

Monthly water situation report

Devon and Cornwall Area

Summary – August 2022

Devon and Cornwall received 48% of the August long term average (LTA) rainfall which was classed as 'notably low' for the time of year. August was the 6th consecutive month of below average rainfall, and the 6 month cumulative rainfall total (March to August) was the driest since 1995. Soil moisture deficit increased overall during August, and ended the month higher than the historic maximum. River flows ranged from being 'below normal' to 'exceptionally low' for the time of year. The monthly mean flow for Gwills on the River Gannel was the lowest August flow on record. All groundwater sites are in recession and levels ranged from 'normal' to 'notably low' at the end of August. Storage decreased at all reservoirs during August, and storage at Colliford is particularly low for the time of year.

Rainfall

Devon and Cornwall received 42 mm of rain during August (48% of the August LTA) which is classed as 'notably low' for the time of year. August was the 6th consecutive month of below average rainfall and the 8th month of below average rainfall since the start of October. The 6 month cumulative rainfall total (March to August) was the 4th driest on record and the driest since 1995. Most of the rain fell between the 14th and 26th of the month. All catchments received 'notably low' rainfall except the Taw and North Devon streams, and Exe catchments which received 'below normal' rainfall.

[Rainfall maps and graph](#)
[Rainfall catchments map](#)

Soil Moisture Deficit

Soil moisture deficit (SMD) increased from 120 mm at the start of August to 125 mm at the end of August. By the end of the month, SMD was 1mm greater than the historic maximum for the time of year. SMD decreased between the 9th and 16th August, but then rapidly increased towards to the end of the month.

[SMD graph and map](#)

River Flows

Monthly mean flows for August were lower than for July and ranged from 'below normal' to 'exceptionally low' for the time of year. Torrington on the River Torridge, Dotton on the River Otter, Chudleigh Bridge on the River Teign, Bodmin Dunmere on the River Camel, Gwills on the River Gannel and St Erth on the River Hayle all experienced 'exceptionally low' flows. Flows at Gwills were the lowest August flows on record.

[River flow map and graphs](#)

Groundwater Levels

Groundwater levels continued to recede at all indicator sites during August and ranged from 'normal' to 'notably low' for the time of year at the end of August. The level at Winnards Perch in the Staddon Formation secondary aquifer was 'notably low' at the end of the month.

[Groundwater map and graphs](#)

Reservoir Storage

Total reservoir storage dropped from 53% to 40% during August, as storage decreased at Roadford, Colliford and Wimbleball reservoirs. As of the 28th August, reservoir storage was at 47%, 31% and 37% respectively. Colliford reservoir storage is particularly low for the time of year when compared to 2021 and 1995.

[Reservoir graphs](#)

Author: [Devon, Cornwall and Isles of Scilly Hydrology](#)

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Rainfall

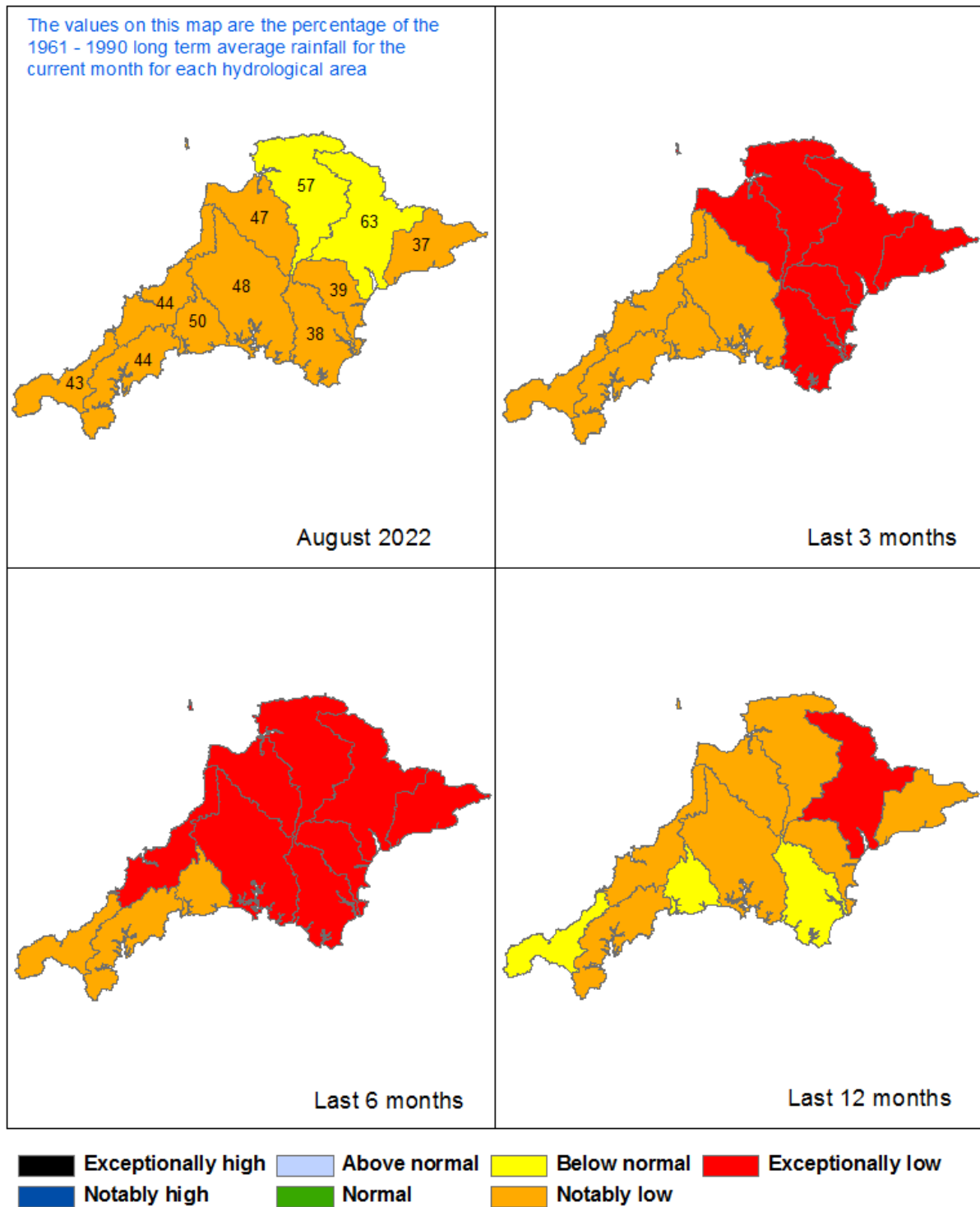


Figure 1.1: Total rainfall for hydrological areas across Devon and Cornwall for the current month (up to 31/08/22), the last three months, the last six months and the last 12 months, classed relative to an analysis of respective historic totals. HadUK data based on the Met Office 1km gridded rainfall dataset derived from rain gauges (Source: Met Office © Crown Copyright, 2022). Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Crown copyright. All rights reserved. Environment Agency, 100026380, 2022.

