

# Monthly water situation report

## Summary – October 2021

Solent and South Downs (SSD) had well above average rainfall in October receiving 183% (155mm) of the long term average (LTA) (85mm). Monthly mean river flows across SSD ranged from **normal** to **exceptionally high**. Groundwater levels also ranged from **normal** to **exceptionally high**. Soil moisture deficits across SSD ended the month much lower than the LTA. End of month reservoir stocks were above average at both Ardingly Reservoir (Ouse) and Arlington Reservoir (Cuckmere).

## Rainfall

SSD had well above average rainfall in October, receiving 183% (155mm) of the LTA (85mm). Generally, it was wetter towards the centre and west of the patch. The Pevensy Levels was the driest areal unit, but still received 138% (121mm) of the LTA (88mm). The Hampshire Tertiaries areal unit received the most rainfall with 208% (163mm) of the LTA (78mm). The highest daily rainfall totals were recorded on the 2<sup>nd</sup> and 20<sup>th</sup> of the month. On the 2<sup>nd</sup> of October 50mm, the highest daily total for SSD, was recorded at Lyndhurst RG (Lymington areal unit). The 2<sup>nd</sup> highest daily total was recorded at Angmering RG (West Sussex Chalk) on the 20<sup>th</sup>. Heavy rainfall on the 2<sup>nd</sup> and 20<sup>th</sup> of the month contributed up to 50% of the overall monthly total rainfall.

## Soil Moisture Deficit

Soil moisture deficits across Solent and South Downs ended the month lower than the LTA. This means that soils are wetter than average for the time of year.

## River Flows

Monthly mean river flows across SSD ranged from **normal** to **exceptionally high**. The Western Rother at Iping Mill recorded **exceptionally high** flows during October, representing the third highest monthly mean flow on record for this gauging station. The Adur at Sakeham also recorded the third highest October flow on record with flows in the **notably high** range. The River Lymington at Brockenhurst, Itchen at Allbrook and Highbridge, Meon at Mislingford, Arun at Alfodean, Cuckmere at Cowbeech and Ouse at Goldbridge also recorded flows in the **notably high** range. Monthly mean river flows were **above normal** in the Medina at Blackwater GS, the Test at Broadlands and the Wallington at North Fareham. Chilbolton GS, at the top of the Test, was the only site to record **normal** flow during October.

## Groundwater Levels

End of month groundwater levels ranged from **normal** to **exceptionally high**. Groundwater levels at West Meon Hut (East Hampshire Chalk) were **exceptionally high**. Catherington, Preston Candover (East Hampshire Chalk) and Harting Common Down (Western Rother Greensand) ended the month with levels at **notably high** levels. Alverstone, Carisbrooke Castle (Isle of Wight), Cornish Farm, Houndean Bottom (East Sussex Chalk) and Lopcombe Corner (Test Chalk) all measured **above normal** groundwater levels. All other reporting sites recorded **normal** groundwater levels for October.

## Reservoir Storage/Water Resource Zone Stocks

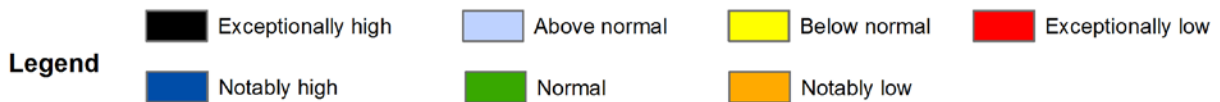
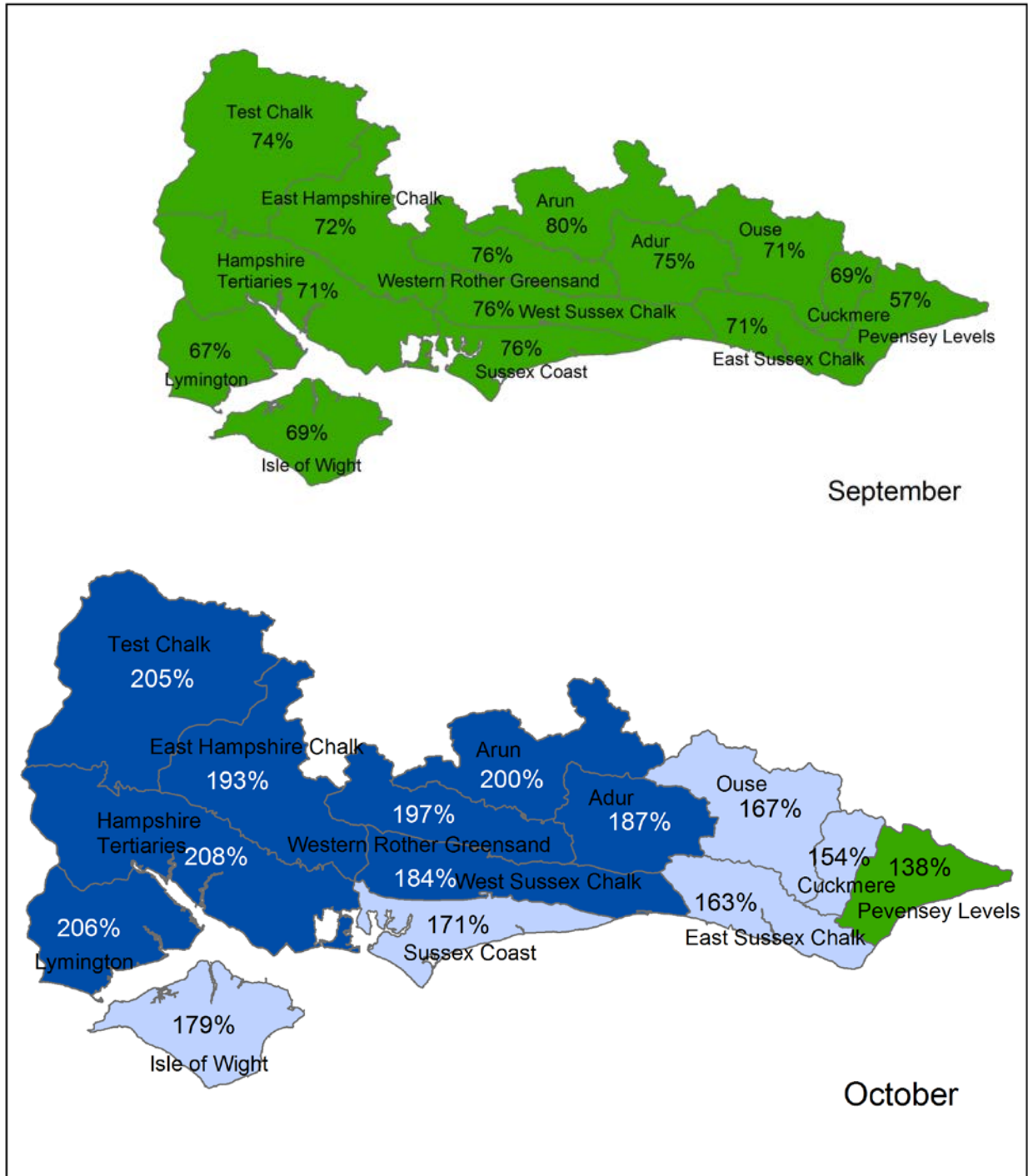
End of month reservoir stocks were above average at Ardingly Reservoir (Ouse) with 96% of total capacity (LTA 70%) and at Arlington Reservoir (Cuckmere) with 84% of total capacity (LTA 62%).

## Environmental Impact

There were no abstraction licence conditions in force during October. There were 5 flood warnings and 28 flood alerts issued in SSD during October; 5 warnings and 17 alerts in Sussex, 6 alerts in Hampshire and 5 alerts on the Isle of Wight.

