# Monthly water situation report: Lincolnshire and Northamptonshire Area

## 1 Summary - April 2025

April was a dry month with rainfall varying between 33%-44% of the long-term average (LTA) and was classified as notably low to below normal in all the six hydrological units, resulting in an increase in soil moisture deficits (SMD). By the end of April, the area had an SMD of 67mm, which falls within the exceptionally high category for the time of year. Monthly mean river flows ranged from 21% to 77% of the LTA, with classifications ranging from notably low to normal levels. Following the below normal levels of rainfall across LNA in April, the groundwater level trend showed a decline at all indicator sites. All reservoirs ended the month around their normal operational curve, with some slightly above and some slightly below target.

### 1.1 Rainfall

On average, the Lincolnshire and Northamptonshire area received 18mm of rainfall during April, which was 38% of the LTA. April rainfall totals ranged from 33% to 44% of the LTA (14mm to 22mm) and, as such, were banded as notably low or below normal in all six catchments.

Throughout the month frontal system did not give hydrological area rainfall totals higher than 11mm during any single event, with 96% of the month's rainfall total recorded across four days (14,15, 21, and 22). April rainfall showed a slight east-west divide, with eastern catchments generally receiving more rainfall than those in the west of the area.

Following April's rainfall, the 3-month total is now showing that the catchments have received exceptionally low to notably low levels of rainfall (a north-south divide). This is a decrease from March's report, which showed below normal to normal levels of rainfall in all six catchments. The last 6-month rainfall totals showed normal levels in almost all of the hydrological areas (except for the Louth Grimsby and Ancholme and Witham Chapel Hill catchments which showed as below normal in the 6-month map). As a result of these low levels of rainfall in April, the last 12 months' totals displayed normal levels in all of the six hydrological areas.

### 1.2 Soil moisture deficit and recharge

SMD responded in line with the rainfall patterns observed through April. Due to the dry April (and dry March), SMD increased sharply in all six hydrological areas. On average, SMD for the area increased from 16mm at the end of March to 67mm by the end of April. This figure is within the exceptionally high category for the time of year. The SMD difference-to-LTA (mm) map shows

all hydrological areas are in the 26mm to 50mm category, indicating that they are drier than normal for the time of year.

## 1.3 River flows

Monthly mean river flows ranged from 21% to 77% of the LTA, and from notably low to normal classification. In most sites, river flow responded in line with the amount of rainfall received in April. Two of the 12 sites were considered to be notably low, five at below normal levels, while the remaining five sites were classified as normal. Wansford (Nene) levels show no change in banding since January 2025.

## 1.4 Groundwater levels

Following the below normal level of rainfall across LNA in April, the groundwater level trend showed a decline at all indicator sites, ending the month with 1 site classified as above normal, 6 sites as normal, and remaining 1 site (Leasingham Exploratory) as below normal. However, at all sites with data, banding remained unchanged since the previous month.

## 1.5 Reservoir stocks

With the exception of Rutland, Ravensthorpe and Hollowell, reservoirs in the area ended the month slightly above their normal operating curves. The levels at Ruthland was 3.7% below target curve and Ravensthorpe and Hollowell was 2% below target curve in April, however levels are not alarmingly low.

## 1.6 Environmental impact

The Trent-Witham–Ancholme (TWA) transfer scheme has been in use during April. Pumping started first week in April. During April water has been pumped into the Ancholme from the Witham at Short Ferry while transfer from the Trent into Witham at Torksey remained off throughout April. Both the Gwash-Glen and Slea Augmentation schemes remained off in April. There were five HOFs (Hands Off Flow) active during April: two in the Steeping catchment, one in the Ancholme catchment, one in the Witham catchment and one in the Nene catchment. There were no fluvial flood warnings or flood alerts issued.

## 1.7 Forward look

### 1.7.1 Probabilistic ensemble projections for river flows at key sites

June 2025: All sites are showing a slightly increased probability of lower than normal flows.

September 2025: All sites are showing an increased probability of normal or above normal flows with none of the modelled rainfall scenarios showing exceptionally low levels.

### 1.7.2 Probabilistic ensemble projections for groundwater levels in key aquifers

September 2025: All sites are showing an increased probability of below normal levels with none of the modelled rainfall scenarios showing exceptionally low levels.

March 2026: All sites are showing a reduced probability of exceptionally low levels.

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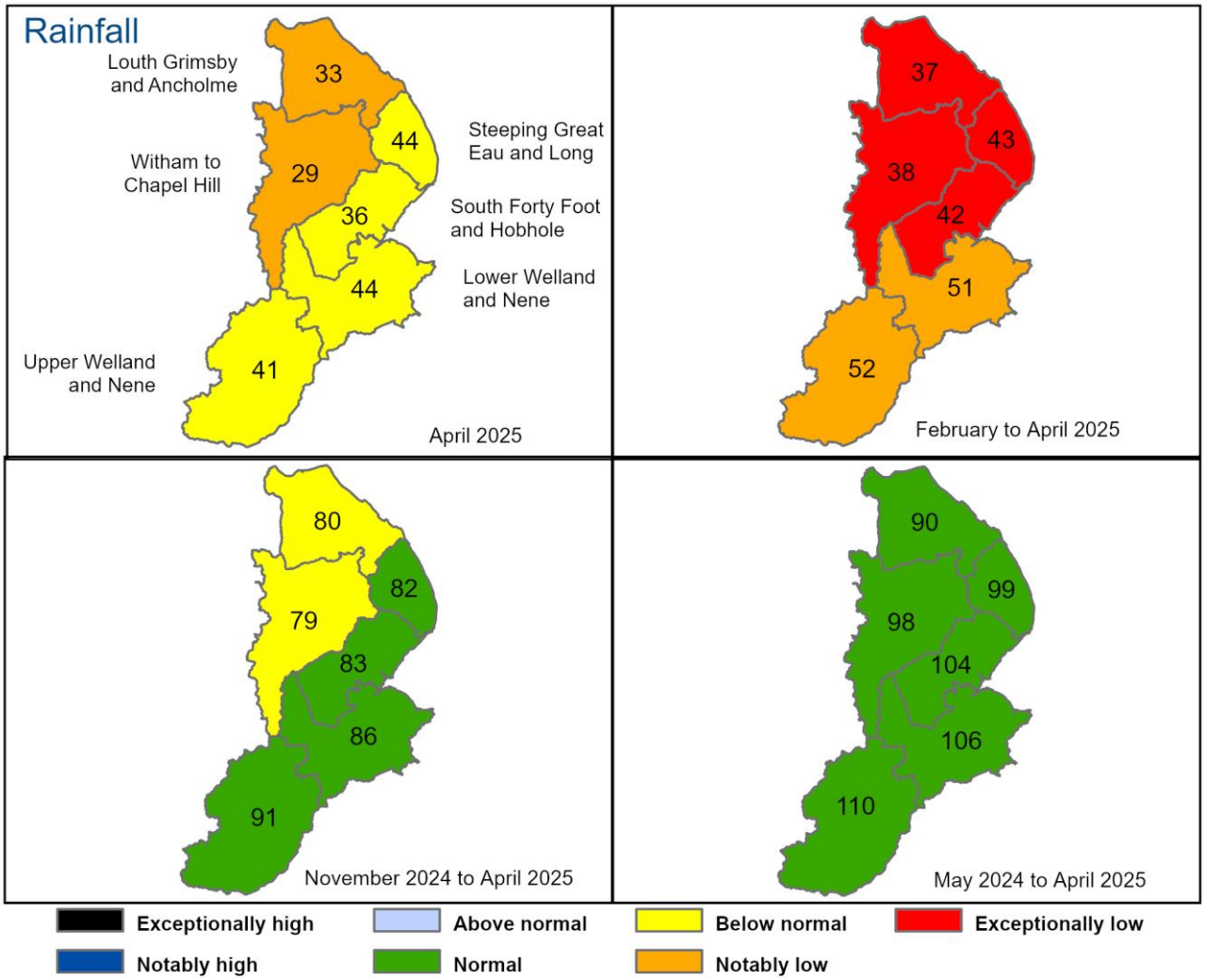
# 2 Rainfall

