

# Monthly water situation report

## Solent and South Downs Area

### Summary – May 2021

Solent and South Downs (SSD) had well above average rainfall in May receiving 167% (93mm) of the long term average (LTA) (56mm). Monthly mean river flows across SSD ranged from **normal** to **above normal**. Groundwater levels ranged from **notably low** to **notably high**. Soil moisture deficits across SSD ended the month greater than the LTA. End of month reservoir stocks were above average at both Ardingly Reservoir (Ouse Catchment) and Arlington Reservoir (Cuckmere catchment).

### Rainfall

SSD had well above average rainfall in May receiving 167% (93mm) of the LTA (56 mm). East Hampshire Chalk was the wettest areal unit in SSD receiving 185% (114mm) of the LTA (62mm). This represents the 5<sup>th</sup> wettest May for this areal unit in a record going back to 1910. The Sussex Coast areal unit received the least rainfall with 134% (67mm) of the LTA (50mm).

The highest daily rainfall value was recorded on the 15<sup>th</sup> of the month when 29mm was recorded at Lyndhurst in the Lymington areal unit. Next highest daily rainfall value was recorded at Kirdford (Arun areal unit) on the 17<sup>th</sup> May with a figure of 25.8mm. There were no completely dry days in May.

### Soil Moisture Deficit/Recharge

Soil moisture deficits across Solent and South Downs ended the month greater than the LTA. This means that soils remain drier than average for the time of year despite the wet May.

### River Flows

Monthly mean river flows across SSD ranged from **normal** to **above normal**. The Adur at Sakeham and Gold Bridge (Ouse) were **above normal** for May. All remaining reporting sites were in the **normal** range.

The rainfall resulted in **exceptionally high** daily mean flows in a number of the more responsive catchments. Most notable was the River Lymington at Brockenhurst which recorded a daily mean flow of 7.17 cumecs on the 16<sup>th</sup> May.

### Groundwater Levels

End of month groundwater levels ranged from **notably low** to **notably high**. The groundwater level at Preston Candover (East Hampshire Chalk) was **notably high**. The groundwater levels at Alverstone (Isle of Wight) and Catherington (East Hampshire Chalk) were **above normal** for May. The level at Beeding Hill (West Sussex Chalk) was **below normal** and the level at Carisbrooke Castle (Isle of Wight) was **notably low**. All remaining reporting sites recorded end of month groundwater levels in the **normal** range.

### Reservoir Storage

End of month reservoir stocks were above average at Ardingly Reservoir (Ouse) with 100% of total capacity (LTA 88%) and at Arlington Reservoir (Cuckmere) with 98.9% of total capacity (LTA 93.2%).

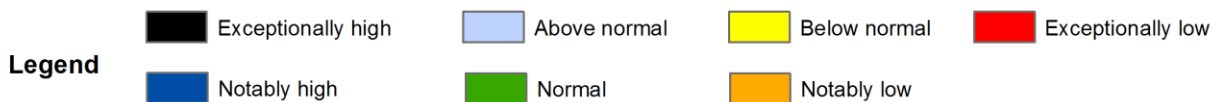
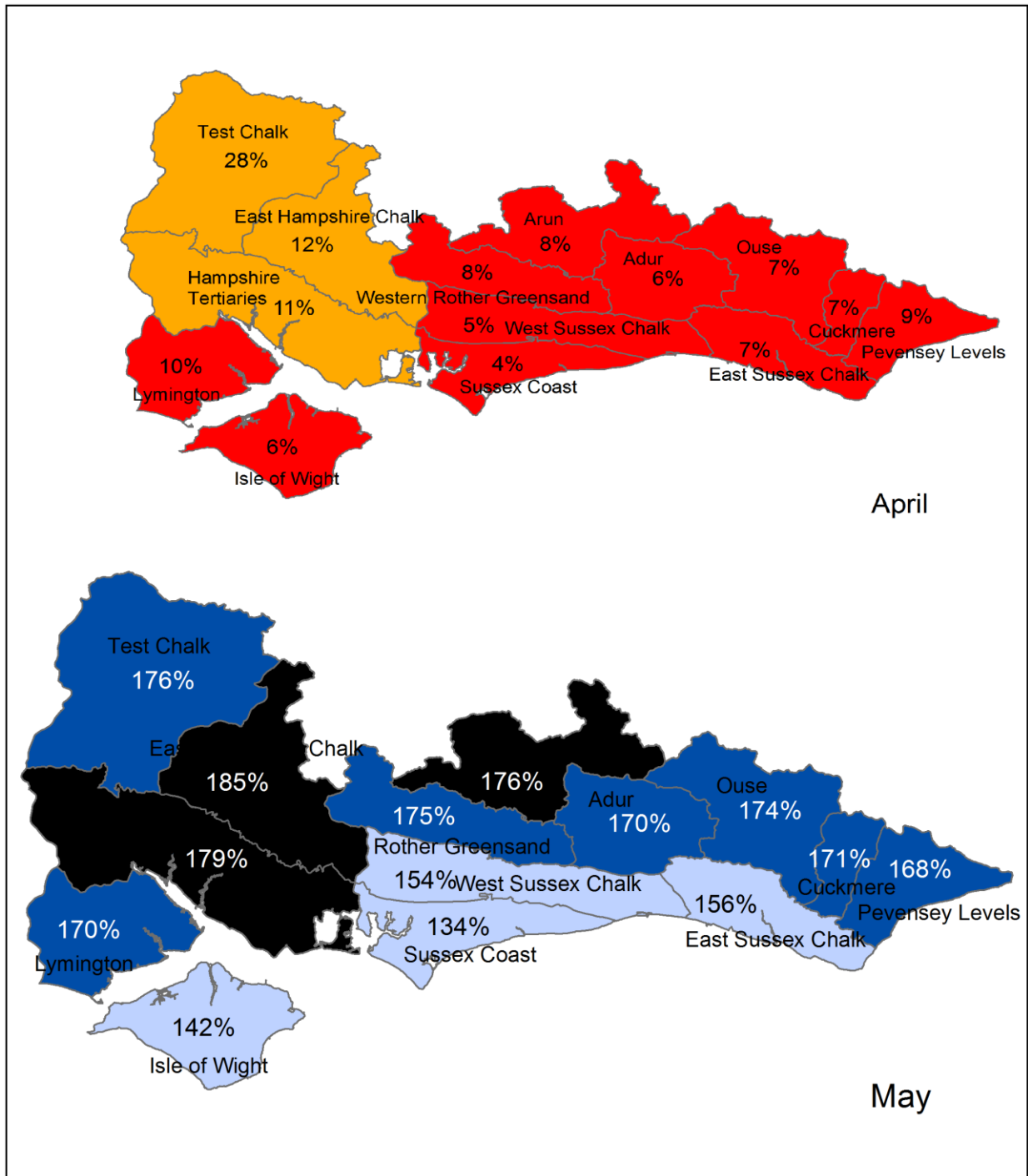
### Environmental Impact

There were no licence restrictions in force in May.