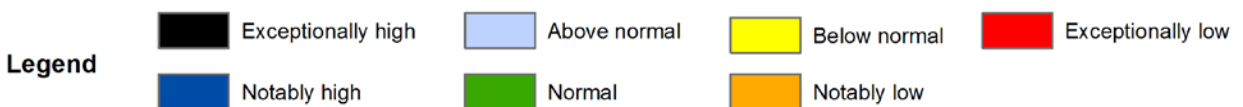
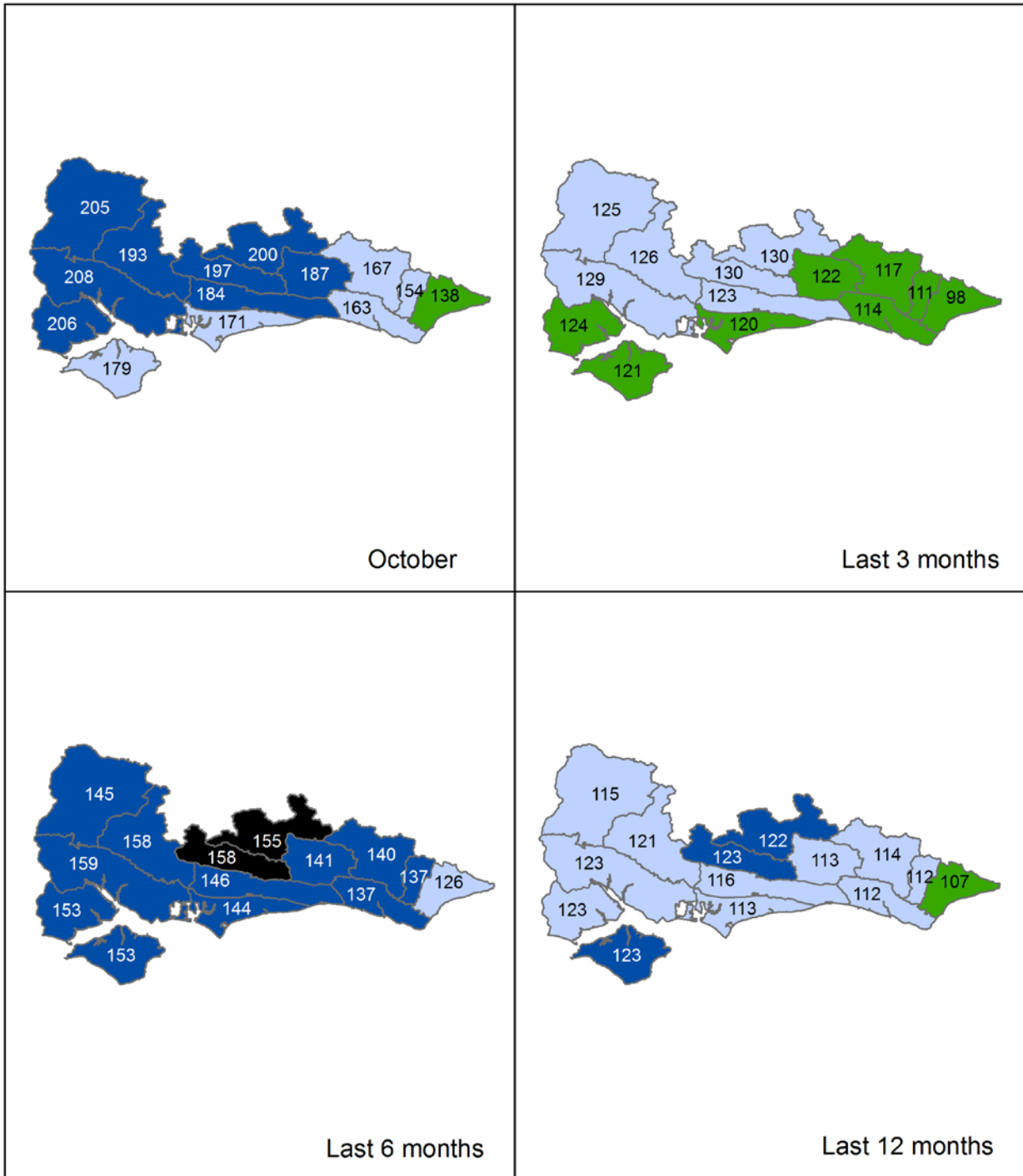
Author: [HydrologySSD](#)

# Rainfall Map 1



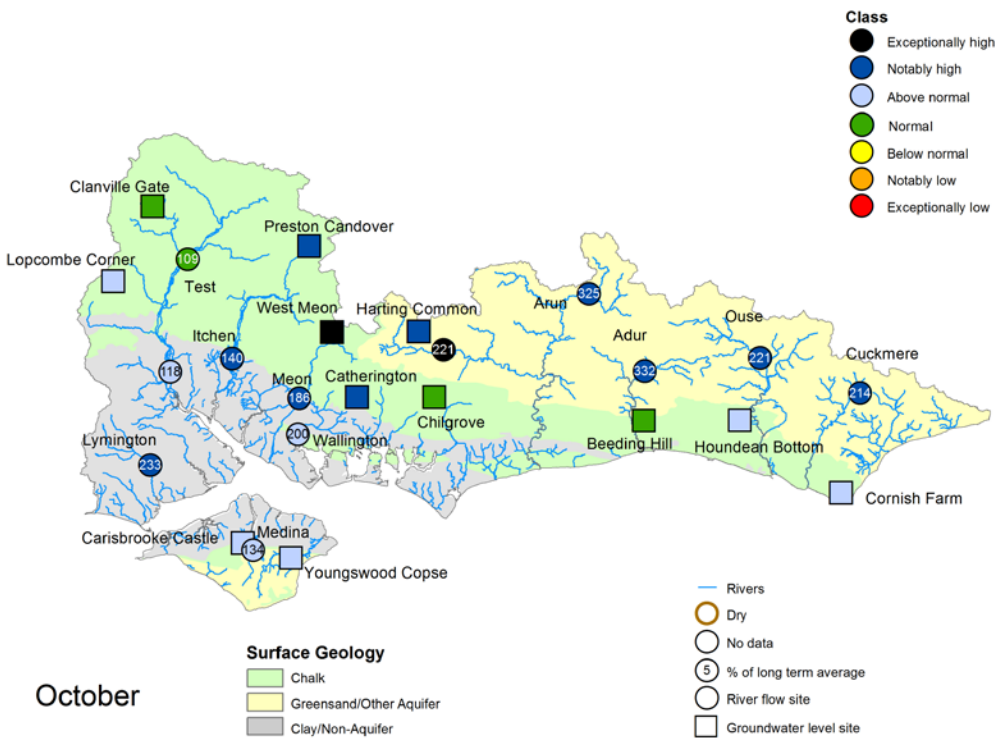
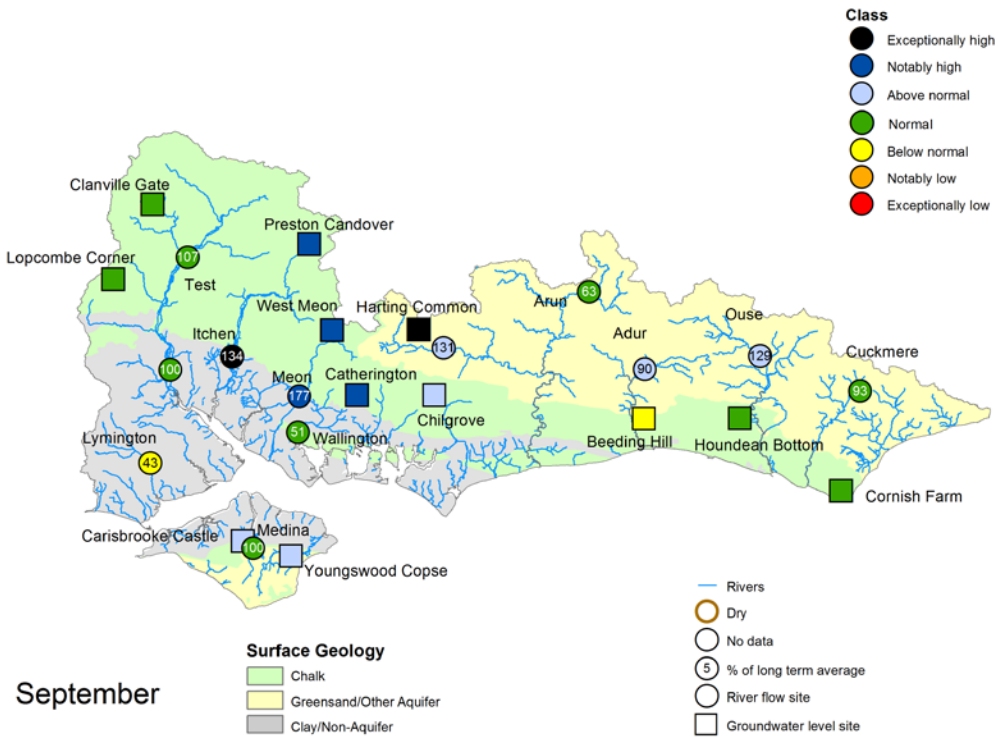
Total rainfall for hydrological areas across Solent and South Downs for the current month, classed relative to an analysis of respective historic totals. Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Includes material based on Ordnance Survey 1:50 000 maps with the permission of the controller of Her Majesty's Stationery Office © Crown copyright. All rights reserved. Environment Agency, 100026380, 2021.

