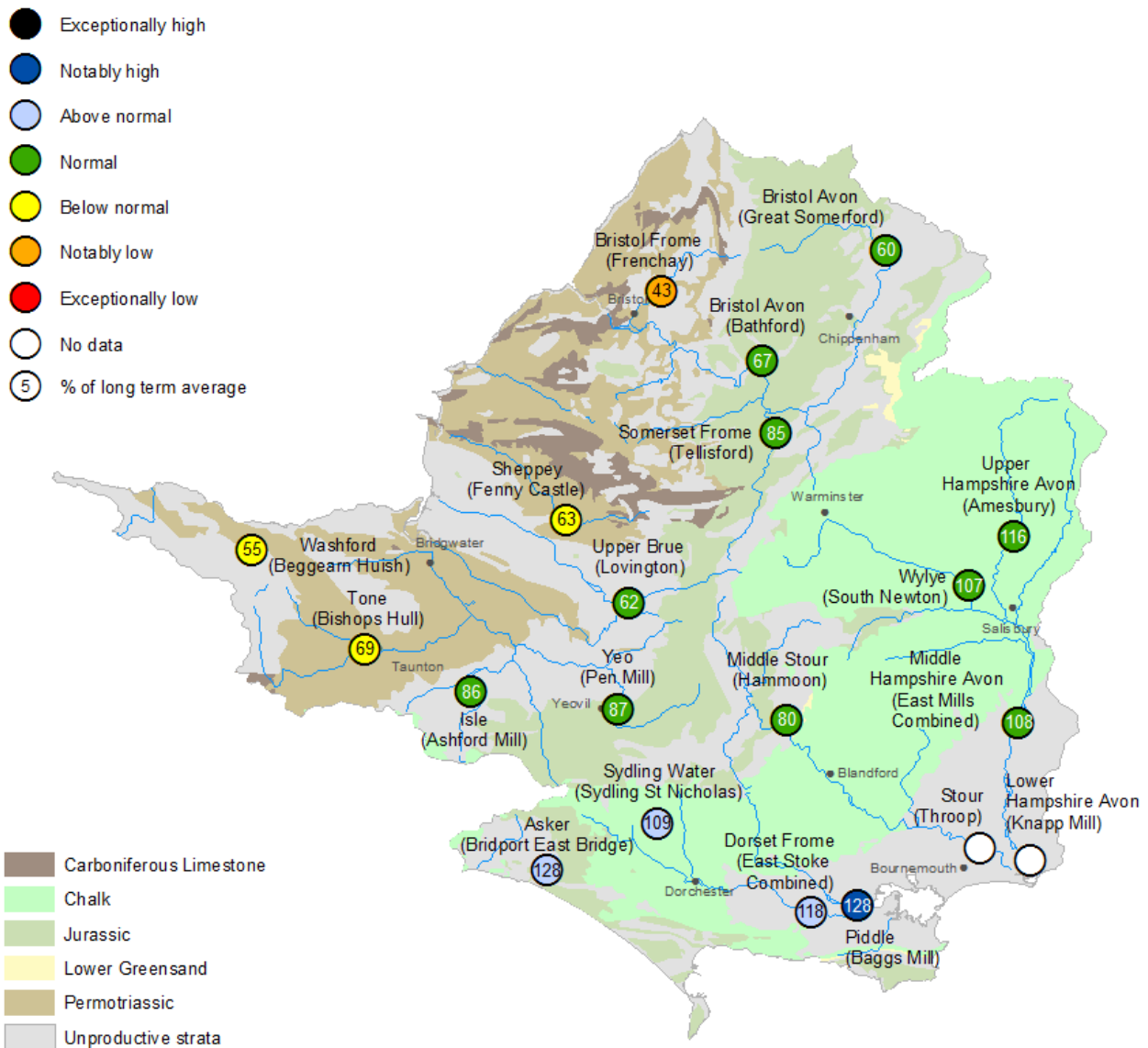


(Source: Met Office. Crown copyright, 2024). All rights reserved. Environment Agency, 100024198, 2024

