

Monthly water situation report

Solent and South Downs Area

Summary – January 2020

Solent and South Downs had average rainfall for January with 98% of the long term average (LTA). The soil moisture deficits ended the month at zero. River flows ranged from **normal** to **notably high**. Groundwater levels ranged from **normal** to **notably high**. End of month reservoir stocks were above average at both Ardingly and Arlington Reservoirs.

Rainfall

Solent and South Downs (SSD) had average rainfall for January, receiving 98% (85mm) of the LTA (87mm). The rainfall pattern showed wetter conditions to the west of SSD this month. The Test Chalk and Lymington units to the west had the highest monthly totals with 116% and 115% LTA respectively. The Pevensey Levels unit to the east receiving the lowest rainfall total for the month (77% LTA, 63mm), with the surrounding East Sussex areal units receiving an average 85% LTA. The highest daily total across the area of 38mm was recorded on the 14th at Harestock (East Hampshire Chalk). All five of the highest daily totals were recorded on the 14th in Hampshire. There were only 9 dry days on average for the whole area and rain was distributed evenly throughout the month. The September to January five month total ranks in the top 10 wettest on record for January across SSD.

Soil Moisture Deficit/Recharge

Soil moisture deficits across Solent and South Downs remained at zero throughout the month.

River Flows

Monthly mean river flows across SSD ranged from **normal** to **notably high**. **The River Test at Chilbolton GS and Broadlands GS, River Lymington at Brockenhurst GS and The River Meon at Mislingford** all recorded flow **above normal**. Monthly mean flows were **notably high** on the River Itchen at Allbrook & Highbridge GS. The Allbrook & Highbridge monthly mean is the 5th highest monthly mean in January in 62 years of record. The River Test at Chilbolton's January mean flow was also notable as the 6th highest on record. All other sites recorded **normal** flows.

Groundwater Levels

End of month groundwater levels ranged from **normal** to **notably high**. Houndean Bottom, Beeding Hill and Harting Common in Sussex recorded **normal** monthly mean groundwater levels along with both Carisbrooke Caste and Youngwoods Copse on the Isle of Wight. Chilgrove, Catherington and West Meon in the middle of the area were **above normal** and Clanville Gate, Lopcombe Corner and Preston Candover in the Test & Itchen Chalk all recorded **notably high** monthly mean groundwater levels. Notable this month is Preston Candover which ended the month as the fifth highest January mean value on record and the highest since 2014. Lopcombe Corner and Clanville Gate in the Test Chalk also ranked sixth and seventh highest on their records of over 40 years.

Reservoir Storage/Water Resource Zone Stocks

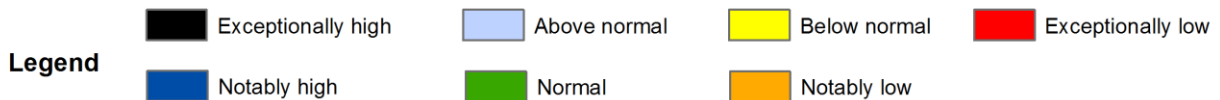
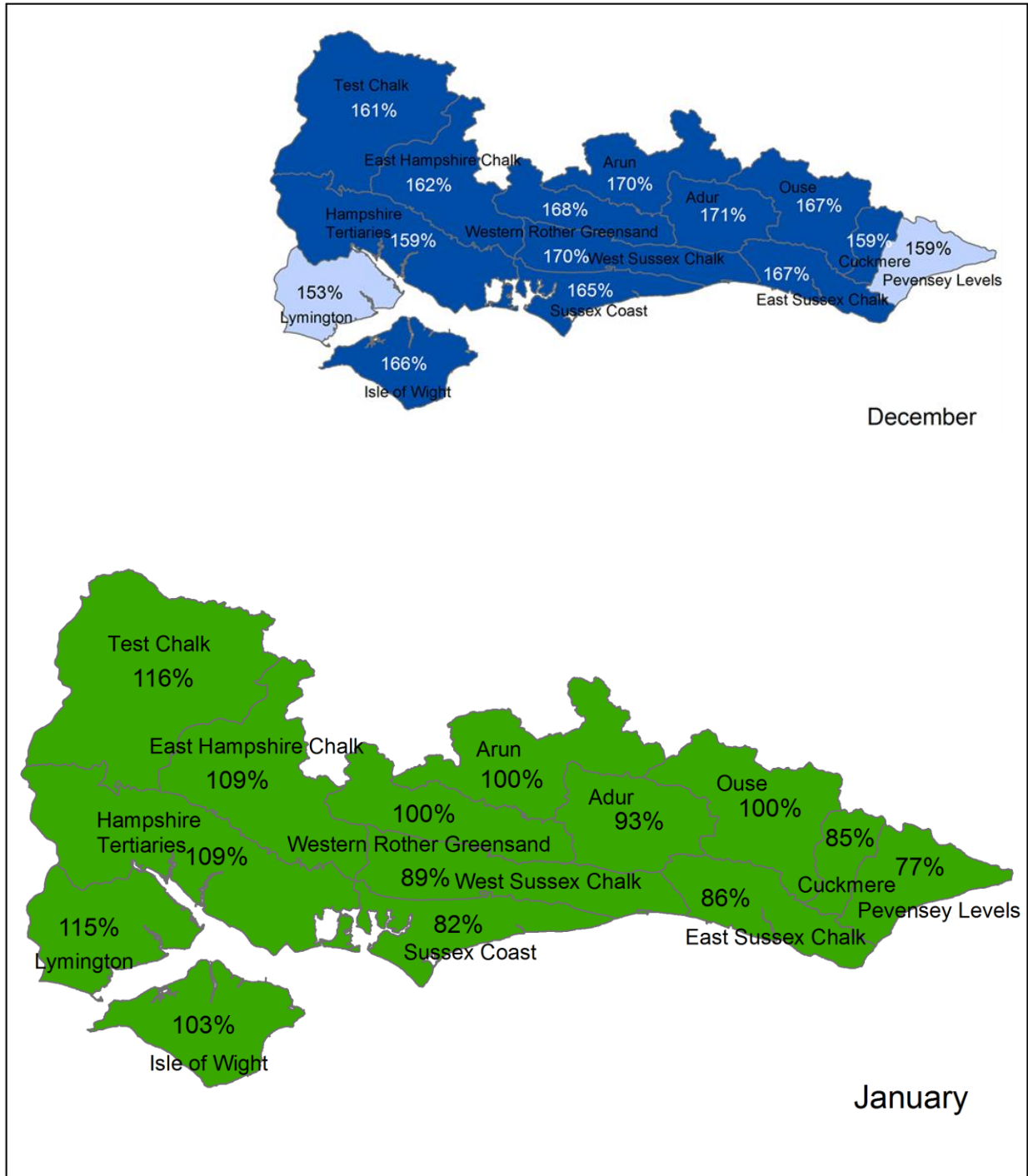
End of month reservoir stocks were above average at Ardingly Reservoir (Ouse Catchment) with 100% of total capacity (LTA is 93%) and at Arlington Reservoir (Cuckmere catchment) with 98% of total capacity (LTA is 95%).

Environmental Impact

One licence restriction was lifted at the start of January and no other restriction were put in force. 19 Fluvial Flood Alerts, 2 Fluvial Flood Warnings and 5 Groundwater Flood Alerts were issued throughout the month. Both Flood Warning were issued on the 14 & 15th of January in response to the highest rainfall event. The groundwater alerts were all issued for Hampshire locations.

