

# Monthly water situation report

## Solent and South Downs Area

### Summary – June 2021

Solent and South Downs (SSD) had well above average rainfall in June receiving 186% (103mm) of the long term average (LTA) (55mm). Monthly mean river flows across SSD ranged from **normal** to **exceptionally high**. Groundwater levels ranged from **below normal** to **above normal**. Soil moisture deficits across SSD ended the month lower 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 June receiving 186% (103mm) of the LTA (55 mm). The Isle of Wight was the wettest areal unit in SSD receiving 231% (116mm) of the LTA (50mm). This represents the 3<sup>rd</sup> wettest June total for this areal unit in a record going back to 1910. The Test Chalk areal unit received the least rainfall with 152% (87mm) of the LTA (58mm).

The highest daily rainfall value was recorded on the 17<sup>th</sup> June when 54.4mm was recorded at Bishops Waltham in the Hampshire Tertiaries areal unit. Next highest daily rainfall value was recorded at Ryde Vineyard (Isle of Wight areal unit) on the 28<sup>th</sup> June with a figure of 51.3mm. Most of rainfall in June fell in the second half of the month. The highest daily totals on the 16<sup>th</sup>, 18<sup>th</sup>, 21<sup>st</sup>, 24<sup>th</sup> and 27<sup>th</sup> June were all in excess of 20mm.

The two month May and June total was the highest on record for the Arun and Western Rother Greensand areal units and the 3<sup>rd</sup> highest on record for the SSD area as a whole.

### Soil Moisture Deficit/Recharge

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

### River Flows

Monthly mean river flows across SSD ranged from **normal** to **exceptionally high**. The monthly mean flows on the Western Rother at Iping Mill were **exceptionally high** and rank as the second highest June value in a record going back to 1966. Only the flows recorded in 2012 were higher. Flows on the River Adur at Sakeham were **notably high** and flows for the River Cuckmere at Cowbeech, the River Meon at Misingford and the River Test at Chilbolton were in the **normal** range. All remaining reporting sites were in the **above normal** range. In the second half of the month the majority of reported sites recorded **exceptionally high** daily mean flows in response to the high rainfall events that occurred across the area.

### Groundwater Levels

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

### Reservoir Storage/Water Resource Zone Stocks

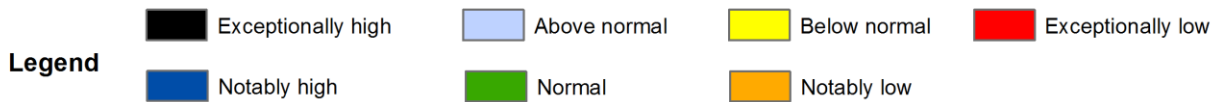
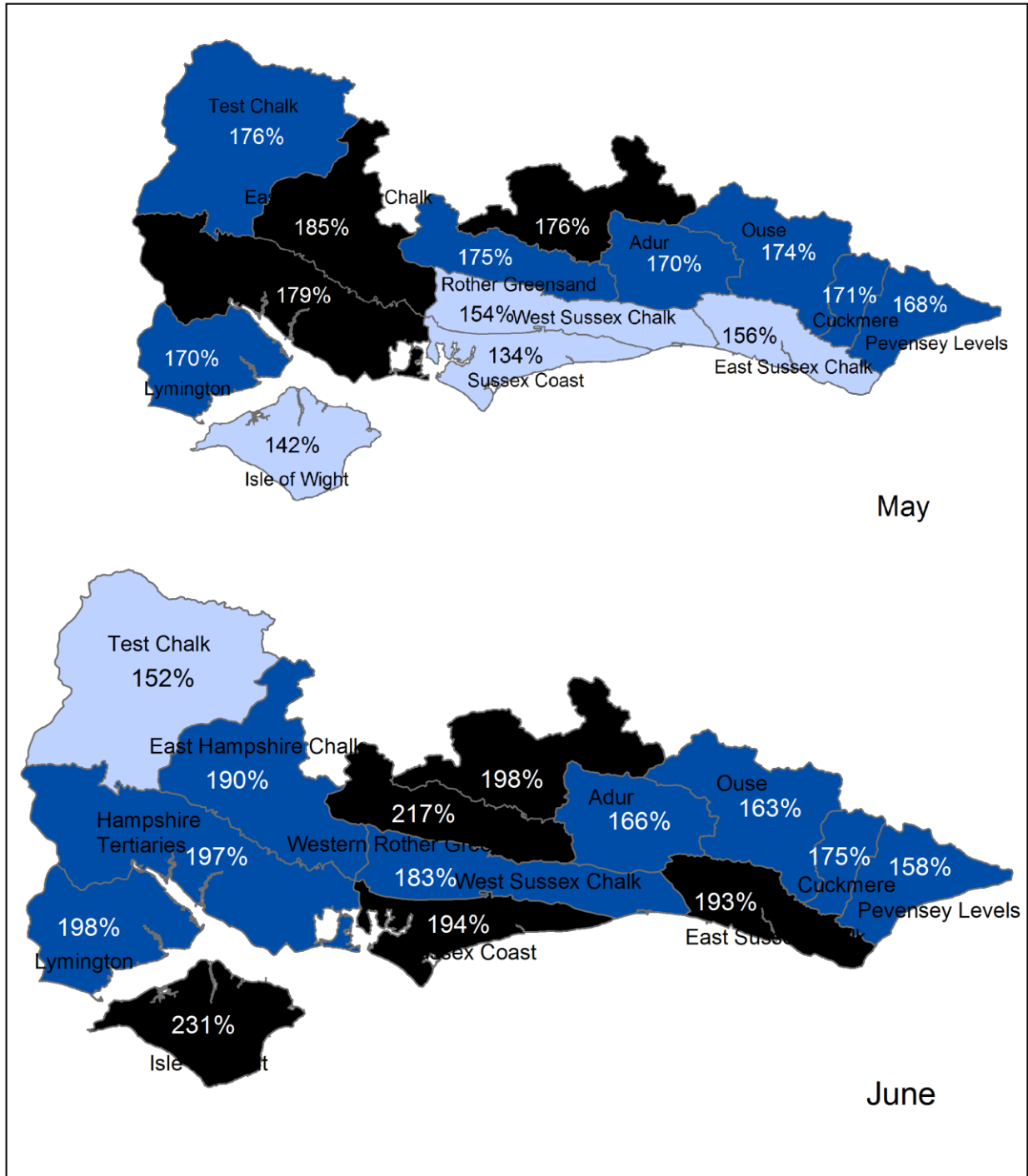
End of month reservoir stocks were above average at Ardingly Reservoir (Ouse) with 99.6% of total capacity (LTA 91%) and at Arlington Reservoir (Cuckmere) with 98.6% of total capacity (LTA 84.2%).

### Environmental Impact

There were no licence restrictions in force in June.