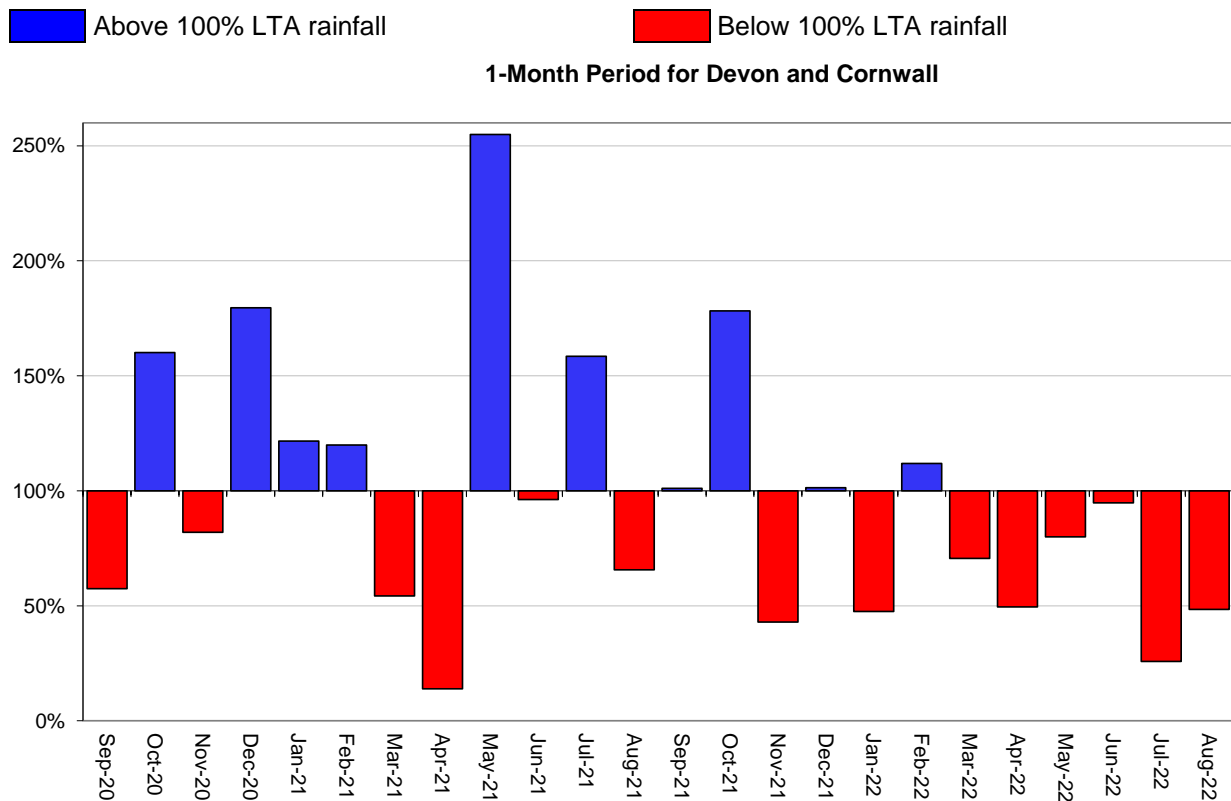


Figure 1.2: Monthly rainfall totals as a percentage of the 1961 – 1990 long term average. Final HadUK data based on the Met Office 1km gridded rainfall dataset derived from rain gauges (Source: Met Office © Crown Copyright, 2022). Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Crown copyright. All rights reserved. Environment Agency, 100026380, 2022.

