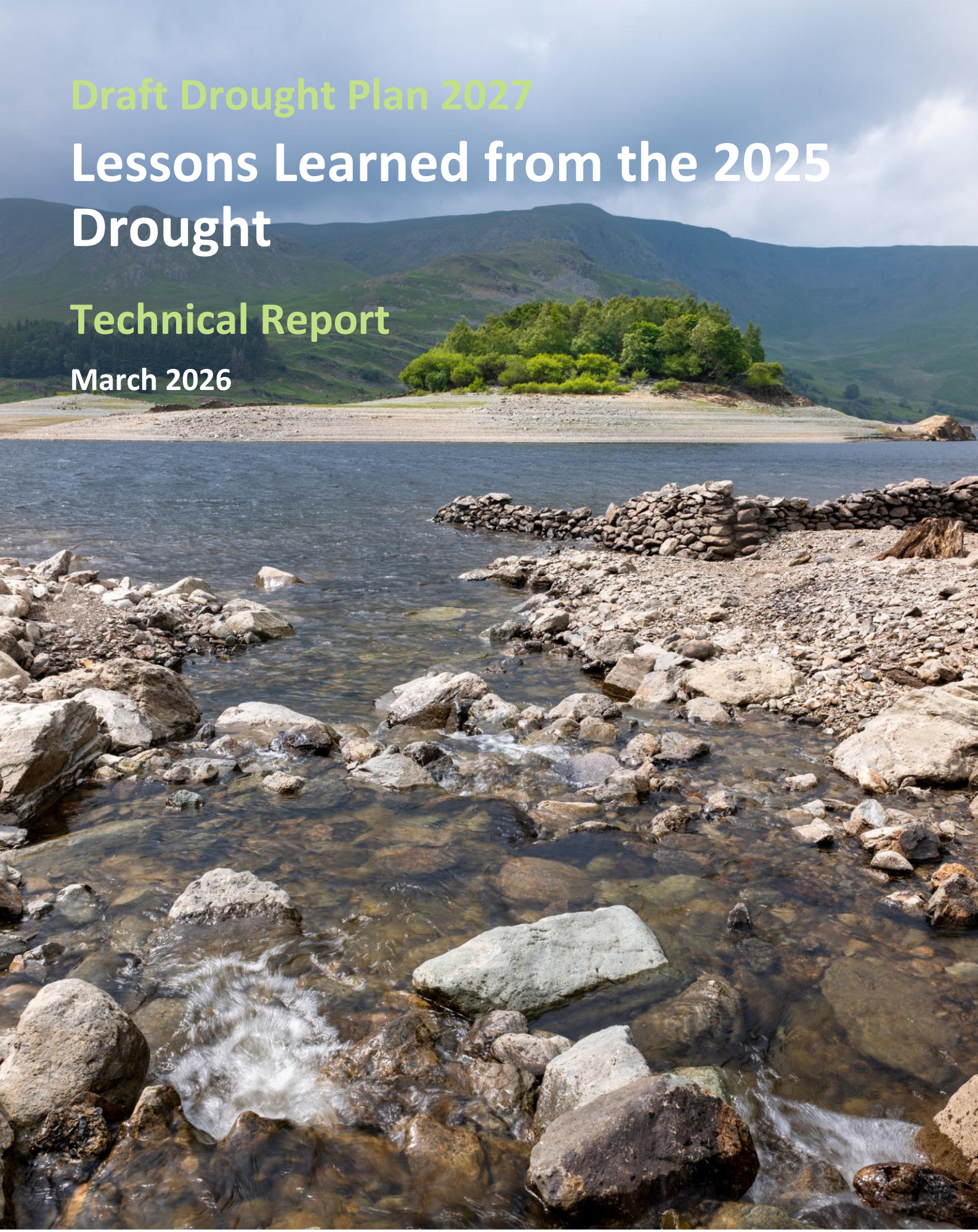
Draft Drought Plan 2027

Lessons Learned from the 2025 Drought

Technical Report

March 2026



United Utilities

Water for the North West

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1. Introduction

Our Drought Plan 2022 provided a strong and effective framework for managing the 2025 drought and enabled us to take effective but proportionate decisions. The plan proved to be robust, with all lessons identified being non-material and building on what was already a comprehensive approach. Importantly, the plan was deliberately designed to be flexible, allowing drought management actions to be adapted to prevailing conditions and applied in a way that reflected the specific context at the time. This flexibility was set out from the outset and enabled decisions to be tailored appropriately. Within the North West, this contextualised approach to decision-making is particularly important, recognising regional characteristics and supporting the use of flexibility where there is good reason to do so.

The dry weather event of 2025 occurred while the draft Drought Plan 2027 was in development. A formal review of lessons learned from the 2025 event is underway in collaboration with the Environment Agency (EA). The outcome of this review will include programmes of work and associated timescales for further non-material updates in our revised draft plan and final plan, as well as how we will monitor progress with implementing the changes. For example, the review is likely to identify defined timescales and monitoring arrangements for future data collection. Progress on our planned programmes of work will be reported in our annual drought health check and/or the annual review of our Water Resources Management Plan. However, as part of our draft Drought Plan 2027 update we are including an early summary of the lessons learned and how we will be taking these forwards.