Author: [HydrologySSD](#)

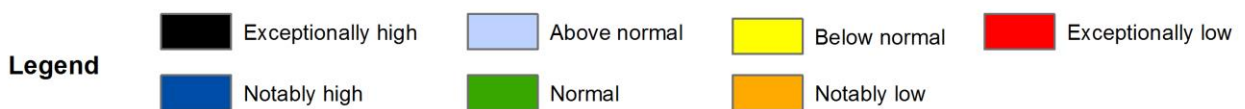
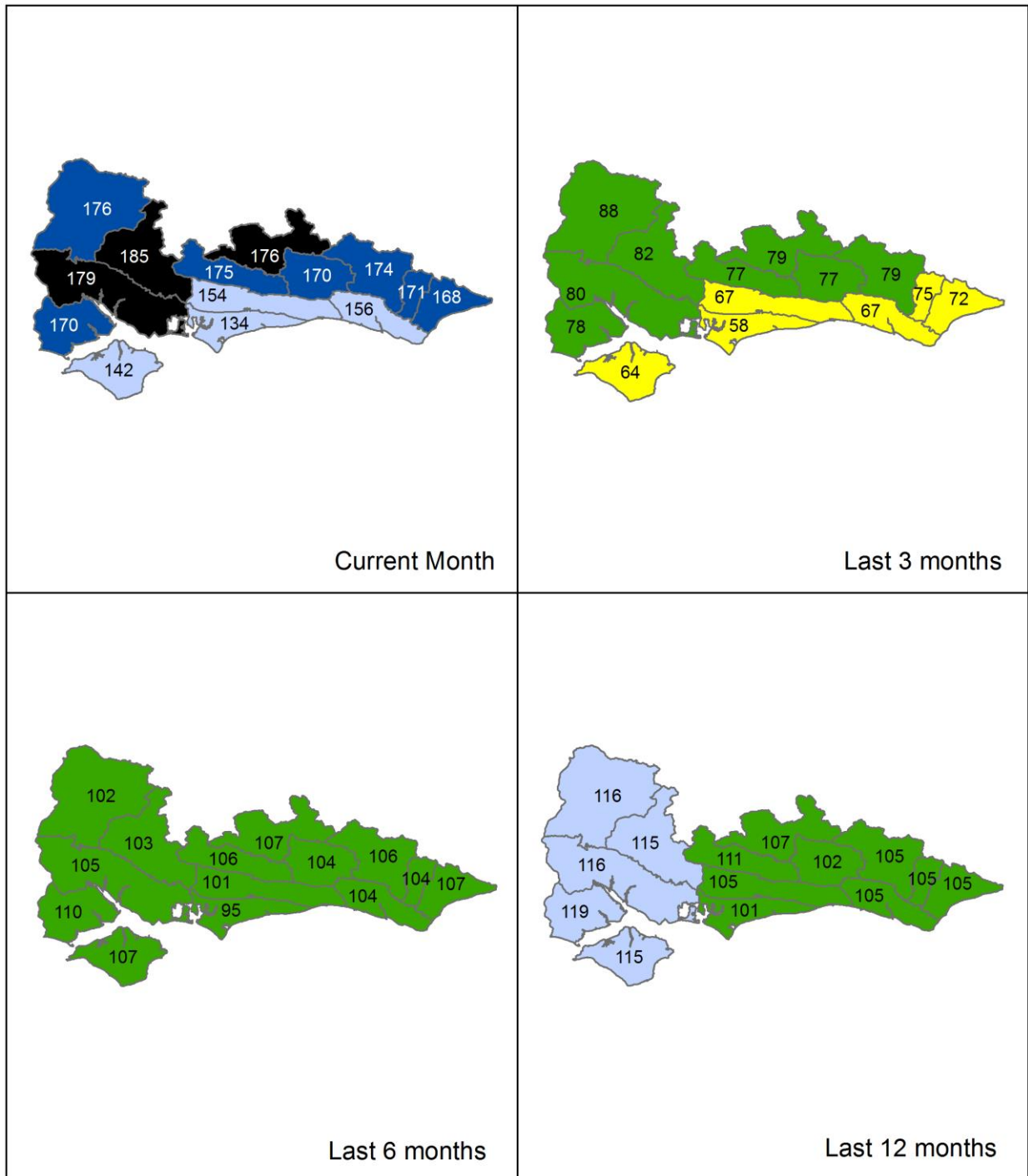


# Rainfall Map 1



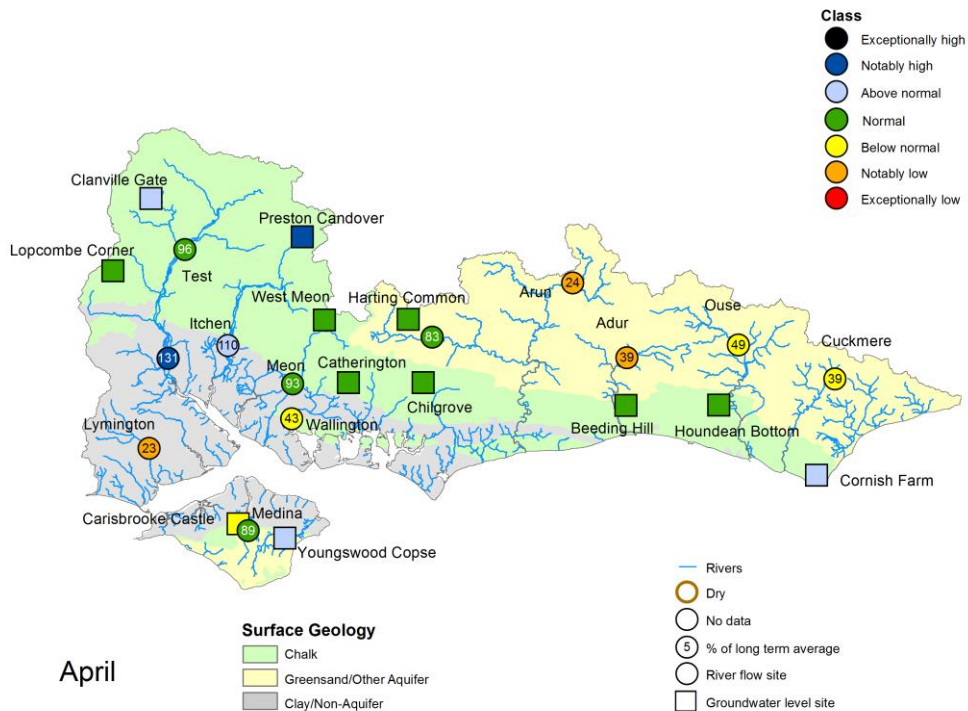
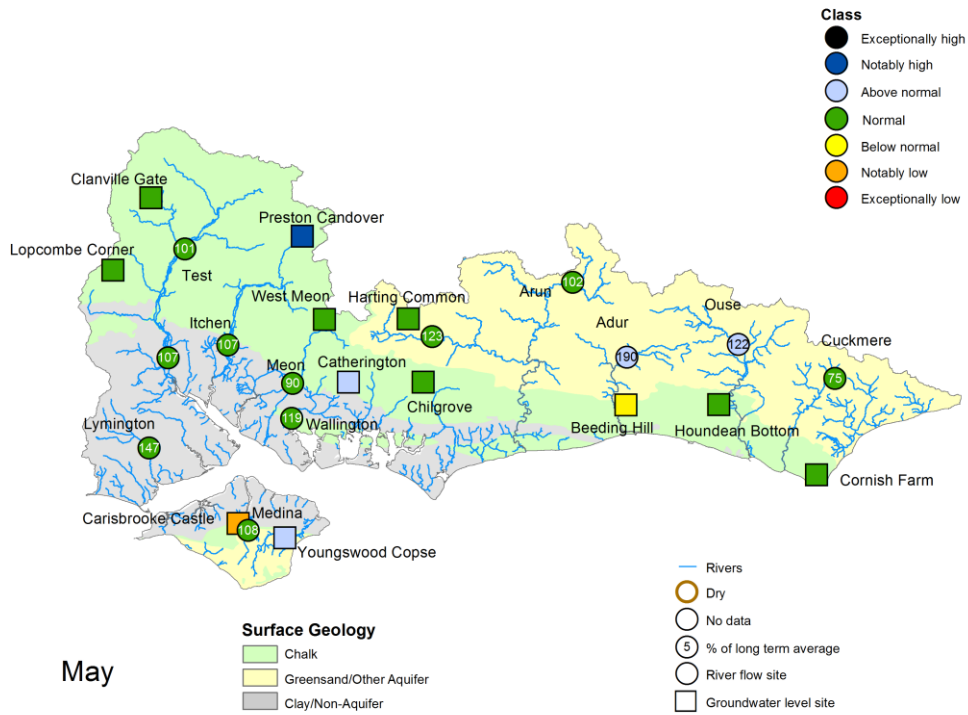
Total rainfall for hydrological areas across Solent and South Downs for the current month, classed relative to an analysis of respective historic totals. Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Includes material 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, 2021). 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.