Author: [HydrologySSD](#)

# Rainfall Map 1



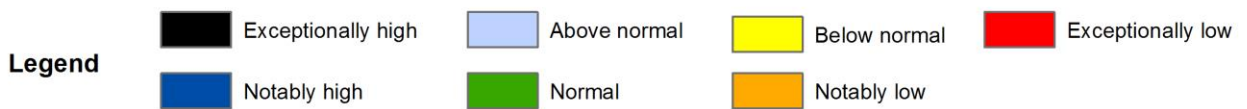
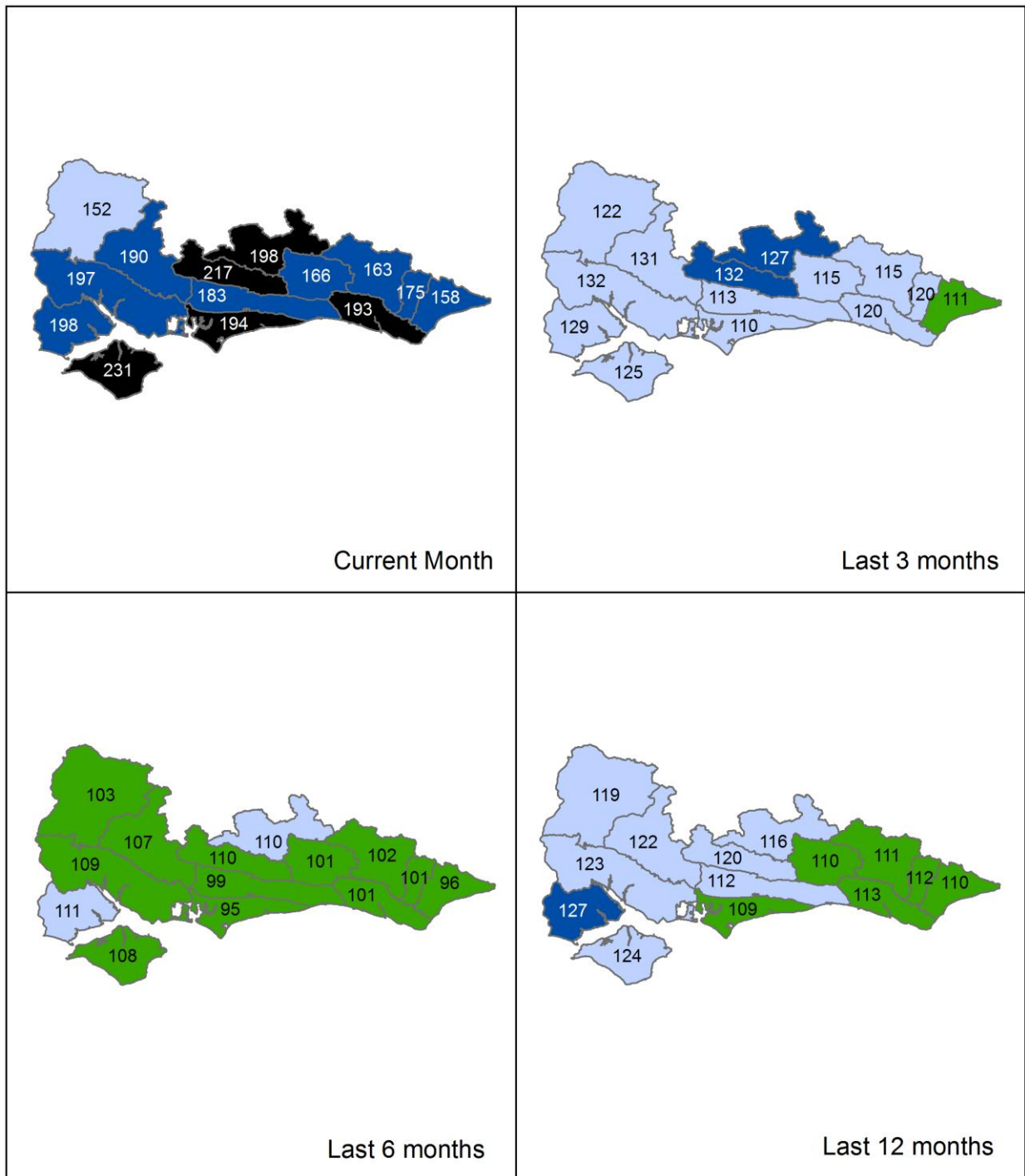
Total rainfall for hydrological areas across Solent and South Downs for the current month, classed relative to an analysis of respective historic totals. Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Includes material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

customer service line  
03708 506 506

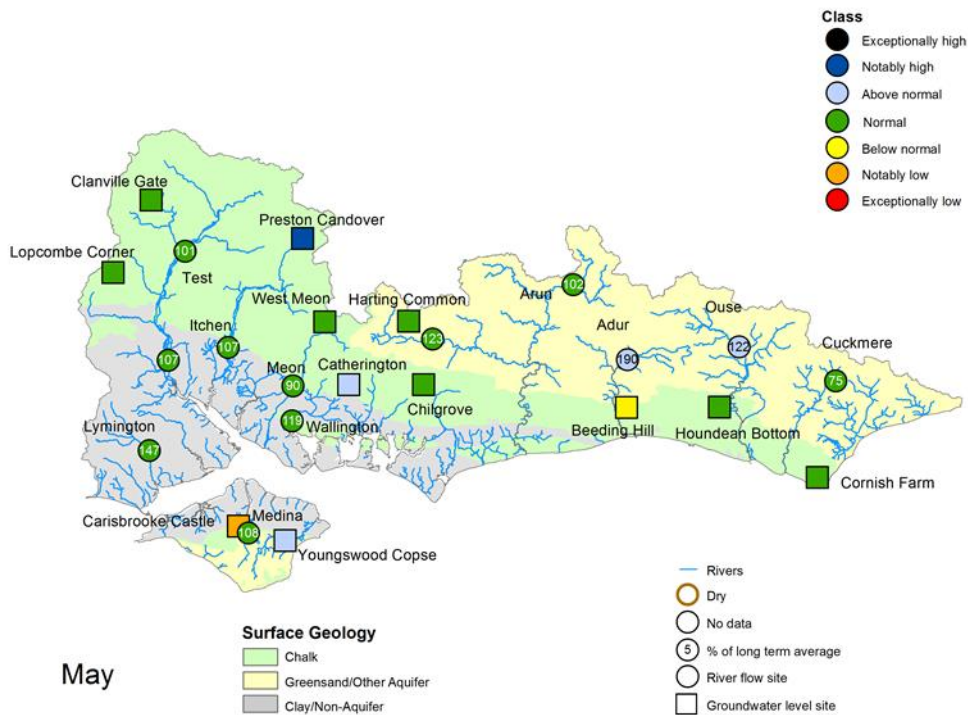
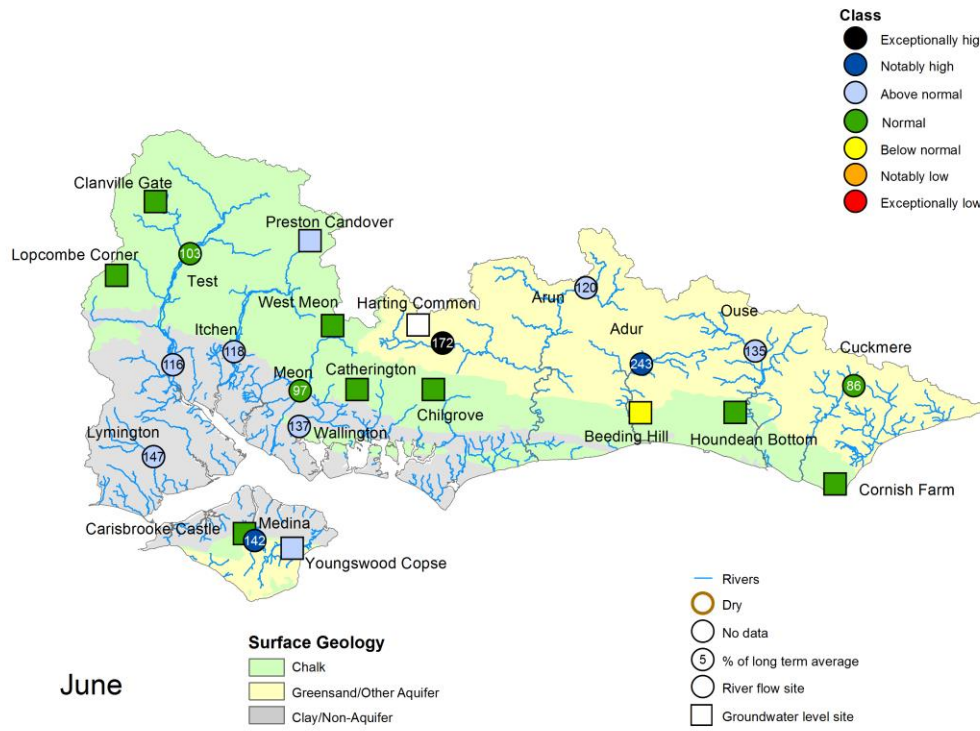
incident hotline  
0800 80 70 60