This document includes an overview of the weather conditions experienced during 2025, key lessons learned from 2025 and how and when we will be incorporating these in our updated drought plans and/or operational response plans.

2. Overview of the drought in 2025

The following summary is an assessment of the weather experienced during 2025 and the associated response in soil moisture deficit (SMD) and reservoir storage across the North West**.** Supporting graphs and tables are provided in Section 5 (Appendices).

2.1 Winter (December 2024 to February 2025)

The cooler and drier patterns established in December 2024 continued at the start of 2025. January ranked as the fourth coldest on record based on daily minimum temperatures, with Rostherne No. 2 weather station near Manchester Airport recording its lowest January temperature since 2010 (-9.1°C on the 11th). Mean temperature across January and February was 0.3°C below the long-term average (LTA)1 at 3.8°C. Rainfall across both months was also below LTA with 80.0% in January and 58.1% in February. Although classed as *normal2,* this rainfall deficit was significant for reservoir storage recovery, as winter rainfall deficits form a larger absolute loss (mm) than equivalent percentage shortfalls in summer. However, rainfall totals were sufficient to maintain saturated soils, with SMD at the end of February below LTA3 at 0.8mm.

By the end of February, total reservoir storage reached 87.1%, a 0.9% increase from the start of the year. This recovery was insufficient to return reservoirs to normal levels, with regional storage 5.5% below the 10-year average. Pennine reservoirs experienced the largest decline, falling by 5.1% to 84.3%, their lowest end-of-February levels in the last 10 years. Despite *below normal* rainfall in Cumbria, Haweswater and Thirlmere storage (Lakes) increased by 7.2% over January and February to 85.5%; however, this remained 7.0% below the 10-year average.

2.2 Spring (March to May 2025)

Spring 2025 was characterised by persistently dry and warm conditions across the North West. Rainfall was *exceptionally low* in March (34.4% of the LTA), and *notably low* in April (33.7% of the LTA), making it the driest March to April in the 155-year HadUK UK Meteorological Office rainfall record. Dry conditions continued through the first three weeks of May, with only 3% of the months total rainfall recorded in this period. Rainfall totals returned to *normal* due to sustained rainfall during the final nine days of the month. Overall, it was the driest spring in the North West since 1984, with 52.6% of the LTA.

Temperatures during Spring were above average, with a mean temperature of 2.1°C above the LTA, making it the second warmest March to May period in 28 years. The maximum daily temperature was also consistently high during this period, with the North West recording its highest mean daily maximum temperature for each of March, April, and May. The combination of *exceptionally low* rainfall and above average temperatures drove an increase in SMD, which reached 108.3mm by the third week of May, three times the LTA. Despite higher rainfall in late May, SMD remained elevated at 49.7mm above average.

These conditions led to a sustained decline in reservoir storage across Spring. By the end of May, total storage had fallen to 58.9%, a 28.2% reduction, the largest March to May decline on record. Total storage was 23.1% lower than the same point in 1995. Storage in both the Lakes (47.5%) and Pennines (49.1%) remained balanced but declined sharply to 37.9% and 35.2%, respectively. Both reservoir groups reached historic minimum levels by the end of spring and were 32% below the 10-year average.

2.3 Summer (June to August 2025)

High temperatures persisted through summer, whilst rainfall became increasingly unevenly distributed across the North West. Mean temperatures remained elevated at 16.2°C (2.1°C above the LTA), making the summer of 2025

[1] Long term average rainfall and temperature refer to the 1991 to 2020 average.

[2] Rainfall classifications (e.g. *normal, below normal, exceptionally low* etc.) are based on Cunnane plotting position.

[3] Long term average soil moisture deficit refers to the 1988 to 2017 average.

the warmest on record. Maximum daily temperatures were also high, peaking at 31.7°C on 12th July, making it the 10th warmest July day on record. From May to August, the Pennines received a lower percentage of LTA rainfall than the Lakes in every month.

June was the first month of the year to record above-average rainfall across the North West (163.1% of the LTA). However, this masked a strong north-south split in conditions within the region. Rainfall in Cumbria and Lancashire4 was *exceptionally high* (190.6% of LTA), making it the fifth wettest June in 155 years, while Greater Manchester, Merseyside and Cheshire remained below average at 92.9% of the LTA. This contrast was reflected in SMD by the end of June, which ranged from 5.7mm below the LTA in the Lakes to 49.2mm above the LTA in the Pennines.

June marked the point at which the Lakes and Pennines storage became imbalanced. Lakes storage increased by 11.9% to 59.4%, although this remained 10.0% below the 10-year average. Conversely, storage in Pennine reservoirs declined by 1.8% to 47.4%, placing them 25.3% below the 10-year average. Pennines storage was also 11.1% lower than the next lowest year on record (2020 at 58.5%) whilst Lakes storage was above levels in 2018 (57.8%) and 2020 (51.6%).