Soil Moisture Deficit

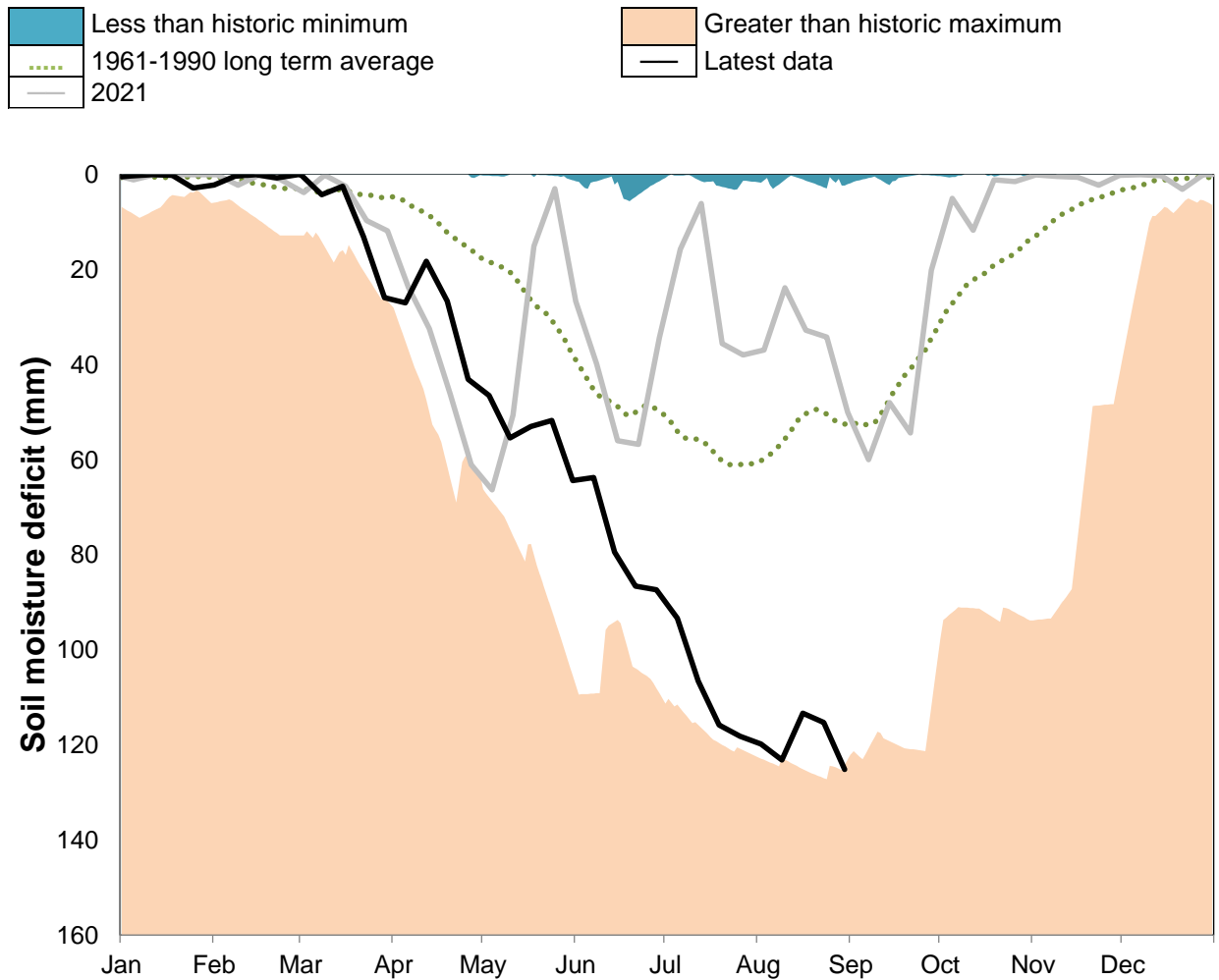


Figure 2.1: Latest soil moisture deficit compared to previous year, maximum, minimum and 1961 – 1990 long term average. Weekly MORECS data for real land use (Source: Met Office © Crown Copyright, 2022).

Month-end Soil Moisture Deficit (mm)

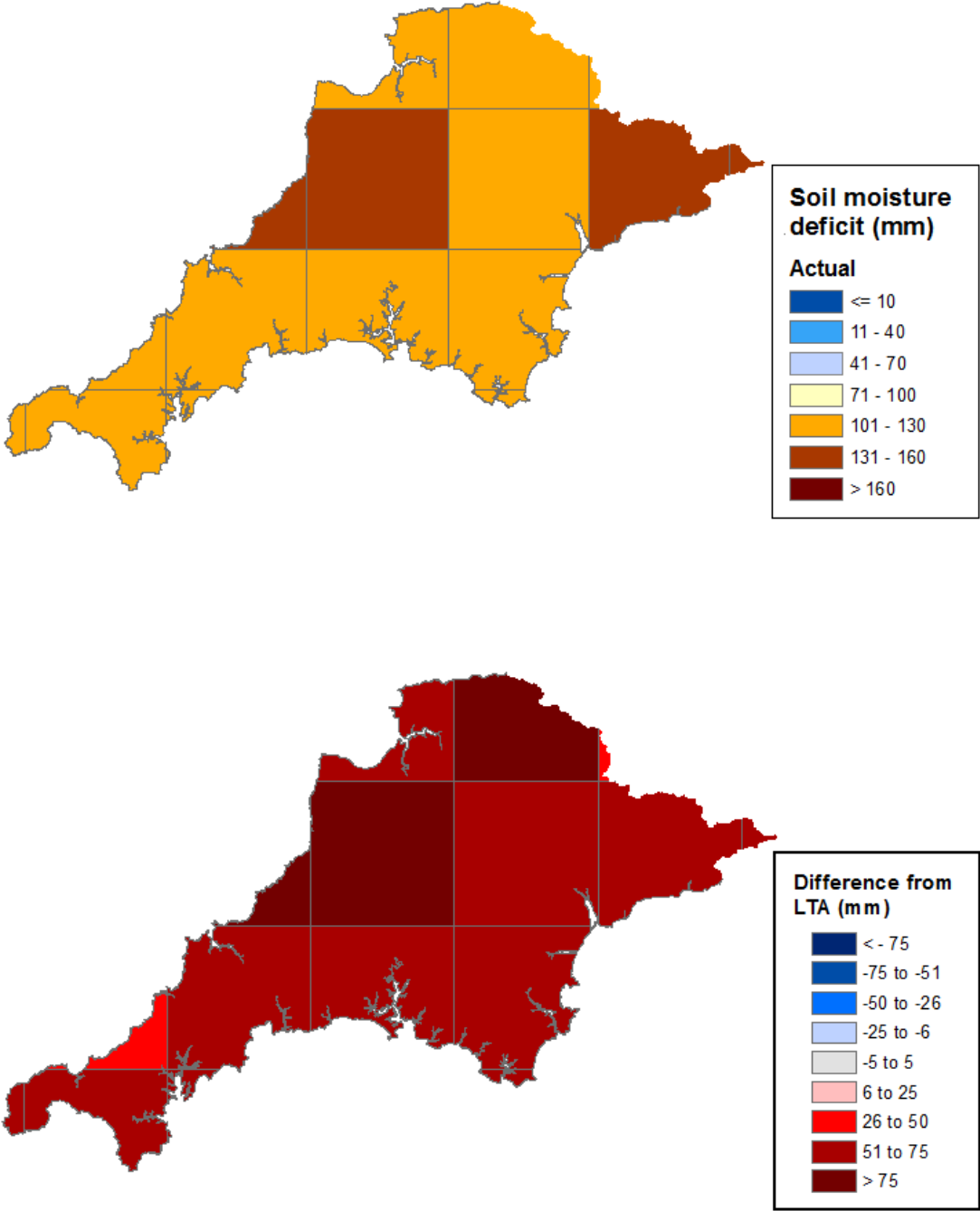
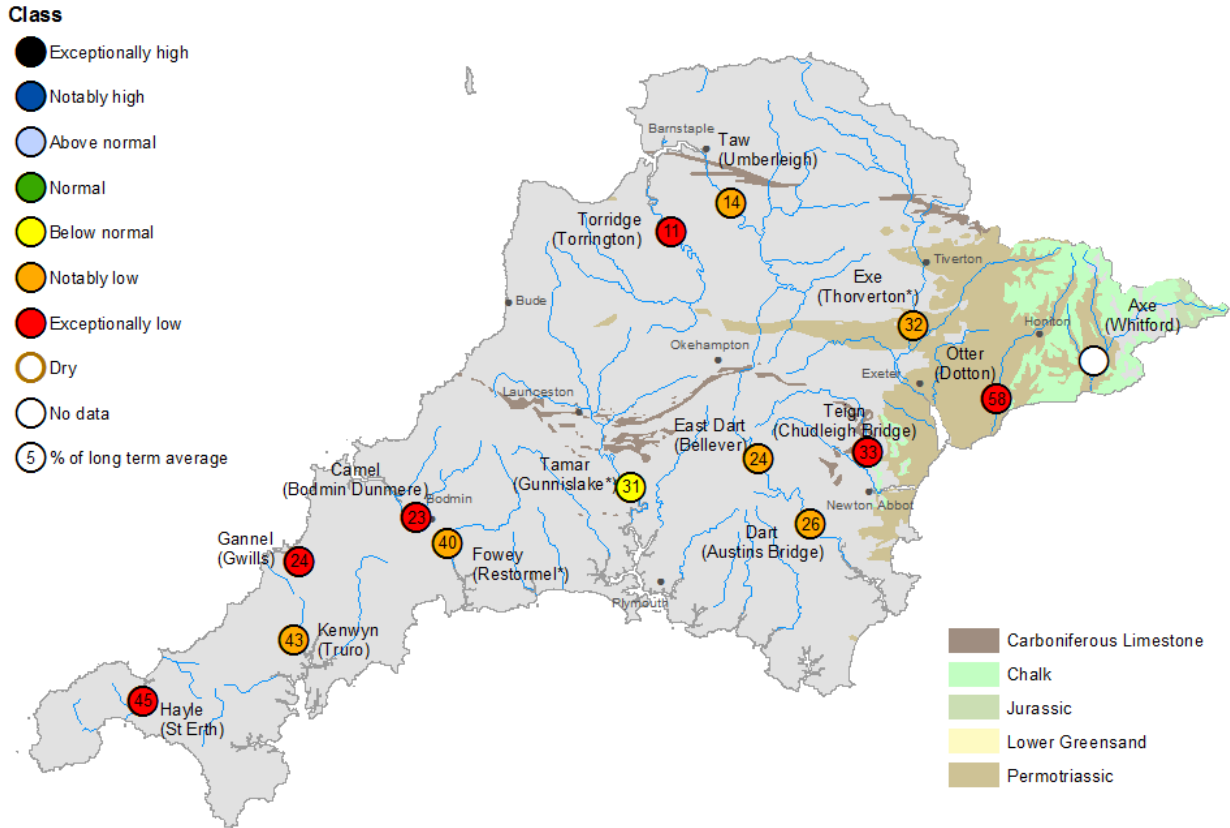