floodline  
0345 988 1188



Total rainfall for hydrological areas across Solent and South Downs for the current month (up to 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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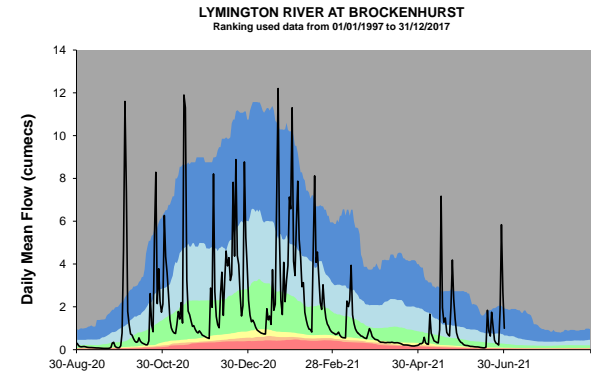
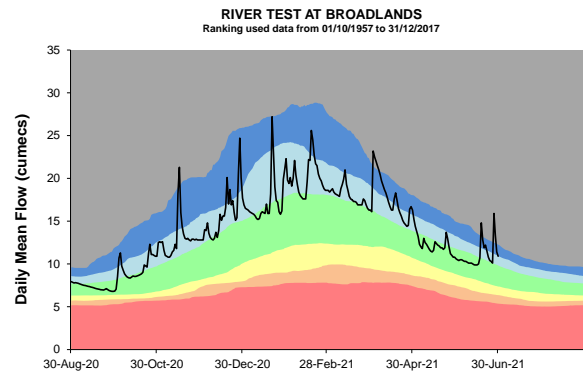
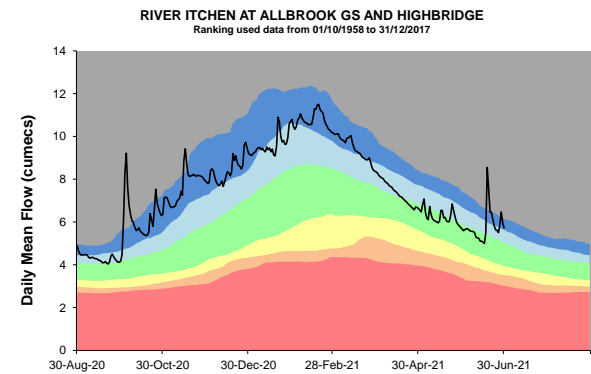
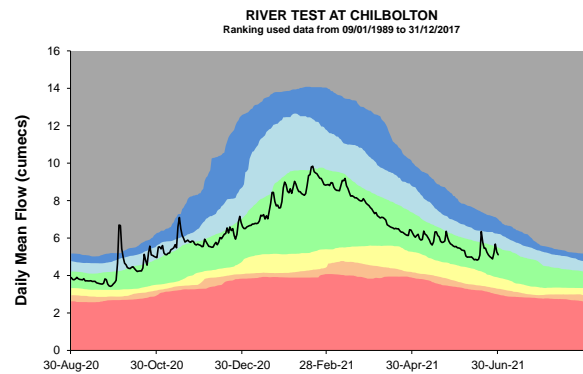
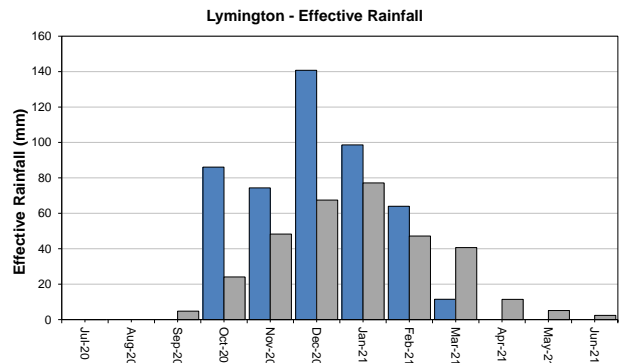
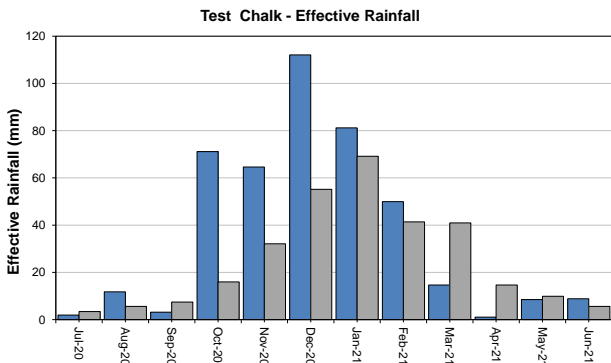
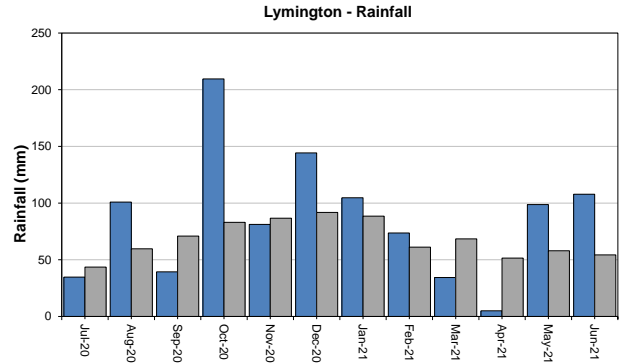
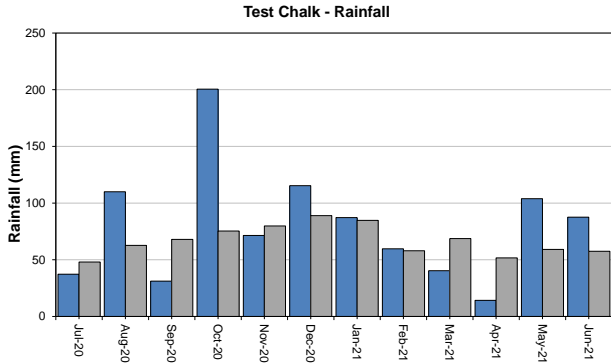
incident hotline  
0800 80 70 60

floodline  
0345 988 1188

# West Hampshire – Page 1

Monthly total rainfall (mm)

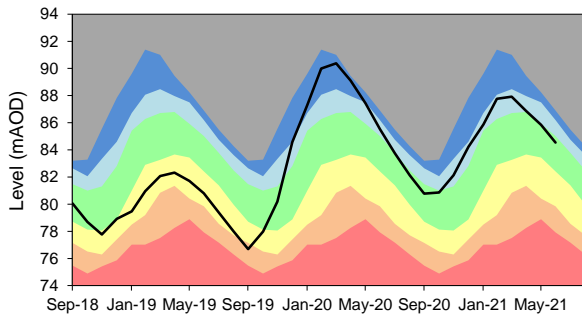
Long term average rainfall (mm)