Rainfall across the North West returned to *normal* in July (96.7% of the LTA) before falling to *notably low* in August (54.9% of the LTA). The north-south split in rainfall pattern persisted, with August rainfall *below normal* in Cumbria and Lancashire (63.4% of the LTA) and *exceptionally low* across Greater Manchester, Merseyside and Cheshire (33.7% of the LTA). This ranked as the seventh driest August on record in Greater Manchester, Merseyside and Cheshire. SMD intensified further, peaking in the Pennines during the final week of August at 124.9mm, 2.4 times the LTA and the second highest observed in the last 10 years. In the Lakes, SMD also remained elevated, reaching 38.0mm by the end of August, with soils 9.9mm drier than average.

By the end of summer 2025, the North West had experienced the warmest start to a year and the highest average SMD on record. Greater Manchester, Merseyside and Cheshire recorded the driest start to a year in 115 years (68.4% of the LTA), while Cumbria and Lancashire experienced the 36th driest start to a year in 155 years.

Reservoir storage reflected the cumulative impact of prolonged warmth, spatially uneven rainfall and sustained soil drying. By the end of August, total storage had fallen to 48.8%, representing a 16.2% decline from the end of June and placing storage 25.9% lower than the 10-year average. Lakes storage declined 15.4% to 44.1%, reaching the lowest end-of-August level in the past 10 years and falling below the levels observed at the end of May 2025. Pennines storage also reached the lowest level in the last 10 years, dropping by 17.5% to 29.9%. Pennines storage was two-thirds of the level observed at the same point in 1995.

2.4 Autumn (September to November 2025)

Above-average temperatures persisted through autumn, but a shift to *exceptionally* high rainfall resulted in the start of reservoir storage recovery across the region. The mean temperature fell by 3.6°C in September compared to August but remained 0.4°C above LTA. This pattern continued into October and November, with mean temperatures 1.2°C and 1.0°C above LTA, respectively. By the end of autumn, the North West had experienced 10 consecutive months of above-average temperatures, making February to November the warmest such period on record.

In contrast to the preceding months, rainfall during autumn was *exceptionally high* across the region. September was the wettest in 58 years, with 189.6% of LTA recorded, while November ranked as the seventh wettest in 155 years at 160.2% of LTA. Overall, Autumn 2025 ranked as the fourth wettest autumn on record across the North West. Several intense rainfall events were observed, with both the Lakes and Pennines recording their wettest days of 2025 during this period. The Woodhead (Longdendale) rain gauge recorded 66.2mm on the 20th of September, the second wettest day in the past 10 years, while the Burnbanks (Haweswater) gauge recorded

[4] Regional rainfall statistics represent areal rainfall, calculated from gridded rainfall data. Gauges within *Cumbria and Lancashire* include those within the South Lakes Rivers Group (Kent, Leven, Crake, Duddon), Derwent, Eden, Waver - Wampool, English Esk, and the Lune, Wyre, Ribble, Douglas, and Alt & Crossens catchments. *Greater Manchester, Merseyside and Cheshire* include gauges within the Mersey, Irwell, and Cheshire Rivers Group.

76.4mm on the 3rd of October, the sixth wettest day in 14 years. This sustained and widespread rainfall drove substantial recovery in SMD across the region, reaching 0.5mm by the end of November, 18.1% below the LTA.

Reservoir storage across the North West recovered substantially through Autumn. By the end of November, total storage had risen to 84.6%, almost double the level recorded at the end of August (48.8%). For the first time that year, total reservoir storage rose above average, reaching 0.9% above the 10-year mean. Lakes storage increased from 44.1% to 80.3%, a 36.2% increase with Haweswater recording the fourth largest single-day increase in storage in the past 10 years. Pennines storage also recovered sharply, rising 50.8% over autumn from 29.9% to 80.7%, with a rapid rise from 30.4% to 50.4% in a single week in September. Wet conditions persisted into December, allowing reservoir storage to continue to recover. By the second week in December, total storage had reached 5.4% above the 10-year average and was the second highest for this time of year in the last 10 years.

3. Lessons learned from 2025

We regularly assess and strengthen our approach to managing dry weather and drought conditions. In addition, following all significant periods of prolonged dry weather or drought, we undertake a Post Incident Review in line with our internal processes to reflect, and learn lessons from our experience of managing these events in the North West. We then use this event specific information alongside other new insights to update and improve our drought plan.

Following the 2025 drought event, we have undertaken internal workshops with our colleagues to review our activities and response to manage water supplies to customers and protect the environment. We are also collaborating on a formal review with Environment Agency, drawing on key lessons learned identified by both organisations.