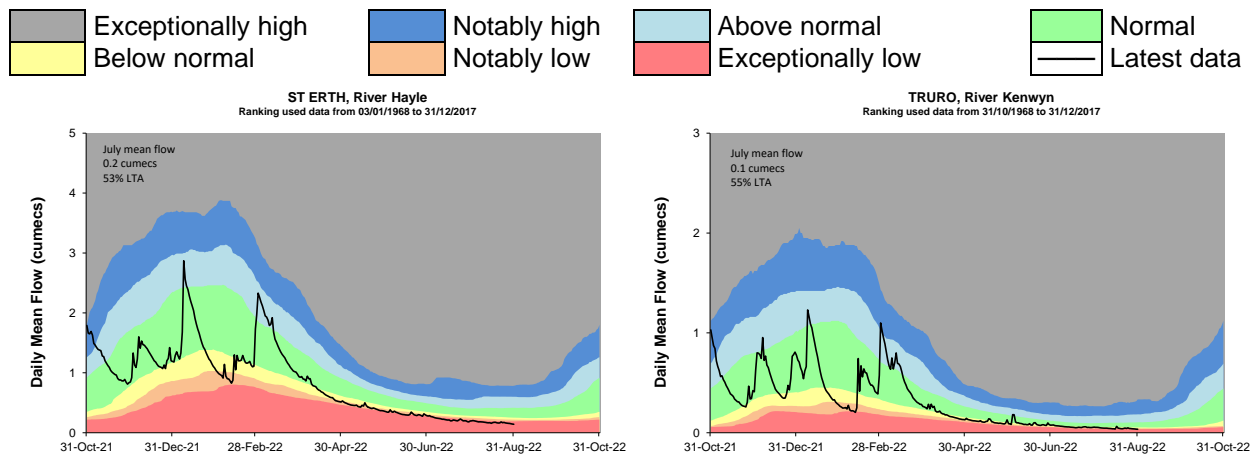
Figure 2.2: Soil moisture deficits for week ending 30th August 2022. MORECS data for real land use (Source: Met Office © Crown Copyright, 2022). Crown copyright. All rights reserved. Environment Agency, 100026380, 2022.