4 River flows

4.1 River flows map

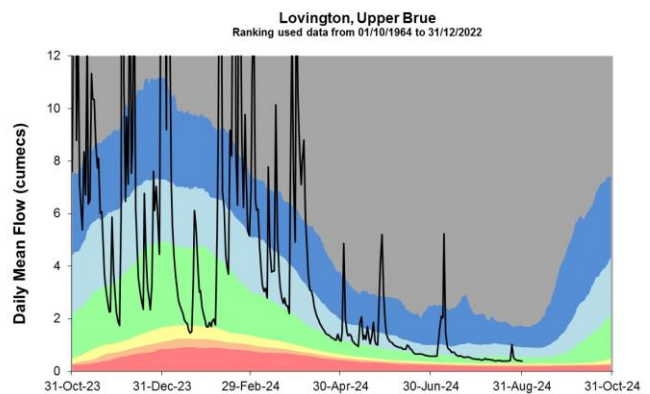
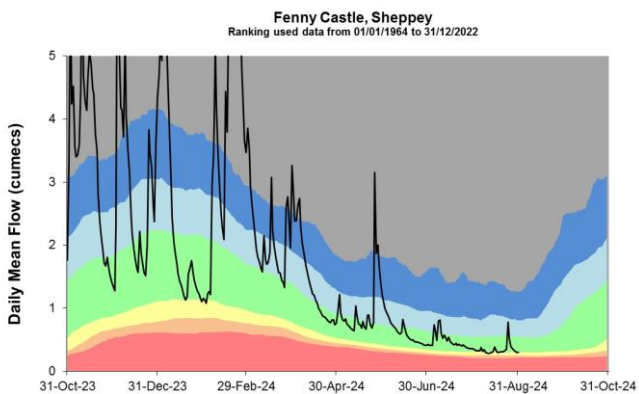
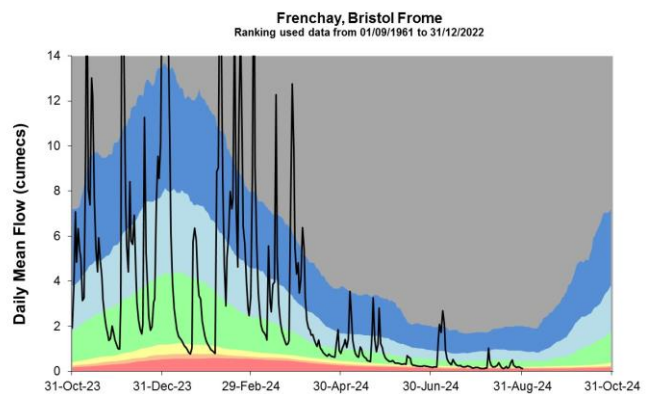
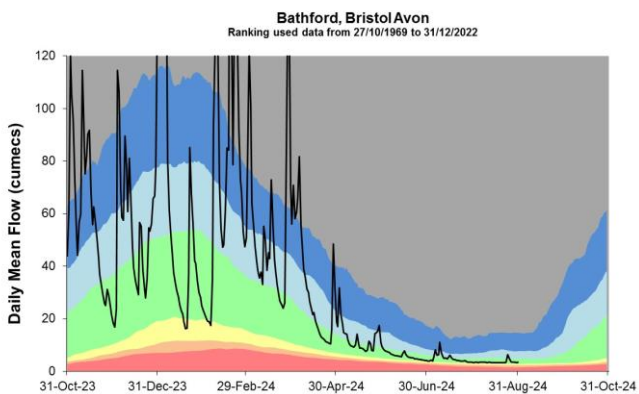
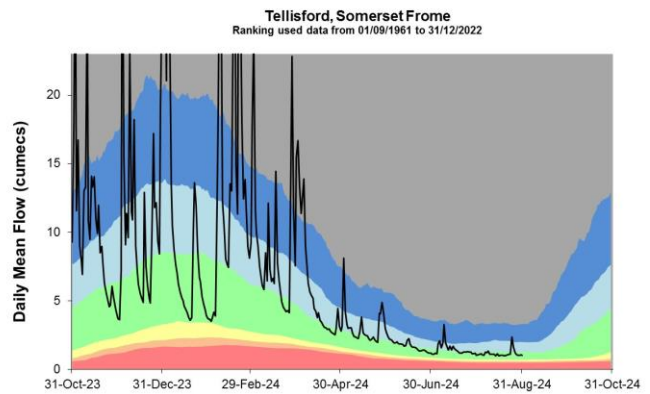
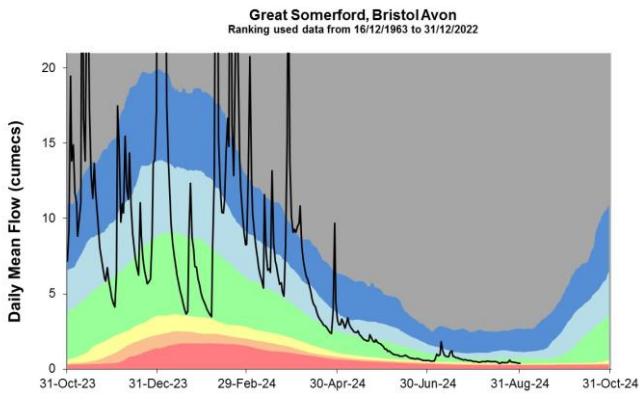
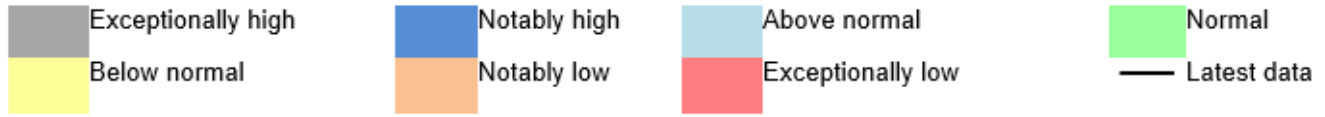
Figure 4.1: Monthly mean river flow for indicator sites for August 2024, expressed as a percentage of the respective long term average and classed relative to an analysis of historic August monthly means Table available in the appendices with detailed information.

