

# Hydrological Outlook UK

Period: From July 2019

Issued on 10.07.2019 using data to the end of June 2019

## SUMMARY

The outlook is for below normal river flows in southern and eastern England both in July and for the next three months, while elsewhere river flows are most likely to be normal to above normal in July, and in the normal range over the July-September period. Groundwater levels in the eastern Chalk are likely to be notably low over both the one- and three-month timeframes. Elsewhere, groundwater levels are generally likely to be normal to below normal in July, except for some central and northern areas which may see above normal levels. Normal to below normal levels are likely to predominate over the July-September timeframe.

### Rainfall:

Most of the UK saw substantially above average rainfall in June, and it was exceptionally wet in many areas, with >170% of the typical June rainfall across much of central England and Wales. Only small areas of northwest England and western Scotland saw average or below average rainfall.

The rainfall outlook for July (issued by the Met Office on 27<sup>th</sup> June) indicates wetter-than-average conditions are marginally more likely than drier-than-average. For July-August-September as a whole, the chances of above- and below-average precipitation are similar. The probability that UK-average precipitation for July-August-September will fall into the driest of five equal categories is around 20% and the probability that it will fall into the wettest of five categories is between 15% and 20% (the 1981-2010 probability for each of these categories is 20%).

### River flows:

River flows for June were above normal across northern Britain, Wales and central England, with some exceptionally high flows in the latter which were associated with flooding in some localities (e.g. in Lincolnshire). In southern England and East Anglia flows were typically normal or below.

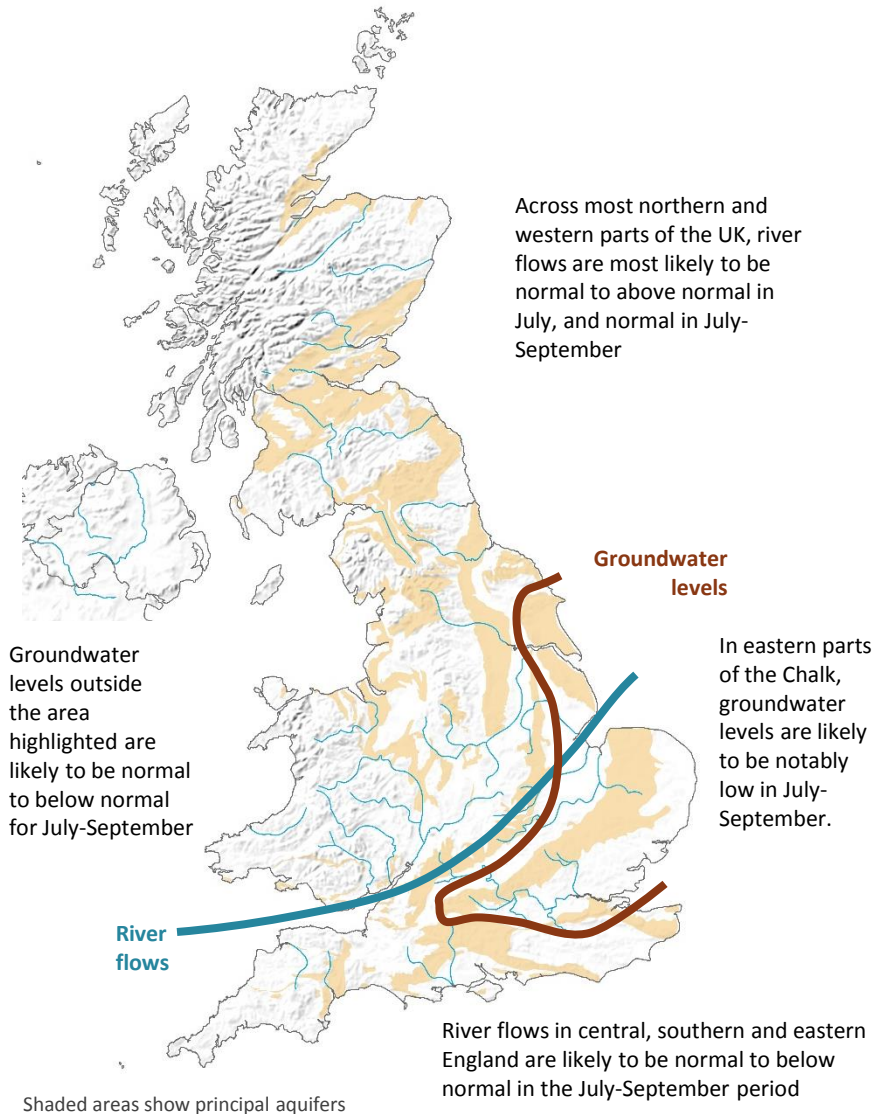
In July, river flows are likely to be in the normal range or above normal in northern and western areas - the highest likelihood of above normal flows is for parts of central England which experienced exceptionally high flows in June. In southern and eastern areas normal to below normal flows are likely, with below normal flows most likely in groundwater-dominated catchments. This north/south contrast is likely to continue for the July-September period, but with normal flows in the north and normal to below normal flows in the south.