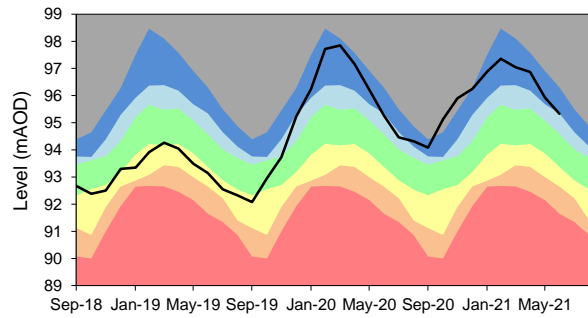
Exceptionally high  
 Below normal  
 Notably high  
 Notably low  
 Above normal  
 Exceptionally low  
 Normal  
 Latest data

# West Hampshire – Page 2

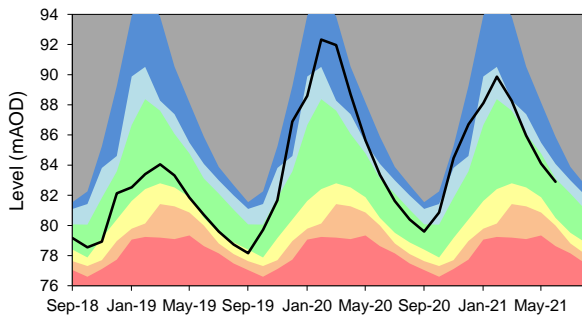
**CLANVILLE GATE GWL - CHALK**  
 Ranking derived from data for the period Mar-1963 to Dec-2017



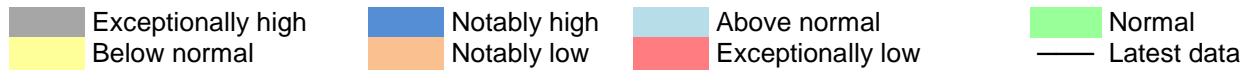
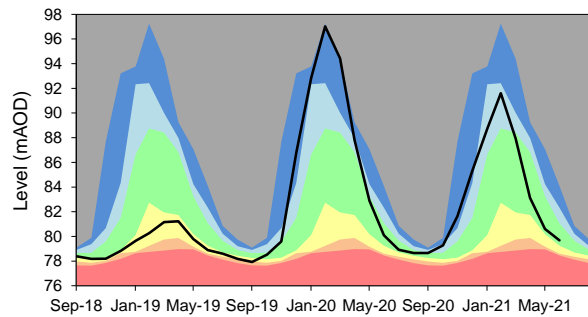
**PRESTON CANDOVER GWL - CHALK**  
 Ranking derived from data for the period Jan-1975 to Dec-2017



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



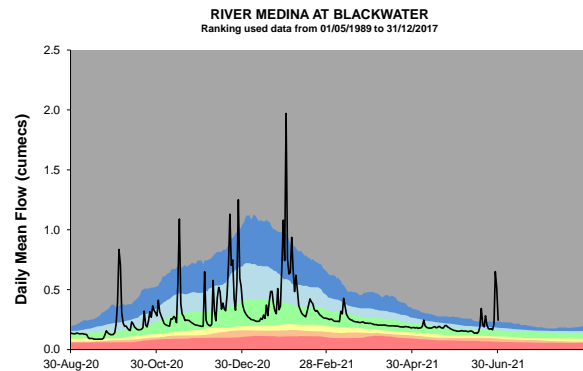
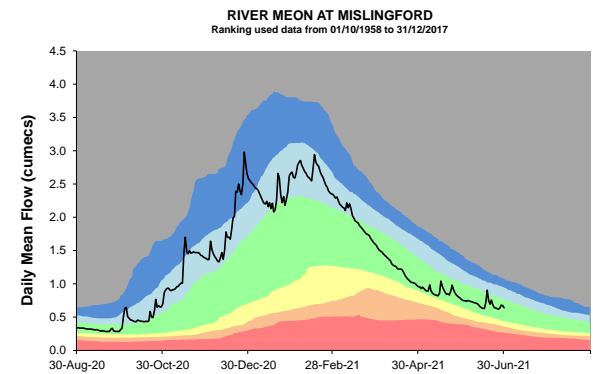
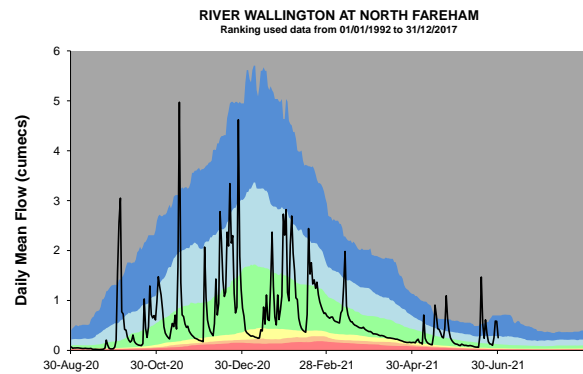
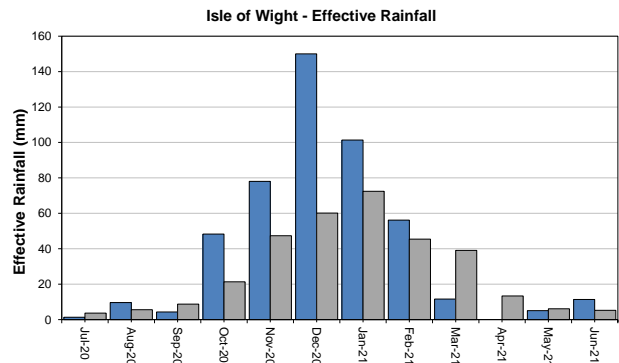
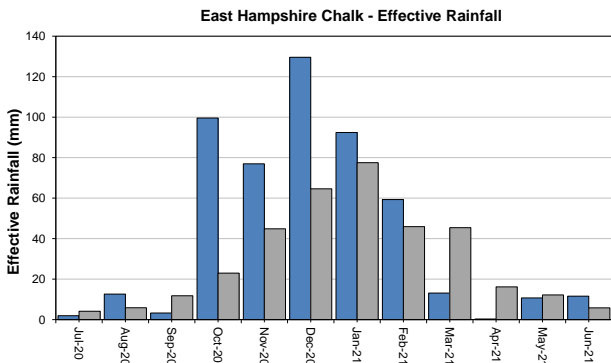
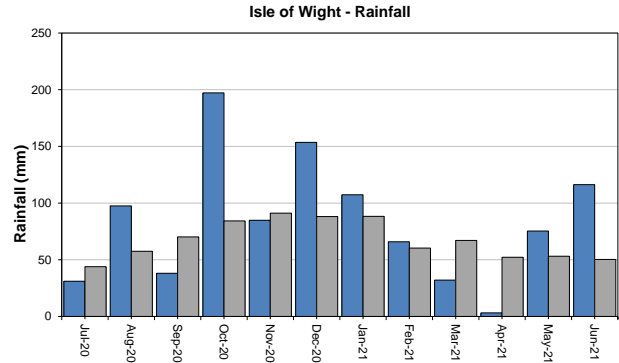
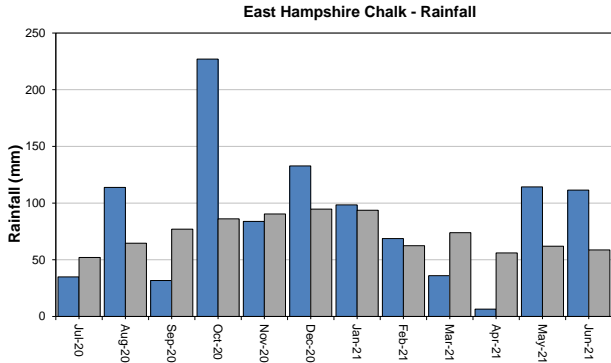
**LOPCOMBE CORNER GWL - CHALK**  
 Ranking derived from data for the period Apr-1963 to Dec-2017