# Rainfall Map 2



Total rainfall for hydrological areas across Solent and South Downs for the current month (up to 31 December), the last 3 months, the last 6 months, and the last 12 months, classed relative to an analysis of respective historic totals. Final NCIC (National Climate Information Centre) data based on the Met Office 5km gridded rainfall dataset derived from rain gauges (Source: Met Office © Crown Copyright, 2020). 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, 2021

# River Flow and Groundwater Status Map



Groundwater site status based on end of month level. Surface water site status based on mean monthly flow.

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customer service line  
03708 506 506

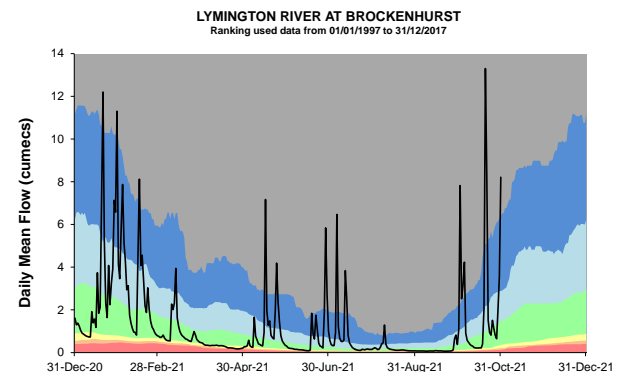
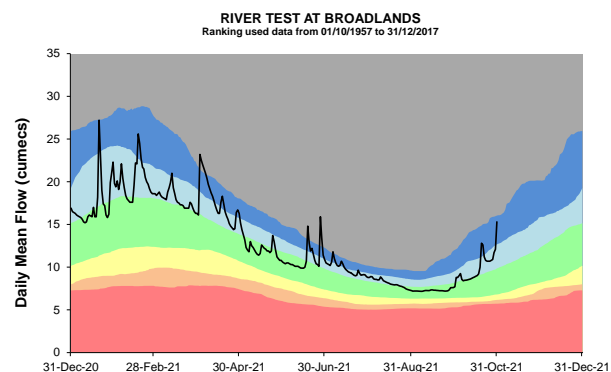
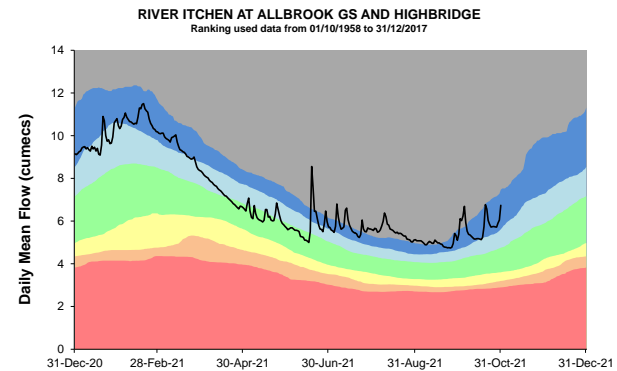
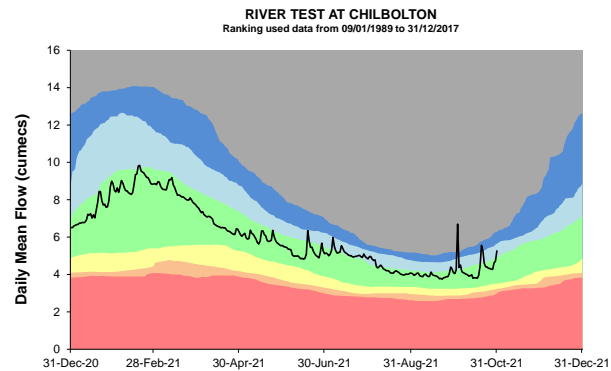
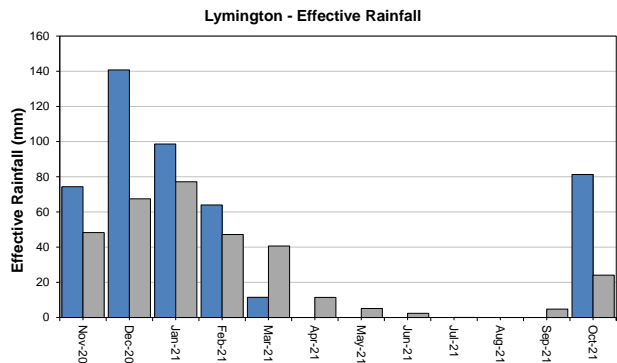
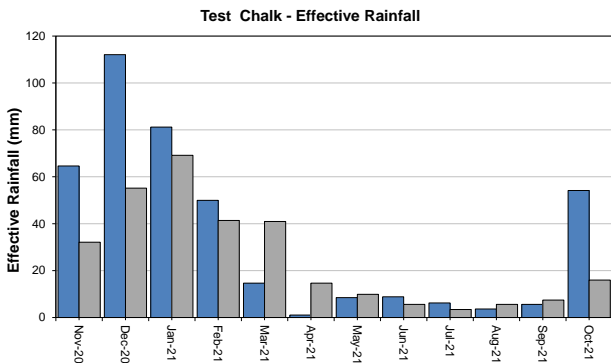
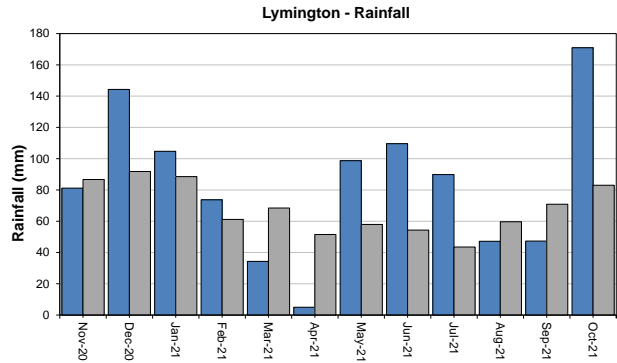
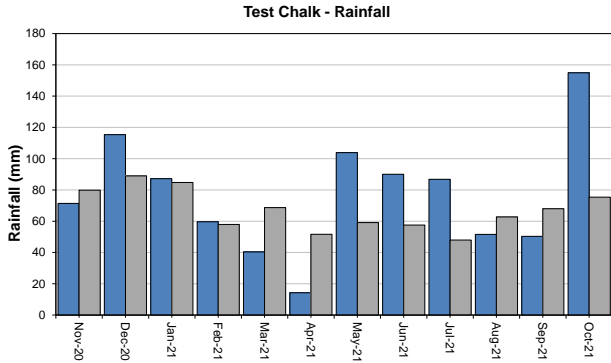
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# West Hampshire – Page 1

