

Overview

Rainfall for May was below the long-term average everywhere, especially in the east with on-going dry periods. The monthly average river flows fell since April but remained within the normal range at 60% of river monitoring stations for May. A quarter (26%) of river stations observed flows above the long-term average corresponding largely to the east and midland regions. Below average river levels were observed at the remaining 14% of river monitoring stations, and these were predominantly in the south east, and to a lesser extent in the west/north west of the country. Lake and turlough levels also fell during May, with over one-third (37%) of monitoring stations remaining above the long-term average for this time of year.

Average monthly groundwater levels for May also fell at 86% of monitoring wells with almost 38% of monitoring wells observing levels above the long-term average for May. Similarly, almost all monitored spring outflows were in the normal range for this time of year.

Rainfall

All monthly rainfall totals across the country were below their 1981-2010 Long-Term Average (LTA). Percentage of monthly rainfall values ranged from 37% (monthly rainfall total of 30.6 mm) at Mace Head, Co Galway to 87% (monthly rainfall total of 56.7 mm) at Shannon Airport, Co Clare. Monthly rainfall totals ranged from 23.3 mm (39% of its LTA) at Oak Park, Co Carlow to 63.5 mm (84% of its LTA) at Athenry, Co Galway. The highest daily rainfall total was 21.4 mm at Valentia Observatory, Co Kerry on Sunday 7th. The number of rain days ranged from 8 days at Phoenix Park, Co Dublin to 15 days at a few stations. The number of wet days ranged from 5 days at Oak Park, Co Carlow to 11 days at a few stations. The number of very wet days ranged from zero days at Phoenix Park, Co Dublin to 2 days at a few stations.

By the end of May, there were five on-going dry spells and four on-going absolute droughts in the East of the country. The dry spells were at Phoenix Park, Dublin Airport, Casement Aerodrome, Co Dublin, Oak Park, Co Carlow (20 days) and Johnstown Castle, Co Wexford (17 days). The absolute droughts were at Phoenix Park, Dublin Airport, Co Dublin, Oak Park, Co Carlow and Johnstown Castle, Co Wexford (17 days).

River Flows

The average river flows for May fell at all river monitoring stations compared to average flows observed in April 2023. Analysis of the monthly average flows at 158 river monitoring sites identified 7 (4%) as being 'particularly high', 34 (22%) 'above normal', 95 (60%) 'normal' and 22 (14%) as 'below normal' for this time of year.

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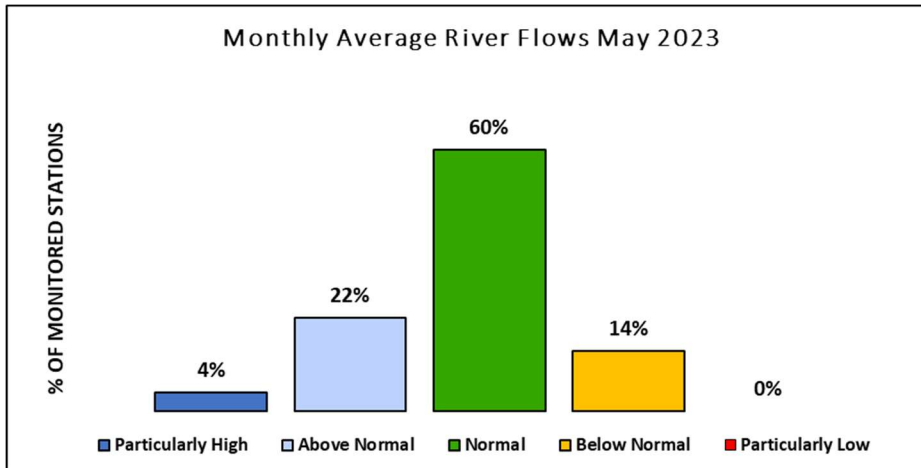


Figure 1: Percentage distribution of river flow monitoring sites within each of the percentile flow categories for May 2023.

Lake and Turlough Levels

Average water levels during May fell at almost all monitored lakes compared to average levels for April. Analysis of monthly average levels at 39 lakes and 4 turloughs were classified as being ‘particularly high’ at 11 (25%), ‘above normal’ at 5 (12%), ‘normal’ at 23 (53%), ‘below normal’ at 2 (5%) and ‘particularly low’ at 2 (5%) monitoring locations for the month of May.

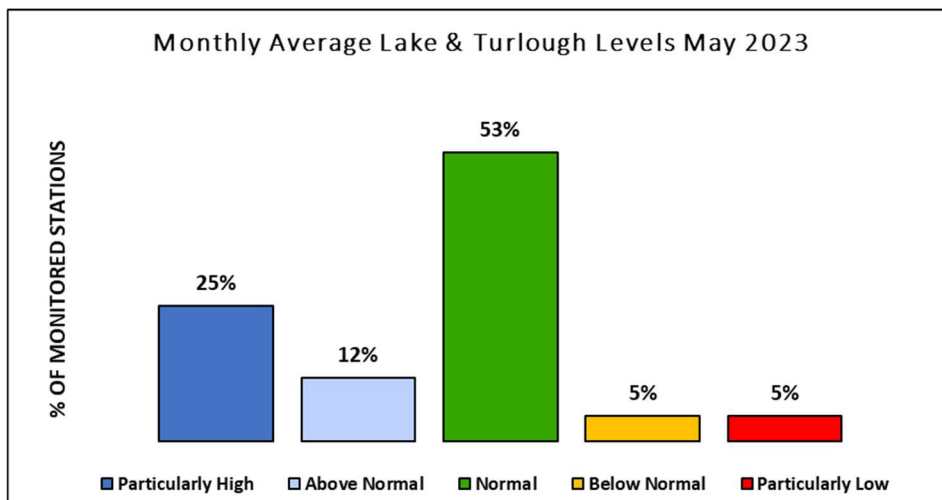


Figure 2: Percentage distribution of lake and turlough level monitoring sites within each of the percentile flow categories for May 2023.

Groundwater Levels and Spring Flows

Average groundwater levels in May fell at 86% of monitoring wells compared to average levels observed in April. During May, groundwater levels were classified as being ‘particularly high’ at 4 wells (10%), ‘above normal’ at 11 wells (28%), ‘normal’ at 19 wells (49%) and ‘below normal’ at 5 wells (13%) across the country.

