

Overview

The monthly rainfall totals were above the long-term average for August in most places, wettest in the Northeast and Southwest. The monthly average river flows for August remained high since last month, with 87% of monitoring stations above the long-term normal for August. Similarly, 88% of lake and turlough monitoring stations observed levels above the long-term normal range for this month.

Average monthly groundwater levels also rose at 68% of monitoring wells since July with almost three-quarter (73%) of monitoring wells recording levels above the long-term average for August. Similarly, most monitored spring outflows were above the normal range this time of year.

Rainfall

The majority of monthly rainfall totals were above their 1981-2010 Long-Term Average (LTA). Percentage of monthly rainfall values ranged from 78% (monthly rainfall total of 92.2 mm) at Mace Head, Co Galway to 163% (monthly rainfall total of 119.4 mm) at Dublin Airport, Co Dublin. Monthly rainfall totals ranged from 62.9 mm (87% of its LTA) at Oak Park, Co Carlow to 177.2 mm (154% of its LTA) at Valentia Observatory, Co Kerry.

The month's wettest day was on Friday 18th during storm Betty. The highest daily fall was recorded at Valentia Observatory, Co Kerry with 74.0 mm (its highest daily fall in August since 1986). Also on Friday 18th, Roches Point, Co Cork had its highest daily fall for August on record with 59.6 mm (record length 19 years) and Cork Airport, Co Cork has its highest daily fall for August since 1998 with 63.0 mm.

The number of rain days ranged from 15 days at Casement Aerodrome, Co Dublin to 29 days at Newport, Co Mayo. The number of wet days ranged from 12 days at Phoenix Park, Co Dublin to 22 days at a few stations. The number of very wet days ranged from 1 day at a few stations to 6 days at Knock Airport, Co Mayo.

River Flows

The average river flows for August increased at 81% of river monitoring stations compared to average flows observed in July 2023. Analysis of the monthly average flows at 145 river monitoring sites identified 54 (37%) as 'particularly high', 72 (50%) as 'above normal' and 19 (13%) as 'normal' for this time of year. Geographically, the 'particularly high' river flows were observed only in the Midlands and Northeast.

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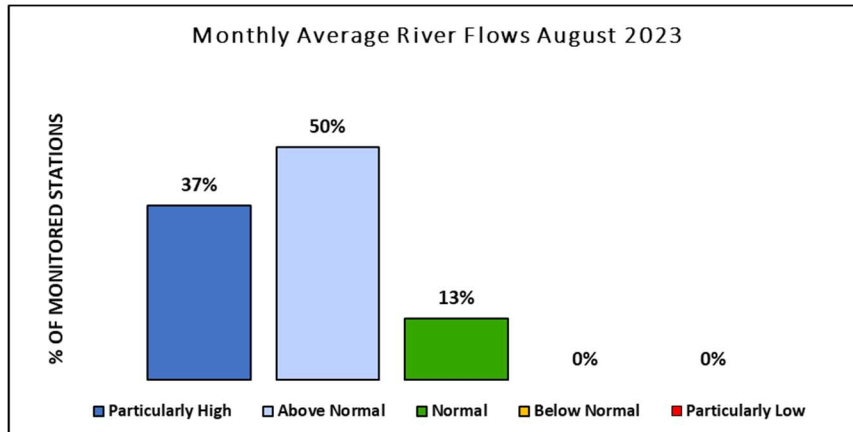


Figure 1: Percentage distribution of river flow monitoring sites within each of the percentile flow categories for August 2023.

Lake and Turlough Levels

Average water levels during August increased at 84% of monitored lakes compared to average levels for July. Analysis of monthly average levels at 38 lakes and 4 turloughs were classified as being ‘particularly high’ at 20 (48%), ‘above normal’ at 17 (40%) and ‘normal’ at 5 (12%) monitoring locations for the month of August.

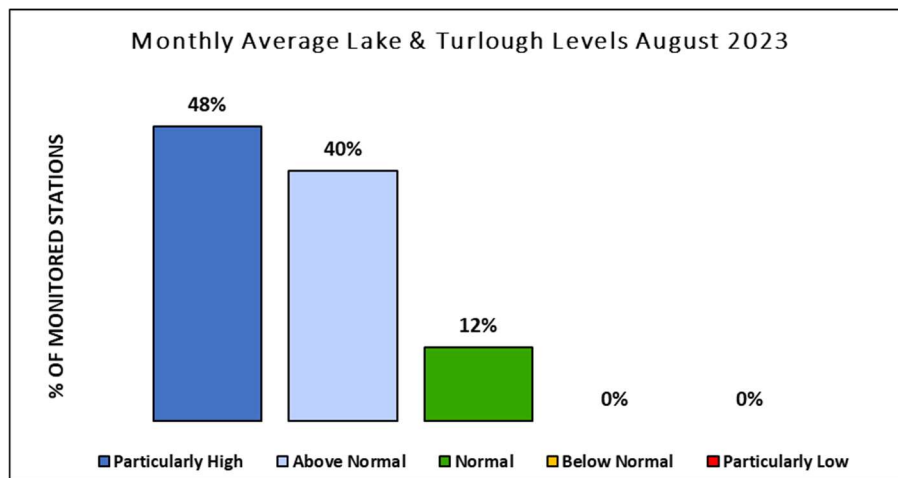


Figure 2: Percentage distribution of lake and turlough level monitoring sites within each of the percentile flow categories for August 2023.

Groundwater Levels and Spring Flows

Average groundwater levels in August rose at over two-thirds (68%) of monitoring wells compared to average levels observed in July. Groundwater levels for August were classified as being ‘particularly high’ at 17 wells (46%) ‘above normal’ at 10 wells (27%), ‘normal’ at 8 wells (22%) and ‘below normal’ at 2 wells (5%) across the country.

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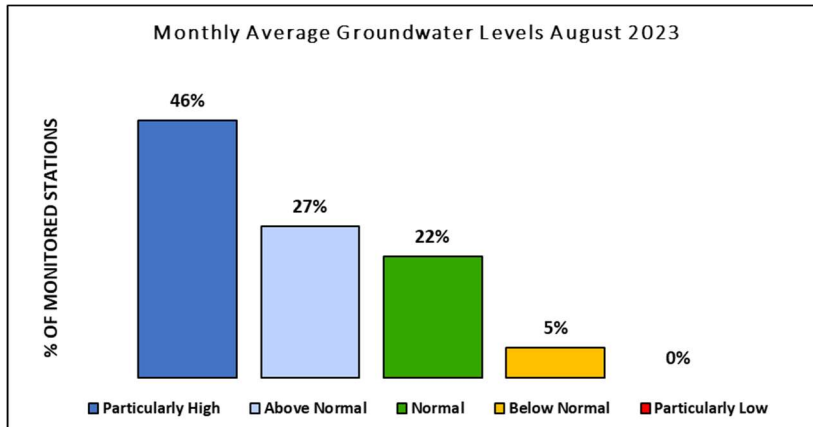


Figure 3: Percentage distribution of groundwater level sites within each of the percentile flow categories for August 2023.

Spring outflows were also monitored at 9 EPA monitoring sites for August. The outflows from these springs were compared to previously recorded August flows and were ‘particularly high’ at 5 locations, ‘above normal’ at 3 locations and ‘normal’ at 1 location [Gortgarrow Spring, Co. Galway] for this time of year.