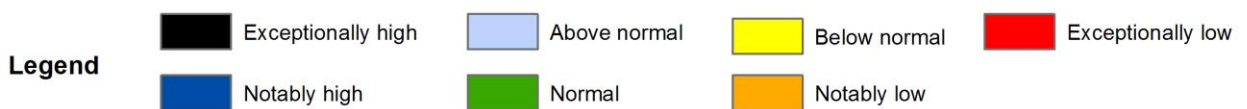
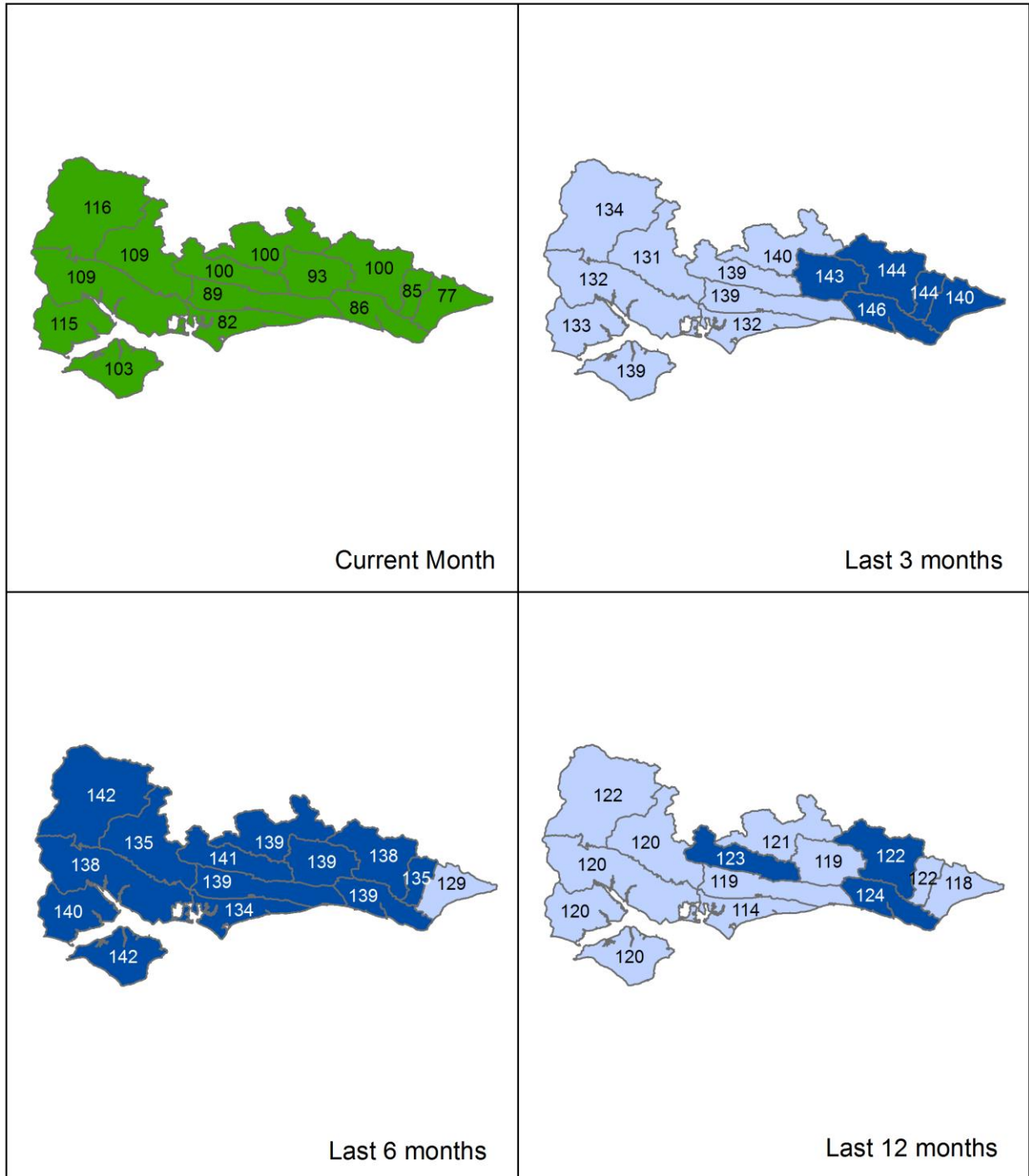
Author: [HydrologySSD](#)

Rainfall Map 1



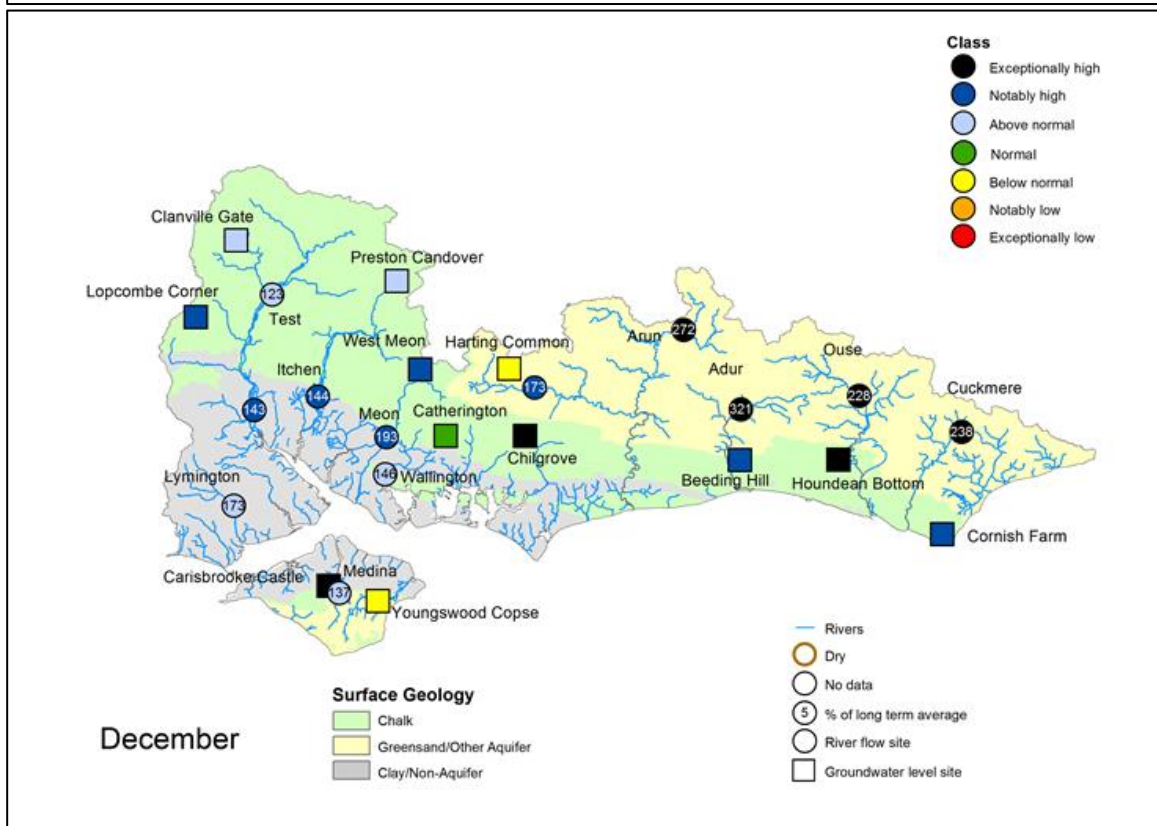
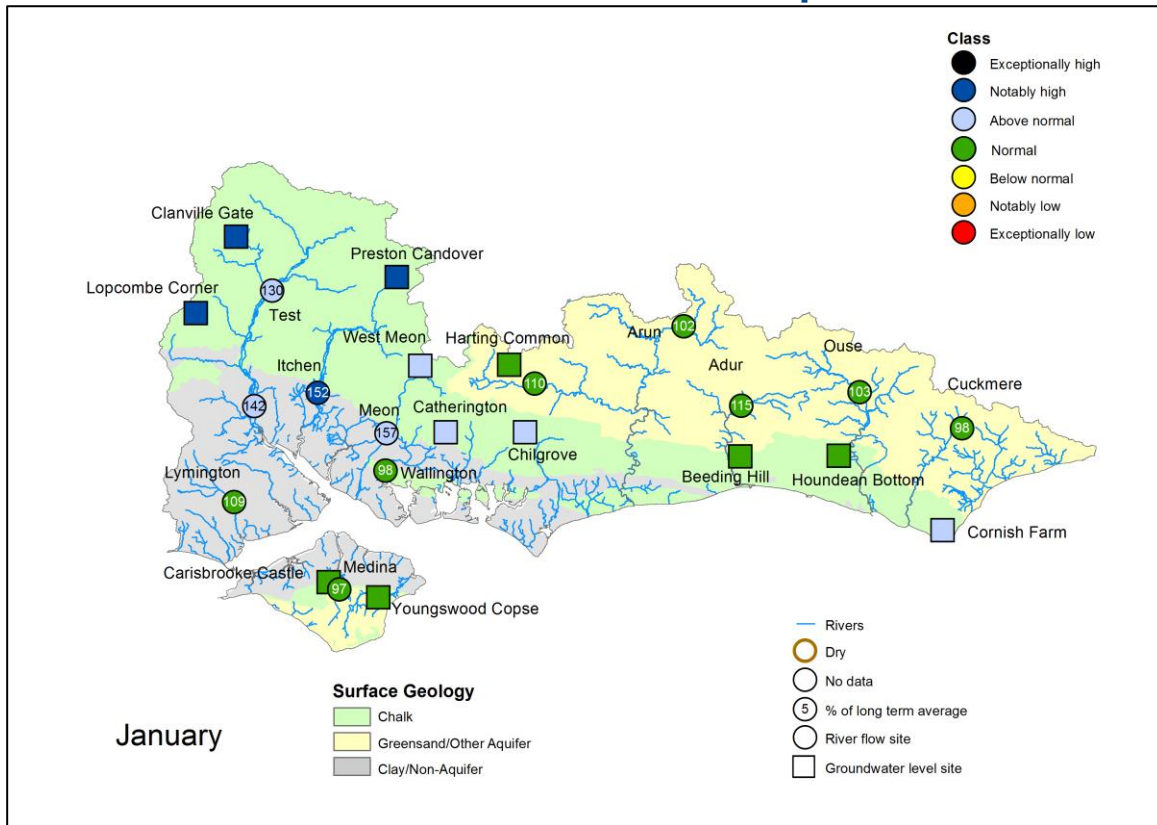
Total rainfall for hydrological areas across Solent and South Downs for the current month, classed relative to an analysis of respective historic totals. Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Includes material 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 31 January), 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