### Groundwater:

Groundwater levels for June were in the normal range in some northern boreholes and some areas along the south coast, and were above normal in the Jurassic limestones. Otherwise levels were below normal, with notably low levels across East Anglia and the Chilterns.

In the Chalk of the Chilterns into East Anglia, notably low levels are likely to persist through July and over the July-September timeframe. This forecast includes Lincolnshire and Yorkshire, despite the wet June. Levels in the Chalk in Wessex are likely to return to normal over three months, and along the south coast levels are expected to be in the normal range or below. Levels in the Midlands and north are expected to be above normal in July, but to return to normal in the Midlands over the July-September timeframe.

The Hydrological Outlook UK provides an outlook for the water situation for the UK over the next three months and beyond. For guidance on how to interpret the outlook, a wider range of information, and a full description of underpinning methods, please visit the website: [www.hyoutuk.net](http://www.hyoutuk.net)



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## About the Hydrological Outlook:

This document presents an outlook for the UK water situation for the next 1 – 3 months and beyond, using observational datasets, meteorological forecasts and a suite of hydrological modelling tools. The outlook is produced in a collaboration between the Centre for Ecology and Hydrology (CEH), British Geological Survey (BGS), the Met Office, the Environment Agency (EA), Natural Resources Wales (NRW), the Scottish Environment Protection Agency (SEPA), and for Northern Ireland, the Department for Infrastructure – Rivers (DfIR).

## Data and Models:

The Hydrological Outlook depends on the active cooperation of many data suppliers. This cooperation is gratefully acknowledged. Historic river flow and groundwater data are sourced from the UK National River Flow Archive and the National Groundwater Level Archive. Contemporary data are provided by the EA, SEPA, NRW and DfIR. These data are used to initialise hydrological models, and to provide outlook information based on statistical analysis of historical analogues.

Climate forecasts are produced by the Met Office. Hydrological modelling is undertaken by CEH using the Grid-to-Grid and GR4J hydrological models. Hydrogeological modelling uses the R-groundwater model run by BGS and CATCHMOD run by the EA. Supporting documentation is available from the Outlooks website: <http://www.hydoutuk.net/methods>

## Presentation:

The language used in the summary presented overleaf generally places flows and groundwater levels into just three classes, i.e. below normal, normal, and above normal. However, the underpinning methods use as many as seven classes as defined in the graphic to the right, i.e. the summary uses a simpler classification than some of the methods. On those occasions when it is appropriate to provide greater discrimination at the extremes the terminology and definitions of the seven class scheme will be adopted.

	Percentile range of historic values for relevant month
Exceptionally high flow	> 95
Notably high flow	87-95
Above normal	72-87
Normal range	28-72
Below normal	13-28
Notably low flow	5-13
Exceptionally low flow	< 5

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From April 2018 the CEH contribution to the Hydrological Outlook has been supported by the Natural Environment Research Council funded [UK-SCAPE](#) and [Hydro-JULES](#) Programmes.

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## Further information:

For more detailed information about the Hydrological Outlook, and the derivation of the maps, plots and interpretation provided in this outlook, please visit the Hydrological Outlook UK website.

The website features a host of other background information, including a wider range of sources of information which are used in the preparation of this Outlook.

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## Reference for the Hydrological Outlook:

Hydrological Outlook UK, 2019, July, Centre for Ecology and Hydrology, Oxfordshire UK, Online, <http://www.hydoutuk.net/latest-outlook/>

## Other Sources of Information:

The Hydrological Outlook should be used alongside other sources of up-to-date information on the current water resources status and flood risk.

Hydrological Summary for the UK: provides summary of current water resources status for the UK: <https://nrfa.ceh.ac.uk/monthly-hydrological-summary-uk>

Environment Agency Water Situation Reports: provides summary of water resources status on a monthly and weekly basis for England: <https://www.gov.uk/government/collections/water-situation-reports-for-england>

Flood warnings are continually updated, and should be consulted for an up-to-date and localised assessment of flood risk:

Environment Agency: <https://flood-warning-information.service.gov.uk/map>  
Scottish Environment Protection Agency: <http://www.sepa.org.uk/flooding.aspx>

UK Met Office forecasts for the UK: [www.metoffice.gov.uk/public/weather/forecast/#?tab=regionalForecast](http://www.metoffice.gov.uk/public/weather/forecast/#?tab=regionalForecast)