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Rainfall

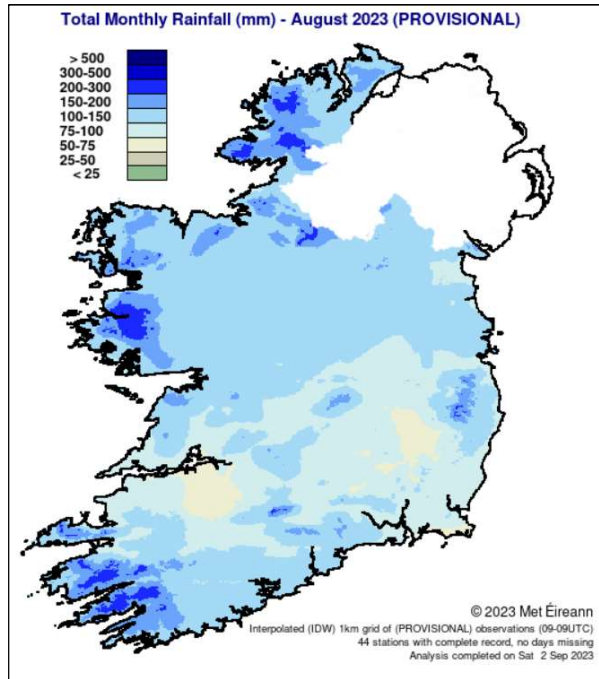


Figure 4: Rainfall map for Ireland August 2023 (Source: Met Éireann.ie).

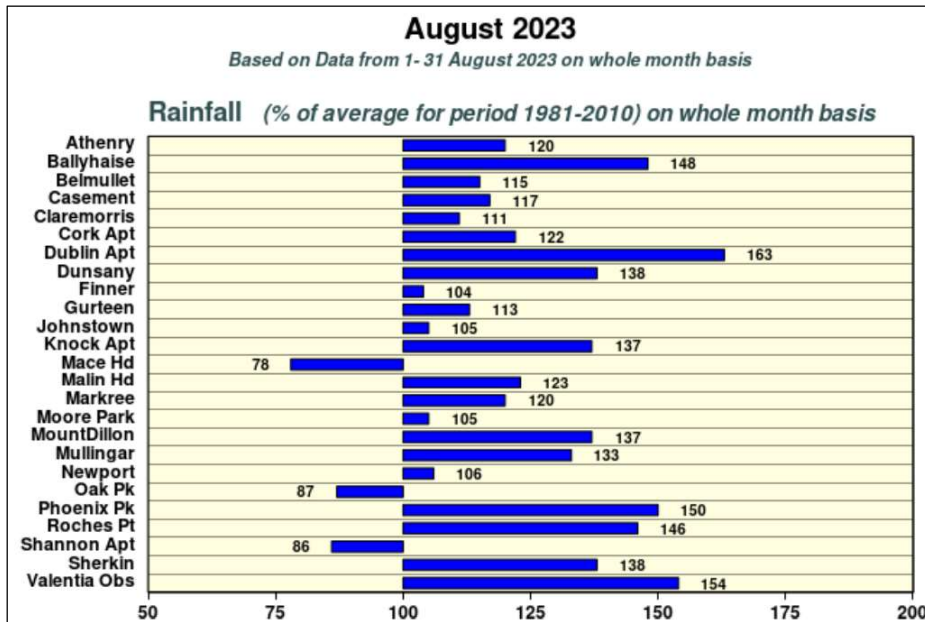


Figure 5: Summary of rainfall at synoptic stations for August 2023, figures indicate the percentage difference from the Long-Term Average rainfall for this month (Source: Met Éireann.ie).

River Flows

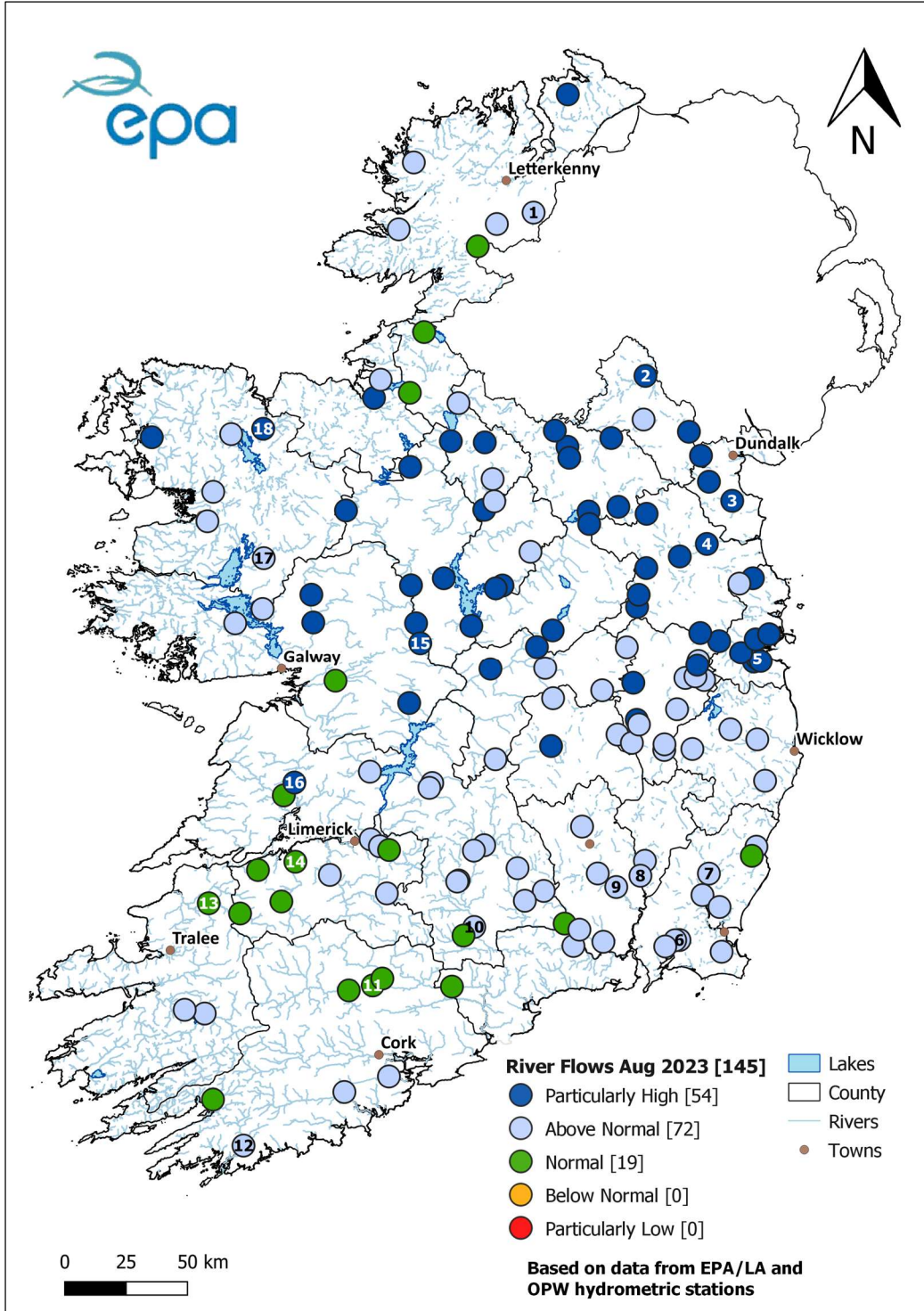


Figure 6: Monthly average river flows for August 2023 relative to historic monthly average flows expressed as percentile of the long-term values of monthly flow. Numbered sites are represented in the hydrographs below. All data are provisional and may be subject to revision (Source: EPA, OPW).

