

# Monthly water situation report

## Solent and South Downs Area

### Summary – March 2020

Solent and South Downs had below average rainfall for March with 87% of the long term average (LTA). The soil moisture deficits ended the month at zero. River flows and groundwater levels ranged from **normal** to **exceptionally high**. End of month reservoir stocks were just above average at both Ardingly and Arlington Reservoirs.

### Rainfall

Solent and South Downs (SSD) had below average rainfall for March, receiving 87% (58mm) of the LTA (67mm). The rainfall pattern was evenly distributed over the SSD area with slightly more to the east. The East Sussex Chalk and Ouse areal units had the highest monthly totals with 109% and 104% LTA respectively. The Western Rother Greensand unit in the central SSD received the lowest rainfall for the month with only 60mm of 80% of LTA (76mm). The majority of the monthly rain (about 80%) fell over 2 days, on the 4<sup>th</sup> and 5<sup>th</sup> and the highest daily totals were recorded on the 5<sup>th</sup> with Denton (East Sussex Chalk) and Vines Cross (Cuckmere) recording 34mm. There were on average about 15 wet days for the whole area, mainly at the beginning of the month. The October to March “winter” period ranked as the 10<sup>th</sup> wettest on record for SSD. Most notably the East Sussex Chalk unit was the 3<sup>rd</sup> wettest winter period (+10mm on 2014), while the Adur and Ouse units ranked 4<sup>th</sup> wettest.

### Soil Moisture Deficit/Recharge

Soil moisture deficits across Solent and South Downs have increased due to the dry weather and are now more than the long term average.

### River Flows

Monthly mean river flows across SSD ranged from **normal** to **exceptionally high**. The River Lymington at Brockenhurst GS recorded monthly mean flows in the **normal** range. Flows on the River Medina at Blackwater were **above normal**. The River Test at Chilbolton GS, River Itchen at Allbrook & Highbridge GS, River Wallington at North Fareham, Western Rother at Iping Mill GS, and the River Arun at Alfoldean were **notably high**. All other reported sites recorded **exceptionally high** flows. All the monthly flows ranked in the top 10 highest for March (except for Brockenhurst GS). There were some significant daily mean flows in SSD during the start of March. Most notable was the figure of 47.7m<sup>3</sup>/s recorded on 05/03/2020 at Goldbridge (Ouse) as this represents the highest March daily mean flow at this gauging station in a record that dates back to 1960.

### Groundwater Levels

End of month groundwater levels ranged from **normal** to **exceptionally high**. Levels Carisbrooke Castle (Isle of Wight) were **normal**. Cornish Farm and Youngwoods Copse levels were **above normal**. Clanville Gate (Test Chalk), Preston Candover and West Meon (East Hants Chalk) and Beeding Hill (west Sussex Chalk) levels were **notably high**. All remaining sites were in the **exceptionally high** category. The most notable levels this month were recorded at Harting Common and Houndean Bottom which represent the highest end of March levels on record for both sites. Levels at some sites (e.g. Test Chalk) continue to rise and have yet to peak.

### Reservoir Storage/Water Resource Zone Stocks

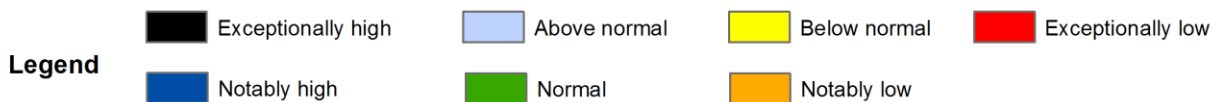
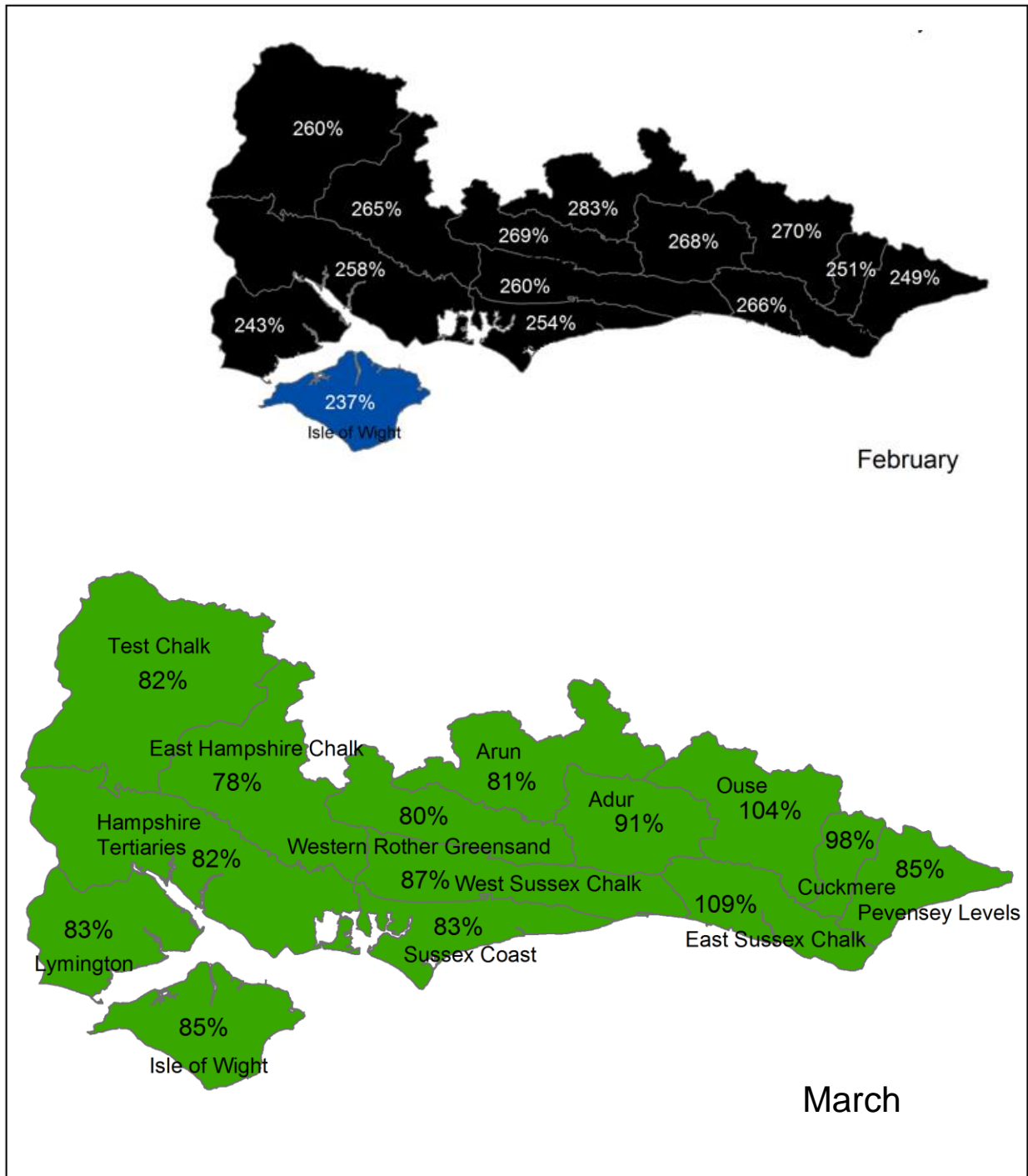
End of month reservoir stocks were above average at Ardingly Reservoir (Ouse Catchment) with 99% of total capacity (LTA is 97%) and at Arlington Reservoir (Cuckmere catchment) with 98% of total capacity (LTA is 97%).

### Environmental Impact

One licence restriction was imposed in the New Forest mid March and ended at the end of the month. 24 Fluvial Flood Alerts, 2 Fluvial Flood Warnings and 16 Groundwater Flood Alerts were issued throughout the month. 6 of the Flood Warning were issued on the 9<sup>th</sup> March (all in Sussex) in response to a prolonged period of high rainfall.