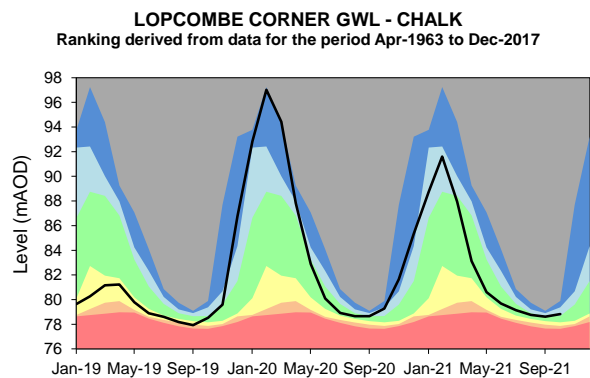
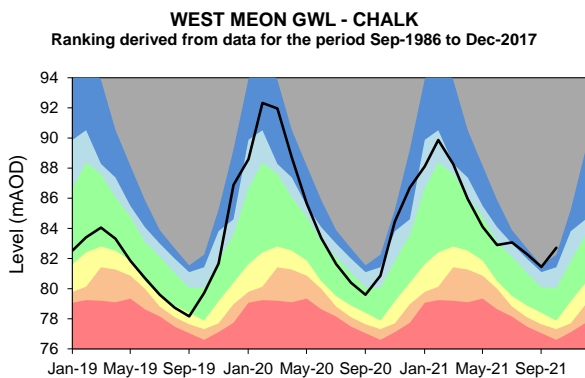
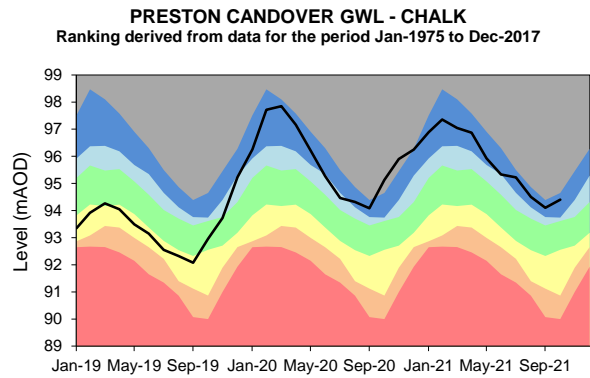
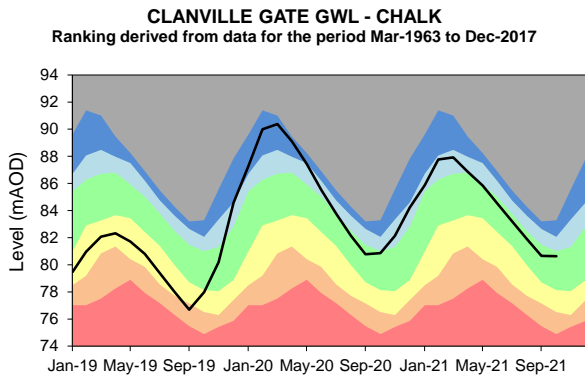
Monthly total rainfall (mm)

Long term average rainfall (mm)



Exceptionally high    
  Notably high    
  Above normal    
  Normal  
 Below normal    
  Notably low    
  Exceptionally low    
  Latest data

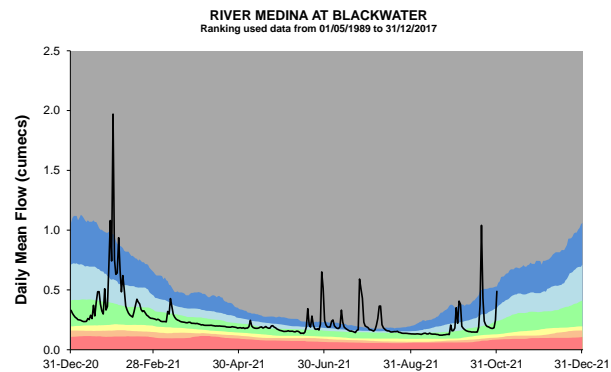
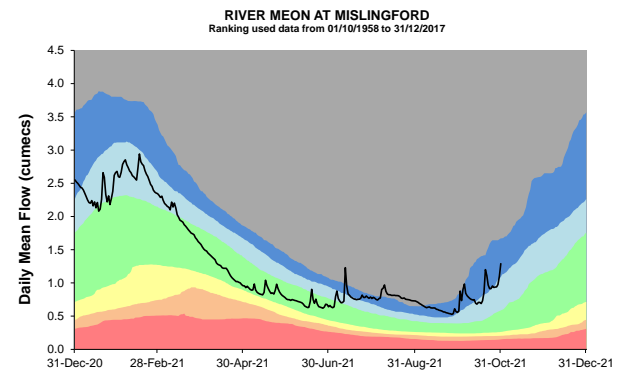
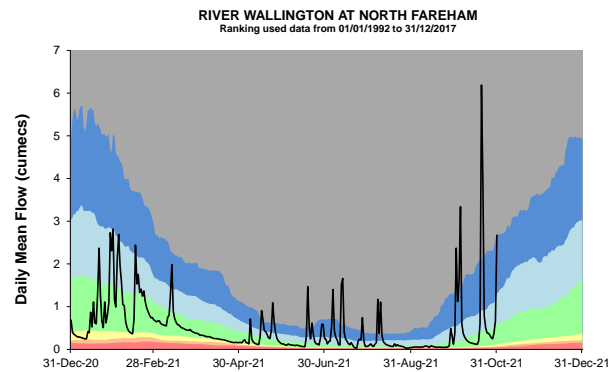
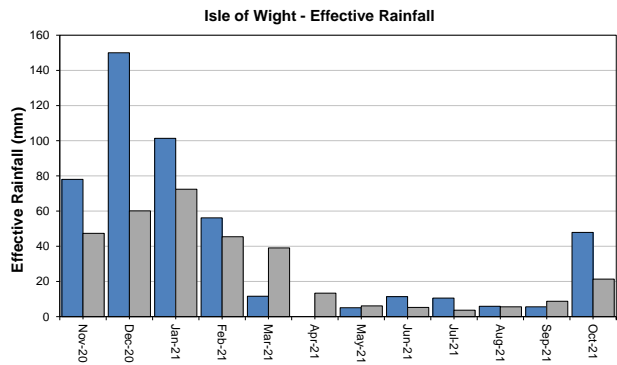
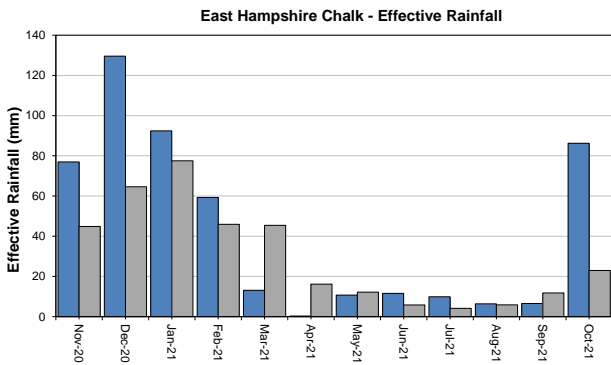
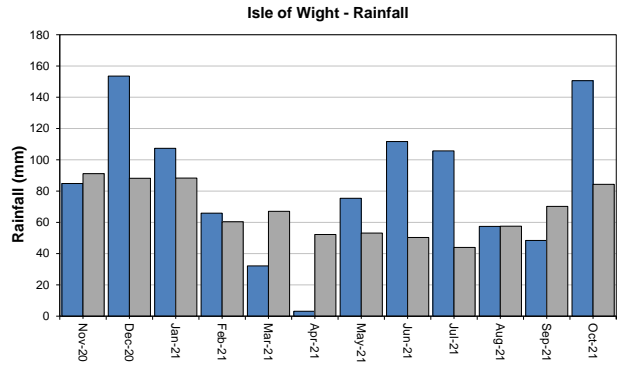
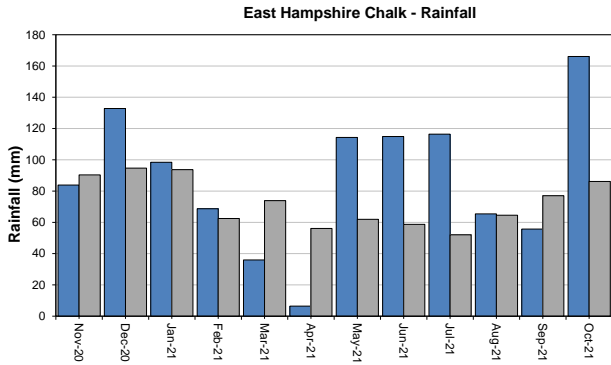
# West Hampshire – Page 2