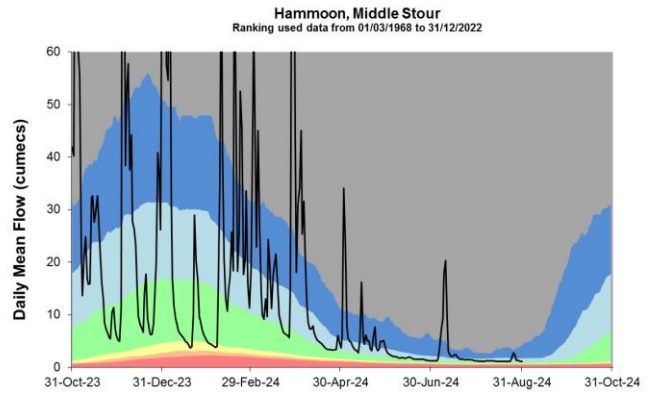
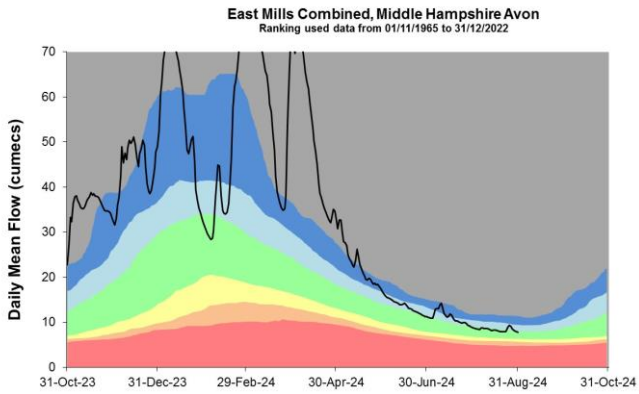
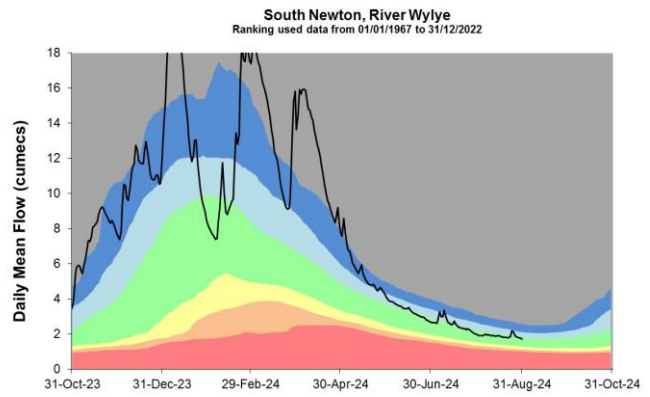
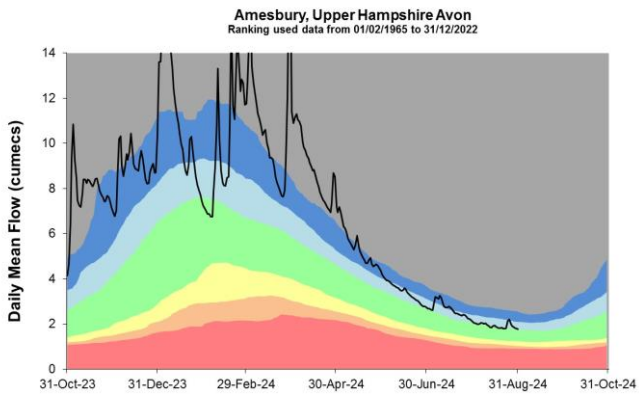
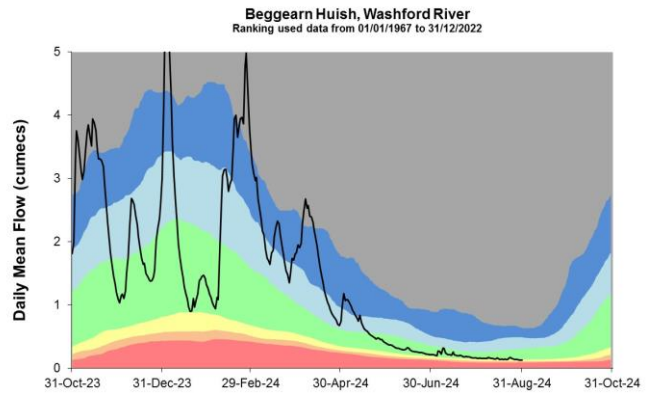
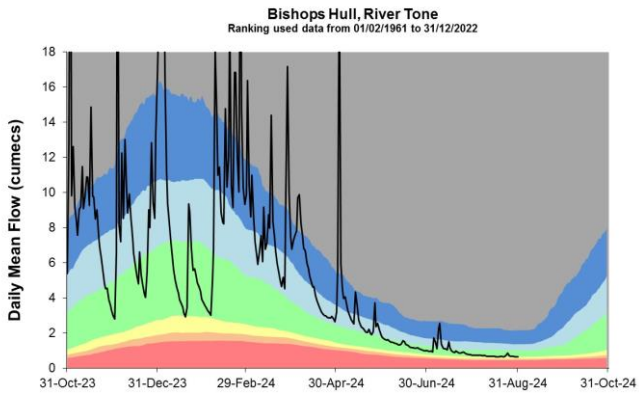
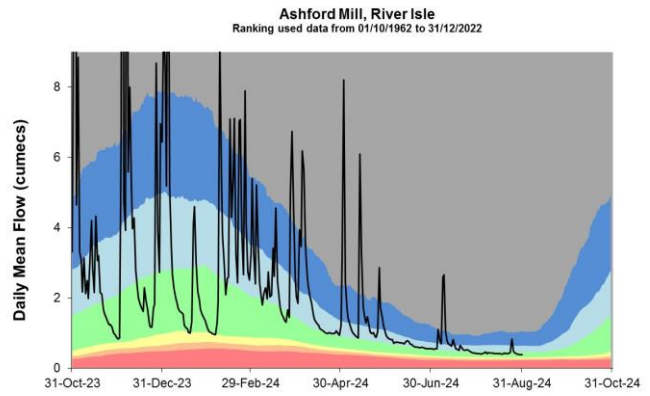
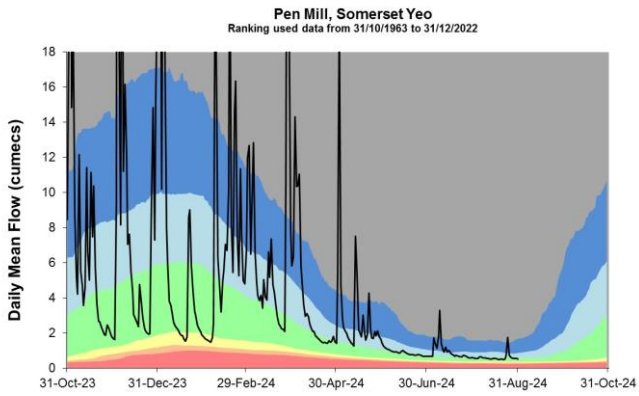