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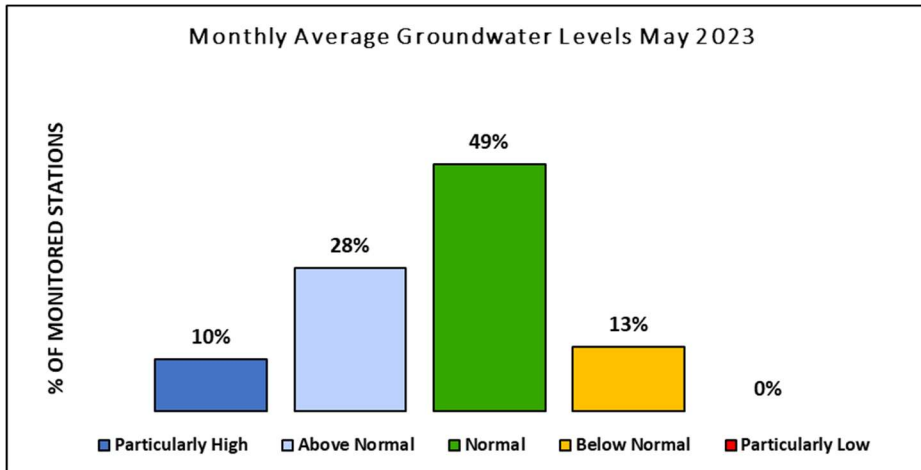


Figure 3: Percentage distribution of groundwater level sites within each of the percentile flow categories for May 2023.

Spring outflows were also monitored at 9 EPA monitoring sites for May. The outflows from these springs were compared to previously recorded flows for May and were ‘particularly high’ at 1 location [Killeglan Spring, Co. Roscommon (Fig. 12 (11))], ‘above normal’ at 4 locations and ‘normal’ at 4 monitoring locations for this time of year.

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Rainfall

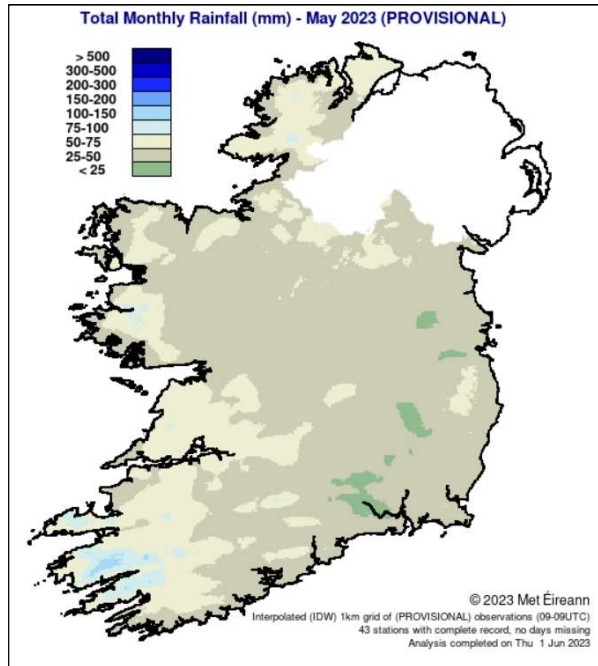


Figure 4: Rainfall map for Ireland May 2023 (Source: Met Eireann.ie).

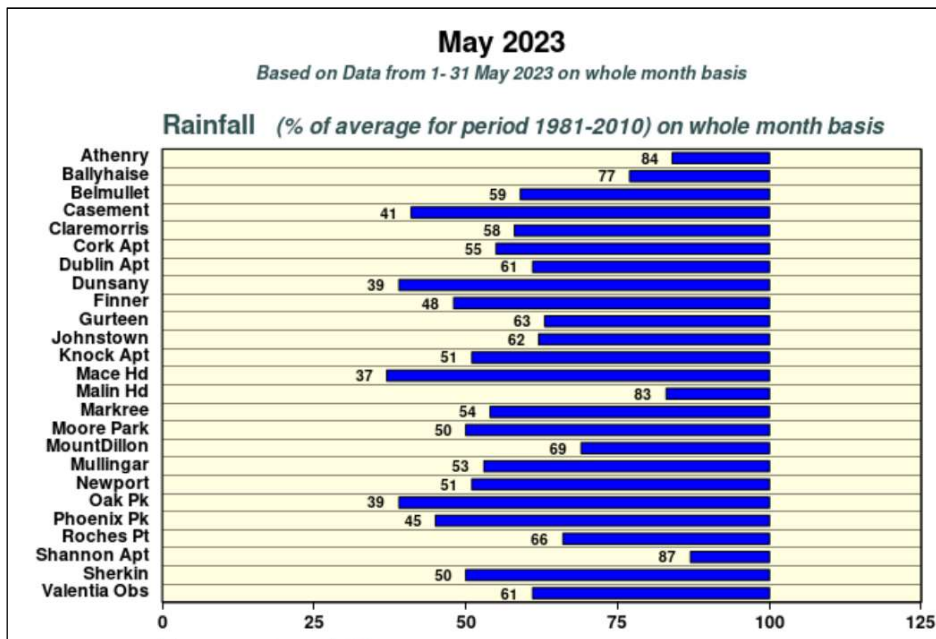


Figure 5: Summary of rainfall at synoptic stations for May 2023, figures indicate the percentage difference from the Long-Term Average rainfall for this month (Source: Met Eireann.ie).

