

Monthly water situation report

Solent and South Downs Area

Summary – December 2021

Solent and South Downs (SSD) had just above average rainfall in December receiving only 109% (96mm) of the long term average (LTA) (88mm). Monthly mean river flows across SSD were all **normal**. Groundwater levels ranged from **normal** to **above normal**. Soil moisture deficits across SSD ended the month at zero. End of month reservoir stocks were above average at both Ardingly Reservoir (Ouse) and Arlington Reservoir (Cuckmere).

Rainfall

SSD had just above average rainfall in December, receiving 109% (96mm) of the LTA (88mm). There was very little difference in rainfall over the whole of SSD but the Test Chalk areal unit had the least rainfall with 90% (80mm) of LTA (88mm) and the Isle of Wight unit had the most rainfall with 122% (108mm) of LTA (87mm).

The highest daily rainfall totals were recorded on the 25th and 27th of the month. On the 25th Iping Mill RG (Western Rother Greensand) and Worlds End RG both recorded the highest daily total for SSD, of only 28 mm. Jarvis Brook TBR in the Ouse catchment had the highest daily total of 26mm on the 27th. Rainfall on these two dates represented around 50% of the monthly total rainfall.

Soil Moisture Deficit/Recharge

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

River Flows

Monthly mean river flows across SSD recorded **normal** flows at all sites. The highest monthly flows were recorded on the eastern side of the area in the River Arun, River Adur, River Ouse and Cuckmere River. The highest daily mean flows for December were reported on the 26th. The highest daily mean flow of 20.7 m³/s was recorded at Alfoldean on the River Arun and is an **exceptionally high** flow for December. Iping Mill on the Western Rother, Goldbridge on the River Ouse, Sakeham on the River Adur and North Fareham on the River Wallington also recorded exceptionally high daily mean flows on the 26th.

Groundwater Levels

End of month groundwater levels ranged from **normal** to **above normal**. Groundwater levels at Preston Candover (East Hampshire Chalk) and Carisbrooke Castle (Isle of Wight) were **above normal**. The level at Carisbrooke Castle was the 9th highest December level at this site and Preston Candover recorded the 10th highest. All other reporting sites recorded **normal** groundwater levels for December.

Reservoir Storage/Water Resource Zone Stocks

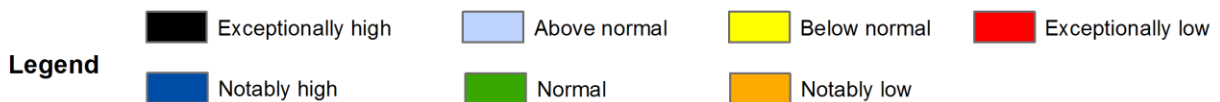
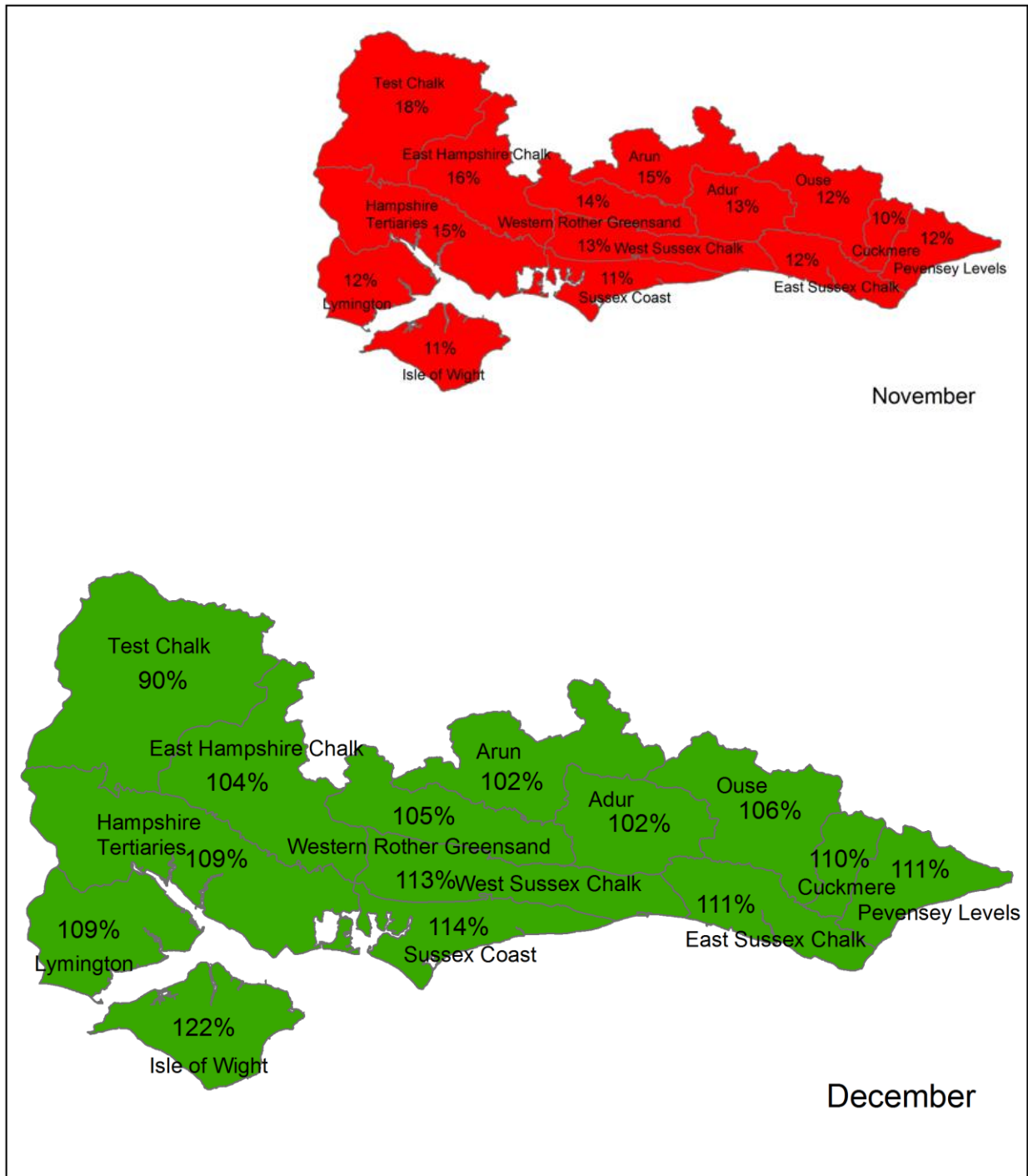
End of month reservoir stocks were above average at Ardingly Reservoir (Ouse) with 100% of total capacity (LTA 87%) and at Arlington Reservoir (Cuckmere) with 90% of total capacity (LTA 87%).

Environmental Impact

There were 6 abstraction licence conditions in force at the start of December; 4 on the River Test, one in East Hampshire and one on the River Ouse. One licence on the River and the one on the River Ouse were restarted in the middle of the month. There were 10 fluvial flood alerts and 1 fluvial flood warning issued in SSD during December. The flood warning was issued for the River Uck (Ouse) in Sussex and 8 of the flood alerts were also issued for watercourses in Sussex.