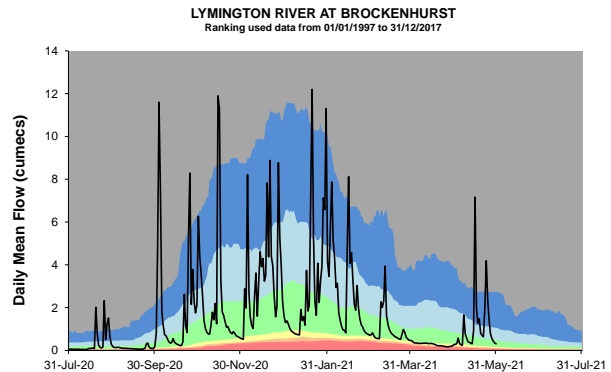
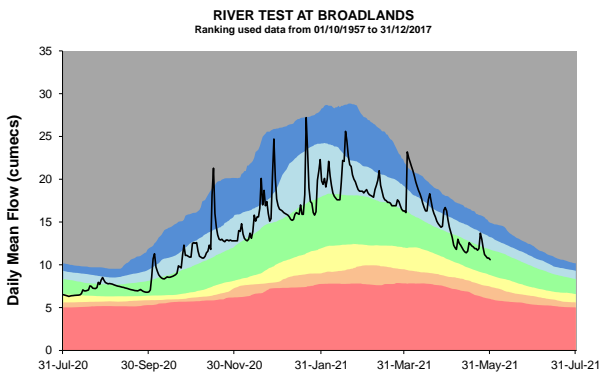
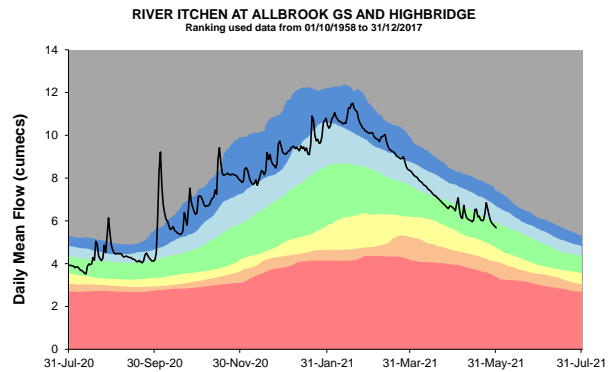
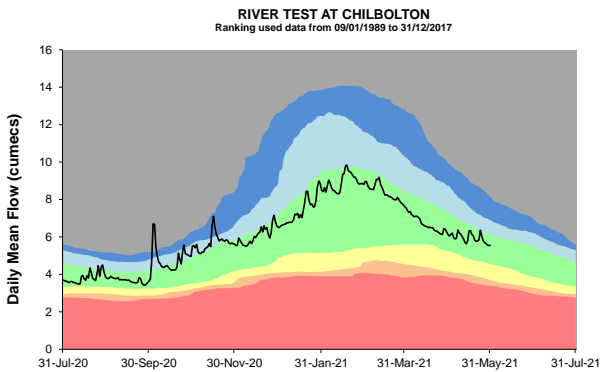
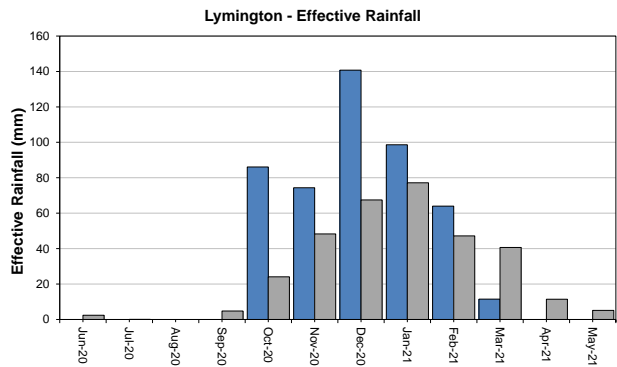
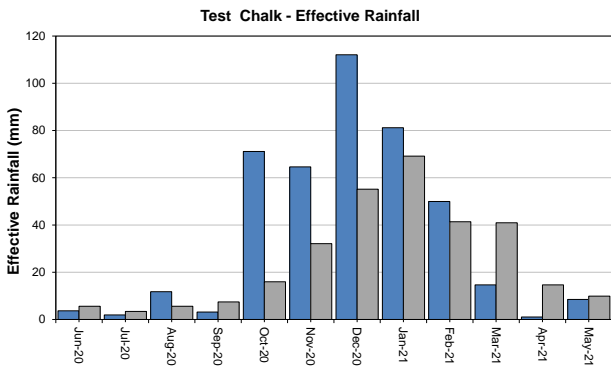
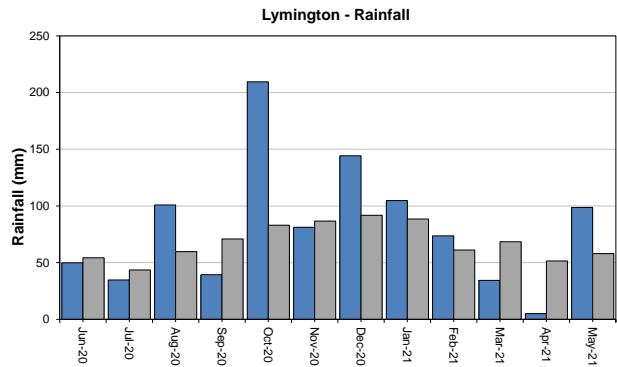
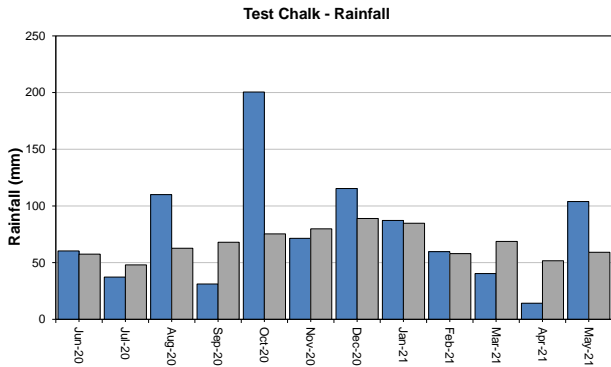
Some features of this map are based on digital spatial data licensed from the Centre for Ecology and Hydrology, © CEH. Includes material based on Ordnance Survey 1:50 000 maps with the permission of the controller of Her Majesty's Stationery Office © Crown copyright. All rights reserved. Environment Agency, 100026380, 2021

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# West Hampshire – Page 1

Monthly total rainfall (mm)

