

# Monthly water situation report

## Solent and South Downs Area

### Summary – October 2020

Solent and South Downs (SSD) had well above average rainfall for October receiving 232% (198mm) of the LTA (85mm). Monthly mean river flows across SSD ranged from **normal** to **notably high**. Groundwater levels ranged from **notably low** to **exceptionally high**. Soil moisture deficits across SSD ended the month at zero. End of month reservoir stocks were significantly below average at Ardingly Reservoir (Ouse Catchment) and Arlington Reservoir (Cuckmere catchment).

### Rainfall

Solent and South Downs (SSD) had well above average rainfall in October receiving 232% (198mm) of the LTA (85mm). This represents the 8<sup>th</sup> wettest October in a record going back to 1891. The western side of SSD was the wettest with **exceptionally high** monthly totals recorded in most of the areal units. The October totals for both the Test Chalk and East Hampshire Chalk areal units are the 2<sup>nd</sup> highest on record. Only the 1960 figures are higher in a record going back to 1891. The eastern areal units recorded **notably high** monthly totals. During the month there were 9 days where the highest daily total exceeded 20mm. However the 2<sup>nd</sup> October was the wettest day with the raingauges at Princes Marsh and Iping Mill (both Western Rother Greensand) recording 83.3mm and 81mm respectively. The 17<sup>th</sup> and 18<sup>th</sup> October were the only dry days in the whole month.

### Soil Moisture Deficit/Recharge

Soil moisture deficits across Solent and South Downs ended the month at zero and as a result soils were wetter than normal for the time of the year.

### River Flows

Monthly mean river flows across SSD ranged from **normal** to **notably high**. Flows at Goldbridge (Ouse) were in the **normal** range and flows at the River Adur at Sakeham, the River Itchen at Allbrook and Highbridge and the River Lymington at Brockenhurst were **notably high**. Monthly mean flows at all other reporting sites were in the **above normal** range. In response to the rainfall throughout the month there were several days at many of the sites where there were **exceptionally high** daily mean flows.

### Groundwater Levels

End of month groundwater levels ranged from **notably low** to **exceptionally high**. Levels at some sites responded to the rainfall indicating the start of winter recharge while at other sites levels ended the month in decline. Preston Candover (East Hampshire Chalk) ended the month at 95.13mAOD which is in the **exceptionally high** category. This represents the 2<sup>nd</sup> highest October level since 1975. Only the level recorded in October 2001 was higher. Groundwater levels at Carisbrooke Castle (Isle of Wight), Houndean Bottom (Ouse), Lopcombe Corner (Test Chalk), West Meon (East Hampshire Chalk) and Youngwoods Copse (Isle of Wight) were **above normal**. Beeding Hill (West Sussex Chalk) and Harting Common (Western Rother Greensand) recorded groundwater levels in the **below normal** category. The level at Chilgrove House (West Sussex Chalk) ended the month in the **notably low** range. All remaining reported sites recorded **normal** end of month groundwater levels.

### Reservoir Storage

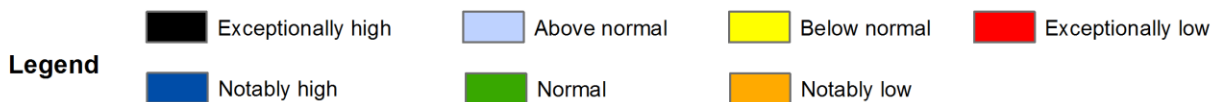
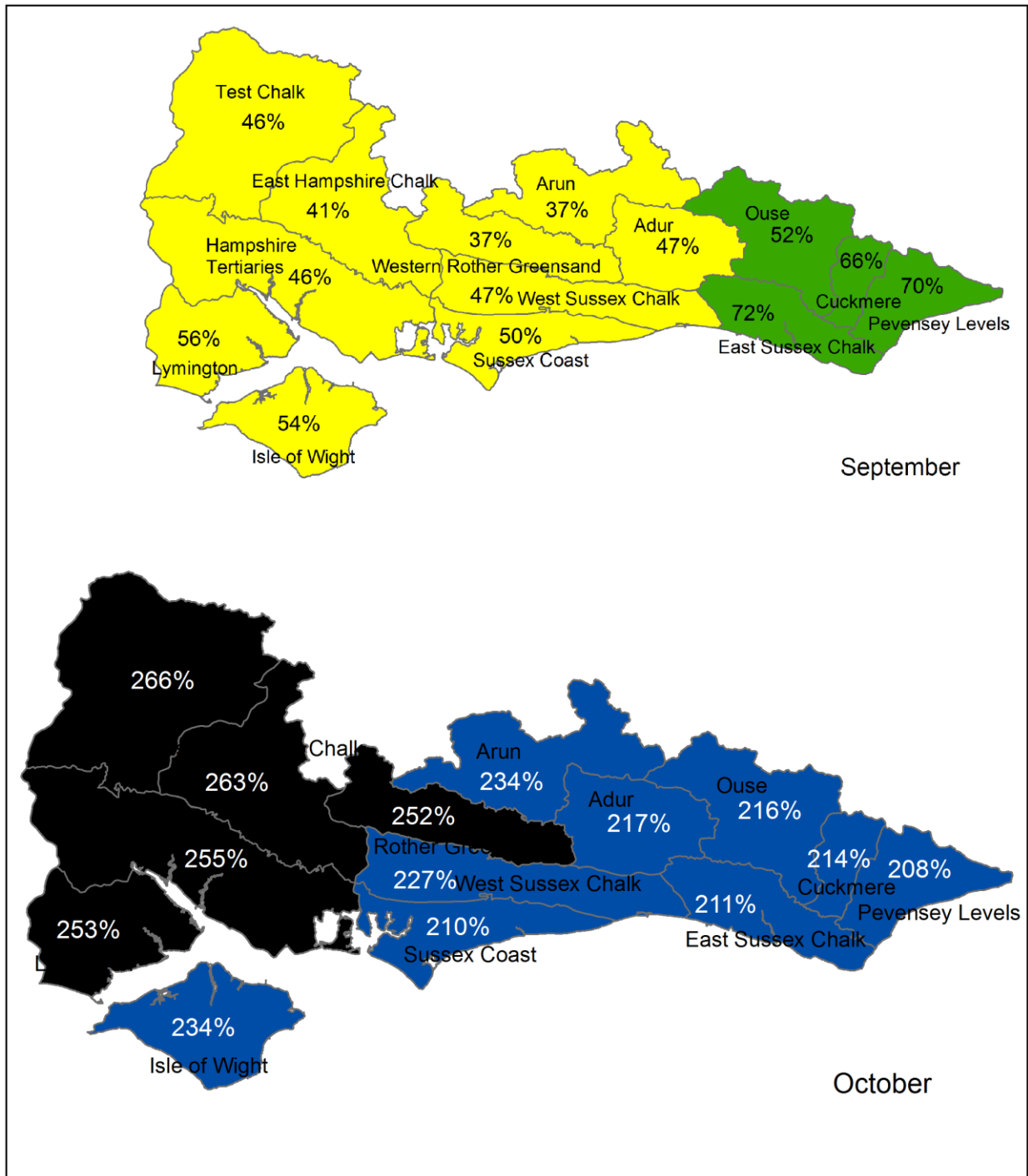
End of month reservoir stocks were below average at Ardingly Reservoir (Ouse Catchment) with 34% of total capacity (LTA 70%) and also below average at Arlington Reservoir (Cuckmere catchment) with 53% of total capacity (LTA 67%).

