Monthly water situation report: Lincolnshire and Northamptonshire Area

1 Summary - May 2025

Following a dry start to spring, May continued with lower-than-average rainfall across the Lincolnshire and Northamptonshire area, with totals ranging from 44% to 92% of the long-term average (LTA). Rainfall classifications varied across the six hydrological areas, with normal totals recorded in the Lower Welland and Nene and South Forty Foot and Hobhole, but only notably low totals in the Upper Welland and Nene. Soil moisture deficits (SMD) continued to increase in line with seasonal trends throughout May, although all sites moved from exceptionally high in April to notably high by the end of the month following heavy rain at the end of May.

Groundwater levels at most sites remained stable compared to April, with the exception of Burnham which dropped from normal to below normal. River flow classifications remained largely unchanged since April, with some variation across the region. Notably, Langworth (Barlings Eau) recorded exceptionally low flows for the time of year.

Most reservoirs ended the month slightly below their normal operational curves. The Trent-Witham-Ancholme transfer scheme was operational throughout May, supplying water to both the Witham and Ancholme rivers.

1.1 Rainfall

Rainfall across Lincolnshire and Northamptonshire was below average in May 2025, with just 31 mm recorded (63% of the LTA). Conditions varied by catchment – South Forty Foot and Lower Welland and Nene saw near-average totals, but Upper Welland and Nene remained notably low. The month was dry overall, with most rainfall arriving late.

Spring (March–May) has been particularly dry, with all catchments classified as having exceptionally or notably low rainfall. The regional total of 61 mm makes it the seventh driest spring on record (since 1871), and even more severe locally: the fifth driest for Upper Welland and Nene and Witham to Chapel Hill, and the fourth driest for Louth Grimsby and Ancholme.

Over the past 12 months, rainfall has been normal in most catchments, but Louth Grimsby and Ancholme now shows a below normal annual total.

1.2 Soil moisture deficit and recharge

SMD rose sharply across all catchments during May, consistent with the dry start to the month and their usual seasonal increase. Rainfall towards the end of May caused a brief reduction in SMD, but this was

temporary, and deficits then continued to rise. On average, SMD increased from 67 mm in late April to 108 mm by the end of May, placing it in the notably high category for the time of year.

1.3 River flows

Monthly mean river flows ranged from 23% to 74% of their LTA's. Five of the 10 sites we report on were classified as normal (mostly in the south), while the remaining five ranged from below normal to exceptionally low for the time of year. Most sites maintained the same classification as in April.

However, Barrowden/Tixover declined from below normal to notably low, Wansford normal to below normal, and Langworth (Barlings Eau) notably low to exceptionally low. In contrast, the monthly average flow at Rase Bishopbridge increased from below normal to normal, responding to rainfall at the end of the month.

1.4 Groundwater levels

Following below average rainfall across LNA in May, groundwater level trends continued to decline at all indicator sites, consistent with seasonal expectations. However, banding remained unchanged at all monitored sites compared to the previous month, except for the Chalk at Burnham, which shifted from normal into the below normal classification.

1.5 Reservoir stocks

Reservoir stocks across the area remained generally healthy at the end of May. Pitsford ended the month above its normal operating curve, while Rutland, Ravensthorpe, Hollowell and Covenham were all below their normal operating curves, but comfortably above drought alert levels.

1.6 Environmental impact

The Trent-Witham–Ancholme (TWA) transfer scheme was operating through May, transferring water from both the Witham to the Ancholme and the Trent to the Witham. The Slea Augmentation and Gwash-Glen transfer schemes remained off. During May there were 10 HOFs active: two in the Ancholme catchment; four in the Witham catchment; two in the Nene; and two in the Steeping catchment. There were no flood alerts or warnings issued during May in the Lincolnshire and Northamptonshire area.

1.7 Forward look

1.7.1 Probabilistic ensemble projections for river flows at key sites

June 2025: There is an increased probability of less than normal flows on the Nene, reflecting the continued dry conditions and limited recent rainfall. North Brook is showing an increased chance of normal flows.

September 2025: While the probability pie charts indicate a wide range of potential outcomes, the projections are statistically inconclusive.

1.7.2 Probabilistic ensemble projections for groundwater levels in key aquifers

September 2025: Grainsby is showing a greatly increased probability of normal levels. Horkstow is suggesting a greatly increased chance of below normal levels. There is no forecast for Hanthorpe.

March 2026: Both Grainsby and Horkstow are showing an increased probability of below normal groundwater levels. There is no forecast for Hanthorpe.

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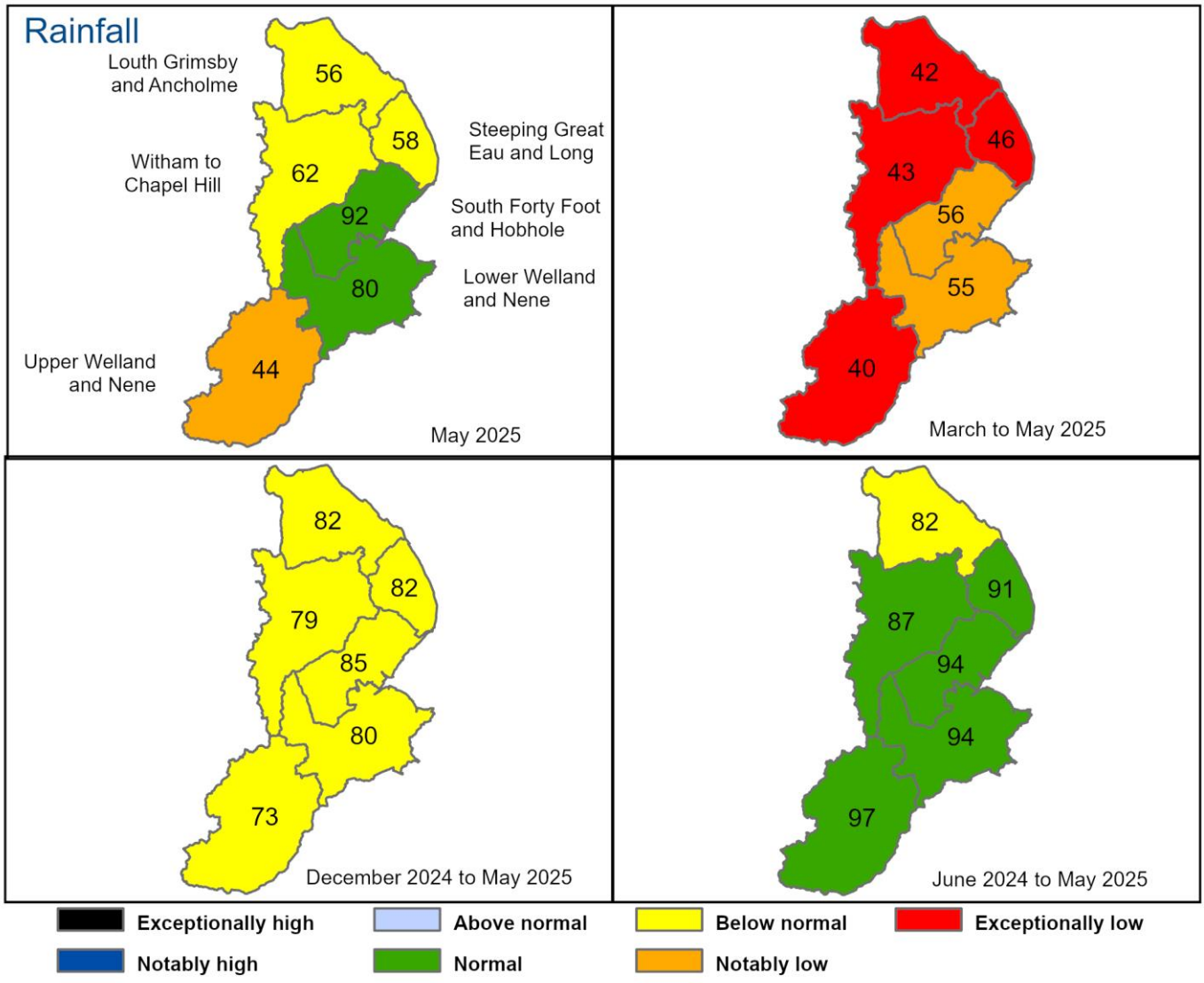
2 Rainfall

2.1 Rainfall map

Figure 2.1: Total rainfall for hydrological areas across Lincolnshire and Northamptonshire, expressed as a percentage of long term average rainfall for the current month (up to 31 May 2025), the last 3 months, the last 6 months, and the last 12 months. Category classes are based on an analysis of respective historic totals. Table available in the appendices with detailed information.