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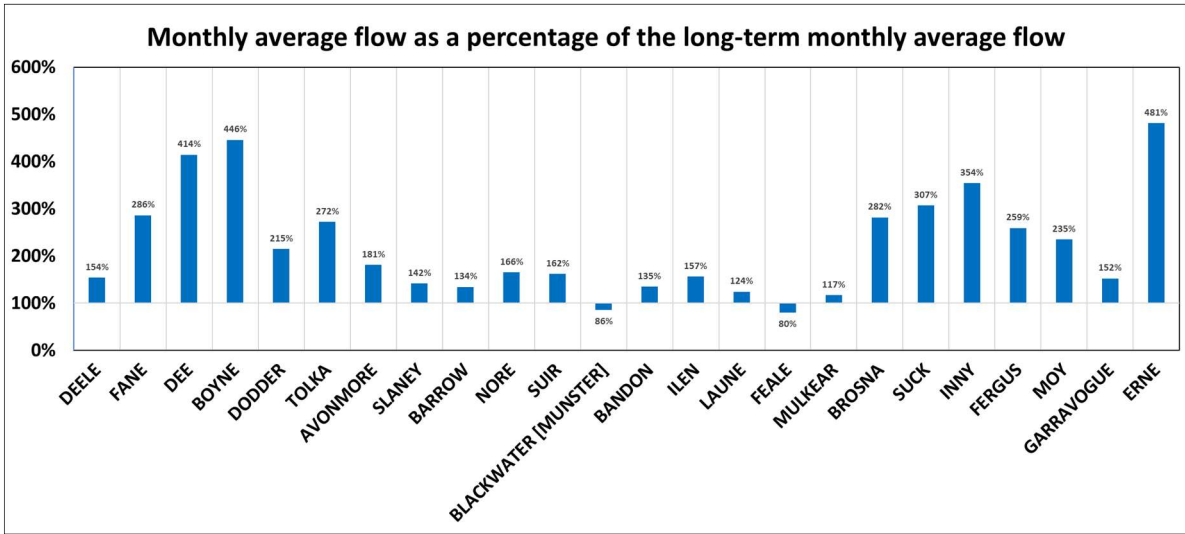
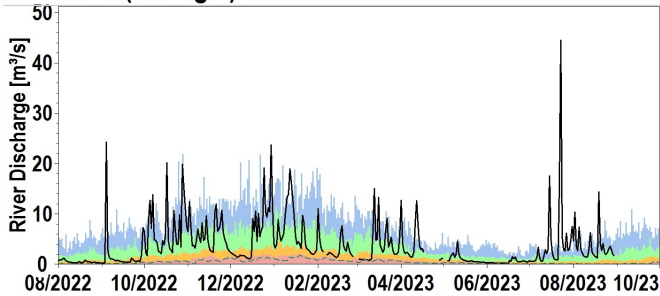


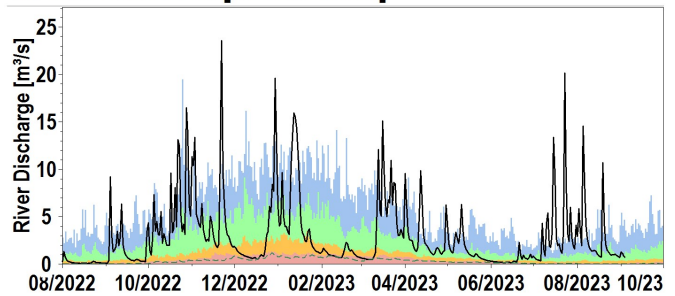
Figure 7: August 2023 average flows as a percentage of the long-term monthly average flow for this month at a selected number of stations. All data are provisional and may be subject to revision (Source: EPA, OPW).

Flow hydrographs for selected rivers

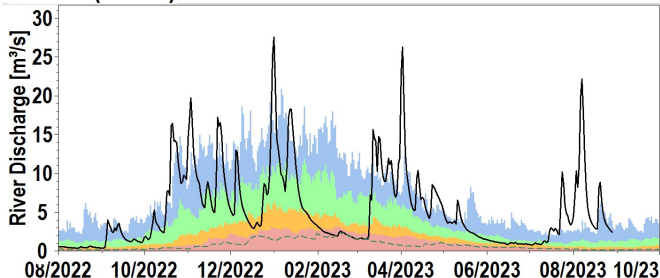
1. DEELE (Donegal)



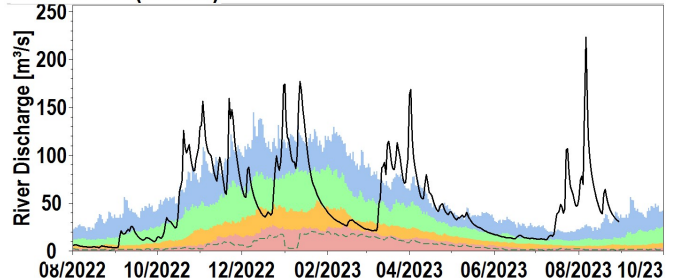
2. BLACKWATER [MONAGHAN]



3. DEE (Louth)

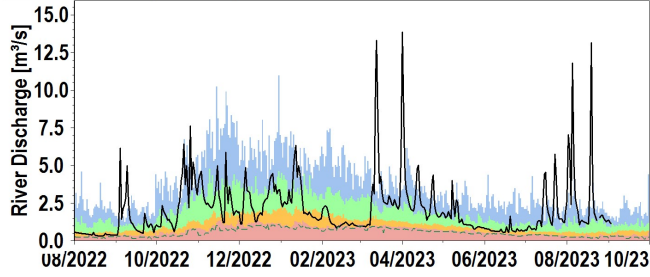


4. BOYNE (Meath)

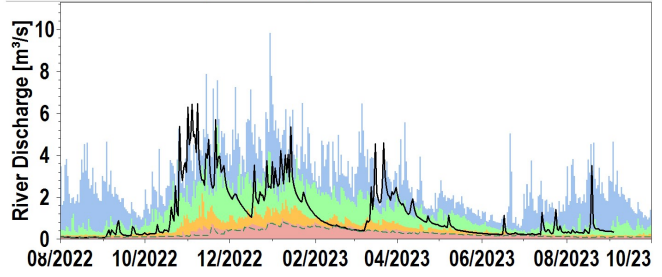


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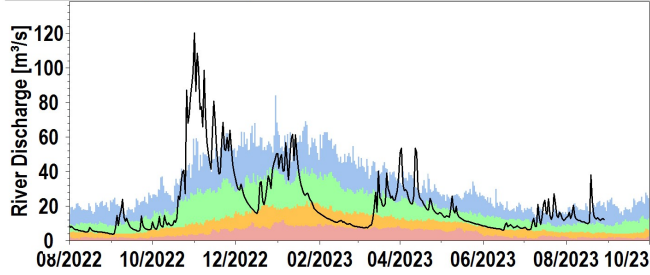
5. DODDER (Dublin)



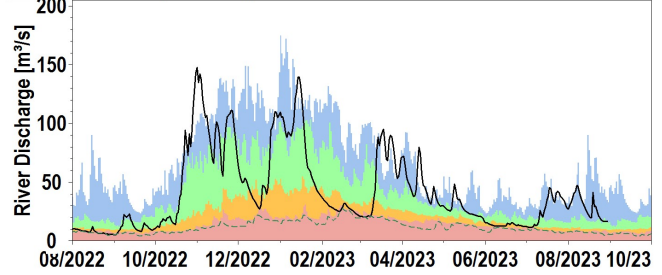
6. MULMONTRY (Wexford)



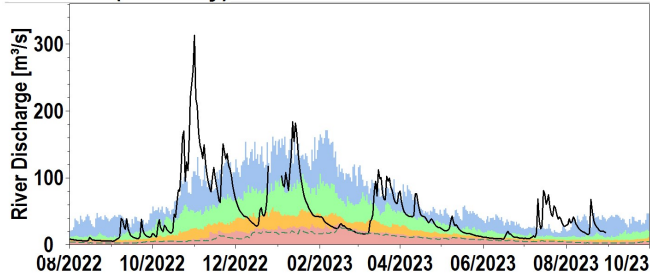
7. SLANEY (Wexford)



