

Monthly water situation report

Solent and South Downs Area

Summary – September 2020

Solent and South Downs (SSD) had below average rainfall for September, receiving only 52% (37mm) of the LTA (72mm). Monthly mean river flows across SSD ranged from **exceptionally low** to **normal**. Groundwater levels ranged from **notably low** to **notably high**. Soil moisture deficits across Solent and South Downs ended the month greater than the long term average. 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 below average rainfall in September, receiving only 52% (37mm) of the LTA (72mm). Generally, the most rainfall fell on the furthest eastern side of SSD with the East Sussex Chalk areal unit receiving the highest monthly total with 53mm, 72% of LTA (74mm), closely followed by the Pevensey Levels areal unit with 48mm, 70% of LTA (68mm). The least rainfall fell in the middle of the area with the Western Rother Greensand and Arun units receiving 29mm and 27mm respectively, 37% of both LTAs. The wettest days of the month were the 24th and 30th with the highest daily totals of 32mm and 29mm, respectively, recorded at Denton (East Sussex Chalk). The rainfall totals on the 24th and 30th accounted for 90% of the months rain in most places. There were on average only 4 days of rain across the whole month. September marks the end of the hydrological summer period and April to September rainfall totals show that the Arun, Adur and Pevensey Levels areal units all recorded their 7th driest summer on record.

Soil Moisture Deficit/Recharge

Soil moisture deficits across Solent and South Downs ended the month greater than the long term average. Soils remain drier than normal.

River Flows

Monthly mean river flows across SSD ranged from **exceptionally low** to **normal**. Alfoldean (Arun) recorded **exceptionally low** for the time of year with its September mean the lowest recorded on its 50 year record. The River Wallington at North Fareham recorded **notably low** flows with its flows notable as the 5th lowest September mean since 1975. Flows in the Lymington at Brockenhurst were **below normal** for September. All other reporting sites recorded monthly mean flows in the **normal** range.

Groundwater Levels

End of month groundwater levels ranged from **notably low** to **notably high**. Preston Candover (East Hampshire Chalk) recorded **notably high** groundwater levels with the 3rd highest September level since 1975. Groundwater levels at Youngwoods Copse (Isle of Wight) and Lopcombe Corner (Test Chalk) were **above normal**. Harting Common (Western Rother Greensand), Beeding Hill (West Sussex Chalk), Carisbrooke Castle (Isle of Wight) all recorded groundwater levels **below normal**. Chilgrove House (West Sussex Chalk) recorded **notably low** groundwater levels. All other sites recorded **normal** end of month groundwater levels.

Reservoir Storage

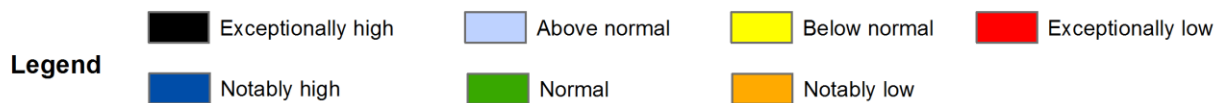
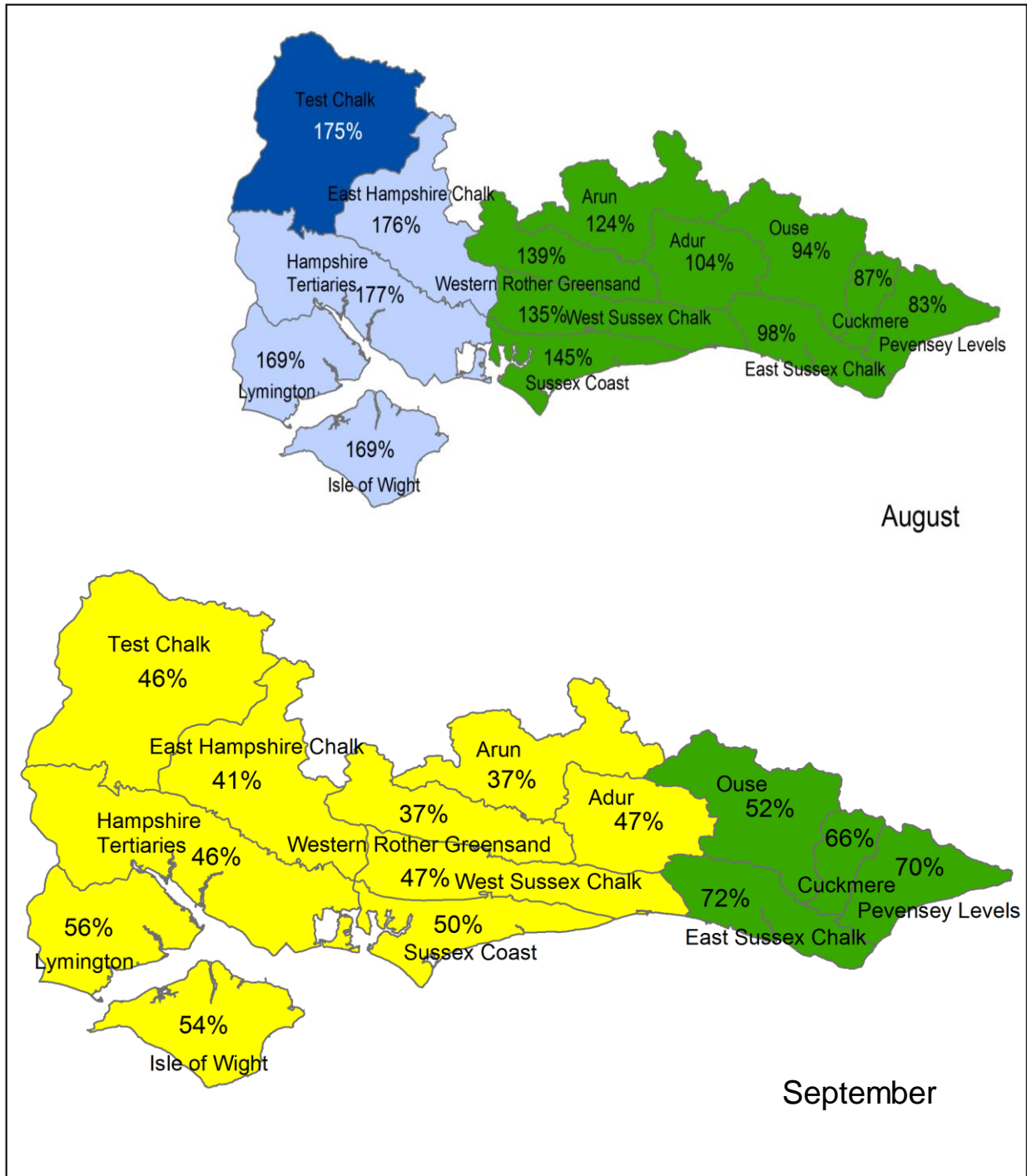
End of month reservoir stocks were below average at Ardingly Reservoir (Ouse Catchment) with 26% of total capacity (LTA 68%) and also below average at Arlington Reservoir (Cuckmere catchment) with 43% of total capacity (LTA 57%).

Environmental Impact

There were a total of 19 licences with restrictions in force during September, but all but 3 restrictions were lifted by the end of the month. There were no Flood Alerts or Flood Warnings issued in September.

