

# Monthly water situation report

## Summary – August 2020

Solent and South Downs (SSD) had above average rainfall for August, receiving 132% (81mm) of the Long Term Average (LTA) (61mm). Monthly mean river flows across SSD ranged from **below normal** to **above normal**. Groundwater levels ranged from **notably low** to **above normal**. Soil moisture deficits across Solent and South Downs ended the month slightly greater than the long term average. End of month reservoir stocks were significantly below average at Ardingly Reservoir (Ouse Catchment) and below average Arlington Reservoir (Cuckmere catchment).

## Rainfall

Solent and South Downs (SSD) had **above average** rainfall in August, receiving 132% (81mm) of the LTA (61mm). The East Hampshire Chalk areal unit had the highest monthly total with 114mm, 178% of LTA (64mm), closely followed by the Test Chalk areal unit which had 110mm, 175% of LTA (63mm). Generally, less rainfall fell in the east of the area with Pevensey Levels and Cuckmere receiving 47mm and 53 mm (81% and 86% LTA respectively). The 27th was the wettest day of the month with the highest daily total of 47mm recorded at Harestock (East Hampshire Chalk). Despite the above average rainfall total for the month there were between 14 and 22 completely dry days across the area. Almost 50% of the August's rain fell on the three wettest days; the 19<sup>th</sup>, 24<sup>th</sup> and 27<sup>th</sup>.

## Soil Moisture Deficit/Recharge

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

## River Flows

Monthly mean river flows across SSD ranged from **below normal** to **above normal**. Alfoldean (Arun) and Allbrook and Highbridge (Itchen) recorded flows **below normal** for the time of year. Flows in the Lymington at Brockenhurst were **above normal** for August. All other reporting sites recorded monthly mean flow in the **normal** range.

## Groundwater Levels

End of month groundwater levels ranged from **notably low** to **notably high**. Preston Candover (East Hampshire Chalk) recorded **notably high** groundwater levels with the 5<sup>th</sup> highest August levels since 1975. Groundwater levels at Youngwoods Copse (Isle of Wight) were **above normal**. Harting Common (Western Rother Greensand) levels were **below normal**. Beeding Hill (West Sussex Chalk), Carisbrooke Castle (Isle of Wight) and Chilgrove House (West Sussex Chalk) all recorded **notably low** groundwater levels. Beeding Hill, recorded its 4<sup>th</sup> lowest August groundwater level since 1979. All other sites recorded **normal** end of month groundwater levels.

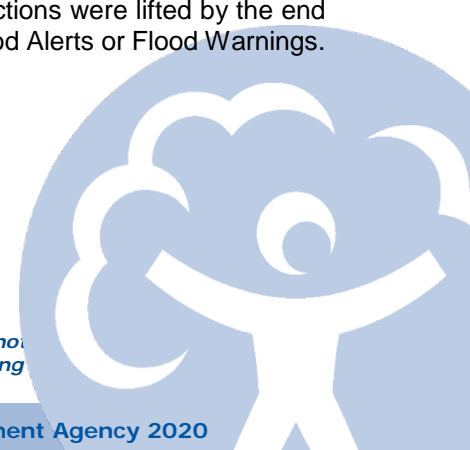
## Reservoir Storage/Water Resource Zone Stocks

End of month reservoir stocks were below average at Ardingly Reservoir (Ouse Catchment) with 43% of total capacity (LTA 73%) and also below average at Arlington Reservoir (Cuckmere catchment) with 54% of total capacity (LTA 63%).

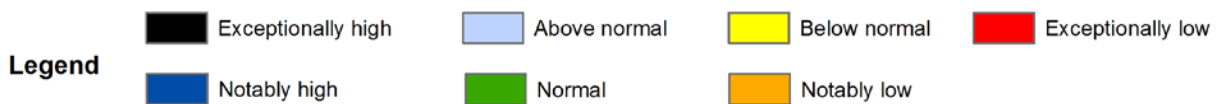
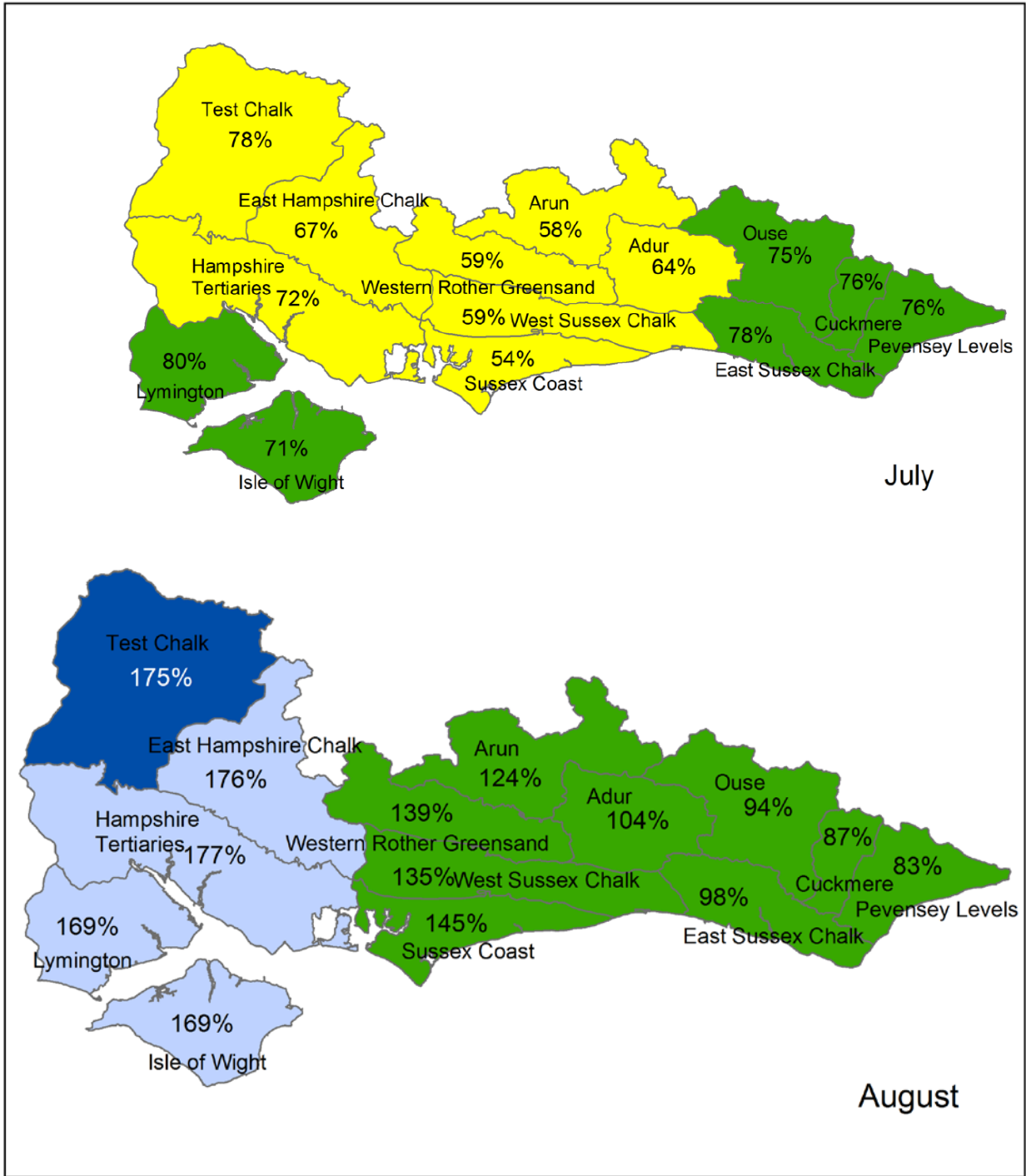
## Environmental Impact

There were a total of 22 licences with restrictions in force during August, but all restrictions were lifted by the end of the month. There were 18 Coastal Flood Alerts, but no Fluvial (or Groundwater) Flood Alerts or Flood Warnings.