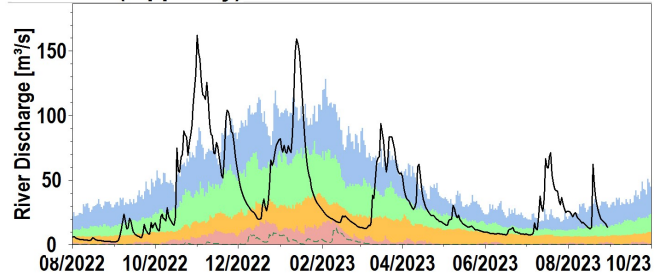
8. BARROW (Carlow)



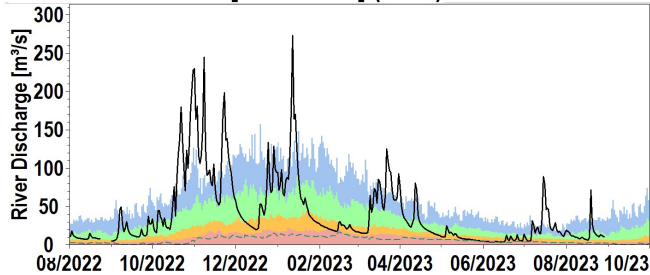
9. NORE (Kilkenny)



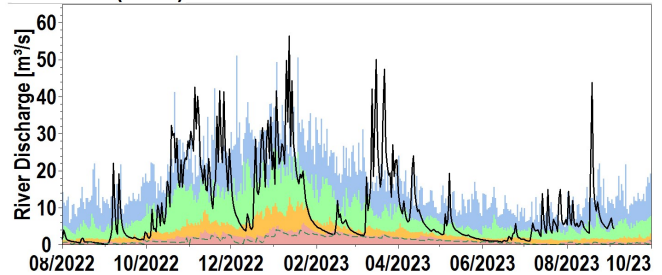
10. SUIR (Tipperary)



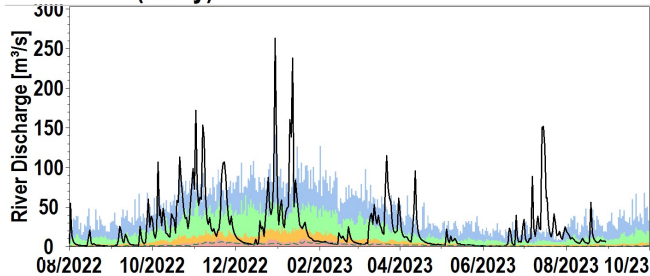
11. BLACKWATER [MUNSTER] (Cork)



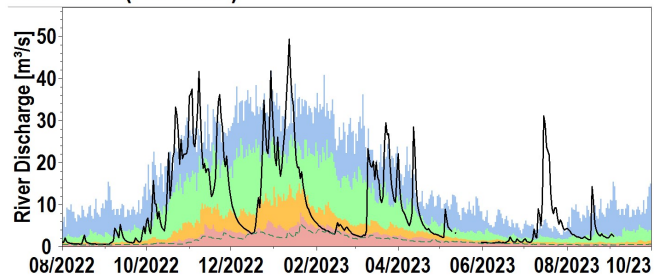
12. ILEN (Cork)



13. FEALE (Kerry)

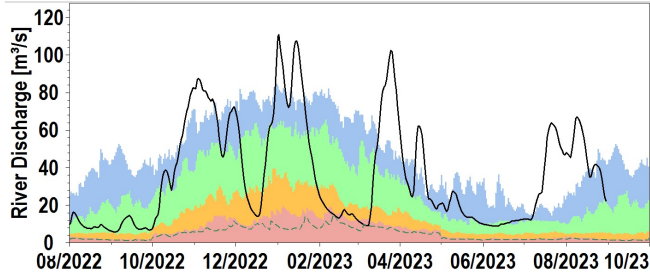


14. DEEL (Limerick)

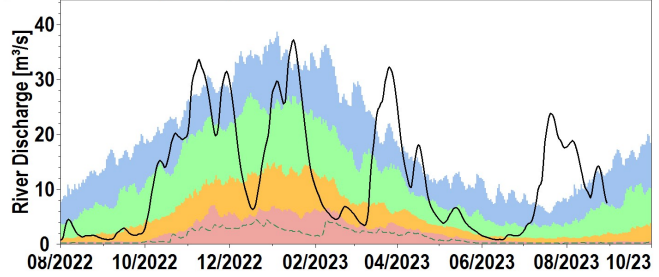


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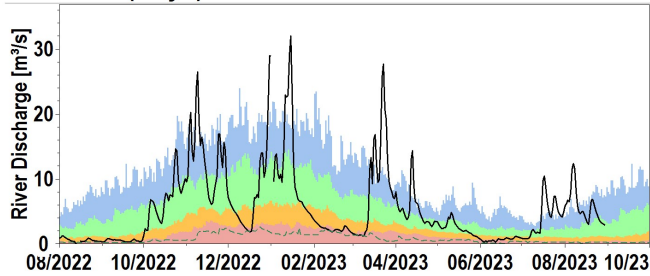
15. SUCK (Roscommon)



16. FERGUS (Clare)



17. ROBE (Mayo)



18. MOY (Mayo)

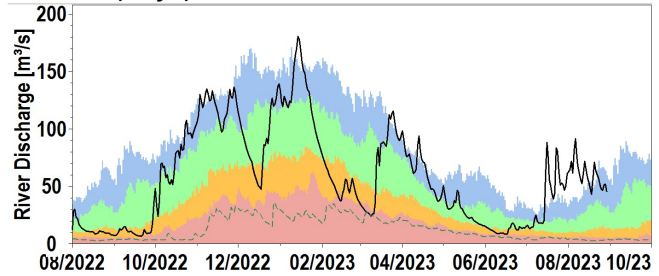




Figure 8: Daily average river flows measured in cubic metres per second relative to historic daily average flows expressed as percentile of the long-term values of each day and long-term minimum flows. All data are provisional and may be subject to revision (Source: EPA, OPW).

Explanation - Classes					 Daily Mean Flow	 Lowest Daily Mean Flow
Particularly Low	Below Normal	Normal	Above Normal	Particularly High		
<95%tile daily average flow	>95%tile <70%tile daily average flow	>70 %tile <30%tile daily average flow	>30%tile 10%tile daily average flow	>10%tile daily average flow		