### Environmental Impact

During October there were a total of 4 licences with restrictions in force but by the end of the month just 2 of the licences remained with restrictions in force. There were 6 Flood Alerts issued in October.

Author: [HydrologySSD](#)

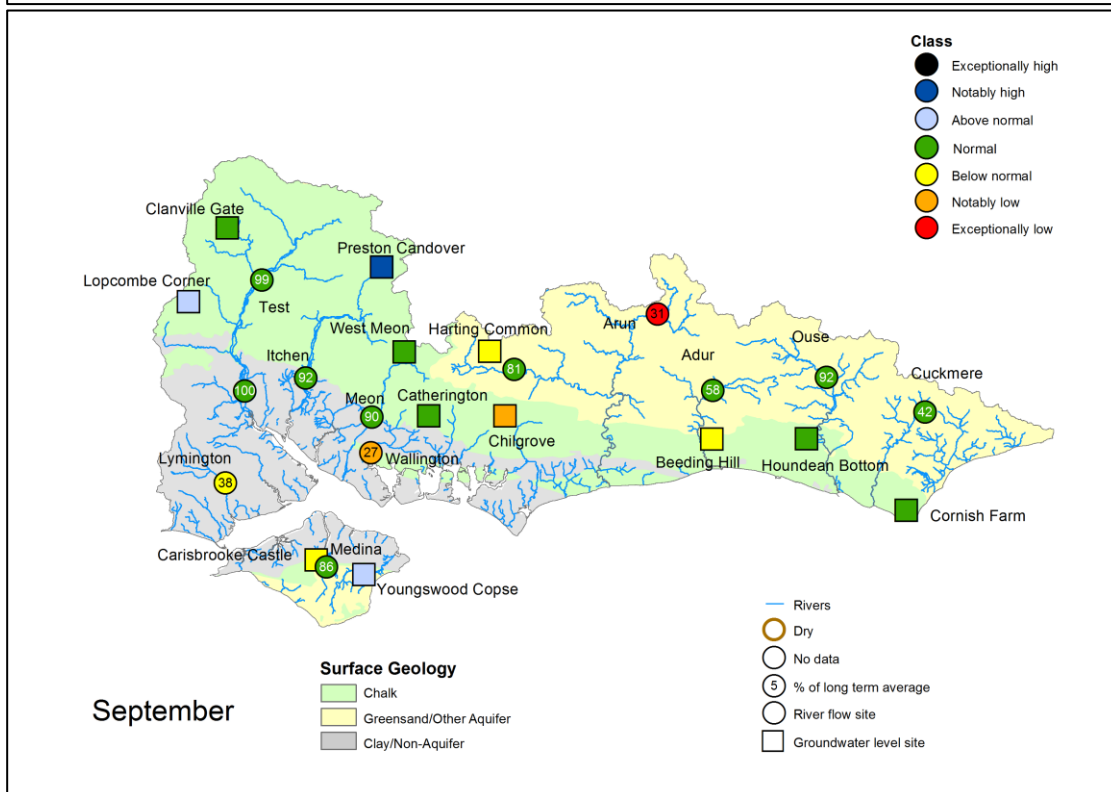
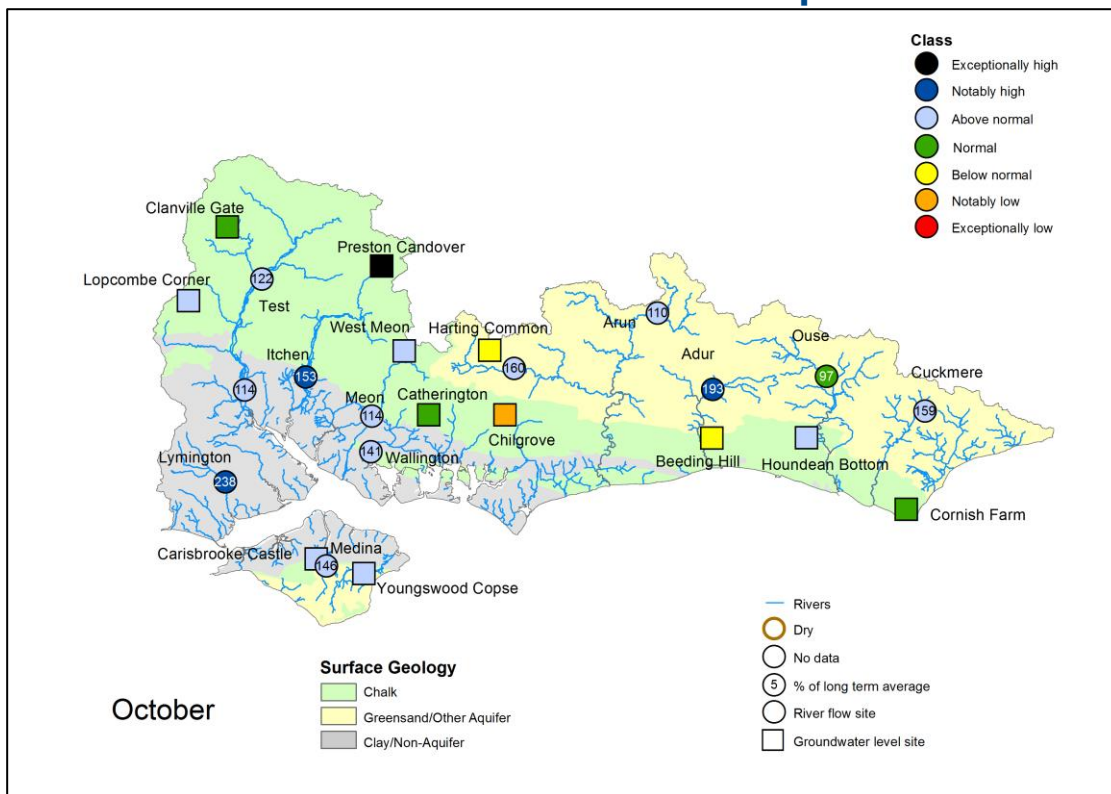
# Rainfall Map 1



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, 2020.



