

Monthly water situation report

East Anglia

Summary – October 2020

East Anglia received a notably high total average rainfall of 111mm in October (212% of the Long Term Average (LTA)). Heavy rainfall results in a notably low Soil Moisture Deficit (SMD) ending the month with 22mm averaged SMD. Monthly mean river flows has increased at all the indicator sites and the majority of sites recorded notably high flows. Groundwater levels increased at majority of the indicator sites with reservoirs levels increased at majority of the sites. Groundwater support schemes have been operating to support river flows.

Rainfall

October was a wet month with a notably high total average rainfall of 111 mm, resulting in 212% of the Long Term Average (LTA). The rainfall totals varied across the area from above normal to exceptionally high making it the 9th wettest October in the record since 1891. Exceptionally high amount of rainfall was received at the Cam, the Little Ouse and Lark, the North Essex and South Essex. The Cam catchment had its 8th wettest October in the record with 112 mm of total rainfall with South Essex having its 2nd wettest October on the record with 152mm of total rainfall; and the North Essex had its 4th wettest October in the record with 128 mm of total rainfall. The 12 months accumulation of rainfall surplus has increased to 692 mm which is in the above normal category which is 116% of the LTA.

Soil Moisture Deficit/Recharge

The Soil Moisture Deficit (SMD) across East Anglia has reduced over the month of October following a notably high amount of rainfall in the area. The SMD varied across the area ending the month with notably low averaged SMD of 22 mm.

River Flows

The river flow has increased at all the indicator sites in October with majority of the sites reporting notably high flows. Out of the 21 indicator sites all sites has reported a normal or higher category of flows with an exceptionally high flows reported at the River Wissey and the River Ouzel.

Groundwater Levels

The Groundwater has started recharging and levels has increased at majority of the indicator sites in October. Out of the 20 indicator sites 85% has reported a normal or higher groundwater levels with the Wissey Chalk of Breckland and the Great Oolite of Fringford reporting an exceptionally high groundwater levels. The groundwater levels at the Little Ouse chalk of Kenninghall and the Cam chalk of Redlands Hall remain below normal.

Reservoir Storage/Water Resource Zone Stocks

Reservoirs level has increased at all the indicator sites with the exception of Abberton. All site are reporting normal reservoirs levels in October with levels at majority of the sites remaining above their normal operating curve.

Environmental Impact

The Lodes-Granta groundwater support scheme has 4 out of 6 pumps operating with 1 of the pump operating 24 hours a day. The Rhee groundwater support scheme has 3 out of 8 pumps operating with 1 of the pump operating 24 hours a day. There are no pumps operating at the Hiz, the Thet and the Little Ouse in September.

Forward Look

Probabilistic ensemble projections for river flows at key sites

December 2020: There is a reduced probability of exceptionally low and notably low flows at all the key sites with an increased probability of exceptionally high and notably high flows at majority of the key sites in December.

March 2021: There is a reduced probability of exceptionally low flow at all the key sites with an increased probability of exceptionally high flows at the River Stiffkey and River Ivel in March.

Probabilistic ensemble projections for groundwater levels in key aquifers

March 2021: There is a reduced probability of exceptionally low groundwater levels at all the key sites with an increased probability of above normal or higher groundwater levels at all the key sites in March.

September 2021: There is a reduced probability of exceptionally low groundwater levels at all the key sites with a reduced probability of notably low and below normal groundwater levels at majority of the key sites.

Author: [Hydrology & Operations](#)

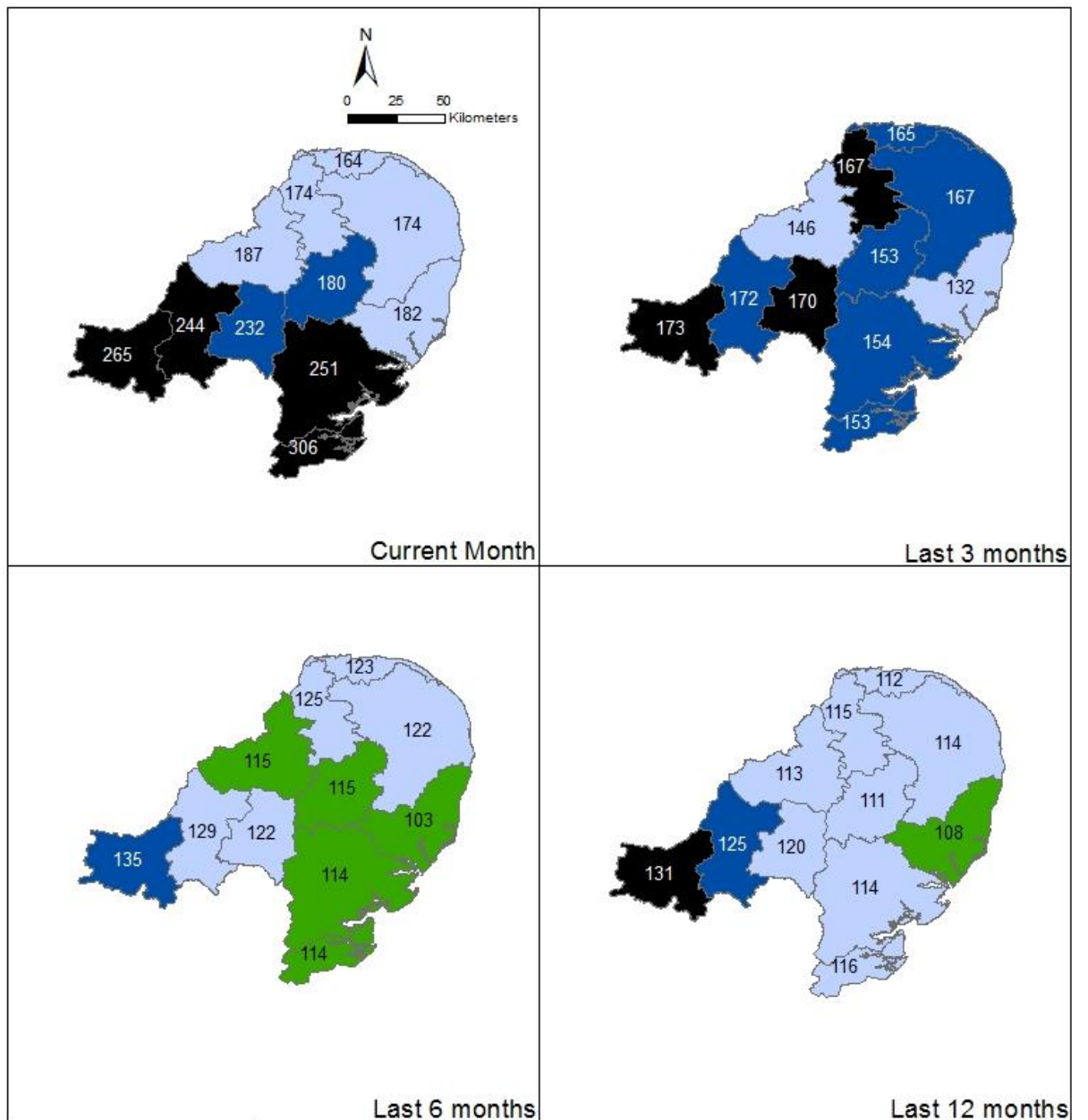
Contact details: 03708506506

All data are provisional and may be subject to revision. The views expressed in this document are not necessarily those of the Environment Agency. Its officers, servants or agents accept no liability for any loss or damage arising from the interpretation or use of the information, or reliance upon views contained herein.

© Environment Agency 2020

Rainfall

October 2020



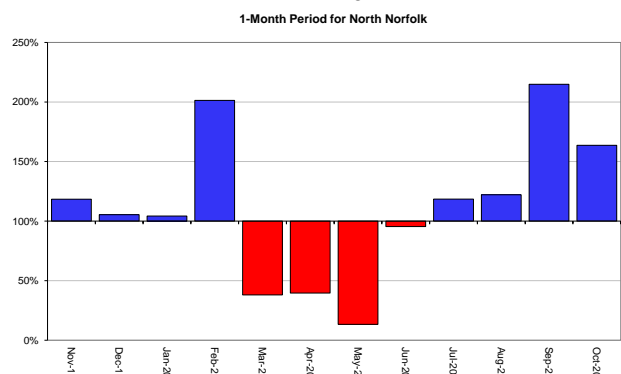
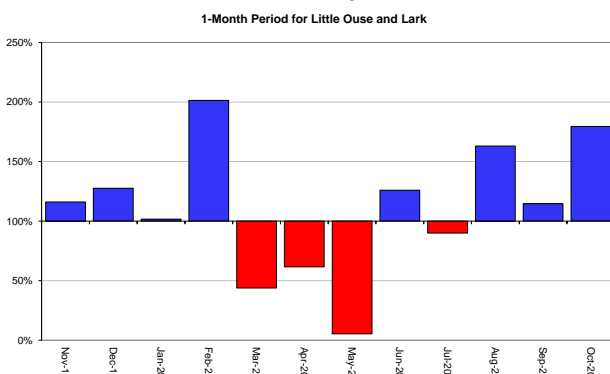
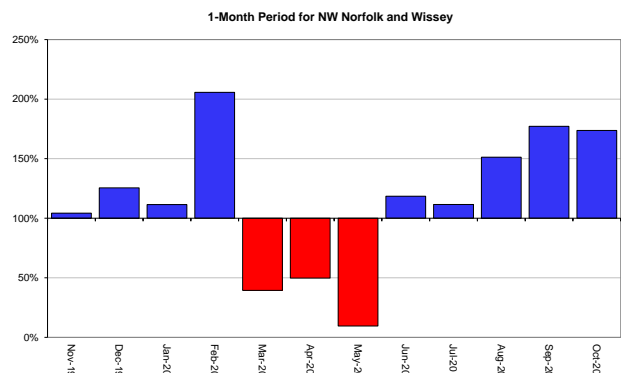
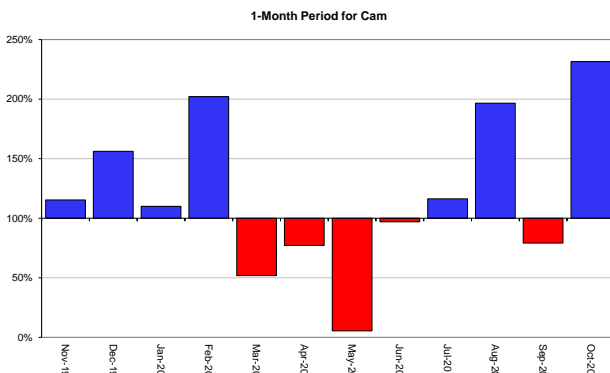
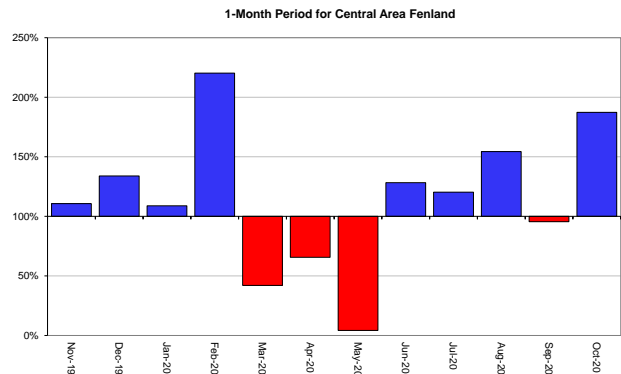
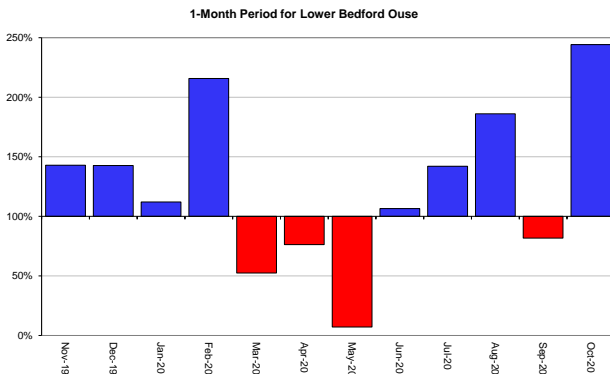
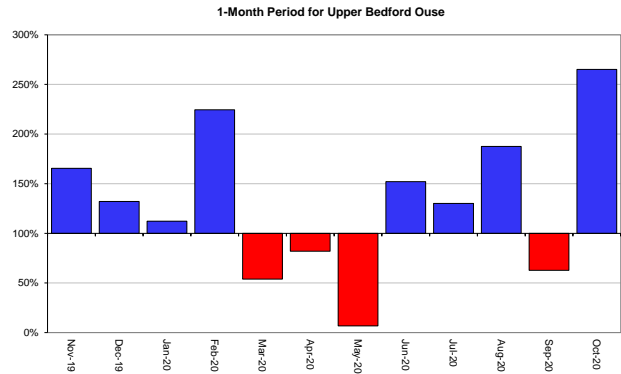
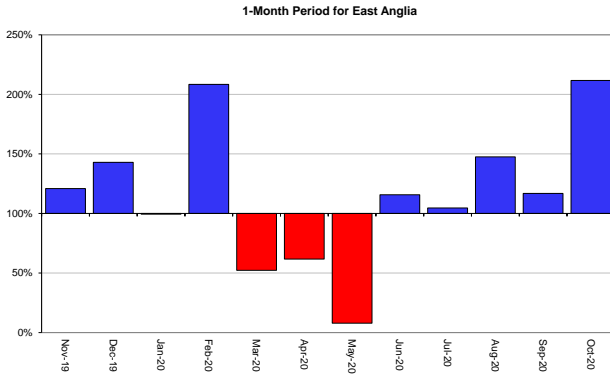
- Exceptionally high
- Notably high
- Above normal
- Normal
- Below normal
- Notably low
- Exceptionally low