# East Hampshire and Isle of Wight

Monthly total rainfall (mm)

Long term average rainfall (mm)



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

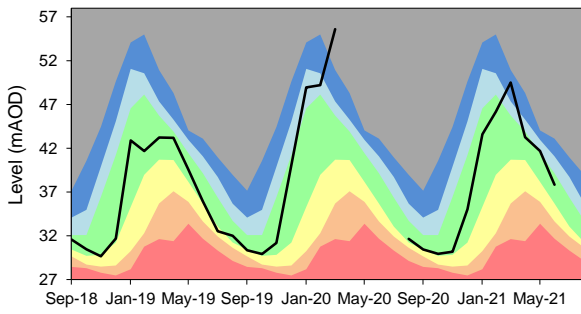
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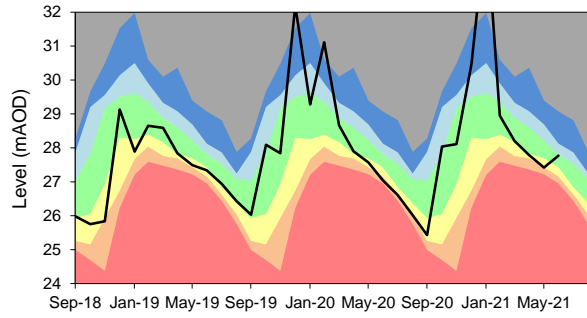
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# East Hampshire and Isle of Wight – Page 2

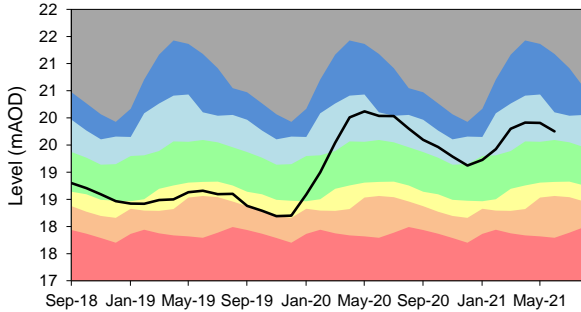
**CATHERINGTON GWL - CHALK**  
 Ranking derived from data for the period Jan-1969 to Dec-2017



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



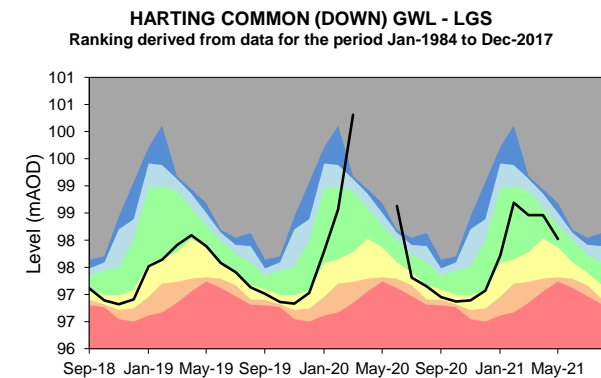
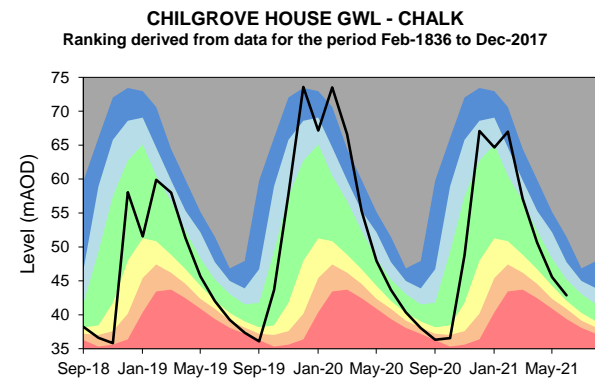
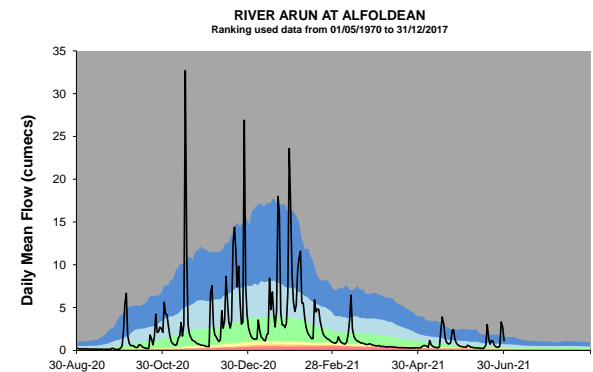
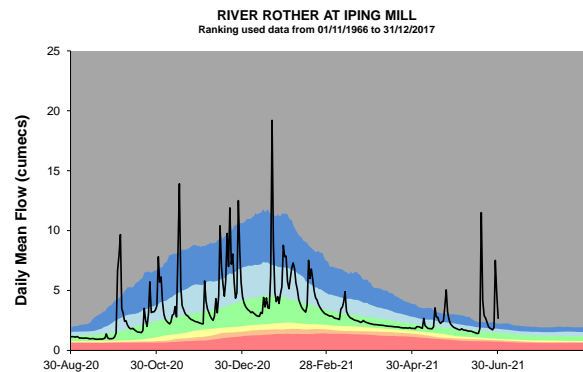
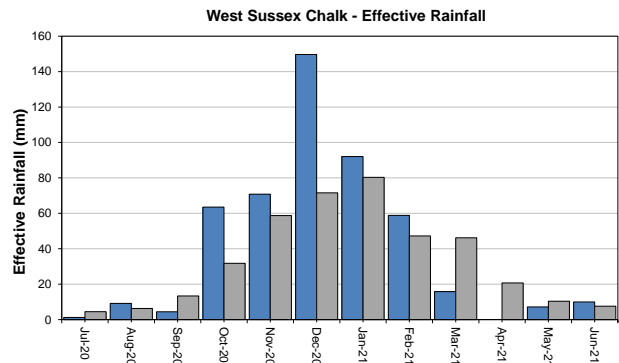
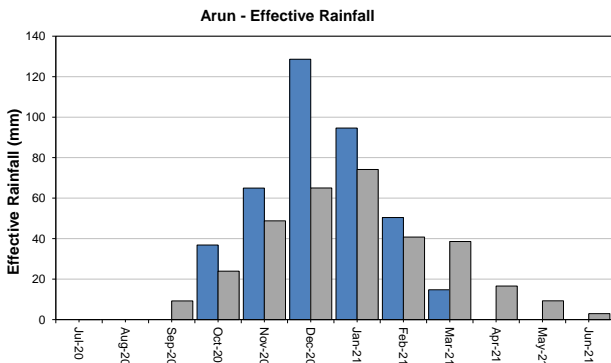
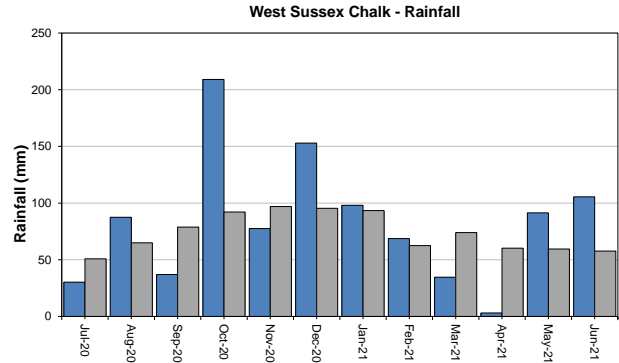
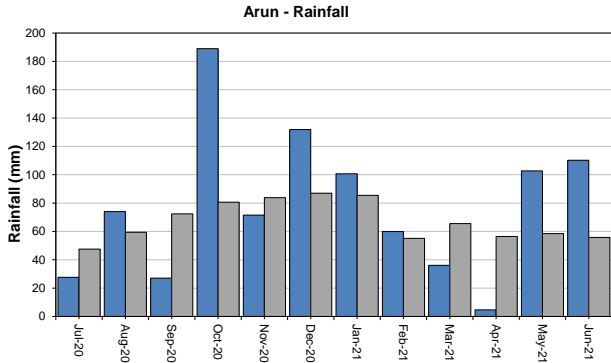
**YOUNGWOOD COPSE GWL - LGS**  
 Ranking derived from data for the period Feb-1978 to Dec-2017