# 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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03708 506 506

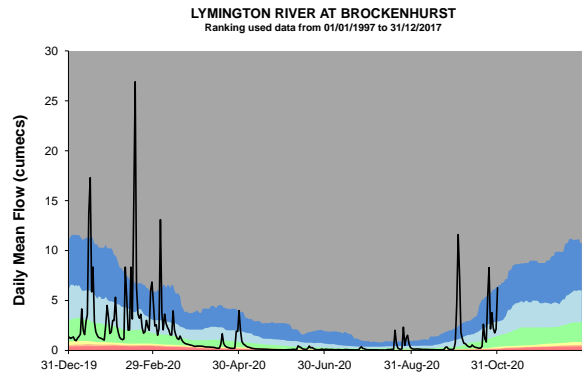
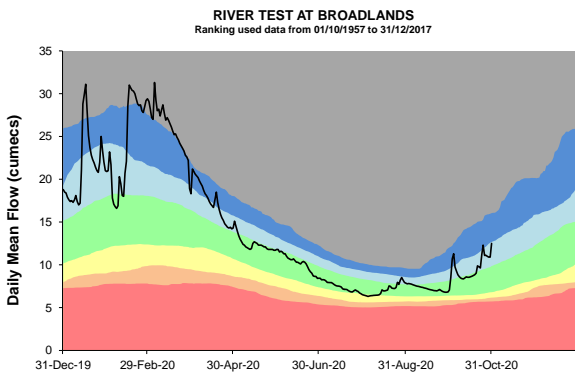
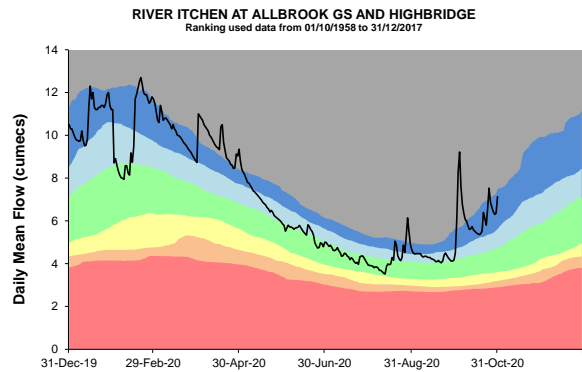
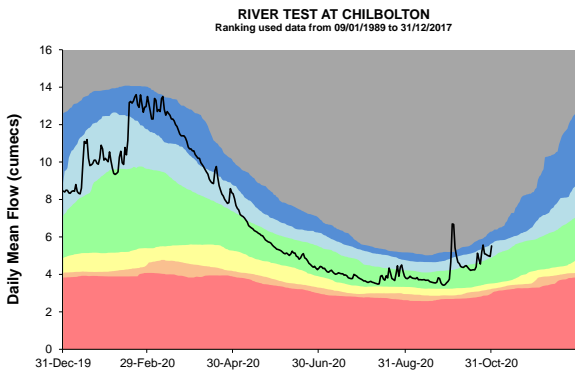
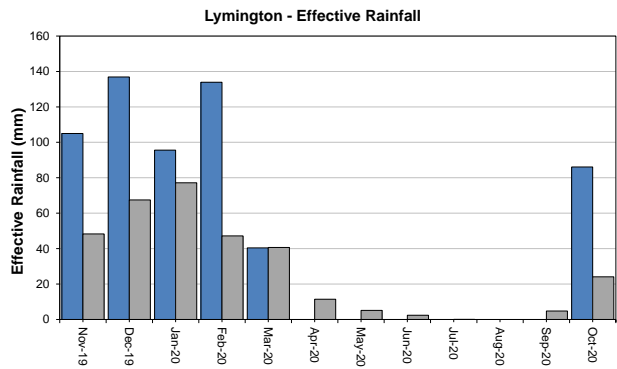
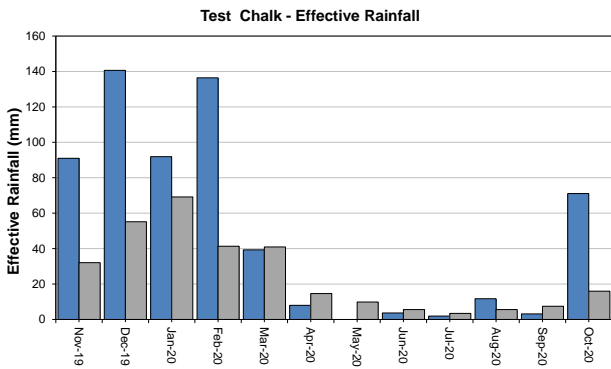
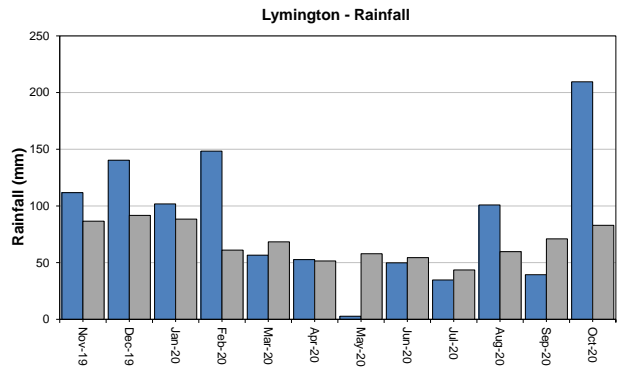
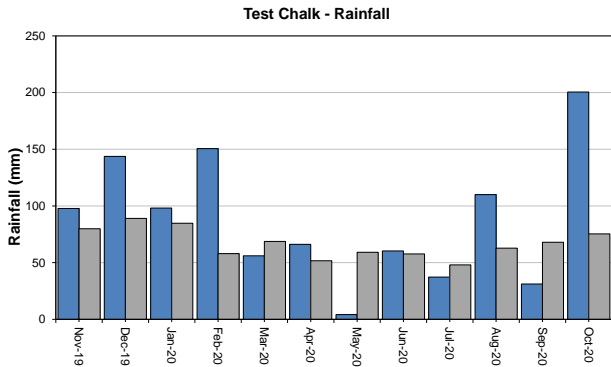
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0800 80 70 60

floodline  
0345 988 1188

# West Hampshire – Page 1

Monthly total rainfall (mm)

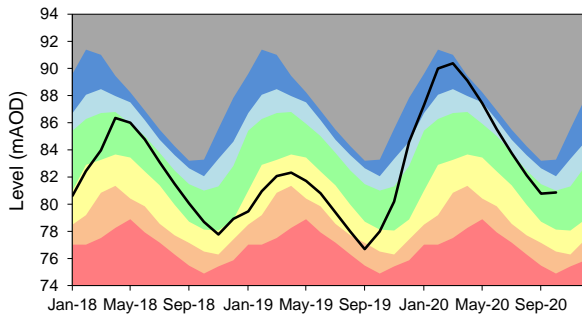
Long term average rainfall (mm)



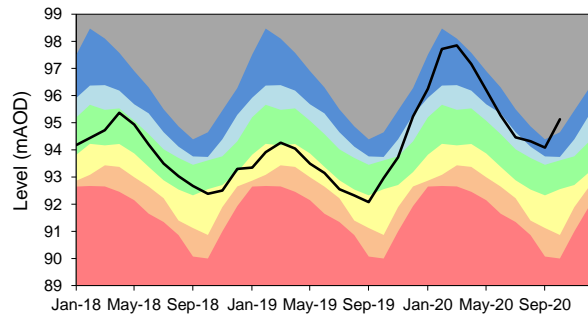
Exceptionally high  
 Below normal  
 Notably high  
 Notably low  
 Above normal  
 Exceptionally low  
 Normal  
 Latest data