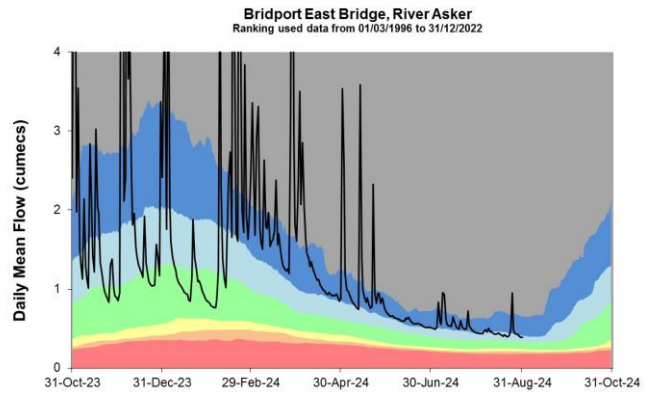
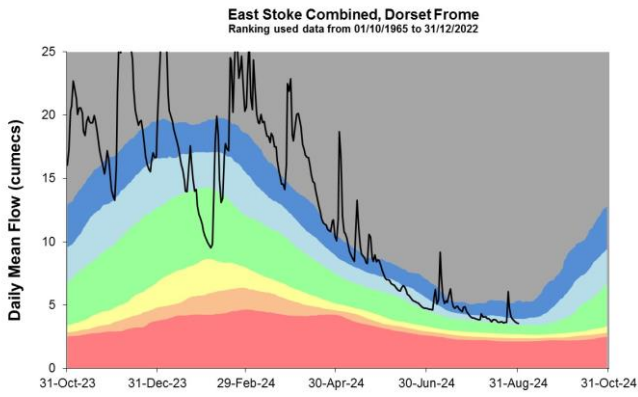
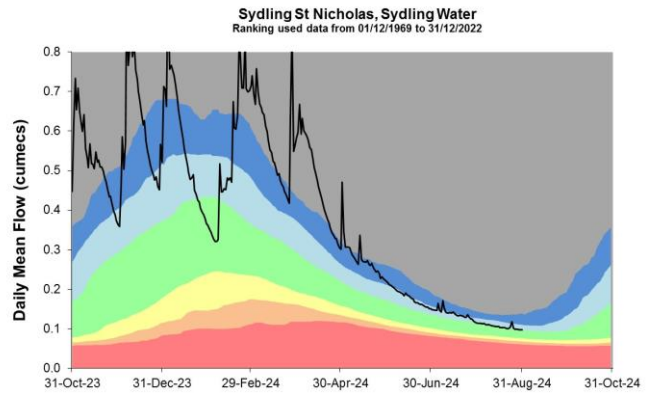
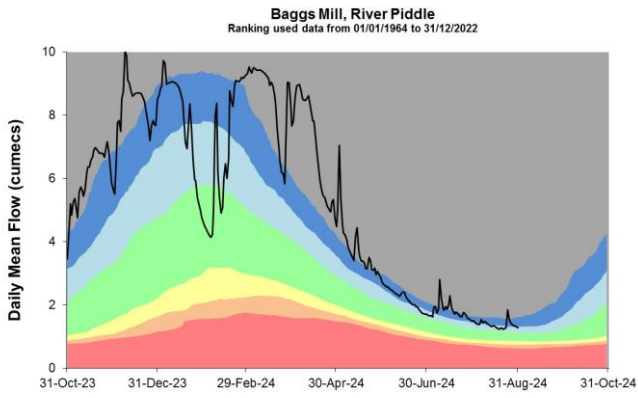
(Source: Environment Agency). Crown copyright. All rights reserved. Environment Agency, 100024198, 2024. The Stour at Throop and Hampshire Avon at Knapp Mill are omitted due to ongoing data issues

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.