Our review of lessons learned in 2025 has identified both areas for improvement and recognised good practice. Table 1 is a summary of key areas where potential improvements have been identified, and/or areas where good practice has been adopted and will be taken forwards and built on in future events. Where applicable, we have set out when and where the learning has been incorporated into this draft of our updated Drought Plan 2027 or will be in future versions. Some activities are ongoing and so outcomes may be reported on in our annual drought health check and/or the annual review of our Water Resources Management Plan as appropriate.

Table 1: Key lessons learned from 2025 drought event

Category	Lessons Learned	Update: When and where we will apply the learning
Communication (customers)	We have carried out earlier and more structured engagement with New Appointments and Variations (NAVs) and business retailers from the onset of drought. For example, we established fortnightly joint discussions with NAVs and as the dry weather developed, we provided NAVs with a view of our potential mobilisation plan for restrictions, such as a temporary use ban, enabling them to stay informed. In addition, we attended the regular Retailer Wholesaler Group (RWG) drought meetings to provide updates to retailers and MOSL (Market Operator Services Ltd), so that they could update their dashboard. We proactively provided retailers with example communications to support a consistent messaging approach for all affected non-household customers.	**Complete:** Reflected in our drought plan technical report 'Communication Actions'.
Communication (customers)	We have identified that it would be beneficial to formalise a repeatable process for communicating changes in drought status to NAVs and retailers, both when restrictions are introduced and when they are lifted.	**Ongoing:** We are developing this process in collaboration with NAVs and business retailers through our regular liaison meetings. Once finalised it will be incorporated into our Business As Usual (BAU) and drought operations and reflected in the next update of our drought plan technical report 'Communication Actions'.
Communication (customers)	We proactively provided retailers with example communications to support a consistent messaging approach for all affected non-household customers.	**Complete:** Reflected in our drought plan technical report 'Communication Actions'.

Category	Lessons Learned	Update: When and where we will apply the learning
Communication (regulators)	Our communication and collaboration with the Environment Agency (EA) were enhanced in 2025 by our completion of the drought plan action tracker, to provide evidence of how we were following each drought plan action, and our provision of slide packs showing the scale of water efficiency engagement with customers. Our experience of the 2025 drought highlighted the benefit of timely engagement with regulators; for example, the EA enquired about the utilisation of our groundwater sources and through quick discussions, we could provide an explanation for their usage creating a shared understanding that enabled both parties to focus on other priorities.	**Complete:** We will continue to proactively keep the EA informed of water resources status and activities in our region throughout any dry weather or drought event, to facilitate close collaboration on the response to a drought. Our approach to liaison with our regulators is set out in our drought plan technical report 'Communication Actions'.
Drought levels	We have observed that the Pennines and Lake District areas can be affected differently by drought events and that there may be a need to take this into account in the drought levels which guide our drought actions in different areas.	**Complete:** We have undertaken a review of including Pennines drought levels within our latest update of our drought plan, which was supported by the Environment Agency. The outcome of the review is the inclusion of a new set of drought levels which are included in our drought plan main document.
Data management	During 2025 the EA raised a concern regarding the provision of preliminary reservoir compensation data. The EA also expressed an interest in receiving real-time compensation and storage data during future events.	**Ongoing:** We have identified the need to review how to improve some of the data we share. Any specific outcomes of this review will be incorporated in future updates of our drought plan as appropriate.
Incident management: task team	We established drought incident task teams, which worked well due to the streamlined meeting structure, clear roles and responsibilities and the availability of relevant technical expertise. However, we have identified some improvements to the team structure, for example the earlier inclusion of finance, risk management and catchment representatives.	**Ongoing:** We are developing a dry weather and drought contingency plan to capture what worked well, for reference in future events; this could include a map of the teams and roles within the task team to ensure that all relevant expertise is included. Our drought management structure adopted during the 2025 event is captured in our drought plan main document.
Incident management: drought monitoring and modelling	Our strong network and water resources modelling expertise proved highly beneficial, by enabling evidence-based decisions making. It also supported the identification of innovative solutions, such as new network rezones and the use of pontoons. The valuable intelligence provided by 'Miser' modelling outputs could be utilised earlier and more widely in future events to support drought and asset awareness and proactive action.	**Ongoing:** The use of 'Miser' model intelligence is being further embedded into BAU (Business As Usual) activities, but it should be further integrated into internal performance review sessions to make insights visible and actionable. We will explore ways to improve and embed the use of modelling earlier and more widely.
Incident management: asset availability	We have identified an opportunity to enhance our dry weather and drought planning by improving the business-wide awareness and communication of asset availability. Strengthening this visibility will help ensure our response is informed by the most up-to-date operational understanding of key assets.	**Ongoing:** We will explore ways to improve internal knowledge-sharing.

Category	Lessons Learned	Update: When and where we will apply the learning
Incident management: commercial	There was strong collaboration with our Commercial, Engineering and Capital delivery (CEC) department. Ongoing reviews and the use of a tracker helped the team prioritise, identify funding needs, and quickly rationalise ideas while engaging contractors through CEC.	**Ongoing:** We will consider the CEC tracker as a permanent tool to be used in future incidents.