# West Hampshire – Page 2

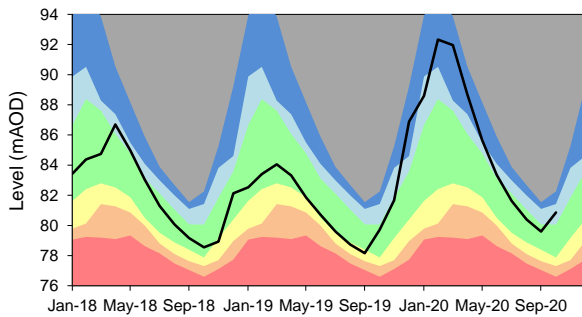
**CLANVILLE GATE GWL - CHALK**  
 Ranking derived from data for the period Mar-1963 to Dec-2017



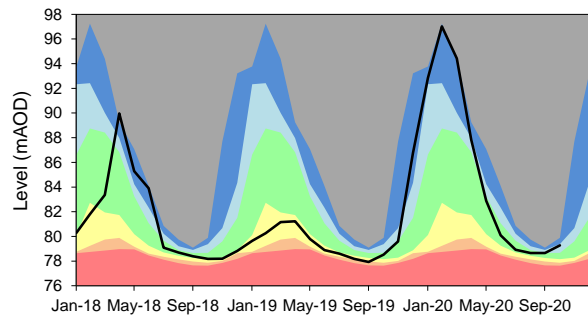
**PRESTON CANDOVER GWL - CHALK**  
 Ranking derived from data for the period Jan-1975 to Dec-2017



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



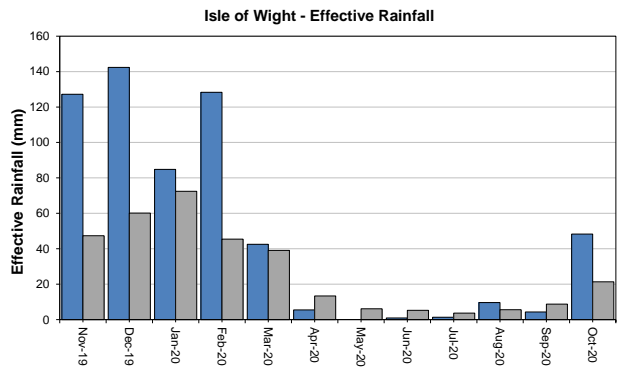
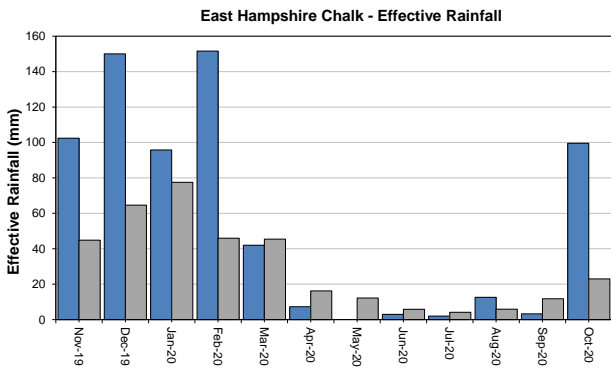
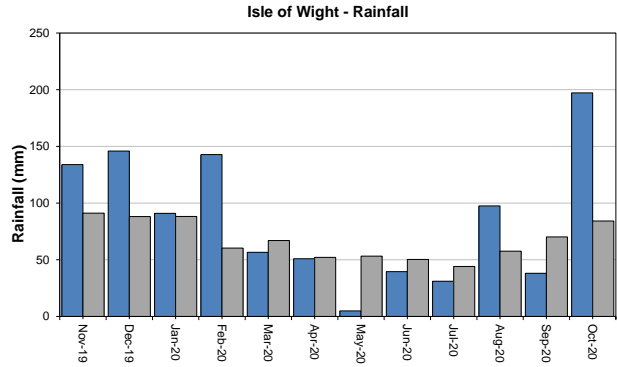
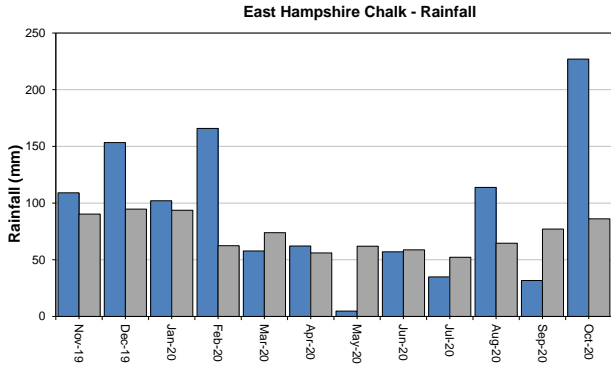
**LOPCOMBE CORNER GWL - CHALK**  
 Ranking derived from data for the period Apr-1963 to Dec-2017



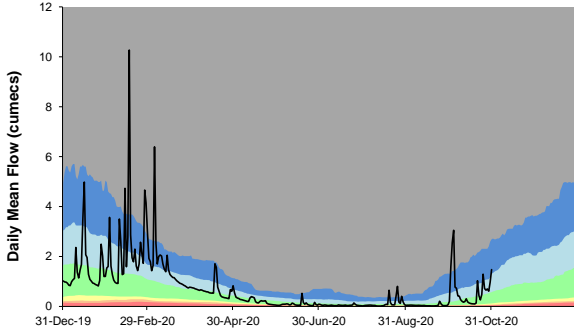
# East Hampshire and Isle of Wight

Monthly total rainfall (mm)

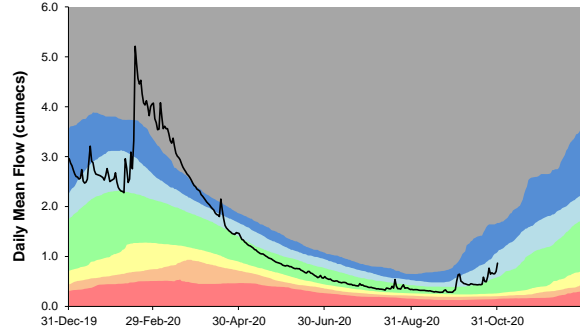
Long term average rainfall (mm)



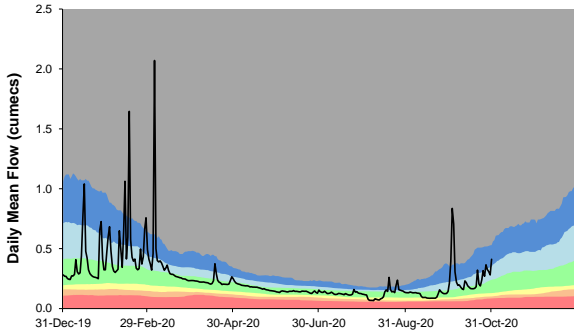
RIVER WALLINGTON AT NORTH FAREHAM  
Ranking used data from 01/01/1992 to 31/12/2017