Author: [HydrologySSD](#)

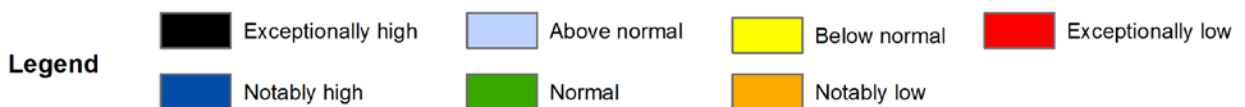
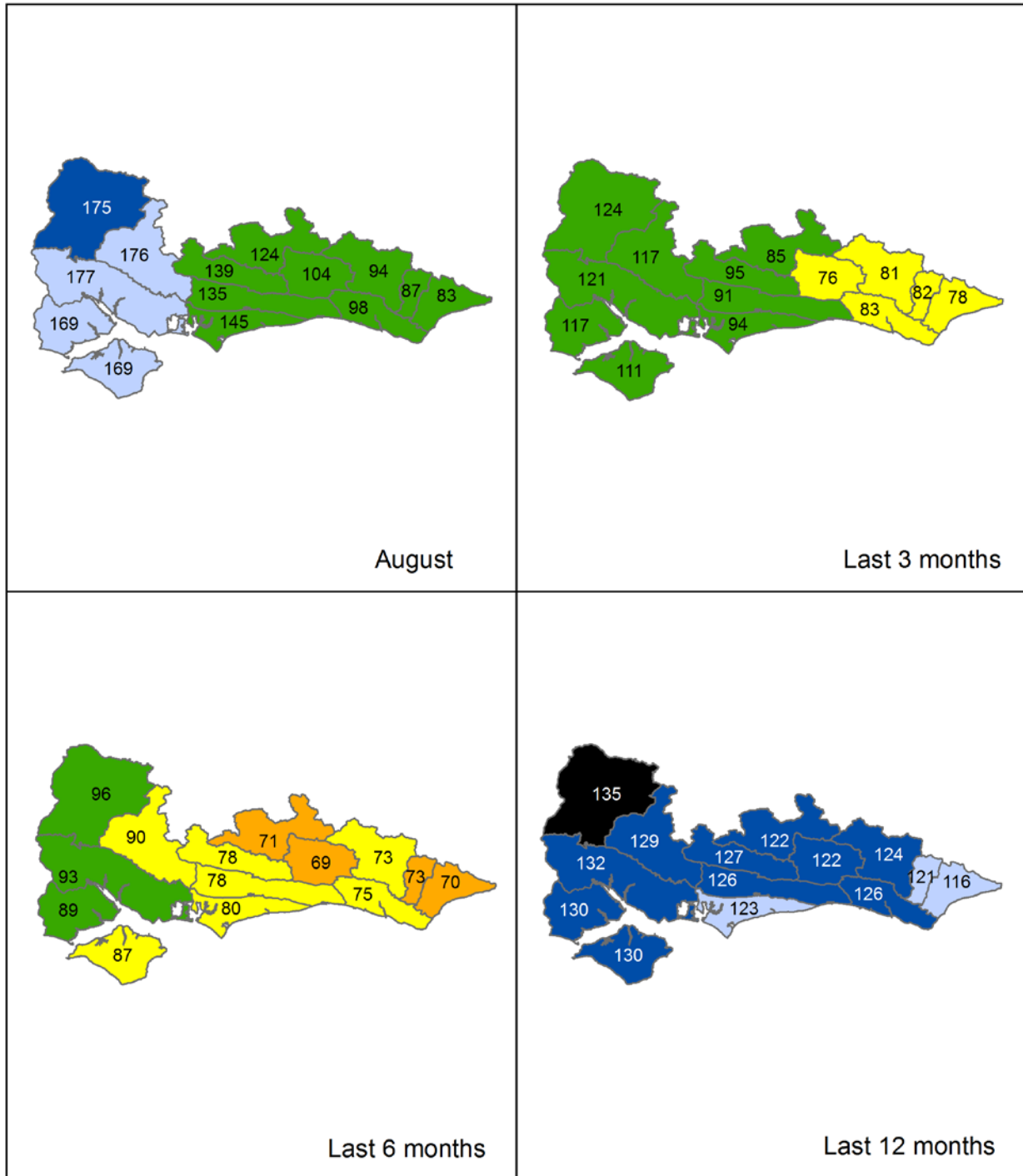


# Rainfall Map 1



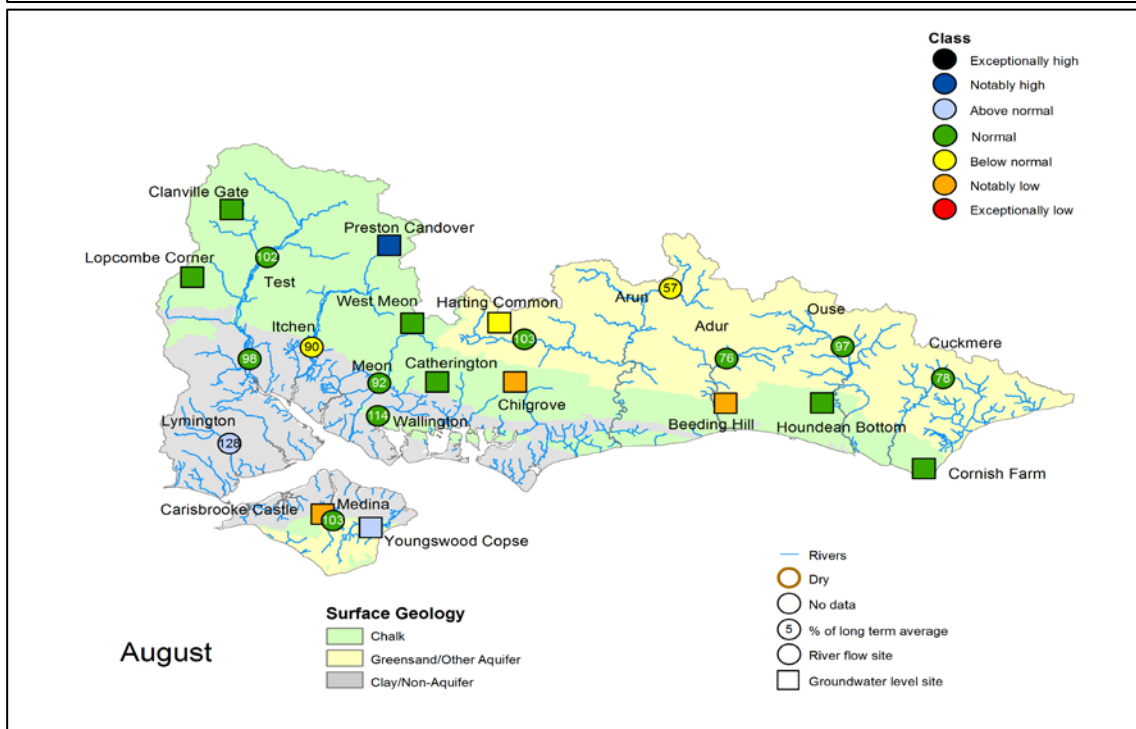
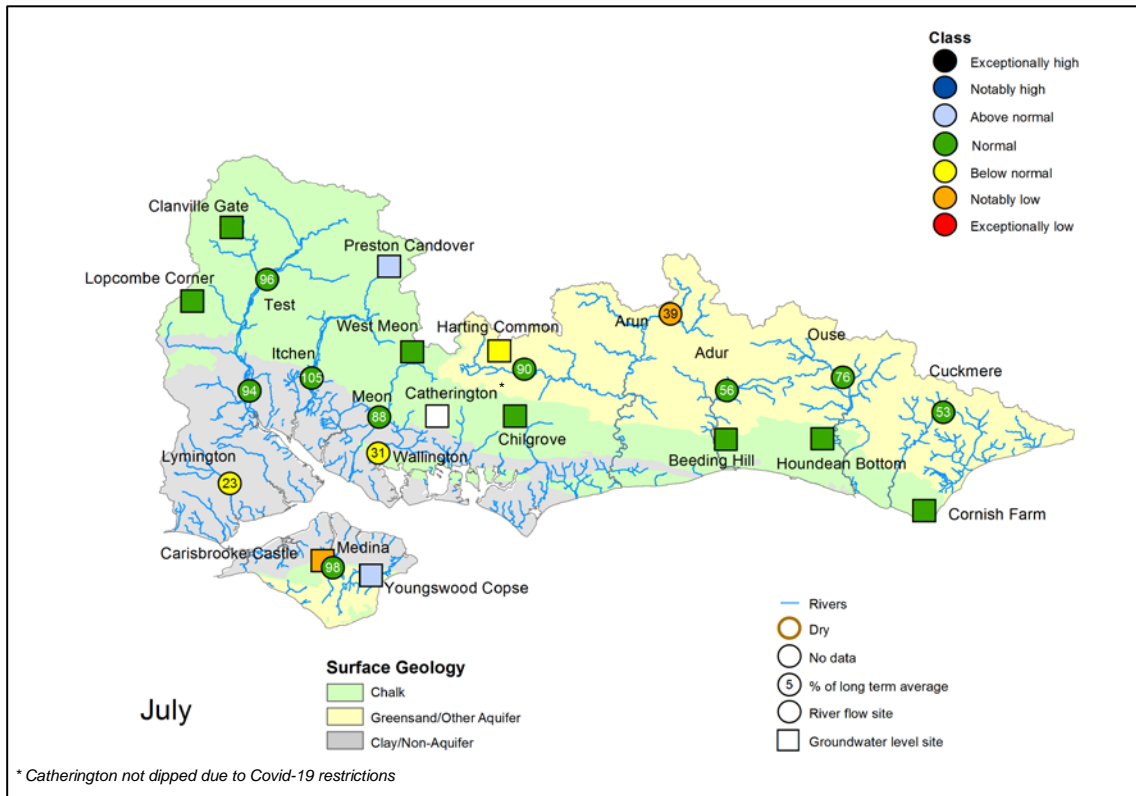
Total rainfall for hydrological areas across Solent and South Downs for the current month, classed relative to an analysis of respective historic totals. Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Includes material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

