

# Monthly water situation report

## Solent and South Downs Area

### Summary – November 2021

Solent and South Downs (SSD) had well below average rainfall in November receiving only 13% (12mm) of the long term average (LTA) (90mm). Monthly mean river flows across SSD ranged from **notably low** to **above normal**. Groundwater levels also ranged from **normal** to **notably high**. Soil moisture deficits across SSD ended the month at zero. End of month reservoir stocks were above average at both Ardingly Reservoir (Ouse) and Arlington Reservoir (Cuckmere).

### Rainfall

SSD had well below average rainfall in November, receiving only 13% (12mm) of the LTA (90mm). This is the **second driest** November on record for SSD, and the driest for 76 years (since 1945). There was very little difference in rainfall over the whole of SSD but the Cuckmere was the driest areal unit, with 10% (10mm) of the LTA (94mm). The Isle of Wight and Sussex Coast units came a close second with 11% (10mm, 9mm) of their LTAs (94mm and 81mm respectively). The Test Chalk unit received the most rainfall with 18% (15mm) of the LTA (80mm). The Cuckmere, Pevensey Levels, East Sussex Chalk, and Lymington areal units all recorded their driest November in their respective records. All the other areal units recorded their 2<sup>nd</sup> driest November.

There were only 3 days of rainfall on average across SSD. The highest daily rainfall totals were recorded on the 26<sup>th</sup> of the month when North Chapel RG and Chiddingfold RG (both Arun areal unit) both recorded the highest daily total for SSD, of only 7 mm. This represented about 50% of the monthly total rainfall.

### Soil Moisture Deficit/Recharge

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

### River Flows

Monthly mean river flows across SSD ranged from **notably low** to **above normal**. The Lymington River at Brockenhurst GS recorded **notably low** flows during November, representing the 10<sup>th</sup> lowest monthly mean flows on record for this gauging station. The Wallington at North Fareham GS recorded **below normal** monthly mean flows which are the 9<sup>th</sup> lowest November mean flows at this site. The Meon at Mislingford and the Itchen at Allbrook & Highbridge recorded flows in the **above normal** range. All remaining sites recorded **normal** flows during November.

### Groundwater Levels

End of month groundwater levels ranged from **normal** to **notably high**. Groundwater levels at Preston Candover (East Hampshire Chalk) were **notably high** which is the 7<sup>th</sup> highest November level at this site. West Meon Hut, Catherington (East Hampshire Chalk), Harting Common Down (Western Rother Greensand), Lopcombe Corner (Test Chalk) and Youngwood Copse (Isle of Wight) ended the month with levels in the **above normal** range. All other reporting sites recorded **normal** groundwater levels for October.

### Reservoir Storage/Water Resource Zone Stocks

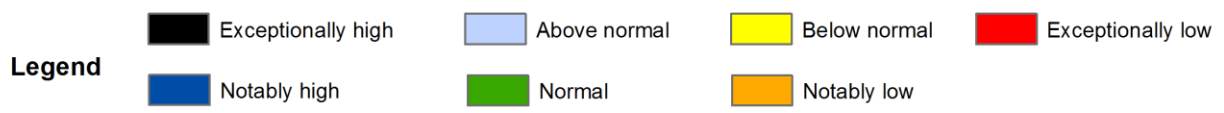
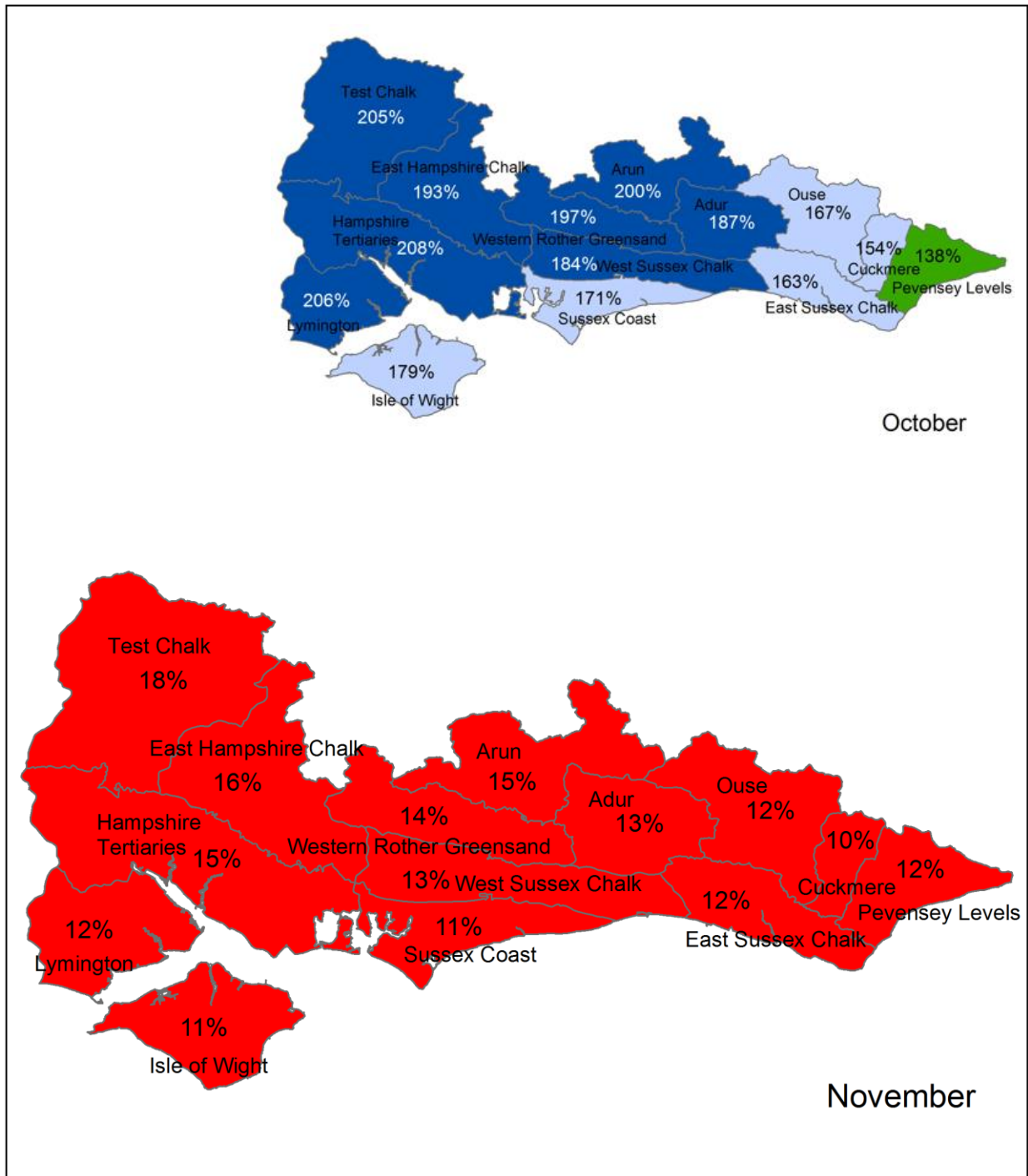
End of month reservoir stocks were above average at Ardingly Reservoir (Ouse) with 100% of total capacity (LTA 77%) and at Arlington Reservoir (Cuckmere) with 84% of total capacity (LTA 72%).

### Environmental Impact

There were 6 abstraction licence conditions in force during November; 4 on the River Test, one in New Forest and one on the River Ouse. There were no fluvial flood warnings or alerts issued in SSD during November.