# East Hampshire and Isle of Wight

Monthly total rainfall (mm)

Long term average rainfall (mm)



Exceptionally high  
 Below normal  
 Notably high  
 Notably low  
 Above normal  
 Exceptionally low  
 Normal  
 Latest data

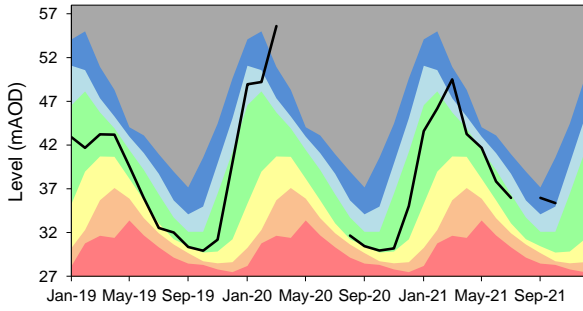
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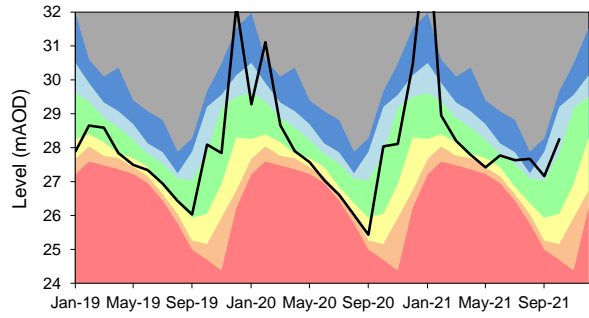
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# East Hampshire and Isle of Wight – Page 2

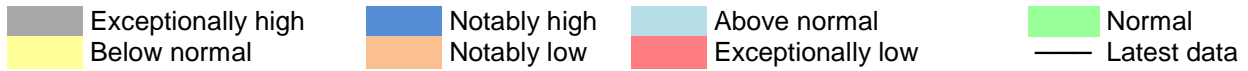
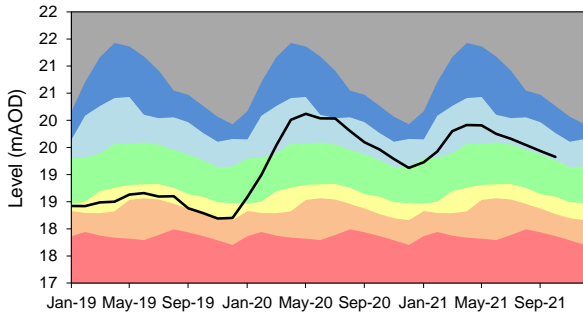
**CATHERINGTON GWL - CHALK**  
 Ranking derived from data for the period Jan-1969 to Dec-2017



**CARISBROOKE CASTLE GWL - CHALK**  
 Ranking derived from data for the period Aug-1977 to Dec-2017



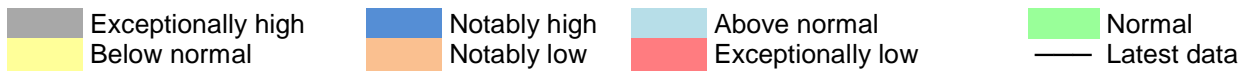
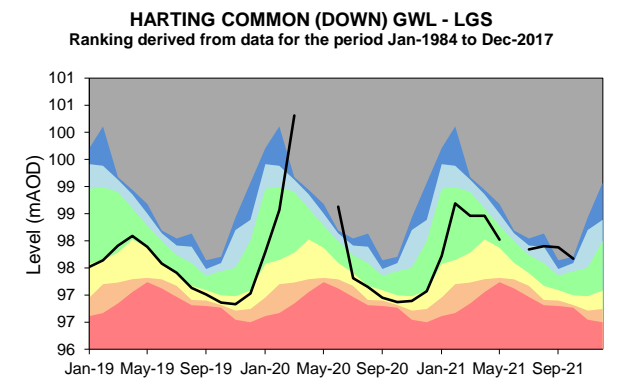
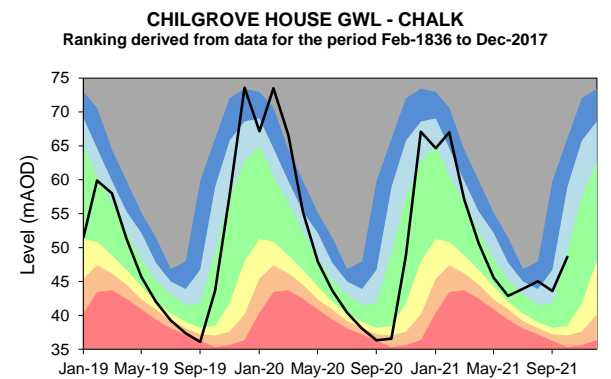
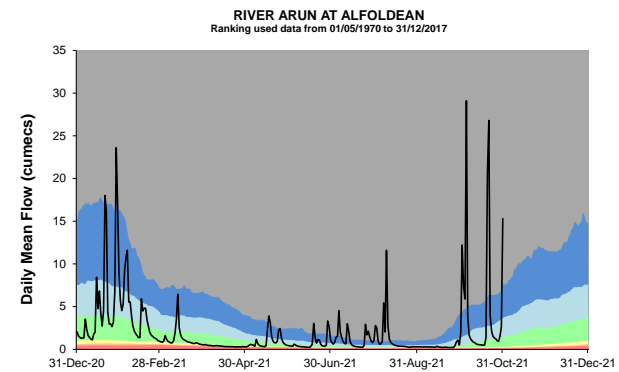
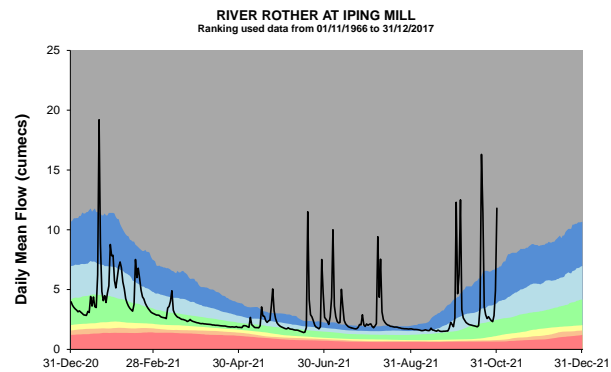
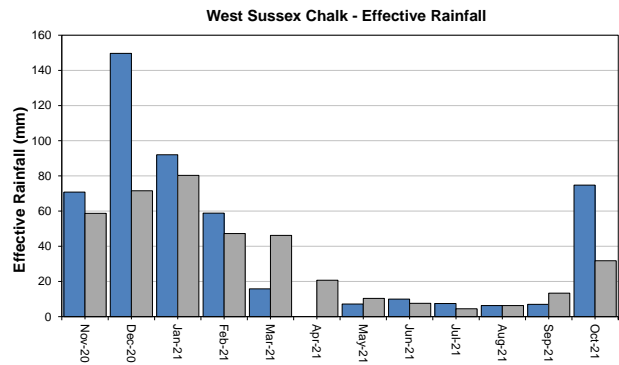
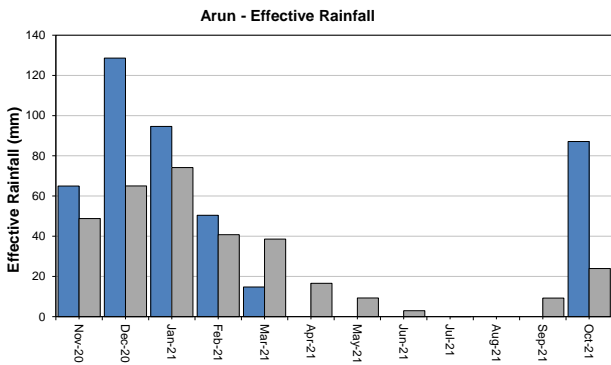
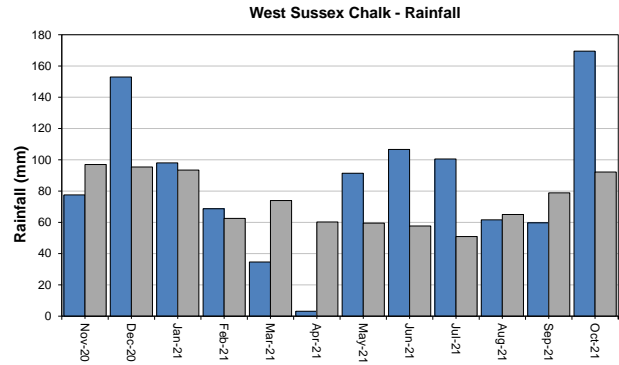
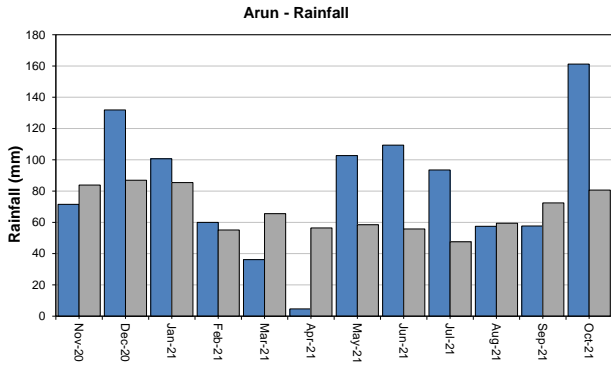
**YOUNGWOOD COPSE GWL - LGS**  
 Ranking derived from data for the period Feb-1978 to Dec-2017