## 2.1 Rainfall map

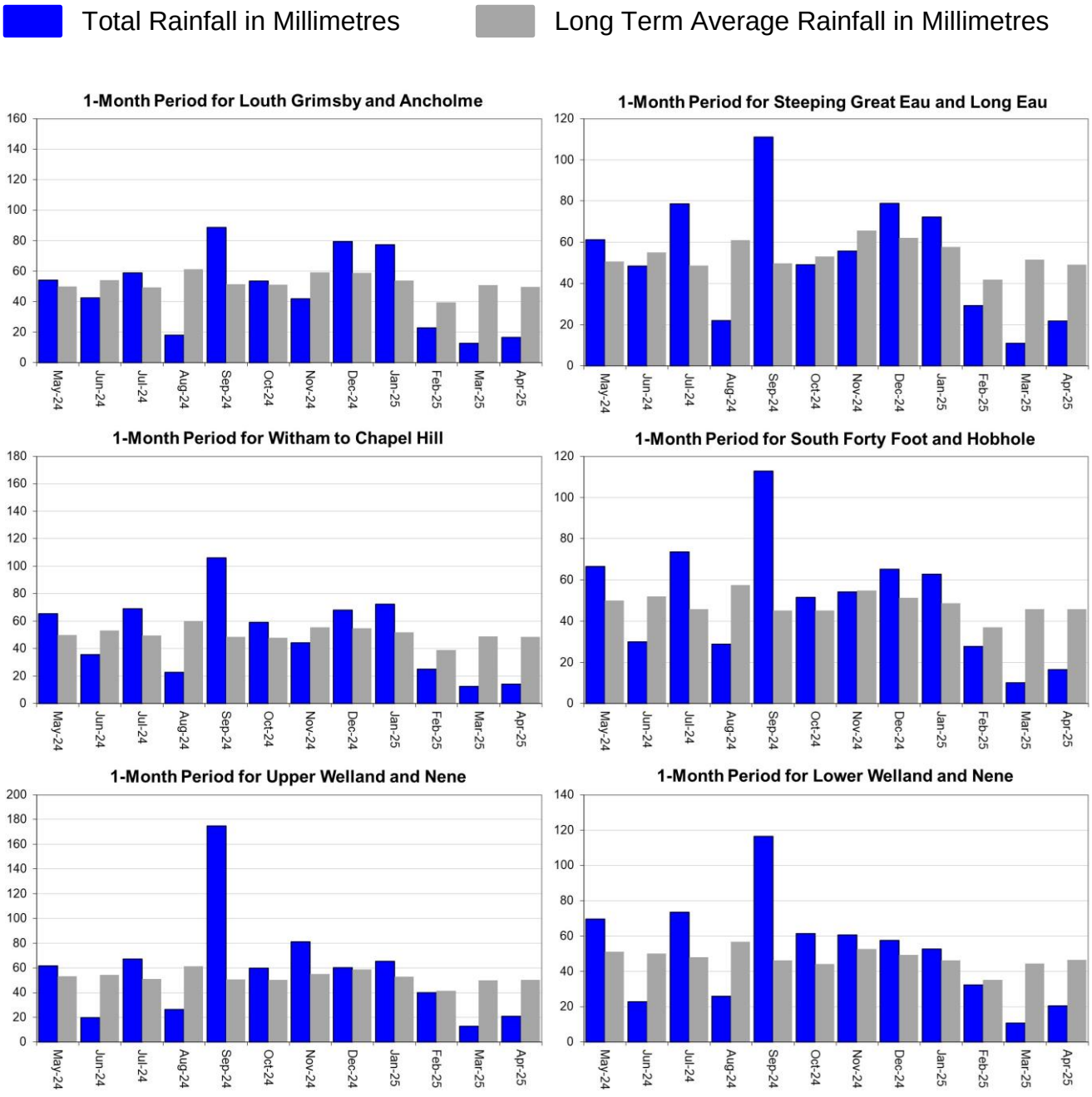
Figure 2.1: Total rainfall for hydrological areas across Lincolnshire and Northamptonshire, expressed as a percentage of long term average rainfall for the current month (up to 30 April 2025), the last 3 months, the last 6 months, and the last 12 months. Category classes are based on an analysis of respective 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 1961 to 1990 long term average for each region and for England.

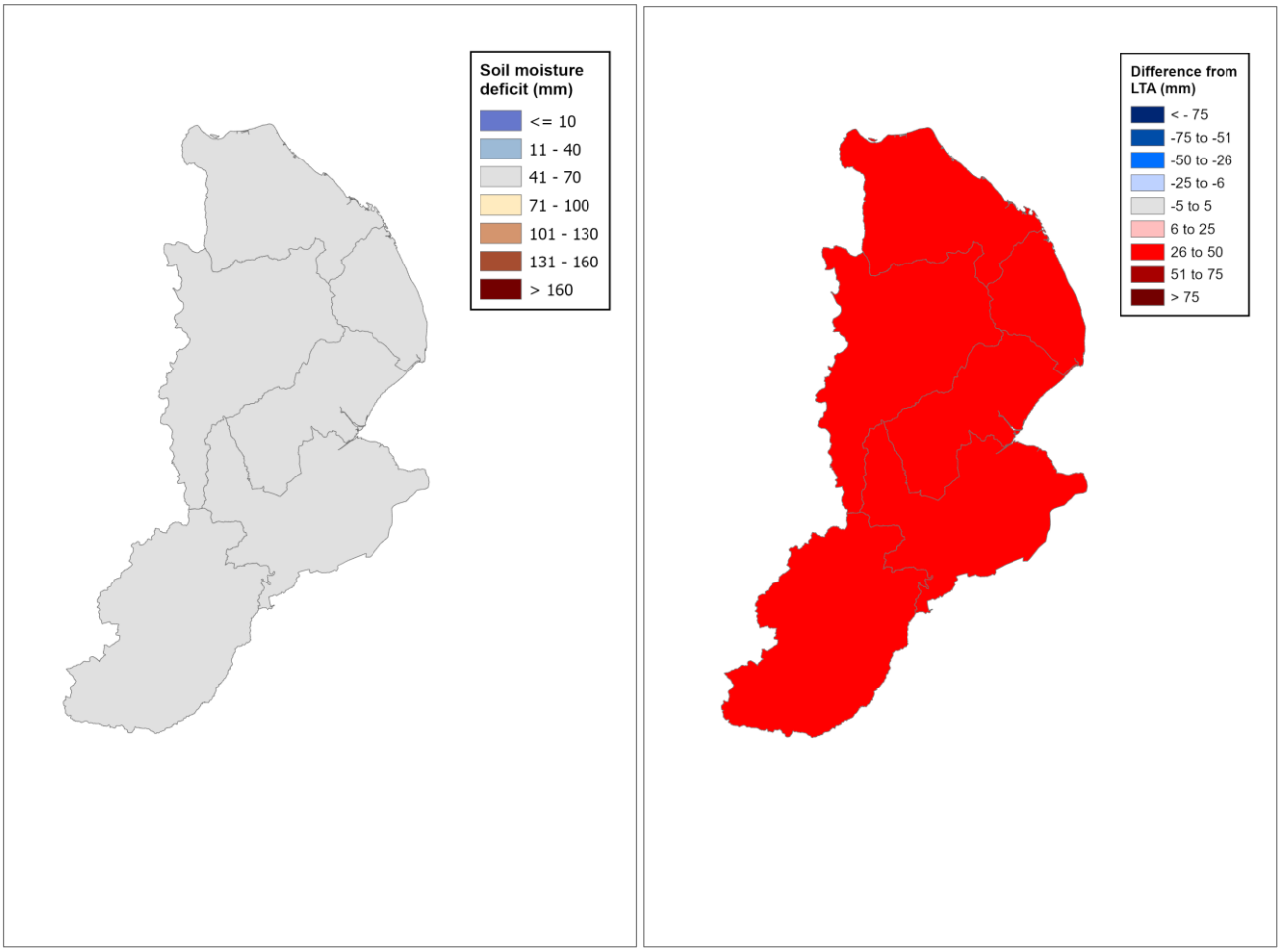



HadUK rainfall data. (Source: Met Office. Crown copyright, 2025).