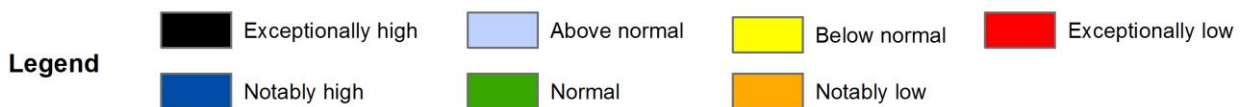
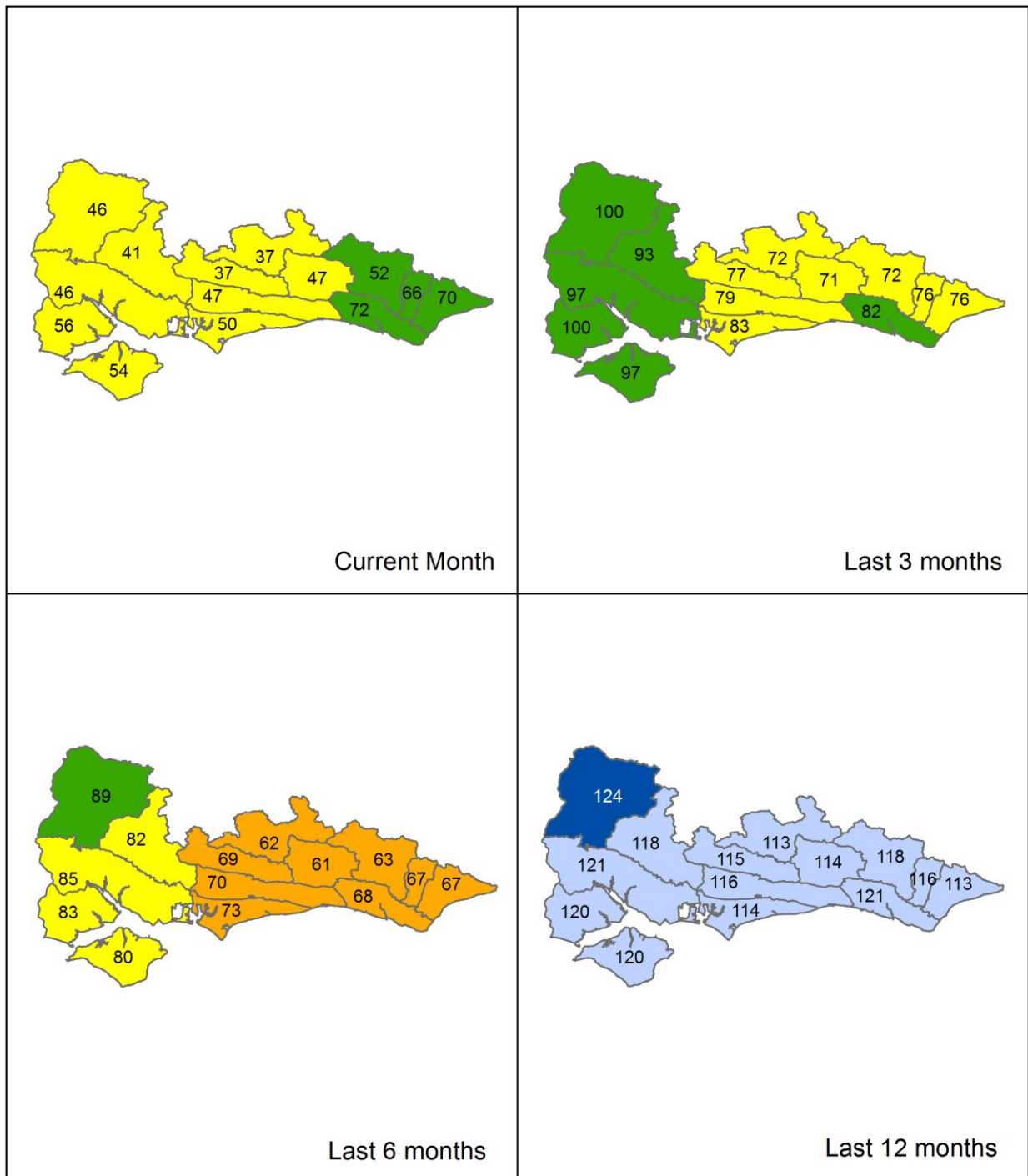
Author: [HydrologySSD](#)

Rainfall Map 1



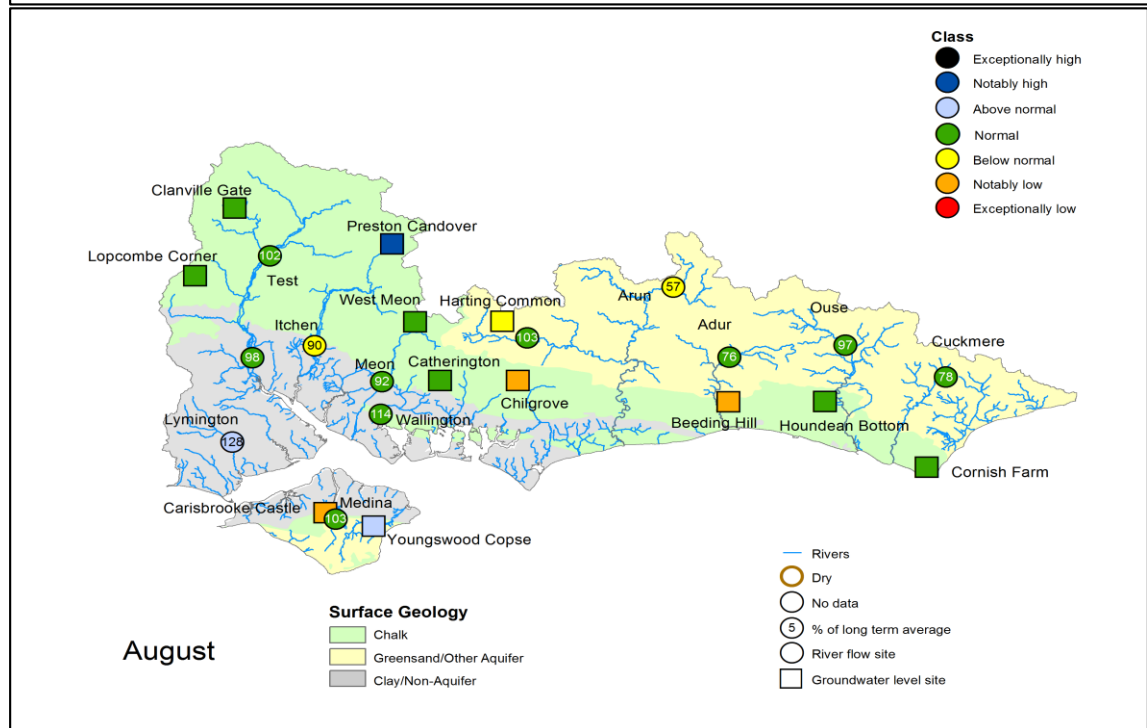
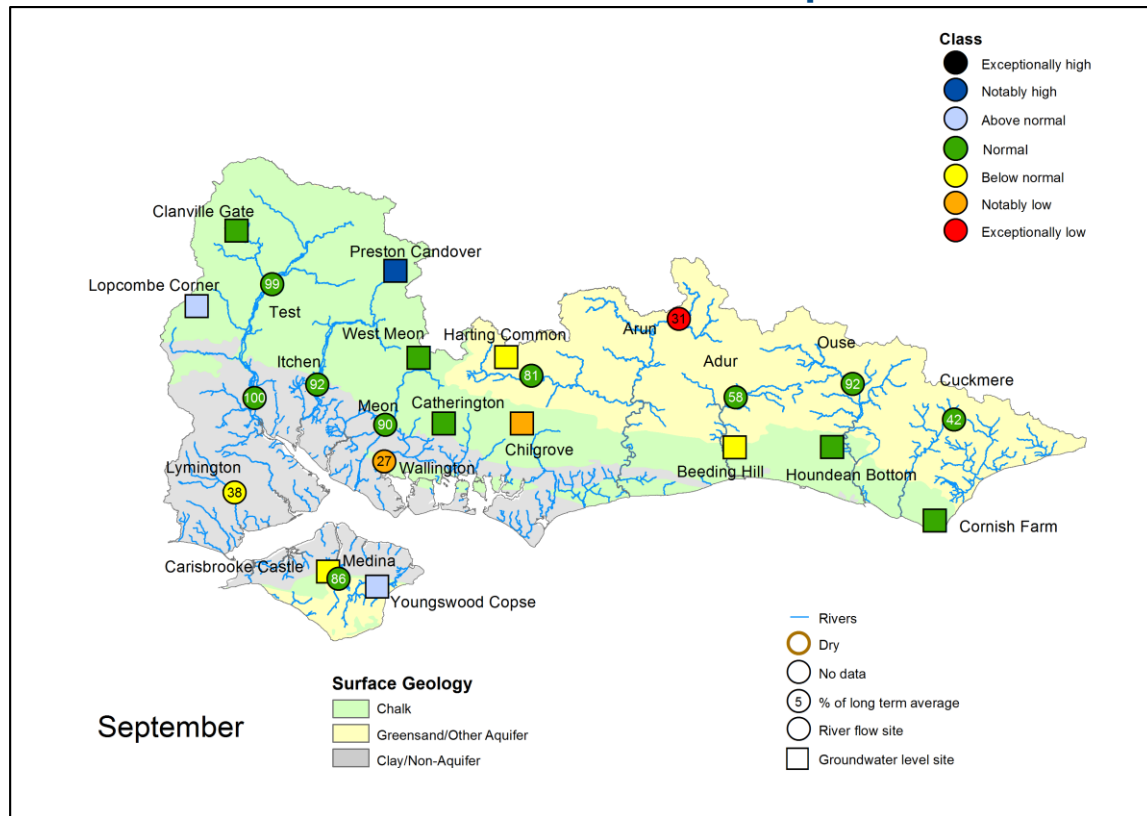
Total rainfall for hydrological areas across Solent and South Downs for the current month, classed relative to an analysis of respective historic totals. Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Includes material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