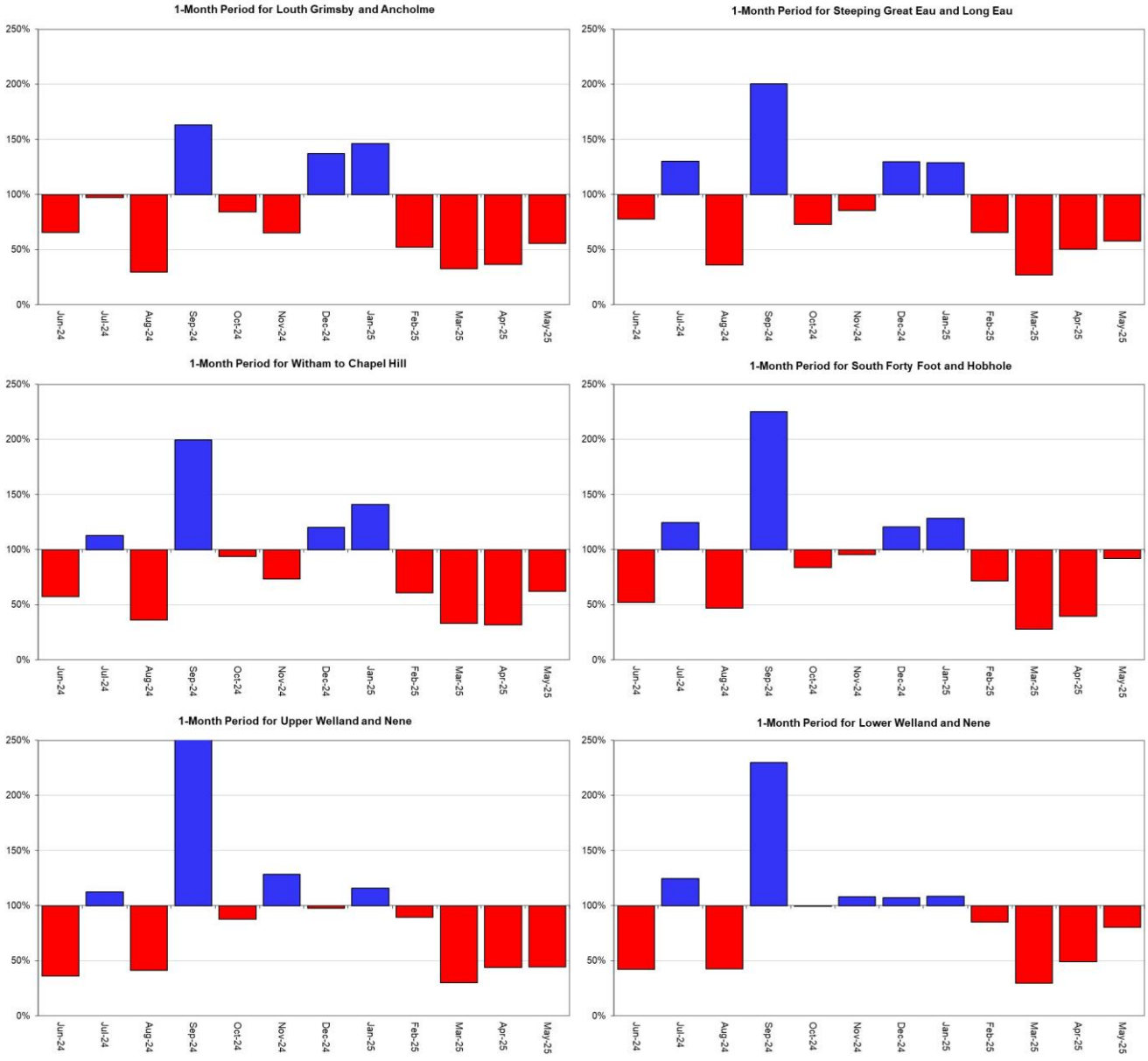


HadUK data based on the Met Office 1km gridded rainfall dataset derived from rain gauges (Source: Met Office. Crown copyright, 2025). Provisional data based on Environment Agency 1km gridded rainfall dataset derived from Environment Agency intensity rain gauges. Crown copyright. All rights reserved. Environment Agency, 100024198, 2025.

2.2 Rainfall charts

Figure 2.2: Monthly rainfall totals for the past 12 months as a percentage of the 1991 to 2020 long term average for each region and for England.

Above average rainfall Below average rainfall

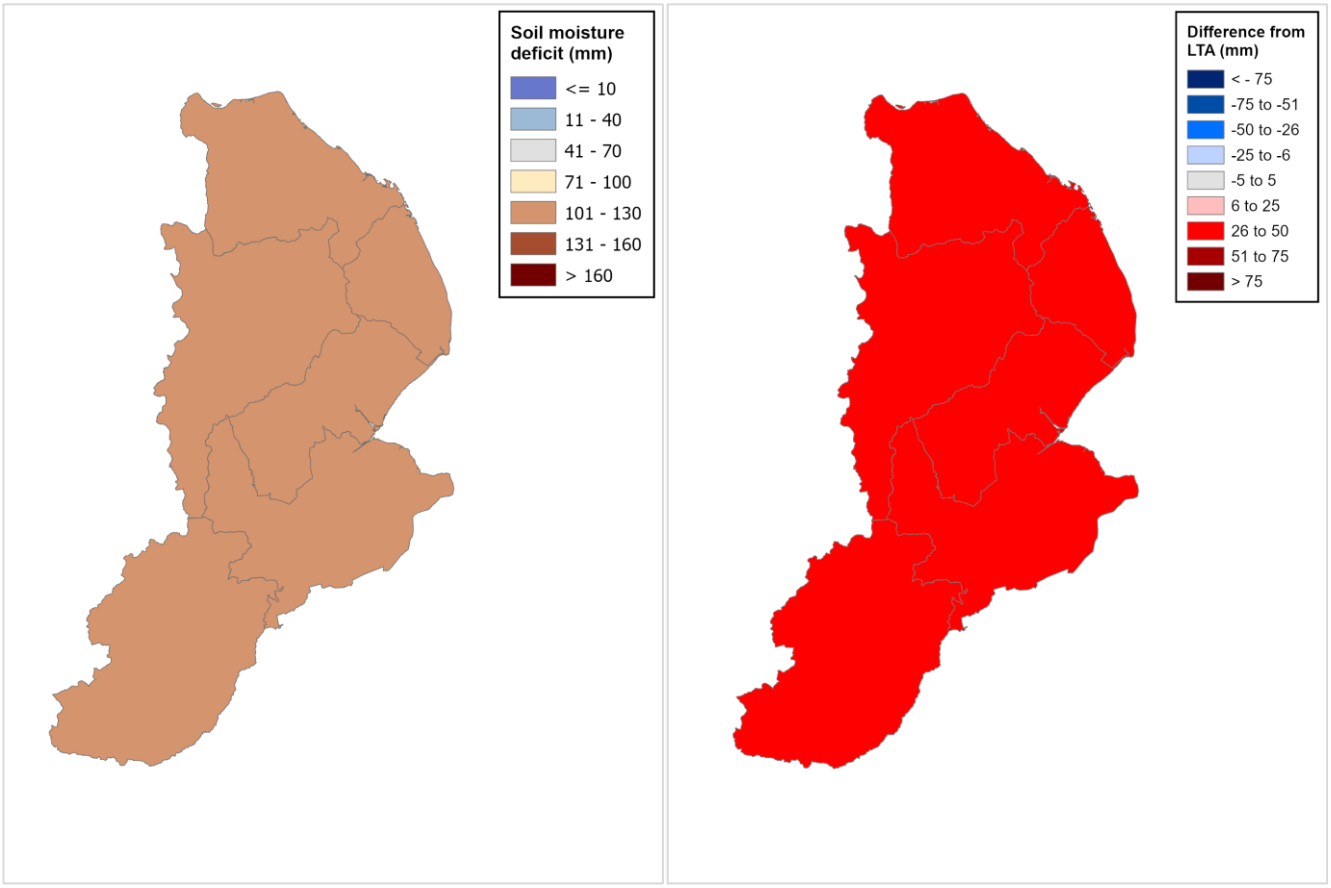


HadUK rainfall data. (Source: Met Office. Crown copyright, 2025).