4. Next steps

We are continuing to review our lessons learned from the 2025 drought, both internally and in collaboration with the Environment Agency as outlined earlier. Detailed programmes of work and associated timescales for longer term work will be set out in future updates of the Drought Plan 2027, the annual drought health check or the annual Water Resources Review. We will also set out how we will monitor progress with implementing any changes identified, and how we communicate these to customers.

A summary of the next steps towards incorporating all lessons learned into our published plans and/or operational plans is as follows:

- The Environment Agency will share with us a full list of lessons they have identified through their own review (including both successes and improvements), and then we will hold a workshop with them to go through all lessons identified by both ourselves and the EA;
- Our draft Drought Plan is being published for public consultation from 18 May 2026 to 2 August 2026, following which we will review feedback and incorporate this into a revised draft plan, alongside any changes which have resulted from our lessons learned review;
- We anticipate that our revised draft plan will be published in Autumn 2026;
- We will keep our internal incident management arrangements under review, including team structures, data management processes, internal information sharing and meeting frequencies and structures, and make any changes to these as appropriate; and
- We will report on any changes in future drought plan or water resources management plan updates as outlined above.

Appendix A

Table A1: North West mean temperature, rainfall and soil moisture deficit for December 2024 – November 2025.

Month	Mean Temperature (°C)	Mean Temperature (%LTA)	Rainfall (mm)	Rainfall (%LTA)	Rank (155 Years)	Cunnane Categorisation	SMD (mm)	SMD (% LTA)
Winter	**4.7**	**114.6%**	**330.3**	**88.7%**	**80**	**Normal**	**0.4**	**57.1%**
Dec	6.4	148.8%	170.3	118.2%	126	Above normal	0.4	93.7%
Jan	2.7	69.2%	99.5	80.0%	56	Normal	0.0	5.7%
Feb	4.9	119.5%	60.5	58.1%	46	Normal	0.8	78.3%
Spring	**9.7**	**127.6%**	**123.5**	**52.6%**	**4**	**Exceptionally low**	**44.0**	**230.0%**
Mar	7.2	138.5%	30.9	34.4%	6	Exceptionally low	9.2	164.1%
Apr	9.9	133.8%	23.8	33.7%	12	Notably low	33.7	219.7%
May	12.1	117.5%	68.8	92.6%	79.5	Normal	89.0	244.4%
Summer	**16.2**	**114.2%**	**294.7**	**100.5%**	**84**	**Normal**	**80.1**	**183.7%**
Jun	15.3	117.7%	140.2	163.1%	143	Above normal	69.4	160.5%
Jul	16.6	112.9%	94.2	96.7%	78	Normal	79.0	167.9%
Aug	16.4	113.1%	60.3	54.9%	16	Notably low	92.0	226.9%
Autumn	**10.3**	**108.4%**	**535.8**	**145%**	**152**	**Exceptionally high**	**39.0**	**157.8%**
Sep	12.9	103.2%	202.5	189.6%	152	Exceptionally high	53.0	189.9%
Oct	10.6	111.6%	122.2	92.5%	152	Exceptionally high	54.0	93.7%
Nov	7.4	113.8%	211.1	160.2%	74	Normal	9.9	71.8%

Table A2: Cumbria and Lancashire mean temperature, rainfall and soil moisture deficit for December 2024 – November 2025.

Month	Rainfall (mm)	Rainfall (%LTA)	Rank (155 Years)	Cunnane Categorisation	SMD (mm)	SMD (% LTA)
Winter	**360.6**	**84.2%**	**71**	**Normal**	**0.5**	**101.8%**
Dec	183.2	111.6%	118	Above normal	0.2	
Jan	104.0	72.3%	51	Normal	0.0	6.5%
Feb	73.4	61.1%	51	Normal	1.2	185.1%
Spring	**141.9**	**55.1%**	**6.5**	**Exceptionally low**	**30.5**	**289.3%**
Mar	35.0	34.2%	7.5	Exceptionally low	6.3	217.8%
Apr	24.8	32.7%	10	Notably low	16.7	210.0%
May	82.1	103.0%	94	Normal	68.6	329.5%
Summer	**364.4**	**114.2%**	**112**	**Normal**	**12.7**	**91.4%**
Jun	173.8	190.6%	151	Exceptionally high	13.4	70.7%
Jul	113.2	107.1%	88	Normal	3.9	30.3%
Aug	77.4	63.4%	27.5	Below Normal	20.6	214.5%
Autumn	**622.6**	**1.493**	**153**	**Exceptionally high**	**0.9**	**50.0%**
Sep	234.8	197.8%	152	Exceptionally high	1.0	23.7%
Oct	138.7	93.6%	77	Normal	1.7	237.8%
Nov	249.1	165.9%	152	Exceptionally high	0.0	3.1%

Table A3: Greater Manchester, Merseyside, and Cheshire mean temperature, rainfall and soil moisture deficit for December 2024 – November 2025.