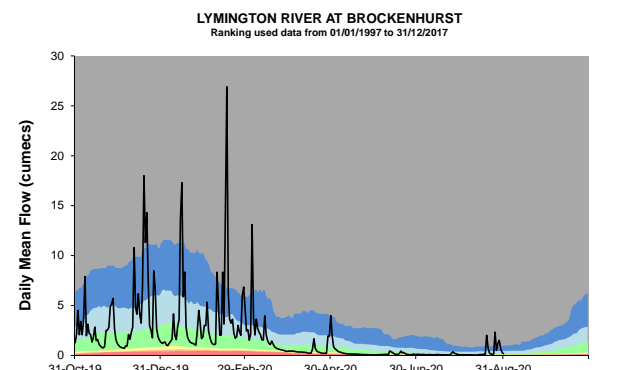
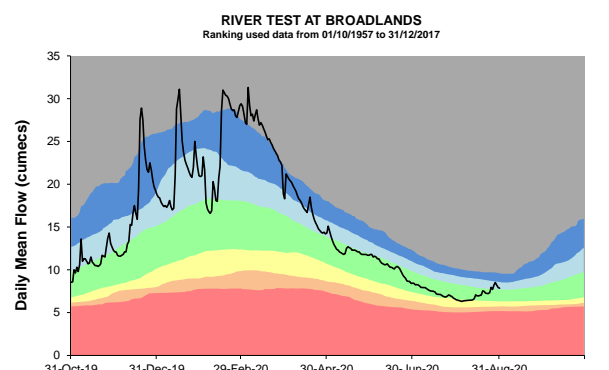
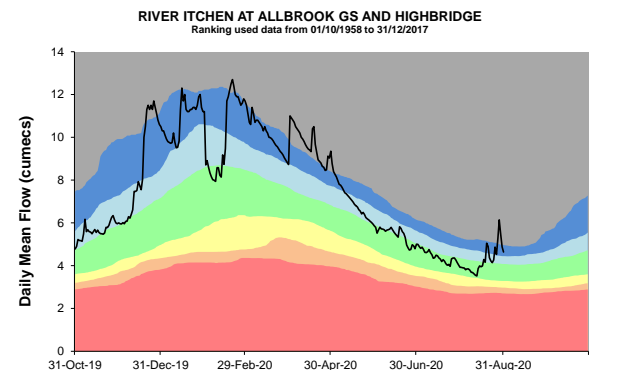
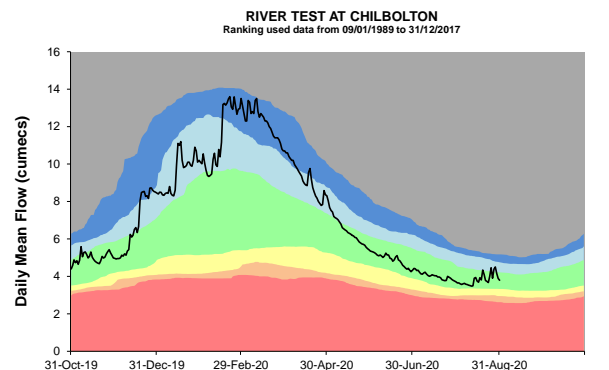
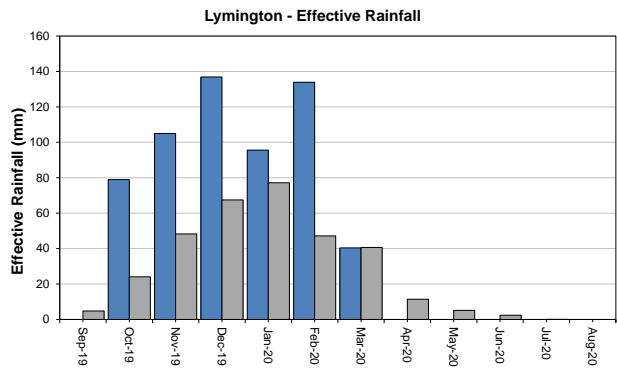
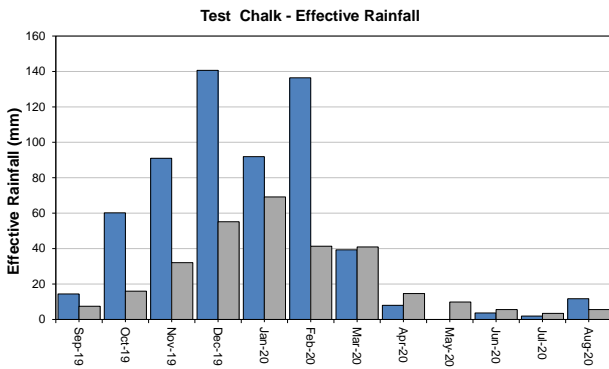
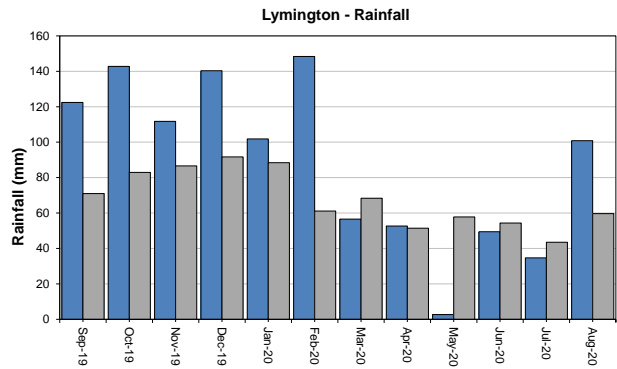
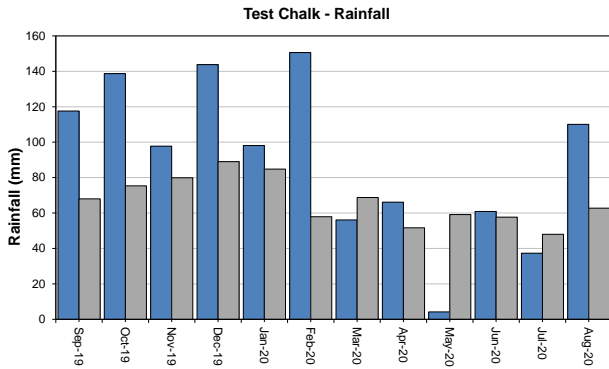
Some features of this map are based on digital spatial data licensed from the Centre for Ecology and Hydrology, © CEH. Includes material based on Ordnance Survey 1:50 000 maps with the permission of the controller of Her Majesty's Stationery Office © Crown copyright. All rights reserved. Environment Agency, 100026380, 2020

Geological map reproduced with kind permission from UK Groundwater Forum, BGS © NERC

# West Hampshire – Page 1

Monthly total rainfall (mm)

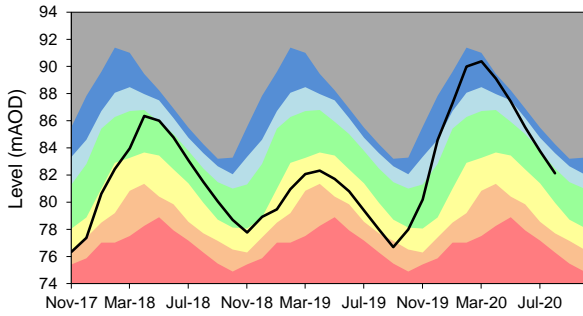
Long term average rainfall (mm)