3 Soil moisture deficit

3.1 Soil moisture deficit map

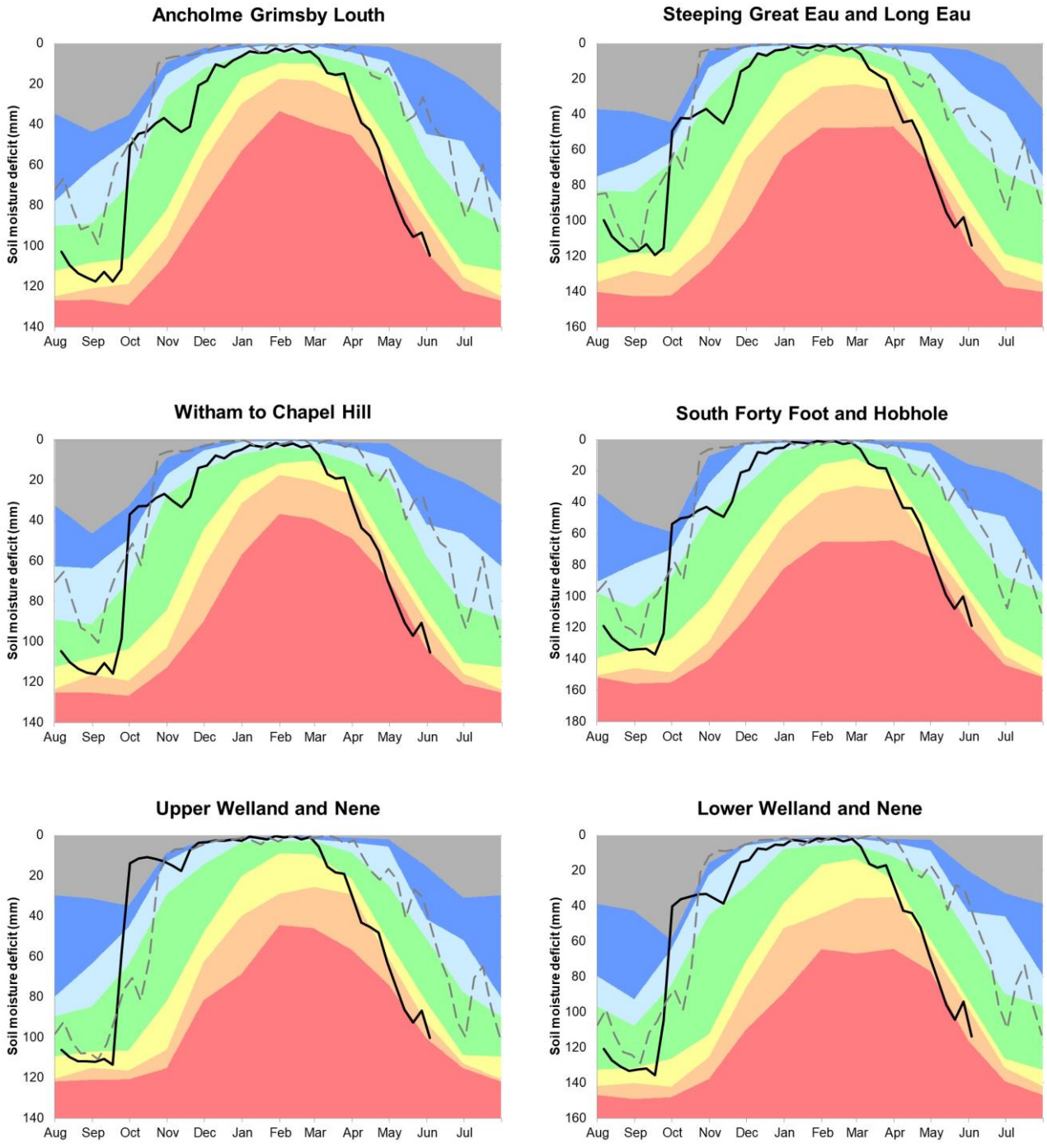
Figure 3.1:Left map shows Soil moisture deficits for weeks ending 31 May 2025. Right map shows the difference (mm) of the actual soil moisture deficit from the 1991 to 2020 long term average soil moisture deficits. MORECS data for real land use.



(Source: Met Office. Crown copyright, 2025). All rights reserved. Environment Agency, 100024198, 2025.

3.2 Soil moisture deficit charts

Figure 3.2: Latest soil moisture deficit compared to previous year, maximum, minimum, and 1991 to 2020 long term average. Weekly MORECS data for real land use.



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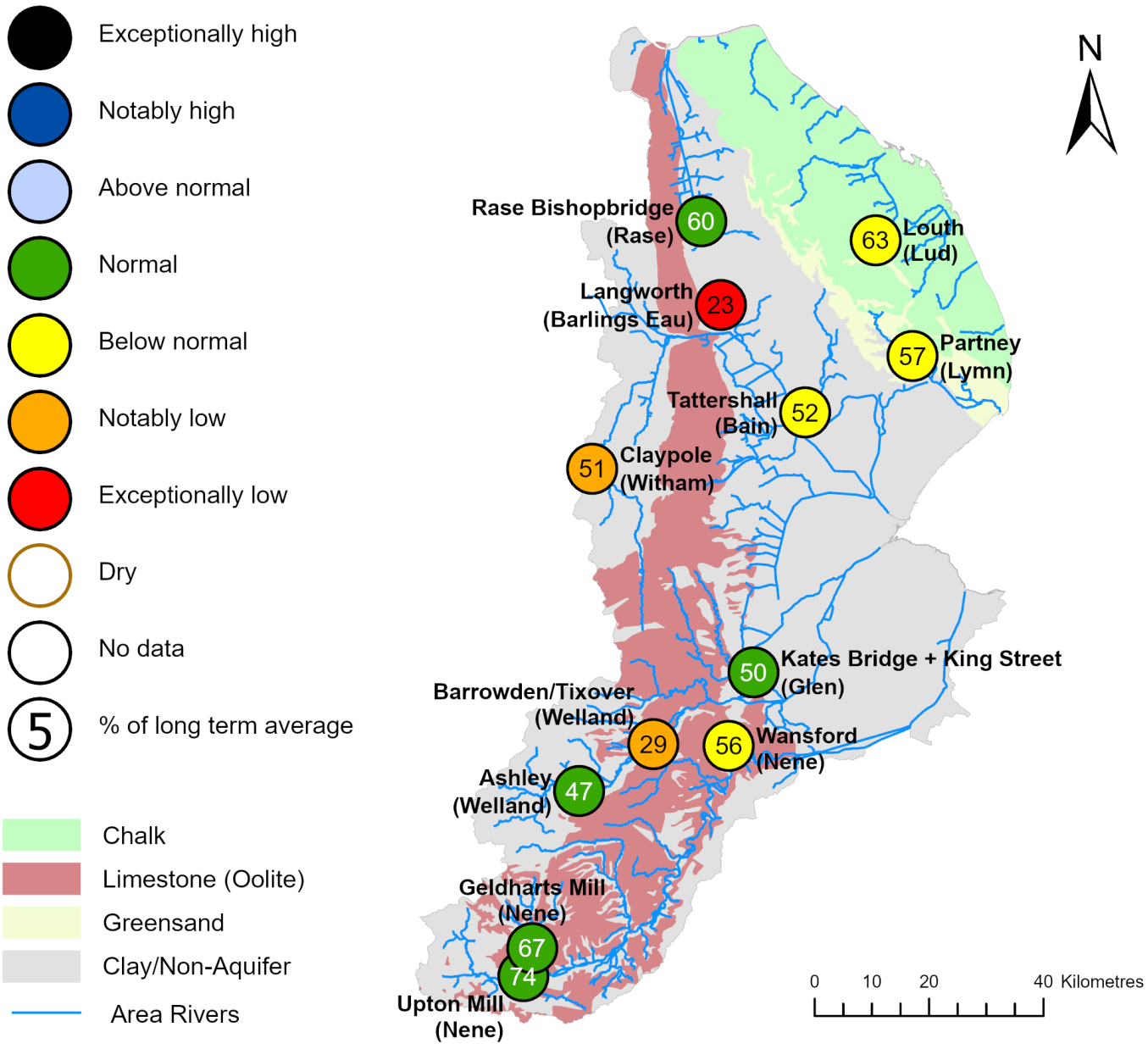
4 River flows