Rainfall expressed as percentage of 1961-1990 Long Term Average for the specified duration. Classes derived from data for the period 1891 to 2017 based on the HadUK dataset (Met Office © Crown Copyright)

Total rainfall for hydrological areas across England for the current month, the last three months, the last six months, and the last 12 months, classed relative to an analysis of respective historic totals. Final HadUK data based on the Met Office 1 km gridded rainfall dataset derived from rain gauges (Source: Met Office © Crown Copyright, 2020). Provisional data based on Environment Agency 1 km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Crown copyright. All rights reserved. Environment Agency, 100024198, 2020.

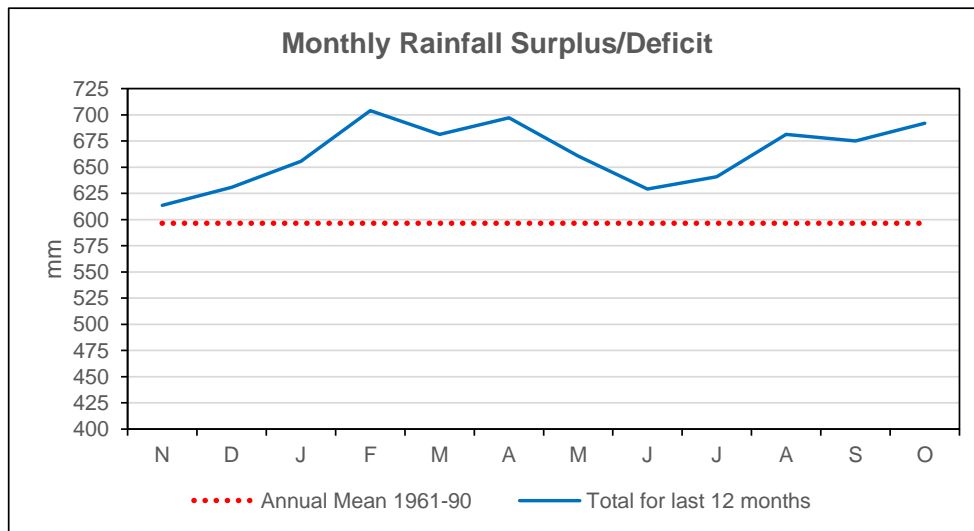
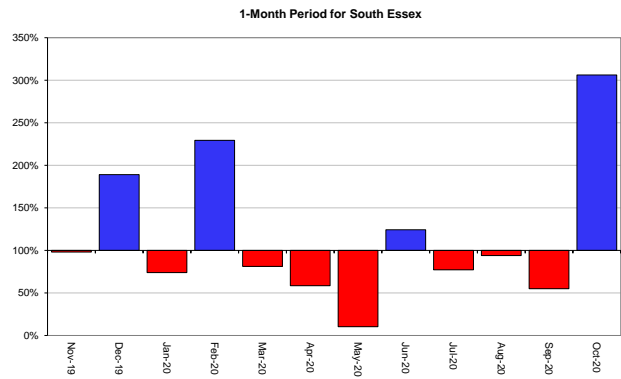
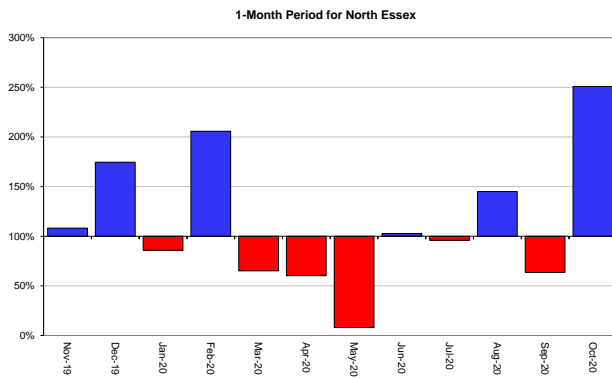
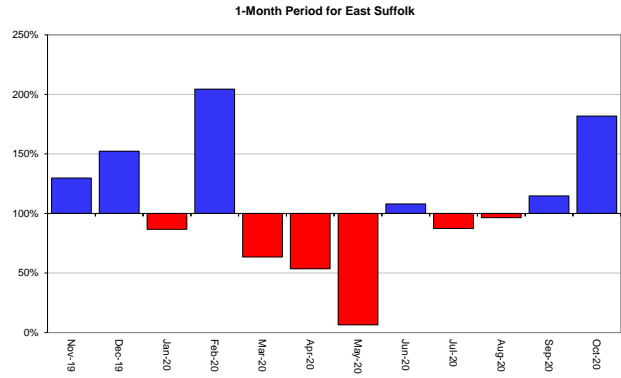
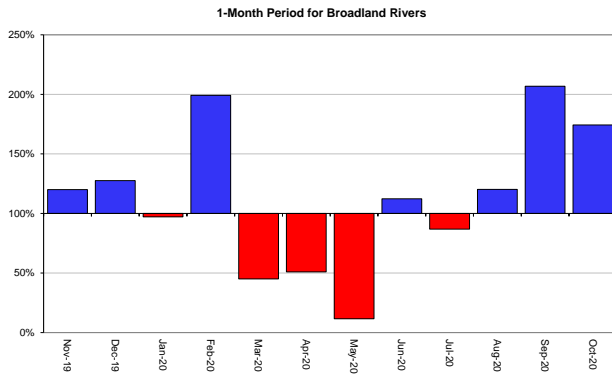
Above average rainfall