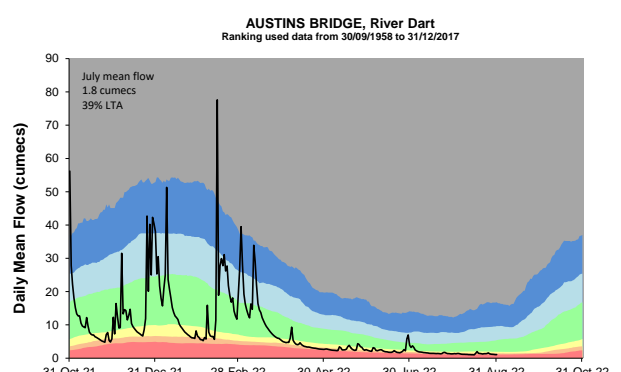
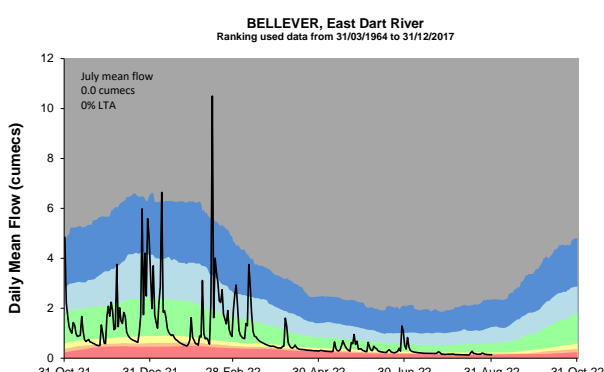
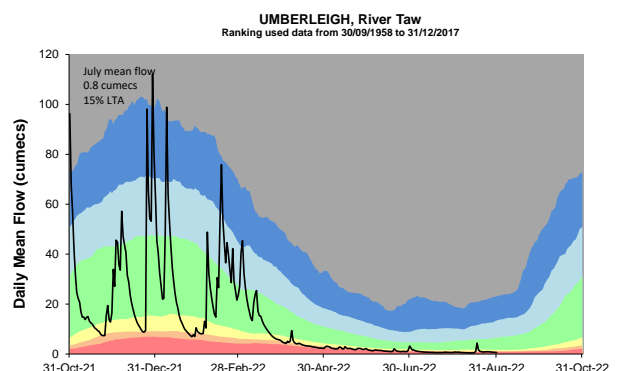
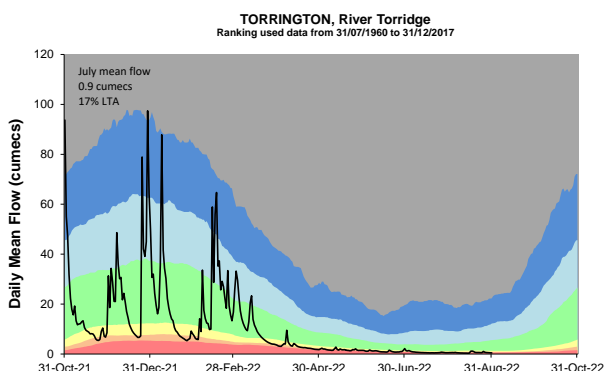
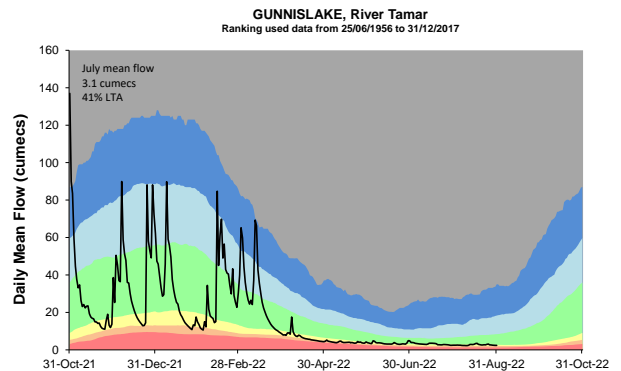
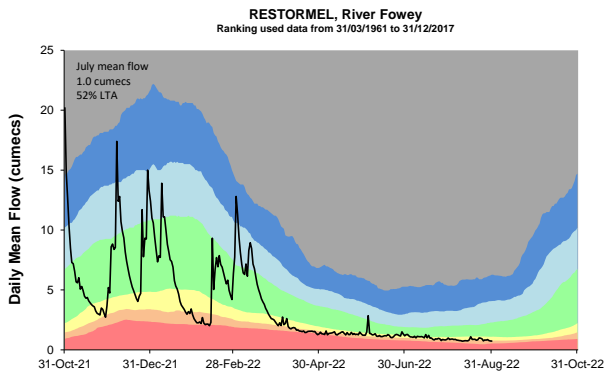
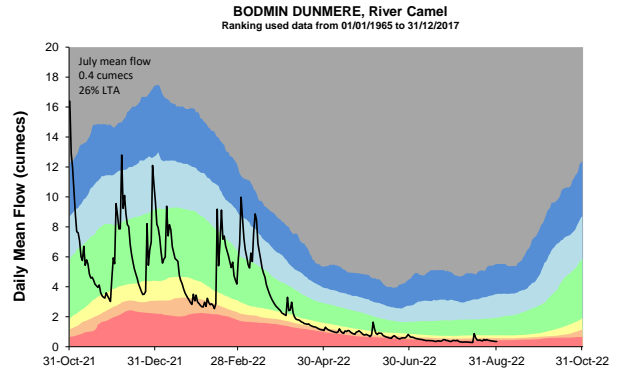
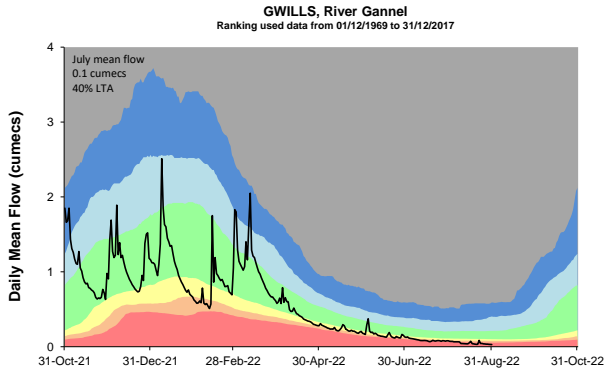
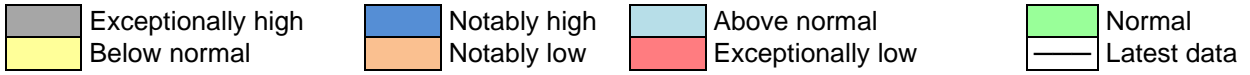
River Flow



*Flows at these sites may be impacted by water releases from upstream reservoirs.

Figure 3.1: Monthly mean river flows at indicator sites for August 2022, expressed as a percentage of the respective long term average and classed relative to an analysis of historic August monthly means (Source: Environment Agency). Crown copyright. All rights reserved. Environment Agency, 100026380, 2022.