4.1 River flows map

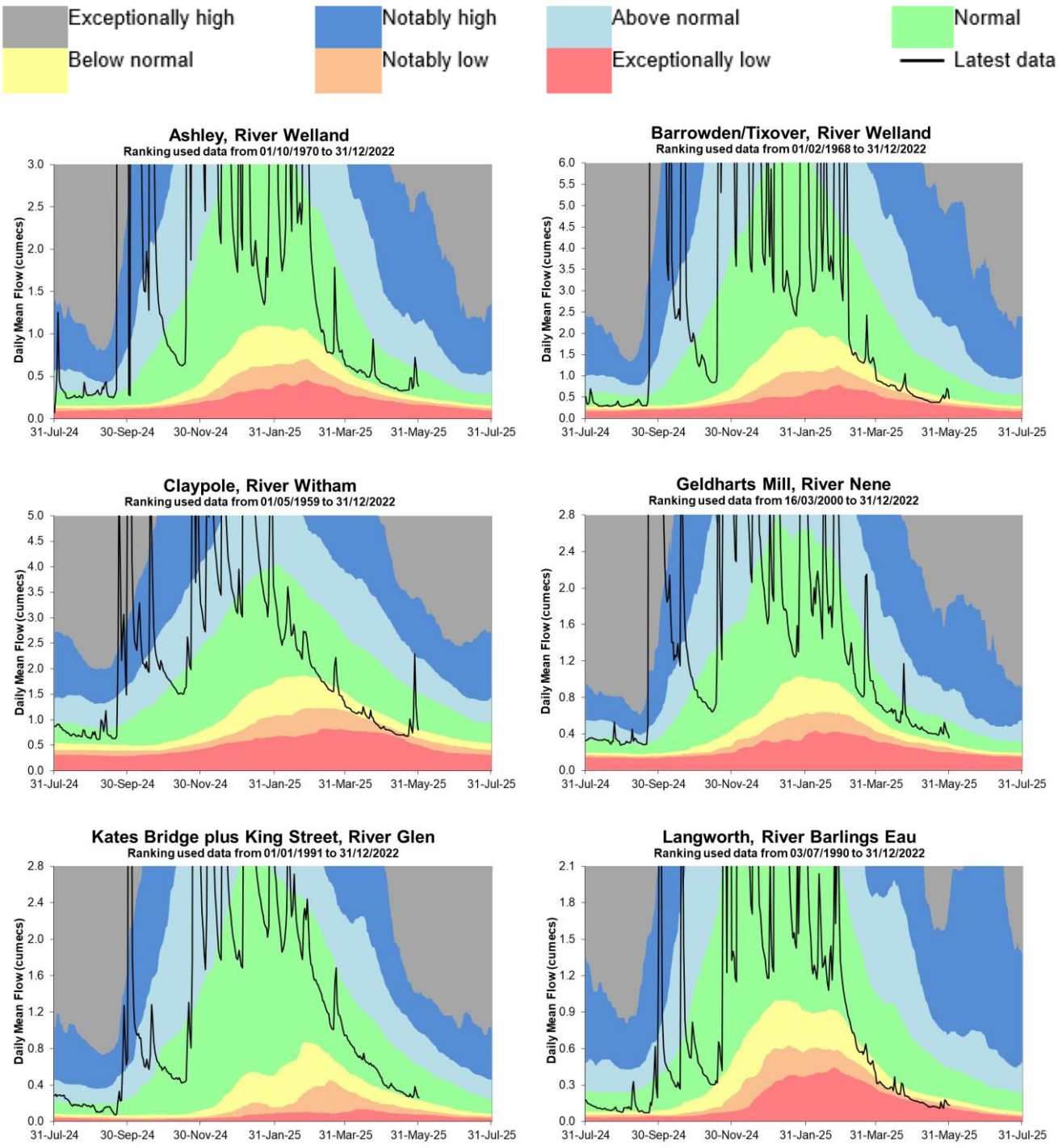
Figure 4.1: Monthly mean river flow for indicator sites for May 2025, expressed as a percentage of the respective long term average and classed relative to an analysis of historic May monthly means Table available in the appendices with detailed information.

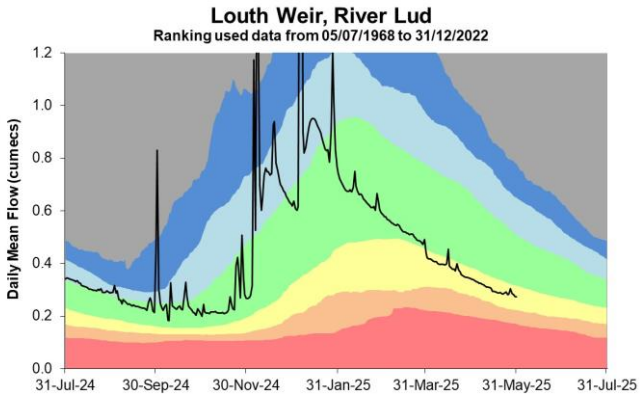


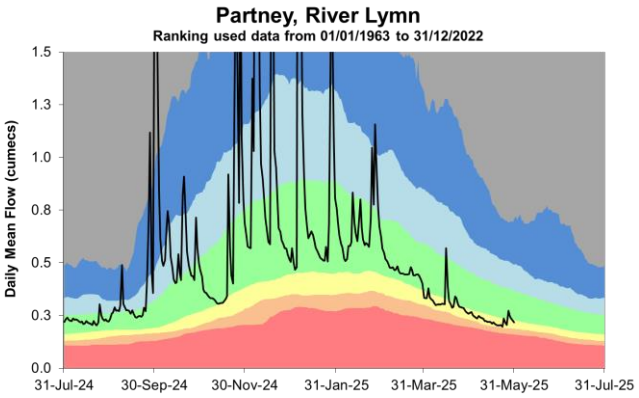
(Source: Environment Agency). Crown copyright. All rights reserved. Environment Agency, 100024198, 2025.

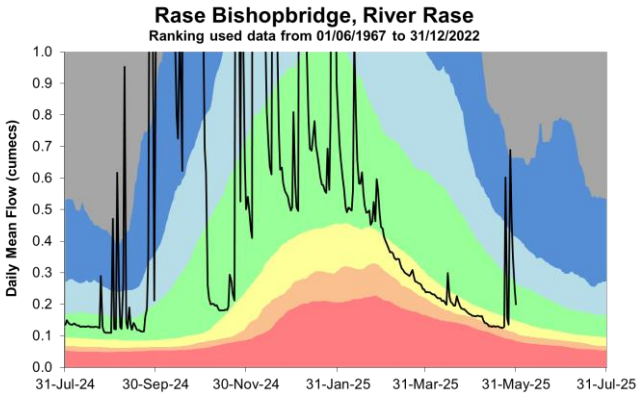
4.2 River flow charts

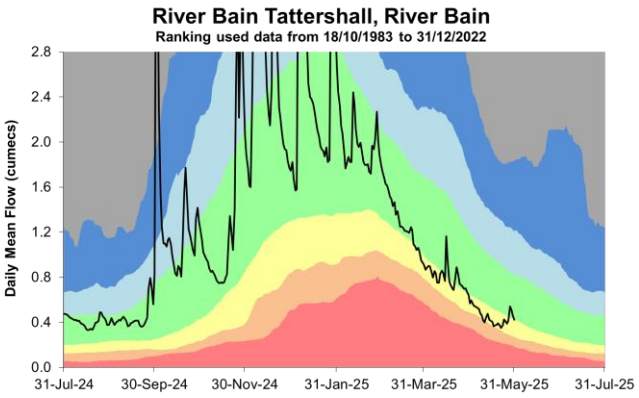
Figure 4.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.

