

Monthly water situation report

Solent and South Downs Area

Summary – April 2021

Solent and South Downs (SSD) had far below average rainfall in April, receiving 9% (5mm) of the long term average (LTA) (53mm). Monthly mean river flows across SSD ranged from **notably low** to **notably high**. Groundwater levels ranged from **below normal** to **notably high**. Soil moisture deficits across SSD ended the month much greater than the LTA. End of month reservoir stocks were slightly above average at both Ardingly Reservoir (Ouse Catchment) and Arlington Reservoir (Cuckmere catchment)

Rainfall

SSD had far below average rainfall in April, receiving just 9% (5mm) of the LTA (53 mm). Areal units in SSD generally received between 5% and 12% of LTA rainfall, with the exclusion of the Test Chalk which was significantly wetter with 29% (14mm) of LTA. There were between 24 and 30 completely dry days in April. The most significant rainfall event was on the 28th of the month, when approximately 75% of the monthly total (14mm) was recorded on the Test Chalk.

Soil Moisture Deficit/Recharge

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

River Flows

Monthly mean river flows across SSD ranged from **notably low** to **notably high**. The River Test at Broadlands recorded **notably high** flows while The Itchen at Allbrook & Highbridge recorded mean monthly flows in the **above normal range**. Flows recorded at North Fareham (Wallington), Cowbeech (Cuckmere) and Gold Bridge (Ouse) were all **below normal** for April. The Arun at Alfoldean, The Lymington at Brockenhurst and The Adur at Sakeham were all in the **notably low** range, these represent the 4th, 5th and 8th lowest April flows on record for these sites, respectively. All remaining reporting sites were in the **normal** range.

Groundwater Levels

End of month groundwater levels ranged from **below normal** to **notably high**. The groundwater level at Preston Candover (East Hampshire Chalk) was **notably high**, representing the 4th highest level on record for April in a record going back to 1975. The groundwater levels at Alverstone (Isle of Wight), Cornish Farm (East Sussex Chalk) and Clanville Gate (Test Chalk) was **above normal** for April. Carisbrooke Castle (Isle of Wight) had **below normal**. All remaining reporting sites recorded end of month groundwater levels in the **normal** range. The data for Beeding Hill (West Sussex Chalk) for April is suspect and currently under investigation.

Reservoir Storage

End of month reservoir stocks were above average at Ardingly Reservoir (Ouse) with 99.4% of total capacity (LTA 98%) and slightly below average at Arlington Reservoir (Cuckmere) with 97.9% of total capacity (LTA 97%).

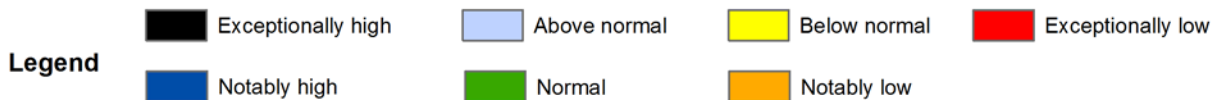
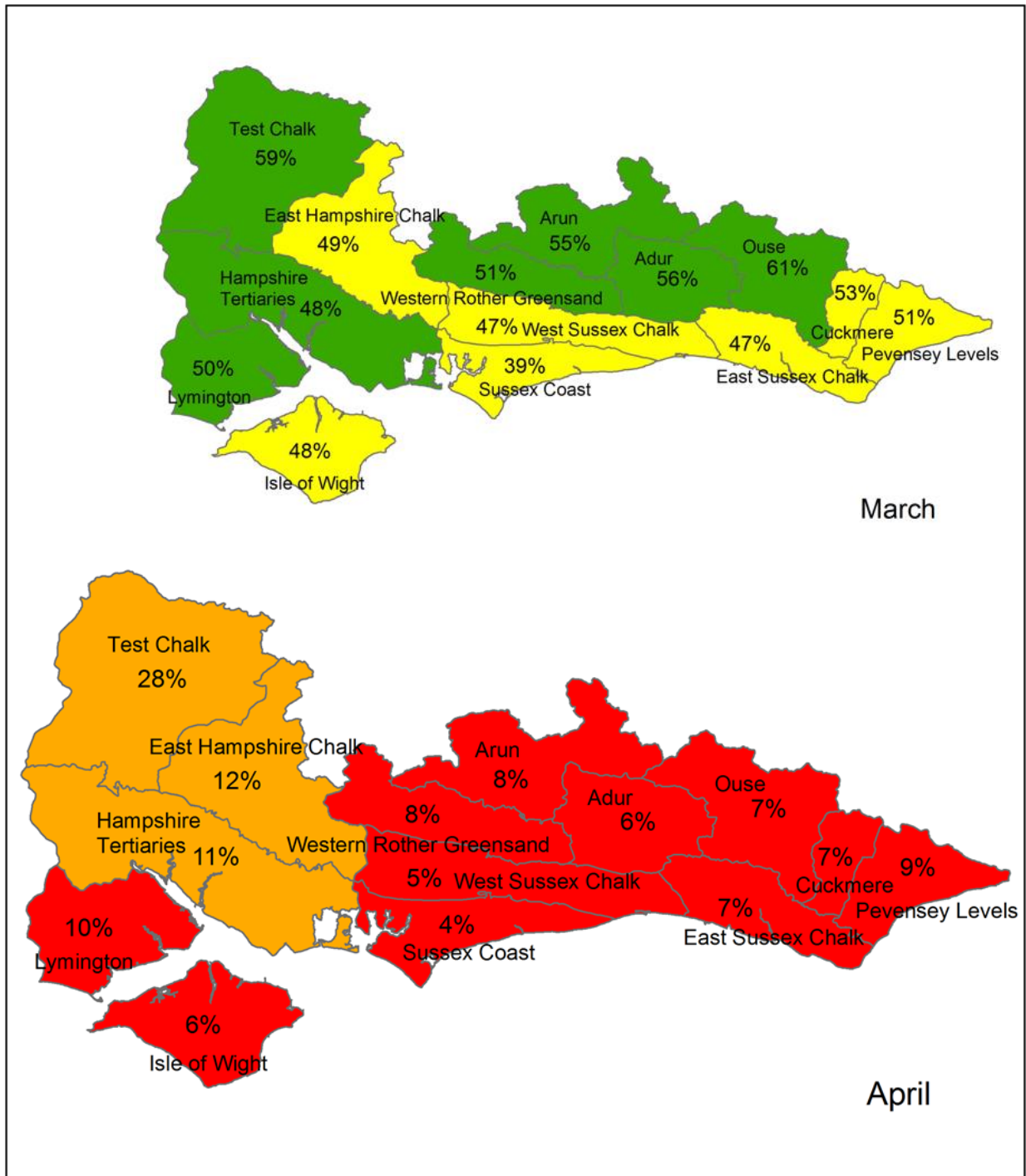
Environmental Impact

There were no licence restrictions in force in April.