Author: [HydrologySSD](#)

# Rainfall Map 1



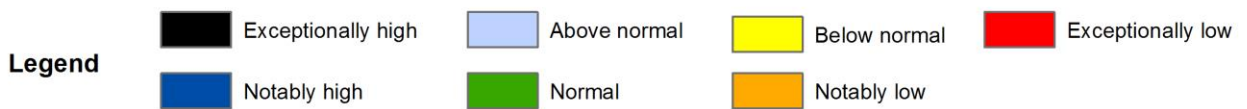
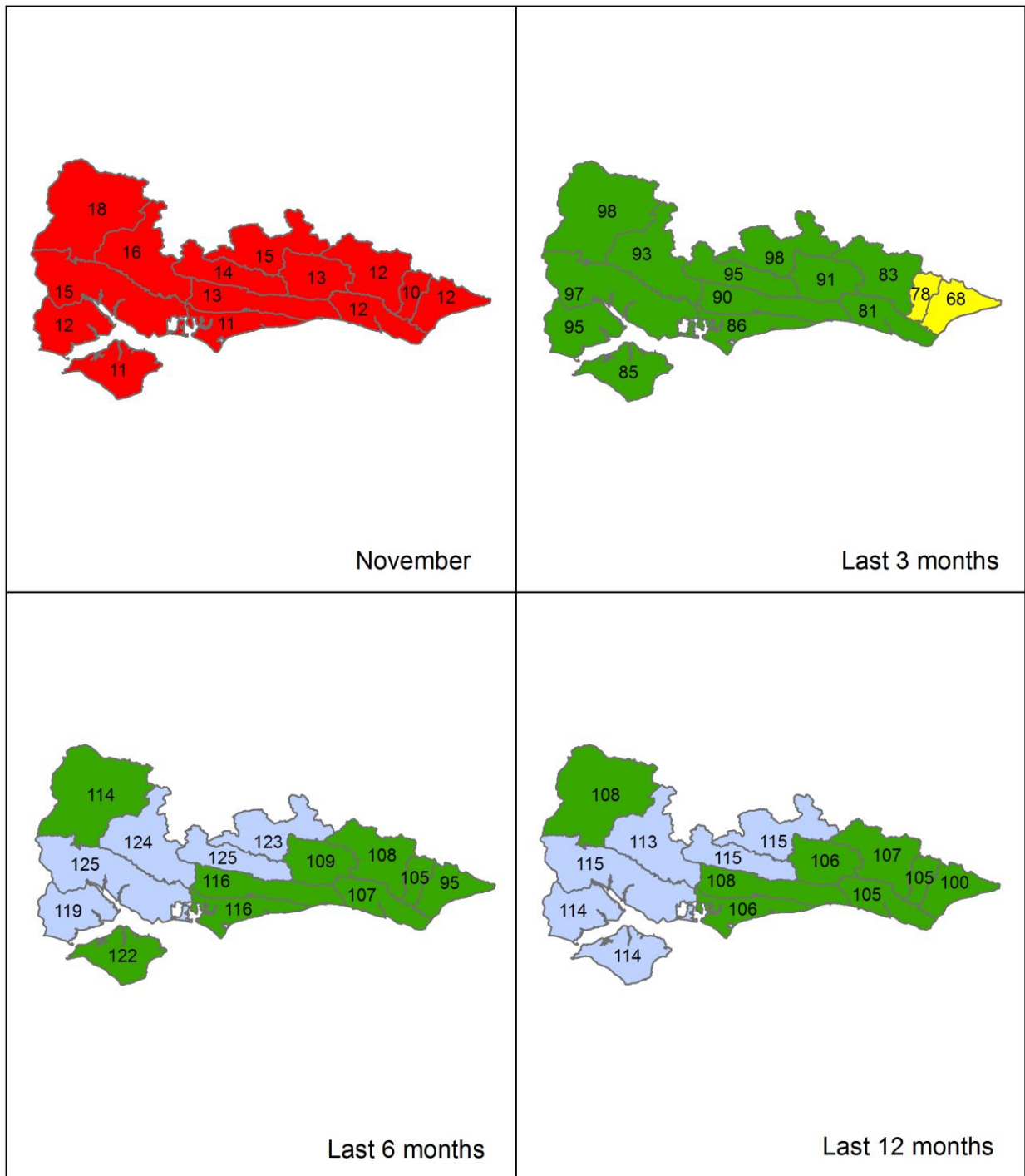
Total rainfall for hydrological areas across Solent and South Downs for the current month, classed relative to an analysis of respective historic totals. Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Includes material 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

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03708 506 506

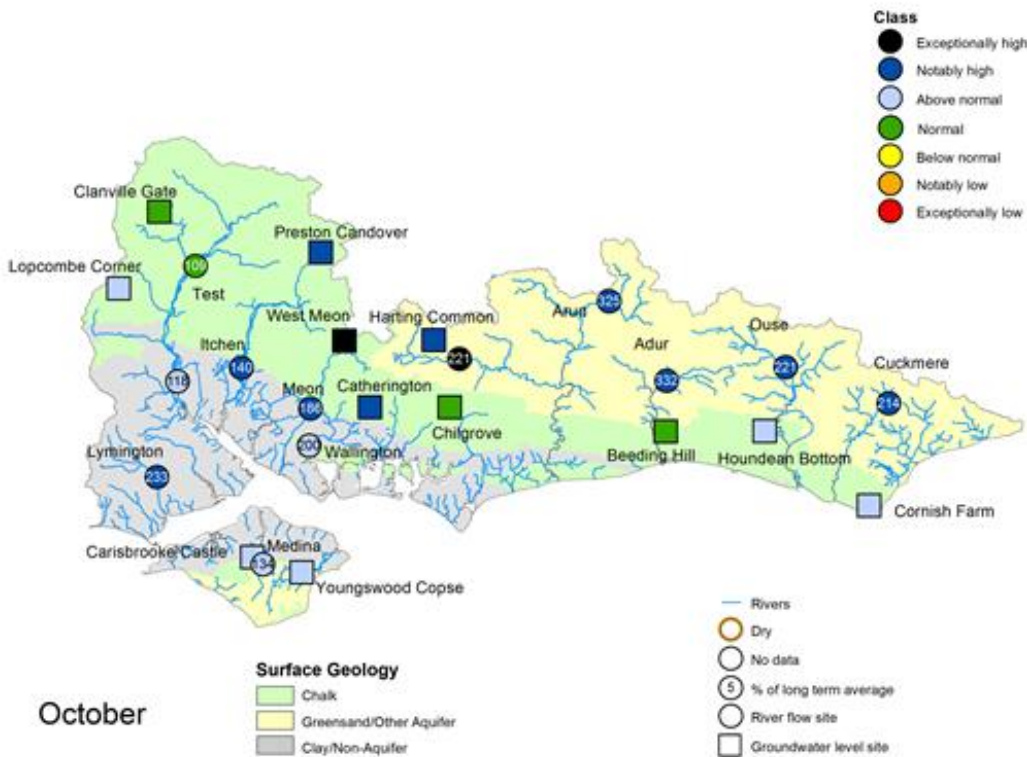
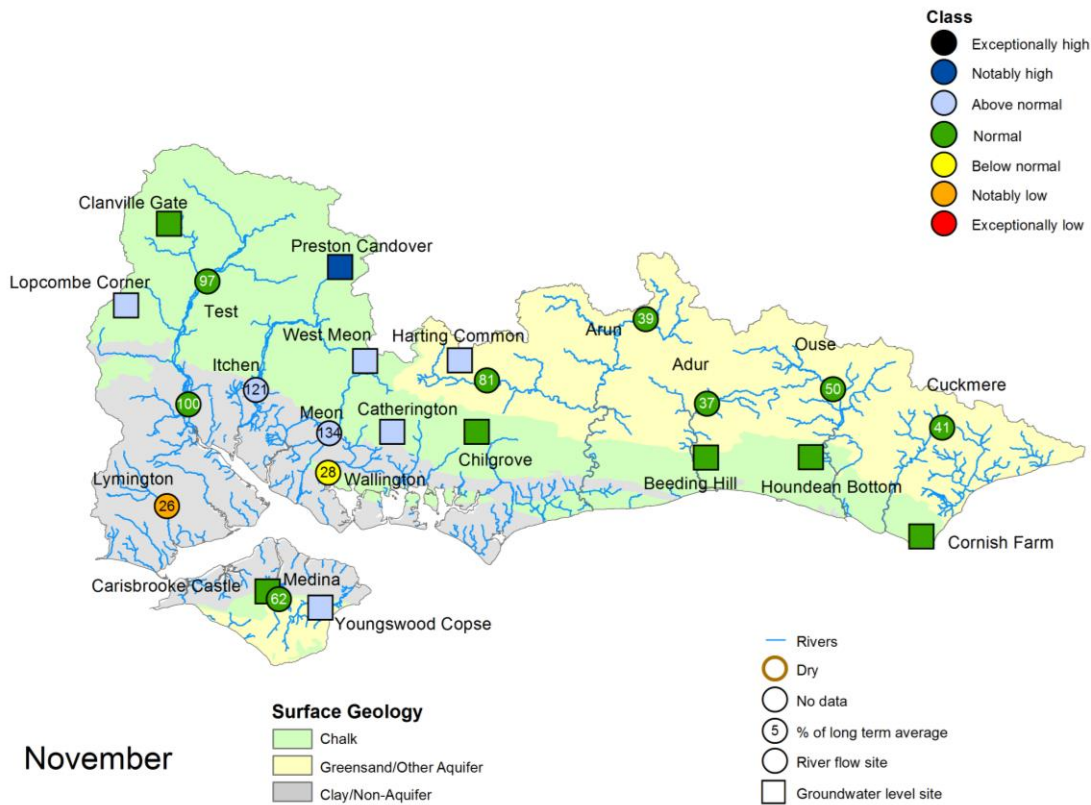
incident hotline  
0800 80 70 60