Lake and Turlough Levels

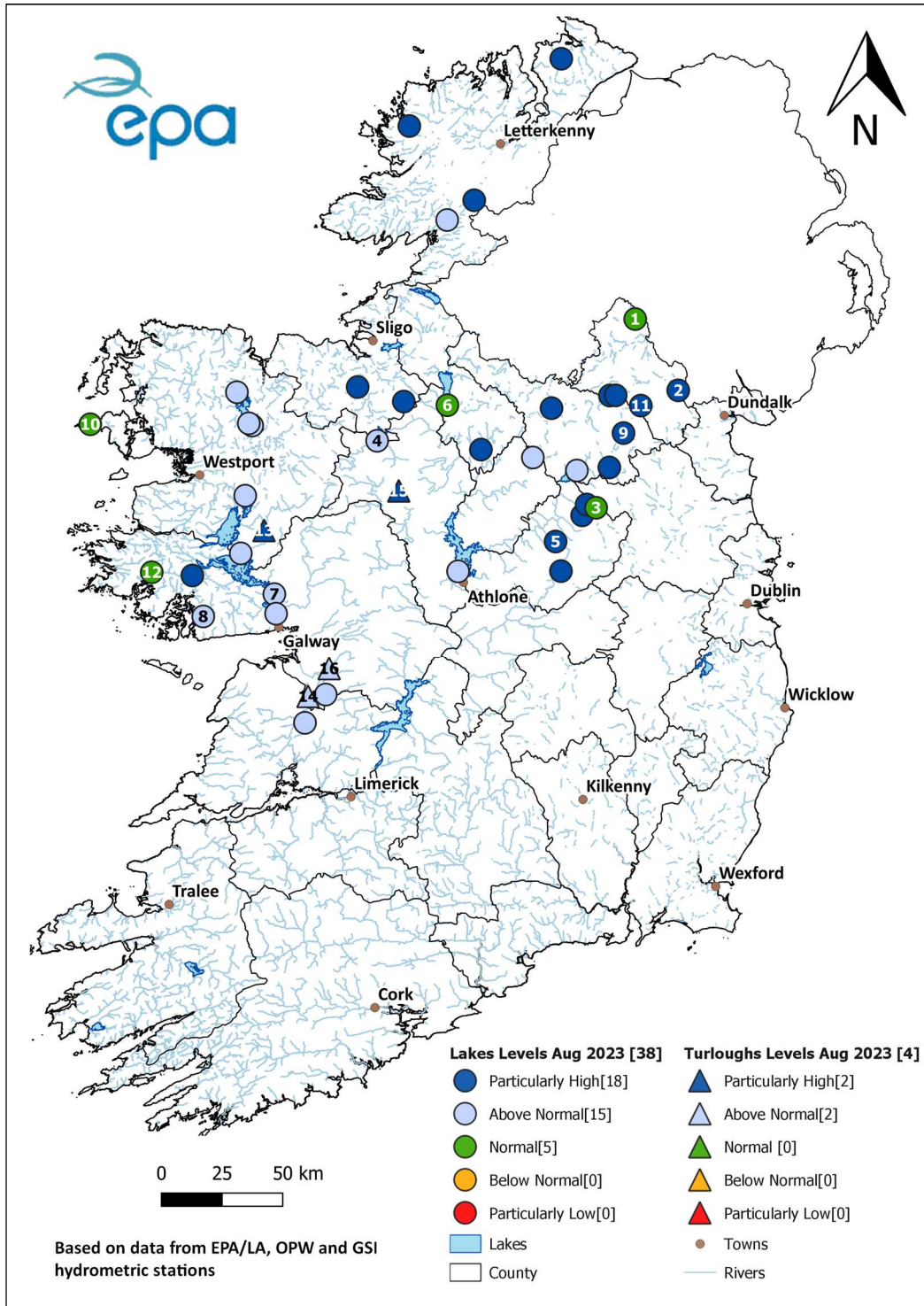
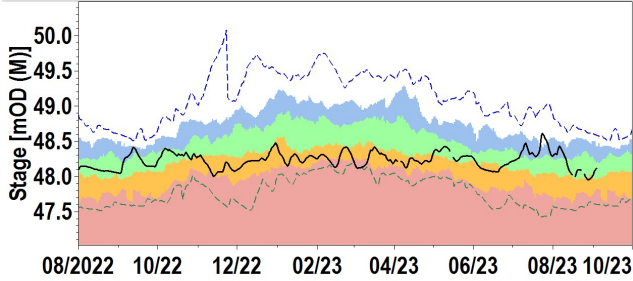


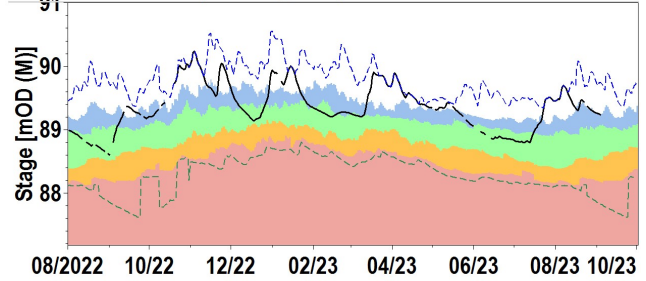
Figure 9: Monthly average lake & turlough levels for August 2023 relative to historic monthly average levels expressed as percentile of the long-term values for this month. Numbered sites are represented in the hydrographs below. All data are provisional and may be subject to revision (Source: EPA, OPW and GSI).

Water level hydrographs for selected lakes and turloughs

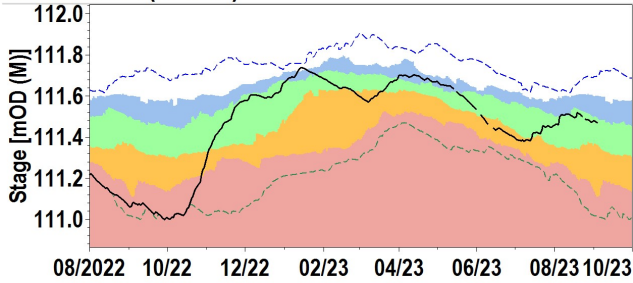
1. EMY LOUGH (Monaghan)



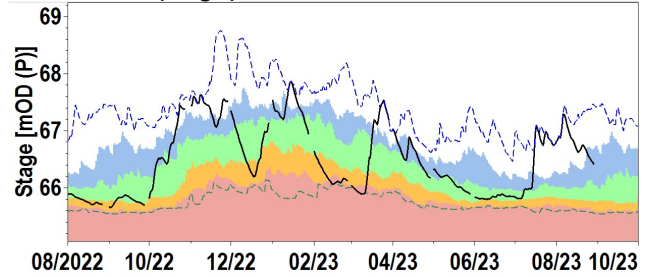
2. L. MUCKNO (Monaghan)



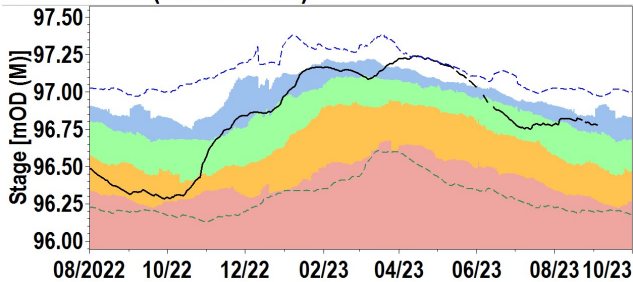
3. L. BANE (Meath)



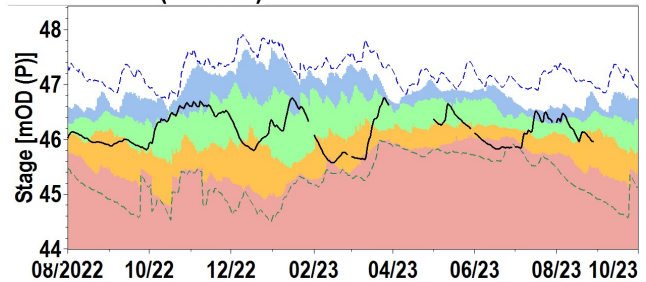
4. L. GARA (Sligo)



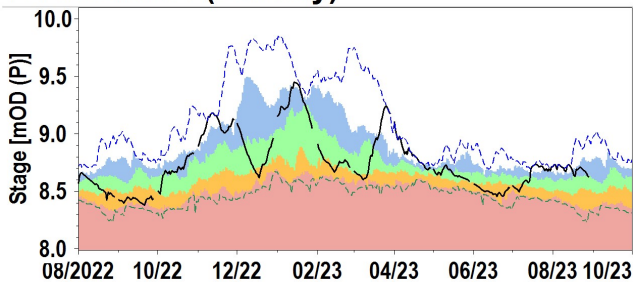
5. L. OWEL (Westmeath)