# West Sussex

Monthly total rainfall (mm)

Long term average rainfall (mm)



customer service line  
03708 506 506

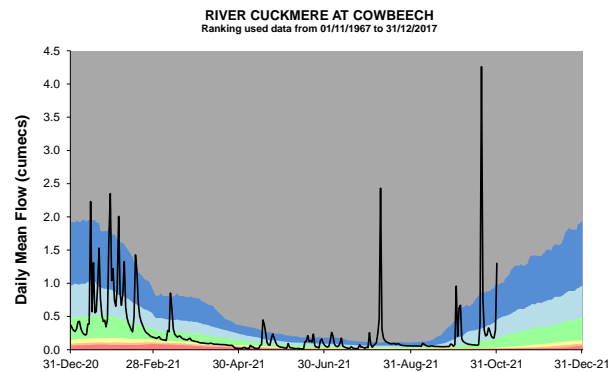
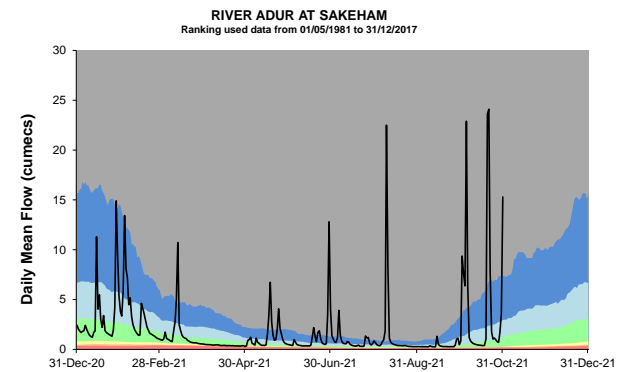
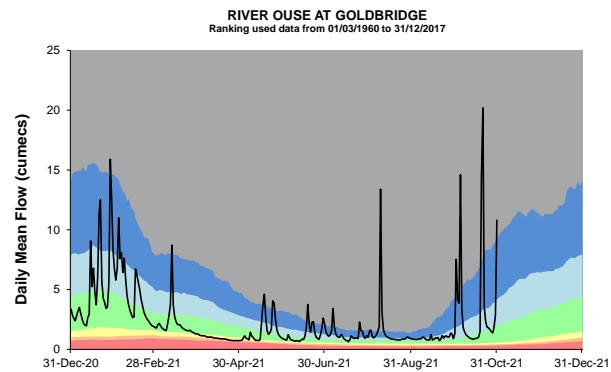
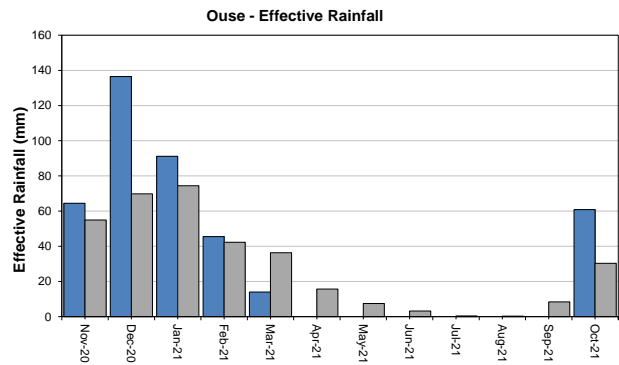
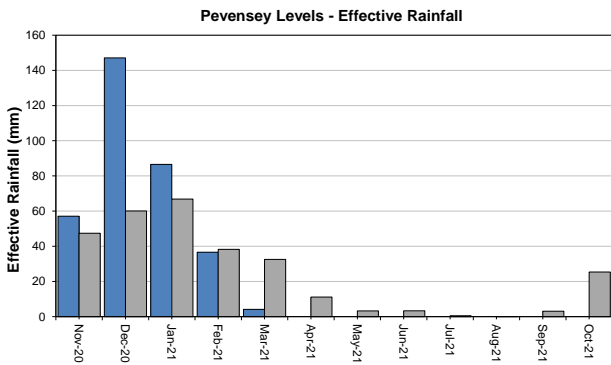
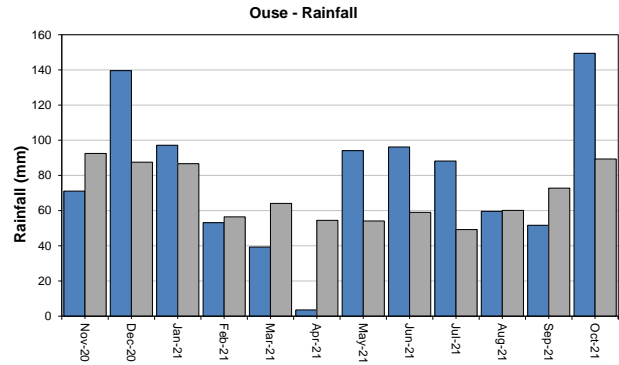
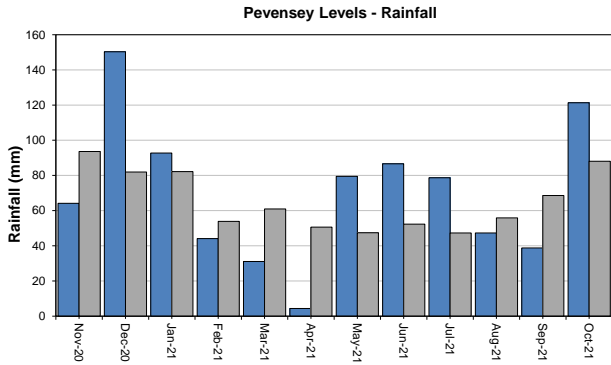
incident hotline  
0800 80 70 60

floodline  
0345 988 1188

# East Sussex

Monthly total rainfall (mm)