RIVER MEON AT MISLINGFORD  
Ranking used data from 01/10/1958 to 31/12/2017



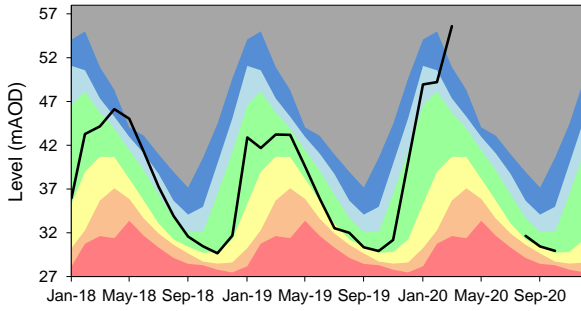
RIVER MEDINA AT BLACKWATER  
Ranking used data from 01/05/1989 to 31/12/2017



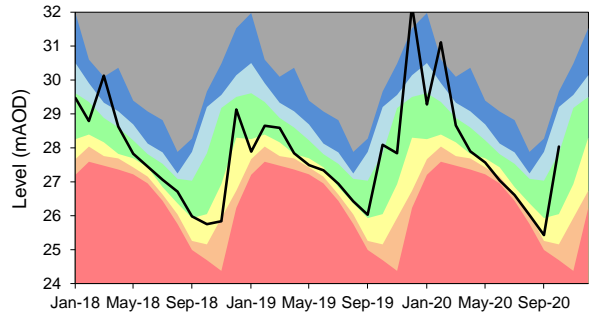
Exceptionally high  
 Below normal  
 Notably high  
 Notably low  
 Above normal  
 Exceptionally low  
 Normal  
 Latest data

# East Hampshire and Isle of Wight – Page 2

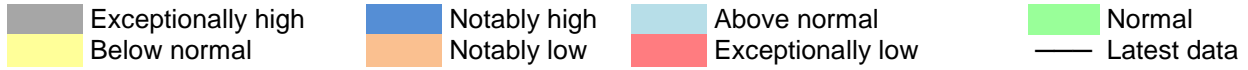
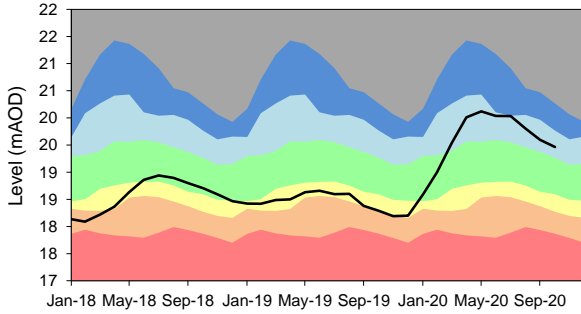
**CATHERINGTON GWL - CHALK**  
 Ranking derived from data for the period Jan-1969 to Dec-2017



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



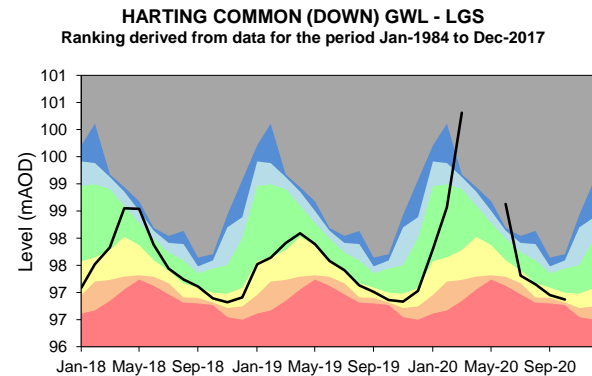
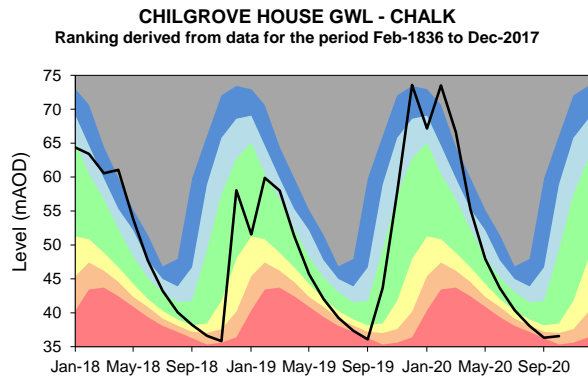
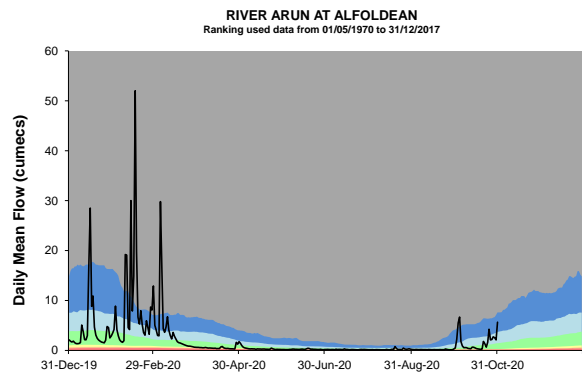
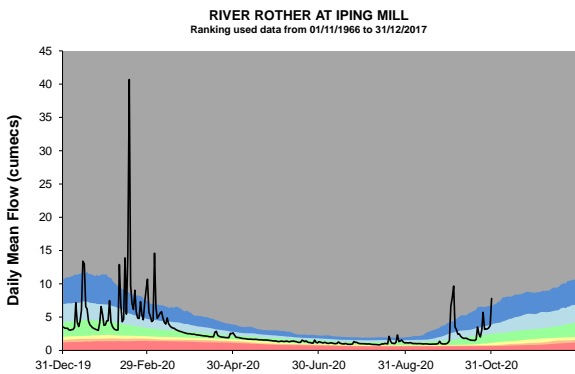
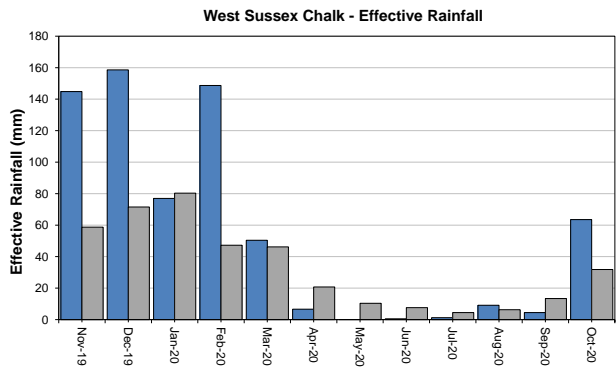
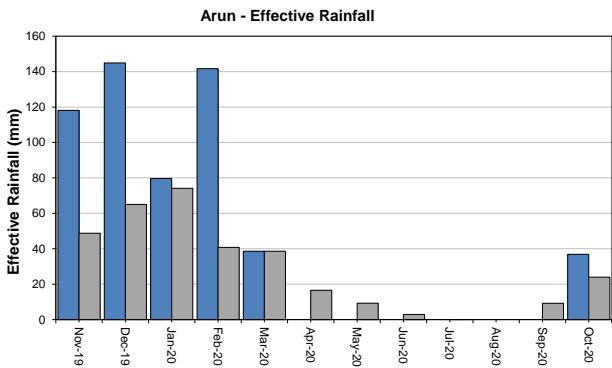
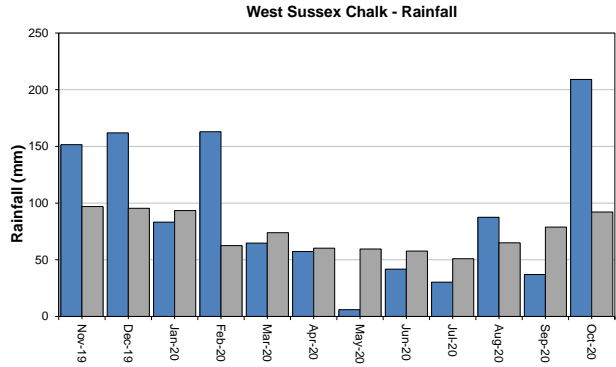
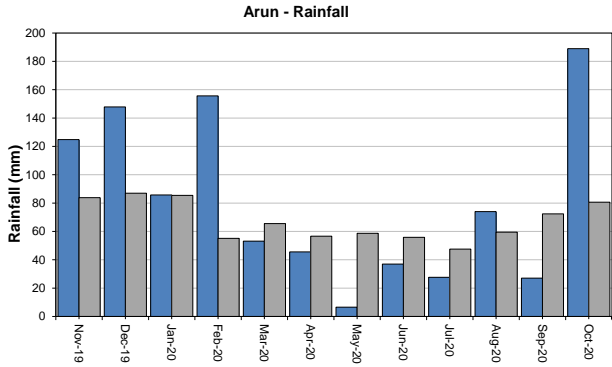
**YOUNGWOOD COPSE GWL - LGS**  
 Ranking derived from data for the period Feb-1978 to Dec-2017