River Flows

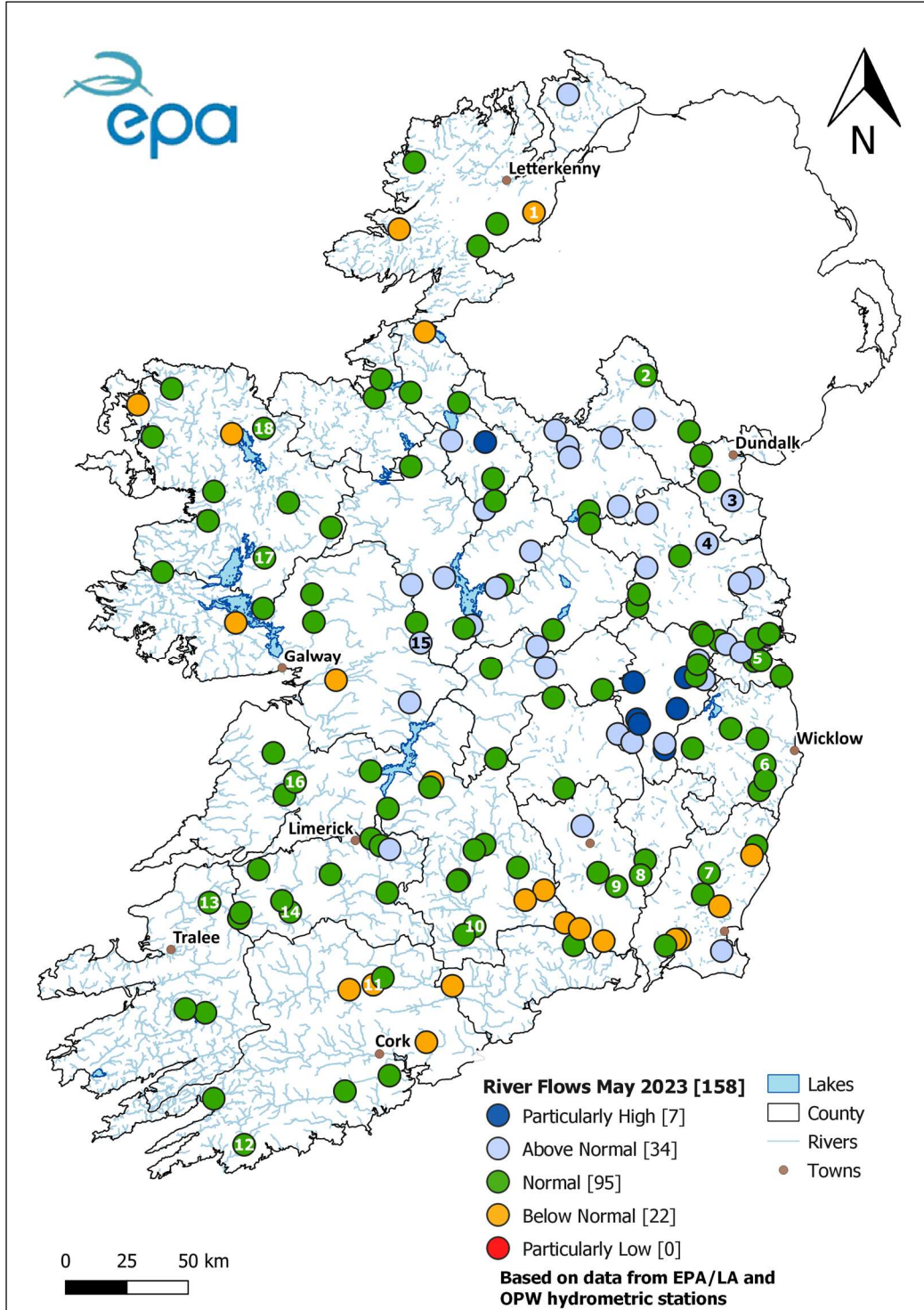


Figure 6: Monthly average river flows for May 2023 relative to historic monthly average flows expressed as percentile of the long-term values of monthly flow. Numbered sites are represented in the hydrographs below. All data are provisional and may be subject to revision (Source: EPA, OPW).

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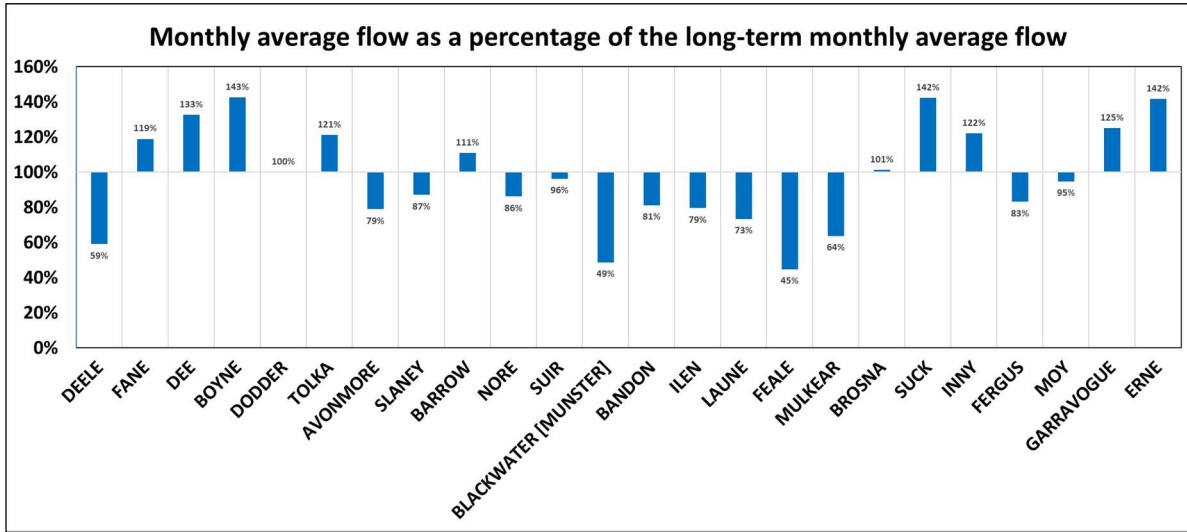
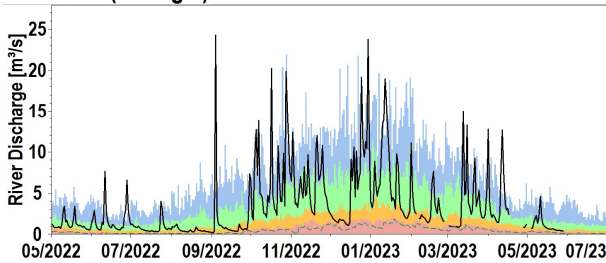


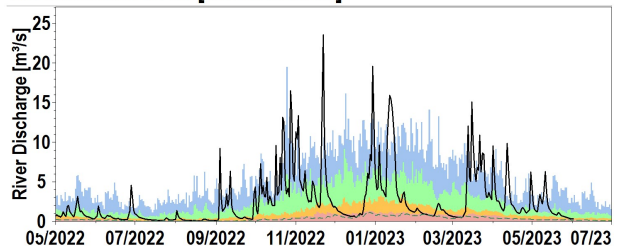
Figure 7: May 2023 average flows as a percentage of the long-term monthly average flow for this month at a selected number of stations. All data are provisional and may be subject to revision (Source: EPA, OPW).