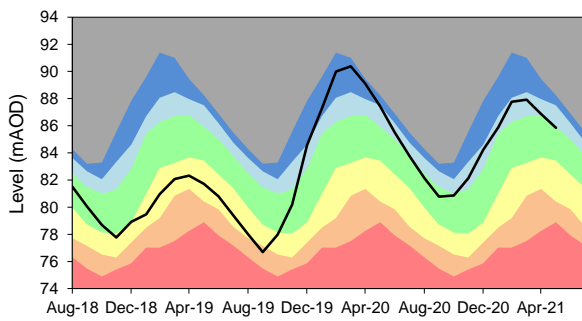
Long term average rainfall (mm)



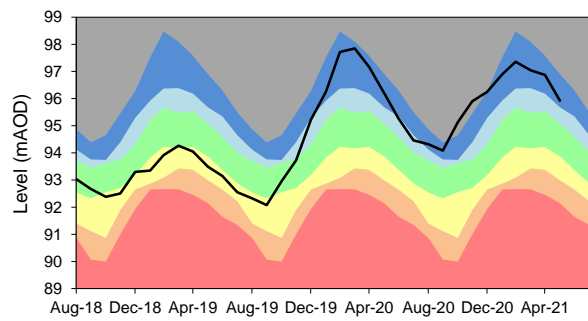
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  Notably high    
  Above normal    
  Normal  
 Below normal    
  Notably low    
 Exceptionally low    
 — Latest data

# West Hampshire – Page 2

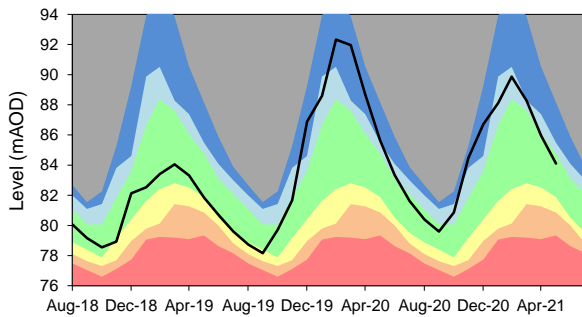
**CLANVILLE GATE GWL - CHALK**  
 Ranking derived from data for the period Mar-1963 to Dec-2017



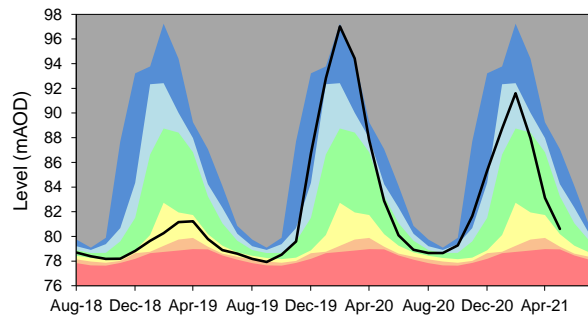
**PRESTON CANDOVER GWL - CHALK**  
 Ranking derived from data for the period Jan-1975 to Dec-2017



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



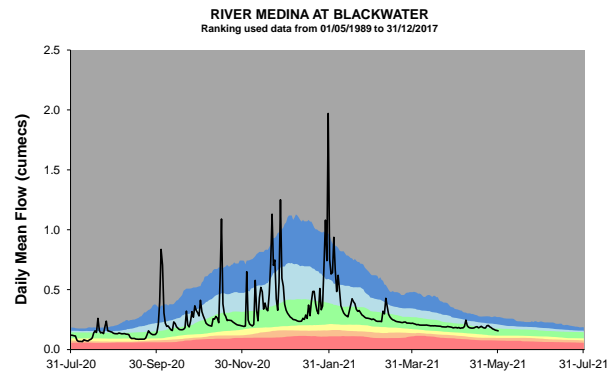
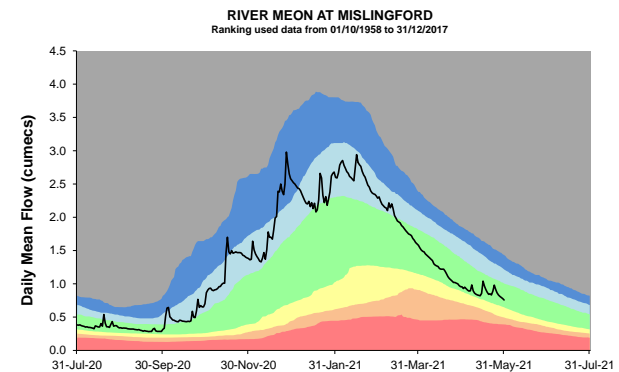
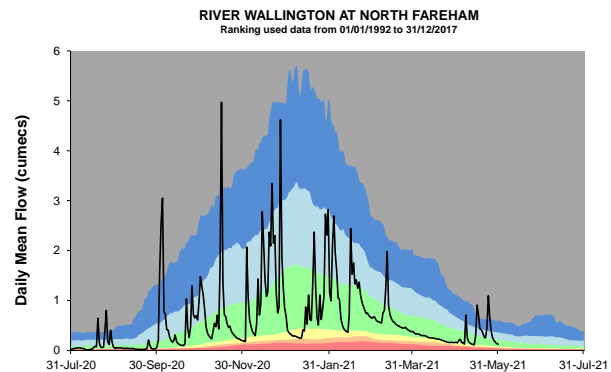
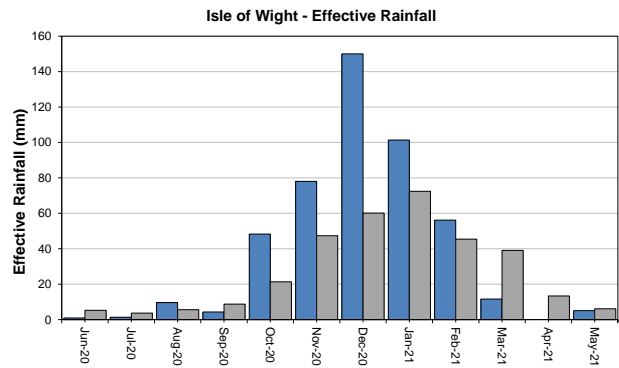
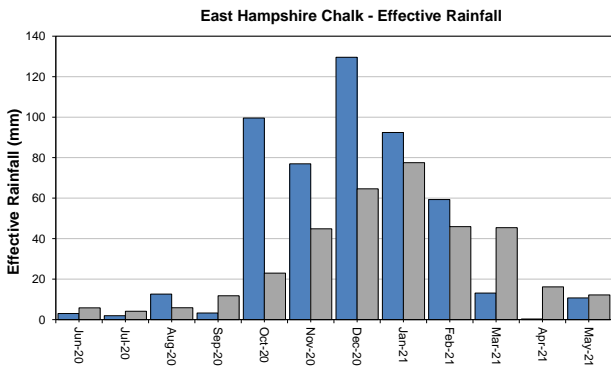
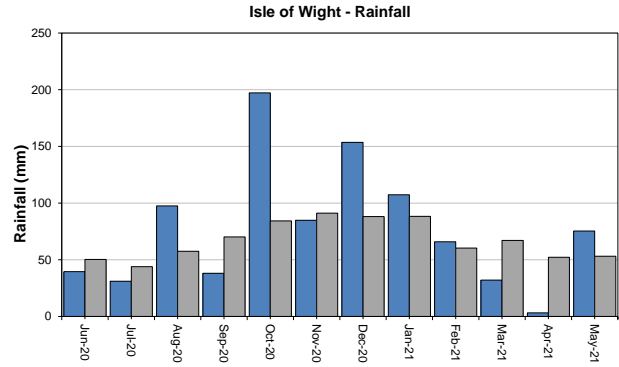
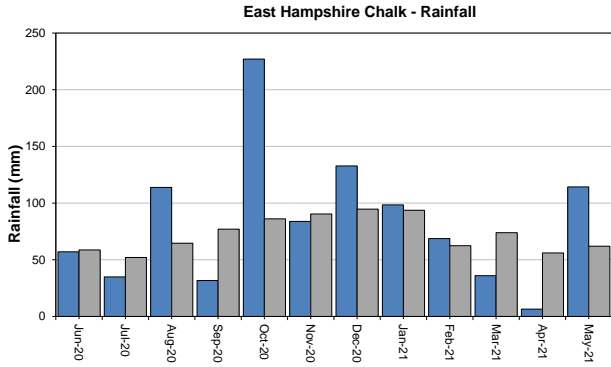
**LOPCOMBE CORNER GWL - CHALK**  
 Ranking derived from data for the period Apr-1963 to Dec-2017