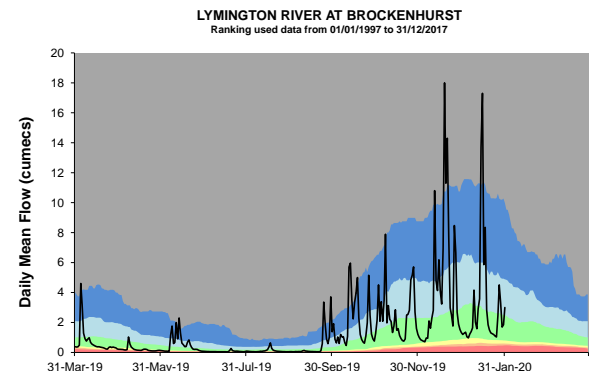
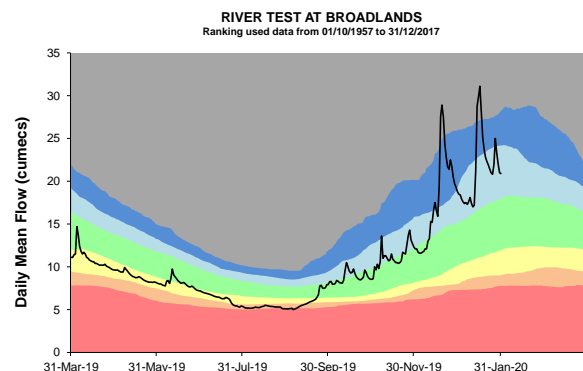
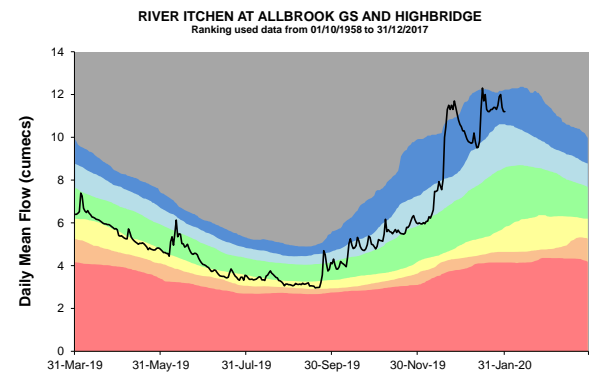
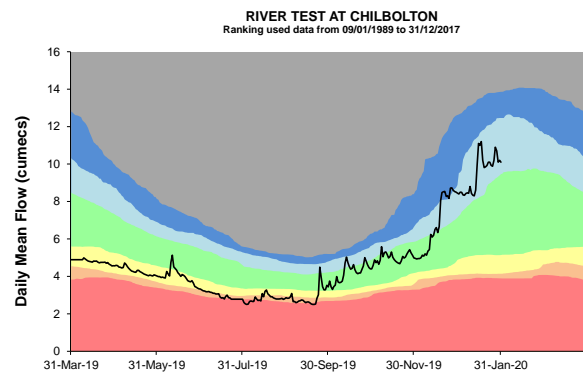
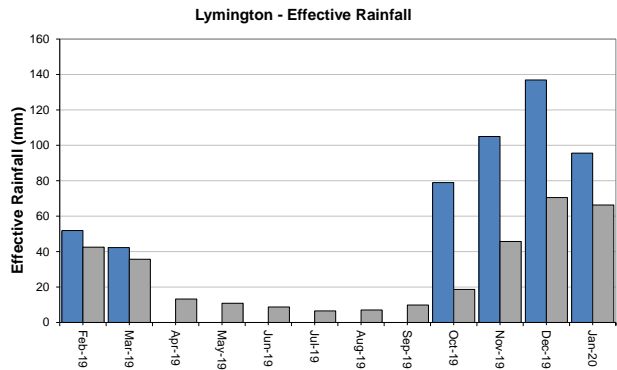
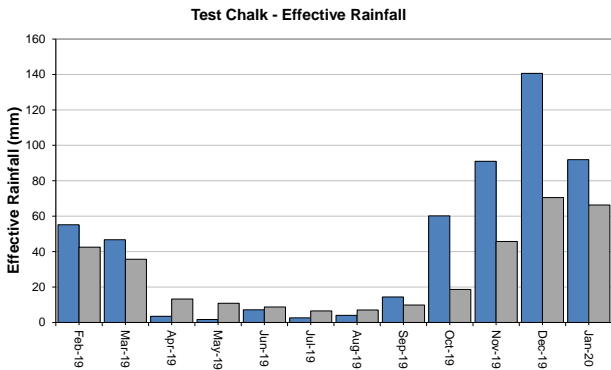
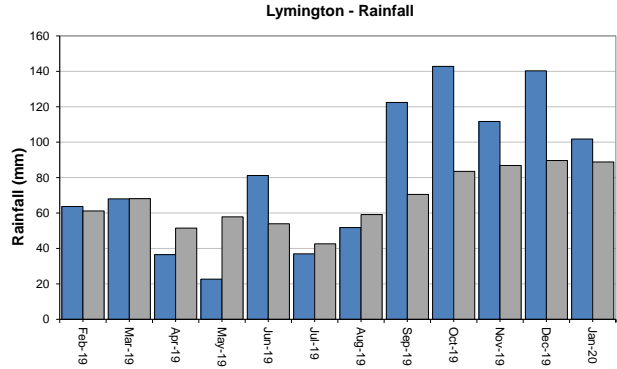
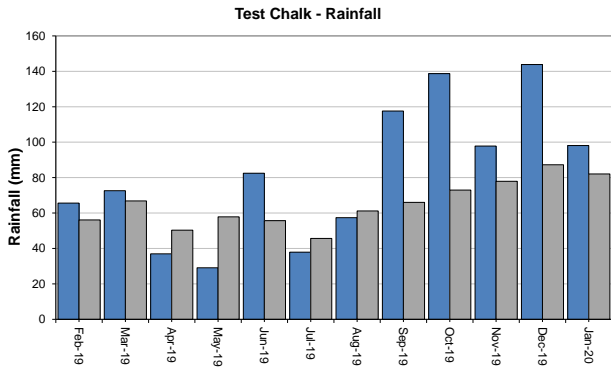


Groundwater site status based on end of month level. Surface water site status based on mean monthly flow. Some features of this map are based on digital spatial data licensed from the Centre for Ecology and Hydrology, © CEH. Includes material based on Ordnance Survey 1:50 000 maps with the permission of the controller of Her Majesty's Stationery Office © Crown copyright. All rights reserved. Environment Agency, 100026380, 2020 Geological map reproduced with kind permission from UK Groundwater Forum, BGS © NERC

West Hampshire – Page 1

Monthly total rainfall (mm)