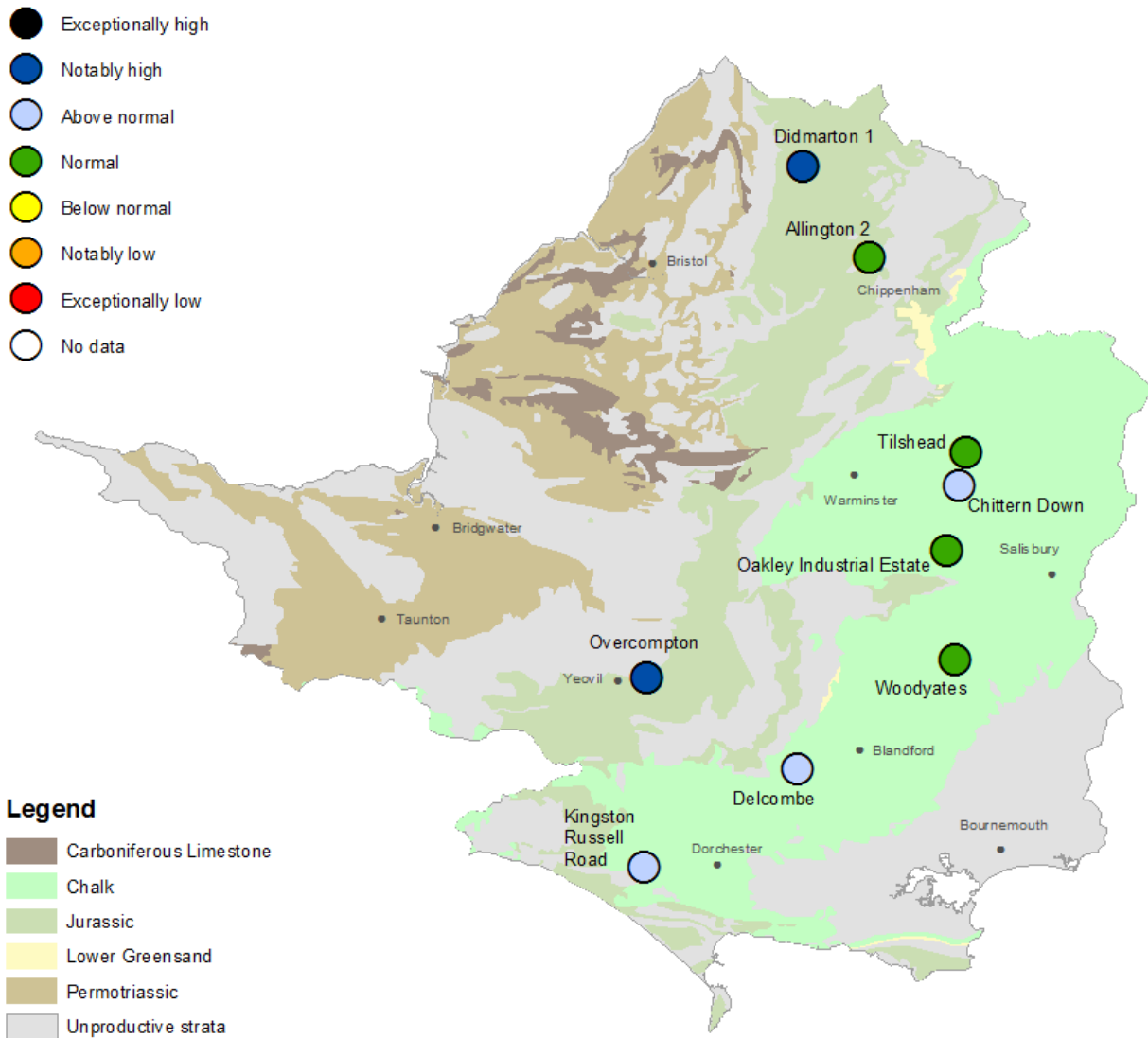


Source: Environment Agency, 2024.