Author: [HydrologySSD](#)

## Rainfall Map 1



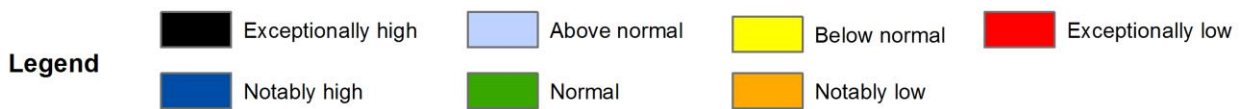
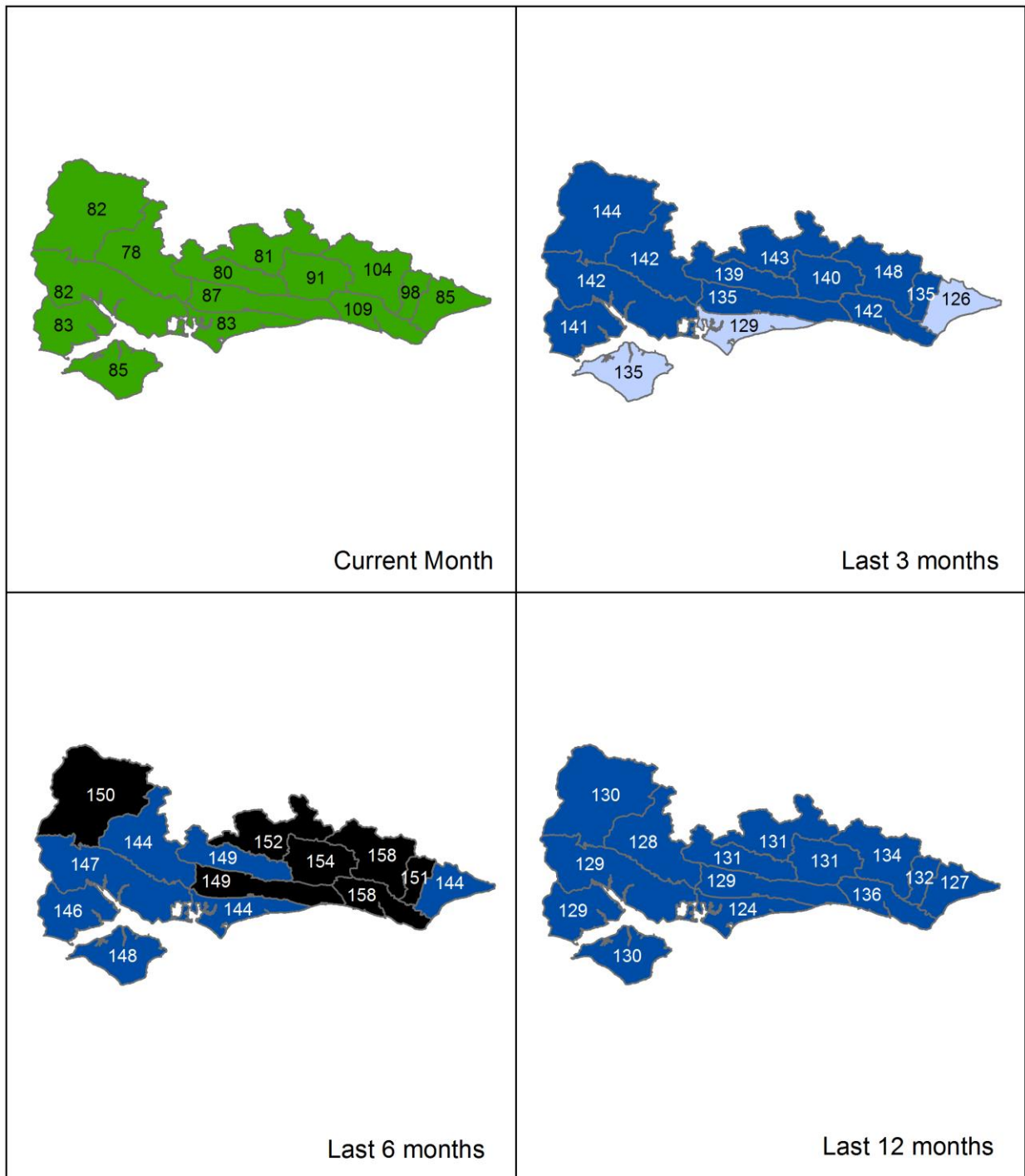
Total rainfall for hydrological areas across Solent and South Downs for the current month, classed relative to an analysis of respective historic totals. Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Includes material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

## Rainfall Map 2

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03708 506 506

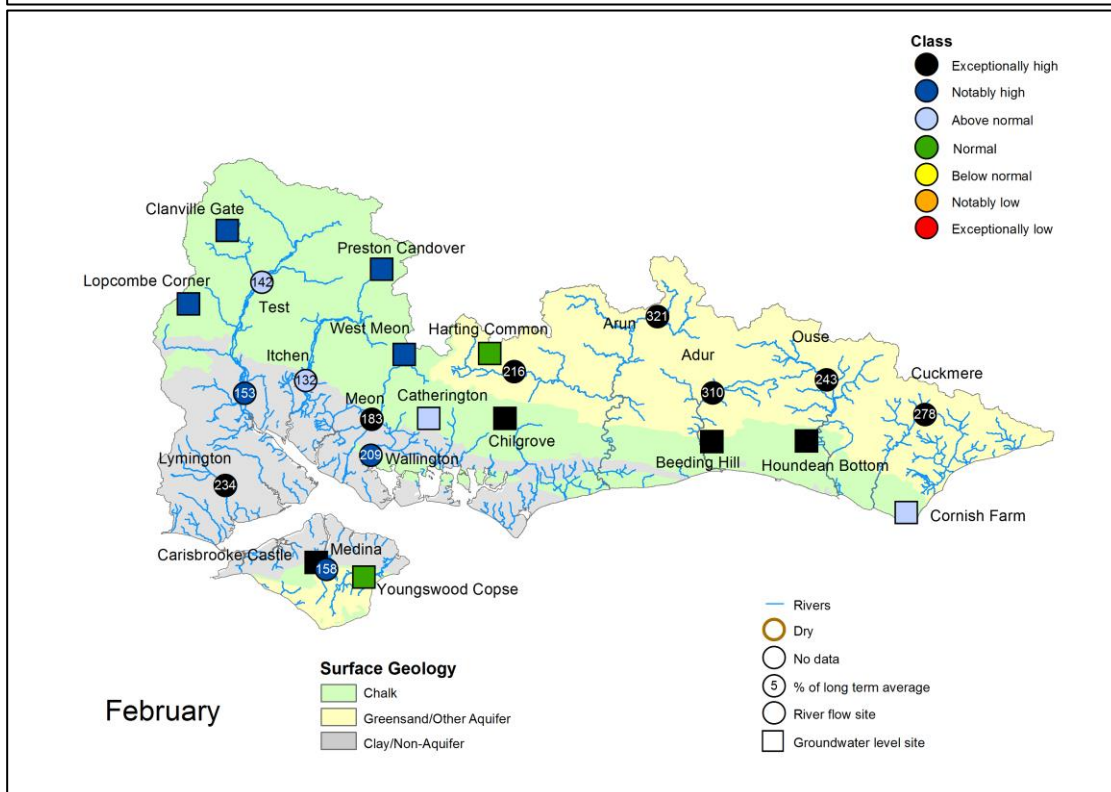
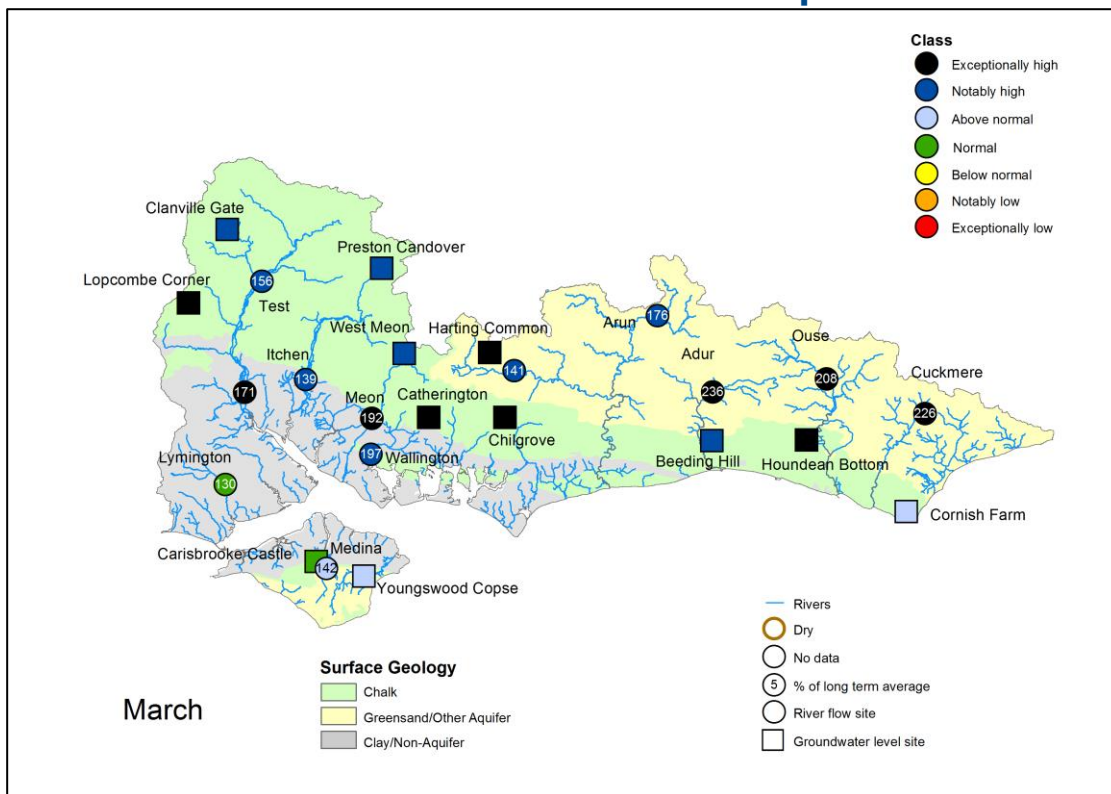
incident hotline  
0800 80 70 60