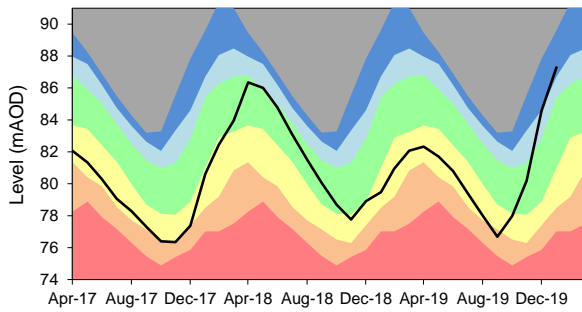
Long term average rainfall (mm)



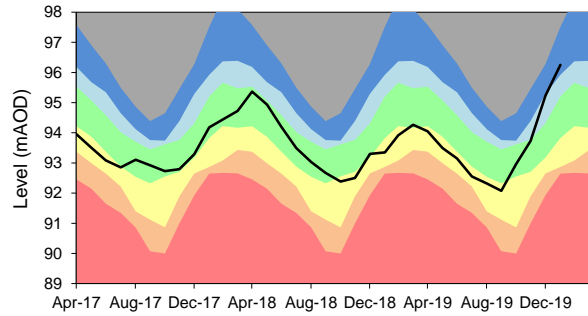
Exceptionally high
 Below normal
 Notably high
 Notably low
 Above normal
 Exceptionally low
 Normal
 Latest data

West Hampshire – Page 2

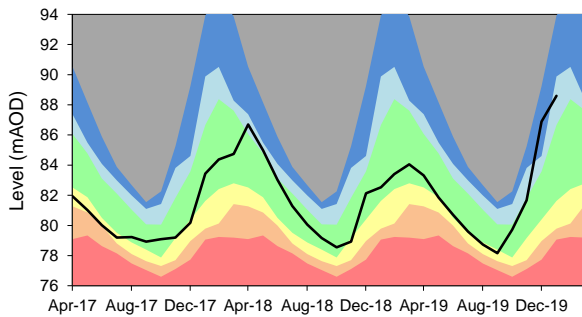
CLANVILLE GATE GWL - CHALK
 Ranking derived from data for the period Mar-1963 to Dec-2012



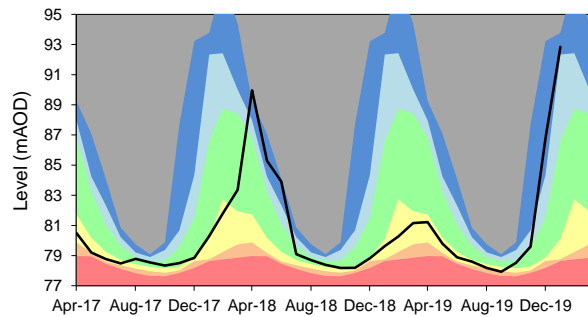
PRESTON CANDOVER GWL - CHALK
 Ranking derived from data for the period Jan-1975 to Dec-2012



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



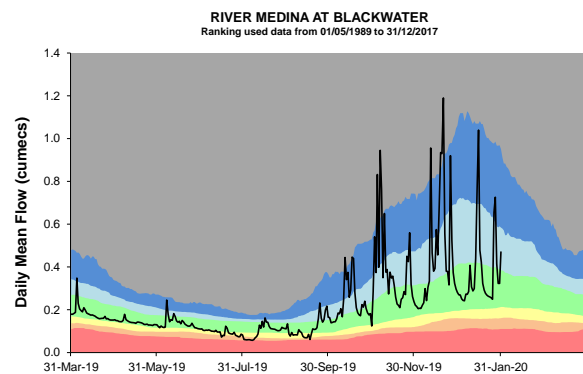
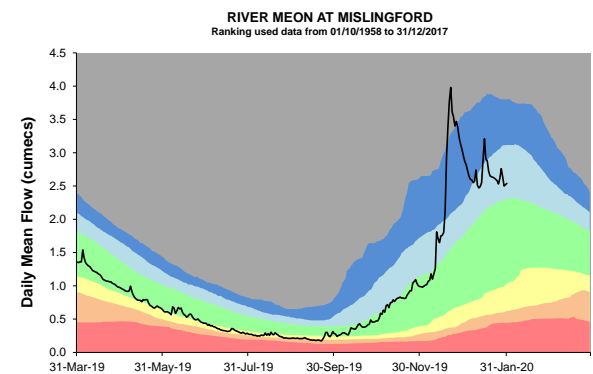
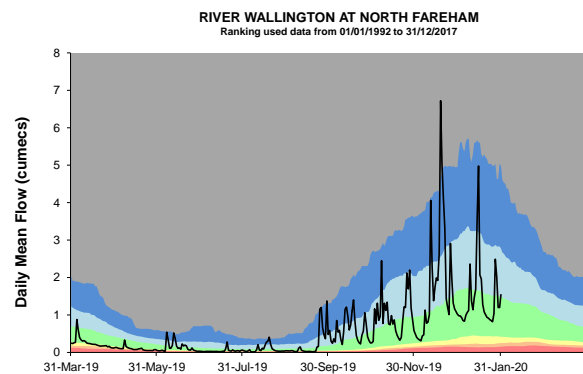
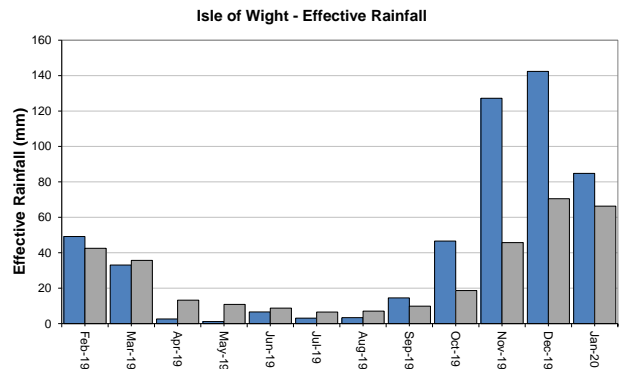
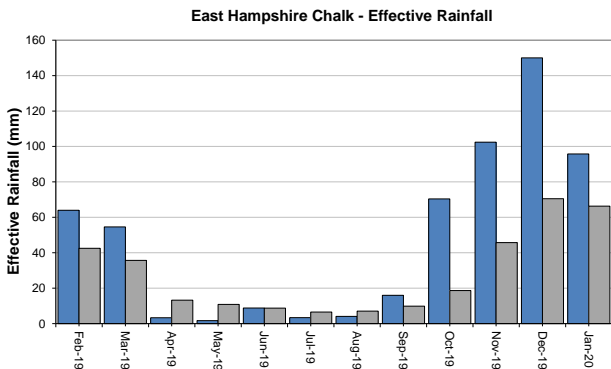
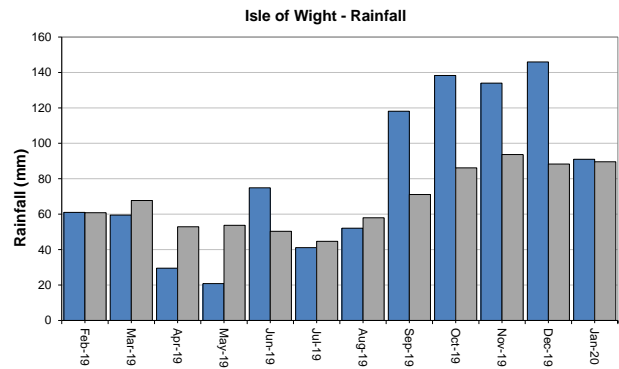
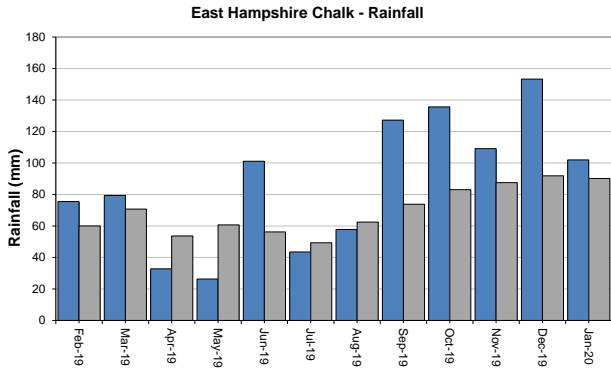
LOPCOMBE CORNER GWL - CHALK
 Ranking derived from data for the period Apr-1963 to Dec-2012