floodline  
0345 988 1188



Total rainfall for hydrological areas across Solent and South Downs for the current month (up to 30 November), 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.

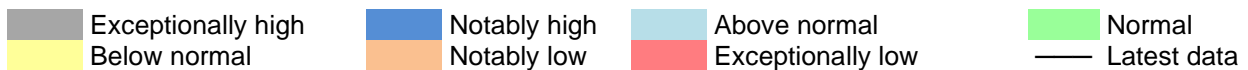
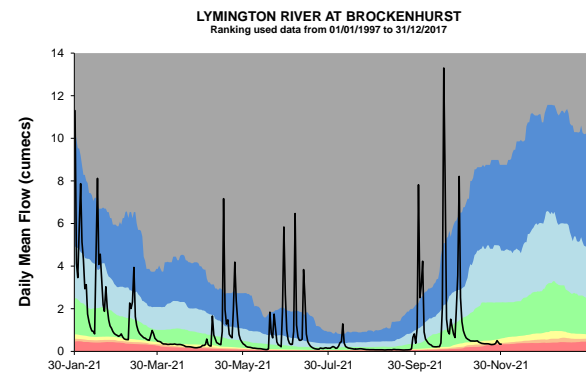
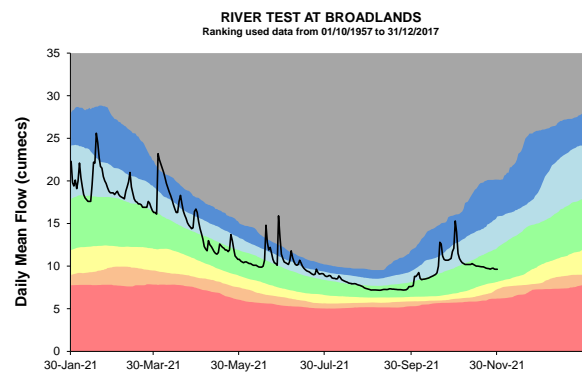
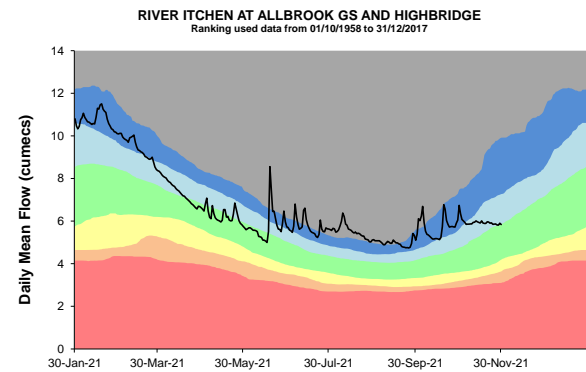
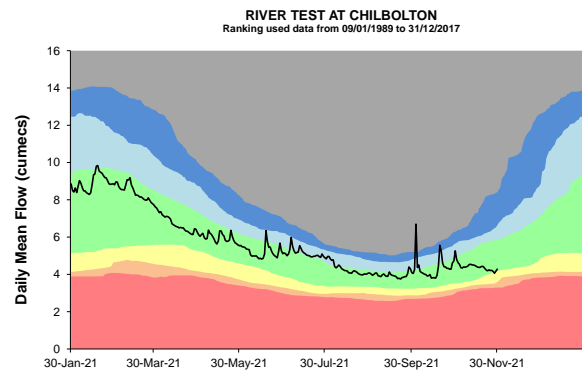
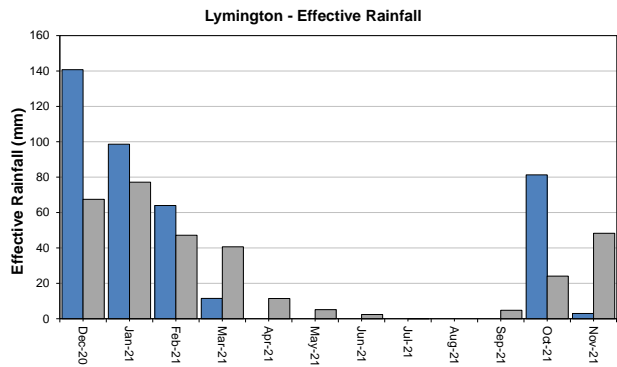
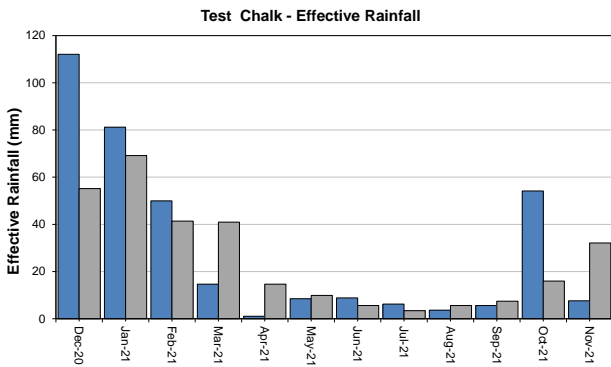
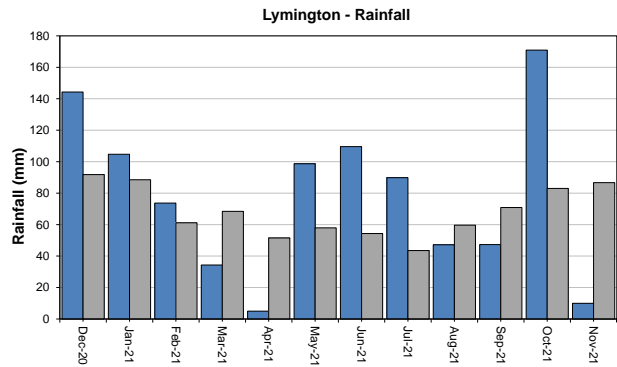
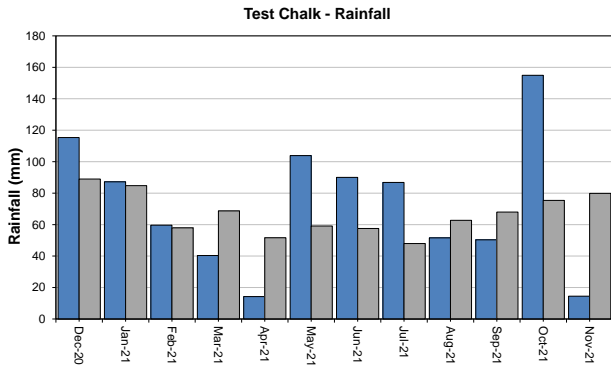
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# West Hampshire – Page 1