floodline  
0345 988 1188



Total rainfall for hydrological areas across Solent and South Downs for the current month (up to 31 March), 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, 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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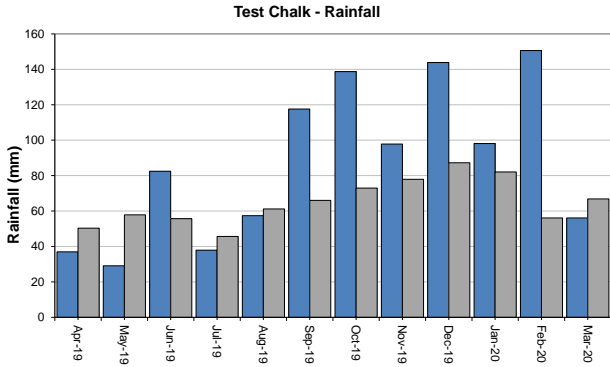
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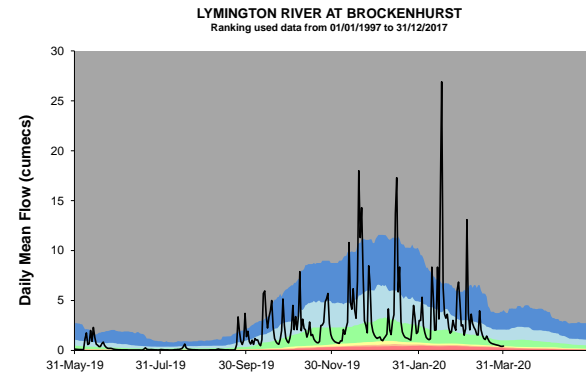
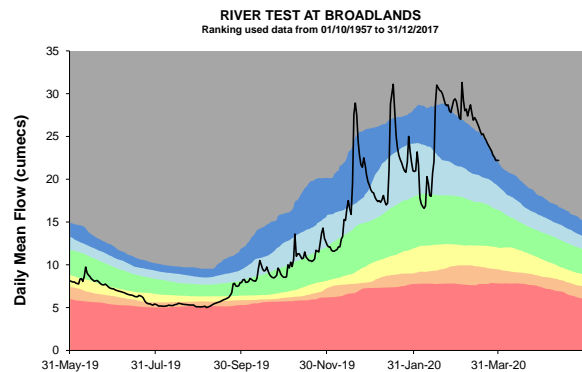
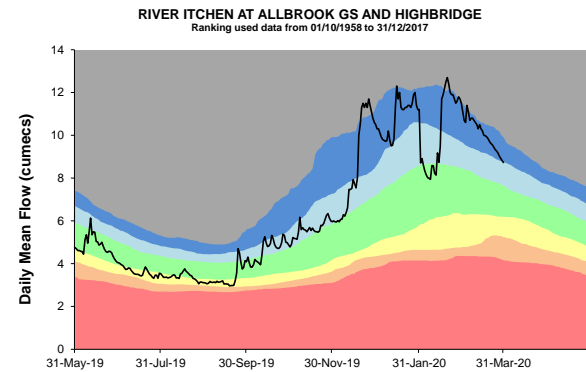
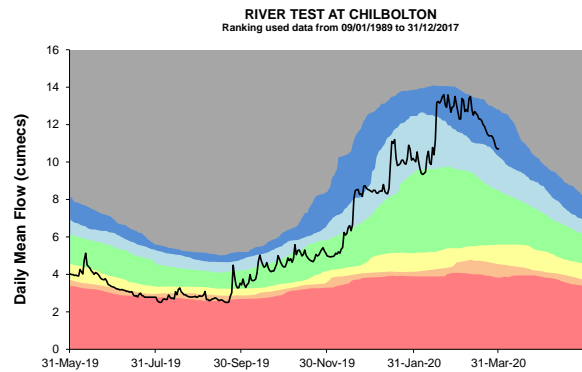
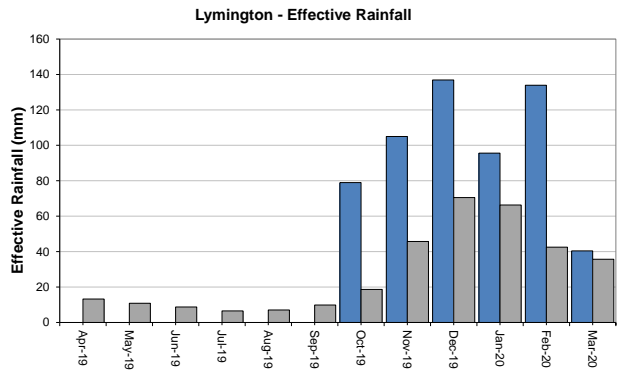
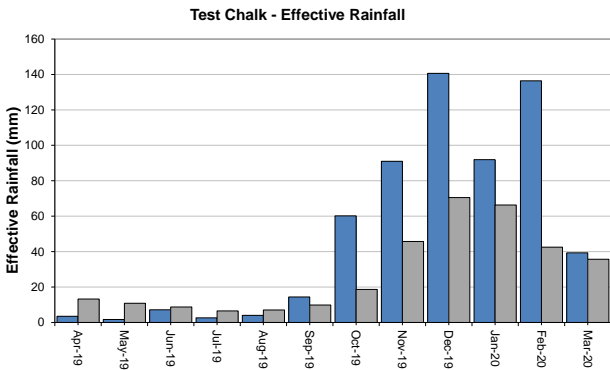
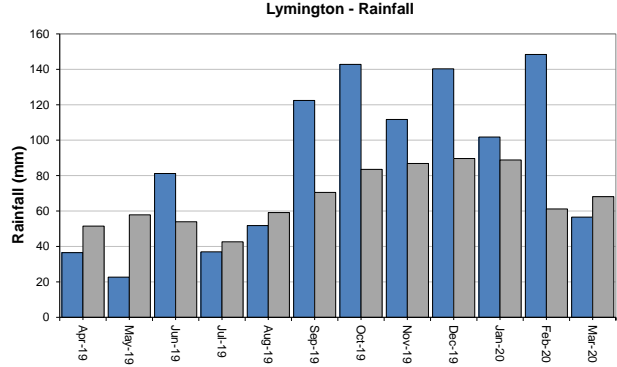
floodline  
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# West Hampshire – Page 1