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

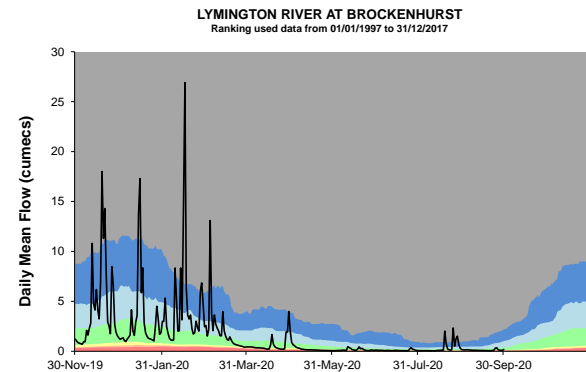
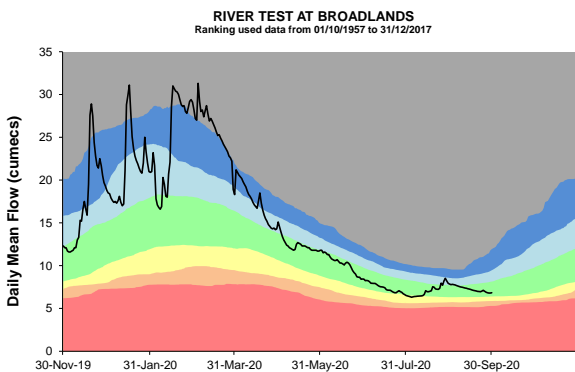
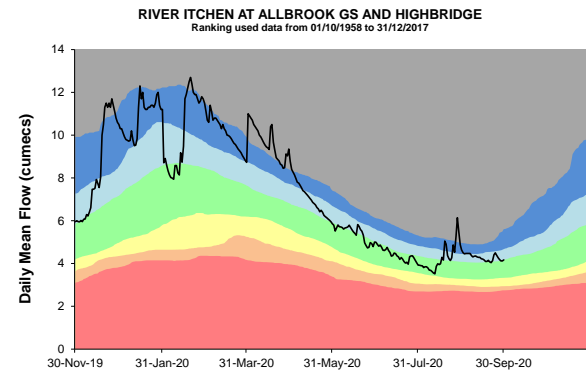
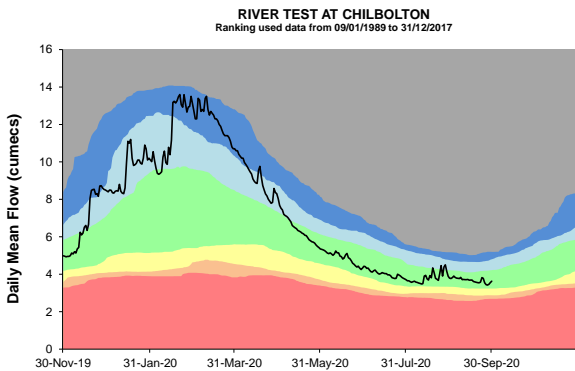
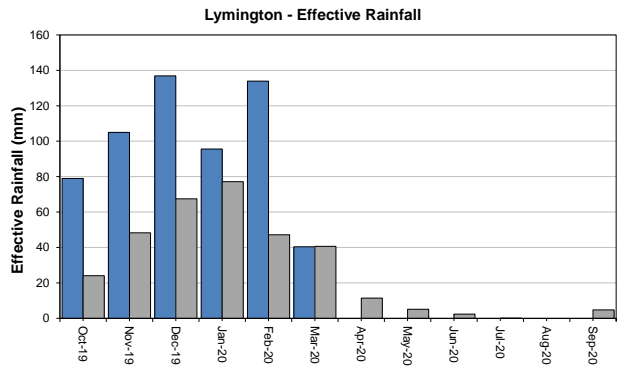
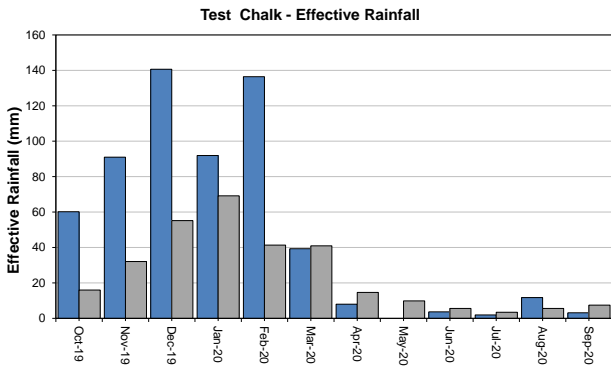
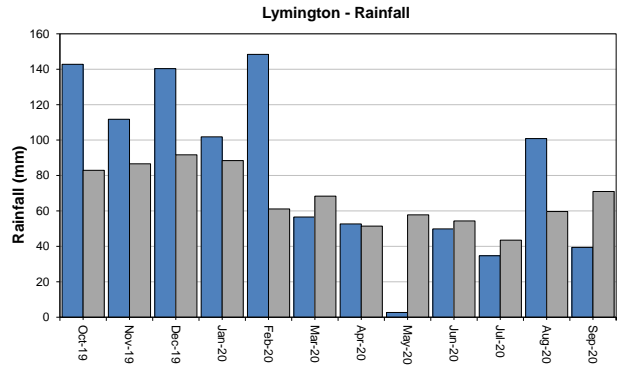
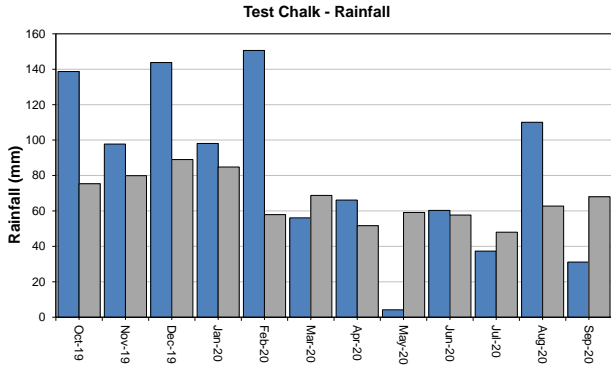
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West Hampshire – Page 1