Flow hydrographs for selected rivers

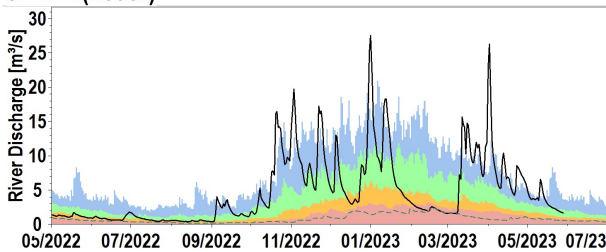
1. DEELE (Donegal)



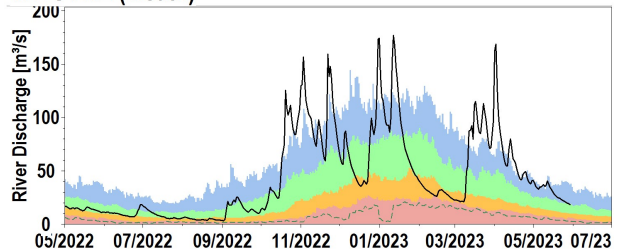
2. BLACKWATER [MONAGHAN]



3. DEE (Louth)

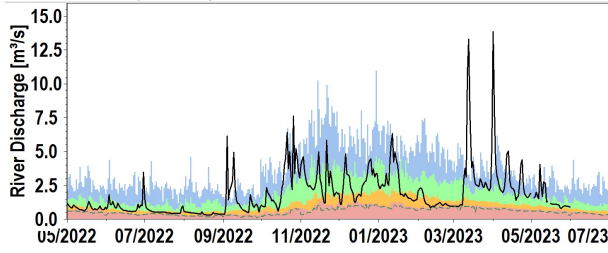


4. BOYNE (Meath)

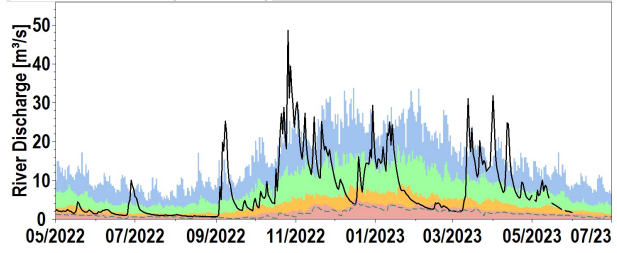


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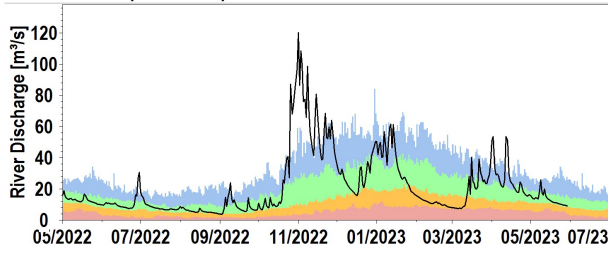
5. DODDER (Dublin)



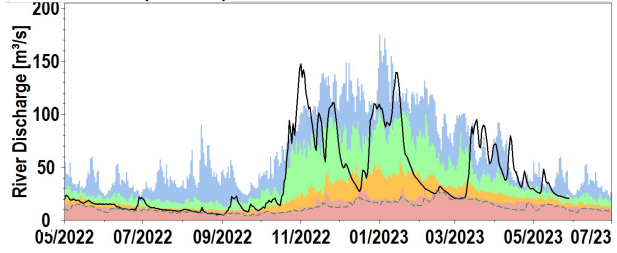
6. AVONMORE (Wicklow)



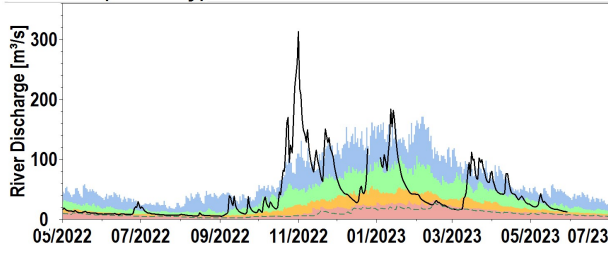
7. SLANEY (Wexford)



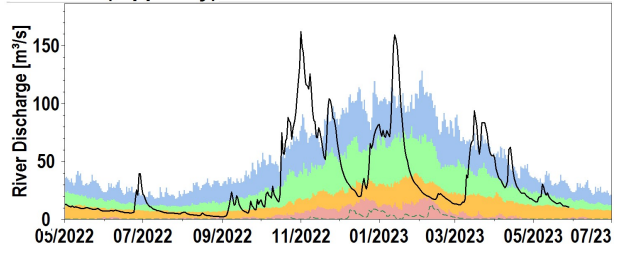
8. BARROW (Carlow)



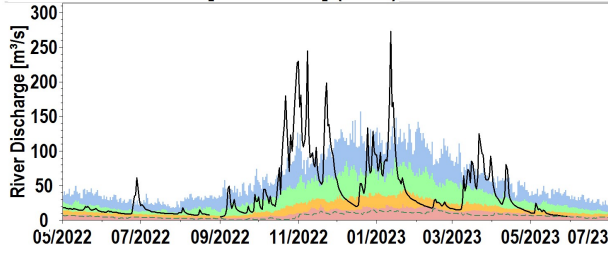
9. NORE (Kilkenny)



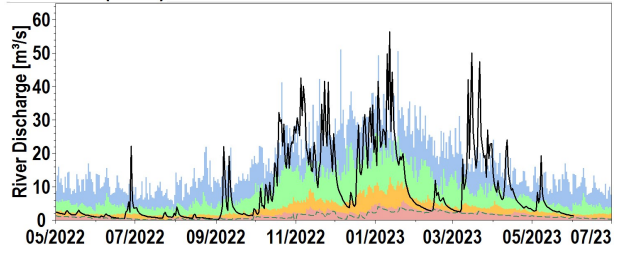
10. SUIR (Tipperary)



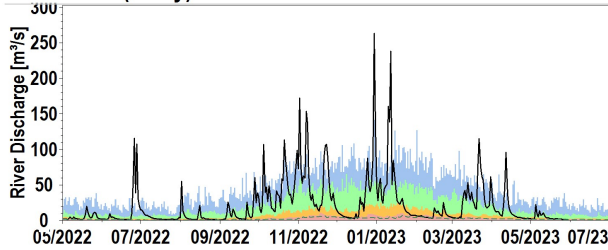
11. BLACKWATER [MUNSTER] (Cork)



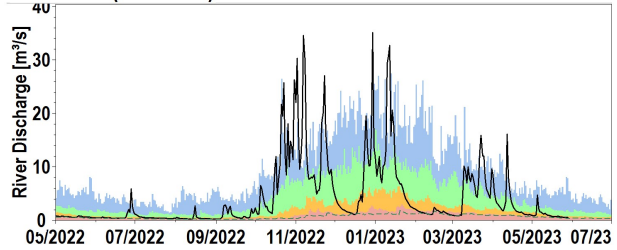
12. ILEN (Cork)