Author: [HydrologySSD](#)

Rainfall Map 1



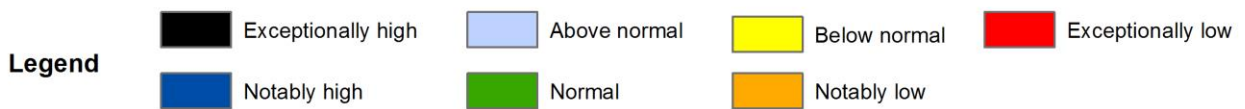
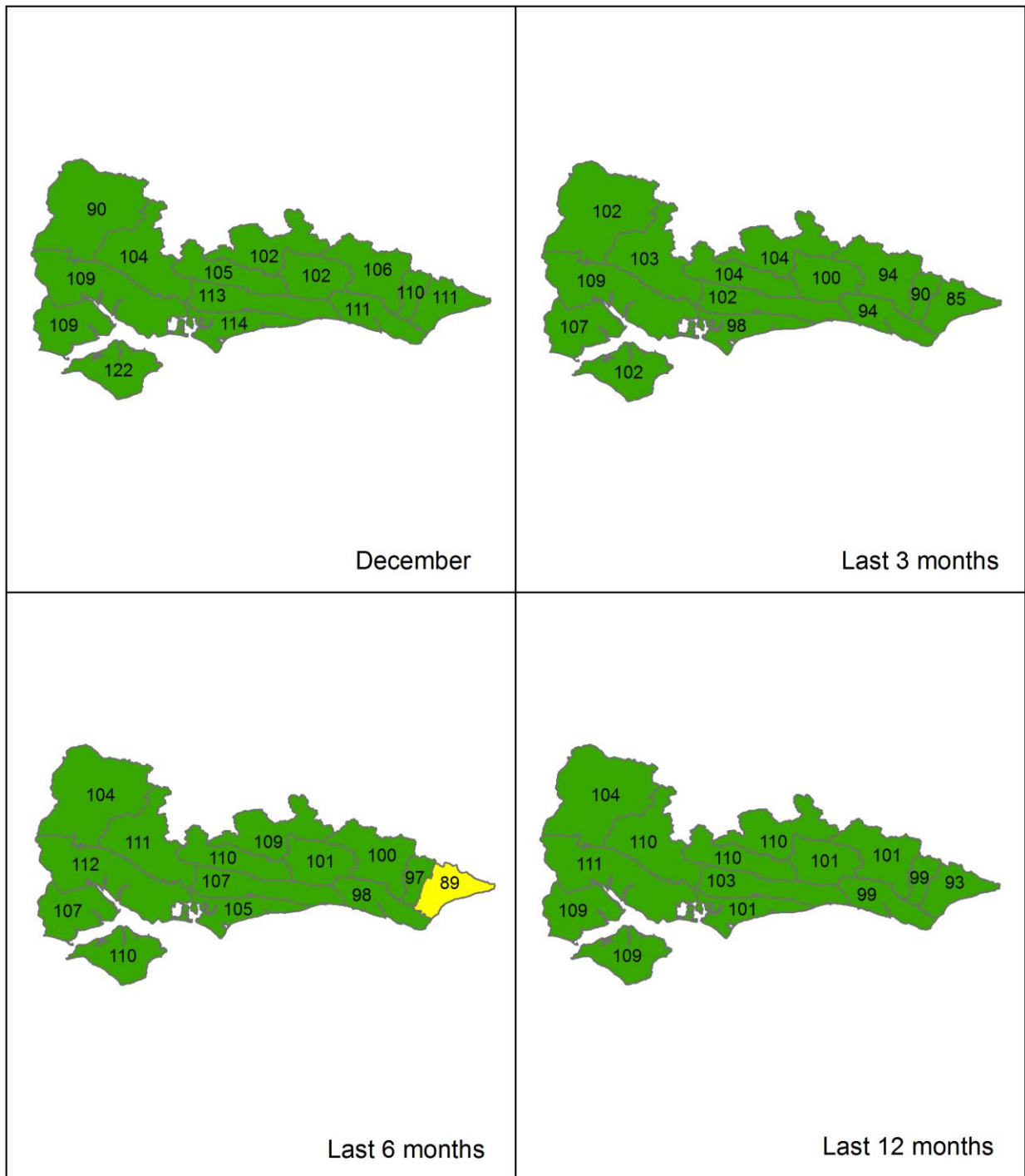
Total rainfall for hydrological areas across Solent and South Downs for the current month, classed relative to an analysis of respective historic totals. Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Includes material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

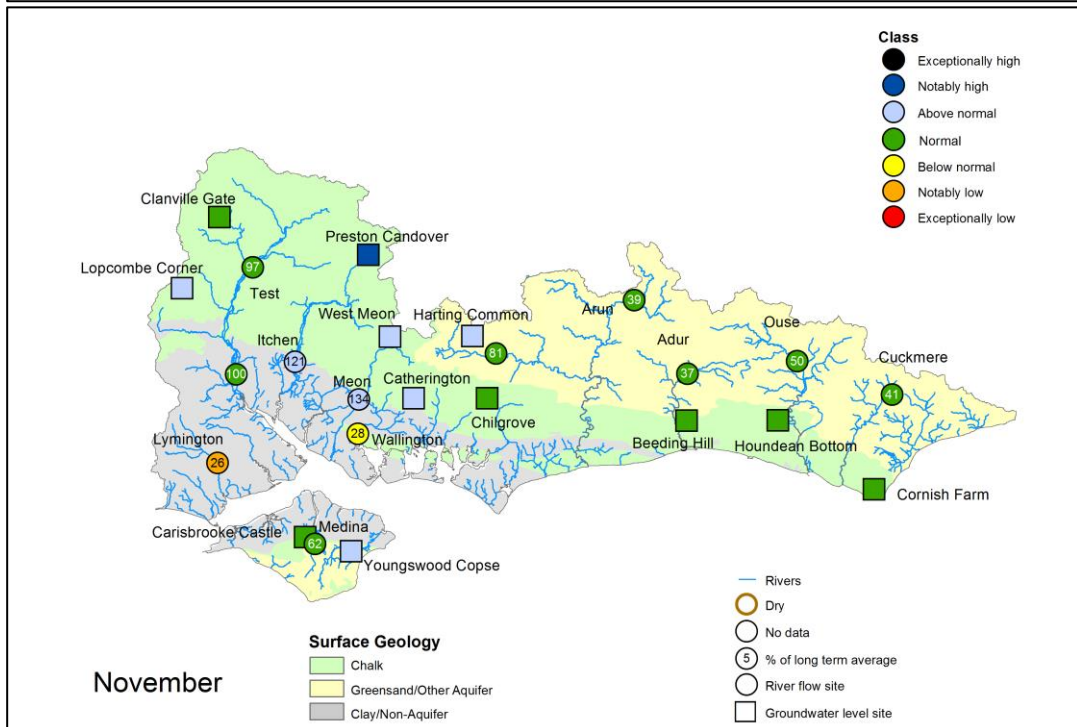
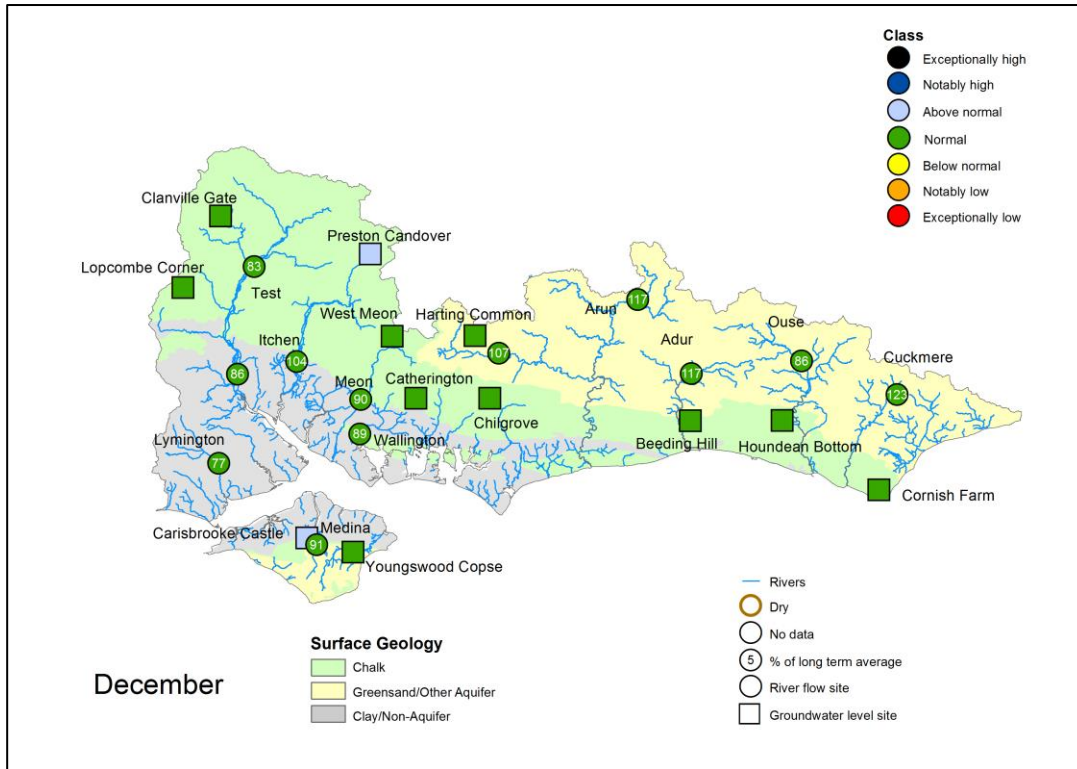
incident hotline
0800 80 70 60