Author: [HydrologySSD](#)

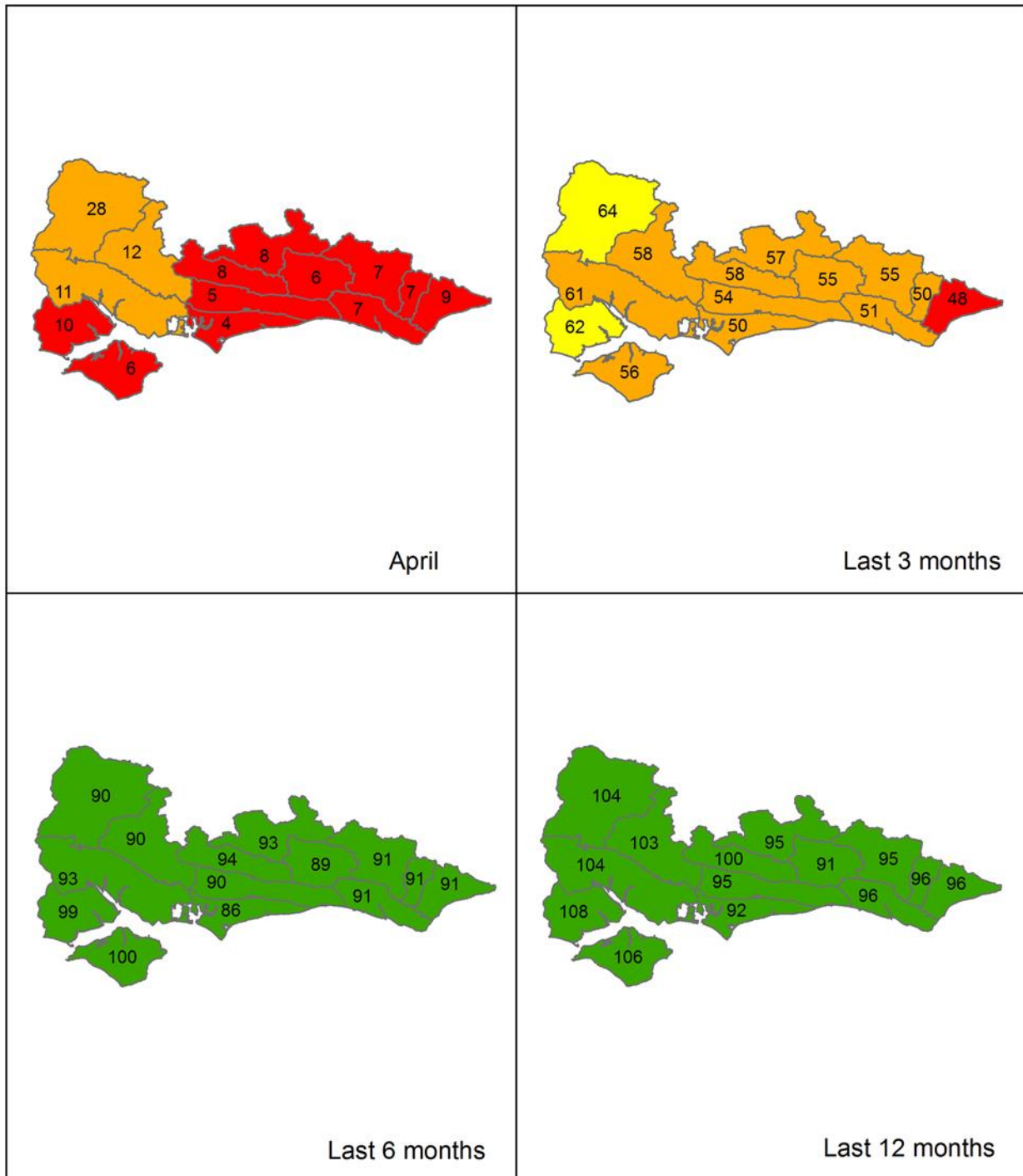
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Rainfall Map 1