East Hampshire and Isle of Wight

Monthly total rainfall (mm)

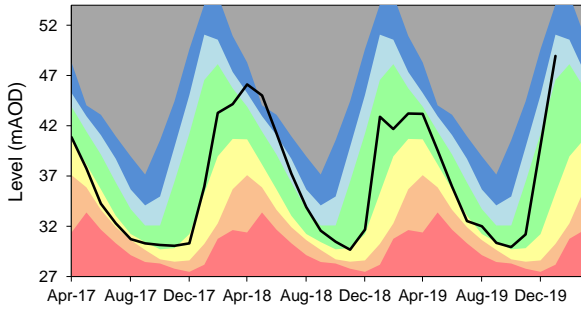
Long term average rainfall (mm)



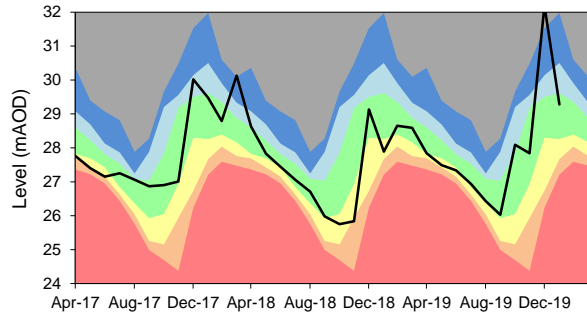
Exceptionally high
 Below normal
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 Normal
 Latest data

East Hampshire and Isle of Wight – Page 2

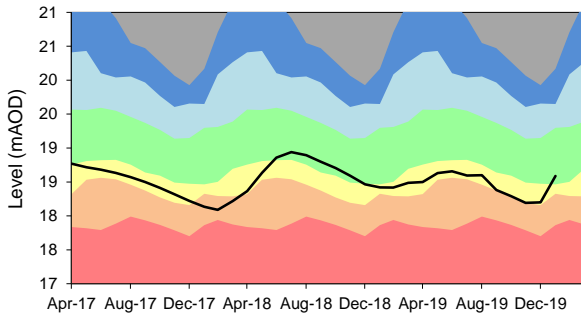
CATHERINGTON GWL - CHALK
 Ranking derived from data for the period Jan-1969 to Dec-2012



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



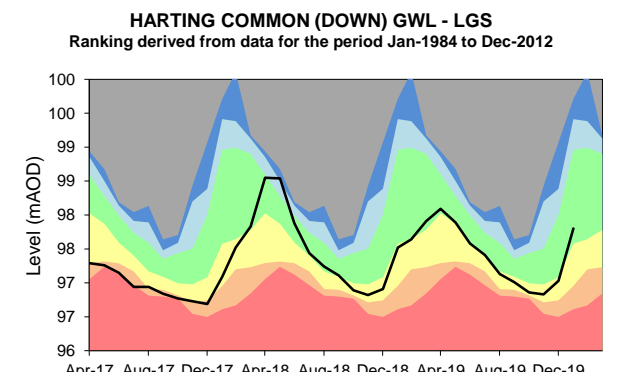
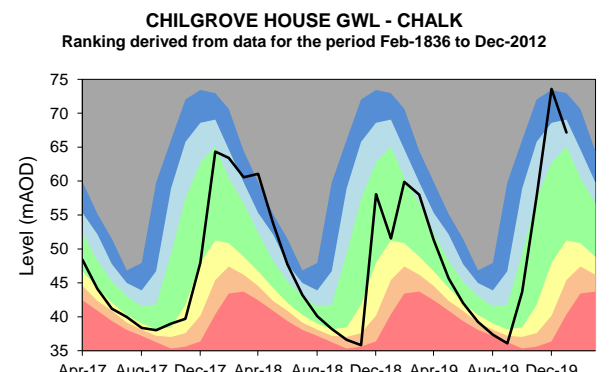
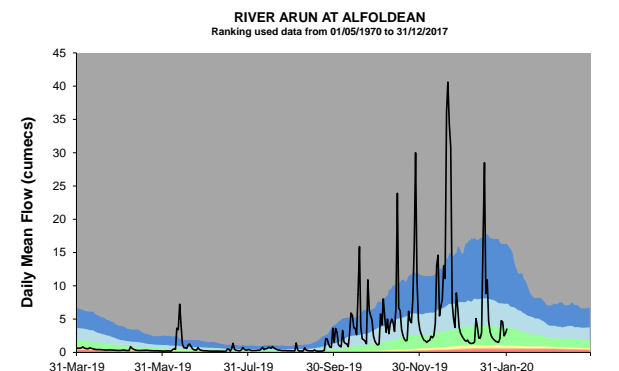
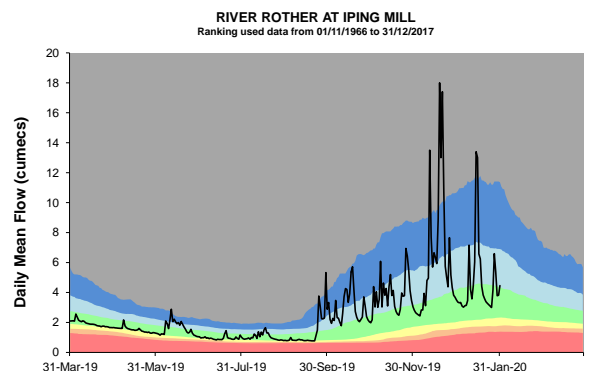
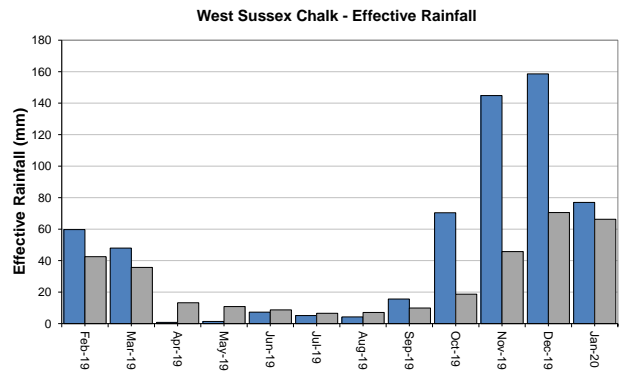
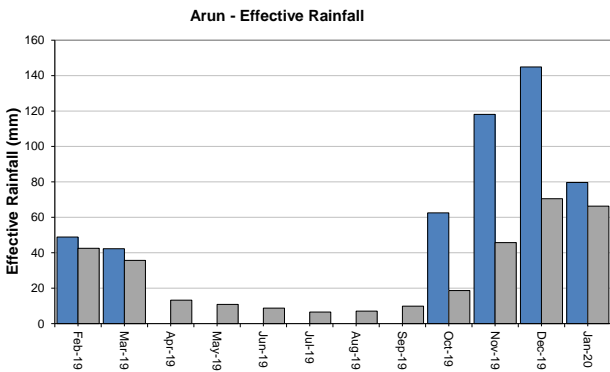
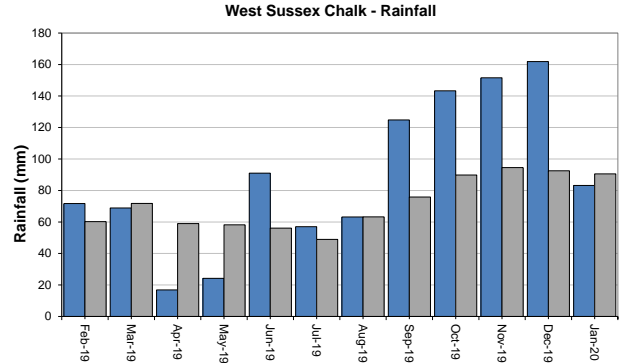
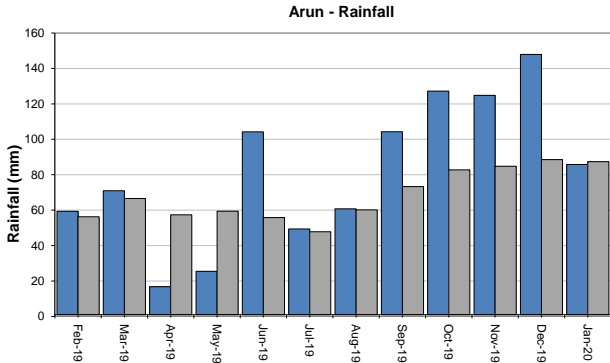
YOUNGWOOD COPSE GWL - LGS
 Ranking derived from data for the period Feb-1978 to Dec-2012