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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West Hampshire – Page 1

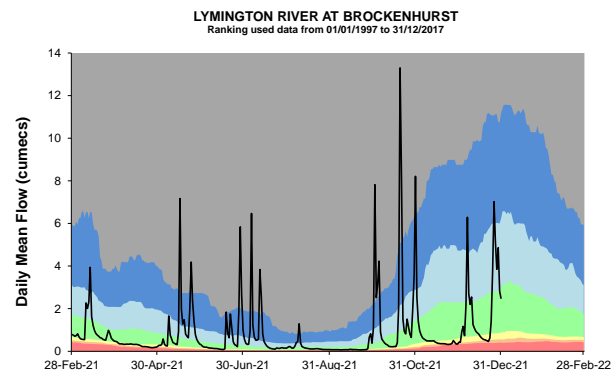
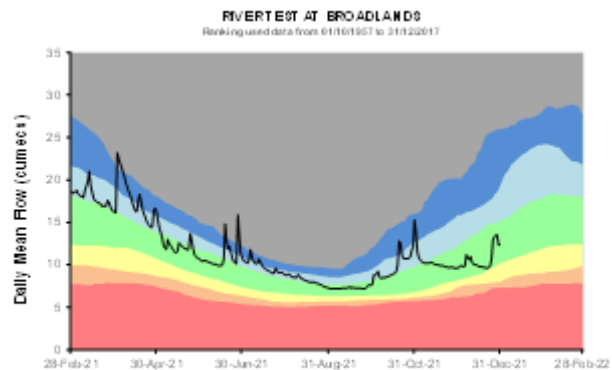
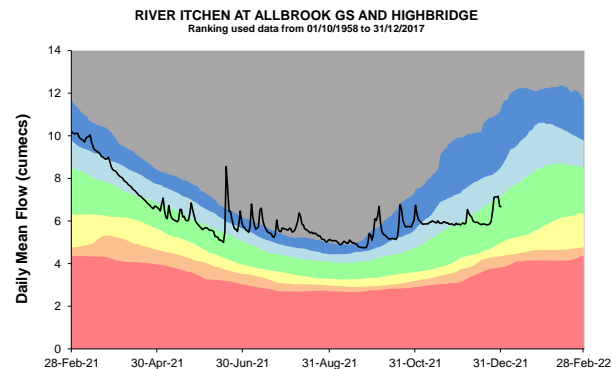
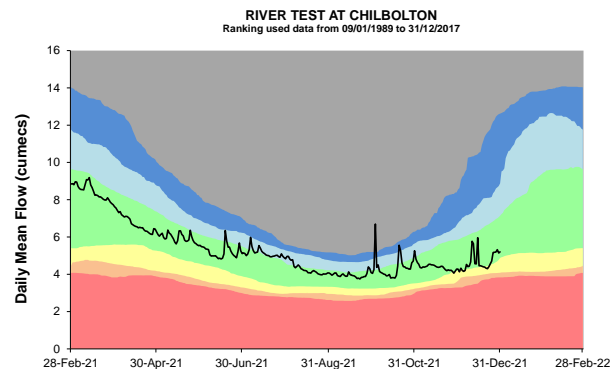
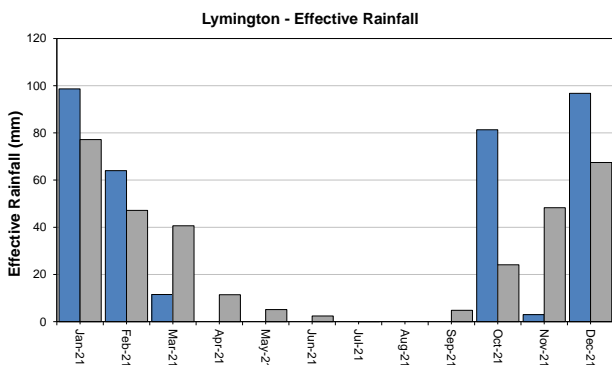
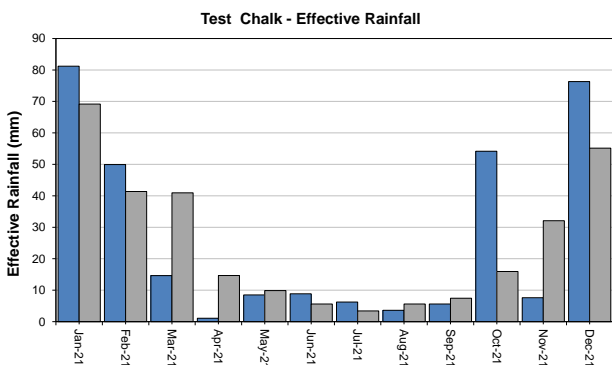
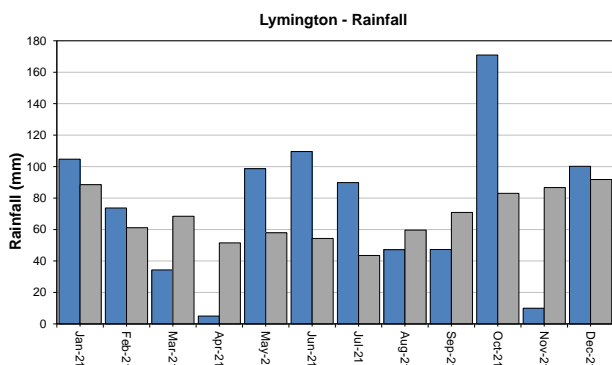
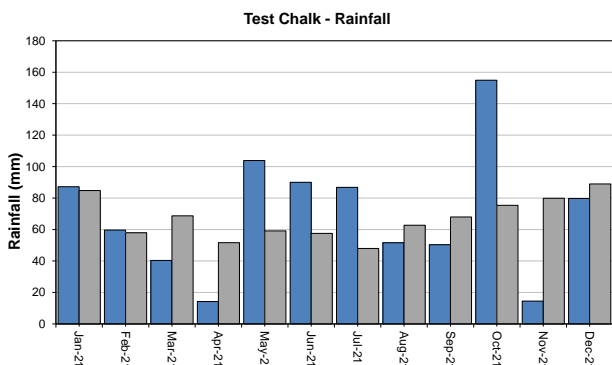
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incident hotline
0800 80 70 60

floodline
0345 988 1188

Monthly total rainfall (mm)