Below average rainfall

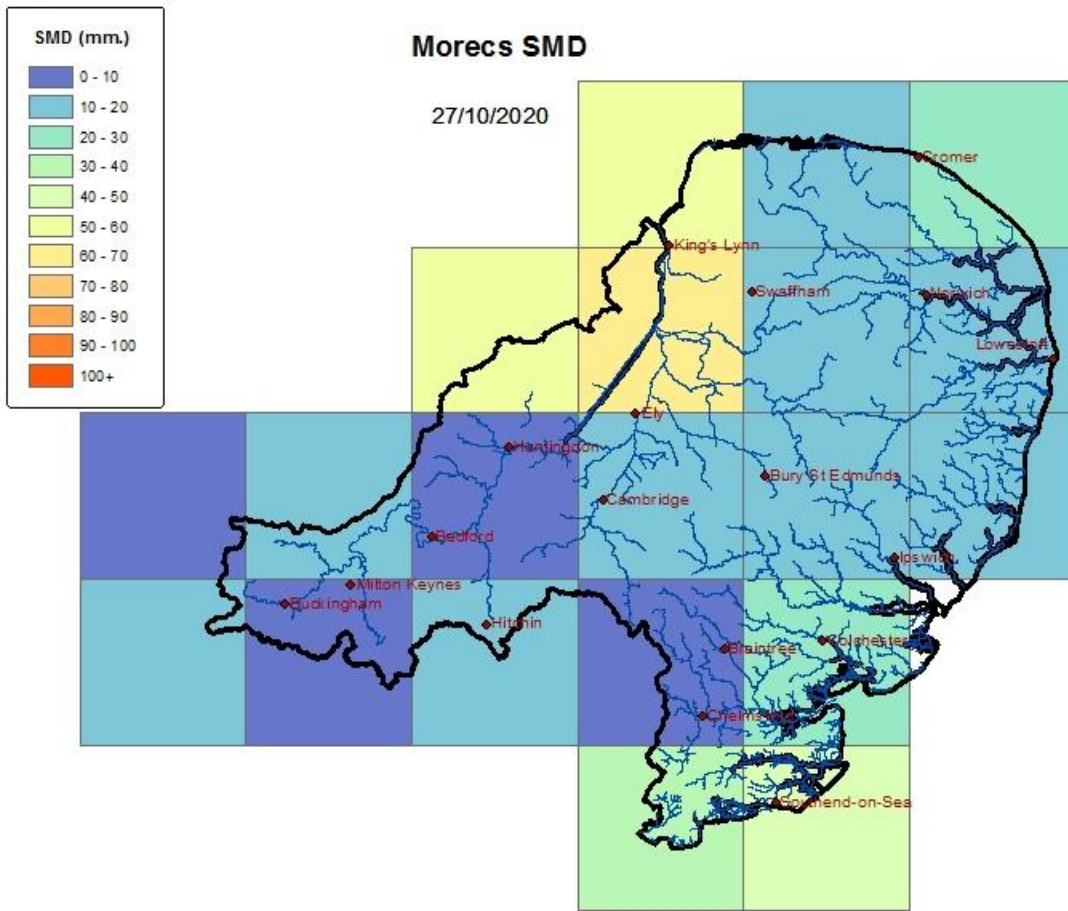


Above average rainfall

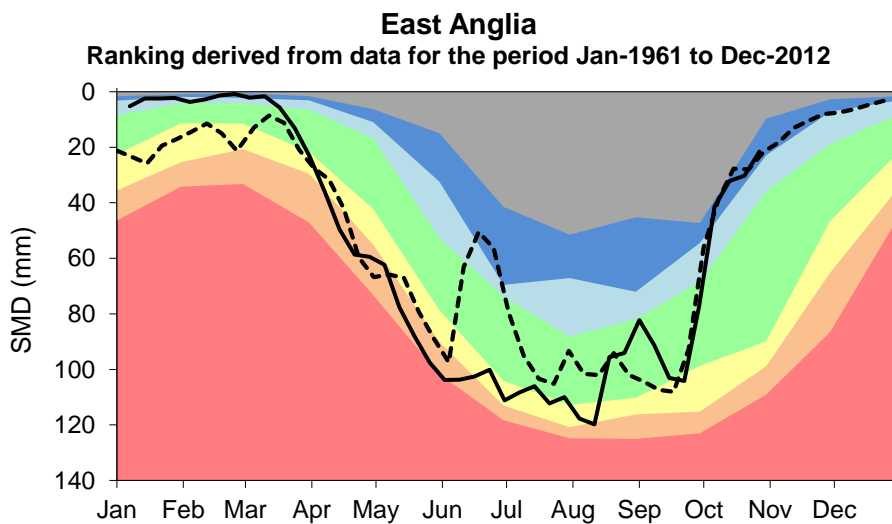
Below average rainfall



Soil Moisture Deficit

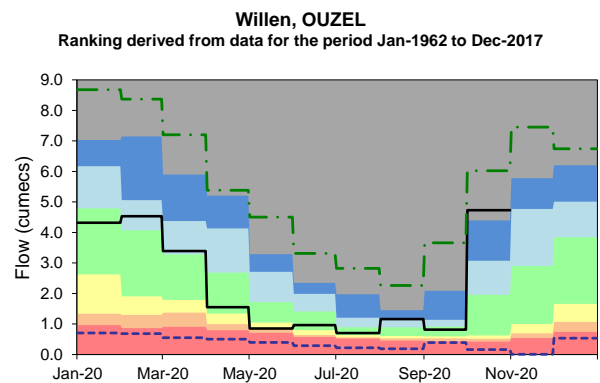
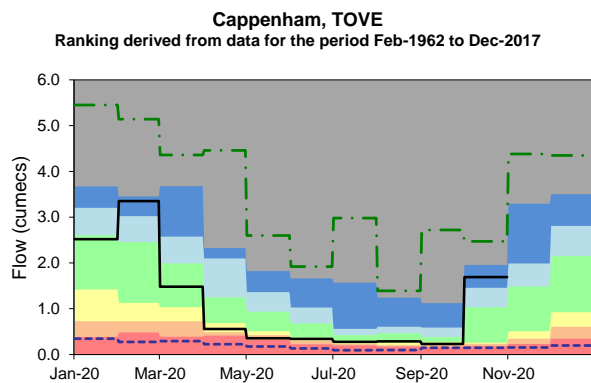
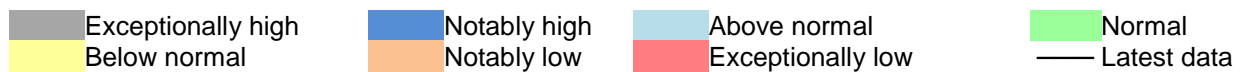
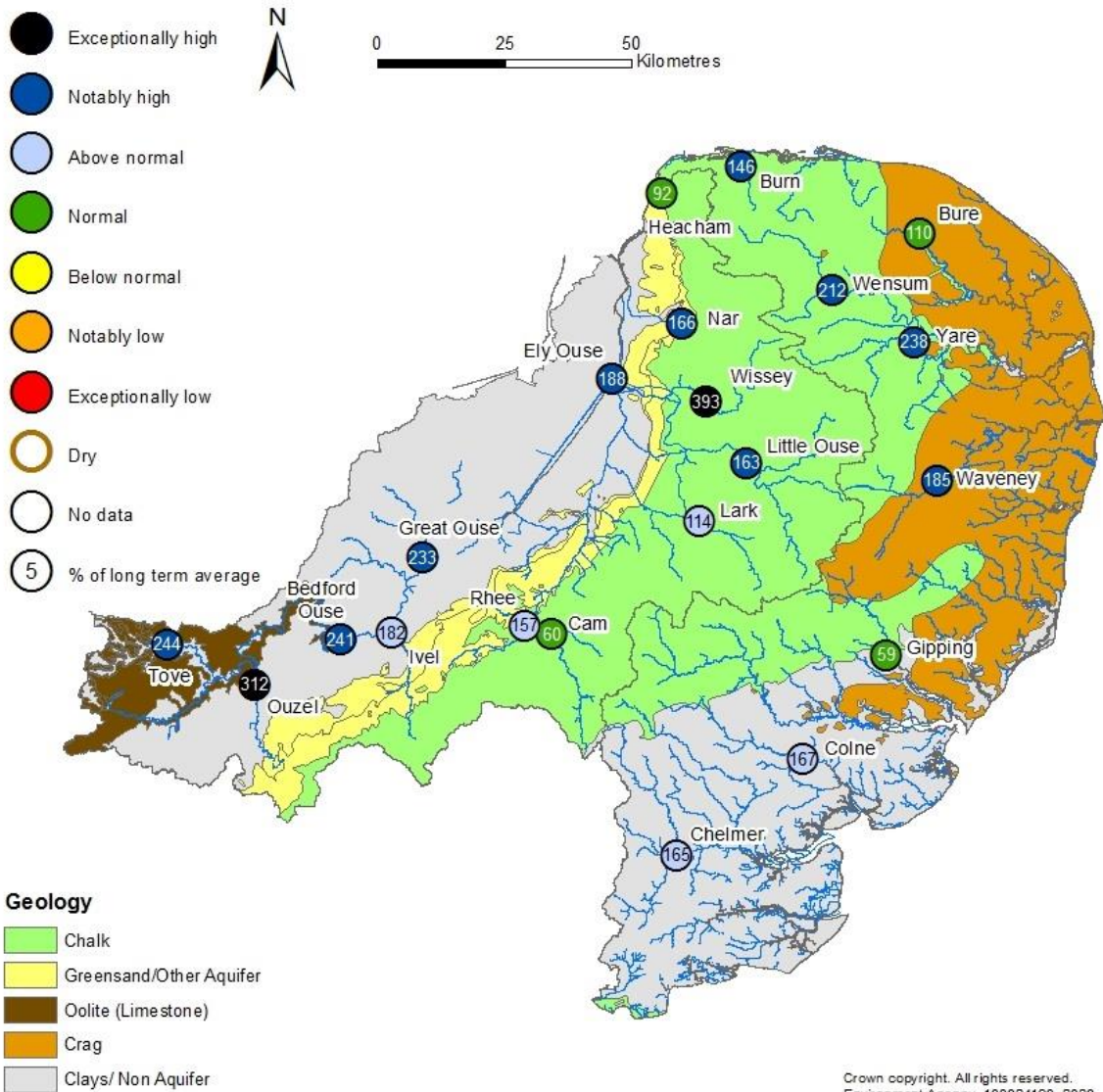


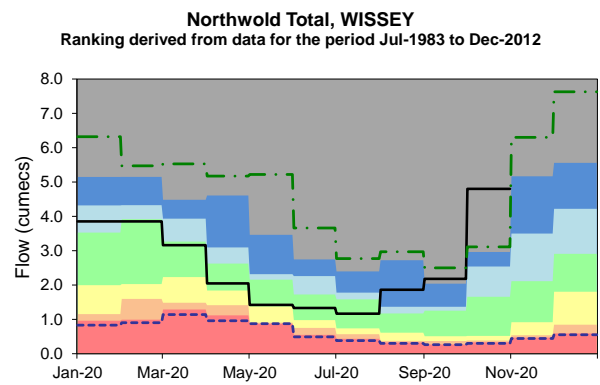
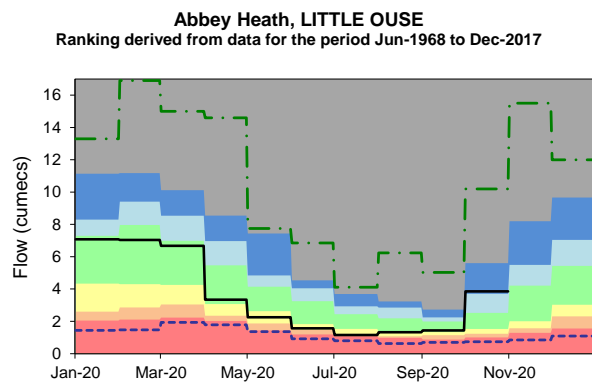
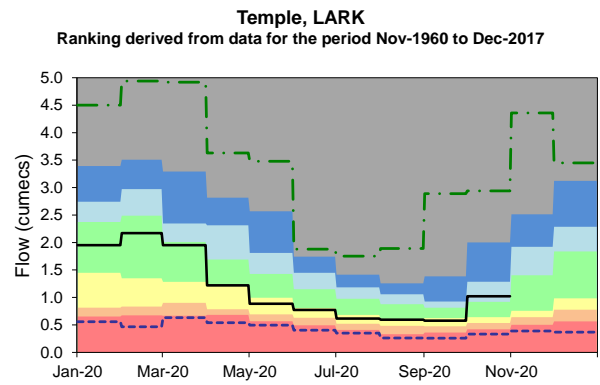
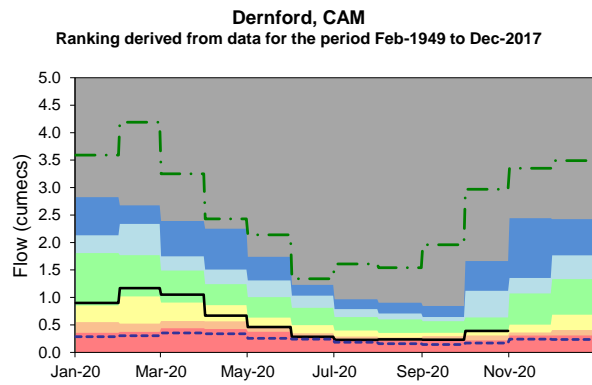
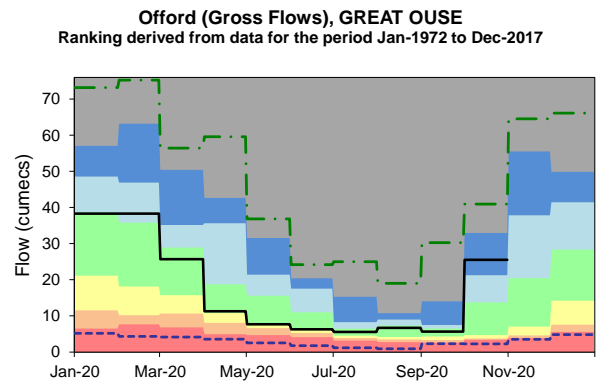
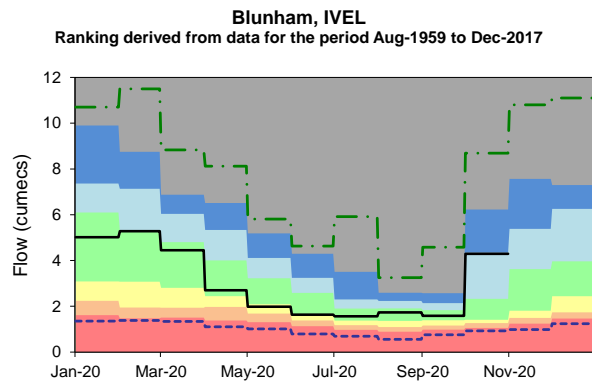
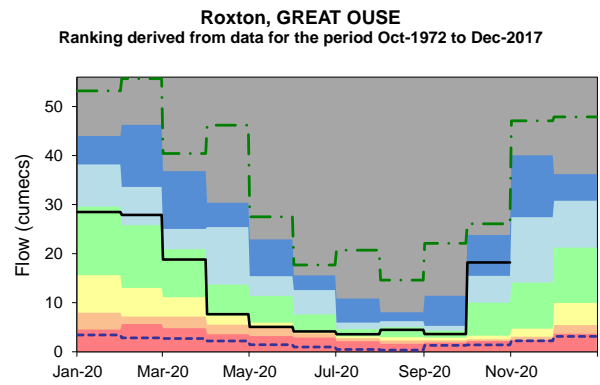
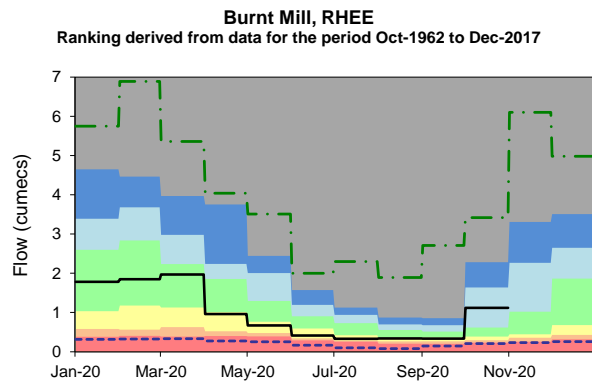
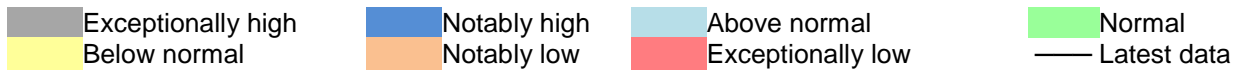
Data based on MORECS (Met Office © Crown Copyright)