# 3 Soil moisture deficit

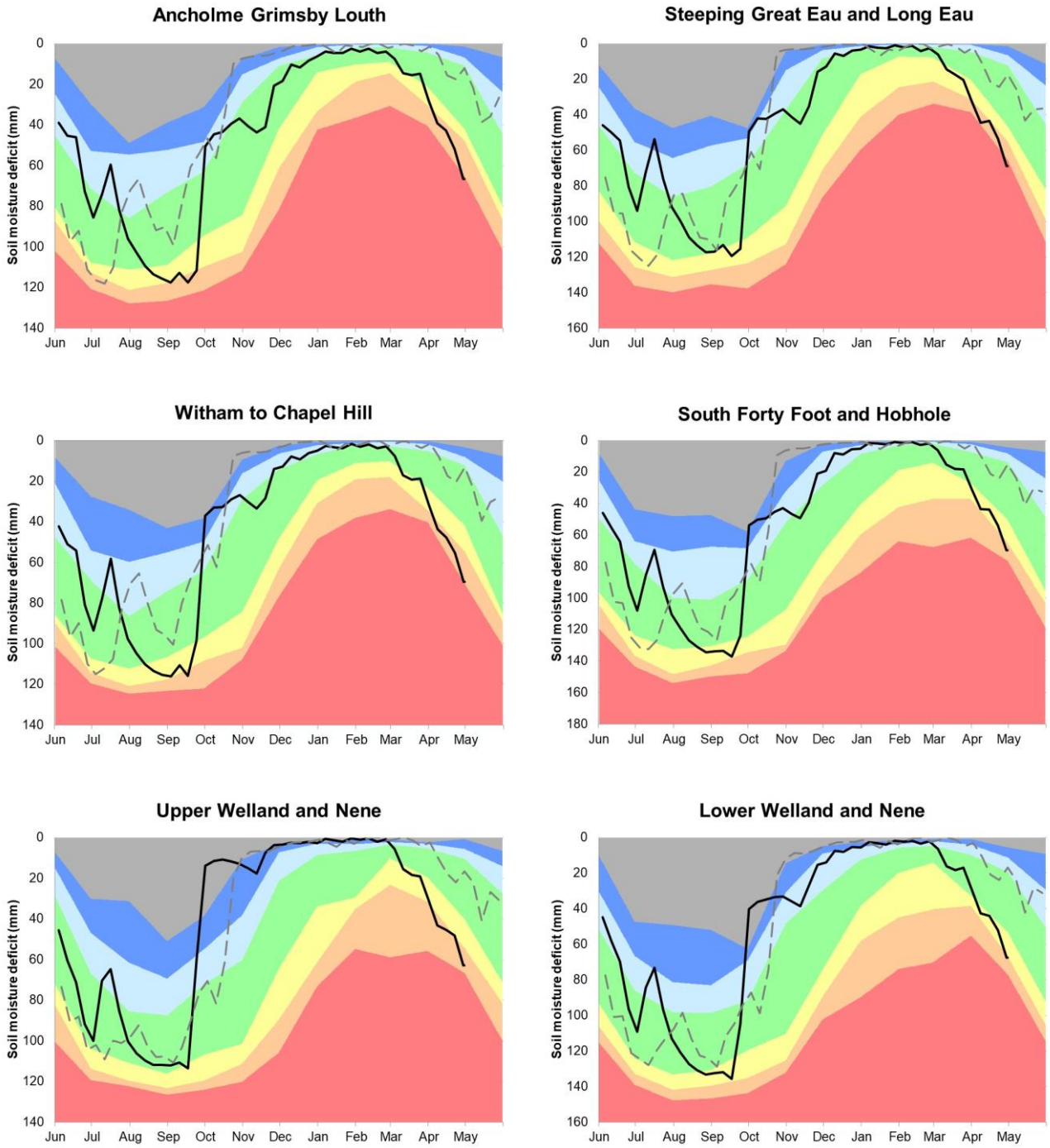
## 3.1 Soil moisture deficit map

Figure 3.1:Left map shows Soil moisture deficits for weeks ending 30 April 2025. Right map shows the difference (mm) of the actual soil moisture deficit from the 1961 to 1990 long term average soil moisture deficits. MORECS data for real land use.



## 3.2 Soil moisture deficit charts

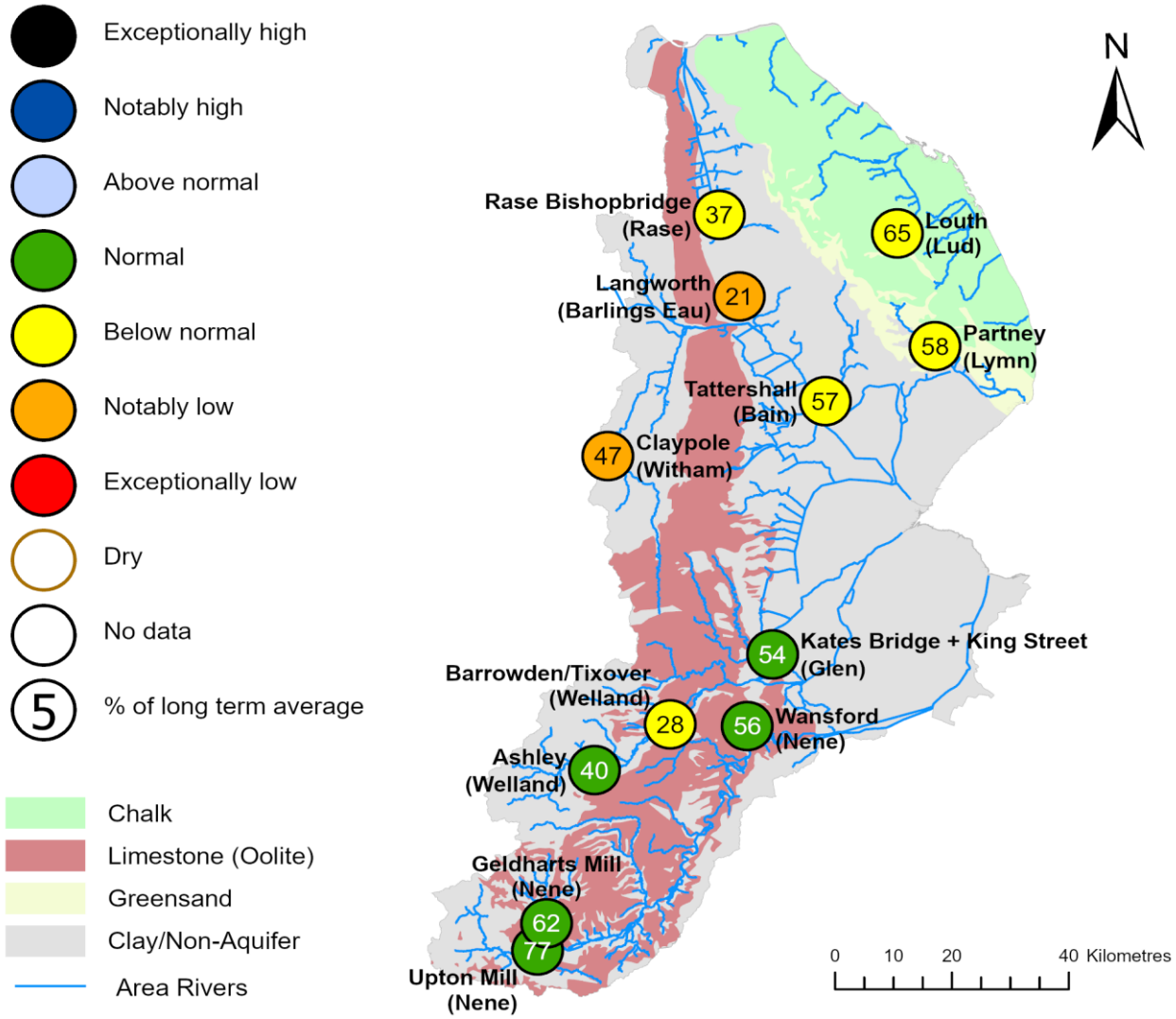
Figure 3.2: Latest soil moisture deficit compared to previous year, maximum, minimum, and 1961 to 1990 long term average. Weekly MORECS data for real land use.