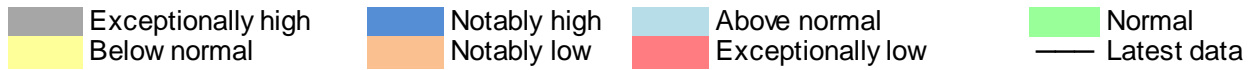
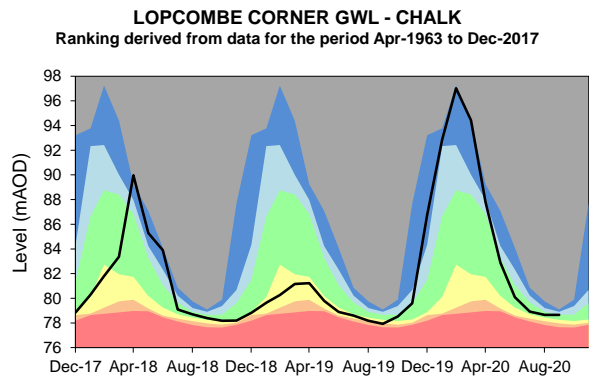
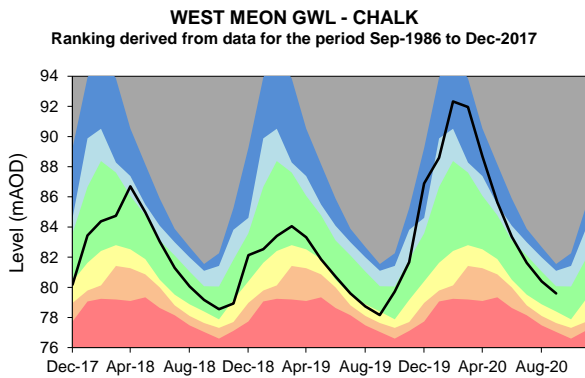
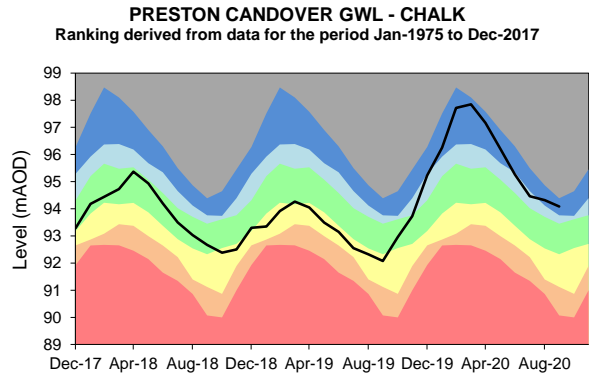
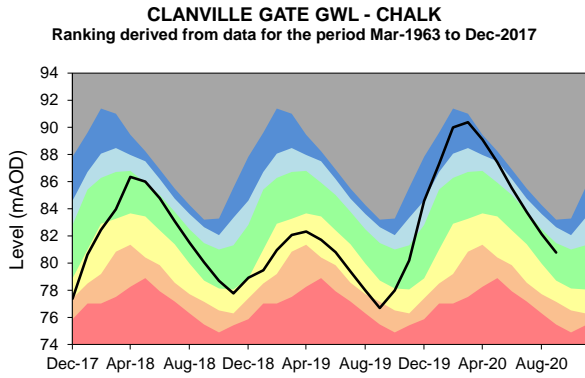
Monthly total rainfall (mm)

Long term average rainfall (mm)



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

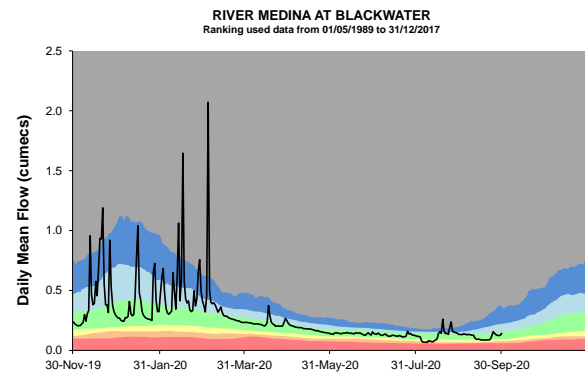
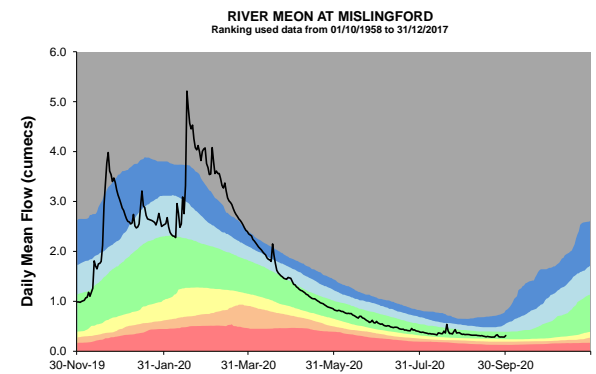
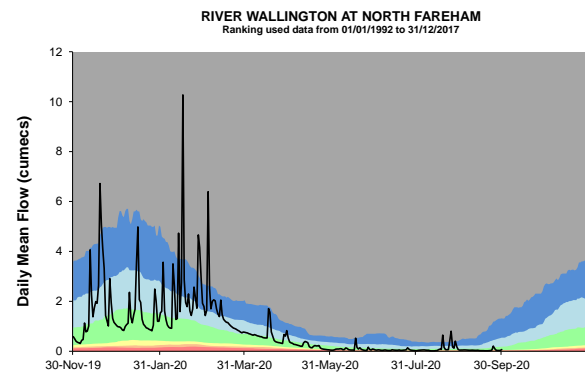
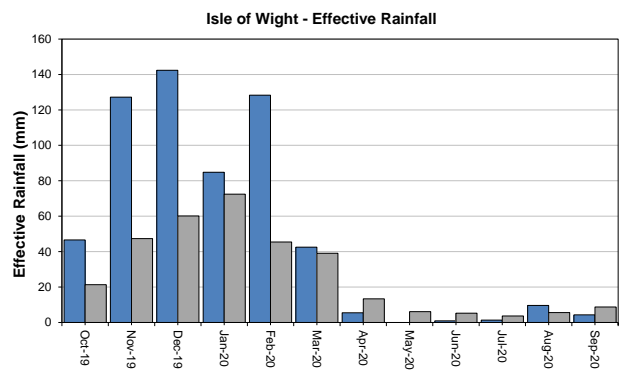
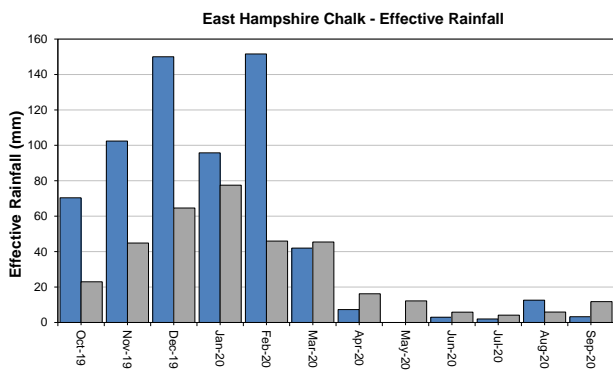
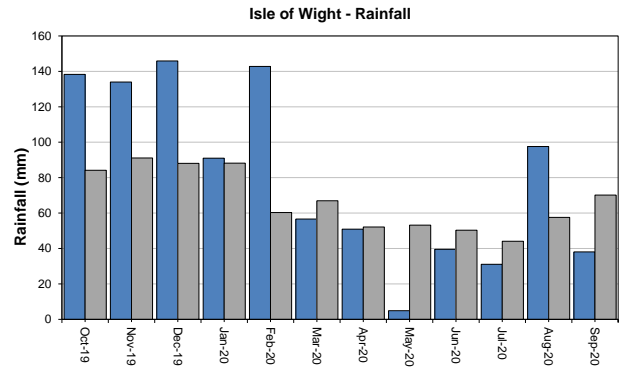
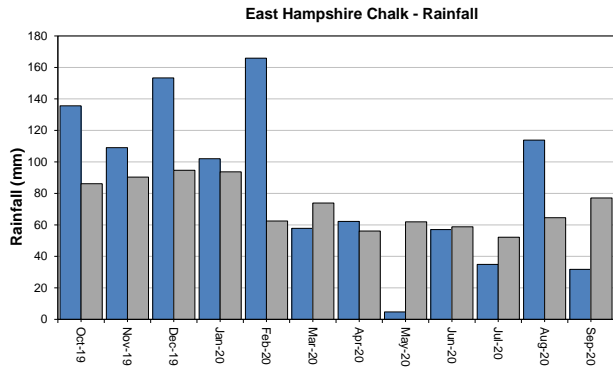
West Hampshire – Page 2