5 Groundwater levels

5.1 Groundwater levels map

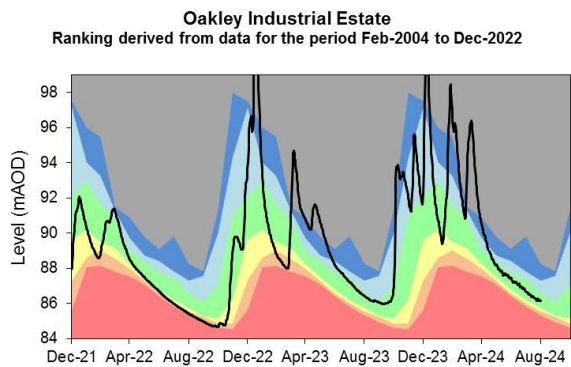
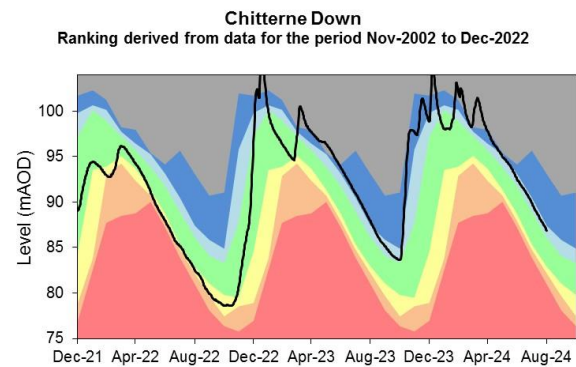
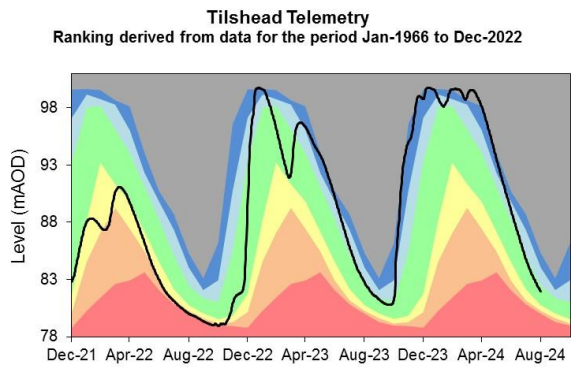
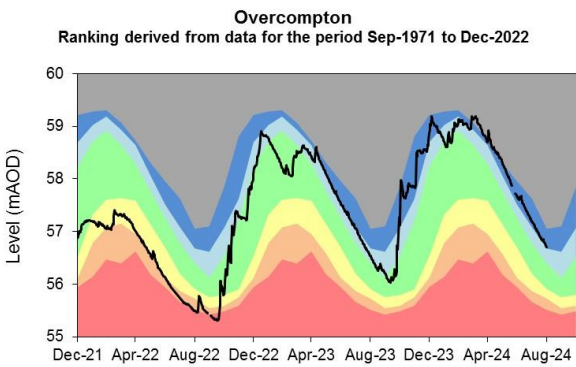
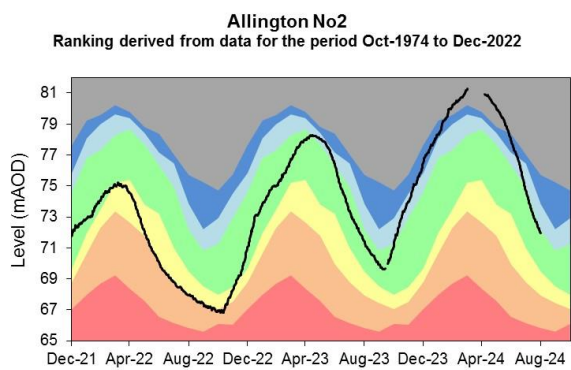
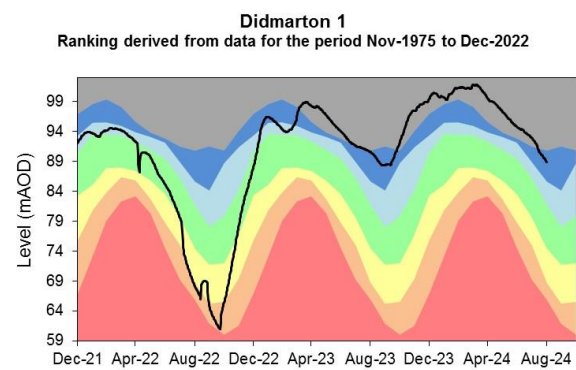
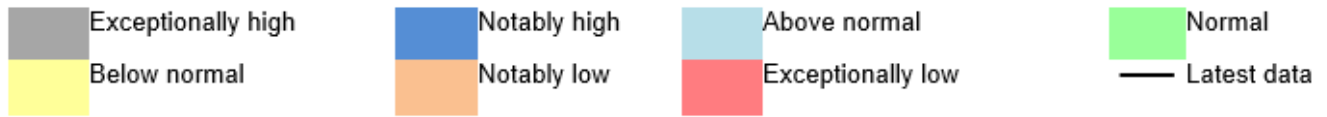
Figure 5.1: Groundwater levels for indicator sites at the end of August 2024, classed relative to an analysis of respective historic August levels. Table available in the appendices with detailed information.

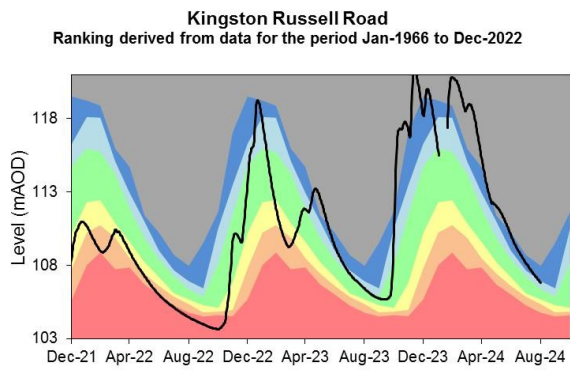
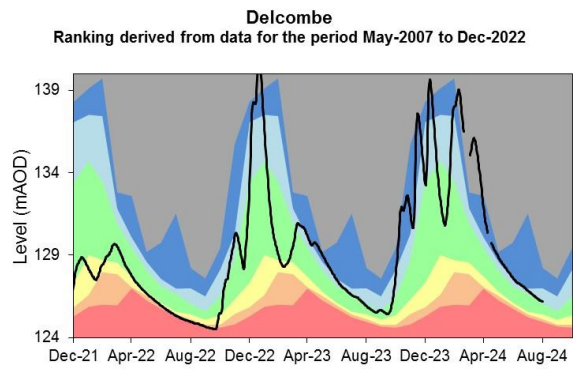
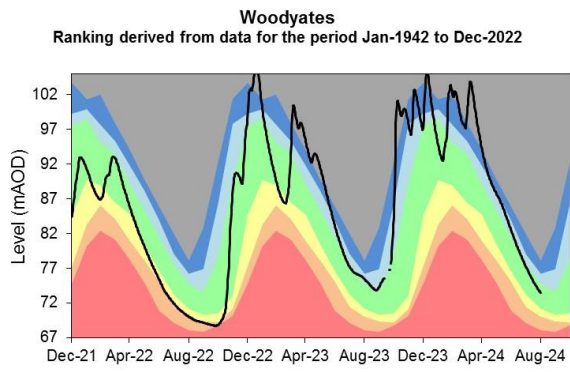


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5.2 Groundwater level charts

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.

