

Monthly water situation report

Solent and South Downs Area

Summary – September 2021

Solent and South Downs (SSD) had below average rainfall in September receiving 72% (52mm) of the long term average (LTA) (72mm). Monthly mean river flows across SSD ranged from **below normal** to **exceptionally high**. Groundwater levels also ranged from **below normal** to **exceptionally high**. Soil moisture deficits across SSD ended the month slightly lower than the LTA. End of month reservoir stocks were above average at both Ardingly Reservoir (Ouse) and Arlington Reservoir (Cuckmere).

Rainfall

SSD had below average rainfall in September receiving 72% (52mm) of the LTA (72mm). Generally this rainfall was evenly distributed across SSD. The Adur areal unit received the most rainfall with 80% (58mm) of LTA (73mm). The lowest rainfall was recorded in the Lymington areal unit, where 67% (47mm) of LTA (71mm). The highest daily rainfall totals were all recorded on the 28/09/2021 when approximately half of the month's total was recorded with rain gauges across all areal units recording highest daily totals on this day.

Soil Moisture Deficit

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

River Flows

Monthly mean river flows across SSD ranged from **below normal** to **exceptionally high**. The River Itchen at Allbrook and Highbridge recorded **exceptionally high** flows during September, representing the second highest monthly mean flow on record for this gauging station. The Meon at Mislingford also recorded the second highest September mean flow on record with flows in the **notably high** range. Iping Mill (Western Rother), Sakeham (Adur) and Gold Bridge (Ouse) all recorded **above normal** flows in September. Monthly mean flows in the River Lymington at Brockenhurst were **below normal** for September. All other reporting sites recorded **normal** flows for September.

Groundwater Levels

End of month groundwater levels ranged from **below normal** to **exceptionally high**. Groundwater levels at Harting Common Down (Western Rother Greensand) were **exceptionally high**. Catherington, Preston Candover and West Meon Hut (East Hampshire Chalk) ended the month with levels at **notably high** levels. Alverstone, Carisbrooke Castle (Isle of Wight) and Chilgrove House (West Sussex Chalk) all measured **above normal** groundwater levels. Beeding Hill (East Sussex Chalk) was the only site in the **below normal** range. All other reporting sites recorded **normal** groundwater levels for September.

Reservoir Storage/Water Resource Zone Stocks

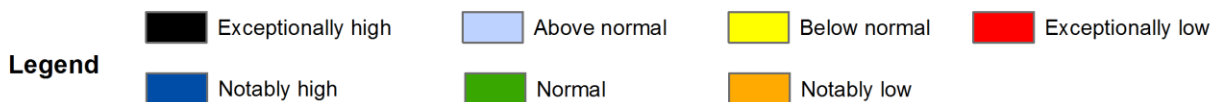
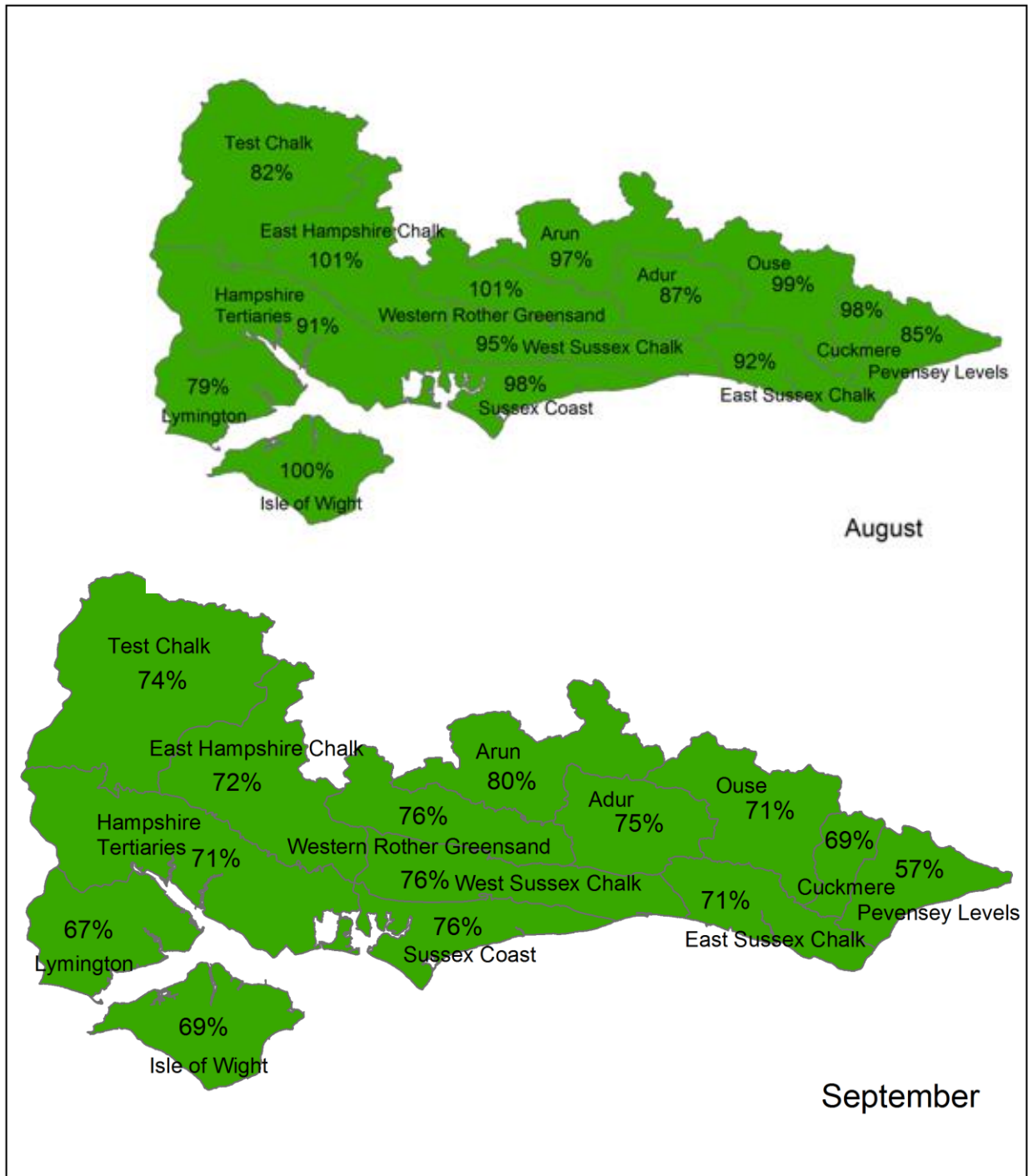
End of month reservoir stocks were above average at Ardingly Reservoir (Ouse) with 75% of total capacity (LTA 68%) and at Arlington Reservoir (Cuckmere) with 80% of total capacity (LTA 58%).

Environmental Impact

There were 3 abstraction licence restrictions in force during the 3rd week of September only. There were no flood alerts or warnings issued in September.