# 4 River flows

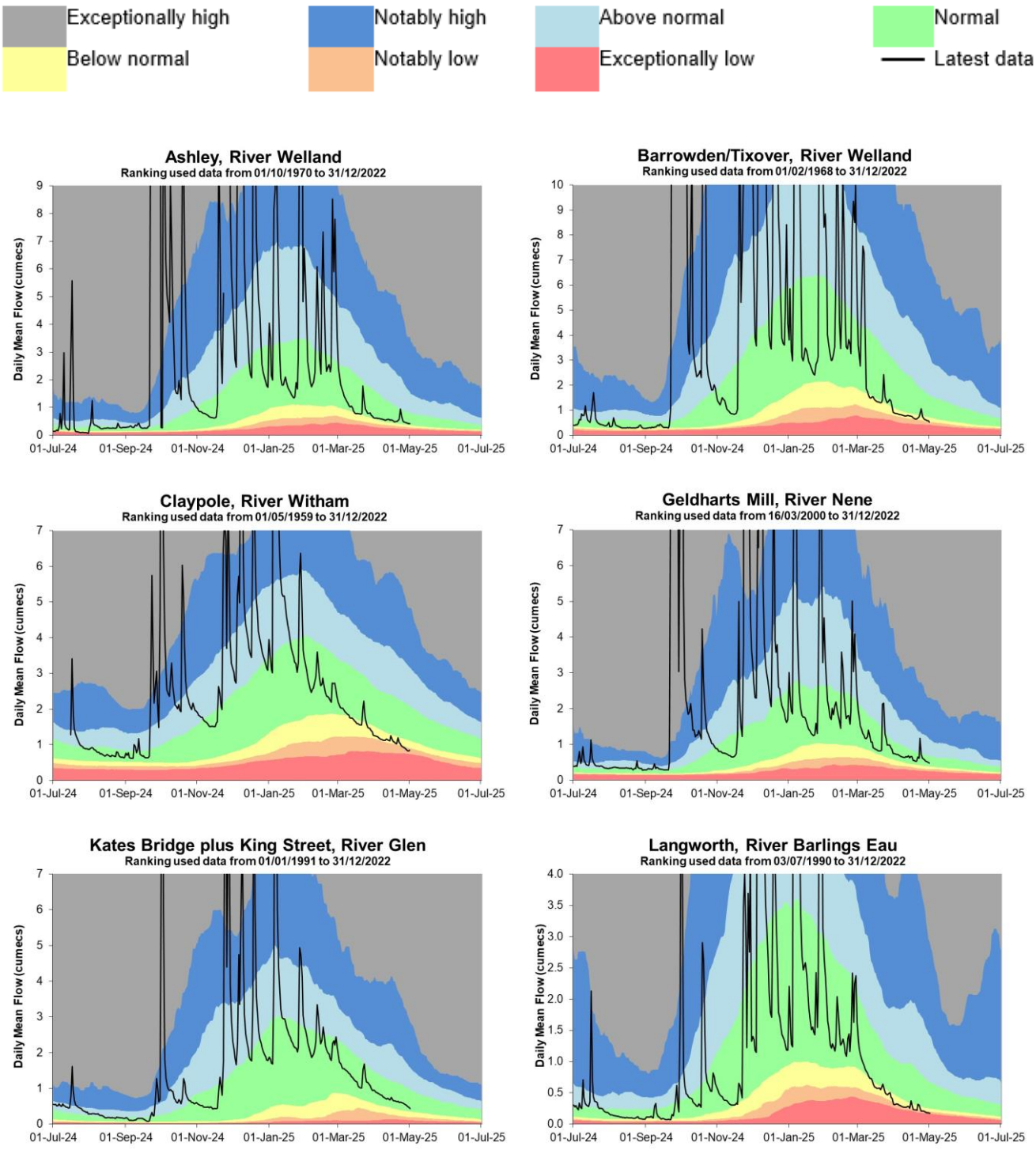
## 4.1 River flows map

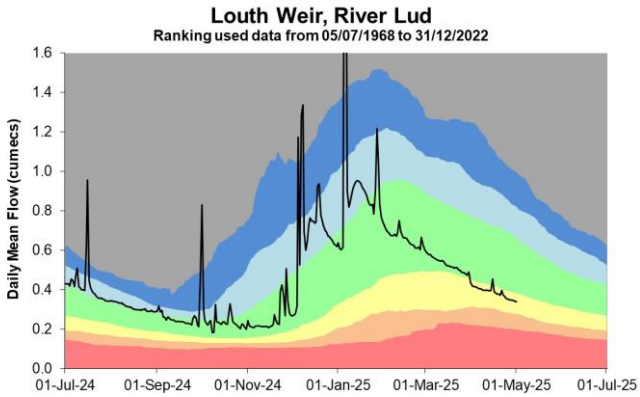
Figure 4.1: Monthly mean river flow for indicator sites for April 2025, expressed as a percentage of the respective long term average and classed relative to an analysis of historic April monthly means Table available in the appendices with detailed information.

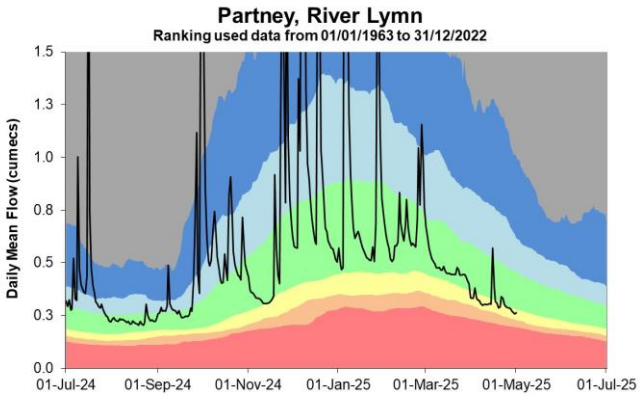


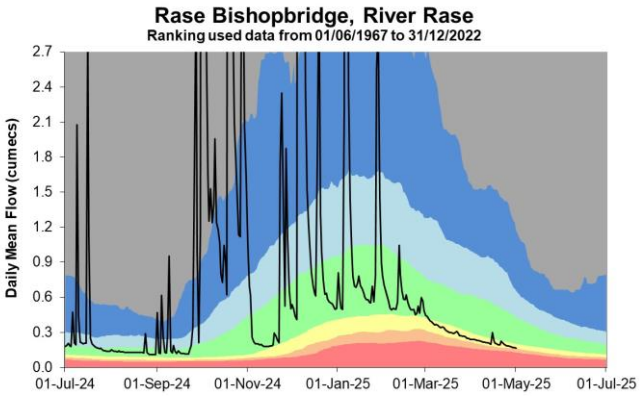
## 4.2 River flow charts

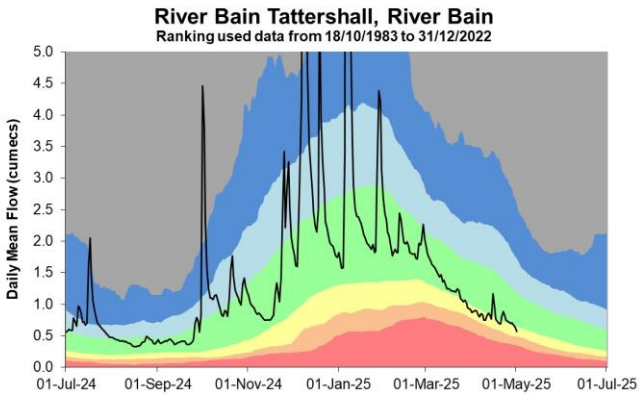
Figure 4.2: Daily mean river flow for index sites over the past year, compared to an analysis of historic daily mean flows, and long term maximum and minimum flows.