Long term average rainfall (mm)



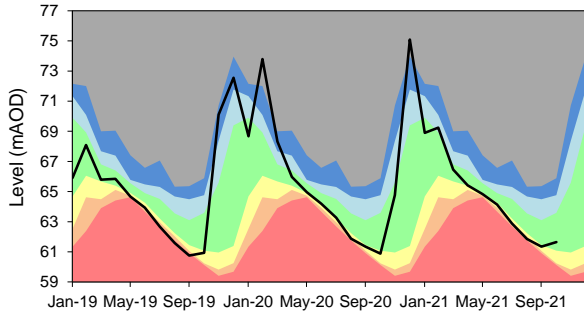
Exceptionally high  
 Below normal  
 Notably high  
 Notably low  
 Above normal  
 Exceptionally low  
 Normal  
 Latest data

# East Sussex – Page 2

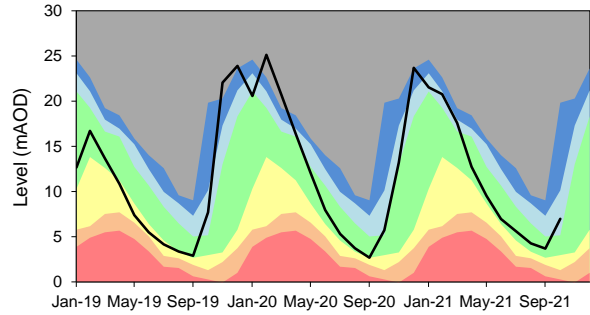
Monthly total rainfall (mm)

Long term average rainfall (mm)

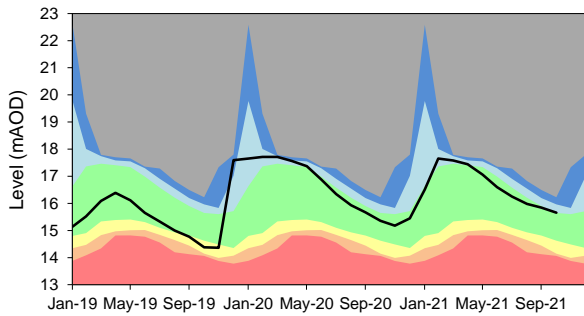
**BEEDING HILL GWL - CHALK**  
Ranking derived from data for the period Sep-1979 to Dec-2017



**HOUNDEAN BOTTOM GWL - CHALK**  
Ranking derived from data for the period Jan-1977 to Dec-2017

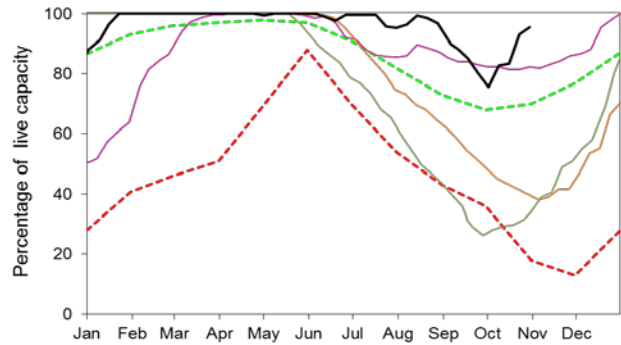


**CORNISH FARM WIGDENS GWL - CHALK**  
Ranking derived from data for the period Mar-1981 to Dec-2017



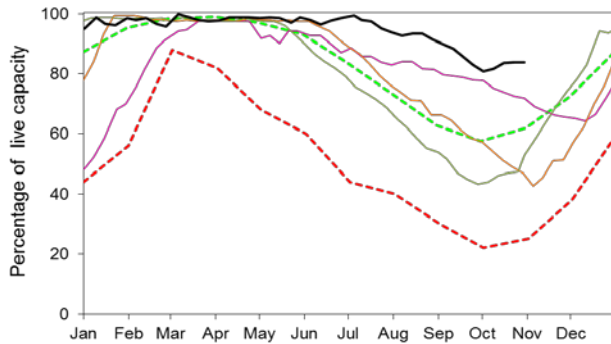
Legend: LTA (dashed green), MIN (dashed red), 2017 (solid pink), 2018 (solid orange), 2020 (solid light green), 2021 (solid black)

**South East Water - Ardingly Reservoir - Ouse**



Legend: LTA (dashed green), MIN (dashed red), 2017 (solid pink), 2018 (solid orange), 2020 (solid light green), 2021 (solid black)

**South East Water - Arlington Reservoir - Cuckmere**



Exceptionally high	Notably high	Above normal	Normal
Below normal	Notably low	Exceptionally low	Latest data

## Summary of rainfall, effective rainfall and soil moisture deficits

### Rainfall and effective rainfall

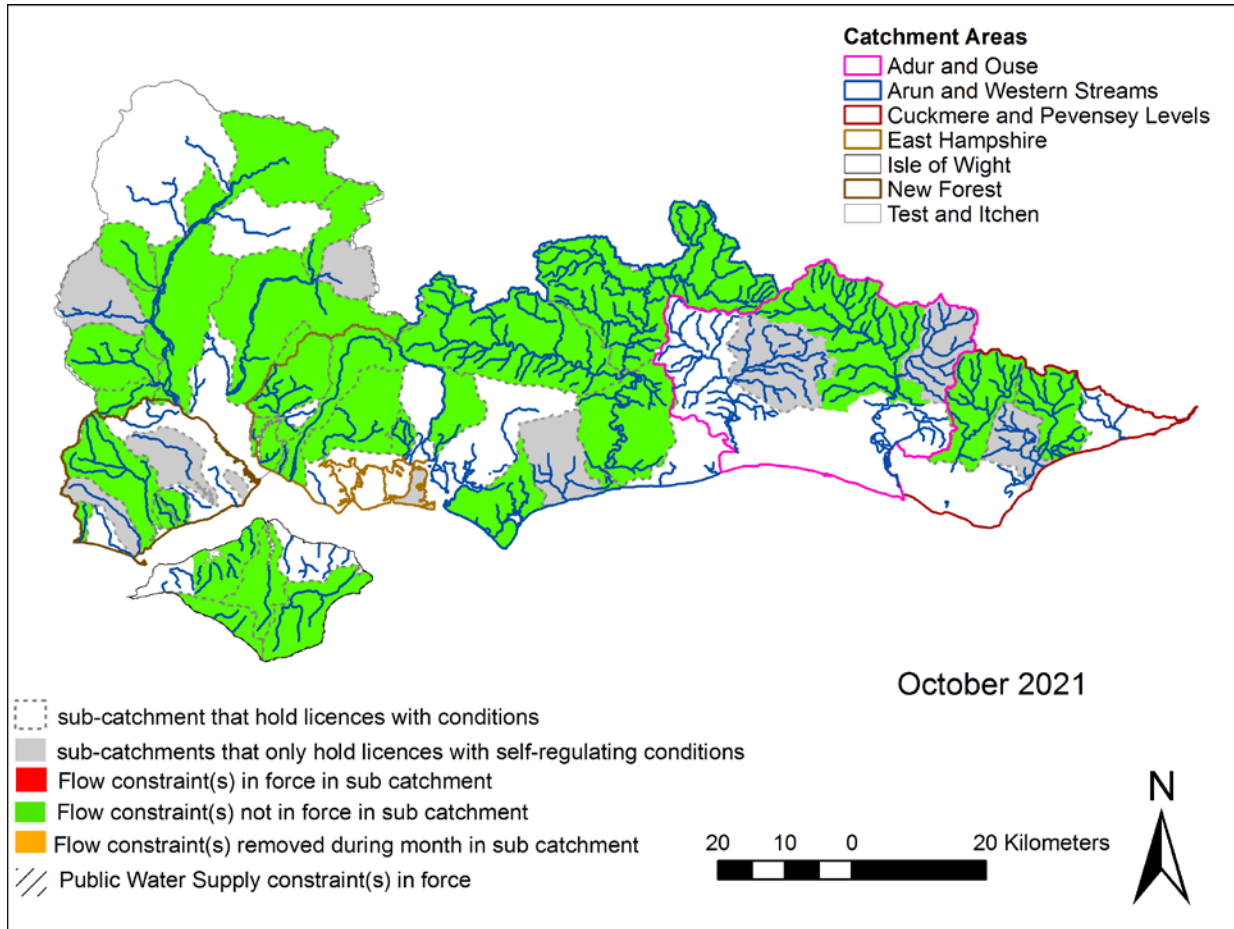
Area	Rainfall (mm)	LTA rainfall (mm)	% of LTA	Effective rainfall (mm)	LTA effective rainfall (mm)	% of LTA
Test Chalk	155	75	205	54	16	339
East Hampshire Chalk	166	86	193	86	23	376
West Sussex Chalk	170	92	184	75	32	235
East Sussex Chalk	152	93	163	40	31	131
Isle of Wight	151	84	179	48	21	224
Western Rother Greensand	179	91	197	107	28	390
Hampshire Tertiaries	164	79	208	79	18	-
Lymington	171	83	206	81	24	337
Sussex Coast	133	77	171	23	15	157
Arun	161	81	200	87	24	364
Adur	160	86	187	64	26	248
Ouse	149	89	167	61	30	201
Cuckmere	140	91	154	39	29	132
Pevensey Levels	121	88	138	0	25	0
<b>Solent and South Downs</b>	<b>155</b>	<b>85</b>	<b>182</b>	<b>60</b>	<b>24</b>	<b>247</b>