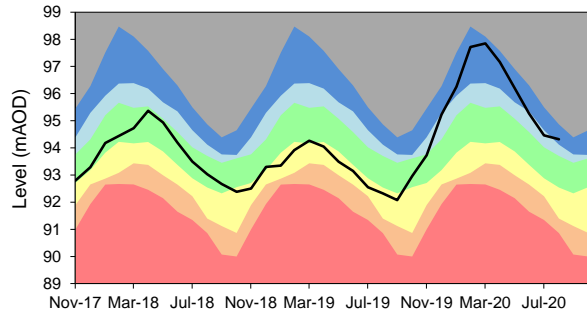
Exceptionally high  
 Below normal  
 Notably high  
 Notably low  
 Above normal  
 Exceptionally low  
 Normal  
 Latest data

# West Hampshire – Page 2

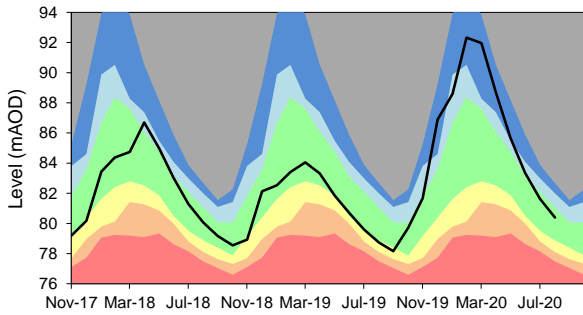
**CLANVILLE GATE GWL - CHALK**  
 Ranking derived from data for the period Mar-1963 to Dec-2017



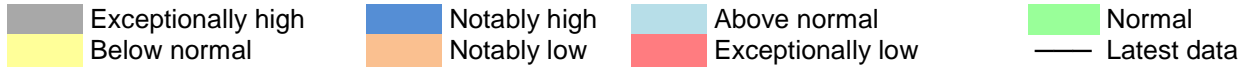
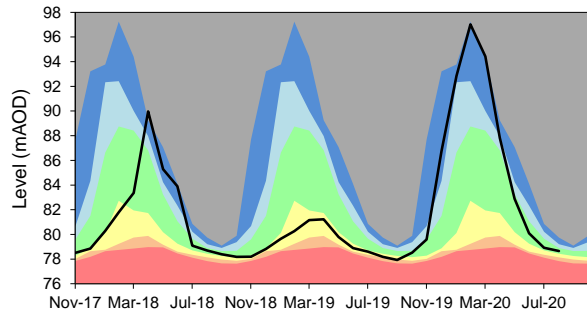
**PRESTON CANDOVER GWL - CHALK**  
 Ranking derived from data for the period Jan-1975 to Dec-2017



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



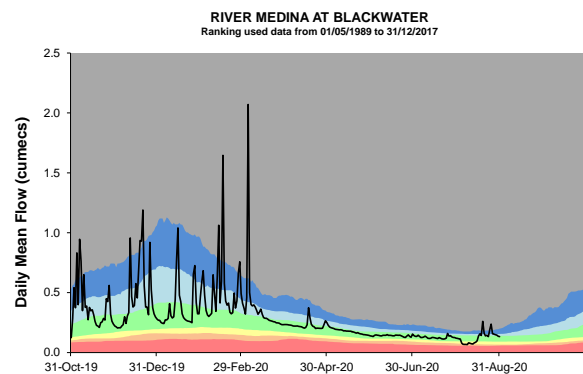
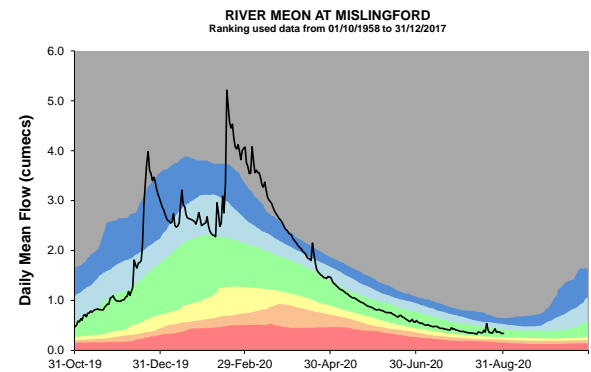
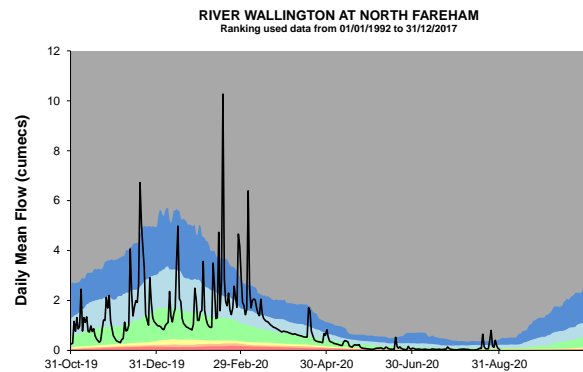
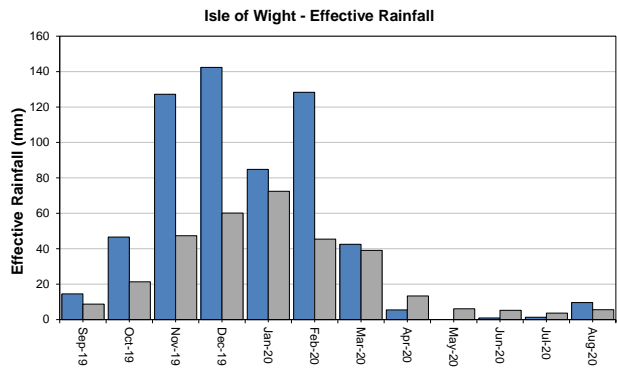
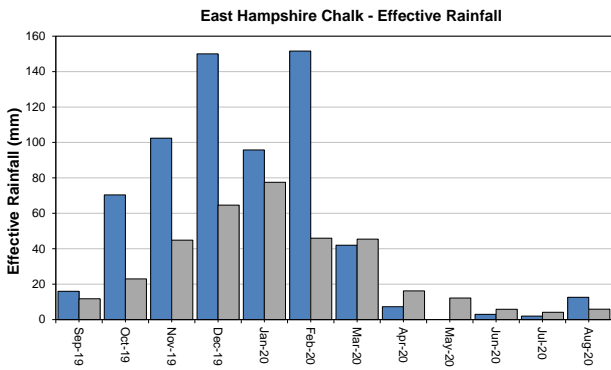
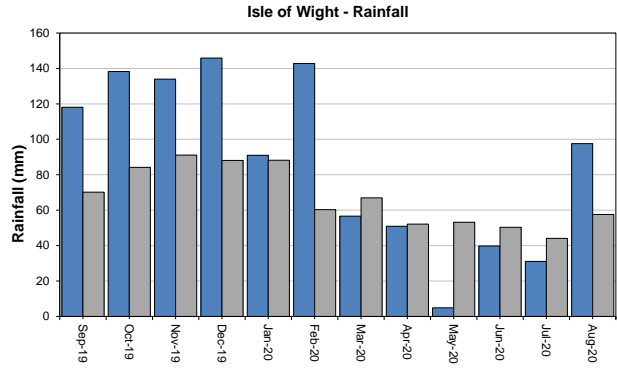
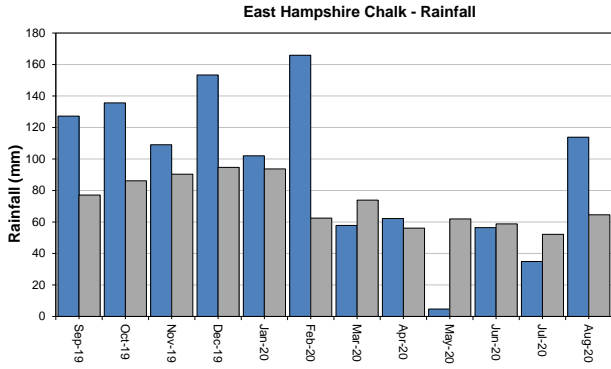
**LOPCOMBE CORNER GWL - CHALK**  
 Ranking derived from data for the period Apr-1963 to Dec-2017



# East Hampshire and Isle of Wight

Monthly total rainfall (mm)

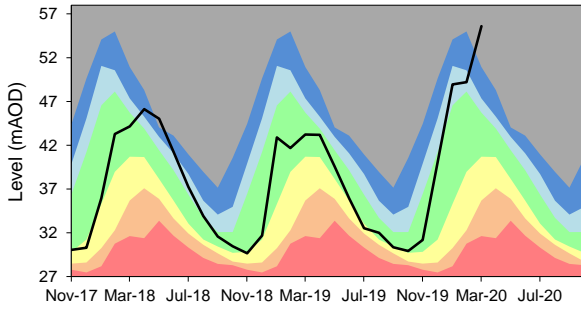
Long term average rainfall (mm)