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

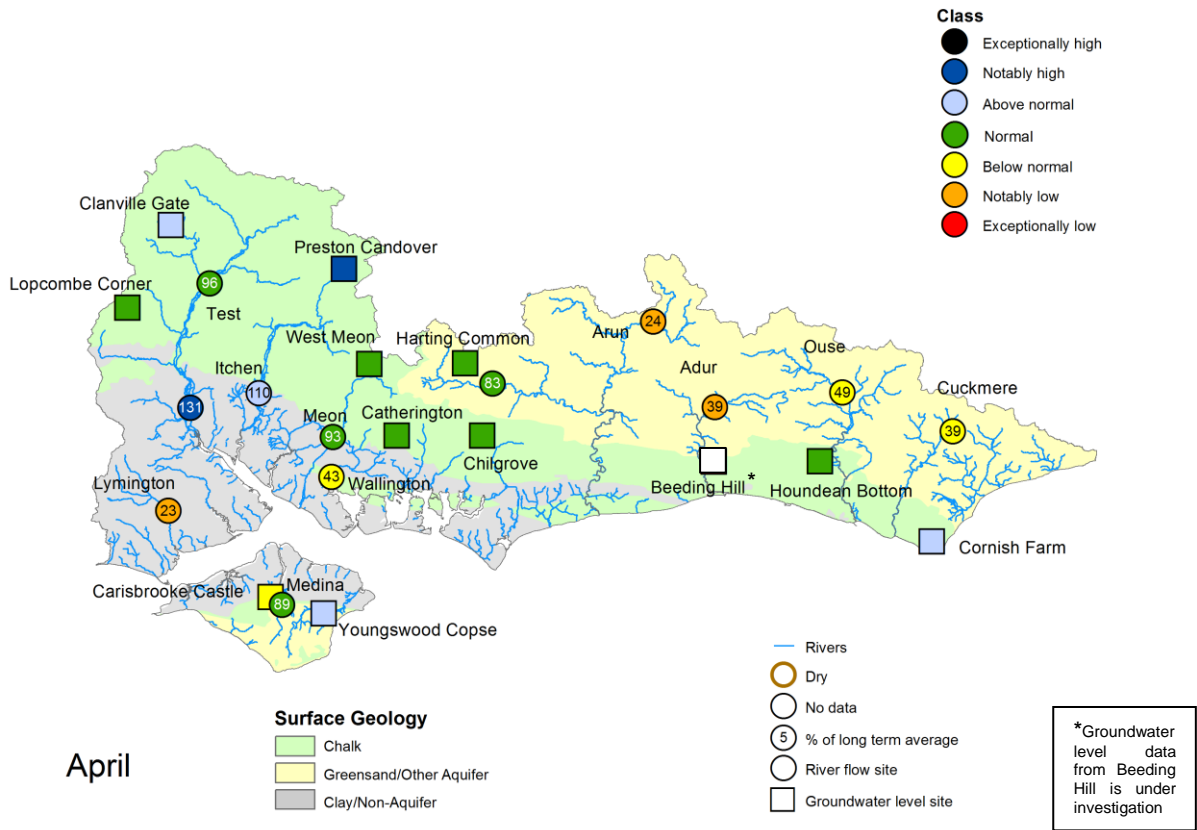


Legend

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

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

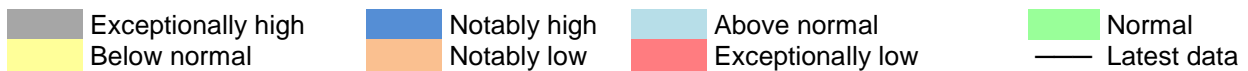
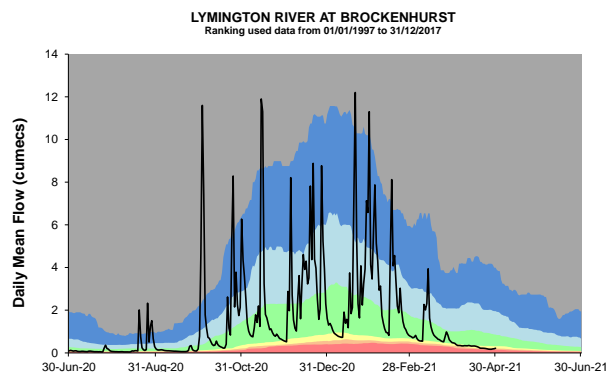
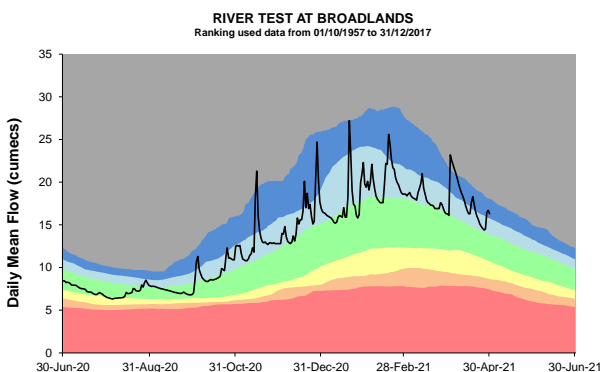
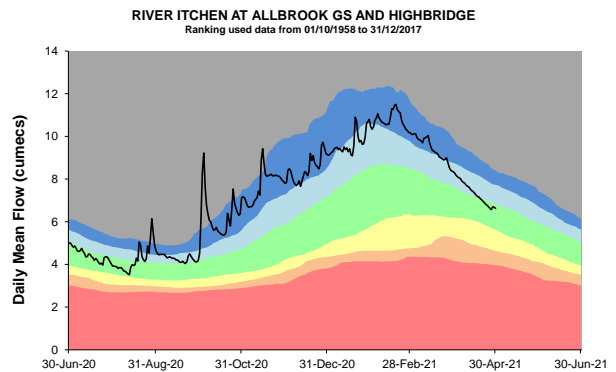
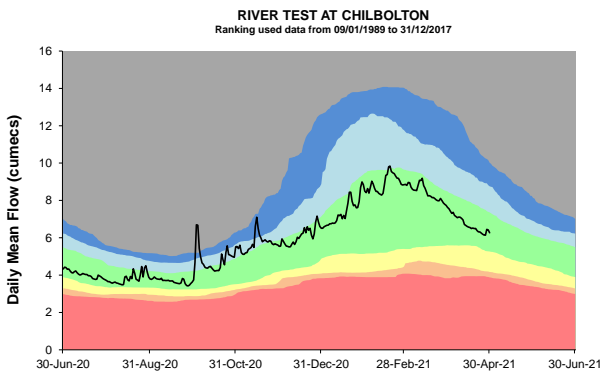
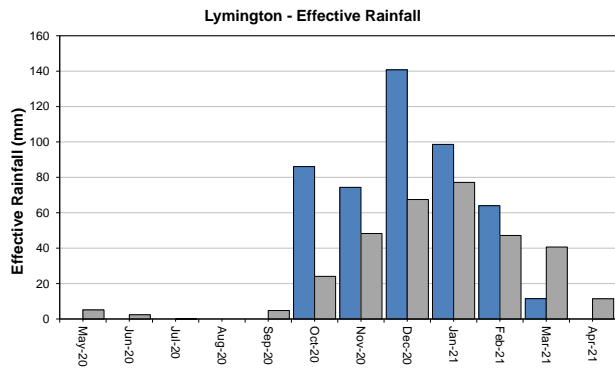
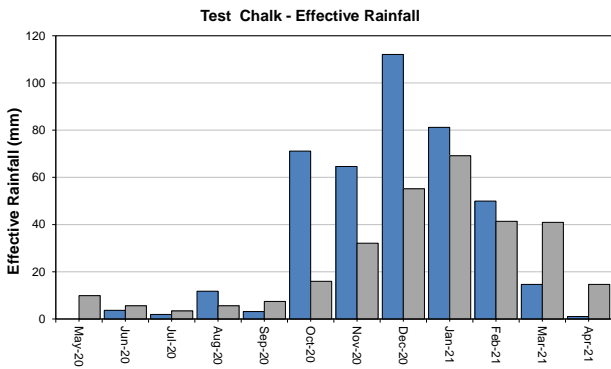
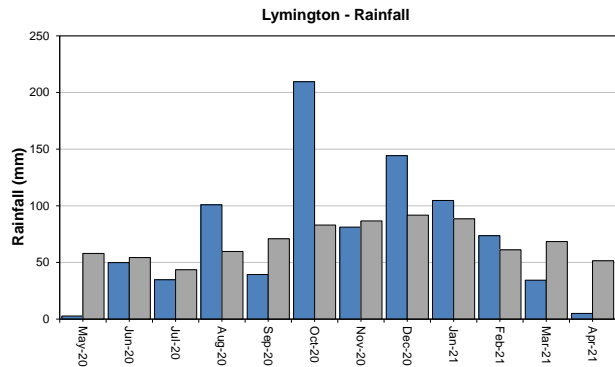
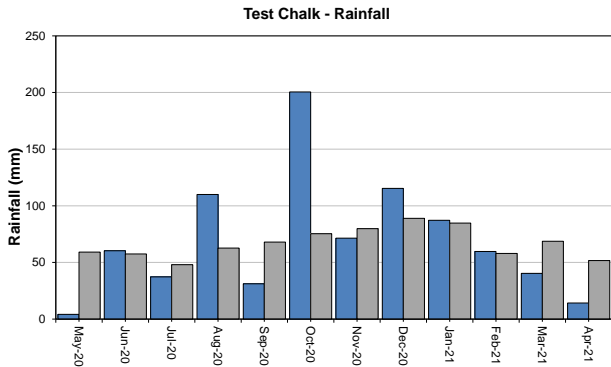
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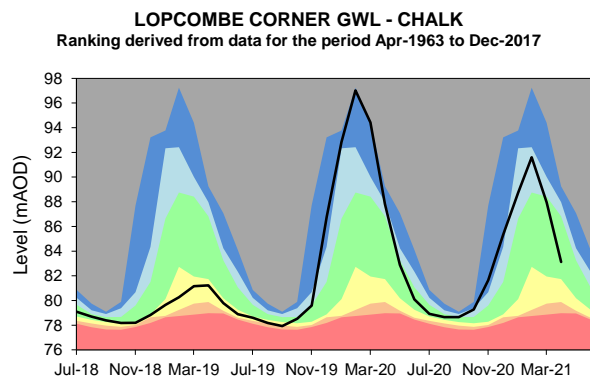
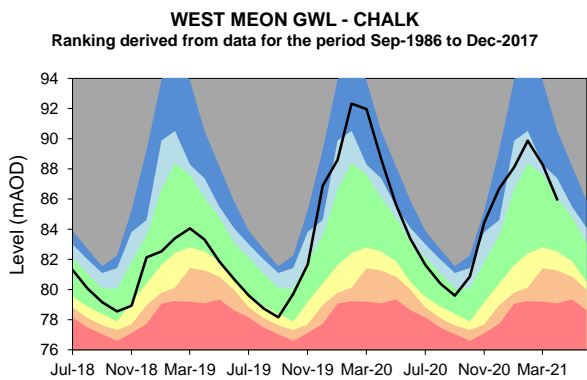
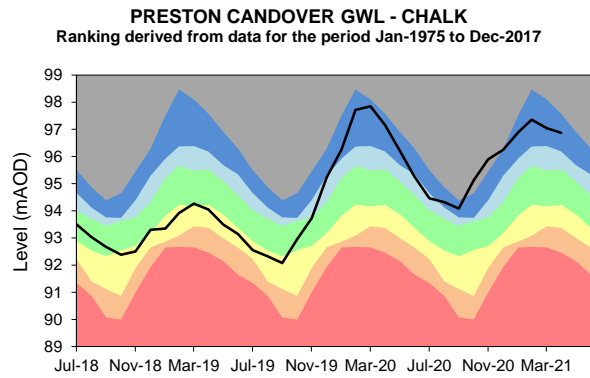
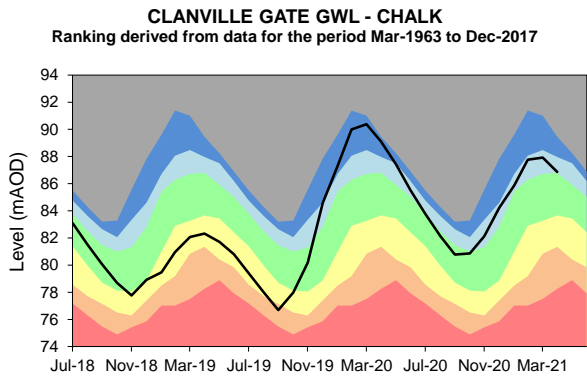
West Hampshire – Page 1