# West Sussex

Monthly total rainfall (mm)

Long term average rainfall (mm)



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

customer service line  
03708 506 506

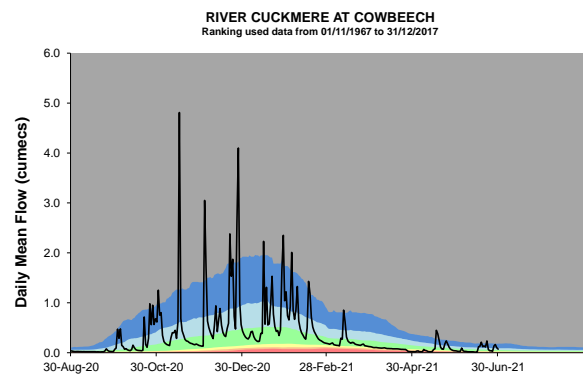
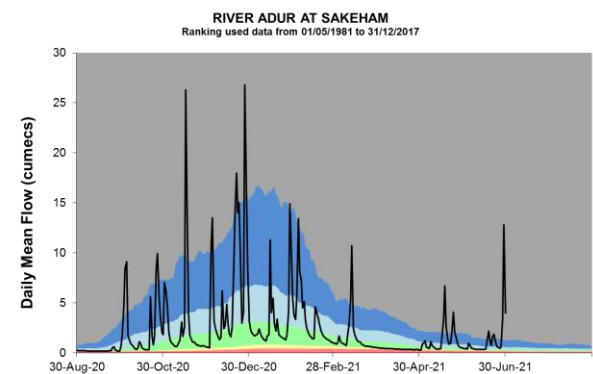
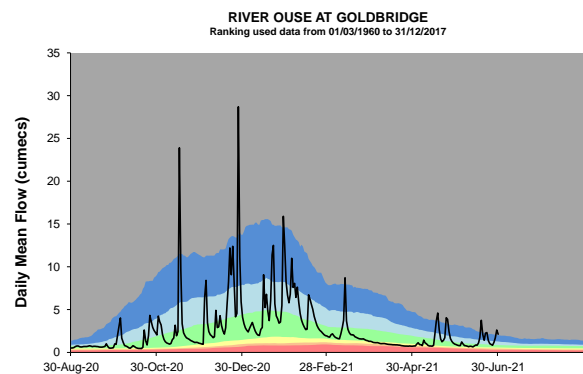
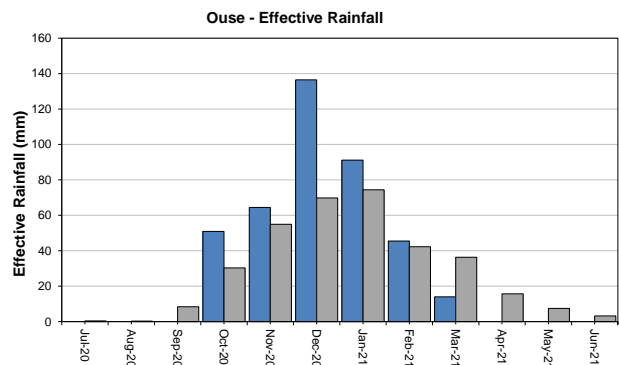
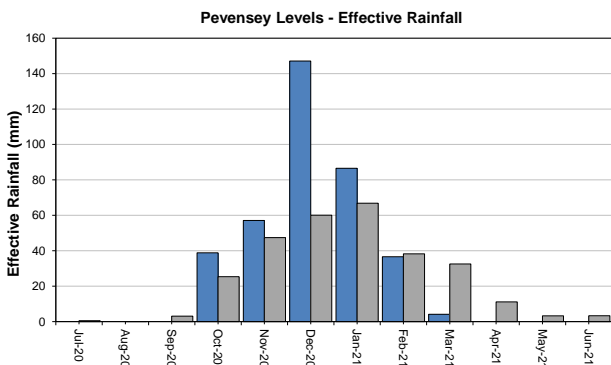
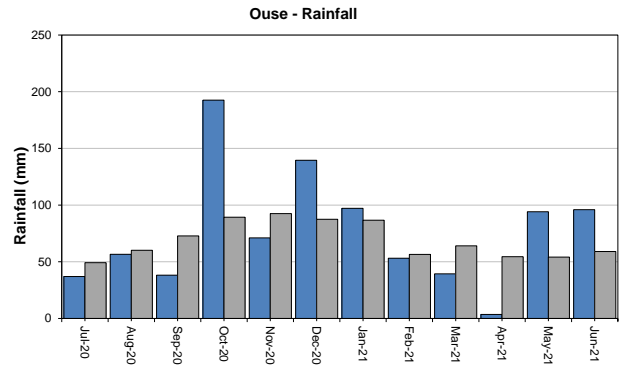
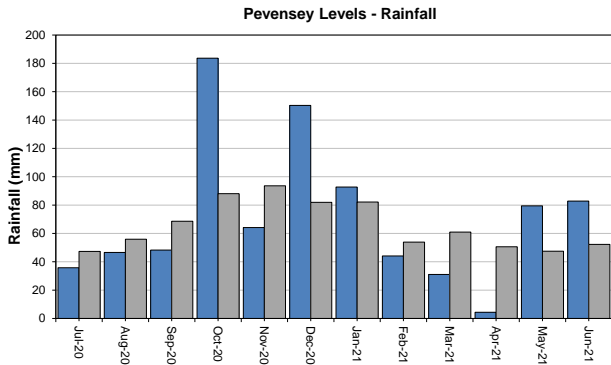
incident hotline  
0800 80 70 60

floodline  
0345 988 1188

# East Sussex

Monthly total rainfall (mm)

Long term average rainfall (mm)