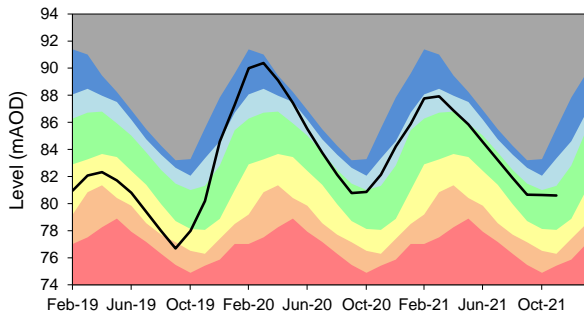
Monthly total rainfall (mm)

Long term average rainfall (mm)

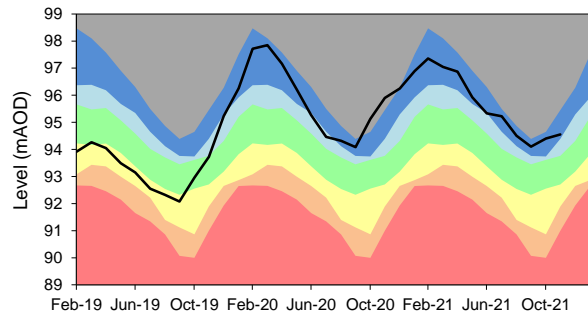


# West Hampshire – Page 2

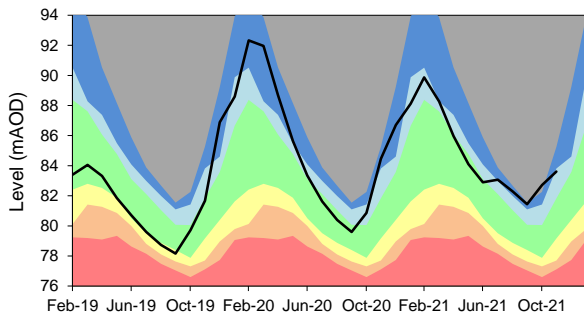
**CLANVILLE GATE GWL - CHALK**  
 Ranking derived from data for the period Mar-1963 to Dec-2017



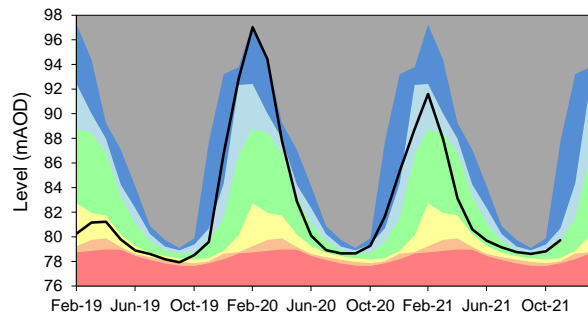
**PRESTON CANDOVER GWL - CHALK**  
 Ranking derived from data for the period Jan-1975 to Dec-2017



**WEST MEON GWL - CHALK**  
 Ranking derived from data for the period Sep-1986 to Dec-2017



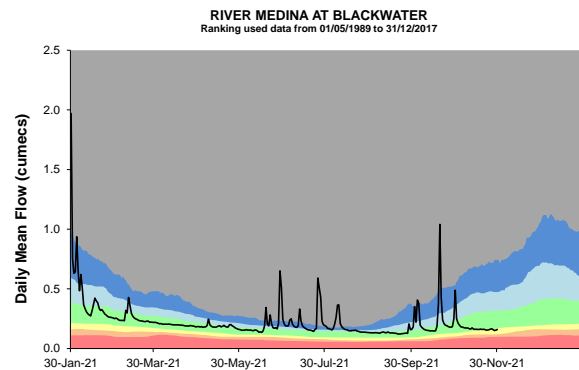
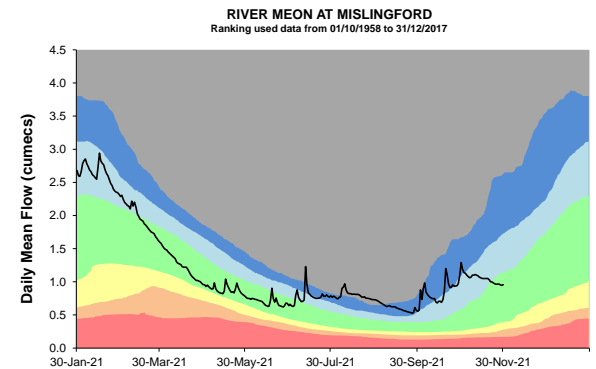
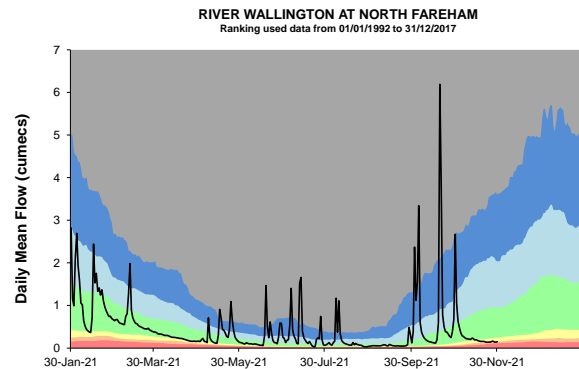
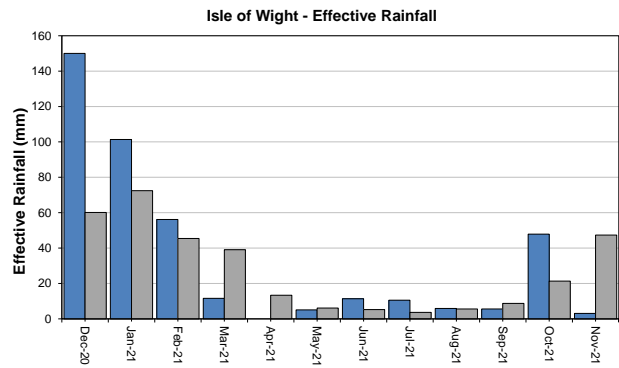
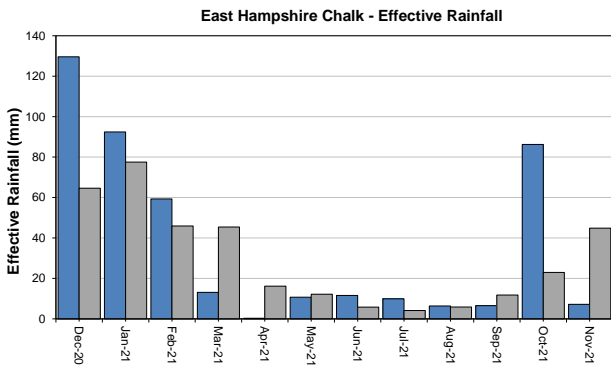
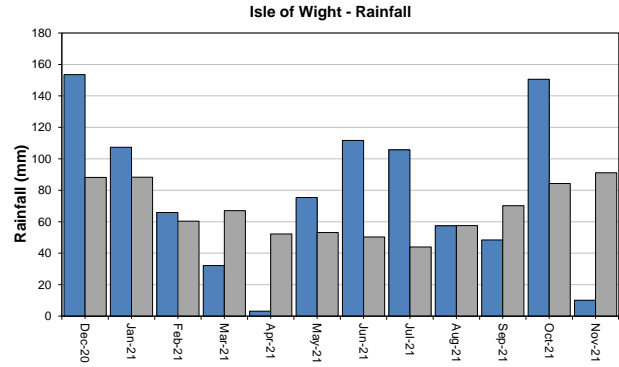
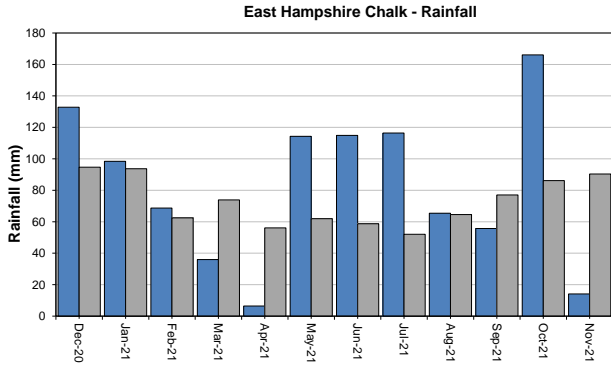
**LOPCOMBE CORNER GWL - CHALK**  
 Ranking derived from data for the period Apr-1963 to Dec-2017