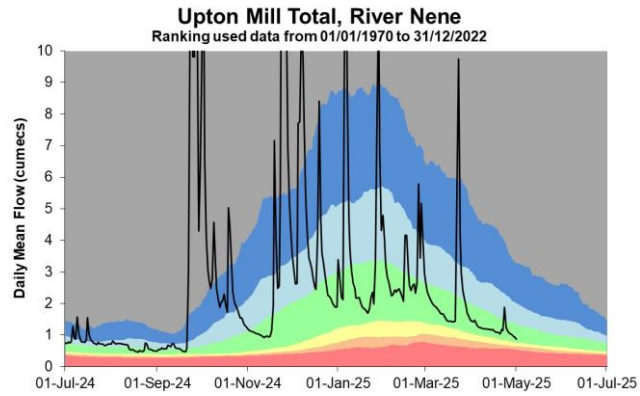


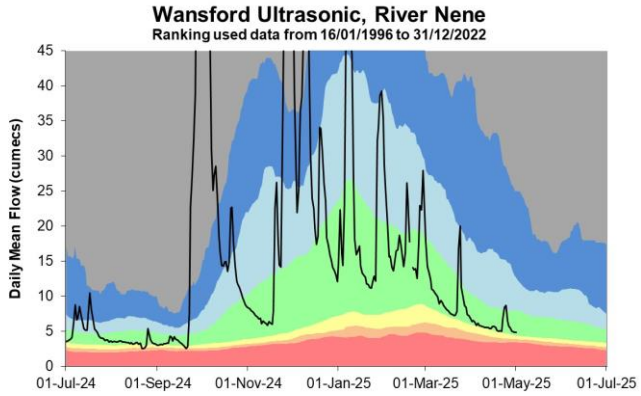


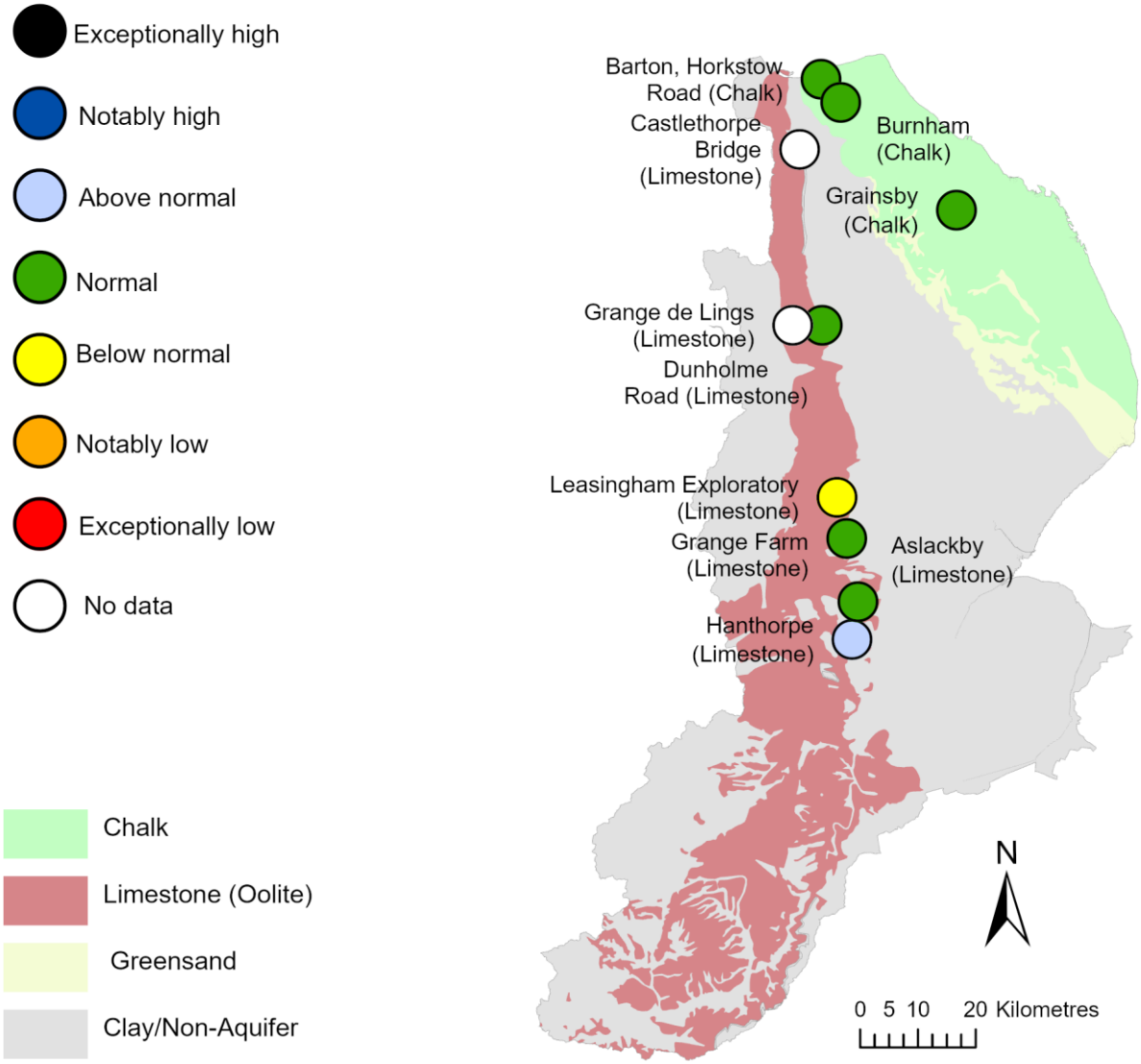




Source: Environment Agency.