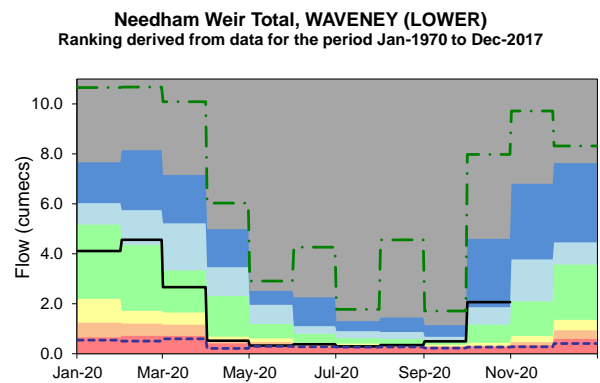
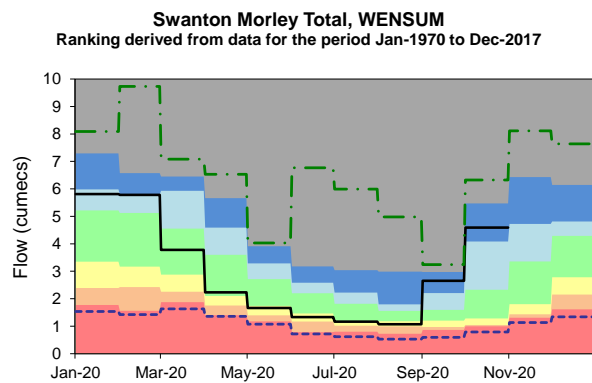
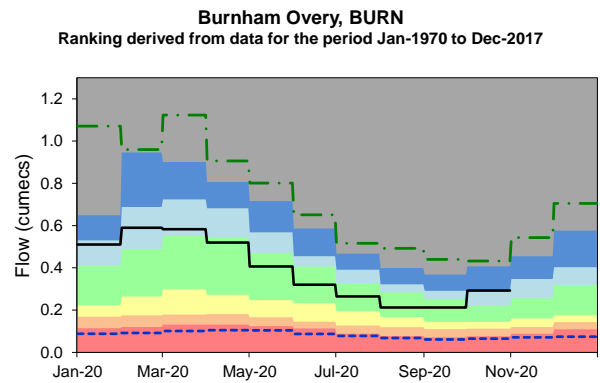
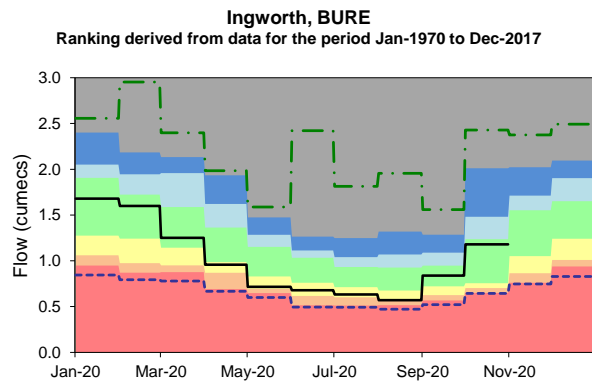
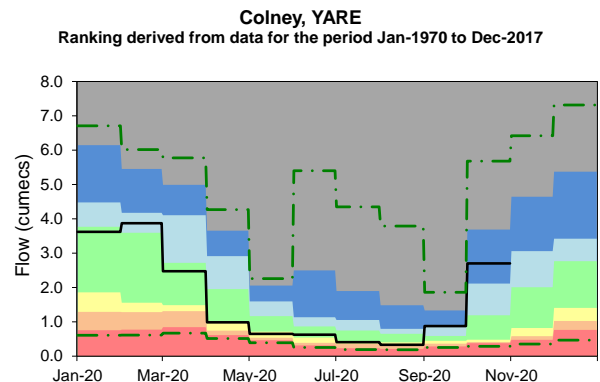
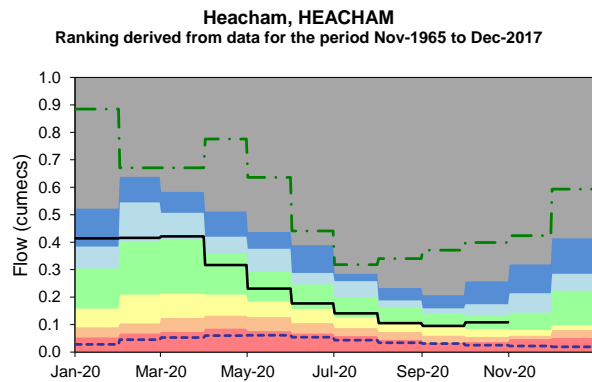
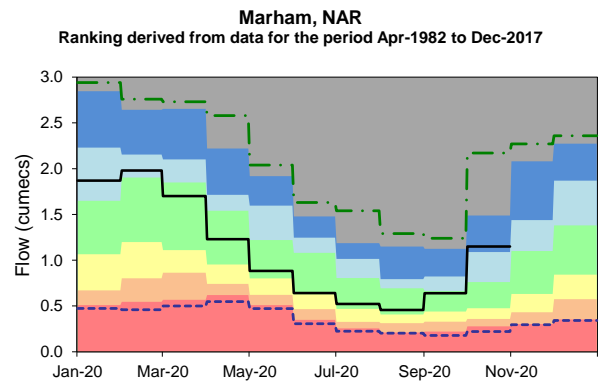
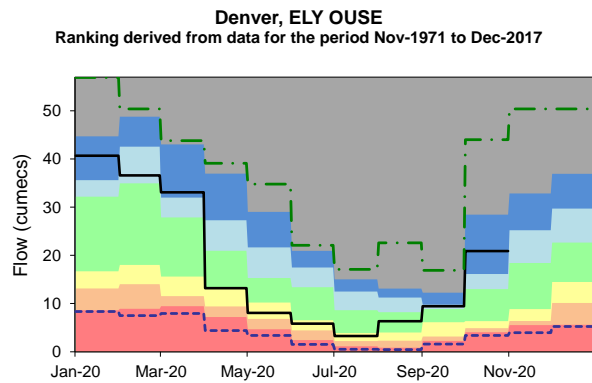
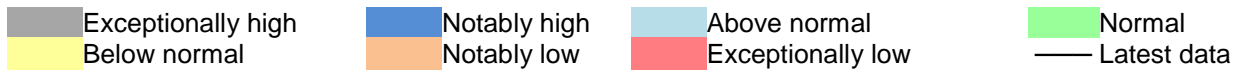


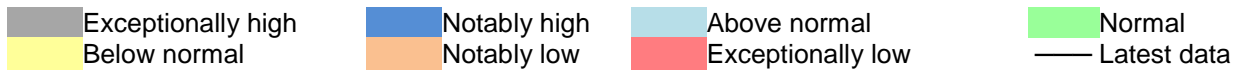
River Flow

October 2020

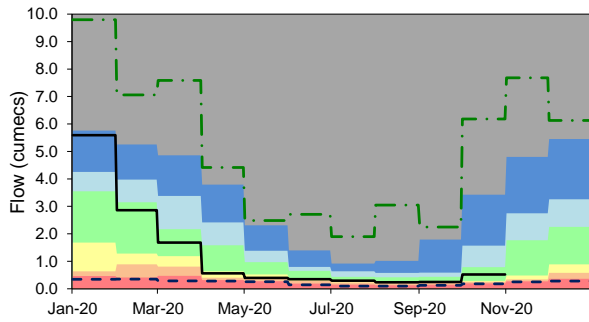




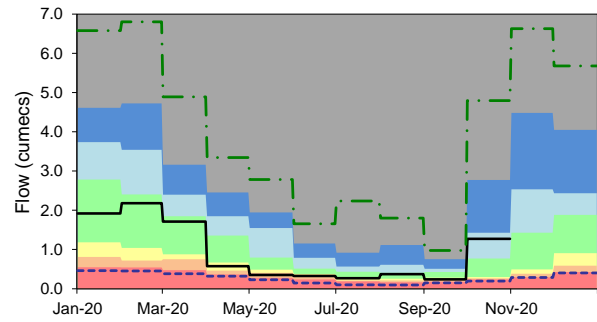




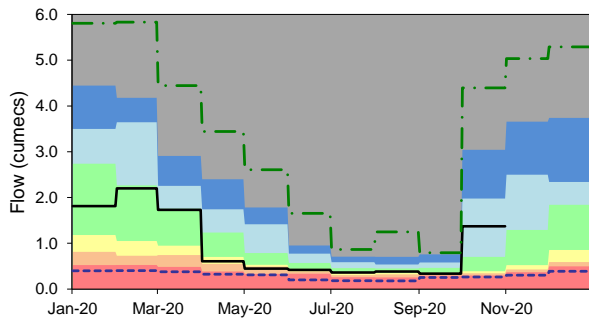
Bramford, GIPPING
Ranking derived from data for the period Jan-1970 to Dec-2017



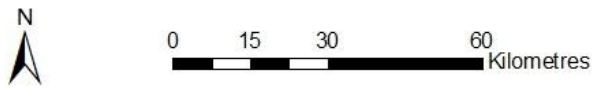
Lexden, COLNE
Ranking derived from data for the period Jan-1970 to Dec-2017