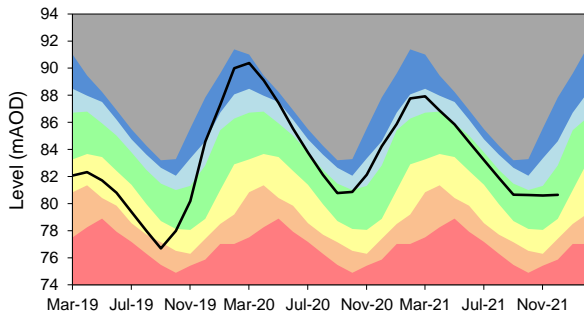
Long term average rainfall (mm)



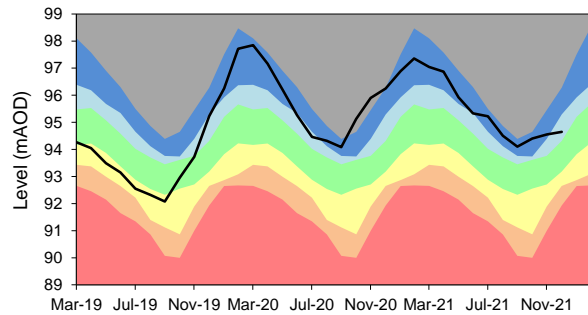
Exceptionally high
 Below normal
 Notably high
 Notably low
 Above normal
 Exceptionally low
 Normal
 Latest data

West Hampshire – Page 2

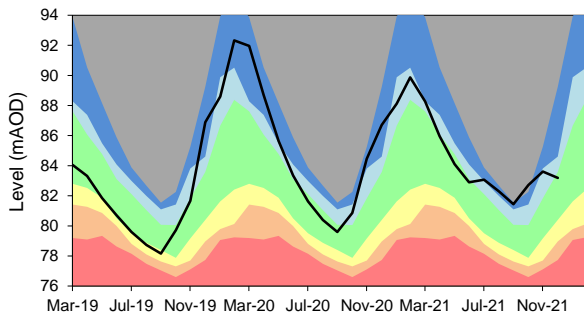
CLANVILLE GATE GWL - CHALK
 Ranking derived from data for the period Mar-1963 to Dec-2017



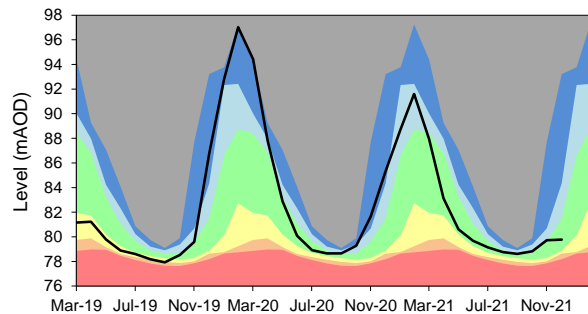
PRESTON CANDOVER GWL - CHALK
 Ranking derived from data for the period Jan-1975 to Dec-2017



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



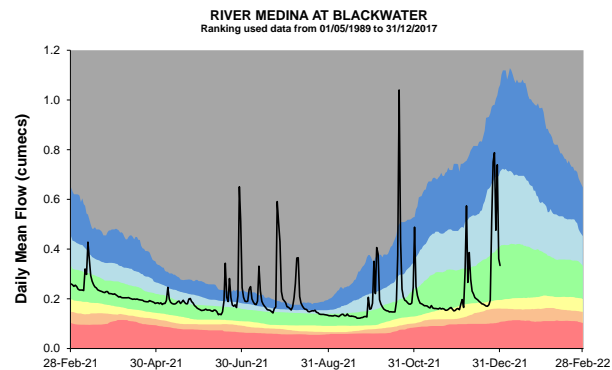
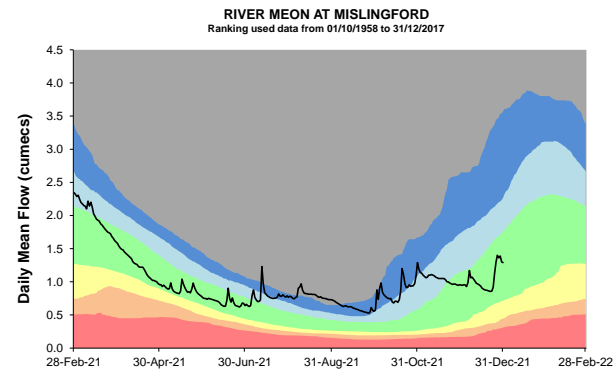
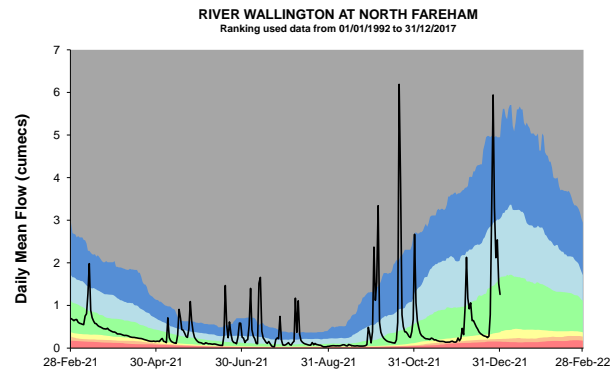
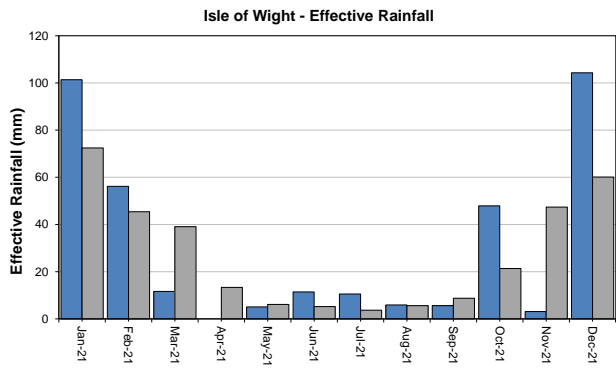
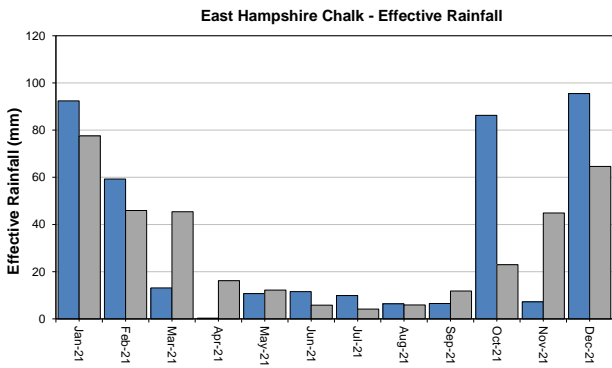
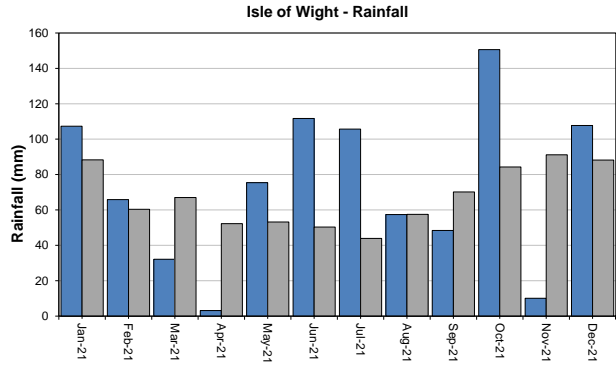
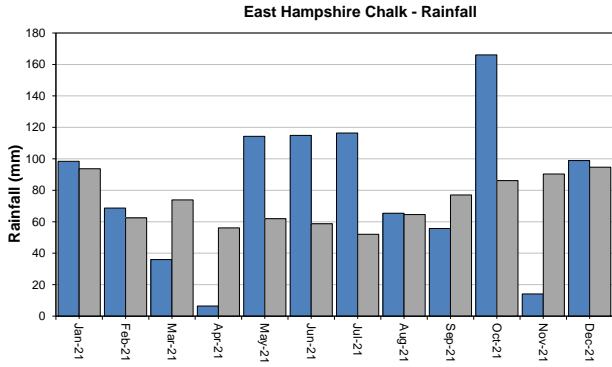
LOPCOMBE CORNER GWL - CHALK
 Ranking derived from data for the period Apr-1963 to Dec-2017