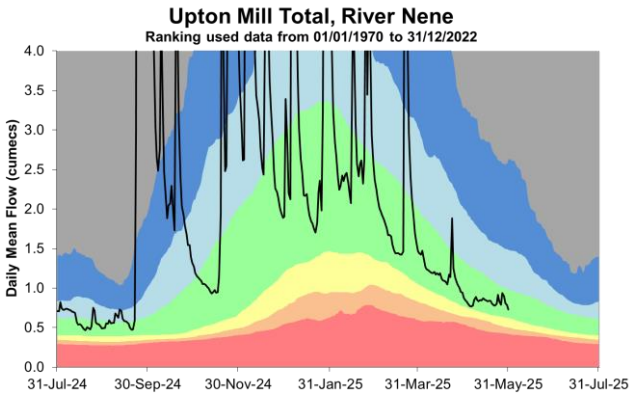


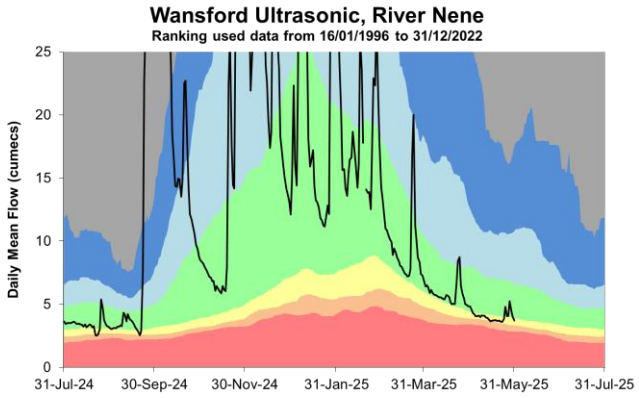










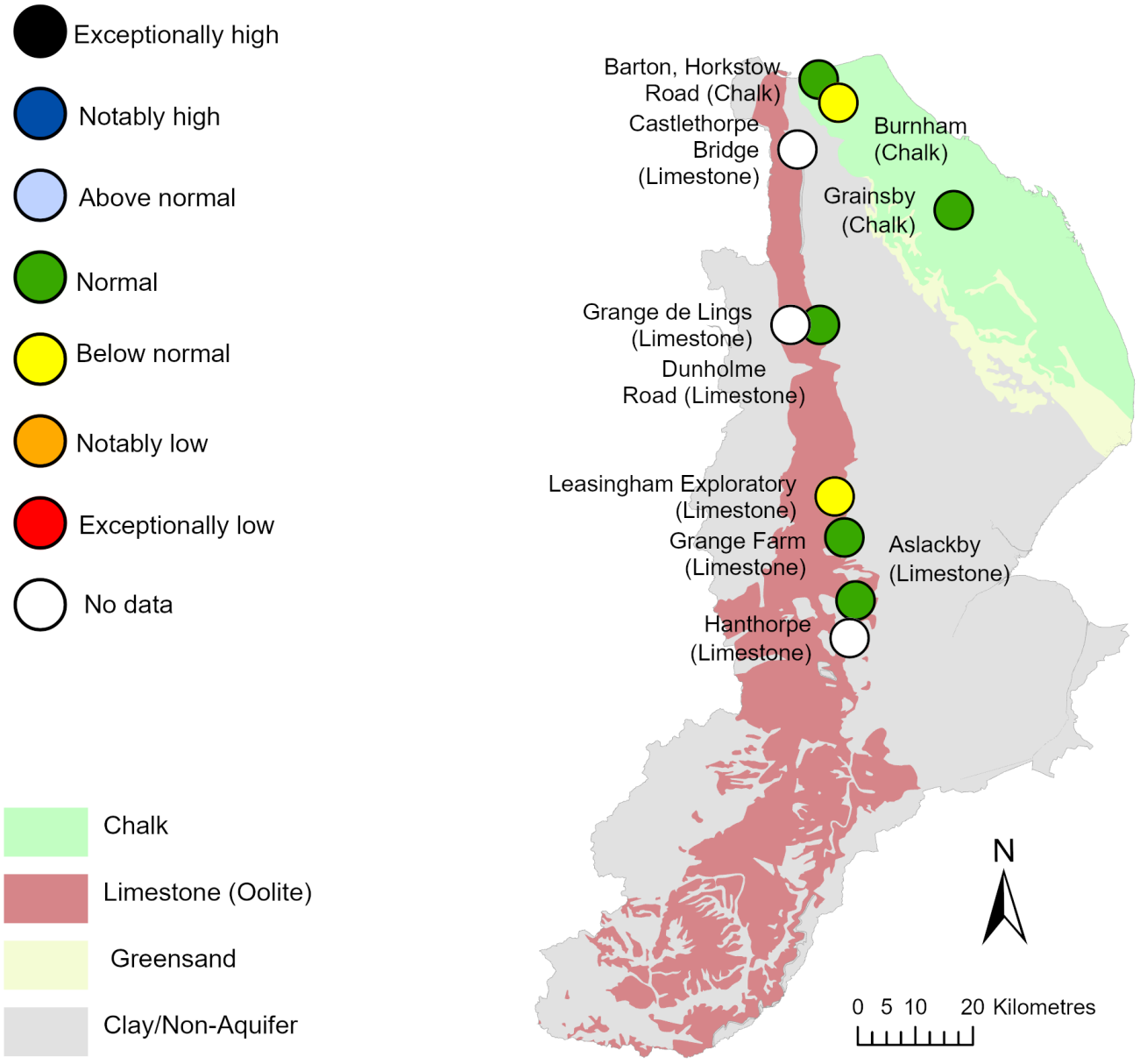


Source: Environment Agency.

5 Groundwater levels

5.1 Groundwater levels map

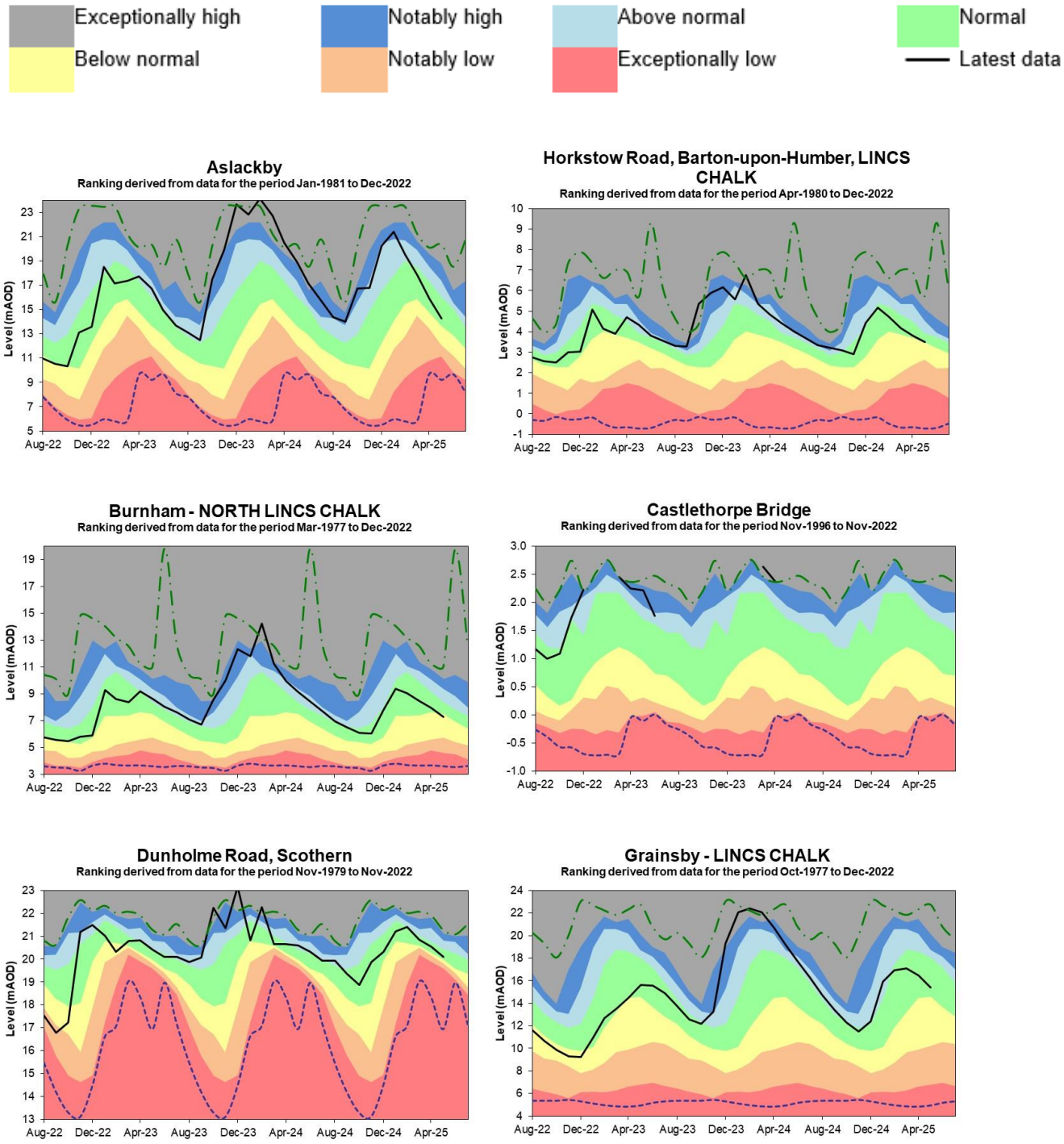
Figure 5.1: Groundwater levels for indicator sites at the end of May 2025, classed relative to an analysis of respective historic May levels. Table available in the appendices with detailed information.

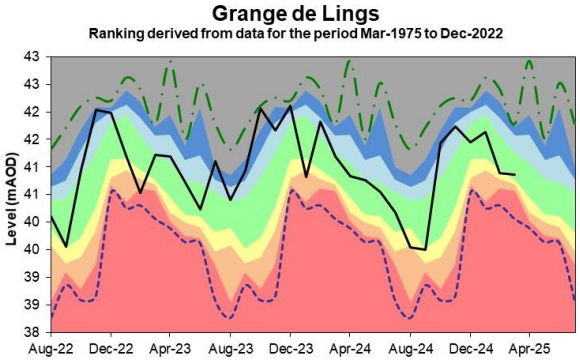


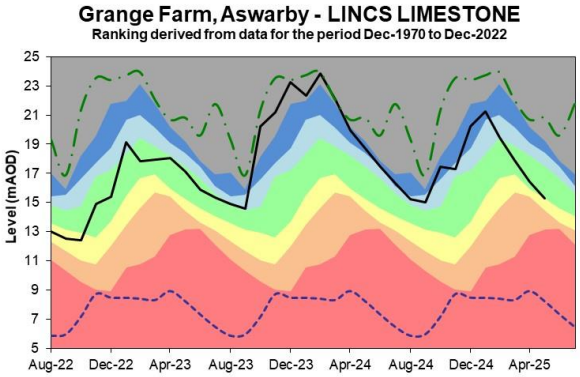
(Source: Environment Agency). Geological map reproduced with kind permission from UK Groundwater Forum, BGS copyright NERC. Crown copyright. All rights reserved. Environment Agency, 100024198, 2025.