Springfield, CHELMER
Ranking derived from data for the period Jan-1970 to Dec-2017



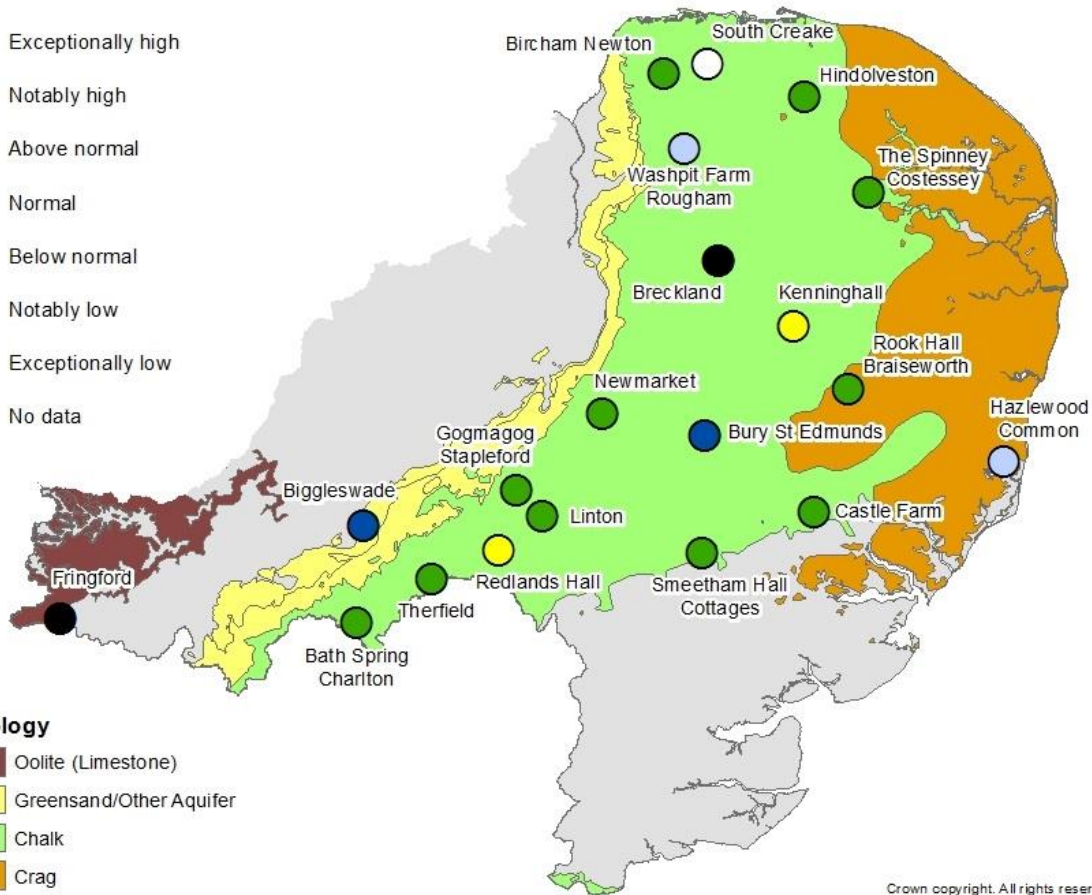
Groundwater Levels October 2020



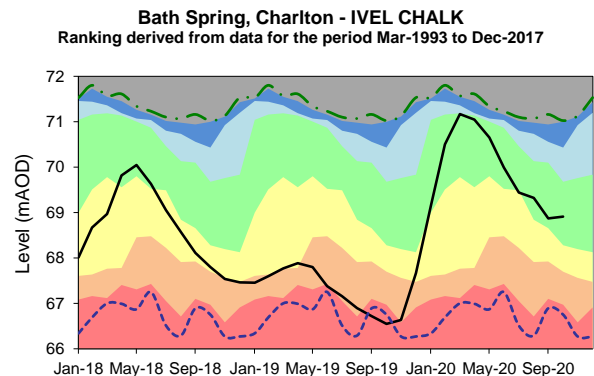
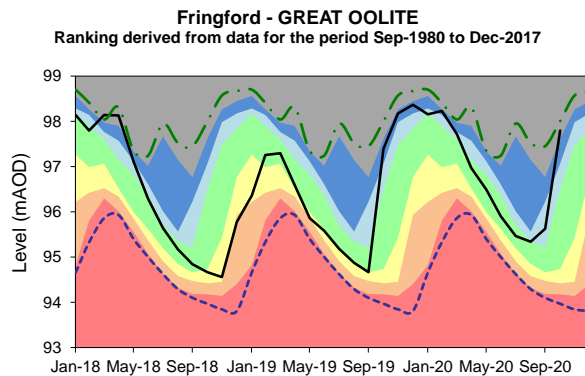
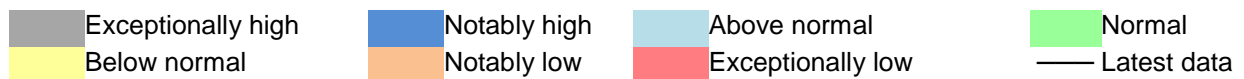
- Exceptionally high
- Notably high
- Above normal
- Normal
- Below normal
- Notably low
- Exceptionally low
- No data

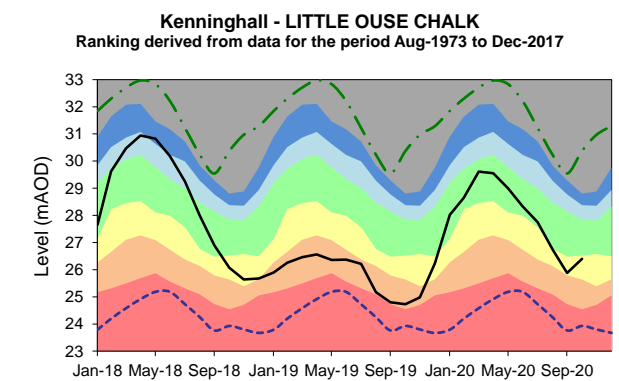
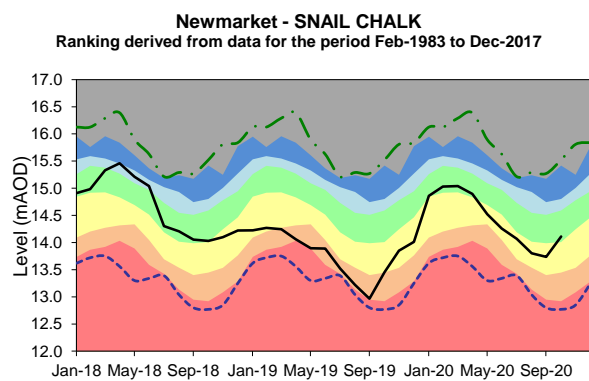
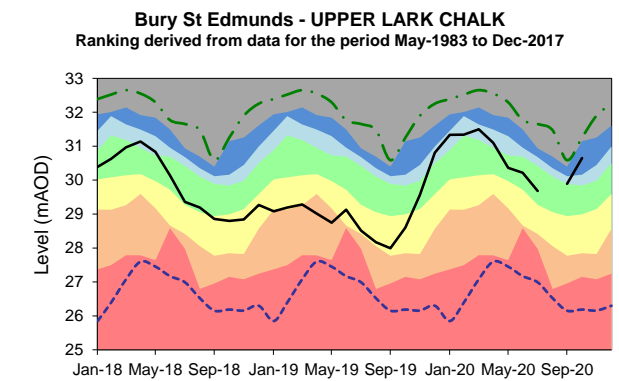
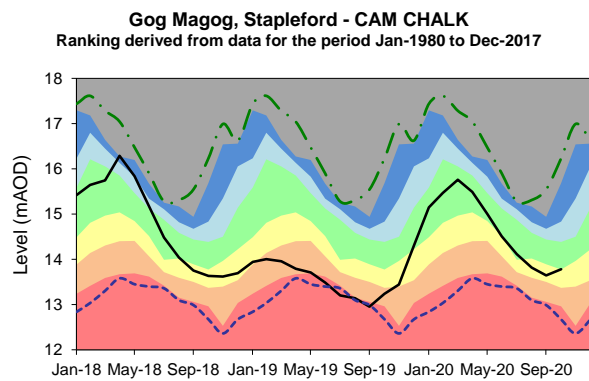
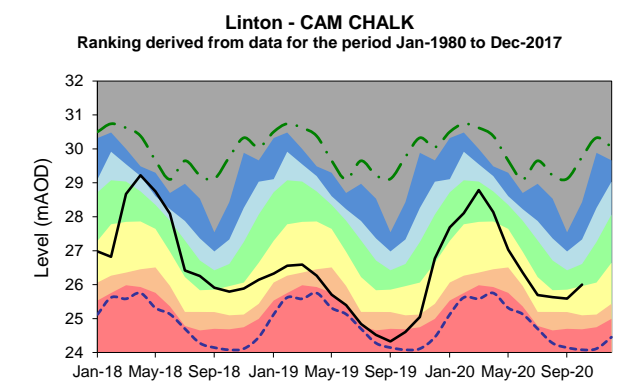
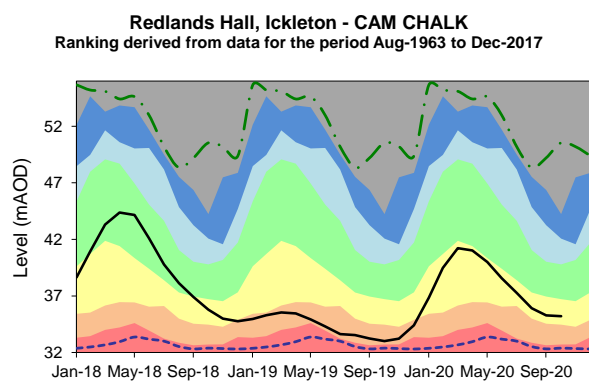
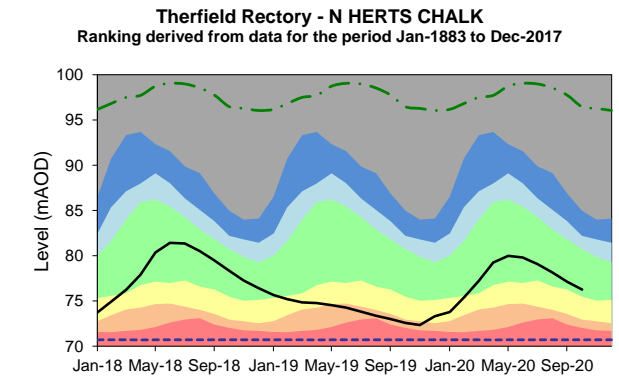
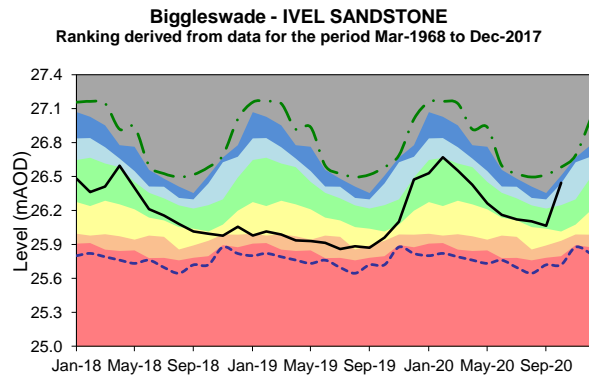
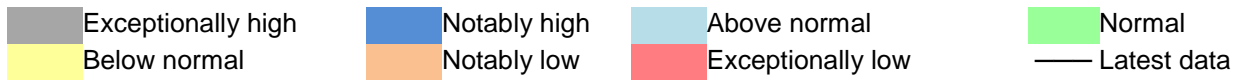
Geology