East Hampshire and Isle of Wight

Monthly total rainfall (mm)

Long term average rainfall (mm)



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

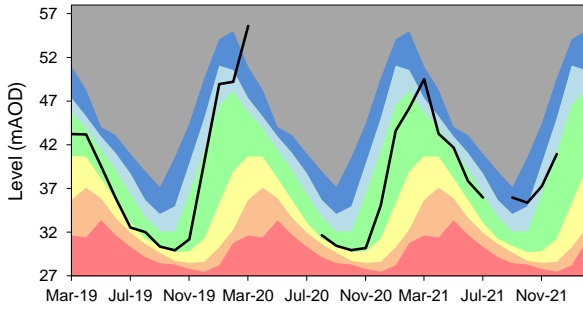
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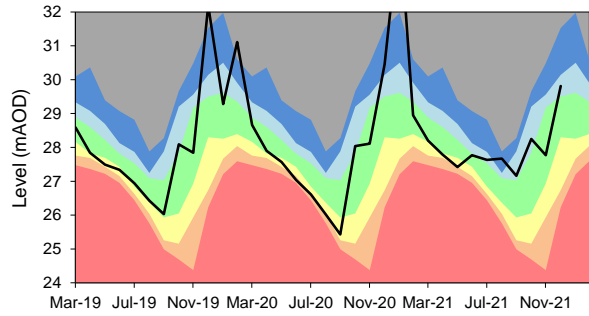
floodline
0345 988 1188

East Hampshire and Isle of Wight – Page 2

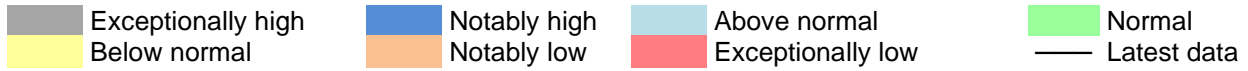
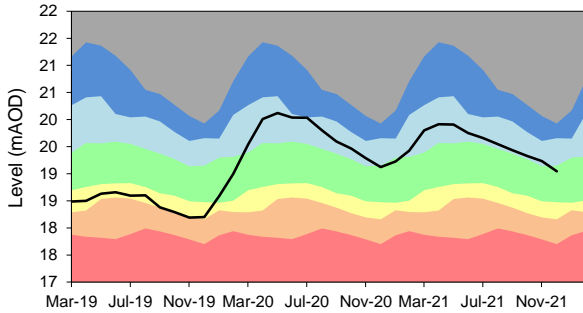
CATHERINGTON GWL - CHALK
 Ranking derived from data for the period Jan-1969 to Dec-2017



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



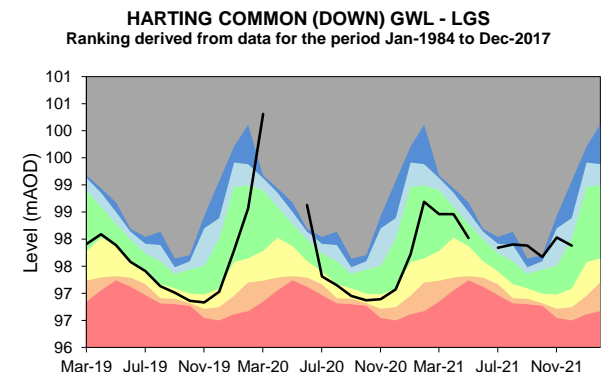
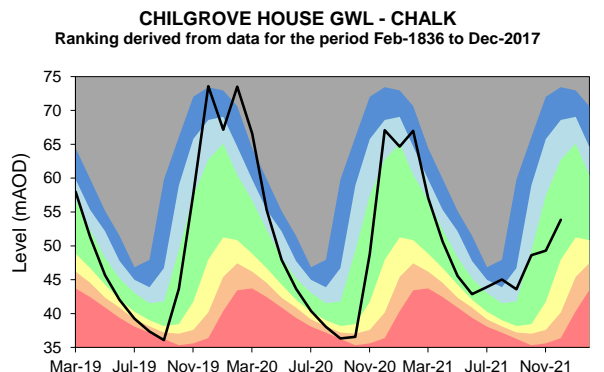
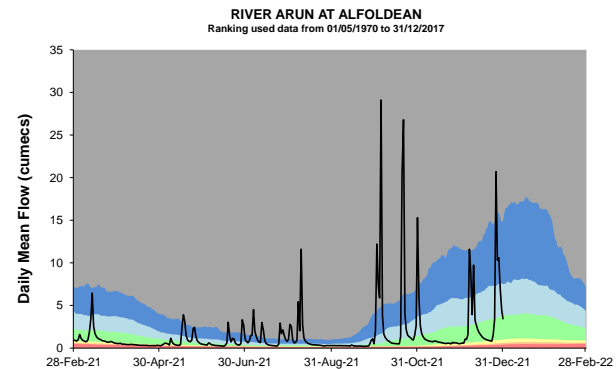
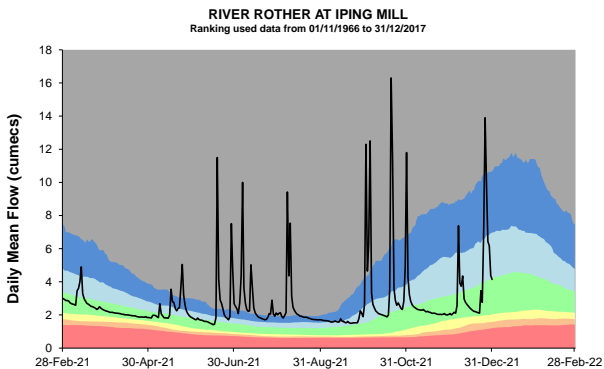
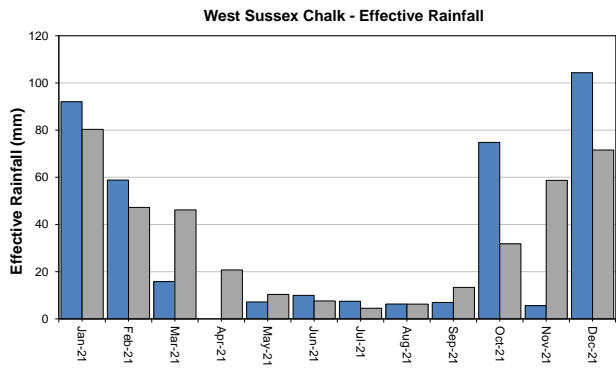
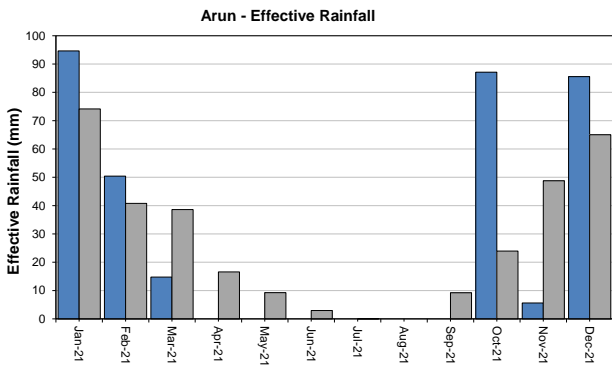
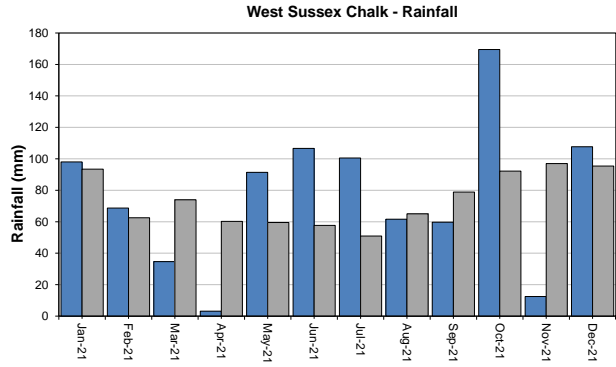
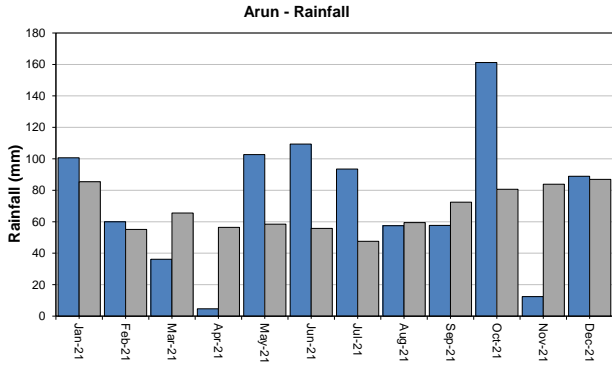
YOUNGWOOD COPSE GWL - LGS
 Ranking derived from data for the period Feb-1978 to Dec-2017