# 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  
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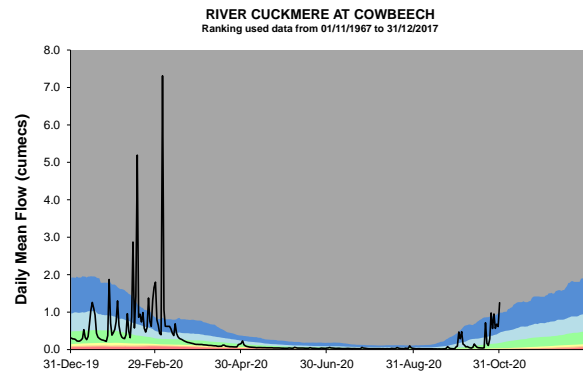
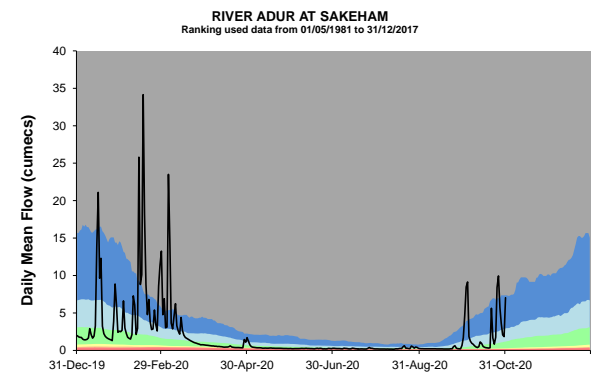
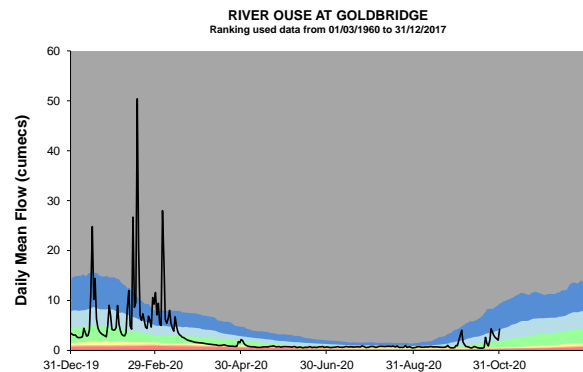
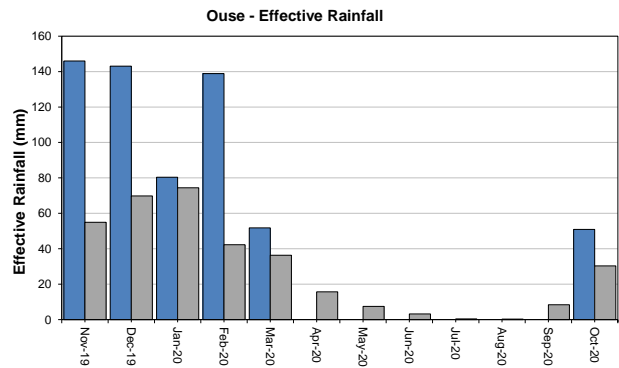
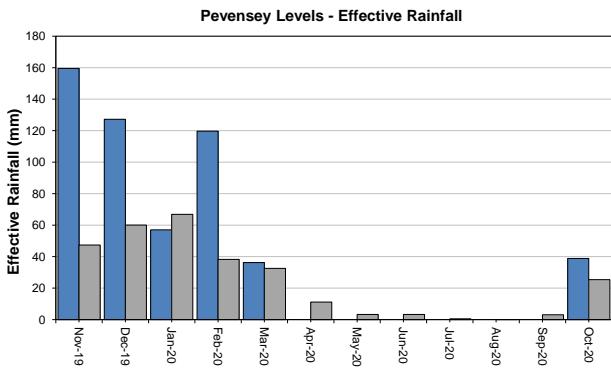
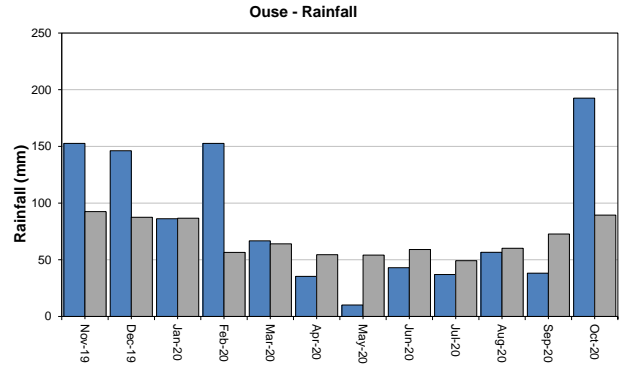
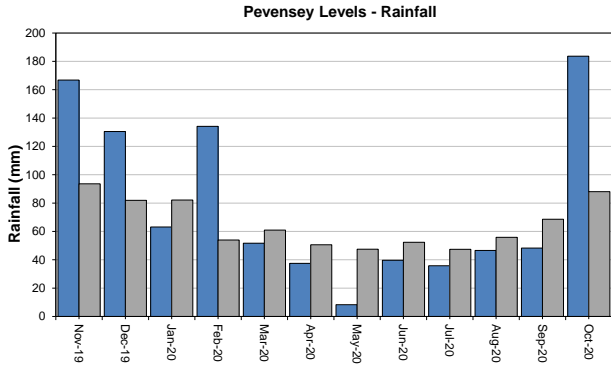
incident hotline  
0800 80 70 60