West Sussex

Monthly total rainfall (mm)

Long term average rainfall (mm)

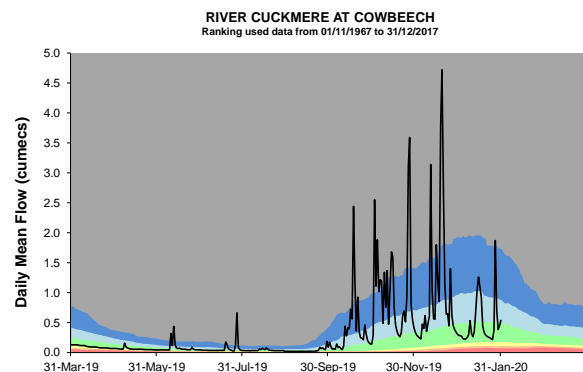
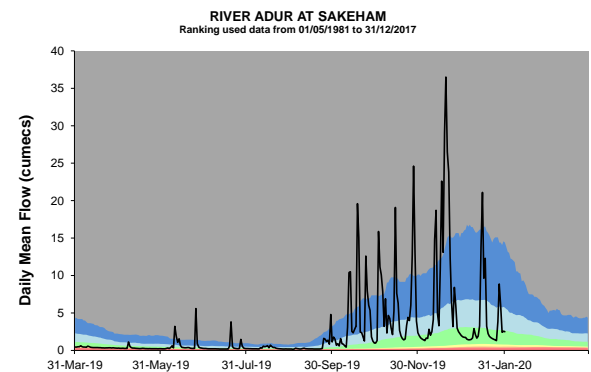
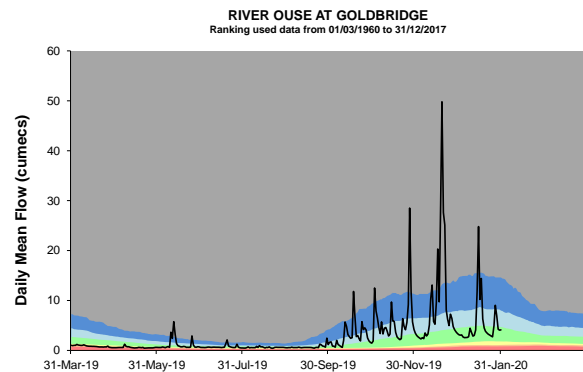
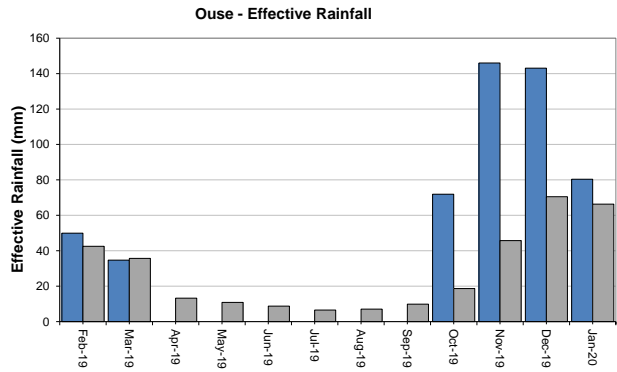
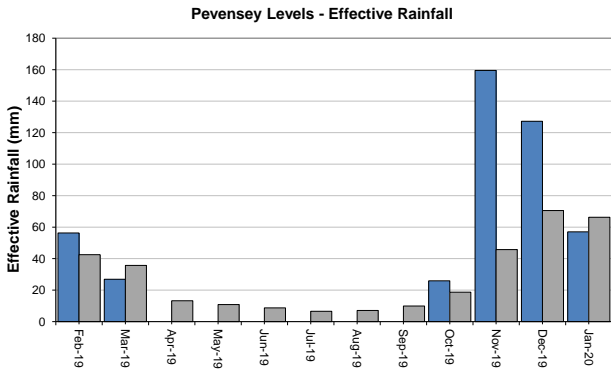
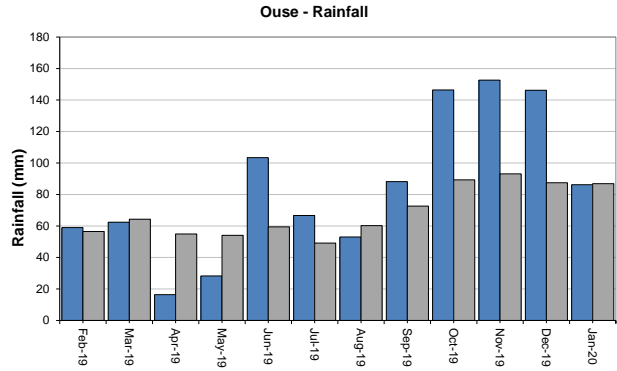
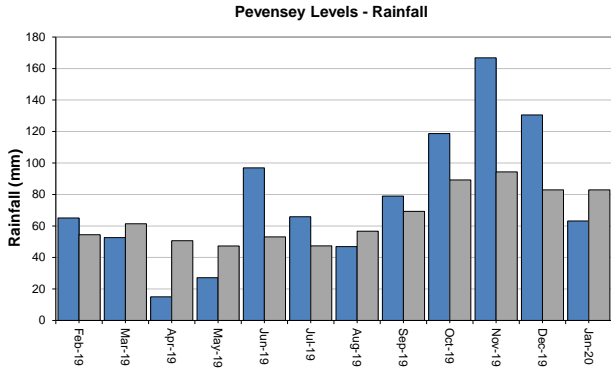


Exceptionally high
 Below normal
 Notably high
 Notably low
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 Normal
 Latest data

East Sussex

Monthly total rainfall (mm)

Long term average rainfall (mm)

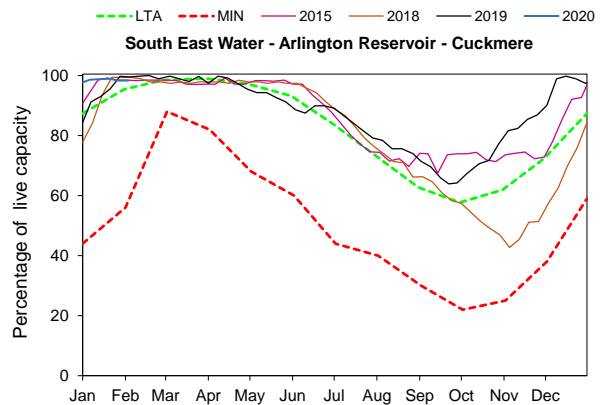
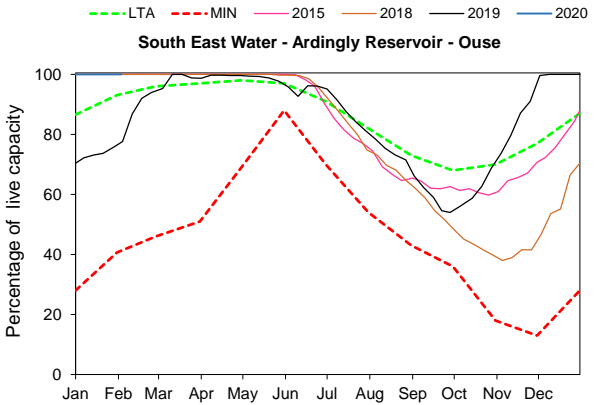
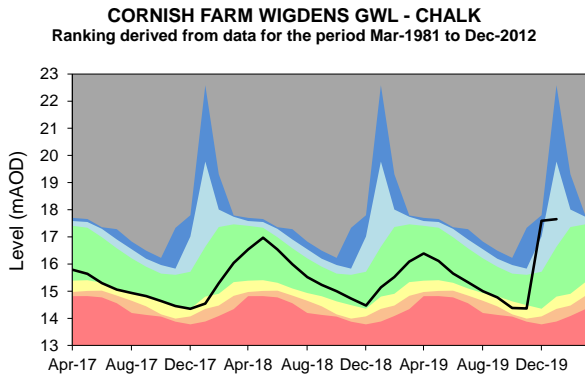
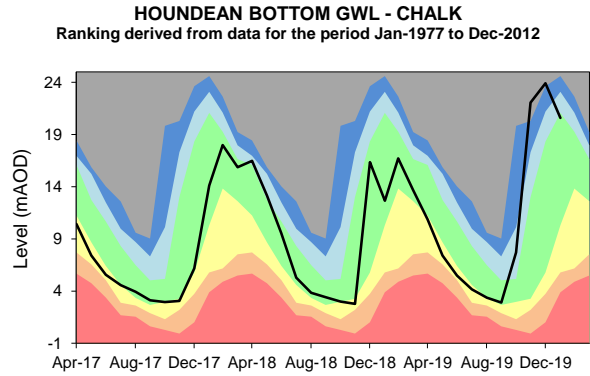
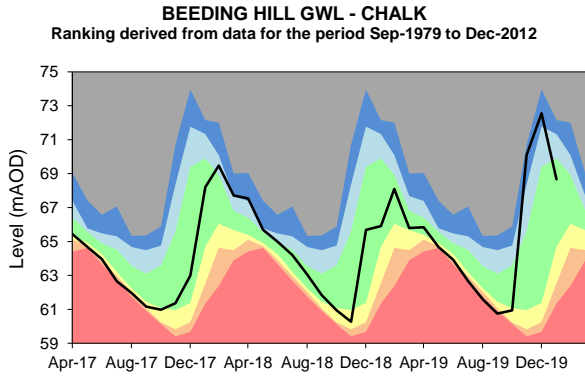