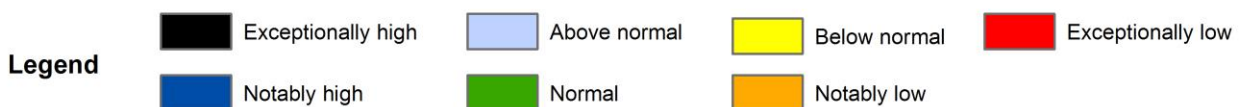
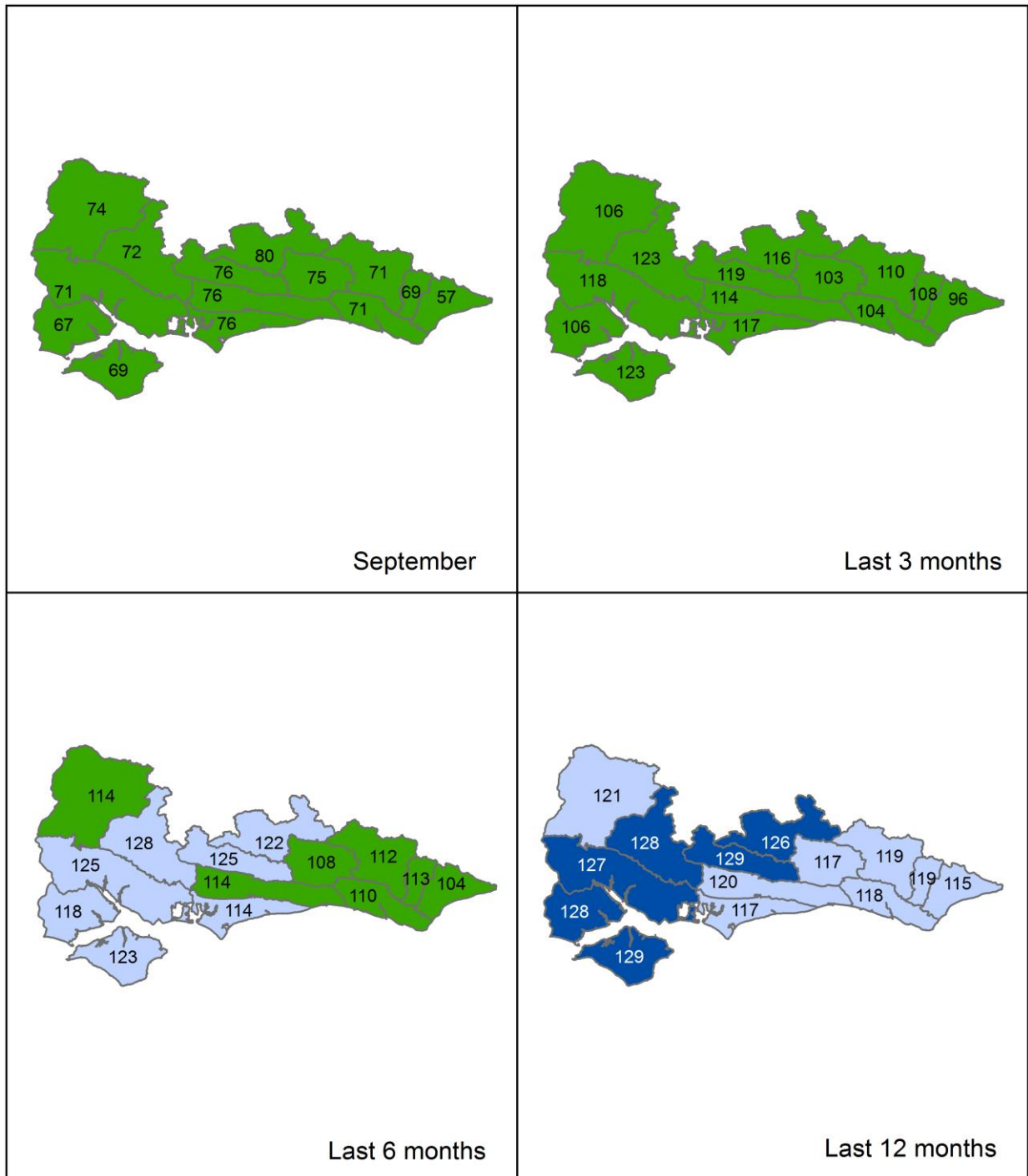
Author: [HydrologySSD](#)

Rainfall Map 1



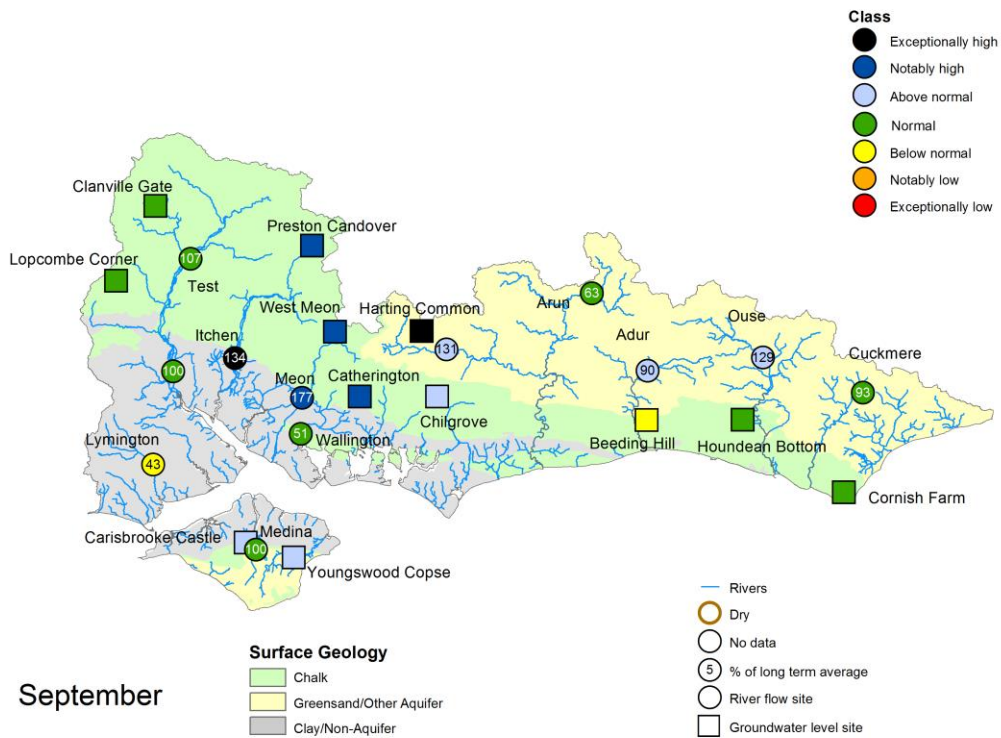
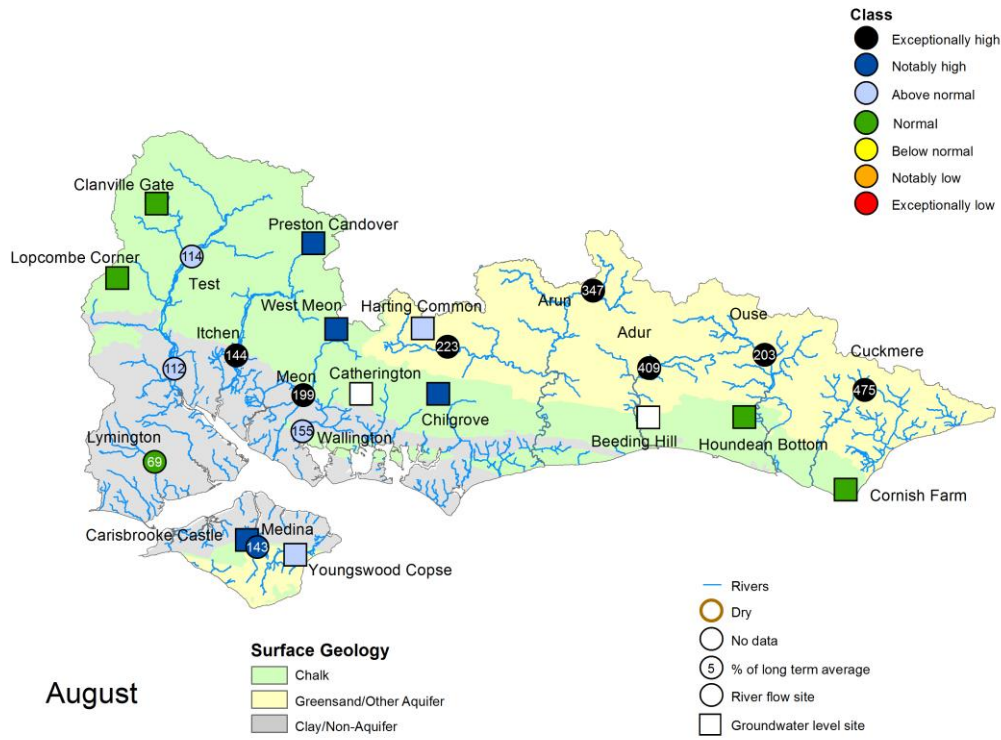
Total rainfall for hydrological areas across Solent and South Downs for the current month, classed relative to an analysis of respective historic totals. Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Includes material 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, 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, 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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03708 506 506