Monthly total rainfall (mm)

Long term average rainfall (mm)



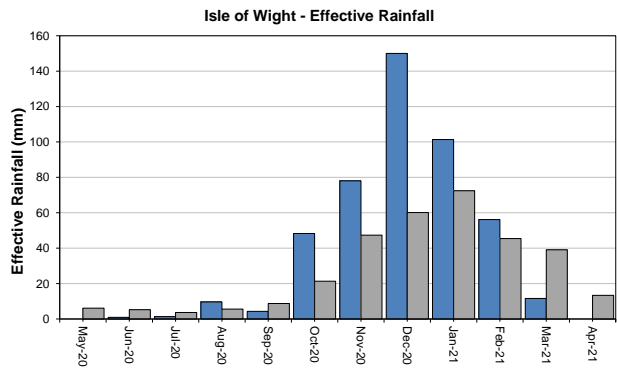
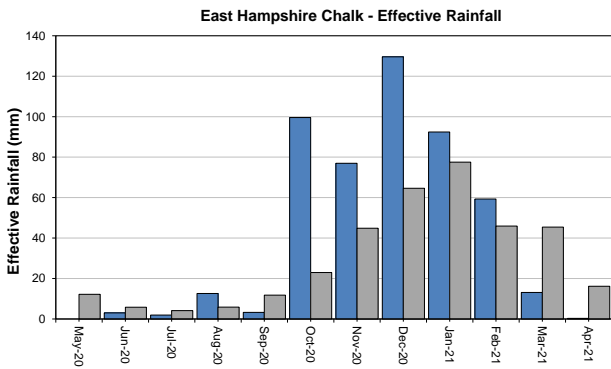
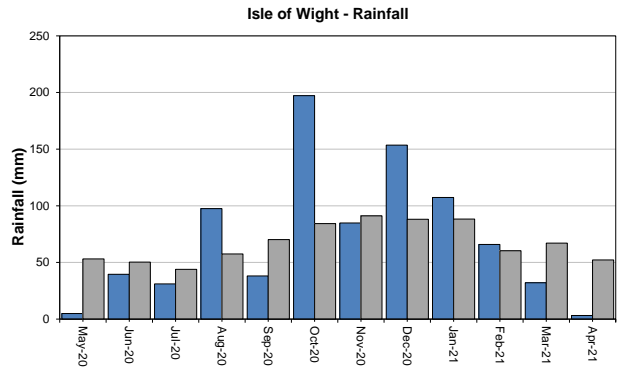
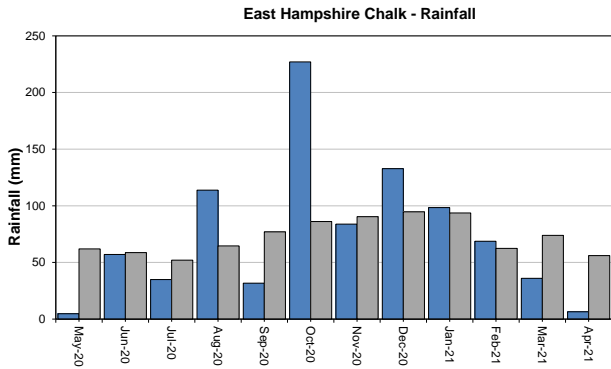
West Hampshire – Page 2



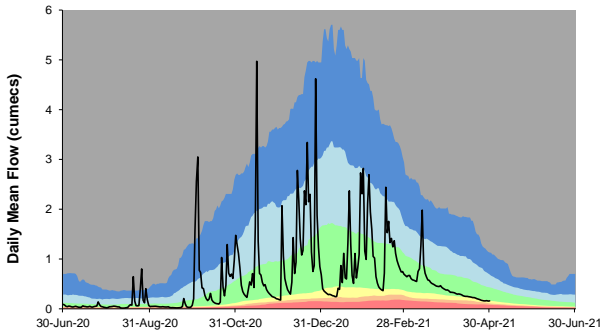
East Hampshire and Isle of Wight

Monthly total rainfall (mm)

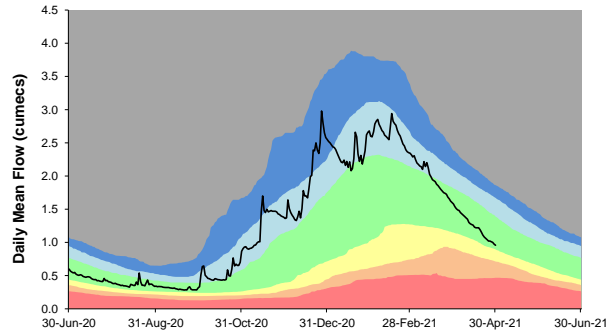
Long term average rainfall (mm)



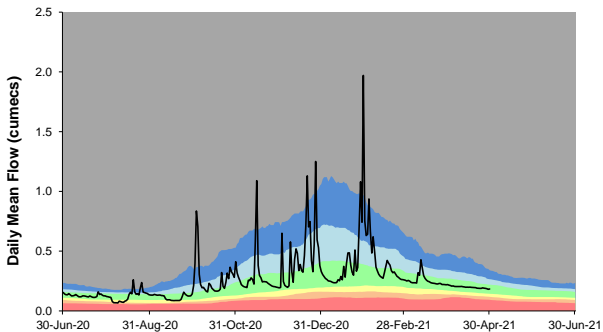
RIVER WALLINGTON AT NORTH FAREHAM
Ranking used data from 01/01/1992 to 31/12/2017