Exceptionally high
 Below normal
 Notably high
 Notably low
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 Normal
 Latest data

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	98	85	116%	92	69	133%
East Hampshire Chalk	102	94	109%	96	78	124%
West Sussex Chalk	83	93	89%	77	80	96%
East Sussex Chalk	75	87	86%	69	71	97%
Isle of Wight	91	88	103%	85	72	117%
Western Rother Greensand	100	100	100%	94	86	109%
Hampshire Tertiaries	94	86	109%	88	73	120%
Lymington	102	88	115%	96	77	124%
Sussex Coast	63	77	82%	56	63	90%
Arun	86	85	100%	80	74	107%
Adur	79	85	93%	73	72	101%
Ouse	86	87	100%	80	74	108%
Cuckmere	72	85	85%	66	71	93%
Pevensey Levels	63	82	77%	57	67	85%
Solent and South Downs	85	87	98%	79	73	108%

Winter rainfall and effective rainfall

Winter totals for the period 1 October 2019 to the 31 January 2020

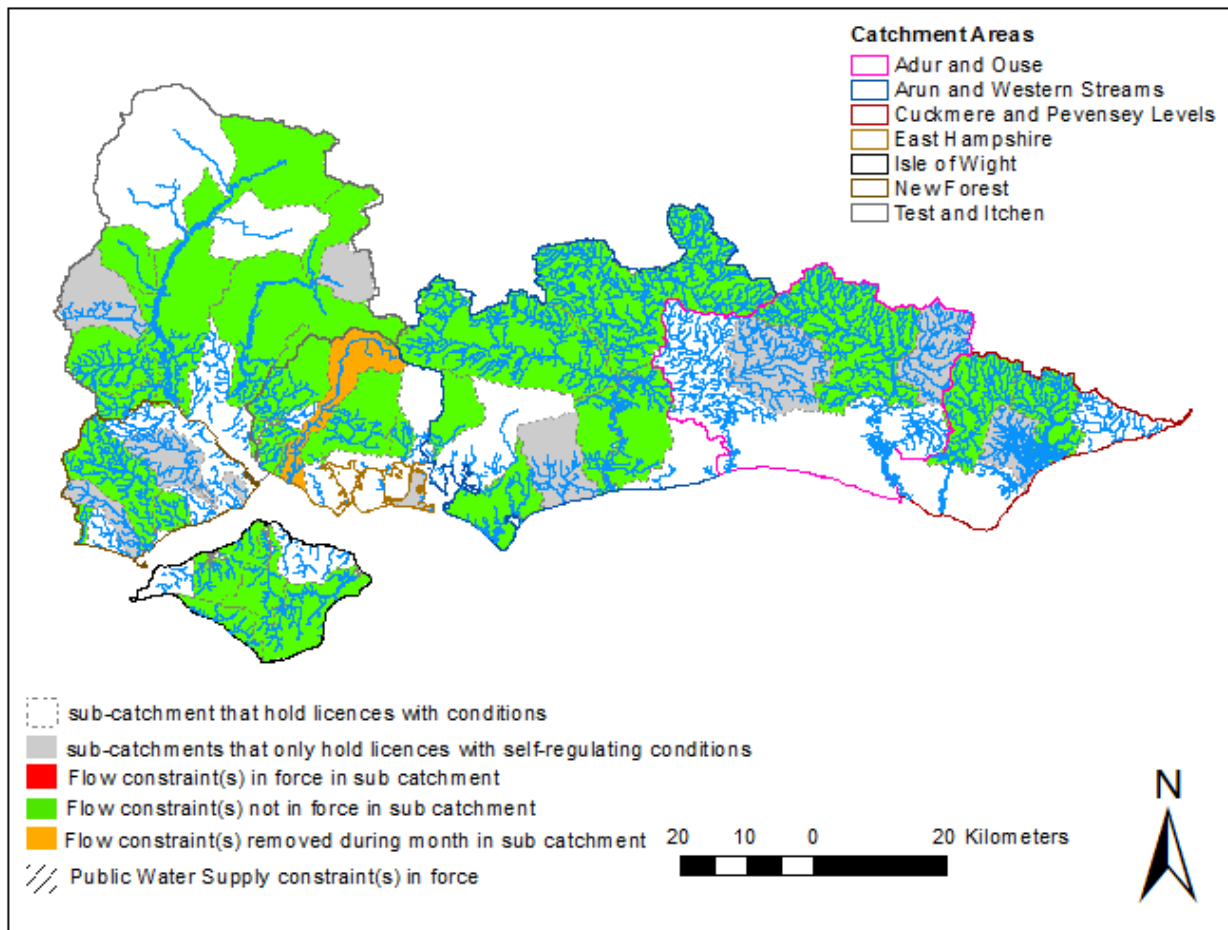
Area	Rainfall (mm)	LTA rainfall (mm)	% of LTA	Effective rainfall (mm)	LTA effective rainfall (mm)	% of LTA
Test Chalk	478	329	145%	384	172	223%
East Hampshire Chalk	500	365	137%	419	210	199%
West Sussex Chalk	540	378	143%	451	242	186%
East Sussex Chalk	552	367	150%	438	216	203%
Isle of Wight	509	352	145%	401	201	199%
Western Rother Greensand	546	385	142%	473	234	202%
Hampshire Tertiaries	470	336	140%	389	198	196%
Lymington	497	350	142%	416	217	192%
Sussex Coast	430	313	137%	321	167	192%
Arun	486	337	144%	405	212	191%
Adur	511	346	148%	414	211	196%
Ouse	532	356	149%	441	229	192%
Cuckmere	512	355	144%	416	217	192%
Pevensey Levels	479	346	139%	370	200	185%
Solent and South Downs	503	351	143%	410	209	196%