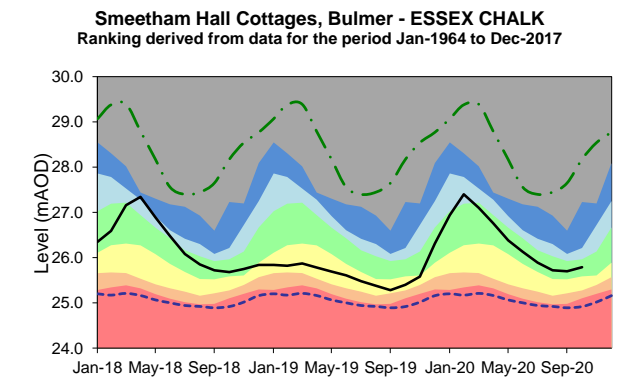
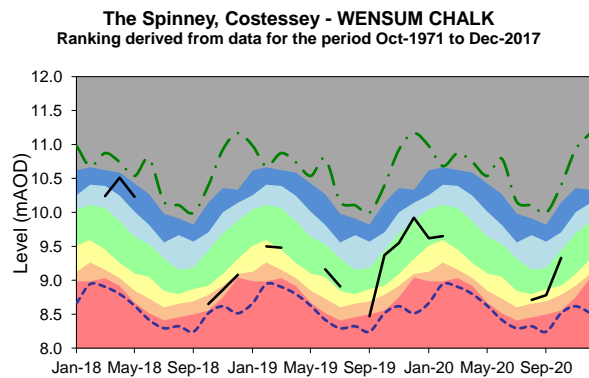
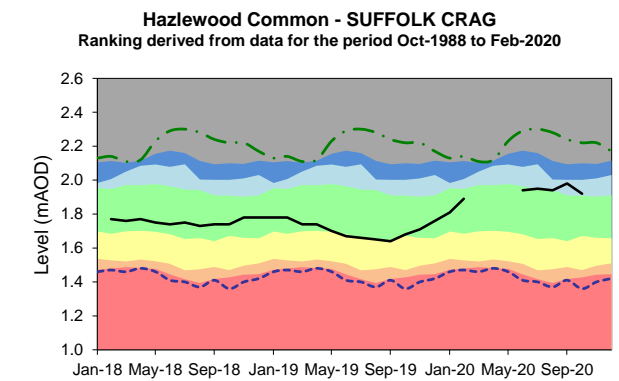
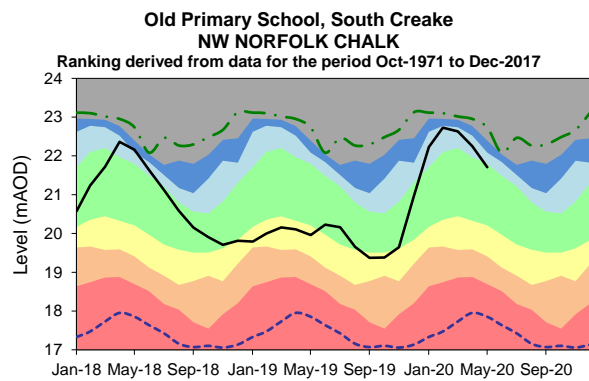
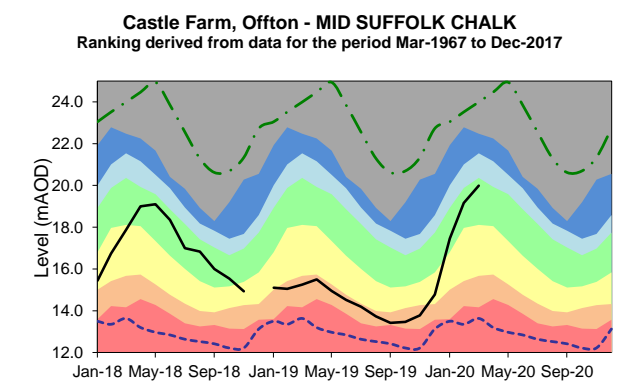
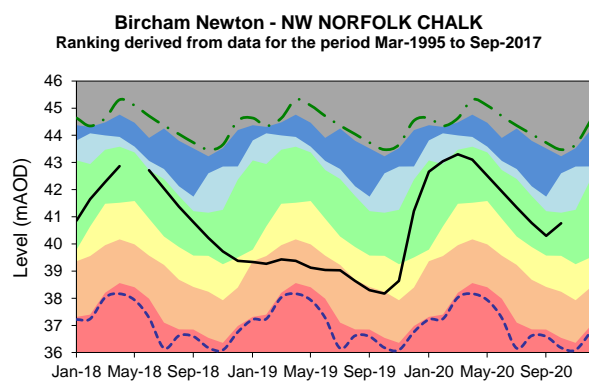
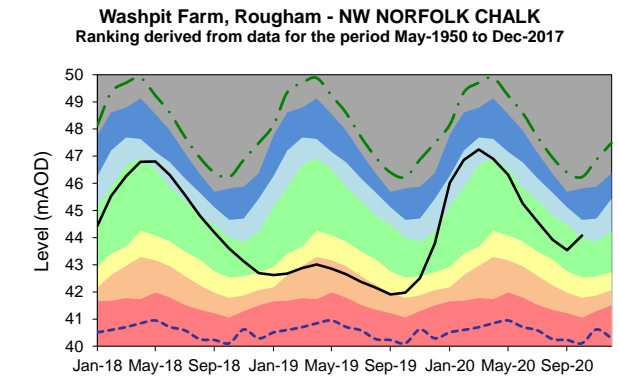
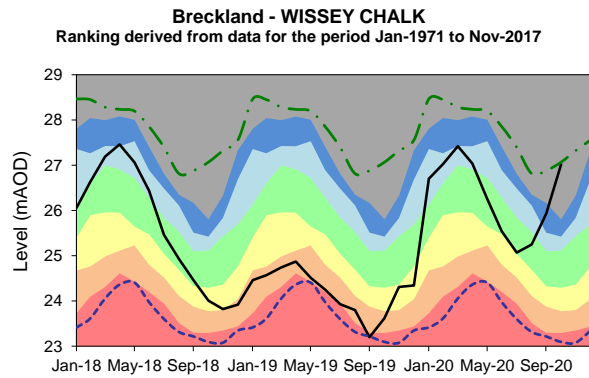
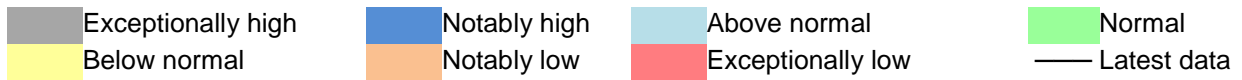
- Oolite (Limestone)
- Greensand/Other Aquifer
- Chalk
- Crag
- Clays/Non Aquifer



Crown copyright. All rights reserved.
Environment Agency, 100024198, 2020







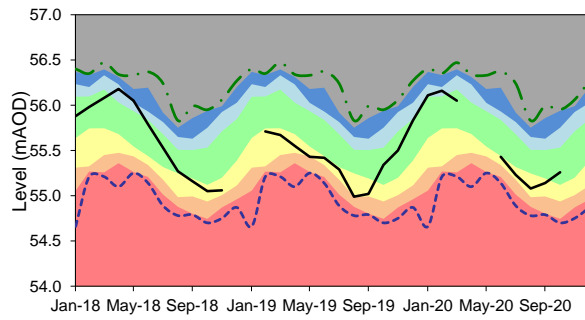
Exceptionally high
Below normal

Notably high
Notably low

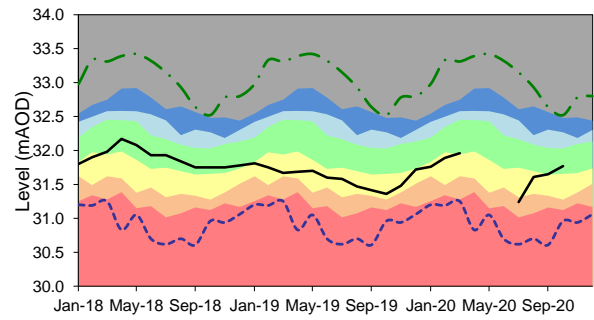
Above normal
Exceptionally low

Normal
Latest data

Hindolveston - NORFOLK CHALK
Ranking derived from data for the period Sep-1984 to Nov-2017

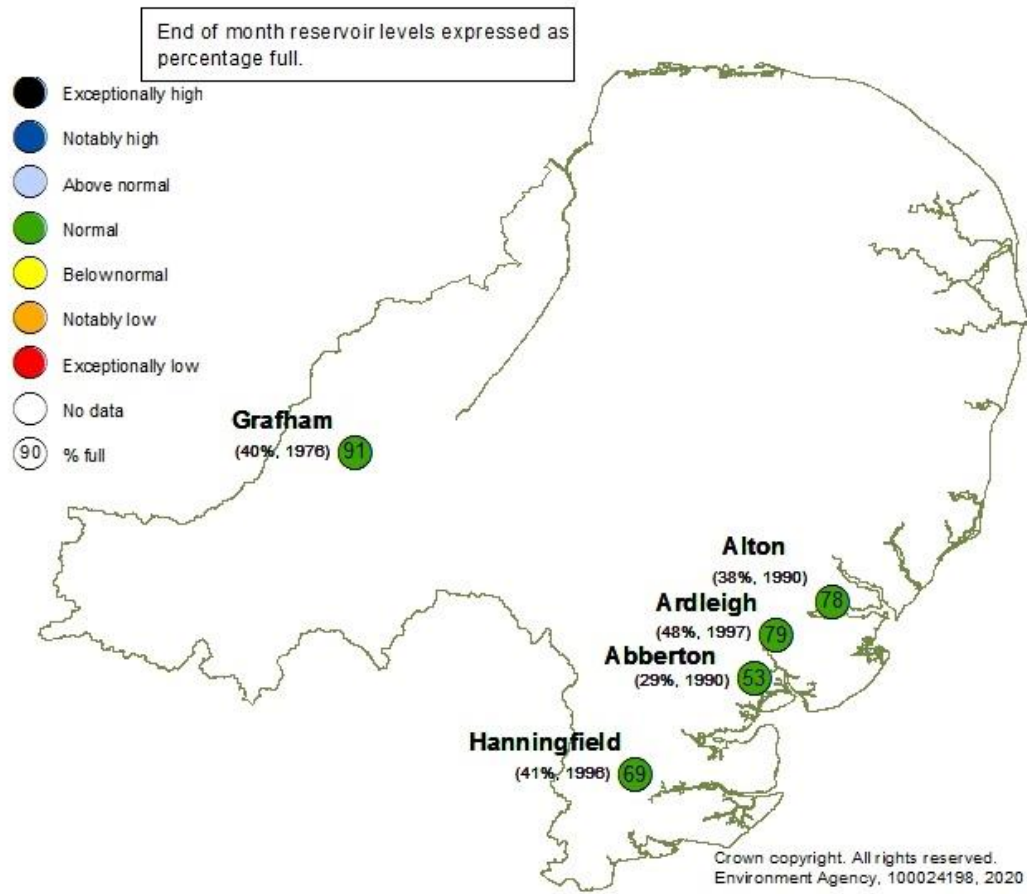


Rook Hall, Braiseworth - SUFFOLK CHALK
Ranking derived from data for the period Jan-1980 to Dec-2017