RIVER MEON AT MISLINGFORD
Ranking used data from 01/10/1958 to 31/12/2017



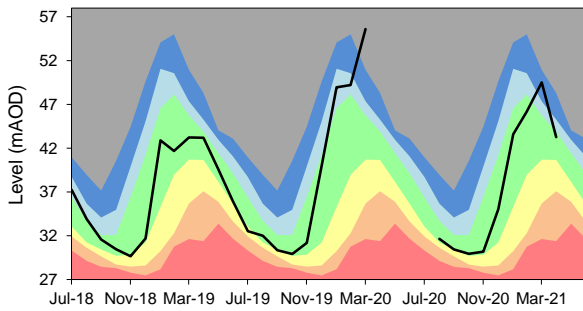
RIVER MEDINA AT BLACKWATER
Ranking used data from 01/05/1989 to 31/12/2017



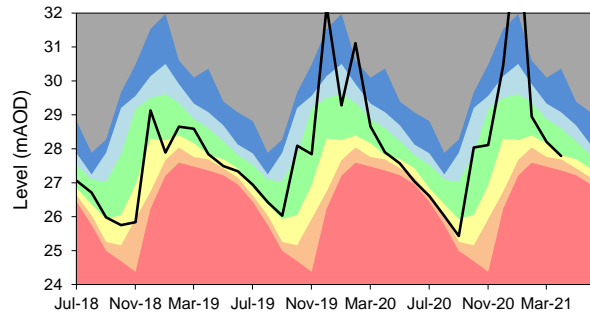
Exceptionally high
 Below normal
 Notably high
 Notably low
 Above normal
 Exceptionally low
 Normal
 Latest data

East Hampshire and Isle of Wight – Page 2

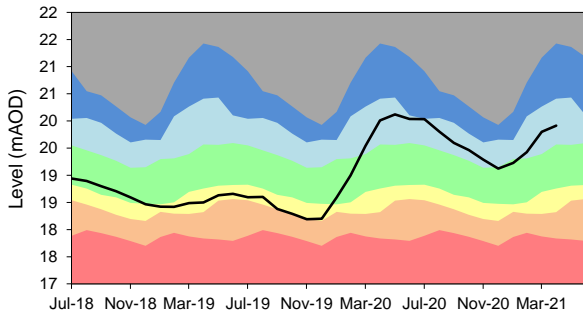
CATHERINGTON GWL - CHALK
 Ranking derived from data for the period Jan-1969 to Dec-2017



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



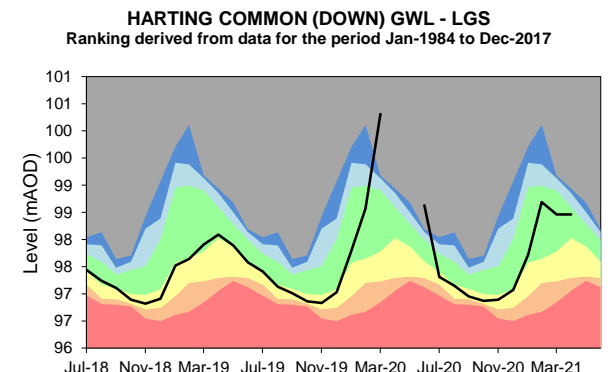
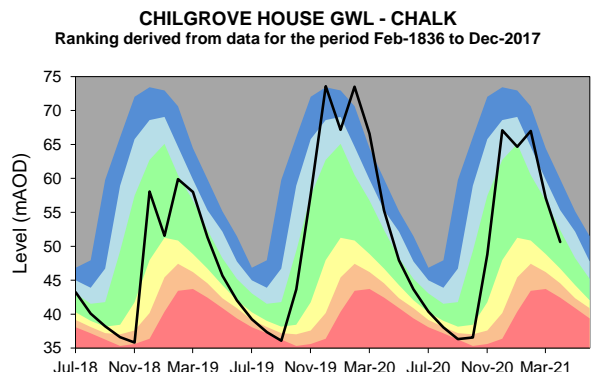
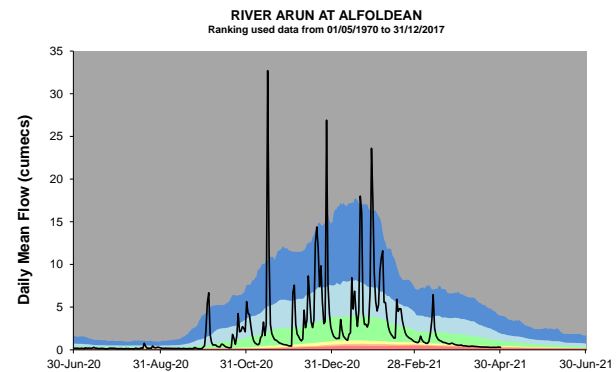
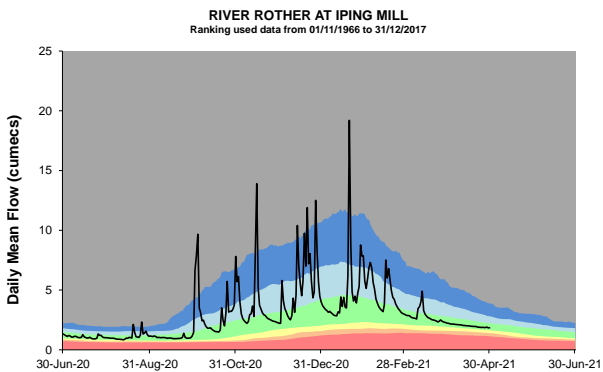
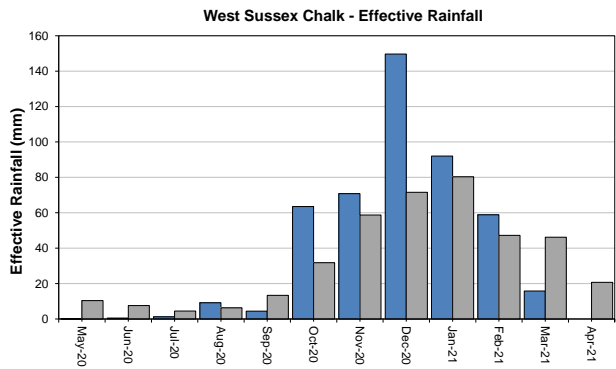
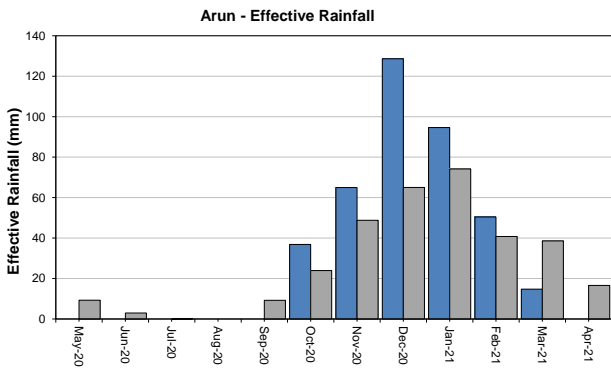
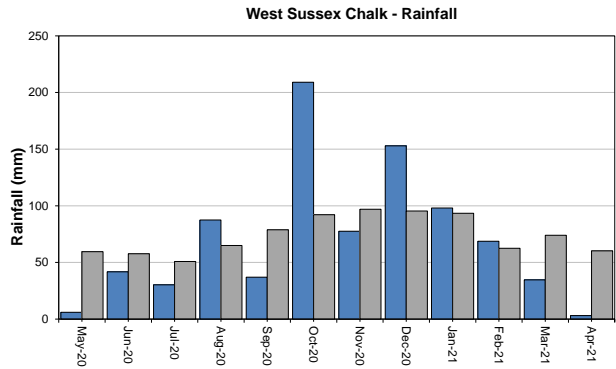
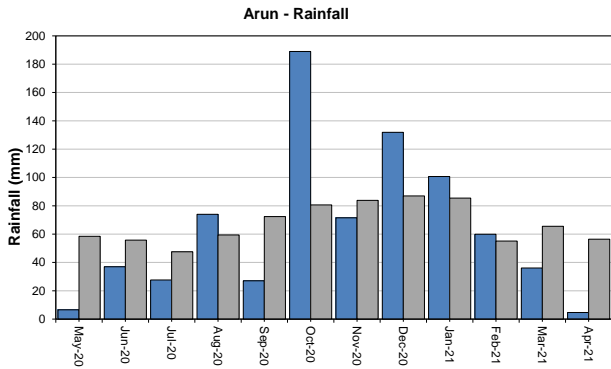
YOUNGWOOD COPSE GWL - LGS
 Ranking derived from data for the period Feb-1978 to Dec-2017