13. FEALE (Kerry)

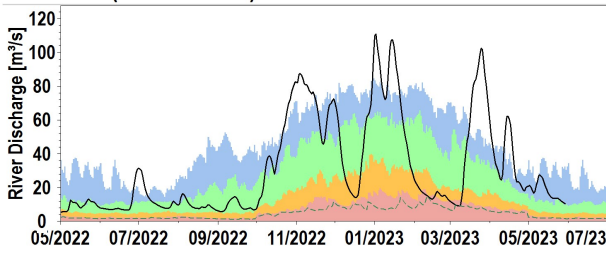


14. DEEL (Limerick)

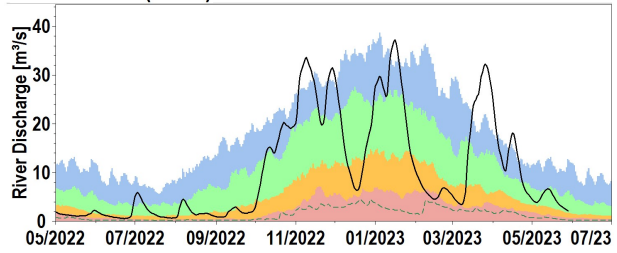


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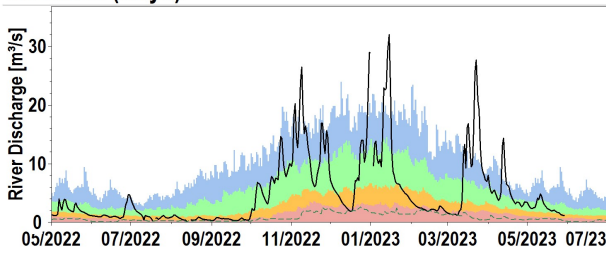
15. SUCK (Roscommon)



16. FERGUS (Clare)



17. ROBE (Mayo)



18. MOY (Mayo)

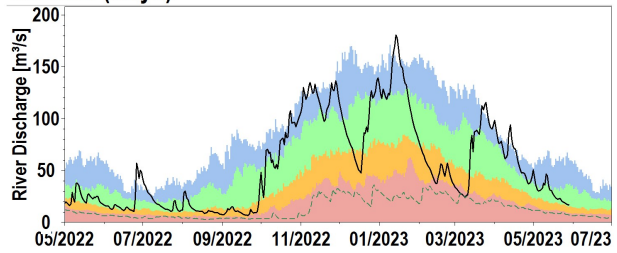
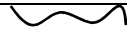



Figure 8: Daily average river flows measured in cubic metres per second relative to historic daily average flows expressed as percentile of the long-term values of each day and long-term minimum flows. All data are provisional and may be subject to revision (Source: EPA, OPW).

Explanation - Classes						
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	Daily Mean Flow	Lowest Daily Mean Flow

Lake and Turlough Levels

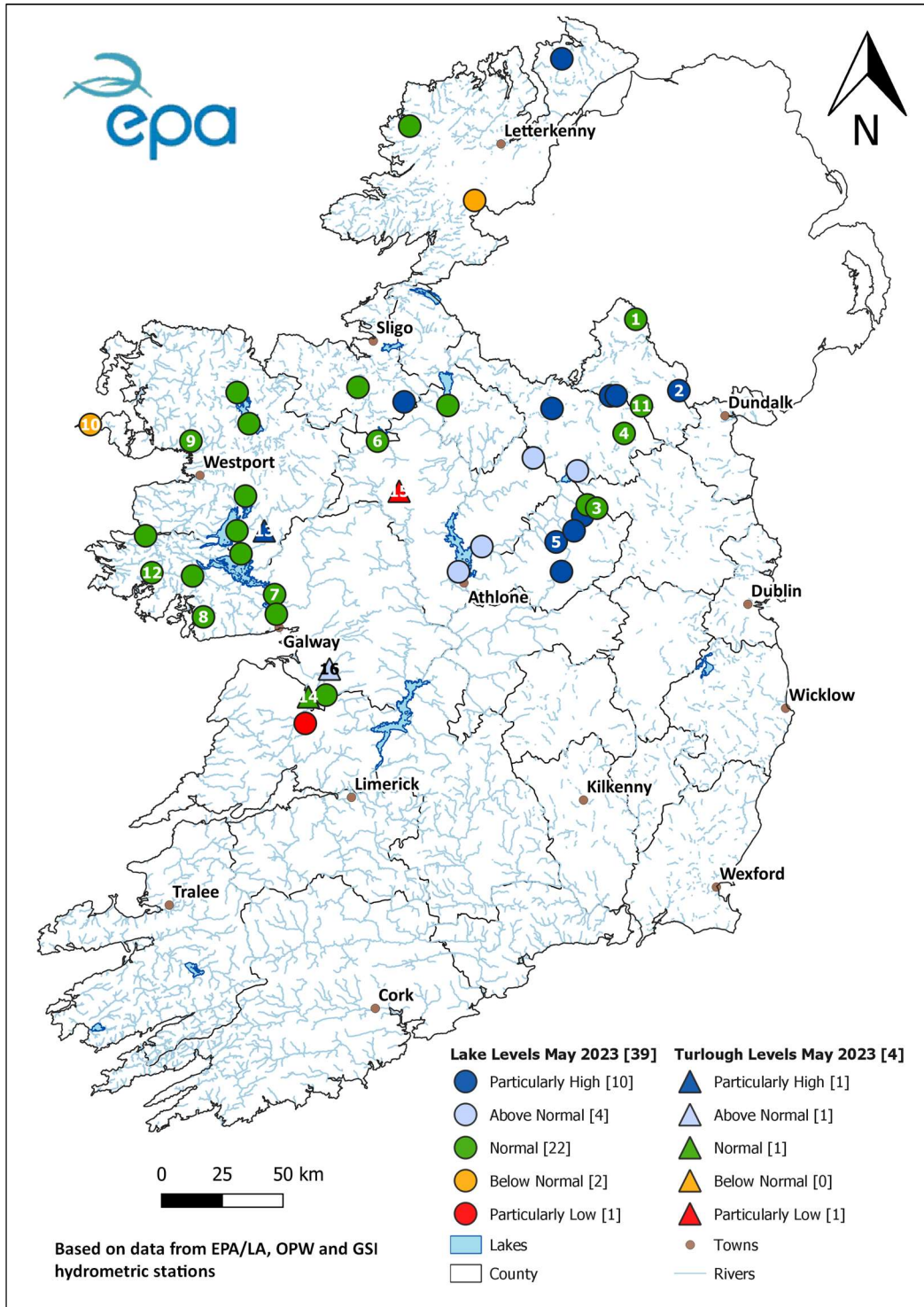
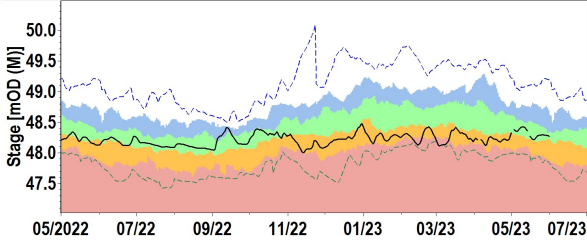