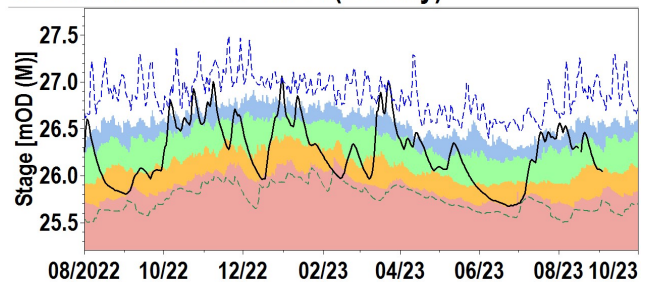
6. L.ALLEN (Leitrim)



7. L.CORRIB (Galway)

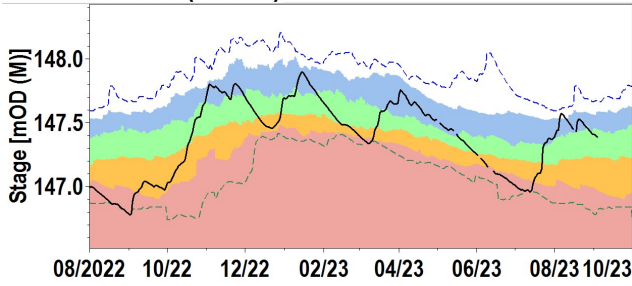


8. GLENICMURRIN LAKE (Galway)

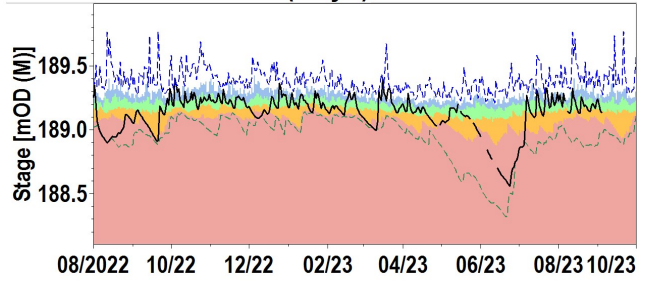


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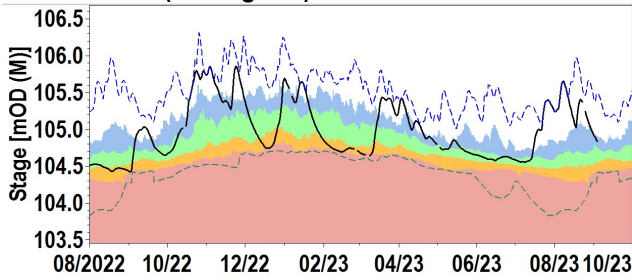
9. SKEAGH L. (Cavan)



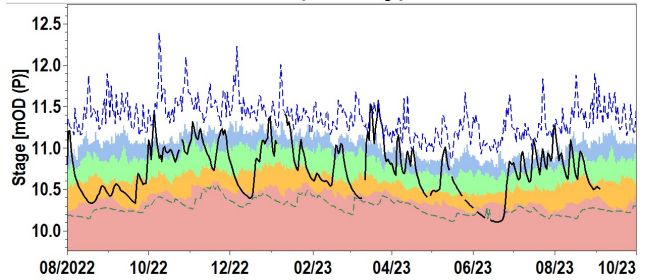
10. L. ACCORMORE (Mayo)



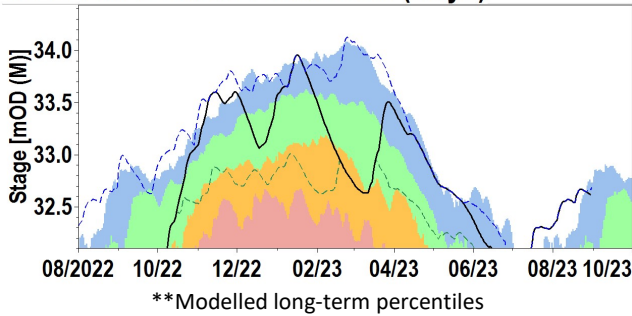
11. L. BAWN (Monaghan)



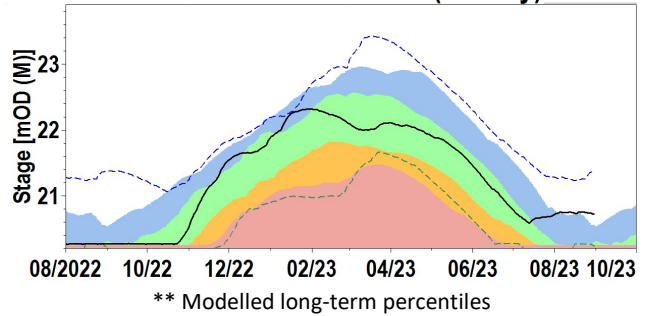
12. DERRYCLARE L. (Galway)



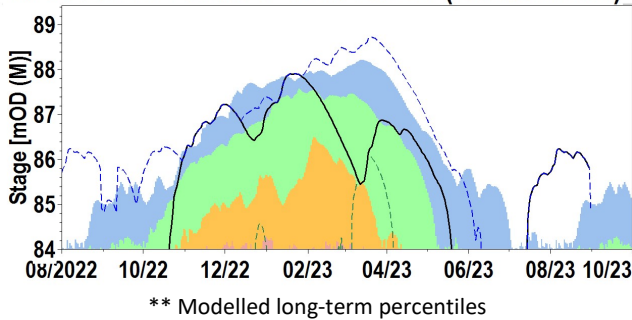
13. SKEALOGHAN TURLOUGH (Mayo)



14. TERMON SOUTH TURLOUGH (Galway)



15. CASTLEPLUNKET TURLOUGH (Roscommon)



16. BLACKROCK TURLOUGH (Galway)

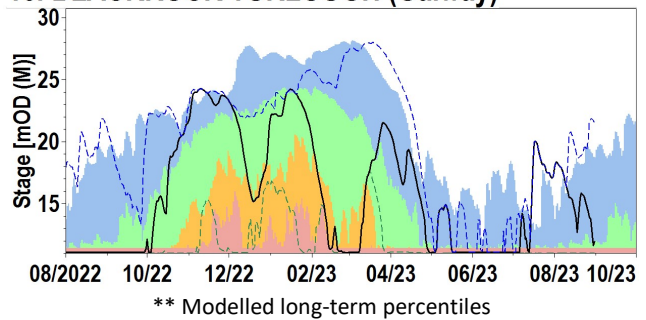
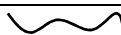




Figure 10: Observed daily mean lake and turlough levels (black trace) measured in meters above ordnance datum compared to the 10%tile, 30%tile, 70%tile and 95%tile for each month for the period of record and observed long-term maximum and minimum levels. Note historic percentiles for turloughs are based on modelled data. All data are provisional and may be subject to revision (Source: EPA, OPW, GSI, TCD, IT Carlow).