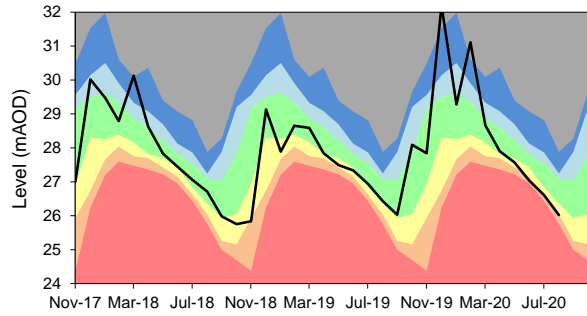
Exceptionally high  
 Below normal  
 Notably high  
 Notably low  
 Above normal  
 Exceptionally low  
 Normal  
 Latest data

# East Hampshire and Isle of Wight – Page 2

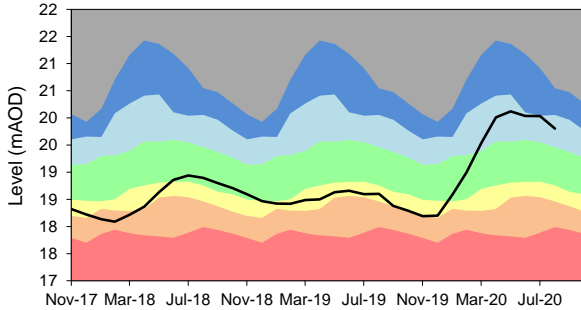
**CATHERINGTON GWL - CHALK**  
 Ranking derived from data for the period Jan-1969 to Dec-2017



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



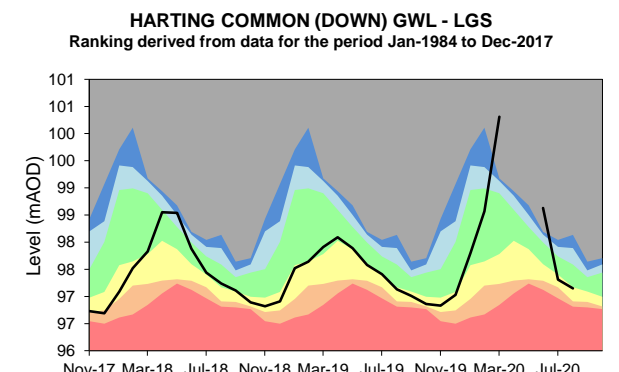
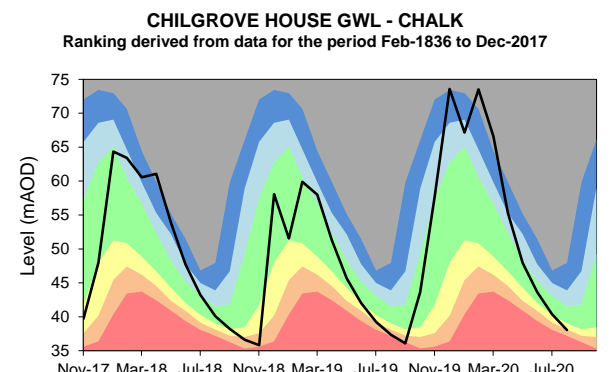
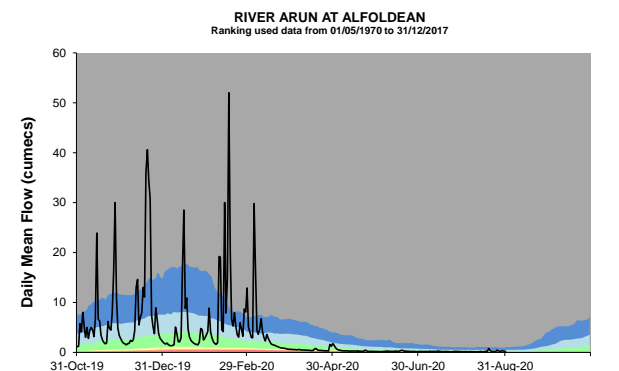
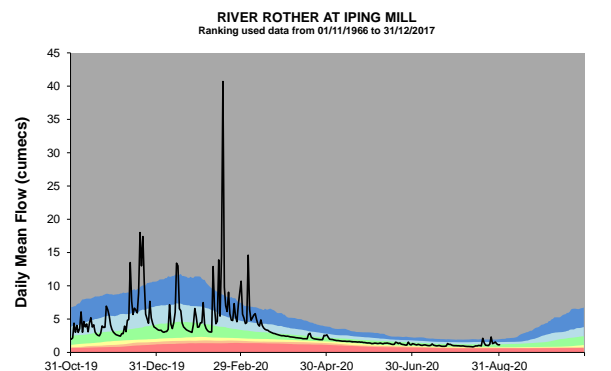
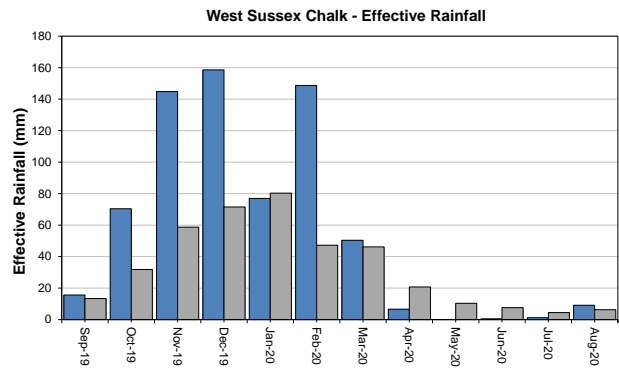
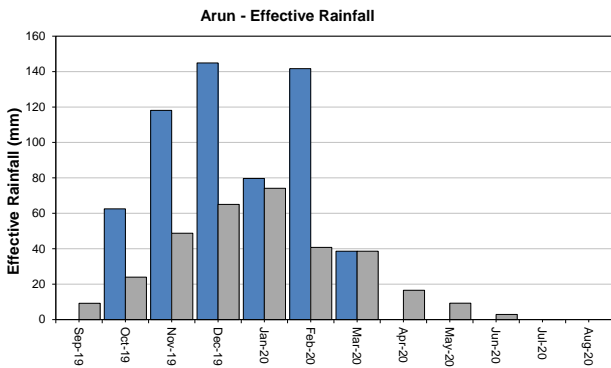
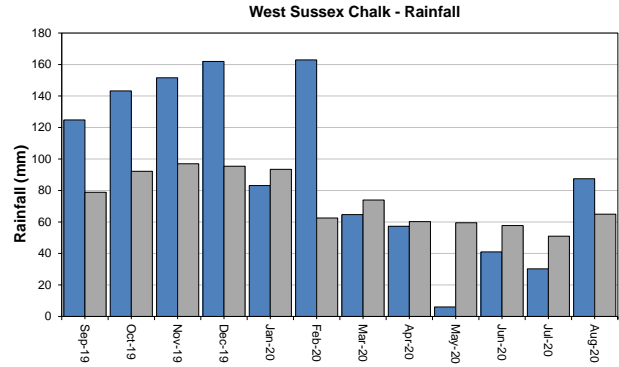
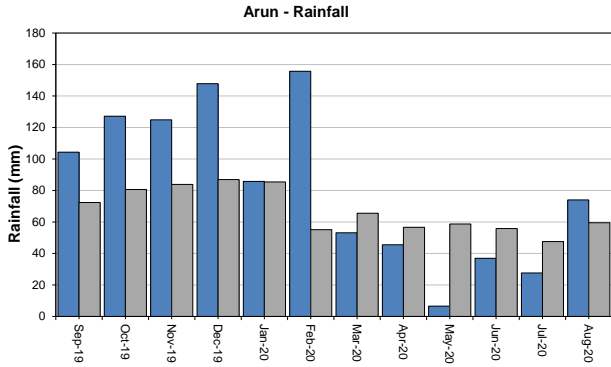
**YOUNGWOOD COPSE GWL - LGS**  
 Ranking derived from data for the period Feb-1978 to Dec-2017



# West Sussex

Monthly total rainfall (mm)

Long term average rainfall (mm)