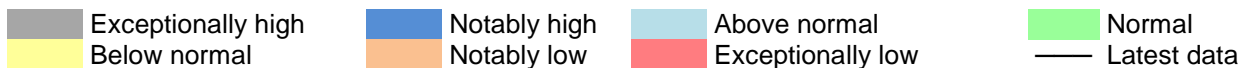
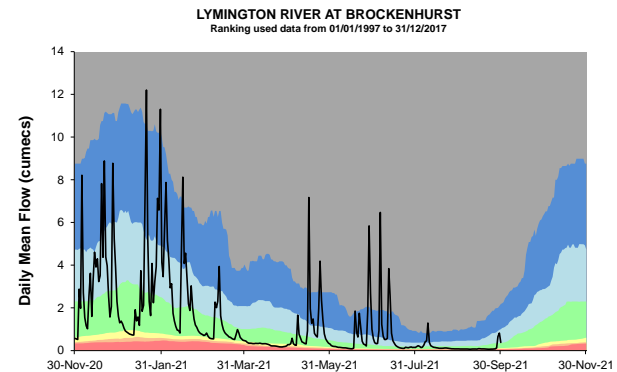
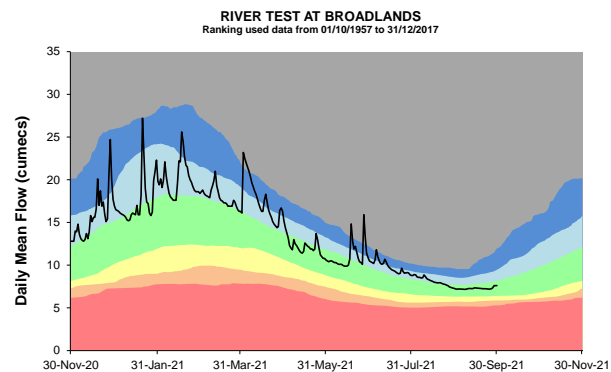
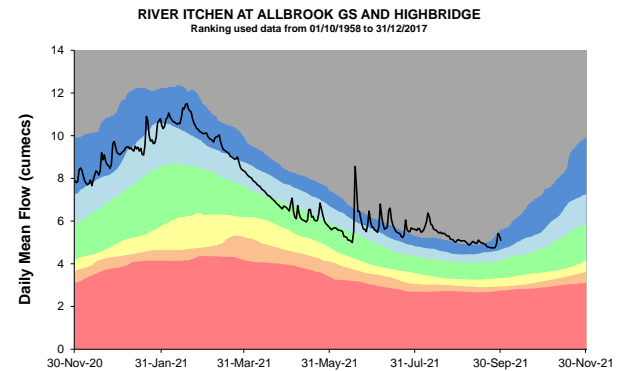
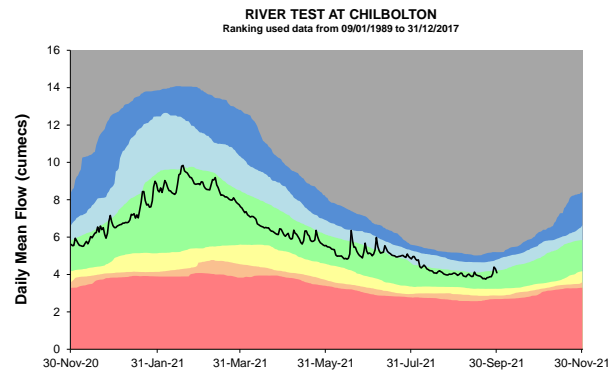
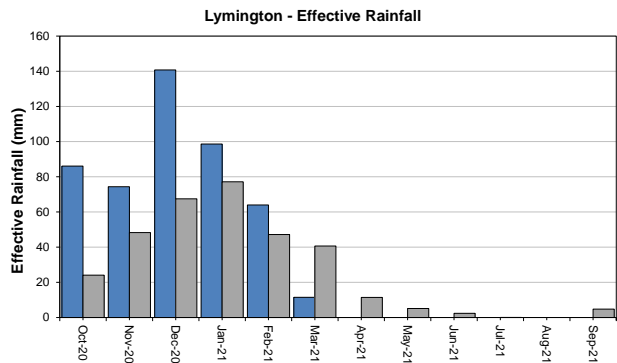
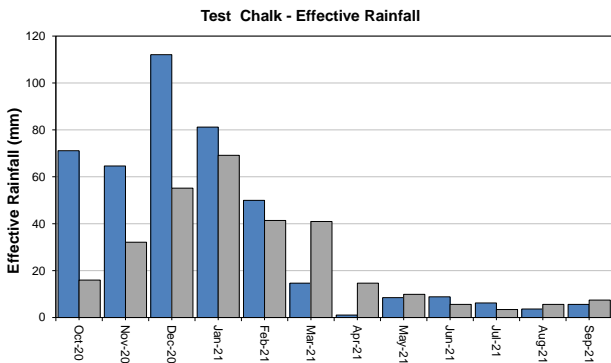
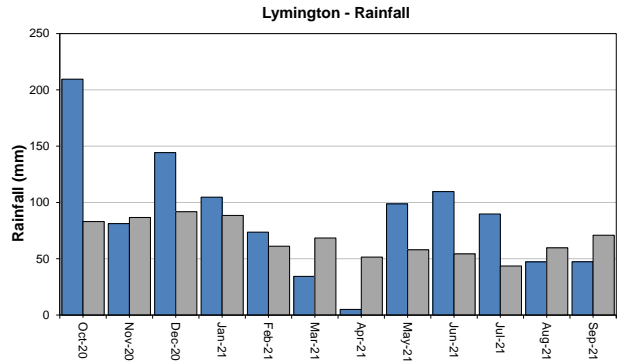
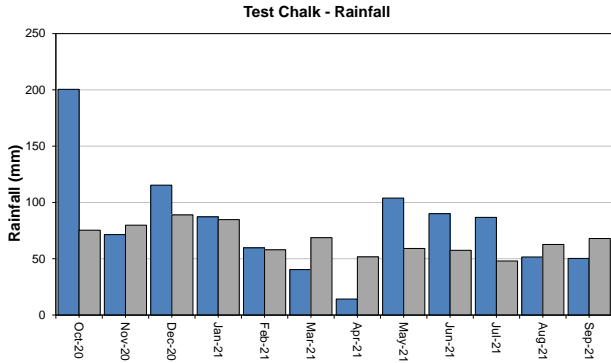
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floodline
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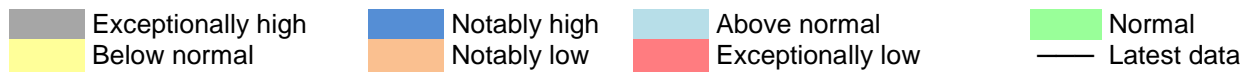
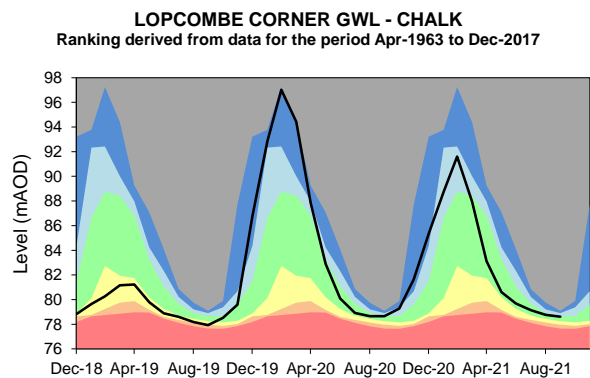
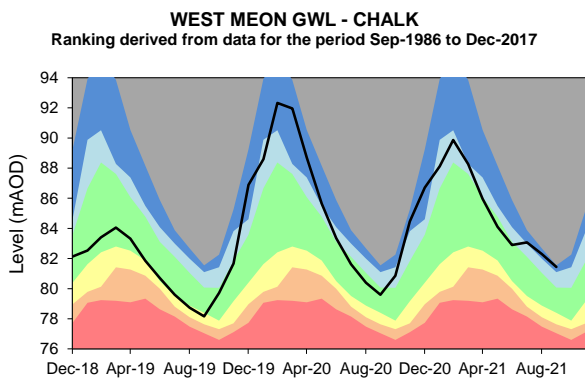
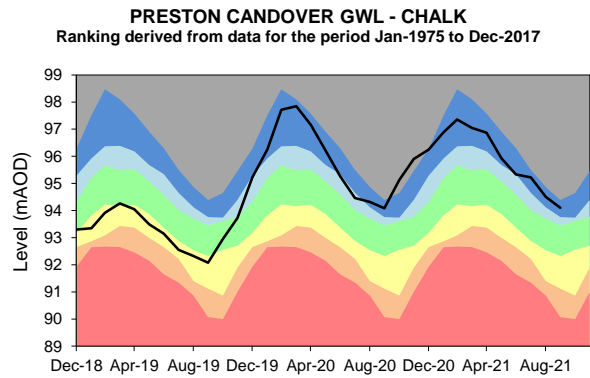
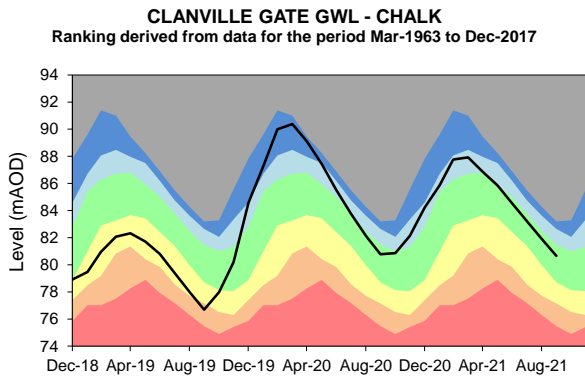
West Hampshire – Page 1