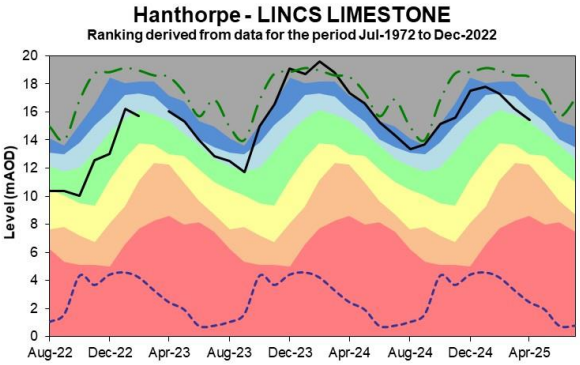
5.2 Groundwater level charts

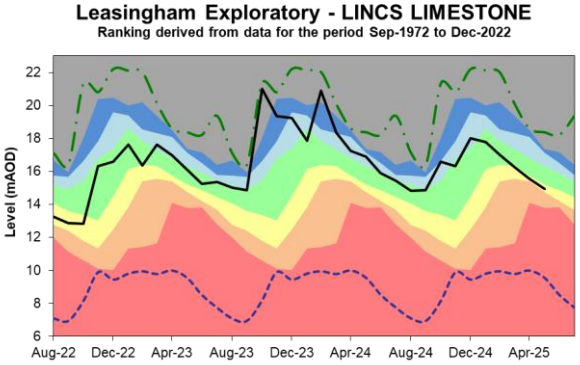
Figure 5.2: End of month groundwater levels at index groundwater level sites for major aquifers. 22 months compared to an analysis of historic end of month levels and long term maximum and minimum levels.







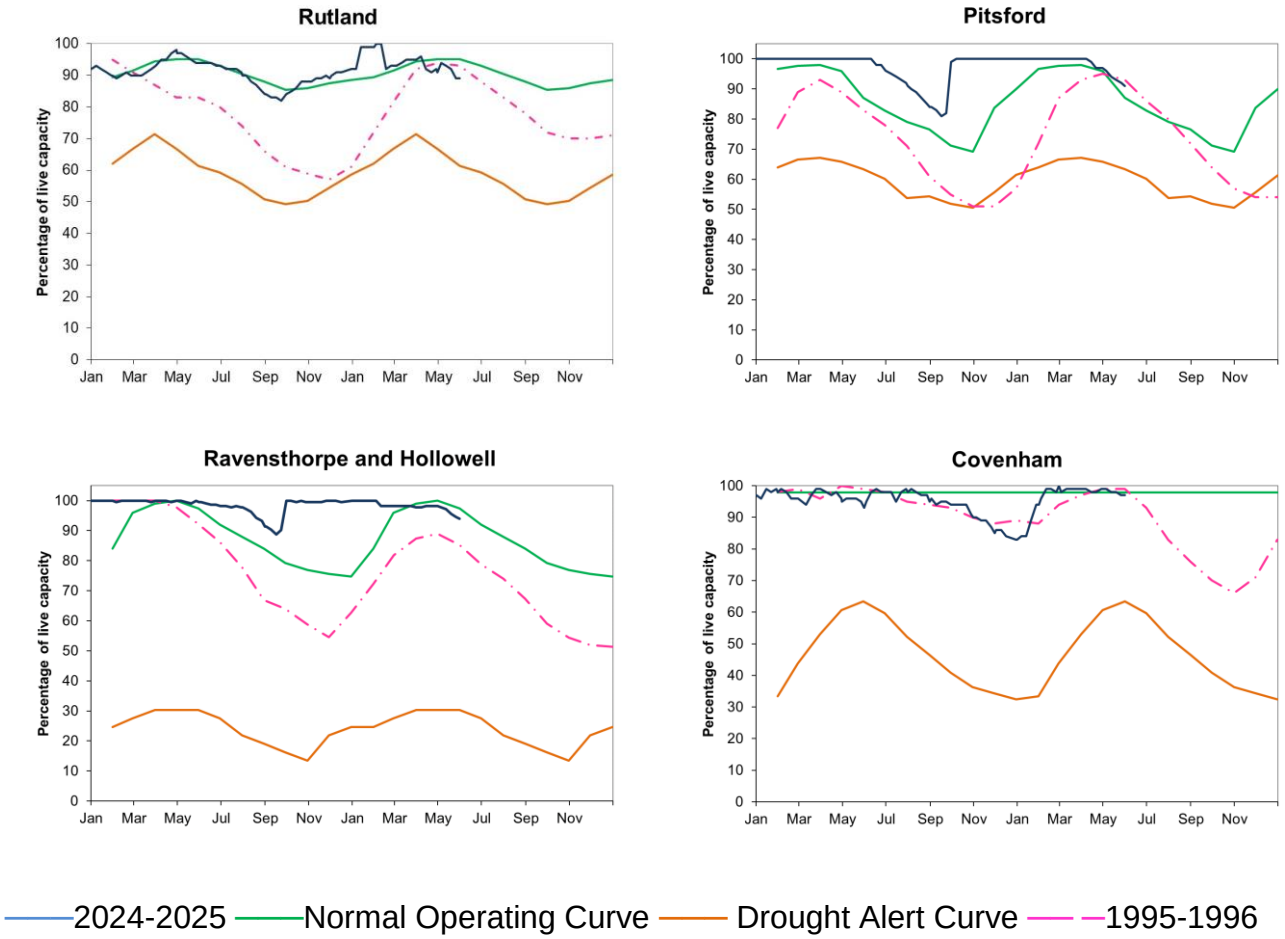




Source: Environment Agency, 2025.

6 Reservoir stocks

Figure 6.1: End of month regional reservoir stocks compared to the normal operating curve, drought curve and dry 1995-1996 stocks. Note: Historic records of individual reservoirs and reservoirs groups making up the regional values vary in length.

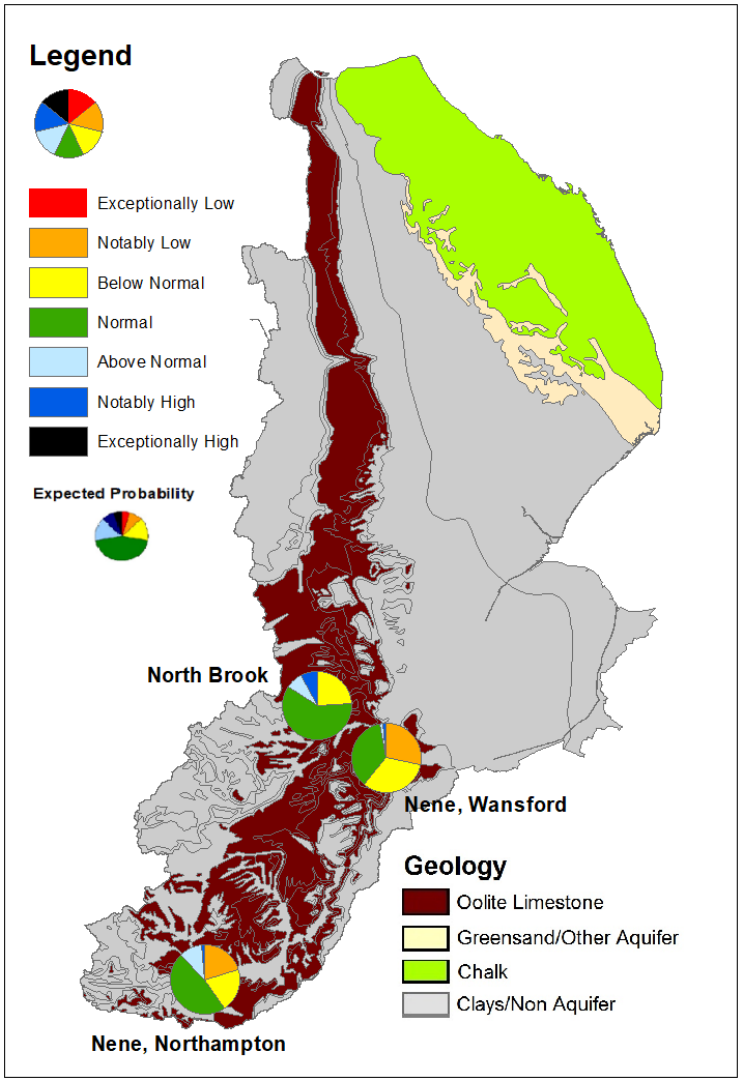


(Source: water companies).