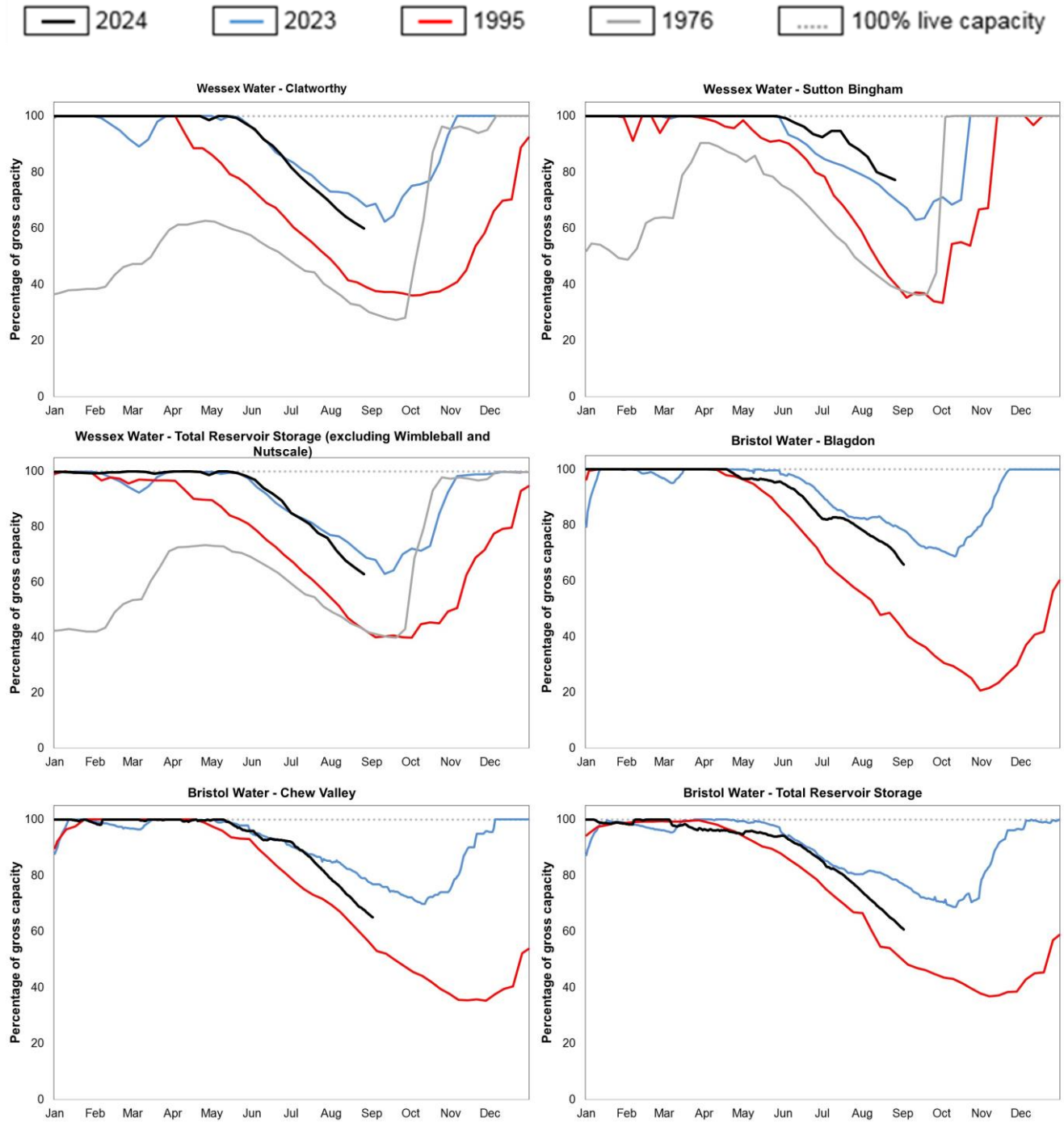




Source: Environment Agency, 2024. Oakley Industrial Estate should be treated with caution due to ongoing data issues.

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 August

Area	Number of fluvial flood alerts in August	Number of coastal flood alerts in August	Number of groundwater flood alerts in August
North Wessex	0	7	0
South Wessex	1	2	0

7.2 Flood warnings

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

Area	Number of fluvial flood warnings in August	Number of coastal flood warnings in August	Number of groundwater flood warnings in August
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 August

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

8 Stream support

8.1 Sites providing stream support

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

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

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 August.

Catchment	Number of licences at restrict at the end of August	Number of licences at cease at the end of August
Bristol Avon	0	0
Dorset	0	2
Hampshire Avon	0	6
Somerset	0	4