Monthly total rainfall (mm)

Long term average rainfall (mm)



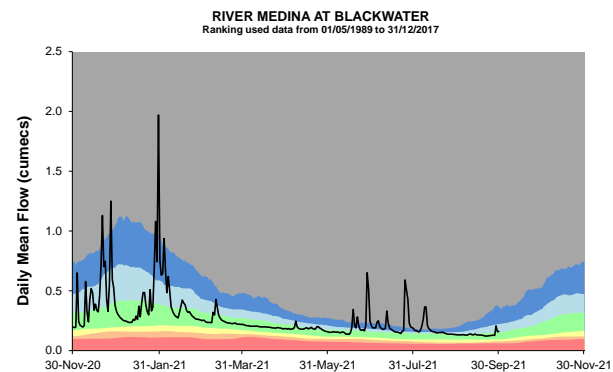
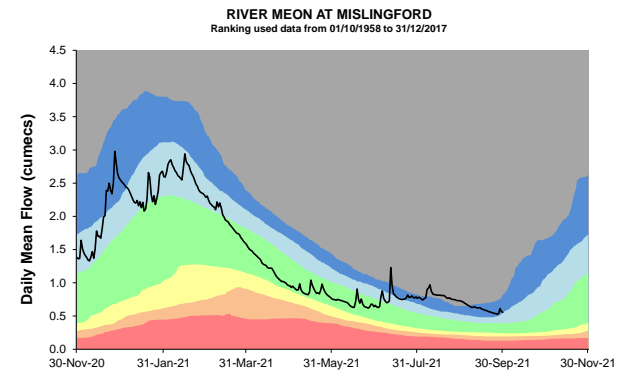
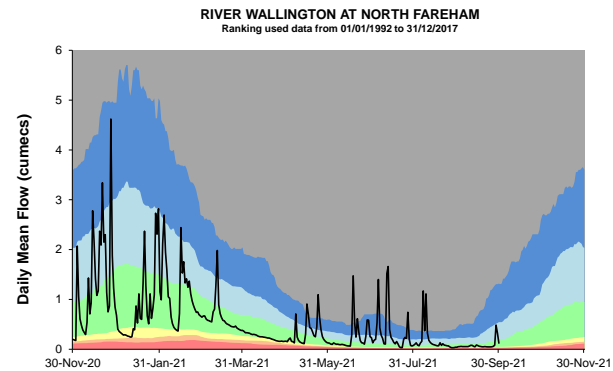
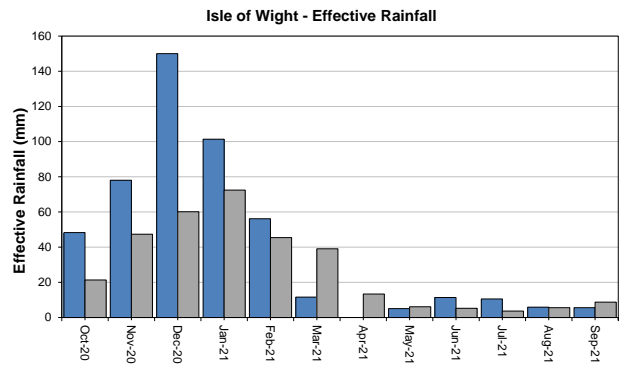
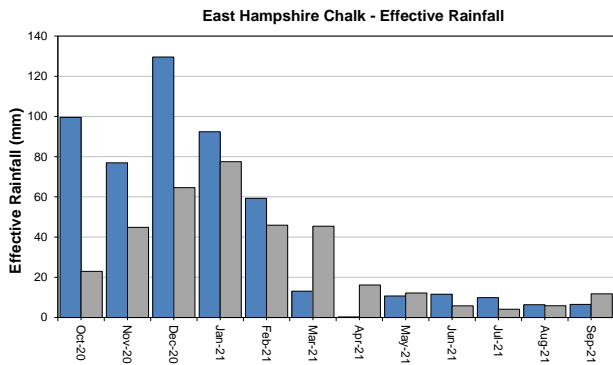
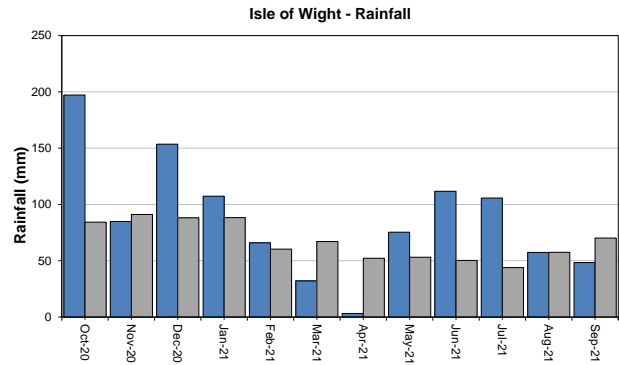
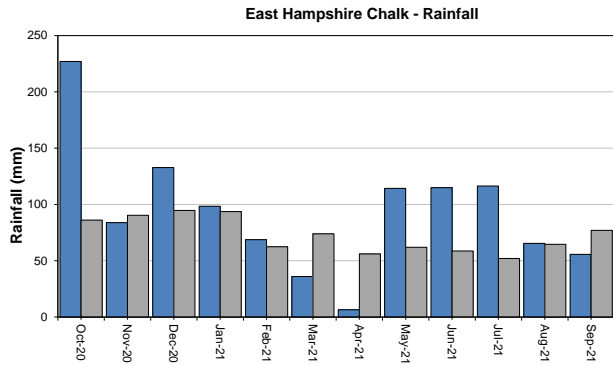
West Hampshire – Page 2