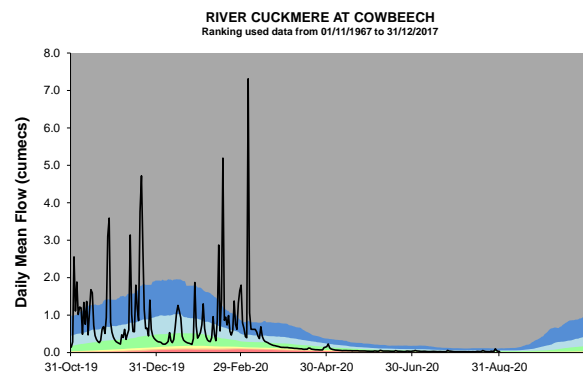
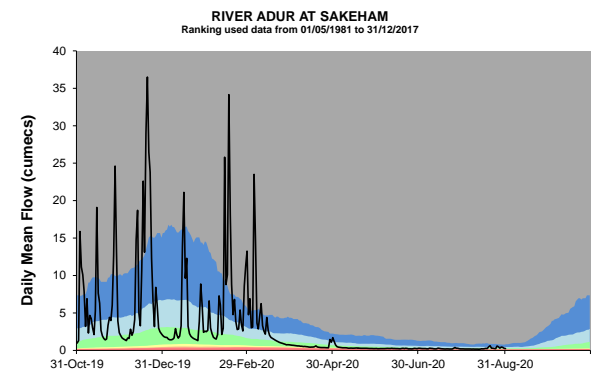
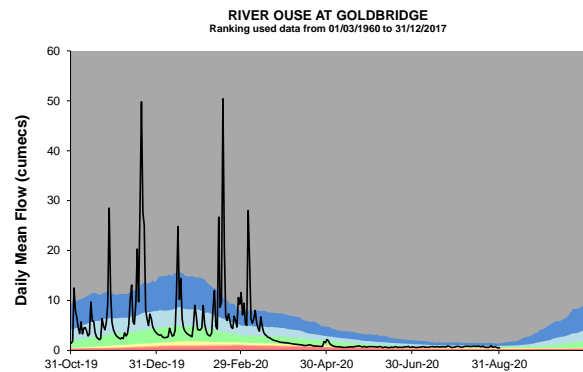
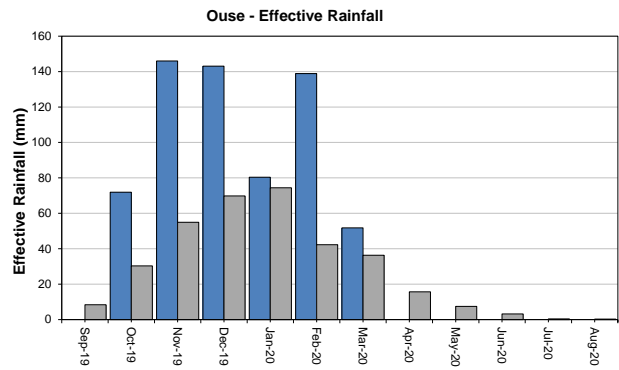
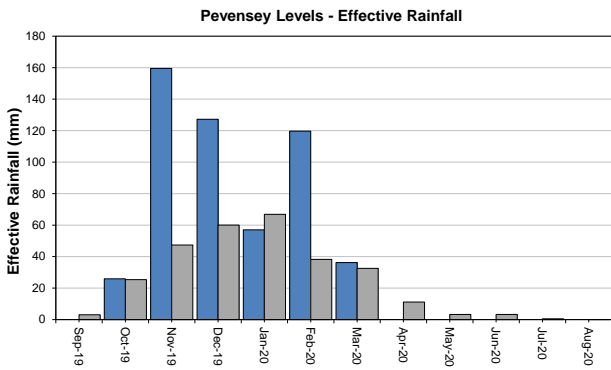
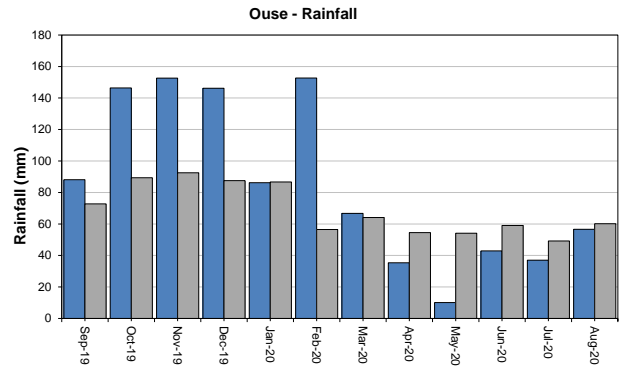
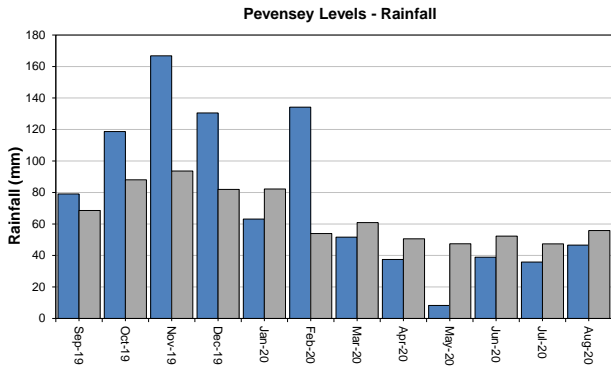


Exceptionally high  
 Below normal  
 Notably high  
 Notably low  
 Above normal  
 Exceptionally low  
 Normal  
 Latest data

# East Sussex

Monthly total rainfall (mm)

Long term average rainfall (mm)



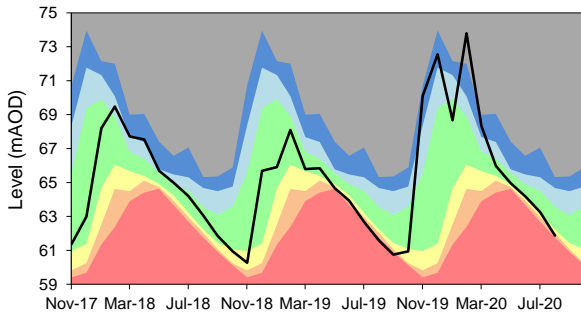
Exceptionally high  
 Below normal  
 Notably high  
 Notably low  
 Above normal  
 Exceptionally low  
 Normal  
 Latest data

# East Sussex – Page 2

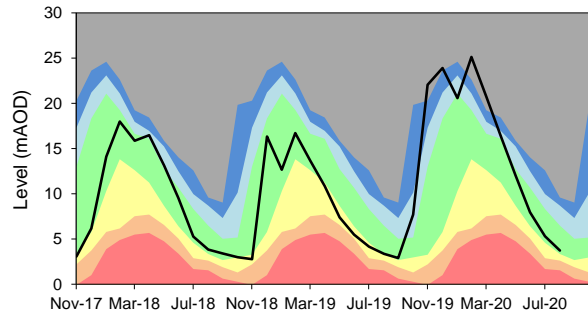
Monthly total rainfall (mm)

Long term average rainfall (mm)

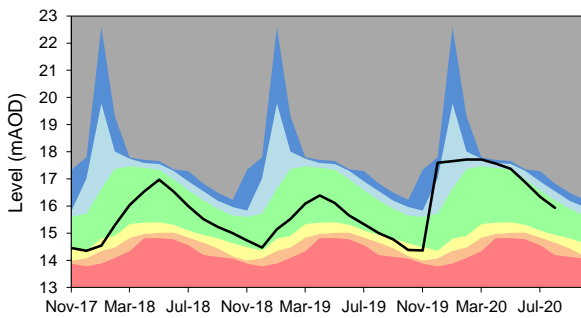
**BEEADING HILL GWL - CHALK**  
Ranking derived from data for the period Sep-1979 to Dec-2017



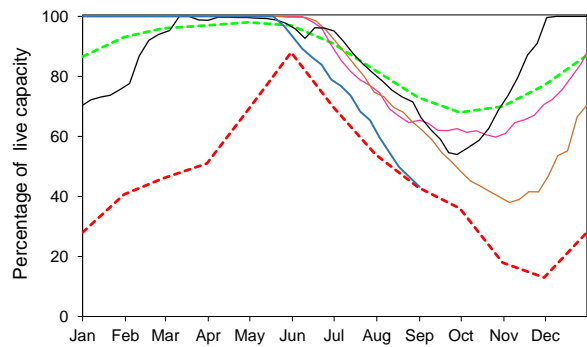
**HOUNDEAN BOTTOM GWL - CHALK**  
Ranking derived from data for the period Jan-1977 to Dec-2017