Soil Moisture Deficit

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

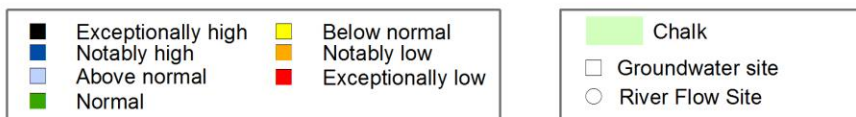
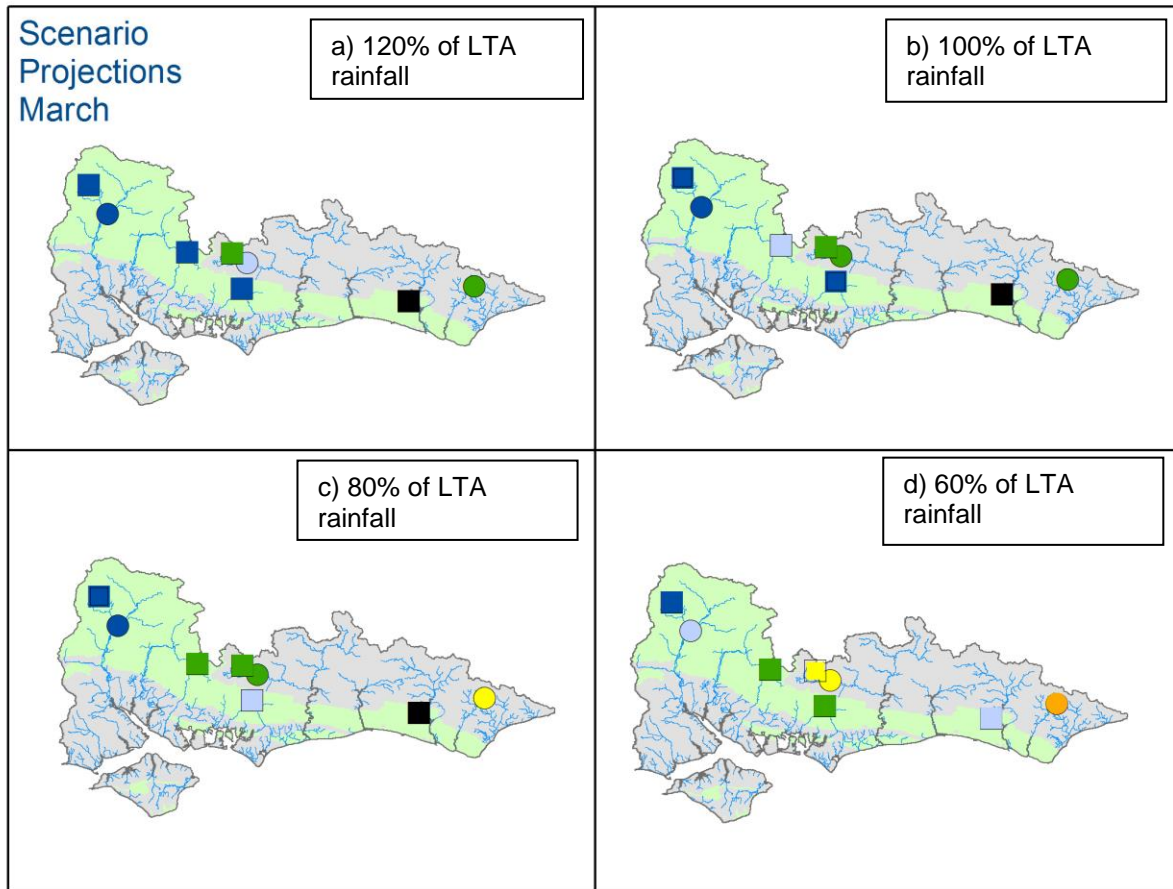
Environmental Impact

Flow Constraints



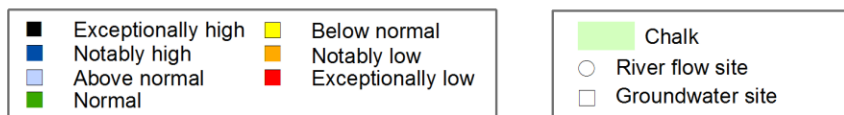
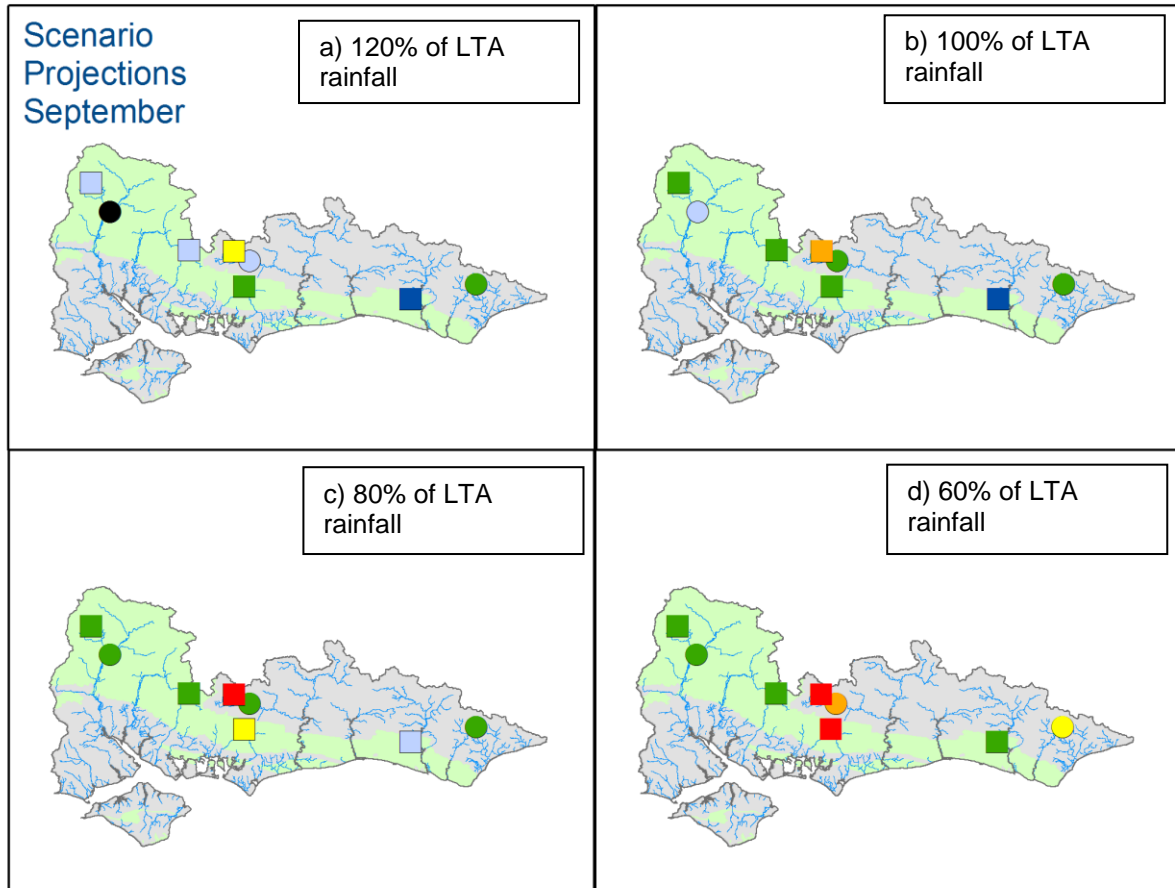
Catchment	No. licences with conditions currently operational in JAN	01-Jan	07-Jan	14-Jan	21-Jan	28-Jan	31-Jan
		START	WK1	WK2	WK3	WK4	END
		Number at Start of the month in force	No. licences with Flow Condition in Force in JAN	No. licences with Flow Condition in Force in JAN	No. licences with Flow Condition in Force in JAN	No. licences with Flow Condition in Force in JAN	Number at End of the month in force
A&O	7	0	0	0	0	0	0
A&W	34	0	0	0	0	0	0
C&P	7	0	0	0	0	0	0
EH	11	1	0	0	0	0	0
IOW	29	0	0	0	0	0	0
NF	10	0	0	0	0	0	0
T&I	28	0	0	0	0	0	0
Total in SSD	126	1	0	0	0	0	0

Forward look- river flow and groundwater March 2020



Projected river flows at key indicator sites up until the end of March 2020. Projected groundwater levels at key indicator sites at the end of March 2020. Projections based on four scenarios: 120% (a), 100% (b), 80% (c) and 60% (d) of long term average rainfall (Source: Environment Agency). Geological map reproduced with kind permission from UK Groundwater Forum BGS © NERC Crown copyright. All rights reserved. Environment Agency 100026380 2020.

Forward look- river flow and groundwater September 2020



Projected river flows at key indicator sites up until the end of September 2020.
 Projected groundwater levels at key indicator sites at the end of September 2020.
 Projections based on four scenarios: 120% (a), 100% (b), 80% (c) and 60% (d) of long term average rainfall (Source: Environment Agency). Geological map reproduced with kind permission from UK Groundwater Forum BGS © NERC Crown copyright. All rights reserved. Environment Agency 100026380 2020.

Glossary

Term

Aquifer

Areal average rainfall

Artesian

Artesian borehole

Cumecs

Effective rainfall

Flood Alert/Flood Warning

Groundwater

Long term average (LTA)

mAOD

MORECS

Naturalised flow

NCIC

Recharge

Reservoir gross capacity

Reservoir live capacity

Soil moisture deficit (SMD)

Definition

A geological formation able to store and transmit water.

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

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

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

Cubic metres per second (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