East Hampshire and Isle of Wight

Monthly total rainfall (mm)

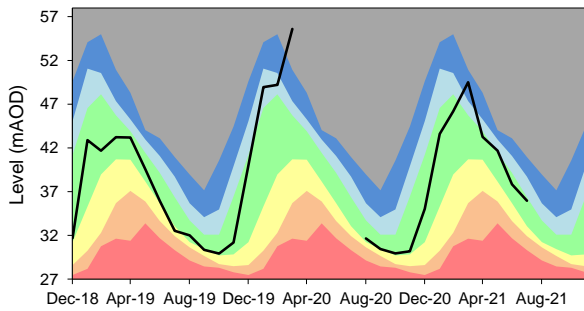
Long term average rainfall (mm)



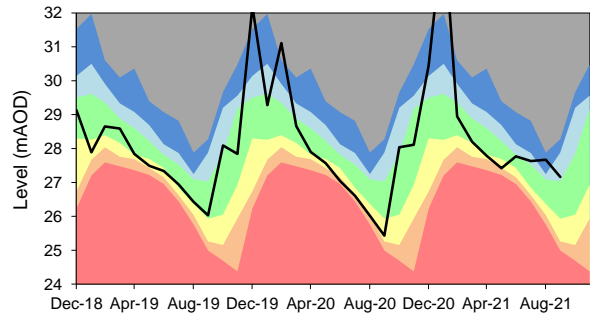
Exceptionally high
 Notably high
 Above normal
 Normal
 Below normal
 Notably low
 Exceptionally low
 Latest data

East Hampshire and Isle of Wight – Page 2

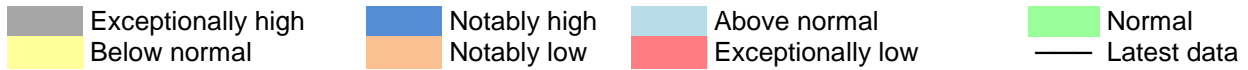
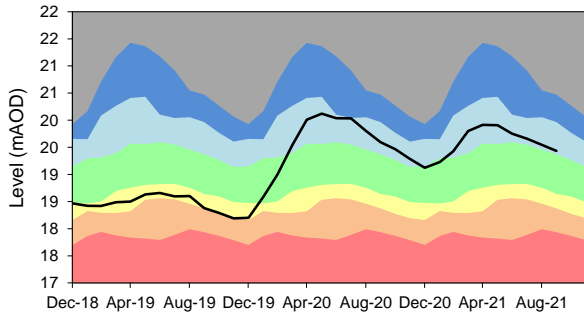
CATHERINGTON GWL - CHALK
 Ranking derived from data for the period Jan-1969 to Dec-2017



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



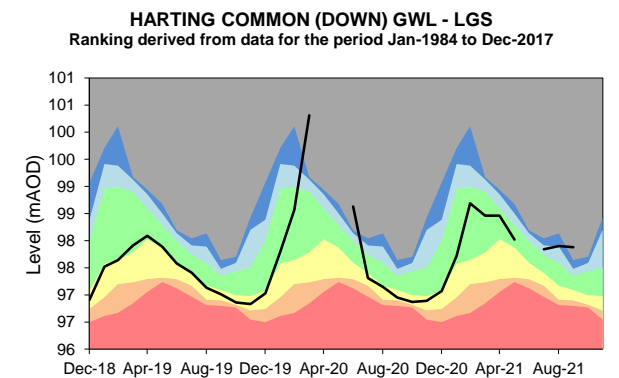
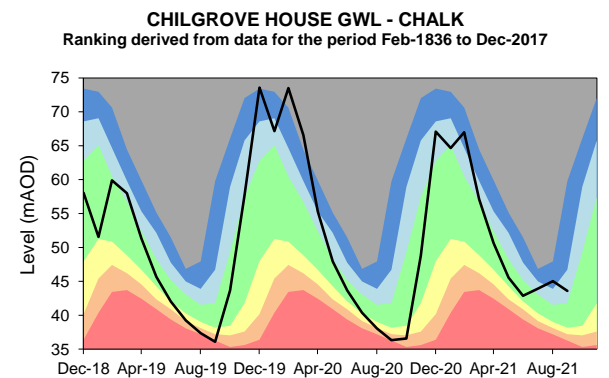
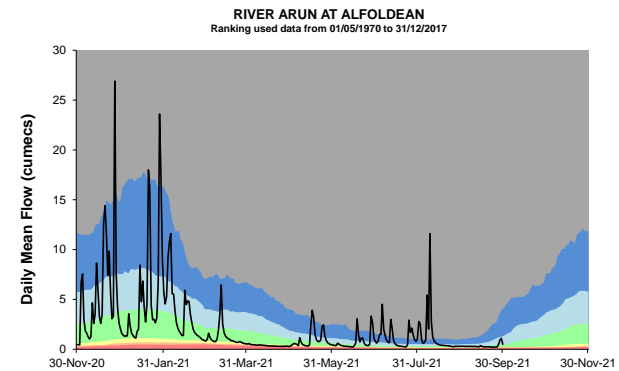
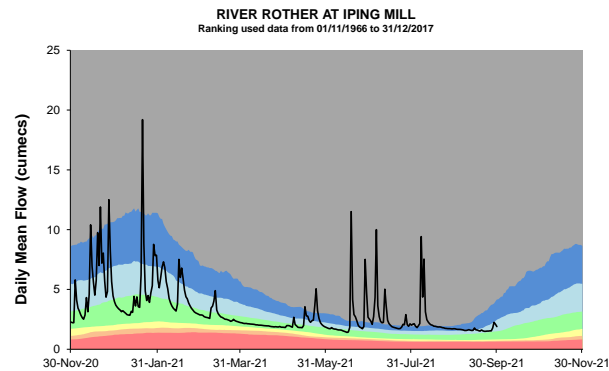
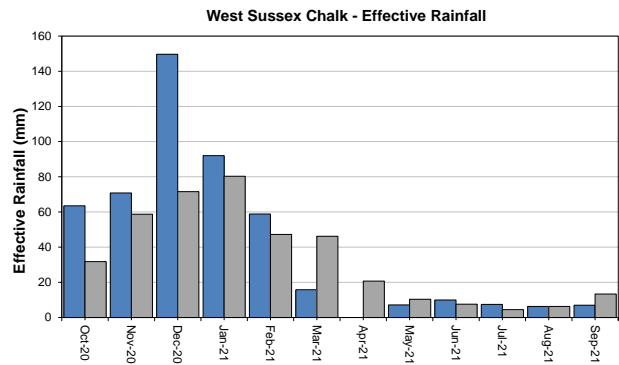
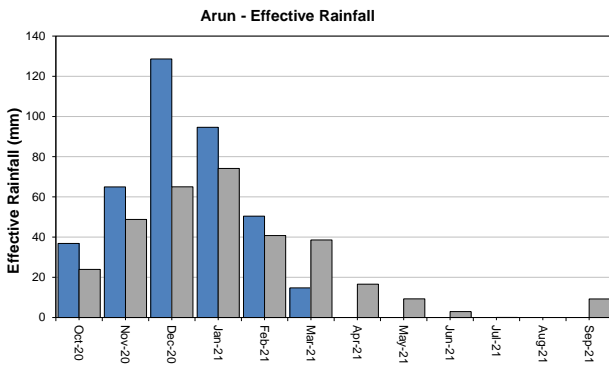
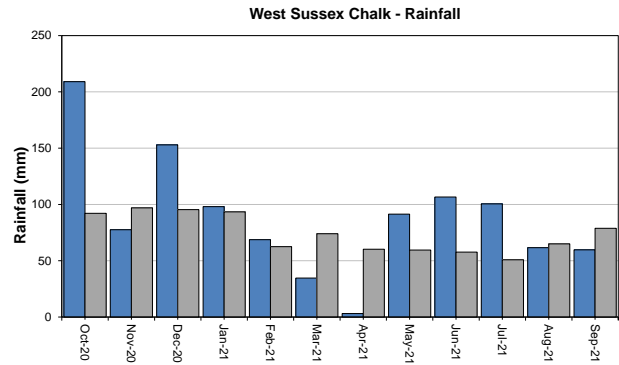
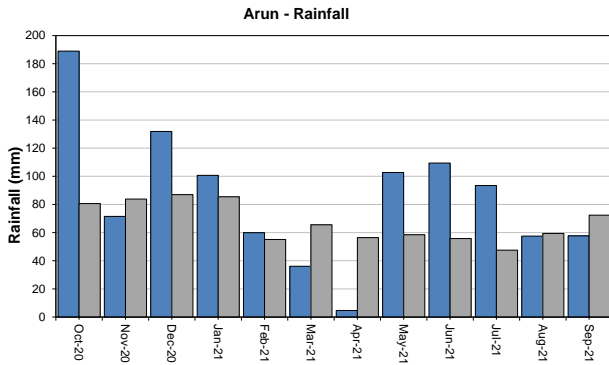
YOUNGWOOD COPSE GWL - LGS
 Ranking derived from data for the period Feb-1978 to Dec-2017