# 5 Groundwater levels

## 5.1 Groundwater levels map

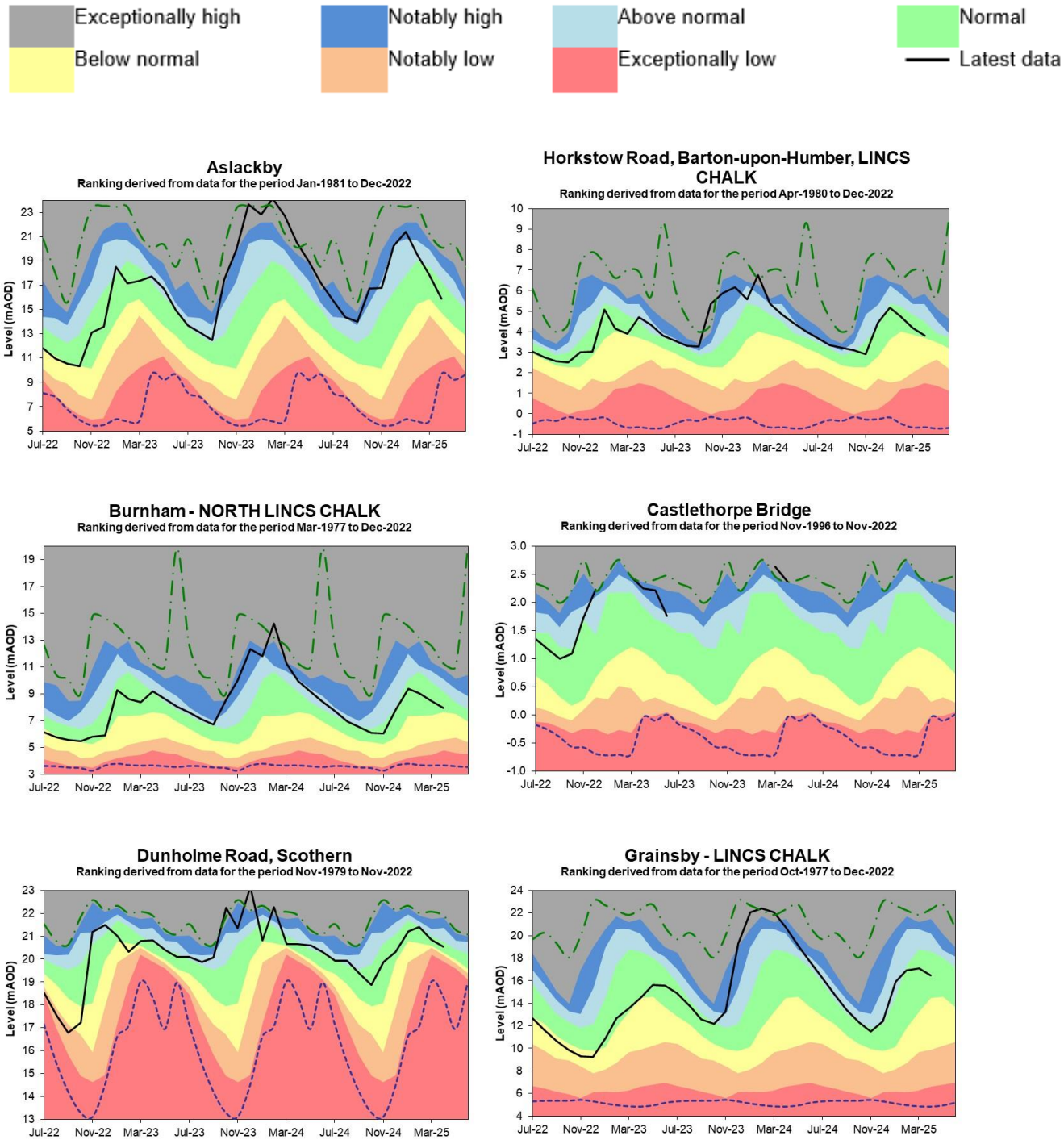
Figure 5.1: Groundwater levels for indicator sites at the end of April 2025, classed relative to an analysis of respective historic April levels. Table available in the appendices with detailed information.

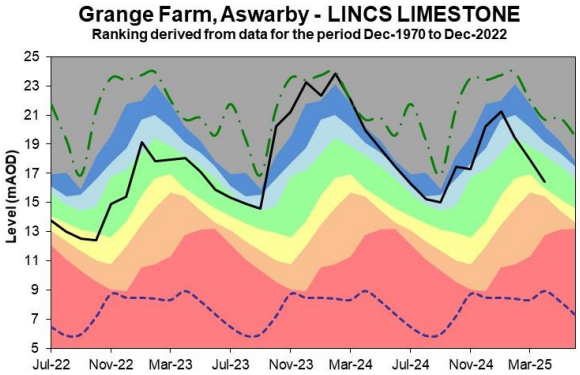


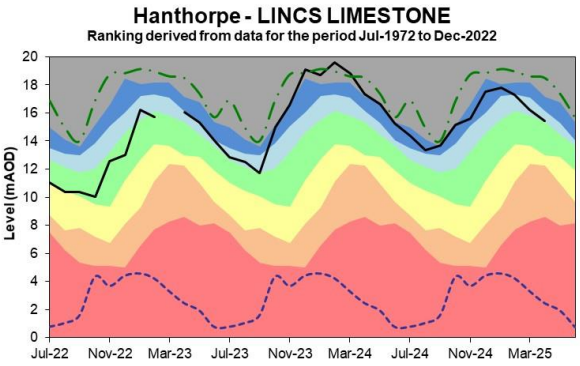

(Source: Environment Agency). Geological map reproduced with kind permission from UK Groundwater Forum, BGS copyright NERC. Crown copyright. All rights reserved. Environment Agency, 100024198, 2025.

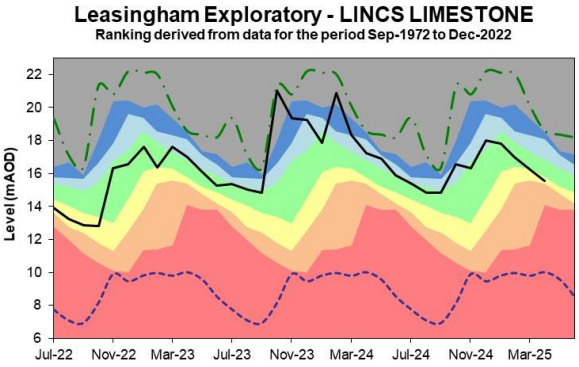
## 5.2 Groundwater level charts

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.