Monthly total rainfall (mm)



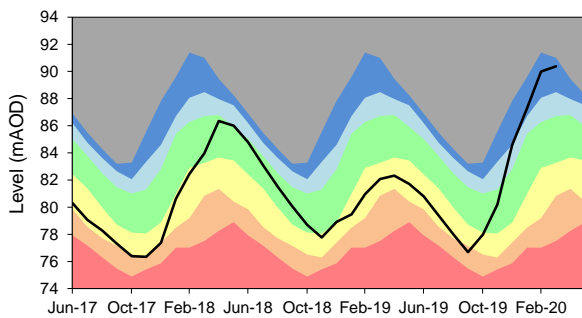
Long term average rainfall (mm)



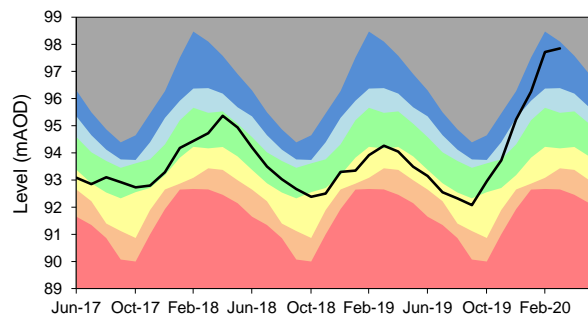
Exceptionally high  
 Below normal  
 Notably high  
 Notably low  
 Above normal  
 Exceptionally low  
 Normal  
 Latest data

# West Hampshire – Page 2

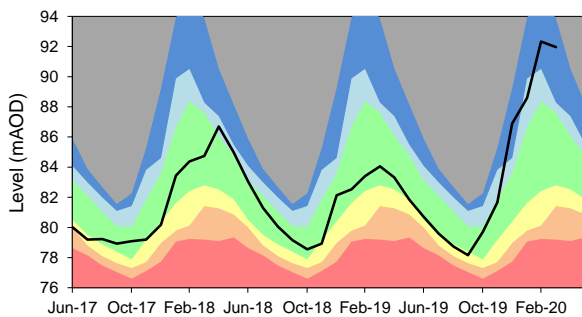
**CLANVILLE GATE GWL - CHALK**  
 Ranking derived from data for the period Mar-1963 to Dec-2012



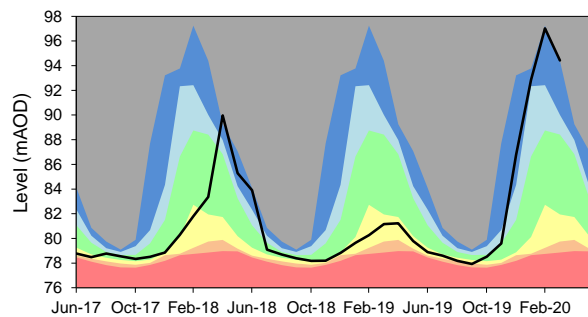
**PRESTON CANDOVER GWL - CHALK**  
 Ranking derived from data for the period Jan-1975 to Dec-2012



**WEST MEON GWL - CHALK**  
 Ranking derived from data for the period Sep-1986 to Dec-2012



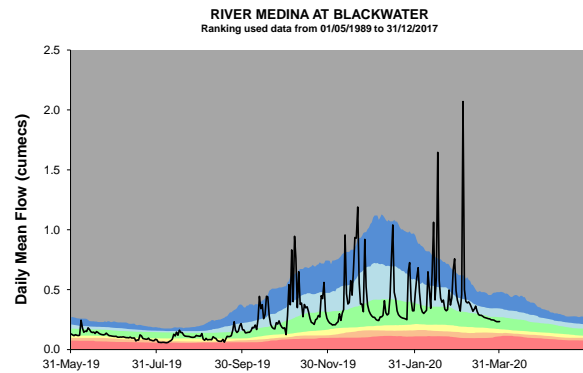
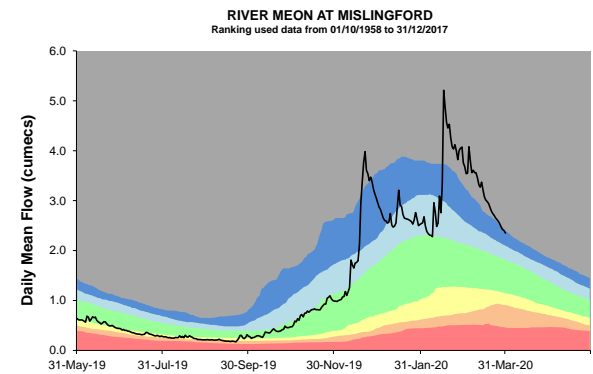
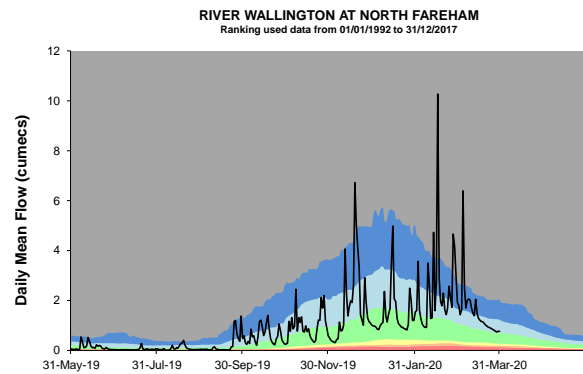
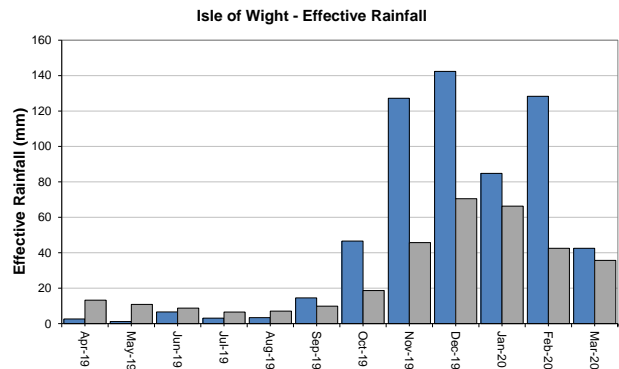
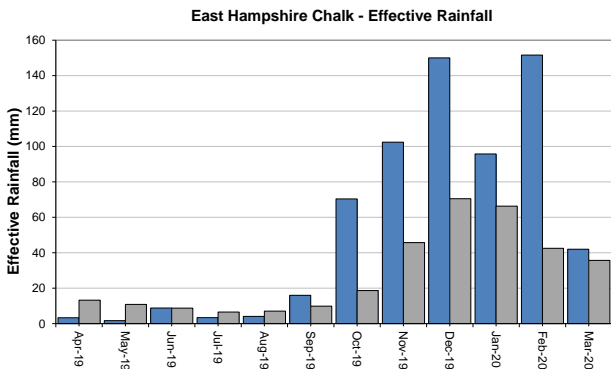
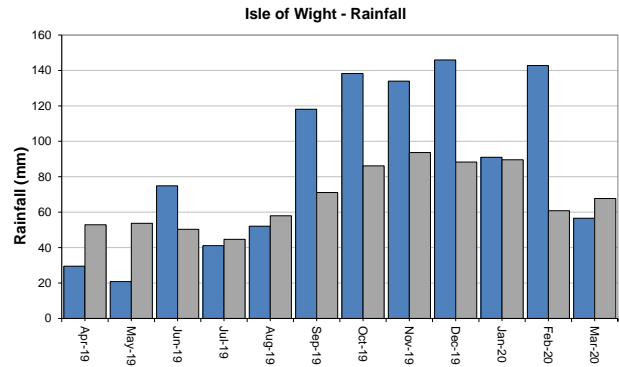
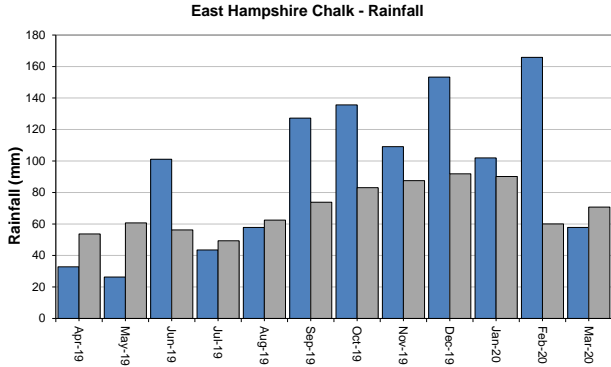
**LOPCOMBE CORNER GWL - CHALK**  
 Ranking derived from data for the period Apr-1963 to Dec-2012