West Sussex

Monthly total rainfall (mm)

Long term average rainfall (mm)

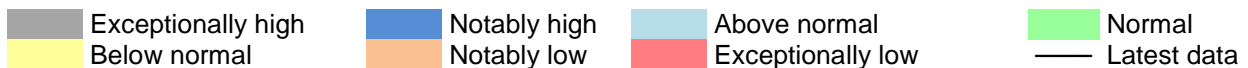
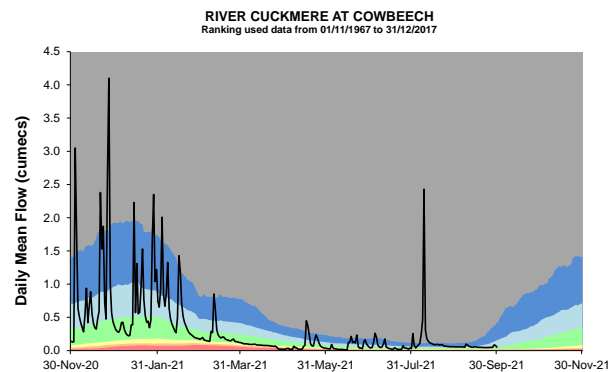
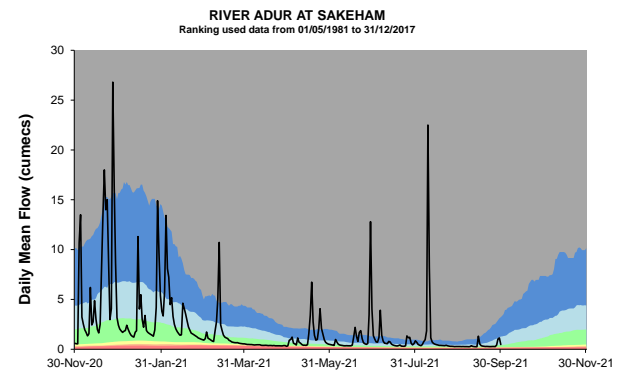
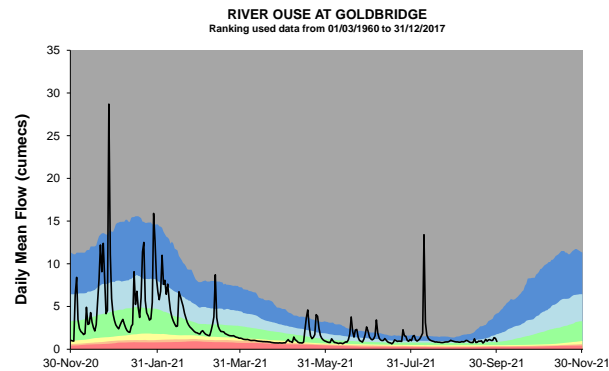
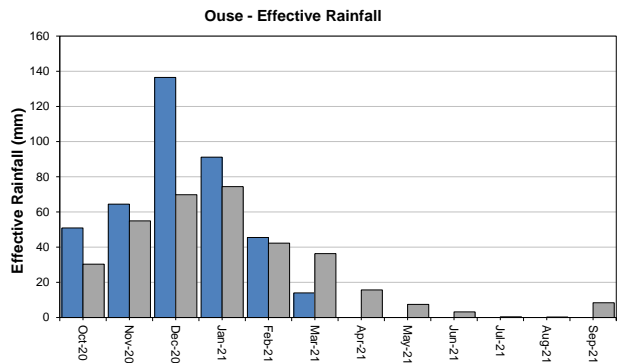
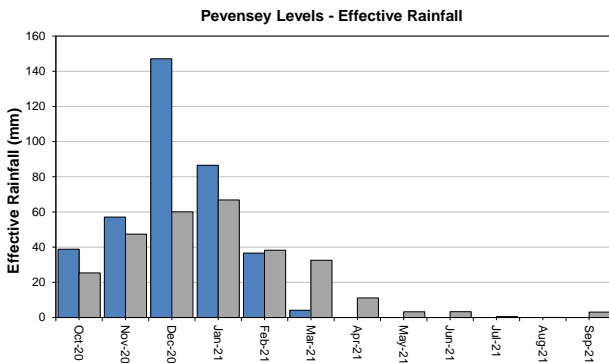
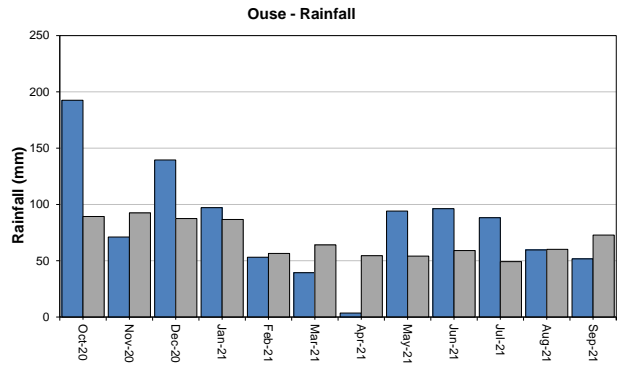
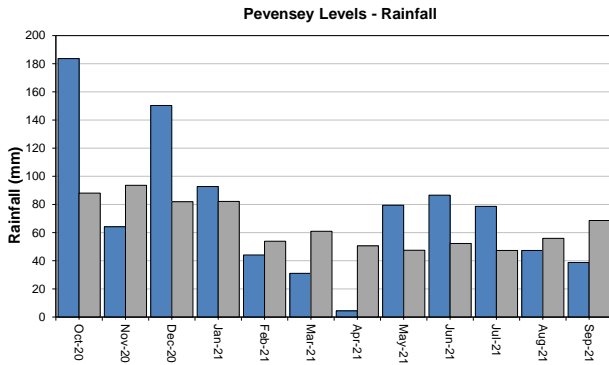