# East Hampshire and Isle of Wight

Monthly total rainfall (mm)

Long term average rainfall (mm)



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

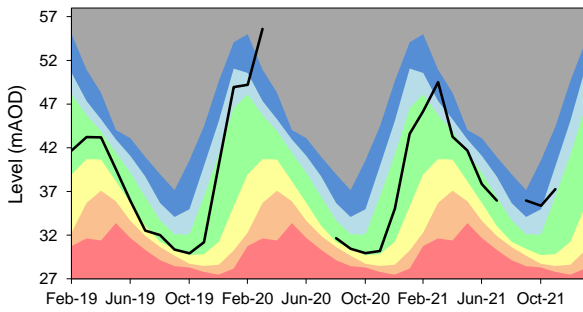
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incident hotline  
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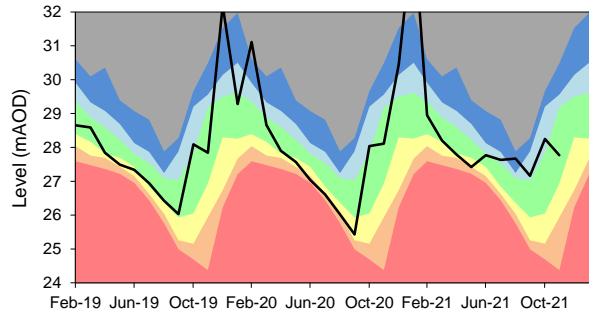
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# East Hampshire and Isle of Wight – Page 2

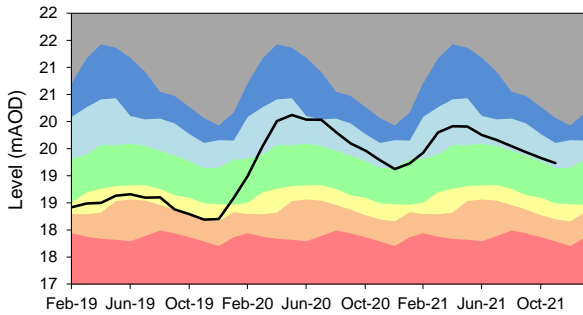
**CATHERINGTON GWL - CHALK**  
 Ranking derived from data for the period Jan-1969 to Dec-2017



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



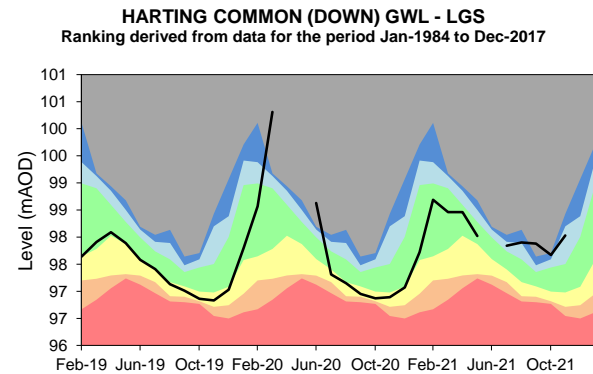
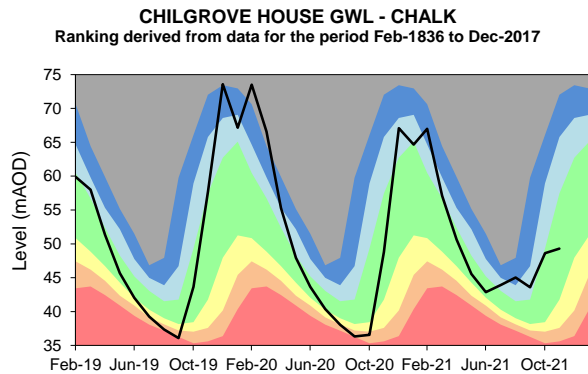
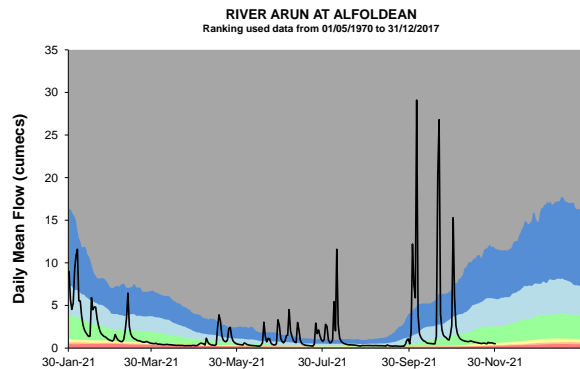
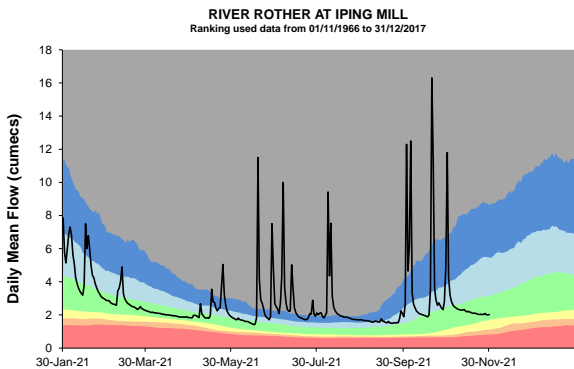
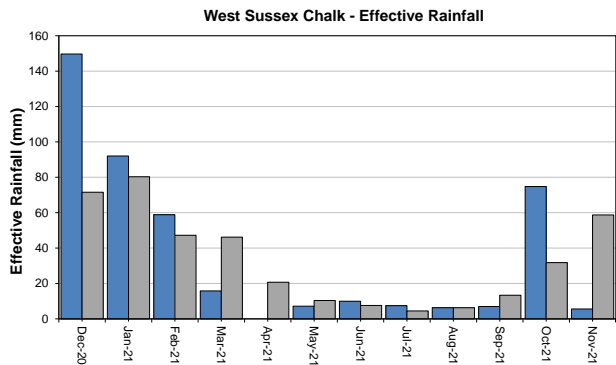
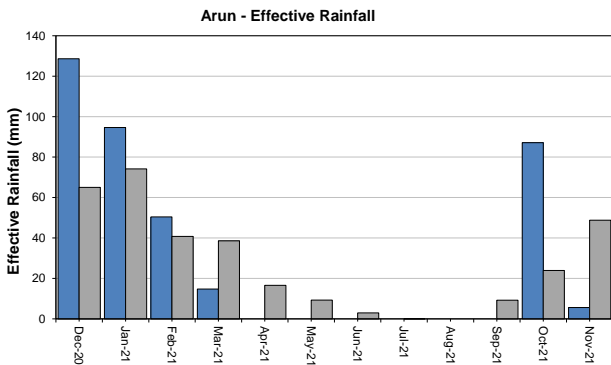
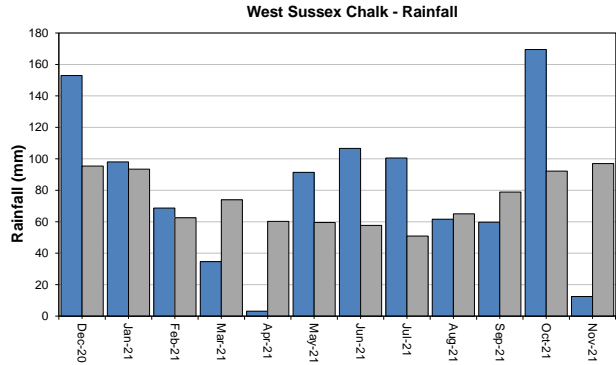
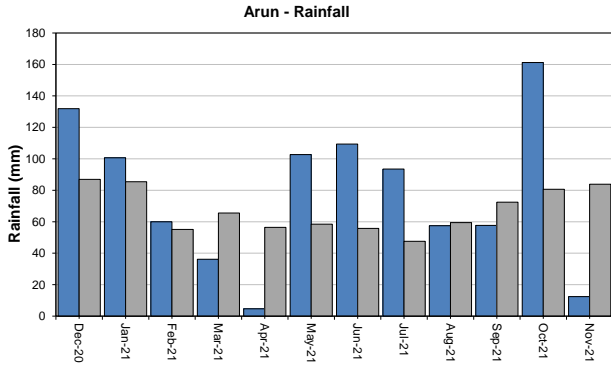
**YOUNGWOOD COPSE GWL - LGS**  
 Ranking derived from data for the period Feb-1978 to Dec-2017