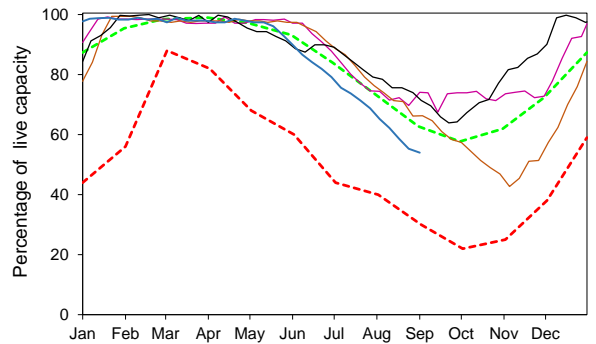
**CORNISH FARM WIGDENS GWL - CHALK**  
Ranking derived from data for the period Mar-1981 to Dec-2017



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	110	63	175%	12	6	210%
East Hampshire Chalk	114	64	178%	13	6	214%
West Sussex Chalk	87	66	133%	9	6	146%
East Sussex Chalk	59	61	98%	5	6	90%
Isle of Wight	98	59	165%	10	6	172%
Western Rother Greensand	91	66	139%	10	7	131%
Hampshire Tertiaries	104	60	172%	0	0	0%
Lymington	101	62	164%	0	0	0%
Sussex Coast	77	54	142%	0	0	0%
Arun	74	61	121%	0	0	0%
Adur	62	60	103%	0	0	0%
Ouse	57	61	93%	0	0	0%
Cuckmere	53	62	86%	0	0	0%
Pevensey Levels	47	57	81%	0	0	0%
<b>Solent and South Downs</b>	<b>81</b>	<b>61</b>	<b>132%</b>	<b>4</b>	<b>3</b>	<b>158%</b>

### Summer rainfall and effective rainfall

Summer totals for the period 1 April to the 31 August 2020

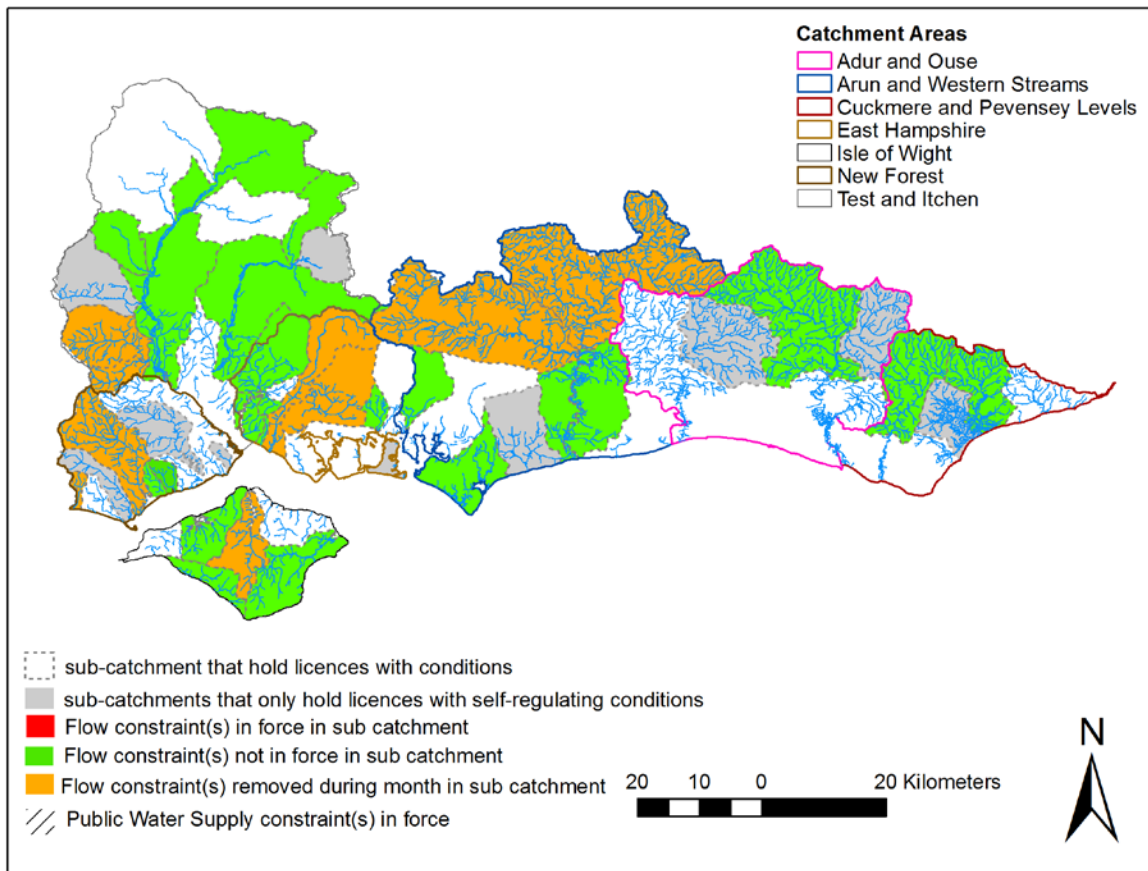
Area	Rainfall (mm)	LTA rainfall (mm)	% of LTA	Effective rainfall (mm)	LTA effective rainfall (mm)	% of LTA
Test Chalk	279	277	101%	25	39	65%
East Hampshire Chalk	272	289	94%	25	44	56%
West Sussex Chalk	222	295	75%	18	49	35%
East Sussex Chalk	184	273	67%	12	41	29%
Isle of Wight	224	258	87%	17	34	51%
Western Rother Greensand	230	297	78%	19	60	32%
Hampshire Tertiaries	252	265	95%	0	16	0%
Lymington	241	270	89%	0	19	0%
Sussex Coast	193	245	79%	0	18	0%
Arun	191	282	68%	0	29	0%
Adur	176	275	64%	0	28	0%
Ouse	182	280	65%	0	27	0%
Cuckmere	181	274	66%	0	23	0%
Pevensey Levels	167	257	65%	0	18	0%
<b>Solent and South Downs</b>	<b>214</b>	<b>274</b>	<b>78%</b>	<b>8</b>	<b>32</b>	<b>26%</b>

## Soil Moisture Deficit

Area	End of month SMD (mm)	End of month SMD LTA (mm)
Test Chalk	82	97
East Hampshire Chalk	81	93
West Sussex Chalk	106	96
East Sussex Chalk	135	102
Isle of Wight	106	107
Western Rother Greensand	99	90
Hampshire Tertiaries	81	96
Lymington	86	94
Sussex Coast	112	105
Arun	111	92
Adur	125	95
Ouse	123	88
Cuckmere	134	93
Pevensey Levels	140	98
<b>Solent and South Downs</b>	<b>109</b>	<b>96</b>