West Sussex

Monthly total rainfall (mm)

Long term average rainfall (mm)

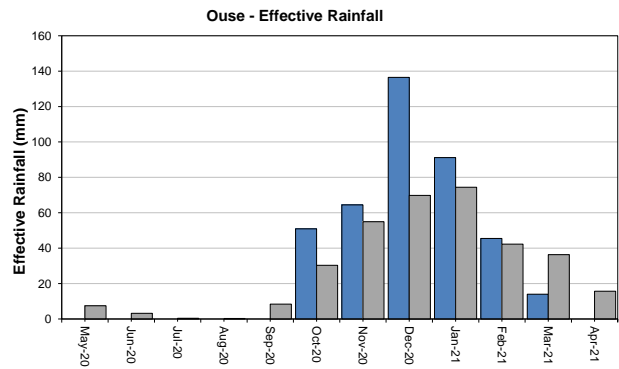
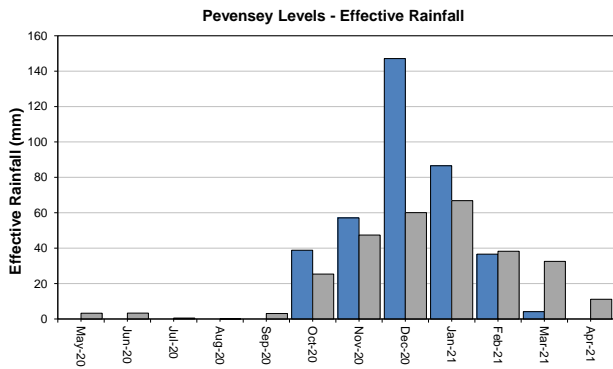
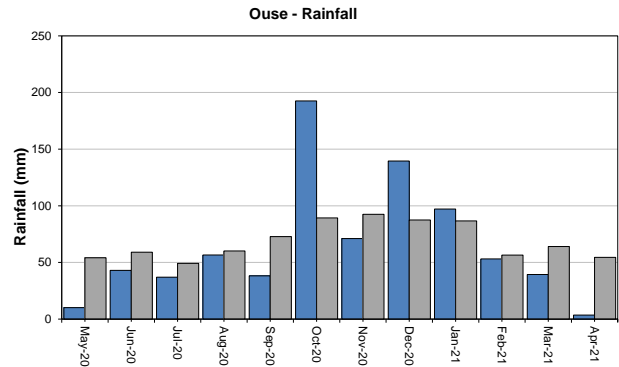
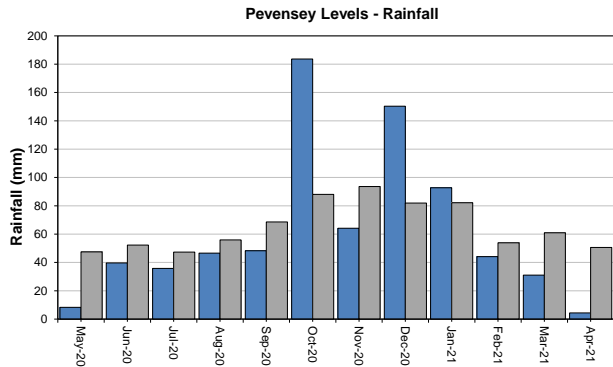


Exceptionally high
 Notably high
 Above normal
 Normal
 Below normal
 Notably low
 Exceptionally low
 Latest data

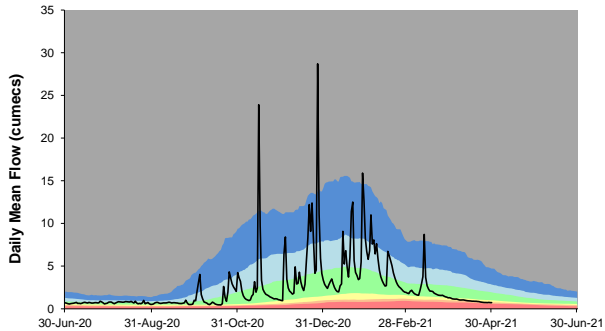
East Sussex

Monthly total rainfall (mm)

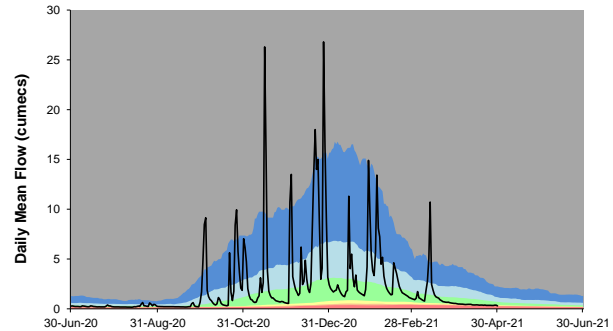
Long term average rainfall (mm)



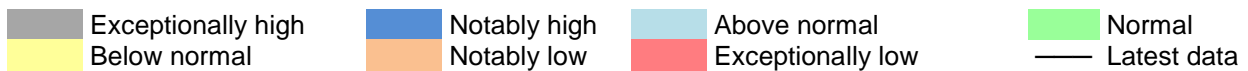
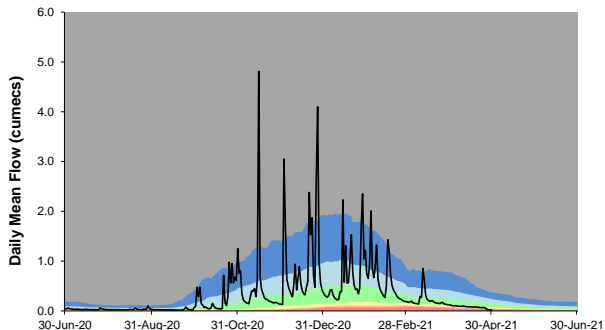
RIVER OUSE AT GOLDBRIDGE
Ranking used data from 01/03/1960 to 31/12/2017