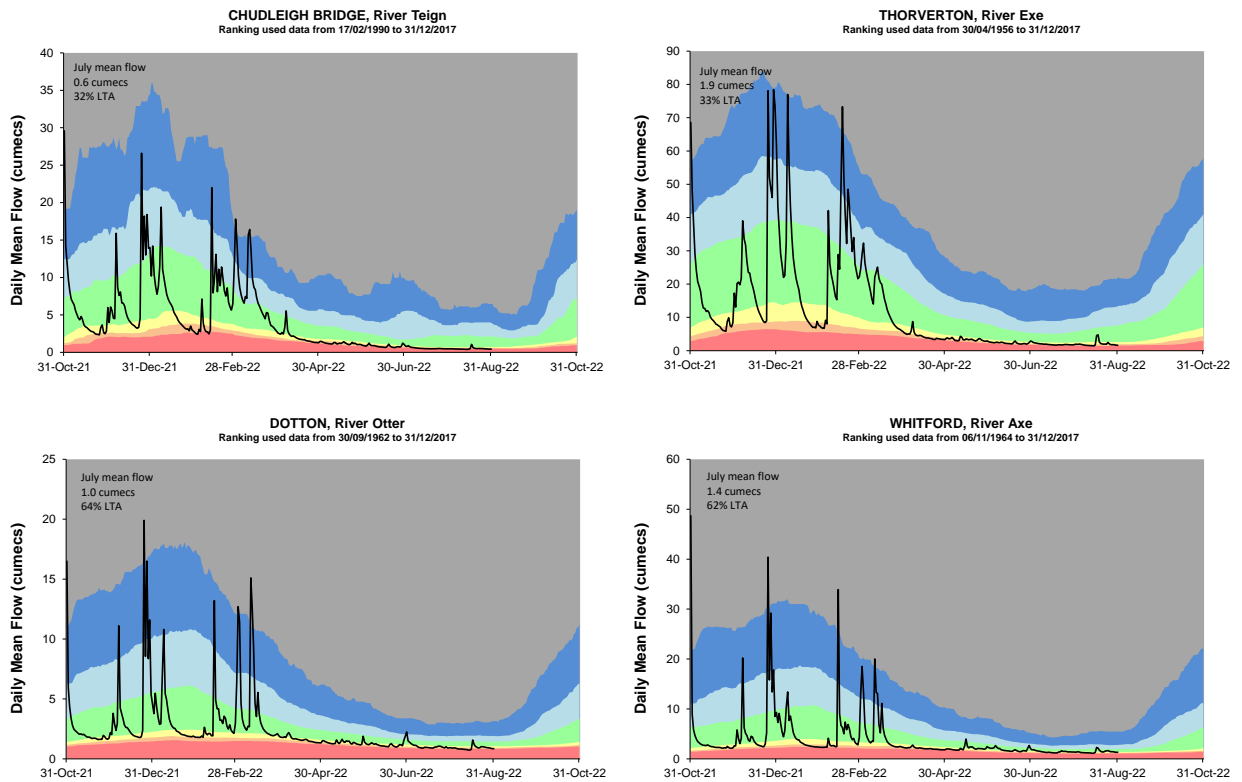
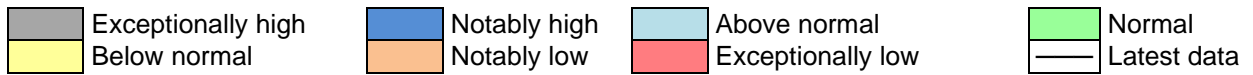


Figure 3.2: Indicator river flow sites for Devon and Cornwall. Daily mean flow compared to an analysis of historic daily mean flows. (Source: Environment Agency).

Groundwater Levels

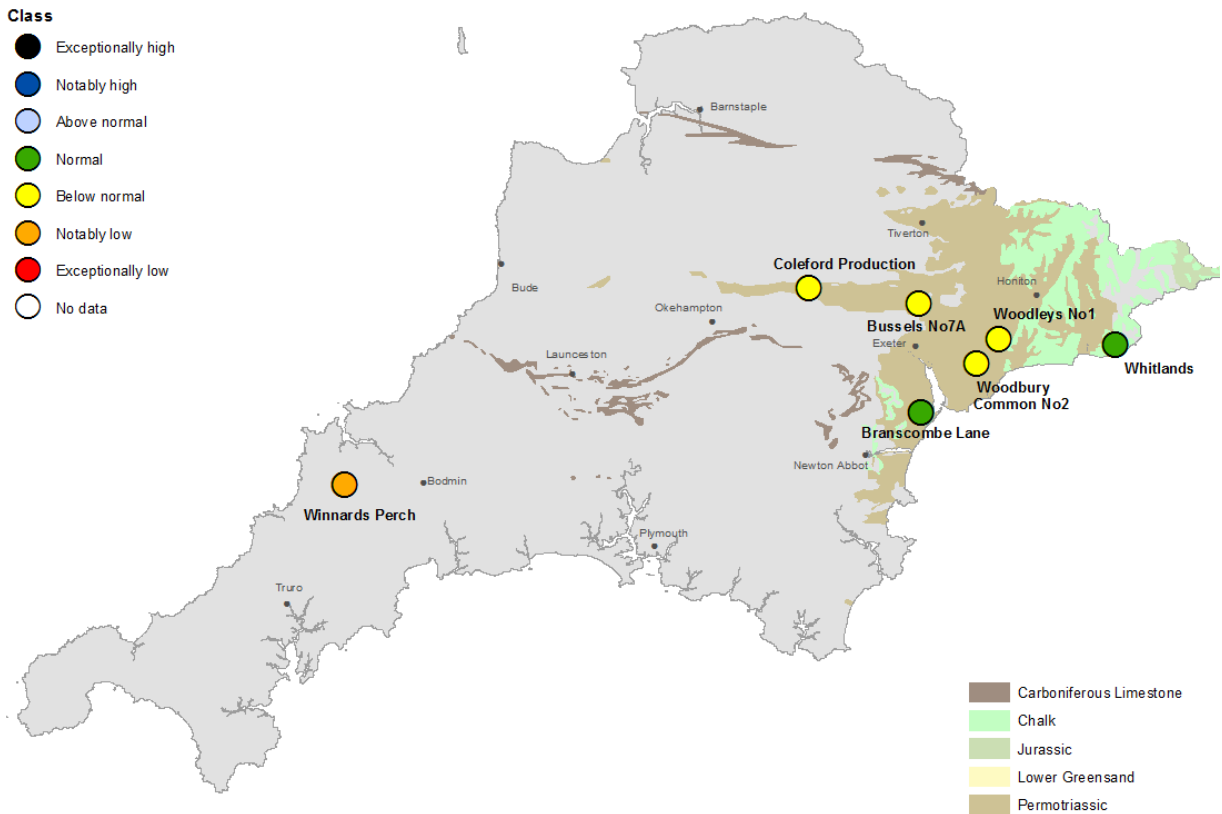
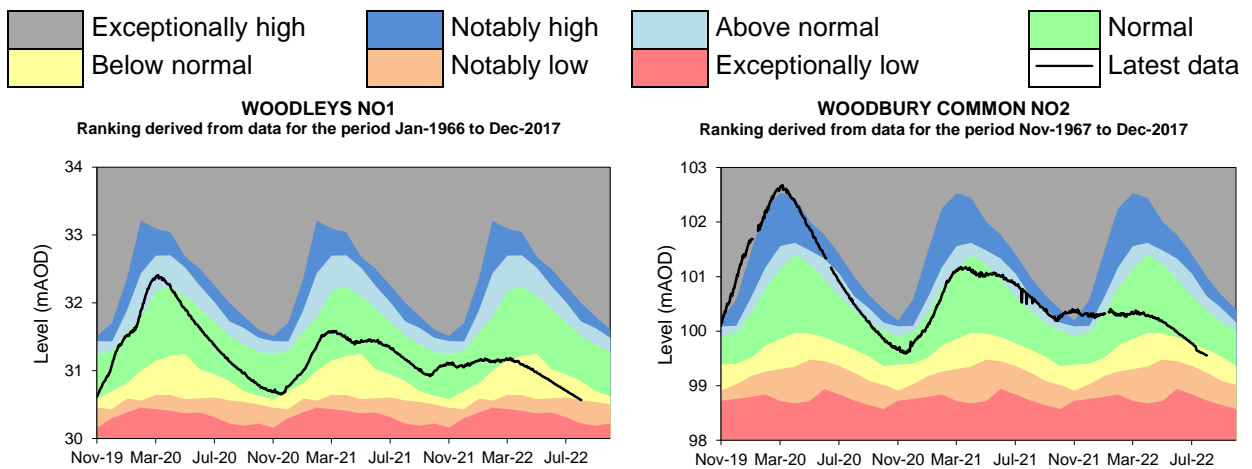