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  
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incident hotline  
0800 80 70 60

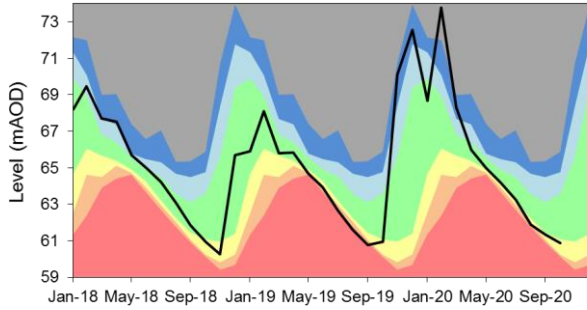
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# East Sussex – Page 2

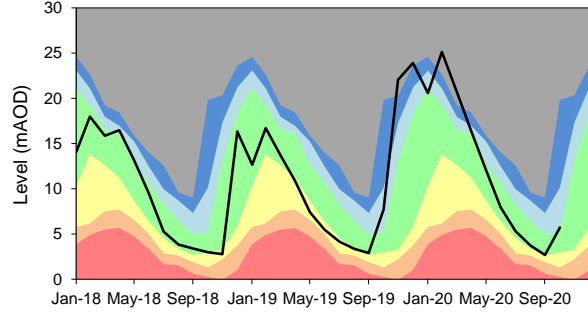
Monthly total rainfall (mm)

Long term average rainfall (mm)

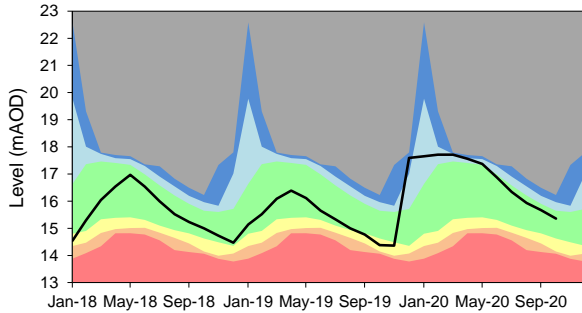
**BEEDING HILL GWL**  
Ranking derived from data for the period Sep-1979 to Dec-2017



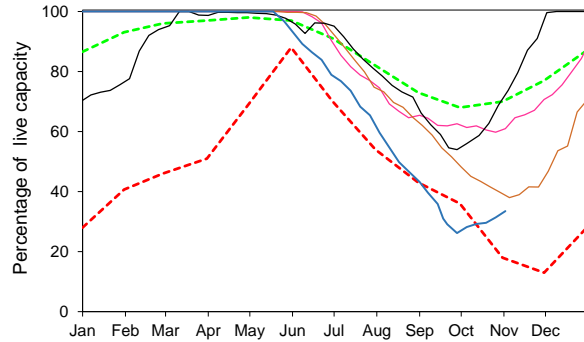
**HOUNDEAN BOTTOM GWL - CHALK**  
Ranking derived from data for the period Jan-1977 to Dec-2017



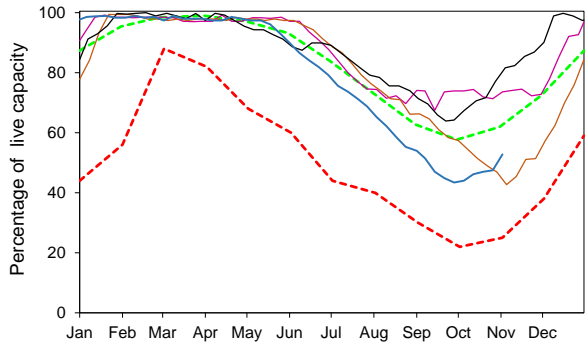
**CORNISH FARM WIGDENS GWL - CHALK**  
Ranking derived from data for the period Mar-1981 to Dec-2017



South East Water - Ardingly Reservoir - Ouse



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	200	75	266	71	16	445
East Hampshire Chalk	227	86	263	100	23	434
West Sussex Chalk	209	92	227	63	32	200
East Sussex Chalk	196	93	211	51	31	167
Isle of Wight	197	84	234	48	21	226
Western Rother Greensand	229	91	252	82	28	298
Hampshire Tertiaries	200	79	255	74	18	408
Lymington	210	83	253	86	24	357
Sussex Coast	163	77	210	12	15	83
Arun	189	81	234	37	24	154
Adur	187	86	217	34	26	132
Ouse	193	89	216	51	30	168
Cuckmere	194	91	214	53	29	180
Pevensey Levels	184	88	209	39	25	153
<b>Solent and South Downs</b>	<b>198</b>	<b>85</b>	<b>232</b>	<b>57</b>	<b>24</b>	<b>234</b>