West Sussex

Monthly total rainfall (mm)

Long term average rainfall (mm)

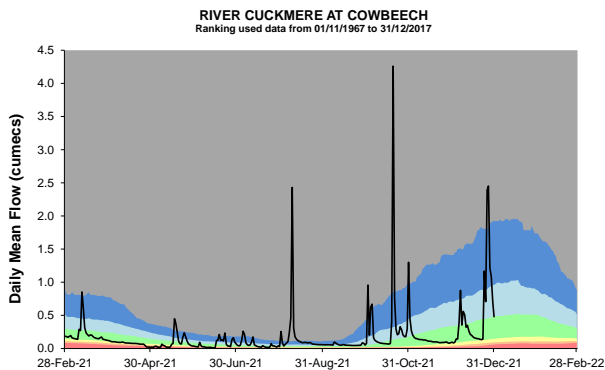
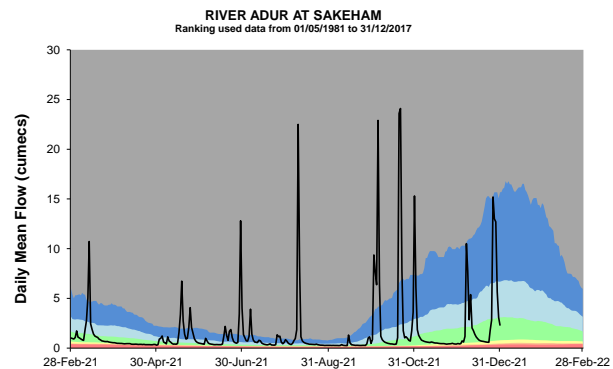
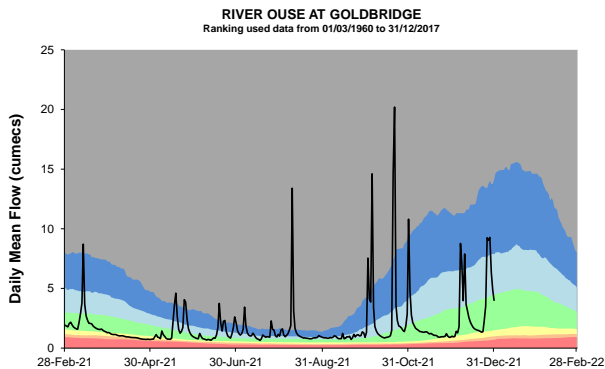
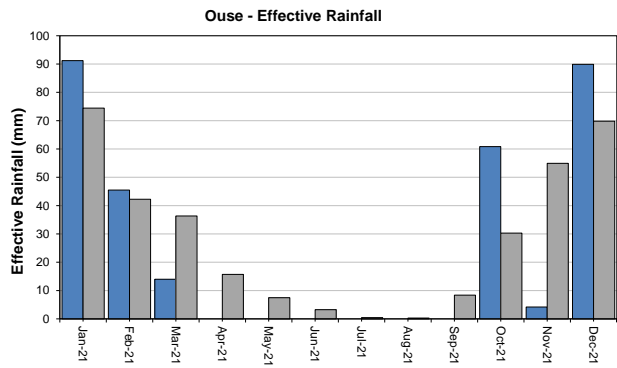
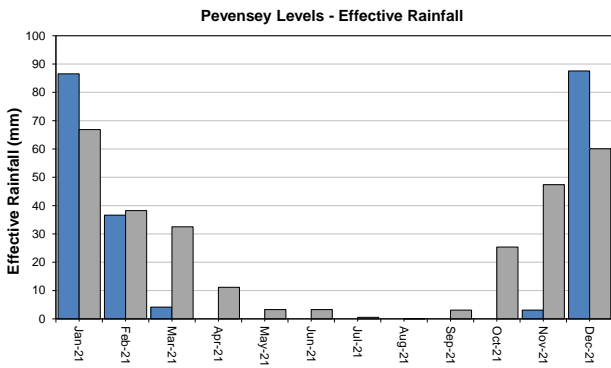
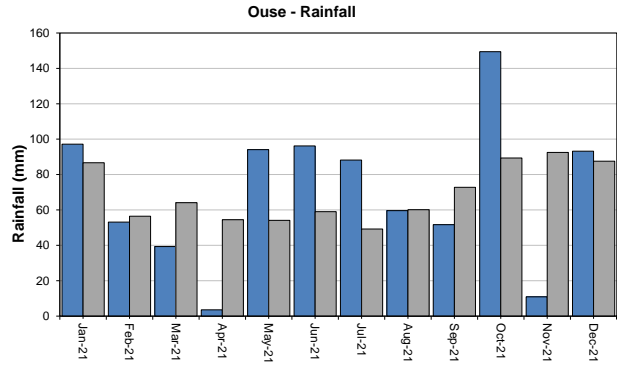
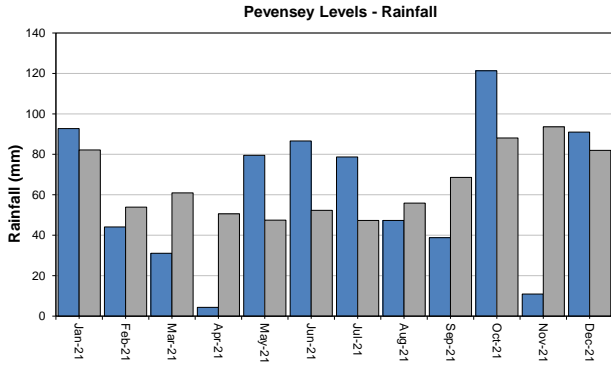