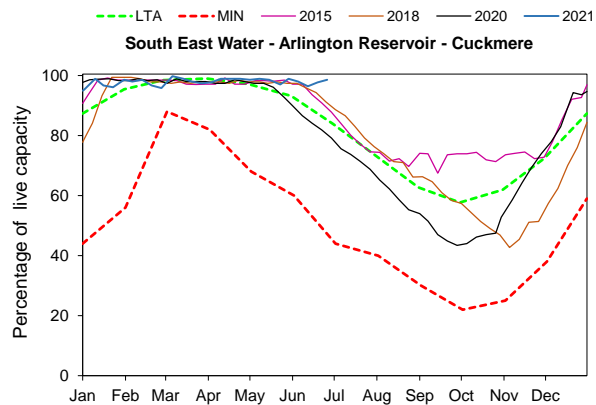
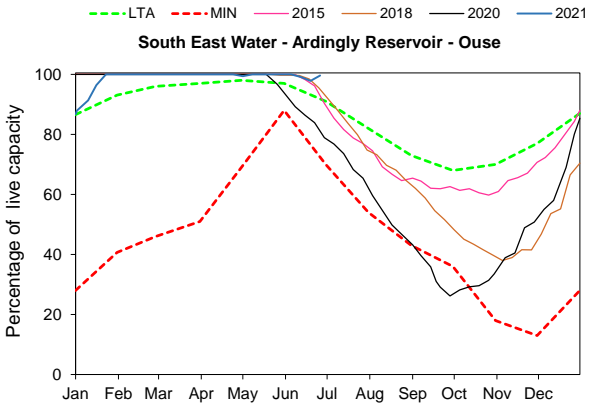
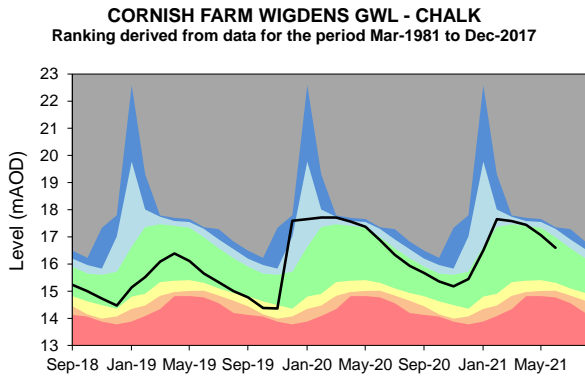
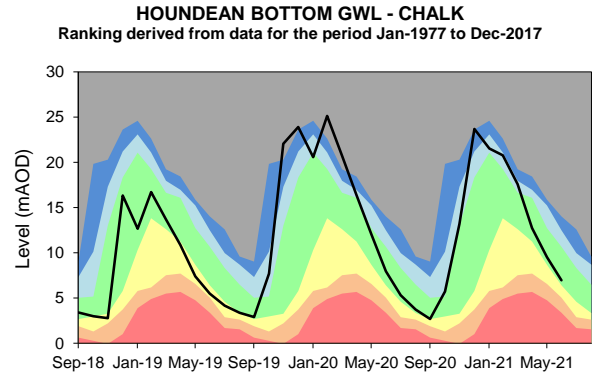
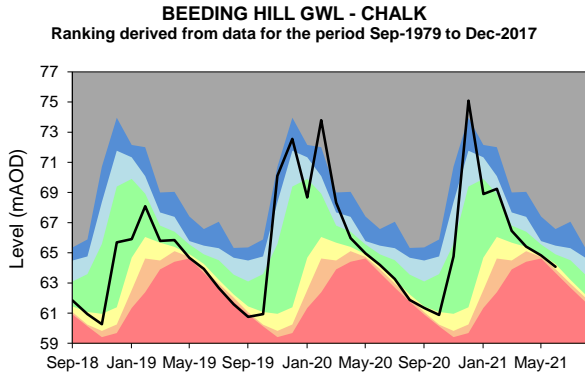


Exceptionally high  
 Below normal  
 Notably high  
 Notably low  
 Above normal  
 Exceptionally low  
 Normal  
 Latest data

# 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                    | 87            | 58                | 152        | 9                       | 6                           | 157        |
| East Hampshire Chalk          | 112           | 59                | 190        | 12                      | 6                           | 199        |
| West Sussex Chalk             | 106           | 58                | 183        | 10                      | 8                           | 131        |
| East Sussex Chalk             | 111           | 58                | 193        | 10                      | 8                           | 125        |
| Isle of Wight                 | 116           | 50                | 231        | 11                      | 5                           | 218        |
| Western Rother Greensand      | 125           | 57                | 217        | 13                      | 8                           | 170        |
| Hampshire Tertiaries          | 104           | 53                | 197        | 0                       | 1                           | 0          |
| Lymington                     | 108           | 54                | 198        | 0                       | 2                           | 0          |
| Sussex Coast                  | 93            | 48                | 194        | 0                       | 2                           | 0          |
| Arun                          | 110           | 56                | 197        | 0                       | 3                           | 0          |
| Adur                          | 93            | 56                | 166        | 0                       | 4                           | 0          |
| Ouse                          | 96            | 59                | 163        | 0                       | 3                           | 0          |
| Cuckmere                      | 102           | 58                | 175        | 0                       | 4                           | 0          |
| Pevensey Levels               | 83            | 52                | 158        | 0                       | 3                           | 0          |
| <b>Solent and South Downs</b> | <b>103</b>    | <b>55</b>         | <b>186</b> | <b>5</b>                | <b>5</b>                    | <b>102</b> |

### Summer rainfall and effective rainfall

Summer totals for the period 1 April to the 30 June 2021

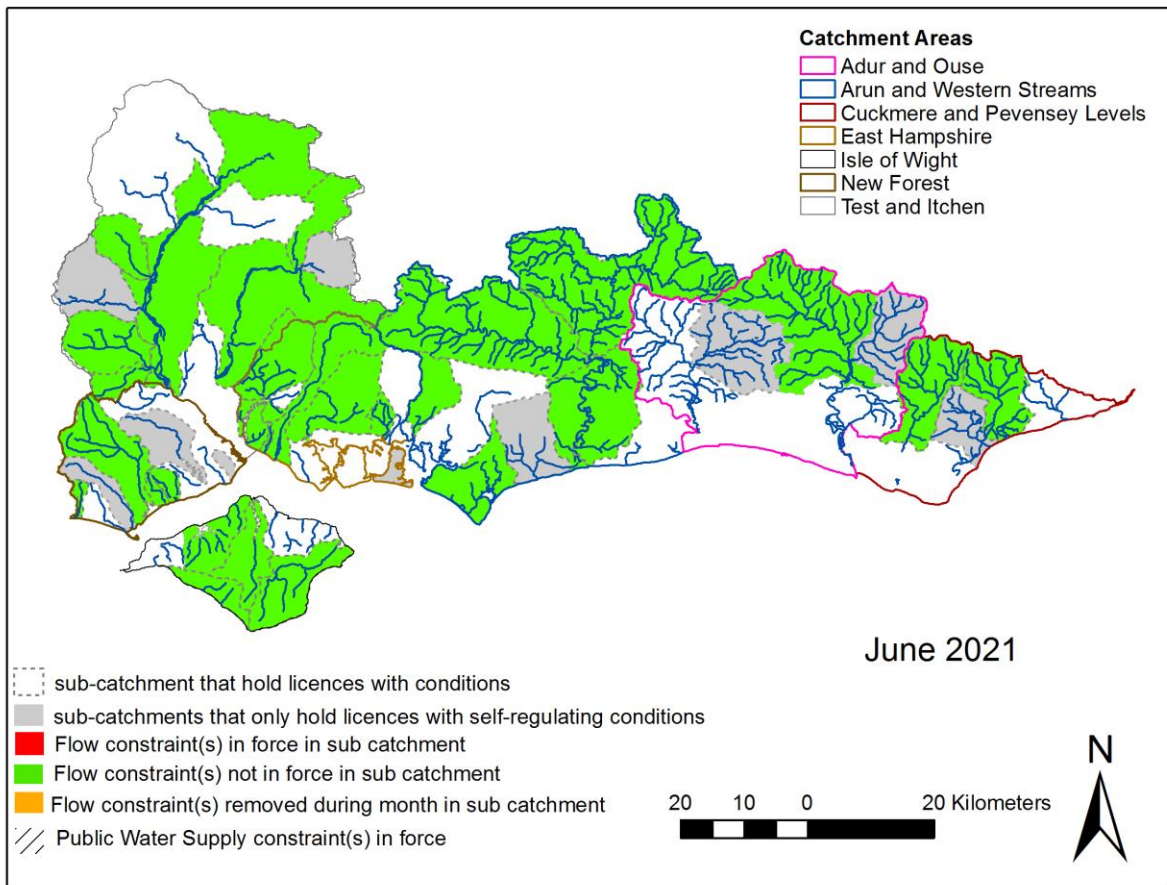
| Area                          | Rainfall (mm) | LTA rainfall (mm) | % of LTA   | Effective rainfall (mm) | LTA effective rainfall (mm) | % of LTA  |
|-------------------------------|---------------|-------------------|------------|-------------------------|-----------------------------|-----------|
| Test Chalk                    | 205           | 168               | 122        | 18                      | 30                          | 61        |
| East Hampshire Chalk          | 232           | 177               | 131        | 23                      | 34                          | 66        |
| West Sussex Chalk             | 200           | 177               | 113        | 17                      | 39                          | 44        |
| East Sussex Chalk             | 196           | 163               | 120        | 15                      | 31                          | 50        |
| Isle of Wight                 | 195           | 156               | 125        | 17                      | 25                          | 67        |
| Western Rother Greensand      | 239           | 181               | 132        | 23                      | 48                          | 48        |
| Hampshire Tertiaries          | 211           | 160               | 132        | 0                       | 16                          | 0         |
| Lymington                     | 211           | 164               | 129        | 0                       | 19                          | 0         |
| Sussex Coast                  | 162           | 148               | 109        | 0                       | 18                          | 0         |
| Arun                          | 217           | 171               | 127        | 0                       | 29                          | 0         |
| Adur                          | 192           | 167               | 115        | 0                       | 28                          | 0         |
| Ouse                          | 194           | 168               | 116        | 0                       | 26                          | 0         |
| Cuckmere                      | 191           | 159               | 120        | 0                       | 22                          | 0         |
| Pevensey Levels               | 167           | 150               | 111        | 0                       | 18                          | 0         |
| <b>Solent and South Downs</b> | <b>201</b>    | <b>165</b>        | <b>122</b> | <b>8</b>                | <b>27</b>                   | <b>30</b> |