Exceptionally high
 Below normal
 Notably high
 Notably low
 Above normal
 Exceptionally low
 Normal
 Latest data

East Sussex

Monthly total rainfall (mm)

Long term average rainfall (mm)



customer service line
03708 506 506

incident hotline
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floodline
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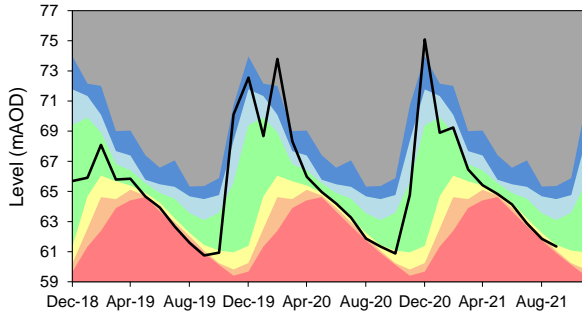
East Sussex – Page 2

Monthly total rainfall (mm)

Long term average rainfall (mm)

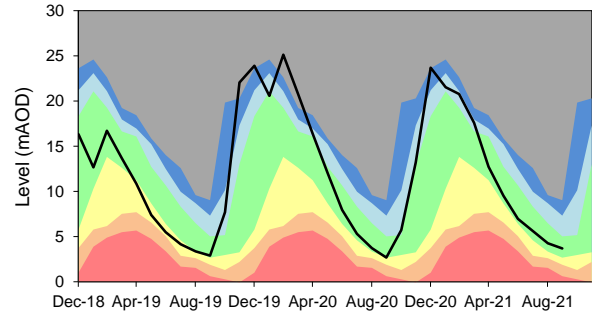
BEEADING HILL GWL - CHALK

Ranking derived from data for the period Sep-1979 to Dec-2017



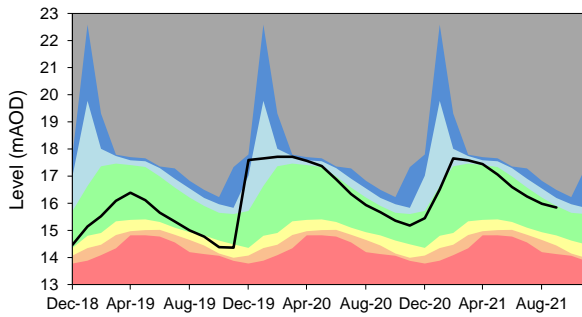
HOUNDEAN BOTTOM GWL - CHALK

Ranking derived from data for the period Jan-1977 to Dec-2017

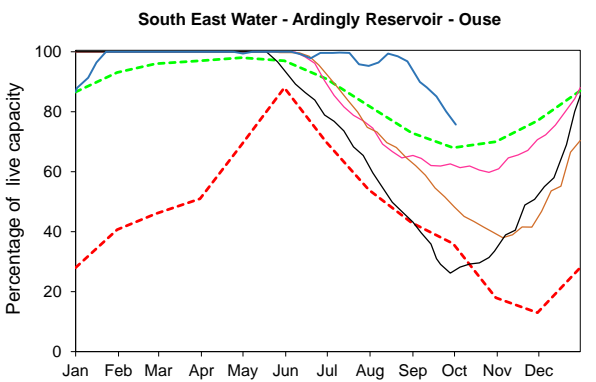


CORNISH FARM WIGDENS GWL - CHALK

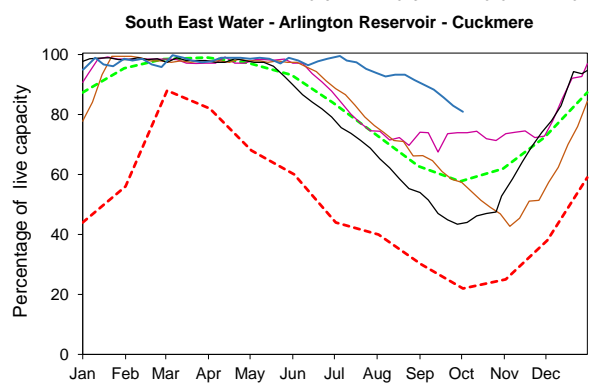
Ranking derived from data for the period Mar-1981 to Dec-2017



South East Water - Ardingly Reservoir - Ouse



South East Water - Arlington Reservoir - Cuckmere



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

Summary of rainfall, effective rainfall and soil moisture deficits

Rainfall and effective rainfall

Area	Rainfall (mm)	LTA rainfall (mm)	% of LTA	Effective rainfall (mm)	LTA effective rainfall (mm)	% of LTA
Test Chalk	50	66	74	6	7	75
East Hampshire Chalk	56	74	72	7	12	55
West Sussex Chalk	60	78	76	7	13	52
East Sussex Chalk	51	72	71	6	10	57
Isle of Wight	48	69	69	6	9	64
Western Rother Greensand	60	79	76	7	14	52
Hampshire Tertiaries	49	68	71	0	4	0
Lymington	47	71	67	0	5	0
Sussex Coast	48	64	76	0	1	0
Arun	58	73	80	0	9	0
Adur	53	72	75	0	5	0
Ouse	52	73	71	0	8	0
Cuckmere	50	72	69	0	5	0
Pevensey Levels	39	68	57	0	3	0
Solent and South Downs	52	72	72	3	8	35