Exceptionally high
 Notably high
 Above normal
 Normal
 Exceptionally low
 Below normal
 Notably low
 Latest data

East Sussex

Monthly total rainfall (mm)

Long term average rainfall (mm)

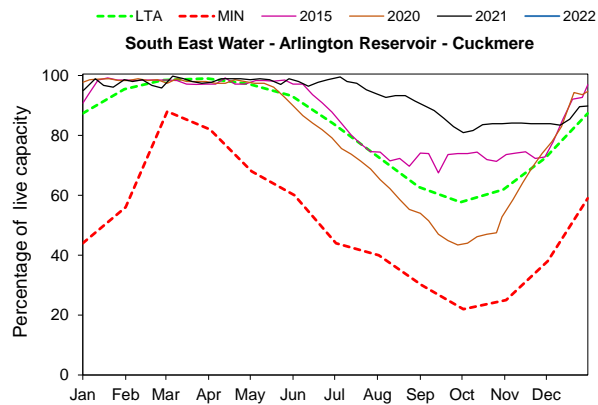
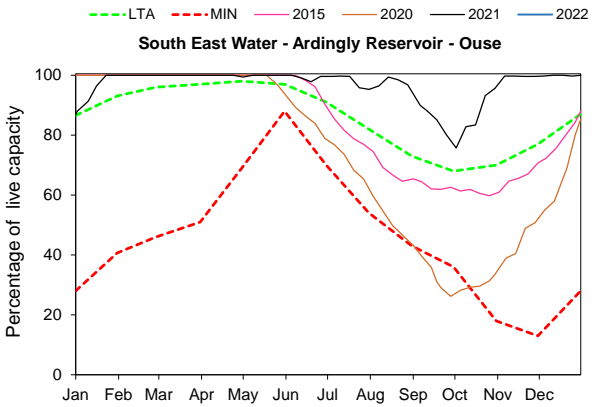
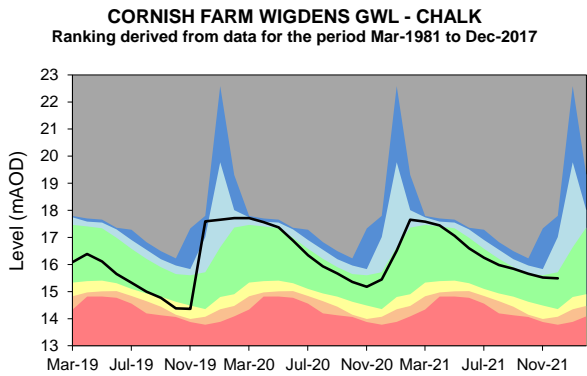
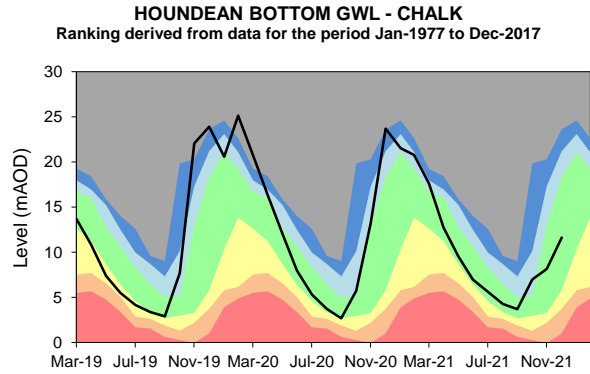
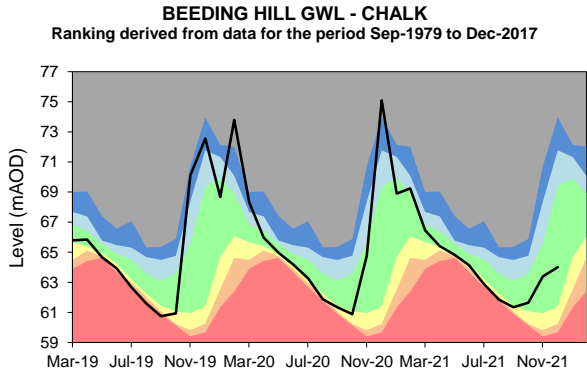


Exceptionally high
 Below normal
 Notably high
 Notably low
 Above normal
 Exceptionally low
 Normal
 Latest data

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	80	88	90	76	55	138
East Hampshire Chalk	99	93	104	96	65	148
West Sussex Chalk	108	94	113	104	72	146
East Sussex Chalk	99	88	111	96	62	153
Isle of Wight	108	87	122	104	60	173
Western Rother Greensand	105	98	105	101	69	146
Hampshire Tertiaries	96	89	109	93	64	145
Lymington	100	91	109	97	67	143
Sussex Coast	90	77	114	86	51	170
Arun	89	86	102	86	65	132
Adur	88	85	102	85	63	135
Ouse	93	86	106	90	70	129
Cuckmere	94	85	110	90	66	136
Pevensey Levels	91	81	111	88	60	146
Solent and South Downs	96	88	109	92	63	145