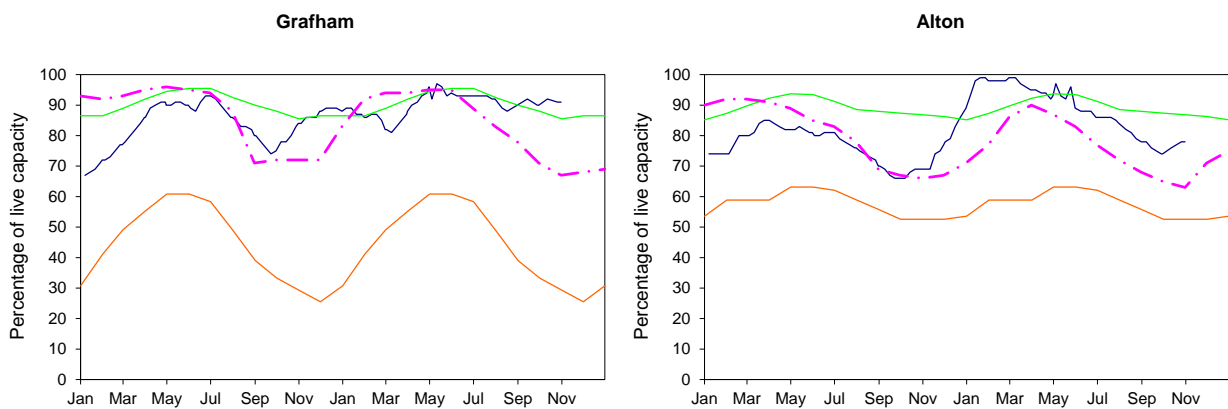


Reservoir Stocks

October 2020



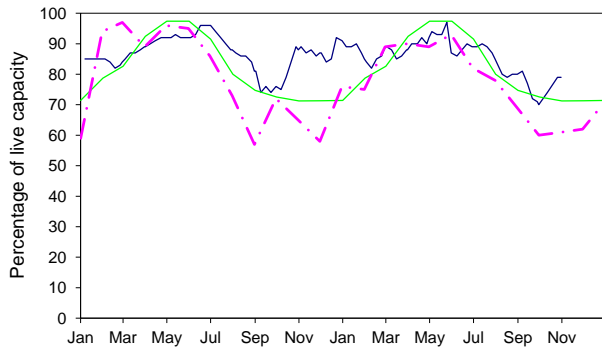
— 2019-2020 — Normal Operating Curve — Drought Alert Curve - - - 1995-1996



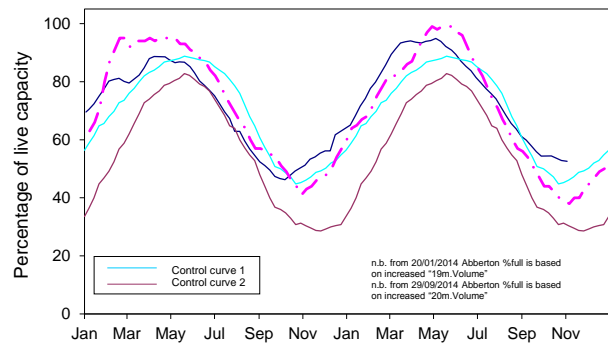
— 2019-2020 — Normal Operating Curve

— Drought Alert Curve - - - 1995-1996

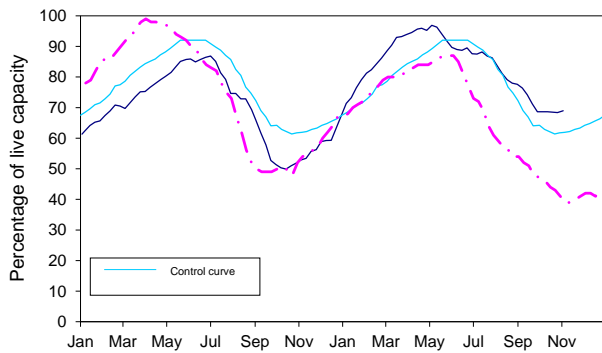
Ardleigh



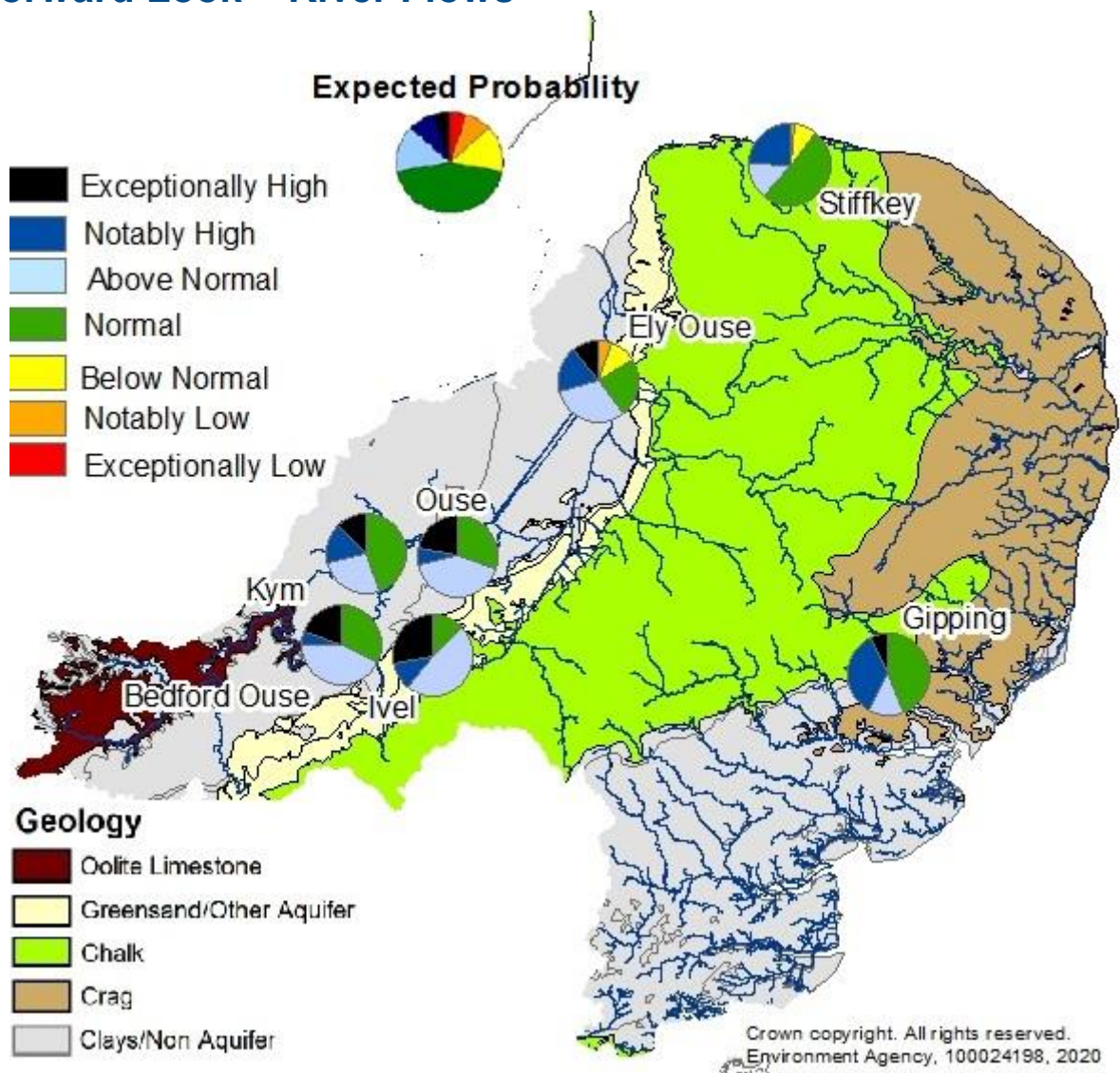
Abberton



Hanningfield



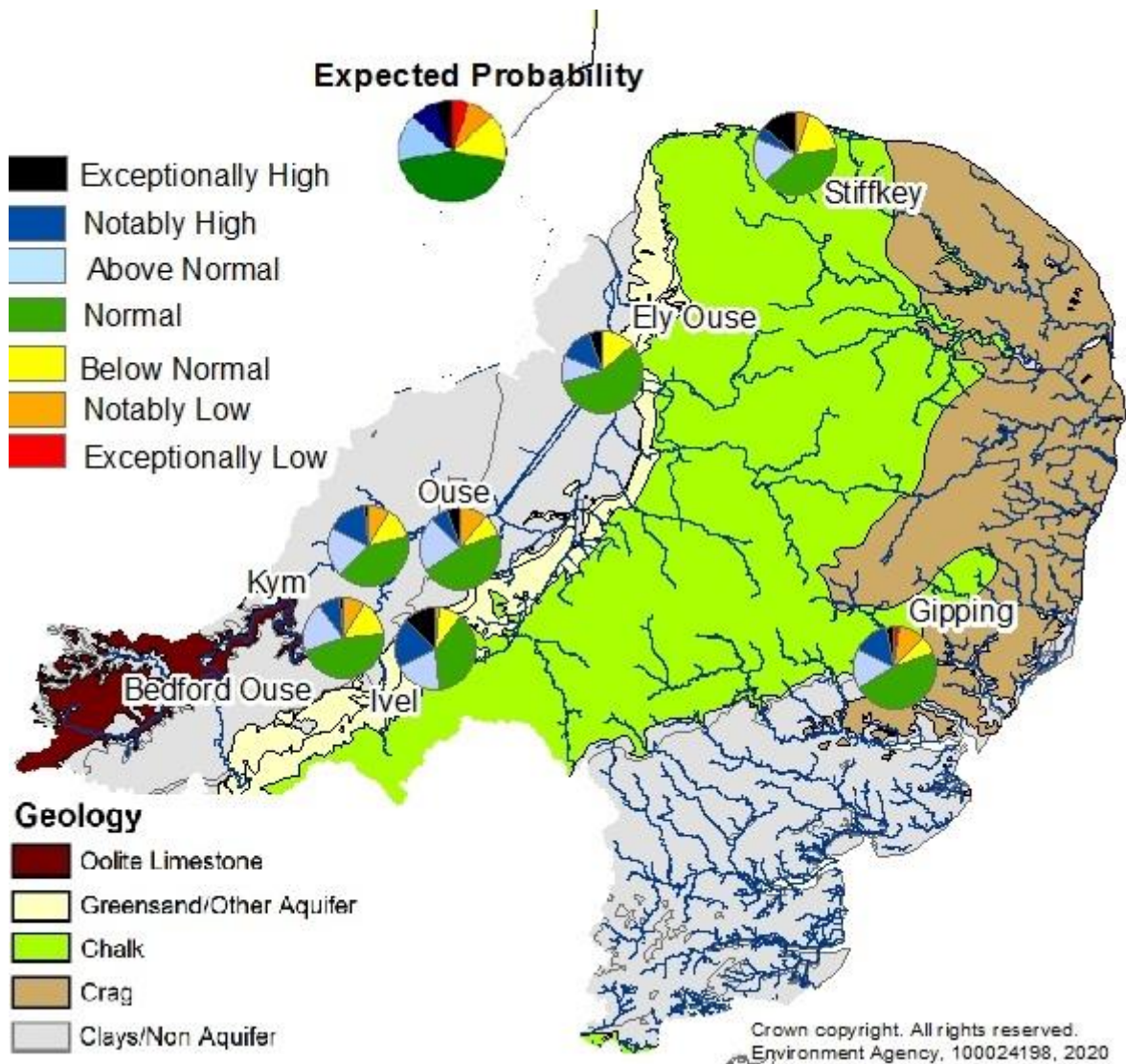
Forward Look – River Flows



Exceptionally high or low levels are those which would typically occur 5% of the time within the historic record. Notably high or low levels are those which would typically occur 8% of the time. Above normal or below normal levels are those which would typically occur 15% of the time. Normal levels are those which would typically occur 44% of the time within the historic record.