Explanation - Classes							
Particularly Low	Below Normal	Normal	Above Normal	Particularly High	Daily Mean Level mOD	Highest Daily Mean Level mOD	Lowest Daily Mean Level mOD
<95%tile daily average level	>95%tile <70%tile daily average level	>70 %tile <30%tile daily average level	>30%tile <10%tile daily average level	>10%tile daily average level			

Groundwater Levels and Spring Flows

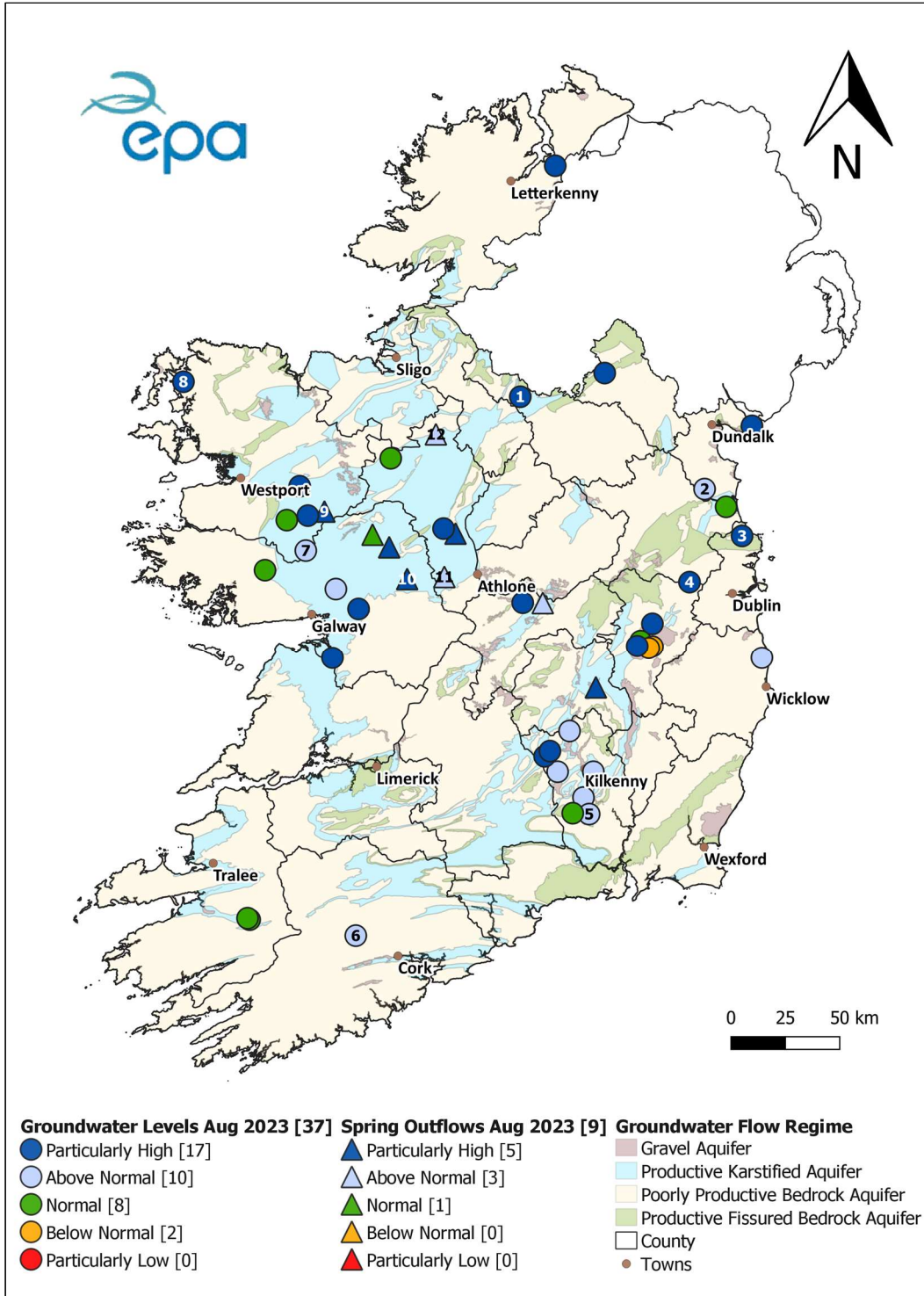
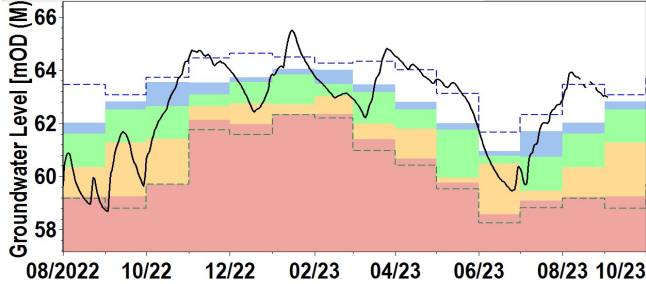


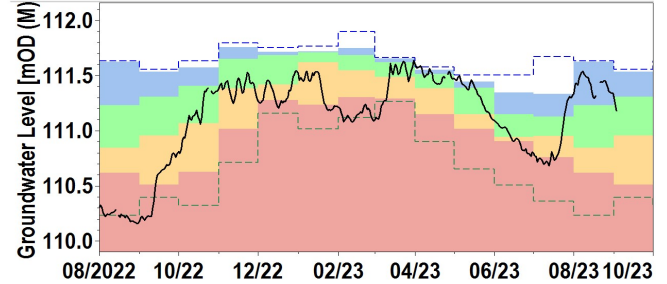
Figure 11: Groundwater level and Spring Flow status for August 2023, relative to historic monthly groundwater levels. Numbered sites are represented in the hydrographs below. All data are provisional and may be subject to revision (Source: EPA).

Groundwater and spring hydrographs

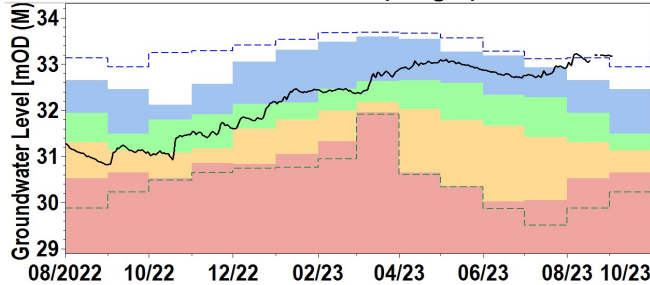
1. BAWN BOY WORKHOUSE (Cavan)



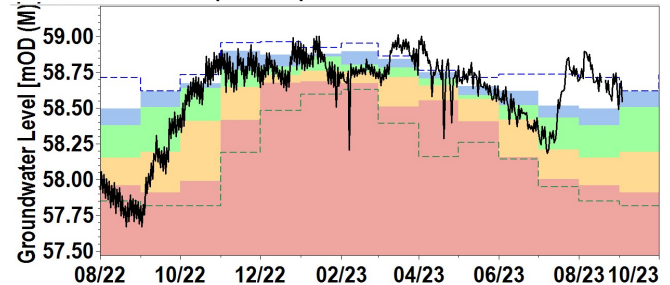
2. Mattock MK1 Deep (Meath)



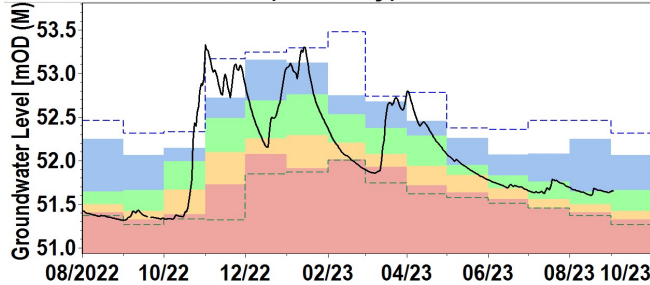
3. BOG OF THE RING OW3D (Fingal)



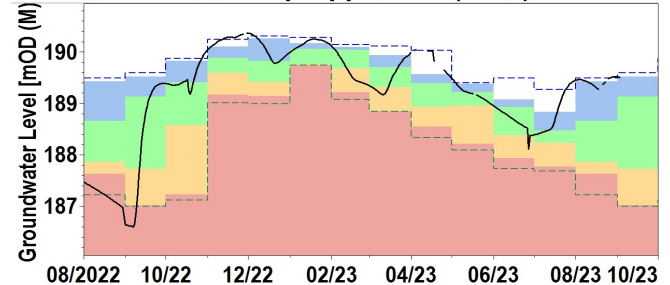
4. RW1 - DEEP (Meath)