East Hampshire and Isle of Wight

Monthly total rainfall (mm)

Long term average rainfall (mm)



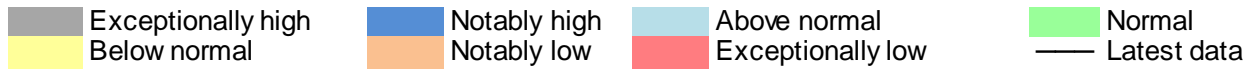
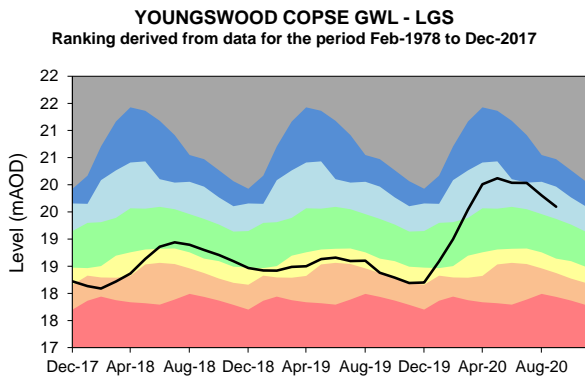
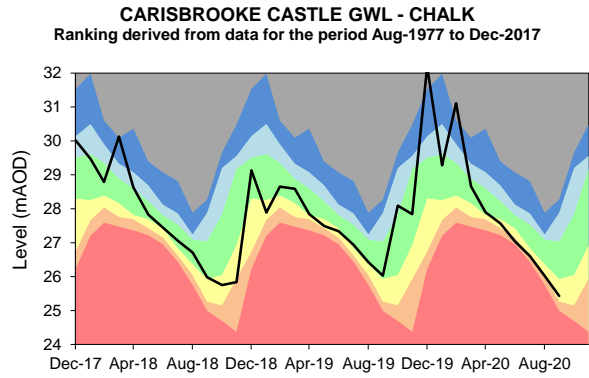
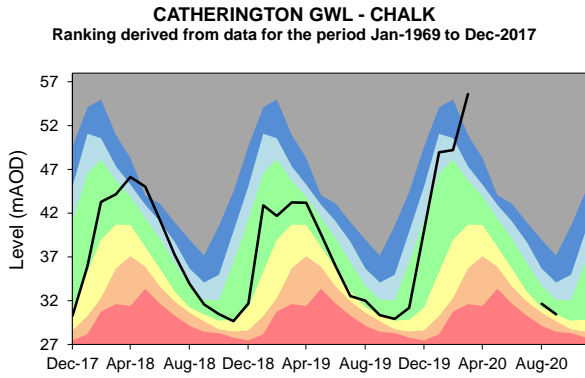
Exceptionally high
 Below normal
 Notably high
 Notably low
 Above normal
 Exceptionally low
 Normal
 Latest data