Probabilistic ensemble projections of river flows at key indicator sites in December 2020. Pie charts indicate probability, based on climatology, of the surface water flow at each site being e.g. exceptionally low for the time of year. (Source: [Centre for Ecology and Hydrology](#), Environment Agency) Geological map reproduced with kind permission from UK Groundwater Forum, BGS © NERC. Crown copyright. All rights reserved. Environment Agency, 100026380, 2020.

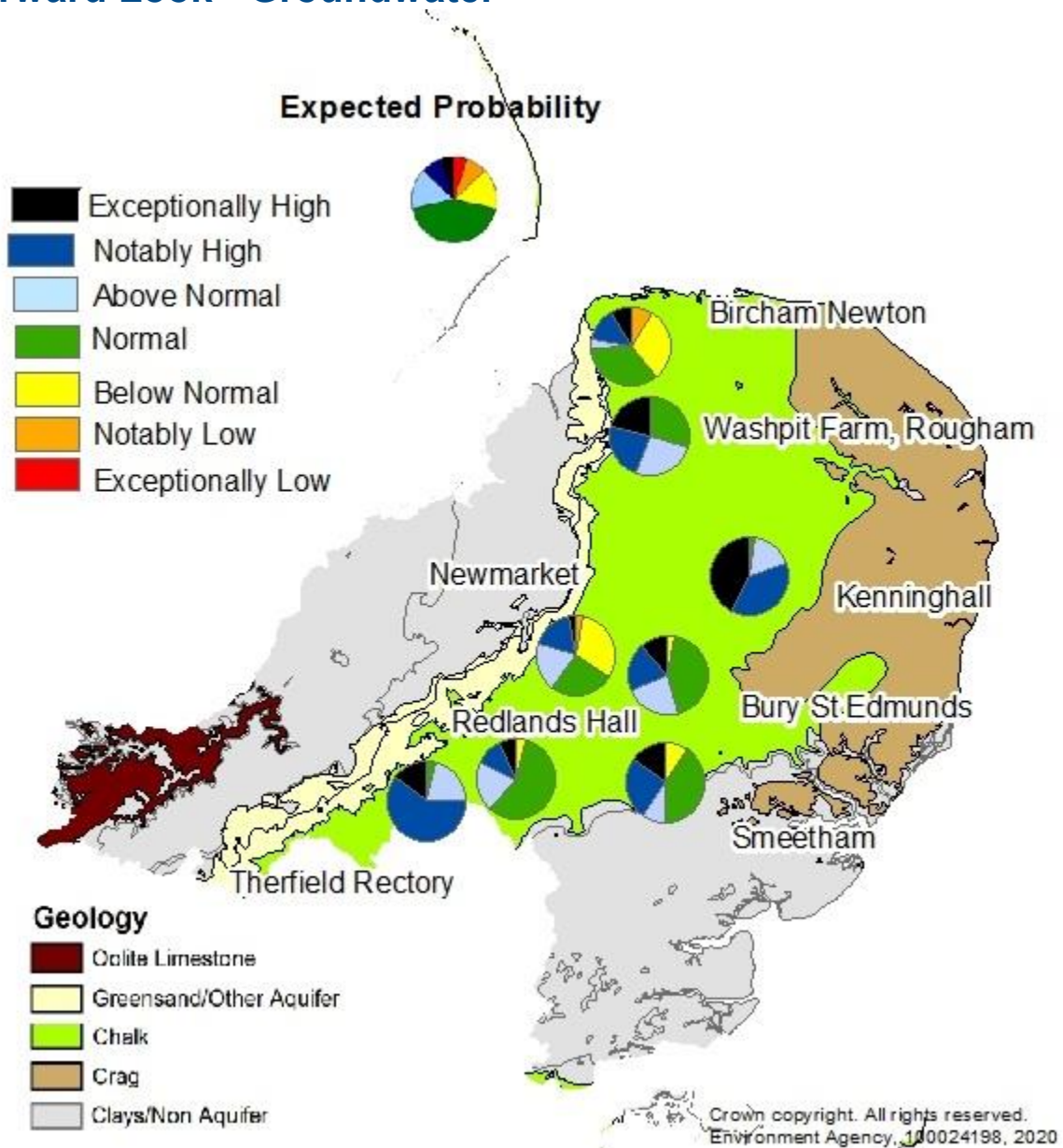
^ "Naturalised" flows are projected for these sites'



Exceptionally high or low levels are those which would typically occur 5% of the time within the historic record. Notably high or low levels are those which would typically occur 8% of the time. Above normal or below normal levels are those which would typically occur 15% of the time. Normal levels are those which would typically occur 44% of the time within the historic record.

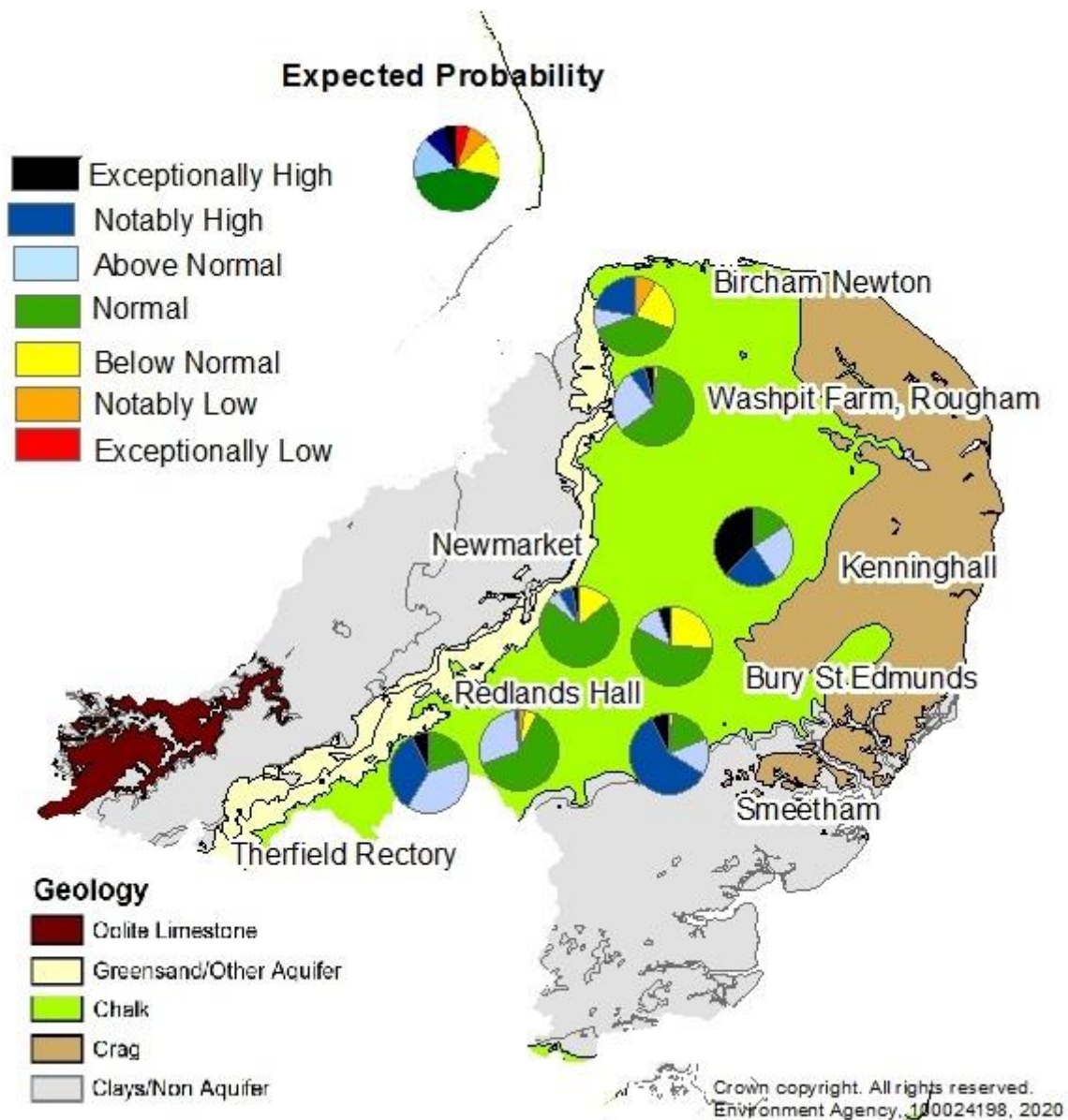
Probabilistic ensemble projections of river flows at key indicator sites in March 2021. Pie charts indicate probability, based on climatology, of the surface water flow at each site being e.g. exceptionally low for the time of year. (Source: [Centre for Ecology and Hydrology](#), Environment Agency) Geological map reproduced with kind permission from UK Groundwater Forum, BGS © NERC. Crown copyright. All rights reserved. Environment Agency, 100026380, 2020

Forward Look - Groundwater



Exceptionally high or low levels are those which would typically occur 5% of the time within the historic record. Notably high or low levels are those which would typically occur 8% of the time. Above normal or below normal levels are those which would typically occur 15% of the time. Normal levels are those which would typically occur 44% of the time within the historic record.

Probabilistic ensemble projections of groundwater levels at key indicator sites for end of March 2021. Pie charts indicate probability, based on climatology, of the groundwater level at each site being e.g. exceptionally low for the time of year. (Source: Environment Agency) Geological map reproduced with kind permission from UK Groundwater Forum, BGS © NERC. Crown copyright. All rights reserved. Environment Agency, 100026380, 2020.



Exceptionally high or low levels are those which would typically occur 5% of the time within the historic record. Notably high or low levels are those which would typically occur 8% of the time. Above normal or below normal levels are those which would typically occur 15% of the time. Normal levels are those which would typically occur 44% of the time within the historic record.

Probabilistic ensemble projections of groundwater levels at key indicator sites for end of September 2021. Pie charts indicate probability, based on climatology, of the groundwater level at each site being e.g. exceptionally low for the time of year. (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)

Categories

Exceptionally high

Notably high

Above normal

Normal

Below normal

Notably low

Exceptionally low

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).

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