Summer rainfall and effective rainfall

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

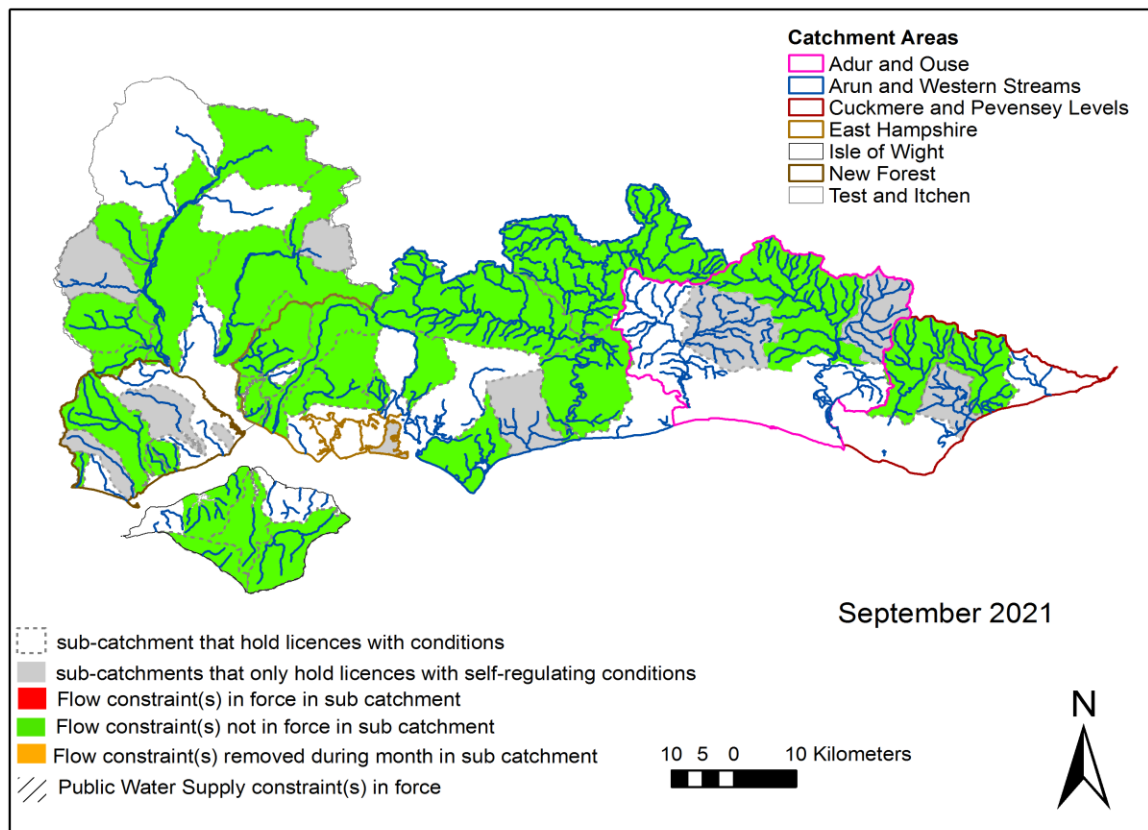
Area	Rainfall (mm)	LTA rainfall (mm)	% of LTA	Effective rainfall (mm)	LTA effective rainfall (mm)	% of LTA
Test Chalk	394	343	115	34	47	73
East Hampshire Chalk	470	363	129	46	56	81
West Sussex Chalk	418	373	112	38	63	60
East Sussex Chalk	386	346	112	30	51	60
Isle of Wight	407	328	124	39	43	90
Western Rother Greensand	474	376	126	46	73	62
Hampshire Tertiaries	415	333	125	0	21	0
Lymington	396	342	116	0	24	0
Sussex Coast	343	308	111	0	19	0
Arun	426	355	120	0	38	0
Adur	373	347	108	0	33	0
Ouse	390	353	111	0	36	0
Cuckmere	390	347	113	0	28	0
Pevensey Levels	334	325	103	0	21	0
Solent and South Downs	401	346	116	17	39	42

Soil Moisture Deficit

Area	End of month SMD (mm)	End of month SMD LTA (mm)
Test Chalk	77	85
East Hampshire Chalk	56	79
West Sussex Chalk	71	76
East Sussex Chalk	88	83
Isle of Wight	79	91
Western Rother Greensand	49	76
Hampshire Tertiaries	60	78
Lymington	66	73
Sussex Coast	86	85
Arun	51	71
Adur	73	73
Ouse	66	67
Cuckmere	77	71
Pevensey Levels	98	78
Solent and South Downs	71	78

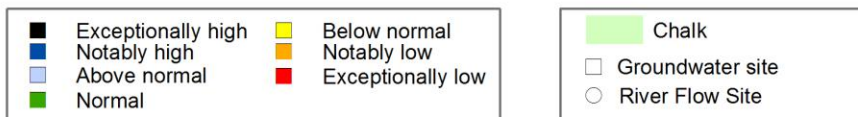
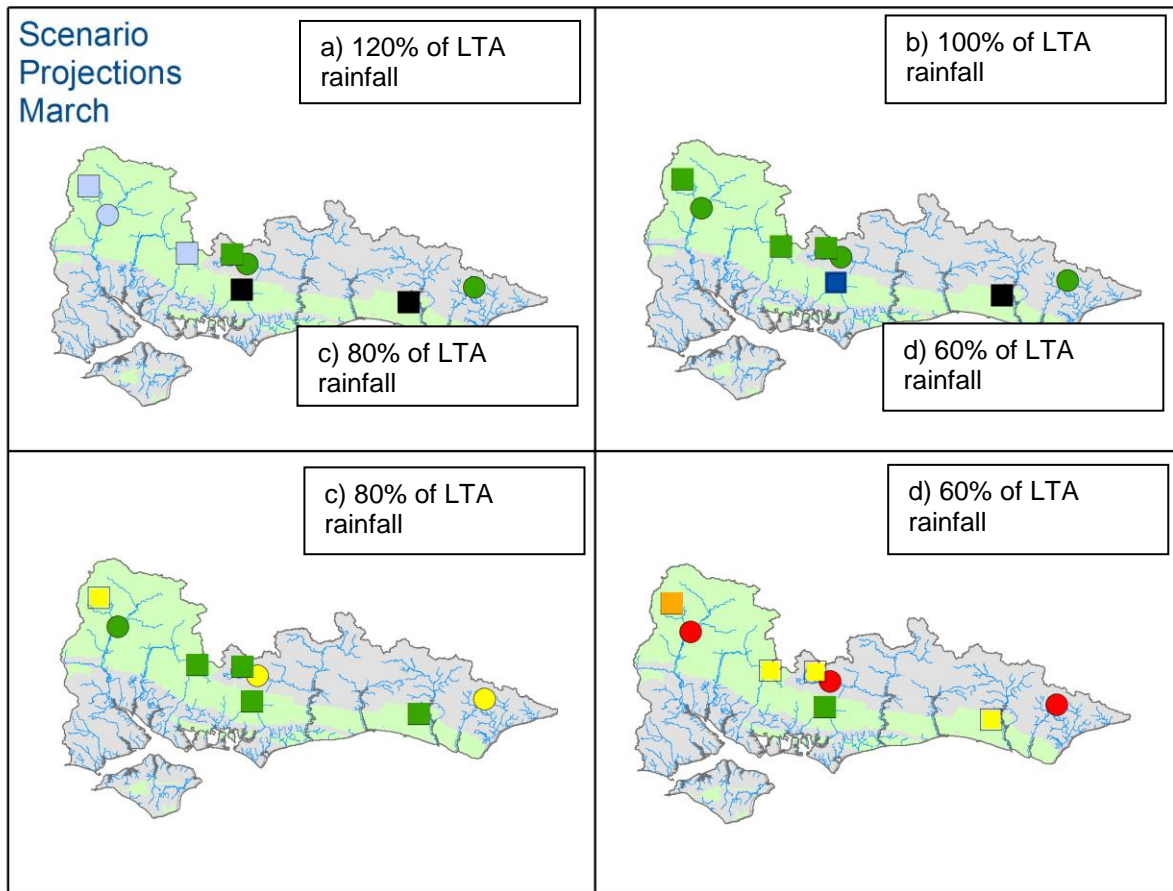
Environmental Impact

Flow Constraints



		01-Sep	07-Sep	14-Sep	21-Sep	28-Sep	30-Sep
		START	WK1	WK2	WK3	WK4	END
Catchment	No. licences with conditions currently operational in Jul	Number at Start of the month in force	No. licences with condition in Force in Jul	No. licences with Flow Condition in Force in Jul	No. licences with Flow Condition in Force in Jul	No. licences with Flow Condition in Force in Jul	Number at End of the month in force
Adur & Ouse	3	0	0	0	0	0	0
Arun & Western	39	0	0	0	0	0	0
Cuckmere & Pevensey	7	0	0	0	0	0	0
East Hampshire	21	0	0	0	0	0	0
IOW	17	0	0	0	0	0	0
New Forest	16	0	0	0	3	0	0
Test & Itchen	24	0	0	0	0	0	0
Total in SSD	127	0	0	0	3	0	0

Forward look- river flow and groundwater March 2022



Projected river flows at key indicator sites up until the end of March 2022. Projected groundwater levels at key indicator sites at the end of March 2022. 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