customer service line
03708 506 506

incident hotline
0800 80 70 60

floodline
0345 988 1188

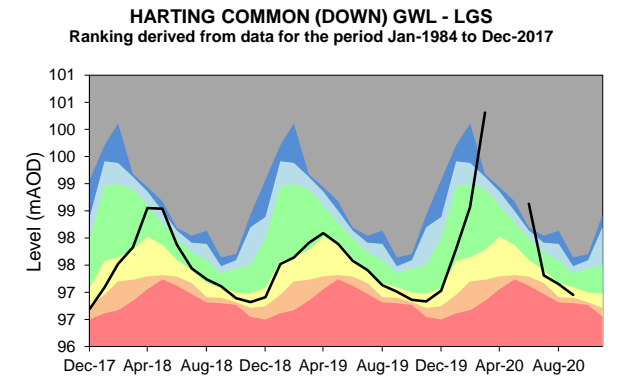
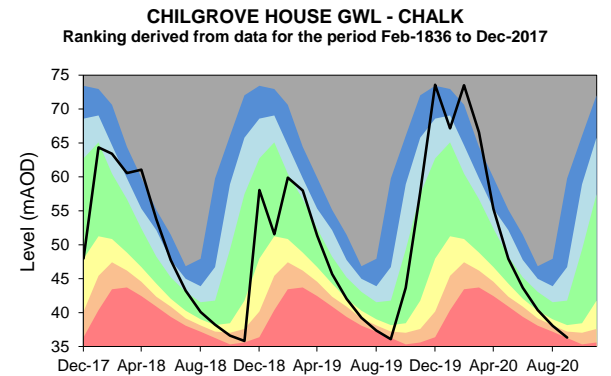
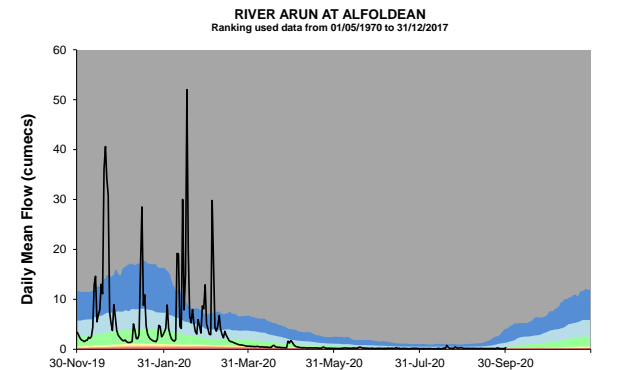
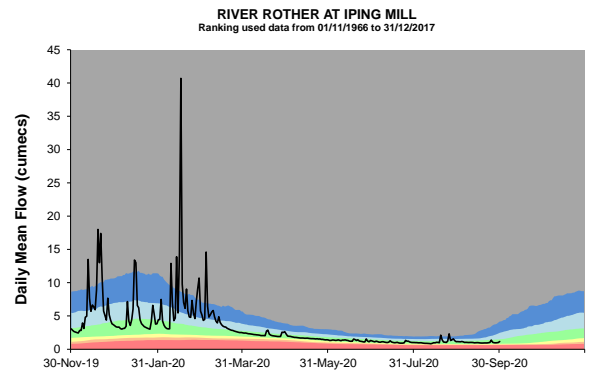
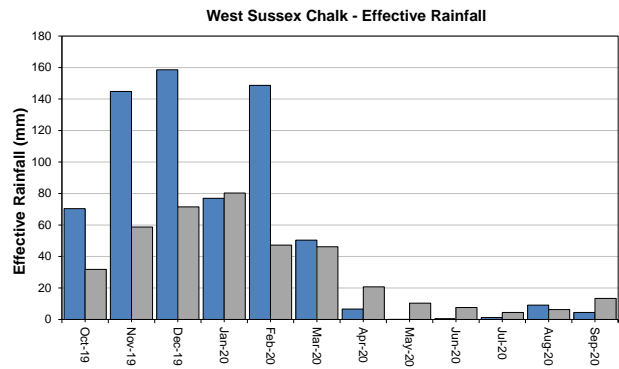
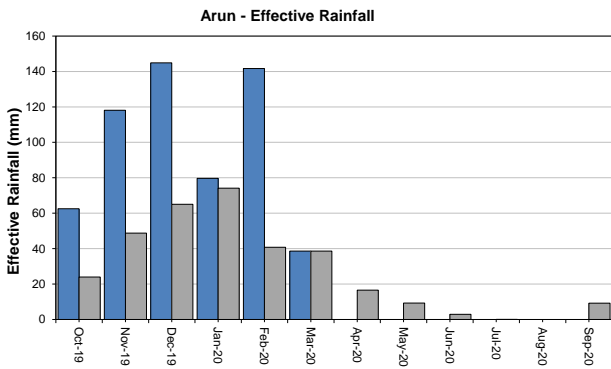
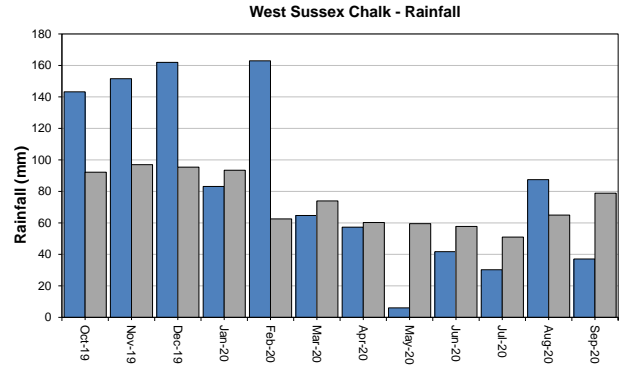
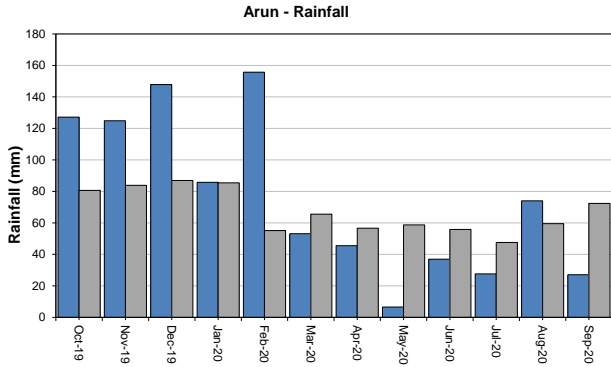
East Hampshire and Isle of Wight – Page 2



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

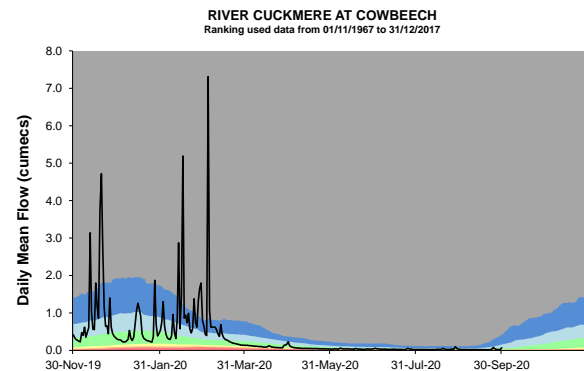
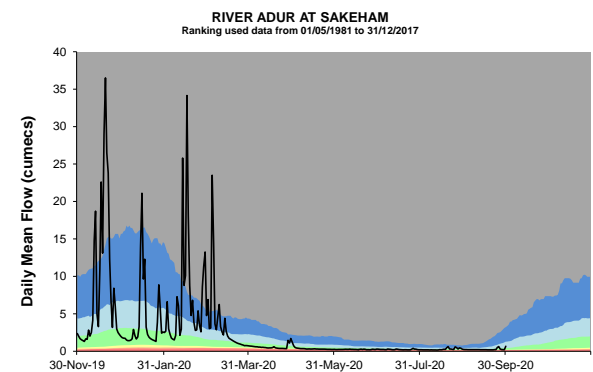
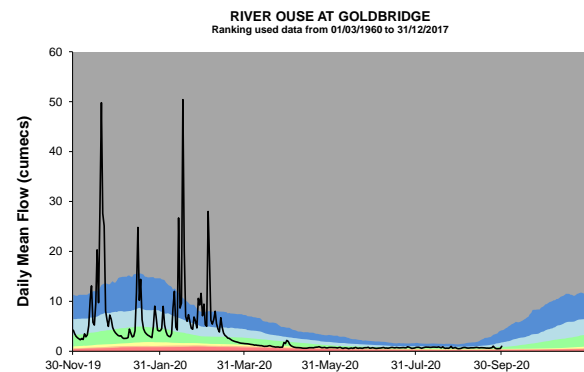
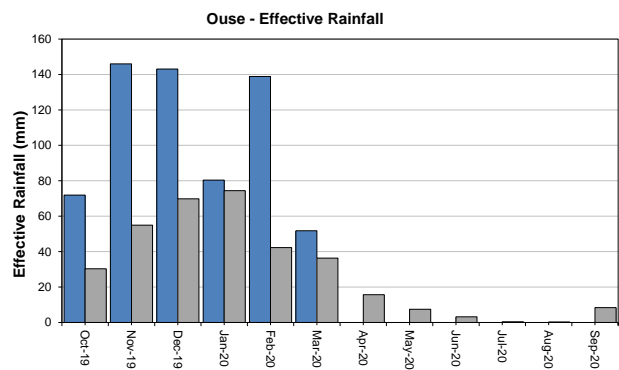
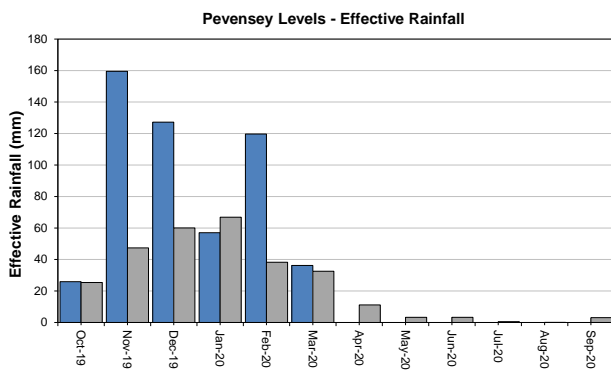
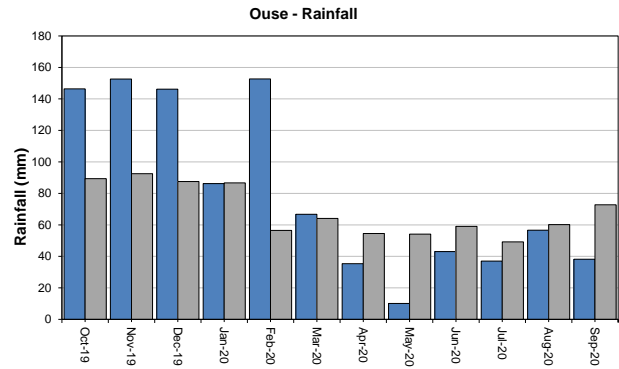
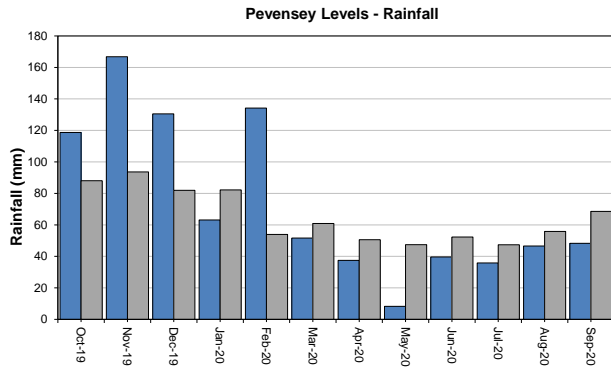
incident hotline
0800 80 70 60