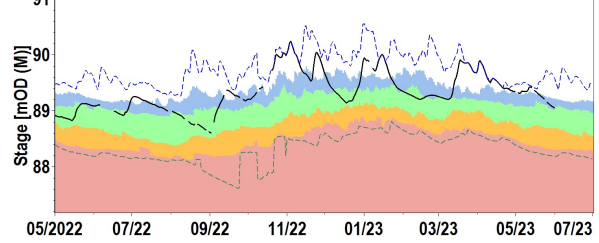
Figure 9: Monthly average lake & turlough levels for May 2023 relative to historic monthly average levels expressed as percentile of the long-term values for this month. Numbered sites are represented in the hydrographs below. All data are provisional and may be subject to revision (Source: EPA, OPW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

Water level hydrographs for selected lakes and turloughs

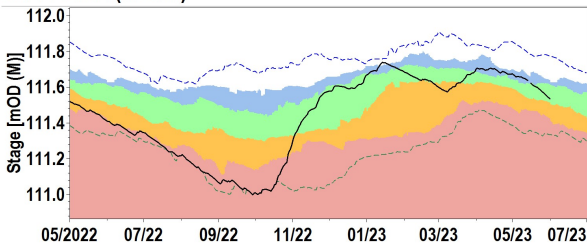
1. EMY LOUGH (Monaghan)



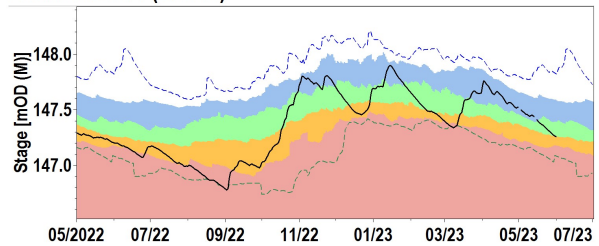
2. L. MUCKNO (Monaghan)



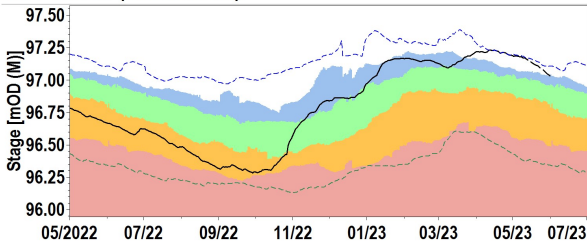
3. L. BANE (Meath)



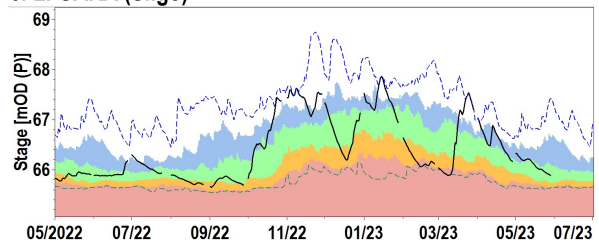
2. SKEAGH L. (Cavan)



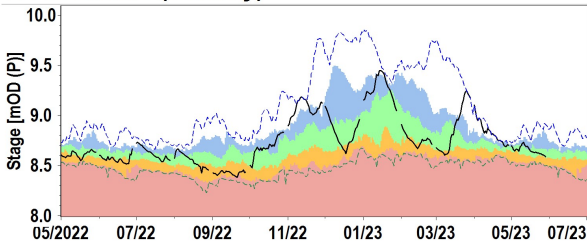
5. L. OWEL (Westmeath)



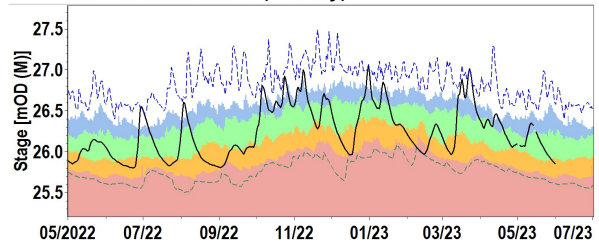
6. L. GARA (Sligo)



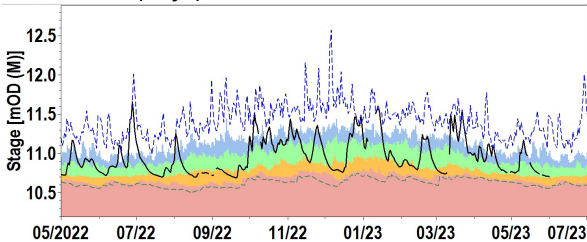
7. L. CORRIB (Galway)



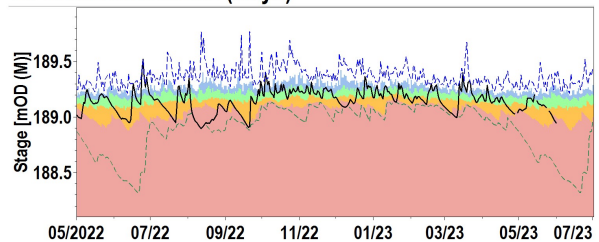
8. GLENICMURRIN LAKE (Galway)



9. L. FEEAGH (Mayo)

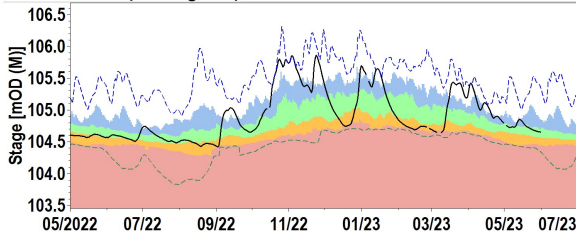


10. L. ACCORMORE (Mayo)

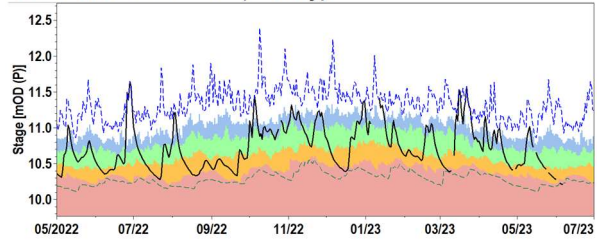


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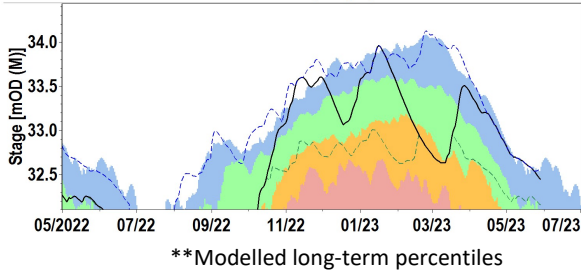
11. L.BAWN (Monaghan)