# 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

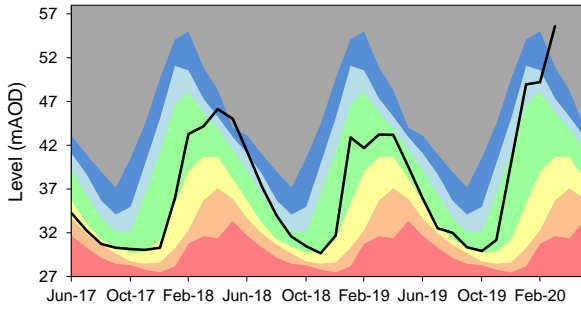
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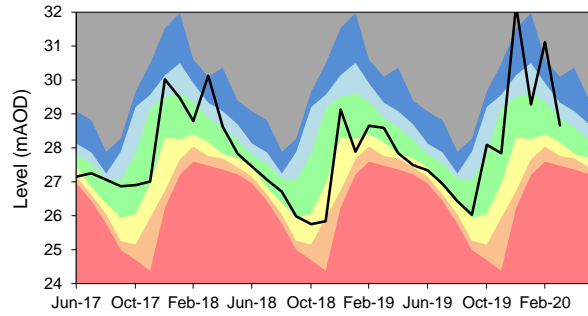
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0345 988 1188

# East Hampshire and Isle of Wight – Page 2

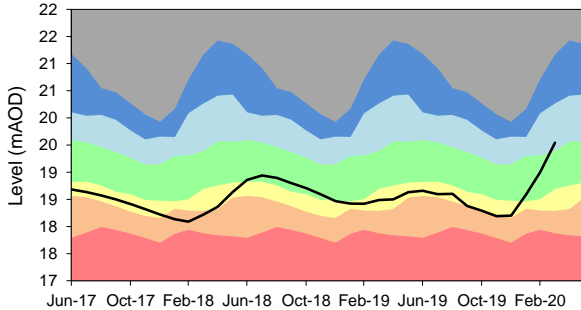
**CATHERINGTON GWL - CHALK**  
 Ranking derived from data for the period Jan-1969 to Dec-2012



**CARISBROOKE CASTLE GWL - CHALK**  
 Ranking derived from data for the period Aug-1977 to Dec-2012



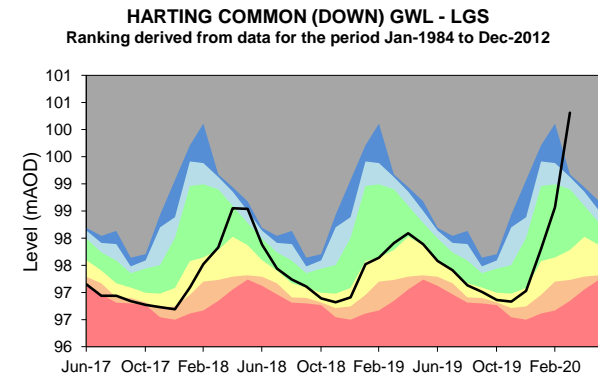
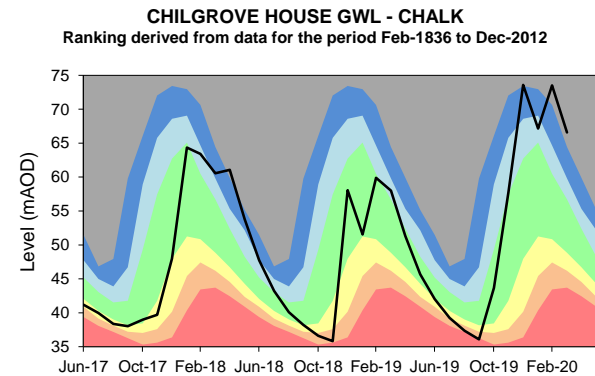
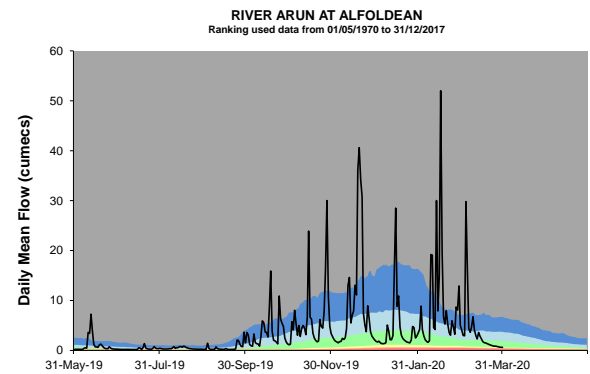
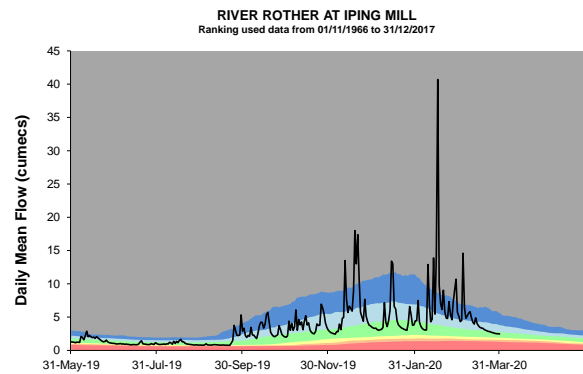
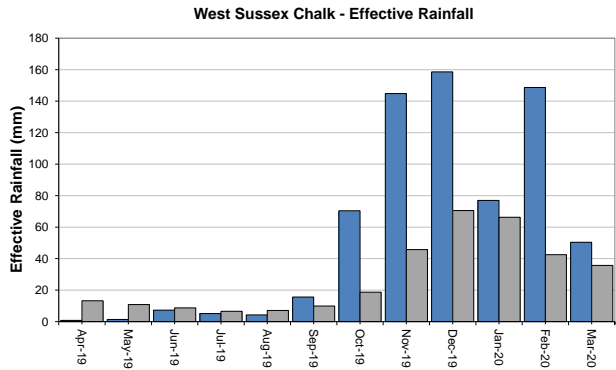
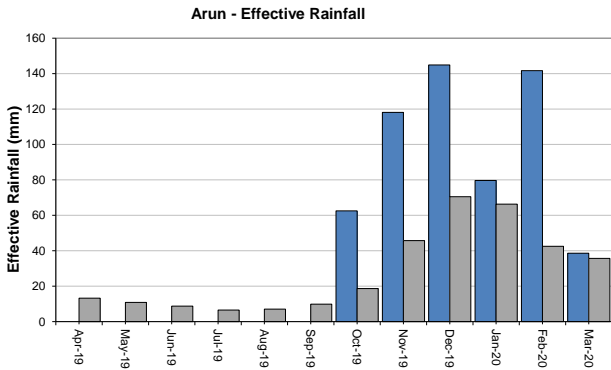
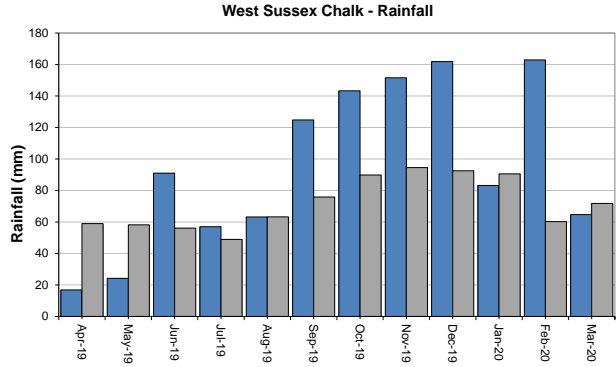
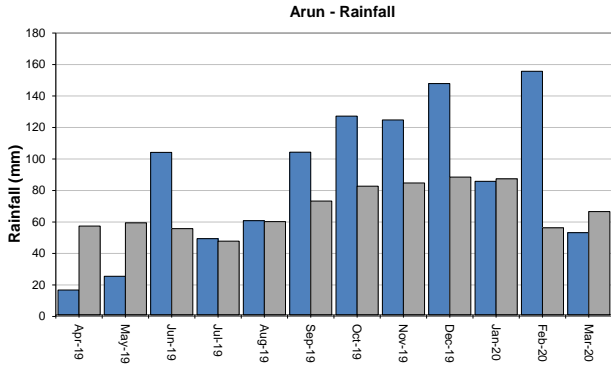
**YOUNGWOOD COPSE GWL - LGS**  
 Ranking derived from data for the period Feb-1978 to Dec-2012