## Soil Moisture Deficit

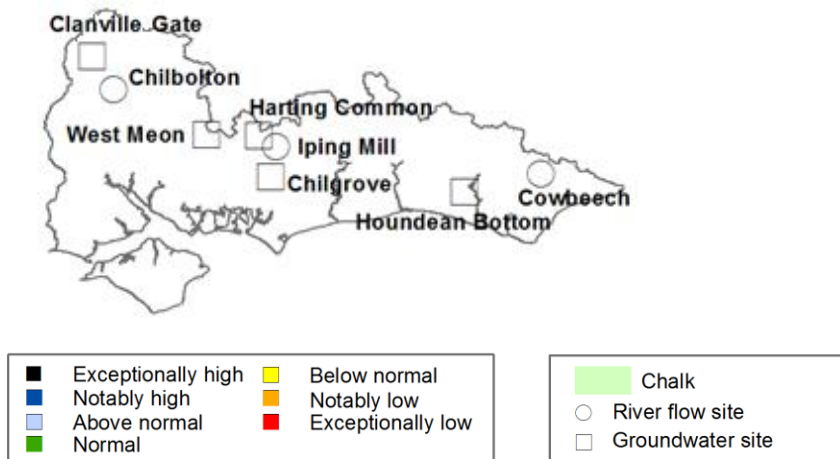
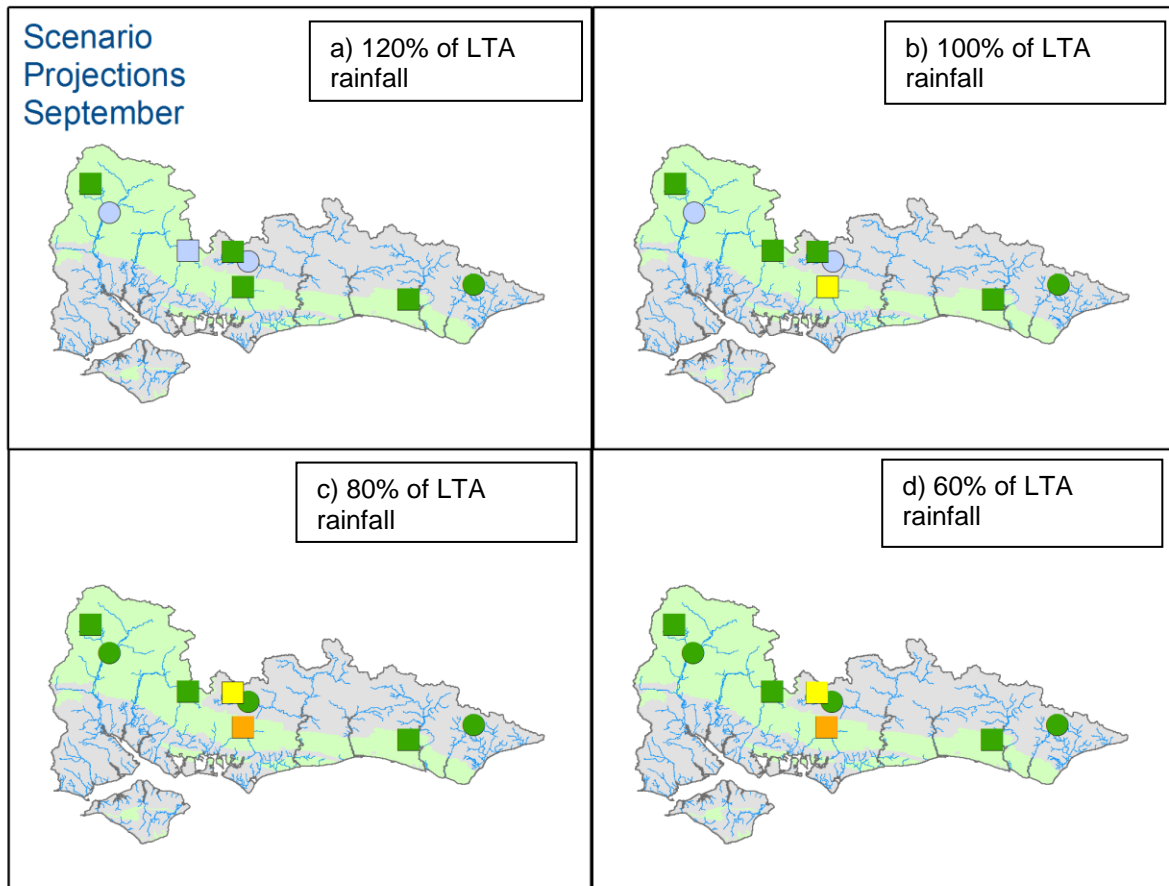
| Area                          | End of month SMD (mm) | End of month SMD LTA (mm) |
|-------------------------------|-----------------------|---------------------------|
| Test Chalk                    | 61                    | 66                        |
| East Hampshire Chalk          | 42                    | 65                        |
| West Sussex Chalk             | 57                    | 71                        |
| East Sussex Chalk             | 57                    | 73                        |
| Isle of Wight                 | 51                    | 78                        |
| Western Rother Greensand      | 33                    | 59                        |
| Hampshire Tertiaries          | 40                    | 70                        |
| Lymington                     | 37                    | 69                        |
| Sussex Coast                  | 66                    | 76                        |
| Arun                          | 33                    | 67                        |
| Adur                          | 57                    | 69                        |
| Ouse                          | 51                    | 64                        |
| Cuckmere                      | 54                    | 67                        |
| Pevensey Levels               | 72                    | 73                        |
| <b>Solent and South Downs</b> | <b>51</b>             | <b>69</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 ( $\text{m}^3\text{s}^{-1}$ )

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