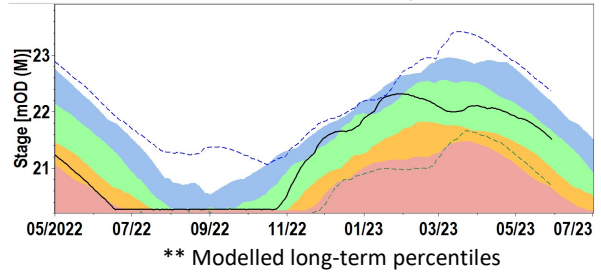
12. DERRYCLARE L. (Galway)



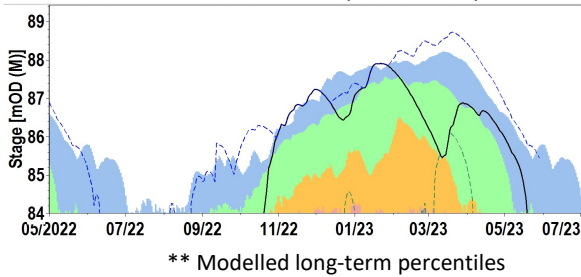
13. SKEALOGHAN TURLOUGH (Mayo)



14. TERMON SOUTH TURLOUGH (Galway)



15. CASTLEPLUNKET TURLOUGH (Roscommon)



16. BLACKROCK TURLOUGH (Galway)

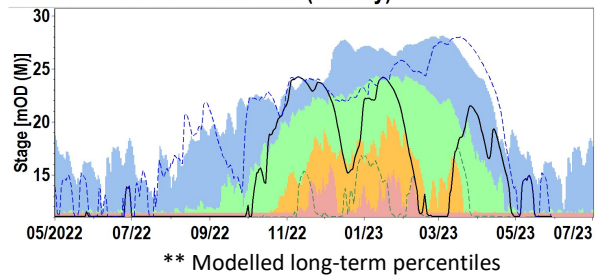





Figure 10: Observed daily mean lake and turlough levels (black trace) measured in meters above ordnance datum compared to the 10%tile, 30%tile, 70%tile and 95%tile for each month for the period of record and observed long-term maximum and minimum levels. Note historic percentiles for turloughs are based 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

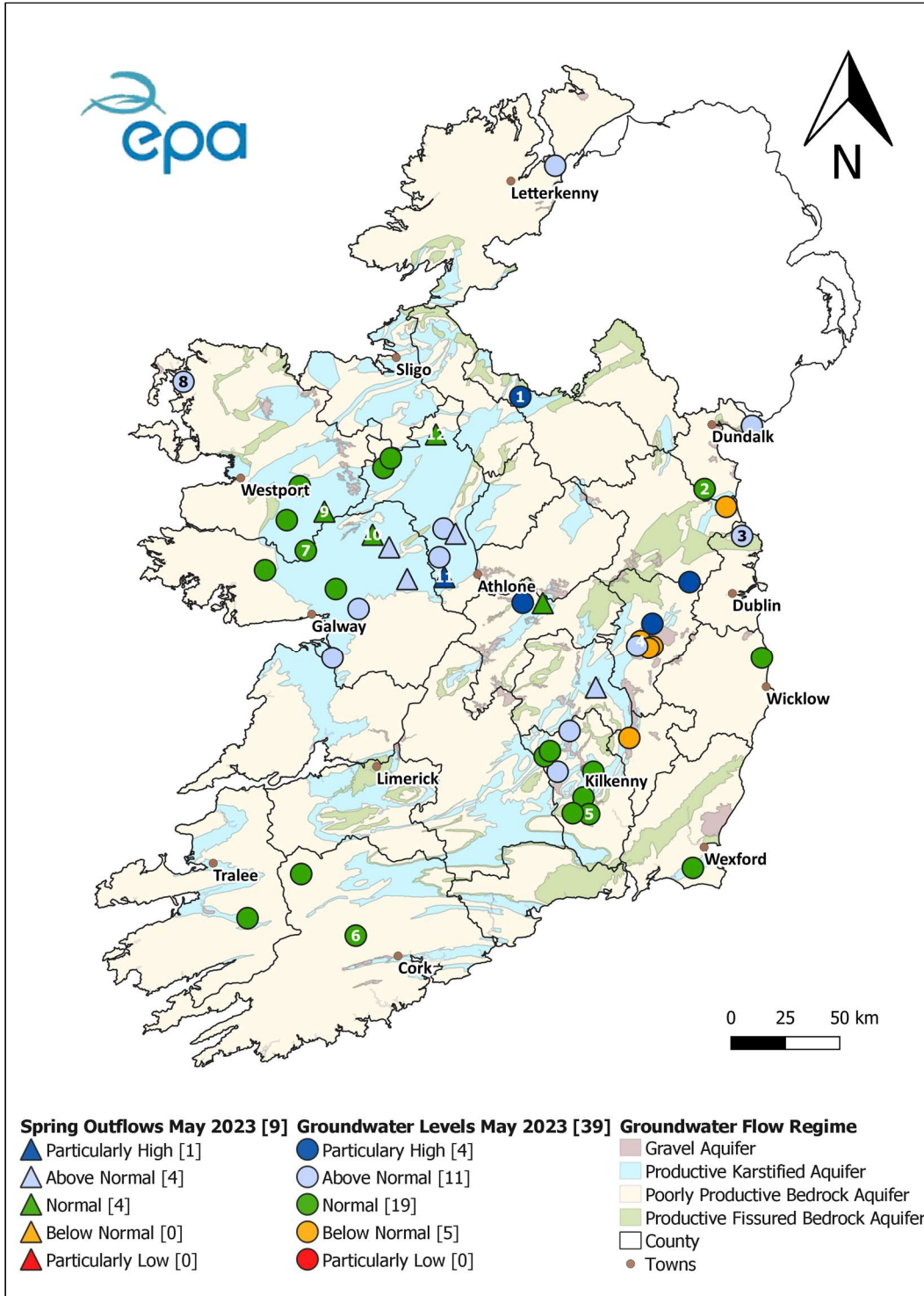
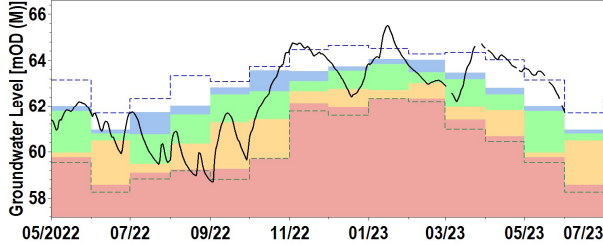


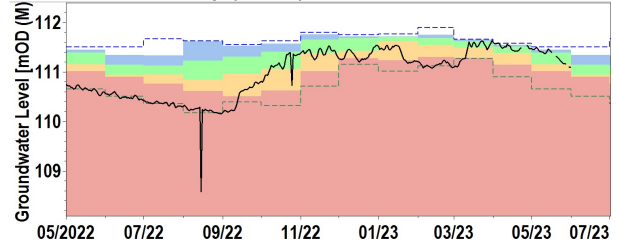
Figure 11: Groundwater level and Spring Flow status for May 2023, relative to historic monthly groundwater levels. Numbered sites are represented in the hydrographs below. All data are provisional and may be subject to revision (Source: EPA).