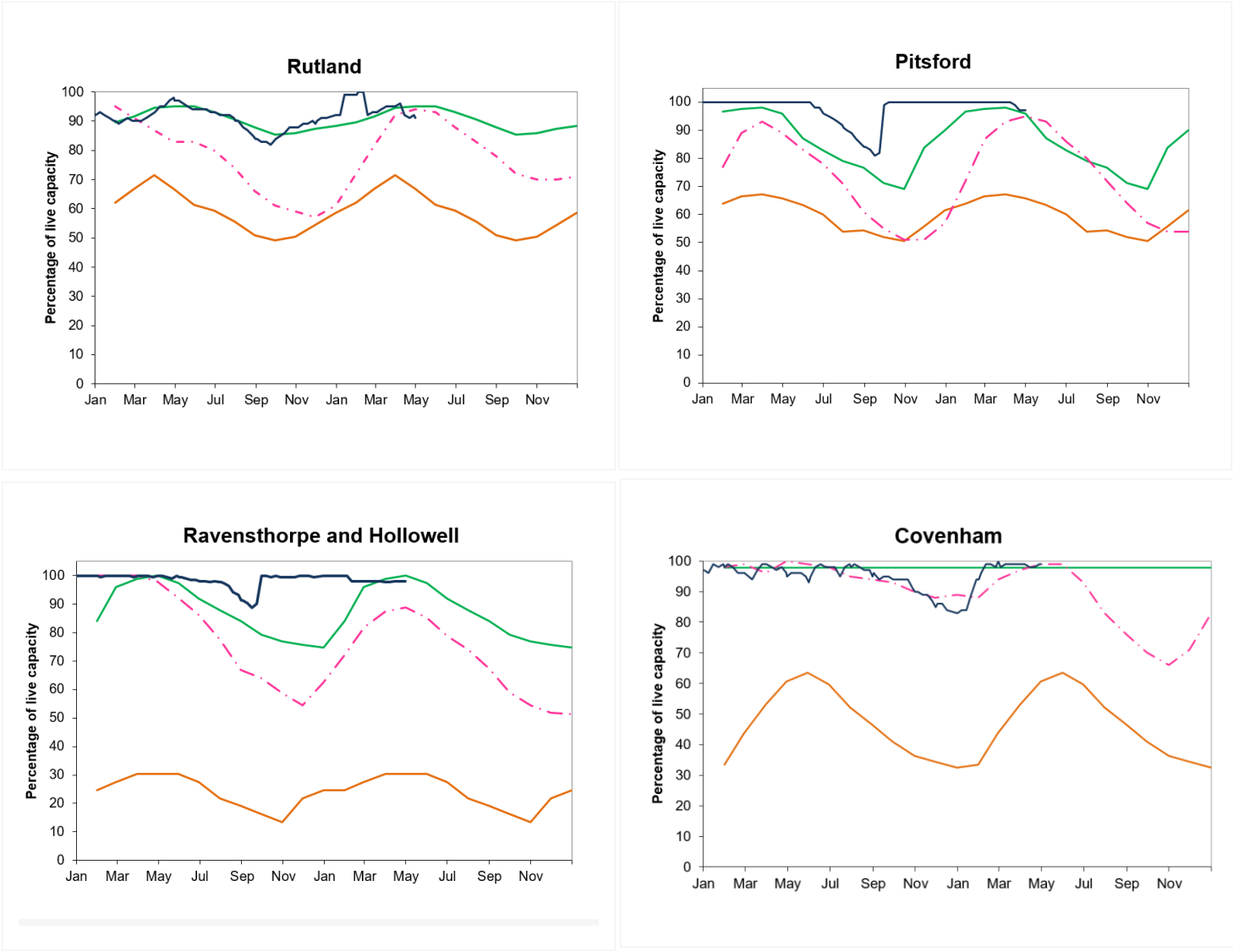




Source: Environment Agency, 2025.

# 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.

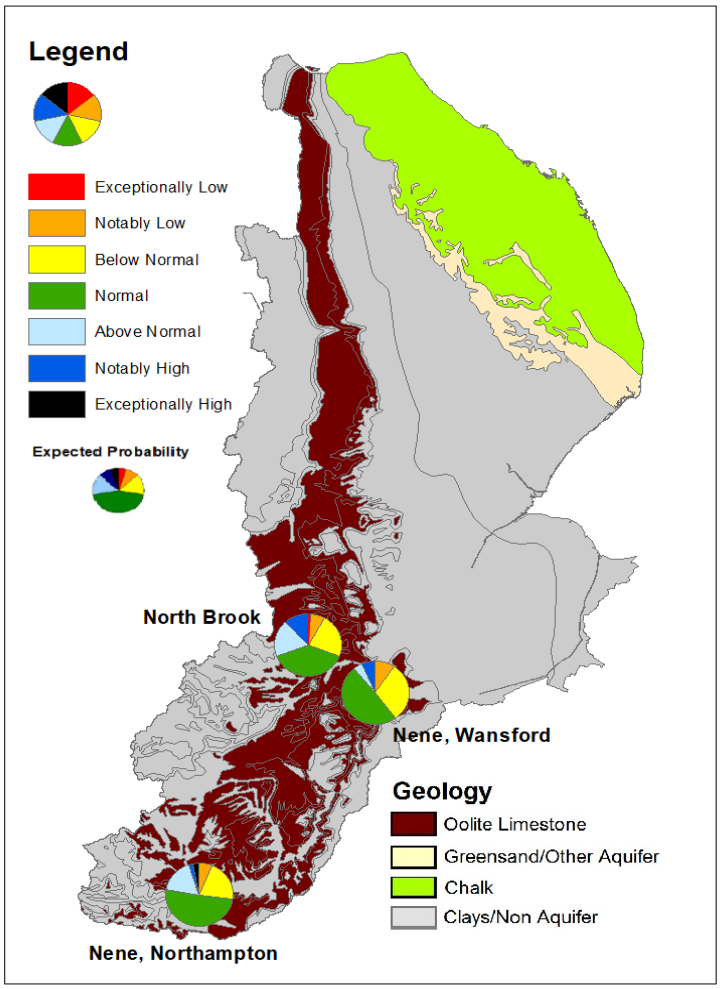



(Source: water companies).

# 7 Forward Look

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

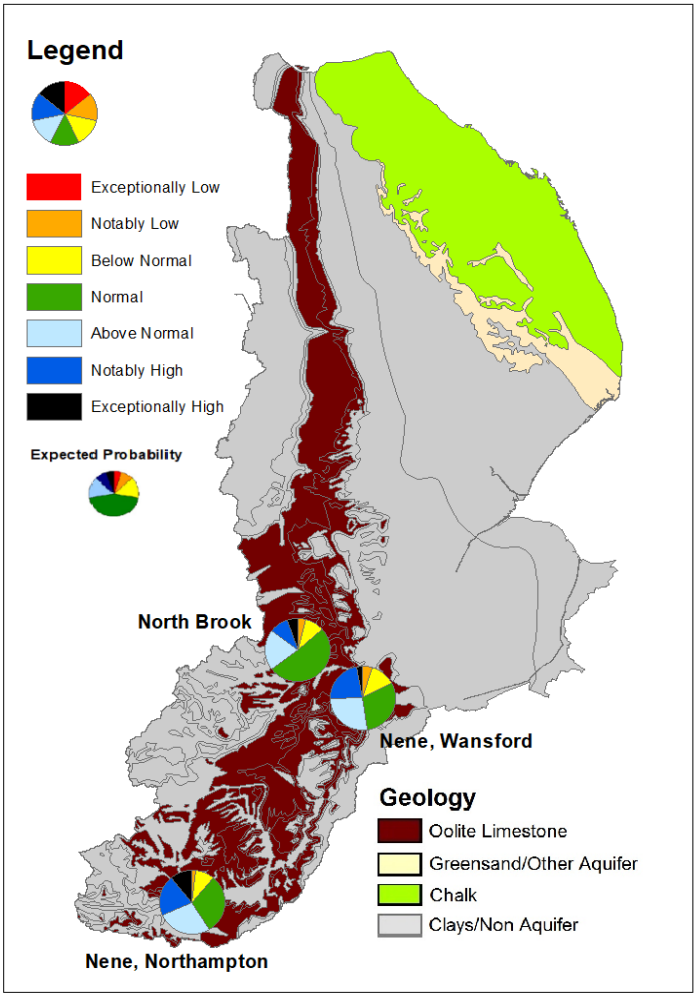
Table available in the appendices with detailed information. Exceptionally high or low levels are those which would typically occur 5% of the time within the historic record. Notably high or low levels are those which would typically occur 8% of the time. Above normal or below normal levels are those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

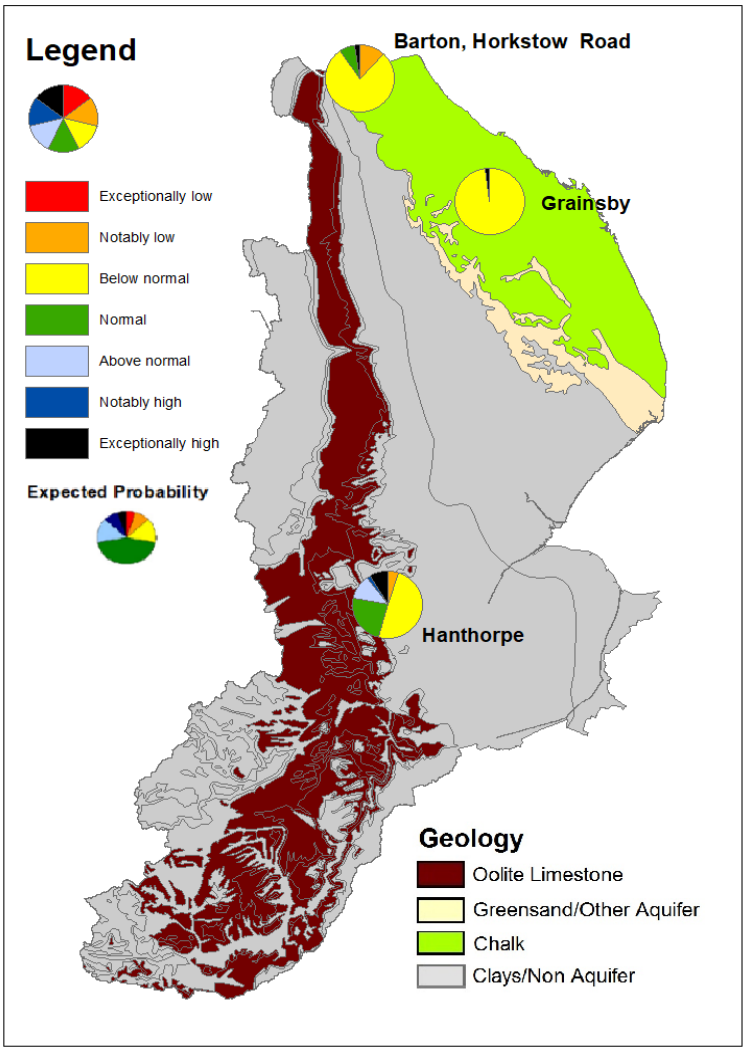
Table available in the appendices with detailed information. Exceptionally high or low levels are those which would typically occur 5% of the time within the historic record. Notably high or low levels are those which would typically occur 8% of the time. Above normal or below normal levels are those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