floodline
0345 988 1188

East Sussex

Monthly total rainfall (mm)

Long term average rainfall (mm)



Exceptionally high
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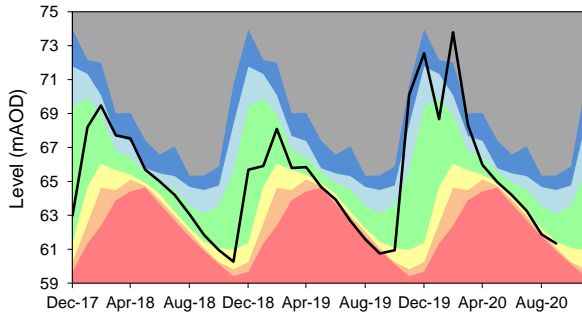
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East Sussex – Page 2

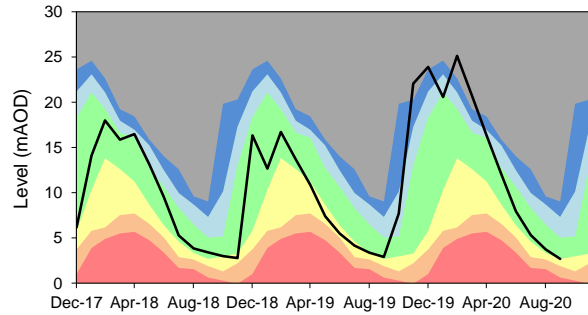
Monthly total rainfall (mm)

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

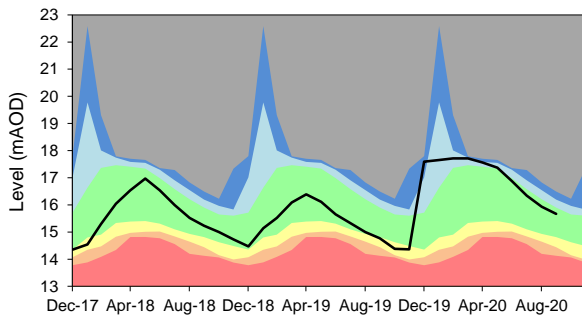


Long term average rainfall (mm)

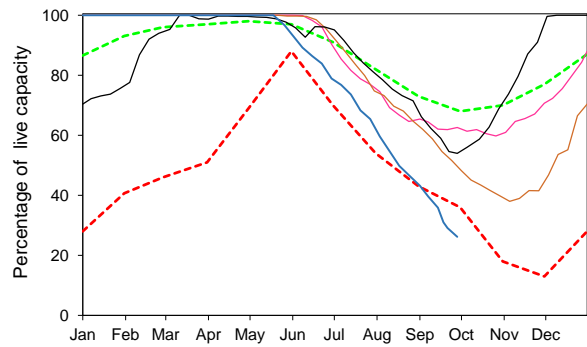
HOUNDEAN BOTTOM GWL - CHALK
Ranking derived from data for the period Jan-1977 to Dec-2017



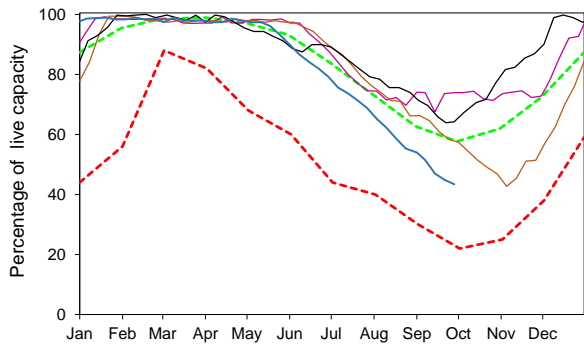
CORNISH FARM WIGDENS GWL - CHALK
Ranking derived from data for the period Mar-1981 to Dec-2017



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	31	66	46	3	7	42
East Hampshire Chalk	32	74	41	3	12	28
West Sussex Chalk	37	78	47	4	13	33
East Sussex Chalk	53	72	72	7	10	68
Isle of Wight	38	69	54	4	9	50
Western Rother Greensand	29	79	37	3	14	24
Hampshire Tertiaries	32	68	46	0	4	0
Lymington	39	71	56	0	5	0
Sussex Coast	32	64	50	0	1	0
Arun	27	73	37	0	9	0
Adur	34	72	47	0	5	0
Ouse	38	73	52	0	8	0
Cuckmere	47	72	66	0	5	0
Pevensey Levels	48	68	70	0	3	0
Solent and South Downs	37	72	52	2	8	24