### Winter rainfall and effective rainfall

Winter totals for the period 1 October to the 31 October 2020

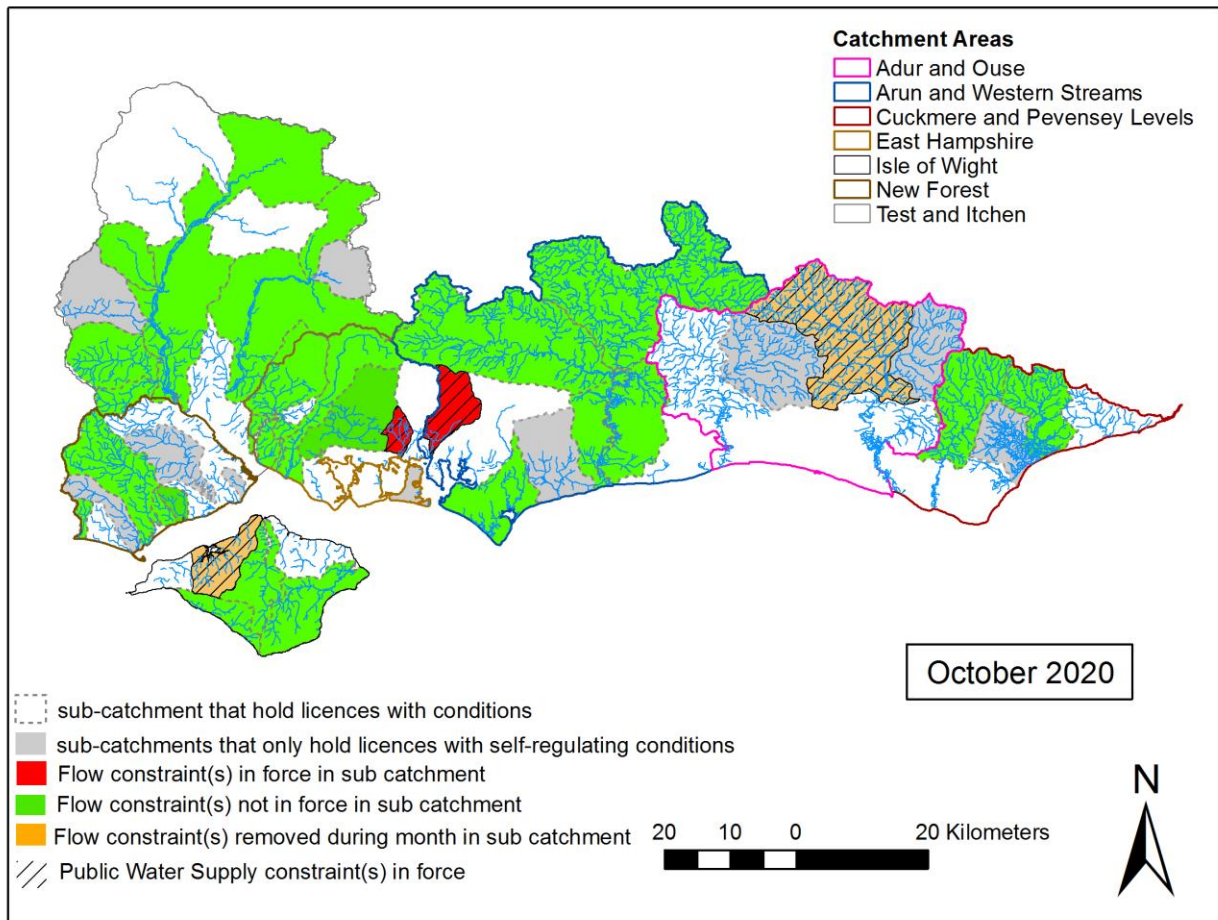
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<b>Solent and South Downs</b>	<b>198</b>	<b>85</b>	<b>232</b>	<b>57</b>	<b>24</b>	<b>234</b>

## 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	0	44
<b>Solent and South Downs</b>	<b>0</b>	<b>45</b>

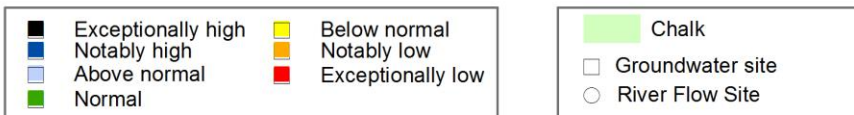
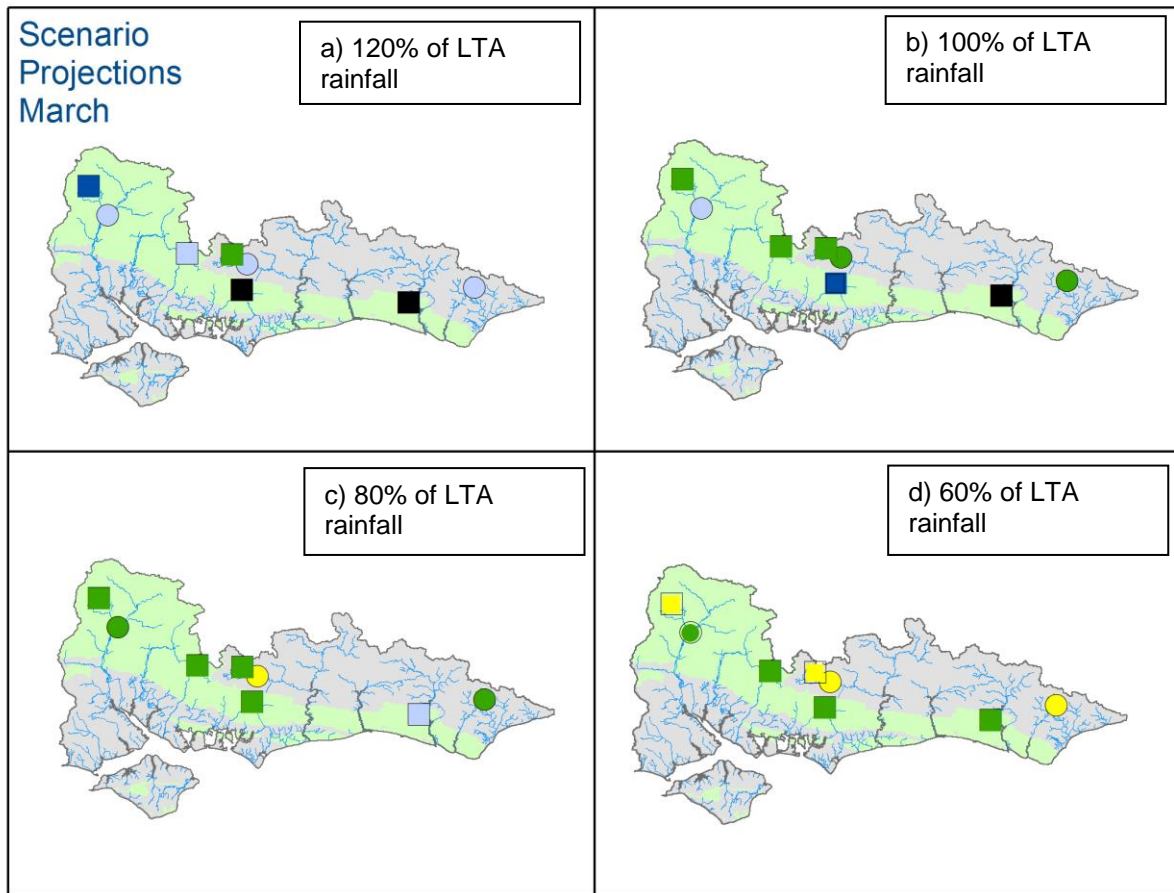
# Environmental Impact

## Flow Constraints



Catchment	No. licences with conditions currently operational in Oct	START	WK1	WK2	WK3	WK4	END
		Number at Start of the month in force	No. licences with Flow Condition in Force in Oct	No. licences with Flow Condition in Force in Oct	No. licences with Flow Condition in Force in Oct	No. licences with Flow Condition in Force in Oct	Number at End of the month in force
A&O	3	0	1	0	0	0	0
A&W	38	1	1	2	2	1	1
C&P	7	0	0	0	0	0	0
EH	21	1	1	1	1	1	1
IOW	16	1	0	0	0	0	0
NF	16	0	0	0	0	0	0
T&I	24	0	0	0	0	0	0
<b>Total in SSD</b>	<b>125</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>2</b>

## Forward look- river flow and groundwater March 2021



Projected river flows at key indicator sites up until the end of March 2021. Projected groundwater levels at key indicator sites at the end of March 2021. 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 2020.

## 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 ( $\text{m}^3\text{s}^{-1}$ )

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