RIVER ADUR AT SAKEHAM
Ranking used data from 01/05/1981 to 31/12/2017



RIVER CUCKMERE AT COWBEECH
Ranking used data from 01/11/1967 to 31/12/2017



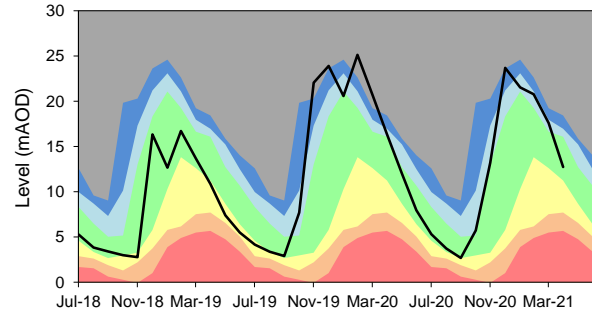
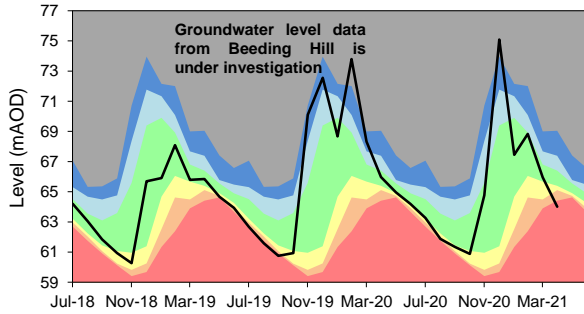
East Sussex – Page 2

Monthly total rainfall (mm)

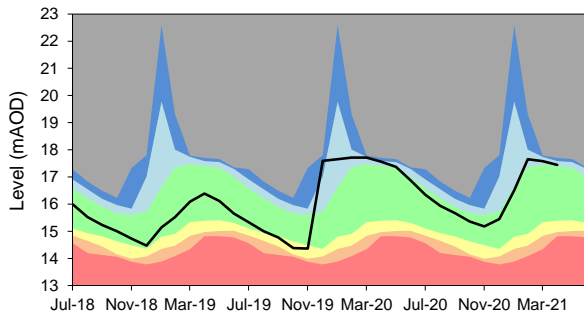
Long term average rainfall (mm)

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

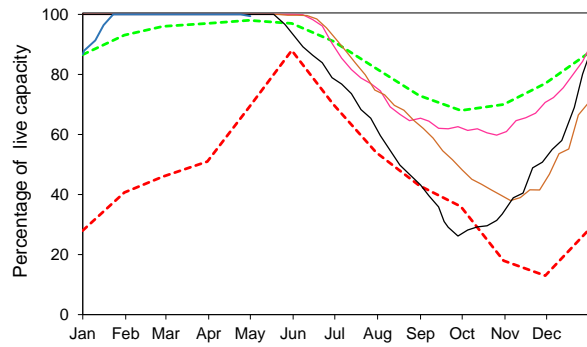
HOUNDEAN BOTTOM GWL - CHALK
Ranking derived from data for the period Jan-1977 to Dec-2017



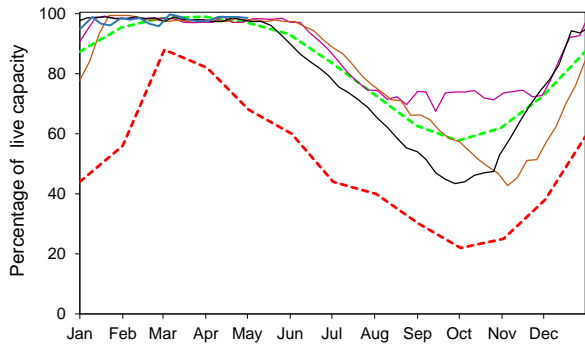
CORNISH FARM WIGDENS GWL - CHALK
Ranking derived from data for the period Mar-1981 to Dec-2017



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

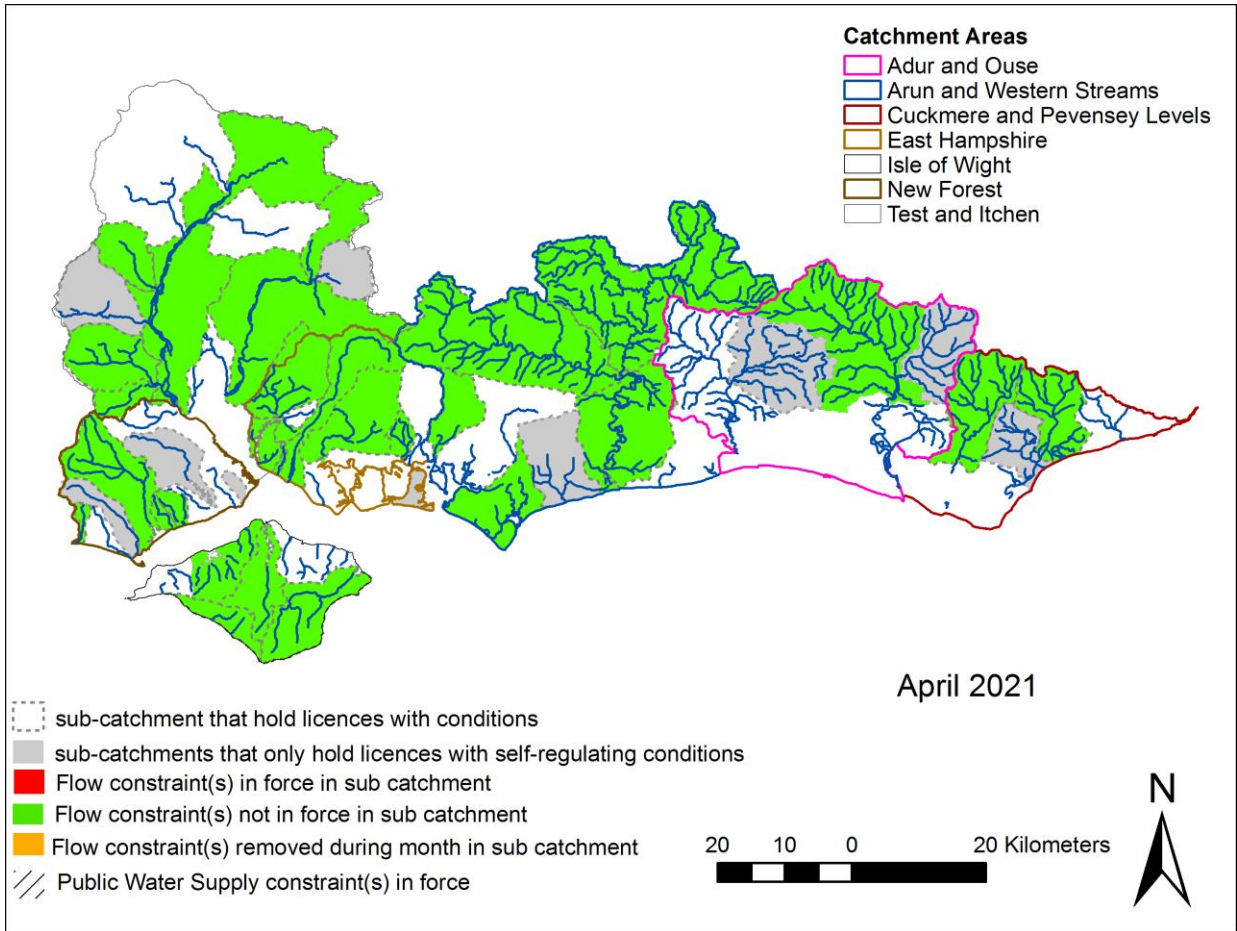
Area	Rainfall (mm)	LTA rainfall (mm)	% of LTA	Effective rainfall (mm)	LTA effective rainfall (mm)	% of LTA
Test Chalk	14	49	29%	1	15	7%
East Hampshire Chalk	6	53	12%	0	16	2%
West Sussex Chalk	3	59	5%	0	21	0%
East Sussex Chalk	4	54	7%	0	16	0%
Isle of Wight	3	51	6%	0	13	0%
Western Rother Greensand	5	59	8%	0	24	0%
Hampshire Tertiaries	5	48	11%	0	10	0%
Lymington	5	50	10%	0	11	0%
Sussex Coast	2	49	5%	0	12	0%
Arun	5	56	8%	0	17	0%
Adur	3	55	6%	0	16	0%
Ouse	4	55	7%	0	16	0%
Cuckmere	4	52	7%	0	13	0%
Pevensey Levels	4	50	9%	0	11	0%
Solent and South Downs	5	53	9%	0	15	1%