# East Hampshire and Isle of Wight

Monthly total rainfall (mm)

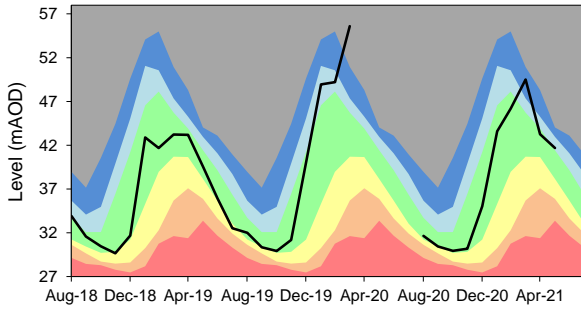
Long term average rainfall (mm)



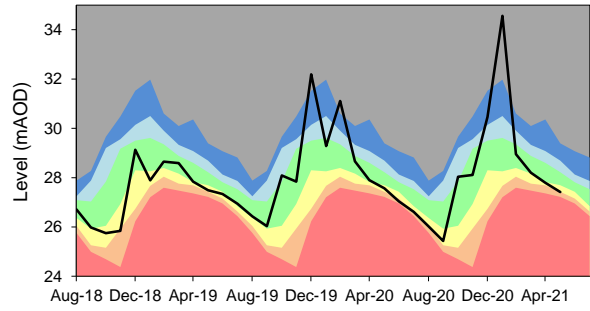
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  Notably high    
  Above normal    
  Normal  
 Below normal    
  Notably low    
  Exceptionally low    
  Latest data

# East Hampshire and Isle of Wight – Page 2

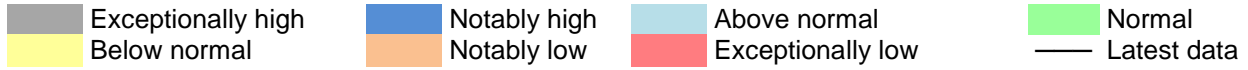
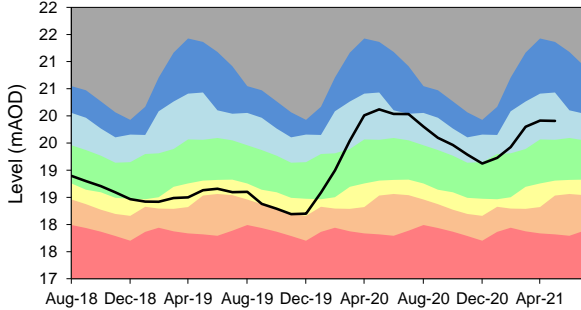
**CATHERINGTON GWL - CHALK**  
 Ranking derived from data for the period Jan-1969 to Dec-2017



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



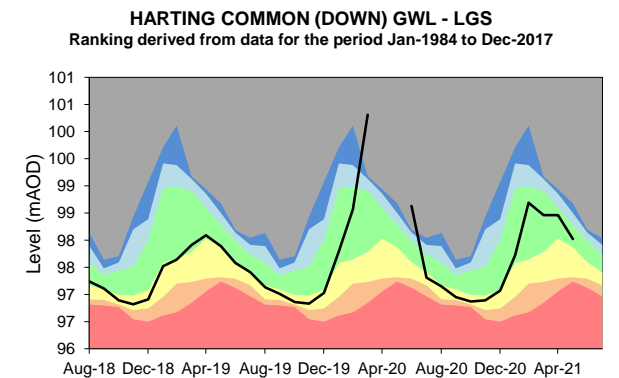
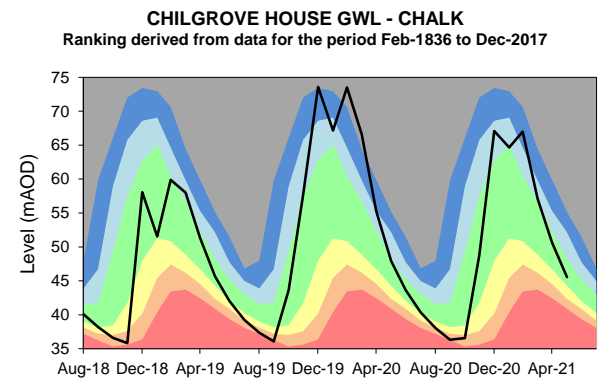
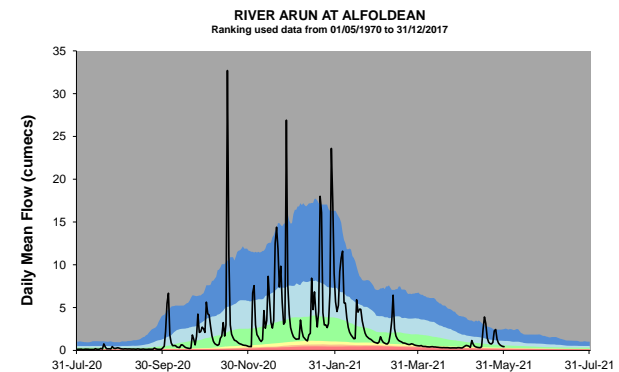
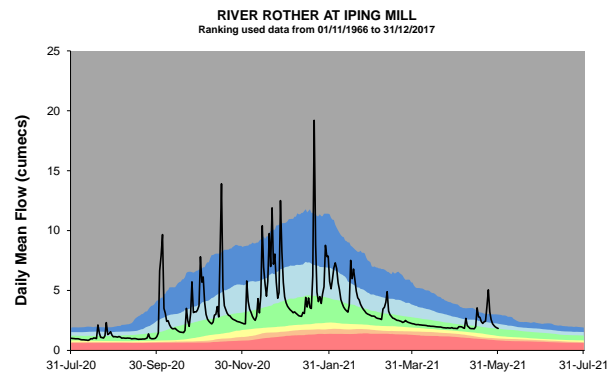
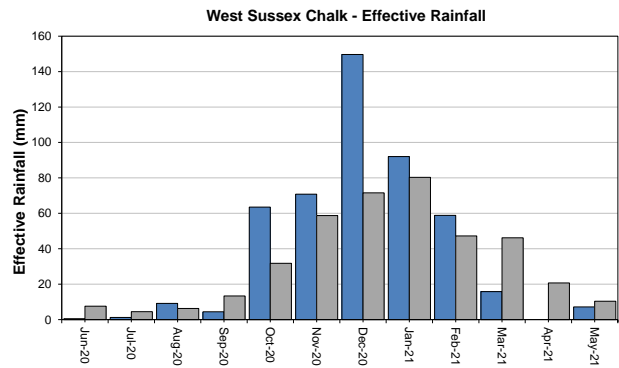
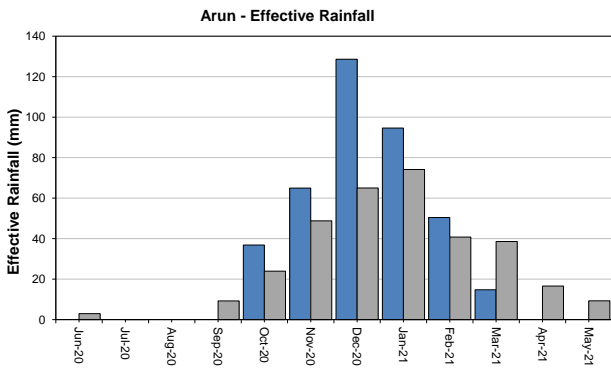
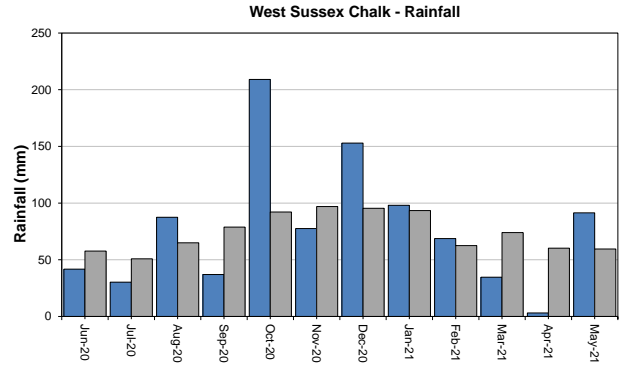
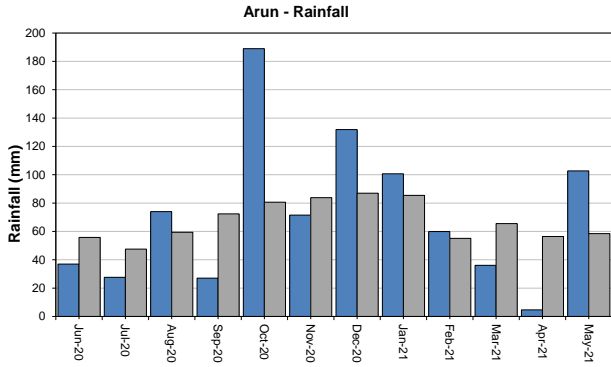
**YOUNGWOOD COPSE GWL - LGS**  
 Ranking derived from data for the period Feb-1978 to Dec-2017