# West Sussex

Monthly total rainfall (mm)

Long term average rainfall (mm)



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

customer service line  
03708 506 506

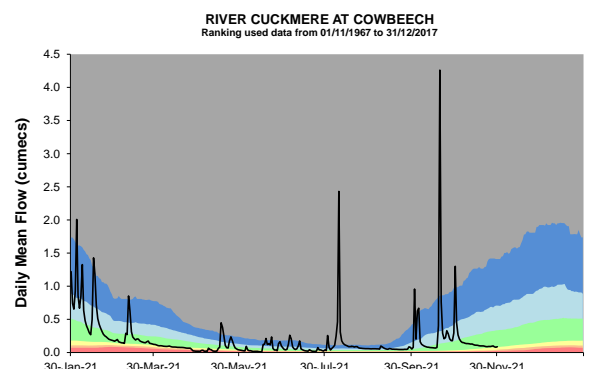
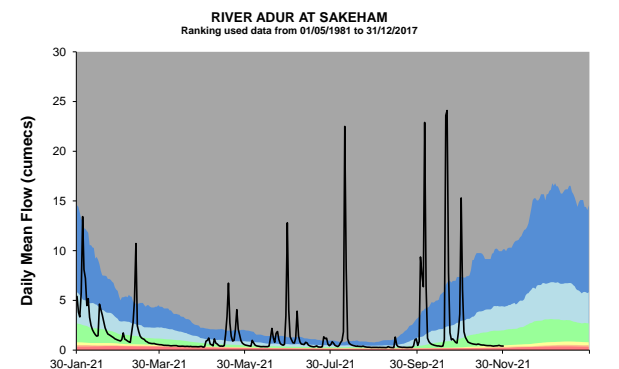
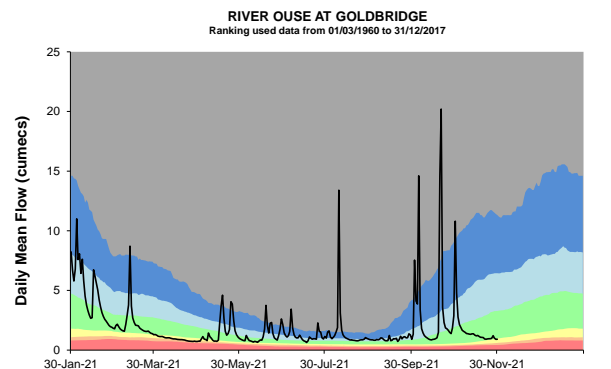
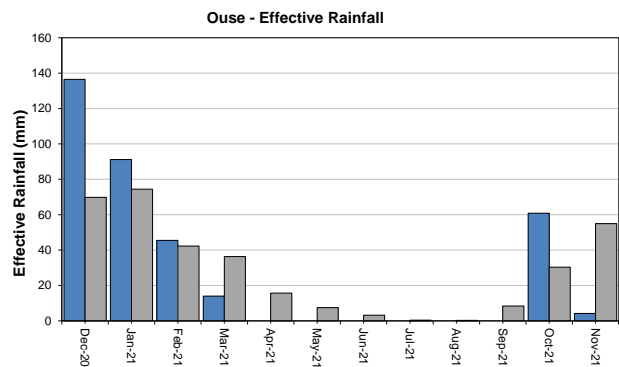
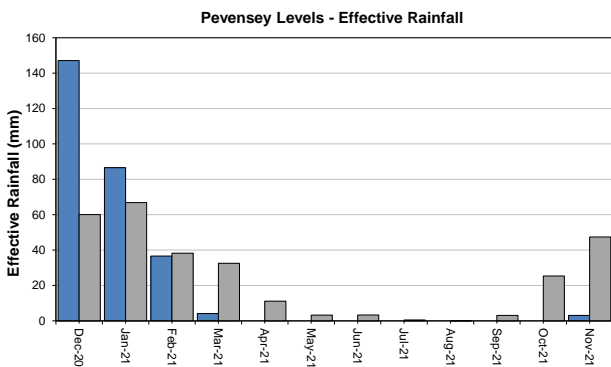
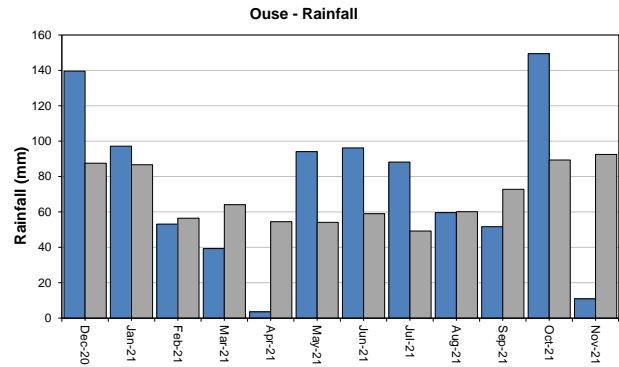
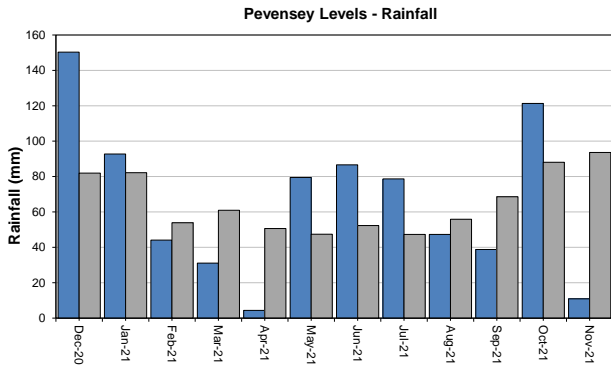
incident hotline  
0800 80 70 60