Figure 4.1: Groundwater levels for indicator sites at the end of August 2022, classed relative to an analysis of respective historic August levels (Source: Environment Agency). Geological map reproduced with permission from UK Groundwater Forum, BGS © NERC. Note: groundwater levels are reported at different times during the month and therefore may not be fully representative of levels at the month end. Crown copyright. All rights reserved. Environment Agency, 100026380, 2022.



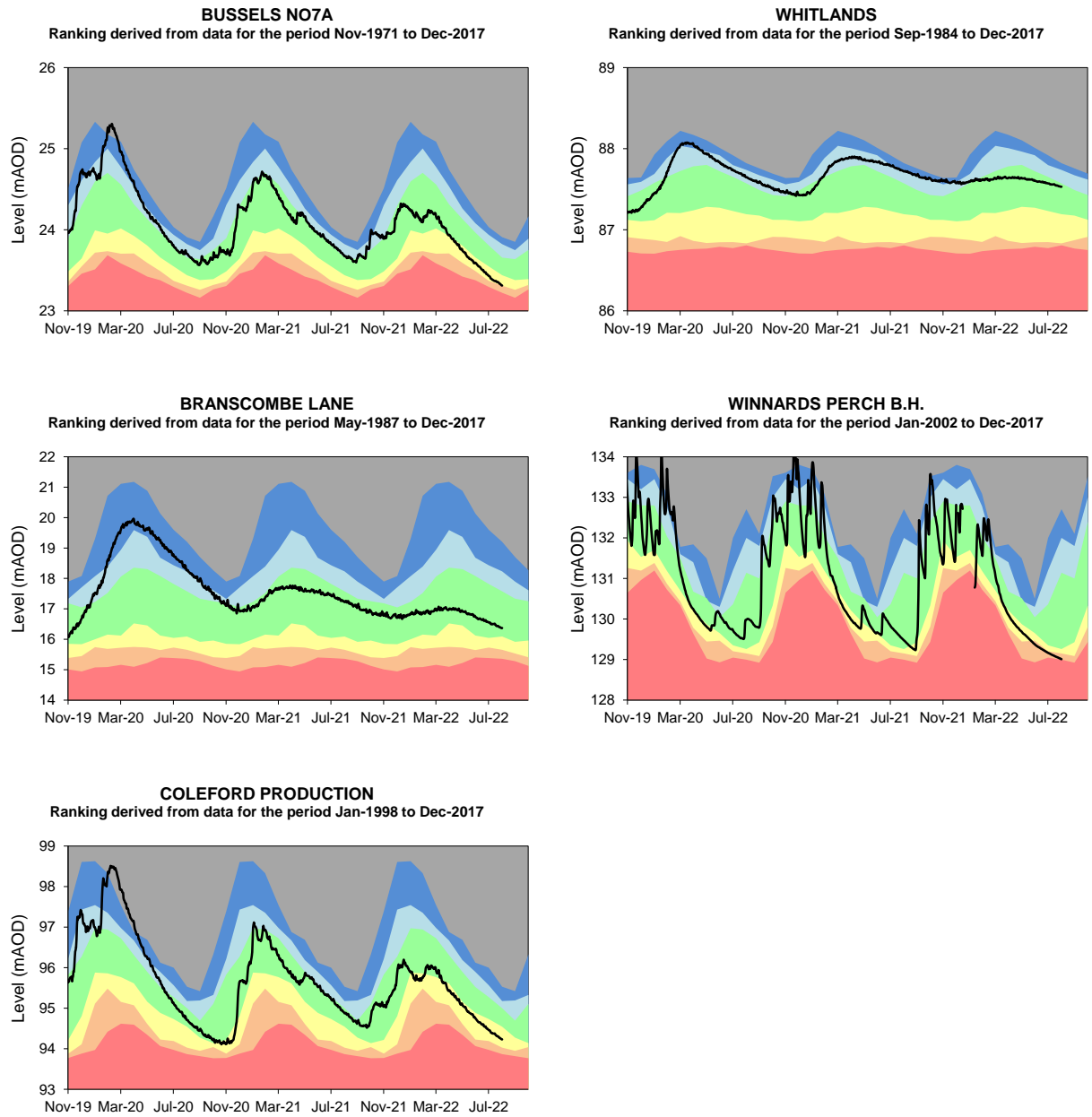
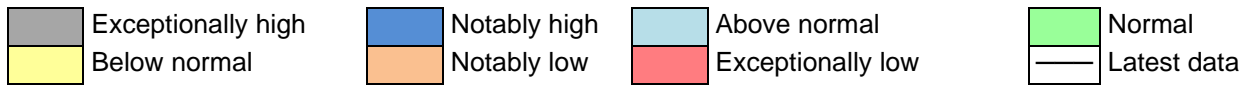


Figure 4.2: Indicator groundwater level sites for major aquifers. End of month groundwater levels compared to analysis of historic end month levels (Source: Environment Agency, 2022).