# 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

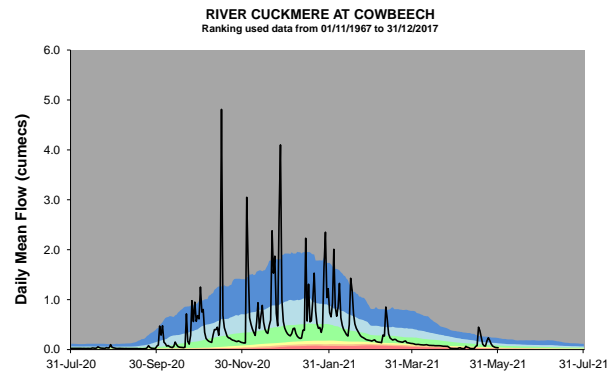
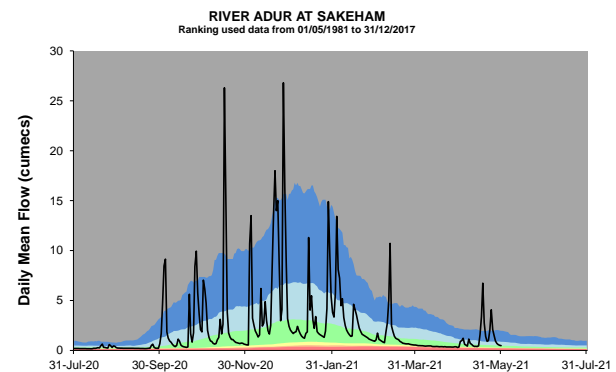
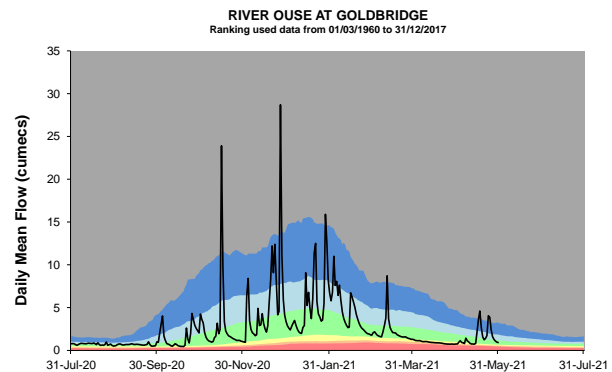
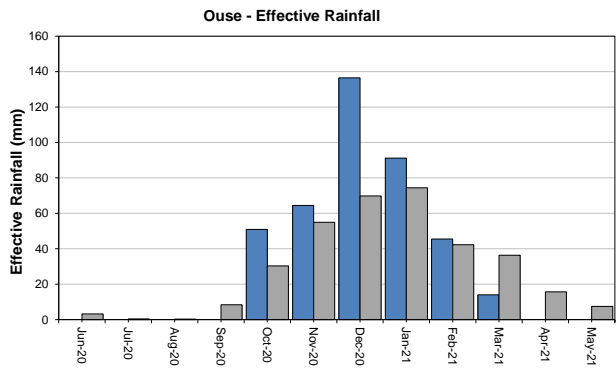
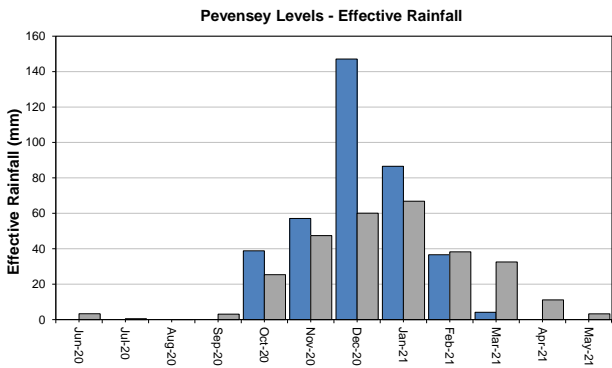
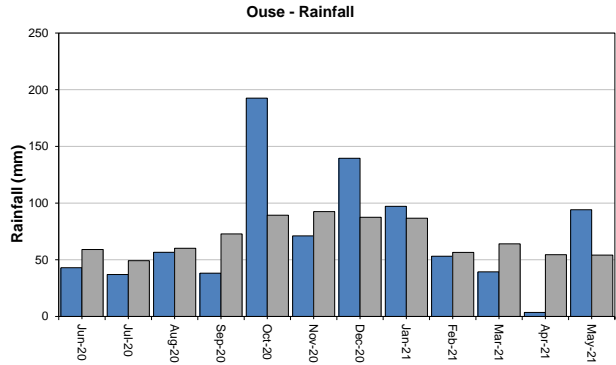
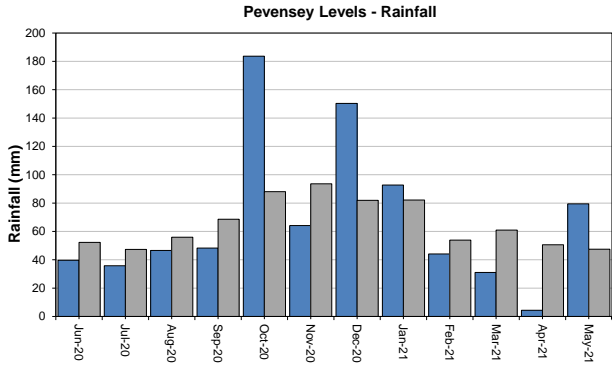
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floodline  
0345 988 1188