# 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

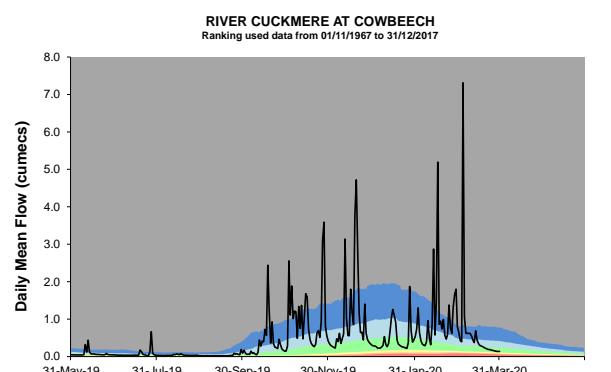
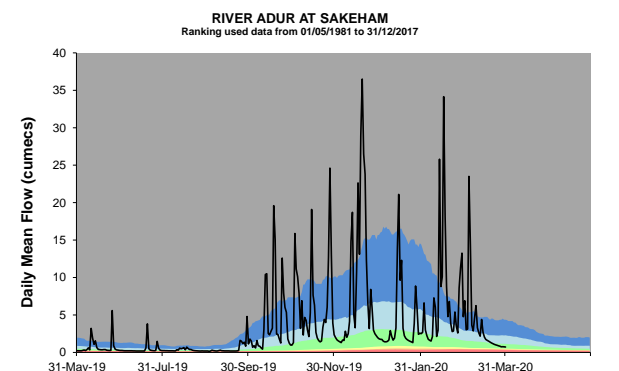
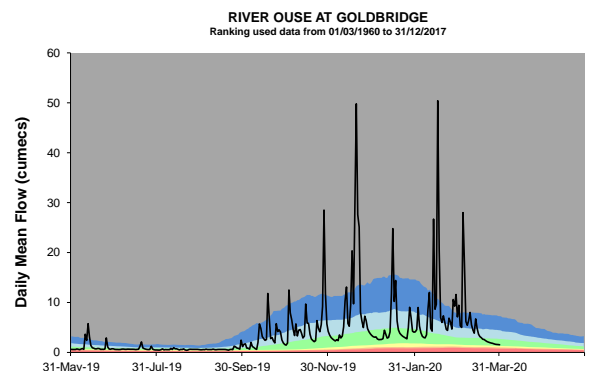
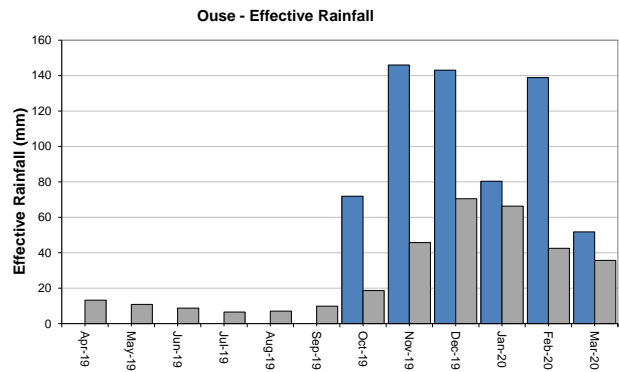
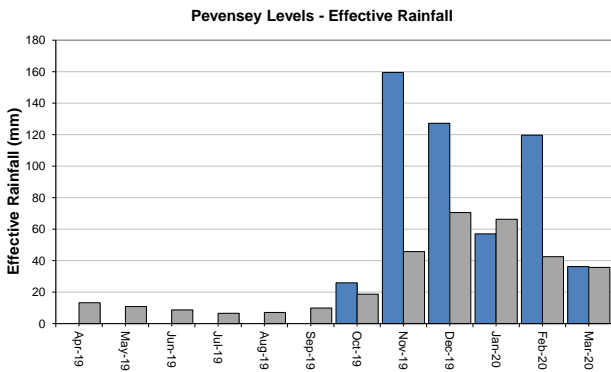
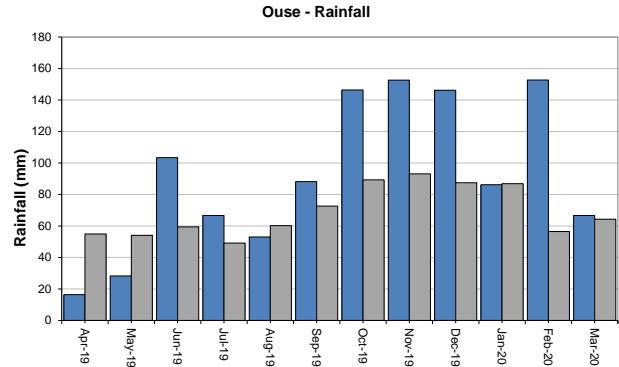
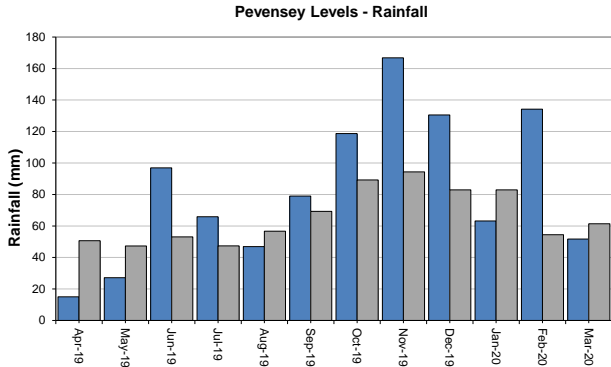
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floodline  
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# East Sussex