7 Forward Look

7.1 Probabilistic ensemble projection of river flows at key sites in June 2025

Table available in the appendices with detailed information. 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.



Pie charts indicate probability, based on climatology, of the surface water flow at each site being, for example, 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, 2025.

7.2 Probabilistic ensemble projection of river flows at key sites in September 2025

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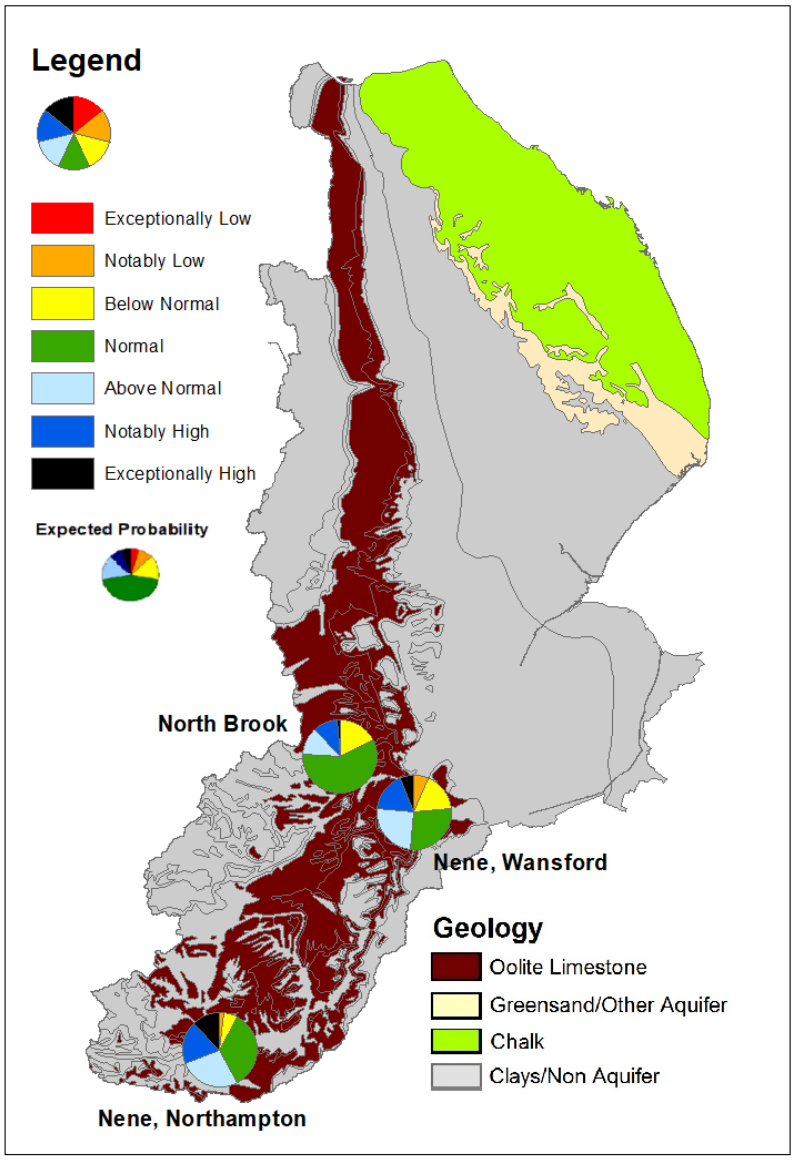

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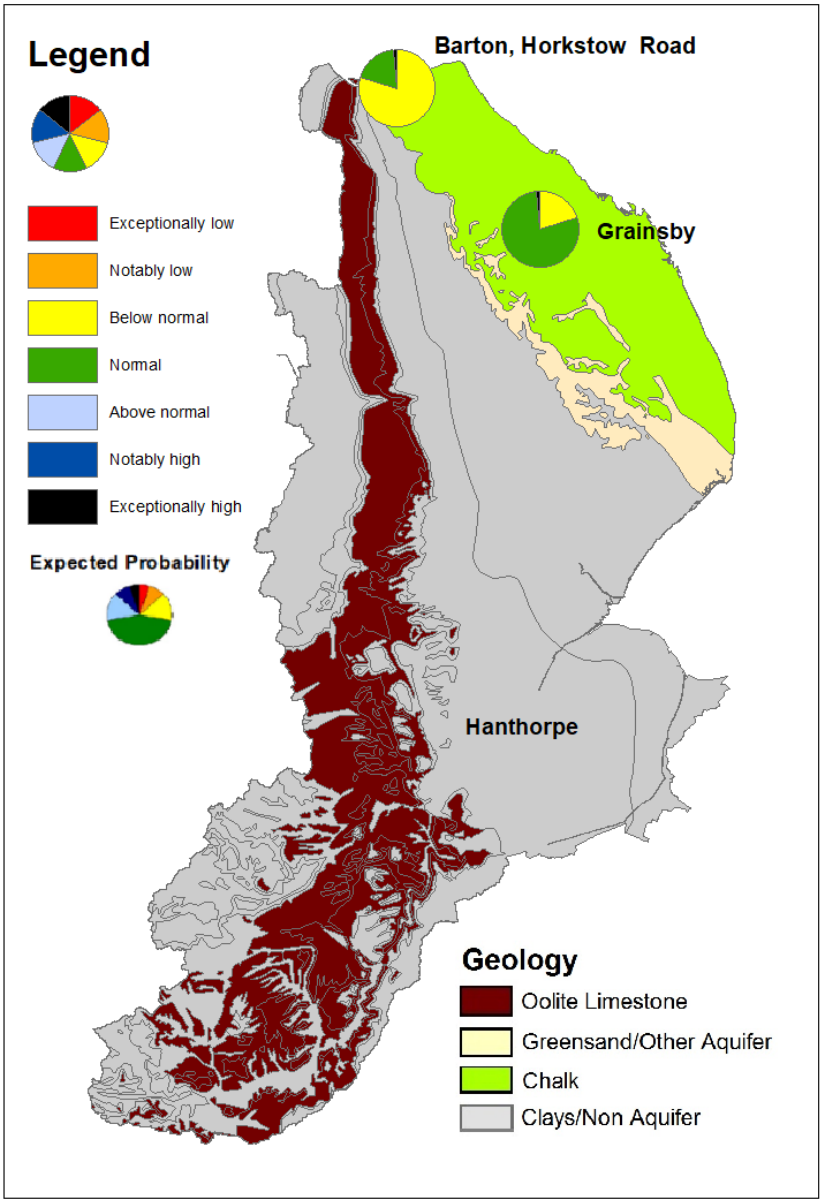
7.3 Probabilistic ensemble projection of groundwater levels at key sites in September 2025