Month	Rainfall (mm)	Rainfall (%LTA)	Rank (155 Years)	Cunnane Categorisation	SMD (mm)	SMD (% LTA)
Winter	**280.0**	**111.8%**	**119**	**Above normal**	**0.5**	**62.3%**
Dec	142.1	142.0%	139	Notably high	0.6	106.6%
Jan	106.3	130.0%	124	Above normal	0.0	4.4%
Feb	31.6	45.4%	33	Below Normal	1.0	80.6%
Spring	**94.1**	**50.9%**	**4**	**Exceptionally low**	**51.1**	**226.5%**
Mar	21.9	35.0%	9	Notably low	10.7	160.6%
Apr	21.9	36.8%	15	Notably low	42.3	231.1%
May	50.3	80.3%	56	Normal	100.2	234.8%
Summer	**160.1**	**67.6%**	**19**	**Notably low**	**109.6**	**197.4%**
Jun	69.2	92.9%	91	Normal	94.7	178.9%
Jul	62.9	79.3%	53	Normal	111.4	183.7%
Aug	28.0	33.7%	7	Exceptionally low	122.7	231.8%
Autumn	**383.1**	**142.1%**	**148**	**Exceptionally high**	**31.3**	**169.8%**
Sep	144.4	178.3%	147	Notably high	76.1	203.7%
Oct	96.7	99.7%	88.5	Normal	15.9	109.4%
Nov	142.0	155.1%	141	Notably high	1.9	55.6%

Figure A1: Total regional reservoir storage for 2025 and 10-year average (2015 – 2024).

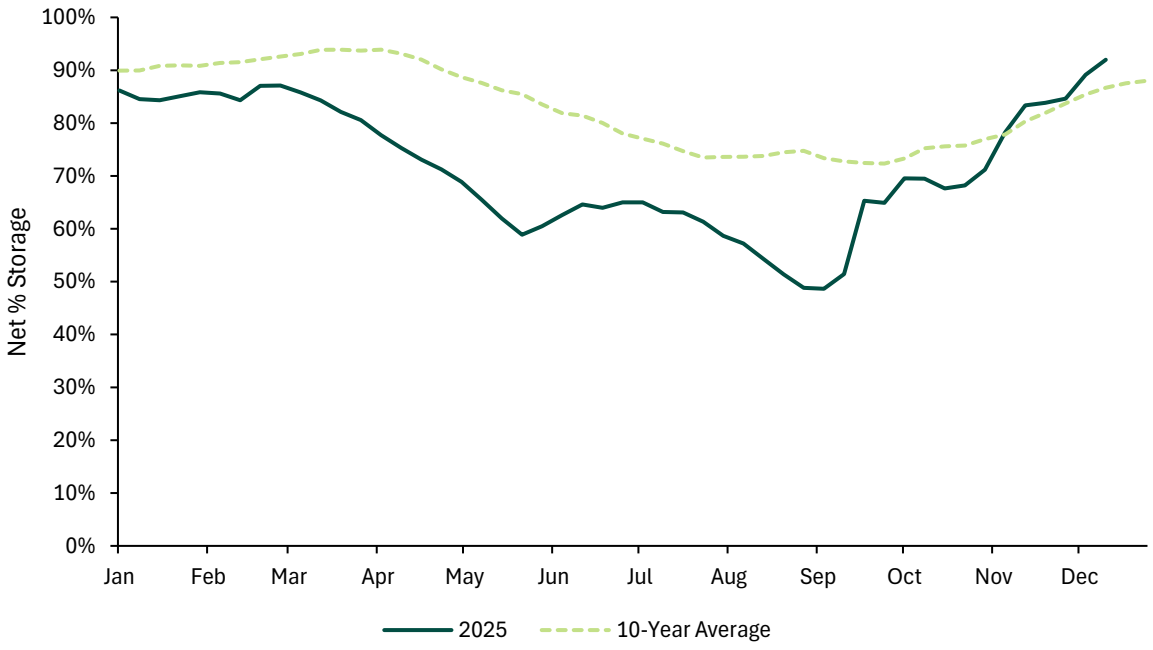


Figure A2: Pennine reservoir storage for 2025 and 10-year average (2015 – 2024).