Groundwater and spring hydrographs

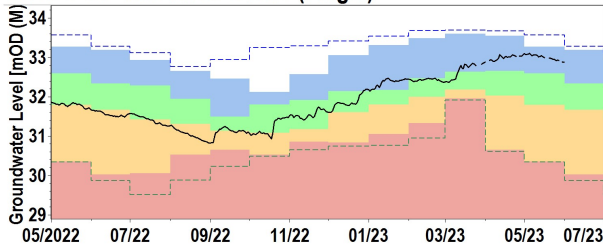
1. BAWN BOY WORKHOUSE (Cavan)



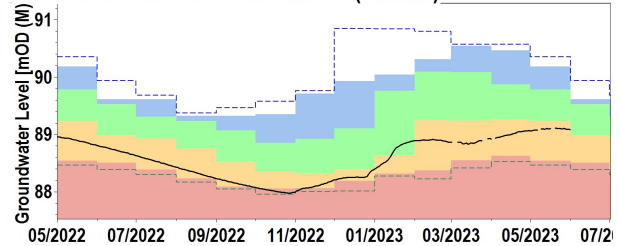
2. Mattock MK1 Deep (Meath)



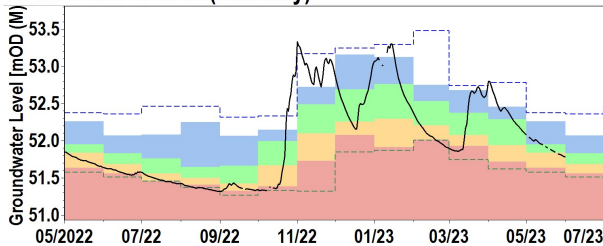
3. BOG OF THE RING OW3D (Fingal)



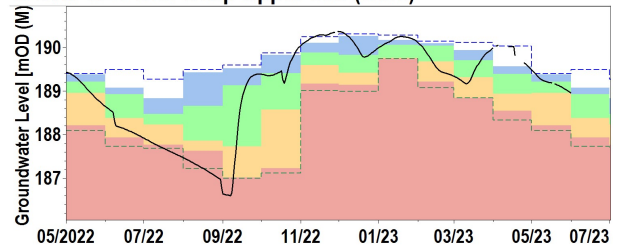
4. POLLARDSTOWN FEN - MB 30 (Kildare)



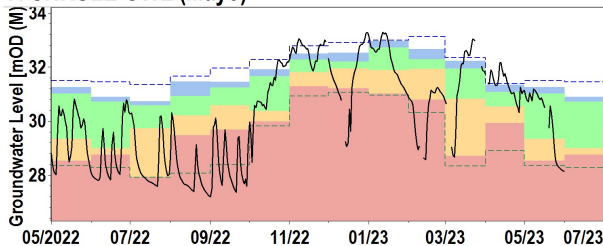
5. KNOCKTOPHER (Kilkenny)



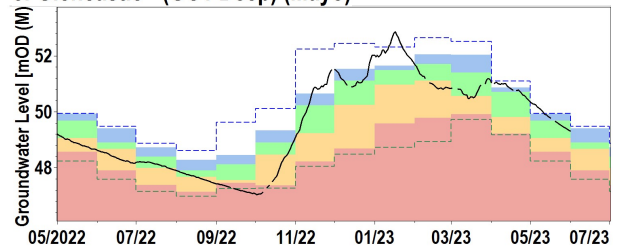
6. DRIPSEY DR1 Deep Upper Site (Cork)



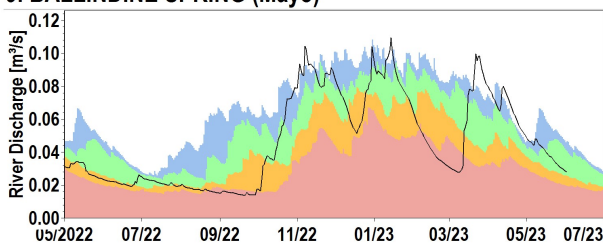
7. SHRULE GWL (Mayo)



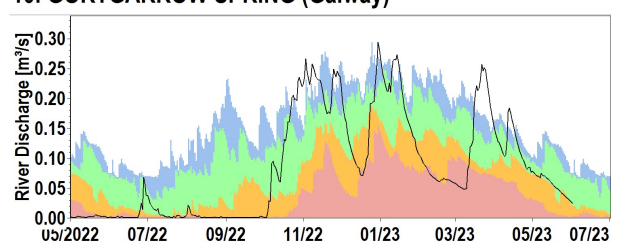
8. Glencastle - (GC1 Deep) (Mayo)



9. BALLINDINE SPRING (Mayo)

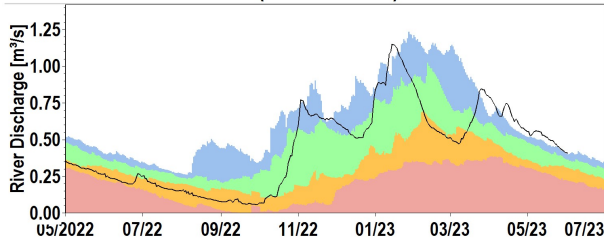


10. GORTGARROW SPRING (Galway)



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11. KILLEGLAN SPRING (Roscommon)



12. ROCKINGHAM (Roscommon)

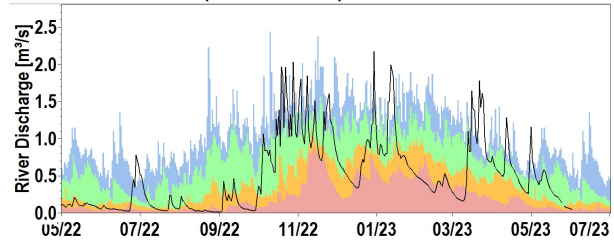





Figure 12: Daily mean groundwater levels (black trace) measured in meters above ordnance datum compared to the 10%tile, 30%tile, 70%tile and 95%tile for each month for the period of record and long-term maximum and minimum levels. All data are provisional and may be subject to revision (Source: EPA).

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	Groundwater levels or lake levels above ordnance datum. In most cases this is relative to mean sea level at Malin but in some cases is relative to Poolbeg.
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](#).