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

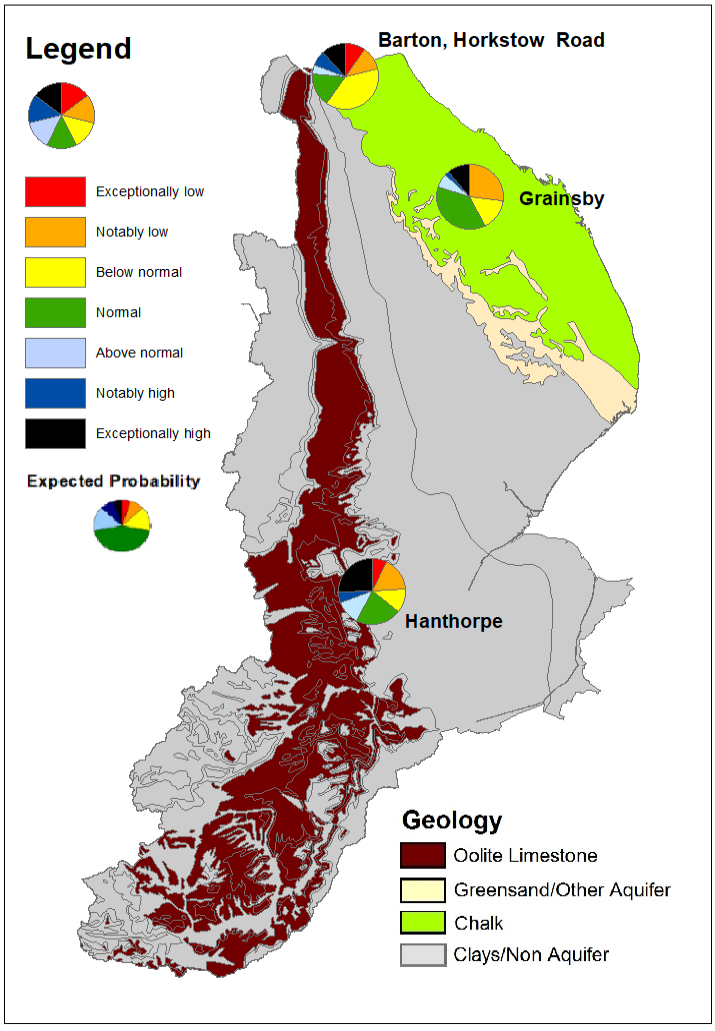
Table available in the appendices with detailed information. Exceptionally high or low levels are those which would typically occur 5% of the time within the historic record. Notably high or low levels are those which would typically occur 8% of the time. Above normal or below normal levels are those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

## 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 1961 to 1990. 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 | Apr 2025 rainfall % of long term average 1961 to 1990 | Apr 2025 band | Feb 2025 to April cumulative band | Nov 2024 to April cumulative band | May 2024 to April cumulative band |
|---|---|---|---|---|---|
| Louth Grimsby And Ancholme | 33 | Notably Low | Exceptionally low | Below normal | Normal |
| Lower Welland And Nene | 44 | Below Normal | Notably low | Normal | Normal |
| South Forty Foot And Hobhole | 36 | Below Normal | Exceptionally low | Normal | Normal |
| Steeping Great Eau And Long Eau | 44 | Below Normal | Exceptionally low | Normal | Normal |
| Upper Welland And Nene | 41 | Below Normal | Notably low | Normal | Normal |
| Witham To Chapel Hill | 29 | Notably Low | Exceptionally low | Below normal | Normal |

## 9.2 River flows table

| Site name | River | Catchment | Apr 2025 band | Mar 2025 band |
|---|---|---|---|---|
| Ashley | Welland Mkt.harb-rockinghm | Welland Rockingham | Normal | Below normal |
| Barrowden/tixover | Welland (rockingham To Stamford) | Welland Stamford | Below normal | Below normal |
| Claypole | Upper Witham | Witham Bargate Upper | Notably low | Below normal |
| 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 | Notably low | Below normal |
| Louth Weir | Lud | Louth Canal | Below normal | Normal |
| Partney | Lymn & Steeping | Lymn Steeping | Below normal | Below normal |
| Rase Bishopbridge | Ancholme | Ancholme W Mid | Below normal | Below normal |
| River Bain Tattershall | Bain | Bain | Below normal | Normal |

| | | | | |
|---|---|---|---|---|
| Upton Mill Total | Nene (kislingbury Branch) | Nene Kislingbry Bridge | Normal | Normal |
| Wansford Combined | Nene (wollaston To Wansford) | Nene Wansford | Normal | Normal |

## 9.3 Groundwater table

| Site name | Aquifer | End of Apr 2025 band | End of Mar 2025 band |
|---|---|---|---|
| Aslackby | Limestone (cornbrash Formation) | Normal | Normal |
| Barton-upon-humber | Grimsby Ancholme Louth Chalk | Normal | Normal |
| Burnham | Grimsby Ancholme Louth Chalk | 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 | Exceptionally low | Normal |
| Grange Farm, Aswarby | Limestone (mudstone - Peterborough Member) | Normal | Normal |

| | | | |
|---|---|---|---|
| Hanthorpe | Limestone (cornbrash Formation) | Above normal | 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 | 1.3 |
| Notably low | 6.3 | 9.5 | 6.7 |
| Below normal | 20.6 | 30.2 | 22.7 |
| Normal | 50.8 | 49.2 | 38.7 |
| Above normal | 17.5 | 4.8 | 18.7 |
| Notably high | 1.6 | 6.3 | 12.0 |
| Exceptionally high | 3.2 | 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 | 4.8 | 4.1 |
| Below normal | 9.5 | 12.7 | 9.5 |
| Normal | 30.2 | 30.2 | 51.4 |
| Above normal | 27.0 | 27.0 | 20.3 |
| Notably high | 20.6 | 22.2 | 9.5 |
| Exceptionally high | 11.1 | 3.2 | 5.4 |

### 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 | 5.1 | 11.9 |
| Below normal | 97.8 | 49.2 | 78.6 |
| Normal | 0.0 | 23.7 | 7.1 |
| Above normal | 0.0 | 11.9 | 0.0 |
| Notably high | 0.0 | 1.7 | 0.0 |
| Exceptionally high | 2.2 | 8.5 | 2.4 |

### 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 | 6.8 | 9.5 |
| Notably low | 26.7 | 16.9 | 11.9 |
| Below normal | 15.6 | 11.9 | 38.1 |
| Normal | 37.8 | 22.0 | 16.7 |
| Above normal | 6.7 | 11.9 | 4.8 |
| Notably high | 2.2 | 5.1 | 7.1 |
| Exceptionally high | 11.1 | 25.4 | 11.9 |