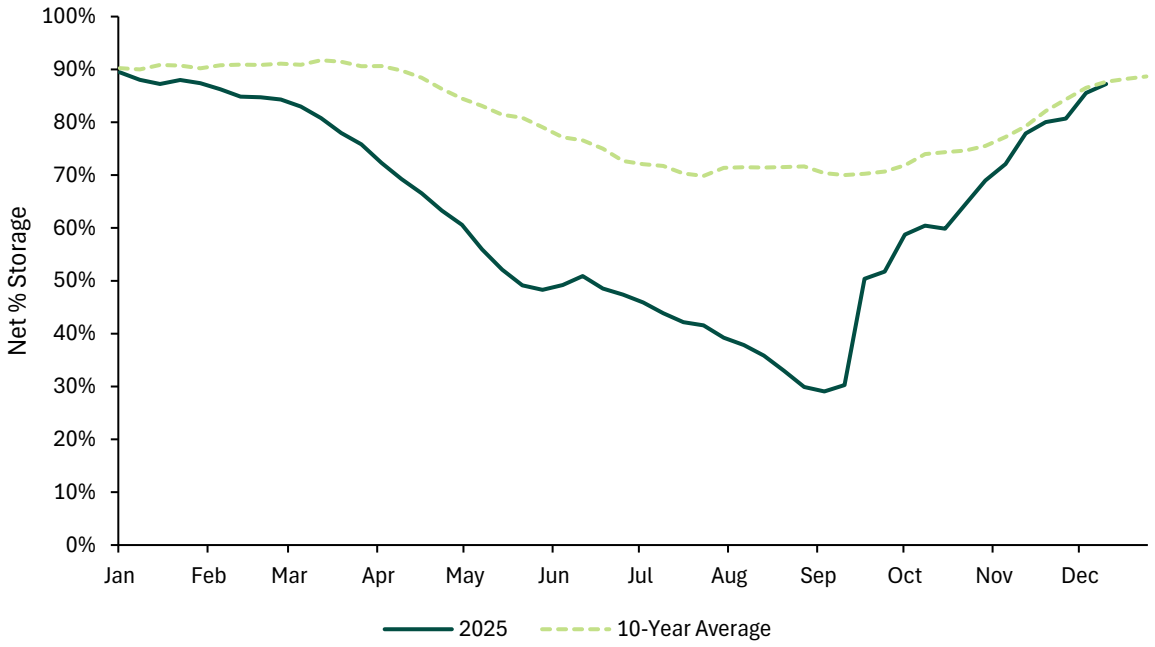


Figure A3: Lakes (Strategic Haweswater and Thirlmere) reservoir storage for 2025 and 10-year average (2015 – 2024).

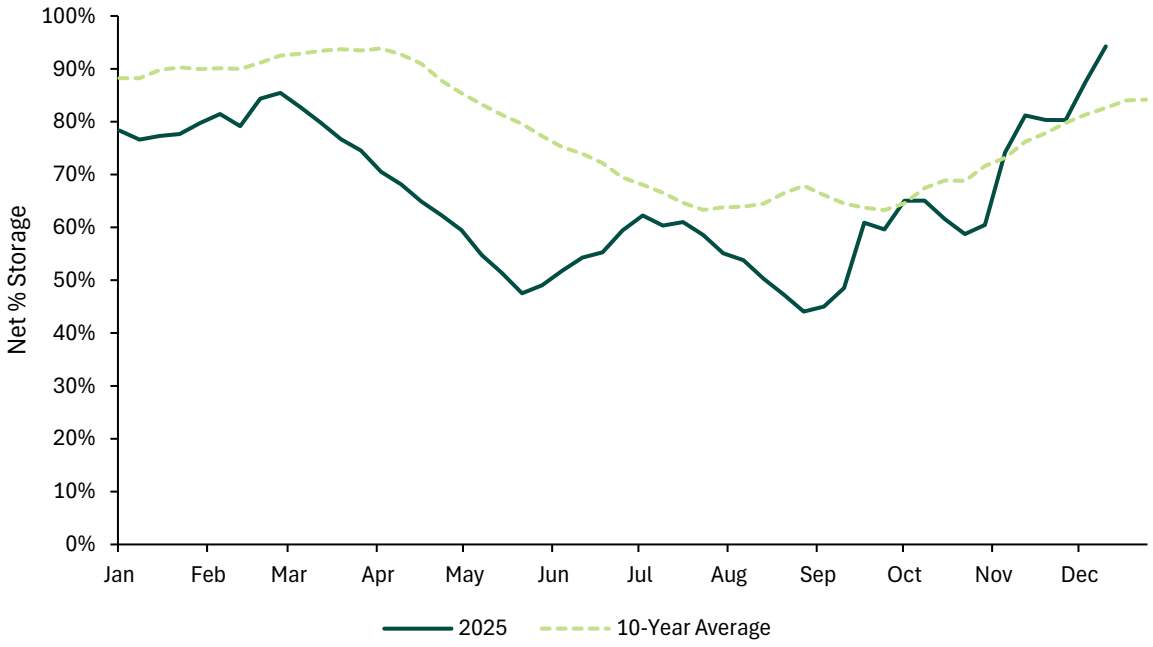


Figure A4: Strategic Dee & Vyrnwy reservoir storage for 2025 and 10-year average (2015 – 2024).