### Soil Moisture Deficit

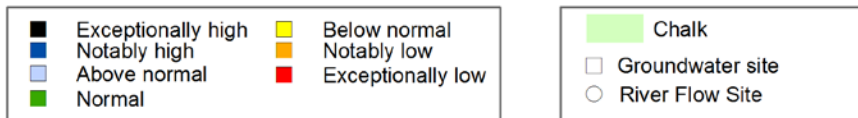
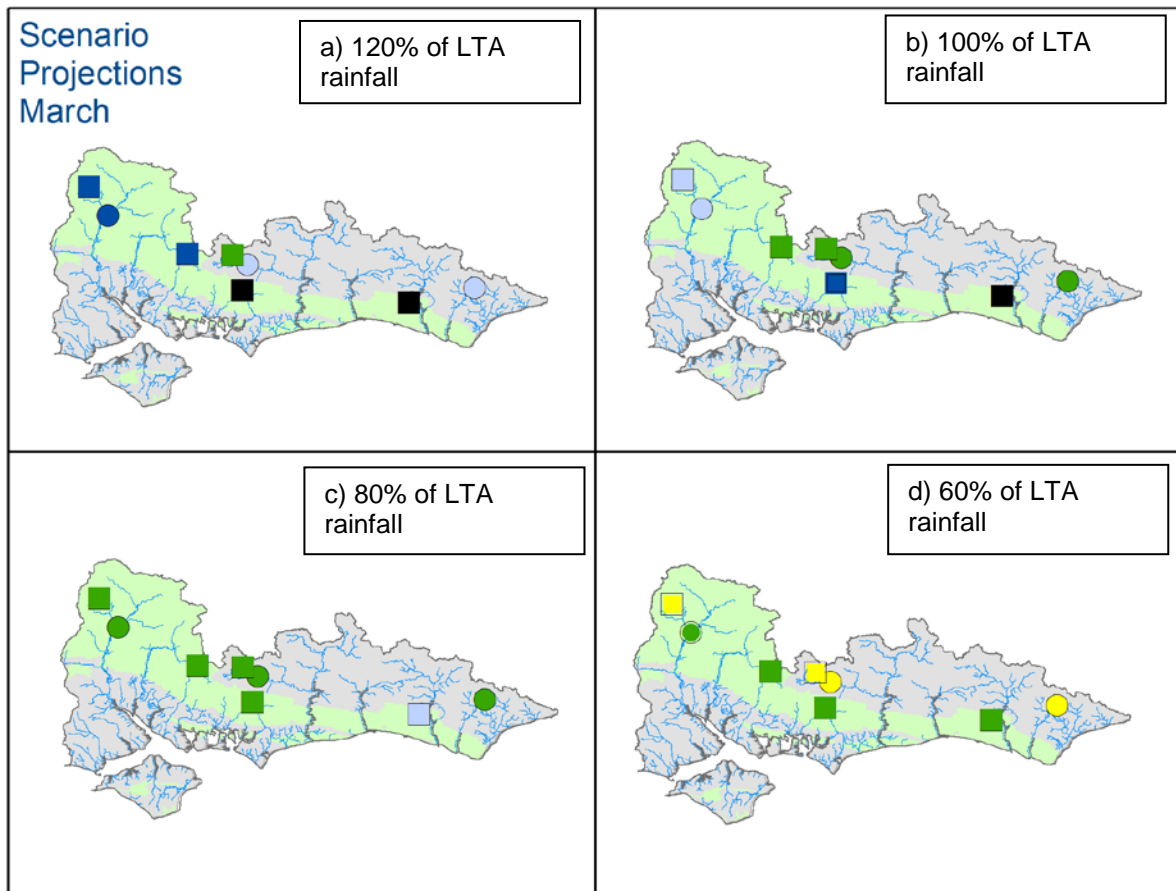
Area	End of month SMD (mm)	End of month SMD LTA (mm)
Test Chalk	0	59
East Hampshire Chalk	0	50
West Sussex Chalk	0	42
East Sussex Chalk	0	49
Isle of Wight	0	55
Western Rother Greensand	0	47
Hampshire Tertiaries	0	45
Lymington	0	42
Sussex Coast	0	49
Arun	0	38
Adur	0	40
Ouse	0	35
Cuckmere	0	38
Pevensey Levels	1	44
<b>Solent and South Downs</b>	<b>0</b>	<b>45</b>

# Environmental Impact

## Flow Constraints



# Forward look- river flow and groundwater March 2022



Projected river flows at key indicator sites up until the end of March 2022. Projected groundwater levels at key indicator sites at the end of March 2022. Projections based on four scenarios: 120% (a), 100% (b), 80% (c) and 60% (d) of long term average rainfall (Source: Environment Agency). Geological map reproduced with kind permission from UK Groundwater Forum BGS © NERC Crown copyright. All rights reserved. Environment Agency 100026380 2021.

## Glossary

### Term

Aquifer

Areal average rainfall

Artesian

Artesian borehole

Cumecs

Effective rainfall

Flood Alert/Flood Warning

Groundwater

Long term average (LTA)

mAOD

MORECS

Naturalised flow

NCIC

Recharge

Reservoir gross capacity

Reservoir live capacity

Soil moisture deficit (SMD)

### Definition

A geological formation able to store and transmit water.

The estimated average depth of rainfall over a defined area. Expressed in depth of water (mm).

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.

Borehole where the level of groundwater is above the top of the borehole and groundwater flows out of the borehole when unsealed.

Cubic metres per second (m<sup>3</sup>s<sup>-1</sup>)

The rainfall available to percolate into the soil or produce river flow. Expressed in depth of water (mm).

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.

The water found in an aquifer.

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).

Metres Above Ordnance Datum (mean sea level at Newlyn Cornwall).

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.

River flow with the impacts of artificial influences removed. Artificial influences may include abstractions, discharges, transfers, augmentation and impoundments.

National Climate Information Centre. NCIC area monthly rainfall totals are derived using the Met Office 5 km gridded dataset, which uses rain gauge observations.

The process of increasing the water stored in the saturated zone of an aquifer. Expressed in depth of water (mm).

The total capacity of a reservoir.

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.

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

Notably high

Above normal

Normal

Below normal

Notably low

Exceptionally low

Value likely to fall within this band 5% of the time

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

Value likely to fall within this band 15% of the time

Value likely to fall within this band 44% of the time

Value likely to fall within this band 15% of the time

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

Value likely to fall within this band 5% of the time