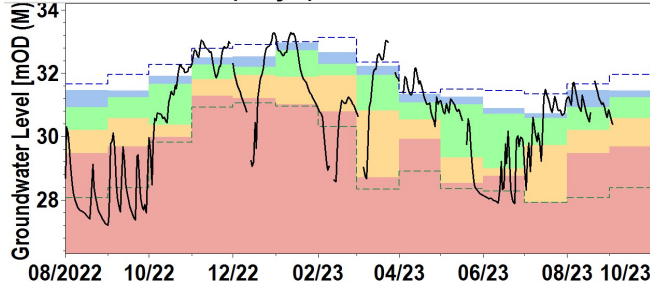
5. KNOCKTOPHER (Kilkenny)



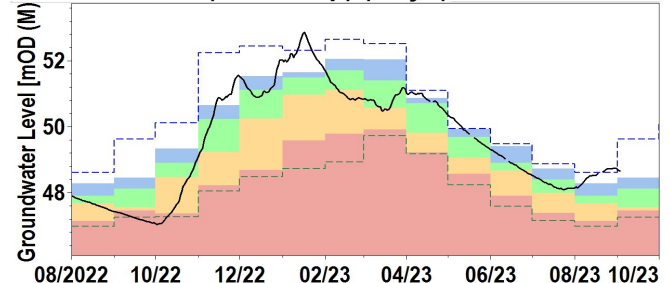
6. DRIPSEY DR1 Deep Upper Site (Cork)



7. SHRULE GWL (Mayo)

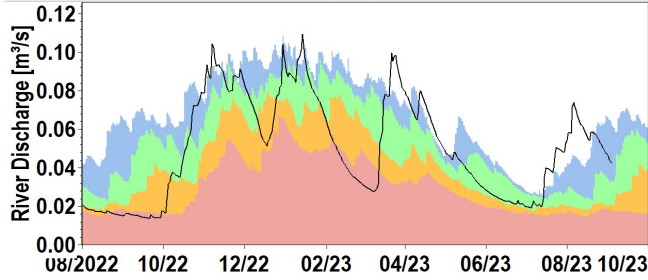


8. Glencastle - (GC1 Deep) (Mayo)

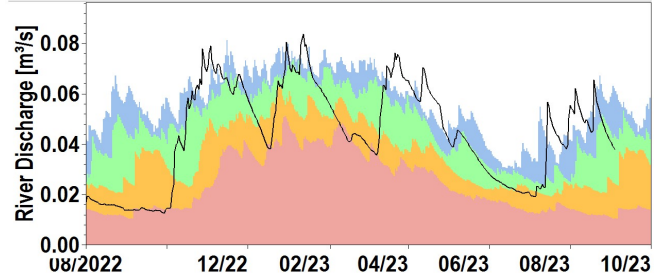


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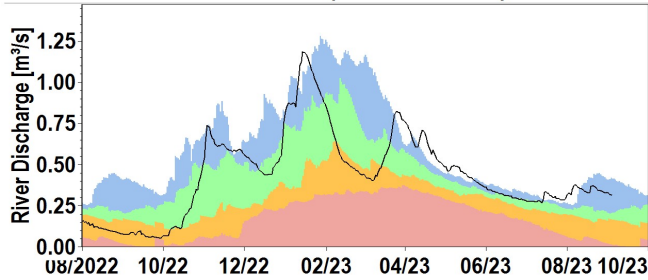
9. BALLINDINE SPRING (Mayo)



10. CALTRA SPRING (Galway)



11. KILLEGLAN SPRING (Roscommon)



12. ROCKINGHAM (Roscommon)

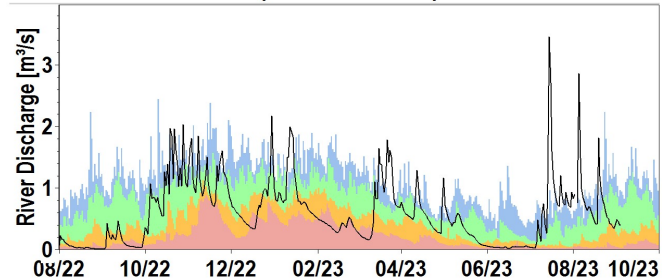
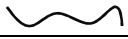




Figure 12: Daily mean groundwater levels (black trace) measured in meters above ordnance datum compared to the 10%tile, 30%tile, 70%tile and 95%tile for each month for the period of record and long-term maximum and minimum levels. All data are provisional and may be subject to revision (Source: EPA).

Explanation - Classes							
Particularly Low	Below Normal	Normal	Above Normal	Particularly High			
<95%tile monthly average level	>95%tile <70%tile monthly average level	>70 %tile <30%tile monthly average level	>30%tile <10%tile monthly average level	>10%tile monthly average level	Daily Mean Level mOD	Highest Month Mean Level mOD	Lowest Month Mean Level mOD

Glossary of terms

Aquifer Type	An aquifer is an underground body of water bearing rock or unconsolidated materials (gravel or sand) from which groundwater can be extracted in useful amounts. For the purposes of this report they have been grouped into four aquifer categories as follows: <ul style="list-style-type: none"> ➤ Karstic (Rk and Lk) aquifers; ➤ Gravel (Rg and Lg) aquifers; ➤ Productive fractured bedrock (Rf and Lm) aquifers; ➤ Poorly productive bedrock (LI, PI and Pu) aquifers.
Dry spell	A dry spell is a period of 15 or more consecutive days to none of which is credited 1.0 mm or more of precipitation (i.e. daily tot < 1.0 mm).
Long term average (LTA)	The arithmetic mean calculated from historic record. For rainfall, the period 1981 to 2010 is used. For other parameters, such as groundwater levels, lake levels and river flow the period may vary according to data availability.
mOD (M or P)	Groundwater levels or lake levels above ordnance datum. In most cases this is relative to mean sea level at Malin (M) but in some cases is relative to Poolbeg (P).
Long-term monthly average	The arithmetic mean calculated from historic record of all monthly averages.
Percentile Level/Flow	Level or flow that is equalled or exceeded the stated percent of the time, e.g. 30%tile is the level or flow that is equalled or exceeded 30 percent of the time.
Very Wet Days	A very wet day is a day with 10.0 mm or more of rainfall.
Wet Days	A wet day is a day with 1.0 mm or more of rainfall.
Dry Spell	A dry spell is a period of 15 or more consecutive days to none of which is credited 1.0mm or more of precipitation (i.e. daily tot < 1.0 mm).
Absolute Drought	An absolute drought is a period of 15 or more consecutive days to none of which is credited 0.2 mm or more of precipitation.
Partial Drought	A partial drought is a period of at least 29 consecutive days, the mean daily rainfall of which does not exceed 0.2 mm

Description of flow and level percentile classifications

Particularly High	>10%tile exceedance	Monthly level or flow that can occur 10% of the time
Above Normal	>30%tile <10%tile exceedance	Monthly level or flow that can occur 20% of the time
Normal	>70%tile <30%tile exceedance	Monthly level or flow that can occur 40% of the time
Below Normal	>95%tile <70%tile exceedance	Monthly level or flow that can occur 20% of the time
Particularly Low	<95%tile exceedance	Monthly level or flow that can occur 5% of the time

Useful links

Access to EPA/LA Hydrometric data on [HydroNet](#)

Access to provisional water level only data from OPW hydrometric stations on [waterLevel.ie](#)

Access to archived water level and flow data from OPW hydrometric stations on [HydroData](#)

Access to turlough and borehole level data from GSI hydrometric stations on [gwlevel.ie](#)

Access to this month's Met Éireann and historic [weather statements](#).