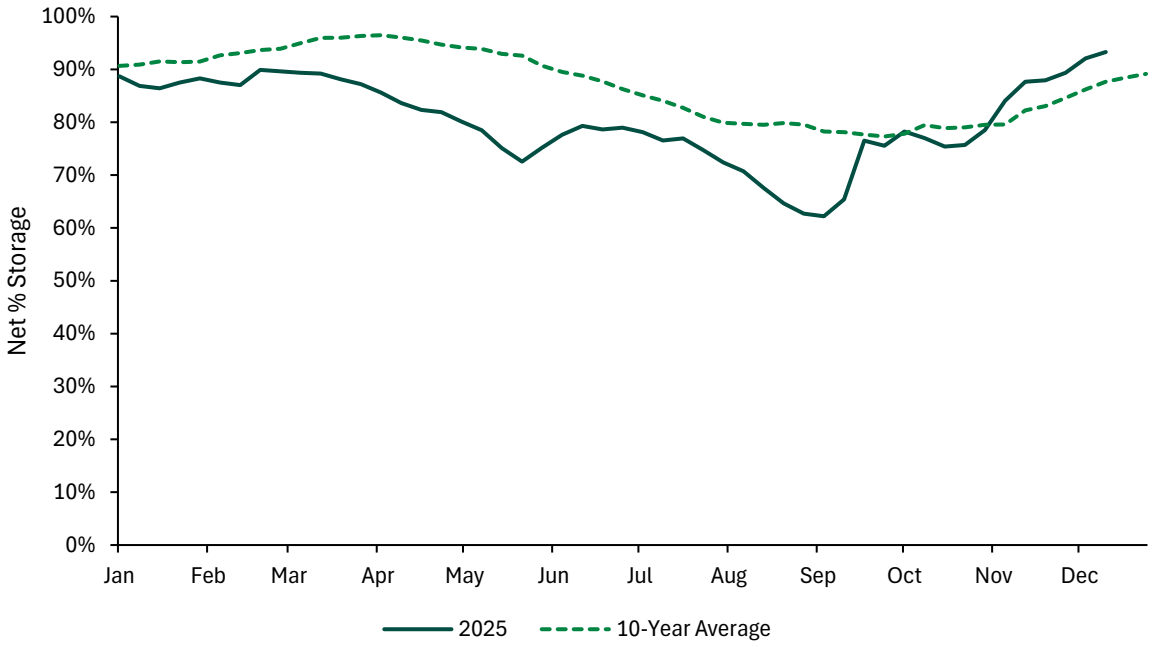
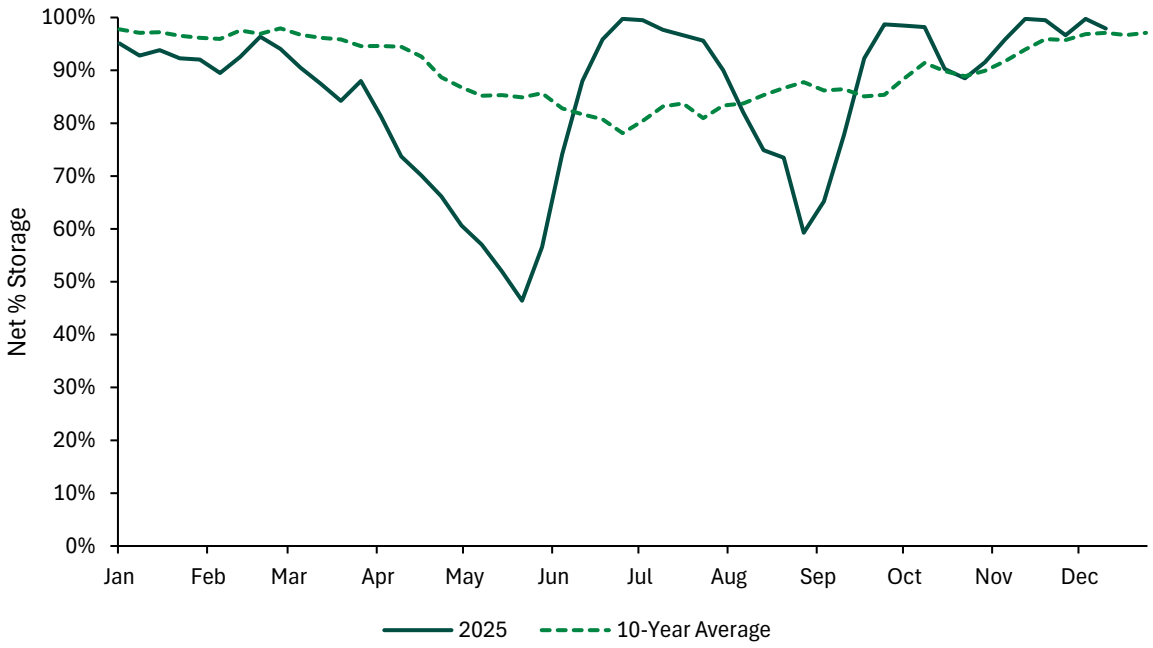


Figure A5: Carlisle (Castle Carrock) reservoir storage for 2025 and 10-year average (2015 – 2024).



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