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

customer service line  
03708 506 506

incident hotline  
0800 80 70 60

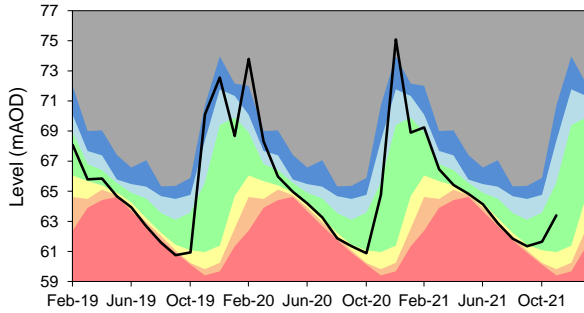
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# East Sussex – Page 2

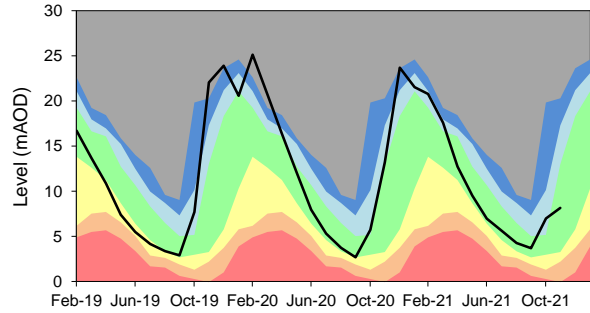
Monthly total rainfall (mm)

Long term average rainfall (mm)

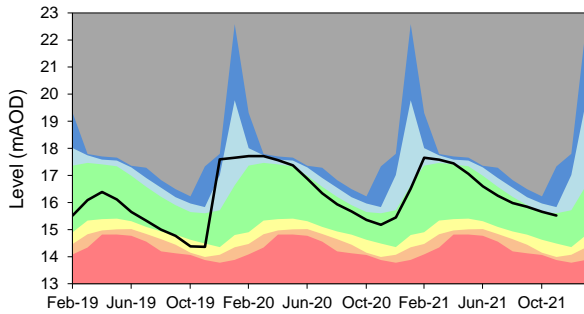
**BEEADING HILL GWL - CHALK**  
Ranking derived from data for the period Sep-1979 to Dec-2017



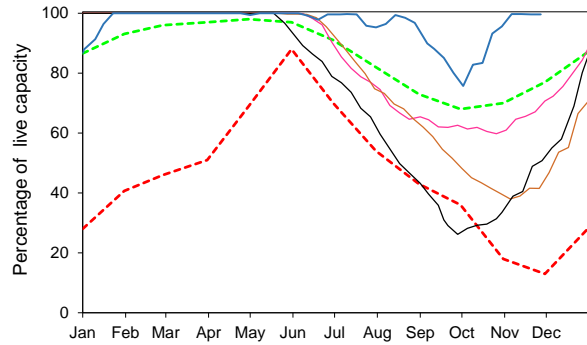
**HOUNDEAN BOTTOM GWL - CHALK**  
Ranking derived from data for the period Jan-1977 to Dec-2017



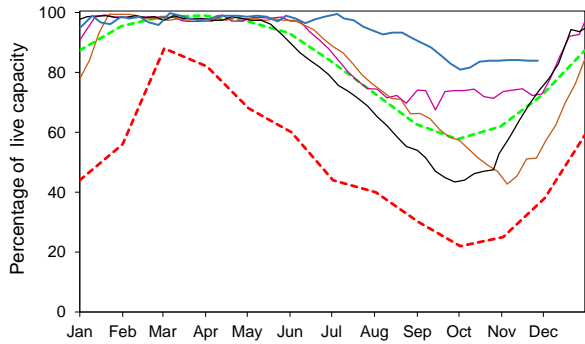
**CORNISH FARM WIGDENS GWL - CHALK**  
Ranking derived from data for the period Mar-1981 to Dec-2017



--- LTA --- MIN --- 2015 --- 2018 --- 2020 --- 2021  
**South East Water - Ardingly Reservoir - Ouse**



--- LTA --- MIN --- 2015 --- 2018 --- 2020 --- 2021  
**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	15	80	18	8	32	24
East Hampshire Chalk	14	90	16	7	45	16
West Sussex Chalk	13	98	13	6	59	10
East Sussex Chalk	12	98	12	5	52	9
Isle of Wight	10	94	11	3	47	7
Western Rother Greensand	13	96	14	6	51	13
Hampshire Tertiaries	12	85	15	5	43	12
Lymington	10	89	12	3	48	6
Sussex Coast	9	81	11	2	39	5
Arun	12	85	15	6	49	12
Adur	12	89	13	5	50	9
Ouse	11	93	12	4	55	8
Cuckmere	10	94	10	3	50	5
Pevensey Levels	11	94	12	3	47	7
<b>Solent and South Downs</b>	<b>12</b>	<b>90</b>	<b>13</b>	<b>5</b>	<b>48</b>	<b>10</b>