Soil Moisture Deficit

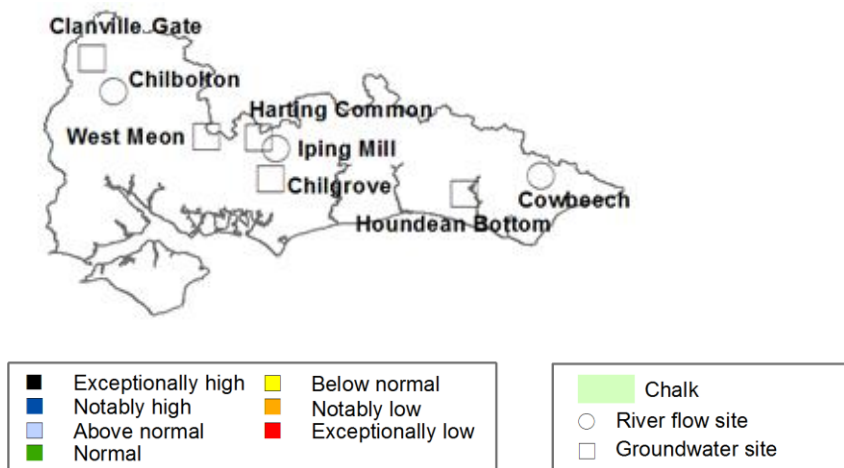
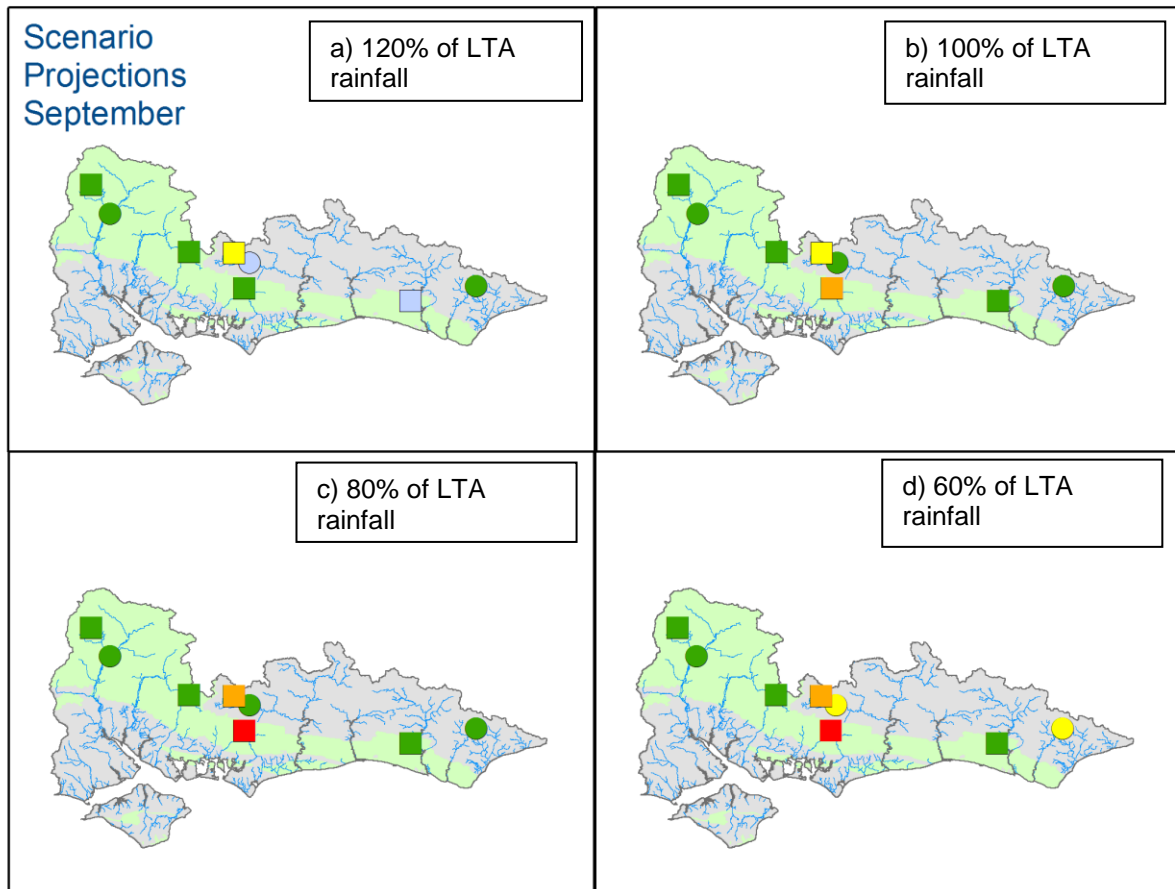
Area	End of month SMD (mm)	End of month SMD LTA (mm)
Test Chalk	59	25
East Hampshire Chalk	69	23
West Sussex Chalk	75	24
East Sussex Chalk	73	25
Isle of Wight	75	29
Western Rother Greensand	72	17
Hampshire Tertiaries	72	28
Lymington	72	27
Sussex Coast	76	27
Arun	70	23
Adur	74	24
Ouse	68	22
Cuckmere	71	24
Pevensey Levels	71	24
Solent and South Downs	71	25

Environmental Impact

Flow Constraints



Forward look- river flow and groundwater September 2021



Projected river flows at key indicator sites up until the end of September 2021.
 Projected groundwater levels at key indicator sites at the end of September 2021.
 Projections based on four scenarios: 120% (a), 100% (b), 80% (c) and 60% (d) of long term average rainfall (Source: Environment Agency). Geological map reproduced with kind permission from UK Groundwater Forum BGS © NERC Crown copyright. All rights reserved. Environment Agency 100026380 2021.

Glossary

Term

Aquifer

Areal average rainfall

Artesian

Artesian borehole

Cumecs

Effective rainfall

Flood Alert/Flood Warning

Groundwater

Long term average (LTA)

mAOD

MORECS

Naturalised flow

NCIC

Recharge

Reservoir gross capacity

Reservoir live capacity

Soil moisture deficit (SMD)

Definition

A geological formation able to store and transmit water.

The estimated average depth of rainfall over a defined area. Expressed in depth of water (mm).

The condition where the groundwater level is above ground surface but is prevented from rising to this level by an overlying continuous low permeability layer, such as clay.

Borehole where the level of groundwater is above the top of the borehole and groundwater flows out of the borehole when unsealed.

Cubic metres per second (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