Winter rainfall and effective rainfall

Winter totals for the period 1 October to the 31 December 2021

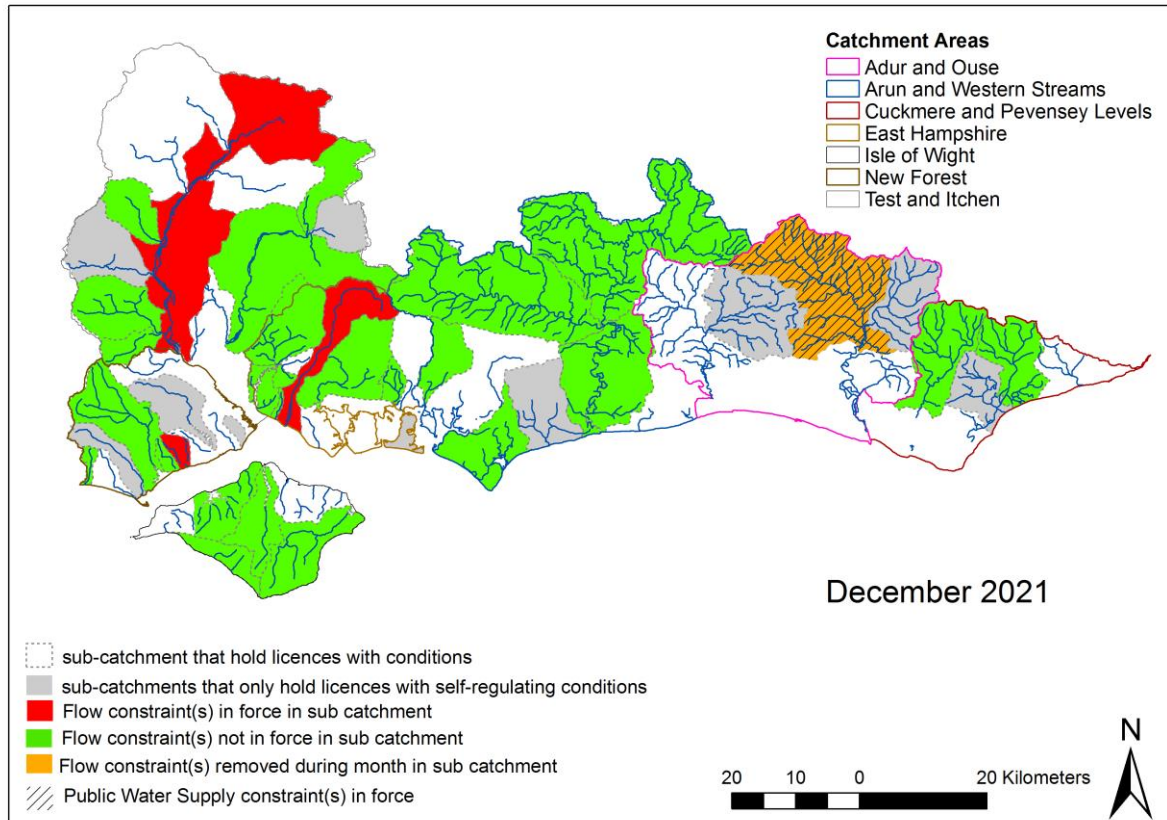
Area	Rainfall (mm)	LTA rainfall (mm)	% of LTA	Effective rainfall (mm)	LTA effective rainfall (mm)	% of LTA
Test Chalk	249	240	104	138	103	134
East Hampshire Chalk	279	266	105	189	132	143
West Sussex Chalk	290	284	102	185	162	114
East Sussex Chalk	262	278	94	140	145	97
Isle of Wight	268	265	101	155	129	120
Western Rother Greensand	297	285	104	215	148	146
Hampshire Tertiaries	272	252	108	178	125	142
Lymington	281	263	107	181	140	129
Sussex Coast	231	235	98	111	104	107
Arun	263	253	104	178	138	129
Adur	260	259	100	153	139	111
Ouse	254	267	95	155	155	100
Cuckmere	243	270	90	132	146	90
Pevensey Levels	223	263	85	91	133	68
Solent and South Downs	262	263	100	157	136	116

Soil Moisture Deficit

Area	End of month SMD (mm)	End of month SMD LTA (mm)
Test Chalk	0	6
East Hampshire Chalk	0	3
West Sussex Chalk	0	2
East Sussex Chalk	0	4
Isle of Wight	0	5
Western Rother Greensand	0	2
Hampshire Tertiaries	0	3
Lymington	0	1
Sussex Coast	0	4
Arun	0	1
Adur	0	2
Ouse	0	1
Cuckmere	0	1
Pevensey Levels	0	1
Solent and South Downs	0	3

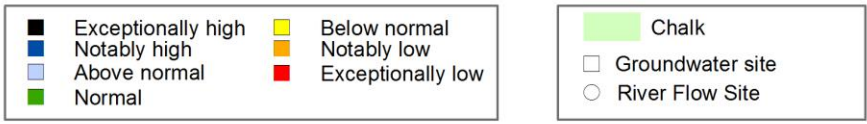
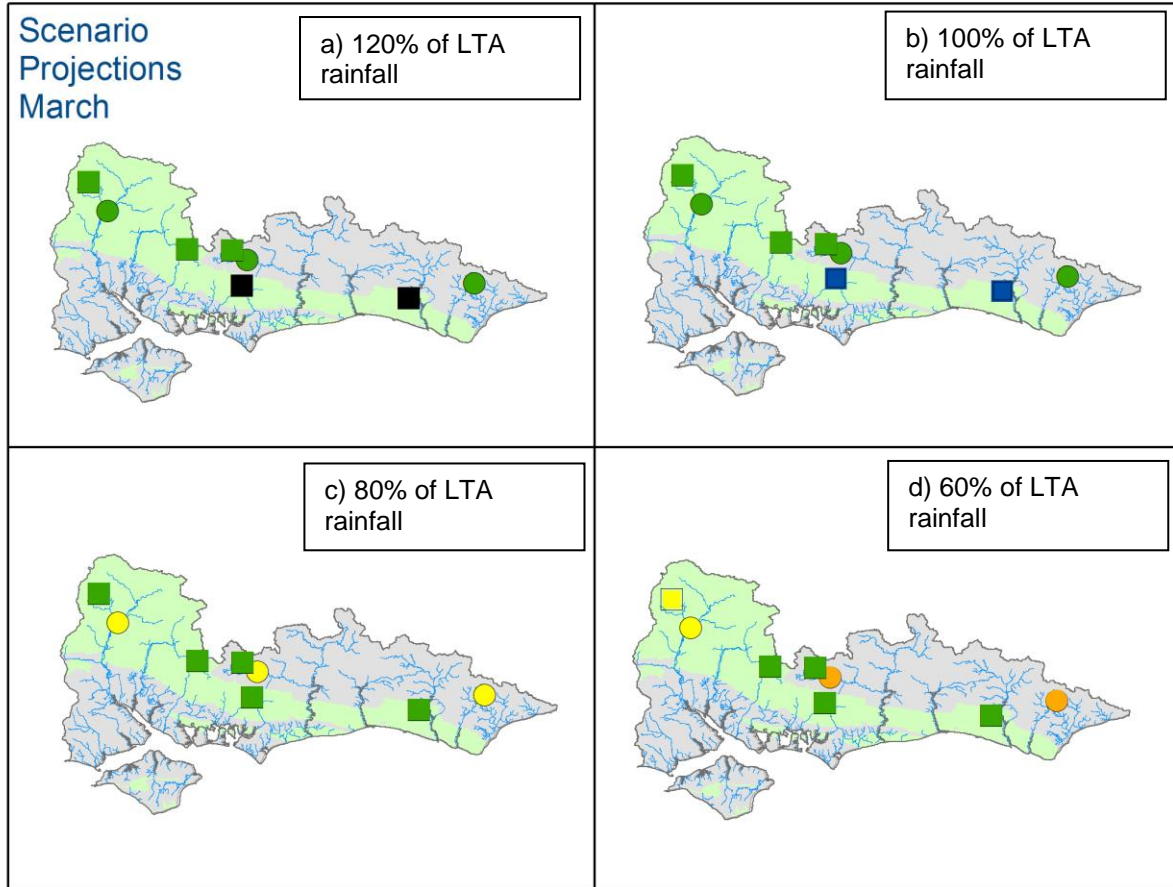
Environmental Impact

Flow Constraints



Catchment	No. licences with conditions currently operational in Oct	01-Dec	07-Dec	14-Dec	21-Dec	28-Dec	31-Dec
		Number at Start of the month in force	No. licences with condition in Force in Oct	No. licences with Flow Condition in Force in Oct	No. licences with Flow Condition in Force in Oct	No. licences with Flow Condition in Force in Oct	Number at End of the month in force
Adur & Ouse	7	2	0	0	0	0	0
Arun & Western	36	0	0	0	0	0	0
Cuckmere & Pevensey	7	0	0	0	0	0	0
East Hampshire	11	0	1	1	1	1	1
IOW	29	0	0	0		0	0
New Forest	8	1	0	1	1	0	0
Test & Itchen	29	4	4	4	4	3	3
Total in SSD	127	7	5	6	6	4	4

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 (m³s⁻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

customer service line
03708 506 506

incident hotline
0800 80 70 60

floodline
0345 988 1188