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

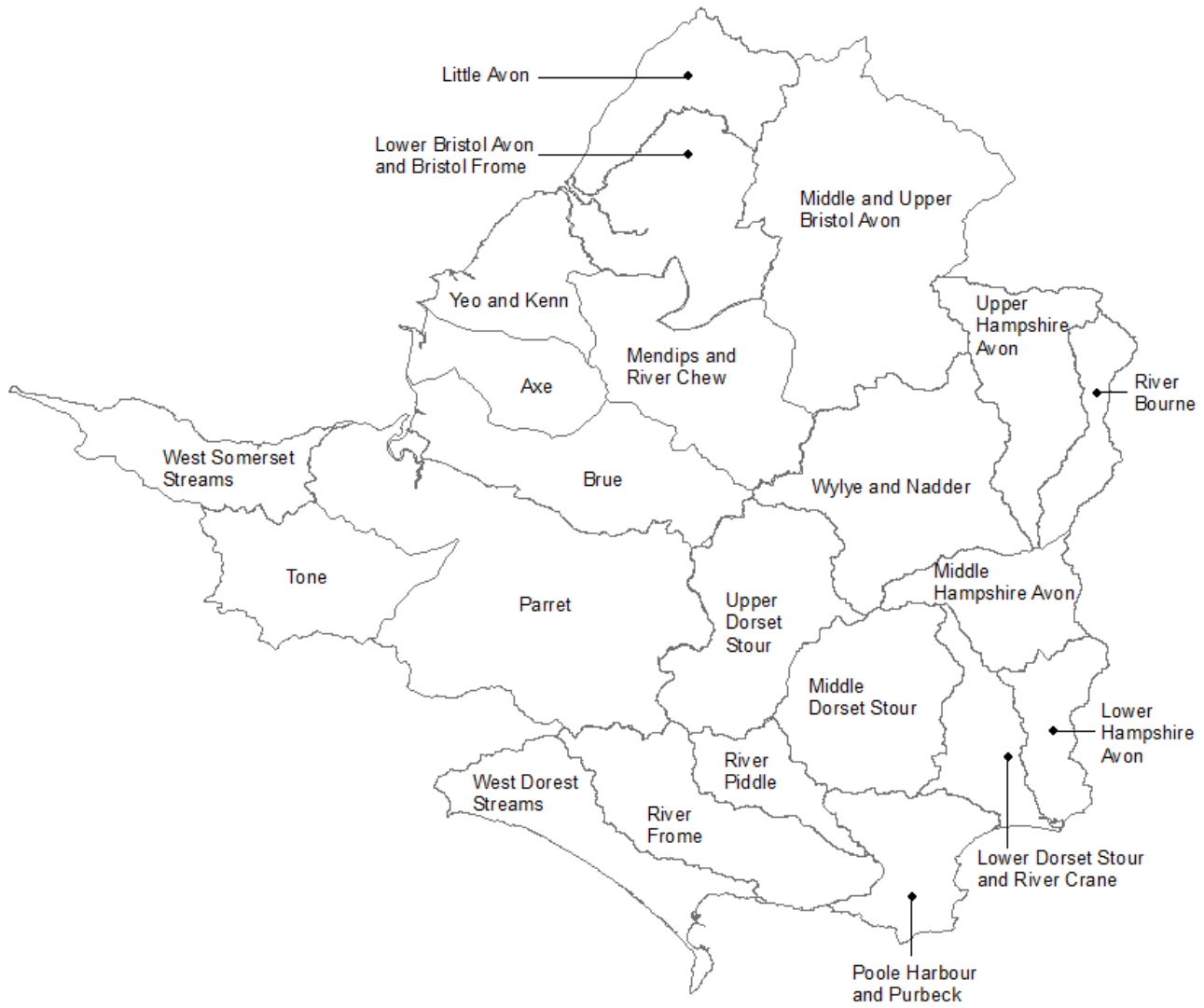
Value likely to fall within this band 8% of the time.

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	Aug 2024 rainfall % of long term average 1961 to 1990	Aug 2024 band	Jun 2024 to August cumulative band	Mar 2024 to August cumulative band	Sep 2023 to August cumulative band
Axe	63	Below Normal	Below normal	Normal	Exceptionally high
Brue	62	Below Normal	Below normal	Normal	Exceptionally high
Little Avon	60	Below Normal	Below normal	Normal	Exceptionally high
Lower Bristol Avon And Bristol Frome	66	Below Normal	Below normal	Above normal	Exceptionally high
Lower Dorset Stour And River Crane	82	Normal	Normal	Notably high	Exceptionally high
Lower Hampshire Avon	74	Normal	Normal	Above normal	Exceptionally high
Mendips And River Chew	71	Below Normal	Below normal	Normal	Exceptionally high
Middle And Upper Bristol Avon	62	Below Normal	Below normal	Normal	Exceptionally high

Middle Dorset Stour	79	Normal	Normal	Notably high	Exceptionally high
Middle Hampshire Avon	72	Normal	Normal	Notably high	Exceptionally high
Parrett	52	Below Normal	Below normal	Above normal	Exceptionally high
Poole Harbour And Purbeck	91	Normal	Normal	Notably high	Exceptionally high
River Bourne	76	Normal	Below normal	Above normal	Exceptionally high
River Frome	87	Normal	Normal	Exceptionally high	Exceptionally high
River Piddle	85	Normal	Normal	Exceptionally high	Exceptionally high
Tone	39	Notably Low	Notably low	Normal	Exceptionally high
Upper Dorset Stour	67	Below Normal	Normal	Notably high	Exceptionally high
Upper Hampshire Avon	77	Normal	Below normal	Above normal	Exceptionally high
West Dorset Streams	75	Normal	Normal	Exceptionally high	Exceptionally high

West Somerset Streams	47	Notably Low	Below normal	Normal	Notably high
Wylve And Nadder	72	Normal	Below normal	Above normal	Exceptionally high
Yeo And Kenn	68	Below Normal	Below normal	Normal	Exceptionally high

11.2 River flows table

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

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

11.3 Groundwater table

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