### Winter rainfall and effective rainfall

Summer totals for the period 1 October to the 30 November 2021

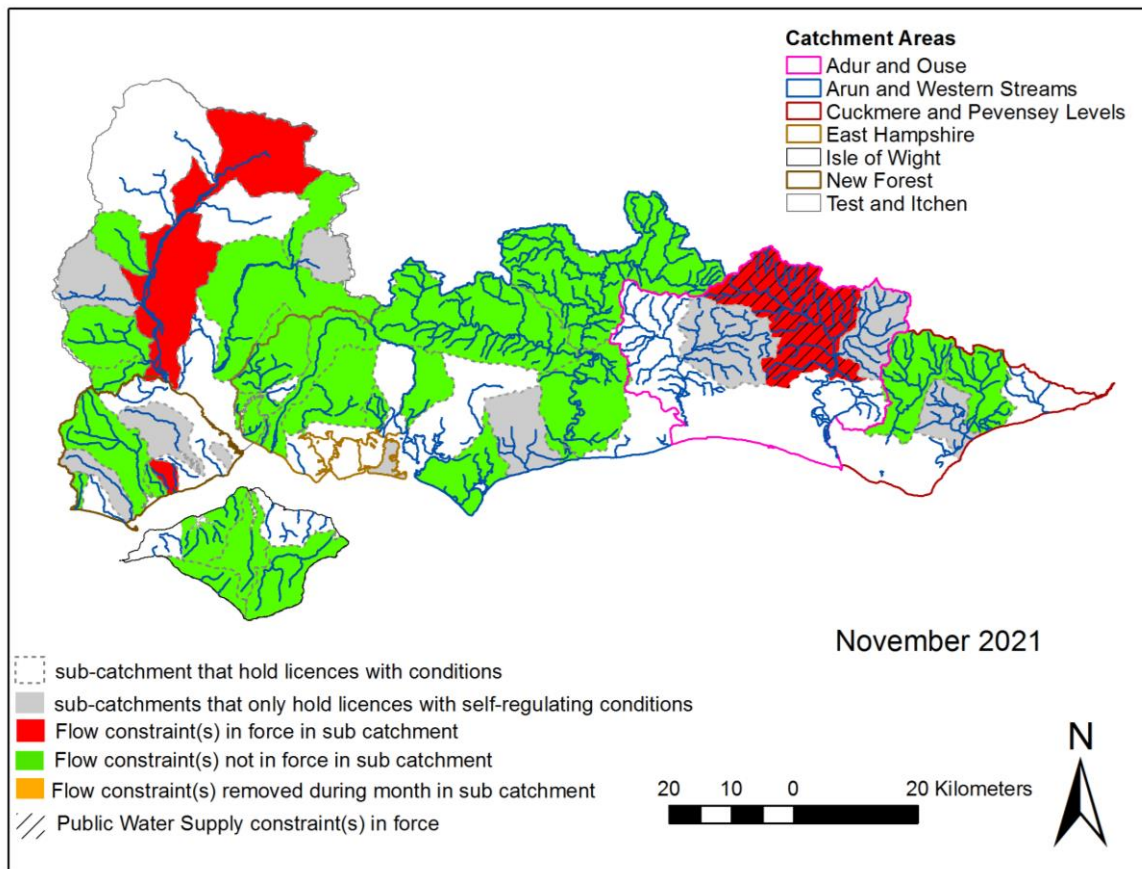
Area	Rainfall (mm)	LTA rainfall (mm)	% of LTA	Effective rainfall (mm)	LTA effective rainfall (mm)	% of LTA
Test Chalk	169	152	111	62	48	128
East Hampshire Chalk	180	173	104	93	68	138
West Sussex Chalk	182	190	96	80	91	89
East Sussex Chalk	163	191	86	45	83	54
Isle of Wight	161	179	90	51	69	74
Western Rother Greensand	193	187	103	114	79	145
Hampshire Tertiaries	176	163	108	85	61	138
Lymington	181	172	105	84	72	116
Sussex Coast	141	159	89	25	53	47
Arun	174	166	104	93	73	127
Adur	172	174	99	69	76	91
Ouse	160	181	89	65	85	76
Cuckmere	150	185	81	41	80	52
Pevensey Levels	132	181	73	3	73	4
<b>Solent and South Downs</b>	<b>167</b>	<b>175</b>	<b>95</b>	<b>65</b>	<b>72</b>	<b>90</b>

## Soil Moisture Deficit

Area	End of month SMD (mm)	End of month SMD LTA (mm)
Test Chalk	0	28
East Hampshire Chalk	0	21
West Sussex Chalk	0	15
East Sussex Chalk	0	18
Isle of Wight	0	22
Western Rother Greensand	0	21
Hampshire Tertiaries	0	17
Lymington	0	15
Sussex Coast	0	20
Arun	0	14
Adur	0	14
Ouse	0	9
Cuckmere	0	9
Pevensey Levels	0	12
<b>Solent and South Downs</b>	<b>0</b>	<b>17</b>

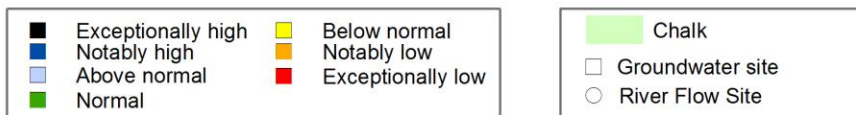
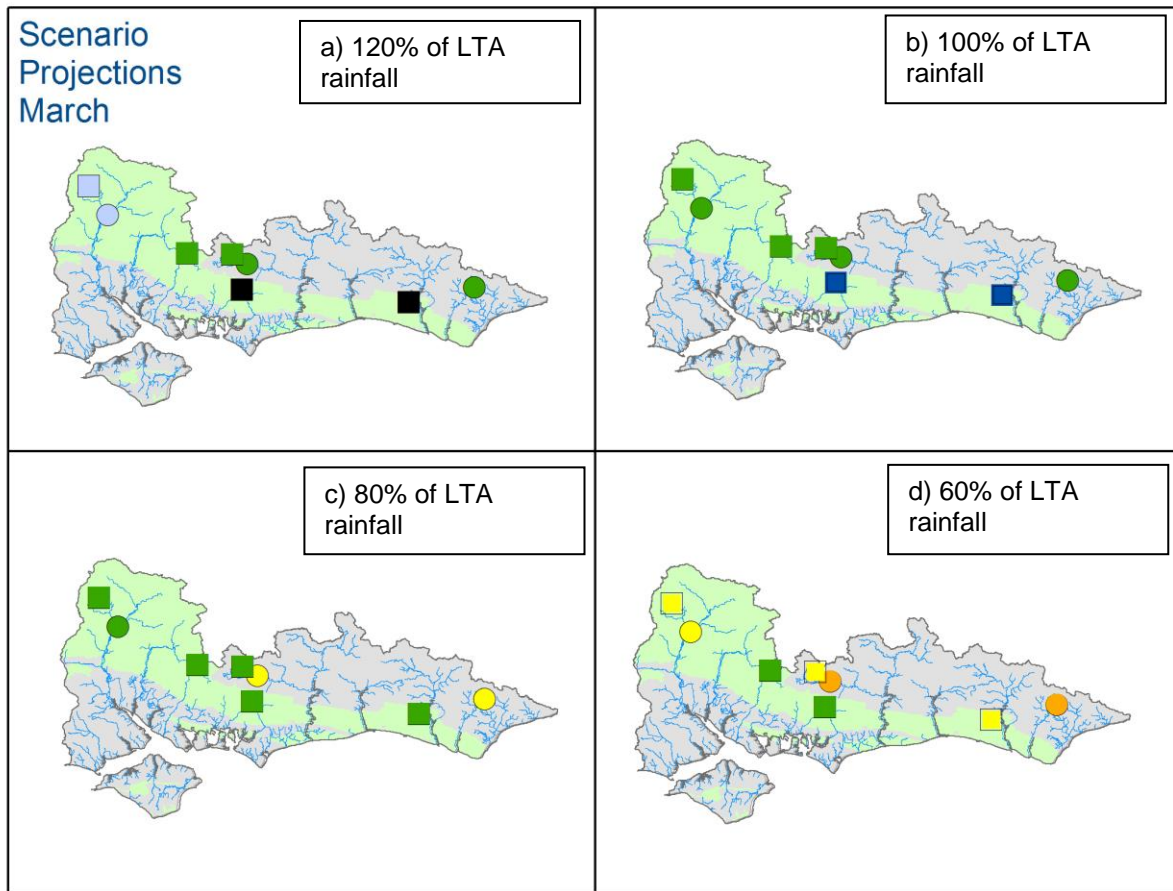
# Environmental Impact

## Flow Constraints



Catchment	No. licences with conditions currently operational in Nov	01-Nov	02-Nov	09-Nov	16-Nov	23-Nov	30-Nov
		START	WK1	WK2	WK3	WK4	END
		Number at Start of the month in force	No. licences with condition in Force in Nov	No. licences with Flow Condition in Force in Nov	No. licences with Flow Condition in Force in Nov	No. licences with Flow Condition in Force in Nov	Number at End of the month in force
Adur & Ouse	7	0	0	0	1	1	1
Arun & Western	35	0	0	0	0	0	0
Cuckmere & Pevensey	7	0	0	0	0	0	0
East Hampshire	10	0	0	0	0	0	0
IOW	14	0	0	0	0	0	0
New Forest	8	0	0	1	1	1	1
Test & Itchen	29	4	3	4	4	4	4
<b>Total in SSD</b>	<b>110</b>	<b>4</b>	<b>3</b>	<b>5</b>	<b>6</b>	<b>6</b>	<b>6</b>

# 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