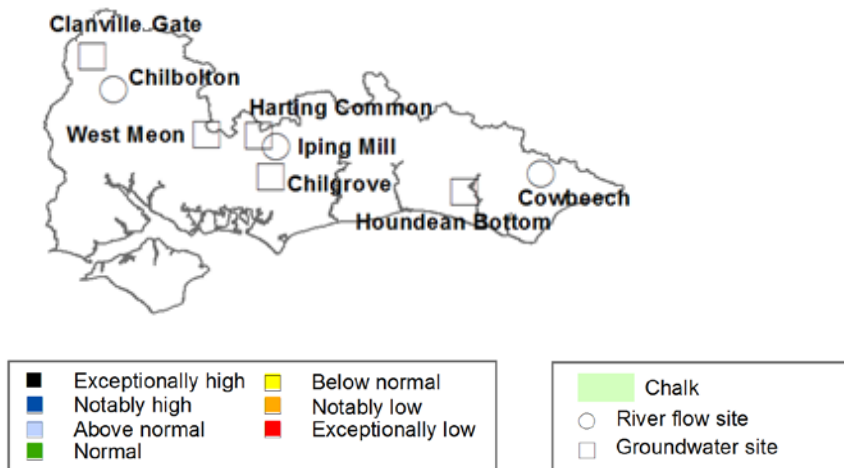
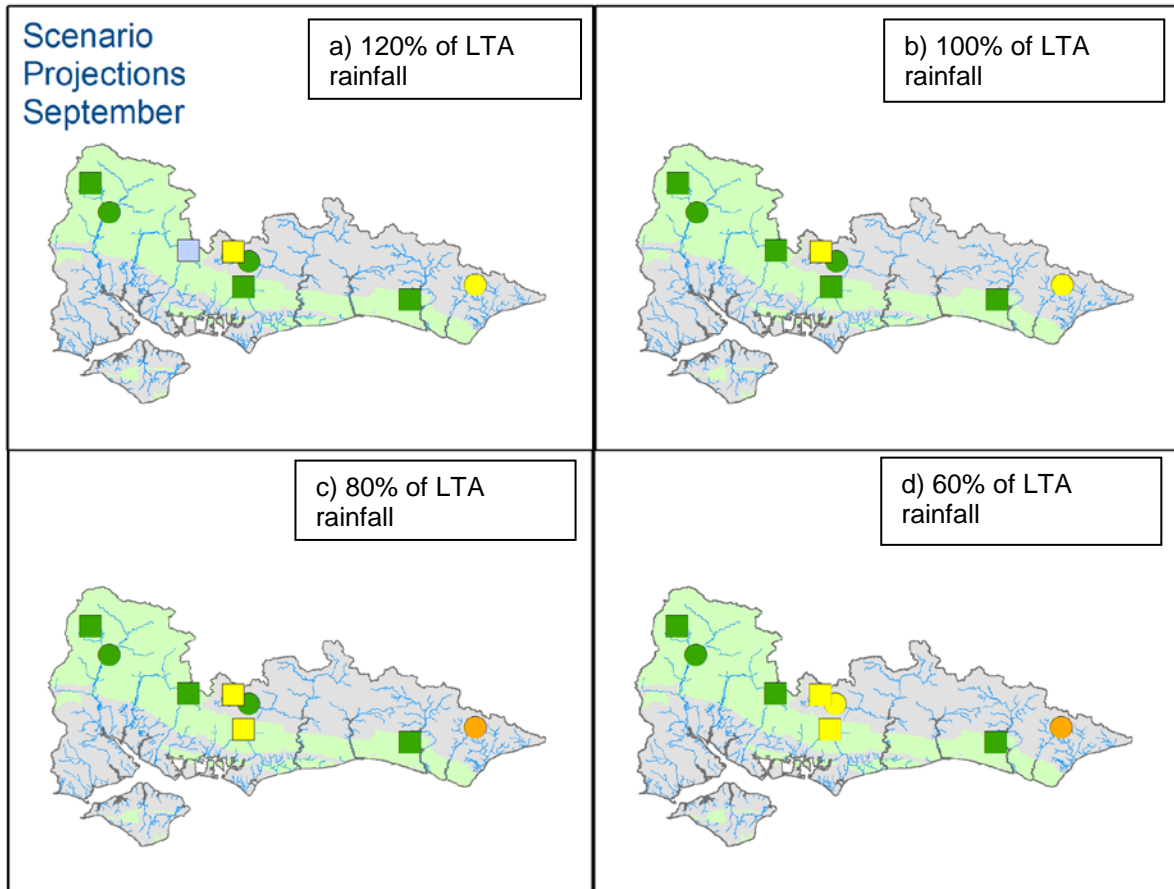
# Environmental Impact

## Flow Constraints



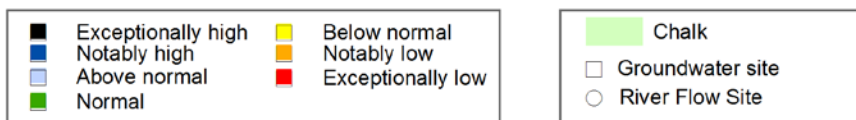
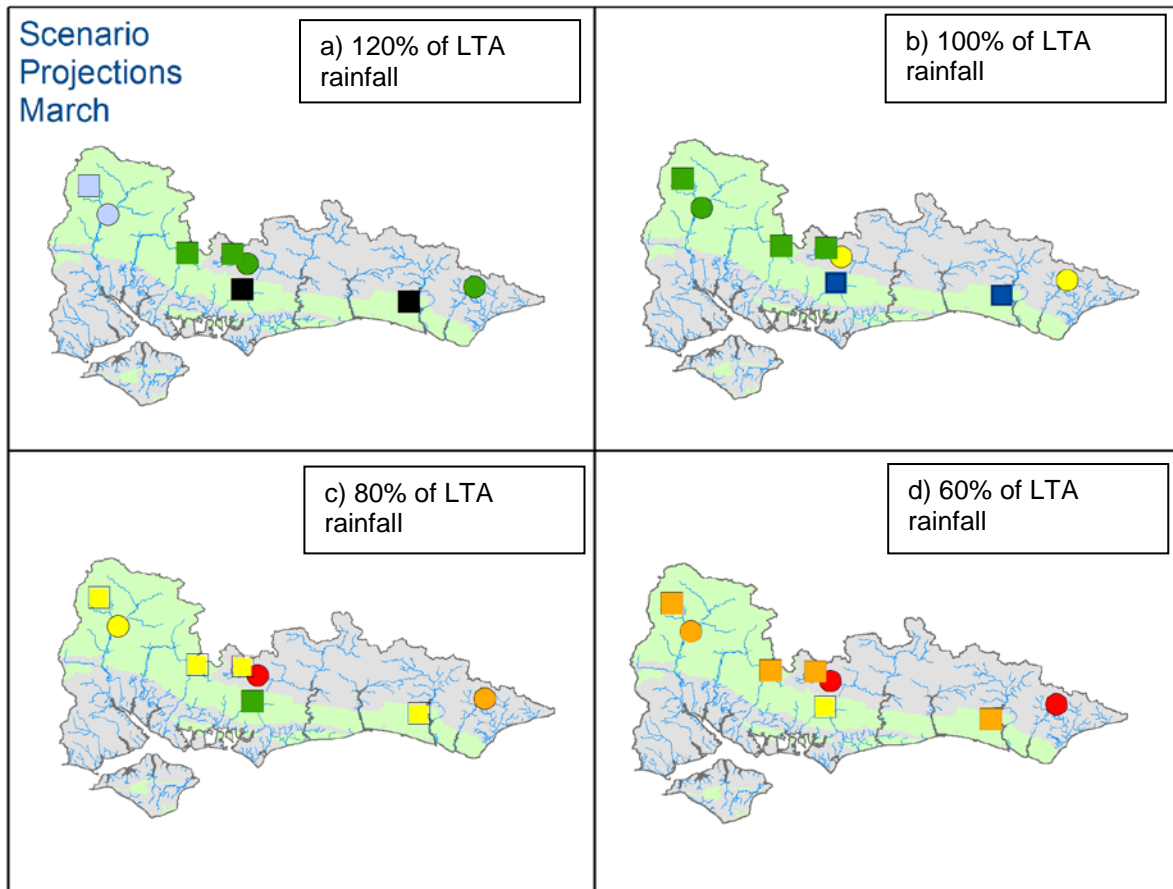
Catchment	No. licences with conditions currently operational in Aug	01-Aug	04-Aug	11-Aug	18-Aug	25-Aug	31-Aug
		START	WK1	WK2	WK3	WK4	END
		Number at Start of the month in force	No. licences with Flow Condition in Force in Aug	No. licences with Flow Condition in Force in Aug	No. licences with Flow Condition in Force in Aug	No. licences with Flow Condition in Force in Aug	Number at End of the month in force
A&O	3	0	0	0	0	0	0
A&W	36	4	4	7	3	0	0
C&P	7	0	0	0	0	0	0
EH	21	0	0	2	0	0	0
IOW	16	0	0	5	1	0	0
NF	16	4	4	5	0	0	0
T&I	24	1	1	3	1	0	0
<b>Total in SSD</b>	<b>123</b>	<b>9</b>	<b>9</b>	<b>22</b>	<b>5</b>	<b>0</b>	<b>0</b>

# 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.

# Forward look- river flow and groundwater March 2021



Projected river flows at key indicator sites up until the end of March 2021. Projected groundwater levels at key indicator sites at the end of March 2021. Projections based on four scenarios: 120% (a), 100% (b), 80% (c) and 60% (d) of long term average rainfall (Source: Environment Agency). Geological map reproduced with kind permission from UK Groundwater Forum BGS © NERC Crown copyright. All rights reserved. Environment Agency 100026380 2020.

## Glossary

### Term

Aquifer

Areal average rainfall

Artesian

Artesian borehole

Cumecs

Effective rainfall

Flood Alert/Flood Warning

Groundwater

Long term average (LTA)

mAOD

MORECS

Naturalised flow

NCIC

Recharge

Reservoir gross capacity

Reservoir live capacity

Soil moisture deficit (SMD)

### Definition

A geological formation able to store and transmit water.

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

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

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

Cubic metres per second (m<sup>3</sup>s<sup>-1</sup>)

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