# East Sussex

Monthly total rainfall (mm)

Long term average rainfall (mm)

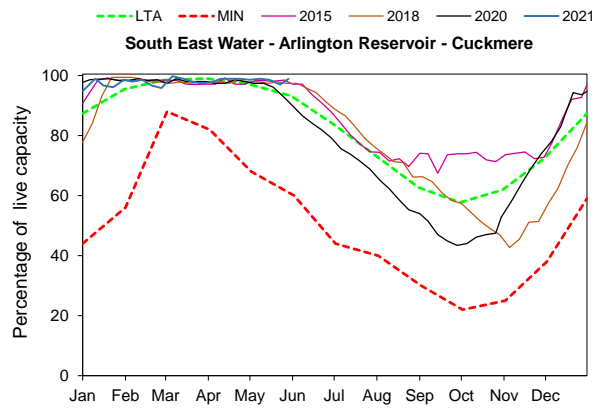
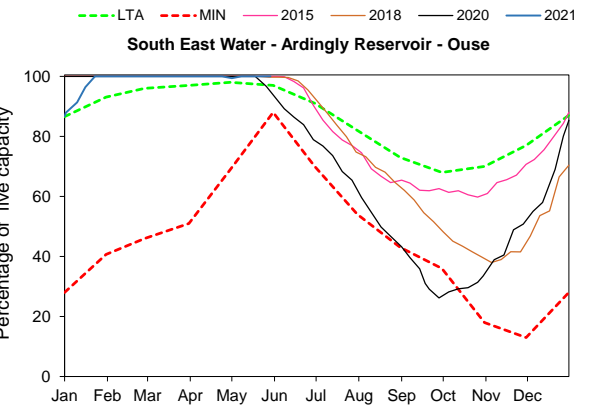
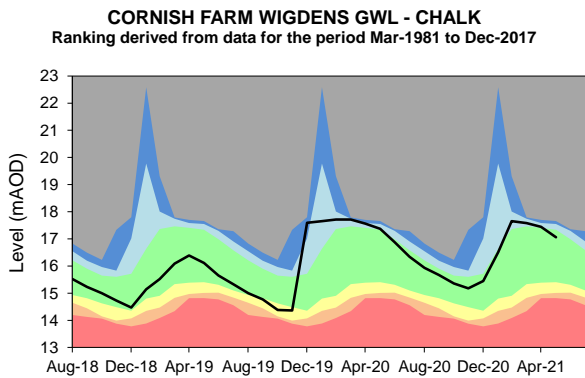
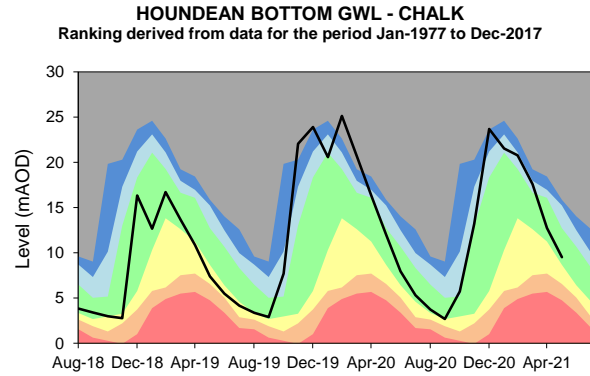
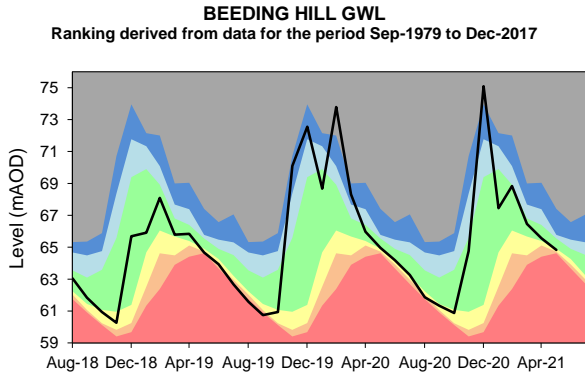


Exceptionally high  
 Below normal  
 Notably high  
 Notably low  
 Above normal  
 Exceptionally low  
 Normal  
 Latest data

# East Sussex – Page 2

Monthly total rainfall (mm)

Long term average rainfall (mm)



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	104	59	176	9	10	86
East Hampshire Chalk	114	62	185	11	12	88
West Sussex Chalk	91	60	154	7	10	69
East Sussex Chalk	80	52	156	5	7	73
Isle of Wight	75	53	142	5	6	83
Western Rother Greensand	110	63	175	10	16	61
Hampshire Tertiaries	102	57	179	0	5	0
Lymington	99	58	170	0	5	0
Sussex Coast	67	50	134	0	3	0
Arun	103	58	176	0	9	0
Adur	96	56	170	0	8	0
Ouse	94	54	174	0	7	0
Cuckmere	86	50	171	0	5	0
Pevensey Levels	80	47	168	0	3	0
<b>Solent and South Downs</b>	<b>93</b>	<b>56</b>	<b>167</b>	<b>3</b>	<b>8</b>	<b>43</b>

### Summer rainfall and effective rainfall

Summer totals for the period 1 April to the 31 May 2021

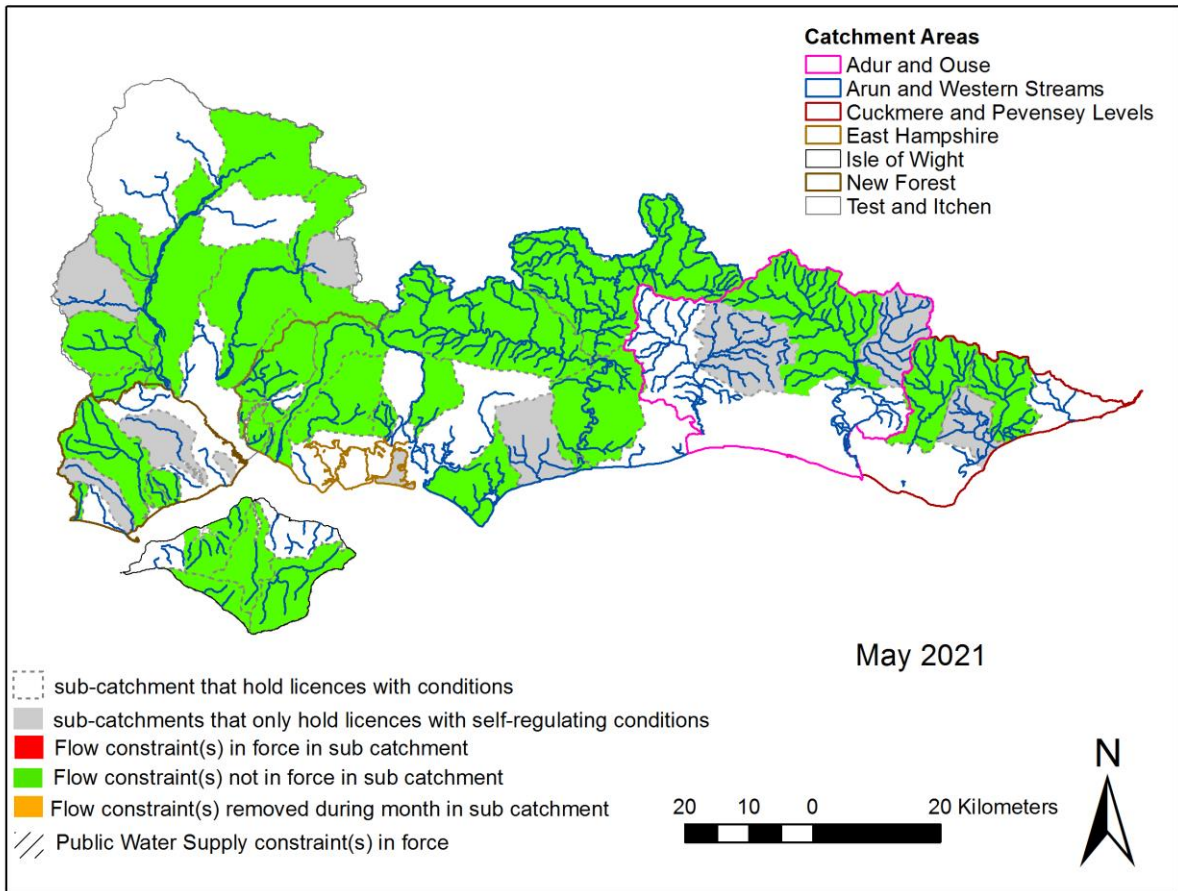
Area	Rainfall (mm)	LTA rainfall (mm)	% of LTA	Effective rainfall (mm)	LTA effective rainfall (mm)	% of LTA
Test Chalk	118	111	107	10	25	39
East Hampshire Chalk	121	118	102	11	28	39
West Sussex Chalk	95	120	79	7	31	23
East Sussex Chalk	84	105	80	5	23	23
Isle of Wight	79	105	75	5	19	26
Western Rother Greensand	114	123	93	10	40	25
Hampshire Tertiaries	107	107	100	0	15	0
Lymington	104	109	95	0	17	0
Sussex Coast	69	100	69	0	15	0
Arun	107	115	93	0	26	0
Adur	99	111	89	0	24	0
Ouse	98	109	90	0	23	0
Cuckmere	90	101	88	0	18	0
Pevensey Levels	84	98	86	0	14	0
<b>Solent and South Downs</b>	<b>98</b>	<b>110</b>	<b>89</b>	<b>3</b>	<b>23</b>	<b>15</b>