Summer rainfall and effective rainfall

Summer totals for the period 1 April to the 30 September 2020

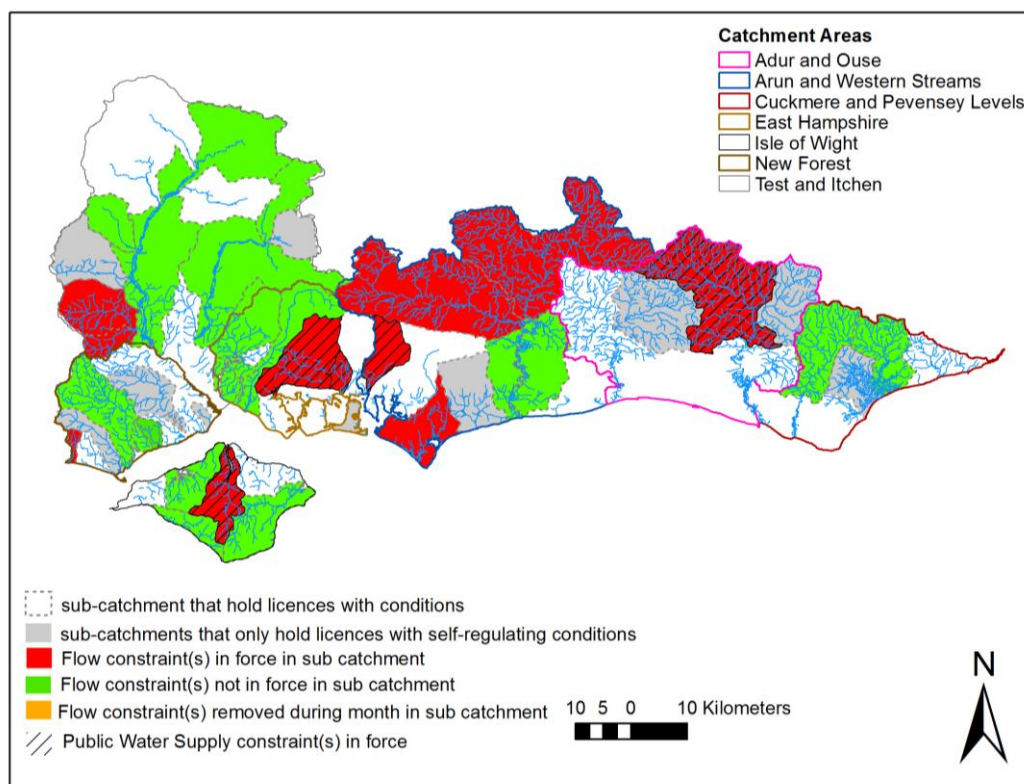
Area	Rainfall (mm)	LTA rainfall (mm)	% of LTA	Effective rainfall (mm)	LTA effective rainfall (mm)	% of LTA
Test Chalk	309	343	90	29	47	61
East Hampshire Chalk	304	363	84	28	56	50
West Sussex Chalk	260	373	70	22	63	35
East Sussex Chalk	236	346	68	19	51	37
Isle of Wight	262	328	80	22	43	51
Western Rother Greensand	261	376	69	23	73	31
Hampshire Tertiaries	284	333	85	0	21	0
Lymington	280	342	82	0	24	0
Sussex Coast	226	308	73	0	19	0
Arun	218	355	61	0	38	0
Adur	210	347	61	0	33	0
Ouse	220	353	62	0	36	0
Cuckmere	228	347	66	0	28	0
Pevensey Levels	216	325	66	0	21	0
Solent and South Downs	251	346	73	10	39	26

Soil Moisture Deficit

Area	End of month SMD (mm)	End of month SMD LTA (mm)
Test Chalk	106	85
East Hampshire Chalk	104	79
West Sussex Chalk	122	76
East Sussex Chalk	121	83
Isle of Wight	125	91
Western Rother Greensand	124	76
Hampshire Tertiaries	102	78
Lymington	100	73
Sussex Coast	127	85
Arun	129	71
Adur	129	73
Ouse	119	67
Cuckmere	118	71
Pevensy Levels	121	78
Solent and South Downs	118	78

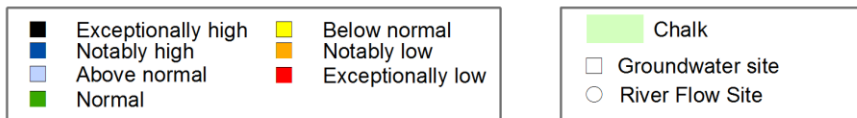
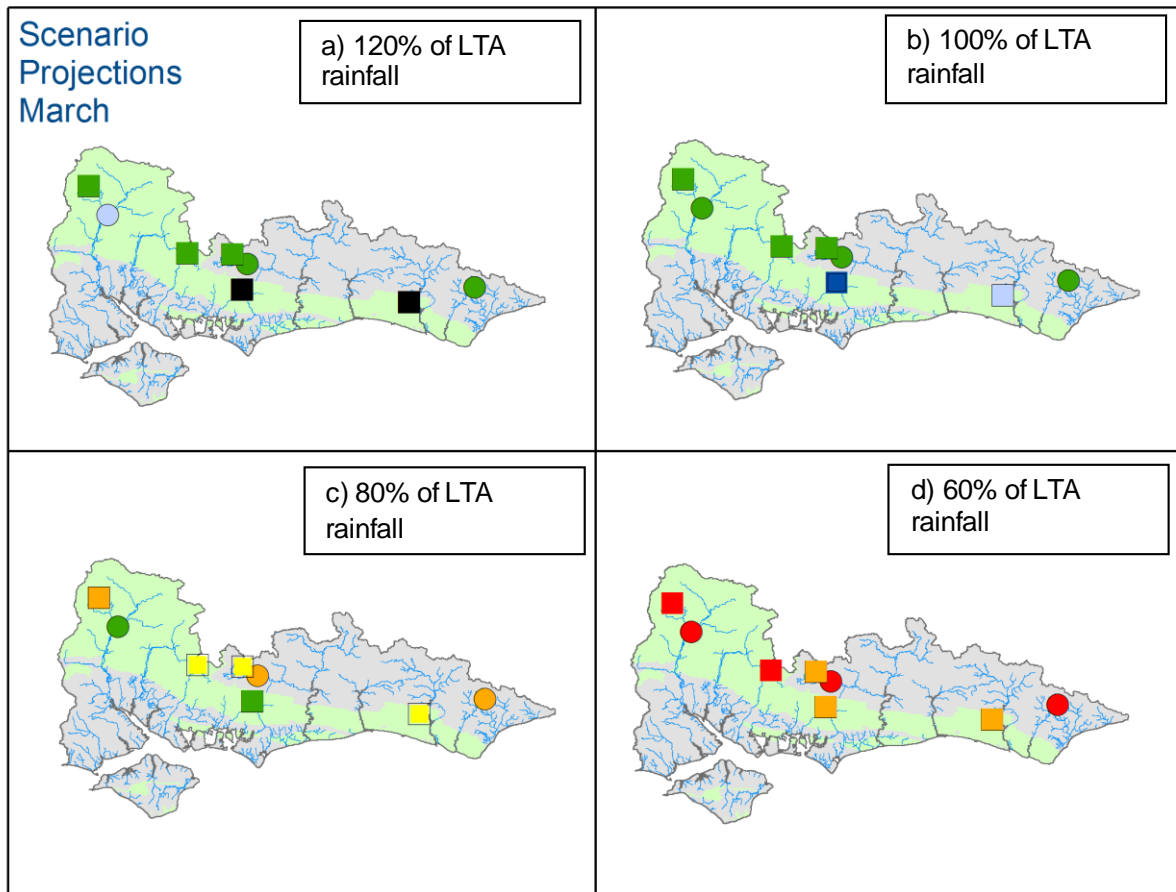
Environmental Impact

Flow Constraints



Catchment	No. licences with conditions currently operational in Sep	START	WK1	WK2	WK3	WK4	END
		Number at Start of the month in force	No. licences with Flow Condition in Force in Sep	No. licences with Flow Condition in Force in Sep	No. licences with Flow Condition in Force in Sep	No. licences with Flow Condition in Force in Sep	Number at End of the month in force
A&O	3	0	0	0	1	0	0
A&W	38	0	4	5	5	1	1
C&P	7	0	0	0	0	0	0
EH	21	0	1	1	2	1	1
IOW	16	1	0	4	5	1	1
NF	16	0	4	4	4	0	0
T&I	24	0	0	0	2	0	0
Total in SSD	125	9	9	14	19	3	3

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 (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