Reservoir Stocks

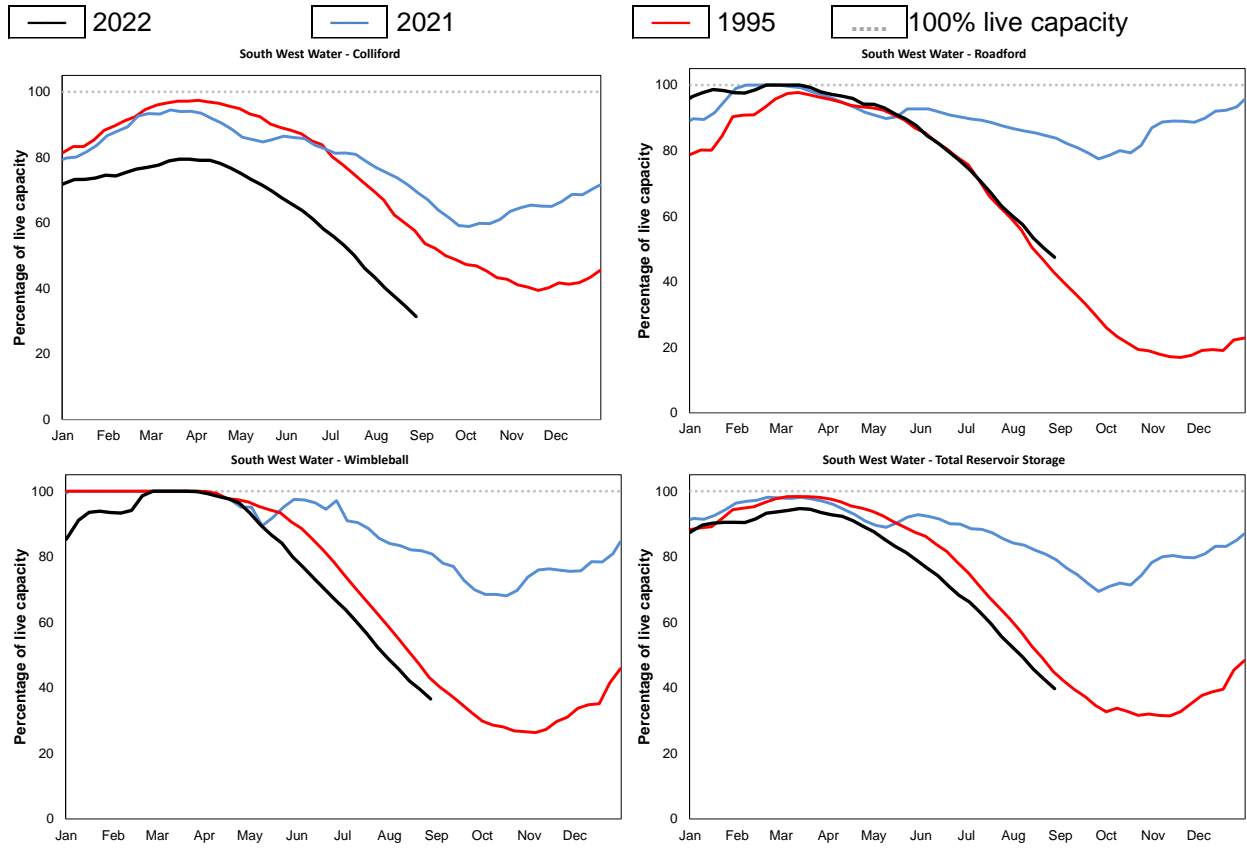


Figure 5.1: Reservoir stocks in Devon and Cornwall (Source: South West Water).

Glossary

Term	Definition
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 ³ s ⁻¹)
Effective rainfall	The rainfall available to percolate into the soil or produce river flow. Expressed in depth of water (mm).
Flood Alert/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 1961-1990. 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 x 40 km grid.
Naturalised flow	River flow with the impacts of artificial influences removed. Artificial influences may include abstractions, discharges, transfers, augmentation and impoundments.
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 (e.g. 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).

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

Rainfall Catchments

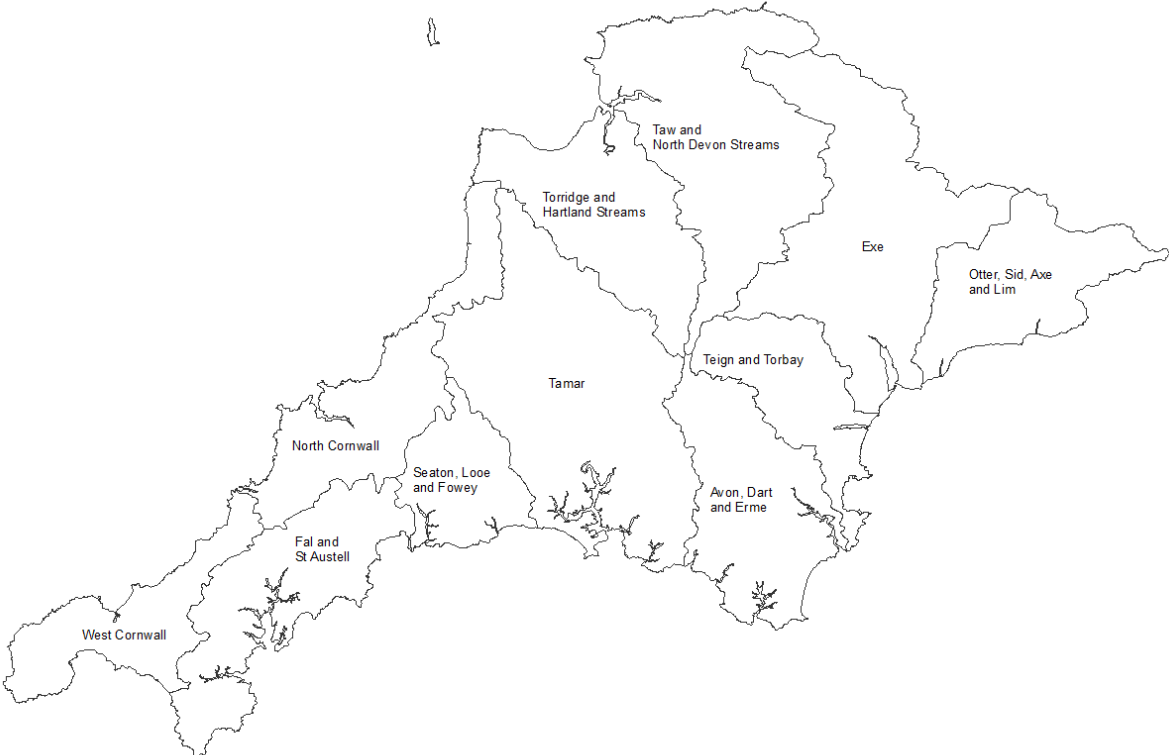


Figure 6.1: Rainfall catchments in Devon and Cornwall. Crown copyright. All rights reserved. Environment Agency, 100026380, 2022.