## Soil Moisture Deficit

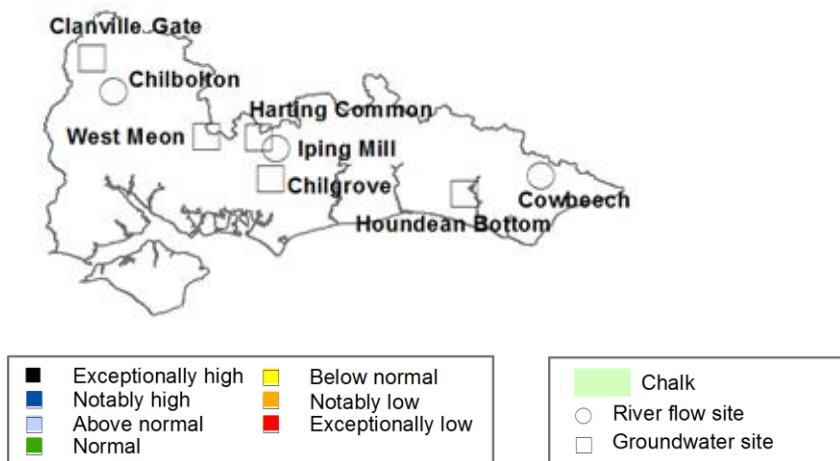
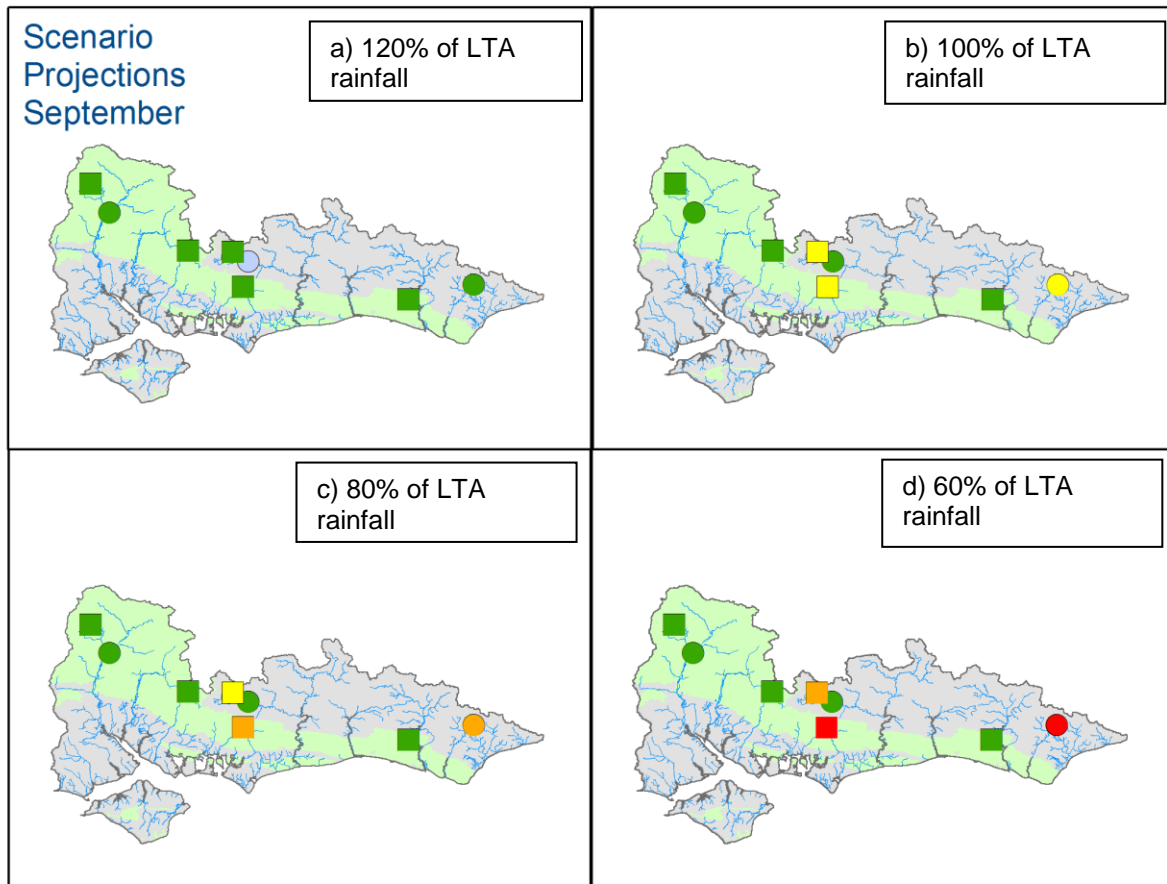
Area	End of month SMD (mm)	End of month SMD LTA (mm)
Test Chalk	53	45
East Hampshire Chalk	55	44
West Sussex Chalk	77	47
East Sussex Chalk	79	51
Isle of Wight	81	54
Western Rother Greensand	60	38
Hampshire Tertiaries	59	48
Lymington	64	47
Sussex Coast	83	51
Arun	55	46
Adur	67	47
Ouse	61	46
Cuckmere	75	49
Pevensey Levels	77	51
<b>Solent and South Downs</b>	<b>67</b>	<b>47</b>

# Environmental Impact

## Flow Constraints



# Forward look- river flow and groundwater September 2021



Projected river flows at key indicator sites up until the end of September 2021.  
 Projected groundwater levels at key indicator sites at the end of September 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 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 ( $m^3s^{-1}$ )

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