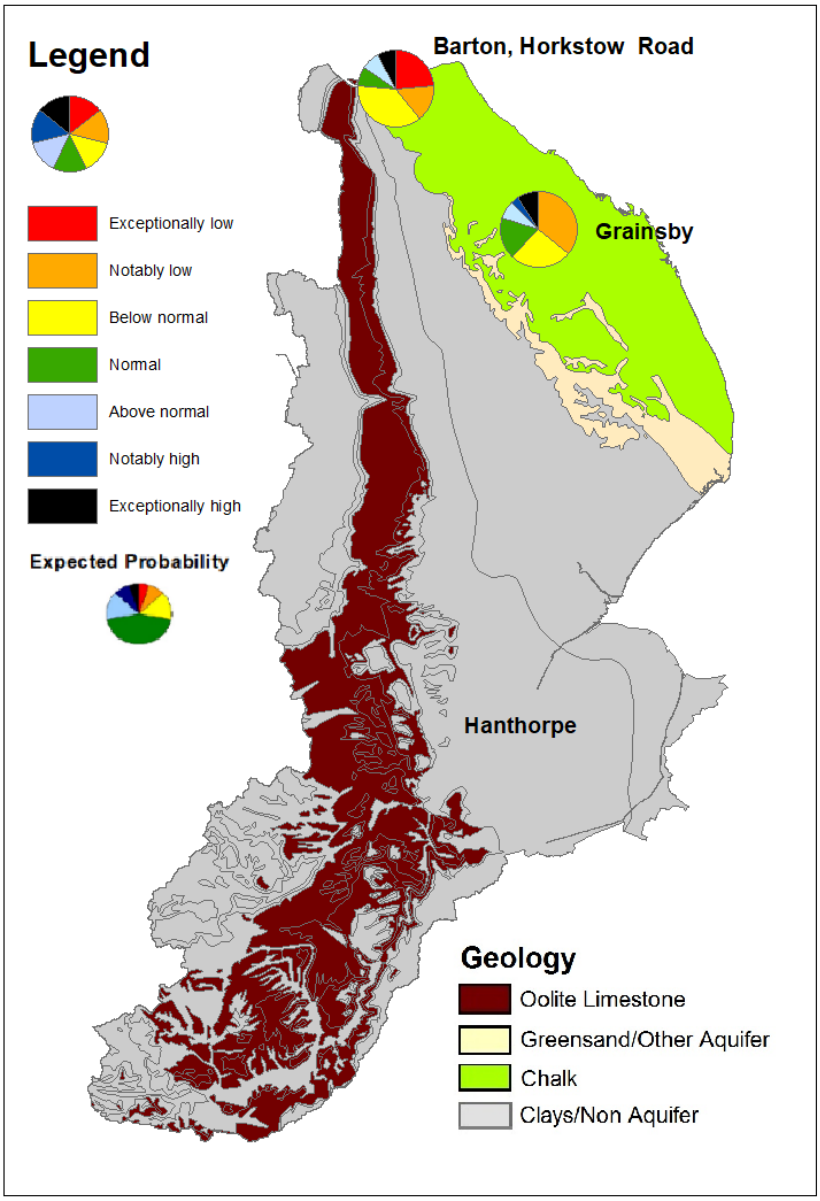
Table available in the appendices with detailed information. Exceptionally high or low levels are those which would typically occur 5% of the time within the historic record. Notably high or low levels are those which would typically occur 8% of the time. Above normal or below normal levels are those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



Pie charts indicate probability, based on climatology, of the groundwater level at each site being, for example, 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, 2025

7.4 Probabilistic ensemble projection of groundwater levels at key sites in March 2026

Table available in the appendices with detailed information. 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.



Pie charts indicate probability, based on climatology, of the groundwater level at each site being, for example, 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, 2025

8 Glossary

8.1 Terminology

Aquifer

A geological formation able to store and transmit water.

Areal average rainfall

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

Artesian

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.

Artesian borehole

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

Cumecs

Cubic metres per second (m^{3s-1}).

Effective rainfall

The rainfall available to percolate into the soil or produce river flow. Expressed in depth of water (mm).

Flood alert and flood warning

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.

Groundwater

The water found in an aquifer.

Long term average (LTA)

The arithmetic mean calculated from the historic record, usually based on the period 1991 to 2020. However, the period used may vary by parameter being reported on (see figure captions for details).

mAOD

Metres above ordnance datum (mean sea level at Newlyn Cornwall).

MORECS

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 by 40 km grid.

Naturalised flow

River flow with the impacts of artificial influences removed. Artificial influences may include abstractions, discharges, transfers, augmentation and impoundments.

NCIC

National Climate Information Centre. NCIC area monthly rainfall totals are derived using the Met Office 5 km gridded dataset, which uses rain gauge observations.

Recharge

The process of increasing the water stored in the saturated zone of an aquifer. Expressed in depth of water (mm).

Reservoir gross capacity

The total capacity of a reservoir.

Reservoir live capacity

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 (for example, storage held back for emergency services, operating agreements or physical restrictions). May also be referred to as ‘net’ or ‘deployable’ capacity.

Soil moisture deficit (SMD)

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).

8.2 Categories

Exceptionally high

Value likely to fall within this band 5% of the time.

Notably high

Value likely to fall within this band 8% of the time.

Above normal

Value likely to fall within this band 15% of the time.

Normal

Value likely to fall within this band 44% of the time.

Below normal

Value likely to fall within this band 15% of the time.

Notably low

Value likely to fall within this band 8% of the time.

Exceptionally low

Value likely to fall within this band 5% of the time.

9 Appendices

9.1 Rainfall table

Hydrological area	May 2025 rainfall % of long term average 1991 to 2020	May 2025 band	Mar 2025 to May cumulative band	Dec 2024 to May cumulative band	Jun 2024 to May cumulative band
Louth Grimsby And Ancholme	56	Below Normal	Exceptionally low	Below normal	Below normal
Lower Welland And Nene	80	Normal	Notably low	Below normal	Normal
South Forty Foot And Hobhole	92	Normal	Notably low	Below normal	Normal
Steeping Great Eau And Long Eau	58	Below Normal	Exceptionally low	Below normal	Normal
Upper Welland And Nene	44	Notably Low	Exceptionally low	Below normal	Normal
Witham To Chapel Hill	62	Below Normal	Exceptionally low	Below normal	Normal

9.2 River flows table

Site name	River	Catchment	May 2025 band	Apr 2025 band
Ashley	Welland Mkt.harb-rockinghm	Welland Rockingham	Normal	Normal
Barrowden/tixover	Welland (rockingham To Stamford)	Welland Stamford	Notably low	Below normal
Claypole	Upper Witham	Witham Bargate Upper	Notably low	Notably low
Geldharts Mill	Nene (brampton Branch)	Nene Brampton Bridge	Normal	Normal
Kates Bridge Plus King Street	Glen (an)	Welland and Glen	Normal	Normal
Langworth	Barlings Eau	Barlings Eau	Exceptionally low	Notably low
Louth Weir	Lud	Louth Canal	Below normal	Below normal
Partney	Lymn & Steeping	Lymn Steeping	Below normal	Below normal
Rase Bishopbridge	Ancholme	Ancholme W Mid	Normal	Below normal
River Bain Tattershall	Bain	Bain	Below normal	Below normal

Upton Mill Total	Nene (kislingbury Branch)	Nene Kislingbry Bridge	Normal	Normal
Wansford Combined	Nene (wollaston To Wansford)	Nene Wansford	Below normal	Normal

9.3 Groundwater table

Site name	Aquifer	End of May 2025 band	End of Apr 2025 band
Aslackby	Limestone (cornbrash Formation)	Normal	Normal
Barton-upon-humber	Grimsby Ancholme Louth Chalk	Normal	Normal
Burnham	Grimsby Ancholme Louth Chalk	Below normal	Normal
Castlethorpe Bridge	Grimsby Ancholme Louth Limestone		
Dunholme Road, Scothern	Grimsby Ancholme Louth Limestone	Normal	Normal
Grainsby	Grimsby Ancholme Louth Chalk	Normal	Normal
Grange De Lings	Grimsby Ancholme Louth Limestone		
Grange Farm, Aswarby	Limestone (mudstone - Peterborough Member)	Normal	Normal
Hanthorpe	Limestone (cornbrash Formation)		Above normal
Leasingham Exploratory	Limestone (rutland Formation)	Below normal	Below normal

9.4 Ensemble projections tables

9.4.1 Probabilistic ensemble projection of river flows at key sites in June 2025

Percentage of pie chart for each band

Site	Nene Nton	Nene Wansford	North Brook
Exceptionally low	0.0	0.0	0.0
Notably low	20.3	28.1	0.0
Below normal	20.3	32.8	24.0
Normal	46.9	35.9	60.0
Above normal	10.9	1.6	8.0
Notably high	1.6	1.6	8.0
Exceptionally high	0.0	0.0	0.0

9.4.2 Probabilistic ensemble projection of river flows at key sites in September 2025

Percentage of pie chart for each band

Site	Nene Nton	Nene Wansford	North Brook
Exceptionally low	0.0	0.0	0.0
Notably low	1.6	6.3	0.0
Below normal	6.3	17.2	17.3
Normal	34.4	28.1	58.7
Above normal	26.6	25.0	12.0
Notably high	18.8	17.2	10.7
Exceptionally high	12.5	6.3	1.3

9.4.3 Probabilistic ensemble projection of groundwater levels at key sites in September 2025

Percentage of pie chart for each band

Site	Grainsby	Hanthorpe	Horkstow
Exceptionally low	0.0	0.0	0.0
Notably low	0.0	0.0	0.0
Below normal	0.0	0.0	82.8
Normal	100.0	0.0	15.6
Above normal	0.0	0.0	0.0
Notably high	0.0	0.0	0.0
Exceptionally high	0.0	0.0	1.6

9.4.4 Probabilistic ensemble projection of groundwater levels at key sites in March 2026

Percentage of pie chart for each band

Site	Grainsby	Hanthorpe	Horkstow
Exceptionally low	0.0	0.0	23.4
Notably low	35.9	0.0	15.6
Below normal	26.6	0.0	37.5
Normal	17.2	0.0	7.8
Above normal	7.8	0.0	7.8
Notably high	3.1	0.0	0.0
Exceptionally high	9.4	0.0	7.8