Monthly total rainfall (mm)

Long term average rainfall (mm)



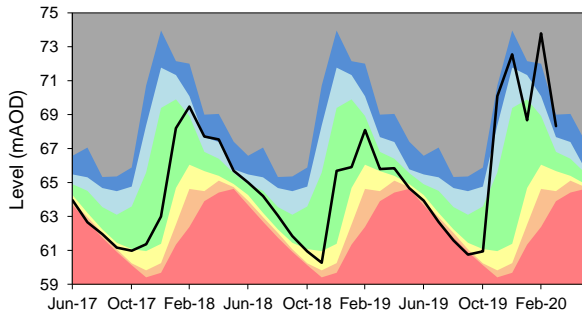
Exceptionally high  
 Below normal  
 Notably high  
 Notably low  
 Above normal  
 Exceptionally low  
 Normal  
 Latest data

# East Sussex – Page 2

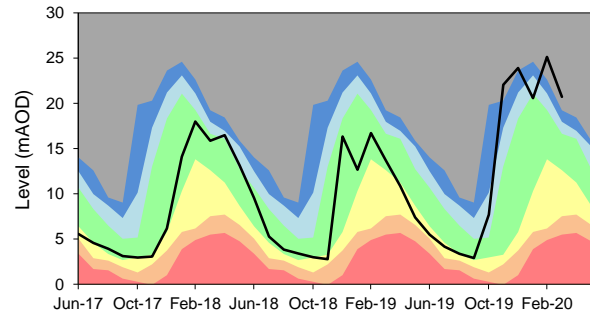
Monthly total rainfall (mm)

Long term average rainfall (mm)

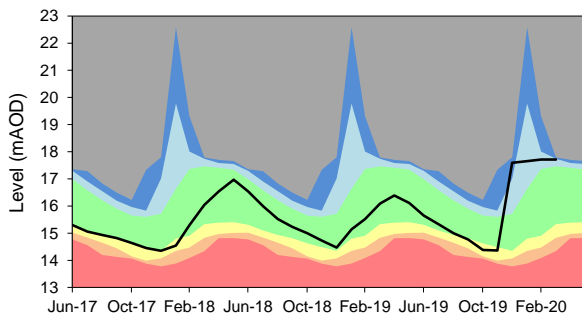
**BEEADING HILL GWL - CHALK**  
Ranking derived from data for the period Sep-1979 to Dec-2012



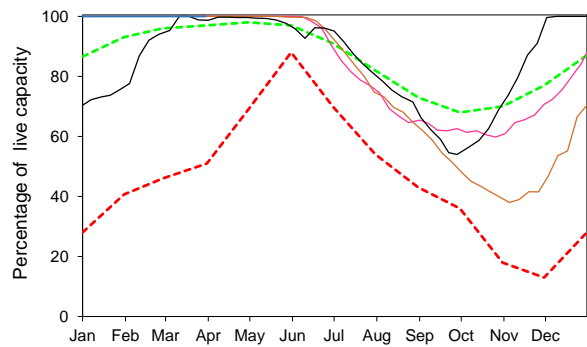
**HOUNDEAN BOTTOM GWL - CHALK**  
Ranking derived from data for the period Jan-1977 to Dec-2012



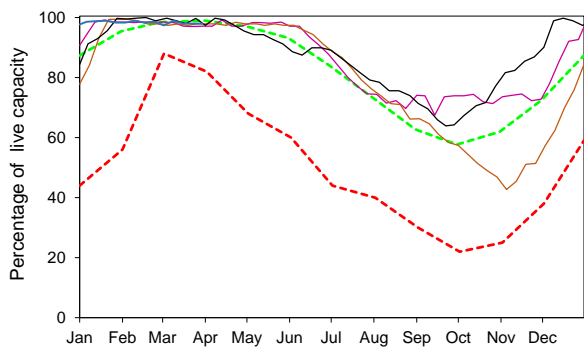
**CORNISH FARM WIGDENS GWL - CHALK**  
Ranking derived from data for the period Mar-1981 to Dec-2012



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

\*Cornish Farm Wigdens has not been collect this month due to COVID-19 restrictions

## 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	56	69	82	39	41	96
East Hampshire Chalk	58	74	78	42	45	92
West Sussex Chalk	65	74	87	50	46	109
East Sussex Chalk	71	65	109	56	37	151
Isle of Wight	57	67	85	43	39	109
Western Rother Greensand	60	76	80	45	51	89
Hampshire Tertiaries	55	67	82	39	38	102
Lymington	57	68	83	40	41	99
Sussex Coast	50	61	83	37	33	112
Arun	53	66	81	39	39	100
Adur	58	64	91	44	36	121
Ouse	67	64	104	52	36	142
Cuckmere	61	62	98	46	34	133
Pevensey Levels	52	61	85	36	33	111
<b>Solent and South Downs</b>	<b>58</b>	<b>67</b>	<b>87</b>	<b>43</b>	<b>39</b>	<b>111</b>

### Winter rainfall and effective rainfall

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

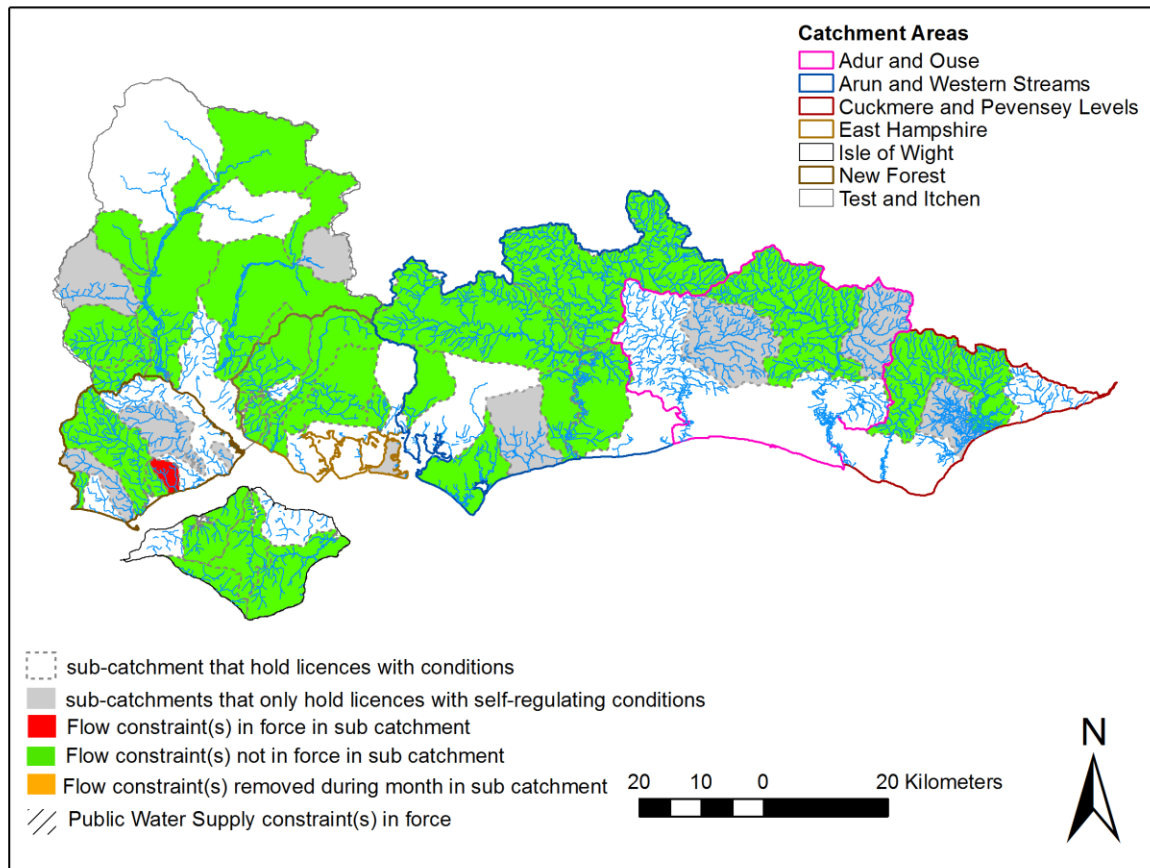
Area	Rainfall (mm)	LTA rainfall (mm)	% of LTA	Effective rainfall (mm)	LTA effective rainfall (mm)	% of LTA
Test Chalk	685	456	150	559	255	220
East Hampshire Chalk	724	501	144	612	301	203
West Sussex Chalk	768	515	149	650	336	194
East Sussex Chalk	775	490	158	632	293	215
Isle of Wight	709	479	148	572	286	200
Western Rother Greensand	780	525	149	678	335	203
Hampshire Tertiaries	677	461	147	566	280	202
Lymington	702	479	146	591	305	194
Sussex Coast	611	425	144	474	235	201
Arun	695	458	152	585	291	201
Adur	717	464	154	591	287	206
Ouse	751	477	158	632	308	205
Cuckmere	712	472	151	586	292	201
Pevensey Levels	665	461	144	526	270	194
<b>Solent and South Downs</b>	<b>712</b>	<b>476</b>	<b>150</b>	<b>590</b>	<b>291</b>	<b>203</b>

## Soil Moisture Deficit

Area	End of month SMD (mm)	End of month SMD LTA (mm)
Test Chalk	19	9
East Hampshire Chalk	19	9
West Sussex Chalk	21	9
East Sussex Chalk	20	9
Isle of Wight	22	10
Western Rother Greensand	20	8
Hampshire Tertiaries	20	9
Lymington	20	9
Sussex Coast	22	9
Arun	20	8
Adur	21	9
Ouse	19	8
Cuckmere	21	9
Pevensey Levels	20	9
<b>Solent and South Downs</b>	<b>20</b>	<b>9</b>

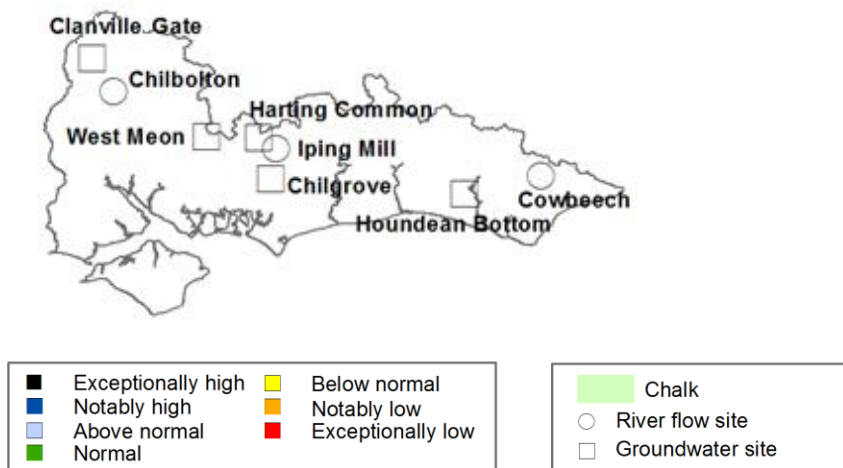
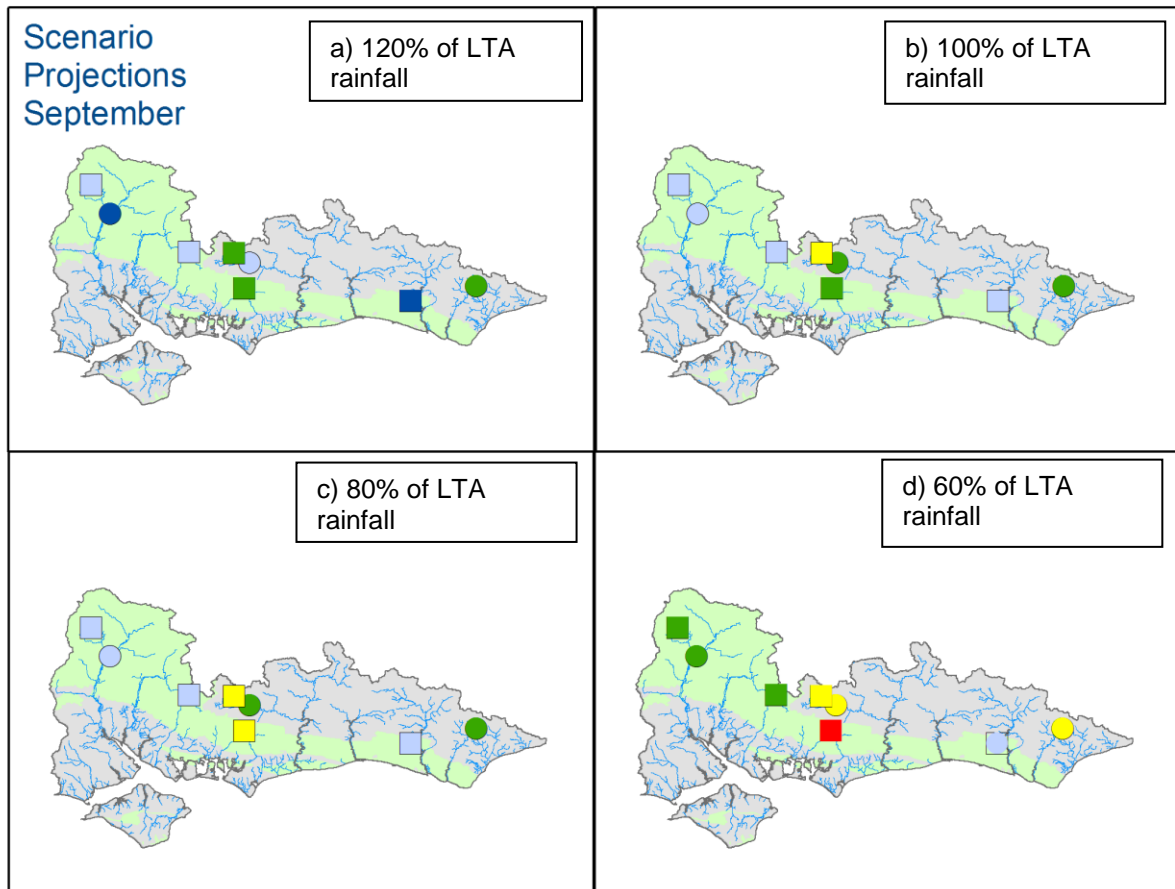
# Environmental Impact

## Flow Constraints



Catchment	No. licences with conditions currently operational in MAR	START	WK1	WK2	WK3	WK4	END
		Number at Start of the month in force	No. licences with Flow Condition in Force in MAR	No. licences with Flow Condition in Force in MAR	No. licences with Flow Condition in Force in MAR	No. licences with Flow Condition in Force in MAR	Number at End of the month in force
A&O	7	0	0	0	0	0	0
A&W	45	0	0	0	0	0	0
C&P	7	0	0	0	0	0	0
EH	10	0	0	0	0	0	0
IOW	30	0	0	0	0	0	0
NF	11	0	0	0	1	1	1
T&I	29	0	0	0	0	0	0
<b>Total in SSD</b>	<b>139</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>

# Forward look- river flow and groundwater September 2020



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